GEOLOGY AND GEOCHEMISTRY REPORT
ARCHIE #1-4 MINERAL CLAIMS
SKEENA MINING DIVISION
MORESBY ISALND, QUEEN CHARLOTTE ISLANDS, B.C.

LATITUDE 52°18'N LONGITUDE 131°11'W

NTS 103B/6E

DATES OF WORK: Oct. 1, 1981 - February 26/82

82 - 188 - 10198

by James S. Christie, Ph.D.
Gordon G. Richards, P.Eng.
Colin Harivel, B.Sc.

Owner Gordon G. Richards

Operator Placer Development Limited

Contractor JMT Services Corp.

Submitted February 26, 1982

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

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. Prounounced 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 ARCHI #1 - 4 claims by the same writers.

A more detailed survey was designed to map and sample three specific areas and complete the reconnaissance sampling at the east and west ends of the property. This was completed in 1980 and the results described in an assessment report filed in August 1980. The present report concerns more of this style of work done to the east of previous detailed surveys. 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 and on the north slope. Gold-arsenic geochemical anomalies appear to be either caused by or controlled by the sills, particularly the main felsic sill.

A total of 137 samples were collected of which 61 were rock chips, 74 were soil and 1 was stream sediments.

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 plane or helicopter from Sandspit, some 120 km north. Local roads from an old mining operation at Jedway (1061-1965) 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 feet. A prominent ENE trending ridge transects the property with steep slopes falling

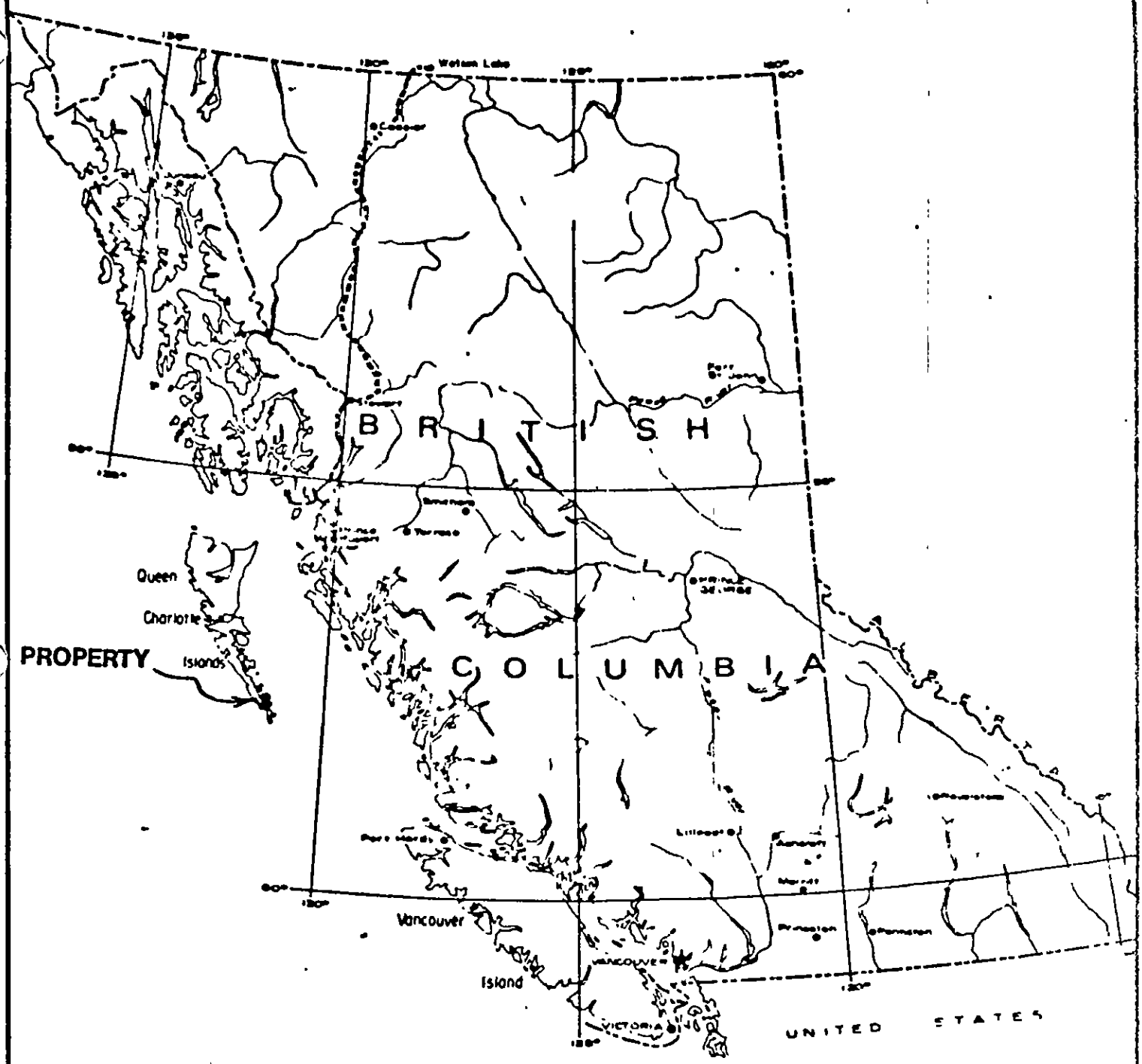


FIGURE 1

ARCHIE #1-#4

PROPERTY LOCATION MAP

SCALE

Mile 1136 0 136 Mile

Prepared by Drawn by	Date Revised	NTS MAP AREA	DRAWING No

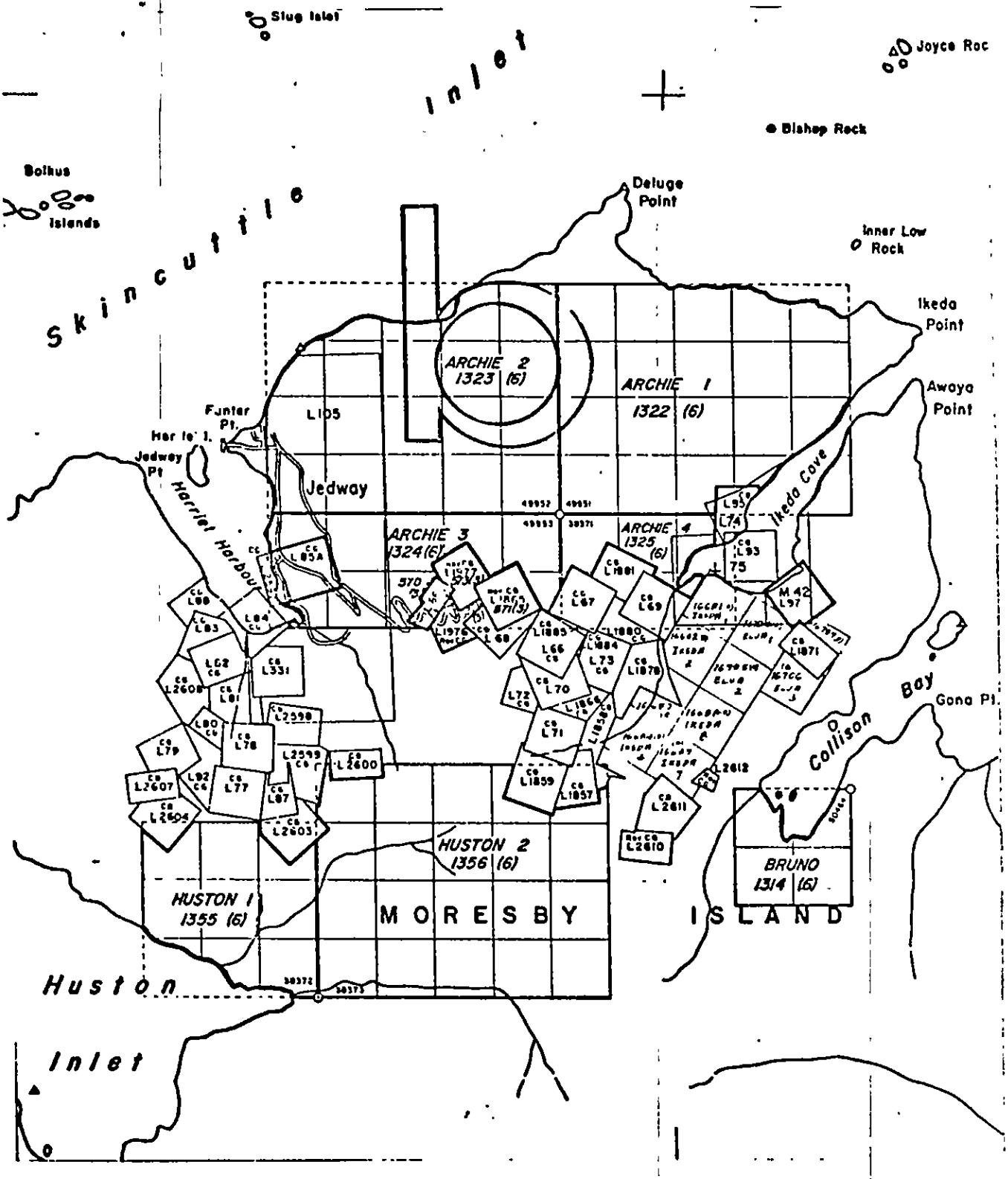


FIGURE 2 - CLAIM MAP

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	OWNER
ARCHIE 1	20	1322	June 14, 1979	G.G.Richards
2	20	1323	"	"
3	10	1324	"	"
4	6	1325	"	"

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 lowermost 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 andesitic to dioritic sill. Both sills have associated dykes. Other types of dykes also occur but are not numerous nor volumetrically significant.

The felsic sill has a weakly felspar 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.

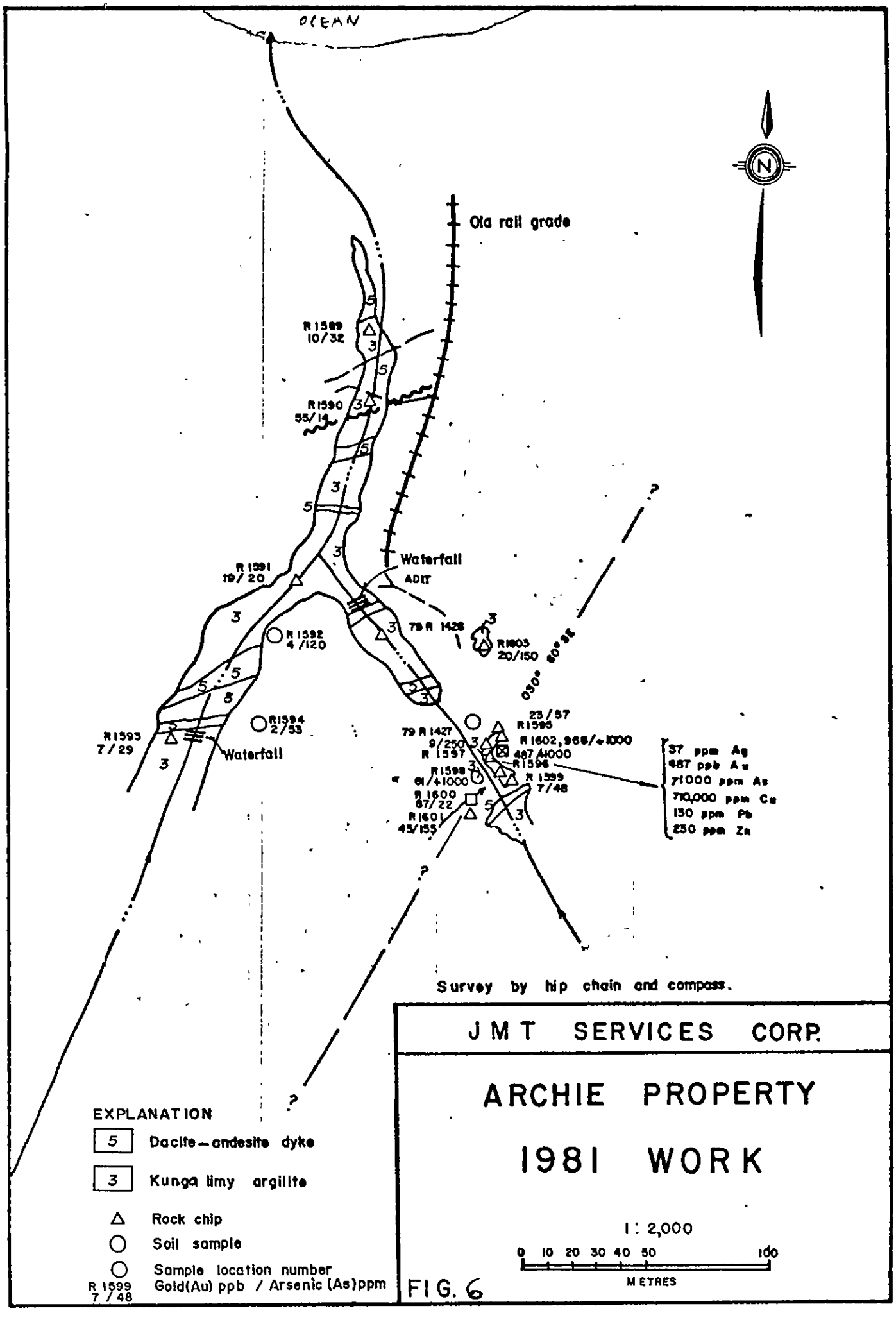
Both upper and lower contacts are locally very brecciated up to widths of 10 metres. Fragments are usually subangular but mill breccias with rounded to subrounded fragments are also present. The fragments are almost completely sill material although some fragments of Kunga do occur. The best

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° of being flat lying. The exposure at R621 was somewhat difficult to measure but appeared to dip 20 - 30° 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 projects into the hill along its uphill contact. No dykes of similar composition were seen below the lower contact of the sill.

The andesitic-dioritic sills are actually a series of sills that occur high on the hill and on the north slope. 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, microdiorite, 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 poritons 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.

Mapping east of Adit Creek has shown the andesite-diorite dyke rock to be more steeply dipping than exposures to the west. This dyke like exposure, soem 250 m wide and trending northerly for some 700 m on the north side of the hill, may represent a feeder for the sill. Alternately, the dyke-form mapped may represent the turned-up edge of the flatter sill exposured to the west. On the western margin of the northerly trending diorite a pyritized zone of fracturing and brecciation has been mapped which contains fragments of Kinga country rocks as well as dioritic material.


OCEAN
Old rail grade
R1589 10/32
R1590 55/19
R1591 19/20
Waterfall
ADIT
R1592 4/120
79 R 1428
R1603 20/150
030° 80° SE
R1593 7/29
R1594 2/53
Waterfall
79 R 1427 9/250
R 1597
R1598 61/+1000
R 1600 67/22
R1601 43/155
23/57 R1595
R 1602, 968/+1000
487 Au 1000
R1596
R 1599 7/48
37 ppm Ag
487 ppb Au
71000 ppm As
710,000 ppm Cu
130 ppm Pb
230 ppm Zn
Survey by hip chain and compass.
EXPLANATION
5 Dacite–andesite dyke
3 Kunga limy argillite
Rock chip
Soil sample
Sample location number
R 1599 7/48 Gold(Au) ppb / Arsenic (As)ppm
JMT SERVICES CORP.
ARCHIE PROPERTY
1981 WORK
1 : 2,000
0 10 20 30 40 50 100
METRES
FIG. 6

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° and in general dip 25 - 50° 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 contains 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.

In Unit #26 of the ARCHIE #2 claim in a major creek midway between Deluge Point and Funter Point is an old showing anomalous for several elements notably silver (37 ppm) Figure 6. The showing is exposed in the creekbed and has been explored by a drift connected to a shaft and adit. Disseminated and massive pyrite, chalcopyrite and arsenopyrite occurs within a 2 - 3 metre wide fissure filling that strikes 030° across the creek into overburden covered hills to the northeast and southwest. Host rock at the showing is Kunga argillite.

GEOCHEMSITRY

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, 137 samples were collected of which 61 were rock chips, 74 were soil and 1 was stream sediment.

Rock chip samples were made from three to ten rock chips, small enought 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 Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, B.C. using the following standard procedures:

- Arsenic: Perchloric-nitric acid extraction - atomic absorption
- Gold: Fire assay preconcentration-neutron activation analysis.

Gold

Work in 1980 showed the most consistent pattern of anomalous gold 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 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.

Another pattern of anomalous gold geochemistry is the general association of anomalous gold with the distribution of the felsic sill and dykes. 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 1m of the sill. Known occurrences are so thin (less than 5 metres), spotty, and low-grade so as not to be of further interest.

1981 work demonstrates further spotty gold response in the area east of Adit Creek. Values range from less than 1 ppb to 392 ppb in soil, whereas in rock values ranged from 5 ppb to 65 ppb. The area of pyritization on the western margin of the dioritic exposures returned discouragingly low results.

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 74R1360 to 79R1367, highly anomalous arsenic geochemistry (46 to 540 ppm) does not have any assoicated 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.

Work in 1981 east of Adit Creek has demonstrated the validity of the reconnaissance sampling arsenic anomaly. The areas of anomalous arsenic in soil are:

(1) a north northwesterly trending array of weakly to moderately high results which straddle the main ridge. To the north the high results are clustered just below the ridge line over 300 feet range of elevation whereas to the south the pattern is strongly linear along the main creek but otherwise is more diffuse.

(11) a zone in the extreme northeast of the area mapped which contains many weakly anomalous samples and within which only two samples are highly anomalous.

The first anomaly area is probably related to the increased amount of faulting and dykes in the zone but no clear pattern of lithologic association is evident.

The second anomaly is within a zone over which, like the first area, some introduced pyrite was seen but distinctions between pyrite related to hornfels and otherwise introduced pyrite could not easily be made.

CONCLUSIONS AND RECOMMENDATIONS

The geology of the Archie claims has been studied in some detail and can be summarized as follows. Lithology consists of Upper Karmutsen greenstones overlain by the Kunga succession of grey limestone, flaggy black limestone and thin bedded limestones and limy argillites, with a fairly uniform regional dip of about 40° to the north. Intrusive into the Kunga succession are major felsic and dioritic sills with associated dykes and minor sills. Brecciated zones of silicification with pyrite-pyrrhotite mineralization are asscoiated with the felsic sill. Sulfide veinlets from the footwall have yielded the highest gold values obtained to date. Showings of magnetitie-pyrite-pyrrhotite-chalcopyrite skarn in 3 areas have produced low gold-arsenic values.

Superimposed upon the Kunga rocks is a broad E-W oriented zone of hornfelsing which appears to be too large and intense to relate to the sills exposed at surface, and apparently relates to some unknown heat source

at depth. Associated with the hornfelsing are zones of local clay alteration and silicification but quartz veining is rare. Introduced fracture and disseminated sulfide (pyrite-pyrrhotite) is ubiquitous throughout the hornfels zone forming up to 5% by volume.

A very large intense arsenic-gold geochem anomaly has been developed in soils on the Archie claims on the lower half of the south facing slope broadly coincident with the hornfels zone, but not necessarily related to the hornfelsing event. A separate arsenic anomaly crossing the ridge in the eastern boundary of the property crosscuts hornfelsing and lithology and is associated with rhyolite and silicification.

Rock sampling to date has not adequately explained the geochem anomalies, most particularly gold. Nor is the gold mineraization itself well understood in relation to the geology. Best values have been obtained from sulphide veinlets and it is felt that these may represent "leakage" from a mineralized body that is probably not exposed at surface. Diamond drilling will be required to explore for such a "blind" target and to explain and measure the source of the anomalous gold in soils. This may best be accomplished by drilling in areas of highest gold geochem in soils.

The strongest and most consistent arsenic-gold geochem pattern occurs below the felsic sill west of Camp Creek, where the sill appears to have acted as an impermeable "cap-rock". Two drill set-ups are shown in Figure 3 to test the extension of the anomalous gold alteration system found at H476 to H479.

Fill in mapping and geochem lines have been run over other anomalous areas on the property. Work in 1981 east of Adit Creek has returned discouraging results in an area of pyritized intrusive rocks and fractured Kunga Formation. This area had yielded some highly anomalous arsenic values and spotty gold highs in reconnaissance samples, but no target for further exploration has been identified. The exposed sulphides appear to explain the anomalous geochem.

The adit and shaft showing exposed in the creek midway between Deluge and Funter points offers a target with the potential of developing a few million tons of Ag, Au and Cu mineralization. This system is very poorly exposed and sampled so expected grades, strike length, and width are not known.

Respectfully submitted,

James S. Christie, Ph.D.

Gordon G. Richards, P.Eng.

Colin Harivel, B.Sc.

STATEMENT OF COSTS

ARCHIE PROGRAMME

TIME

C. Harivel	July 23, Oct. 2,3	3	days @ $200	$ 600.00
B. Howell	Sept 27(½),oct 2,3,5(½) Nov 21(½)	3½	days @ $200	700.00
G. Richards	Sept 27(½),oct 2,3, Nov 4(½),26(½)	3½	days @ $200	700.00
J.S.Christie	Sept 27(½),oct 2,3,5(½) Nov 2(½),19(½),Dec 7(½)	4½	days @ $200	900.00
JMT - TRUCK	Q.C.I.	2	da6s @ $50	100.00

DISBURSEMENTS

Moresby Motel		710.69
Drafting - T. Oliveric		132.00
B.C.Tel		27.59
P.W.A. - airfares 2 men - lway - Vancouver-Sandspit		242.33
freight - #93953		34.93
Vancal #175392		12.38
#83071 (1980 report)		72.00
Hudson Building Supplies	#30014	109.99
	#32272	146.56
Chemex Labs	#114502	925.65
	#114503	751.30
	#35611 (1980 report)	391.05
Q.C. Helicopter	#4179	1,709.40
Drafting - T. Oliveric		200.00
Report		1,000.00
		$9,465.87

STATEMENT OF QUALIFICATIONS

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

1. I am a Professional Geologist residing at 3921 West 31st Avenue, 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 practised 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 6195 Lynas Lane, Richmond, B.C., V7C 3K8.

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

STATEMENT OF QUALIFICATIONS

I, Colin Harivel, of VAncouver, British Columbia, do hereby certify that:

1. I am a geologist residing at 3996 West 10th Avenue Vancouver, British Columbia

2. I am a graduate of the University of British Columbia; B.Sc. Honours Geology, 1972

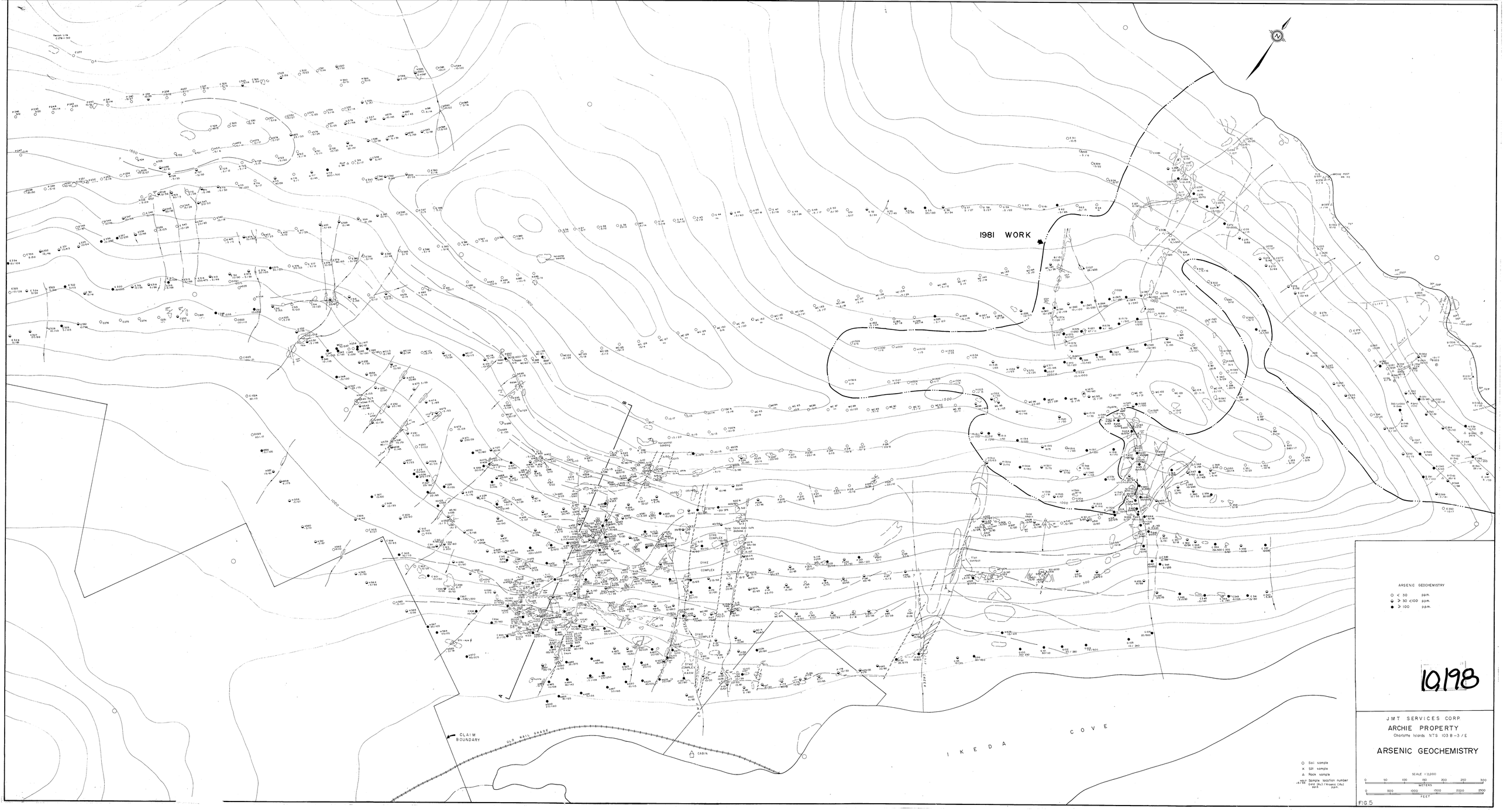
3. I have practised my profession as a mining exploration geologist continuously since 1972

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

Colin Harivel, B.Sc.


1981 WORK
CLAIM BOUNDARY
OLD MAIL GRADE
CABIN
IKEDA COVE
DYKE COMPLEX
GOLD GEOCHEMISTRY
< 15 ppb.
15 - 30 ppb.
> 30 ppb.
10,198
JMT SERVICES CORP
ARCHIE PROPERTY
Charlotte Islands NTS 103 B-3 / E
GOLD GEOCHEMISTRY
SCALE 1:2,000
METRES
FEET
Soil sample
Silt sample
Rock sample
FIG 9


1981 WORK
CLAIM BOUNDARY
OLD RAIL GRADE
CABIN
IKEDA COVE
GEOLOGICAL LEGEND
andesite – diorite sills – dykes
felsic sill
Kunga black limestone to argillite
Kunga massive grey limestone
Kormutsen greenstone
fault with attitude
bedding attitude
outcrop
geological contact
Proposed Diamond Drill Hole
10,198
JMT SERVICES CORP.
ARCHIE PROPERTY
Queen Charlotte Islands NTS 103 B-3/E
GEOLOGY
Soil sample
Silt sample
Rock sample
Sample location number
SCALE 1:2,000
METERS
FEET
FIG 3



10,198

JMT SERVICES CORP.

ARCHIE PROPERTY

Charlotte Islands NTS 103 B-3 / E

ARSENIC GEOCHEMISTRY

FIG.5