

GEOLOGY AND GEOCHEMISTRY REPORT

FOUR CORNERS #1-#4 MINERAL CLAIMS

SKEENA MINING DIVISION

RICHARDSON ISLAND, QUEEN CHARLOTTE ISLANDS, B.C.

NTS 103/12 E&W 103/13 E&W

LATITUDE  $52^{\circ} 45'N$  LONGITUDE  $131^{\circ} 45'W$

DATES OF WORK: May 11 - 21, 1981

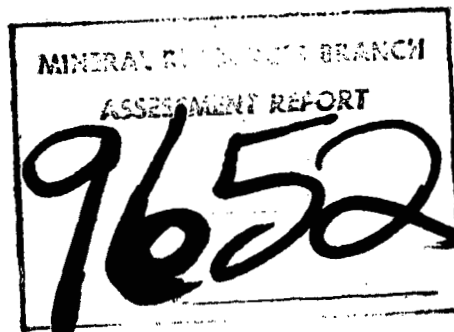
BY: G. G. Richards, P.Eng.  
J. S. Christie, Ph.D.

OWNER G. G. Richards

OPERATOR Ventures West Minerals

CONTRACTOR JMT Services Corp.

October 26, 1981



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## INTRODUCTION

In the spring of 1979, a few stream sediments collected from Richardson Island returned moderately anomalous arsenic values. In early spring of 1980, follow-up prospecting revealed complicated geology, some pyrite mineralization and more anomalous arsenic with a few anomalous gold in stream sediments. The property was staked May 3, 1980. More detailed mapping and sampling was done in early spring 1981 and is the basis of this report.

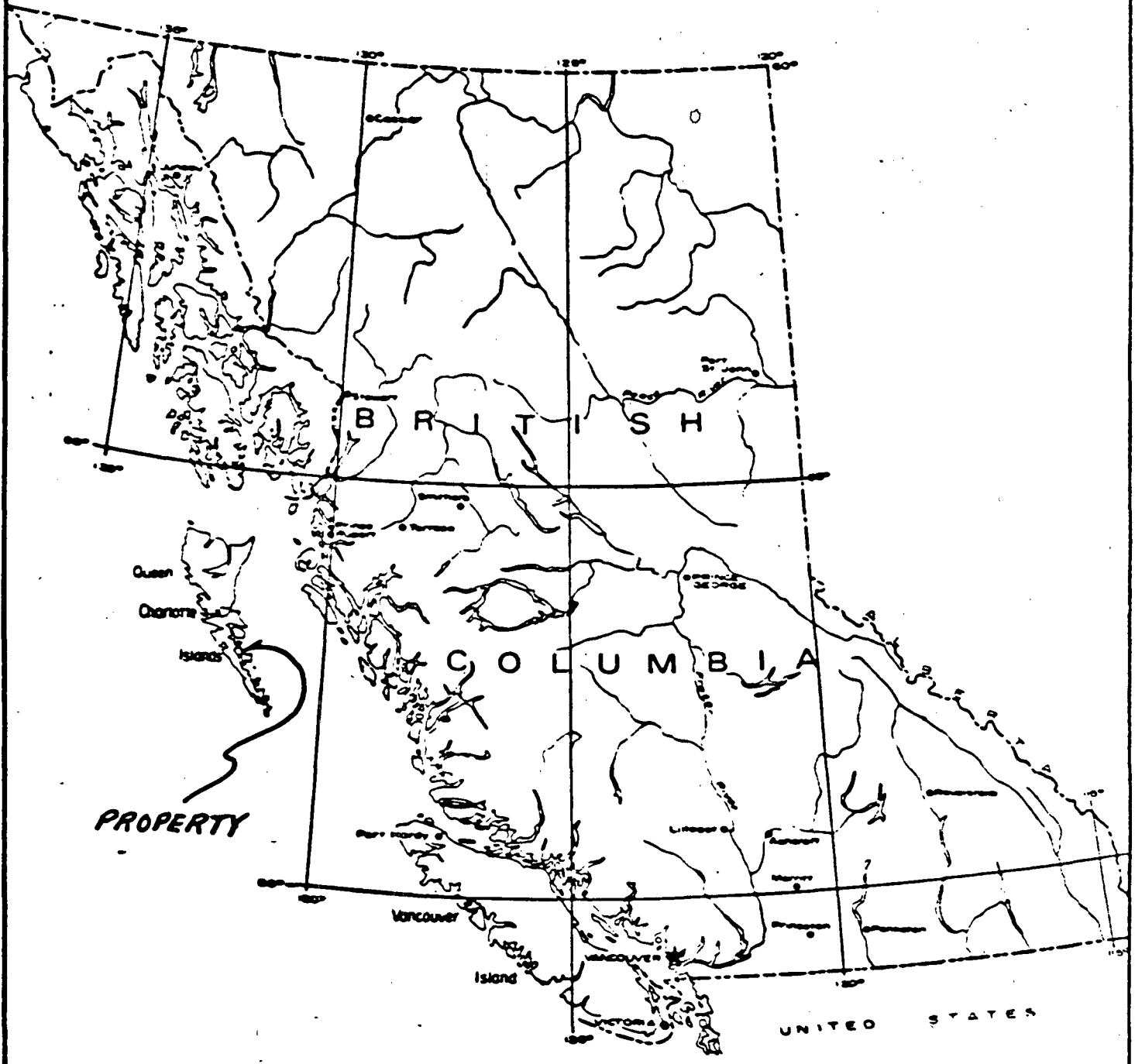
Geology includes four rock formations complicated by faulting and several types of intrusions. Anomalous arsenic patterns with spotty anomalous gold values associated with pyrite mineralization indicate the need for further prospecting.

## LOCATION AND ACCESS

The property covers most of Richardson Island, a 3 km by 6 km long island lying 54 km due south of Sandspit. Access to the claim can be made by helicopter to a few recent slides on the island or to a few beaches along the generally steep shoreline. Access can also be made by float-equipped fixed wing aircraft to a gravel beach on the west side of the island or by boat. Sandspit has charter helicopter bases, Queen Charlotte Helicopters or Vancouver Island Helicopters and a charter fixed wing aircraft base, Trans Provincial Airlines.

## TOPOGRAPHY AND VEGETATION

Elevations on the property range from sea level to a 1600 foot high peak in the centre of the island. West facing slopes are extremely steep and difficult to traverse. East facing slopes are moderately steep and generally easily traversible. Much of the island was logged, about 40 years ago except for the steeper hillsides.



JMT SERVICES CORP.			
<b>FOUR CORNERS PROPERTY LOCATION MAP FIGURE I.</b>			
SCALE			
1:36		36 Mile	
Prepared by:	Date:	NTS MAP AREA	DRAWING No.
Drawn by:	Revised:	93 -	

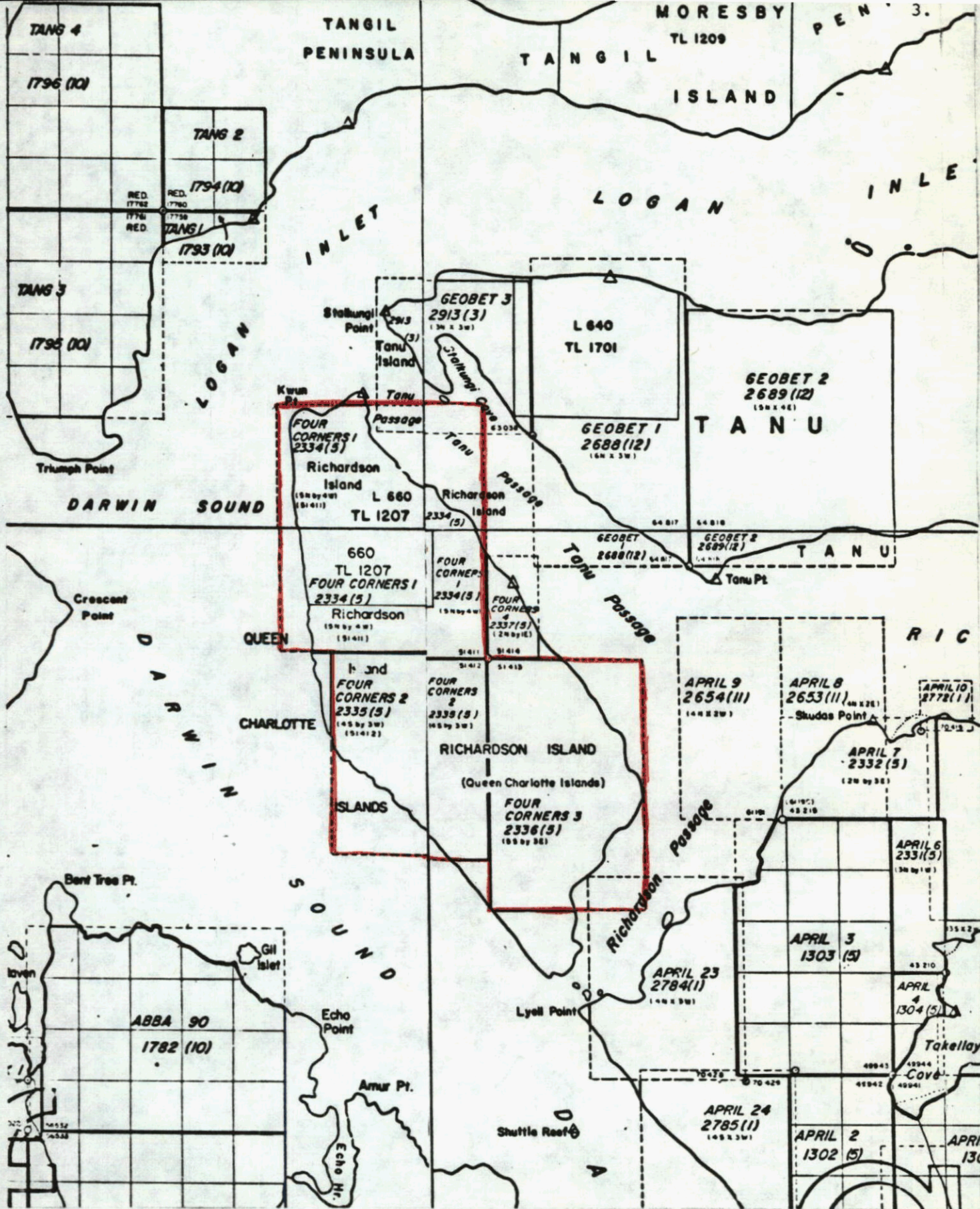


FIGURE 2 CLAIM MAP

Figure 2 CLAIM MAP

## MINERAL CLAIMS

<u>CLAIM NAME</u>	<u>RECORD NO.</u>	<u>RECORD DATE</u>	<u>UNIT</u>	<u>OWNER</u>
FOUR CORNERS #1	2334	May 28, 1980	20	G. G. Richards
#2	2335	"	12	"
#3	2336	"	15	"
#4	2337	"	2	"

GEOLOGY

General - The oldest rocks exposed on the property are Triassic Karmutsen Formation flows and pillow lavas. Overlying this formation is the Upper Triassic to Lower Jurassic Kunga Formation limestones, limy argillites and argillites. Jurassic Yakoun Formation volcanic breccias and argillaceous volcanics overlie the Kunga Formation. Fault contacts are common between all of these rock types. Acid dykes of dacitic to rhyolitic composition intrude all of the above rocks as dykes and small plugs. They are believed to be intrusive phases of the Tertiary Masset Formation. Some volcanic breccia, tuffs, and flows above the northwest coast are possible extrusive phases of the Masset Formation. Small diorite plugs intrude the Karmutsen greenstones on the central part of the steep west facing slope.

Structure - Several faults have been recognized and many more are believed to be present based on the abrupt transition from one formation to another with missing stratigraphy that is normally present. The only fault that is well exposed occurs near R368 at an elevation of 350' on the northeast coast of the island. Here Karmutsen greenstones are in contact with middle Kunga Formation argillites. The basal Kunga Formation limestones, usually present, are missing. The fault zone is comprised of several strands over a 30 m width. Weakly vesicular dacitic dykes with minor sulphide content intrude the argillites sub-parallel with the fault up to 200m from the fault.

Richardson Island lies on the projection of the major Rennell-Louscoone transform fault. The faults shown on Figure 3 are probably splays off this major fault..

Mineralization and Alteration - Two areas of pyrite mineralization were noted. The first occurs along the shoreline and the next higher survey line between J488 and J510. Here sulphide occurs as disseminations, streaks and blebs and fracture fillings within Karmutsen greenstones Kunga argillites and possibly Yakoun volcanics. Little is known of the occurrence of sulphide. The sulphide may form local zones or have a more broad distribution.

The second area of mineralization occurs on the north end of the island on the steep west facing slope. Here rhyolite dykes, stocks and volcanic flows, tuffs and breccias of probable Tertiary age contain disseminated and rare fracture sulphide over a broad zone that roughly correlates with the  $> 30$  ppm As content in soils (Figure 5).

#### GEOCHEMISTRY

General - The work described in this report was designed to provide a general geologic map and geochemical coverage, based on soils, rock chips and silts, of the claim area particularly the north half of Richardson Island which had previous reconnaissance silt samples anomalous for arsenic-mercury with a few anomalous gold values. In total 387 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 possible from a depth of 1 cm to 1/2m. Silt samples were collected with a spoon from active silt in creeks.

Gold and arsenic geochemical analyses were done on the minus 80 mesh fraction by Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, B.C. using the following standard procedures.

Gold - Fire assay preconcentration with Neutron Activation Analysis

Arsenic - Perchloric-nitric acid extraction with Atomic Absorption Spectrophotometer determination

Gold - A few scattered gold anomalies occur in soils, the highest being R298 which ran 777 ppb Au in the centre of the island. A small cluster of anomalous gold values occurs on the west facing slope at R353 to R354 near the contact of rhyolite with Karmutsen greenstones.

Arsenic - Three broad areas of anomalous arsenic ( 29 ppm) occur on the northern third of the island and are identified on Figure 5. The western anomalous area occurs on the steep west facing hillside roughly coincident with the outcrop pattern of rhyolite to andesite flows, tuffs, breccias and small intrusive bodies. As described above disseminated pyrite occurs in these outcrops.

A second zone of anomalous arsenic occurs along the northeast shoreline of the island coincident with the second area of pyrite mineralization described under mineralization and alteration.

A third zone of anomalous arsenic south of the second zone occurs over outcrops of Karmutsen greenstone and Kunga argillites intruded by dacitic dykes.

#### CONCLUSIONS AND RECOMMENDATIONS

Karmutsen greenstones, Kunga limestones to limy argillites, and Yakoun volcanics have been complexly faulted and intruded by medium grained diorite of possible Cretaceous age and rhyolite to dacitic dykes and plugs of possible Tertiary age. Rhyolitic to andesitic extrusive volcanics, possibly of the Masset Formation outcrop on the northwest end of Richardson Island.

The rhyolite to andesite extrusives and the rhyolite intrusive contain disseminated sulphide and their outcrop pattern is roughly coincident with a 29 ppm arsenic anomaly measuring 400m by 1000m. A small cluster of anomalous gold ( 9ppb Au) occurs at the southern tip of this arsenic anomaly.

Rocks along the northeast coast contain 1 - 5% sulphide over an area 200 m by 1000 m. This area is roughly coincident with another 29ppm arsenic anomaly.

A third arsenic anomaly of 29 ppm occurs south of this second zone and measures 500m x 700 m.

A single highly anomalous gold value was obtained from a stream sediment at R298 (777 ppb Au).

All three arsenic anomalies and the single high gold anomaly should be examined and sampled in more detail. Geology should be mapped and all outcrops sampled within these areas. Particular attention should be paid to sulphide mineralization and alteration in an attempt to understand their distribution, explain the arsenic anomalies and discover gold mineralization.

Respectfully submitted,

Gordon G. Richards, P.Eng.

James S. Christie, Ph.D.

## STATEMENT OF COSTS

FOUR CORNERS PROPERTY

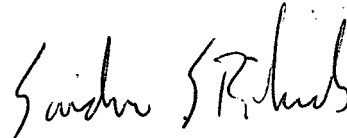
## TIME:

G. Richards	May 13,14,17	3 days @ \$200	\$ 600.00
D. Bennett	May 13,14,17-19	5 days @ \$100	500.00
S. Courte	May 11,13,14,20,21	5 days @ \$125	625.00
T. Oliver	May 11,13,14	3 days @ \$125	375.00
Meals - 16 days @ \$25.00 per day			400.00
Boat/motor rental - May 11-14		4 days @ \$50.00	200.00
Camp Rental			50.00
SBX II Rental			50.00
Truck Rental			50.00
Moresby Island Motel			90.10
Fraser Arms Motel - T. Oliver 1 night			27.56
Airfares - 2 men 1 way - Vancouver - Sandspit			216.00
Trans Provincial Airlines			385.53
P.W.A. Freight			157.18
B. C. Tel			24.95
Hudson Building Supplies			363.30
Chemex Geochem			3,194.35
Report, typing, drafting			<u>1,000.00</u>
			\$8,308.97

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. 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, 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 practised my profession as a mining exploration geologist, continuously since 1965.
4. I am a Fellow of the Geological Association of Canada.
5. This report is based on my personal knowledge of the district, and mapping of the geology at the property.

  
James S. Christie, Ph.D.



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 FOUR CORNERS MINERAL CLAIMS  
 SKEENA MINING DIVISION — NTS 103 B / 12 + 13

ARSENIC GEOCHEMISTRY

Survey by 1:50 000 Map Enlargement, Hip Chain, Compass & Barometer

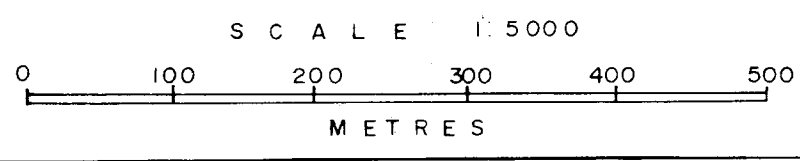
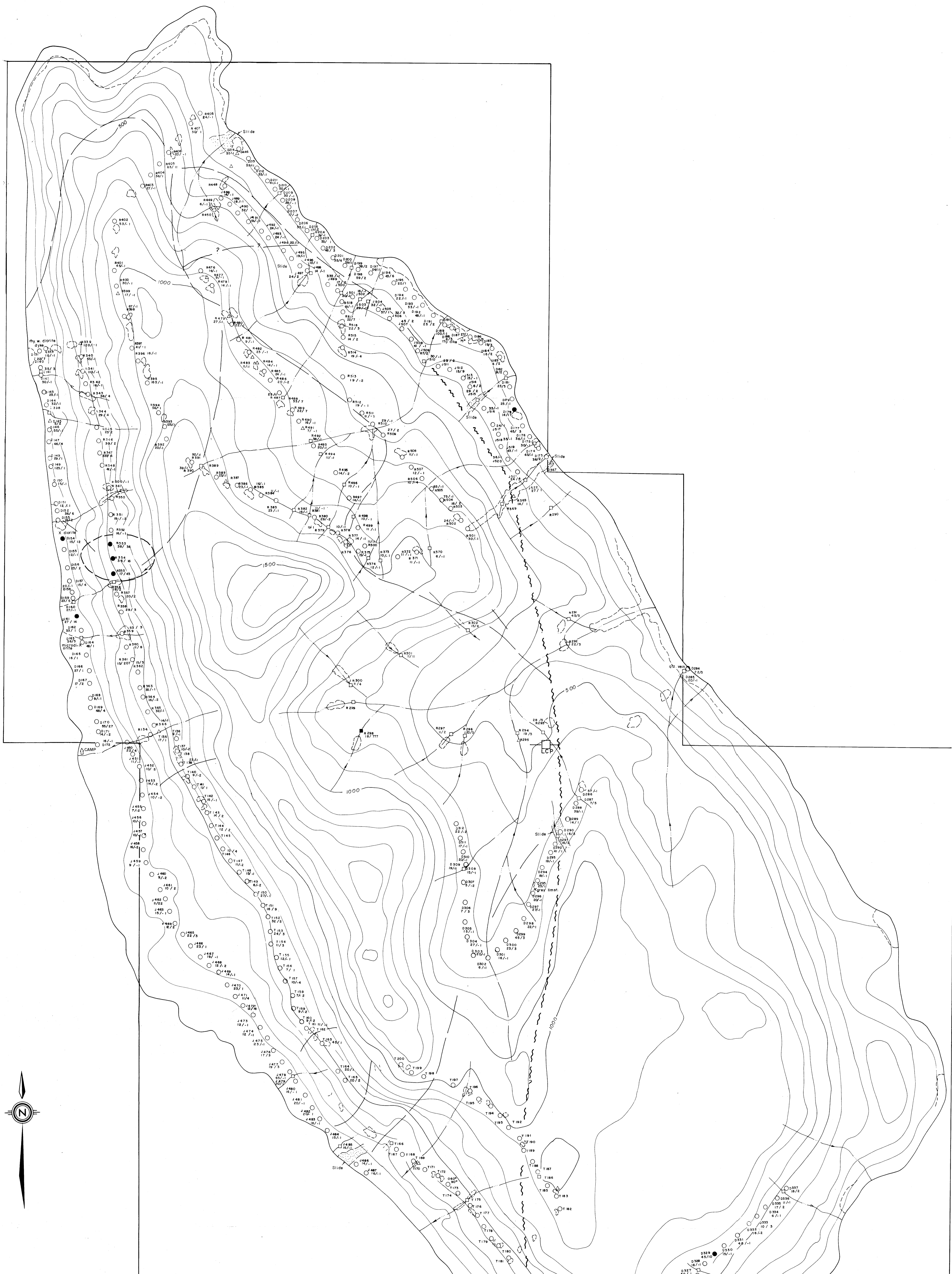


FIG. 5

LEGEND

- Soil sample location
- Silt
- △ Rock
- Sample number
- Arsenic (As) ppm, Gold (Au) ppb.
- > 29 < 100 ppm As
- > 99 ppm As
- 30 ppm As
- Geologic contact
- ~ Assumed fault
- Outcrop

MINERAL RESOURCES DIVISION  
 ASSESSMENT REPORT  
 9652  
 NO.



JMT SERVICES CORP.  
 FOUR CORNERS MINERAL CLAIMS  
 SKEENA MINING DIVISION — NTS 103 B / 12 + 13

**GOLD GEOCHEMISTRY**

Survey by 1:50 000 Map Enlargement, Hip Chain, Compass & Barometer

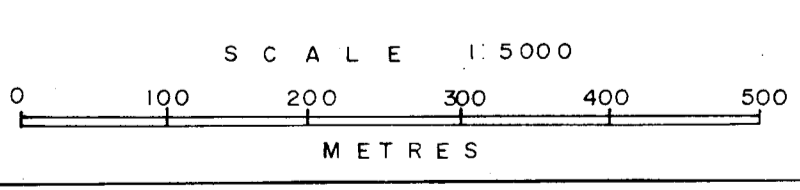
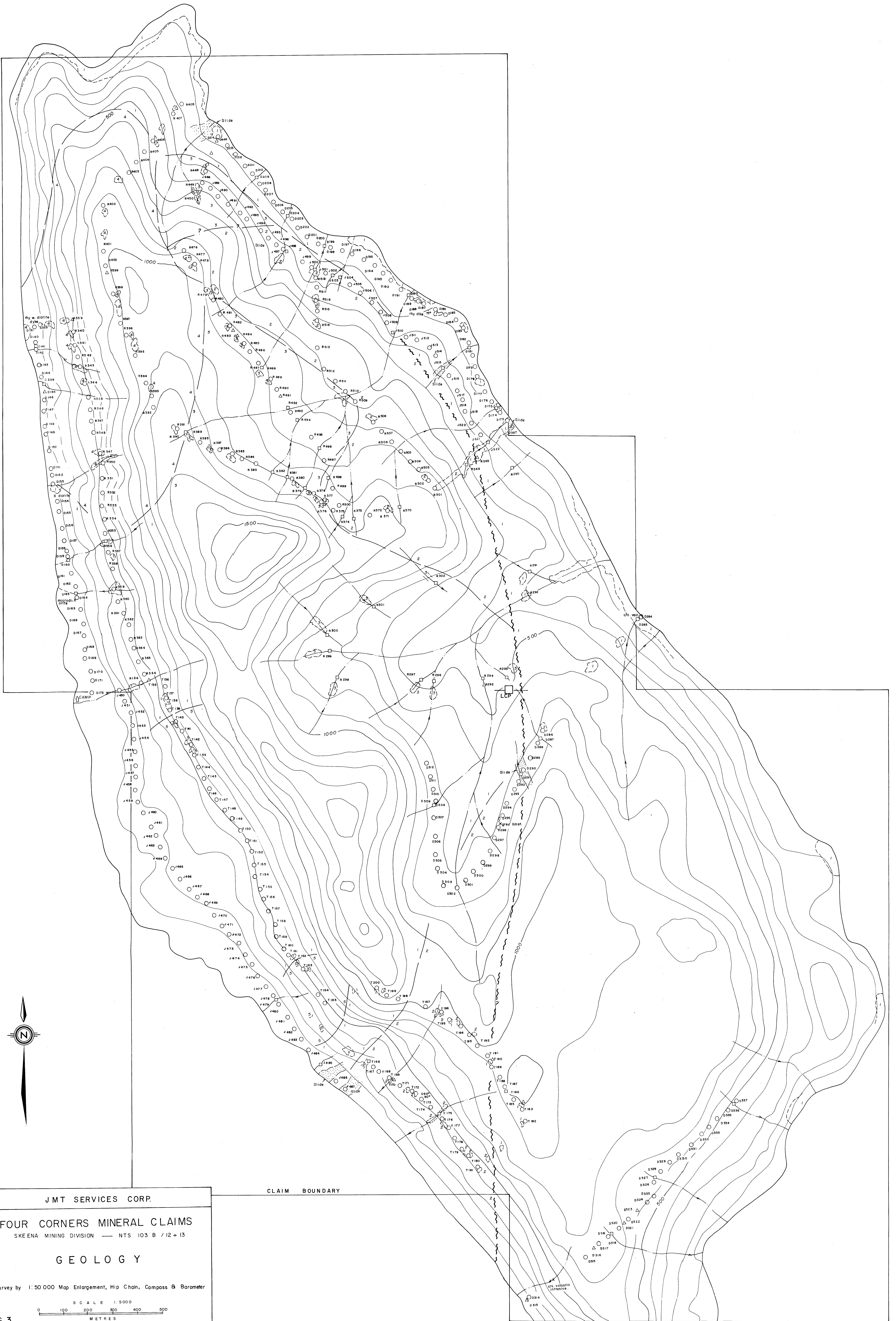


FIG. 4

**LEGEND**

- Soil sample location
- Silt " "
- △ Rock " "
- Sample number
- 38/24 Arsenic ppm (As), Gold ppb (Au)
- > 9 ppb. Au
- 10 ppb. Au
- Geologic contact
- ~ Assumed fault
- Outcrop

MINERAL RESOURCES BRANCH  
 ASSOCIATED REPORT  
**9652**



JMT SERVICES CORP.

FOUR CORNERS MINERAL CLAIMS  
SKEENA MINING DIVISION — NTS 103 B / 12 + 13

**GEOLOGY**

Survey by 1:50 000 Map Enlargement, Hip Chain, Compass & Barometer

SCALE 1:5000



FIG. 3

LEGEND

- Soil sample location
  - Silt " "
  - △ Rock " "
  - Sample number
  - Geologic contact
  - ~ Assumed fault
  - Outcrop
- 5 Diorite
  - 4 Mafic rhyolite ± andesite, ± basalt
  - 3 Yakun argillaceous volcanics etc.
  - 2 Kungu limestone - argillite
  - 1 Karmutsen greenstone

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