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GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE  
ANUK RIVER NORTH PROJECT

**SUB-RECORDER  
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VANCOUVER, B.C.

Located in the Galore Creek Area  
Liard Mining Division  
NTS 104G/4E  
57° 08' North Latitude  
131° 39' West Longitude

-prepared for-  
CONSOLIDATED GOLDWEST RESOURCES LTD.

-prepared by-  
Bruno Kasper, Geologist

December, 1989

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

19,535

# GEOLOGICAL AND GEOCHEMICAL REPORT ON THE ANUK RIVER NORTH PROJECT

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## 1.0 INTRODUCTION

The Anuk River North Project consists of the PL-2 and -3 claims which were staked in October of 1988 within a favorable regional geological setting adjacent to the JW copper-gold occurrences, approximately 170 kilometers northwest of Stewart in northwestern British Columbia (Figure 1). The geological similarity to the Iskut River, Sulphurets and Stewart mining camps to the south and the discovery in the past few years of several major precious metals occurrences elsewhere in the Galore Creek district have sparked renewed exploration interest throughout the area.

One day of reconnaissance exploration, consisting of geological mapping, prospecting and geochemical sampling, was carried out over the Anuk River North claim group during September of 1989. Equity Engineering Ltd. conducted this program for Consolidated Goldwest Resources Ltd. and has been retained to report on the results of the fieldwork.

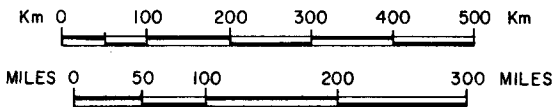
## 2.0 LIST OF CLAIMS

Records of the British Columbia Ministry of Energy, Mines and Petroleum Resources indicate that the following claims (Figure 2) are owned by Pass Lake Resources Ltd.. Separate documents indicate that in January 1989, Consolidated Goldwest Resources Ltd. optioned the claims from Pass Lake Resources Ltd..

Claim Name	Record Number	No. of Units	Record Date	Expiry Year
PL-2	5371	15	Oct. 11, 1988	1989
PL-3	5372	<u>16</u>	Oct. 11, 1988	1989
		31		

The position of the legal corner posts for the claims has not

# PROPERTY LOCATION



CONSOLIDATED GOLDWEST RESOURCES LTD.		
<b>ANUK RIVER NORTH PROJECT LOCATION MAP</b>		
BRITISH COLUMBIA		
EQUITY ENGINEERING LTD.		
DRAWN:	J.W.	MINING DIV. LIARD
N.T.S.:	104G/4E.	SCALE: AS SHOWN
DATE:	Dec. 1989	REVISED:
		<b>1</b>

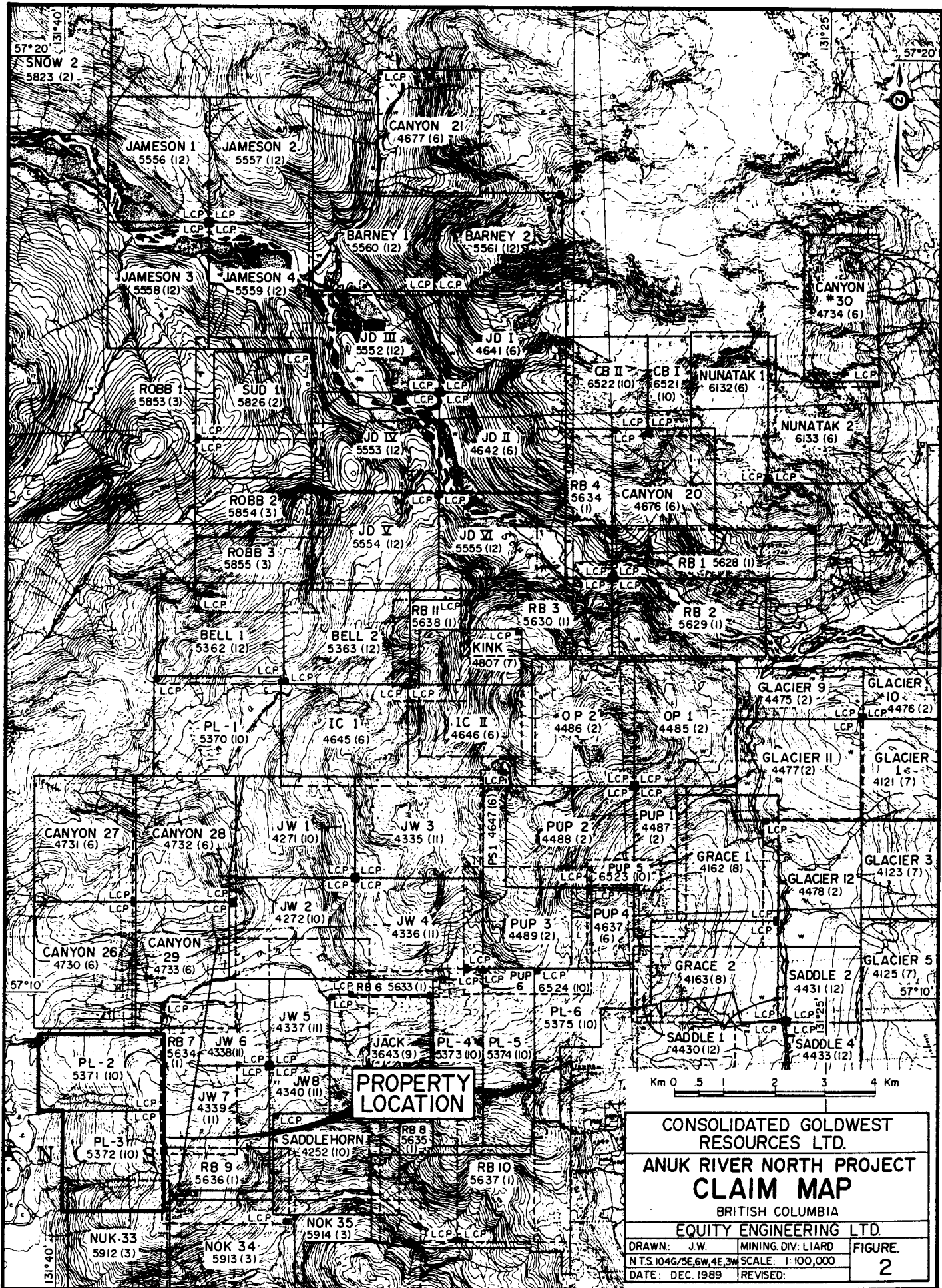
been verified by the author.

### 3.0. LOCATION, ACCESS AND GEOGRAPHY

The PL-2 and -3 claims are located within the Coast Range Mountains approximately 170 kilometers northwest of Stewart and 95 kilometers southwest of Telegraph Creek in northwestern British Columbia (Figure 1). They lie within the Liard Mining Division, centered at 57° 08' north latitude and 131° 39' west longitude.

Access to the Anuk River North Property is provided by helicopter from either the Galore Creek or Scud River airstrips, which are located approximately eleven kilometers to the east and nineteen kilometers to the northwest respectively. Fixed-wing aircraft fly charters from Smithers to both airstrips direct or via the Bronson airstrip during the field season. On the Alaskan side of the border, Wrangell lies approximately 85 kilometers to the southwest, and provides a full range of services and supplies, including a major commercial airport. The Stikine River has been navigated by 100-ton barges upriver as far as Telegraph Creek, allowing economical transportation of heavy machinery and fuel to within one kilometer of the property. During September and October of 1989, a helicopter was stationed in the 40-man exploration camp by the Galore Creek airstrip.

The PL-2 and -3 claims cover the western flanks of Saddle Mountain immediately east of the Stikine River flats, approximately seventeen kilometers below its confluence with the Scud River (Figure 3). Topography is rugged, typical of mountainous and glaciated terrain, with elevations ranging from 100 meters where Twin Creek enters the Stikine floodplain to over 1220 meters on the eastern boundary of the claims.



**PROPERTY  
LOCATION**

<b>CONSOLIDATED GOLDWEST RESOURCES LTD.</b>		
<b>ANUK RIVER NORTH PROJECT CLAIM MAP</b>		
BRITISH COLUMBIA		
<b>EQUITY ENGINEERING LTD.</b>		
DRAWN: J.W.	MINING DIV: LIARD	FIGURE:
N.T.S. 104G/5E.GW.4E.3M	SCALE: 1:100,000	<b>2</b>
DATE: DEC. 1989	REVISED:	

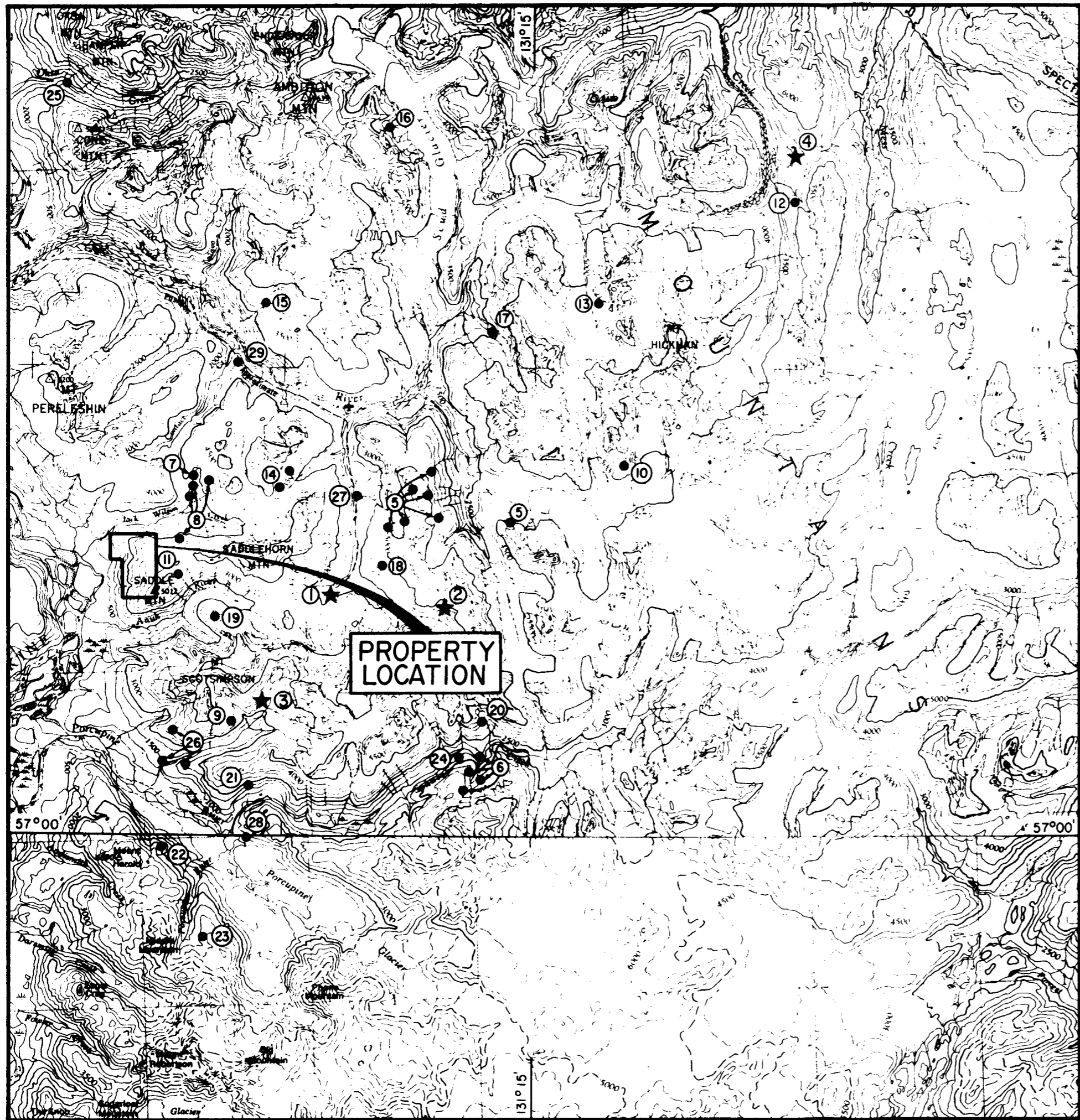
Lower slopes are partially covered by hemlock and spruce with an undergrowth of devil's club and huckleberry. Steeper open slopes are covered by dense slide alder growth. Above treeline, which occurs at approximately 1150 meters, more open alpine vegetation is present. Both summer and winter temperatures are moderate although annual rainfall may exceed 200 centimeters and several meters of snow commonly fall at higher elevations.

#### 4.0 PROPERTY MINING HISTORY

##### 4.1 Previous Work

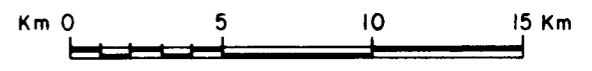
The Galore Creek district was extensively explored (Figure 3) for its copper potential throughout the 1960's, following the discovery in 1955 of the Galore Creek copper-gold porphyry deposit, whose Central Zone hosts reserves of 125 million tonnes grading 1.06% copper and 400 parts per billion gold (Allen et al, 1976). Several major mining companies conducted regional mapping and silt sampling programs over the entire Galore Creek area, and the Copper Canyon copper-gold porphyry, estimated by Grant (1964) to contain 28 million tonnes at a grade of 0.64% copper, was discovered eight kilometers east of the Central Zone in 1957. Unfortunately, most of the regional data collected at that time was not filed for assessment credit and is unavailable.

In the early 1980's, Teck Corp. conducted regional reconnaissance for gold throughout the area, and delineated the Paydirt deposit containing 185,000 tonnes of reserves grading 4.11 grams per tonne (0.13 ounces/ton) gold (Holtby, 1985). The Paydirt is located approximately ten kilometers southeast of the Anuk River North property on Split Creek. In 1987, several precious metal occurrences were discovered on the Trophy project located approximately eighteen kilometers to the east. Continental Gold,



NAME OF OCCURRENCE	MINERAL RESERVES AND/OR ELEMENTS	
1. Galore Creek	125,000,000 tonnes	0.40 gm/tonne Au 7.70 gm/tonne Ag
2. Copper Canyon	25,000,000 tonnes	0.64% Cu
3. Paydirt	185,000 tonnes	4.11 gm/tonne Au
4. Schaft Creek	330,000,000 tonnes	0.32 gm/tonne Au 1.50 gm/tonne Ag 0.40% Cu 0.036% MoS <sub>2</sub>
5. Trophy		Au, Cu, Pb, Zn, Ag
6. Trek		Au, Cu, Pb, Zn, Ag, Mo
7. Icy		Au, Cu, Ag
8. Jack Wilson		Au, Cu
9. Ann/Su		Cu
10. Jay		Cu, Au, Ag
11. Devil's Club		Cu, Ag, Au
12. Hicks		Cu, Mo
13. Alberta		Cu
14. Pup		Cu, Au, Pb, Zn
15. JD		Cu, Au, Pb, Zn
16. North Scud		Cu
17. Middle Scud		Cu, Ag
18. Stikine East		Cu
19. Joan, MB		Cu, Au, Ag
20. Kim		Cu, Au, Ag
21. Wiser		Au, Ag
22. Cuds		Au, Ag, Pb, Cu
23. Ginny		Au
24. Sphal		Cu, Au
25. Oksa Creek		Cu, Pb, Zn, Au, Ag
26. PL 7-11		Au, Ag, Cu, Zn
27. Bix		Cu
28. Gienlivet		Au
29. Bell		Au

- MINERAL OCCURRENCE
- ★ MINERAL DEPOSIT



CONSOLIDATED GOLDWEST RESOURCES LTD.		
<b>ANUK RIVER NORTH PROJECT REGIONAL MINERAL OCCURRENCE MAP</b>		
BRITISH COLUMBIA		
EQUITY ENGINEERING LTD.		
Drawn: J.W.	MINING DIV: LIARD	FIGURE
N.T.S.: 1048,6	SCALE: 1:250,000	<b>3</b>
DATE: DEC. 1989	REVISED:	



which acquired the Trophy project in 1988, reported trench samples averaging 2.40 grams per tonne (0.07 ounces/ton) gold and 164.5 grams per tonne (4.80 ounces/ton) silver across 56.4 meters from their Ptarmigan A zone (Continental, 1988a). During the 1988 field season, Continental drilled 2,834 meters in sixteen holes, with intersections up to 11.1 meters grading 5.48 grams per tonne (0.18 ounces/ton) gold and 30.2 grams per tonne (0.97 ounces/ton) silver (Continental, 1988b).

Elsewhere in the Galore Creek district, several significant precious metals occurrences were discovered on each of the TREK, ICY and Jack Wilson properties during the 1988 field season (Figure 3). In each case, these properties had been explored for copper during the 1960's, but had never received due attention for their gold potential. Soil sampling on the JW property, which lies immediately to the northeast of the Anuk River North claim group, revealed two large gold-copper anomalies thought to be related to porphyry-style mineralization. In addition, several auriferous quartz vein and shear zones were discovered on the JW property.

#### 4.2 1989 Work Program

During September of 1989, Consolidated Goldwest Resources Ltd. carried out one day of reconnaissance exploration on the claim group, consisting of geological mapping, prospecting and stream silt sampling. This program was targeted at gold-rich, mesothermal base metal veins similar to those occurring elsewhere in the Galore Creek district and within a similar geological environment which stretches south through the Iskut River, Sulphurets and Stewart mining districts.

During the course of this program, eight stream sediment samples and three rock samples were taken. Silt samples were taken from major drainages on the property, dried and screened through

a minus 80 mesh in the laboratory, then analysed geochemically for gold and 32-element ICP (Figure 5). Samples with insufficient fines were screened through a minus 35 mesh and then pulverized to minus 150 mesh before being analysed.

Prospecting and reconnaissance geology were carried out, using a 1:10,000 topographic orthophoto as a base (Figure 5). Rock samples, described in Appendix C, were taken from zones of alteration and mineralization and analysed geochemically for gold and 10-element ICP. Analytical certificates are attached in Appendix D.

## 5.0 REGIONAL GEOLOGY

The first geological investigations of the Stikine River in northwestern British Columbia began over a century ago when Russian geologists came to Russian North America assessing the area's mineral potential (Alaskan Geographic Society, 1979, in Brown and Gunning, 1989a), and was followed by the first Geological Survey of Canada foray of G.M. Dawson and R. McConnel in 1887. Several more generations of federal and provincial geologists have been sent to the Stikine, including Kerr (1948b), the crew of Operation Stikine (GSC, 1957), Panteleyev (1976), Souther (1972), Souther and Symons (1974), Monger (1977), and Anderson (1989). The British Columbia Geological Survey has recently completed regional mapping of the area at a scale of 1:50,000 by Brown and Gunning (1989a,b) and Logan and Koyanagi (1989a,b).

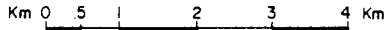
The Galore Creek Camp lies within the Intermontane Belt, a geological and physiographic province of the Canadian Cordillera, and flanks the Coast Plutonic Complex to the west (Figure 4). At Galore Creek, the generally northwest-trending structure of the Intermontane Belt is discordantly cut across by the northeast-trending Stikine Arch which became an important, relatively



**LEGEND**

- QUATERNARY**
- Qal UNDIFFERENTIATED GLACIAL TILL AND POORLY SORTED ALLUVIUM
- UPPER TRIASSIC**
- STIKINE GROUP (UNDEVELOPED DIVISIONS AT UTSV) (Unit 8)**
- UTSv SILTSTONE, SANDSTONE, CONGLOMERATE, AND/OR LIMESTONE CONTAINING BIVALVES (Unit 8a)
  - UTSb PYRROSE-PORPHYRY FLOWS AND FRAGMENTS (Unit 8b)
  - UTSs UNDEVELOPED TO BASIC FRAGMENTALS, BROOK, RUFF, LAMIN (Unit 8c)
- MIDDLE TO UPPER TRIASSIC**
- MUTSv MASSIVE ANDESITE FLOWS AND TUFFS, AMPHIBOLITIC BASALT (Unit 7c)
- PERMIAN**
- STIKINE ASSEMBLAGE**
- PI1 LIGHT GREY MASSIVE TO FINELY BEDDED BUFF BIOClastic CALCARENITE (Unit 6a)
  - PI2 DARK GREY TO BUFF FIN BEDDED BIOClastic LIMESTONE, CHERT INTERBEDDED WITH LACUNOSUS NEAR BASE (Unit 6c)
  - PI3 DARK GREY TO BLACK COMBESLY BIOClastic MORTAR (LARGE PLUAGINE CORALS COMMON) (Unit 6c)
  - PI4 BULKY ARGILLITE UNIT WITH SPHERULITE BEARING ARGILLITE AND SILTSTONE (Unit 5)
- PERMIAN AND OLDER**
- Pv PLAGIOCLASE PORPHYRY FLOWS, VOLCANICLASTICS, PURPLE ASH TUFF, CHLORITE SCHED (Unit 4c)
  - Pu UNFOLDED GREEN AND BROWN FOLATED METAVOLCANICS AND METASANDSTONES (Unit 4)
  - bls LIMESTONE HORIZONS WHITE TO GREY RECRYSTALLIZED LIMESTONE IN BOTH Pv AND Pu
  - bls BIOClastic UNIT WELL BOUNDED TO LAMINATED BIOClastic ASH TUFF AND SILTSTONE, VANDERCOLOURED CHERT BUFF CALCAREOUS SILTSTONE (Unit 4d)
- INTRUSIVE ROCKS**
- JURASSIC TO TERTIARY**
- JTD MEDIUM GRAINED BIOTITE HORNBLENDE DIORITE (Unit 12b)
  - JTM POTASSIUM FELDSPAR METAGYPSIC GRANITE TO MONZONITE (Unit 12a)
- MIDDLE JURASSIC**
- mJd LOW PLAGIOCLASE MEDIUM GRAINED HORNBLENDE BIOTITE GRANODIORITE AND QUARTZ MONZONITE OR GABBRO (Unit 10g)
  - mJg HETEROGENEOUS MEDIUM TO COARSE GRAINED QUARTZ DIORITE, HORNBLENDE DIORITE, HORNBLENDE AND PYROXENITE (Unit 10b)
- EARLY TO MIDDLE JURASSIC**
- eJm GABBRO ORTHOCLASTIC PORPHYRYC MONZONITE (Unit 10c)
- EARLY JURASSIC**
- eJm MEDIUM GRAINED HORNBLENDE BIOTITE GRANODIORITE TO MONZONITE (Unit 10c)
- Geological boundary (defined, approximate, assumed) .....  
 Unconformity (assumed) .....  
 Bedding (inclined, vertical, parallel to horizon) .....  
 Bedding tops observed (inclined, vertical, overturned) .....  
 Bedding estimated attitude (g = gentle, m = moderate, s = steep) .....  
 Foliation (inclined, vertical, M = mylonitic) .....  
 Joint (inclined, vertical) .....  
 Dyke (inclined, vertical) .....  
 Dyke estimated attitude (g = gentle, m = moderate, s = steep) .....  
 Vein (inclined, vertical, Q = quartz) .....  
 Articular axis .....  
 Synclinal axis .....  
 Overturned synclinal axis .....  
 Axial plane of minor fold (inclined, vertical) .....  
 F00 axis of minor fold with M, S and Z asymmetry, circulation (arrow indicates plunge) .....  
 High angle fault, surface trace (defined, approximate, assumed) .....  
 Solid circle indicates downthrown side, hollow circle indicates upthrown side .....  
 Thrust fault (defined, approximate, assumed, teeth in direction of dip) .....  
 Shear zone, mylonite .....

Geology after: Logan et al 1989b  
Brown & Gunning 1989b



**PROPERTY LOCATION**

**CONSOLIDATED GOLDWEST RESOURCES LTD.**

**ANUK RIVER NORTH PROJECT REGIONAL GEOLOGY**

BRITISH COLUMBIA

**EQUITY ENGINEERING LTD.**

DRAWN: J.W.	MINING DIV. LIARD	FIGURE: 4
NTS: I04G/5E, 6W, 4E, 3W		SCALE: 1:100,000
DATE: DEC. 1989	REVISED:	

positive tectonic element in Mesozoic time when it began to influence sedimentation into the Bowser Successor Basin to the southeast and into the Whitehorse Trough to the northwest (Souther et al., 1974).

Stikinian stratigraphy ranges from possibly Devonian to Jurassic, and was subsequently intruded by granitoid plutons of Upper Triassic to Eocene age. The oldest strata exposed in the Galore Creek camp are Mississippian or older mafic to intermediate volcanic flows and pyroclastic rocks (Map Units 4a and 4c) with associated clastic sediments and carbonate lenses (Map Unit 4b). These are capped by up to 700 meters of Mississippian limestone with a diverse fossil fauna (Map Unit 4d). It appears from fossil evidence that all of the Pennsylvanian system is missing and may be represented by an angular unconformity and lacuna of 30 million years, though field relationships are complicated by faulting (Monger, 1977; Logan and Koyanagi, 1989a). Permian limestones (Map Unit 6), also about 700 meters thick, lie upon the Mississippian limestone but are succeeded by a second lacuna amounting to about 20 million years from the Upper Permian to the upper Lower Triassic.

Middle and Upper Triassic siliciclastic and volcanic rocks (Map Unit 7) are overlain by Upper Triassic Stuhini Group siliciclastic (Map Unit 8a) and volcanic (Map Unit 8b, 8c and 8d) rocks, consisting of mafic to intermediate pyroclastic rocks and lesser flows. The Galore Creek porphyry copper deposit appears from field evidence to mark the edifice of an eroded volcanic center with numerous sub-volcanic plutons of syenitic composition. Jurassic Bowser Basin strata onlap the Stuhini Group strata to the southeast of Iskut River but, because of erosion and non-deposition, are virtually absent from the Galore Creek area.

The plutonic rocks follow a three-fold division (Logan and Koyanagi, 1989a,b). Middle Triassic to Late Jurassic syenitic and broadly granodioritic intrusions are partly coeval and cogenetic with the Stuhini Group volcanics and include the composite Hickman Batholith (Map Unit 9) and the syenitic porphyries of the Galore Creek Complex (Map Unit 11). Jura-Cretaceous Coast Plutonic Complex intrusions (Map Unit 12) occur on the west side of the Galore Creek Camp, along the Stikine River, with the youngest of these intrusions occupying more axial positions along the trend of the Coast Plutonic Complex flanked by older intrusions. The youngest intrusives in the Galore Creek Camp are Eocene (quartz-) monzonitic plugs (Map Unit 13), felsic and mafic sills and dykes (Map Unit 14), and biotite lamprophyre (minette) dykes (Map Unit 14).

The dominant style of deformation in the Galore Creek area consists of upright north-trending, open to tight folds and northwest-trending, southwest-verging, folding and reverse faulting in the greenschist facies of regional metamorphism. Localized contact metamorphism ranges as high as pyroxene hornfels grade; metasomatism is also noted near intrusions. Upright folding may be an early manifestation of a progressive deformation which later resulted in southwest-verging structures. Southwest-verging deformation involves the marginal phases of the Hickman Batholith and so is, at least in part, no older than Late Triassic.

Steeply dipping faults which strike north, northwest, northeast, and east have broken the area into a fault-block mosaic. North-striking faults are vertical to steeply east-dipping and parallel to the Mess Creek Fault (Souther, 1972), which was active from Early Jurassic to Recent times (Souther and Symons, 1974); northwest-striking faults are probably coeval with the north-striking faults, but locally pre-date them. East-west trending faults are vertical or steeply dipping to the north and have

normal-type motion on them (i.e., north-side down), whereas northeast-striking faults are the loci of (sinistral) strike-slip motion (Brown and Gunning, 1989a).

A number of metallic deposit types have been recognized in the Galore Creek camp: porphyry copper  $\pm$  molybdenum  $\pm$  gold deposits, structurally-controlled epigenetic 'Cordilleran' vein/shear precious metal replacement deposits, skarns and breccia deposits (Figure 3). Porphyry copper deposits of this area include both the alkalic Galore Creek copper-gold and calc-alkalic Schaft Creek copper-molybdenum deposits. Galore Creek, which is associated with syenitic stocks and dikes rather than a quartz-feldspar porphyry, is further contrasted from the calc-alkaline Schaft Creek in that molybdenite is rare, magnetite is common and gold and silver are important by-products. The mineralization is clearly coeval and cogenetic with the spatially associated intrusive bodies. Other porphyry copper occurrences in the Galore Creek area include the Copper Canyon, Sue/Ann, Bik and Jack Wilson Creek deposits.

Structurally-controlled gold-silver deposits have been the focus of exploration in recent years. The vein/shear occurrences are similar throughout the Galore Creek camp in that they are mesothermal in nature, containing base metal sulphides with strong silica veining and alteration. However, it appears that the intrusive bodies associated with this mineralization fall into two classes on the basis of age and composition. These two classes are reflected in differences in the style of structures, sulphide mineralogy and associated alteration products. The intrusive types are: 1) Lower Jurassic alkaline "Galore Creek" stocks; and 2) Eocene quartz monzonite to porphyritic granodiorite intrusions. Lead isotope data from the Stewart mining camp (Alldrick et al., 1987) further supports the proposition that separate Jurassic and Tertiary mineralizing events were "brief regional-scale phenomena".

Structures associated with the Lower Jurassic syenites are typically narrow (less than 2.0 meters) quartz-chlorite veins mineralized predominately with pyrite, chalcopyrite and magnetite. Examples of these structures in the Galore Creek camp include many of the discrete zones peripheral to the Galore Creek deposit and the gold-rich veins at Jack Wilson Creek. The Tertiary mineralization comprises discrete quartz veins and larger 'shear' zones characterized by pervasive silicification, sericitization and pyritization whose total sulphide content is commonly quite low. The quartz veins contain a larger spectrum of sulphide minerals including pyrite, chalcopyrite, pyrrhotite, arsenopyrite, galena and sphalerite. Unlike the Jurassic mineralization, silver grades may be very high. A number of mineral showings discovered in the Porcupine River area, including the Paydirt deposit, are of this type.

Skarns represent a minor percentage of the precious metal-bearing occurrences in the Galore Creek camp. The mineralogy of these deposits could be influenced by the composition of the intrusion driving the hydrothermal fluids, in much the same way as described above for the structurally-controlled deposits. If the invading intrusives are alkalic, the skarn assemblage will be dominated by magnetite and chalcopyrite, as at the Galore Creek deposit and the Hummingbird skarn on the east side of the South Scud River.

The breccia hosted mineralization discovered in the Galore Creek camp precious metal deposits appear to be unique in style and mineralization. Three occurrences have been located in the camp: (1) the zinc-silver-gold Ptarmigan zone in the South Scud River area, (2) the copper-molybdenum-gold-silver breccia at the Trek property on Sphaler Creek and (3) the copper-bearing and magnetite breccias of the complex Galore Creek deposit. The single

common denominator of each is that the zones are located along fault structures which may represent the main conduit for mineralizing fluids.

## 6.0 PROPERTY GEOLOGY AND MINERALIZATION

### 6.1 Geology

Three rock types were recognized during limited reconnaissance geological mapping conducted over the PL-2 and -3 claims during 1989. Jurassic to Cretaceous diorite and granites intrude Upper Triassic Stuhini Group volcanics and volcanoclastics (Figure 5). A prominent southeasterly trending fault is located on the PL-2 claim with minor north striking shears to the south. Geology in Figure 5 has been adapted from Logan and Koyanagi (1989b), as modified by reconnaissance mapping during the current program.

Upper Triassic Stuhini Group feldspar porphyry flows (Unit 8b) occur on the south side of South Twin Creek near its confluence with North Twin Creek. The dark green volcanics contain feldspar phenocrysts in a dark aphanitic matrix and are in sharp contact with the surrounding Coast Intrusives. These volcanics may be a large inclusion within the Coast Intrusives. Similar inclusions, according to Logan and Koyanagi (1989a), are common within the Saddle Mountain area. Stuhini Group lithic-lapilli crystal tuffs (Unit 8c), mapped by Logan and Koyanagi (1989b) in the northeastern corner of the property, were not examined or observed elsewhere.

A batholith of the Jurassic to Cretaceous Coast Intrusives underlies most of the property. Fine- to medium-grained, melanocratic biotite hornblende diorite (Unit 12b) is the predominate rock unit on the property. The diorite forms the prominent escarpments that enclose North and South Twin and



Waterfall Creeks but grades to a granodiorite in the higher elevations of Waterfall Creek. Medium- to coarse-grained biotite granite (Unit 12c) outcrops along both Waterfall and South Twin Creeks. Logan and Koyanagi (1989b) mapped a large outcrop of the granite unit in contact with the Stuhini volcanoclastics on the PL-2 claim and inferred the granite to be a distinct phase younger than the diorite. Late stage coarse-grained hornblende pegmatite dykes up to 0.5 meters in width intrude the Coast Intrusive rocks.

A major southeasterly trending fault separating granite from diorite to the south on the PL-2 claim was mapped by Logan and Koyanagi (1989b). Minor shears exposed within Waterfall Creek are moderately clay altered with minor calcite veining and foliated along a northerly strike, dipping steeply to the east.

## 6.2 Mineralization

Minor pyrite associated with quartz veinlets and sweats within a four meter wide, moderately quartz-ankerite altered diorite occurs at approximately 445 meters elevation in South Twin Creek. The two to three centimeter wide veinlets strike  $108^{\circ}$  and dip vertically. No significant base or precious metal values were associated with them.

## 7.0 GEOCHEMISTRY

Eight silt samples were taken from the major creeks draining the PL-2 and -3 claims during the 1989 exploration program (Figure 5). No anomalous precious metal values were retrieved from any of the creeks. Sample 459270 contained anomalous cobalt (25 ppm) and lead (28ppm) values which lie in the upper five percentile range

for the entire Telegraph Creek/Sumdum map sheets (GSC, 1988). Cobalt values above the 90th percentile were also found in two other samples. Sample 447121 returned a highly anomalous arsenic value of 135 parts per million, which places it above the 99th percentile for the government survey. The source and significance of these anomalous values is not known.

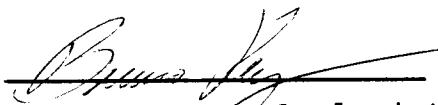
## 8.0 DISCUSSION AND CONCLUSIONS

All major streams were sampled by either the 1987 government reconnaissance survey or this year's program. Anomalous cobalt, lead and arsenic values were returned from some of the drainages, but the significance and source of these anomalies is not known.

Gold occurrences on the JW property to the northeast of the property are hosted in altered volcanics and sedimentary rocks of the Upper Triassic Stuhini Group, and are related to Jurassic Galore Creek Intrusions. With the exception of the northeast corner of PL-2, the Anuk River North claim group is underlain by Jurassic to Cretaceous diorite and granite of the Coast Intrusives. To date, exploration within the Galore Creek area has not revealed any significant precious metal occurrences associated with these intrusives.

No significant mineralization was discovered on the Anuk River North property. Preliminary geological mapping and geochemical results indicate that the potential for economic precious metal mineralization on the Anuk River North property is low. No anomalous gold values were present in either stream silt or rock samples. Although budget constraints allowed for only limited time to be spent on the property, unfavorable geological and geochemical results provide little encouragement for further work.

Respectively submitted,  
EQUITY ENGINEERING LTD.

  
Bruno Kasper, Geologist

Vancouver, British Columbia  
December, 1989

APPENDIX A

BIBLIOGRAPHY

## BIBLIOGRAPHY

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APPENDIX B

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES  
ANUK RIVER NORTH CLAIM GROUP

PROFESSIONAL FEES AND WAGES:

Bruno Kasper, Geologist					
1.25 days @ \$350/day	\$		437.50		
David Ridley, Prospector					
1.0 days @ \$300/day			300.00		
Cathy Ridley, Prospector					
1.0 days @ \$300/day			300.00		
David Hutchison, Sampler					
1.0 days @ \$200/day			200.00		
				\$	1,237.50

EQUIPMENT RENTALS:

Handheld Radios					
3 @ \$5/day					15.00

JOINT MOBILIZATION, SUPERVISION AND SUPPORT COSTS:  
Prorated in accordance with number of mandays worked on each of several claim groups in the Galore Creek area

1,097.35

CHEMICAL ANALYSES:

Silt Samples					
8 @ \$15.69	\$		125.50		
Rock Geochemical Samples					
3 @ \$18.25			54.75		
					180.25

EXPENSES:

Materials and Supplies	\$		67.73		
Orthophoto Construction			1,770.75		
Printing and Reproductions			17.98		
Accommodation and Meals			524.88		
Helicopter Charters			601.02		
Telephone Distance Charges			1.68		
Freight			8.00		
					2,992.04

REPORT PREPARATION:  
(Estimated)

1,500.00

\$ 7,022.14

=====



APPENDIX C

ROCK DESCRIPTIONS

Abbreviations

CA Calcite	MS Sericite
CL Chlorite	PY Pyrite
EP Epidote	QZ Quartz
LI Limonite	

NTS 1049/4E

 Sampler Bruno Kasper  
 Date Sept 1989

 Project K9989-03  
 Property PL 2-3

 Location Ref Flood Glacier  
 Air Photo No \_\_\_\_\_

SAMPLE NO.	LOCATION	SAMPLE TYPE	Sample Width True Width	DESCRIPTION			ADDITIONAL OBSERVATIONS	ppb ppm ASSAYS ppm					
				Rock Type	Alteration	Mineralization		Au	Ag	Cu	Pb	Zn	As
459411	339705E 6335125N	Grab/oc	1.0m	Diorite fine crystalline	QZ > CA minor CL	LI (1-2%)	655m elev QZ / CA vein w/very coarse crystals; mineralization near outer contact	<5	<0.5	7	5	16	9
David Ridley													
447122	338850E 6336680N	Grab/oc	1.5m ?	PL 2-3 feldspar porphyry Diorite	CL, EP	PY (<1%)	390m. elev -close to m.g. diorite intrusive	<5	<0.5	26	<5	66	9
447123	339220E 6336700N	Grab/oc	1.0m 4.0m	"	QZ, MS	PY (<1%)	445m. elev -alteration zone w/QZ veining strike 106° dip 90° QZ veinlets 2-3 cm wide	<5	<0.5	6	<5	32	9

APPENDIX D

CERTIFICATES OF ANALYSIS



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
212 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-2C1  
PHONE (604) 984-0221

To: TIME EXPLORATIONS LTD.

808 W. HASTINGS ST., 10TH FLOOR  
VANCOUVER, BC  
V6C 2X6

Project: ANUK RIVER NORTH  
Comments: ATTN: JIM FOSTER ✓ EQUITY ENGINEERING

Page No.: 1  
Tot. Pages: 1  
Date: 2-OCT-89  
Invoice #: 1-8925769  
P.O. #: KGG89-03

## CERTIFICATE OF ANALYSIS A8925769

SAMPLE DESCRIPTION	PREP CODE		Au ppb FA+AA	As ppm	Ag ppm	Co ppm	Cu ppm	Fe %	Mn ppm	Mb ppm	Ni ppm	Pb ppm	Zn ppm			
	459411	205	298	< 5	9	< 0.5	2	7	0.76	575	< 1	3	< 5	16		
447122	205	298	< 5	9	< 0.5	18	26	3.27	685	3	10	< 5	66			
447123	205	298	< 5	9	< 0.5	7	6	2.14	630	1	4	< 5	32			

RECEIVED  
OCT 05 1989  
REGISTERED

CERTIFICATION: Hart Becker



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
212 BROOKSBANK AVE., NORTH VANCOUVER,  
BRITISH COLUMBIA, CANADA V7J-1C1  
PHONE (604) 984-0221

PRIME EXPLORATIONS LTD.

808 W. HASTINGS ST., 10TH FLOOR  
VANCOUVER, BC  
V6C 2X6

Project : ANUK RIVER NORTH  
Comments: ATTN: TIM FOSTER CC: EQUITY ENGINEERING

Page No. : 1-A  
Tot. Pages: 1  
Date : 28-SEP-89  
Invoice # : I-8925770  
P.O. # : KGG89-03

## CERTIFICATE OF ANALYSIS A8925770

SAMPLE DESCRIPTION	PREP CODE	Au ppb FA+AA	Al %	Ag ppm	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
447121	201 238	< 5	1.98	< 0.2	135	240	< 0.5	< 2	0.60	0.5	21	7	23	4.40	< 10	< 1	0.17	10	1.54	1070
459269	201 238	< 5	2.88	< 0.2	< 5	90	< 0.5	< 2	0.57	0.5	25	12	19	2.73	< 10	< 1	0.17	< 10	1.19	990
459270	217 238	10	1.35	< 0.2	10	200	< 0.5	4	3.81	0.5	25	168	90	4.66	< 10	< 1	0.18	< 10	2.14	790
459272	201 238	< 5	2.05	< 0.2	< 5	100	< 0.5	< 2	0.85	< 0.5	16	70	24	3.48	< 10	< 1	0.26	10	1.65	680
459273	203 238	< 5	2.41	< 0.2	< 5	140	< 0.5	< 2	0.96	< 0.5	21	70	35	4.29	< 10	< 1	0.31	10	1.85	840
459410	203 238	< 5	2.21	< 0.2	< 5	180	< 0.5	< 2	1.10	0.5	18	57	28	3.64	< 10	< 1	0.34	10	1.57	785
459412	203 238	< 5	2.24	< 0.2	< 5	110	< 0.5	< 2	0.89	0.5	17	67	44	4.00	< 10	< 1	0.29	10	1.48	1005
459413	203 238	< 5	1.79	< 0.2	< 5	120	< 0.5	< 2	0.81	0.5	12	52	27	3.28	< 10	< 1	0.24	10	1.24	710

RECEIVED  
OCT - 2 1989

CERTIFICATION : B. Cough



# Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers  
 212 BROOKSBANK AVE., NORTH VANCOUVER,  
 BRITISH COLUMBIA, CANADA V7J-2C1  
 PHONE (604) 984-0221

PRIME EXPLORATIONS LTD.

808 W. HASTINGS ST., 10TH FLOOR  
 VANCOUVER, BC  
 V6C 2X6

Project : ANUK RIVER NORTH  
 Comments: ATTN: JIM FOSTER CC: EQUITY ENGINEERING

• Page No. 1-B  
 Tot. Pages 1  
 Date : 28-SEP-89  
 Invoice # : 1-8925770  
 P.O. # : KGG89-03

## CERTIFICATE OF ANALYSIS A8925770

SAMPLE DESCRIPTION	PREP CODE	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
447121	201 238	< 1	0.01	15	1140	< 2	< 5	4	46	0.07	< 10	< 10	52	< 10	98
459269	201 238	5	0.01	14	420	< 2	< 5	2	59	0.14	< 10	10	53	< 10	92
459270	217 238	< 1	0.02	81	1250	28	< 5	10	103	0.09	< 10	< 10	91	< 10	84
459272	201 238	< 1	0.02	23	1050	< 2	< 5	5	68	0.13	< 10	< 10	62	< 10	72
459273	203 238	< 1	0.03	23	1020	< 2	< 5	6	89	0.20	< 10	< 10	82	< 10	80
459410	203 238	< 1	0.03	7	1470	< 2	< 5	4	101	0.18	< 10	< 10	70	< 10	80
459412	203 238	< 1	0.03	16	1200	< 2	< 5	5	86	0.16	< 10	< 10	76	< 10	86
459413	203 238	< 1	0.02	11	1110	< 2	< 5	3	76	0.14	< 10	< 10	56	< 10	66

CERTIFICATION :

*B. Cagli*

APPENDIX E

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

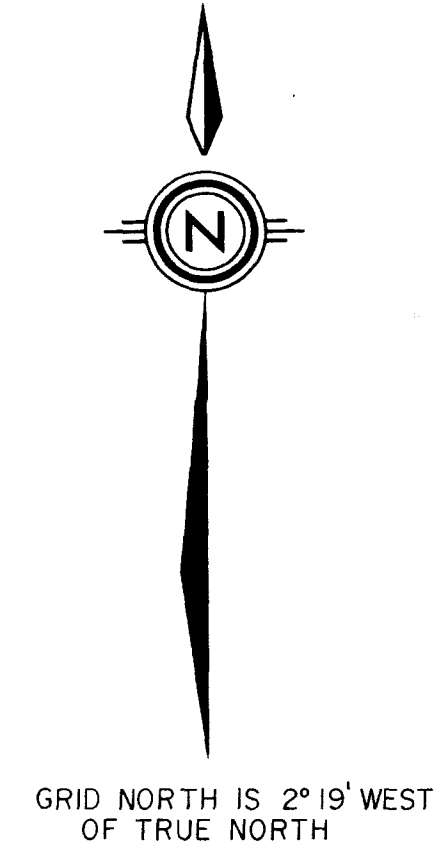
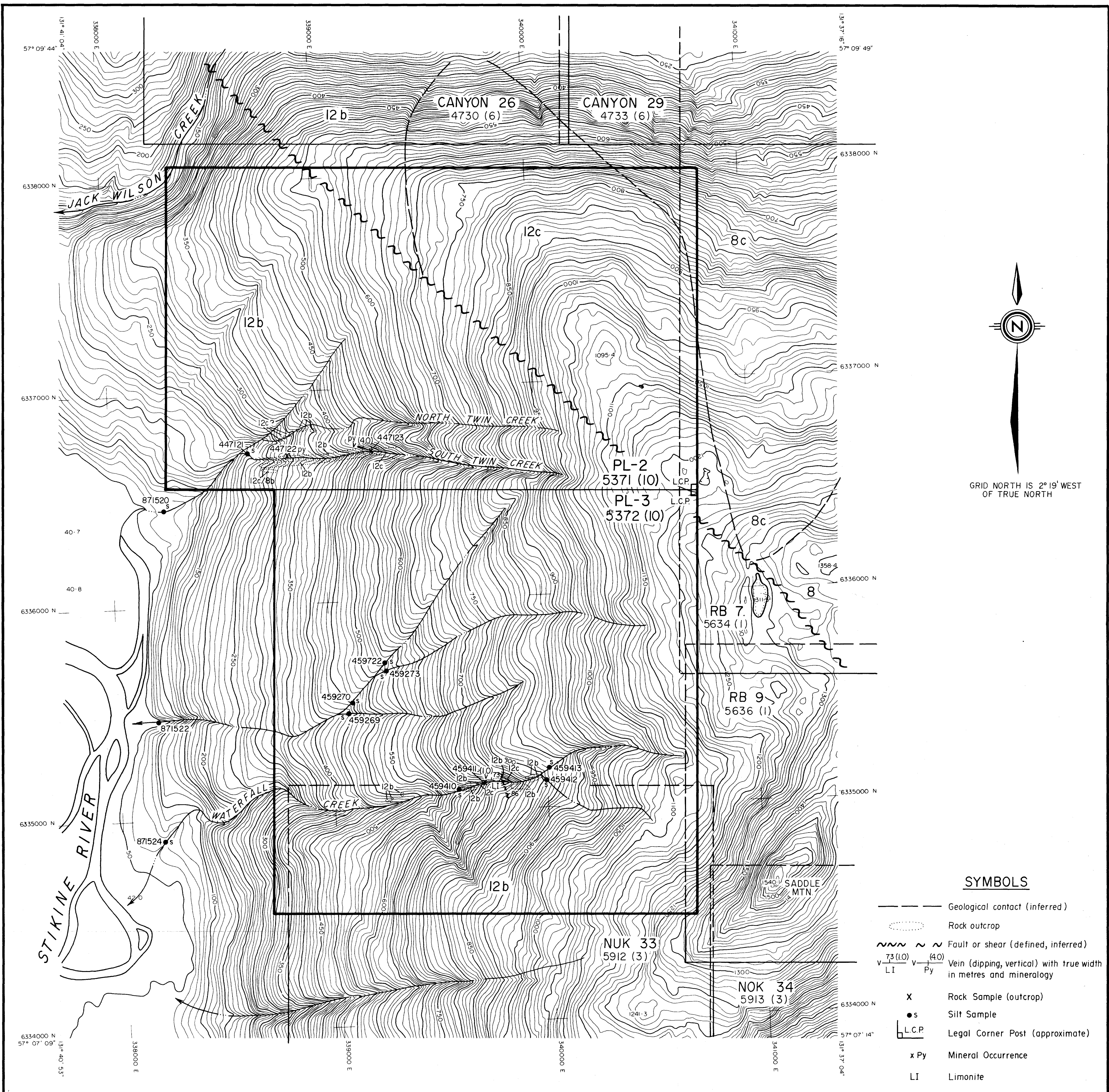
I, BRUNO KASPER, of 101-1990 West 6th Avenue, Vancouver, in the Province of British Columbia, DO HEREBY CERTIFY:

1. THAT I am a Consulting Geologist with offices at Suite 207, 675 West Hastings Street, Vancouver, British Columbia.
2. THAT I am a graduate of the University of Alberta with a Bachelor of Science degree in Geology.
3. THAT my primary employment since June, 1988 has been in the field of mineral exploration.
4. THAT this report is based on fieldwork carried out under my direction.

DATED at Vancouver, British Columbia, this 28<sup>th</sup> day of December, 1989.

  
\_\_\_\_\_  
Bruno Kasper, Geologist





**SYMBOLS**

- Geological contact (inferred)
- Rock outcrop
- ~ ~ ~ Fault or shear (defined, inferred)
- v 73 (1.0) v (4.0)  
LI Py Vein (dipping, vertical) with true width in metres and mineralogy
- X Rock Sample (outcrop)
- s Silt Sample
- L.C.P. Legal Corner Post (approximate)
- x Py Mineral Occurrence
- LI Limonite
- Py Pyrite

**SAMPLE RESULTS**

**SILT GEOCHEMICAL RESULTS**

Sample	Au(ppb)	Ag(ppm)	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
447121	<5	<0.2	23	<2	98	135
459269	<5	<0.2	19	<2	92	<5
459270	10	<0.2	90	28	84	10
459272	<5	<0.2	24	<2	72	<5
459273	<5	<0.2	35	<2	80	<5
459410	<5	<0.2	28	<2	80	<5
459412	<5	<0.2	44	<2	86	<5
459413	<5	<0.2	27	<2	66	<5

**GOVERNMENT REGIONAL GEOCHEMICAL SAMPLES**

Sample	Au(ppb)	Ag(ppm)	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
871520	6	0.1	46	6	74	1
871522	1	0.1	48	7	76	1
871524	1	0.1	44	5	69	1

**ROCK GEOCHEMICAL RESULTS**

Sample	Au(ppb)	Ag(ppm)	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
459411	<5	<0.5	7	5	16	9
447122	<5	<0.5	26	<5	66	9
447123	<5	<0.5	6	<5	32	9

**GEOLOGY**

- JURASSIC - to - CRETACEOUS
- COAST PLUTONIC COMPLEX
  - 12b Biotite hornblende diorite -to- granodiorite
  - 12c Biotite granite
- UPPER TRIASSIC
  - 8 Stuhini Group: undivided volcanic, pyroclastic, and volcaniclastic rocks
  - 8b Plagioclase -porphyritic andesite
  - 8c Lithic - lapilli crystal tuff

Geology adapted in part from Logan and Kovanagi (1989b)  
Government Regional geochemical data from G.S.C. Open File 1646

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**19,535**



CONSOLIDATED GOLDWEST RESOURCES LTD.

**ANUK RIVER NORTH PROJECT  
GEOLOGY AND  
GEOCHEMISTRY**

BRITISH COLUMBIA

EQUITY ENGINEERING LTD.

Drawn: J.W.	Mining Division: LIARD	FIGURE
N.T.S.: 104 G/4E	Scale: 1:10,000	<b>5</b>
Date: DEC. 1989	Revised:	