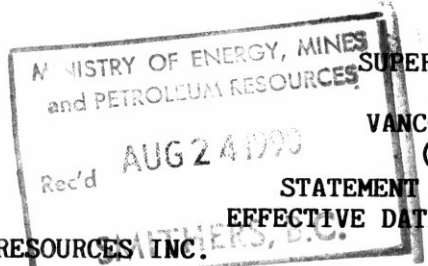


DL



019505

SUPERINTENDENT OF BROKERS  
AND  
VANCOUVER STOCK EXCHANGE  
(Venture Company)

INEL  
104B 321, 258, 113  
104B/10W

STATEMENT OF MATERIAL FACTS # 83/90  
EFFECTIVE DATE: Wednesday, August 8, 1990

AVONDALE RESOURCES INC.

11th Fl., 808 West Hastings Street, Vancouver, B.C., V6C 2X4 Telephone: (604) 687-7463  
NAME OF ISSUER, ADDRESS OF HEAD OFFICE AND TELEPHONE NUMBER

#100 - 200 Granville Street, Vancouver, B.C., V6C 1S4  
ADDRESS OF REGISTERED AND RECORDS OFFICES OF ISSUER

Pacific Corporate Services Limited, Suite 830, 625 Howe Street, Vancouver, B.C., V6C 3B8  
NAME AND ADDRESS OF REGISTRAR & TRANSFER AGENT FOR ISSUER'S SECURITIES IN BRITISH COLUMBIA

The securities offered hereunder are speculative in nature. Information concerning the risks involved may be obtained by reference to this document; further clarification, if required, may be sought from a broker.

**OFFERING: 1,500,000 UNITS**

**NON-FLOW-THROUGH OFFERING:** 500,000 Non-Flow-Through Units, each Non-Flow-Through Unit being comprised of one non-flow-through share and two non-flow-through Series "B" Warrants, two such warrants entitling the holder to purchase one additional common share of the Issuer at any time up to one year following the Offering Day at the Offering Price. The Non-Flow-Through Offering may be increased by up to 15% to meet over-subscriptions (see "Plan of Distribution").

NON-FLOW-THROUGH UNITS	Offering Price (estimated)*	Commission	Estimated Net Proceeds to be Received by the Issuer
Per Unit	\$2.40	\$0.18	\$2.22
Total	\$1,200,000	\$90,000	\$1,110,000

\* To be calculated in accordance with the rules of the Vancouver Stock Exchange.

**FLOW-THROUGH OFFERING:** 1,000,000 Flow-Through Units, each Flow-Through Unit being comprised of one flow-through share and two non-flow-through Series "B" Warrants, two such warrants entitling the holder to purchase one additional common share of the Issuer at any time up to one year following the Offering Day at the Offering Price. Ninety-five percent of the Offering Price of the Flow-Through Units will qualify for "flow-through" tax treatment (see "Details of Flow-Through Offering"). The Flow-Through Offering may be increased by up to 15% to meet over-subscriptions.

FLOW-THROUGH UNITS to	Offering Price (estimated)*	Commission**	Estimated Net Proceeds be Received by the Issuer
Per Unit	\$2.40	\$0.18	\$2.22
Total	\$2,400,000	\$180,000	\$2,220,000

\* To be calculated in accordance with the rules of the Vancouver Stock Exchange.

\*\*To be paid out of the Issuer's general working capital.

**ADDITIONAL OFFERING:** The Agent has agreed to purchase (the "Guarantee") any of the Units offered hereby which are unsubscribed for on the Offering Day (see "Consideration to Agent"). Any Units acquired by the Agent under the Guarantee will be distributed under this Statement of Material Facts through the facilities of the Vancouver Stock Exchange at the market price at the time of sale. None of the shares acquired under the Guarantee and subsequently distributed will constitute "flow-through" shares for purposes of the Income Tax Act (Canada).

**AGENT**

L.O.M. Western Securities Ltd.  
#2200 - 609 Granville St.  
Vancouver, B.C. V7Y 1H2

Neither the Superintendent of Brokers nor the Vancouver Stock Exchange has in any way passed upon the merits of the securities offered hereunder and any representation to the contrary is an offence.

(744)

Aug. 21/90

## 1. PLAN OF DISTRIBUTION

### A. THE OFFERING

By Agreement dated for reference July 5th, 1990, as amended July 31, 1990, (the "Agency Agreement"), Avondale Resources Inc. (the "Issuer") appointed L.O.M. Western Securities Ltd. (the "Agent") to offer through the facilities of the Vancouver Stock Exchange (the "Exchange") 500,000 non-flow-through units (the "Non-Flow-Through Units") and 1,000,000 flow-through units (the "Flow-Through Units") of the Issuer (collectively the "Units") at a fixed price (the "Offering").

The Offering will take place on the "Offering Day" which will be not more than one hundred eighty (180) calendar days after the date this Statement of Material Facts is accepted for filing by the Exchange and the Superintendent of Brokers (the "Effective Date").

The offering price of the Units (the "Offering Price") will be determined in accordance with the rules of the Exchange, at a premium over the average trading price of the Issuer's shares as determined by the Exchange, subject to the agreement of the Issuer and the Agent.

Purchasers of Units offered hereunder will be required to allocate the price paid for each Unit on a reasonable basis between the common share and Series "B" Warrants that form the Unit, in order to determine their respective costs for purposes of the Income Tax Act (Canada). The administrative practise of Revenue Canada is that the allocation of such purchase price as made by the Issuer and an investor must be the same.

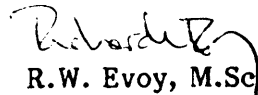
The Issuer will allocate the subscription price of a Unit on the basis of 95% to the flow-through and non-flow-through shares and 5% to the Series "B" Warrants. Such allocation is considered to be reasonable by the Issuer, but will not be binding on Revenue Canada, Taxation.


The Agent may overallot Non-Flow-Through Units and Flow-Through Units of the Issuer to cover oversubscriptions up to an amount equal to the lesser of the number oversubscribed or 15% of the number of such Units offered hereunder and, in such case, has an option for 60 days from the Offering Day to acquire such Units from the Issuer at the Offering Price less commission to cover such overallotment (the "Greenshoe Option"). Alternatively, the Agent may cover such overallotment by making purchase of shares (and warrants) in the market through the facilities of the Exchange. The Issuer has the right to terminate the Greenshoe Option at any time prior to 12:00 noon on the day before the Offering Day.

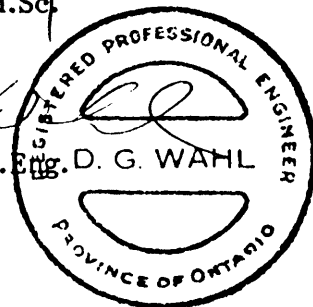
REPORT ON  
GULF INTERNATIONAL MINERALS LTD.  
INEL PROPERTY, ISKUT RIVER AREA  
NORTHWESTERN BRITISH COLUMBIA  
N.T.S.: 104B/10W

PREPARED FOR  
AVONDALE RESOURCES INC.

DERRY, MICHENER, BOOTH & WAHL

  
R.W. Evoy, M.Sc.

  
D.G. Wahl, P. Eng. D. G. WAHL



Toronto, Ontario  
June 11, 1990

Ref: 90-31  
AVO-101

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**PREFACE**

PREFACE

The following report on the Inel property was prepared by Derry, Michener, Booth & Wahl ("DMBW") at the request of Gulf International Minerals Ltd. ("Gulf") and Avondale Resources Inc. ("Avondale").

It is our understanding that Gulf and Avondale are currently negotiating an agreement whereby Avondale will be granted an option to acquire an aggregate 50% interest in the Inel property for an aggregate total expenditure of \$10,000,000 payable in cash, shares and exploration expenditures over 4 years.

It is our further understanding that upon successful completion of the negotiations the agreement will require regulatory approval.

**SUMMARY**

## SUMMARY

The Inel property is located in the Iskut River area, in the Liard Mining Division of northwestern British Columbia. The property is 100% owned by Gulf International Minerals Ltd. (Gulf) and consists of 15 contiguous mineral claims comprising a total of 217 units covering approximately 55 sq. km. Access to the property is by helicopter from the Bronson Creek airstrip, located approximately 10 km northwest of the property.

In our opinion, the exploration potential of the Inel property is excellent based on proximity to known deposits, favourable geology and existence of economically encouraging mineralization on the property.

The Inel property is located approximately 5 km due east of Skyline's Johnny Mountain deposit reporting 686,000 tons averaging 0.57 oz. Au/ton (Northern Miner, September 11, 1989) and about 8 km east-southeast of the Prime/Cominco Snip gold deposit reporting 1,570,000 tons averaging 0.64 oz. Au/ton (Northern Miner, September 11, 1989).

The Johnny Mountain and Snip deposits are hosted by volcanic and sedimentary rocks of the Upper Triassic Stuhini Group to Lower Jurassic Hazelton Group (Unuk River Formation) and intruded elements of the Coast Plutonic Complex. Similarly, the Inel property is dominantly underlain by a Triassic to Lower Jurassic sequence of rhyolitic breccias and flows, clastic sediments, andesitic volcanoclastics, and conglomerates, with minor limestones and intercalated basalt sills and breccias. This volcanosedimentary sequence has been cut by an irregular, leucocratic syenite pluton (alaskite).

Economically encouraging gold and base metal mineralization has been identified on the property including the Discovery - Main Sulfide Zone, AK Zone and 98 Zone, and to a lesser extent, being limited by data, the S-96 Area, Inel Ridge Zone, Zinc Knob, Wolverine Zone, Superior Zone, Moonlight Zone, East Ridge Zone and Big Rock Showing. A summary of significant exploration results is presented as Table S-1.

TABLE S-1  
INEL PROPERTY - EXECUTIVE SUMMARY

Claims	Ownership	Significant Exploration Results	Proposed Program	Budget
1 NEL 1 1 NEL 2 1 NEL 3 1 NEL 4 INEL 2 INEL 3 INEL 4 INEL 8* INEL 9* SLOCUM 1 SLOCUM 2 SKX 1 SKX 2	100% owned by Gulf	Property underlain by lower Hazelton Group, host to the Johnny Mountain and Snip deposits  Economically significant gold and base metal mineralization has been identified on the property including: Discovery - Main Zone - tested surface and underground on 1500 level - auriferous zinc-rich mineralization concentrated in fractures, stratabound sulfides, remobilized vein sulfides, and disseminated gold in massive injection breccias typical of stockwork vein geometry - weighted average grade of all significant underground drill intersections >0.10 oz Au/ton returned 0.28 oz Au/ton over an average core length of 2.39m - best u/g intersection 0.77 oz Au/ton and 2.13% Zn over a corelength of 4.05m in hole U-40 - ten panel samples >0.3 oz Au/ton x m averaged 0.606 oz Au/ton over an average width of 0.87m - best panel returned 1.46 oz Au/ton and 6.7% Zn over 1.0m AK Zone - most economically significant area currently discovered - auriferous shoots hosted by an irregular syenite breccia within sediments of the Hazelton Group - seven chip samples returned an weighted average of 0.392 oz Au/ton over 4.4m with a best assay of 0.522 oz Au/ton over 8.0m - 32 closely spaced drill holes (3,060m), 19 holes reported intersections >0.10 oz Au/ton - weighted average grade of all intersections is 0.356 oz Au/ton over a 2.45m average core length - best intersection of 0.628 oz Au/ton over 7.3m in hole S-116	Totally integrated, multi-staged, non-contingent underground and surface exploration program followed by Phase IIb contingent underground program  PHASE I Will comprise underground exploration of the AK Zone and include: - adit excavation (550m) - geological mapping & sampling - diamond drilling (3500m)	PHASE I Planning \$8,050 Adit Excavation \$1,061,380 Diamond Drilling \$234,960 Site Labour \$135,000 Camp Support \$149,500 Site Services \$40,000 Assays \$36,000 Petrography \$15,625 Transportation \$138,700 Permitting \$5,000 Reporting \$100,000  Sub-Total: \$1,924,215 Management & Supervision: \$384,843 Contingency: \$192,422  TOTAL: \$2,501,480

• overstaking of claims INEL 4 and INEL 3



TABLE S-1 (continued)  
INEL PROPERTY - EXECUTIVE SUMMARY

Claims	Ownership	Significant Exploration Results	Proposed Program	Budget
		AK Zone (continued)	PHASE IIa	PHASE IIa
		- several subparallel, en echelon zones currently identified from surface to a depth of 85m	Surface exploration to test Inel Ridge Zone, East Ridge Zone, Wolverine Zone, Superior Zone, Moonlight Zone, Zinc Knob and Big Knob Showing	Planning \$8,050
		- true width of mineralized structure 2m to 5m	Exploration will include:	Surface Program \$169,725
		- zone open to depth and along strike	- geological mapping	Diamond Drilling \$135,000
		- similarity to Premier-Silbak striking:	- geochemical sampling	Assays \$64,000
		auriferous breccias and vein stockworks along and discordant to contact of lower Hazelton Group volcanics with alkalic porphyry	- diamond drilling (2,250m)	Petrography \$6,350
		similar sulfide mineralogies		Helicopter \$102,300
		98 ZONE		Reporting \$25,000
		- auriferous sulfide-rich veins and veinlets along northerly trending fractures within sedimentary and basaltic lithologies		Sub-Total: \$510,425
		- greatest concentration of visible gold encountered on the property, reporting 94.279 oz Au/ton and 22.26 oz Ag/ton over a core length of 0.5m in hole S-130		Management & Supervision: \$102,085
		- 16 holes were drilled, 8 returned assays >0.10 oz Au/ton		Contingency: \$51,043
		- weighted average grade (excluding hole S-130) of 0.28 oz Au/ton over a 2.03m average core length		TOTAL: \$663,553
		S-96 Area, Inel Ridge Zone, Zinc Knob, Superior Zone Moonlight Zone, East Ridge Zone and Big Knob Showing	PHASE IIb	PHASE IIb
		- encouraging results, albeit at an early definition stage	Contingent on results of Phase I follow-up underground program on the AK Zone including:	Planning \$8,050
			- additional 300m lateral development	Underground Development \$625,360
			- diamond drilling (3,000m)	Diamond Drilling \$204,960
				Site Labour \$123,000
				Camp Support \$128,500
				Site Services \$40,000
				Assays \$38,250
				Transportation \$117,000
				Reporting \$100,000
				Sub-Total: \$1,385,120
				Management & Supervision: \$277,024
				Contingency: \$138,512
				TOTAL: \$1,800,656

The Discovery - Main Sulfide Zone is the most advanced exploration target on the property having been tested from surface and underground. Surface exploration includes 32 diamond drill holes totalling 3,177 m; underground exploration includes 873 m of drifting on the 1,500 Level, panel sampling and 68 underground drill holes totalling 4,983 m.

The zone contains auriferous zinc-rich mineralization concentrated in fractures within the sediments or along the sediment/basalt contacts, and stratabound sulfides, remobilized vein sulfides, and disseminated gold in massive injection breccias. Underground drifting and drilling indicates the distribution of the mineralization, both in plan and section, is typical of stockwork vein geometries. Individual veins may be of limited lateral and depth extent, but in aggregate comprise an en echelon vein system with a minimum strike length of 400 m and depth continuity of at least 100 m. The weighted average grade of all significant underground drill intersections reporting assays greater than 0.1 oz. Au/ton returned 0.28 oz. Au/ton over an average core length of 2.39 m. The best intersection reported during the underground drilling was 0.77 oz. Au/ton and 2.13% Zn over a core length of 4.05 m from 15.45 m to 19.50 m in hole U-40. Ten panel samples reporting greater than 0.3 oz. Au x m, averaged 0.606 oz. Au/ton over an average panel width of 0.87 m. The highest panel assay was cut on the Crosscut South and returned 1.46 oz. Au/ton and 6.70% Zn over 1.0 m.

In our opinion, untested exploration potential remains on the Discovery - Main Zone; however, further work at this time should be deferred in favour of the significant exploration potential which exists at the AK Zone.

The AK Zone mineralization is localized in auriferous shoots hosted by an irregular brecciated syenite complex within a sedimentary assemblage of the Hazelton Group and is the most economically encouraging mineralization with respect to grade, extent and continuity yet identified on the property. Seven trench chip samples returned a weighted average grade of 0.392 oz. Au/ton over an average width of 4.4 m. The best chip sample returned 0.522 oz. Au/ton over 8.0 m. Thirty-two closely spaced holes were drilled on the AK Zone for an aggregate total of 3,060 m. Nineteen holes reported at least one intersection

greater than 0.1 oz. Au/ton. The weighted average grade of these intersections is 0.356 oz. Au/ton over an average core length of 2.45 m. The best intersection was cut in hole S-116 returning 0.628 oz. Au/ton over a core length of 7.3 m from 53.0 m to 60.3 m. The gold mineralization is typically associated with 2% to 20% pyrite, plus variable sphalerite, chalcopyrite, galena, arsenopyrite and pyrrhotite and appears to correlate closely with total sulfide content. Several subparallel, en echelon zones are present within the AK Zone and extend from surface to a currently defined depth of 85 m. True widths of the mineralized structures are from less than 2 m to approximately 5 m. The zone is open both along strike and to depth.

The association of significant gold mineralization in the Hazelton Group with the emplacement of subvolcanic, porphyritic alkalic intrusives is widely recognized in northwestern British Columbia. In the best studied example of this relationship in the area, the Premier-Silbak mine, orebodies occupy fractures and shears along the contact of the Hazelton Group volcanics and the Premier porphyry. Individual ore shoots consist of parallel and stockwork veins and breccia zones marginal to and crosscutting the porphyry and ore minerals consist of pyrite with subsidiary sphalerite, chalcopyrite, galena, arsenopyrite, pyrrhotite and minor silver and gold. The similarity of the AK Zone to the Premier-Silbak is striking; both consist of auriferous breccias and vein stockworks along and locally discordant to the contact of lower Hazelton Group volcanics with alkalic porphyry intrusives, and exhibit similar sulfide mineralogies. In our opinion, a major exploration effort is warranted in the AK Zone.

The mineralization of the 98 Zone consists of auriferous, sulfide-rich veins and veinlets concentrated along northerly trending fractures within sedimentary and basaltic host lithologies. The 98 Zone drilling intersected the greatest concentration of visible gold on the property in hole S-130 reporting 94.279 oz. Au/ton and 22.26 oz. Ag/ton over a core length of 0.5 m. Eight of the sixteen holes drilled reported intersections greater than 0.10 oz. Au/ton. The weighted average grade of all intersections, excluding hole S-130, is 0.28 oz. Au/ton over an average core length of 2.03 m. Further work is required to delineate this zone.

The mineralization encountered in the S-96 Area, Inel Ridge Zone, Zinc Knob, Superior Zone, Moonlight Zone, East Ridge Zone and Big Rock Showing is no less encouraging albeit at an initial definition stage and, in our opinion, further work is warranted.

In addition to the areas of known mineralization the high gold geochemical gold soil anomalies and coincident geophysical conductors located at the head of Blizzard Glacier on the east side of Inel Ridge should be detailed. The northwest corner of the claim group, along the west side of the main intrusion, should host the extension of Cathedral Resources' T-Zone. Extensions of these southeast trending vein systems should be tested. The Wolverine Zone lies in an area of complex stratigraphy cut by a large number of syenitic stocks, sills and dykes. The copper-gold skarn zone has potential and should be explored in more detail.

Gulf. has recommended, and DMBW concurs, that further work is warranted and that this work would comprise a multi-tiered exploration program. The first priority would be the underground program on the AK Zone. This stage (Phase I) would include 550 m of underground drifting, geological mapping and 3,500 m of underground diamond drilling.

The second phase would consist of independent surface and underground exploration programs. Phase IIa would be the continuation of property wide surface exploration, including geochemical sampling, mapping, trenching and diamond drilling. We consider this stage of exploration to be warranted irrespective of other results, and thus do not consider it to be contingent on Phase I. We further note that the cost of the surface program would be considerably reduced if run in conjunction with the AK Zone underground program.

Contingent on favourable results from the Phase I underground program on the AK Zone, it is anticipated that additional exploration and testing of the AK Zone mineralization will be necessary. This latter program (Phase IIb) is expected to consist of approximately 300 m of additional underground drifting to extend the known strike length of mineralization and access the zone for bulk sampling, and a further 3,000 m of underground drilling.

The costs of the proposed exploration programs have been estimated at \$2,501,480 for Phase I, \$663,553 for Phase IIa, and \$1,800,656 for the Phase IIb contingent program. The anticipated savings from the concurrent implementation of Phase I and Phase IIa is estimated at \$150,000; thus Phase IIa can be completed at a cost of \$513,553.

### PHASE I

#### PROPOSED UNDERGROUND EXPLORATION PROGRAM

#### INEL PROPERTY - AK ZONE

Planning and Expediting	\$ 8,050
Adit Excavation	1,061,380
Diamond Drilling	234,960
Site Labour	135,000
Camp Support	149,500
Site Services	40,000
Assaying	36,000
Petrographic Analyses	15,625
Transportation	138,700
Permitting	5,000
Reporting	<u>100,000</u>
Subtotal	\$1,924,215
Management and Supervision	384,843
Contingency	<u>192,422</u>
 TOTAL	 <u>\$2,501,480</u>

PHASE IIaPROPOSED SURFACE EXPLORATION PROGRAMINEL PROPERTY

Planning & Expediting	\$ 8,050
Site Labour & Camp Support	169,725
Diamond Drilling	135,000
Assaying	64,000
Petrographic Analyses	6,350
Transportation	102,300
Reporting	<u>25,000</u>
Subtotal	\$ 510,425
Management and Supervision	102,085
Contingency	<u>51,043</u>
 TOTAL	 \$ <u>663,553</u>

PHASE IIbPROPOSED UNDERGROUND EXPLORATION PROGRAM\*INEL PROPERTY - AK ZONE

Planning and Expediting	\$ 8,050
Adit Excavation	625,360
Diamond Drilling	204,960
Site Labour	123,000
Camp Support	128,500
Site Services	40,000
Assaying	38,250
Transportation	117,000
Reporting	<u>100,000</u>
Subtotal	\$1,385,120
Management and Supervision	277,024
Contingency	<u>138,512</u>
 TOTAL	 \$ <u>1,800,656</u>

\* - Contingent on favourable result of Phase I program.

## CHAPTER 1

### OVERVIEW

## CHAPTER 1

### OVERVIEW

#### INTRODUCTION

The following report on the Inel Property of Gulf International Minerals Ltd. was prepared by Derry, Michener, Booth & Wahl (DMBW) at the request of Gulf International Minerals Ltd. (Gulf) and Avondale Resources Inc. (Avondale). The report is based on our review and evaluation of all available data including company files, government publications and assessment reports and on observations made during visits to the Gulf offices in Vancouver and the property.

DMBW has not examined title to the claims (or properties) nor substantiated their physical boundaries and accordingly expresses no opinion as to validity of title and property description.

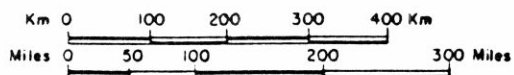
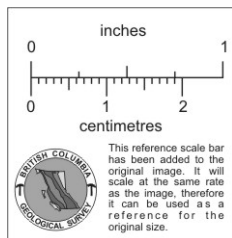
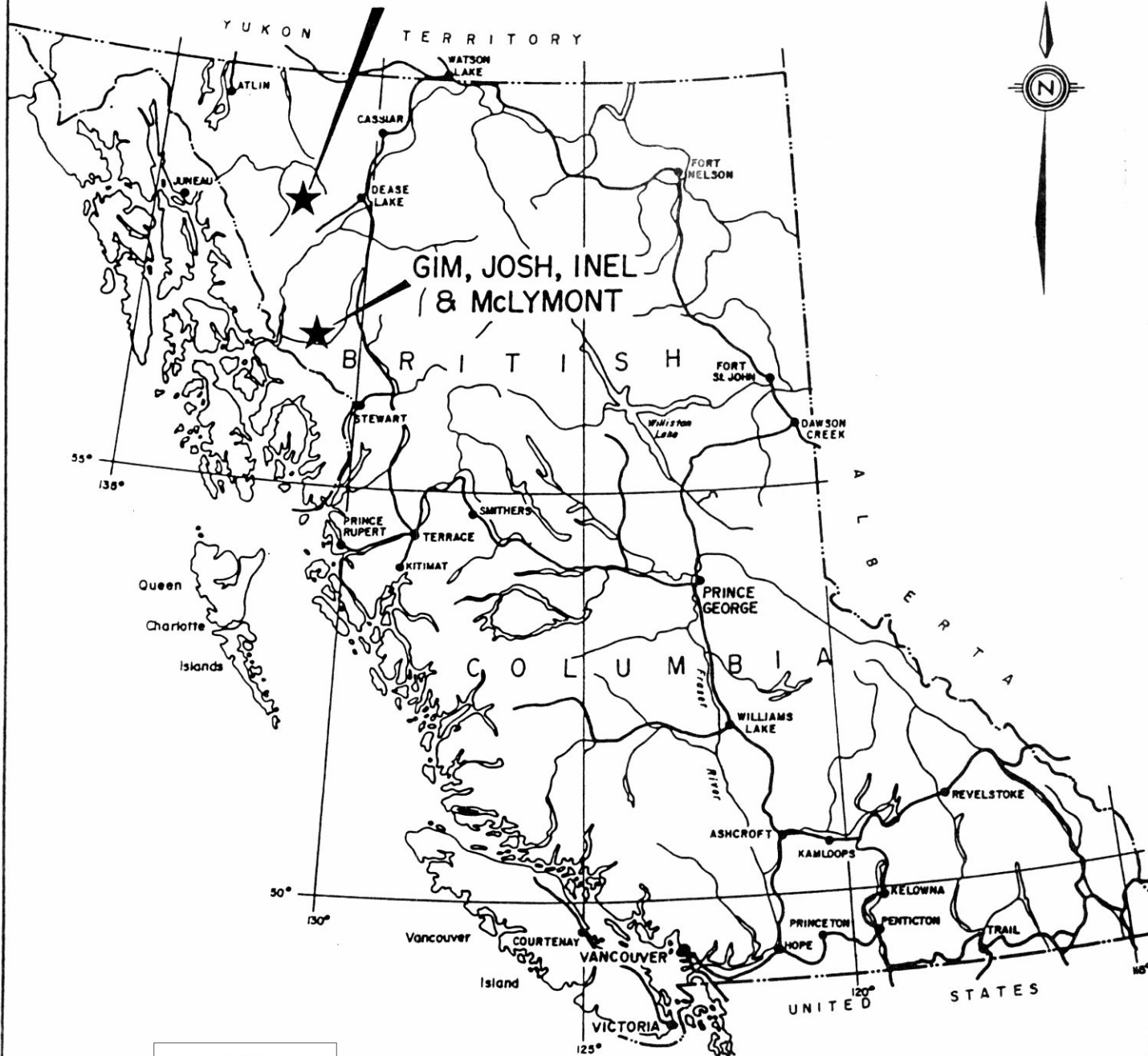
#### LOCATION, ACCESS AND PHYSIOGRAPHY

The Gulf International Minerals Ltd. (Gulf) Inel property is located in the Iskut River region of northwestern British Columbia, east of the Alaska Panhandle (Figure 1). The area of active exploration falls within the Coast Range Mountains which are rugged in the west becoming progressively more moderate toward the east.

Elevations range from less than 100 m above sea level in the Iskut River valley to about of 2,700 m on some of the higher mountains. The majority of mountain peaks would be in the 1,500 m to 2,500 m range. A significant portion of the higher elevations are occupied by ice sheets and associated active alpine glaciers.



CUR 1 & 2  
ELL 1 & 2



GULF INTERNATIONAL MINERALS LTD.

## REGIONAL PROPERTY LOCATION MAP

PAMICON DEVELOPMENTS LTD.

DRAWN. J.W.	N.T.S.	DATE. JAN. 1990	FIGURE. 1
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The major drainage basins in the region are defined by the Iskut, Stikine and Unuk Rivers which occupy wide relatively mature valleys with moderate gradients. Smaller drainage systems are characterized by much more extreme gradients and occupy narrow, steeply incised valleys.

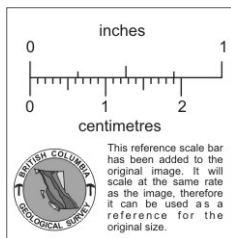
Climatic regions within the area vary between west coast temperate at lower elevations to alpine at the highest elevations. Both summer and winter temperatures are moderate although annual rainfall may exceed 200 cm and several metres of compact snow can be expected at higher elevations.

Access to the area is by fixed-wing aircraft to one of four serviceable gravel airstrips. These are located at Johnny Mountain (site of Skyline Gold Corp.'s mine, Figure 2), Bronson Creek, Snippaker Creek and Forrest Kerr Creek. The strips at Johnny Mountain and Bronson Creek can be serviced by Hercules aircraft while the other two can only be accessed by smaller aircraft. At present helicopters are employed to reach most of the exploration projects.

The Province of British Columbia has recently completed a study on possible road access to the Iskut River, Eskay Creek and Sulphurets area. Construction of a road from the Stewart-Cassiar Highway at Bob Quinn Lake, down the south side of the Iskut River to Bronson Creek, is anticipated in the near future. This would be some 60 km in length with a possible branch road at 40 km allowing access to Eskay Creek and the Unuk River area, including Sulphurets. The State of Alaska is actively investigating the possibility of extending this road through the Panhandle to tidewater near Wrangell.

### AREA HISTORY

The Stewart-Sulphurets-Iskut River area forms an arcuate belt some 225 km long by an average 35 km to 40 km wide, and extending from the town of Stewart in the south to near Telegraph Creek in the north (Figure 3). The area totals approximately 10,000 sq. km, and has been referred to historically as the the Stikine Arch. Since 1892, more than 500 mineral deposits and/or showings



Gulf  
MCLYMONT  
Property

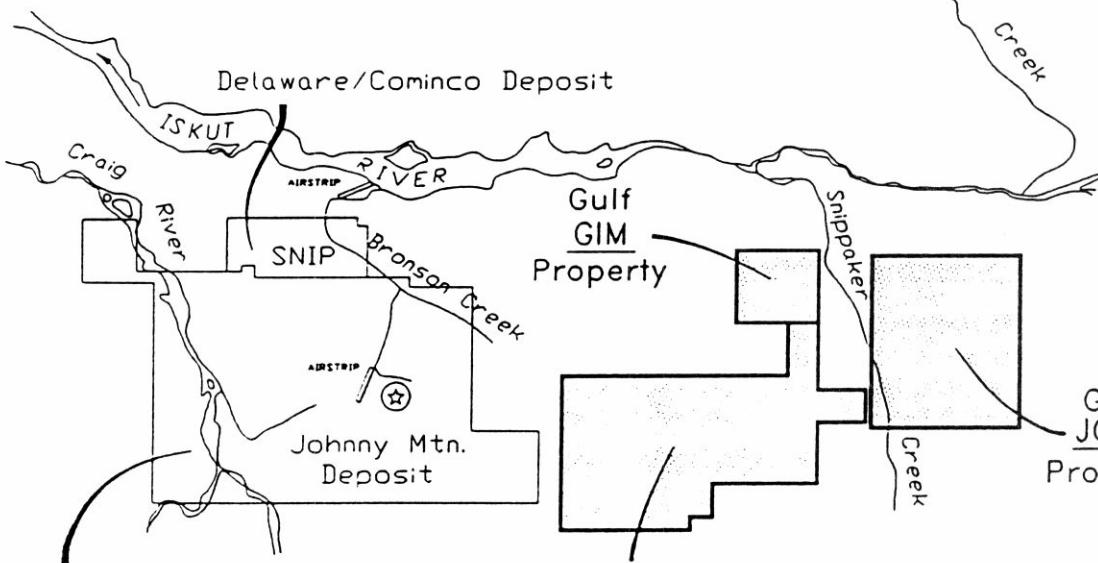


130°45' W

56°45' N

McLymont  
Creek

Delaware/Cominco Deposit

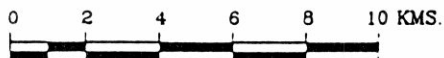


Skyline Explorations Ltd.

Gulf INEL Property

Gulf  
JOSH  
Property

SCALE



1:200,000

GULF INTERNATIONAL MINERALS LTD.

ISKUT RIVER AREA

LIARD MINING DIVISION

Property  
Locations  
Map

REVISION  
REVISION  
FILE  
DRAWING NO.

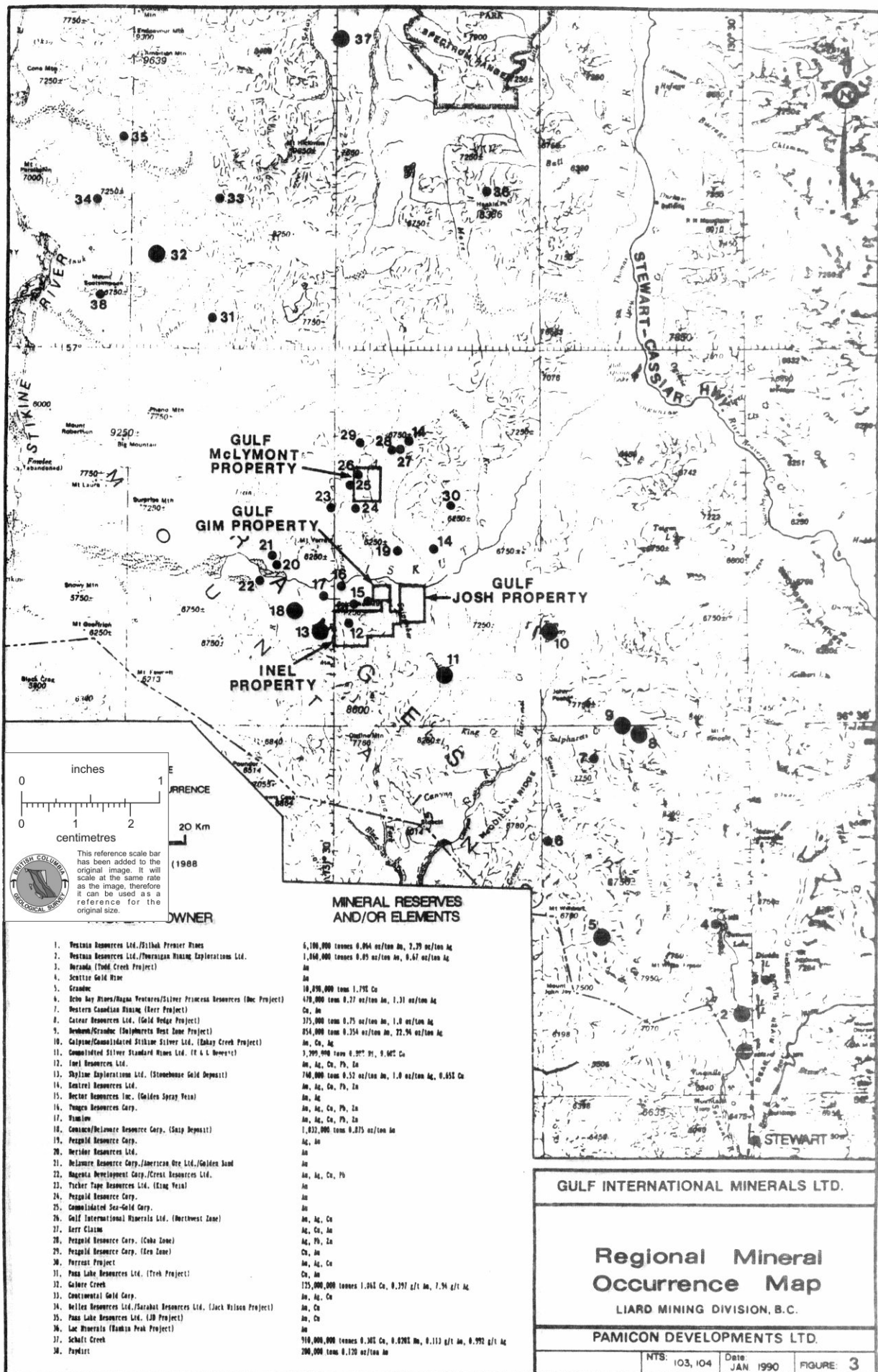
DRAWN BY: TEH APPROVED BY: M.T.S. 104B DATE: FEB. 28, 1990

2

DERRY, MICHENER, BOOTH & WAHL  
TORONTO CANADA



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have been found in this area, of these 70 have shown at least some level of historic production.

The history of the area can be subdivided into two periods: circa 1900 to the mid-1970's, and the more recent activity of the late 1970's and 1980's. The original discovery of mineralization in the area can be attributed to miners on their way to, or returning from, the Klondike gold fields. Rivers flowing through the Alaska Panhandle served as access corridors and mineralization was noted along the Iskut and Unuk Rivers and at the head of the Portland Canal. Highlights of this period were the discovery of copper-gold-silver mineralization at Bronson Creek; the location of similar mineralization along the Unuk River and at Sulphurets Creek; the discovery of the Silbak-Premier mine near Stewart; and the location of mineralization at Eskay Creek near the headwater of the Unuk River.

Development and production at this time was largely limited to the area around Stewart where a number of mines produced high grade silver. The most significant producer was the Silbak-Premier mine located 12 km north of Stewart which produced some 2,550,000 tons grading 16.8 g Au/ton and 409.5 g Ag/ton from 1920 to 1936.

After World War II the area was re-examined for base metals, most notably copper. This era led to the discovery of the Grunduc, Galore Creek and Schaft Creek copper deposits and the E & L copper-nickel deposit. Of these, only Grunduc was taken to production, by a combination of low copper prices operating cost resulted in suspension of activity.

Recent exploration activity in the area dates from the rise of precious metal prices in the 1970's. As of late 1987, some 357 exploration and/or mining properties were held in good standing within the Stewart-Sulphurets-Iskut River belt (Equity Preservation Corp., 1988). The Iskut River-Eskay Creek area is currently the most active portion of this belt, and is one of the most active gold camps in North America at present. Recent discoveries from this latter area are summarized in Table 1. All results are taken from the Northern Miner (September 11, 1989), except where noted otherwise.

Table 1SIGNIFICANT MINERAL DEPOSITS AND OCCURRENCESISKUT RIVER - ESKAY CREEK AREA

<u>Property</u>	<u>Company</u>	<u>Results</u>
Johnny Mountain Gold Mine	Skyline Gold Corp.	686,000 tons @ 0.57 oz./ton Au
Snip Deposit	Prime/Cominco	1,570,000 tons @ 0.64 oz./ton Au
Catear Gold Wedge	Catear	1,000,000 tons @ 0.5 oz./ton Au with 4.0 oz./ton Ag
Bruce Jack West Zone	Sulphurets/Granduc/Newhawk	854,072 tons @ 0.354 oz./ton Au with 22.94 oz./ton Ag
Sulphurets Gold Zone		20,000,000 tons @ 0.08 oz./ton
Snowfield Gold Zone	Newhawk/Granduc	25,000,000 tons @ 0.08 oz./ton Au
Doc Property	Echo Bay/Magna/Silver Princess	470,000 tons @ 0.27 oz./ton Au with 1.31 oz./ton Ag
E & L	Consolidated Silver Standard	3,200,000 tons @ 0.8% Ni and 0.6% Cu
21 Zone (Eskay Ck.)	Calpine/Consolidated Stikine	ddh 89-93: 91.8 ft. @ 0.453 oz Au/ton with 16.9 oz. Ag/ton ddh 89-101: 55.8 ft. @ 0.867 oz. Au/ton with 19.9 oz. Ag/ton

## REGIONAL GEOLOGIC FRAMEWORK

The general Stewart-Sulphurets-Iskut River area consists of an amalgamation of accretionary terranes obducted onto the North American craton during Middle Jurassic time. The region includes both the eastern margin of the Coast Plutonic Complex and the western flank of the Bowser Basin.

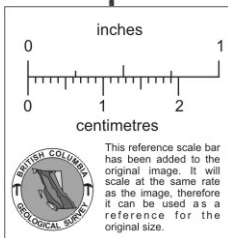
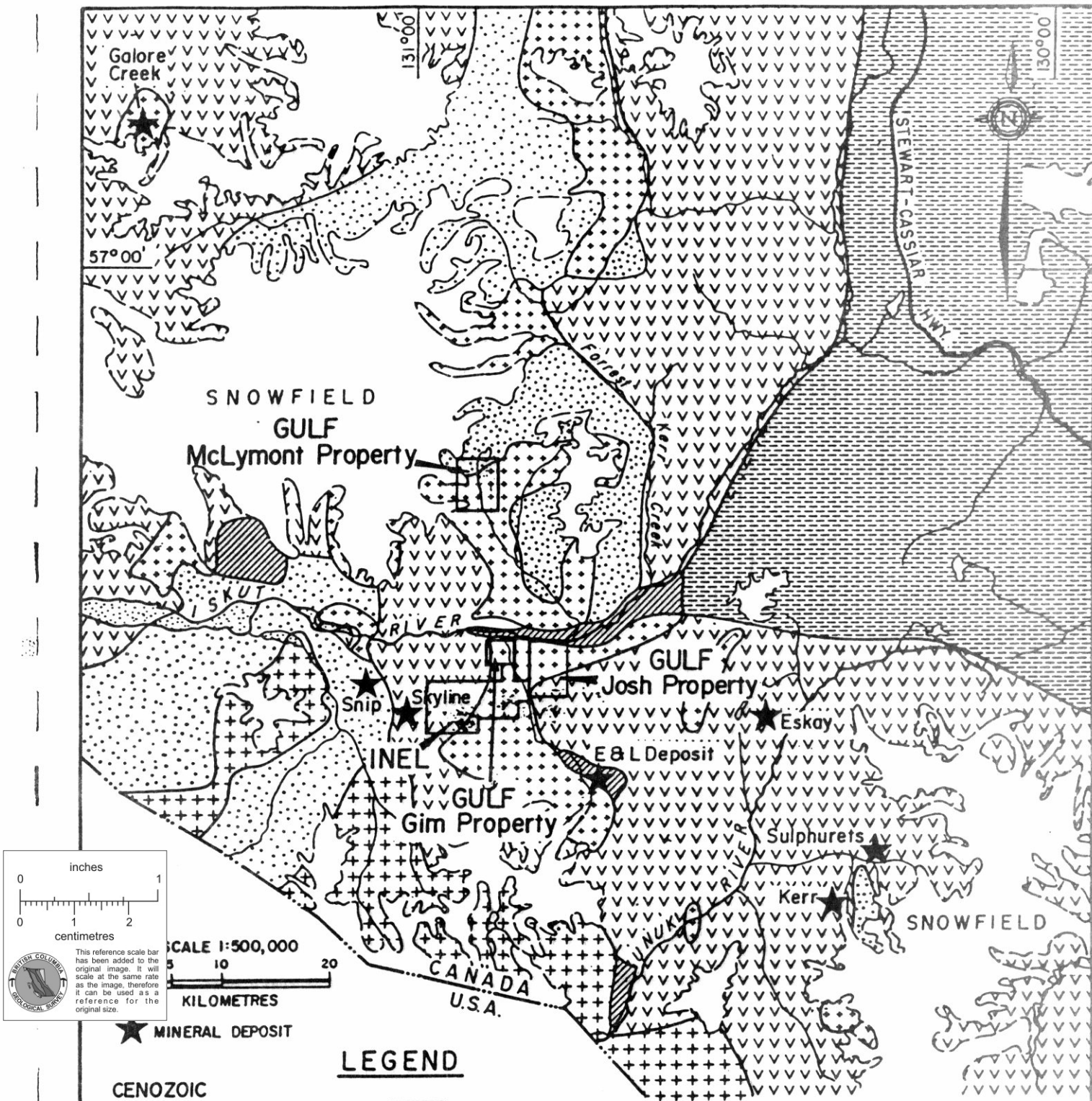
The Iskut River valley represents the surface expression of a major, easterly trending, structural zone terminated on the west by the Coast Plutonic Complex and on the east by the Meziadan Graben (Grove, 1973). The zone reflects the surface trace of a major fault zone in which Paleozoic strata override Mesozoic units along north-dipping thrusts (Grove, 1989).

A northwest trending assemblage of Upper Triassic and Jurassic volcanics and sedimentary rocks, extending from Alice Arm in the south to the Iskut River in the north, has been referred to as the Stewart Complex. Paleozoic limestone and volcanics of the Stikine Assemblage underlie the complex, while Mesozoic to Tertiary aged intrusives cut the units (Figure 4).

Volumetrically most significant in the immediate area, the Stewart Complex is a thick (>5 km) succession of Upper Triassic to Lower Jurassic volcanics and sediments of island arc affinity, unconformably overlain by Middle Jurassic marine-basin sediments. Stratigraphic reconstruction is incomplete, but sufficient data exist to allow general correlation with the main Mesozoic groups of northwestern B.C., including the Stuhini, Hazelton, Spatsizi and Bowser Lake groups (Table 2).

The Paleozoic Stikine assemblage commonly occurs as uplifted blocks associated with major intrusive bodies and is exposed along the southwest flanks of Johnny Mountain and Zappa Mountain. Four distinct limestone members have been differentiated at the base of the Stikine assemblage interlayered with mafic volcanoclastics, felsic crystal tuffs, pebble conglomerate and siliceous shale. Mississippian rocks consist of thick-bedded limestone members interbedded with chert, pillowed basalt and epiclastic rocks. Lower Permian units comprise thin-to





★ MINERAL DEPOSIT

## LEGEND

### CENOZOIC

Recent basalt flows

Early Tertiary felsic intrusives, primarily quartz monzonite

### MESOZOIC

Cretaceous and Tertiary intrusives, felsic to intermediate

Middle to Upper Jurassic Bowser Lake Group clastic sediments

Upper Triassic to Upper Jurassic volcanics and sediments, Hazelton and Stuhini Groups

### PALEOZOIC

Permian and older clastic, limestone and volcanic rocks and metamorphic equivalents; includes metamorphic rocks of unknown age.

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## SIMPLIFIED REGIONAL GEOLOGY

LIARD MINING DIVISION, B.C.

PAMICON DEVELOPMENTS LTD.

Geology interpreted from G.S.C. Map II-1971, Telegraph Creek; Equity Preservation Corp., Stewart-Sulphurets-Iskut Map 1988; and from Pamicon Developments Ltd. field maps

Drawn. J.W. N.T.S. 103,104 Date Jan. 1990 FIG. 4



Table 2

STRATIGRAPHY OF THE ISKUT RIVER AREA

Stratigraphy	Lithology	Comments
DOWSER GROUP		
M. Jurassic	conglomerate, siltstone, sandstone, shale	Successor basin
gradational to unconformable		
SPATSIZI GROUP		
L. Jurassic	shale, tuff, limestone	
unconformable		
HAZELTON GROUP		
E. Jurassic	coeval alkalic/calc-alkalic	contractional event? Island Arc rocks
gradational to unconformable		
STUINI GROUP		
L. Triassic	intrusions; mafic volcanic rocks in the east, bimodal in the west	extensional in western area
	polymictic conglomerate basaltic to andesitic volcanics (plagioclase and hornblende)	no Triassic clasts; limestone clasts common
M. Triassic	sedimentary rocks	
unconformable contractional event		
STIKINE ASSEMBLAGE		
Permian	thin bedded coralline to crystalline limestone (over 1000 m thick), fossiliferous; intermediate flows and volcaniclastics	volcanic units resemble Hazelton Group rocks
E. Permian	rusty argillite	
unconformable		
	'siliceous' turbidite, felsic lapilli tuff	extensional event
Missis-sippian	mafic meta-volcanics and metasediments	thick bedded limestone commonly bioclastic, coarse crinoids, corals
unconformable		
E. Devonian	limestone; intermediate to felsic volcanics	contractional events; rocks highly deformed

## Plutonic Rocks - Coast Plutonic Complex

L. Tertiary	granodiorite, diorite, basalt	
	intrusive contacts	
E. Tertiary	quartz diorite, granodiorite, quartz monzonite, feldspar porphyry, granite	
	intrusive contact	
M. Jurassic	quartz monzonite, feldspar porphyry, syenite	
	intrusive contact	
L. Jurassic	diorite, syenodiorite, granite	
	intrusive contact	
L. Triassic	diorite, quartz diorite, granodiorite	
? Not determined	quartz diorite, ?	

thick-bedded coralline limestone interbedded with volcanic mafic to felsic volcanic flows, tuffs and volcanoclastics.

The Upper Triassic Stuhini Group volcanic and sedimentary rocks are characterized by a distinct facies change from bimodal mafic to felsic flows and tuffs interbedded with thick sections of limestone in the northwest, to predominantly mafic volcanics with minor shale members in the southeast.

Lower Jurassic Hazelton Group volcanic and sedimentary stratigraphy consists of mafic to intermediate volcanics with interbedded shale, argillite and greywacke; maroon and green volcanic conglomerate and breccia; and welded tuff and tuff breccia. These lithologies have been subdivided into four lithostratigraphic units for the purpose of field mapping (Britton and Alldrick, 1988). In ascending order these are: the Unuk River Formation, the Betty Creek Formation, the Lower Salmon River Formation, and the Salmon River Formation.

Lower Jurassic Hazelton Group equivalents predominate in the area and appear to host the majority of the deposits and showings reported to date (Grove, 1989). Age dating of mineralization within the various mining districts suggests a close spatial and coeval relationship with early Jurassic volcanics and intrusives within the Hazelton Group.

Spatsizi Group shales, tuffs and limestone of upper Lower and lower Middle Jurassic age overlay Hazelton Group rocks in the eastern part of the map area. Buff, sandy, fossiliferous limestone units decrease in abundance to the north, and are replaced by black radiolarian-bearing siliceous shale rhythmically interbeds with white tuffs. This latter sequence serves as an important marker for identifying the underlying Hazelton Group.

Middle and Upper Jurassic clastic sediments of the Bowser Lake Group cover most of the northeastern map area (Figure 3). Interbedded shale and greywacke units predominate in the south with thick bedded shales dominate the north. Basal chert-rich conglomerates in the northern reaches of the Bowser Basin identify the group as an overlap assemblage.

At least four intrusive episodes, spanning late Triassic to Tertiary time, are recognized in the area. Varieties of plutonism include synvolcanic plugs, small stocks, isolated dykes and sills, dyke swarms, and the batholithic Coast Plutonic Complex. Late Triassic Stuhini Group and Early Jurassic Hazelton Group plutonic styles suggest coeval and cospatial relationships with surrounding volcanics; Tertiary (Coast Complex) plutons lack volcanic equivalents.

Locally severe structural disruption of stratigraphy due to folding and faulting is noted. Deformation is primarily Cretaceous aged and accompanied by greenschist metamorphism; however, evidence of polyphase deformation in some Triassic strata has been noted (Britton et al., 1989).

Broadly speaking, country rocks have been highly contorted and deformed along the Iskut River Structural Zone, whereas rolling open folds appear to dominate further to the south. Localized east-northeast fractures and shears and northwesterly fractures have been the locus of many of the known mineral deposits in the area.

## REGIONAL MINERALIZATION

Several varieties of mineral deposit-types are present in the area. These can be principally subdivided into vein, massive sulphide and porphyry or disseminated deposits (Equity Preservation Corp., 1988). Further expansion on the characteristics of each type is presented below (see also Figure 5).

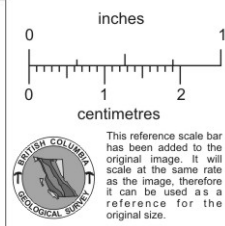
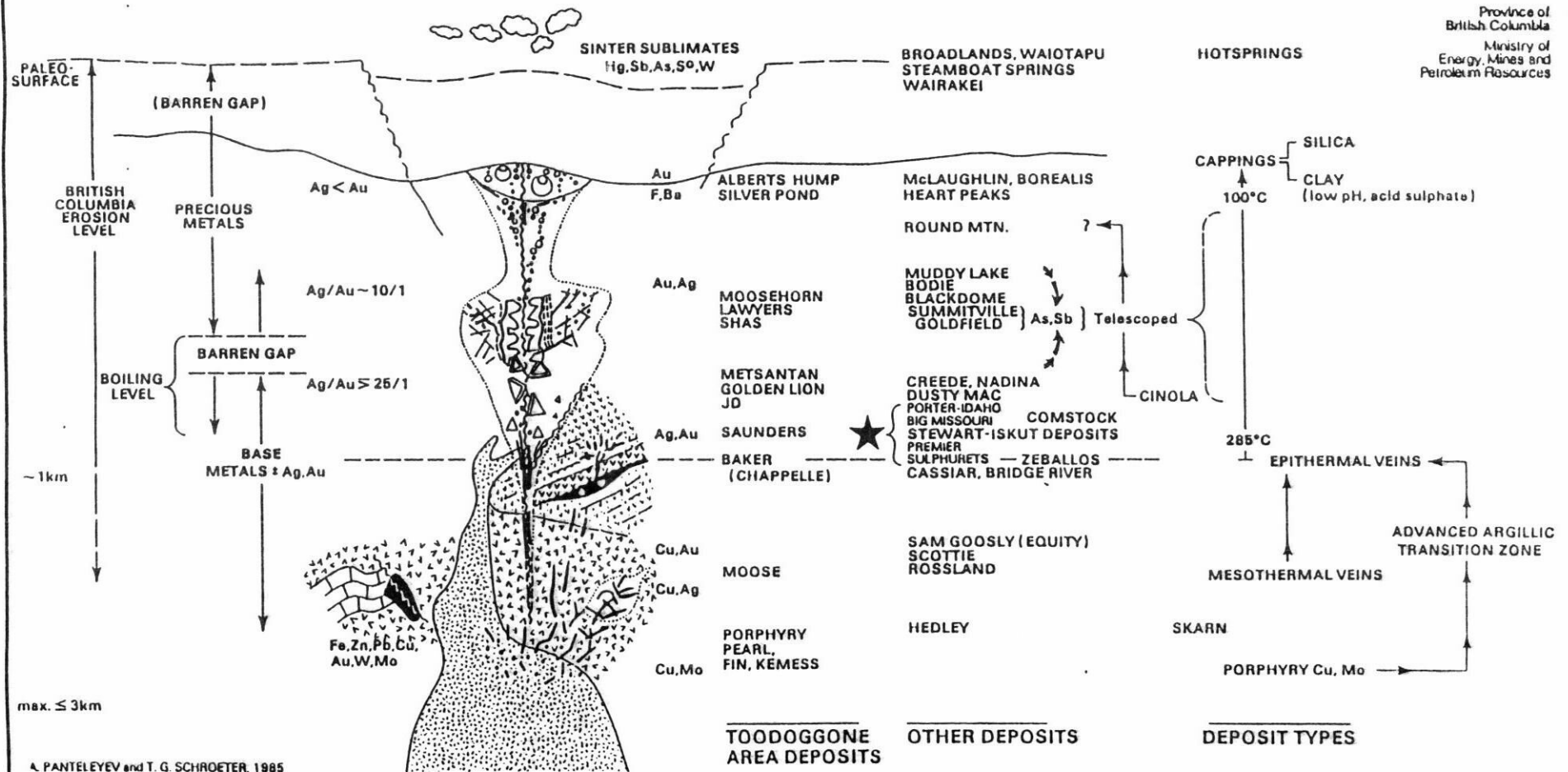
### Vein Deposits

Vein deposits include both fissure and replacement veins, and are numerically the most common style of mineralization present. A variety of mineral assemblages, alteration patterns, and rock associations are represented; veins show regional zoning patterns with respect to sulphide mineral associations,

# BRITISH COLUMBIA EPITHERMAL MODEL



Province of  
British Columbia  
Ministry of  
Energy, Mines and  
Petroleum Resources



Gulf International Minerals Ltd.

GENETIC MODEL

Figure 5

vein textures, and silver:gold ratios. In the Stewart area this zoning is related to the Texas Creek pluton and to stratigraphic position within the volcanic-sedimentary sequence.

Both precious metal-veins and base metal-veins are present in the area. Examples of precious metal-vein deposits include Johnny Mountain, Snip, Premier Silbak and Dolly Varden. Base metal-vein examples include Big Missouri, Scottie Gold, and the Goldwedge and Doc properties referenced previously in Table 1. All eight examples are hosted in Hazelton Group volcanic-sedimentary sequences, and generally exhibit close spatial associations with later felsic intrusives.

### Massive Sulphide Deposits

Massive sulphide deposits in the Stewart-Sulphurets-Iskut River area are also confined within Hazelton Group host lithologies. They are stratabound, often concordant within the country rocks, and have generally been subjected to later deformation and intrusion. Pyrite is always present, with variable constituencies of chalcopyrite, pyrrhotite, galena, sphalerite, arsenopyrite, tetrahedrite and magnetite also present.

Examples of massive sulphide deposits include Granduc, and Cominco's Anyox mine. The Anyox deposit is confined to pillowed volcanics, and may represent a subclass of Stewart area massive sulphide types.

### Porphyry or Disseminated Deposits

Porphyry deposits in the Stewart area are related to dioritic and syenitic intrusions, and areas of extensive gossans consisting of disseminated pyrite in phyllic and argillic alteration zones are known. Elemental associations include molybdenum, copper-gold-molybdenum, copper-gold, and gold.

Despite past production at B.C. Moly, porphyry-type deposits are very much a secondary interest in the area at present. Examples of currently active disseminated gold prospects include the Snowfield and Sulphurets Gold Zones included previously on Table 1.

**CHAPTER 2**

**INEL PROPERTY**

## CHAPTER 2

### INEL PROPERTY

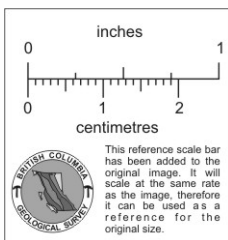
#### PROPERTY DESCRIPTION

The INEL property is located at latitude 56°40' north and longitude 130°48' west, approximately 7 km south of the confluence of Snippaker Creek and the Iskut River as shown on Figure I-1. The property lies within the Liard Mining Division and consists of 15 contiguous mineral claims which comprise 217 units covering 54.25 sq. km (Figure I-2). Records of the British Columbia Ministry of Energy, Mines and Petroleum Resources indicate that the property is wholly owned by Gulf and the claims are in good standing (Table I-1).

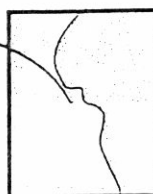
DMBW has not examined title to the property nor substantiated its physical boundaries and, accordingly, expresses no opinion as to validity of the title and property description.

Access to the property is by helicopter from the Bronson Creek airstrip, located approximately 10 km northwest of the property. Daily scheduled flights to the strip from Smithers, Terrace and Wrangell, Alaska, have been available during the field season using a variety of fixed-wing aircraft. The proposed road from Bob Quinn Lake on the Stewart-Cassiar Highway to Bronson Creek would pass about 5 km north of the property. Vertical relief on the property exceeds 1,300 m from 800 m near Bronson Creek to greater than 2,100 m on Snippaker Ridge. The ridge faces are steep and consist of a series of subvertical to vertical steps. Vegetation is sparse, but ground cover due to talus, snow pack and small glaciers is considerable.



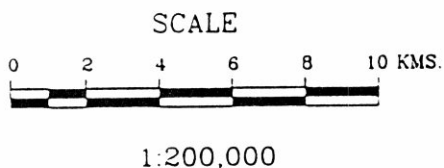
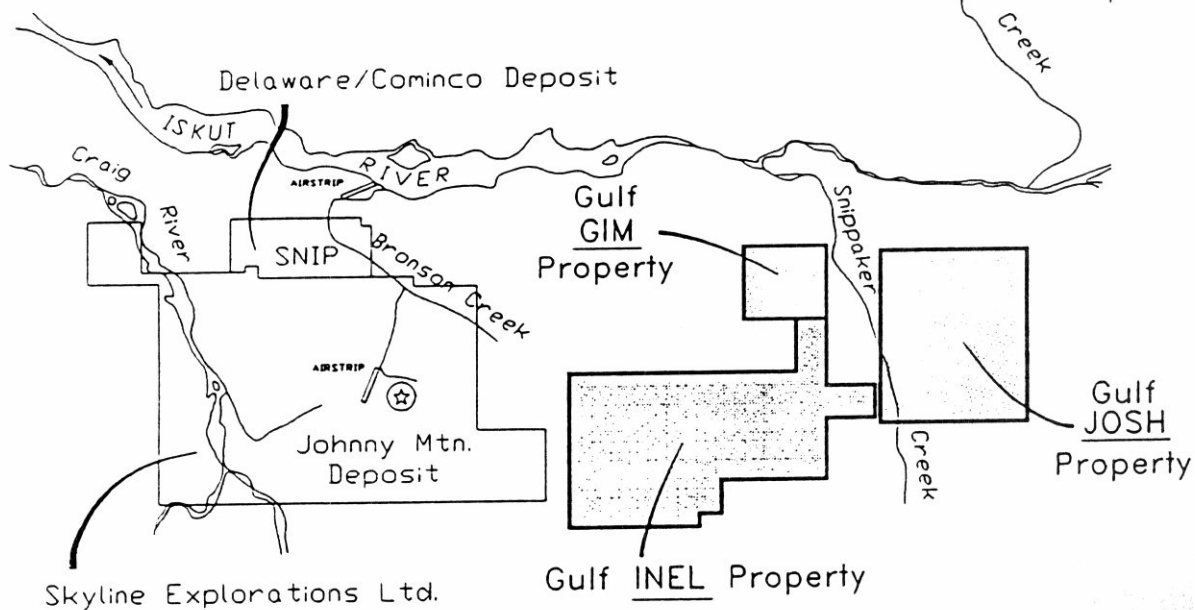


Gulf  
MCLYMONT  
Property



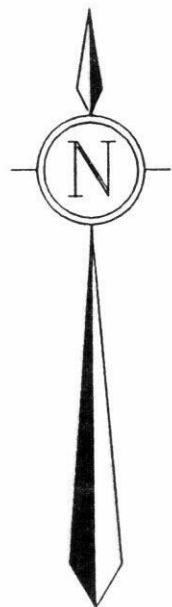
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56°45' N

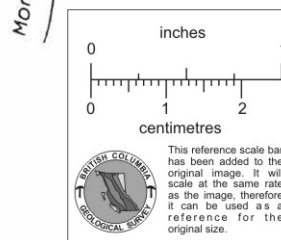


GULF INTERNATIONAL MINERALS LTD.			
INEL PROPERTY			
LIARD MINING DIVISION			
Property Location Map		REVISION	
		REVISION	
		FILE	
		DRAWING NO.	I-1
DRAWN BY TEH	APPROVED BY	NTS 104B	DATE FEB. 28, 1990
DERRY, MICHENER, BOOTH & WAHL TORONTO CANADA			

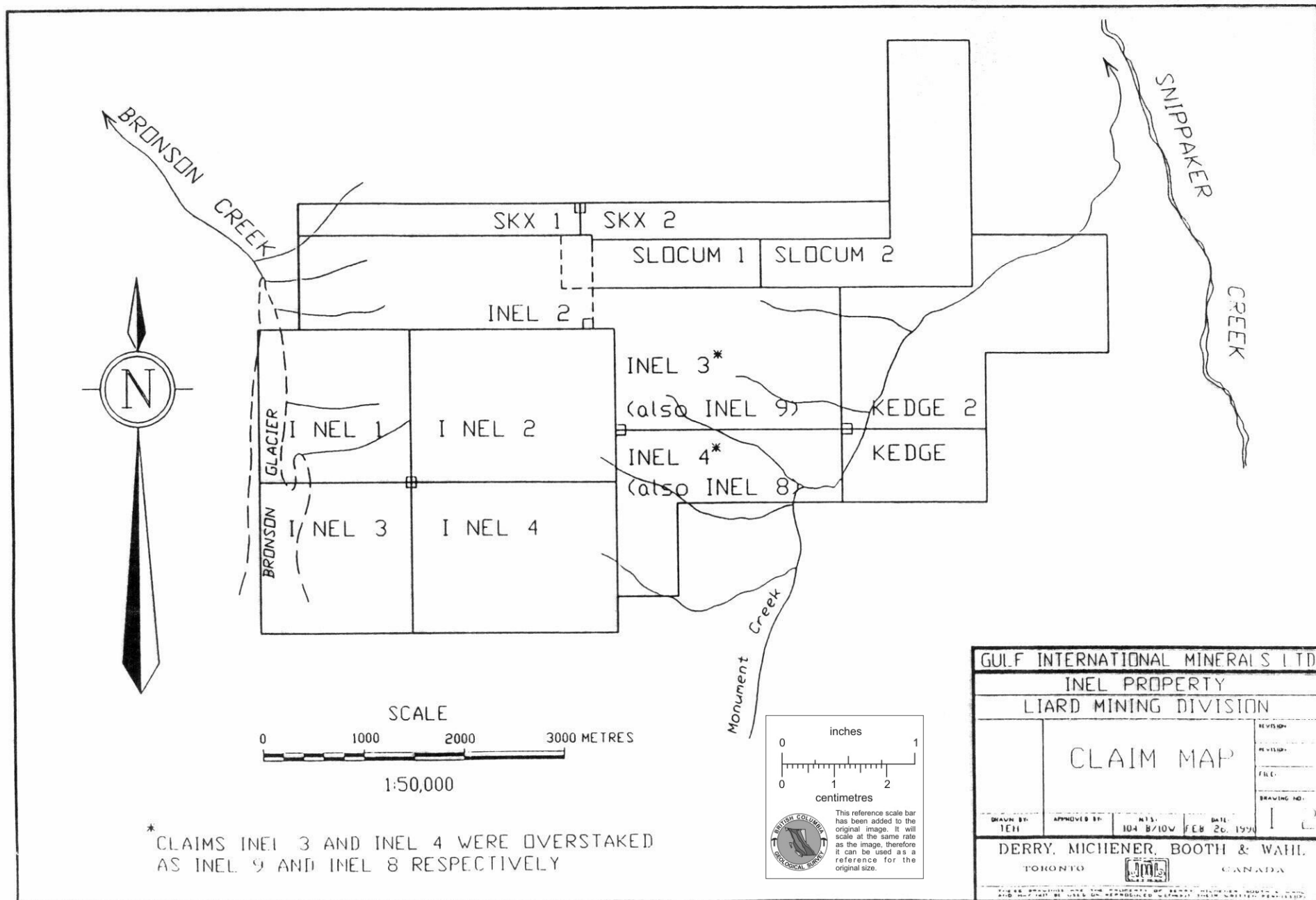
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SCALE  
0 1000 2000 3000 METRES  
1:50,000



\* CLAIMS INEL 3 AND INEL 4 WERE OVERSTAKED  
AS INEL 9 AND INEL 8 RESPECTIVELY



GULF INTERNATIONAL MINERALS LTD.			
INEL PROPERTY			
LIARD MINING DIVISION			
DRAWN BY: JEH		APPROVED BY: M.S.	DATE: 104 B/10V FEB 26, 1990
CLAIM MAP		REVISION: FILE: DRAWING NO.: 12	
DERRY, MICHENER, BOOTH & WAHL			
TORONTO		CANADA	

Table I-1INEL PROPERTYLIST OF CLAIMS

<u>Claim</u>	<u>Units</u>	<u>Record</u>	<u>Expiry Date</u>
I NEL 1*	9	1243	April 1, 1994
I NEL 2	12	1244	April 1, 1991
I NEL 3*	9	1245	April 1, 1994
I NEL 4	12	1246	April 1, 1993
INEL 2	16	2586	October 18, 1994
INEL 3	20	2587	October 18, 1991
INEL 4	20	2588	October 18, 1992
INEL 8**	9	2944	October 6, 1992
INEL 9**	12	2945	October 6, 1992
SLOCUM 1	20	2573	September 13, 1994
SLOCUM 2	20	2574	September 13, 1991
KEDGE	20	2584	October 18, 1992
KEDGE 2	20	2585	October 18, 1992
SKX 1	12	3718	December 5, 1994
SKX 2	6	3719	December 5, 1994

\* - A legal Survey Plan of claims I NEL 1 and I NEL 3 was completed in November 1987 and these mineral claims were designated Lot 7037 and Lot 7036, Cassiar Land District.

\*\* - Claims INEL 8 and INEL 9 represent overstaking of claims INEL 4 and INEL 3, respectively.

## EXPLORATION HISTORY

The first reported mineralization from the immediate property vicinity was some "high grade" sulfide float along Bronson Creek (Kerr, 1948). In 1964, prospectors located mineralized veins near the lower east end of Bronson Glacier and the following season Cominco located float and showings on the current property.

The property was staked by Skyline Explorations Ltd. (Skyline) in 1969. Texas Gulf optioned the property in 1972 and carried out limited mapping, trenching and sampling. In 1973, Ecstall Mining Ltd. (Ecstall) optioned the property and conducted a geochemical (silt) survey, geophysical survey, geological mapping, trenching and sampling over the following two seasons. Surface exploration identified a number of mineral occurrences on the property, but geophysical surveys failed to locate any obvious targets. No further work was done until 1980 when Skyline restaked the property and undertook limited sampling, trenching and geological mapping during the 1980 and 1981 seasons.

In 1983, Skyline began a major exploration program on the property, including; detailed chip sampling in the Main Sulfide Zone, mapping on parts of claims I NEL 1 through 4, and reconnaissance exploration along the main ridge. Prospecting, including geochemical soil and silt sampling, was extended to the east side of the main ridge opposite the Main Sulfide Zone. In addition, a helicopter borne VLF-EM and magnetometer survey was flown over the property as part of a regional airborne survey.

Skyline's 1984 work program included prospecting, geological mapping, trenching, sampling and diamond drilling on the Discovery and Main Sulfide Zones. Twenty-two holes totalling 1,630 m were completed with 12 BQ holes on the Discovery Zone and 10 AX winkie drill holes on the Main Sulfide Zone. The Main Sulfide Zone trenching included three subparallel contour trenches totalling 287 m. Numerous short trenches tested the less-developed showings. As part of the overall program a small jaw crusher and sample splitter was established at the camp which processed 1,292 samples during the season.

In March 1987, Inel Resources Ltd. (Inel) was incorporated as a wholly-owned subsidiary of Skyline to raise funding for continued exploration on the property. The base camp was upgraded and underground exploration began on the Main Sulfide Zone with an adit driven 183 m eastward on the 1,500 level. The adit was mapped and vein intersections sampled.

The underground program in 1988 included further drifting, underground drilling, mapping and panel sampling. By year end, the underground workings had been extended a further 570 m for an aggregate total of 753 m. Fifty-four AQ drill holes, totalling 4,258 m, tested numerous sulfide veins and disseminated mineralization at the south end of the adit. Significant mineralization in the adit was panel sampled.

Surface drilling, trenching, sampling and soil sampling were continued and a ground VLF survey was completed on the west side of Inel Ridge. A number of discrete pyritic veins were located to the north of the Discovery Zone area. This new showing was designated the AK Zone. Fifteen surface drill holes totalling 2,024 m were drilled during this program, for a total of 6,282 m on the year.

The 1989 exploration program included a further 120 m of underground workings including; a crosscut west, a crosscut east and extension of the 1,500 Drift northward.

Contract drilling during this program included 14 underground holes totalling 725 m and 63 surface holes totalling 7,789 m to test the Zinc Knob, Ice Cave and AK Zone, as well as several geophysical anomalies. Total footage during the 1989 program was 8,514 m.

Surface trenching in 1989 was primarily restricted to the AK Zone, Zinc Knob, and Ice Cave areas. Limited surface geological mapping, rock and soil geochemical sampling, aerial photography, establishment of topographic controls and drill hole surveys were also completed.

To date a total of 873 m of underground drifting has been completed on one level (1,500 Level). Underground drilling from this level consists of 4,983 m and 11,443 m of surface drilling has been done for a total of 16,426 m on the property in 168 holes.

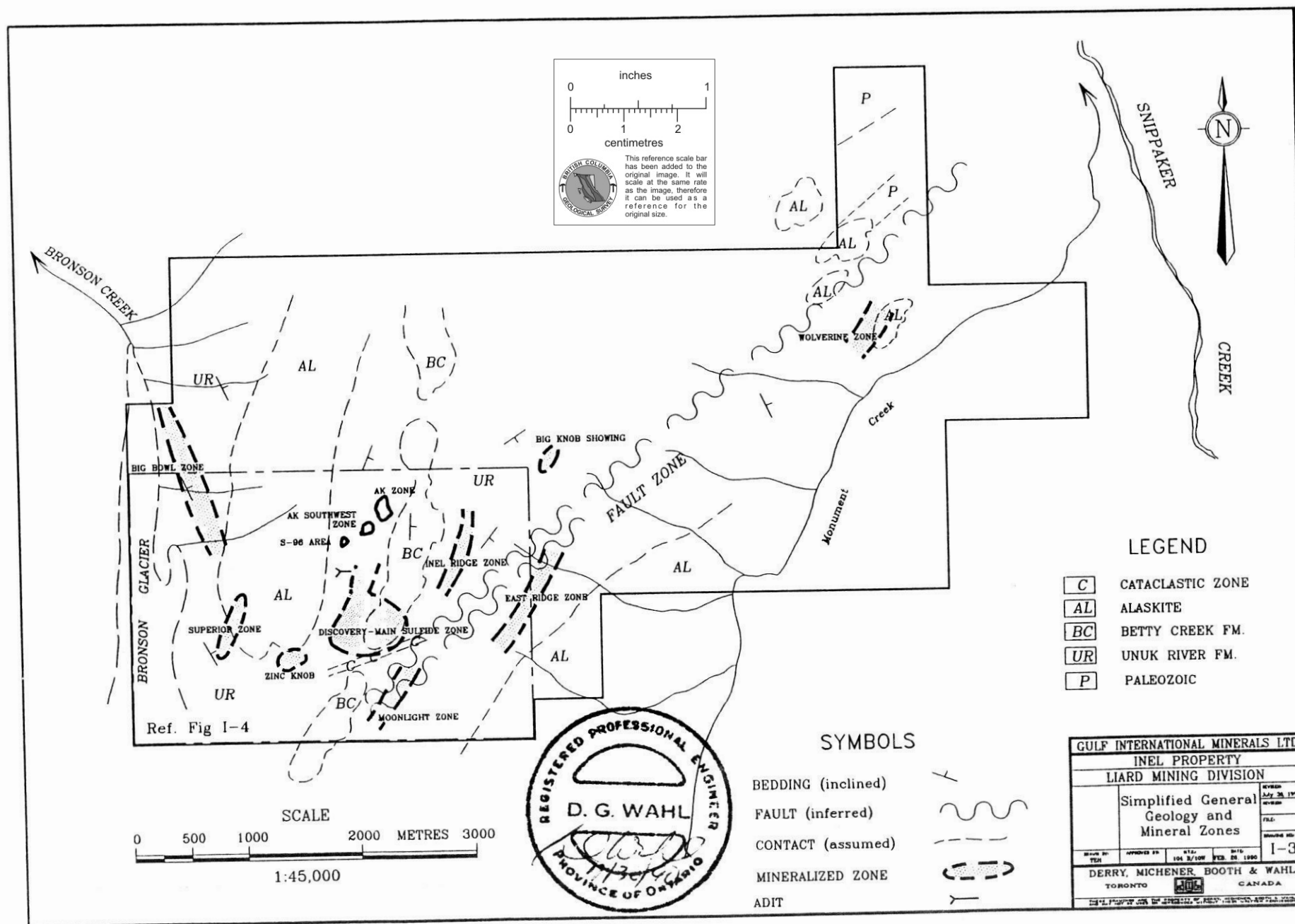
### PROPERTY GEOLOGY

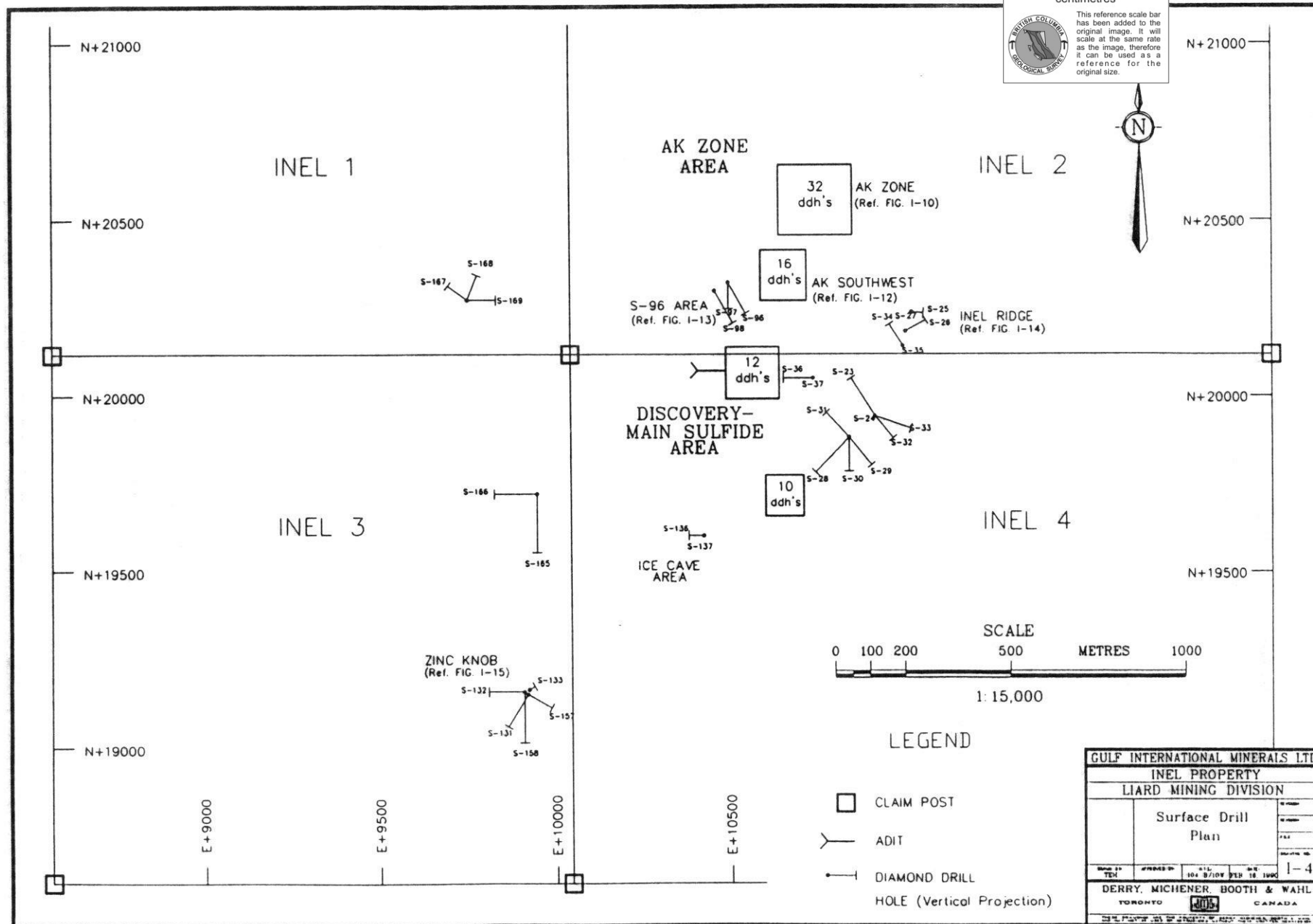
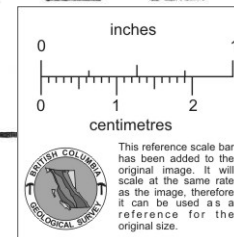
Most of the surface geological mapping on the Inel property was conducted during the 1983 and 1984 exploration programs. Approximately one-third of the property has been mapped in a preliminary fashion (Figure I-3), with greater detail coverage in the areas of known mineralization. Detailed underground mapping was the focus of the 1988 program, and core logging during the 1988 and 1989 programs has also added considerably to the understanding of the property geology. The surface diamond drill plan is shown on Figure I-4.

The dominant lithologies underlying the property are a layered Triassic - Lower Jurassic sequence of rhyolitic breccias and flows, clastic sediments, andesitic volcanoclastics, and conglomerates, with minor limestones and intercalated basalt sills and breccias. North of the property line the sequence includes a thick, south-dipping coquina with late Lower Jurassic (Toarcian) macrofossils, and is equivalent to the Upper Member of the Unuk River Formation (Grove, 1973; 1987). Further north, these units have been overthrust by Mississippian and Permian limestones; these Paleozoic carbonates are present as structural inliers on parts of the SLOCUM 2 and I NEL 3 claims.

The Triassic - Jurassic sequence can be subdivided into a lower unit (Unuk River Fm equivalent) unconformably overlain by an upper unit (Betty Creek Fm). The basal member of the Unuk River equivalent is essentially a fragmental andesitic sequence composed of volcanic breccias and conglomerates with minor sediments, and is overlain by a series of rhyolitic flows and tuffs.

The upper member of the Unuk River equivalent hosts most of the best documented mineralization on the property, including the Discovery and Main







Sulfide zones. This member consists of well-bedded volcanic sandstones grading up-section into a finely bedded sandstone/tuff sequence with thin olivine basalt sills, capped by coarse bedded sandstones, conglomerates and volcanoclastics with minor siltstone. To date, most of the bedded or stratabound mineralization has been outlined within the complex sediment - olivine basalt sill sequence.

Detailed mapping in the vicinity of several of the mineralized zones (both surface and underground), combined with extensive drilling, identified a sequence of north-northwesterly trending, east dipping sediments which have been variably hornfelsed and K-feldspathized, and are cut by a series of closely-spaced, east trending dykes and large breccia veins. Thin conformable olivine basalts originally mapped as flows within the sequence have since been shown to exceed 300 m in thickness in the subsurface, and locally form a major portion of the sequence. The basalt - sediment sequence underground conforms in detail to the general surface trend, but the extensive surface dyke and vein swarm is missing and thus is not as extensive or penetrative as originally inferred.

The overall structure of the Unuk River equivalent is an undulating sequence, striking north-northwesterly and dipping to the east; dips flatten up-section. The country rocks are cut by flat, closely-spaced faults marked by quartz veins, and by low angle cataclastite zones that offset all bedded lithologies.

The Betty Creek Formation is a major ridge-forming unit found along the spine of the Inel property. Contact relationship to the underlying Unuk River equivalent are unconformable, and where observed consist of undulating to flat-lying graphitic siltstone, sandstone and volcanoclastics overlying steeply dipping, granitized rhyolite and rhyolite breccia. The Betty Creek Formation on the property is composed of a variety of sediments, lithic and crystal tuffs, and porphyritic andesites.

The Triassic - Jurassic volcanosedimentary sequence on the west end of the property has been cut by an irregular, leucocratic syenitic pluton (alaskite) (Figure I-3). The contacts are marked by dioritic breccia margins, greater than

150 m wide, in a broad complex of syenite - syenodiorite - diorite and associated dykes, and dyke swarms of mixed composition.

Detailed surface mapping in 1984 outlined a small dyke swarm localized within the main sulfide showings, and consisting of two distinct dyke lithologies. The quartz monzonite - alaskite dykes are likely offshoots of the main stock. The second dyke set is a coarse, porphyritic syenodiorite found locally throughout the property. As noted previously, the dyke swarm mapped at surface in the Discovery - Main Sulfide zones has only limited depth extent. This has been interpreted as being spatially related to the nose of the main alaskite intrusive (Grove, 1989).

Several major cataclasite zones have been outlined on the property in both surface and underground drilling, and appear to consist of both high-angle and shallow structures. Smaller scale fractures are abundant in all rock types. Steep fractures trending  $120^{\circ}$  to  $140^{\circ}$  are the locus of significant gold, silver and base metal mineralization on the Inel property, as well as at the nearby Johnny Mountain and Snip deposits. Northeasterly to east-northeasterly trending fractures are also a prominent loci for mineralization on the Inel property.

Field mapping in the Main Sulfide Zone area revealed a broad alteration zone marked by relatively intense pyritization and silicification and shallow surface gossans. The alteration zone includes a great number of stringer sulfide veinlets (pyrite +/- chalcopyrite, sphalerite and galena) and has been cut by a number of larger sulfide veins, and quartz monzonite and syenodiorite dykes. Two general types of sulfide veins are present:

- (i) massive pyrite with quartz and/or feldspar; and
- (ii) massive pyrite with chalcopyrite, galena and sphalerite.

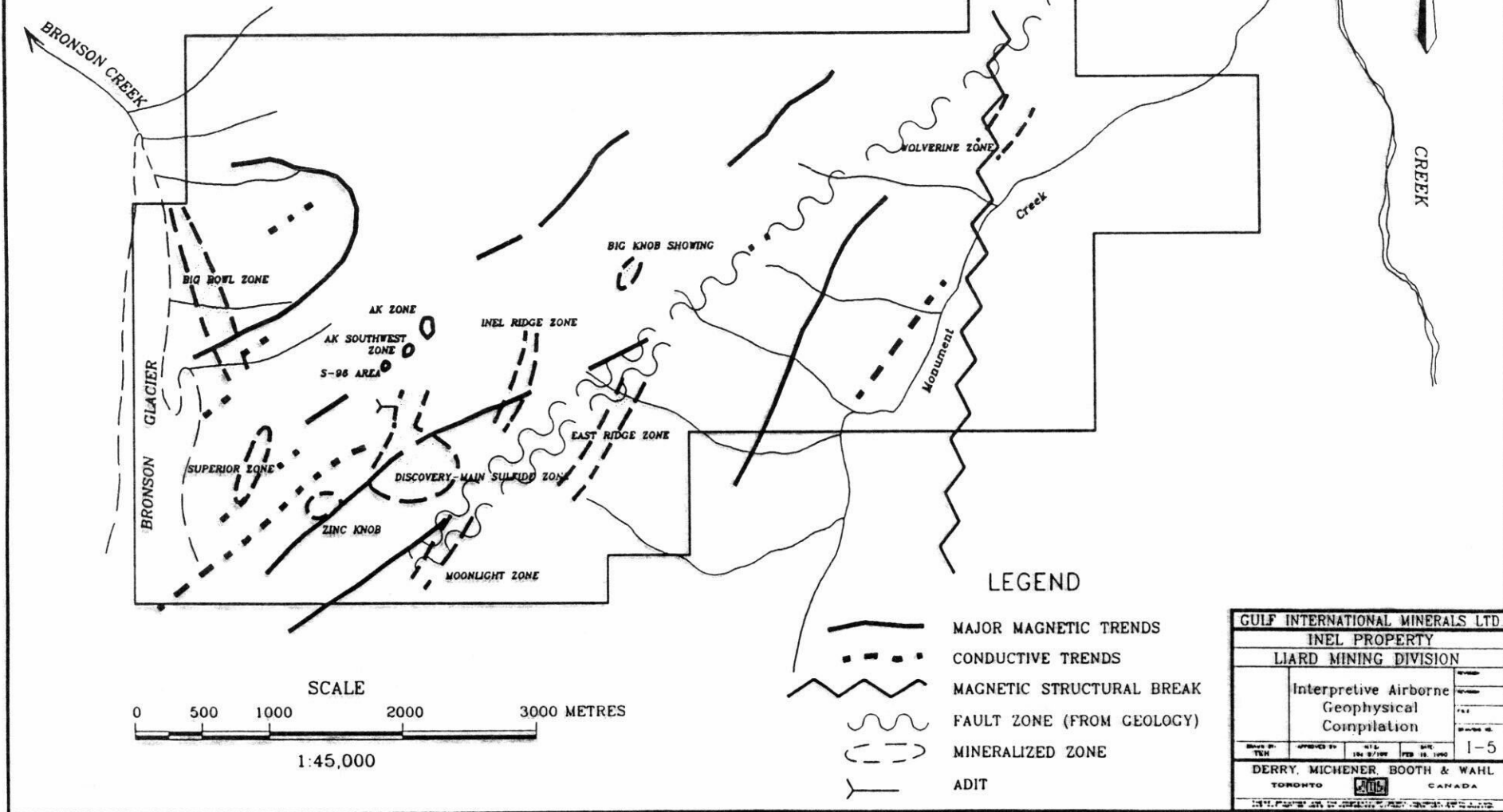
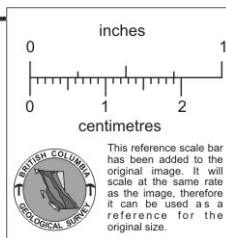
Structural trend of the stringer zones and massive sulfide veins is east to northeasterly with steep dips. In the central and northern exposures chalcopyrite, galena and sphalerite veining is more abundant, and many of the narrow veins (less than 1 m) trend southeasterly with moderate to steep dip.

Results from detailed channel sampling show that the massive pyrite exposures high in gold and silver also contain significant copper, lead and zinc values, and suggest a general increase in gold, silver and zinc values to the north in a localized metal zoning pattern. This apparent concentration of lead and zinc minerals north and south of a pyrite core, increase in arsenopyrite to the east, and overall alteration zoning pattern suggest an easterly plunging axis of mineralization (Grove, 1989).

### PROPERTY GEOPHYSICS

In 1983, the property was covered by an airborne helicopter magnetic and electromagnetic survey by Dighem Limited. This survey was part of a larger area covering ground held by Placer Development Limited. The rugged topography over the Inel property made it difficult to maintain line and terrain clearance specifications even with a helicopter. This is reflected in the sometimes erratic survey line spacing seen on the plots of the flight lines.

Figure I-5 shows the basic magnetic and conductive structures as interpreted from the airborne results. Superimposed on this figure are the mineral zones as shown on Figure I-3 previous. Except for an interpreted fold structure in the northwest corner of the property the magnetic and conductive trends generally strike in a northeast direction subparallel to the regional fault zone interpreted from geology. On the extreme east side of the claim group there is a major change in magnetic amplitude and character which is designated on Figure I-5 as a structural break but could also be a contact zone. The magnetic responses in the area tend to be erratic and discontinuous. This is probably related to several factors such as variable distance of the airborne magnetic sensor from the ground, differential distribution of magnetite and pyrrhotite and the effect of flat dipping magnetic source rocks outcropping in a rugged terrain environment. The basalts in the area are probably the main source of the magnetic responses with local higher amplitude areas related to additional concentrations of magnetic minerals.



GULF INTERNATIONAL MINERALS LTD.					
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Interpretive Airborne Geophysical Compilation				DATE	1-5
DATE OF TERR	APPROVED BY	DATE	DATE	DATE	
		1981 2/10/81	FEB 15 1980		
DERRY, MICHENER, BOOTH & WAHL					
TORONTO CANADA					
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There are several conductive responses in the extreme west end of the property, as well as one isolated trend in the eastern part. The major conductive trend, just south of the portal area, is probably caused by flat lying sediments present on the property which are known to be graphitic in places. The shorter isolated conductors are likely to be produced by local concentrations of sulfides which are ubiquitous to the area. There seems to be little relationship between the magnetic and/or conductive responses and the mineral zones. Further detailed geophysical ground work on a regional basis may show the presence of subtle structures associated with the mineral zones.

In 1989, test magnetic and VLF electromagnetic profiles were completed over the Big Bowl Creek Zone, Portal Zone, Ridge Zone, Ridge Zone Northwest, and Zinc Knob Zone. Except for the Portal Zone the results were inconclusive. VLF and magnetic responses tended to be weak and erratic. Some of the known mineralized areas had associated magnetic responses such as the Zinc Knob and Big Bowl Creek Zones, but there was limited VLF response. Those responses that correlated directly with known mineralization had response amplitudes and anomaly characteristics similar to other anomalies barren of any obvious mineralization. In other words, the mineralized areas did not appear to have an easily identifiable diagnostic geophysical signature. This work represented very limited coverage; however, and except for the Ridge Zone, coverage was on only a few widely spaced survey lines.

Geophysical coverage of the Portal Zone consisted of five lines spaced 50 m apart. Two VLF transmitter source stations were used for the survey. The results using the NSS, Annapolis, Maryland Station, were erratic and noisy. The NPM station at Laulualei, Hawaii; however, produced distinct conductive responses that were correlatable from line to line and in some places were coincident with positive or negative magnetic effects. The strike of the geophysical trends was parallel to stratigraphy suggesting the responses are mainly related to geological contacts or conductive sediments rather than the mineralized vein systems that are approximately orthogonal to the regional geological strike.

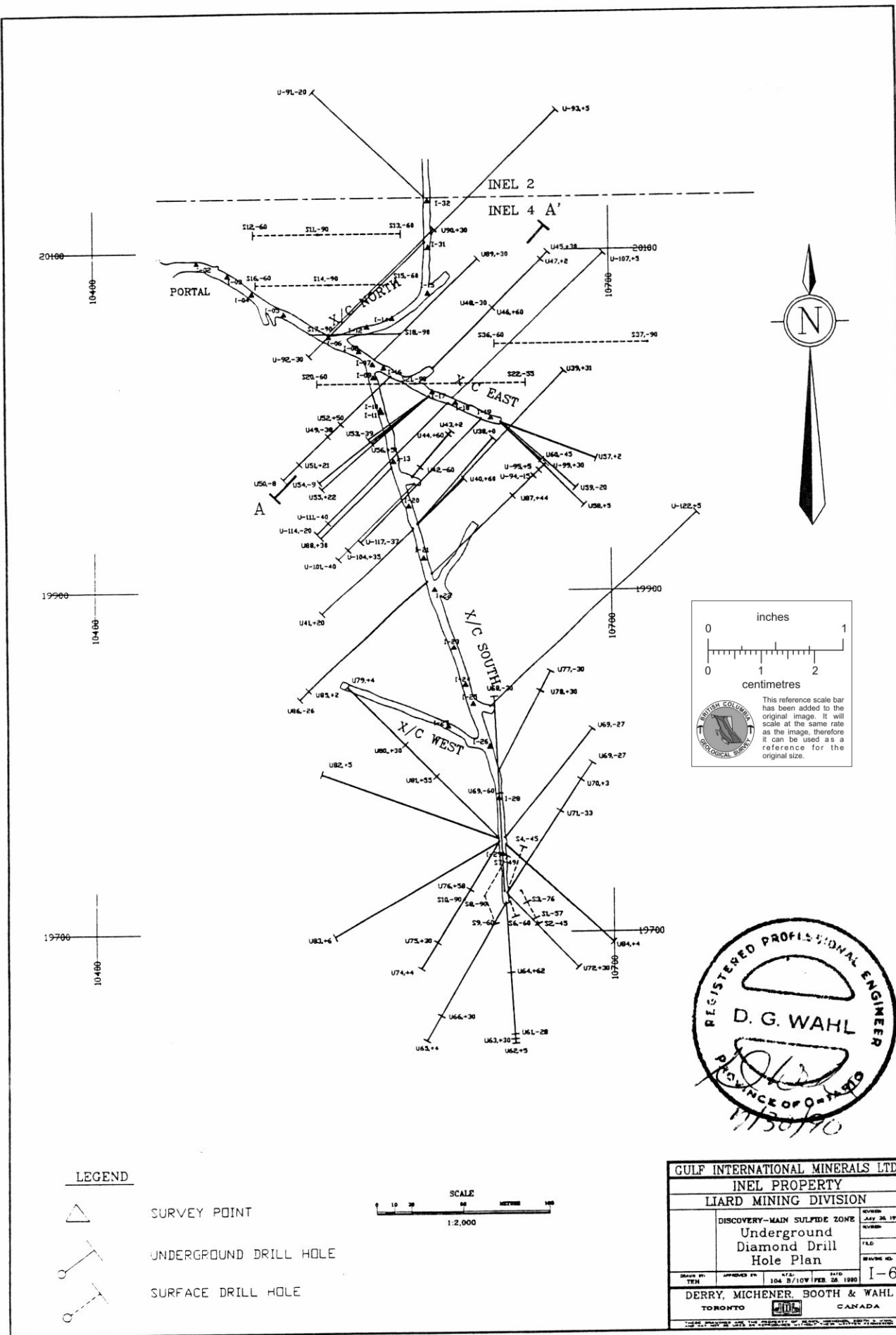
A transient electromagnetic UTEM survey using nine loop positions to cover a large area centered just west of the Portal Zone was completed in late 1989. A horizontal loop MaxMin electromagnetic survey was also completed over the same area. The final results of the surveys were not available at the time of writing this report. Preliminary comments on the UTEM survey indicate that numerous conductive responses were detected by the survey. The rough terrain, complex geological structures and low dipping strata will produce very complicated conductive effects that will have to be carefully correlated with the known geology and mineralization to assess their possible significance.

## **PROPERTY MINERALIZATION**

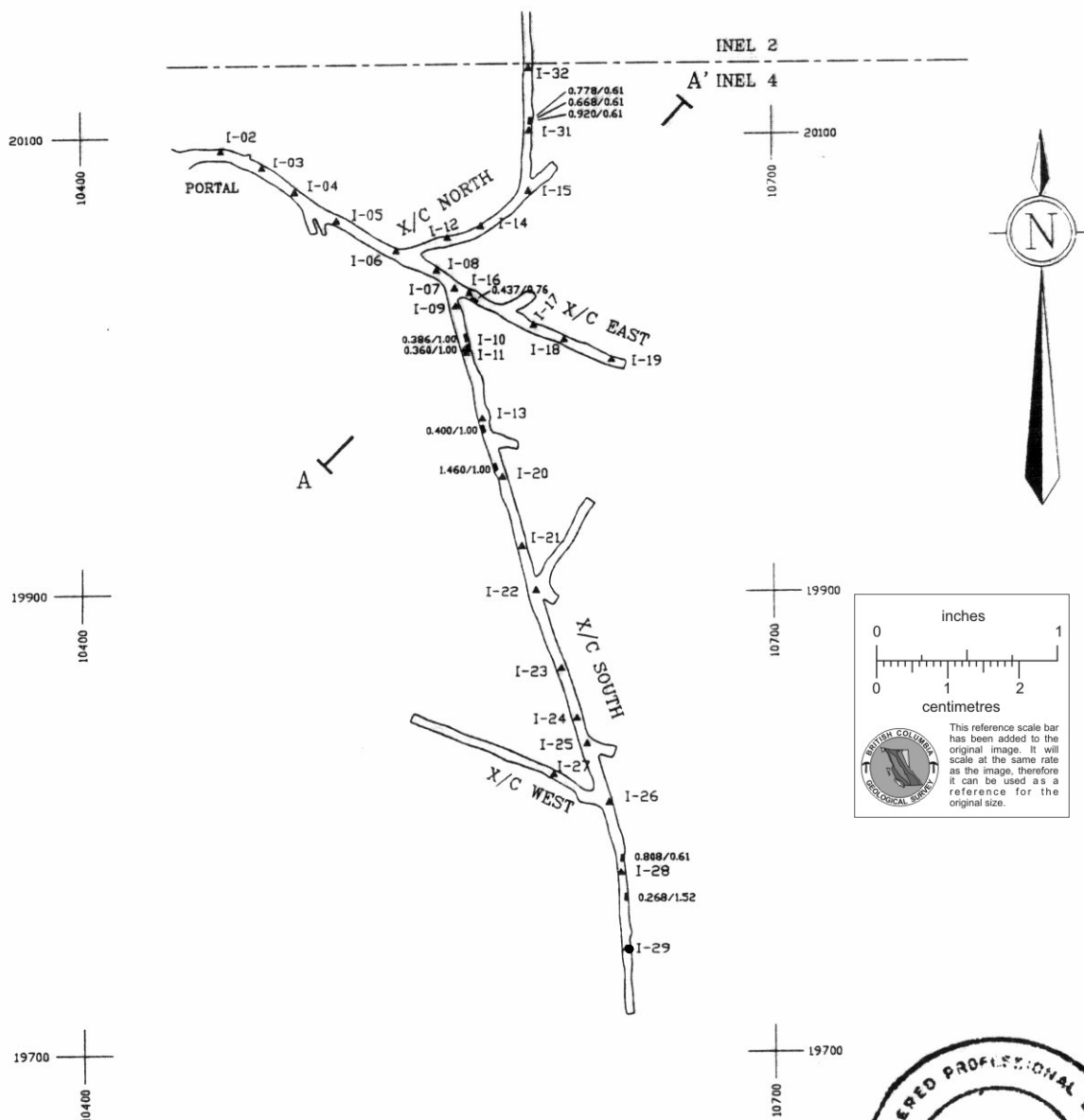
### **Discovery - Main Sulfide Zone Areas**

The Discovery and Main Sulfide zones are the most advanced exploration targets on the Inel property. Surface exploration includes mapping, trenching and 32 diamond drill holes totalling 3,177 m (Figure I-4). Underground exploration includes 873 m of drifting on the 1,500 level, panel sampling, and 68 underground drill holes totalling 4,983 m (Figure I-6). Significant panel sampling results and drill intersections are presented on Tables I-2 and I-3, respectively, and on Figures I-7 and I-8.

The original geologic sequence in both zones, as determined by surface mapping, consists of intercalated fine-grained clastic sediments and thin olivine basalts. In the Discovery Zone, auriferous zinc-rich mineralization is concentrated in fractures within the sediments or along the sediment/basalt contacts. The Main Sulfide Zone is an extension of the Discovery Zone, but has been cut by thick, discordant injection breccias which now comprise approximately one half of the total area. Mineralization in this latter area includes stratabound sulfides, remobilized vein sulfides, and disseminated gold in massive injection breccias.



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# LEGEND

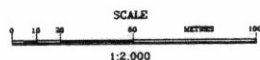
I-06



SURVEY POINT

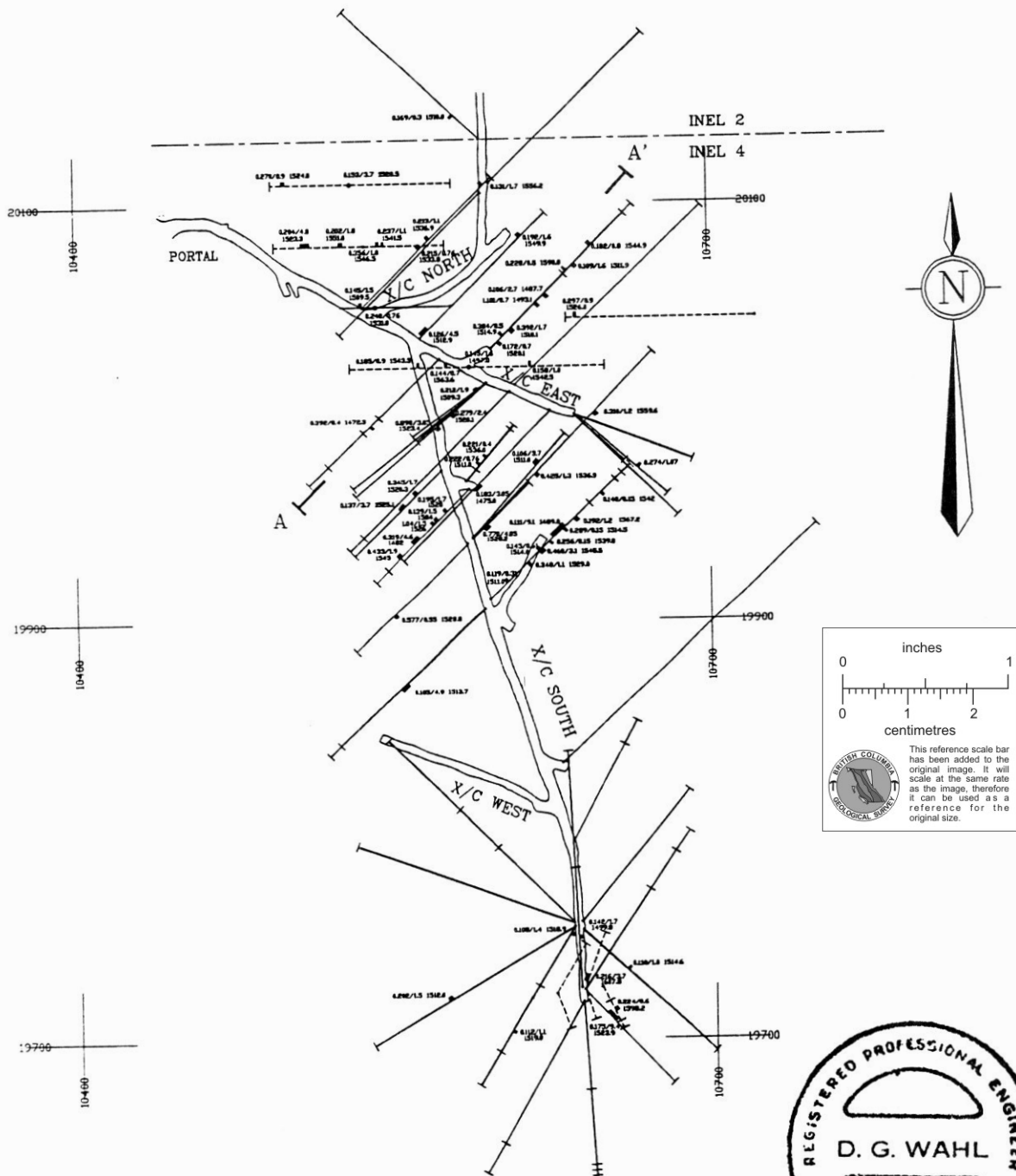


PANEL SAMPLE LOCATION  
(oz Au/ton / panel width in metres)



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DISCOVERY-MAIN SULFIDE ZONE		JULY 26 1990	
Panel Sample Location Map		I-7	
DATE: 10/1/90	APPROVED BY: 104 R/10W	DATE: 10/1/90	DATE: 10/1/90
DERRY, MICHENER, BOOTH & WAHL			
TORONTO		CANADA	





# LEGEND

- Surface Drill Hole
- Underground Drill Hole
- Projection of Assays in Vertical Hole
- Projection of Assays in Inclined Hole
- Cross Section Location (Figure I-8A)

SCALE  
1:3,000



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LIARD MINING DIVISION			
DISCOVERY-MAIN SULFIDE ZONE	UNDERGROUND	DRILL HOLE	ASSAY PLAN
DATE: 10/10/88	APPROVED BY: [Signature]	DATE: 10/10/88	DATE: 10/10/88
DERRY, MICHENER, BOOTH & WAHL		TORONTO, CANADA	

Table I-2

**DISCOVERY-MAIN SULFIDE ZONES**  
**SUMMARY OF SIGNIFICANT PANEL SAMPLING RESULTS\***

<u>Location</u> <u>(Metres)</u>	<u>Panel Width</u>		<u>Au</u> <u>oz./ton</u>	<u>Zinc</u> <u>(%)</u>
	<u>(ft.)</u>	<u>(m)</u>		
Crosscut North				
I-15 + 31.0 - 31.6	2.0	0.61	0.920	1.72
I-15 + 31.8	2.0	0.61	0.668	1.13
I-15 + 31.8	2.0	0.61	0.778	
Crosscut East				
I-6 + 39.6	2.5	0.76	0.437	3.64
Crosscut South				
I-9 + 15.5 - 16.5	3.3	1.00	0.386	
I-9 + 18.0 - 19.0	3.3	1.00	0.360	
I-11 + 32.0 - 33.0	3.3	1.00	0.400	
I-13 + 18.5 - 19.2	3.3	1.00	1.460	6.70
I-24 + 63.6	2.0	0.61	0.808	
I-26 + 42.5 - 43.5	5.0	1.52	0.268	

**Notes:**

- \* Au - Greater than 0.3 oz. Au x m, and  
 Zn - Greater than 1% Zn.

Table I-3

DISCOVERY-MAIN SULFIDE ZONESSUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

(Refer to Figure I-5c)

Hole	From (ft.)	To (ft.)	Width		Au oz./ton	Zinc (%)	Comments
			(ft.)	(m)			
Surface							
S-4	18.6	30.8	12.2	3.72	0.210		9.25 oz. Ag/ton
S-11	145.0	161.0	16.0	3.88	0.120	5.01	50% sph @ 145.0
S-15	94.8	98.0	1.8	0.55	0.356	4.40	
S-16	52.6	62.5	9.9	3.02	0.111	3.29	
	151.0	174.8	23.8	7.25	0.150		
				(includes 4.0 m @ 0.26 oz./ton)			
S-22	156.0	170.0	14.0	4.27	0.078	3.30	
Underground							
U-39	158.8	163.0	4.2	1.28	0.425	2.60	1.88 oz. Ag/ton
	307.7	311.7	4.0	1.22	0.310	3.90	
U-40	50.7	64.0	13.3	4.05	0.770	2.13	
U-41	159.9	161.7	1.8	0.55	0.577	1.91	1.05 oz. Ag/ton
U-47	43.8	49.6	5.8	1.77	0.392	6.00	
U-48	115.0	117.3	2.3	0.70	0.770		
U-51	168.7	177.2	9.5	2.90	0.108	4.29	
U-55	74.6	76.8	2.2	0.67	0.764	26.42	2.76 oz. Ag/ton
U-72	56.6	62.0	5.3	1.62	0.372		2.07 oz. Ag/ton
	70.8	77.7	6.9	2.10	0.339		3.35 oz. Ag/ton
U-83	225.6	230.6	5.0	1.52	0.202		
U-85	168.0	178.0	10.0	3.05	0.141		3.57 oz. Ag/ton
U-87	150.8	160.9	10.1	3.08	0.460	7.54	2.46 oz. Ag/ton
U-88	63.0	68.7	5.7	1.74	0.345		
	86.5	98.7	12.2	3.72	0.137	1.35	1.18 oz. Ag/ton
U-89	252.9	258.1	5.2	1.58	0.192		
U-94	158.0	188.0	30.0	9.14	0.111	1.56	1.39 oz. Ag/ton
U-95	75.0	83.0	8.0	2.44	0.167		
	91.0	96.0	5.0	1.52	0.289	1.90	
	271.0	281.0	10.0	3.05	0.136		
U-99	95.5	99.0	3.5	1.07	0.348		3.03 oz. Ag/ton
U-101	135.5	151.0	15.5	4.72	0.308		1.27 oz. Ag/ton
U-104	56.0	61.5	5.5	1.68	0.193		
	79.0	93.0	14.0	4.27	0.136		
	178.7	185.0	6.3	1.92	0.433		
U-109	238.0	243.0	5.0	1.52	0.207		
U-111	143.0	146.0	3.5	1.07	0.717	3.51	
U-117	193.0	203.0	10.0	3.05	0.183		

Notes:

- \* Au - Greater than 0.10 oz. Au/ton, and/or  
 Zn - Greater than 1% Zn.

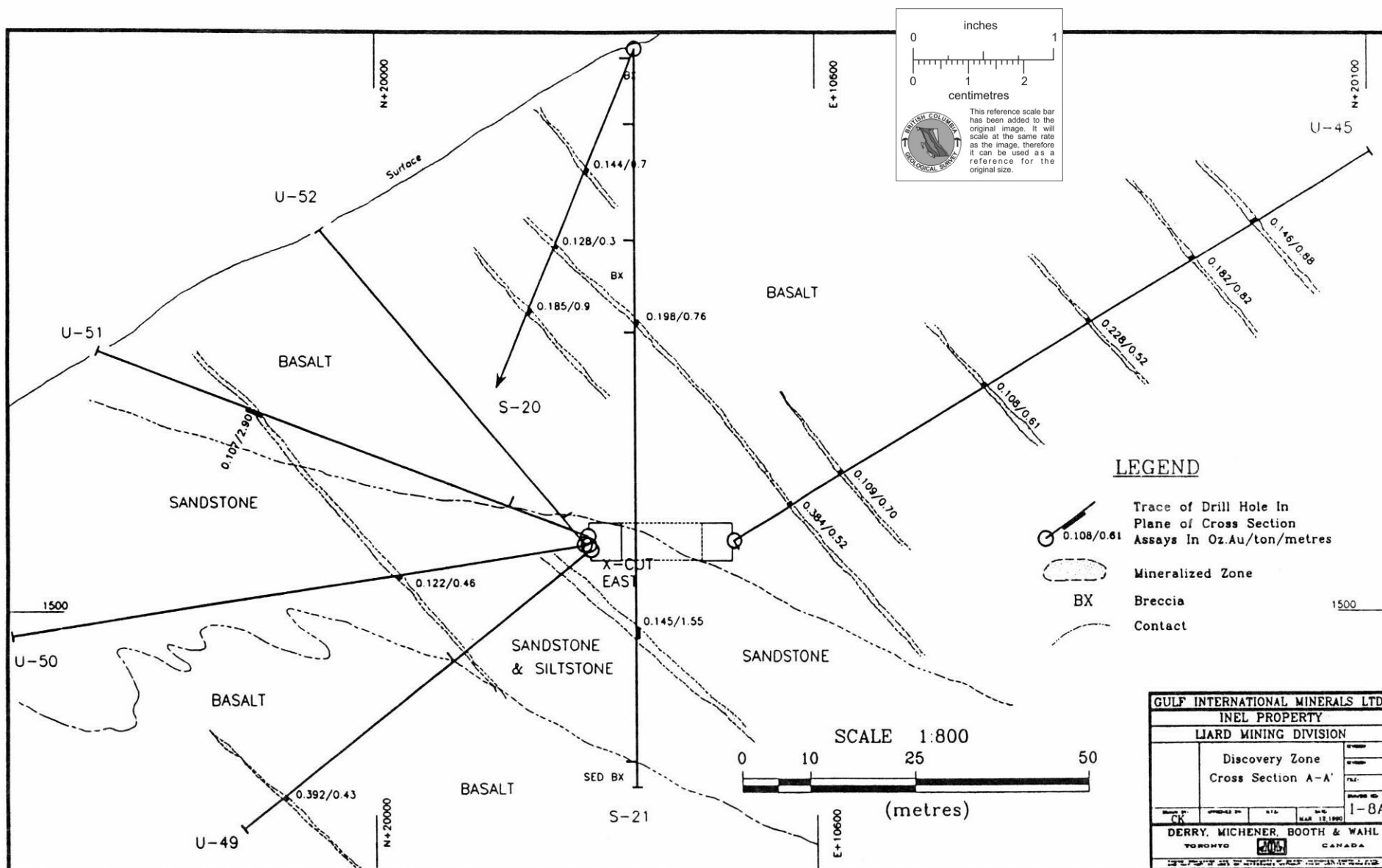
Underground drifting and drilling has shown that the complex dyke system and extensive sulfide veins (up to 43 m wide) mapped on surface are almost entirely a phenomenon of limited depth extent. None of the larger veins, and only one dyke, were encountered at depth; instead, the underground work outlined a number of narrow pyritic veins both controlled by sediment/basalt contacts and crosscutting either lithology. The distribution of this mineralization, both in plan (Figure I-8) and section (Figure I-8a), is typical of stockwork vein geometries. Individual veins may be of limited lateral and depth extent, but in aggregate comprise an en echelon vein system with a minimum strike length of 400 m and depth continuity of at least 100 m as shown in Figures I-8 and I-8a, respectively.

The sulfide veins exhibit a simple mineralogy consisting primarily of pyrite-sphalerite-quartz with minor chalcopyrite-pyrrhotite-calcite-ankerite-galena. The main vein trends as mapped on surface are northeasterly followed by east-northeasterly and northerly orientations (Grove, 1989); however, correlation of mineralized intersections in the subsurface shows that the dominant orientation is actually a pronounced northwesterly fabric striking  $110^{\circ}$  to  $160^{\circ}$  (Kikauka, 1989). Dips are moderate to steep to the northeast.

Metal zoning in the area is evident. Potassic feldspar alteration and attendant copper enrichment predominates at the southern end of the 1,500 level drift; to the north, zinc-rich auriferous mineralization is dominant. Compilation of assay results shows a low frequency of anomalous gold mineralization associated with copper as opposed to a strong spatial relationship between gold and zinc. This suggests an overall upward and outward metal zoning to the north along the eastern contact of the main alaskite intrusive.

### AK Zone

The high alpine terrain of the currently designated AK Zone was prospected in 1984 as part of a reconnaissance program with disappointing results. In 1988, renewed interest in this region, located approximately 500 m north-northeast of the Discovery Zone, revealed that the partial ablation of the ice field

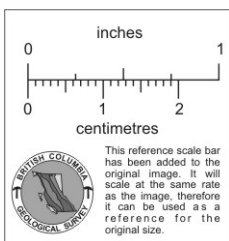


E+10700

E+10800

N+20600

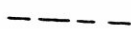
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N+20500

N+20500

## LEGEND

 $\frac{0.522}{8.0}$ 
CHANNEL SAMPLE  $\frac{\text{Oz Au/Ton}}{\text{Metres}}$ 

CONTACT



BEDDING ORIENTATION



FAULT



BRECCIA

SULPHIDE VEIN  
OUTCROP

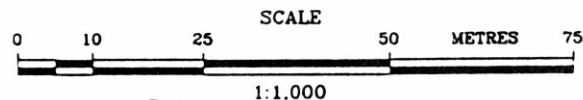
1

SYENITE

5/7

SEDIMENTS &  
VOLCANICLASTICS

ICEFIELD



E+10800

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INEL PROPERTY

LIARD MINING DIVISION

AK Zone  
Geology

REVISION

REVISION

FILE

DRAWING NO.

DRAWN BY

TEH

APPROVED BY

N.T.D.

DATE

104 9/10W FEB. 22, 1990

I-9

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TORONTO



CANADA

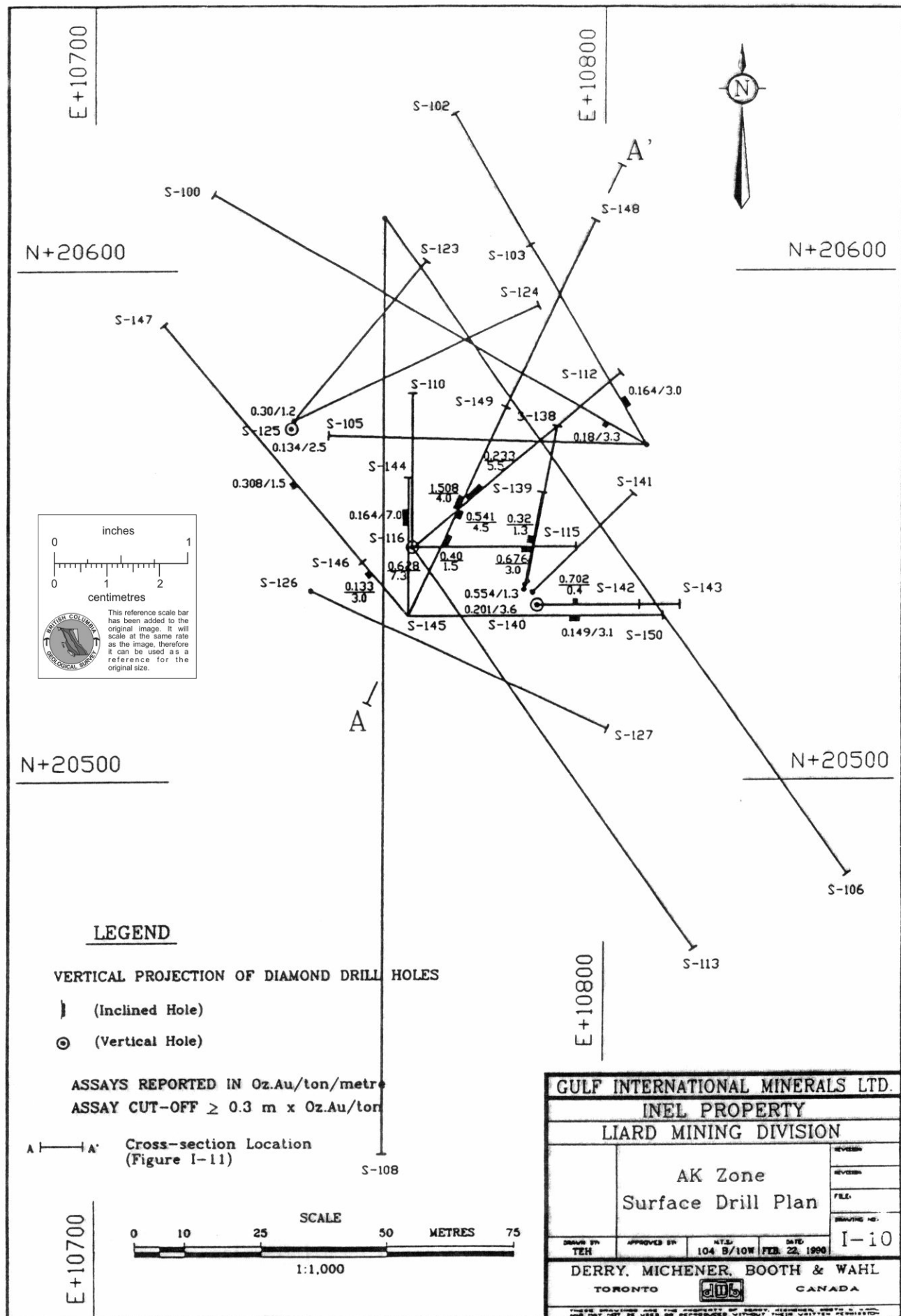






Table I-4

**AK ZONE TRENCHING RESULTS**  
**(Refer to Figure I-9)**

<u>Location</u>	<u>Width (m)</u>	<u>Au (oz./ton)</u>	
AK Trench	0.3	1.222	
	0.4	1.582	
	9.0	0.373	includes 89-3 (uncut)
	6.0	0.315	includes 89-2 (uncut)
	8.0	0.522	includes 89-1 (uncut)
	4.0	0.278	
	3.0	0.164	
89-1	3.0	1.285	uncut
		0.832	cut to 1.0 oz. Au/ton
89-2	5.0	0.377	uncut
		0.269	cut to 1.0 oz. Au/ton
89-3	7.0	0.462	uncut
		0.370	cut to 1.0 oz. Au/ton

Table I-5AK ZONE - SUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

<u>Hole</u>	<u>From (m)</u>	<u>To (m)</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Comments</u>
S-100	12.2	12.8	0.6	0.118	Syenite breccia
	15.9	19.2	3.3	0.180	Syenite breccia
S-102	11.6	14.6	3.0	0.164	Syenite breccia
S-105	20.4	20.9	0.5	0.132	Sandstone
	53.0	53.8	0.8	0.166	Sandstone
S-112	18.9	24.4	5.5	0.233	Syenite breccia
S-115	31.1	34.1	3.0	0.676	Syenite breccia
S-116	53.0	60.3	7.3	0.628	Syenite
S-123	11.6	13.4	1.8	0.102	Syenite breccia
	18.3	19.8	1.5	0.101	Syenite breccia
S-125	22.0	23.2	1.2	0.301	Sandstone
	25.9	28.4	2.5	0.134	Syenite breccia
S-139	28.0	29.3	1.3	0.320	Syenite breccia
S-140	30.2	31.4	1.2	0.105	Syenite breccia
	43.6	47.2	3.6	0.201	Syenite breccia
	60.7	62.0	1.3	0.554	Syenite breccia
S-142	20.7	22.0	1.3	0.128	Syenite breccia
S-143	9.8	10.7	0.9	0.702	Syenite breccia
S-144	54.0	61.0	7.0	0.164	Syenite breccia
S-145	53.8	55.3	1.5	0.115	Siltstone
	65.2	66.8	1.6	0.106	Syenite breccia
S-146	42.4	43.6	1.2	0.141	Sediments
	50.9	52.5	1.6	0.122	Sediments
	62.8	65.8	3.0	0.133	Syenite breccia
S-147	49.4	50.9	1.5	0.308	Syenite breccia
S-148	30.8	34.8	4.0	1.508	Syenite breccia
S-149	32.0	33.5	1.5	0.400	Syenite breccia
	40.2	46.3	6.1	0.422	Syenite breccia
S-150	45.4	48.5	3.1	0.149	Syenite breccia

\* - Greater than 0.1 oz. Au/ton.

The association of significant gold mineralization in the Hazelton Group with the emplacement of subvolcanic, porphyritic alkaline intrusives is widely recognized in northwestern B.C. (Britton et al, 1989), and has been used to postulate a probable genetic relationship (Kirkham et al., 1990).

In the best studied example of this relationship in the area, the Premier-Silbak mine outside of Stewart, B.C., orebodies occupy fractures and shears along the contact of Hazelton Group volcanics and the Premier porphyry (Langille, 1948). The individual ore shoots consist of parallel and stockwork veins and breccia zones marginal to and crosscutting the porphyry (McDonald, 1989) and ore minerals consist of pyrite with subsidiary sphalerite, chalcopyrite, galena, arsenopyrite, pyrrhotite and minor silver and gold compounds (McDonald, 1988).

The similarity of the AK Zone to the Premier Silbak mine is striking; both consist of auriferous breccias and vein stockworks along, and locally discordant to, the contact of lower Hazelton Group volcanics with alkaline porphyry intrusives, and exhibit similar sulfide mineralogies.

### 98 Zone

The 98 Zone is located about 200 m southeast of the AK Zone. Sixteen drill holes comprising 1,794.6 m have tested the 98 Zone as shown on Figure I-12. The mineralization encountered in the drilling appears to be a continuation of the Discovery Zone style consisting of auriferous, sulfide-rich veins and veinlets concentrated along northerly trending fractures within sedimentary and basaltic host lithologies. The heaviest visible gold mineralization intersected on the INEL property was encountered in the 98 Zone in hole S-130 reporting 94.279 oz. Au/ton and 22.26 oz. Ag/ton over a core length of 0.5 m and consists of free gold associated with fine galena, sphalerite and pyrite in thin (2-3 cm) quartz veins. Other significant results including 0.485 oz. Au/ton over 4.6 m in hole S-119, 0.319 oz. Au/ton over 2.1 m in hole S-160 and 0.558 oz. Au/ton over 2.1 m in hole S-160 and 0.558 oz. Au/ton over 1.5 m in hole S-163 are summarized in Table I-6.

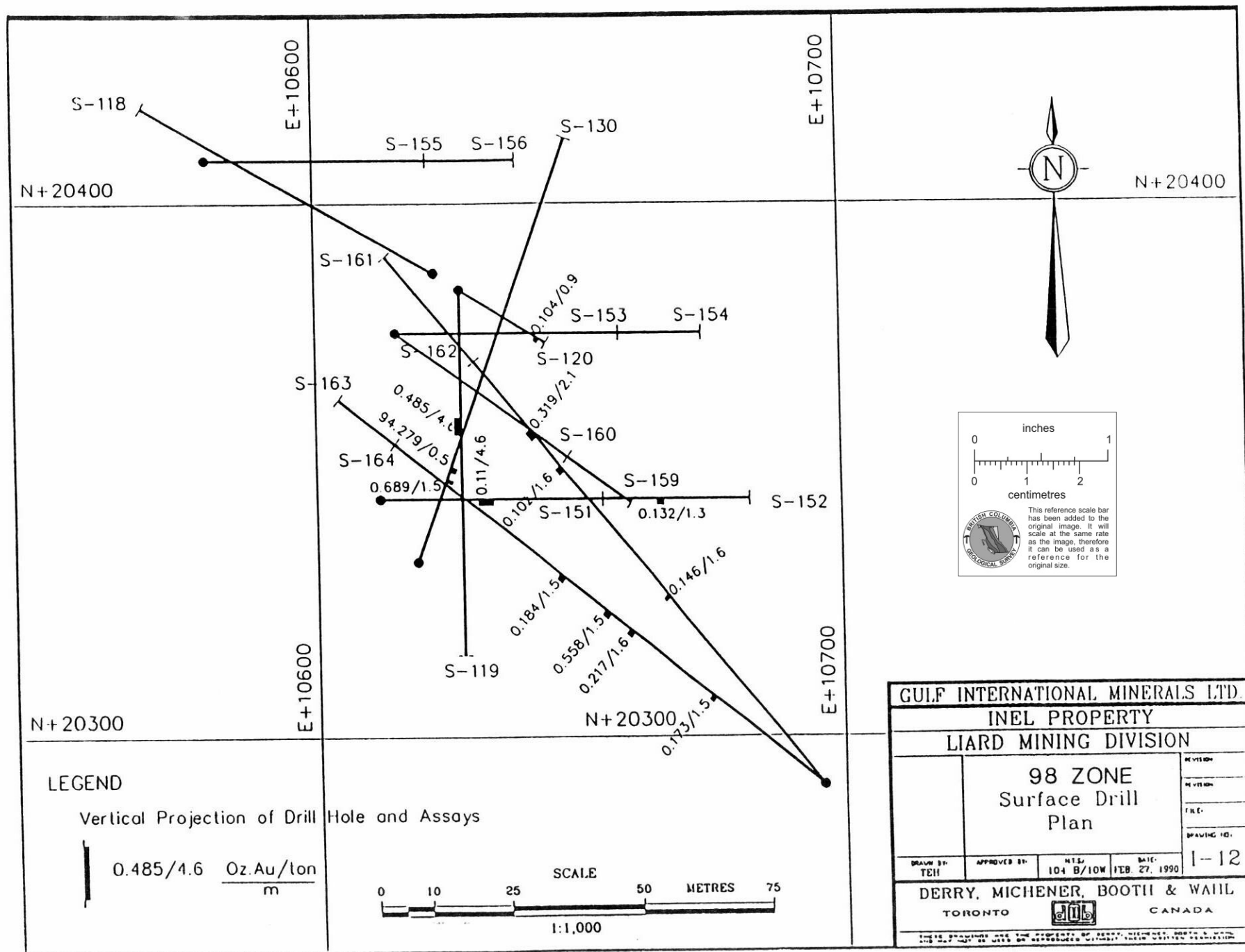


Table I-698 ZONESUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

<u>Hole</u>	<u>From (m)</u>	<u>To (m)</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Zinc (%)</u>	<u>Comments</u>
S-119	33.5	38.1	4.6	0.485	0.06	Basalt
S-120	50.3	51.2	0.9	0.104	2.32	Basalt
S-130	24.5	25.0	0.5	94.279	0.68	Sediments, 22.26 oz. Ag/ton
	26.5	28.0	1.5	0.689	0.12	Sediments
S-152	25.9	30.5	4.6	0.110	0.28	Basalt
	75.8	77.1	1.3	0.132	2.36	Basalt
S-160	62.8	64.9	2.1	0.319	4.05	Basalt
S-161	64.6	66.2	1.6	0.146	0.13	Sediments
	109.7	111.3	1.6	0.102	9.30	Diorite breccia
S-163	65.2	66.8	1.6	0.217	0.32	Sediments
	73.2	74.7	1.5	0.558	0.96	Basalt
	88.4	89.9	1.5	0.184	0.09	Basalt
S-164	51.5	53.0	1.5	0.173	8.07	Sediments

- \* Au - Greater than 0.10 oz. Au/ton, and/or  
 Zn - Greater than 1% Zn.

### S-96 Area

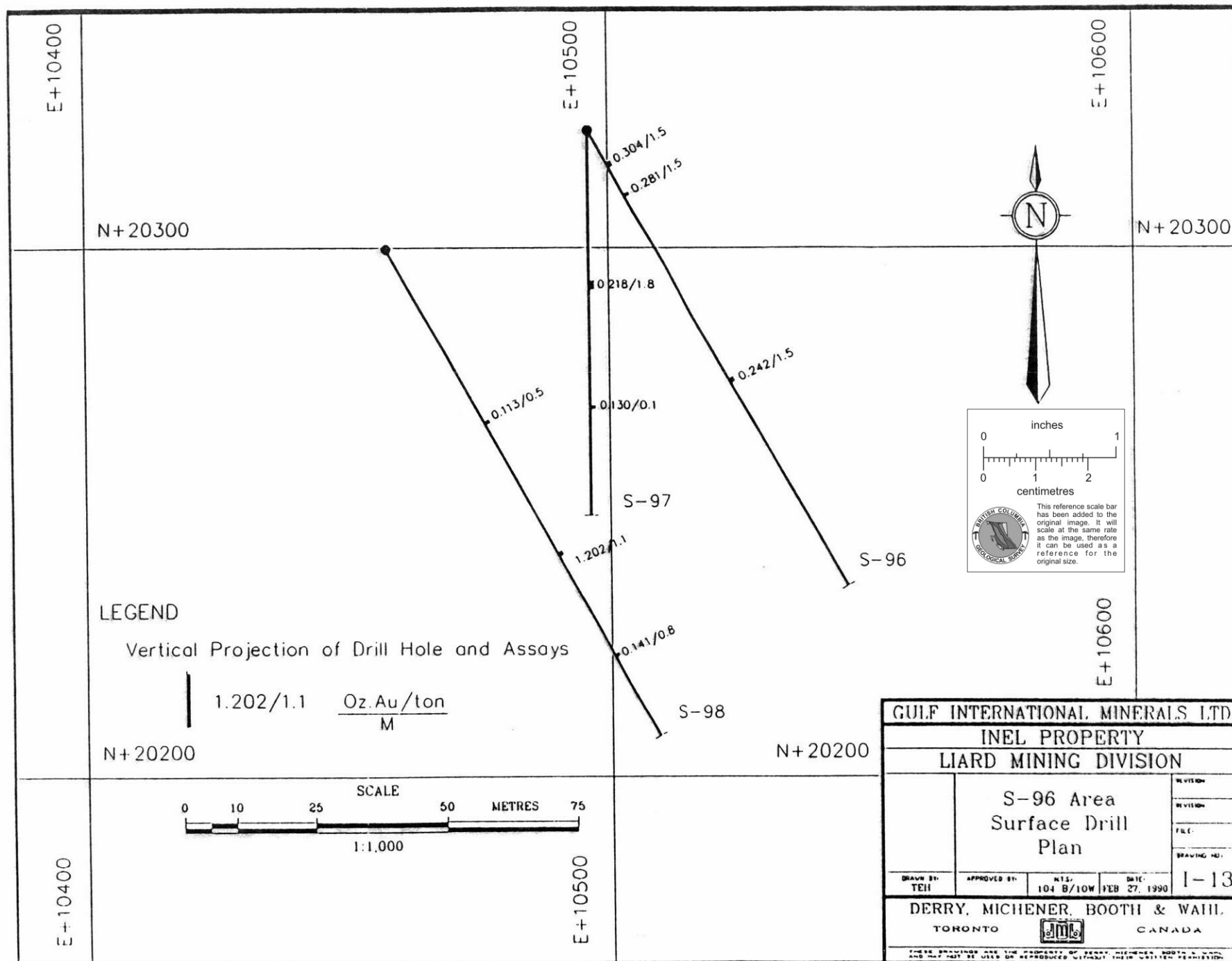
The S-96 area is located immediately northwest of, and above, the Discovery-Main Zone 1,500 level north drift. Three holes totalling 384.3 m tested the S-96 Area as shown on Figure I-13; all three holes intersected significant mineralization in steep, narrow pyrite-sphalerite veins localized along fractures in olivine basalts and altered sandstones. Table I-7 summarizes the significant drill intersections reported during the S-96 Area drilling.

### Inel Ridge Zone

Preliminary prospecting and sampling on the west side of the main ridge during the 1984 field season indicated the presence of quartz-calcite-sulfide veins and disseminated sulfide mineralization in fine-grained, thin bedded sediments underlying the Betty Creek Formation. Strike length of the mineralized horizon is approximately 1,000 m.

Fifty grab samples have been collected from veins and host rocks in this area. Maximum values for each element analyzed are: 5.8% Cu, 63.1% Pb, 22.5% Zn, 3.166 oz. Au/ton and 85.3 oz. Ag/ton. Greater than one-third of all rock samples collected returned assays in excess of 0.1 oz. Au/ton (19 samples), and approximately three-quarters of the remaining samples were greater than 0.01 oz. Au/ton (24 samples). Subsequent trenching in the vicinity returned significant gold values, including 0.668 oz. Au/ton over 1.52 m, 0.434 oz. Au/ton over 1.62 m and 0.176 oz. Au/ton over 3.05 m.

Five diamond drill holes, totalling 470 m, have been collared on the Inel Ridge Zone (Figure I-14). All 5 holes intersected anomalous mineralization with assay results of up to 0.868 oz. Au/ton over 2.26 m in hole S-34. Additional significant results are summarized on Table I-8.



GULF INTERNATIONAL MINERALS LTD.

INEL PROPERTY

LIARD MINING DIVISION

S-96 Area  
Surface Drill  
Plan

REVISION

REVISION

FILE

DRAWING NO.

1-13

DRAWN BY:  
TEH

APPROVED BY:

NTS:

DATE:

104 B/10W FEB 27, 1990

DERRY, MICHENER, BOOTH & WAHL

TORONTO



CANADA

THESE DRAWINGS ARE THE PROPERTY OF DERRY, MICHENER, BOOTH & WAHL AND MAY NOT BE USED OR REPRODUCED WITHOUT THEIR WRITTEN PERMISSION.

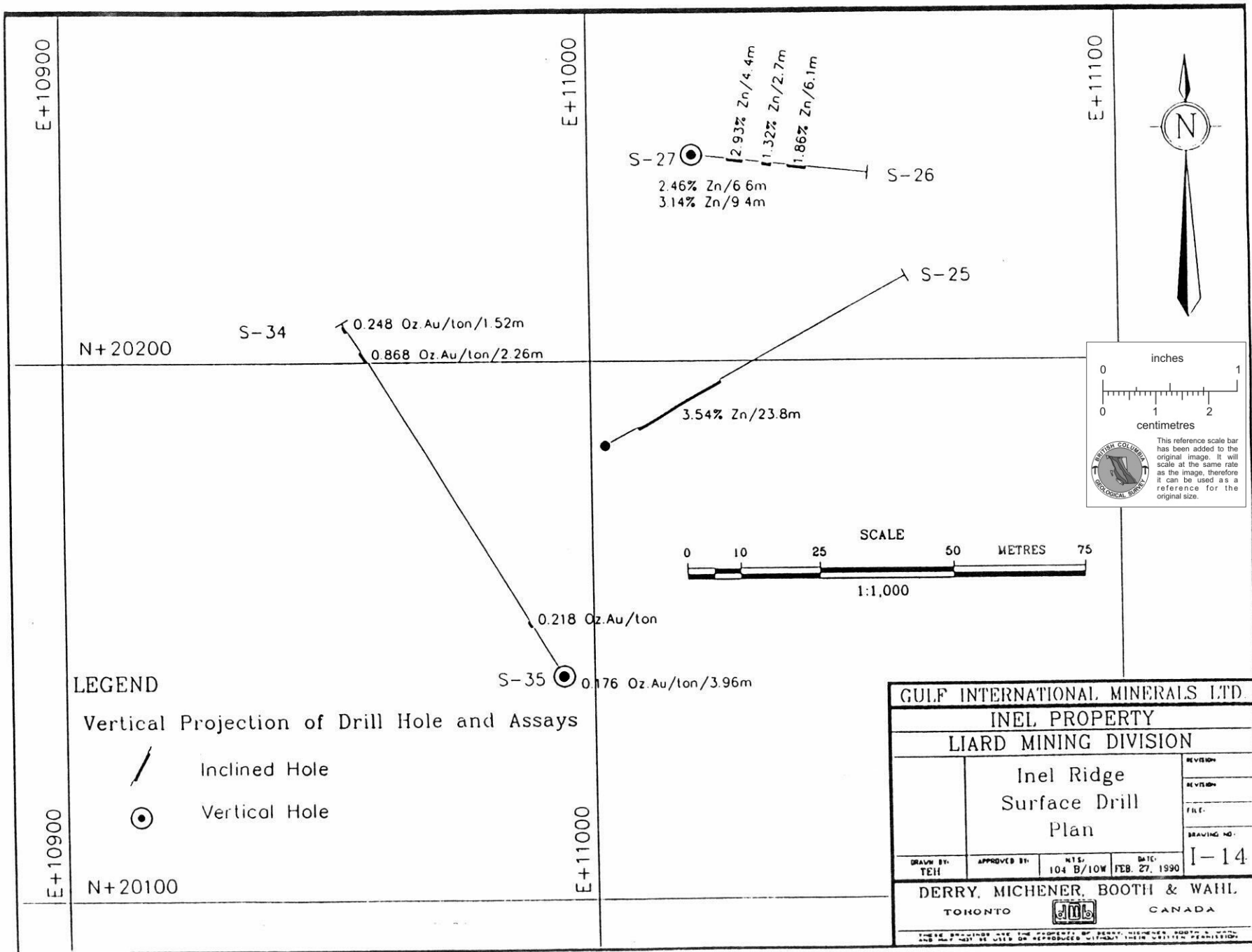




Table I-7S-96 AREASUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

<u>Hole</u>	<u>From (m)</u>	<u>To (m)</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Zinc (%)</u>	<u>Comments</u>
<u>S-96 Area</u>						
S-96	11.3	12.8	1.5	0.304	0.75	Basalt
	14.3	15.9	1.5	0.281	0.95	Basalt
	78.3	78.8	0.5	0.242	0.49	Sediments
S-97	42.1	43.9	1.8	0.218	3.27	Sediments
	75.1	75.2	0.1	0.130	1.02	Sediments
S-98	54.1	54.6	0.5	0.113	3.86	Basalt
	95.1	96.2	1.1	1.202	0.07	Sediments
	126.3	127.1	0.8	0.141	0.11	Sediments

- \* Au - Greater than 0.10 oz. Au/ton, and/or  
 Zn - Greater than 1% Zn.

Table I-8INEL RIDGE ZONESUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

<u>Hole</u>	<u>From (m)</u>	<u>To (m)</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Zinc (%)</u>	<u>Comments</u>
S-25	9.0	32.8	23.8	0.007	3.54	Sandstone
S-26	11.4	15.8	4.4	0.003	2.93	Sandstone breccia
	24.1	26.8	2.7	0.014	1.32	Sandstone
	33.2	39.3	6.1	0.048	1.86	Breccia
(includes 1.8 m @ 0.148 oz. Au/ton)						
S-27	11.4	18.0	6.6	0.003	2.46	Breccia
	23.8	34.2	9.4	0.004	3.14	Sandstone
(includes 1.9 m @ 1.96% Pb)						
S-34	32.77	34.38	1.6	0.218	1.52	Qtz vein breccia; visible gold
	140.09	142.34	2.26	0.868	N/A	Sandstone; qtz-carb veinlets
	154.53	156.06	1.52	0.248	N/A	Sandstone; qtz-carb veinlets
S-35	10.97	14.94	3.96	0.176	N/A	Basalt
(includes 1.43 m @ 0.325 oz. Au/ton)						

- \* Au - Greater than 0.10 oz. Au/ton, and/or  
 Zn - Greater than 1% Zn.

Mineralization is hosted in intercalated sandstones and basalts which have locally been brecciated and intruded by fine quartz-carbonate veinlets. Visible gold was noted in the drill logs in one interval from hole S-34; this interval assayed 0.218 oz. Au/ton over 1.6 m. Gulf personnel note that the brecciation in holes S-26 and S-27 resembles that encountered in the AK Zone.

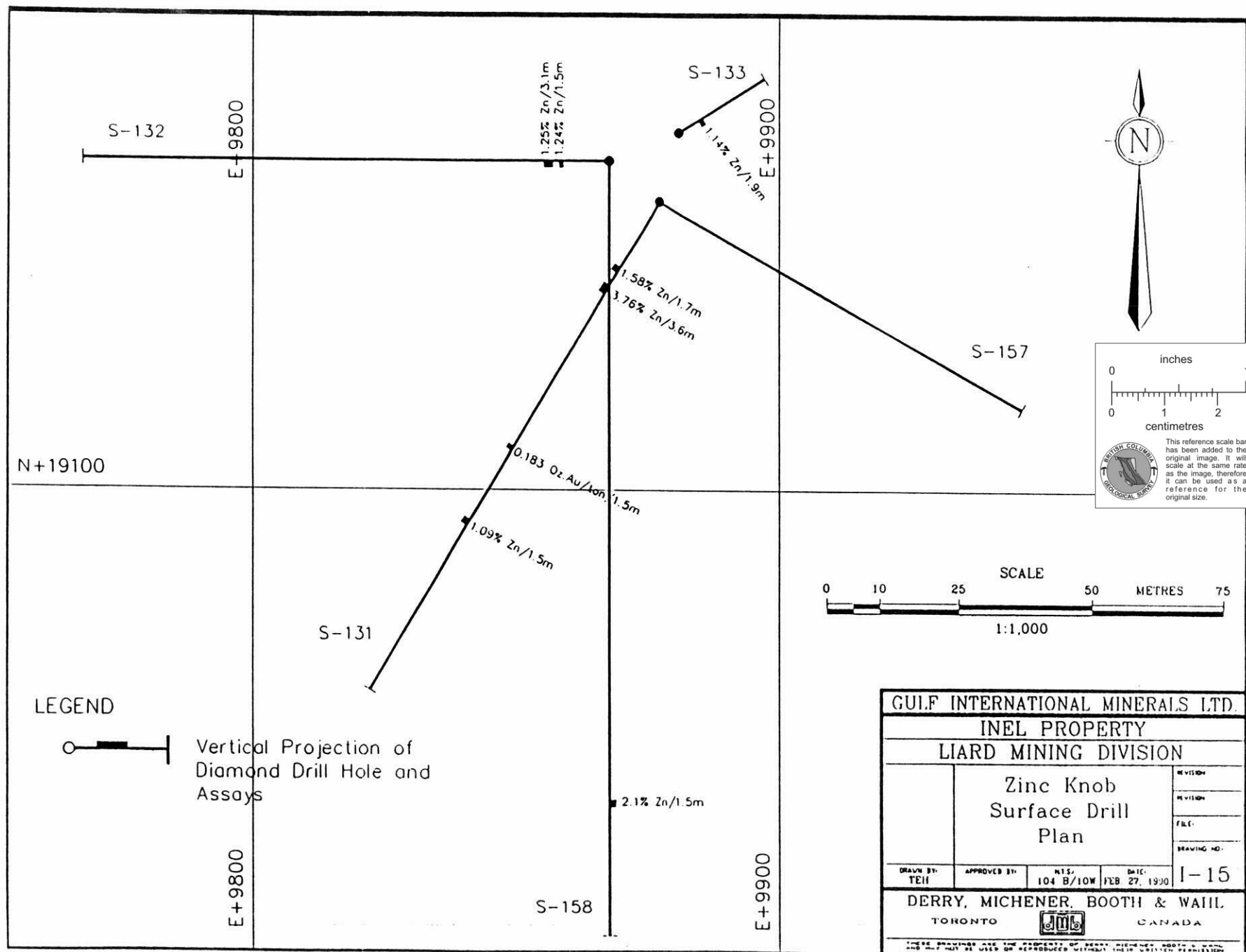
### Zinc Knob

The Zinc Knob area was trenched in the early 1960's by Texas Gulf Sulphur, and was known as the Nuntak Zone. The area consists of an isolated mass of the mineralized Unuk River equivalent. Recent mapping and trenching have outlined an altered, folded and thinly bedded sedimentary sequence containing stratabound sulfides (pyrite, galena and sphalerite) cut by quartz - pyrite - arsenopyrite veins. Trenching and sampling during the 1984 program returned 7 m of 1.71% Zn with 0.012 oz. Au/ton, and grab samples with up to 3.34% Zn plus 0.245 oz. Au/ton. Later trenching has returned anomalous assay intervals, including 0.772 oz. Au/ton over 0.2 m and 0.122 oz. Au/ton over 3.96 m.

Drilling in the area totals 725 m in five holes (Figure I-15), and shows that the volcanic/sedimentary sequence mapped at surface is underlain by the dioritic margin of the main alaskite stock, and is cut by a strong northeasterly trending cataclastic zone. Significant drill results include 1.5 m of 0.183 oz. Au/ton and 3.6 m averaging 2.63% Zn. A summary of significant drill intersections are presented in Table I-9.

### Wolverine Zone

The Wolverine Zone is located in the northeast corner of the Inel property in an area where Paleozoic carbonates and volcanoclastics have been thrust over the Lower to Middle Jurassic sequence. Preliminary mapping and prospecting in the vicinity show that a number of small alaskite stocks and dykes crosscut a dominantly volcanoclastic sequence which, in turn, is overlain by remnants of the thrust sheet.



GULF INTERNATIONAL MINERALS LTD.			
INEL PROPERTY			
LIARD MINING DIVISION			
Zinc Knob		REVISION	
Surface Drill		REVISION	
Plan		FILE	
DRAWING NO.		1-15	
DRAWN BY: TEH	APPROVED BY:	NTS: 104 B/10W	DATE: FEB 27, 1990
DERRY, MICHENER, BOOTH & WAILL			
TORONTO		CANADA	

Table I-9ZINC KNOB AREASUMMARY OF SIGNIFICANT DRILL INTERSECTIONS\*

<u>Hole</u>	<u>From (m)</u>	<u>To (m)</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Zn (%)</u>	<u>Comments</u>
S-131	19.2	20.9	1.7	0.011	1.58	Sediments
	24.4	28.0	3.6	0.012	2.63	Sediments
	74.7	76.2	1.5	0.183	0.03	Basalt
	98.2	99.7	1.5	0.004	1.09	Basalt
S-132	12.2	13.7	1.5	0.005	1.24	Andesite
	15.2	18.3	3.1	0.010	1.25	Andesite
S-133	15.2	17.1	1.9	0.006	1.14	Andesite
S-157	No Significant Values					
S-158	169.5	171.0	1.5	0.008	2.1	Basalt

- \* Au - Greater than 0.10 oz. Au/ton, and/or  
 Zn - Greater than 1% Zn.

Grab samples collected from the mineralized zone have returned best base metal values including 5.55% Cu, 1.48% Pb and 7.0% Zn, respectively (Grove, 1989). Precious metal assays of 2.2 oz. Ag/ton and 0.016 oz. Au/ton are also reported. High grade assay results reflect pyrite, magnetite, chalcopyrite and copper oxides in limestone beds intercalated with volcanic sediments. Bed thickness are up to 20 ft. and the zone thickness appears to be on the order of 700 ft., but has not yet been traced laterally. The lower grade precious metals content represents quartz-sulfide vein stockworks cutting the same host rocks.

### Other Areas

In addition to the above-mentioned areas, several interesting grassroots targets are present on the Inel property; these are areas in which soil sampling and/or prospecting have documented anomalous mineralization, but only limited trenching and mapping have been conducted. Locations of these areas are included on Figure I-3, and significant trenching results are presented in Table I-10 where available.

The Superior Zone consists of thin bedded, pyrrhotite and sphalerite-rich volcanic sandstones and siltstones intercalated with thick andesite breccias of the lower Unuk River equivalent. A number of thin, subparallel quartz-sulfide veins were encountered and returned 1.37 oz. Ag/ton, 1.68% Pb and 11.07% Zn over 0.31 m. The source of previously reported "high grade" silver-bearing blocks in local talus has not been discovered.

The Big Bowl Zone is located in the northwestern corner of the Inel property, and is underlain by volcanic conglomerates and breccias which have been intruded by alaskite dykes and locally altered to a siliceous, pyritic unit with disseminated chalcopyrite, galena and sphalerite. All units have been subsequently cut by narrow diorite dykes and northeasterly trending faults. Best results from grab samples collected to date include 0.168 oz. Au/ton, 1.07 oz. Ag/ton, 1.08% Pb and 3.9% Zn, respectively (Grove, 1985).

Table I-10

**SUMMARY OF ADDITIONAL MINERAL TARGET ZONES  
TRENCHING AND SAMPLING RESULTS\***

(Refer to Figure I-2)

<u>Area</u>	<u>Width (m)</u>	<u>Au oz./ton</u>	<u>Ag oz./ton</u>	<u>Pb (%)</u>	<u>Zn (%)</u>	<u>Comments</u>
Superior Zone	grab		1.77	1.79	8.43	volc ss & siltstn with andesite breccia and subparallel qtz- sulfide veins
	1.57				4.95	
	0.38		1.97	1.37	7.88	
	0.31		1.37	1.68	11.07	
	0.15				1.54	
	0.20				2.38	
Moonlight Zone	grab	0.390				qtz-carb-sulfide stockwork veins in volc sediments (similar to Inel Ridge Zone)
	grab	0.202				
	grab	0.120			6.56	
	grab	0.275				
	0.5				1.78	
	0.3				3.20	
East Ridge Zone	grab		2.40	4.39	3.62	similar to Inel Ridge & Moonlight zones
	0.3	0.128				
	1.3	0.422				
	0.3			47.80	14.50	
Big Rock Showing	grab	0.305	258.7	9.03	22.79	msv sulfide lens at sediment/ alaskite contact
	grab	0.204	47.3	1.56	5.40	
	grab		36.4			
	0.5		8.1		3.21	

- \* Au - Greater than 0.10 oz. Au/ton.  
 Ag - Greater than 1.0 oz. Ag/ton.  
 Pb - Greater than 1% Pb.  
 Zn - Greater than 1% Zn.

The Moonlight Zone is due south of the Main Sulfide Zone, and lies on strike with the Inel Ridge Zone. Like the Inel Ridge Zone, mineralization consists of quartz-carbonate-sulfide vein stockworks in fine-grained volcanic sediments. Results include grab samples of 0.12 oz. Au/ton and 6.56% Zn. The best gold assay returned 0.39 oz. Au/ton with less than 1 oz. Ag/ton, 1% Pb and 1% Zn.

The East Ridge Zone is situated on the east side of the main ridge on the property in a stratigraphic position similar to that of both the Inel Ridge and Moonlight zones. A large number of quartz-sulfide veins are present in the area cutting thinly banded lithic tuffs and sandstones; these veins contain pyrite, arsenopyrite and lesser sphalerite and galena. Chip samples collected in this area returned 0.422 oz. Au/ton with less than 1 oz. Ag/ton, 1% Pb and 1% Zn. The best base metal results are 47.80% Pb and 14.50% Zn with less than 1 oz. Au/ton and 1 oz. Ag/ton.

The Big Rock showing (Big Knob Showing?) is a small, trenched area north of the East Ridge Zone, on the east side of the main ridge. A massive sulfide lens at the sediment/alaskite contact was sampled and returned grab samples with a best assay of 0.305 oz. Au/ton with 258.7 oz. Ag/ton, 22.79% Zn and 9.03% Pb.

#### EXPLORATION POTENTIAL

The exploration potential of the Inel property is excellent. Our opinion is based on proximity to known deposits, favourable geology and existence of economically encouraging mineralization on the property.

The Inel property is located approximately 5 km due east of Skyline's Johnny Mountain deposit (686,000 tons averaging 0.57 oz. Au/ton; Northern Miner, September 11, 1989) and about 8 km east-southeast of the Prime/Cominco Snip gold deposit (1,570,000 tons averaging 0.64 oz. Au/ton; Northern Miner, September 11, 1989).



The Johnny Mountain and Snip deposits are hosted by volcanic and sedimentary rocks of the Upper Triassic Stuhini Group to Lower Jurassic Hazelton Group (Unuk River Formation) and intruded elements of the Coast Plutonic Complex. Similarly, the Inel property is dominantly underlain by a Triassic to Lower Jurassic sequence of rhyolitic breccias and flows, clastic sediments, andesitic volcanoclastics, and conglomerates, with minor limestones and intercalated basalt sills and breccias. This volcanosedimentary sequence has been cut by an irregular, leucocratic syenite pluton (alaskite).

Economically encouraging gold and base metal mineralization has been identified on the property including the Discovery - Main Sulfide Zone, AK Zone, 98 Zone, and to a lesser extent, being limited by data, the S-96 Area, Inel Ridge Zone, Zinc Knob, Wolverine Zone, Superior Zone, Moonlight Zone, East Ridge Zone and Big Rock Showing.

The Discovery - Main Sulfide Zone is the most advanced exploration target on the property having been tested from surface and underground. The zone contains auriferous zinc-rich mineralization concentrated in fractures within the sediments or along the sediment/basalt contacts, and stratabound sulfides, remobilized vein sulfides, and disseminated gold in massive injection breccias. Underground drifting and drilling indicates the distribution of the mineralization, both in plan and section, is typical of stockwork vein geometries. Individual veins may be of limited lateral and depth extent, but in aggregate comprise an en echelon vein system with a minimum strike length of 400 m and depth continuity of at least 100 m. The weighted average grade of all significant underground drill intersections reporting assays greater than 0.1 oz. Au/ton returned 0.28 oz. Au/ton over an average core length of 2.39 m. The best intersection reported during the underground drilling was 0.77 oz. Au/ton and 2.13% Zn over a core length of 4.05 m from 15.45 m to 19.50 m in hole U-40. Ten panel samples reporting greater than 0.3 oz. Au x m, averaged 0.606 oz. Au/ton over an average panel width of 0.87 m. The highest panel assay was cut on the Crosscut South and returned 1.46 oz. Au/ton and 6.7% Zn over 1.0 m.

INEL PROPERTY  
PHASE IIb EXPLORATION BUDGET  
DETAILED

## 5.0 CAMP SUPPORT

8 Staff	525 mdays @	\$100 /mda	\$52,500		
10 Miners	600 mdays @	\$100 /mda	\$60,000		
4 Drillers	160 mdays @	\$100 /mda	\$16,000	\$128,500	\$128,500

## 6.0 SITE SERVICES

6.1 Electrical & Mechanical				\$10,000	
6.2 Satellite Communications				<u>\$30,000</u>	
				\$40,000	\$40,000

## 7.0 ASSAYS

Drilling	1500 samples @	\$20 /s	\$30,000		
Muck	100 samples @	\$20 /s	\$2,000		
Face	250 samples @	\$20 /s	\$5,000		
Whole Rock	50 samples @	\$25 /s	\$1,250	\$38,250	\$38,250

## 8.0 TRANSPORTATION &amp; FREIGHT

Helicopter	100 hrs @	\$620 /hr	\$62,000		
Freight			\$30,000		
Crew @1000 each 25 men	25 men @	\$1,000 /man	\$25,000	\$117,000	\$117,000

## 9.0 REPORTING

	\$100,000	<u>\$100,000</u>
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SUBTOTAL:		\$1,385,120
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Management & Supervision:	@20%	\$277,024
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Contingency:	@10%	<u>\$138,512</u>
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TOTAL:		\$1,800,656
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The mineralization of the 98 Zone consists of auriferous, sulfide-rich veins and veinlets concentrated along northerly trending fractures within sedimentary and basaltic host lithologies. The 98 Zone drilling intersected the greatest concentration of visible gold on the property in hole S-130 reporting 94.279 oz. Au/ton and 22.26 oz. Ag/ton over a core length of 0.5 m. Eight of the sixteen holes drilled reported intersections greater than 0.10 oz. Au/ton. The weighted average grade of all intersections, excluding hole S-130, is 0.28 oz. Au/ton over an average core length of 2.03 m. Further work is required to delineate this zone.

The mineralization encountered in the S-96 Area, Inel Ridge Zone, Zinc Knob, Superior Zone, Moonlight Zone, East Ridge Zone and Big Rock Showing is no less encouraging albeit at an initial definition stage and, in our opinion, further work is warranted.

In addition to the areas of known mineralization, the high gold geochemical gold soil anomalies and coincident geophysical conductors located at the head of Blizzard Glacier on the east side of Inel Ridge should be detailed. The northwest corner of the claim group, along the west side of the main intrusion, should host the extension of Cathedral Resources' T-Zone. Extensions of these southeast trending vein systems should be tested. The Wolverine Zone lies in an area of complex stratigraphy cut by a large number of syenitic stocks, sills and dykes. The copper-gold skarn zone has potential and should be explored in more detail.

#### **PROPOSED EXPLORATION PROGRAM AND BUDGET**

Gulf has recommended, and DMBW concurs, that further work is warranted on the Inel property, and that this work should constitute a multi-tiered program comprising both underground and surface exploration phases. Specifics of the proposed programs are summarized below and detailed in Appendix A.

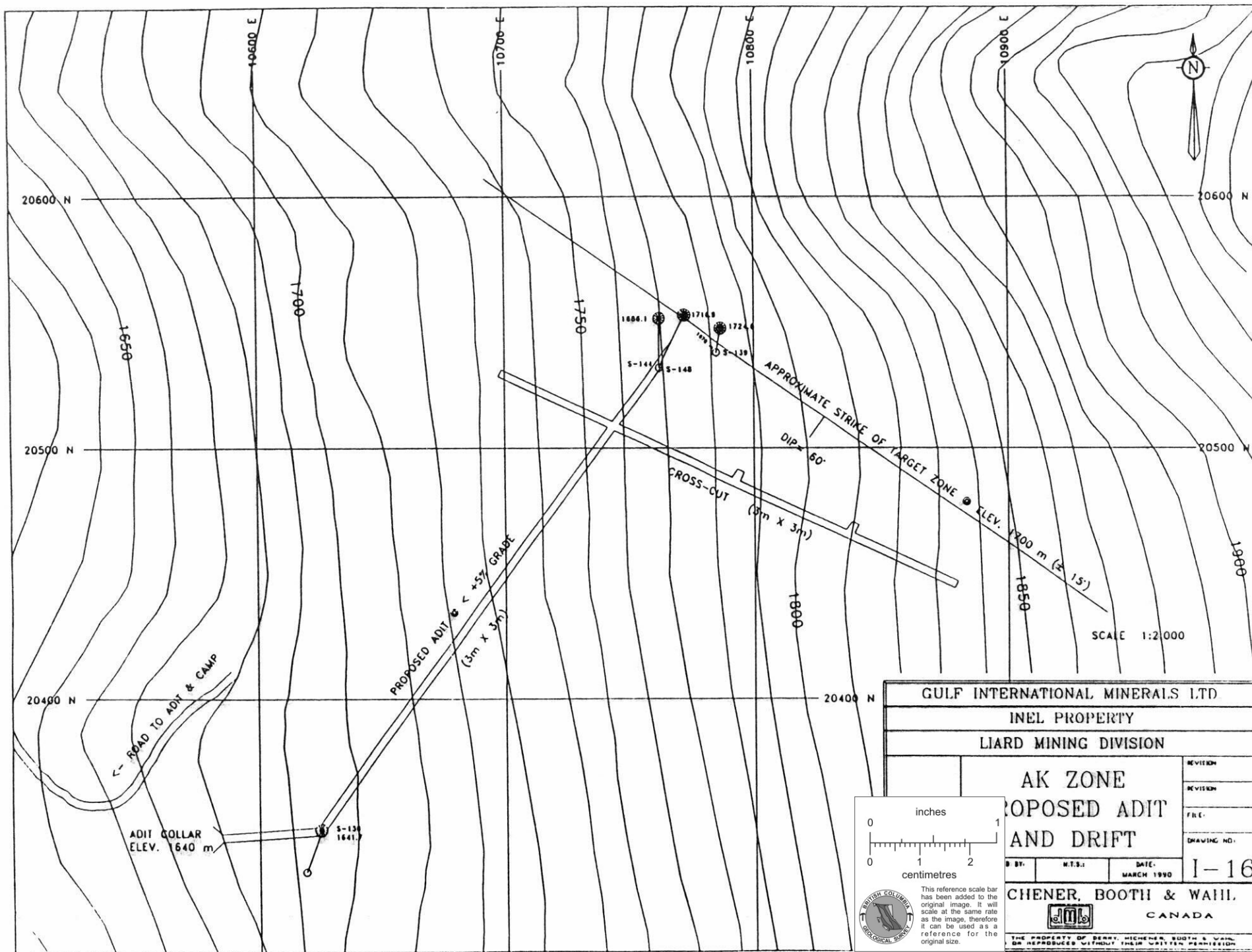
Phase I consists of underground exploration of the AK Zone and includes excavation of a 250 m adit and 300 m of lateral drifting (Figure I-16), 3,500 m of underground diamond drilling, and geologic mapping and sampling. To make use of existing roads, the adit will be collared in the vicinity of the 98 Zone and will thus allow for testing of this latter zone at the same time. The adit will access the zone via the hanging wall; diamond drilling will allow testing of both down-dip continuity of the zone and strike continuity in areas currently inaccessible at surface due to ice cover. Estimated cost of Phase I is \$2,501,480.

### PHASE I

#### PROPOSED UNDERGROUND EXPLORATION PROGRAM

#### INEL PROPERTY - AK ZONE

Planning and Expediting	\$ 8,050
Adit Excavation	1,061,380
Diamond Drilling	234,960
Site Labour	135,000
Camp Support	149,500
Site Services	40,000
Assaying	36,000
Petrographic Analyses	15,625
Transportation	138,700
Permitting	5,000
Reporting	<u>100,000</u>
Subtotal	\$1,924,215
Management and Supervision	384,843
Contingency	<u>192,422</u>
 TOTAL	 <u>\$2,501,480</u>



Phase II of the program consists of independent surface and underground exploration programs.

Surface exploration on the property (Phase IIa) consists of geological mapping, trenching, geochemical sampling, and 2,250 m of diamond drilling on previously untested areas of known mineralization, and minor follow-up drilling on targets tested during the 1989 drill program. Areas to be tested by ground surveys and reconnaissance drilling include the Wolverine Zone, Inel Ridge Zone, Moonlight Zone, East Ridge Zone, Superior Zone, Zinc Knob and Big Knob Showing; follow-up drilling would concentrate on the S-96 area.

We consider Phase IIa to be warranted irrespective of other results, and thus do not consider it to be contingent on Phase I. We further note that the cost of the surface program would be considerably reduced if run in conjunction with the AK Zone underground program. Estimated cost of Phase IIa is \$663,553 if undertaken alone, or \$513,553 if operated in conjunction with Phase I.

#### PHASE IIa

#### PROPOSED SURFACE EXPLORATION PROGRAM

#### INEL PROPERTY

Planning & Expediting	\$ 8,050
Site Labour & Camp Support	169,725
Diamond Drilling	135,000
Assaying	64,000
Petrographic Analyses	6,350
Transportation	102,300
Reporting	<u>25,000</u>
Subtotal	\$ 510,425
Management and Supervision	102,085
Contingency	<u>51,043</u>
 TOTAL	 <u>\$ 663,553</u>

Contingent on favourable results from the Phase I underground program on the AK Zone, it is anticipated that additional exploration and testing of the AK Zone mineralization will be necessary. This latter program (Phase IIb) is expected to consist of approximately 300 m of underground drifting to extend the known strike length of mineralization and access the zone for bulk sampling, and a further 3,000 m of underground drilling.

PHASE IIb

PROPOSED UNDERGROUND EXPLORATION PROGRAM\*

INEL PROPERTY - AK ZONE

Planning and Expediting	\$ 8,050
Adit Excavation	625,360
Diamond Drilling	204,960
Site Labour	123,000
Camp Support	128,500
Site Services	40,000
Assaying	38,250
Transportation	117,000
Reporting	<u>100,000</u>
Subtotal	\$1,385,120
Management and Supervision	277,024
Contingency	<u>138,512</u>
 TOTAL	 <u>\$1,800,656</u>

\* - Contingent on favourable result of Phase I program.

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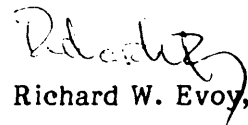


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## CERTIFICATE OF QUALIFICATION

I, Richard W. Evoy, of 166 Atlas Avenue, Toronto, Ontario, do hereby certify that:-

1. I am an exploration geologist working as an outside consultant for Derry, Michener, Booth & Wahl, Consulting Geologists and Engineers, of Toronto.
2. I am a graduate of Lake Superior State University, Sault Ste. Marie, Michigan, in Honours Geology with the degree of B.Sc. in 1984 and of the University of Missouri-Columbia with the degree M.Sc. in 1988/89.
3. I have been practising my profession since 1984.
4. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Gulf International Minerals Ltd. or any affiliate, nor in Avondale Resources Inc. or any related companies.
5. The statements contained in this report and the conclusions and recommendations made are based upon my review of data supplied by Gulf International Minerals Ltd., as well as public domain references as cited in this volume. I have reviewed drill core from significant intersections in Inel holes U-87, S-115, S-116, S-130 and S-160.
6. Drill core was viewed in Gulf International Minerals Ltd.'s Vancouver office with Gulf personnel. Due to inclement weather on Thursday, March 29, 1990, I was unable to conduct a site visit.
7. I hereby consent to the use of this report in a Statement of Material Facts of the Company for the preparation of a prospectus for submission to the Ontario Securities Commission and other regulatory authorities.


  
Richard W. Evoy, M.Sc.

Toronto, Ontario  
June 11, 1990

## CERTIFICATE OF QUALIFICATION

I, David G. Wahl, residing at 3 McKay Cres., Unionville, Ontario, do hereby certify that:-

1. I am a consulting engineer and President of W. G. Wahl Limited which is a partner in the firm Derry, Michener, Booth & Wahl.
2. I am a graduate of the Colorado School of Mines, with a degree of Engineer of Mines (1968) and have been practising my profession since graduation.
3. I am a registered Professional Engineer in the Province of Ontario and have been designated Consulting Engineer with specialization granted in exploration and development.
4. I am past Chairman of the Board of Regulations, Association of Professional Engineers of the Province of Ontario.
5. I have no interest, nor do I expect to receive any interest, direct or indirect, in the properties or securities of Gulf International Minerals Ltd. or any affiliate, nor in Avondale Resources Inc. or any related companies.
6. This report, and the conclusions and recommendations made, are based on examination of all data supplied by Gulf International Minerals Ltd. I have reviewed drill core from significant intersections in Inel holes U-87, S-115, S-116, S-130 and S-160.
7. Drill core was viewed in Gulf International Minerals Ltd.'s Vancouver office with Gulf personnel on Wednesday, March 28, 1990 and during a site visit conducted on Tuesday, June 5 and Wednesday, June 6, 1990.
8. I hereby consent to the use of this report in a Statement of Material Facts of the Company and for the preparation of a prospectus for submission to the Ontario Securities Commission and other regulatory authorities.

  
D. G. Wahl, P.Eng.  
Consulting Engineer



Toronto, Ontario  
June 11, 1990

APPENDIX A

INEL PROPERTY - DETAILED EXPLORATION BUDGETS

INEL PROPERTY  
PHASE I EXPLORATION BUDGET  
SUMMARY

1.0	PRE-FIELD PLANNING		
1.1	Personnel	\$7,050	
1.2	Expenses	\$1,000	\$8,050
2.0	CONTRACT - DRIVE ADIT, CROSSCUT & EXCAVATION		
2.1	Refurbish Existing Inel Camp	\$20,000	
2.2	Equipment Repairs	\$135,000	
2.3	Set-up & Establish Services	\$40,000	
2.4	Collar Adit	\$30,000	
2.5	Drifting	\$745,380	
2.6	Mobilization & Demobilization.	\$91,000	\$1,061,380
3.0	UNDERGROUND DRILLING		
3.1	Mobilization/Demobilization	\$24,960	
3.2	Drilling	\$210,000	\$234,960
4.0	SITE LABOUR		\$135,000
5.0	CAMP SUPPORT		\$149,500
6.0	SITE SERVICES		
6.1	Electrical & Mechanical	\$10,000	
6.2	Satellite Communications	\$30,000	\$40,000
7.0	ASSAYS		\$36,000
8.0	PETROGRAPHIC ANALYSES		
8.1	Archived Core	\$10,200	
8.2	1990 Program	\$5,425	\$15,625
9.0	TRANSPORTATION & FREIGHT		\$138,700
10.0	ENVIRONMENTAL PERMIT		\$5,000
11.0	REPORTING		<u>\$100,000</u>
	SUBTOTAL:		\$1,924,215
	Management & Supervision:		\$384,846
	Contingency:		<u>\$192,422</u>
	TOTAL:		\$2,501,480

INEL PROPERTY  
PHASE I EXPLORATION BUDGET  
DETAILED

## 1.0 PLANNING AND EXPEDITING

## 1.1 Personnel

Geologist	10 days @ \$425 /day	\$4,250	
Assistant	10 days @ \$280 /day	\$2,800	\$7,050

## 1.2 Expenses

Reproduction, Maps, etc.	\$1,000	<u>\$1,000</u>	
		\$8,050	\$8,050

## 2.0 CONTRACT - DRIVE ADIT, CROSSCUT &amp; EXCAVATION

2.1 Refurbish Existing INEL Camp		\$20,000
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## 2.2 Equipment Repairs

1976 Elmac D12-48-12T Truck	\$10,000	
1987 Wagner ST20 (2yd)	\$25,000	
1979 GD Compressor	\$10,000	
1979 Cat 150 kw 600v Gen Set	\$10,000	
1987 Cat 225kw 600v Gen Set	\$5,000	
Other Equipment	\$75,000	\$135,000

2.3 Set-up & Establish Services	\$40,000
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2.4 Collar Adit	\$30,000
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## 2.5 Drifting

Heading	550 m @ \$990 /m	\$544,500	
Drill Bays	180 m <sup>3</sup> @ \$156 /m <sup>3</sup>	\$28,080	
Fuel	36000 gal @ \$4.80 /gal	\$172,800	\$745,380

INEL PROPERTY  
PHASE I EXPLORATION BUDGET  
DETAILED

## 2.6 Mobilization &amp; Demobilization.

Truck	
Truck Mob	\$15,000
Truck Demob.	\$5,000
Position Cost S-61	\$8,000

## Helicopter

Mob. Weights	Lbs			
Explosives	45000			
Supplies (pipe,vent,cable,bolts)	30000			
Surface Plant	15000			
Total	90000			
Helicopter S-61 Mob	90000 lbs @	\$0.60 /lb	\$54,000	
Helicopter S-61 Demob	15000 lbs @	\$0.60 /lb	\$9,000	
			<u>\$91,000</u>	
			\$1,061,380	\$1,061,380

## 3.0 UNDERGROUND DRILLING

## 3.1 Mobilization/Demobilization

Mob. Weights	Lbs			
Drill	5000			
Fuel (18000 gal @ 8.5lb/gal)		included in mining		
Boxes( 100 Bundle @ 50lb per)	5000			
Misc.	12000			
Total	22000			
Mob				
Trucking	22000 lbs @	\$0.04 /lb	\$880	
Helicopter	22000 lbs @	\$0.60 /lb	\$13,200	
Demob				
Trucking	17000 lbs @	\$0.04 /lb	\$680	
Helicopter	17000 lbs @	\$0.60 /lb	\$10,200	\$24,960

INEL PROPERTY  
PHASE I EXPLORATION BUDGET  
DETAILED

3.2 Drilling						
	3500 m @	\$60 /m	\$210,000	<u>\$210,000</u>		
				\$234,960	\$234,960	
4.0 SITE LABOUR						
Sup/Eng.	75 days @	\$350 /day	\$26,250			
Geologist	75 days @	\$300 /day	\$22,500			
Asst. Geologist	60 days @	\$200 /day	\$12,000			
Cat Skinner	30 days @	\$300 /day	\$9,000			
Camp Manager	75 days @	\$200 /day	\$15,000			
Sampler/surveyor	60 days @	\$200 /day	\$12,000			
Core Splitter	60 days @	\$200 /day	\$12,000			
Cook & First Aid	75 days @	\$200 /day	\$15,000			
Bull Cook	<u>75</u> days @	\$150 /day	\$11,250	\$135,000	\$135,000	
	585					
5.0 CAMP SUPPORT						
9 Staff	585 mdays @	\$100 /mda	\$58,500			
10 Miners	750 mdays @	\$100 /mda	\$75,000			
4 Drillers	160 mdays @	\$100 /mda	\$16,000	\$149,500	\$149,500	
6.0 SITE SERVICES						
6.1 Electrical & Mechanical				\$10,000		
6.2 Satellite Communications				<u>\$30,000</u>		
				\$40,000	\$40,000	
7.0 ASSAYS						
Drilling	1800 samples @	\$20 /s	\$36,000			
Muck	samples @	\$20 /s				
Face	samples @	\$20 /s		\$36,000	\$36,000	
8.0 PETROGRAPHIC ANALYSES						
8.1 Archived Core						
Thin Sections & Analysis	100 @	\$77 /s	\$7,700			
Whole Rock Analyses	100 @	\$25 /s	\$2,500	\$10,200		



INEL PROPERTY  
PHASE I EXPLORATION BUDGET  
DETAILED

## 8.2 1990 Program

Thin Sections & Analysis	25	@	\$77 /s	\$1,925		
Polished Sections & Analysis	25	@	\$90 /s	\$2,250		
Whole Rock Analyses	50	@	\$25 /s	\$1,250	<u>\$5,425</u>	
					\$15,625	\$15,625

## 9.0 TRANSPORTATION &amp; FREIGHT

Helicopter (1.5hrs/day)	180 hrs	@	\$620 /hr	\$83,700		
Freight				\$30,000		
Crew @1000 each 25 men	25 men	@	\$1,000 /man	\$25,000	\$138,700	\$138,700

## 10.0 ENVIRONMENTAL PERMIT

\$5,000      \$5,000

## 11.0 REPORTING

\$100,000      \$100,000

SUBTOTAL:      \$1,924,215

Management & Supervision:      @20%      \$384,843

Contingency:      @10%      \$192,422

TOTAL:      \$2,501,480

INEL PROPERTY  
PHASE IIa EXPLORATION BUDGET  
SUMMARY

1.0	PRE-FIELD PLANNING		
1.1	Personnel	\$7,050	
1.2	Expenses	\$1,000	\$8,050
2.0	SURFACE FIELD PROGRAM		
2.1	Personnel	\$96,225	
2.2	Field Support	\$43,500	
2.3	Satellite Communications	\$30,000	\$169,725
3.0	DIAMOND DRILLING		\$135,000
4.0	ASSAYS		\$64,000
5.0	PETROGRAPHIC ANALYSES		\$6,350
6.0	HELICOPTER		\$102,300
7.0	REPORTING		<u>\$25,000</u>
	SUBTOTAL:		\$510,425
	Management & Supervision:		\$102,085
	Contingency:		<u>\$51,043</u>
	TOTAL:		\$663,553

INEL PROPERTY  
 PHASE IIa EXPLORATION BUDGET  
 DETAILED

## 1.0 PLANNING AND EXPEDITING

## 1.1 Personnel

Geologist	10 days @ \$425 /day	\$4,250		
Assistant	10 days @ \$280 /day	\$2,800	\$7,050	

## 1.2 Expenses

Reproduction, Maps, etc.		\$1,000	<u>\$1,000</u>	
			\$8,050	\$8,050

## 2.0 SITE LABOUR &amp; CAMP SUPPORT

## 2.1 Personnel

Geologist	60 days @ \$425 /day	\$25,500		
Drill Geologist	45 days @ \$425 /day	\$19,125		
Field Assistant	60 days @ \$280 /day	\$16,800		
Field Assistant	60 days @ \$280 /day	\$16,800		
Cook	60 days @ \$300 /day	\$18,000	\$96,225	

## 2.2 Camp Support

Mob/Demob (Crew)	5 men @ \$1,000	\$5,000		
Mob/Demob (Freight)		\$10,000		
Consumables	285 mdays @ \$100 /day	\$28,500	\$43,500	

## 2.3 Satellite Communications

	<u>\$30,000</u>	
	\$169,725	\$169,725

## 3.0 DIAMOND DRILLING

	2250 m @ \$60 /m	\$135,000	\$135,000
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## 4.0 ASSAYING

4.1 Drill Core Samples	2000 @ \$20	\$40,000		
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4.2 Soil Samples	2000 @ \$12	\$24,000	\$64,000	\$64,000
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INEL PROPERTY  
 PHASE IIa EXPLORATION BUDGET  
 DETAILED

## 5.0 PETROGRAPHIC ANALYSES

Thin Sections & Analysis	50 @	\$77 /s	\$3,850		
Whole Rock Geochemistry	100 @	\$25 /s	\$2,500	\$6,350	\$6,350

## 6.0 HELICOPTER

60 days @ 2 hr/day	120 hrs @	\$620 /hr	\$74,400		
45 days @ 1 hr/day	45 hrs @	\$620 /hr	\$27,900	\$102,300	\$102,300

## 7.0 REPORTING

	\$25,000	<u>\$25,000</u>
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SUBTOTAL:		\$510,425
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Management & Supervision:	@20%	\$102,085
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Contingency:	@10%	<u>\$51,043</u>
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TOTAL:		\$663,533
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INEL PROPERTY  
PHASE 11b EXPLORATION BUDGET  
SUMMARY

1.0	PRE-FIELD PLANNING		
1.1	Personnel	\$7,050	
1.2	Expenses	\$1,000	\$8,050
2.0	CONTRACT - DRIVE ADIT, CROSSCUT & EXCAVATION		
2.1	Refurbish Existing Inel Camp	\$10,000	
2.2	Equipment Repairs	\$25,000	
2.3	Set-up & Establish Services	\$25,000	
2.5	Drifting	\$474,360	
2.6	Mobilization & Demobilization.	\$91,000	\$625,360
3.0	UNDERGROUND DRILLING		
4.1	Mobilization/Demobilization		
4.2	Drilling		\$204,960
4.0	SITE LABOUR		\$123,000
5.0	CAMP SUPPORT		\$128,500
6.0	SITE SERVICES		
7.1	Electrical & Mechanical	\$10,000	
7.2	Satellite Communications	\$30,000	\$40,000
7.0	ASSAYS		\$38,250
8.0	TRANSPORTATION & FREIGHT		\$117,000
9.0	REPORTING		<u>\$100,000</u>
	SUBTOTAL:		\$1,385,120
	Management & Supervision:		\$277,024
	Contingency:		<u>\$138,512</u>
	TOTAL:		\$1,800,656

INEL PROPERTY  
PHASE IIb EXPLORATION BUDGET  
DETAILED

## 1.0 PLANNING AND EXPEDITING

## 1.1 Personnel

Geologist	10 days @	\$425 /day	\$4,250	
Assistant	10 days @	\$280 /day	\$2,800	\$7,050

## 1.2 Expenses

Reproduction, Maps, etc.		\$1,000	<u>\$1,000</u>	
			\$8,050	\$8,050

## 2.0 CONTRACT - DRIVE ADIT, CROSSCUT &amp; EXCAVATION

2.1 Refurbish Camp				\$10,000
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2.2 Equipment Repairs				\$25,000
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2.3 Set-up & Establish Services				\$25,000
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## 2.4 Drifting

Heading	300 m @	\$990 /m	\$297,000	
Drill Bays	90 m3 @	\$156 /m3	\$9,360	
Fuel	35000 gal @	\$4.80 /gal	\$168,000	\$474,360

## 2.5 Mobilization &amp; Demobilization.

Truck		
Truck Mob		\$15,000
Truck Demob.		\$5,000

Position Cost S-61		\$8,000
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## Helicopter

Mob. Weights	Lbs
Explosives	45000
Supplies (pipe,vent,cable,bolts)	30000
Surface Plant	15000
Total	90000

INEL PROPERTY  
PHASE IIb EXPLORATION BUDGET  
DETAILED

Helicopter S-61 Mob	90000 lbs @	\$0.60 /lb	\$54,000		
Helicopter S-61 Demob	15000 lbs @	\$0.60 /lb	\$9,000	<u>\$91,000</u>	
				\$625,360	\$625,360

## 3.0 UNDERGROUND DRILLING

## 3.1 Mobilization/Demobilization

Mob. Weights	Lbs				
Drill	5000				
Fuel (18000 gal @ 8.5lb/gal)		included in mining			
Boxes( 100 Bundle @ 50lb per)	5000				
Misc.	12000				
Total	22000				
Mob					
Trucking	22000 lbs @	\$0.04 /lb	\$880		
Helicopter	22000 lbs @	\$0.60 /lb	\$13,200		
Demob					
Trucking	17000 lbs @	\$0.04 /lb	\$680		
Helicopter	17000 lbs @	\$0.60 /lb	\$10,200	\$24,960	

## 3.2 Drilling

3000 m @	\$60 /m	\$180,000	<u>\$180,000</u>	
			\$204,960	\$204,960

## 4.0 SITE LABOUR

Sup/Eng.	75 days @	\$350 /day	\$26,250		
Geologist	75 days @	\$300 /day	\$22,500		
Cat Skinner	30 days @	\$300 /day	\$9,000		
Camp Manager	75 days @	\$200 /day	\$15,000		
Sampler/surveyor	60 days @	\$200 /day	\$12,000		
Core Splitter	60 days @	\$200 /day	\$12,000		
Cook & First Aid	75 days @	\$200 /day	\$15,000		
Bull Cook	75 days @	\$150 /day	\$11,250	\$123,000	\$123,000
	525				

INEL PROPERTY  
PHASE IIB EXPLORATION BUDGET  
DETAILED

## 5.0 CAMP SUPPORT

8 Staff	525 mdays @	\$100 /mda	\$52,500		
10 Miners	600 mdays @	\$100 /mda	\$60,000		
4 Drillers	160 mdays @	\$100 /mda	\$16,000	\$128,500	\$128,500

## 6.0 SITE SERVICES

6.1 Electrical & Mechanical				\$10,000	
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6.2 Satellite Communications				<u>\$30,000</u>	
				\$40,000	\$40,000

## 7.0 ASSAYS

Drilling	1500 samples @	\$20 /s	\$30,000		
Muck	100 samples @	\$20 /s	\$2,000		
Face	250 samples @	\$20 /s	\$5,000		
Whole Rock	50 samples @	\$25 /s	\$1,250	\$38,250	\$38,250

## 8.0 TRANSPORTATION &amp; FREIGHT

Helicopter	100 hrs @	\$620 /hr	\$62,000		
Freight			\$30,000		
Crew @1000 each 25 men	25 men @	\$1,000 /man	\$25,000	\$117,000	\$117,000

## 9.0 REPORTING

	\$100,000	<u>\$100,000</u>
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SUBTOTAL:		\$1,385,120
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Management & Supervision:	@20%	\$277,024
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Contingency:	@10%	<u>\$138,512</u>
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TOTAL:		\$1,800,656
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**SUMMARY REPORT  
ON THE  
AVONDALE RESOURCES INC.  
FORREST PROJECT**

**ISKUT RIVER AREA  
LIARD MINING DIVISION  
BRITISH COLUMBIA**

**Bernard Dewonck, F.G.A.C.**

**January 24, 1990**

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Avondale Resources Inc. has the right to earn a 100% interest in the Forrest Project, which consists of the Forrest 1-15 mineral claims comprising 278 units. The property is situated within the Liard Mining Division on the west side of Forrest Kerr Creek and immediately north of the Iskut River. Extensive exploration for precious metals is ongoing at a rapid pace in the area and numerous discoveries have been made, of which several are in advanced stages of exploration, development or, in the case of Skyline Gold Corporation, in production. Calpine Resources Incorporated/Stikine Resources Ltd.'s Eskay Creek 21 Zone is located 15 kilometres to the southeast of the property while Cominco/Prime Resources Corporations's Snip deposit and Skyline Gold Corporations's Johnny Mountain Mine are 30 kilometres to the west-southwest. Bob Quinn Lake on the Stewart-Cassiar Highway is 30 kilometres to the east.

The Forrest Project itself has evolved rapidly from a raw prospect in 1987 to its present status - nineteen separate mineral showings or zones identified and partial coverage by detailed geological, geochemical and geophysical surveys over the two grids. Commodity assemblages range from native gold to gold-arsenic-copper-silver, copper-gold and copper in quartz veins and/or shear zones.

The 1989 field program has identified several coincident multi-element geochemical, geophysical and structural anomalies of interest on both the Forrest and South Central Grids. These target areas require detailed work which should include additional mapping, fill-in soil geochemical and geophysical surveys, trenching and rock sampling to define the source of these anomalies. In the case of several showings in the northern part of the property, little additional surface work can be done prior to diamond drilling.

The various mineral occurrences on the Forrest property are hosted by a Permian volcano-sedimentary package, compared to rocks of Lower Jurassic age as is the case for most other occurrences in the region. A common link between them however, is postulated to be Lower Jurassic intrusives - the heat source for the principal hydrothermal mineralizing event in the region.

Of the numerous occurrences identified to date on the Forrest Project, those located in the northern part of the property are priority targets for continued exploration. The Triple Creek Showing carries significant gold values and may represent a lower level exposure of the Forrest Zone stockwork. The Creek Shear has also yielded encouraging gold values, as well as copper and silver, but also displays some of the strongest alteration evident on the property. It has been suggested that in the Forrest Zone area, the majority of veins and fracture fillings occur within volcanic rocks, not sedimentary, and that continuity at depth of potentially mineralized structures might be restricted by underlying sedimentary stratigraphy if stress within the latter is dissipated along bedding planes rather than in the creation of fractures. The Creek Shear, however, occurs within siltstone, an encouraging feature given its location topographically below the Forrest Zone. The Canyon Shear is similar in nature, although within andesite where exposed, and appears to have significant identifiable strike potential in view of an associated air photo lineament as well as potential geochemical expression to the southwest.

Contour soil sampling below these three showings has produced a substantial gold-copper-arsenic (+/- silver) anomaly across 450 metres of slope which probably reflects as yet undiscovered occurrences. Numerous veins are visible on the precipitous slopes of Gossan Creek which have not yet been investigated, indicating a good probability that the overburden covered areas will yield new discoveries.

Detailed prospecting in the area of the contour sampling is required, in conjunction with additional contour sampling, as well as along strike projections of the three showings. The use of VLF-EM where practical is strongly recommended, at least as a prospecting tool on a local basis even if systematic grid controlled surveys are not possible due to topographic constraints. It is anticipated that only limited additional trenching is feasible and exploration should proceed to the drilling stage during the next program.

The NW 3 Shear is a new discovery, also significant because it occurs in sedimentary rocks and appears to be a strong feature. Detailed follow up is required as described above and early drill target definition would complement program development envisaged for the Triple Creek, Creek and Canyon Shear Showings.

The Tarn Showing has good potential because of its apparent strength, reflected in the extent of associated quartz-sericite-chlorite alteration. Grab samples have produced significant gold and copper values from more strongly mineralized material than that seen in place to date. The source of this material, therefore, remains to be located. Again, VLF-EM may be a quick and inexpensive means of tracing the zone to define a drill target. Trenching and geochemical sampling may be hampered by glacial deposits. The showing is not reflected in the present grid soil geochemistry, probably because of overlying glacial material in the immediate vicinity.

The VG Showing as it stands has limited potential because the veins are narrow. One cannot ignore the fact, however, that considerable gold can be found in these veins. The showing requires detailed mapping in an attempt to recognize any structural or mineral zonation implications, as well as possible surface targets

made possible by increased vein intensity. An IP survey is recommended to help identify drill targets at depth that are inferred from surface work however interpretation may be complicated by graphitic sediments in lower stratigraphy.

The 50 Zone requires detailed mapping to define the source of widespread arsenopyrite and chalcopyrite bearing quartz vein float, although one such vein has been located. This mapping is also needed to establish structural relationships with the Forrest Zone. Soil sampling has produced a strong gold-arsenic-copper anomaly which should be followed up by VLF-EM and mechanized trenching, since topographic relief in this area is quite subdued. This work should lead to drill target definition.

It is recognized that the Forrest Zone, the quartz megastockwork zone which first attracted attention to the property, is itself virtually unmineralized but that it is indicative of a substantial hydrothermal event. The system's depth potential in general has been alluded to in discussion of the Triple Creek Showing etc. however the Forrest Zone itself does warrant continued investigation. It is effectively a drill target at present, such work to be preceded by deep penetration IP surveys over a few test lines. If successful the survey can be expanded to provide more definitive sulphide rich targets.

Several other showings require continued mapping, prospecting and sampling follow up, particularly the Azurite, West Creek and 14 Shear Showings. On a broader scale systematic grid coverage should be expanded to include the Midway Area, to bridge the gap between the existing grids for mapping purposes, and subsequent geochemical and geophysical surveys as warranted. Grid expansion should also take place to the south of the South Central Grid. The Forrest 2 claims appears to be

on strike with the Permian volcano-sedimentary sequence and also warrants systematic coverage. This grid work could be initiated with 100 metre line spacings, which can later be reduced as results dictate. Other large areas of the property have yet to be prospected in great detail, such as the diorite in the northwest and southwest corners and the southern and southeastern areas east of the West Slope Fault where Triassic and younger rocks occur.

The grid controlled soil geochemical surveys produced four anomaly patterns on the Forrest Grid. The strongest anomaly is associated with the 50 Zone, discussed previously. Recommendations of prospecting, mapping, VLF-EM surveys and trenching apply to the full extent of this anomaly including the arcuate band northwest of the 50 Zone. The second anomaly was also referred to with regard to the Canyon Shear strike extensions. The third area of interest is centred near the end of L46+00N and may be related to the Canyon Shear trend, while the fourth lies south of the Azurite Showing. The latter anomaly may be related to the main 50 Zone trend. Grid expansion to the west is required in the case of the third area as well as more detailed sampling and prospecting in both the third and fourth areas, followed by trenching. Similar attention should be given to the four linear trends described on the South Central Grid, with particular focus on the roughly coincident geochemical anomaly - fault structure - resistivity high south of the Pond Showing. This area features the highest gold-in-soil values recorded on this grid, up to 6570 ppb. This work should lead to the definition of drill targets to be incorporated in the drill programs undertaken on more advanced targets.

It is also suggested that some effort be devoted to the mapping and interpretation of glacial features on the property. This may be of some assistance

in interpreting the presently defined geochemical anomalies as well as in guiding further exploration in other parts of the property.

The magnetic and resistivity surveys completed to date have been of very limited assistance in delineating mineralization. It is suggested that VLF-EM surveys be conducted as follow up on the showings as mentioned previously, as part of the initial coverage of new or expanded grids and even as a prospecting tool prior to grid establishment in the remaining unexplored areas of the property. The use of IP has also been mentioned previously with respect to the Forrest Zone and VG Showing, however the expense of the survey warrants its use on a few test lines initially to evaluate its usefulness.

A two part, second phase exploration program comprising both surface work and diamond drilling is therefore proposed. Those showings requiring little surface work can be drilled while work is in progress in other areas to define additional targets (Phase IIa). Phase IIb would include some surface work to complete definition of new targets, continued drilling of the first targets as guided by the Phase IIa work and drilling of all other targets generated. A breakdown of the total Phase II budget of \$1,500,000 follows.

BUDGET ESTIMATE

Phase IIa

Surface Program

Mobilization	\$ 6,900
Field Costs	70,000
Support Costs (fixed wing, helicopter, freight)	37,000
Equipment Rental	5,500
Contract Services (linecutting, geophysics)	27,000
Analyses	40,000
Diamond Drilling (550 m @ \$200/m, all inclusive)	110,000
Preliminary Compilation and Report	20,000
Contingency @ 10%	31,600
Subtotal	\$ 348,000
Management Fee @ 15%	52,000
Total Phase IIa	\$ 400,000

Phase IIb

Surface Program (all inclusive)	\$ 90,000
Diamond Drilling (3900 m @ \$200/m all incl.)	780,000
Contingency @ 10%	87,000
Subtotal	\$ 957,000
Management Fee @ 15%	143,000
Total Phase IIb	\$1,100,000

GRAND TOTAL PHASE II

\$1,500,000



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### Certificate of Qualifications

Bernard Dewonck, F.G.A.C.

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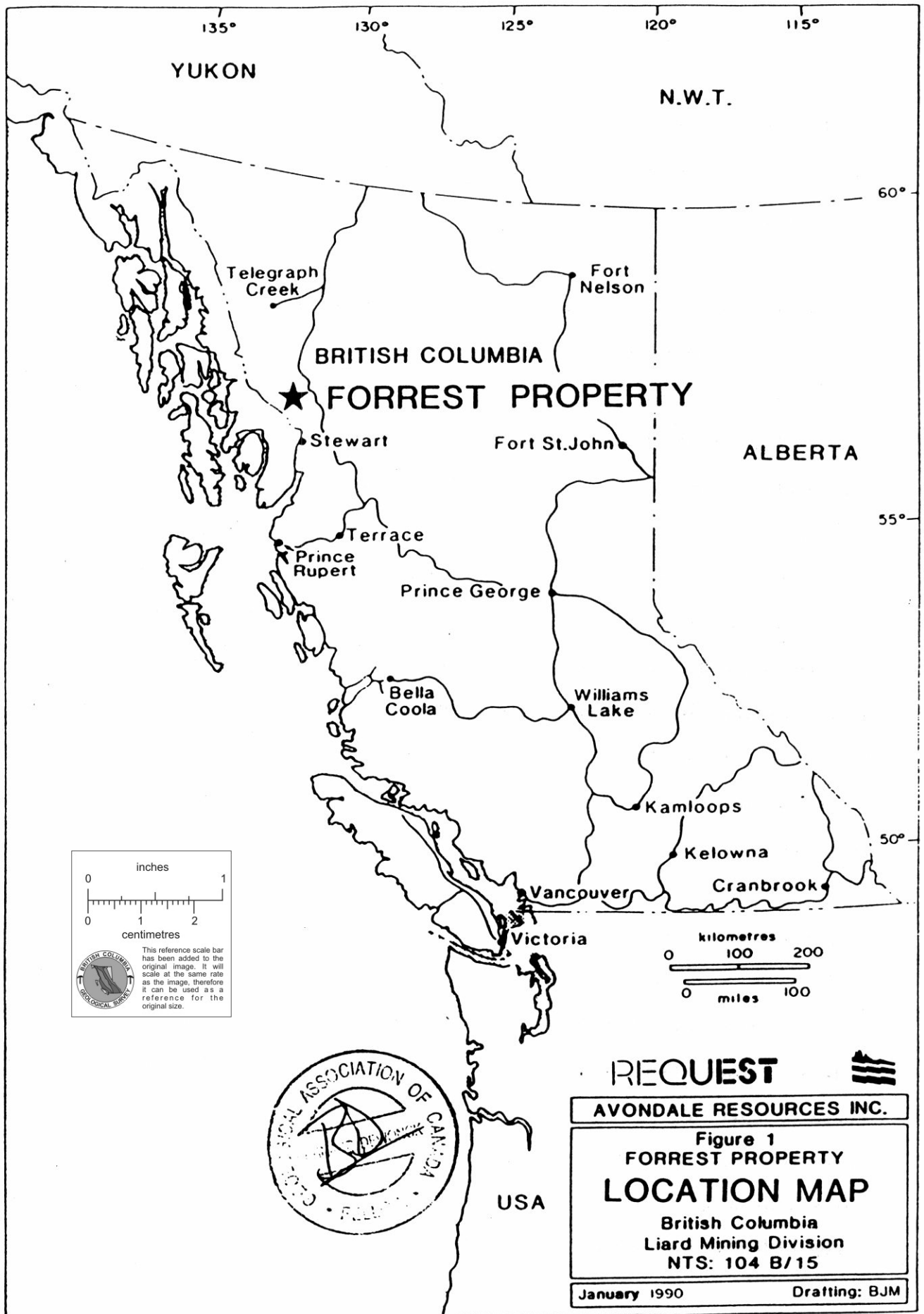
## INTRODUCTION

This report was prepared at the request of Avondale Resources Inc., who has the right to acquire a 100% interest in the Forrest Project. The property comprises the Forrest 1-15 claims totalling 278 units. The results of exploration to date are summarized and recommendations for continued work are made.

The information contained in this report is taken primarily from field data resulting from work carried out by Pamicon Developments Ltd. in 1987, 1988 and 1989, under the direct supervision of S. Todoruk, B.Sc. Mr. Todoruk is the registered owner of the claims, subject to a partnership agreement with other individuals directly associated with Pamicon Developments Ltd. The author has visited the property, both in October 1988 and September 1989, and reviewed field data with Pamicon personnel on a continuing basis. OreQuest Consultants Ltd. conducted an extensive property examination in September, 1988 (Raven, 1988) and prepared a qualifying report for Avondale Resources Inc. on the subject property (Dewonck, 1989). The Summary, Conclusions and Recommendations presented in this report, while based on the data collected by Pamicon, are solely those of the present author.

## LOCATION AND ACCESS

The Forrest Project is located approximately 110 kilometres east of Wrangell, Alaska, and 100 kilometres north of Stewart, British Columbia, on the eastern edge of the Coast Range Mountains (Figure 1). Bob Quinn Lake on the Stewart-Cassiar Highway is situated 30 kilometres to the east-northeast while Bronson airstrip (servicing Cominco/Prime Resources Corporation's Snip deposit and Skyline Gold Corporation's Johnny Mountain Mine) is 30 kilometres to the west-southwest. The southerly flowing Forrest Kerr Creek lies immediately east of the claims while the



Iskut River is located just to the south of the Forrest 9 and 10 claims. Coordinates of the claims area are 56°47'N latitude and 130°44'W longitude, and the map reference is NTS 104B/15.

Access to the property is via helicopter from the Bronson Creek gravel airstrip, Bob Quinn Lake or the Forrest Kerr airstrip located 15 kilometres to the northwest at the headwaters of Forrest Kerr Creek. Daily scheduled flights to the Bronson Creek strip from Smithers, Terrace and Wrangell, Alaska have been available during the field season using a variety of fixed wing aircraft.

The province of British Columbia has recently completed a study on possible road access to the Iskut, Eskay Creek and Sulphurets areas. Construction of a road from the Stewart-Cassiar Highway from Bob Quinn Lake down the Iskut to Bronson Creek is anticipated in the near future. The road would be situated just south of the Forrest claims on the south side of the Iskut Valley. A possible branch road at Km 40 would allow access to Eskay Creek and the Unuk River area, including Sulphurets.

#### PHYSIOGRAPHY AND VEGETATION

Unlike much of the general Iskut River area currently being explored, which is often steep, rugged and heavily forested at lower elevations, the claims include a large alpine area of gently rolling topography, with patchy soil cover, which contains most of the known showings. Elevations range from 300 m in the Forrest Kerr Creek valley to 1800 m along the western border of the property. The steeper, lower slopes up to 1000 m are predominantly covered with large spruce and fir. A steep-sided creek valley bisects the Forrest 1-4 claims, providing some rock

exposure at elevations below the principal showings. It is probable that the gently rolling upper portions of the claim area can be explored from late May or early June except in years of heavy snowfall, and work can continue on the property in general until late September or October.

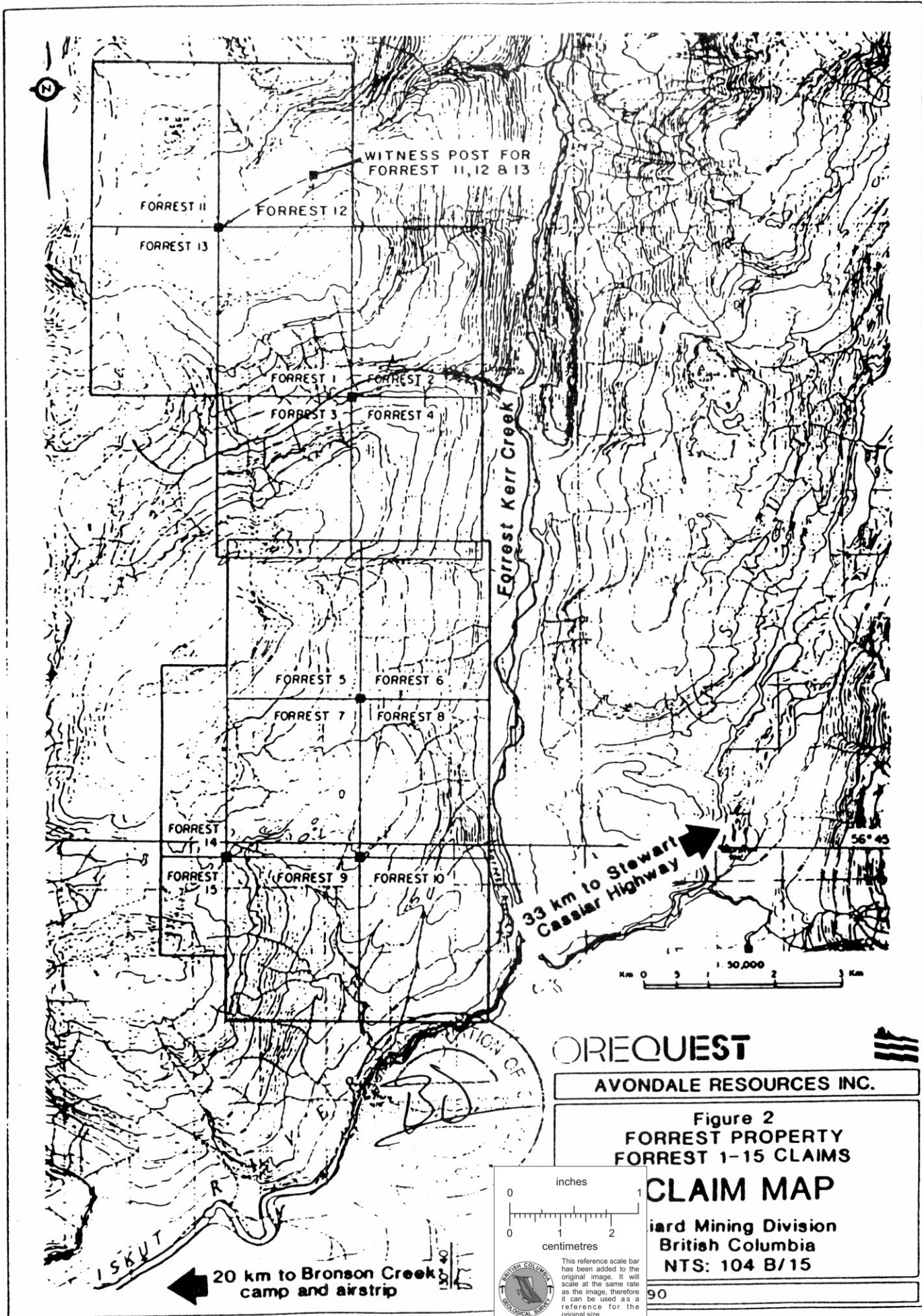
#### CLAIM STATUS

Records of the British Columbia Ministry of Energy, Mines and Petroleum Resources indicate that the following claims are owned by Mr. Steve Todoruk. Pertinent claim information is as follows:

TABLE 1  
CLAIM INFORMATION

<u>Claim Name</u>	<u>No. of Units</u>	<u>Record Number</u>	<u>Record Date</u>	<u>Expiry Date</u>
Forrest 1	20	4361	Nov. 24, 1987	Nov. 24, 1992
Forrest 2	20	4362	Nov. 24, 1987	Nov. 24, 1992
Forrest 3	20	4363	Nov. 24, 1987	Nov. 24, 1992
Forrest 4	20	4364	Nov. 24, 1987	Nov. 24, 1992
Forrest 5	20	5155	Aug. 24, 1988	Aug. 24, 1992
Forrest 6	20	5156	Aug. 24, 1988	Aug. 24, 1992
Forrest 7	20	5157	Aug. 24, 1988	Aug. 24, 1992
Forrest 8	20	5158	Aug. 24, 1988	Aug. 24, 1992
Forrest 9	20	5159	Aug. 24, 1988	Aug. 24, 1992
Forrest 10	20	5160	Aug. 24, 1988	Aug. 24, 1992
Forrest 11	20	5161	Aug. 24, 1988	Aug. 24, 1992
Forrest 12	20	5162	Aug. 24, 1988	Aug. 24, 1992
Forrest 13	20	5163	Aug. 24, 1988	Aug. 24, 1992
Forrest 14	12	5347	Sept. 29, 1988	Sept. 29, 1992
Forrest 15	6	5348	Sept. 29, 1988	Sept. 29, 1992

All claims are situated within the Liard Mining Division. All legal corner posts have been accurately placed with corresponding claim lines hip-chained and completed around the property perimeter where possible (Figure 2). The expiry dates reflect assessment work applied for which approval is pending.



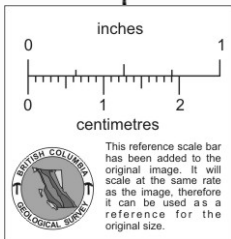
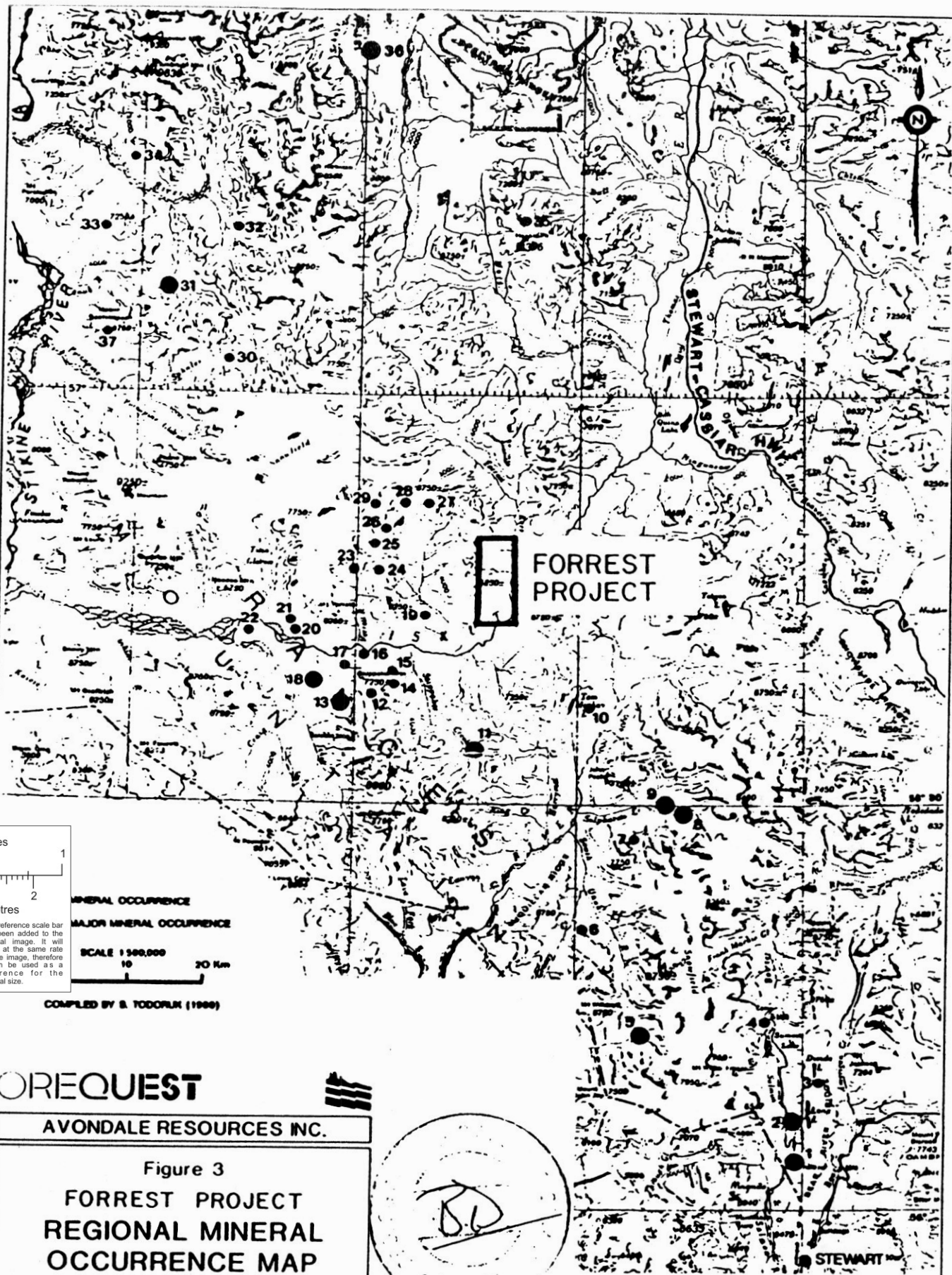
## GENERAL AREA HISTORY

The Forrest Project lies within an historically active mining and exploration area that extends some 225 kilometres from Stewart in the south to near Telegraph Creek in the north. Within this area, which has been referred to as the Stikine Arch, mining activity goes back to the turn of the century. Due to the size of the region it historically has been referred to as more specific areas, ranging from the Stewart area to Sulphurets, Iskut and Galore Creek, however all of these individual camps appear to be related to the Stikine Arch as a whole. Recent discoveries appear to be filling in areas between these known mineralized camps. It is probable that the entire area can be considered as one large mineralized province with attendant subareas. The location of several deposits and mineral occurrences appears in Figure 3, which also locates the Forrest Project with respect to these sites.

The Stewart area has been mined actively since the early 1900s and is one of the most prolific mining districts in British Columbia (Grove, 1971). Most prominent among the numerous mining properties are the Silbak - Premier, Big Missouri and Granduc deposits, located 13 km north, 20 km north and 39 km northwest of Stewart respectively.

The Premier vein system, first staked in 1910, produced in excess of 1.8 million ounces of gold and 41 million ounces of silver from 4.7 million tons (to 1968). The nearby Big Missouri deposit, first staked in 1904, did not produce until 1938 and then only until 1942. During this time 847,615 tons were mined, producing 58,384 ounces of gold and 52,677 ounces of silver. Both these deposits, however, have recently been re-evaluated by Westmin Resources Ltd. who is placing





MINERAL OCCURRENCE  
 MAJOR MINERAL OCCURRENCE  
 SCALE 1:500,000  
 10 20 Km

COMPILED BY S. TODORUK (1988)

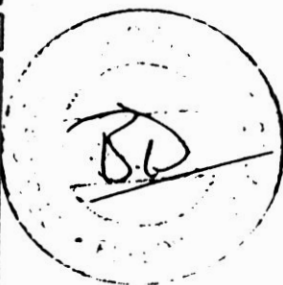
**OREQUEST**

AVONDALE RESOURCES INC.

Figure 3  
**FORREST PROJECT  
 REGIONAL MINERAL  
 OCCURRENCE MAP**

British Columbia

January 1990



see next page for legend

# LEGEND FOR FIGURE 3

PROPERTY OWNER	MINERAL RESERVES AND/OR ELEMENTS
1 Westmin Resources Ltd./Silbak Premier Mines	6,100,000 tons 0.064 oz/t Au, 2.39 oz/t Ag
2 Westmin Resources Ltd./Tournigan Mining Explorations Ltd.	1,860,000 tons 0.09 oz/t Au, 0.67 oz/ton Ag
3 Noranda (Todd Creek Project)	Au
4 Scottie Gold Mine	Au
5 Granduc	10,890,000 tona 1.79% Cu
6 Echo Bay Mines/Magna Ventures/Silver Princess Resources (Doc Project)	470,000 tons 0.27 oz/ton Au, 1.31 oz/ton Ag
7 Western Canadian Mining (Kerr Project)	Cu, Au
8 Catear Resources Ltd.	146,437 tons 0.827 oz/ton Au
9 Newhawk/Lacana/Granduc (Sulphurets Project - West Zone)	854,072 tons 0.354 oz/t Au, 22.94 oz/ton Ag
10 Calpine/Consolidated Stikine Silver Ltd. (Eskay Creek Project)	Au, Cu, Ag
11 Consolidated Silver Standard Mines Ltd. (E & L Deposit)	3,200,000 tons 0.80% Ni, 0.60% Cu
12 Inel Resources Ltd.	Au, Ag, Cu, Pb, Zn
13 Skyline Explorations Ltd. (Stonehouse Gold Deposit)	876,000 tons 0.55 oz/ton Au, 1.0 oz/ton Ag
14 Kestrel Resources Ltd.	Au, Ag, Cu, Pb, Zn
15 Hector Resources Inc. (Golden Spray Vein)	Au, Ag
16 Tungco Resources Corp.	Au, Ag, Cu, Pb, Zn
17 Winslow	Au, Ag, Cu, Pb, Zn
18 Cominco/Prime Resources Corp. (Snip Deposit)	1,032,000 tons 0.875 oz/ton Au
19 Pezgold Resource Corp.	Ag, Au
20 Meridor Resources Ltd.	Au
21 Delaware Resource Corp./American Ore Ltd. /Golden Band	Au
22 Magenta Development Corp./Crest Resources Ltd.	Au, Ag, Cu, Pb
23 Ticker Tape Resources Ltd. (King Vein)	Au
24 Pezgold Resource Corp.	Au
25 Consolidated Sea-Gold Corp.	Au
26 Gulf International Minerals Ltd. (Northwest Zone)	Au, Ag, Cu
27 Kerr Claims	Ag, Cu, Au
28 Pezgold Resource Corp. (Cuba Zone)	Ag, Pb, Zn
29 Pezgold Resource Corp. (Ken Zone)	Cu, Au
30 Pass Lake Resources Ltd. (Trek Project)	Cu, Au
31 Galore Creek	125,000,000 tons 1.06% Cu, 0.397 g/t Au. 7.94 g/t Ag
32 Continental Gold Corp.	Au, Ag, Cu
33 Bellex Resources Ltd./Sarabat Resources Ltd. (Jack Wilson Project)	Au, Cu
34 Pass Lake Resources Ltd. (JD Project)	Au, Cu
35 Lac Minerals (Hankin Peak Project)	Au
36 Schaft Creek	910,000,000 tons 0.30% Cu, 0.020% Mo, 0.113 g/t Au, 0.992 g/t Ag
37 Paydirt	200,000 tons 0.120 oz/ton Au

them both into production with announced reserves of 6.1 million tons grading 0.064 oz/ton gold, 2.39 oz/ton silver and 1.86 million tons grading 0.09 oz/ton gold and 0.67 oz/ton silver respectively (Canadian Mines Handbook, 1989-90).

The Granduc deposit, a massive sulphide copper orebody, was discovered in 1951 and put into production in 1971 with reserves of 39.32 million tons grading 1.73% copper with minor gold and silver values. Production ceased in 1978 but the mine was reactivated in 1980 until early 1984. Production to 1978 totalled 13,423,340 tonnes grading 1.32% copper and later production (1981-82) was 1,114,271 tonnes grading 1.17% copper.

Scottie Gold Mines commenced production on a vein deposit at the north end of Summit Lake in 1981 with reserves of 186,680 tons grading 0.76 oz/ton gold. It closed in 1985, having experienced financial difficulties brought on by depressed metal prices and loss of infrastructure as a result of the closure of the nearby Granduc facilities.

Bond International Gold Inc. recently announced the initial drill results from their Red Mountain Project (News Release, September 29, 1989). One discovery, referred to as the Marc Zone, produced a 66 m drill intersection grading 9.88 g/ton gold and 49.29 g/ton silver. Another area, the Willoughby Gossan Zone, produced a 20.5 m intersection grading 24.98 g/ton gold and 184.21 g/ton silver. These occurrences lie approximately 15.5 km and 23.5 km respectively east-northeast of Stewart.

The Forrest Project lies on the northern fringe of the Iskut-Sulphurets area which has seen extensive exploration in the last three years. The Iskut area originally attracted interest at the turn of the century when prospectors, returning south from the Yukon goldfields searched for placer gold and staked bedrock gossans. In the 1970s the porphyry copper boom drew exploration into the area. The new era of gold exploration began with the 1979 option of the Sulphurets claim block by Esso Minerals Canada and the 1980 acquisition of the Mount Johnny claims by Skyline Explorations Ltd. Skyline commissioned its mill in July, 1988. Cominco Ltd. and Prime Resources Corp. are projected to announce a feasibility decision on the adjacent Snip deposit in early 1990. There has been limited production from Catear Resources Ltd.'s Goldwedge Zone where the mill was commissioned in June, 1988.

Beyond these projects, and except for limited early placer gold recovery from some creeks, the area has had no mineral production history. Since 1979, more than 70 new mineral prospects have been identified, though ground acquisition was relatively slow until the fall of 1987 when the promising results of summer exploration programs became known and the provincial government announced the upcoming release of analytical results from a regional stream sediment survey. By April 1988, all open ground had been staked. More than 60 companies hold ground in the Iskut-Sulphurets belt but to date only small areas within this 40 x 80 km district have received extensive exploration.

In the Sulphurets Creek camp 40 km southeast of the Forrest property near Brucejack Lake, the vein-hosted West Zone of Newhawk Gold Mines Ltd. / Granduc Mines Ltd. / Corona Corporation is reported to contain 854,072 tons grading 0.354 oz/ton gold and 22.94 oz/ton silver while the Snowfield Gold Zone and Sulphurets Lake gold

zone are bulk tonnage low grade deposits containing 7.7 million tons of 0.075 oz/ton gold and 20 million tons of 0.08 oz/ton gold respectively (GCNL Aug. 24, 1989). Catear Resources Ltd.'s Gold Wedge Zone is reported to contain 146,437 tons of 0.827 oz/ton gold in a similar setting (Canadian Mines Handbook, 1989-90).

The Doc deposit located 47 km southeast of the Forrest property hosts 470,000 tons grading 0.27 oz/ton gold and 1.31 oz/ton silver, within a series of high grade but narrow quartz veins.

On the Snip property situated 30 km to the west-southwest, the Twin Zone, a 3 to 25 ft thick discordant shear vein cuts a thickly bedded sequence of intensely carbonatized feldspathic wackes and siltstones. Twin Zone reserves in all categories have been reported as 1,032,000 tons of 0.875 oz/ton gold (Prime Resources, 1989). This does not include additional reserves which may be developed outside the Twin Zone when mining begins. Twin Zone mineralization occurs in a banded shear zone comprising alternating bands of massive calcite, heavily disseminated to massive pyrite, crackle quartz and thin bands of biotite-chlorite.

At Skyline's nearby Johnny Mountain Mine, reserves in all categories are estimated at 876,000 tons of 0.55 oz/ton gold and 1.00 oz/ton silver with copper, zinc, and lead (Northern Miner, Aug. 21, 1989). Five major areas of gold-bearing sulphide are known. The most important Stonehouse Zone consists of sulphide-potassium feldspar-quartz vein and stockwork systems which have been only partly explored.

The most recently discovered and perhaps the most exciting gold mineralization occurs on the Eskay Creek property of Calpine Resources Incorporated/Stikine Resources Ltd., located 15 km southeast of the Forrest property. At the original 21 Zone discovery gold grading up to 0.73 oz/ton over 96.5 ft (hole CA88-6) occurs in several distinct lithologies in a 300 foot wide fault zone at a contact between Lower Jurassic Mt. Dilworth Formation volcanics and sediments (Northern Miner, 1988, p.20; Calpine Resources Incorporated News Release, January 6, 1989). More recent results have returned 0.875 oz/ton gold over 682.2 ft (CA89-109), 91.8 ft of 0.453 oz/ton gold and 16.91 oz/ton silver (CA89-93) and 55.8 ft of 0.867 oz/ton gold and 19.92 oz/ton silver (CA89-101 - Calpine News Release, August 21, 1989). Results of numerous other drill intercepts are being released as drilling is continuing at a rapid pace. The 21 Zone has now been traced over a minimum strike length of 1300 m and remains open at depth and to the northeast.

The E & L deposit is also situated in the area southwest of the Forrest property. This deposit was worked in the 1960s and early 1970s by trenching, drilling and 460 m of underground development, and has proven reserves of 3.2 million tons of 0.8% nickel and 0.6% copper (BCMEMP Minfile). Mineralization consisting of disseminated pyrrhotite, chalcopyrite with minor pentlandite, pyrite and bornite occurs in a small stock of altered coarse grained gabbro.

The northwest portion of the Stikine Arch, known as the Galore Creek area, was the focus of widespread exploration in the 1950's, 1960's and 1970's for large tonnage porphyry copper deposits. Two major discoveries were made and exploration work defined reserves of 125 M tons grading 1.07% copper, 0.397 g/t gold and 7.94 g/t silver at Galore Creek, and 910 M tons grading 0.30% copper, 0.113 g/t gold,

0.992 g/t silver and 0.02% molybdenum at Schaft Creek. More recently several companies have been restaking ground in this area to evaluate the gold potential. The Galore Creek deposit itself is the subject of renewed interest as it may include potentially gold enriched portions. Gold exploration is still at an early stage however several prospects are likely to receive further attention in 1990.

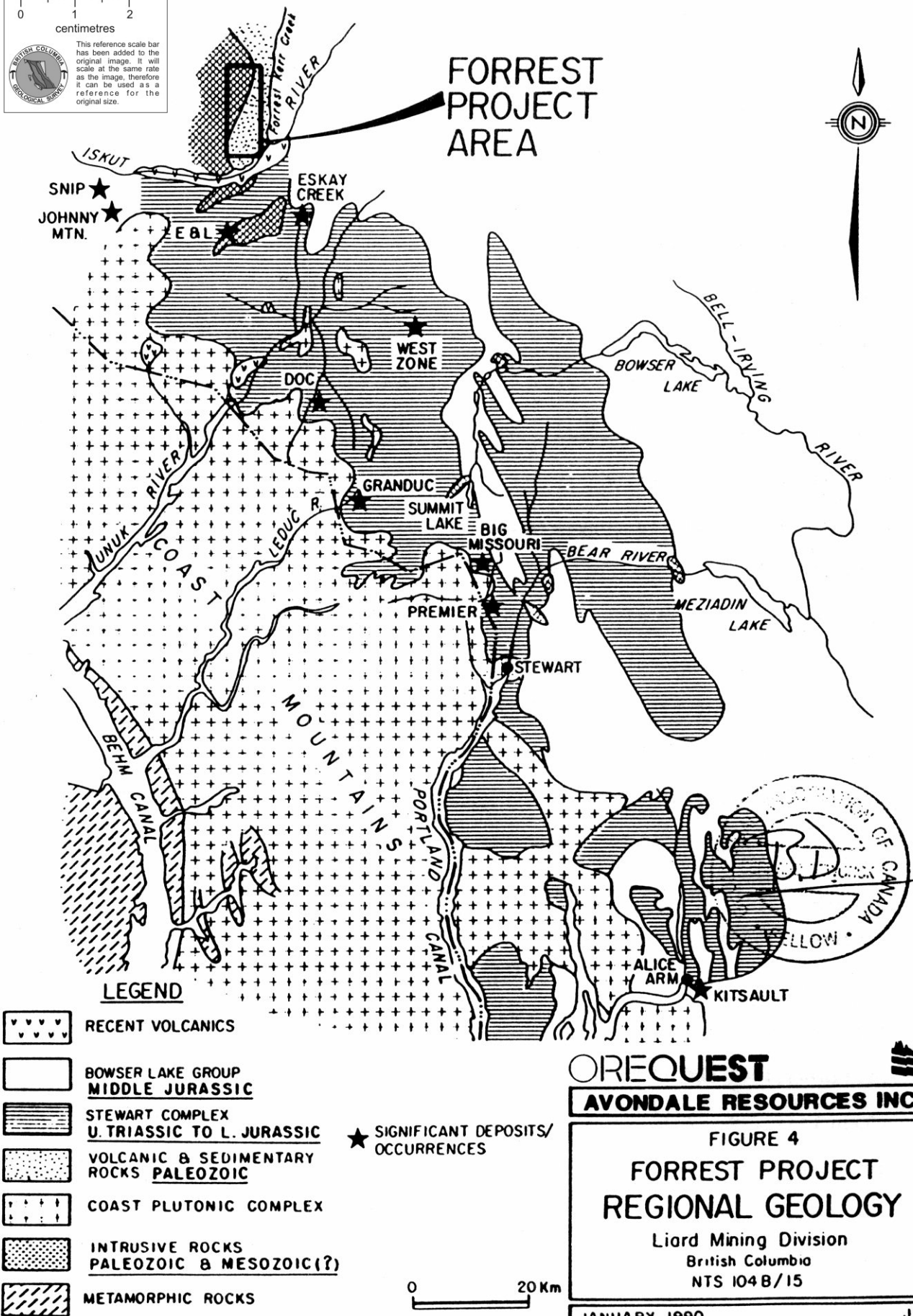
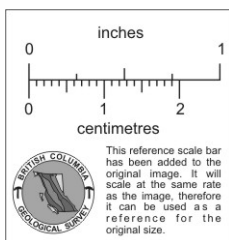
#### PROPERTY HISTORY

An extensive mega-stockwork quartz vein system, now referred to as the Forrest Zone, first drew attention to the project area in 1987. The Forrest 1-4 claims were staked in August of that year and limited work in 1988 (Todoruk and Ikona, 1988; Dewonck, 1989) led to the discovery of several mineral occurrences, precipitating the staking of the Forrest 5-15 claims. During 1989 two grids were established, tied into a common 5300 metre long baseline. The Forrest and South Central Grids were mapped, soil sampled and covered by magnetic and resistivity surveys. Previously identified occurrences were followed up and prospecting continued throughout much of the project area, leading to the discovery of several new showings. Soil sampling along topographic contours was also carried out in steep terrain immediately north of the Forrest Grid and along portions of the east facing slopes west of Forrest Kerr Creek. Stream sediment and heavy mineral concentrates were collected from several drainages.

There is no record of work prior to 1987.

#### REGIONAL GEOLOGY

The regional geological framework of the Stewart-Iskut-Galore area is undergoing extensive reinterpretation by both federal and provincial government





geological surveys, however Grove (1986), laid the groundwork from which this reinterpretation and recent exploration activity has evolved.

In briefest terms, Grove defined an assemblage of Upper Triassic and Jurassic volcanic and sedimentary rocks as the Stewart Complex. This complex extends from Alice Arm in the south to the Iskut River to the north, and is bounded on the west by the Coast Plutonic Complex and overlapped to the east by clastic sediments of the Bowser Basin. The complex was intruded by intrusive rocks of Mesozoic to Tertiary age. Age dating studies suggest that mineralization within the Stewart Complex is essentially coeval with early Jurassic volcanics and intrusives, thus focusing exploration attention on lower members of the Hazelton Group (Alldrick et al, 1989b). Grove classified mineralization in the Stewart area into three categories: precious metal bearing fissure and replacement veins, massive sulphide deposits and gold-bearing porphyry copper deposits. More recent exploration and development activity has focused on vein and fissure vein gold mineralization in the northern part of the Stewart Complex, in the Iskut-Sulphurets area.

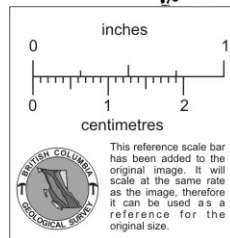
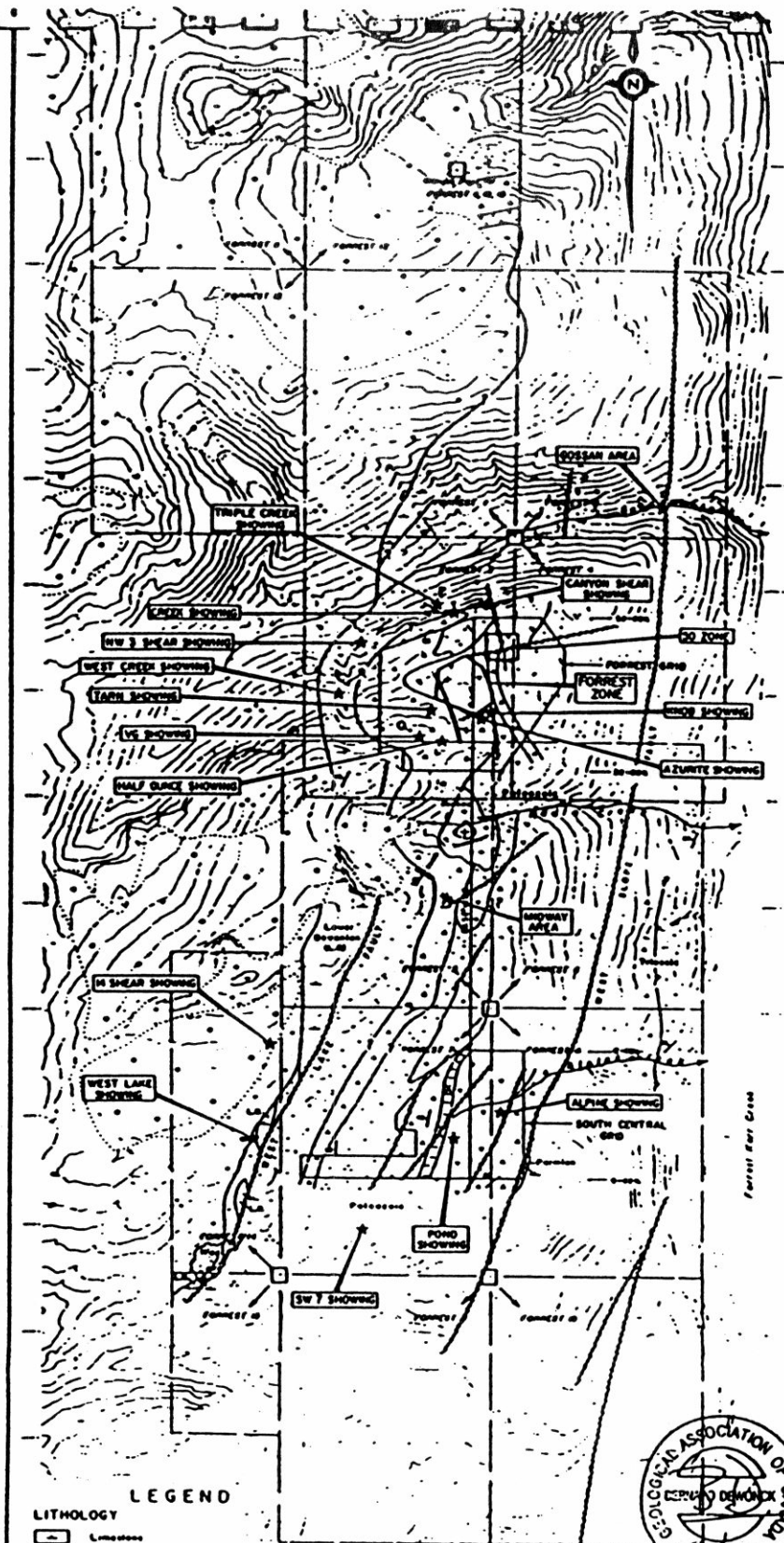
A simplified regional geology map appears as Figure 4, based on work by Alldrick (1989) and others of the provincial geological survey. The Forrest Project lies on the northern fringe of the area mapped by Grove and has not yet been included in the more recent mapping by Alldrick et al, however the project area is partially included in mapping recently published by the Geological Survey of Canada (Open File 2094, 1989), which indicates the property to be underlain to some extent by intrusive, volcanic and sedimentary rocks of Paleozoic age, therefore not within the Stewart Complex as presently defined. There is a suggestion, however, that certain intrusive elements noted during the recent grid scale mapping may be similar

in age to those of importance within the Complex and thus part of the associated mineralizing episode.

#### PROPERTY GEOLOGY

The Forrest and South Central Grids provided control for much of the mapping completed to date on the Forrest Project, however information from reconnaissance prospecting and mapping traverses was also used to compile a more general property geology map (Figure 5). Detailed maps of the individual grid areas outlined on Figure 5 appear in a comprehensive report on the 1989 exploration program (Todoruk et al, 1990). Age relationships of the stratigraphy outlined to date are based on paleontological work and mapping recently published by the Geological Survey of Canada (Open File 2094, 1989).

The Forrest Project covers a series of Lower Devonian to Upper Triassic sedimentary and volcanic rocks in contact with a post-Lower Permian to pre Middle Triassic aged hornblende quartz diorite. This intrusive appears to underlie much of the Forrest 1, 11, 12 and 13 claims and the western margin of the remaining claim block. Small plugs of the same material are evident within the volcano-sedimentary package, as are several generations of other small dykes and plugs, some possibly as young as Quaternary. Of these latter intrusive phases, one (a potassium feldspar megacrystic dyke) may be of primary importance. It has been mapped as both a several hundred metre-long north-northwest trending dyke within the Forrest Grid and as a small plug on the baseline where it crosses Radio Creek. This phase may be Lower Jurassic in age and therefore coeval with the major mineralizing episode in the Iskut region. A Lower Jurassic unit comprising quartz feldspar porphyry and felsite intrusions appears in Open File 2094; correlation of the K-feldspar dyke



# LEGEND

## LITHOLOGY

- Limestone
- Shale, Argillite, Shale and minor Volcanic Sediments
- Carbonaceous Shale
- Ash, Lapilli and Crystal Tuffs, Agglomerates, Flows and minor interbedded Sediments
- Andesite Flows, minor Andesite Porphyry
- Quartz Diorite, Hornblende-Quartz Diorite to Granodiorite
- Quartz Porphyry

## SYMBOLS

- INFERRED LITHOLOGICAL CONTACT
- INFERRED FAULT STRUCTURE
- CONTOUR, GLACIER
- LEGAL CORNER POST
- BOUNDARY, STREAM, etc.
- LATERAL MORaine

0 1000  
Metres



## AVONDALE RESOURCES INC.

Figure 5  
FORREST PROJECT  
PROPERTY GEOLOGY,  
MINERAL OCCURRENCES  
& GRID LOCATIONS  
Lloyd Mining Division

British Columbia  
NTS 1048/15

JAN. 1990

with this unit is tentative only, requiring field comparison and laboratory studies such as age dating to substantiate or discount this premise. Observations by J.R. Clark (1989) also suggest this link.

Structures on the property trend dominantly north-northeast. Stratigraphy between two prominent faults trends in this direction, with moderate westerly dips, paralleling the faults themselves. The West Lake and West Slope Faults both juxtapose older strata upon younger, from west to east across each fault line. A third fault, referred to on the Open File map as the Forrest Kerr Fault, trends along Forrest Kerr Creek just east of the diagram boundary of Figure 5. Fault names used in this report conform with the Open File map. In previous reports (Todoruk and Ikona, 1988; Dewonck, 1989) the West Slope Fault has been referred to as the Forrest Fault. All mineral occurrences noted to date are located west of the West Slope Fault, however this may be due more to the concentration of exploration in this area because of better rock exposure rather than to a particular tectonic or stratigraphic phenomenon.

It is estimated that the property has been affected by two and possibly three deformations (Clark, 1989). The first and strongest event predates Triassic rocks and effected lower greenschist metamorphism-greenschists in the volcanics and phyllites in the sediments. Folding is generally visible on the outcrop scale but it is difficult to map structures on a regional scale. A second phase affects all strata, characterized by minor fold axes plunging shallowly southwest, and the final event formed fold axes plunging shallowly to moderately northwest.

The oldest rocks evident to date on the property are Lower Devonian limestone fault-emplaced lenses on the hangingwall of the West Lake Fault. As indicated previously this limestone overlies a Permian volcano-sedimentary sequence, bounded by the West Slope and West Lake Faults, in the southern portion of the property. This package features a unit of ash, lapilli and crystal tuffs, agglomerates, flows and minor interbedded sediments; andesite flows with minor porphyritic elements; carbonaceous shale; and finally a sedimentary unit of siltstone, argillite, shale and minor tuffaceous sediments. This breakdown represents a generalization of more detailed mapping of the two grids on which individual map units and rock description vary. There are, for example, more mafic flow rocks noted on the Forrest Grid which do not appear on the South Central Grid. It has also been observed that, from north to south, volcanic rocks gradually change from coarser members such as agglomerates and lapilli tuffs to finer ash and crystal tuffs with increased intervals of tuffaceous sediments.

The South Central Grid features several strong north-northeast trending fault structures, essentially paralleling the major topographic lineaments. The fault zones frequently have propylitic alteration (chlorite and iron carbonate) associated with them. Quartz and minor quartz carbonate veins are common throughout the grid area however a particular affinity for the main andesite unit is evident. Alteration on the Forrest Grid appears to be intimately associated with individual mineral occurrences which will be discussed in greater detail later in this report.

#### MINERALIZATION

There are nineteen separate showings or zones identified on Figure 5. Those with the greatest potential and/or geological significance will be described in

detail while the others will be summarized more briefly. Commodities present include gold, +/- arsenic, +/- copper, +/- silver.

#### Forrest Zone

Attention was first drawn to the project area by this extensive mega-quartz stockwork system which is well exposed over a 0.25 square kilometre area. While only weakly mineralized at best, initial assessment of the zone's significance was that it is indicative of a substantial hydrothermal event representing a higher level of the system and that potential existed for enhanced mineral values at depth. This premise was based on the discovery of other vein showings at topographically lower levels along Gossan Creek carrying significant gold, copper and/or arsenic values.

The zone consists of quartz veins whose orientations are variable but principally 000°/90° and 130°/60-85°NE. The latter orientation is dominant and indicative of the overall outline of the zone, as defined by weak alteration discolouration. Mineralization is restricted to erratically distributed minor disseminations of chalcopyrite and pyrite. Alteration of the host andesite is minor, evident as restricted envelopes of silicification, sericitization and traces of pyrite weathering to produce slight rust stains. Wallrock inclusions are commonly strongly chloritized and minor sericite occurs in late fractures in the quartz. Clark (1989) suggests that these veins may constitute a sheeted fracture-filling system above a Jurassic intrusion, where upwarping caused by the intrusion resulted in clean fractures in the andesite, infilled by quartz. Similar strain in the siltstones may have been distributed along bedding planes, precluding fracture development. Exploration of the zone at depth may be complicated by the

presence of underlying siltstones however some of the stronger hydrothermal feeders may penetrate them. The absence of mineralization within the zone itself is admittedly a negative factor, however several showings north of and topographically lower than the Forrest Zone (the North Ridge area) carry markedly higher gold, arsenic and/or copper values. The VG showing, situated southwest of and topographically higher than the Forrest Zone, includes quartz veins with variable orientations, albeit narrow, with significant visible gold, demonstrating that the system is far from being barren.

#### Triple Creek Showing

Grab samples collected from these arsenopyrite-bearing quartz veins by Pamicon Developments Ltd. (Todoruk and Ikona, 1988) assayed from 60 ppb to 0.438 oz/t gold and 121 to 88,142 ppm arsenic. Chip sampling across 40 cm by the author at the site of the highest assay produced 0.068 oz/t gold and >2000 ppm arsenic (Dewonck, 1989). Similar variations in gold values were recorded by both Pamicon and OreQuest at another sample site. Several veins are exposed in three creek draws across 125 to 150 metres.

The easternmost vein exposures were hand trenched in 1989. Three veins with associated narrow stringers were exposed across 8 metres of which the easternmost was the most strongly mineralized. Four .5 m by .5 m panel samples collected by Pamicon down the dip of this vein assayed from 0.184 to 0.466 oz/t gold and a 1 m by 1 m panel sample from the next vein to the west assayed 0.450 oz/t gold (Todoruk et al, 1990). The former vein is strongly brecciated, unlike those within the Forrest Zone, but orientation approaches that of the dominant trend of the zone.

detail while the others will be summarized more briefly. Commodities present include gold, +/- arsenic, +/- copper, +/- silver.

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Wallrock (andesite) alteration is also relatively weak quartz-sericite +/- chlorite halos with widths comparable to the veins they enclose.

With the exception of the above trenching the Triple Creek veins remain poorly exposed and have not been traced beyond the showing area. They occur at substantially lower elevations than the Forrest Zone, however, and could represent the gold potential of the zone at depth. Several other quartz veins were noted from the air along the slopes above Gossan Creek, enhancing the probability that additional gold-bearing quartz veins will be identified.

#### Creek Showing

This showing, located approximately 125 metres east of and 50 metres higher than the Triple Creek Showing, comprises a northeast trending vertically dipping shear zone up to 1.5 m wide. Grab sampling by Pamicon in 1988 ranged from 0.073 to 0.274 oz/t gold, 15,046 to >1-% copper and 18.5 ppm to 3.72 oz/t silver. A grab sample collected by the author assayed 0.190 oz/t gold, 8.61% copper and 3.92 oz/t silver. Follow up work in 1989 (Todoruk et al, 1990) defined a strike length of at least 150 m, along which one and sometimes two silicified zones, each up to 30 cm wide, are recognized. Mineralization within the shear is primarily chalcopyrite and pyrite, with minor magnetite, in a brecciated matrix. Arsenopyrite bearing quartz veins topographically below the zone and subparallel shears both above and below are reported (Clark, 1989). The shear zone has associated with it some of the strongest alteration noted to date on the property, a quartz-sericite-pyrite assemblage up to 2 m wide. Five channel samples collected by Pamicon produced values including 0.140 oz/t gold, 6.77% copper and 2.35 oz/t silver over 0.25 m to 0.122 oz/t gold, 2,056 ppm copper and 3.9 ppm silver over 1.0 metre. The lowest

gold value is 0.048 oz/t over 0.5 m, accompanied by 12,716 ppm copper and 16.7 ppm silver. This showing is of particular interest because of its occurrence within siltstone, accompanied by significant alteration and associated gold values. The perceived drawback of Forrest Zone style quartz veining being absent in the sediments in general may be mitigated by structures such as this, which is also located topographically below the Forrest Zone.

#### Canyon Shear Showing

Similar in nature to the Creek Shear and located some 300 metres east of it, the Canyon Shear trends northeast and is evident as a linear more than 1000 metres long on air photos. Sampling to date has taken place at essentially one site only, down a steep canyon with limited access.

First examined briefly by OreQuest personnel in 1988 ("Gulch Showing, Raven, 1988), grab samples of a narrow arsenopyrite-bearing shear assayed 0.066 oz/t gold while a rusty zone assayed 0.193 oz/t. More detailed work in 1989 (Todoruk et al, 1990) identified a shear zone pinching and swelling up to 4 metres wide. Chalcopyrite, arsenopyrite and pyrite are present but are generally obscured by deep weathering in sheared goethite-rich areas. Phyllic alteration of the host andesite fades into chloritic alteration over about 0.5 metre, away from the zone.

Grab sampling by Pamicon, where an upper trench is now located on the northwest wall of the shear, produced 0.519 oz/t gold. Subsequent contiguous panel samples, collected prior to trenching, along strike and downhill to the northeast (1 m long by 0.2 or 0.3 m wide), assayed from 0.140 to 0.460 oz/t gold, the latter taken from the same site as the grab. Four trench samples were collected from the same site

but over panels up to 1.0 m by 1.0 m. Values ranged from 0.018 oz/t to 0.243 oz/t gold. Another trench was dug some 25 metres below the first, across 3.5 m of shear zone, and sampled on panels 0.9 to 1.1 m high and 0.8 to 1.0 m wide. Values here ranged from 460 to 1660 ppb, where a previously collected grab assayed 0.036 oz/t. The strike potential to the southwest has not been investigated.

#### NW 3 Shear Showing

The sampling of a piece of talus by soil sampling crews led to the discovery of this zone, described as a silicified, chalcopyrite-bearing shear associated with a clay gouge zone which is possibly up to 5.0 metres wide (Todoruk et al, 1990). Southerly, upslope extension of the shear is estimated to be at least 100 to 150 metres. The talus sample (silicified material) assayed 0.166 oz/t gold, 13.3% copper and 28.7 ppm silver and the best channel sample result is 0.044 oz/t gold and 2.09% copper across 1.5 metres. The showing requires a more thorough examination but is significant due to its location within sediments and its apparent strength.

#### VG Showing

Samples of quartz vein talus carrying visible gold were collected by Pamicon in 1988 (Todoruk and Ikona, 1988) and returned values up to 5.820 oz/t gold. Material assaying 0.108 oz/t gold was resampled by OreQuest (Raven, 1988) and produced 0.122 oz/t. While these samples are spectacular in nature, follow up work has found only thin, irregular quartz +/- carbonate +/- chlorite veins hosted by intermediate to mafic tuff breccias. Gold blebs up to several millimetres in diameter are usually associated with bornite and specular hematite. Clark (1989) has noted two styles of vein infilling: 1) multi stage crack and fill (mainly

quartz), and; 2) syn-tectonic quartz +/- carbonate +/- chlorite veins with acicular crystal growth perpendicular to vein walls. He suggests that the latter veins possibly carry gold remobilized from deeper levels, enhancing the depth potential of this area in particular and others in general. Mineral zonation on the property is only speculated at: bornite-hematite at higher levels (the VG Showing is situated topographically above the Forrest Zone), the appearance of chalcopyrite at lower elevations and arsenopyrite at the lower showings (Triple Creek, etc.). More select grab samples were collected by Pamicon in 1989 (Todoruk et al, 1990) which produced results similar to previous ones. The area warrants more detailed mapping and systematic sampling to gain a better understanding of its potential and relationship to other occurrences.

#### Tarn Showing

This showing was discovered as talus float during the geological mapping program on the Forrest Grid. Semi-massive chalcopyrite hosted by a strongly sericitized lapilli tuff fault breccia assayed 0.353 oz/t gold, 22.4% copper and 118.3 ppm silver (Todoruk et al, 1990). Follow up of this talus sample located similarly brecciated material in place - strongly sericitic and displaying a strong shear fabric - as well as more mineralized talus. Limonitic iron-carbonate and quartz stringers appear to be strongly associated with the mineralization and two trenches across the trend of the zone exposed this feature, however the mineralization was not as massive as that found in the original talus sample. The best of three trench samples assayed 0.060 oz/t gold and 9,910 ppm copper across 1.2 metres. Seven other grab samples produced gold values ranging from 0.044 oz/t to 0.266 oz/t and copper values ranging from 6070 ppm to 11.9%. This work took place during the first snowfall of the season, which precluded more detailed

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evaluation. The host tuffaceous sediments have undergone quartz-sericite alteration over several metres on both sides of the fault, as well as exhibiting a wider weak sericite-chlorite assemblage.

#### 50 Zone

Several blocks of talus material comprising arsenopyrite and chalcopyrite-bearing quartz veins and brecciated quartz first defined this zone. Located in the northern portion of the Forrest Grid, the zone includes an area of quartz veining within which a 6 to 10 cm wide zone of massive fine-grained arsenopyrite is situated along the footwall of a 20 to 30 cm wide vein. Strike extension of this southeast trending vein appears to be interrupted by late stage north trending slip planes, however this vein alone cannot account for the widely dispersed float and soil anomalies (discussed later) in the area. The vein orientation approaches that of the principal Forrest Zone trend however the 50 Zone lies on the opposite side of an east-west trending fault from the Forrest Zone. The influence of this fault on the spatial relationship between the two in terms of the vertical mineral zonation hypothesis remains to be determined but the 50 Zone itself warrants detailed work. Numerous select grab samples from talus material produced gold values ranging from 520 ppb to 0.244 oz/t (Todoruk et al, 1990) and a grab of the arsenopyrite in place produced 5,110 ppb gold.

#### Other Zones

Several other occurrences are labelled on Figure 5. Collectively they are indicative of the large area over which mineralization of a varied nature occurs on this property. Brief summaries of these showings follow.



The Azurite Showing comprises a semi massive to massive chalcopyrite (bedded?) zone or flat lying shear with high copper values but less significant gold values. Grab sampling in 1988 (Todoruk and Ikona, 1988) produced copper values in excess of 10%, silver to 76.6 ppm and gold to 740 ppb. Channel sampling over 1 m intervals by OreQuest (Raven, 1988) produced copper >20,000 ppm and up to 400 ppb gold. More detailed channel sampling in 1989 (Todoruk et al, 1990) yielded a high of 0.046 oz/t gold, 0.81 oz/t silver and 7.91% copper over 1.0 m.

The Knob Showing features veining similar to that in the Forrest Zone but with stronger copper mineralization. Pamicon grab samples (1988) produced highs of 6.90% copper, 2.02 oz/t silver and 0.026 oz/t gold. Channel, chip and grab sampling by OreQuest (Raven, 1988) produced comparable copper and silver values but lower gold values.

The Half-Ounce Showing derives its name from a quartz vein which assayed 0.504 oz/t gold (Todoruk and Ikona, 1988). This isolated occurrence is located at an elevation intermediate to the VG Showing (above) and the Forrest Zone (below). Other chalcopyrite-bearing and malachite-stained veins in the area produced low gold values. No additional work was done here in 1989 other than coverage by the grid surveys.

The West Creek Showing is a 1989 prospecting discovery from which only limited data was obtained (Stammers, personal comm.). It consists of chalcopyrite bearing fractures in and adjacent to a shear zone outcropping in precipitous terrain. Grab sampling has produced up to 25.6% copper, 0.032 oz/t gold and 42.7 ppm silver.

The Midway Area has been noted to have several quartz veins 2 to 3 m wide containing chalcopyrite and malachite however no follow up work has taken place to date.

The 14 Shear Showing comprises a zone 0.3 to 2.0 metres wide located along a 150 metre strike length. Chalcopyrite and pyrite mineralization occurs as disseminations but more commonly as discontinuous chalcopyrite stringers. Grab samples (Todoruk et al, 1990) have produced up to 0.102 oz/t gold and 11.4% copper while panel sample values reach 0.006 oz/t gold and 4.81% copper. The showing is hosted by intrusive diorite. This unit has received little attention to date and the existence of the 14 Shear indicates that further exploration in the diorite is warranted.

The West Lake Showing features a system of fracture controlled chalcopyrite stringers of various orientations which vary in width from 1 to 2 mm to more commonly 1 cm. One massive chalcopyrite vein 30 to 40 cm wide is reported (Todoruk et al, 1990) producing 11.10% copper, 2.81 oz/t silver and no gold. Other select grab samples also produced values of similar magnitude. The fractures occur over an area approximately 100 metres in diameter.

A sheared quartz-chalcopyrite-pyrite breccia called the SW 7 Shear is a late discovery. The west trending zone is limited by a major fault structure to the northwest. A select grab of massive chalcopyrite assayed 21.5% copper, 8.84 oz/t silver and 105 ppb gold. Other samples reflect similar mineralogy, comparable to that of the West Lake Showing.

The Pond and Alpine Showings are quartz vein occurrences hosted by an andesite unit within which quartz veining is much more prevalent than in other units. Arsenopyrite, chalcopyrite, pyrite, malachite/azurite and, in the case of the Pond Showing, galena carry erratic gold values. The veins appear to be related to fault structures, filling tension gashes parallel and oblique to the shear direction (Clark, 1989).

## GEOCHEMISTRY

Geochemical sampling has been carried out as three types of surveys, in addition to the rock sampling of mineral occurrences: stream sediment and heavy mineral sampling, contour soil sampling in areas of severe topography and detailed grid sampling over both the Forrest and South Central Grids. The results of each survey are outlined below, based on data reported from the 1989 exploration program (Todoruk et al, 1990).

### Stream Sediment and Heavy Mineral Sampling

Both conventional silt samples and panned concentrates of heavy minerals were collected at several sites on accessible drainages flowing into Forrest Kerr Creek and Gossan Creek. The highest heavy mineral anomaly (4,690 ppb gold) occurs at the mouth of Alpine Creek (Figure 5) whose drainage is only partially covered by the South Central Grid. Other anomalous results were recorded in tributaries on the south side of Gossan Creek, below known occurrences, as well as in an unnamed drainage some 1200 metres north of Alpine Creek. A tributary of Gossan Creek influenced by a large, unexplored portion of the Forrest 13 claim yielded 250 ppb in a heavy mineral concentrate sample.

### Grid Soil Sampling

Substantial coverage of both the Forrest and South Central Grids was completed where topography and soil development permitted. The initial program consisted of samples collected at 25 metre intervals on lines spaced at 50 metres. Restricted areas were sampled in greater detail by adding lines at the intervening 25 metre spacing.

Geochemical data was analyzed statistically by Montgomery Consultants Ltd. Almost 3000 samples were included in this analysis for which the samples were sorted into two lithologically defined groups, ie. soils derived from 1) andesites, or 2) interbedded sediments and volcanics. The two grids were treated individually, resulting in different background and anomalous levels for each grid for the same element in the same lithology. Of the eleven elements used in initial calculations, gold, copper and arsenic were deemed to be the most significant and were selected for more detailed evaluation. The several populations that exist for each element in some cases have overlapping limits. In these instances compromise contour levels were selected as listed below:

**TABLE 2**

#### Forrest Grid Geochemical Contour Intervals

<u>LITHOLOGY</u>	<u>ELEMENT</u>		<u>CONTOUR INTERVAL</u>
Andesite	Gold	30-50 ppb	Upper background/lower anomalous
		50-132 ppb	Mainly anomalous
		>132 ppb	Highly anomalous
	Arsenic	139-211 ppm	Upper background/lower anomalous
		211-654 ppm	Mainly anomalous
		>654 ppm	Highly anomalous
	Copper	337-550 ppm	Anomalous
		>550 ppm	Highly anomalous

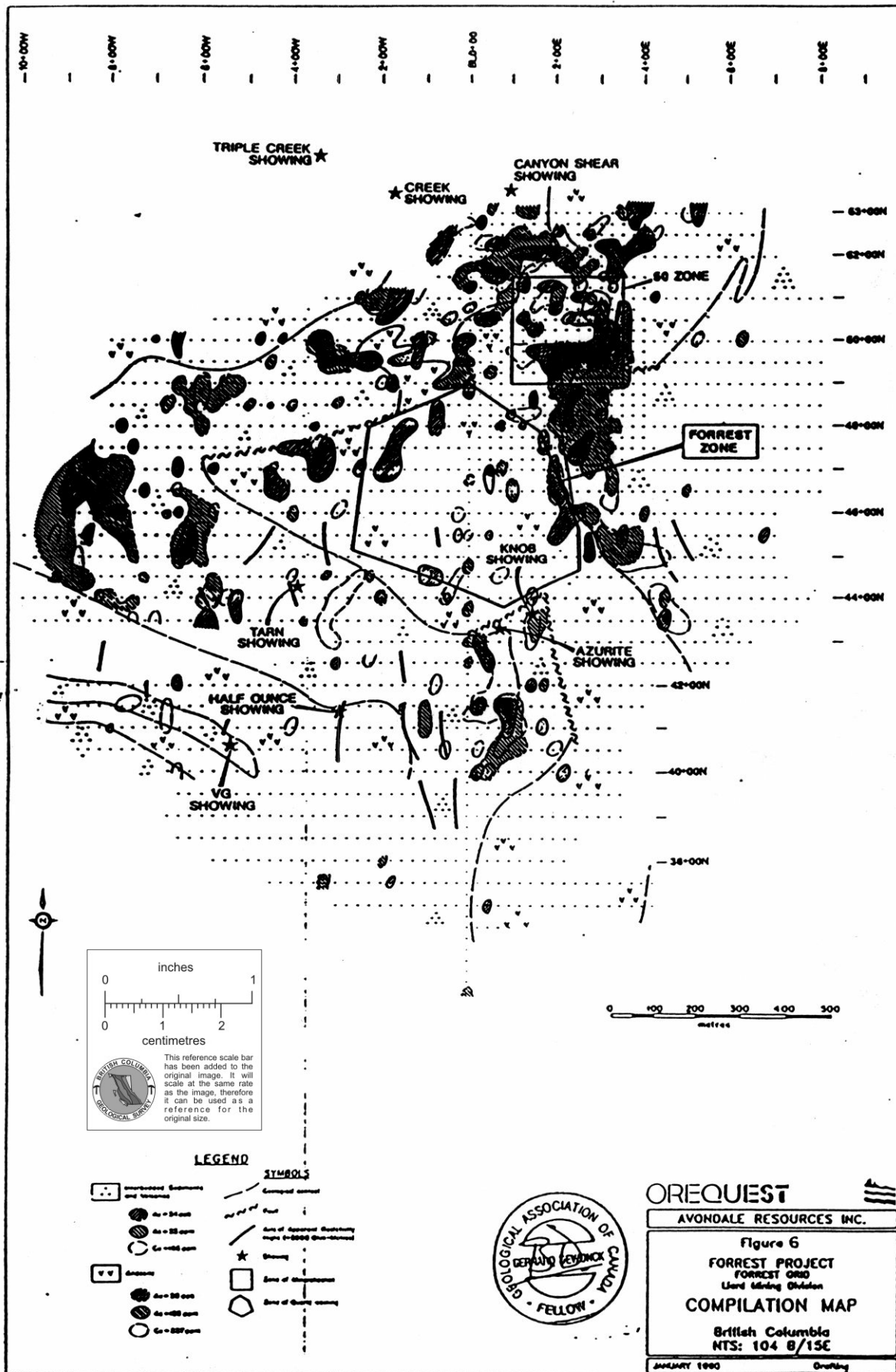
<u>LITHOLOGY</u>	<u>ELEMENT</u>		<u>CONTOUR INTERVAL</u>
Interbedded Sediments and Volcanics	Gold	35-50 ppb	Upper background/lower anomalous
		50-80 ppb	Anomalous
		>80 ppb	Highly anomalous
	Arsenic	33-64 ppm	Upper background/lower anomalous
		>64 ppm	Anomalous
	Copper	166-275 ppm >275 ppm	Upper background/lower anomalous Anomalous

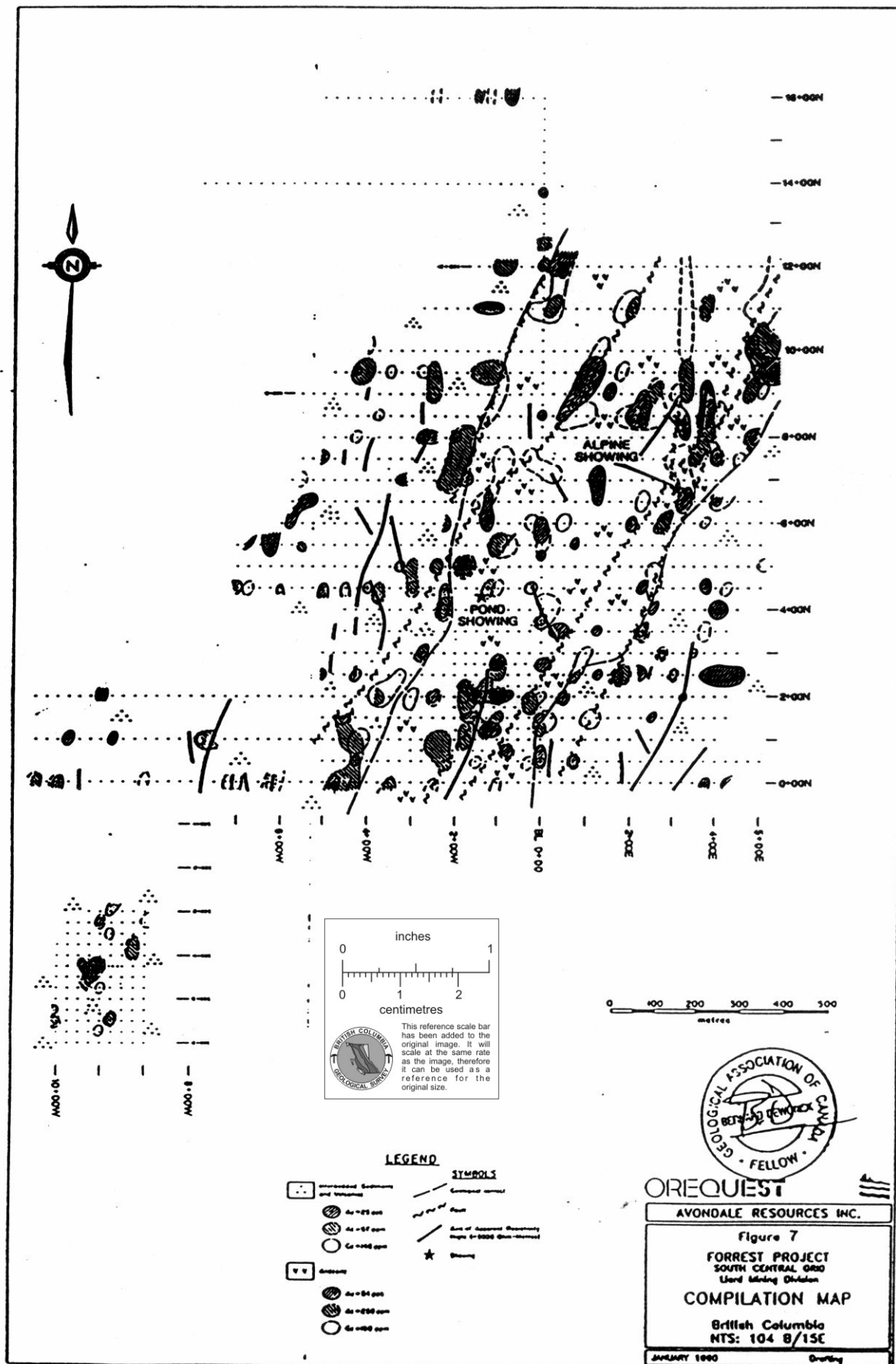
TABLE 3

## South Central Grid Geochemical Contour Intervals

<u>LITHOLOGY</u>	<u>ELEMENT</u>		<u>CONTOUR INTERVAL</u>
Andesite	Gold	34-65 ppb	Upper background/lower anomalous
		>65 ppb	Anomalous
	Arsenic	250-1400 ppm	Anomalous
		>1400 ppm	Highly anomalous
	Copper	150-210 ppm	Upper background/lower anomalous
		>210 ppm	Anomalous (?)
Interbedded Sediments and Volcanics	Gold	24-45 ppb	Upper background/possible anomalous
		>45 ppb	Anomalous (?)
	Arsenic	57-160 ppm	Possibly anomalous
		>160 ppm	Anomalous
	Copper	148-284 ppm	Possibly anomalous
		>284 ppm	Anomalous

Compilation maps for the Forrest Grid and South Central Grid (Figures 6 and 7 respectively) show each element as contoured above background ie. incorporating all anomaly levels. Contour lines have been "merged" across lithological boundaries to integrate anomaly-equivalent levels.





Four areas within the Forrest Grid display geochemical responses which warrant detailed follow up work (Figure 6). The most prominent area's axis extends from L45+50N, 2+00E to L53+00N, 3+75E, defined by several patches of anomalous gold values which peak at 150, 615 and 2,370 ppb. A more extensive arsenic anomaly and patches of associated copper values give the zone a width of approximately 100 to 150 metres, with the most consistent gold-arsenic-copper coincidence occurring immediately north of an east-west fault contact in the southeast corner of the 50 Zone. It is this geochemical trend that led to the discovery of the 50 Zone mineralization. Associated with this generally northerly trend is an arcuate zone of coincident copper-arsenic values, accompanied by more discrete gold anomalies. It wraps around the northwest corner of the 50 Zone outline on Figure 6 and ends at roughly L51+50N, 0+00.

The second priority area lies immediately west of this point along strike from the Canyon Shear Showing. The northeast trend consists of intermittent copper, arsenic and gold values along the northwest margin of the grid, where sampling could not be systematically extended because of steep terrain, from L50+00N, 3+50W to L52+50N, 0+50W.

A more broadly defined zone (arsenic primarily) constitutes the third area of interest, located several hundred metres to the southwest along the Canyon Shear trend and centred near the end of L 46+00N. Spot gold values within this zone reach 360 ppb.

The fourth area is situated south of the Azurite Showing, extending from L 40+00N to L 43+00N and defined by intermittently coincident copper, arsenic and gold



anomalies. Further work is required to determine the relationship, if any, between this feature and the Azurite Showing or, more generally, the first anomaly trend discussed above.

Turning to the South Central Grid (Figure 7), it is evident that gold, arsenic and/or copper values occur more as widely distributed but smaller anomalies than as definitive, coincident linear zones. It appears, however, that the more significant anomalies, as well as greater instances of anomaly coincidence, occur within the principal andesite unit which hosts both the Alpine and Pond Showings.

Linear geochemical trends are difficult to recognize, if they in fact exist, however some association can be made with other features. It is possible to envisage a series of intermittently coincident copper, arsenic and gold anomalies along a narrow trend from L 0+00N, 4+75W to L 11+00N, 2+00E particularly because it roughly parallels a prominent northeast trending fault and, in the southern portion, a geological contact. Similarly, a trend incorporating the Alpine Showing is associated with two parallel fault traces, from L 6+00N, 2+75E to L 12+00N, 5+25E.

Much more restricted, and less clearly defined as a trend, are arsenic and gold anomalies near a fault and a resistivity high south of the Pond Showing. This particular grouping however, does include the highest gold values encountered on the grid - up to 6570 ppb gold and should be the primary trenching target on this grid. Even more limited are anomalous values associated with a northwest trending resistivity high immediately east of the Pond Showing.

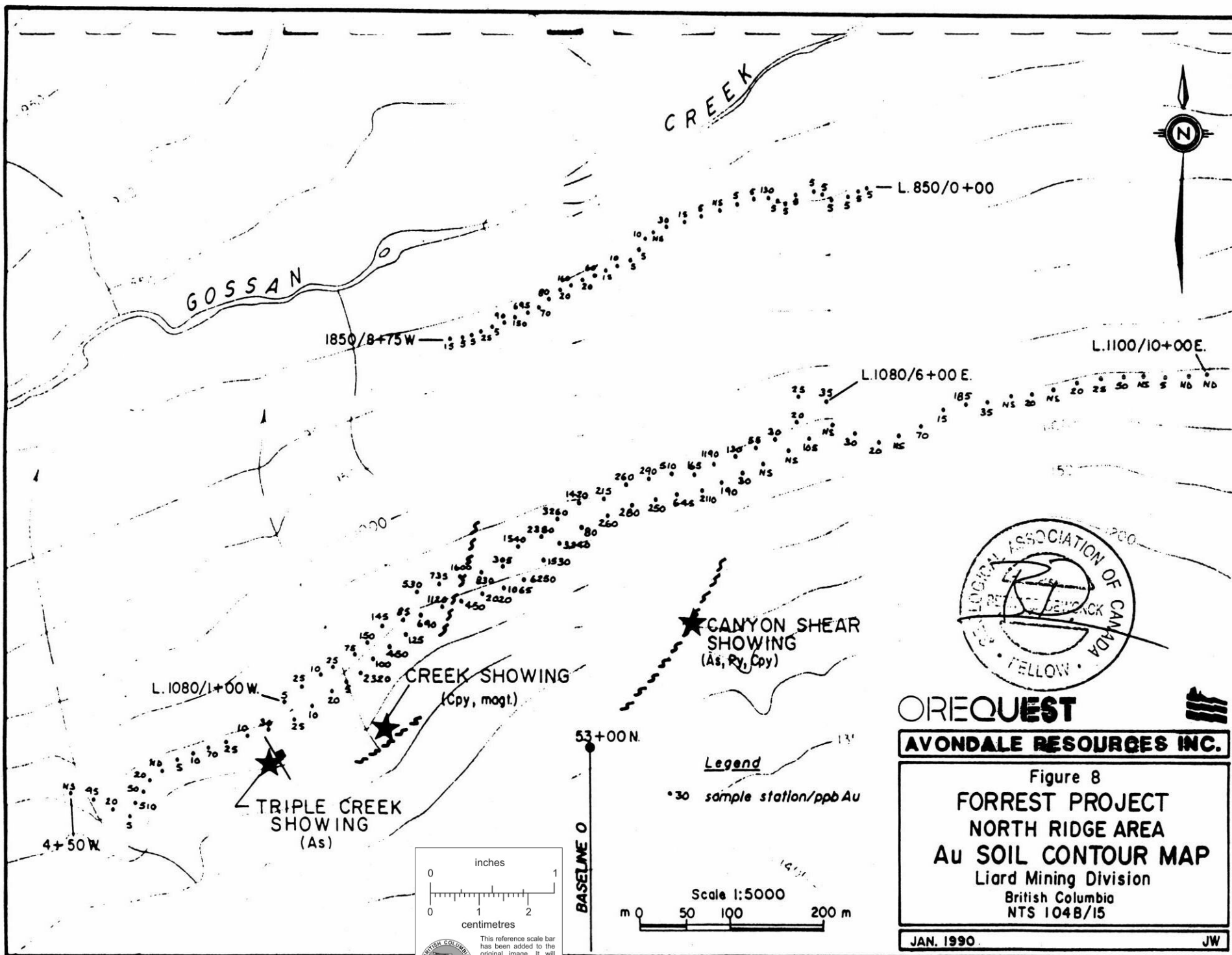
It is quite probable that the geometry of geochemical anomalies on both grids is affected both by irregular soil development in the rocky alpine environment and by glacial movement. Mapping of glacial features in some detail may be useful in further interpretation of geochemical results.

#### Contour Soil Lines

The steep valley walls of Gossan Creek are not amenable to grid controlled soil sampling and limited coverage was effected by running soil lines along topographic contours. Two of these lines are in the immediate vicinity of the Triple Creek, Creek and Canyon Shear Showings (Figure 8). Lines 1100 and 1080 both yielded coincident gold, copper, arsenic and, to a lesser extent, silver anomalies over a 450 metre interval. Within this broad band gold values range from 30 to 6250 ppb, copper from 58 to 2197 ppm, arsenic from 80 to >2000 ppm and silver from <2 to 11 ppm.

The Creek Shear Showing may be partially responsible for this anomaly however another as yet undetermined source is more likely, one that is somewhat parallel or oblique to the soil contours and more proximal to them. The Creek Shear does not account for the high arsenic values evident in the soils down slope. These soil contour lines represent the strongest soil geochemical response recorded to date on the property.

Contour soil sampling was also carried out along the lower slopes on the west side of Forrest Kerr Creek. No extensive anomalies were identified although a number of weak spot highs and isolated clusters warrant follow up. The highest



values obtained are 385 ppb gold, 210 ppm arsenic and 816 ppm copper at one site. Other elevated gold values range from 35 to 103 ppb.

#### GEOPHYSICS

Two basic geophysical surveys were conducted over the grids: a magnetic survey using an EDA Omnimag PPM-300 total field magnetometer in conjunction with an EDA Omnimag P375 base station recorder, and a resistivity survey using a Ronka EM16R (Geonics Ltd.).

The magnetic data appears to be of no consequence in defining salient features. Values on the Forrest Grid show a maximum relief of 1095 gammas, due entirely to a diorite plug. The vast majority of the grid displays a variation of only 150 gammas. The maximum relief on the South Central Grid is even lower, 572 gammas, however two isolated highs on L 2+00N occur in an area of known sulphides and should be investigated. Because of the lack of significant features in the magnetic data it is not included in this report.

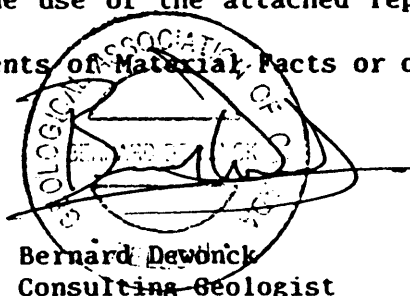
Results of the resistivity surveys appear as axes of resistivity highs on the compilation maps. In the case of the Forrest Grid (Figure 6), correlation of mineralization with resistivity data is not readily evident as mineral occurrences and anomalous gold geochemistry are associated with all resistivity levels. Resistivity lows (<300 ohm metres) appear to be associated with shales and/or argillites and may also be influenced by ice melt waters (Todoruk et al, 1990). Values over the grid as a whole range from 10 to 9000 ohm metres.

The South Central Grid features a prominent narrow resistivity low (<100 ohm metres) (Todoruk et al, 1989) which appears to be intimately associated with the belt of carbonaceous shales shown on the geology map (Figure 5). West of this zone readings exceed 1000 ohm metres and represent nothing of interest in view of the geological and geochemical evidence available. East of the zone, the area underlain predominantly by crystal and lapilli tuffs produces relatively flat values in excess of 1000 ohm metres. The most complex resistivity data is associated with the andesites and tuffaceous siltstones, within which much of the anomalous geochemistry and observed mineralization occurs. While some of the quartz veins and gold geochemical anomalies can be correlated with local resistivity highs (>1000 ohm metres), plotted copper and pyrite occurrences coincide with lows (<100 ohm metres) including the flanks of the shale zone. The lows, therefore, could be associated with either sulphides or local intercalations of carbonaceous material, or both. Of the resistivity highs shown on Figure 7, the one south of the Pond Showing, which may have some relationship with a subparallel fault structure and geochemical anomalies, could be of interest.

CERTIFICATE of QUALIFICATIONS

I, Bernard Dewonck, of 11931 Dunford Road, Richmond, British Columbia hereby certify:

1. I am a graduate of the University of British Columbia (1974) and hold a BSc. degree in geology.
2. I am an independent consulting geologist retained by OreQuest Consultants Ltd. of 306-595 Howe Street, Vancouver, British Columbia.
3. I have been employed in my profession by various mining companies since graduation.
4. I am a Fellow of the Geological Association of Canada.
5. I am a member of the Canadian Institute of Mining and Metallurgy.
6. This report is based on a review of information listed in the Bibliography, visits to the property in October, 1988, September, 1989, and a review of currently available field data.
7. Neither OreQuest Consultants Ltd. nor myself have or expect to receive direct or indirect interest in the property or in the securities of Avondale Resources Inc.
8. I consent to and authorize the use of the attached report and my name in the Companies' Prospectus, Statements of Material Facts or other public document.

  
Bernard Dewonck  
Consulting Geologist

DATED at Vancouver, British Columbia, this 24th day of January, 1990.

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**AVONDALE RESOURCES LTD.**  
**INTERIM FINANCIAL INFORMATION**

**May 31, 1990**

**(UNAUDITED)**