

LOG NO:	0914	RD.
ACTION:		
FILE NO:		

1989 Geological Report
on the
Canyon 23 Claim

Liard Mining Division
NTS: 104G/12
Lat: 57 31' N
Long: 131 31'W

FILMED

Owners: Homestake Mineral Development Company
1000 - 700 W. Pender St.
Vancouver, B.C.
and
Equity Silver Mines Ltd.
Suite 13 - 1155 Melville St
Vancouver, B.C.

Operator: Homestake Mineral Development Company

Author: Darcy Marud
Date: August 7, 1989

MINERALOGICAL BRANCH
GEOLOGICAL SURVEY OF CANADA

19,057

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SUMMARY

The Canyon 23 claim is located in the Stikine region of British Columbia. The property consists of one mineral claim (Canyon 23) (4727) totalling 20 units and is owned by Homestake Mineral Development Company and Equity Silver Mines Ltd.

Work on the property was carried out on June 6, 1989 and involved prospecting as well as the collection of 4 rock samples. Work was carried out by a 20 person crew employed by Homestake Mineral Development Company.

Sample results, to date, are disappointing but only limited exploration has been done on the claim. Further work is recommended to prospect and sample the rest of the claim.

1.0 INTRODUCTION

1.1 Location and Access

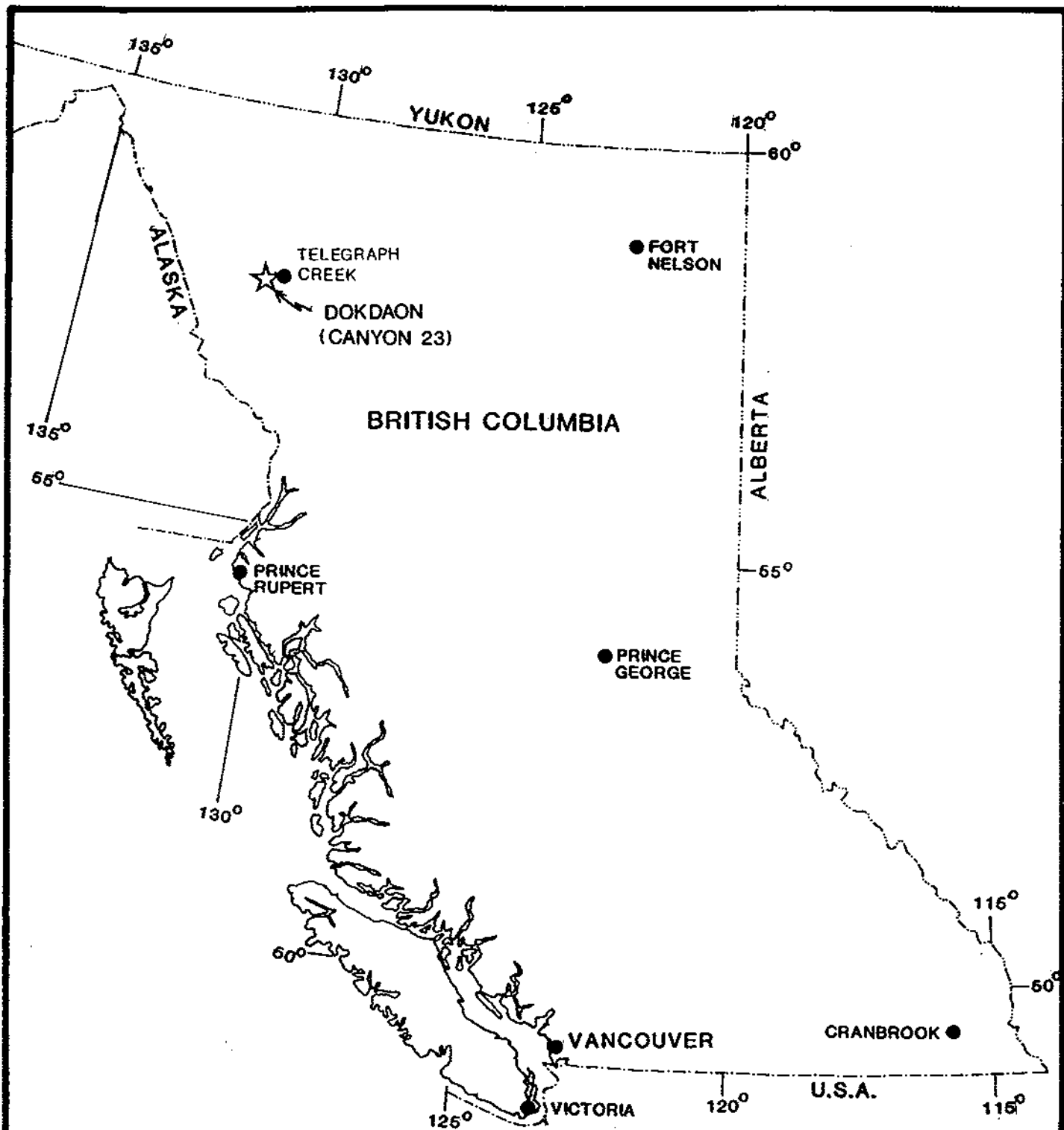
The Canyon 23 claim is located in the Stikine region of northwestern British Columbia approximately 49 km southwest of the village of Telegraph Creek, B.C., along the western slopes of Dokdaon Creek. (Figure 1.1). The claim is centred at 57 31'N latitude and 131 31'W longitude on NTS map sheet 104G/12.


Access to the property is via helicopter from Telegraph Creek, which is connected to Dease Lake by an all-weather road and serviced by fixed-wing flights from Smithers, B.C. The Stikine River provides navigable water access from Wrangell, Alaska north to Telegraph Creek.

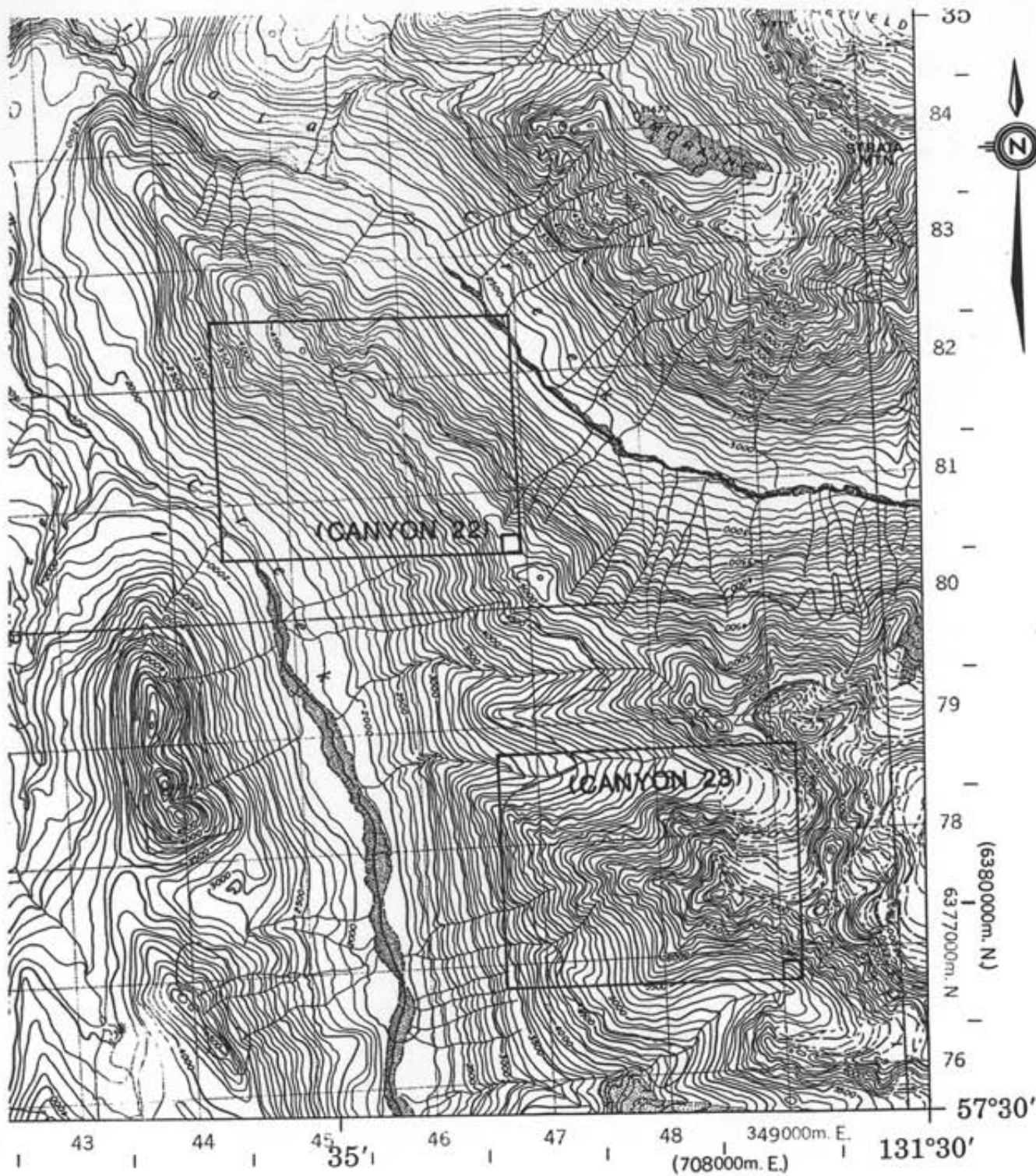
1.2 Claim Status

The Canyon 23 claim totals 20 units and was recorded on June 28, 1988. The claim is owned by Homestake Mineral Development Company and Equity Silver Mines Ltd. Assuming acceptance of this assessment work, claim data will be as follows:

CLAIM	UNITS	RECORD #	RECORDING DATE	EXPIRY DATE
Canyon 23	20	4727	June 28, 1988	June 28, 1990




HOMESTAKE MINERAL DEVELOPMENT COMPANY 			
GRAND CANYON PROJECT, B.C. DOKDAON (CANYON 23)			
LOCATION MAP			
DRAWN KMc	DATE 11/87	FILE CODE 104G	FIGURE 1,1
Revised _____			



REVISED

10
1
1

SCALE 1: 50,000

HOMESTAKE MINERAL DEVELOPMENT COMPANY 		
DOKDAON (CANYON 23)		
DETAILED CLAIM LOCATION		
DRAWN P.H.	DATE Nov. 10, 89	FILE CODE 1046/5,12
Revised _____		FIG. 2.2

1.3 Physiography

The Canyon 23 claim occupies a steep northwest trending ridge between Dokdaon and Strata Creeks. Elevations range from 600 meters to 2300 meters with steep vertical cliffs being common. Treeline lies at approximately 1160-1280 meters, spruce and alder are the predominant foliage below treeline.

1.4 Exploration History

Several copper mineralized showings occur in the vicinity of the property, and have a history of previous exploration.

The Ewk 1-4 and LLK 1-4 claims were staked by Canadex Mining Corp. Ltd. in 1969, and the Dok 1-36 claims added in 1970. A program of soil geochemistry and geological mapping was undertaken in August 1970. These claims covered much of the area now covered by the Canyon 23 claim, (A.R. 3029).

The PR claims were staked in 1971 by Empire Metals Corp. to cover an area of anomalous Cu in silt samples. Work in 1972 consisted of geological mapping (A.R. 3846). These claims cover the northeastern portion of Canyon 23.

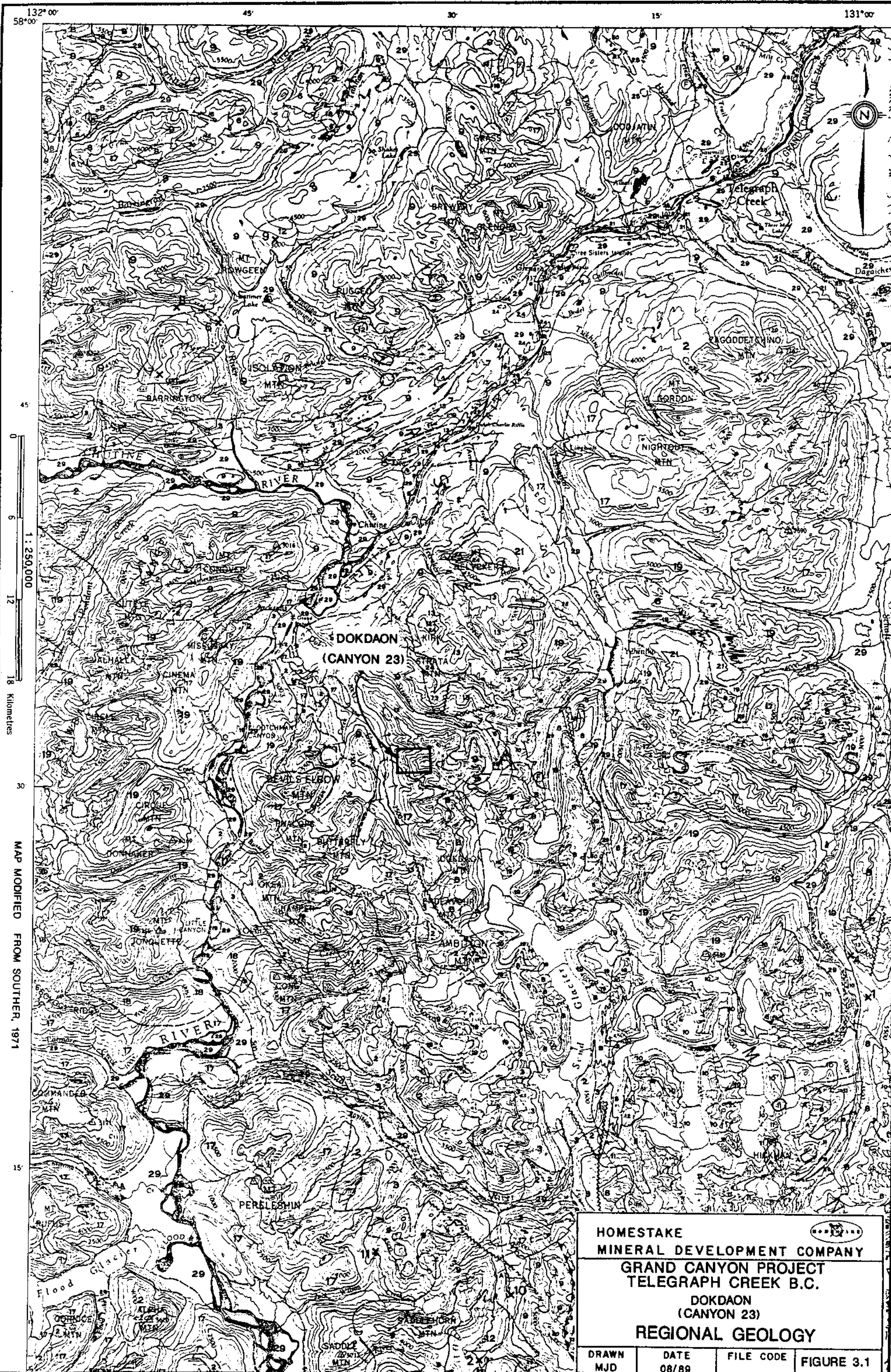
Just south of Canyon 23, Teck Exploration Ltd. carried out geological mapping, sampling and trenching on the Dok and Marg claims in 1981 and 1982. This work is documented in A.R. 9617. Empire Metals Corp. undertook a program of geological mapping and silt sampling on the Gu claims in 1971. This work is documented as A.R. 3847.

1.5 Present Work

The 1989 work program outlined in this report was designed to locate areas of anomalous metal values and to assess the economic potential of the property. It consisted of prospecting, rock sampling. The work was completed by a two man crew on June 6, 1989 and followed up on June 9, 1989.

2.0 REGIONAL GEOLOGY

The property lies on the boundary between the Coast and Intermontane tectonic belts. This area is underlain by rocks of the Stikine Terrane (Stikinia) consisting of Paleozoic schists, phyllites and greenstones of the Stikine Assemblage, Mid to Upper Triassic sedimentary and volcanic rocks of the Stuhini Group



HOMESTAKE
MINERAL DEVELOPMENT COMPANY
GRAND CANYON PROJECT
TELEGRAPH CREEK B.C.
DOKDAON
(CANYON 23)
REGIONAL GEOLOGY

DRAWN MJD	DATE 08/89	FILE CODE	FIGURE 3.1
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LEGEND

- QUATERNARY**
PLEISTOCENE AND RECENT
- 29 Fluvialite gravel; sand, silt; glacial outwash, till, alpine moraine and colluvium
 - 28 Hot-spring deposit, tufa, aragonite
 - 27 Olivine basalt, related pyroclastic rocks and loose tephra; younger than some of 29
- TERTIARY AND QUATERNARY**
UPPER TERTIARY AND PLEISTOCENE
- 26 Rhyolite and dacite flows, lava domes, pyroclastic rocks and related subvolcanic intrusions; minor basalt
 - 25 Basalt, olivine basalt, dacite, related pyroclastic rocks and subvolcanic intrusions; minor rhyolite; in part younger than some 26
- CRETACEOUS AND TERTIARY**
UPPER CRETACEOUS AND LOWER TERTIARY
- SLOKO GROUP**
- 24 Light green, purple and white rhyolite, trachyte and dacite flows, pyroclastic rocks and derived sediments
 - 22, 23 22. Biotite leucogranite, subvolcanic stocks, dykes and sills
23. Porphyritic biotite andesite, lava domes, flows and (?) sills
- SUSTUT GROUP**
- 21 Chert-pebble conglomerate, granite-boulder conglomerate, quartzose sandstone, arkose, siltstone, carbonaceous shale and minor coal
 - 20 Felsite, quartz-feldspar porphyry, pyritiferous felsite, orbicular rhyolite; in part equivalent to 22
 - 19 Medium-to coarse-grained, pink biotite-hornblende quartz monzonite
- JURASSIC AND/OR CRETACEOUS**
POST-UPPER TRIASSIC PRE-TERTIARY
- 18 Hornblende diorite
 - 17 Granodiorite, quartz diorite; minor diorite, leucogranite and migmatite
- JURASSIC**
MIDDLE (?) AND UPPER JURASSIC
BOWSER GROUP
- 16 Chert-pebble conglomerate, grit, greywacke, subgreywacke, siltstone and shale; may include some 13
- MIDDLE JURASSIC**
- 15 Basalt, pillow lava, tuff-breccia, derived volcanoclastic rocks and related subvolcanic intrusions
- LOWER AND MIDDLE JURASSIC**
- 14 Shale, minor siltstone, siliceous and calcareous siltstone, greywacke and ironstone
- LOWER JURASSIC**
- 13 Conglomerate, polymictic conglomerate; granite-boulder conglomerate, grit, greywacke, siltstone; basaltic and andesitic volcanic rocks, peperites, pillow-breccia and derived volcanoclastic rocks
- TRIASSIC AND JURASSIC**
POST-UPPER TRIASSIC PRE-LOWER JURASSIC
- 12 Bysite, orthoclase porphyry, monzonite, pyroxenite
- HICKMAN BATHOLITH**
- 10, 11 10. Hornblende granodiorite, minor hornblende-quartz diorite 11. Hornblende, quartz diorite, hornblende-pyroxene diorite, amphibolite and pyroxene-bearing amphibolite
- TRIASSIC**
UPPER TRIASSIC
- 9 Undifferentiated volcanic and sedimentary rocks (units 5 to 8 inclusive)
 - 8 Augite-andesite flows, pyroclastic rocks, derived volcanoclastic rocks and related subvolcanic intrusions; minor greywacke, siltstone and polymictic conglomerate
 - 7 Siltstone, thin-bedded siliceous siltstone, ribbon chert, calcareous and dolomitic siltstone, greywacke, volcanic conglomerate, and minor limestone
 - 6 Limestone, fetid argillaceous limestone, calcareous shale and reefoid limestone; may be in part younger than some 7 and 8
 - 5 Greywacke, siltstone, shale; minor conglomerate, tuff and volcanic sandstone
- MIDDLE TRIASSIC**
- 4 Shale, concretionary black shale; minor calcareous shale and siltstone
- PERMIAN**
MIDDLE AND UPPER PERMIAN
- 3 Limestone, thick-bedded mainly bioclastic limestone; minor siltstone, chert and tuff
- PERMIAN AND OLDER**
- 2 Phyllite, argillaceous quartzite, quartz-sericite schist, chlorite schist, greenstone, minor chert, schistose tuff and limestone
- MISSISSIPPIAN**
- 1 Limestone, orinoidal limestone, ferruginous limestone; maroon tuff, chert and phyllite
 - B Amphibolite, amphibolite gneiss; age unknown probably pre-Upper Jurassic
 - A Ultramafic rocks; peridotite, dunite, serpentinite; age unknown, probably pre-Lower Jurassic

CENOZOIC

MESOZOIC

PALEOZOIC

- Geological boundary (defined and approximate, assumed)
- Bedding (horizontal, inclined, vertical, overturned) + / / /
- Anticline
- Syncline
- Fault (defined and approximate, assumed)
- Thrust fault, teeth on hanging-wall side (defined and approximate, assumed)
- Fossil locality
- Mineral property
- Glacier

GRAND CANYON PROJECT B.C.
**GEOLOGICAL
 LEGEND**

INDEX TO MINERAL PROPERTIES

1. Lard Copper	5. Bam	9. MH	13. Ann, Bu
2. Galore Creek	6. Gordon	10. BIK	14. SF
3. QC, QCA	7. Limpoka	11. JW	15. Goat
4. Nabs	8. Poke	12. Copper Canyon	16. Mary

(Kerr, 1948), and Late Cretaceous to Tertiary continental volcanic arc assemblages of the Sloko Group (Logan and Koyanagi, 1989).

Three stages of plutonism are recognized in the area. The Hickman batholith is composed of Early to Middle Triassic quartz diorites and Middle Jurassic quartz monzonites. The third series of intrusive rocks are alkalic, generally syenitic, rocks of Early Jurassic age. These Early Jurassic rocks are associated with mineralization in the area, including the Galore Creek and Schaft Creek porphyry deposits.

These rocks have undergone multiple stages of deformation, forming a complex structural pattern which is complicated by large differences in the competence of the different units. North- and northwesterly-trending normal faults are dominant with narrow west-trending extensional fault zones postdating them (Souther, 1972).

The most economically important exploration targets are porphyry copper-gold-silver deposits and peripheral mesothermal and shear zone-hosted precious metal veins (Logan et al, 1989).

3.0 PROPERTY GEOLOGY

The Canyon 23 claim is predominantly underlain by mafic volcanic rocks of the Upper Triassic Stuhini Group. These rocks are locally fragmental and on the western side of the claim are weakly to moderately altered to chlorite and locally sericite and carbonate.

A granodiorite to quartz -diorite of Jurassic/Cretaceous age intrudes the property in the southwest portion of the claim.

Felsic dykes of undetermined age (probably cretaceous) cut across the western portion of the claim, trending 0-030 . These dykes are locally associated with quartz-ankerite veining and breccia zones.

4.0 GEOCHEMISTRY

Four rock samples were collected during the work program. Sample locations and results are plotted on Figure 4.1., and appear in Appendix I and II.

4.1 Rock Samples

Four rock samples were collected from the property and shipped to Acme Analytical Labs. Thirty element ICP and gold by fire assay was done on each sample, and sample locations were marked in the field by metal tags and orange flagging tape. Sample locations and results are plotted on Figure 4.1, while geochemical analysis appear in Appendix I.

Of the four samples taken, two returned low values in Au, Ag, and Cu, while two returned anomalous values in a number of elements, these samples are summarized below.

Sample	DD-23-1-31401	Au ppb	Ag ppm	Cu ppm	Mo ppm	As ppm	Bi ppm
	Epidote vein containing 1-5% disseminated Py and Po	35	71.3	37922	9	16	23

Sample DD-23-1-31405

Quartz ankerite vien near Felsite dyke	2	1.2	421	10	11	2
---	---	-----	-----	----	----	---

5.0 CONCLUSIONS AND RECOMMENDATIONS

With the exception of sample 31401 geochemical results for most elements were disappointing. The geology and alteration, however, look favourable on the claim and the amount of work done to date is inadequate to properly assess the economic potential of this claim, therefore, further work is recommended in the form of airphoto controlled mapping and sampling.

6.0 REFERENCES

B.C. Ministry of Mines, Assessment Reports #3029, 3846 and 3847

Brown, D.A. and Gunning, M. (1989): "Geology of the Stikine River Area, Northwestern B.C.", B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Field Work, 1988, Paper 1989-1, pp. 251-267.

Holbek, P.M. (1988): "Geology and Mineralization of the Stikine Assemblage, Mess Creek Area, Northwestern British Columbia.", University of British Columbia MSc thesis.

Kerr, F.A. (1948): "Lower Stikine and Western Iskut River Areas, B.C.", GSC Memoir 246.

Logan, J.M. and Koyanagi, V.M. (1989): "Geology and Mineral Deposits of the Galore Creek Area, Northwestern B.C.", B.C. Ministry of Energy, Mines and Petroleum Resources, Geological Field Work, 1988, Paper 1989-1, pp. 269-284.

Souther, J.G. (1972): "Telegraph Creek Map Area, B.C.", GSC Paper 71-44.

7.0 STATEMENT OF COSTS

Labour

Project Geologist	1 days @ \$253/day	\$253.00
Geologist	1 days @ \$165/day	\$165.00
Senior Assistant	2 days @ \$115/day	\$330.00
		<u>\$658.00</u>

Food and Accommodation

4 mandays @ \$ 90/day \$360.00

Geochemical Analysis + Freight

Rock Samples	4 @ \$ 25/sample	\$100.00
Supplies		\$200.00

Mob/Demob

\$ 200.00

Helicopter Support (including fuel)

1.6 hrs @ \$700/hrs \$1120.00

Report Preparation

2 days @ \$165/day \$ 330.00

TOTAL

\$2968.00

APPENDIX I
Analytical Results

GEOCHEMICAL ANALYSIS CERTIFICATE

MASTER
NTS. STIKINE/DOAK/DONAN
11-BC-1046
RUB/ACI.

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR NH FF SR CA P LA CR NG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
 - SAMPLE TYPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: JUN 29 1989 DATE REPORT MAILED: *July 5/89* SIGNED BY: *C. Long* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

HOMESTAKE MINERAL DEV. PROJECT 5711 DD File # 89-1852

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Tb	Sr	Cd	Sb	Bi	V	Ca	F	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au*
PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	%	%	%	PPM	PPB
DD-23-1 31168	1	60	9	49	.2	40	18	684	3.71	2	5	ND	1	265	1	2	2	108	3.61	.057	3	88	2.42	127	.15	7	1.92	.08	.06	1	3
DD-23-1 31400	2	11	2	68	.2	9	9	1124	4.15	2	5	ND	1	168	1	2	2	24	11.03	.016	6	8	3.78	1306	.01	7	.26	.03	.97	2	1
DD-23-1 31401	9	37922	85	69	71.3	31	8	131	9.99	16	5	ND	1	281	4	3	23	59	1.33	.079	78	45	.23	7	.08	3	1.06	.01	.01	1	35
DD-23-1 31404	5	354	7	163	.8	32	22	895	5.00	30	5	ND	1	61	3	2	2	152	2.59	.125	11	52	.99	49	.02	10	1.36	.04	.03	1	1
DD-23-1 31405	1	421	7	199	1.2	17	16	4203	6.31	11	5	ND	1	104	2	4	2	35	10.84	.014	7	11	3.15	385	.01	8	.15	.01	.10	2	2

✓ ASSAY REQUIRED FOR CORRECT RESULT -

APPENDIX II
Sample Summary

DOKDOAN (Canyon 23)

SAMPLE NO.	SAMPLE TYPE	DESCRIPTION	MINERALIZATION
DD-23	31168 o/c	mafic volcanic	diss. po & mt
	31400 o/c	90%ankerite +siderite,10%qtz	
	31401 float	semimass. ep vein	5%py and cp
	31404 o/c	mafic volcs	
	31405 r/c	f.g.felsic rk,dike of alt'n of volc rk	

APPENDIX III

Statement of Qualifications

STATEMENT OF QUALIFICATIONS

I, Darcy Edward Marud, of Apt. 101, 1529 East Third Avenue, Vancouver, British Columbia, Canada, hereby certify that:

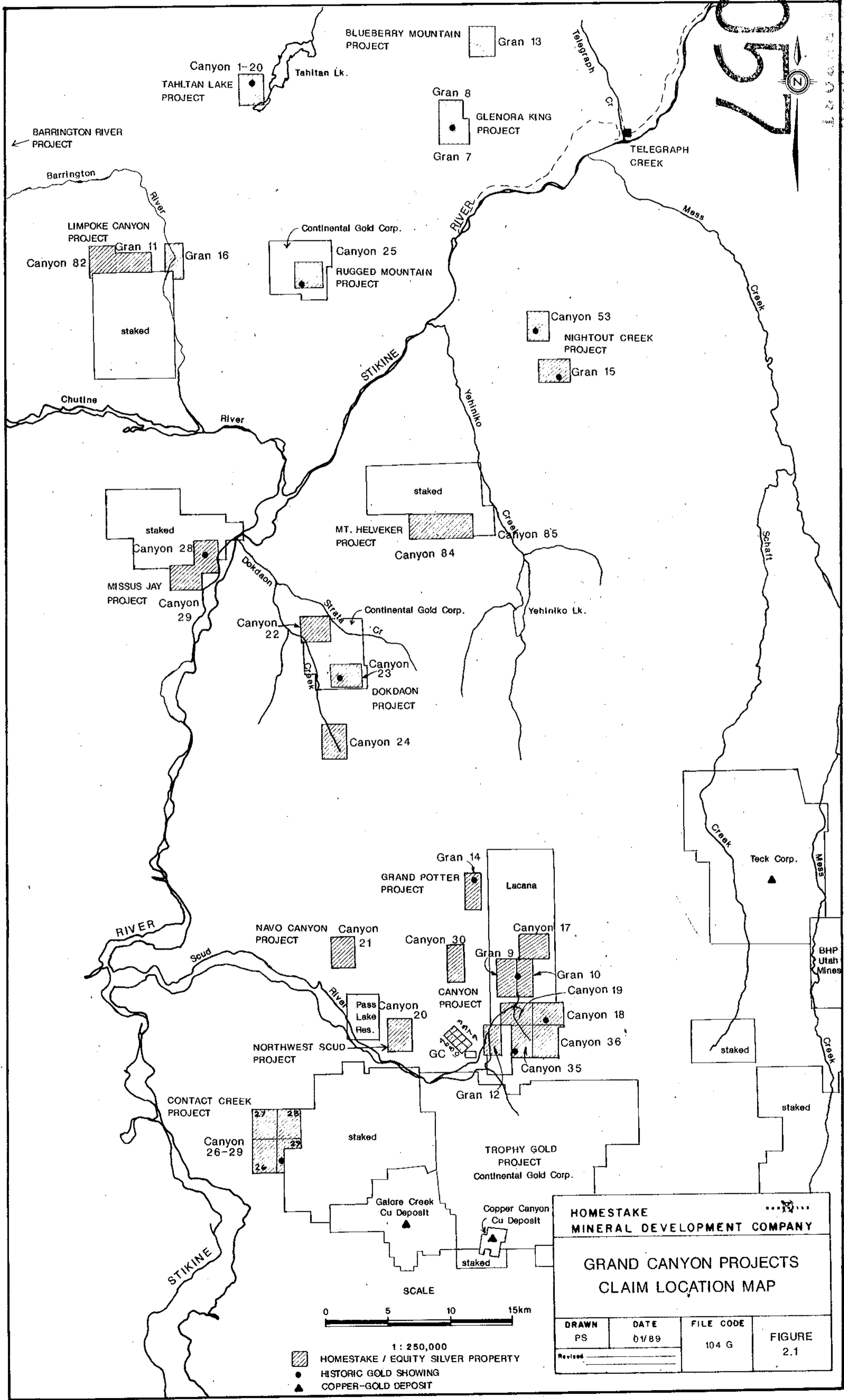
1. I am a graduate of the University of Saskatchewan, having been granted the degree of Bachelor of Sciences -Honours degree in Geology in 1985.
2. I have practiced my profession as a geologist in mineral exploration since 1985.
3. I am presently employed as a geologist with Homestake Mineral Development Company of #1000 - 700 West Pender Street, Vancouver, British Columbia.
4. The work done in the accompanying report was done under my supervision and with my participation.
5. I am the author/co-author of the above report.
6. I have no direct or indirect financial interest in any companies known by me to have an interest in the mineral properties described by this report, nor do I expect to receive any such interest.

Dated at Vancouver, B.C. this 10th day of August, 1989

Respectfully submitted

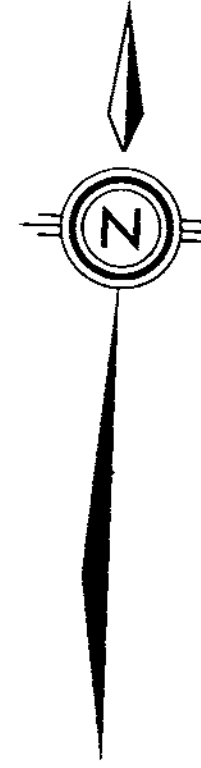
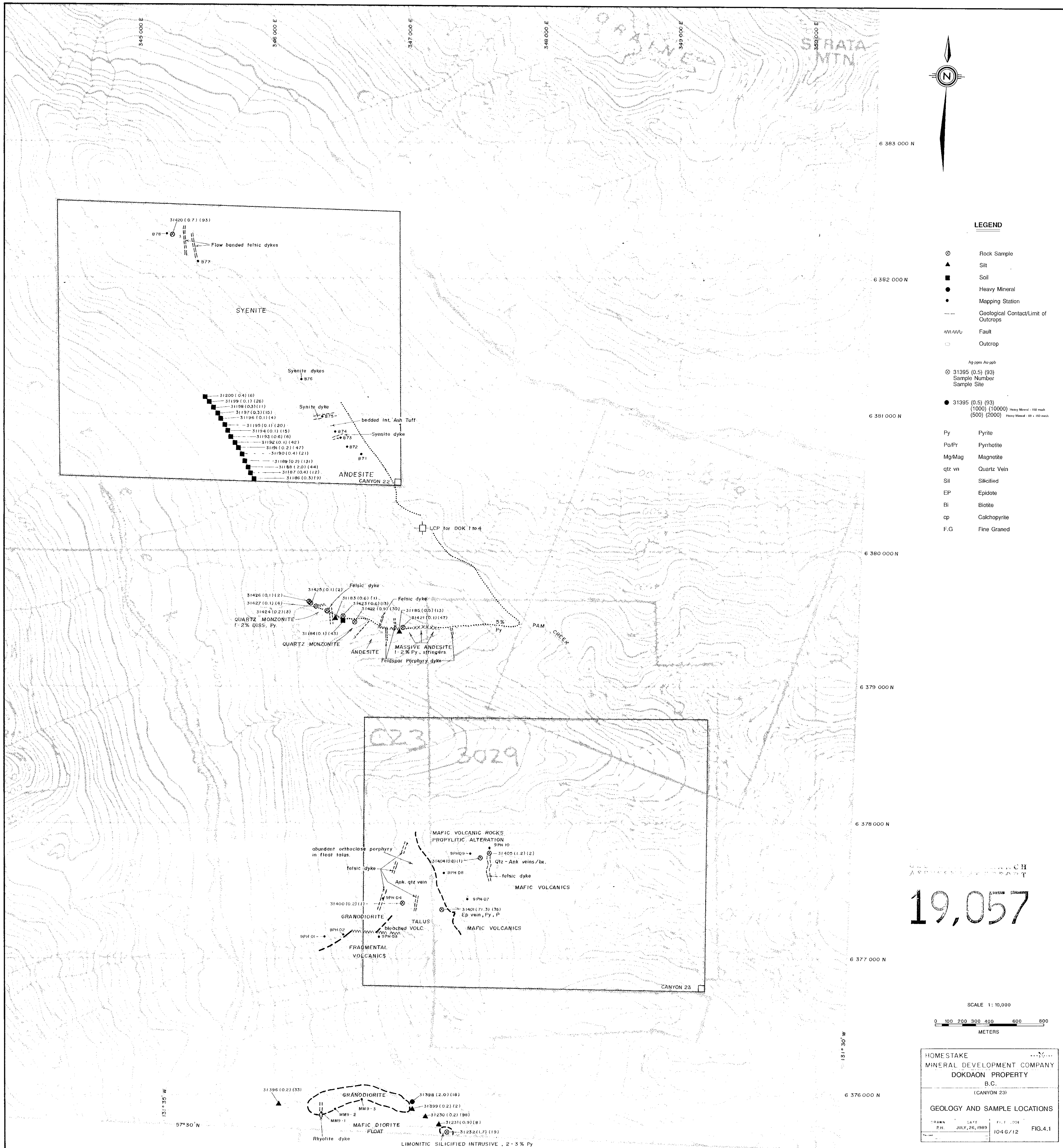

Darcy E. Marud

10,057



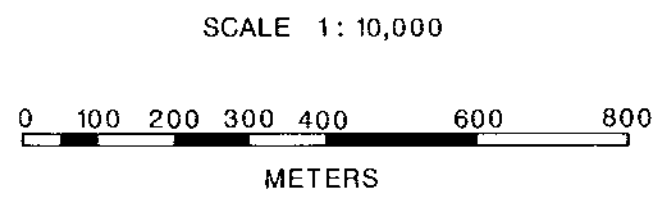
HOMESTAKE MINERAL DEVELOPMENT COMPANY			
GRAND CANYON PROJECTS CLAIM LOCATION MAP			
DRAWN PS	DATE 01/89	FILE CODE 104 G	FIGURE 2.1
Revised _____			

1 : 250,000
 ■ HOMESTAKE / EQUITY SILVER PROPERTY
 ● HISTORIC GOLD SHOWING
 ▲ COPPER-GOLD DEPOSIT



LEGEND

- ⊙ Rock Sample
 - ▲ Silt
 - Soil
 - Heavy Mineral
 - Mapping Station
 - Geological Contact/Limit of Outcrops
 - Fault
 - Outcrop
- Ag ppm Au g/t
- ⊙ 31395 (0.5) (93)
 - (1000) (10000) Heavy Mineral - 150 mesh
 - (500) (2000) Heavy Mineral - 60 + 150 mesh
- Py Pyrite
 - Po/Pr Pyrrhotite
 - Mg/Mag Magnetite
 - qtz vn Quartz Vein
 - Sil Silicified
 - EP Epidote
 - Bi Biotite
 - cp Chalcopyrite
 - F.G Fine Graded



19,057

HOMESTAKE
MINERAL DEVELOPMENT COMPANY
DOKDAON PROPERTY
B.C.
(CANYON 23)

GEOLOGY AND SAMPLE LOCATIONS

DRAWN	DATE	FILE CODE
P.H.	JULY, 26, 1989	1046/12

FIG. 4.1

CANYON 22

SYENITE

Flow banded felsic dykes

Syenite dykes

bedded int. Ash Tuff

Syenite dyke

31200 (0.4) (6)

31199 (0.1) (26)

31198 (0.3) (11)

31197 (0.3) (15)

31196 (0.1) (4)

31195 (0.1) (20)

31194 (0.1) (15)

31192 (0.6) (6)

31192 (0.1) (42)

31191 (0.2) (47)

31190 (0.4) (21)

31189 (0.2) (31)

31188 (2.0) (44)

31187 (0.4) (12)

31186 (0.3) (3)

878

877

876

875

874

873

872

871

CANYON 23

QUARTZ MONZONITE

QUARTZ MONZONITE

ANDESITE

MASSIVE ANDESITE

Feldspar Porphyry dyke

Felsic dyke

Felsic dyke

Felsic dyke

31426 (0.1) (2)

31427 (0.1) (4)

31424 (0.2) (8)

31425 (0.1) (2)

31183 (0.6) (1)

31423 (0.6) (13)

31422 (0.9) (30)

31185 (0.5) (13)

31421 (0.1) (47)

5% Py

PAM CREEK

CANYON 23

abundant orthoclase porphyry in float talus

felsic dyke

Ank. qtz vein

GRANODIORITE

TALUS

bleached VOLC.

FRAGMENTAL VOLCANICS

MAFIC VOLCANIC ROCKS PROPYLITIC ALTERATION

9PH 10

31404 (0.8) (1)

9PH 08

felsic dyke

MAFIC VOLCANICS

9PH 07

31405 (1.2) (2)

Qtz - Ank veins/bx.

MAFIC VOLCANICS

31401 (7.3) (36)

Ep vein, Py, P

MAFIC VOLCANICS

9PH 04

31400 (0.2) (1)

9PH 02

9PH 01

9PH 03

31396 (0.2) (33)

GRANODIORITE

31398 (2.0) (18)

31399 (0.2) (2)

31230 (0.2) (98)

31231 (0.9) (8)

31232 (1.7) (19)

MAFIC DIORITE

FLUAT

LIMONITIC SILICIFIED INTRUSIVE . 2 - 3 % Py

Rhyolite dyke

MM9-2

MM9-3

MM9-1