

84-#705-12875

GEOLOGICAL AND GEOCHEMICAL REPORT ON THE

SANDI PROPERTY

Located in the Cariboo Mining Division

at coordinates

53 deg. 10' 30" N

121 deg. 43' W

by

Robert S. Baerg

Noranda Exploration Company, Limited
(No Personal Liability)

May 1984

N.T.S. 93 H/4

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,875

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SUMMARY:

The Sandi property is situated 12.5 km northwest of Wells, B.C. The claims lie at the northwest end of the Barkerville Gold Belt and are underlain by Paleozoic rocks similar to those in the Wells Gold Camp. The underlying rocks consist of Devonian to Mississippian black phyllites and micaceous quartzites and Mississippian to Permian metavolcanic rocks.

There are several gold occurrences on the property consisting of quartz veins carrying auriferous iron oxides, pyrite, galena and sphalerite. Assays of quartz vein material are reported to range from trace up to 0.80 oz/ton Au and trace to 102.5 oz/ton Ag. Massive pyrite float found in some of the creeks on the property has returned values up to 2.03 oz/ton Au.

During May 1984, Noranda Exploration Company, Ltd. conducted a geologic mapping and geochemical sampling program on the Sandi property. This program consisted of soil sampling at 200 m intervals along North-South lines 500 m apart, silt sampling of creeks and streams and rock chip sampling of quartz veins and pyritic metasediments. A total of 41 soil samples, 38 silt samples and 6 rock chip samples were collected. Geologic mapping covered the lower ends of Sugar and Cooper Creeks, roadcuts and the soil sample lines. The purpose of the program was to better define the area of Au mineralization and to locate new anomalous areas. However, due to extensive snow cover in the higher elevations the program was significantly reduced and will have to be completed at a later date.

The results of the sampling indicated several weak Ag, Ag-Pb-Zn anomalies in the north-central portion of the JJF claim. As well, one soil sample contained 20 ppb Au and one silt sample from Cooper Creek contained 80 ppb Au.

INTRODUCTION:

This report covers work done by Noranda Exploration Company, Ltd. on the Sandi mineral claim group located in the Cariboo Mining Division of central B.C. The Sandi Group consists of twenty-six (26) modified grid units and two (2) post claims held under option by Clearbrook Mining Ltd. of Chilliwack, B.C.

The geological setting on the property is such that there is potential for the occurrence of three types of mineral deposits: gold-quartz veins, gold-bearing pyritic replacement deposits and shale-hosted lead and zinc.

Placer gold was discovered on Sugar Creek in 1934 by prospector Lorne Bater. Subsequently, Sugar Creek and its main tributaries, Stephens Gulch and Cooper Creek were extensively worked for placer gold.

To date, only the quartz veins have been explored for hard-rock mineral potential. There has been no modern, systematic exploration-evaluation done on this property.

During May 1984, Noranda Exploration conducted a geological mapping and geochemical sampling program on the Sandi property. The field operations were supervised by R. Baerg, under the supervision of T. Lewis, a geologist with Noranda Exploration. Field assistants were P. Collens and D. Klein.

LOCATION AND ACCESS:

The Sandi property is located 12.5 km northwest of Wells, British Columbia (Figure 1). Wells is situated in central British Columbia, approximately 70 km east of Quesnel.

Access to the property is obtained by good logging roads branching from Highway 26 between Quesnel and Wells. At Beaver Pass House, located approximately 20 km west of Wells on Highway 26, one drives 27.5 km north along logging road #2400 to logging road #2400A. Proceed on logging road #2400A to kilometer 38. A good road leaves #2400A and leads to Sugar Creek, a 4-wheel drive track heads south through the property of Ralph and Faye Macpherson. This track follows in and along Sugar Creek to the junction of Cooper and Sugar Creeks. There the track forks to the southeast and southwest. The southeast track gives access to the middle southeastern part of the property and continues over Hardscrabble Mountain to Wells. The southwest fork gives access to the western and southwestern portions of the property west of Cooper Creek.



122°00' 45'

REVISED	LOCATION MAP	
	SANDI	
	Clearbrook Mining Ltd. Option	
PROJ. No.	SURVEY BY: <u>R. Baerg</u>	DATE: <u>May /84</u>
N.T.S. <u>93H/4</u>	DRAWN BY: <u>R. Baerg</u>	SCALE: <u>1:250,000</u>
DWG. No.	NORANDA EXPLORATION	
1	OFFICE: <u>Prince George</u>	

CLAIM STATISTICS:

The Sandi Group of claims consists of four claim blocks located in the Cariboo Mining District (Figure 2). Claim description follows:

<u>Claim_name</u>	<u>#_Units</u>	<u>Record_No.</u>	<u>Expiry_Date</u>
JJF	20	1352(6)	June, 1984
BJ Group	2	1554(6)	
		1555(6)	June, 1984
JDM	6	3958(9)	Sept. 1985
SANDI 4	6	4933(6)	June, 1984

GEOLOGICAL MAPPING AND GEOCHEMICAL SAMPLING:

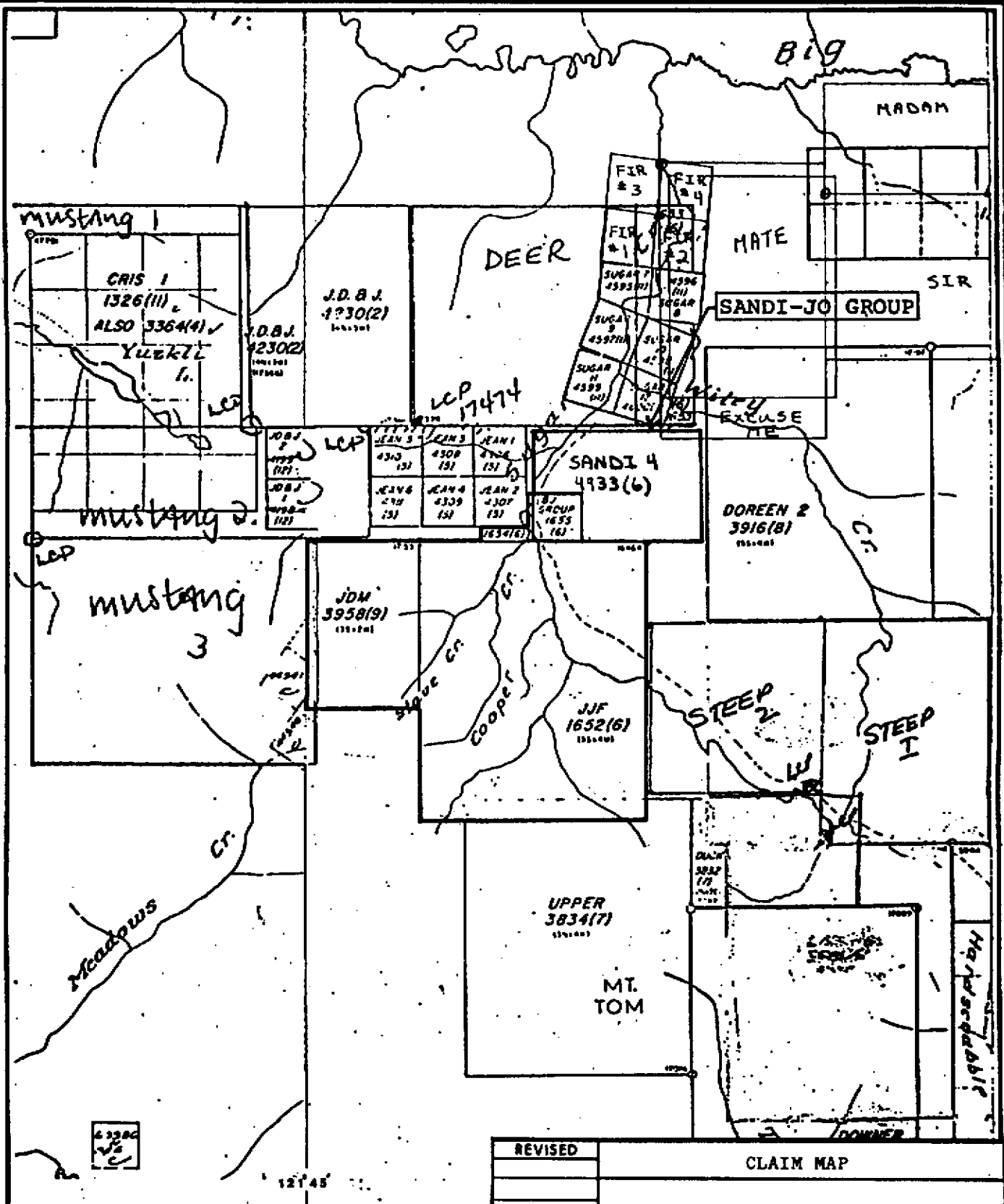
B-horizon soil samples were collected at 200 m intervals along north-south lines spaced 500 m apart. The lines extend south as far as snow conditions allowed. A total of 41 soil samples were collected. Silt samples were collected on streams crossing the soil lines and along Sugar and Cooper Creeks. A total of 38 silt samples were collected. Rock chip samples were taken on several quartz veins and on some pyritic sediments near the junction of Cooper and Sugar Creeks.

Geological mapping consisted of traverses along the soil lines, along road cuts and along the main creeks.

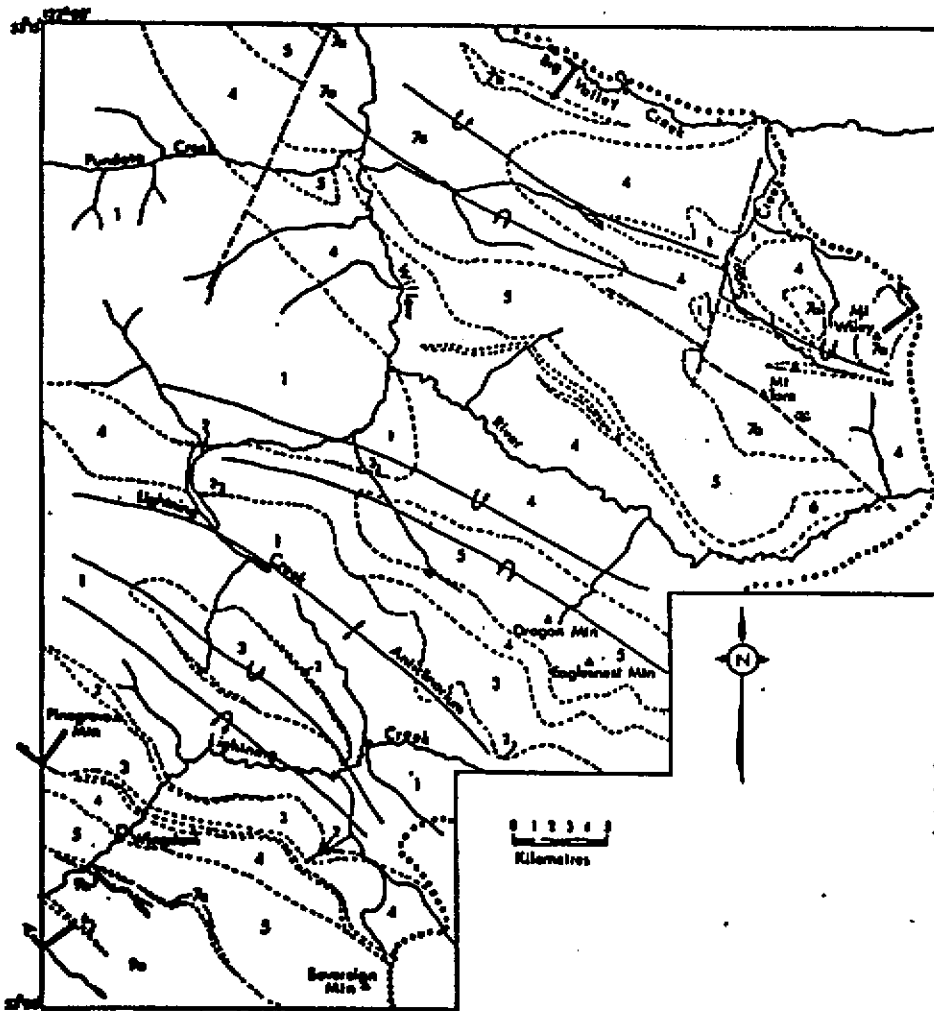
REGIONAL GEOLOGY:

The Sandi property is underlain by Upper Paleozoic metasedimentary rocks similar to those that host the gold deposits near Wells, B.C. These rocks, previously described by Holland (1954), Sutherland Brown (1957), Campbell et al (1973) and Struik (1980, 1982) are highly deformed and regionally metamorphosed to greenschist facies. Regional folds trend northwesterly and are overturned to the southwest. Dips range between 40 and 55 degree northeasterly (Alldrick, 1983). The rock units have been most recently mapped by Struik (1982) and he has divided the rocks in the Sandi area into two main units (Figure 3):

- Unit (1) Snowshoe Formation - consisting of olive micaceous quartzite, light olive grey phyllite, and slate, garnet-biotite-muscovite schist; and
- Unit (4) Antler Formation - consisting of black argillite, slate and siltite.



REVISED	CLAIM MAP	
	SANDI	
	Clearbrook Mining Ltd. Option	
PROJ. No.	SURVEY BY: <u>R. Baerg</u>	DATE: <u>May /84</u>
N.T.S. <u>93H/4</u>	DRAWN BY: <u>R. Baerg</u>	SCALE: <u>1:50,000</u>
DWG. No. <u>2</u>	NORANDA EXPLORATION	
	OFFICE: <u>Prince George</u>	



LEGEND

- TRIASSIC AND JURASSIC**
 9 a; dark grey slate and phyllite, sandstone
 minor limestone, bryozoa
- PERMIAN**
 8 biotitic limestone
 7 Andler Formation: or diorite, basalt,
 saponite, bc chert, greywacke
 6 amphibole, diorite, and diorite
 equivalent
- PALEOZOIC AND/OR OLDER**
 5 olive micaceous quartzite, dark grey
 phyllite
 4 black argillite, slate, and siliceous
 muddy conglomerate, limestone
 3 grey siliceous quartzite
 2 marble, calcareous sandstone, quartzite
 calcareous phyllite, phyllite
 1 olive micaceous quartzite, light olive
 grey phyllite and slate, quartz-biotite-
 muscovite schist

- Geologic contact (approx. and exact)
 -f- Anticline (overturned)
 -f- Syncline (overturned)
 - - - Fault (approx. and exact)

REVISED	REGIONAL GEOLOGY - SUGAR CRK. AREA	
	(After Struik, 1982)	
	SANDI	
	Clearbrook Mining Ltd. Option	
PROJ. No.	SURVEY BY: R. Baerg	DATE: May /84
N.T.S. 93H/4	DRAWN BY: R. Baerg	SCALE: 1:500,000
DWG. No.	3	
	NORANDA EXPLORATION	
	OFFICE: Prince George	

LOCAL GEOLOGY:

Drawing 1 illustrates geological information obtained through mapping during May 1984. Two main rock units were identified (1) olive-grey-brown micaceous quartzite, grey phyllite and slate, garnet-biotite muscovite schist, which correlates with Struiks Unit 1, and (2) black-grey argillite, slate and siltite, muddy conglomerate, which correlates with Struiks Unit 4. The conglomerate, which appears to mark the contact between the two units, contains abundant rounded quartz, schist and argillaceous pebbles.

The two units indicate a shallow marine basin depositional environment with a distinct period of uplift or tilting separating the two at least locally. In addition, the sequence has undergone folding and regional metamorphism to a greenschist facies. Regional fold axes parallel the stratigraphy, and are overturned towards the southwest. Dips range from 40 to 55 degrees northeasterly (Alldrick, 1983).

Mineralization:

Gold ore in the Wells camp occurs as relatively small deposits along a strike length of 45 km that includes the Mosquito Creek, Island Mountain and Cariboo Gold Quartz mines. The gold occurs as either:

1. Auriferous pyrite in quartz veins in the Rainbow Member, as described by Alldrick (1983); or
2. As stratabound massive auriferous pyrite lenses, termed replacement ore, hosted within and at the contacts of limestone beds of the Baker member, as described by Alldrick (1983).

On the Sandi property there are two types of sulphide mineralization. Firstly, disseminated pyrite in the quartzites and phyllites. Previous sampling has found this mineralization to be barren of precious metals, although values up to 0.26% Pb have been reported in the phyllites. Secondly, quartz veins with variable amounts of pyrite and/or iron oxides. Gold values are reported to be erratic and generally low.

GEOCHEMISTRY:

Soil Geochem

Soil geochemistry has indicated several weak Ag and Pb anomalies and one weak Au anomaly in the northern half of the JJF claim and a one sample Cu-Zn-Ag anomaly in the BJ claim.

Silt_Geochem

Silt geochem results are generally higher than the soil results. Silt geochem locally supported and enhanced some of the Ag soil geochem anomalies, particularly in the NW part of the JJF and BJ claims. As well, silt samples were locally anomalous in Zn-Pb-Ag, particularly on Stephens Gulch and Sugar Creek. As well one sample on Sugar Creek contained 80 ppb Au.

Rock_Geochem

Results of the rock sampling were very low. The highest values reported were 830 ppm Pb with 1.8 ppm Ag from a quartz vein near the junction of Sugar and Cooper Creeks.

CONCLUSIONS:

Placer operations in the Sugar Creek valley confirm the presence of massive pyrite and coarse placer gold. However, exploration for the source of this mineralization is hampered by deep glacial deposits and very limited bedrock exposure. Further geological mapping and geochemical sampling is required.

RECOMMENDATIONS:

The Sandi property continues to hold potential for gold-bearing pyritic massive sulphides and sediment-hosted base metals. This is supported by the presence of massive pyrite float and coarse placer gold as well as anomalous Pb values in the black siltite unit. In addition, the geologic environment is similar to the Wells gold camp.

Future exploration should continue to search for the source of the massive sulphides in the Sugar Creek drainage and follow up the potential for sediment hosted base metals. This should include:

1. Completion of the geological mapping of the property.
2. Complete the geochemical sampling program on the property and follow up anomalous zones with detailed sampling.

BIBLIOGRAPHY

Aldrick, D.J. (1983): The Mosquito Creek Mine, Cariboo Gold Belt.

BCDM, (1947): MMAR pp. 111-128.

Campbell, K.V. (1983): Report on the Clearbrook Mining Ltd., Sandi Mineral Property.

Struick, L.C. (1980): Geology of the Barkerville-Cariboo River Area, Central British Columbia, Ph. D. Thesis, University of Calgary, 330 pp.

Ibid, (1981): Snowshoe Formation, Central British Columbia, in Current Research, Pt. A, Geological Survey of Canada, Paper 81-1A.

Ibid, (1982a): Geological Survey of Canada, O.F. 858, Map Series.

Ibid, (1982b): Snowshoe Formation (1982), Central British Columbia, in Current Research, Pt. B, Geological Survey of Canada, Paper 82-1B, pp. 117-124.

Sutherland Brown, A. (1957): Geology of the Antler Creek Area, Cariboo District, British Columbia, B.C. Ministry of Energy, Mines and Petroleum Resources, Bulletin 38, 105 pp.

APPENDIX I

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert J. Baerg of the City of Vancouver, Province of British Columbia, do certify that:

1. I have been employed as a geologist by Noranda Exploration Company, Limited since May, 1984.
2. I am a graduate of the University of British Columbia with a Bachelor of Science (Honors) in Geology (1984).

A handwritten signature in cursive script that reads "Robert Baerg". The signature is written in dark ink and is positioned above the typed name and title.

Robert J. Baerg
Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

APPENDIX II

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT - **Sandi**

DATE - May 1984

TYPE OF REPORT - Geological and Geochemical

a) Wages: (R. Baerg, P. Collens, D. Klein)

No. of Days	-	15 Mandays		
Rate per Day	-	\$150.00		
Dates From	-	May 25/84 - May 29/84		
Total Wages	-	15 X \$150.00	=	\$ 2250.00

b) Accommodation:

No. of Days	-	5		
Rate per Day	-	\$81.45		
Dates From	-	May 25/84 - May 29/84		
Total Cost	-	5 X \$81.45	=	\$ 407.28

c) Transportation:

No. of Days	-	5		
Rate per Day	-	\$50.00		
Dates From	-	May 25/84 - May 29/84		
Total Cost	-	5 X \$50.00	=	\$ 250.00

d) Analysis:

<u>Sample Type</u>	<u>#</u>	<u>Analysis For</u>			
Silt	38	Cu/Zn/Pb/Ag/Mo/Au	\$ 8.00/ea.	=	\$ 304.00
Soil	41	" " "	\$ 8.00/ea.	=	\$ 328.00
Rock	6	" " "	\$ 9.50/ea.	=	\$ 57.00

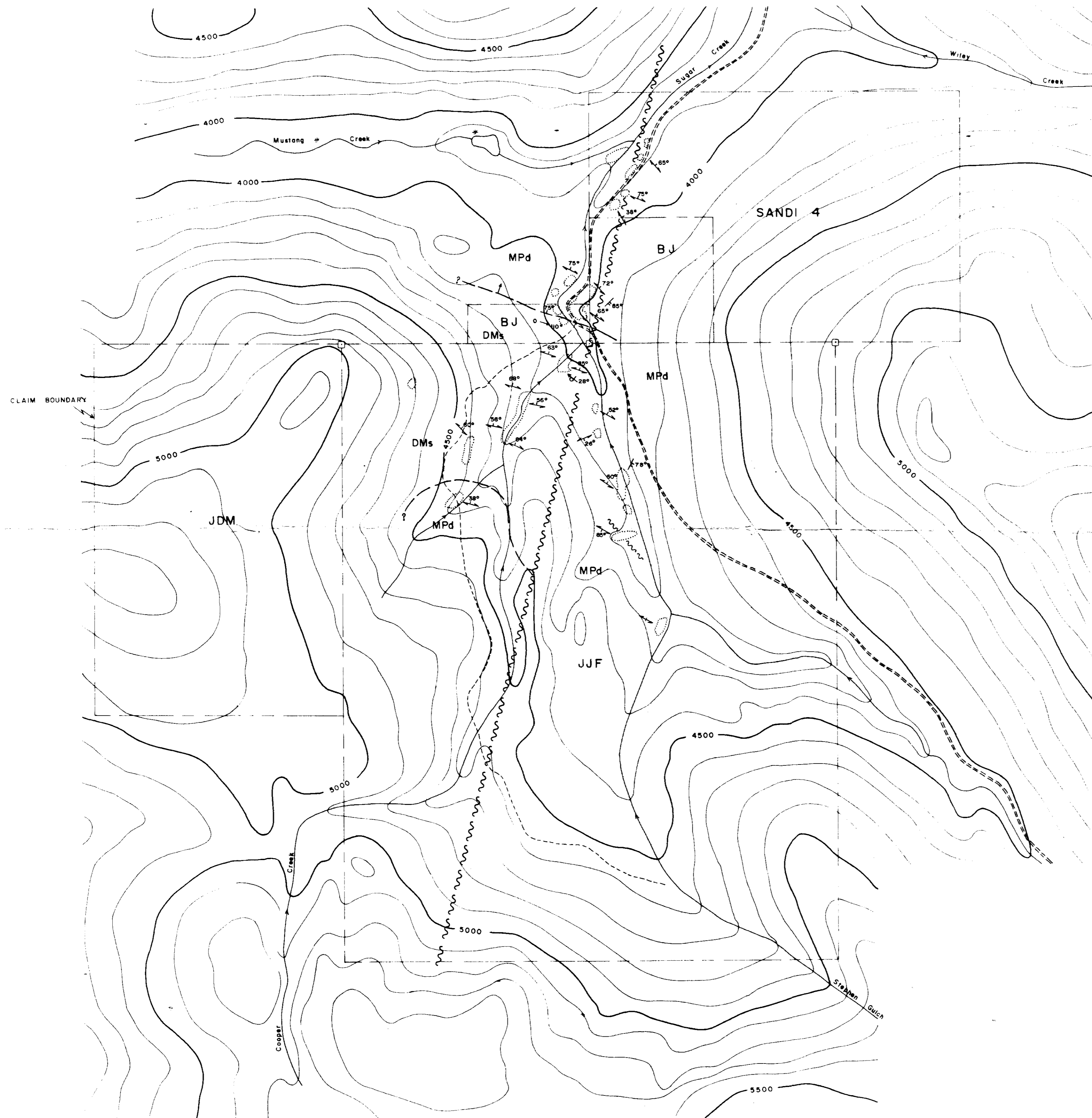
					\$ 689.00

e) Cost of Preparation of Report:

Author	=	\$ 450.00
Drafting	=	\$ 300.00
Typing	=	\$ 100.00

f) Other:

TOTAL COST = \$ 4446.28



LEGEND

SYMBOLS

- Logging Road
- Cat Trail
- Claim Post and Claim Boundary
- Stream
- Outcrop
- Cleavage (strike/dip)
- Jointing (strike/dip)
- Strike and dip of beds
- Strike and dip of overturned beds
- Fold axis (dip/direction)
- Fault
- Geologic Contact

ROCK TYPES

- MPd** Olive - grey - brown Micaceous Quartzite, light olive grey Phyllite and Slate, Garnet - Biotite - Muscovite Schist
- DMs** Black Argillite, Slate, Siltite, Conglomerate Limestone

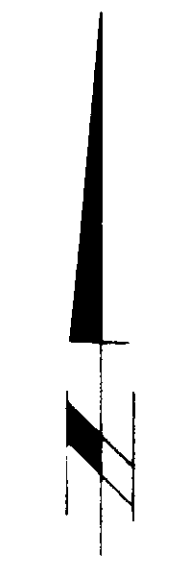
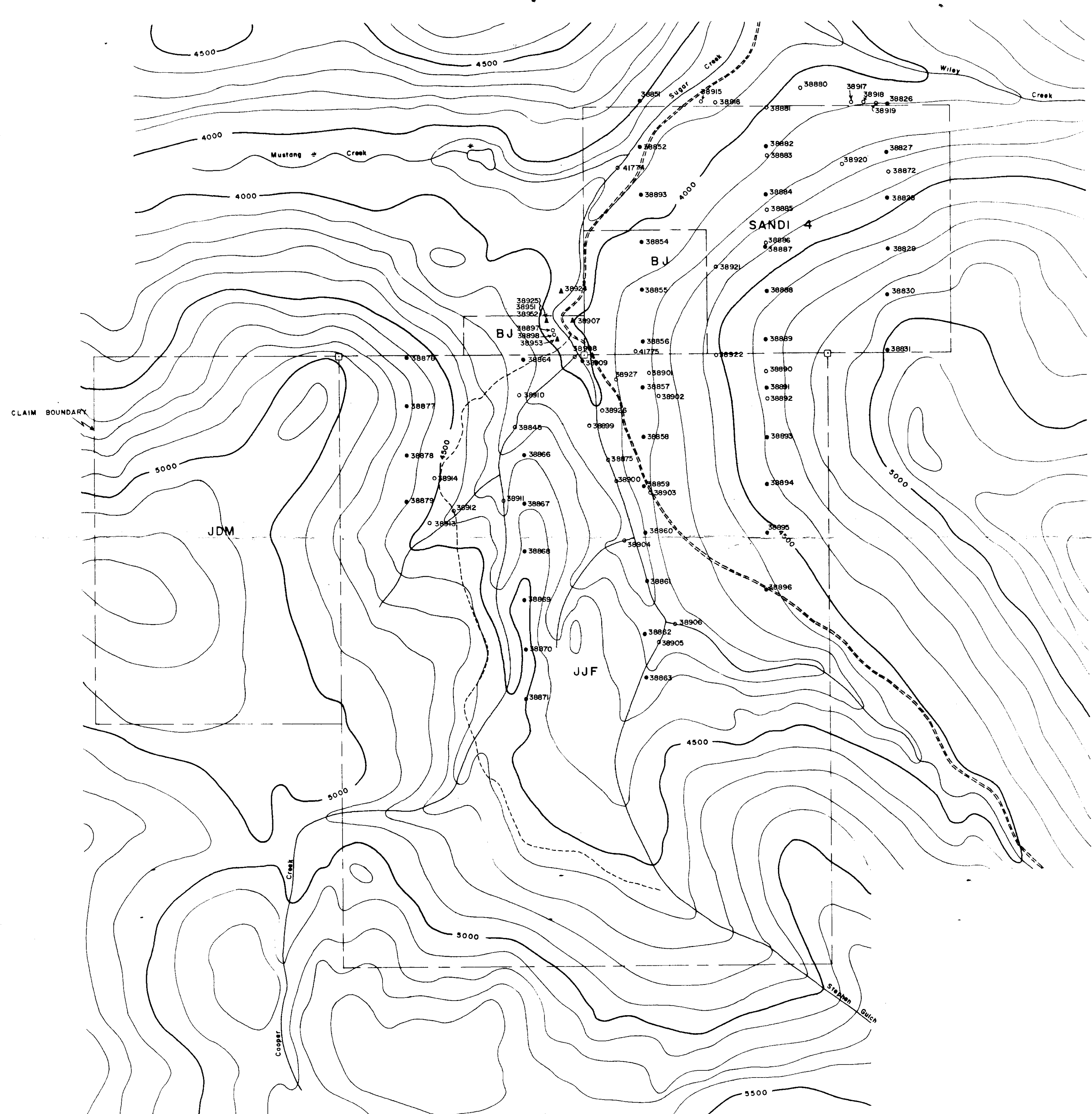
COOPER CREEK - CLEARBROOK MINING LTD. OPTION

12,875

Robert Baerg
May 30/84

SCALE 1:10,000

REVISED	COOPER CREEK - CLEARBROOK MINING LTD. OPTION		
	GEOLOGY ①		
PROJ No NTS 93H/4	SURVEY BY DRAWN BY	R. BAERG S K B	DATE SCALE
DWG No Map 1	MAY 1984 1:10,000		
NORANDA EXPLORATION			
OFFICE PRINCE GEORGE, B.C.			

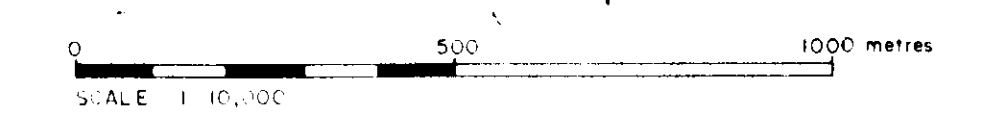


- LEGEND**
- Logging Road
 - Car Trail
 - Claim Post and Claim Boundary
 - Soil Sample Location
 - Silt Sample Location
 - Rock Sample Location

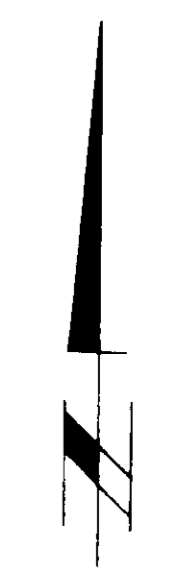
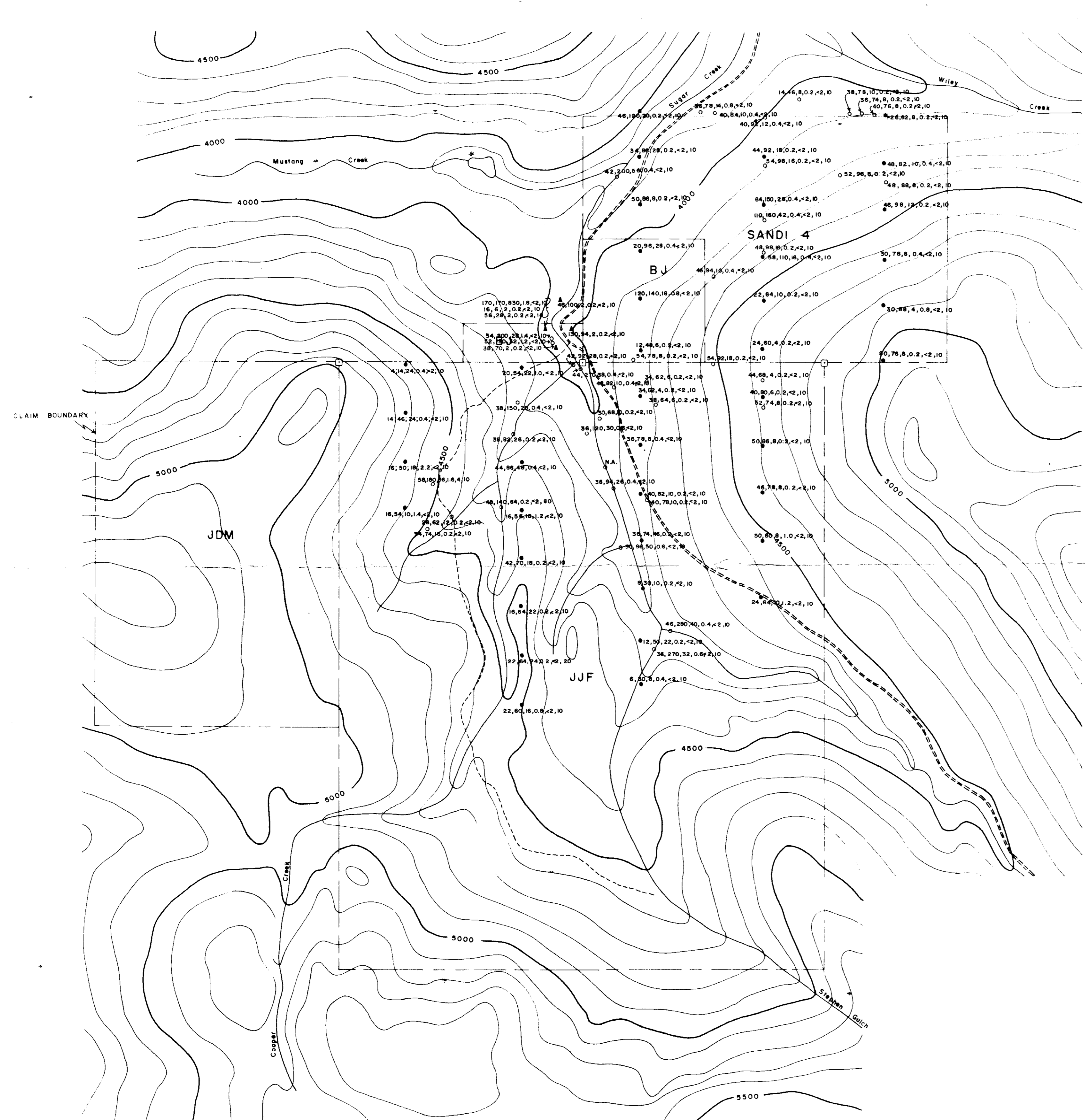
**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,875

*Robert Baerg
Mat 30/84*



REVISED	COOPER CREEK - CLEARBROOK MINING LTD. OPTION	
	SILT, SOIL & ROCK GEOCHEM SAMPLE LOCATIONS (2)	
PROJ. No 53	SURVEY BY R. BAERG	DATE MAY 1984
N.T.S. 93H/4	DRAWN BY S.K.B.	SCALE 1:10,000
DWG No Map 2	NORANDA EXPLORATION	
	OFFICE PRINCE GEORGE, B.C.	



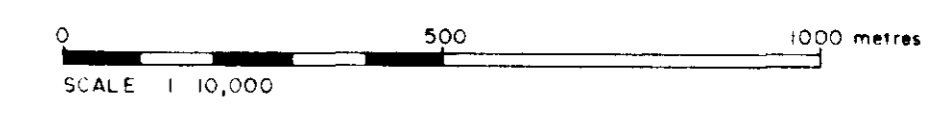
LEGEND

- Logging Road
- Cat Trail
- Claim Post and Claim Boundary
- Soil Sample Location ; Cu, Zn, Pb, Ag, Mo, Au
- Silt Sample Location ; Cu, Zn, Pb, Ag, Mo, Au
- Rock Sample Location ; Cu, Zn, Pb, Ag, Mo, Au

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

12,875

*Robert Baerg
May 30/84*



REVISED	COOPER CREEK - CLEARBROOK MINING LTD. OPTION	
	SILT, SOIL & ROCK GEOCHEM ASSAYS (3)	
PROJ No 53	SURVEY BY R. BAERG	DATE MAY 1984
NTS 93H/4	DRAWN BY S K B	SCALE 1:10,000
DWG No	NORANDA EXPLORATION	
Map 3	OFFICE PRINCE GEORGE, B.C.	