

'85 - 4 - #13420
01/86

GEOLOGICAL MAPPING AND SAMPLING

OF

GRETCHEN MINERAL CLAIM (2756)

IN THE

SKEENA MINING DIVISION

NTS 93 E/12

LATITUDE 53° 29'

LONGITUDE 127° 43'

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,420

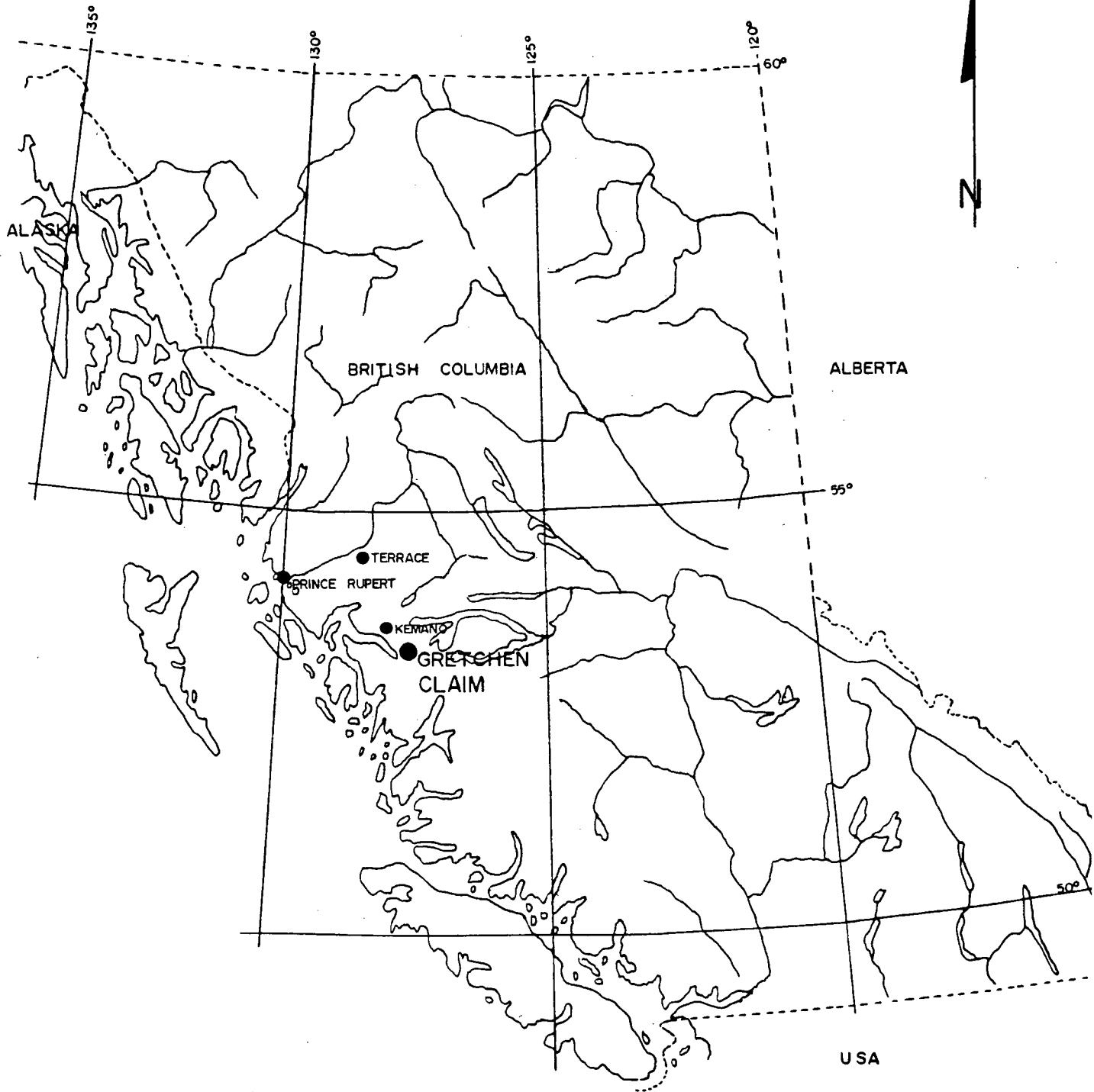
R.T. HENNEBERRY
NOVEMBER, 1984

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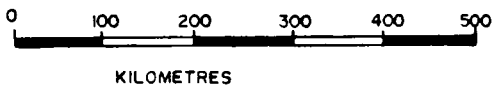
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LOCATION MAP
GRETCHEN CLAIM



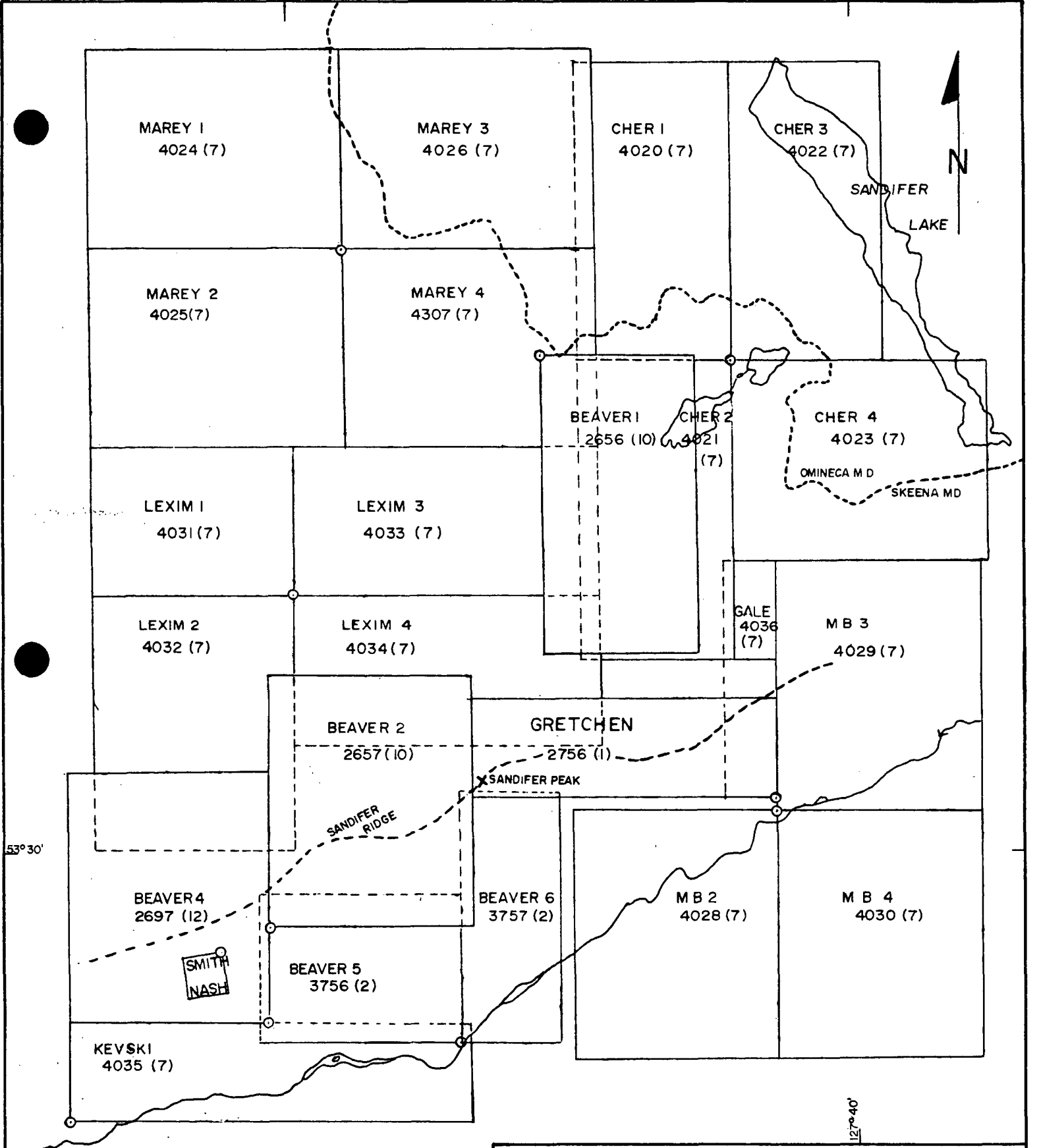
DR. BY: RT HENNEBERRY	SCALE:
DATE: NOVEMBER, 1984	APPRD. BY:
CHK'D. BY:	REV.:
DWG. NO. GRETCHEN-84-01	

INTRODUCTION

General Geography, Topography: The Gretchen mineral claim (2756) is located on NTS map sheet 93E/12E. The claim lies on the southeastern slope of Sandifer Peak, 16 kilometres southeast of Kemano, B.C. Property elevation ranges between 860 and 2065 metres above sea level. The area is at the eastern margin of the Coast Crystalline Belt. The topography is very rugged with steep-walled valley morphology typical. Patches of permanent snow and ice cover large parts of the property. Patchy alpine fir and dwarf alder comprise the vegetation.

Access to the property is via helicopter from Terrace, approximately 125 kilometres to the northwest. The Kemano-Thatsa Lake logging road passes to the south of the property, but is not directly tied into the main network of the British Columbia Highway System.

Ownership/History: The Gretchen mineral claim is a fourteen unit modified grid system mineral claim, 3.5 kilometres by 1 kilometre staked by Sveinson Way Mineral Services and presently owned by Terry Sveinson of Saint Albert, Alberta. Copper mineralization was discovered and staked in 1980. An initial geochemical survey uncovered weakly anomalous gold values, leading to the possibility of precious metal mineralization similar to the Smith-Nash Vein (minimum of 20,000 tons at 0.38 ounces per ton gold; Grove, 1982; maximum of 117,000 tons at 0.92 ounces per ton gold; Northern Miner, July 13, 1972, reported by Fox, 1980) approximately 5 kilometres to the west.



CLAIM MAP SANDIFER PEAK AREA B. C.
 MODIFIED FROM BCMEMPR CLAIM MAPS M93E/05E,05W,12E,12W
 DRAWN BY RT HENNEBERRY
 FIGURE GRETCHEN 84-02

Summary: Geology of the Gretchen property consists of shallow dipping siliceous tuff and andesite beds of the mid-Jurassic Hazelton Group intruded by upper-Jurassic granodiorites of the Coast Plutonic Belt.

Anomalous copper and gold values were noted over a small area of the property during initial geological work in 1981. Snow conditions at the time allowed only a small portion of the Gretchen claim to be prospected in 1981 (Way, 1982). The aim of the 1984 program was to attempt to prospect and map the remaining property area for precious metals. Snow conditions again created problems, with the largest part of the property remaining unprospected due to snow cover. A total of 23 samples, 17 rock samples and 6 soil samples, were geochemically tested for gold and silver. An area 1000 metres by 150 metres was mapped at a scale of 1 to 10,000.

Although no anomalous values were obtained in 1984, the property should be kept, as the largest part of the property remains to be prospected. Gretchen claim's favorable geological location and weakly anomalous gold values (from 1981 survey, Way, 1982) argue for a geological study of the remainder of the property. The proposed budget for this 1985 program is \$9890. Perhaps this work should be attempted in late August to mid September in the hope that snow conditions will be considerably improved over those of mid October.

REGIONAL GEOLOGY

The Gretchen mineral claim lies on the eastern boundary of the Coast Crystalline Complex in the transition zone to the Intermontane Belt. The rocks of the area consist of mid-Jurassic meta-volcanics and meta-sediments of the Hazelton Group (Duffell, 1959). The lithology of the Hazelton Group is massive, green to purple andesites, not less than 900 metres thick, overlain by at least 750 metres of greywackes, argillites, minor limestones and cherts, with minor andesites and water-lain tuffs, overlain again by at least 1800 metres of volcanic flows, tuffs and breccias (Duffell, 1959). The Hazelton in the immediate property area consists of andesites and siliceous tuffs, probably representing the upper unit. These rocks are regionally metamorphosed to greenschist facies. The meta-volcanics are intruded by a granodiorite probably related to the upper-Jurassic Coast Plutonic Belt (Duffell, 1959).

PROPERTY GEOLOGY

A map of the geology of the southeastern portion of the Gretchen claim (at a scale of 1:10000) is attached as Figure Gretchen 84-03. An east-west cross section (Figure Gretchen 84-05) is also attached. A description of the units as they appear on the property follows below.

Granodiorite: The granodiorite is greenish-pink in color. Composition is 15-25% mafics (altered to chlorite), 50% plagioclase feldspar, 20% potassium feldspar and 10-15% quartz. The porphyritic feldspar laths range in size to 1 centimetre. Weak

clay alteration was noted in the feldspar. The mafics are presently completely altered to chlorite, though original composition appears to have been 15-18% amphibole and 7-10% biotite. A strong lineation is noted in the granodiorite, which appears to make a steep contact with the intruded meta-volcanics and meta-sediments. One granodiorite dyke was noted in the mapping.

Andesite: The andesite, dark green in color, is fine grained (less than 1 millimetre). No lineation was noted in the andesite. Sericite appears on fracture surfaces, suggesting hydrothermal activity. Chlorite and local carbonate were also noted on fractures. The andesite strikes east-west and dips 25° to the north. Traces to 1% pyrite has been noted in the andesite. Traces of malachite have been noted on fractures.

Siliceous Tuff: The siliceous tuffs are the most common unit on the property. They strike east-west and dip 25° to the north, and are interbedded with the andesite. A strong lineation of 2 to 20 millimetre bands of pink (potassium feldspar ?) and dark (mafic ?) minerals mark the tuffs. They can be pink-white, rusty brown (gossanous ?) or green in hand specimen. The unit is very fine-grained (less than 1 millimetre), making mineral identification difficult. Chlorite or limonite mask all textures when present. Fracture epidote and minor sericite has been noted as well. Trace to 5% pyrite, trace to $\frac{1}{2}$ % chalcopyrite, traces of galena, and traces of malachite on fractures have been noted in the tuff.

Green sericite schists were noted as angular float on the property as well. No outcropping of this unit was noted in the mapping. Angular quartz float is fairly common in the talus on the higher slopes. No in place quartz veins were noted in the mapping. The large volume of angular quartz noted in the talus (approximately $\frac{1}{2}$ to 1 percent) suggests that the source of the quartz is proximal, as there would be no glacial transportation high up on the talus slopes where the quartz is found. Strong iron-staining and 1-5% vugginess mark the quartz float. Sulfides to 5% (predominantly pyrite) has been noted in some specimens.

Structure appears to play only a minor role in the property geology. The contacts between the andesite and tuff units are sharp. The contact between the volcanics and the intrusive was not noted in outcrop, although the contact appears to be fairly steep. No faulting or folding was noted on the property.

1984 PROGRAM

The purpose of the 1984 program was to map as much of the property as snow conditions would allow, and sample for gold and silver. To this end, the southeastern portion of the claim was mapped at 1:10000. Lithology, alteration, structure, veining and mineralization were the features noted in the mapping. No in-place quartz veining was noted, although $\frac{1}{2}$ to one percent angular quartz float was noted in the talus.

Chlorite, clays, minor sericite and carbonate, and fracture epidote were noted in the mapping, suggesting that hydrothermal activity was associated with the emplacement of the granodiorite.

Very little mineralization was noted in the rock units, with the exception of the rusty tuff unit. The pink-white and green siliceous tuff units carried only traces of pyrite. The rusty brown siliceous tuff carried 1 to 5 % pyrite, suggesting a differing porosity/permeability to the surrounding units.

A total of 6 samples were taken from the rusty tuff unit. Three samples were angular float, presumed to have come from an outcropping of this unit higher up on Sandifer Ridge (presently under snow cover) and three samples from the outcropping presently accessible. The unit was sampled for precious metals, looking for either a replacement or stratiform precious metal zone in the volcanics. No significant values were noted.

Three samples were taken from the pink-white siliceous tuff and two samples were taken from the green chloritic siliceous tuff. These samples were taken to establish background values, which appear to be 5 ppb gold and 0.1 ppm silver. These values are within the limits of normal crustal abundances.

Six samples were taken from the angular quartz float found during mapping, and geochemically tested for gold and silver. All samples showed limonite staining and 1-5% vugginess, with only one sample showing fresh sulfides. No significant values were noted.

As well a short geochemical soil line was run across the rusty tuff unit. Six samples were taken from a poorly developed soil horizon. The samples were geochemically tested for gold and silver looking for either a replacement or stratiform precious metal zone in the tuff. All values were within the range of normal crustal abundances for gold and silver.

DISCUSSION

The Gretchen mineral claim lies on the eastern margin of the Coast Crystalline Belt, in an area of known precious metal occurrences. The work by Fox (1980) and Grove (1982) proves that significant mineralization does exist in the immediate area, as the Gretchen claim is within five kilometres of the Smith-Nash Vein. Way (1982) reports weakly anomalous gold values on the ground immediately south of the Gretchen claim, as well as on the southeast corner of the claim itself. Although nothing of significance was noted in the 1984 work, it must be noted that this work explored only a small portion of the claim.

Therefore it is the writer's belief that further work on the Gretchen claim is very much warranted. This work should be concentrated in two distinct areas. The first is to map the remaining unmapped area of the claim, looking for quartz veins as well as potential stratiform precious metal horizons in the volcanics. The potential also exists for a copper-gold porphyry deposit, as fracture copper (malachite staining) associated with weakly anomalous gold values was noted by Way (1982) in the area immediately south of the Gretchen claim block. Indicators of hydrothermal activity have been noted by both the present author and by previous authors. Disseminated pyrite and chalcopyrite have been noted in the southeast corner of the Gretchen claim as well as to the south of the property (Way, 1982). Good disseminated mineralization has also been noted in the rusty tuff unit by the present author.

This rusty tuff unit is the second area requiring more

detailed work. The large percentage of disseminated sulfides (compared to the surrounding beds) is very significant. As this bed has localized the sulfide mineralization, the possibility exists that this unit could also have localized precious metal mineralization as a replacement-type zone, related to porosity, to permeability, or to structural preparation; or as a stratiform precious metal horizon during deposition of the rusty tuff unit.

Therefore, the following work is recommended:

- 1) Complete mapping of the property, looking for quartz veins, alterations and mineralization, both in the quartz veins and in the rock units themselves. Bear in mind the possibility of replacement or stratiform precious metal horizons in favorable units, and the possibility of porphyry-type copper-gold mineralization as well.

- 2) Detailed mapping of the rusty tuff horizon. The mapping should be looking for structure and alteration, as well as precious metal mineralization. To this end detailed geochemical sampling should be carried out on the rusty tuff unit. Also look for repeating rusty tuff units in the volcanics further up the ridge toward Sandifer Peak.

MINERAL EXPLORATION PROPOSALGRETCHEN MINERAL CLAIM, 1985

**In an effort to have optimum snow conditions, work should be conducted in early to mid September, 1985. **

PROFESSIONAL SERVICES

1 geologist	- 2 days preparation 5 days property 3 days documentation	10 days at \$200 per day	2000.00
1 assistant	6 days at \$150 per day		900.00

TRANSPORTATION

Vancouver to Terrace return (2 people)		650.00
Helicopter	5 hours at \$500 per hour	2500.00

SUPPLIES

Food-2 people-5 days \$25 per person per day	250.00
Geological Supplies	100.00

ASSAYING

200 Samples at \$11 per sample	2200.00
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TOTAL

8600.00

Add 15 percent Contingency

1290.00

TOTAL PROPOSED 1985 BUDGET

9890.00

REFERENCES CITED

- 1) Duffell, S. (1959). Whitesail Lake Map Area, British Columbia. Geological Survey of Canada Memoir 299. 107p.
- 2) Fox, M. (1980). Geological, geochemical and geophysical report, Sandifer Peak Prospect, Skeena Mining Division for Golden Rule Resources Limited. British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 8834. 13p.
- 3) Grove, E.W. (1982) Geological report and work proposal on Bristol Resources Corporation's Beaver II and Beaver IV Claims in the Kemano area, northwestern British Columbia. British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 10,747. 19p.
- 4) Way, B. (1982). Geochemical prospecting and geology of the Neck Prospect, Skeena Mining Division for Sveinson Way Mineral Services Limited. British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 10,086. 12p.
- 5) Woodsworth, G.J. (1980). Geology Whitesail Lake map area, British Columbia. Geological Survey of Canada Open File 708.

STATEMENT OF COSTS

PROFESSIONAL SERVICES

T. Henneberry	Project Planning	1.5 days at \$175	
	Property	1.5 days at \$175	
	Documentation	3.0 days at \$175	
		6.0 days at \$175	1050.00
C. Shearer	Property	1.5 days at \$175	262.50

TRANSPORTATION

Vancouver to Terrace return	2 people at \$306.75 per	613.50
Helicopter	2.3 hours at \$505 per hour	1161.50
Motel	one night Terrace	47.08

SUPPLIES

Maps and Reports	19.75
Reproductions	20.00

ASSAYING

23 samples at \$11 per sample	253.00
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TOTAL COST OF 1984 PROGRAM	3427.33
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STATEMENT OF QUALIFICATIONS

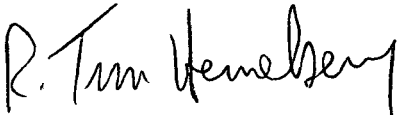
I, Ralph Timothy Henneberry, am a consulting geologist residing at 3363 Anzio Dr. Vancouver, B.C.

I am a graduate Of Dalhousie University (1980) with a Bachelor of Science Degree specializing in geology and have practised my profession continuously since graduation.

I am an associate member of the Geological Association of Canada.

I am presently employed by Terra Mines Limited of Edmonton, Alberta as Senior Geologist at Terra's Bullmoose Lake Project in the Northwest Territories.

I have no interest, either direct or indirect, in the Gretchen Mineral Claim presently owned by Terry Sveinson of Saint Albert, Alberta.


R. Tim Henneberry, B.Sc.

November 27, 1984.

APPENDIX ONE SAMPLE DESCRIPTIONS

sample no.	Description
51151	Float - Rusty Tuff - 3% py, local cpy, aspy
51152	In Place - Banded Siliceous Tuff- Tr py
51153	Float - Quartz Vein- 3% py, vuggy
51154	Not Taken
51155	In Place- Siliceous Tuff- No Visible Mineralization
51156	In Place- Siliceous Tuff - No Visible Mineralization
51157	Float - Rusty Tuff - 2% Disseminated Sulfides
51158 to 51163	- soils
51176	Float - Quartz Vein - 5 % py, Vuggy
51177	In Place- Siliceous Tuff- No Visible Mineralization
51178	Float - Quartz Vein - 1% py
51179	Float - Quartz Vein - Bull Quartz, Tr py
51180	Float - Quartz Vein - 1/2% py, Vuggy
51181	Float - Quartz Vein - 1/2% py, Tr Mo, Vuggy
51182	Float - Rusty Tuff - 2% Disseminated Sulfides
51183	Float - Rusty Tuff - 2% Disseminated Sulfides
51184	Float - Green Sericite Schist - Tr py
51185	In Place - Rusty Tuff- 2% Disseminated Sulfides
51186	Soil

ABBREVIATIONS

py - pyrite	cpy- chalcopyrite
Mo - molybdenite	aspy- arsenopyrite
Tr - trace	

The disseminated sulfides in the rusty tuff unit were extremely oxidized making accurate identification difficult.

GEOCHEMICAL REPORT

TO: Fred Sveinson
 14 Beaverbrook Court
 St. Albert, Alberta

FILE NO.: 84-324

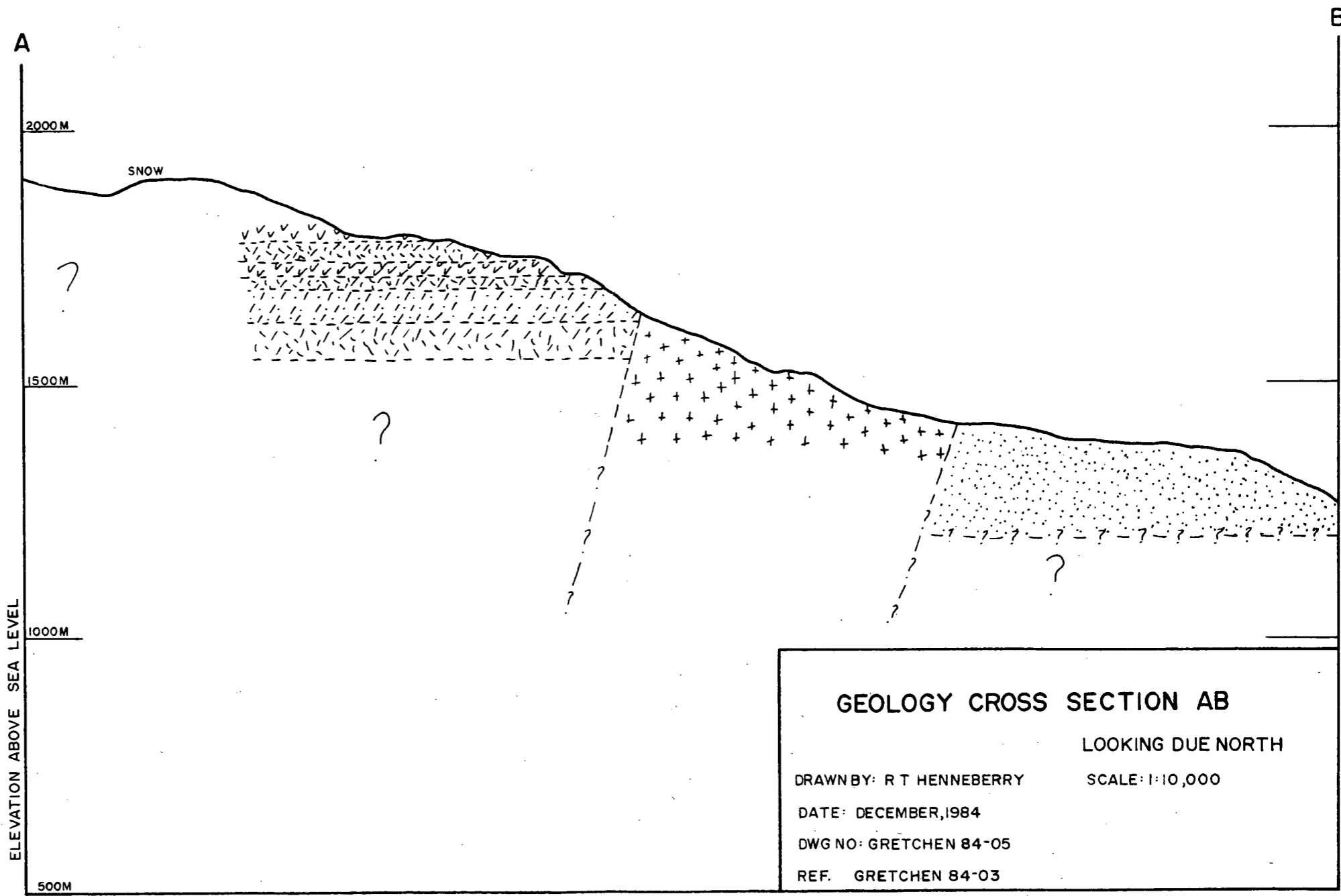
DATE: October 16, 1984

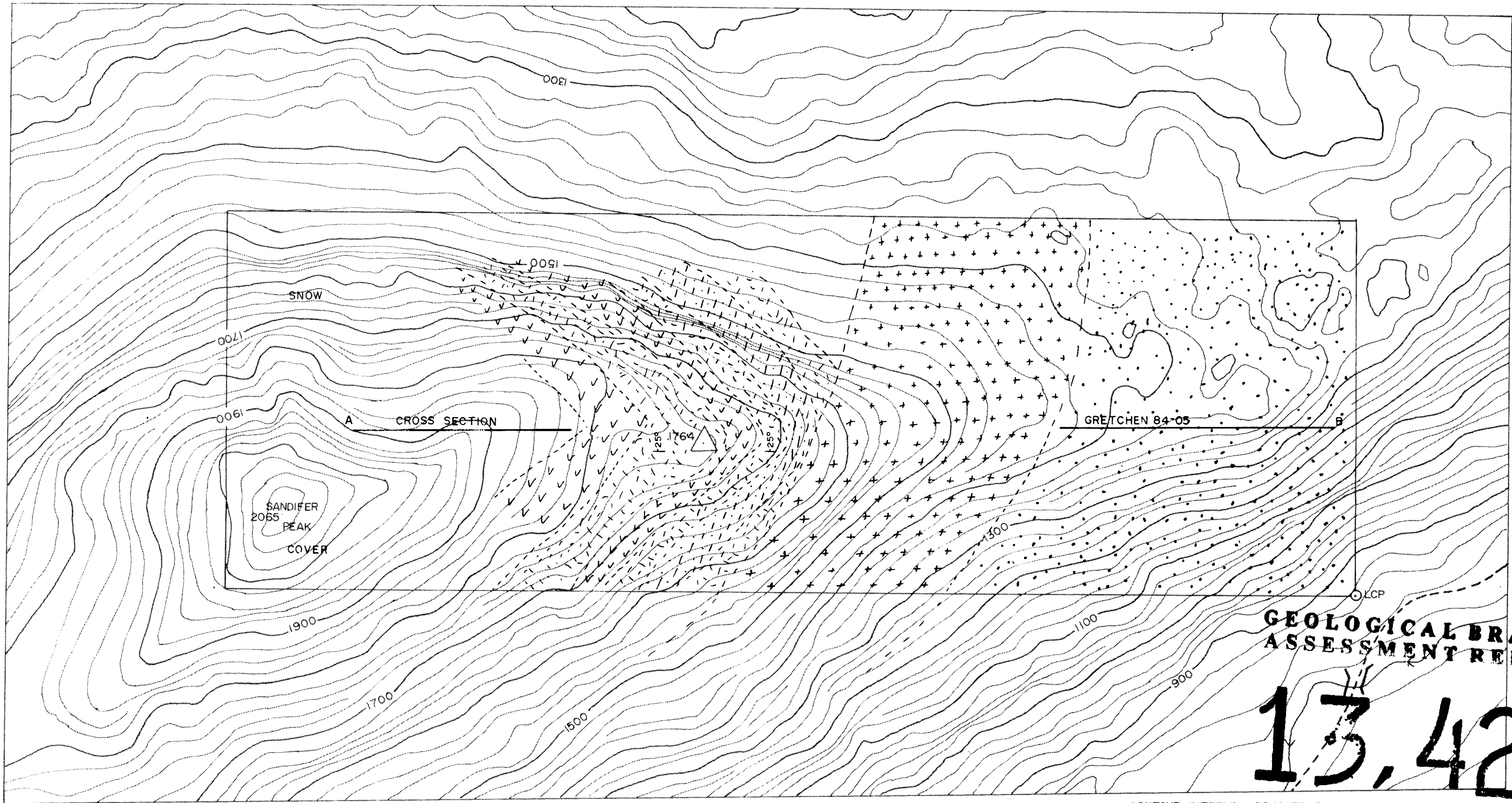
ATTENTION:

PROJECT:

Sample Description	Au ppb	Ag ppm
51151	L5	L.1
51152	L5	L.1
51153	L5	1.2
51155	L5	L.1
51156	L5	L.1
51157	L5	.3
51176	L5	L.1
51177	L5	L.1
51178	L5	.2
51179	L5	L.1
51180	L5	.2
51181	L5	L.1
51182	L5	L.1
51183	L5	L.1
51184	L5	L.1
51185	L5	L.1
51158	L5	L.1
51159 (-40)	L5	L.1
51160	L5	L.1
51161 (-40)	L5	L.1
51162	L5	L.1
51163	L5	L.1
51186	L5	L.1
"L" indicates "less than"		
Au: fire assay, AA. Ag: 20% nitric acid digestion, AA.		

Neil Juge





**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

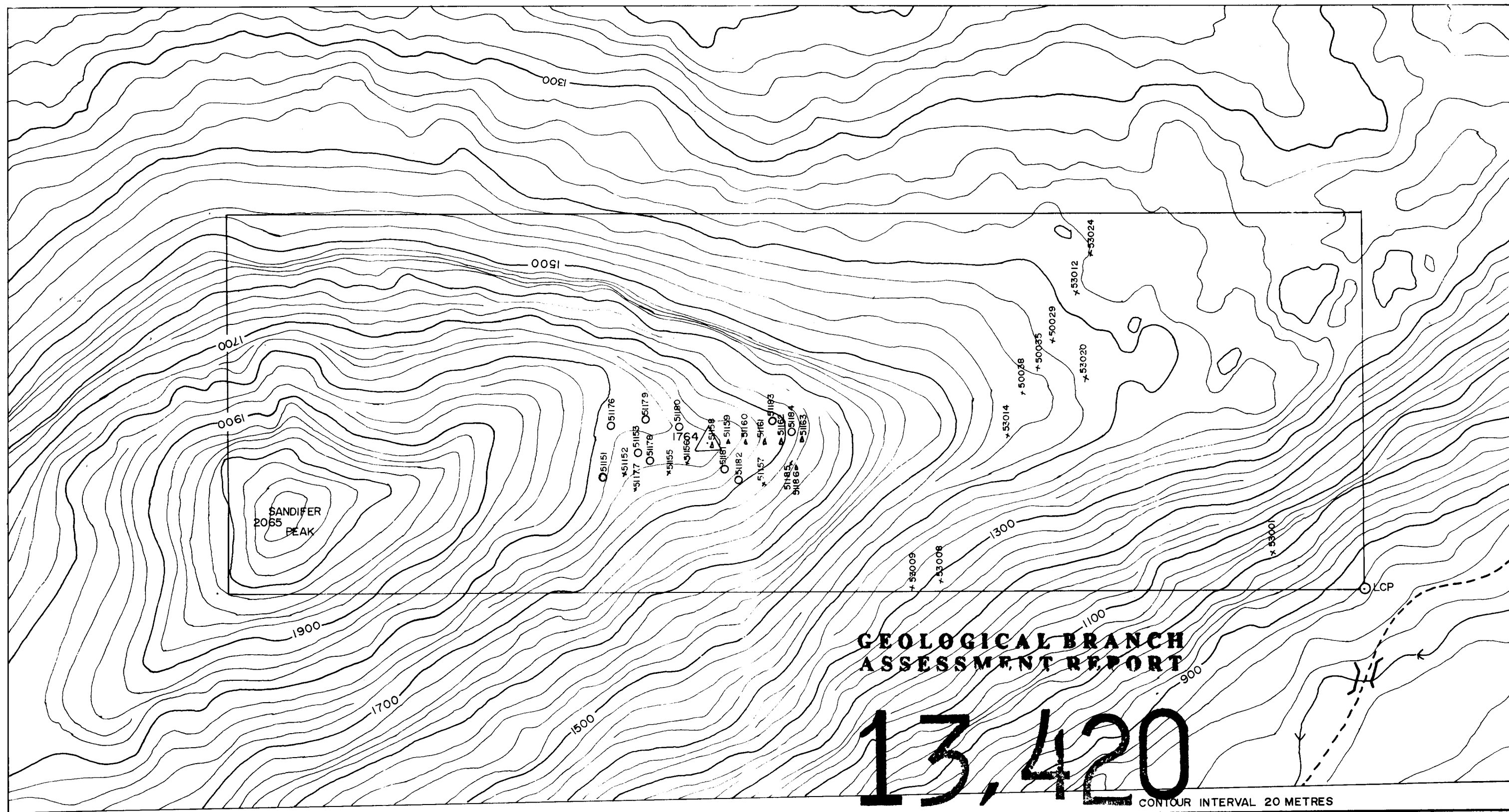
13,420

CONTOUR INTERVAL 20 METRES

LEGEND

- | | | | | | |
|---------------|--------------------------|-------|-----------------------|-------|--------|
| +++ | MESOZOIC GRANODIORITE | - - - | CONTACT (ASSUMED) | - - - | ROAD |
| Jagged lines | JURASSIC- HAZELTON GROUP | - - - | STRIKE, DIP (BEDDING) | ~ ~ ~ | CREEK |
| Wavy lines | ANDESITE | - - - | |)) | BRIDGE |
| Dotted lines | SILICEOUS TUFF | | | | |
| Cross-hatched | RUSTY TUFF | | | | |
| Stippled | QUARTZITE | | | | |

GEOLOGY OF GRETCHEN MINERAL CLAIM			
DR. BY:	RT HENNEBERRY	SCALE:	1:10,000
DATE:	DECEMBER, 1984	APPRD. BY:	
CHK'D. BY:		REV:	GSC OPEN FILE 708
DWG. NO.:	GRETCHEN 84-03		



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

13,420

CONTOUR INTERVAL 20 METRES

SAMPLE DATA			
SAMPLE No.	TYPE	Au(ppb)	Ag(ppm)
51151	Float	L-5	L-0.1
51152	In Place	L-5	L-0.1
51153	Float	L-5	1.2
51155	In Place	L-5	L-0.1
51156	In Place	L-5	-0.1
51157	Float	L-5	-0.3
51158	Soil	L-5	L-0.1
51159	Soil	L-5	L-0.1
51160	Soil	L-5	L-0.1
51161	Soil	L-5	L-0.1
51162	Soil	L-5	L-0.1
51163	Soil	L-5	L-0.1

L indicates Less Than

1981 SAMPLE DATA			
SAMPLE No.	TYPE	Au(ppb)	Ag(ppm)
50029		ND	1.0
50035		5	0.2
50038		ND	0.4
53001		ND	1.0
53008		ND	0.2
53009		ND	0.2
53012		ND	0.2
53014		ND	0.2
53020		ND	0.2
53024		10	0.2

ND indicates Not Detectable

**ASSAY DATA OF
GRETCHEN MINERAL CLAIM**

DR. BY: RT HENNEBERRY
DATE: DECEMBER, 1984
CHK'D. BY:
DWG. NO: GRETCHEN 84-04

SCALE: 1:10,000
APPRD. BY:
REV: 1981 DATA FROM WAY (1982)