83-#791 - 11779
12/84

ASSESSMENT REPORT

GEOLOGICAL, GEOCHEMICAL SURVEY AND TRENCHING

TOT GROUP

ATLIN MINING DIVISION

TATSAMENIE LAKE AREA, B. C.

N.T.S. 104K/TULSEQUAH MAP SHEET

58°19'N

132°28'W

OWNER: CHEVRON CANADA LIMITED

OPERATOR: CHEVRON CANADA RESOURCES LIMITED

AUTHORS: DEREK BROWN
GODFREY WALTON

November, 1983

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INTRODUCTION

A total of 24.5 man-days was spent geological mapping, prospecting and soil sampling on the TOT claims. Work commenced on July 25 and was completed by September 9, 1983.

LOCATION AND ACCESS

The TOT group is situated at 58°19'N and 132°28'W, on the northwest end of Tatsamenie Lake (Figures 1 and 2). The group is 150 km southeast of Atlin, B. C. A Hughes 500D helicopter provided access to the property from a base camp located at Bearskin Lake, 16 km to the south and also Trapper Lake, 15 km to the north.

CLAIMS

The TOT group consists of the TOT 1 to 4 claims which were staked during the 1983 field season as follows:

CLAIM	RECORD NO.	RECORD DATE	NO. UNITS
TOT 1	1958	July 4,1983	20
TOT 2	1959	"	20
TOT 3	1960	"	20
TOT 4	1961	"	20

The TOT Group covers ground previously staked in 1981 as the TAT 1, TAT 4, TUT 1 and TUT 2 claims. No work was filed for these claims and they were allowed to lapse in 1982.

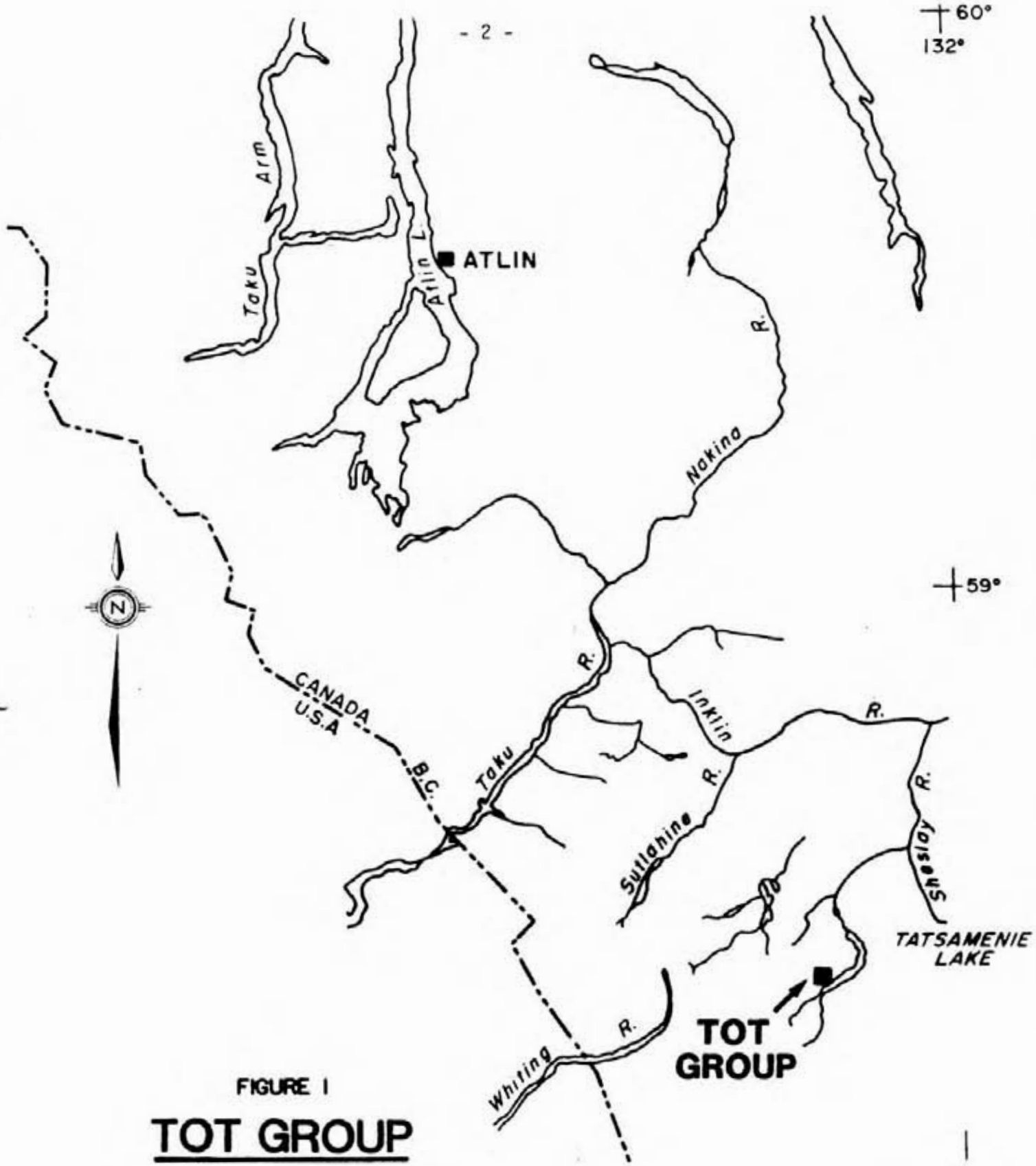

FIGURE 1

TOT GROUP

LOCATION MAP

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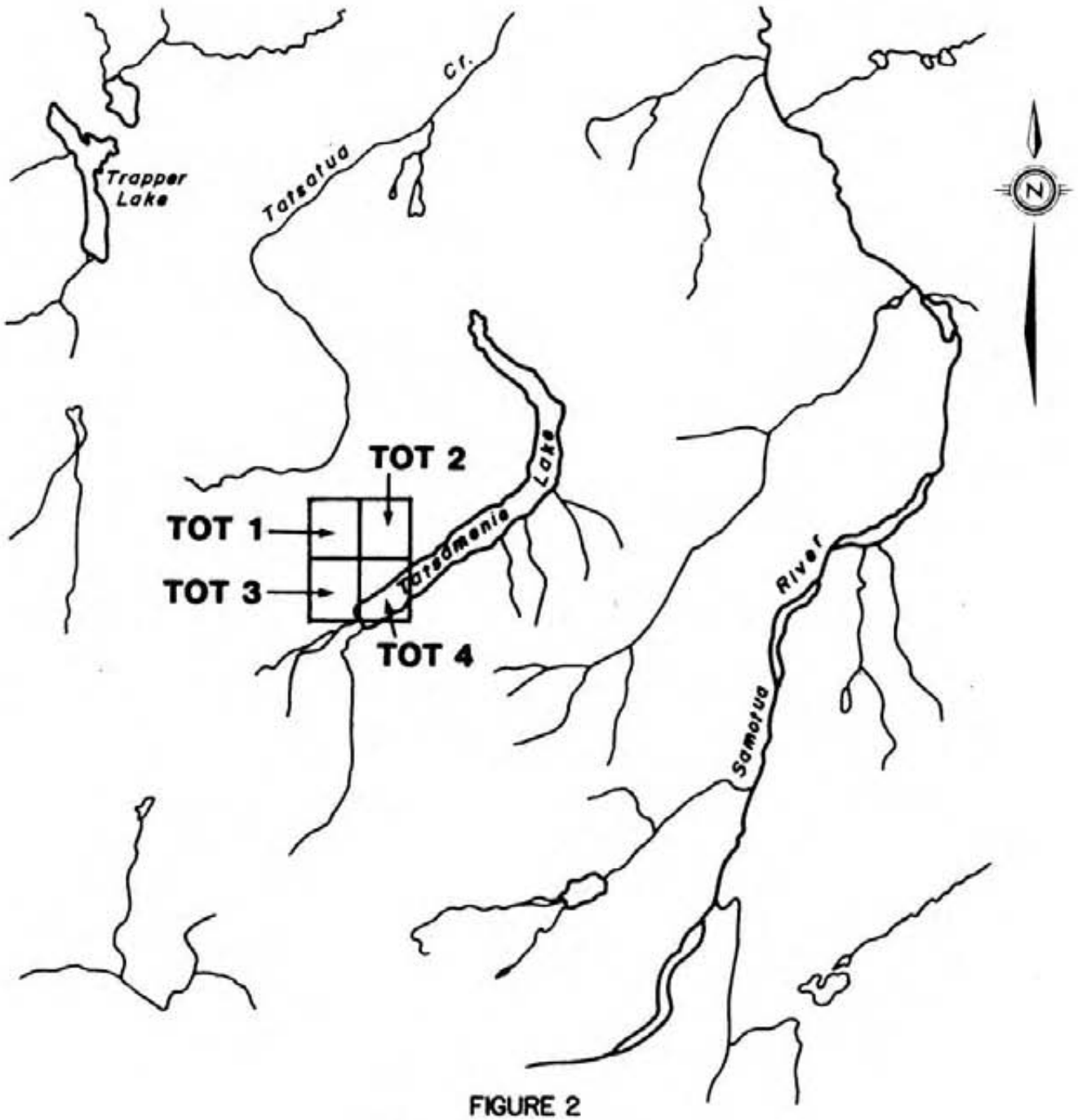

FIGURE 2

TOT GROUP

DETAILED LOCATION MAP

0 10 Km

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REGIONAL GEOLOGY

The following discussion is based on Souther's G.S.C. Memoir 362, "Geology and Mineral Deposits of Tulsequah Map-Area, British Columbia".

The region north and south of Tatsamenie Lake consists of Pre-Upper Triassic rocks. This assemblage is composed of a variety of volcanic and sedimentary lithologies. Within the cores of north-south trending antiforms is massive to highly folded, grey Permian Limestone. Conformably above the limestone are meta-sedimentary rocks, phyllites and greenstone.

Lower and Middle Triassic (?) diorite batholiths intrude the Stikine rocks 5 km west and northwest of Tatsamenie Lake. A Jurassic-Cretaceous granodiorite stock intrudes the greenstone and limestone south of the lake. A fault bounded sliver of Permian ultramafic rocks crops-out on the northeast corner of the claims. West of the ultramafics are subhorizontal pyroclastic rocks of the Sloko Group, a Cretaceous-Tertiary volcanic sequence.

CLAIM GEOLOGY

Approximately 80% of the TOT claims consists of Pre-Upper Triassic greenstone, phyllite and limestone. The northwest corner is Upper Triassic Stuhini Group volcanics according to Souther, 1971.

Pre-Upper Triassic Rocks:

The basic stratigraphy appears to be Permian limestone overlain by siliceous phyllite/schist overlain by a thin limestone horizon and finally chlorite schist and greenstone.

The Permian limestone forms grey cliff faces on the northwest end of Tatsamenie Lake. The well layered limestone is tightly folded. Souther (1971) suggests it forms a north-south trending anticline that extends 8 km south.

Creamy white dolomitic limestone exposed in Tony Creek (Figure 3) is re-crystallized and unaltered. This may be related to the limestone on Tatsamenie Lake.

The siliceous phyllite/schist unit is well exposed along the north shore of Tatsamenie Lake. It weathers grey with rusty brown patches.

Two rock samples collected in 1981 from a rusty zone contained 4125 ppb Au and 4005 ppb Au. The trench illustrated on Figure 4 was established at the sample location to outline the mineralization.

A hornblende-biotite-feldspar porphyry dyke cuts the siliceous unit and it is considered to be Cretaceous or younger.

Foliated, platy minerals are sericite and chlorite. These fine-grained rocks are probably metamorphosed siliceous sediments - greywacke to quartzite compositions. Limestone layers (beds) less than 1 m thick are found within the siliceous schist unit. Pink K-spar-quartz-muscovite-hematite veins and lenses parallel to the foliation are common in the siliceous unit.

The greenstone unit is both massive and foliated. Augite gabbro and chlorite schist are common. Greenstone is exposed on the west and northeast part of the claims.

Quartz-carbonate alteration is widespread throughout the claims and described in a following section of the report.

Massive diorite intrudes the Pre-Upper Triassic rocks 500 m west of the LCP and south of Tatsamenie Lake. The diorite weathers grey and it is essentially unaltered. Souther (1971) indicates it may be Post Middle Jurassic age.

MINERALIZATION AND ALTERATION

The quartz-Fe-carbonate alteration zones within the greenstone unit weather buff to brown. A large area north of Tatsamenie Lake has been affected by this hydrothermal system. Quartz-carbonate veins less than 1 m wide cut altered greenstone in Tony Creek.

Souther's (1971) geology map indicates an antimony showing on Tony Creek. Traces of malachite staining are found in unaltered and altered greenstone. Tetrahedrite-malachite-azurite in fractures and veinlets are exposed within the siliceous schist unit.

Vuggy quartz vein float in Tony Creek is pyritized and silicified. The float is brecciated with a chalcedony and quartz matrix. Pyrite is finely disseminated throughout the rock. Massive sulfide veins within greenstone float are also common.

GEOCHEMICAL SURVEY OF THE CLAIMS

Forty-seven rock samples and two hundred and forty-one soil and talus fine samples were collected from the TOT Group. The soil sample locations are plotted on Figure 5 and the geochemical results on Figures 6 to 9. Rock samples are plotted on Figure 3 and their results are listed in Table 1.

Rock samples were placed in heavy duty plastic rock sample bags. Soil and talus fine samples were placed in kraft wet-strength soil bags and dried. Rock and soil samples were then sent to Chemex Labs Limited of North Vancouver.

Soils samples were further dried and sieved, with the -80 mesh fraction retained for analysis. Rock samples were crushed, dried and pulverized to -100 mesh. For Au determination, a fire assay - atomic absorption technique is used with the fire assay bead being dissolved in HCl and HNO_3 then analyzed by conventional atomic absorption techniques. For Ag, a mixture of $HClO_4$ and HNO_3 is used to digest the sample, which is followed by atomic absorption spectrophotometry. For arsenic a 1.0 gram sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with KI and mixed. A portion of the reduced solution is converted to arsine with $NaBH_4$ and the arsenic content determined using flameless atomic absorption. For Sb a 2.0 gm sample is digested with conc. HCl in hot water bath. The iron is reduced to Fe^{+2} state and the Sb complexed with I^-. The complex is extracted with TOPO-MIBK and analyzed via A.A.

GEOCHEMICAL RESULTS

Gold, silver, arsenic and antimony values for soil samples are plotted on Figures 6 to 9 respectively. Background gold values are considered to be any values less than 25 ppb. 5% of the samples are greater than 100 ppb; the highest value is 600 ppb. The highest results are located 200 to 400 meters south of the LCP. No silver values are anomalous. The area is enriched in arsenic; 27% of the samples carry more than 100 ppm and 3 samples are greater than 1000 ppm near the LCP. Antimony is also abundant, 25% of samples ran over 10 ppm and 2 samples are greater than 100 ppm. High antimony values are probably related to stibnite bearing veinlets in the altered rocks.

Gold, silver, arsenic, antimony and copper values for rock samples are listed in Table 1 and on Figure 4. Tetrahedrite and stibnite crystals along veinlets are considered to be the source of a 93.0 ppm silver and greater than 1000 ppm antimony anomaly in sample DB-95. This dolomitic limestone has associated malachite and azurite.

Anomalous values of 9200, 3600, 4100 ppm arsenic and 40, 425, 145 ppm antimony are probably a result of very fine disseminated crystals of arsenopyrite and stibnite respectively. One sample is a chlorite schist cut by quartz-iron-carbonate veins. The last two samples are dark grey, rusty weathering, pyritic (2-4%) chalcedony breccia float from "Tony Creek".

A chalcopyrite vein 5 to 10 cm wide (sample DH-975) contains 825 ppb gold. The vein cuts chlorite schist. Sample JA-128 also consists of chalcopyrite stringers cutting phyllite, the 770 ppm antimony suggests there are traces of stibnite

TABLE 1

ROCK GEOCHEMISTRY

	Au	Ag	As	Sb	Cu
DB3T1-93	20	0.2	2700	4.2	
94	5	0.2	32	2.0	
95	35	93.0	200	>1000.0	
96	20	1.0	170	90.0	
97	5	0.8	24	56.0	
98	<5	0.2	15	10.0	
99	25	0.2	36	18.6	
100	<5	0.2	9200	40.0	
101	5	0.1	3600	425.0	
102	105	0.1	4100	145.0	
DH3T1-974	5	0.1	19	1.0	80
975	825	14.8	150	4.0	>10000
976	5	0.1	14	0.8	440
985	5	0.1	105	2.6	365
989	5	0.1	48	11.4	111
1016	5	0.1	2200	31.0	93
1017	5	0.1	73	0.4	13
JA3T1-128	10	1.0	410	770.0	3000
129	10	0.1	820	11.8	40
130	2375	0.1	275	8.4	16
131	30	0.1	19	1.2	9
132	20	0.1	16	1.0	9
133	15	0.1	2850	6.0	6
134	15	0.1	39	2.0	23
135	70	0.1	27	7.2	11
136	15	0.1	48	1.8	5
137	10	0.1	320	3.0	5
138	5	0.1	590	5.8	13
139	10	0.1	20	1.0	4
G3T1-146	10	0.1	77	4.4	12
147	25	0.1	94	5.6	13
148	25	0.1	10	1.0	3
149	160	0.1	3000	7.4	5
150	3625	0.1	430	7.2	4
151	120	0.1	2200	6.0	3
152	20	0.1	38	1.0	4
153	80	0.1	410	6.2	18
154	135	0.1	10	1.0	2
155	<5	0.1	20	0.4	3
156	5	0.1	16	1.8	26
157	5	0.1	250	4.0	15
158	10	0.1	210	4.6	14
159	<5	0.1	1450	63.0	13
193	<5	0.1	10	1.0	
194	<5	0.3	120	99.0	
195	5	0.1	10	2.2	
196	<5	0.1	45	6.0	
197	5	0.1	230	15.8	

crystals. Partially silicified phyllite samples (JA-130 and G-150) ran 2375 and 3625 ppb gold respectively.

CONCLUSIONS AND RECOMMENDATIONS

24.5 man-days were spent mapping and sampling the TOT Group. 241 soil and talus fine samples and 47 rock samples were collected from the claims.

An area 200-400 meters south of the LCP is anomalous in gold, arsenic and antimony. Spotty gold anomalies are associated with partially silicified, bleached and altered phyllite.

The trench illustrated on Figure 4 contains a narrow low grade zone of sub-economic gold mineralization.

More soil and rock samples should be collected to define anomalous areas. The altered phyllite could be trenched at high gold locations. Geological mapping should be continued to outline the alteration zones more accurately.

REFERENCE

Souther, J.G. (1971). Geology and mineral deposits of Tulsequah map-area, British Columbia. Geological Survey of Canada Memoir 362, 84 p.

1983 EXPLORATION COSTS

TOT GROUP

PERIOD: July 25 to September 9, 1983

1. LABOUR:

	Postion	Field Days	Office Days
G. Walton	Geologist	4	1
D. Brown	"	5	2
D. Hodge	Sampler	4	-
F. Wohlgemuth	"	3	-
J. Frank	"	3	-
J. Armstrong	"	2	-
B. Daniel	"	2	-
T. Zanger	"	0.5	-
J. Woods	"	1	-
		24.5	3

Average cost per field man day - 24.5 @$100.	$ 2,450.00
Average cost per office man day - 3 @$150.	450.00

2. ANALYSES:

Rock Assay:	Au and Ag 12 samples @$14.25	171.00
Rock:	47 samples @$17.65 each (For Au, Ag, As and Sb)	829.55
Soil:	241 samples @$16.15 each (For Au, Ag, As and Sb)	3,892.15

3. CAMP COSTS:

Total man days 24.5 @$60.00	1,470.00

4. HELICOPTER:

8.5 hrs. @$500. per hr. including fuel	4,250.00

5. DRAFTING:

5 man days $100. per day	500.00
	$14,012.70

1983 PHYSICAL WORK COSTS

TOT 4 CLAIM

PERIOD: July 27 and 28, 1983

TRENCHING COSTS:		
BLASTER:		
B. Dieter	2 days @$275/day	$ 550.00
J. Woods	1 day @$100/day	100.00
MATERIALS:		
Powder, E-Cord, and Caps		250.00
HELICOPTER:		
2 hrs. @$500/hr. including fuel		1,000.00
CAMP COSTS:		
3-man days @$60/day		180.00
Total Physical Work Costs		$2,080.00

STATEMENT OF QUALIFICATIONS

I, Derek Brown, graduated in May, 1981 with a B.Sc. (Hons. Geology) from Carleton University, Ontario. I have worked as a geologist since graduation and am presently employed on a temporary basis by Chevron Canada Resources Limited of Vancouver, B. C.

Derek Brown

DEREK BROWN

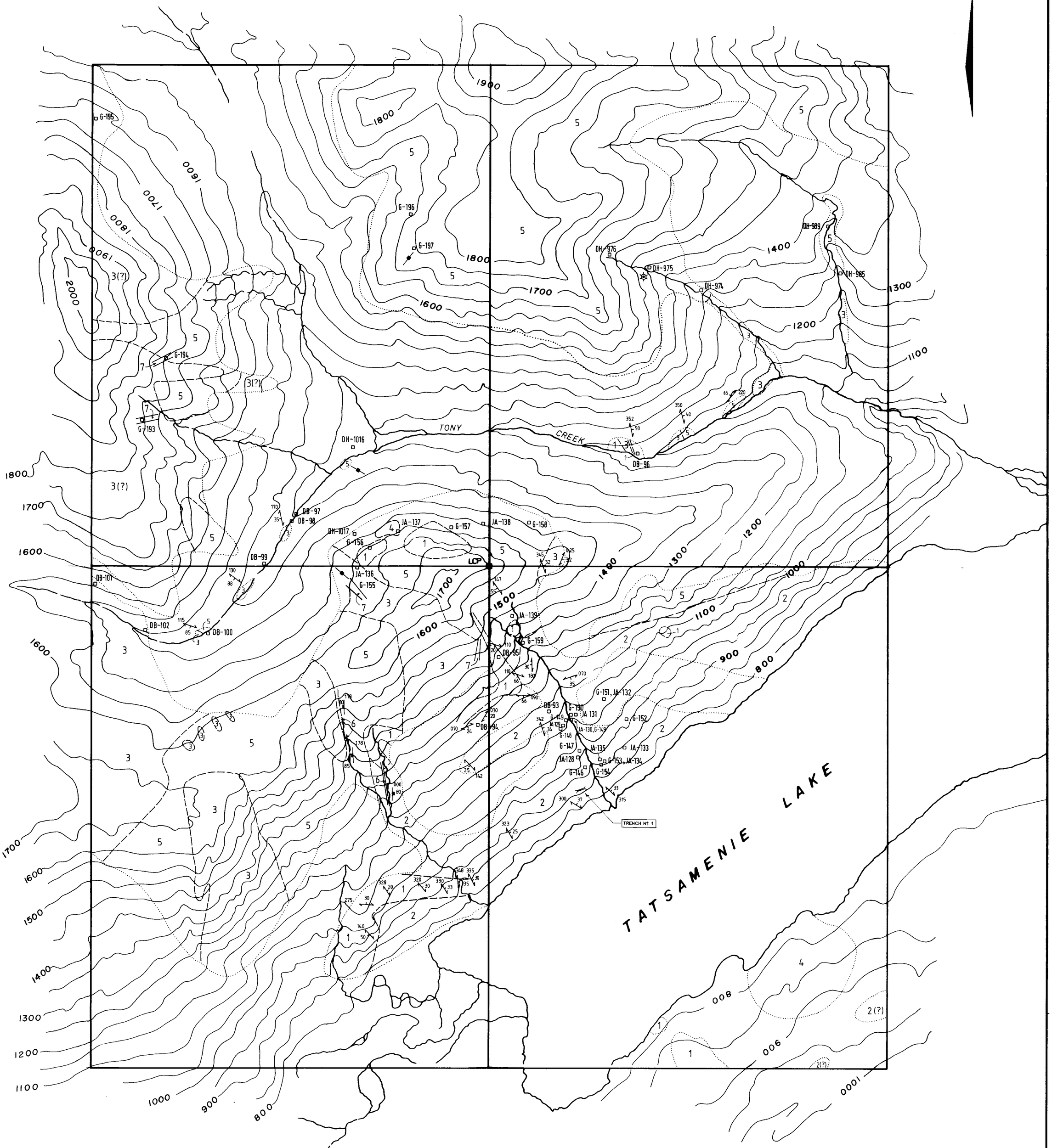
STATEMENT OF QUALIFICATIONS

I, Godfrey Walton, have worked as a geologist in British Columbia, Yukon, Northwest Territories, Alberta and Ontario since 1973. A B.Sc. (Hons. Geology) was received in 1974 from the University of Alberta and followed by a M.Sc. degree in geology from Queen's University in 1978. I am currently employed as a geologist with Chevron Canada Resources Limited of Vancouver, B. C.

I am a member of the Canadian Institute of Mining and Metallurgy, Exploration Geochemists and Mineralogical Association of Canada.

Godfrey Walton

GODFREY WALTON



LEGEND

TERTIARY

- 7 — RHYOLITE DYKE
- 6 — BASALT DYKE

AGE UNKNOWN

- 5 — UNDIFFERENTIATED QUARTZ-IRON-CARBONATE ALTERED GREENSTONE, PHYLLITE AND LIMESTONE

POST MIDDLE JURASSIC

- 4 — DIORITE

PRE-UPPER TRIASSIC

- 3 — GREENSTONE, CHLORITE PHYLLITE / SCHIST, AUGITE PORPHYRY
- 2 — SILICEOUS PHYLLITE / SCHIST, FELSIC METASEDIMENTS
- 1 — LIMESTONE-GREY, MASSIVE TO WELL LAYERED

SYMBOLS

- GEOLOGICAL CONTACT, APPROXIMATE
- LIMIT OF OUTCROP
- DYKE ATTITUDE
- FOLIATION
- ROCK SAMPLE LOCATION
- CHALCOPYRITE

0 200 400 600 M

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TOT CLAIM GROUP

GEOLOGY

FIGURE No. 3		PROJECT No. M504	
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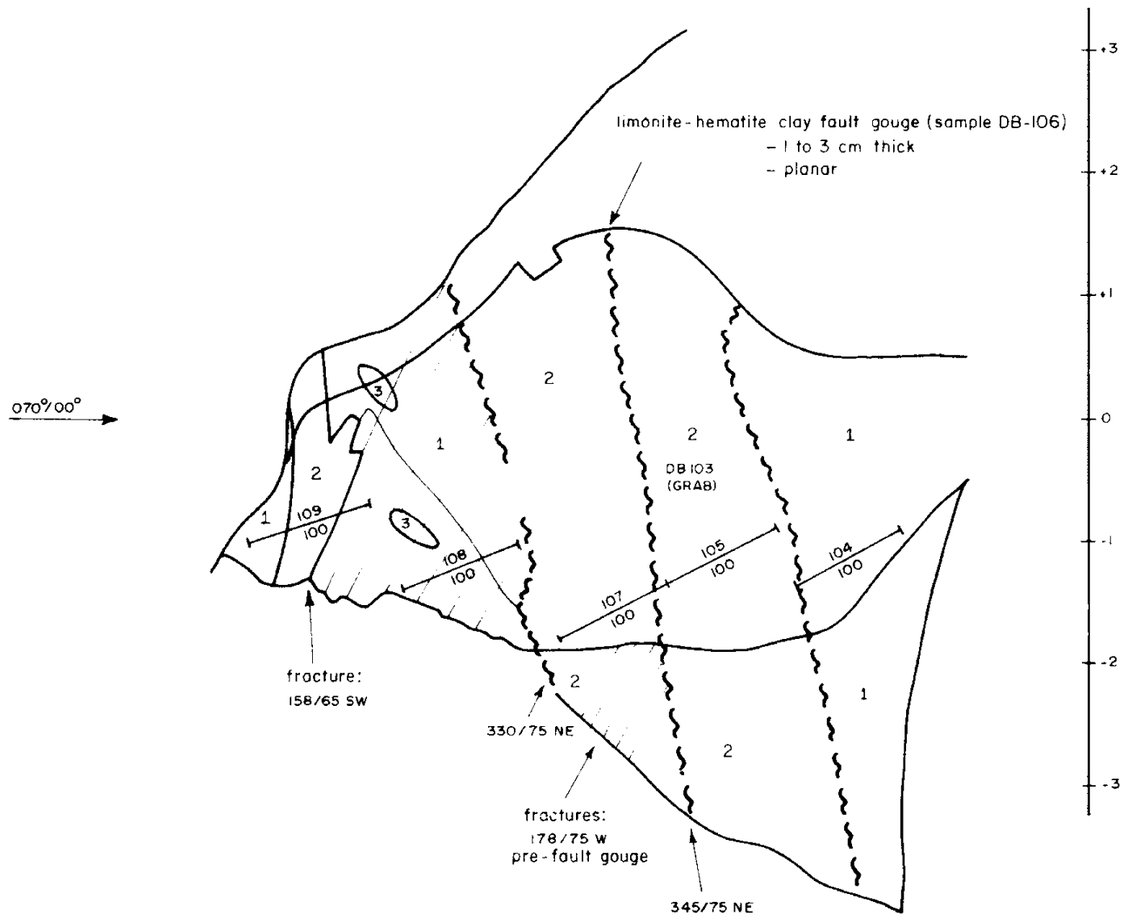
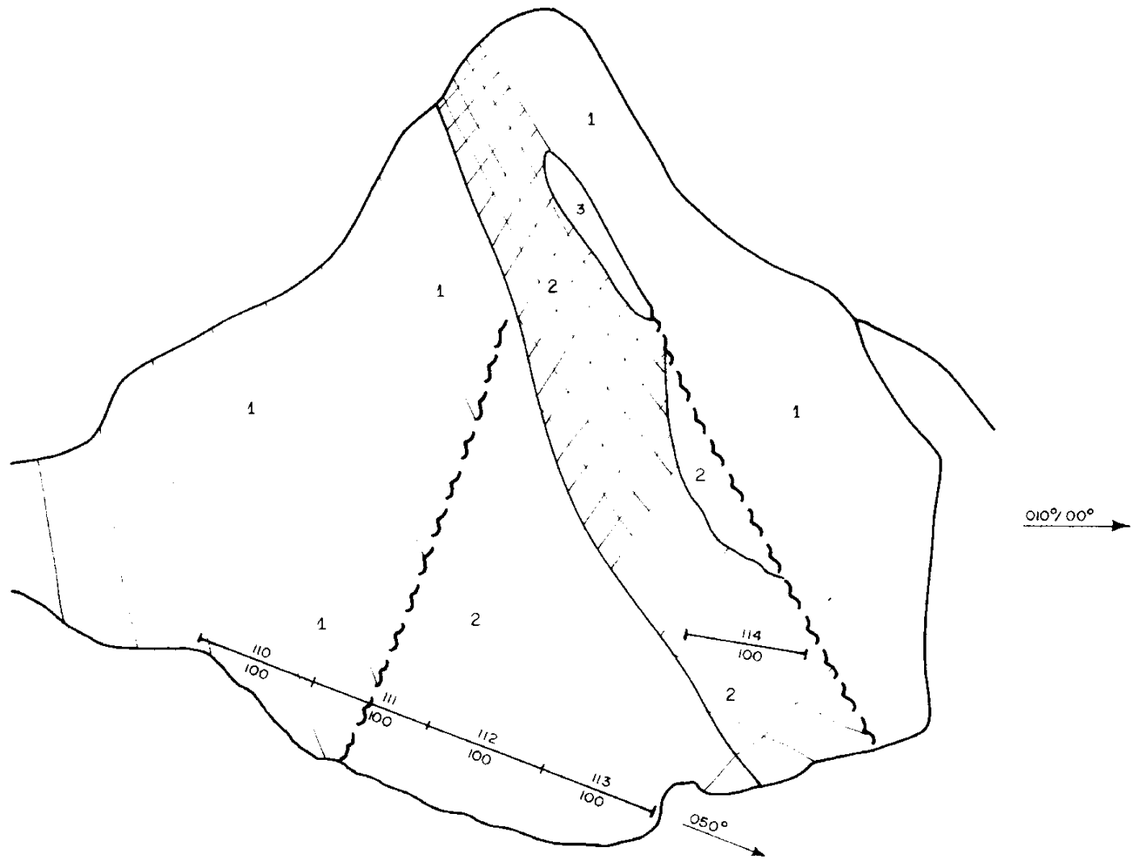


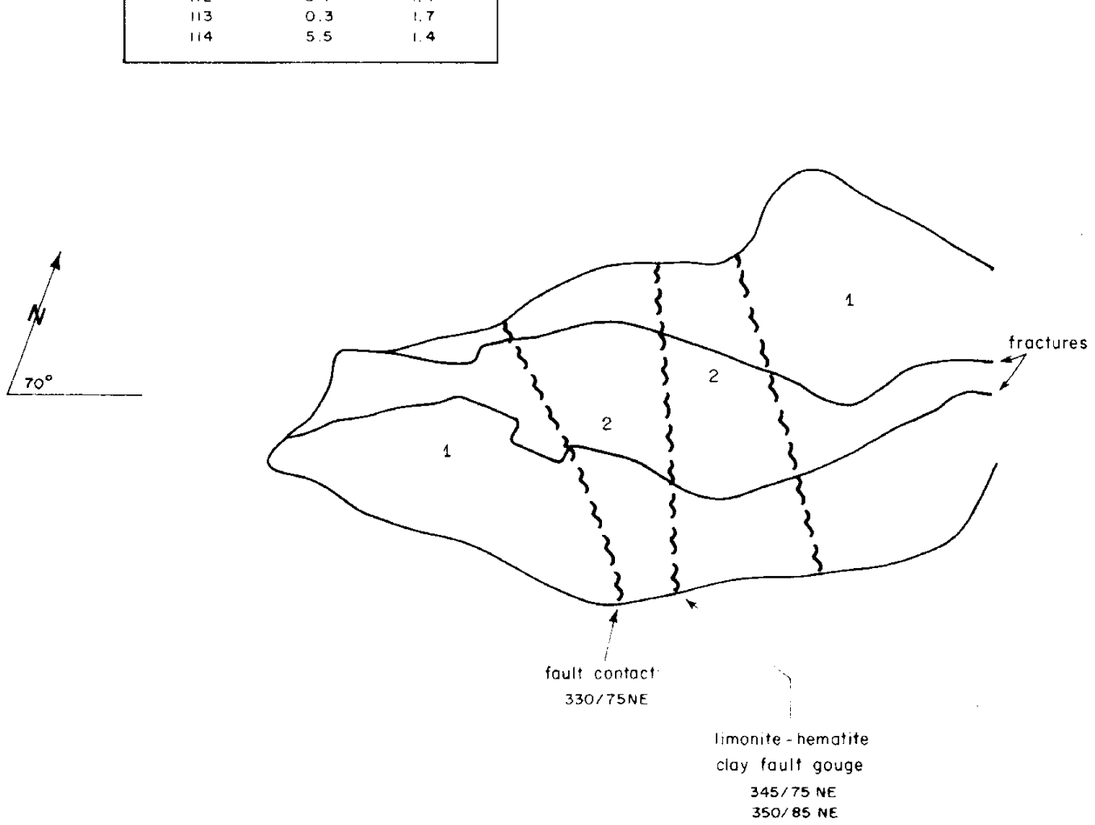


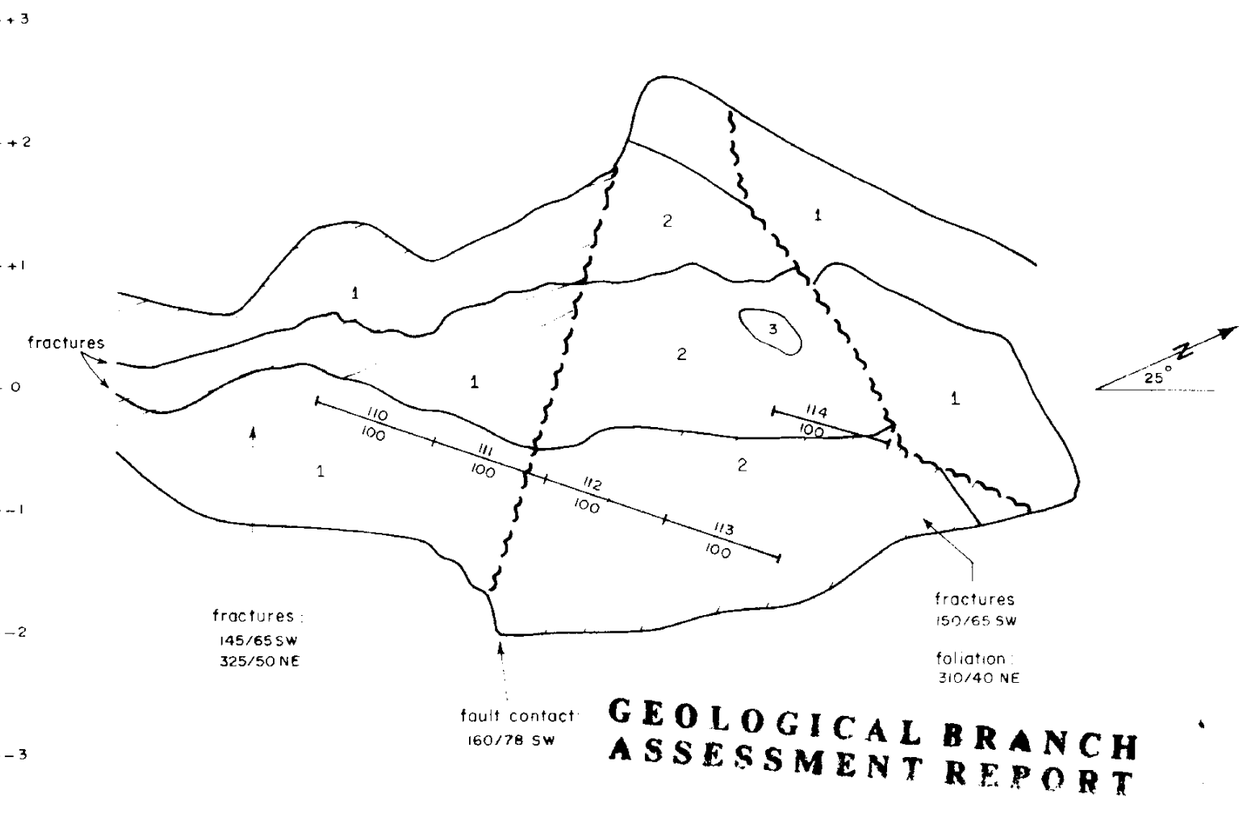
PROFILE

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14

FLOOR

SAMPLE NUMBER	Au g/tonne	Ag g/tonne
103	3.9	2.7
104	<0.1	1.0
105	2.4	1.7
106	2.3	2.1
107	1.9	2.4
108	0.1	1.0
109	<0.1	0.7
110	0.7	0.7
111	3.9	1.7
112	5.1	1.4
113	0.3	1.7
114	5.5	1.4





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0 50 100 150 200 cm

LEGEND

1 — siliceous chlorite - muscovite schist
weathers dark grey
fresh - brownish grey

2 — altered siliceous schist
yellowish - brown weathered surface
fresh - creamy grey
limonite along fractures
minor gypsum crystals
zones of fine disseminated pyrite (up to 3 %)

3 — quartz - K feldspar - hematite
lenses / pods

SYMBOLS

109/100 — DB3T1 - sample number / sample width

~~~ — fault

note: sample descriptions in field notes

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TOT CLAIMS

TRENCH #1

FIGURE No. 4		PROJECT No. M504	
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NTS No.			FILE No. C-187
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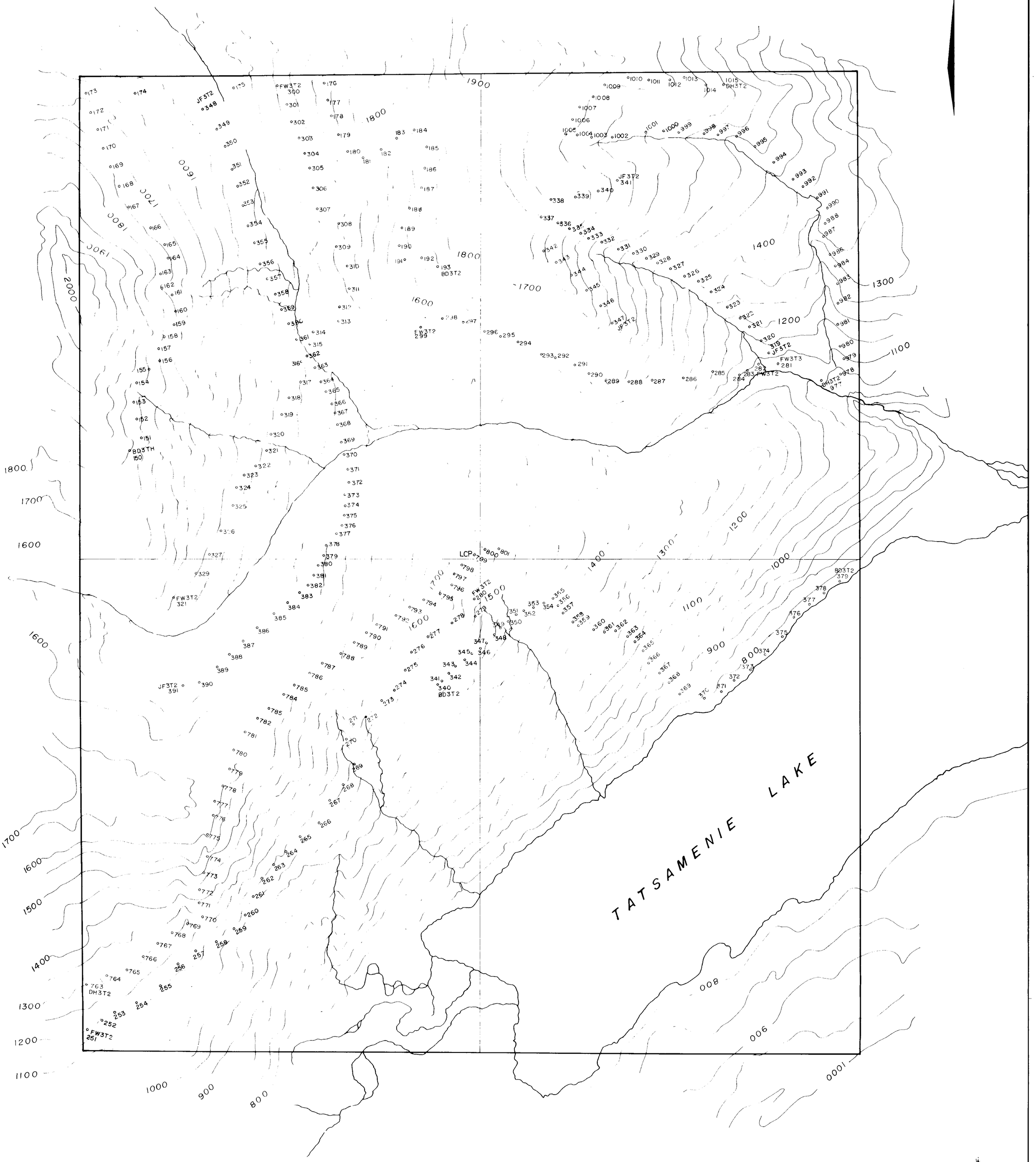

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SOIL SAMPLE LOCATIONS

FIGURE No. FIG. 5		PROJECT No. M504	
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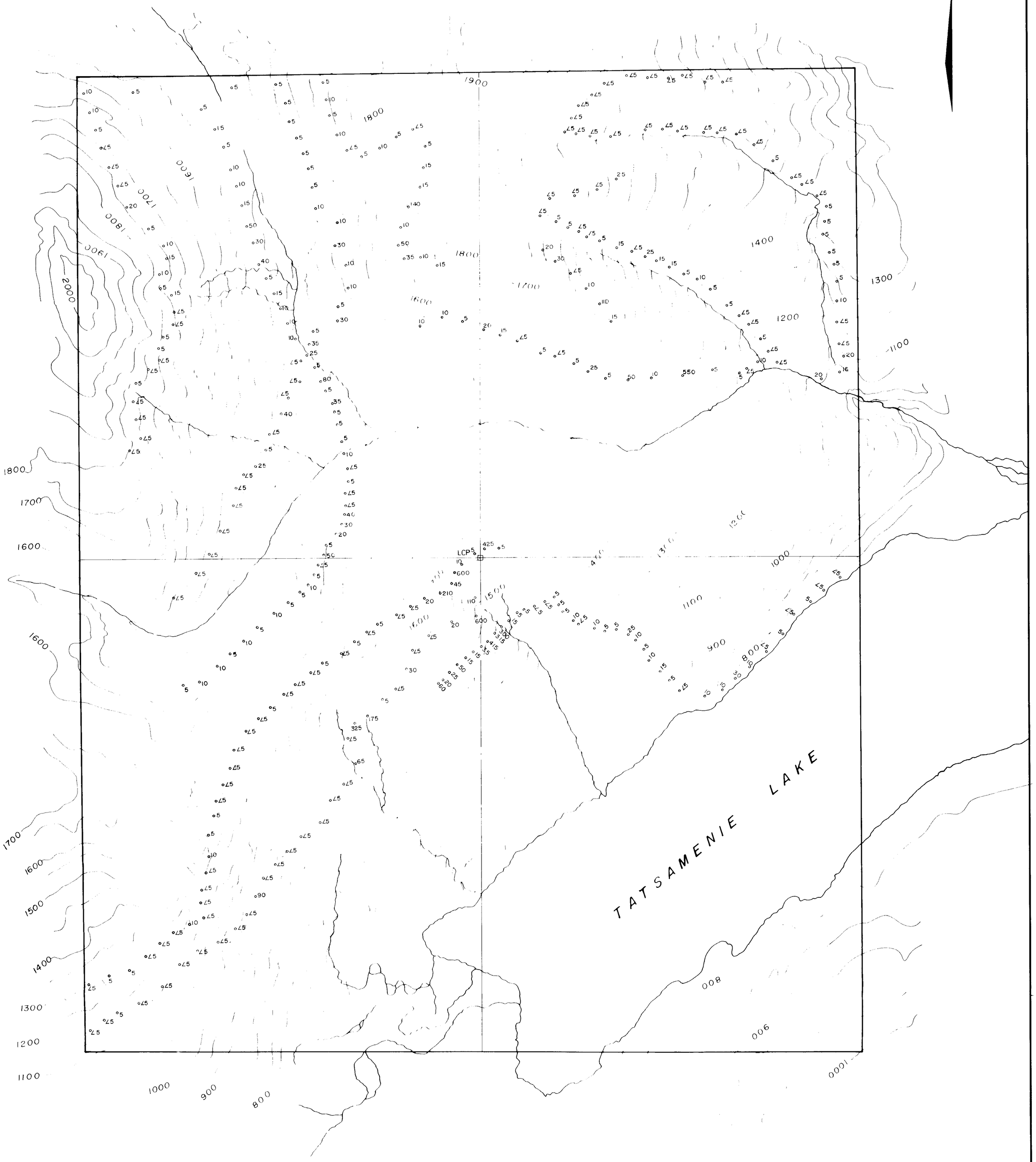

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GEOCHEMISTRY
Au(ppb)

FIGURE No. FIG 6		PROJECT No. M 504	
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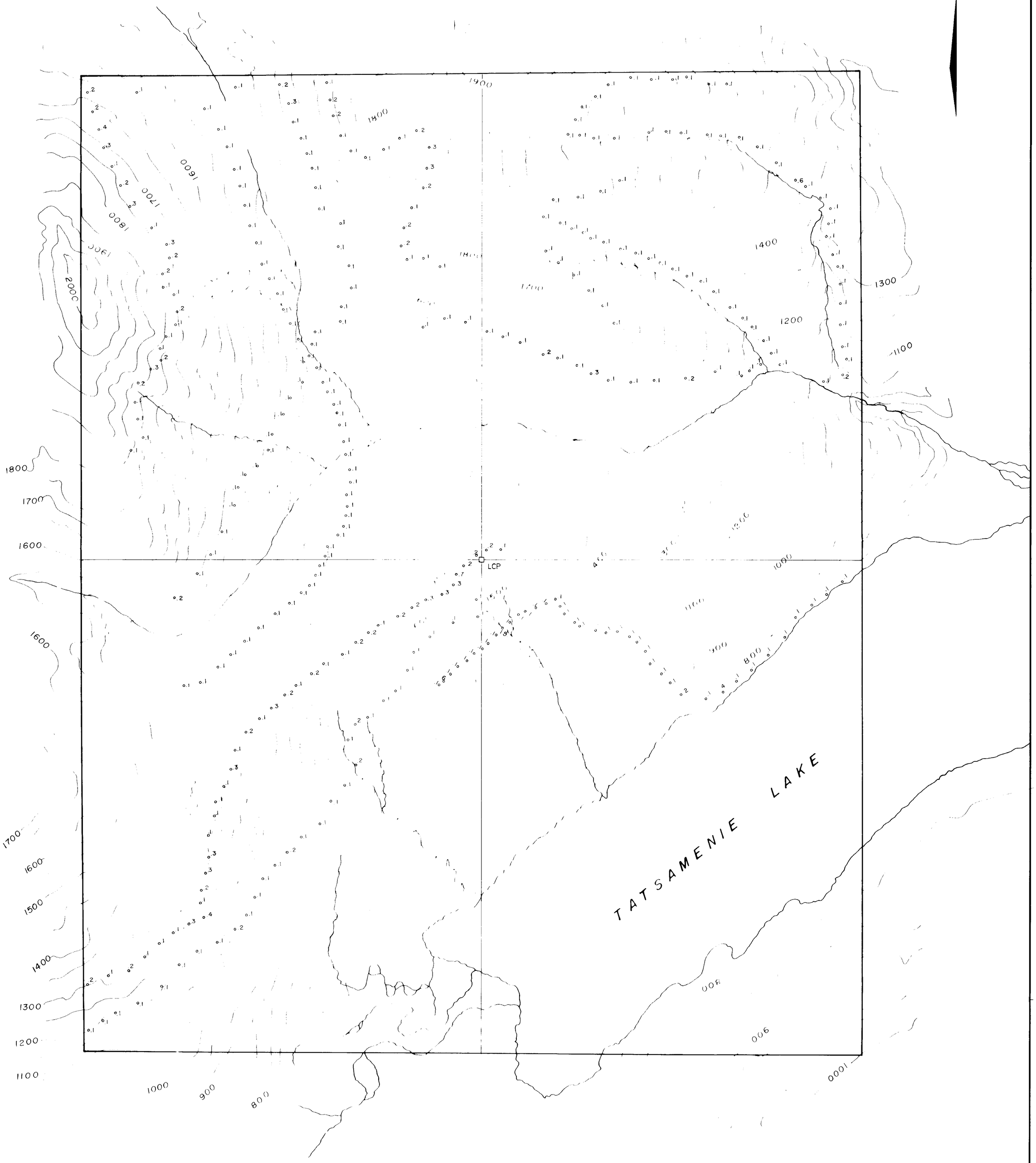

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GEOCHEMISTRY
Ag(ppm)

FIGURE No. FIG. 7		PROJECT No. M 504	
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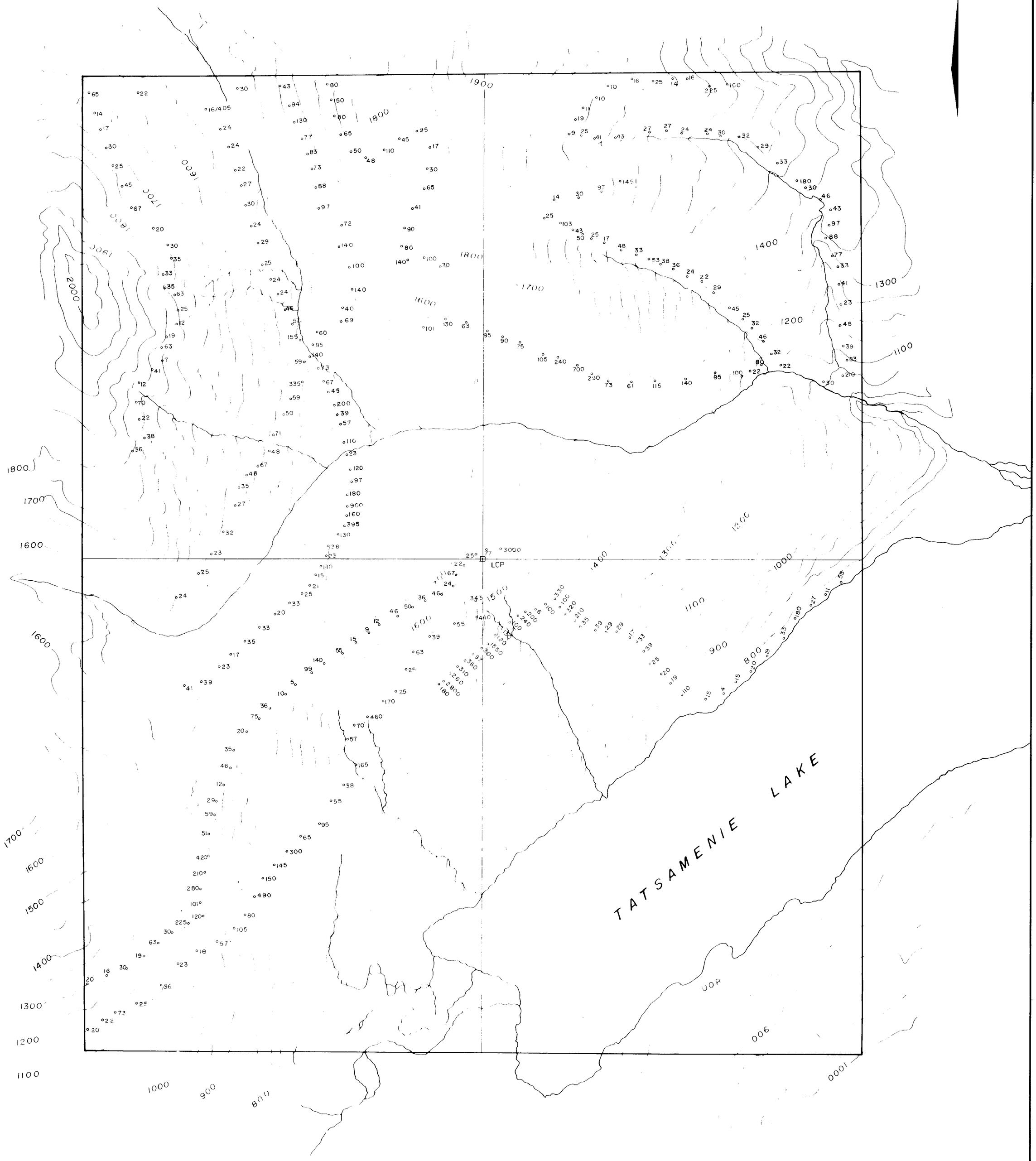

0 200 400 600 M

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GEOCHEMISTRY
As(ppm)

FIGURE No. FIG. 8		PROJECT No. M 504	
DATE NOV. 1983	REVISIONS		SCALE 1:10000
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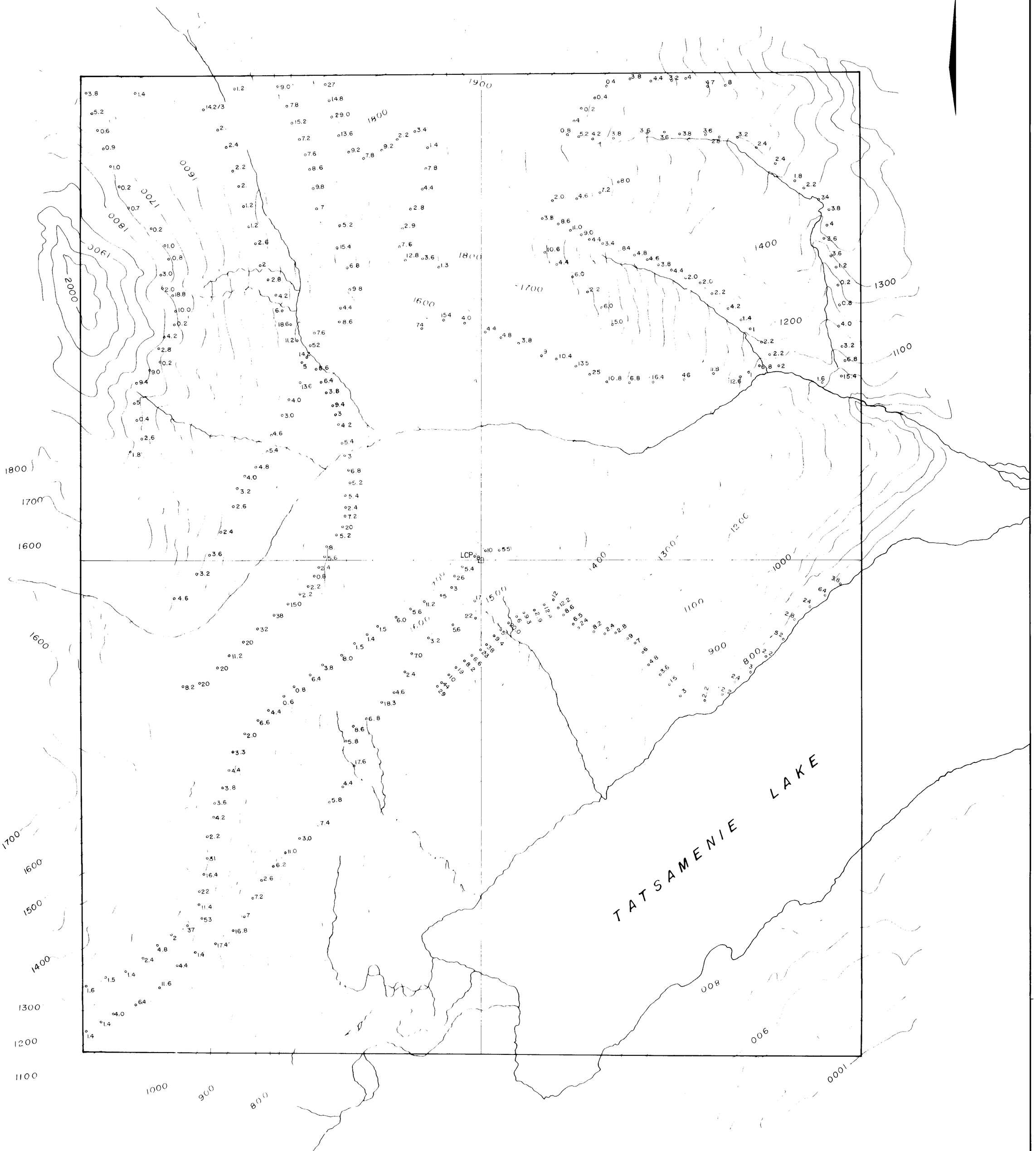

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TOT CLAIM GROUP
GEOCHEMISTRY
Sb(ppm)

FIGURE No. FIG. 9		PROJECT No. M 504	
DATE NOV. 1983	REVISIONS		SCALE 1: 10000
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