

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 89.05.11

ASSESSMENT REPORT 17715

MINING DIVISION: Similkameen

PROPERTY: TNT  
LOCATION: LAT 49 29 00 LONG 120 28 00  
UTM 10 5484053 683491  
NTS 092H08W

CLAIM(S): TNT  
OPERATOR(S): Mingold Res.  
AUTHOR(S): Taylor, K.J.  
REPORT YEAR: 1988, 27 Pages

COMMODITIES

SEARCHED FOR: Copper, Gold

GEOLOGICAL

SUMMARY: Copper-gold mineralization occurs within and adjacent to northwesterly trending faults cutting Upper Triassic to Lower Jurassic Nicola Group andesites and microdiorites. Within the fault zone, the rocks have been intensely kaolinized and/or sericitized and shattered. Adjacent rocks show chlorite-carbonate alteration with local epidote-ziosite. Size and attitude of mineralization is still unknown.

WORK

DONE:

Geochemical

FILE:

SOIL 150 sample(s) ;AU,AG,CU  
092HSE078

LOG NO	0830	RD
AC-100		
FILE NO		

SOIL GEOCHEMISTRY REPORT FOR ASSESSMENT

ON

TNT CLAIMS, PRINCETON AREA, B. C.

Similkameen Mining Division

N.T.S. Mapsheet: 92H /8W

Latitude: 49° 29' N.

Longitude: 120° 28' W.

Owner: Mingold Resources Inc.

Operator: Mingold Resources Inc.

Report by: K. J. Taylor, B. Sc.

Date: August 24, 1988

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**17,715**

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## TNT

### Introduction

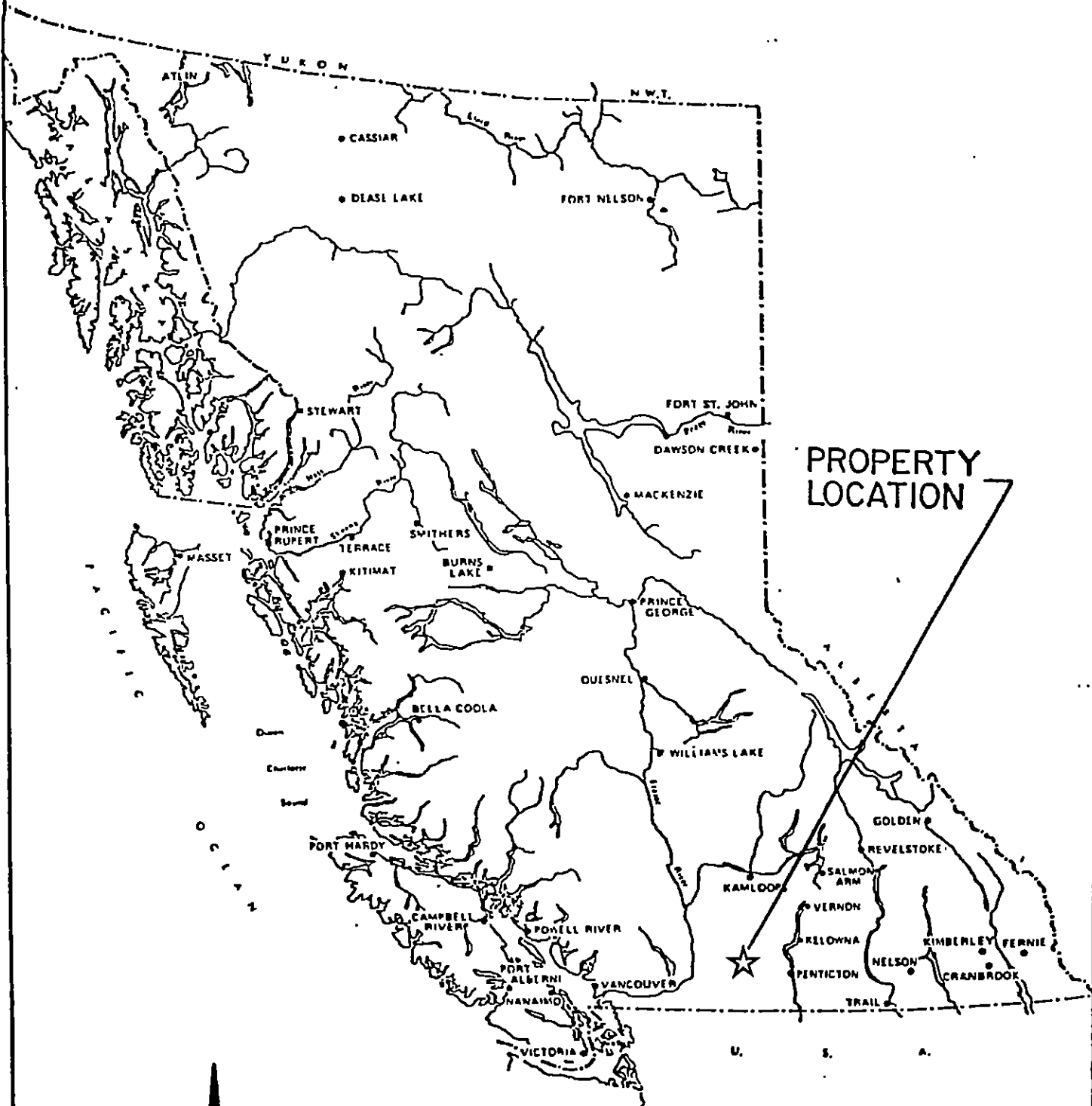
The TNT claims consist of 15 contiguous claim units staked by Mingold Resources personnel in May of 1987. They are located 4 kilometers north-east of Princeton, B. C. on the western slopes of Mt. Miner.

On September 24 and 26, 1987 a modest soil geochemistry grid was carried out over an area where prior rock sampling obtained up to 805 ppb (0.023 oz/t.) gold. The gold mineralization appears to be associated with intensely sheared and altered zones which trend northwesterly across the claims. Work was confined to the east central portion of the claims where numerous old trenches occur.

The report which follows describes the results of the soil geochemistry program along with an economic evaluation of the claim area.

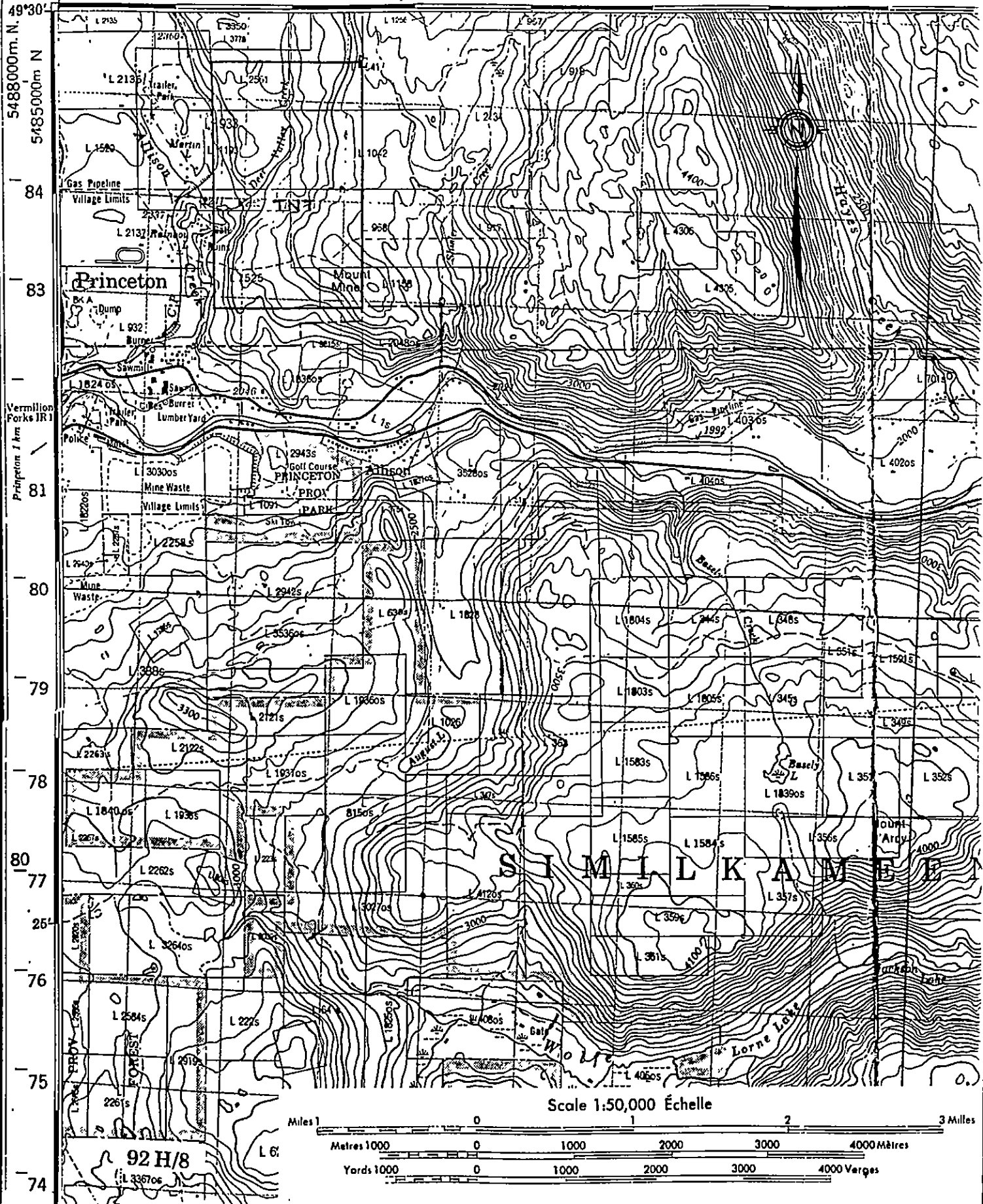
### Location & Access

The claims occur 4 kilometers northeast of the town of Princeton, B. C. on NTS mapsheet 92H/8 (see Fig. 1 & 2). The center of the block is at latitude  $49^{\circ}29'N$  and longitude  $120^{\circ}28'W$ . The area of previous trenching and drilling and the present soil geochemistry program lies in Deer Valley along the western slopes of Mt. Miner (locally known as Bald Mtn.). Elevations range from 670 meters in the valley bottom to 1000 meters at the summit of Mt. Miner.

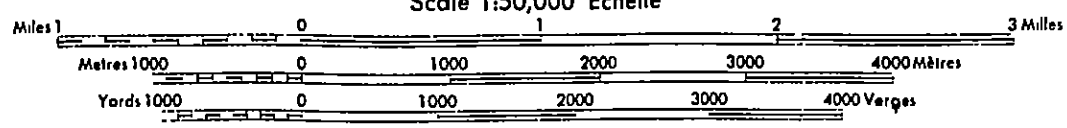


<b>MINGOLD RESOURCES INC.</b>		
VANCOUVER OFFICE		
<b>LOCATION MAP</b>		
DRAWN BY:	DATE:	APPROVED BY:
BRITISH COLUMBIA		1

247000m. E. | 120°30' | 682000m. N. | 83 | 84 | 150 | 85 | 86 | 25' | 88 | 89 | 90



Scale 1:50,000 Échelle



92 H/8

Access is by Hwy. 5A north from Princeton to the Old Hedley Road then east for approximately 500 meters to the Deer Valley Road (Summerland Hwy.). This is followed northward for about 6 kilometers to a gravel ranch road heading easterly up onto the slopes of Mt. Miner.

The claims occur in the southern interior dry belt where summers are very hot and dry and winters cold. Vegetation is generally sparse with open grasslands sprinkled with Ponderosa pines being the norm.

#### Claim Status & Ownership

The TNT claims consist of 15 contiguous units (See Fig. 3) staked under the modified grid system by Mingold Resources Inc. on May 15, 1987. The claims were subsequently recorded on June 4, 1987 and are 100% owned by Mingold Resources Inc.. Complete claim information is given in Table 1 below:

Table 1 - TNT Claim Information

Claim Name	No. of Units	Date Staked	Date Recorded	Record No.	Expiry Date	Mining Division
TNT	15	May 15, 1987	June 4, 1987	2927	June 4, 1989*	Similkameen

\* The expiry date shown includes the current assessment work for which the Statement of Work was submitted on May 11, 1988.

#### History

The earliest known work on the area of the TNT claims was in 1905 (Preto, 1974) however no details are known.

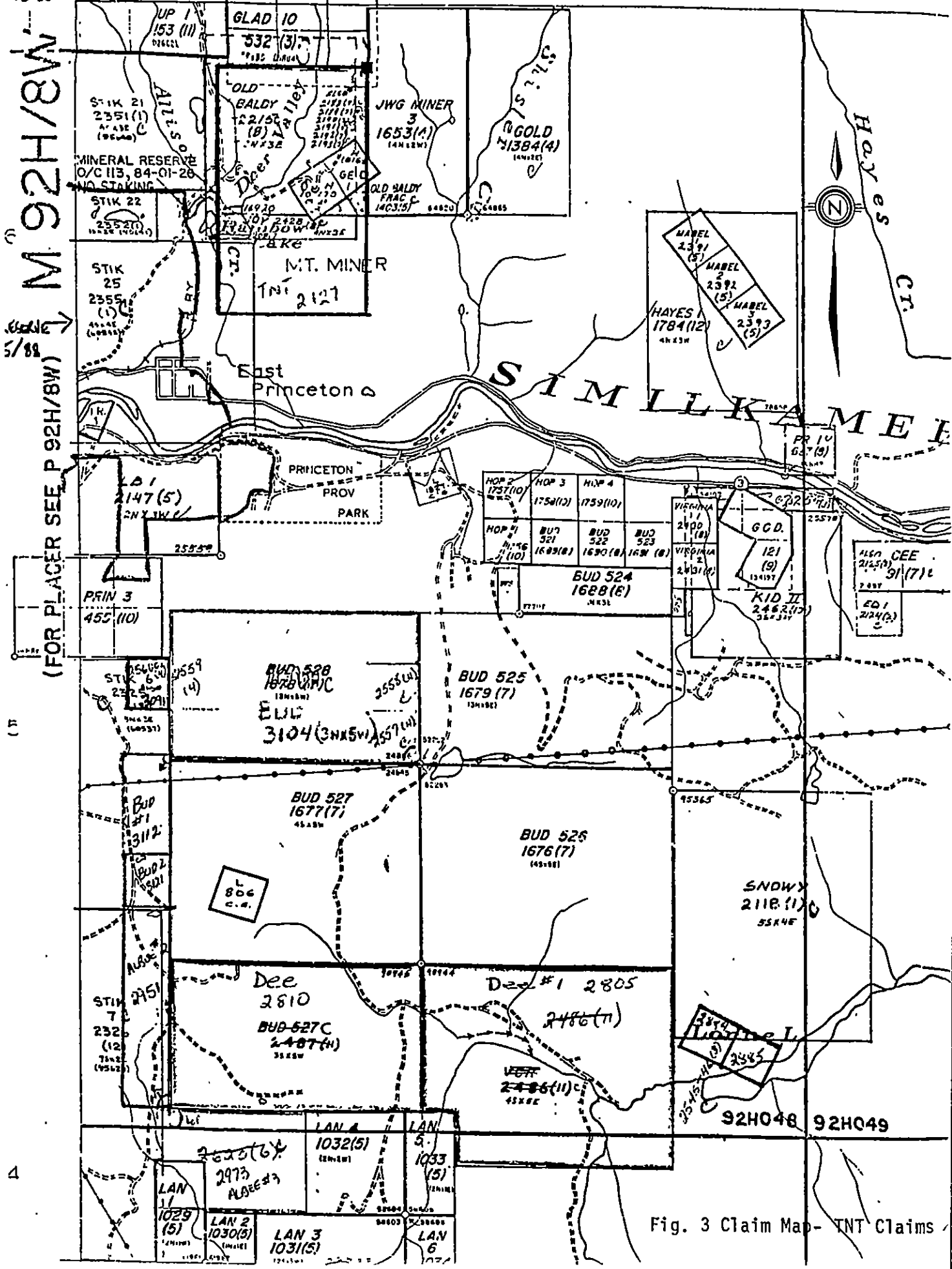


Fig. 3 Claim Map- TNT Claims



In 1929, W. C. McDougall of Olalla staked the area as the REGAL claims. Some diamond drilling was done in the area of previous development work however recovery was poor and grades of copper were too low.

No known activity occurred from 1930 to 1950. From 1951 to 1962, the Granby Mining Co. Ltd. held the ground, however no details of any of the work is available. Preto (1974) mentions that Granby did considerable trenching, some diamond drilling and geochemical and geophysical surveys.

In 1962, E. Mullins and G. Burr of Princeton restaked the main workings as the G.E. and VI claims. They were subsequently optioned by Climax Copper Mines Ltd. in 1963 who carried out geophysical surveys, including I.P., geological mapping and 1077 meters of diamond drilling in an unknown number of holes.

Granby reoptioned the claims in 1965 and drilled 41 percussion holes totalling 1792 meters. They also increased the ground holdings to 72 claims. From 1965 to 1970, no recorded work was done and the ground reverted back to Mullins and Burr.

In 1970, Joy Mining Ltd. optioned the ground and increased the land position to 343 claims (G.D., DOT, ML, etc.). 152 meters of trenching and  $\frac{1}{4}$  sq. mile (.012 hectares) of stripping was done. Saracen Mines Ltd. appears to have operated the property for Joy in 1971. They carried out surface geological mapping at approximately 1:20,000, 103 kilometers of soil geochem at 30.5 meter spacings (estimated 3377 samples), 200 stream sediments, 37 kilometers of I.P., 3 diamond drill holes totalling 457 meters and constructed

an acid leach plant for copper recovery. Reserves were reportedly "several hundred thousand tons of oxide-sulphide copper mineralization averaging about 0.50% total copper. The acid leaching of some highly oxidized material around the old Regal trenches was apparently unsuccessful.

In 1973, Bethlehem Copper Corp. optioned the claims and drilled 5 widely spaced diamond drill holes. They returned the ground to Mullins and Burr in 1974 and apparently most of the ground was allowed to lapse.

In 1977, Quintana Minerals Corp. restaked part of the area as the BTU claims and did 10 kilometers of linecutting and I.P..

J.M.T. Services Corp. restaked the eastern portion of the area as the JWG Miner and OLD BALDY claims in 1979. They drilled 4 short percussion holes totalling 68 meter that year.

In 1980, Superior Oil Co. and J.M.T. drilled 2 diamond drill holes on the IRLYBIRD claims which are presumed to be in the same area as the JWG MINER claims. Somehow the JWG MINER claims were included in ground influenced by the 1980 uranium moratorium and remained in limbo until their release in 1987.

In 1987, Mingold Resources Inc. staked the TNT claims which cover the western portion of the old REGAL - G.E. claims. Rock sampling of several

of the old trenches indicated anomalous gold values to be accompanying some of the copper mineralization. The gold appears to be related to several northwesterly trending fault zones which contain primarily oxide copper mineralization. A soil geochem survey was subsequently carried out over the trenched area which is the subject of this report.

### Geology

The TNT claims occur within a northerly trending belt of highly fractured and altered andesitic volcanic rocks of the Upper Triassic - Lower Jurassic Nicola Group. This is the southern end of the Quesnel Trough structural regime where correlative Takla Group volcanics prevail. This lineal belt is well known for its volcanic hosted copper porphyry mineralization. In recent years, the gold potential of the belt has been the main focus of exploration especially since the discovery of the QR deposit in the Horsefly-Likely area.

On the TNT claims, the main area of copper mineralization is located north of Mt. Miner in the vicinity of the Granby trenches (see Fig. 4). This area is underlain by highly fractured and altered Nicola andesites and coeval pyroxene microdiorites. Mineralization consists of disseminations and fracture fillings of chalcopyrite and pyrite. The western Granby trenches are cut by two zones of intensely sheared, bleached and oxidized rock trending northwesterly (see Fig. 5). These probably represent major fault zones up to 100 meters wide and may be the source of the gold mineralization encountered in rock sampling. All primary rock features have been destroyed and only oxide copper minerals are visible.

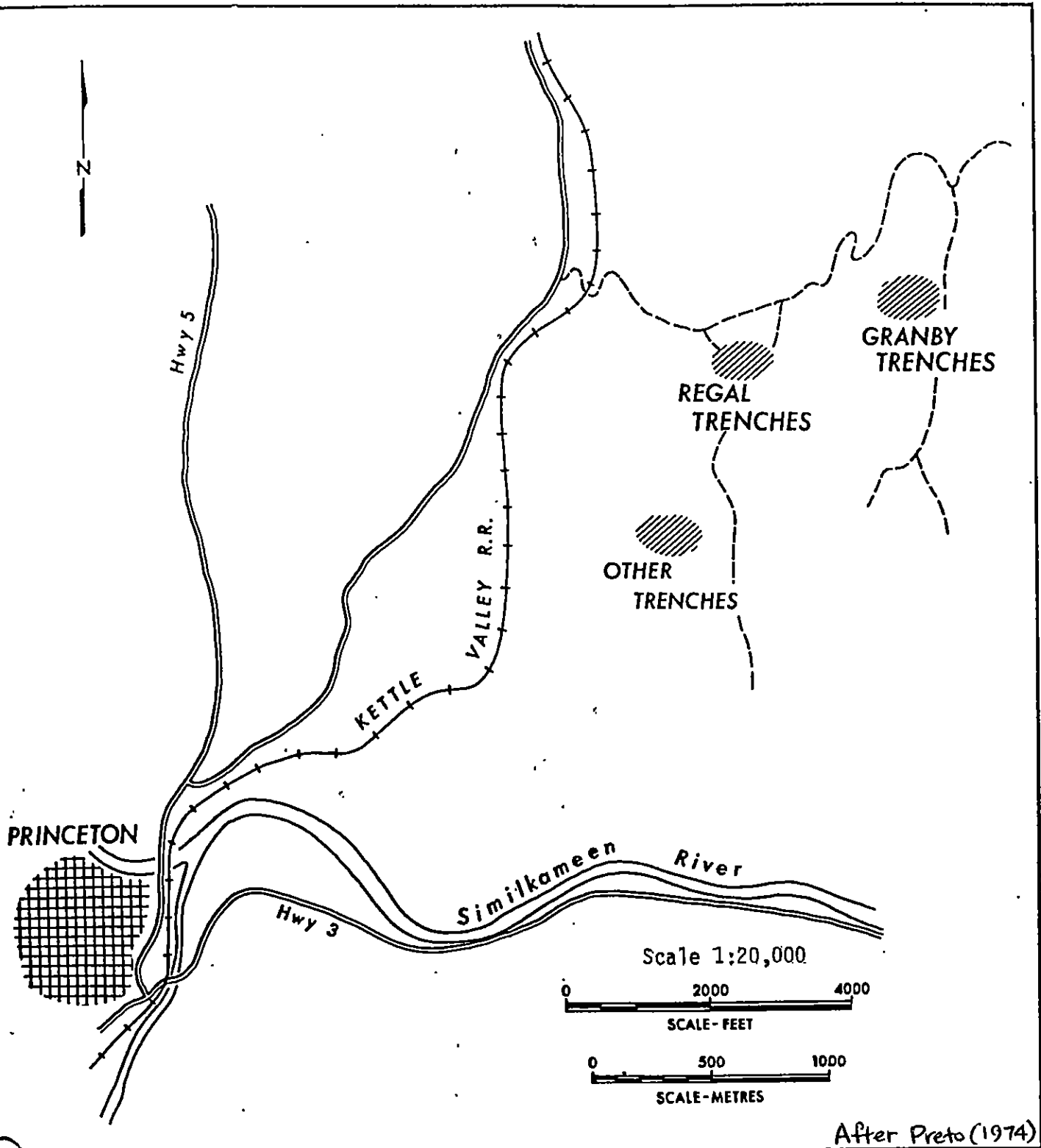


Fig. 4 Location map, Granby and Regal trenches, GE, VI claims.

On the Regal trenches similar oxide type mineralization is found. This mineralization reportedly occurs as part of a landslide block which presumably originated upslope in the Granby trenches area. This material is reported to contain several hundred thousand tons of oxide-sulphide copper mineralization averaging about 0.50% total copper (Preto, 1974). Caprock is Middle Eocene Princeton Group which occurs to the north of the Regal trenches. The contact with the Nicola rocks is not exposed.

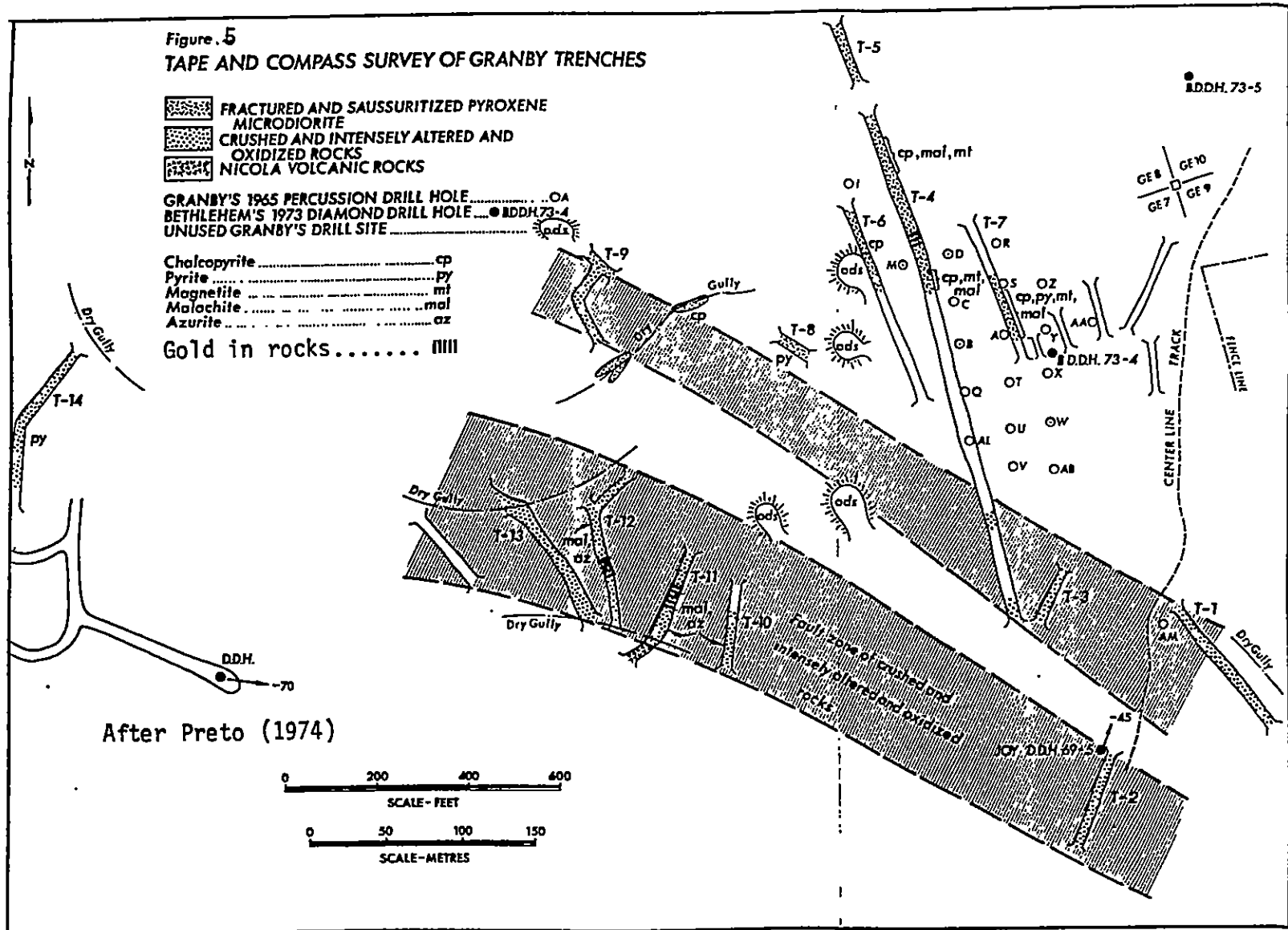
#### Soil Geochemistry

The soil sampling program on the TNT claims was confined to the area of the old Granby and Regal trenches. Previous rock chip sampling of the trenches by Mingold indicated the presence of anomalous value in gold principally in trench T-11 (See Fig. 5). A grid 500 meters by 600 meters was put in using the northern end of trench T-3 as a tie-point. This was designated 50N-49E. Six north-south lines (44E to 49E) were flagged in 100 meters apart using a hip-chain and compass extending from 47N to 53N. A total of 150 samples were collected.

#### Sampling and Analytical Procedure

Samples were collected every 25 meters from a depth of 10-15 cm and then placed in a gusseted Kraft soil envelope. Soils were gray brown to reddish brown, silty to sandy material generally considered as part of the "B" horizon. Some "C" horizon samples were taken in trenched areas. Samples

Figure 5  
TAPE AND COMPASS SURVEY OF GRANBY TRENCHES



were air-dried and then shipped to Acme Analytical Labs in Vancouver for geochemical analysis for copper, silver and gold. Gold was analysed by atomic absorption with a 1 ppb detection limit. A 10 gram sample is ignited at 600°C, digested with hot aqua regia, extracted by MIBK and then analysed by a graphite furnace atomic absorption unit. Copper and silver were analysed by ICP with 1 ppm and 0.1 ppm detection limits respectively. In this technique a 0.5 gram sample is digested with 3 mls. of 3-1-2 HCl-HNO<sub>3</sub>-H<sub>2</sub>O at 95°C for one hour and then diluted to 10 ml. with water. This leach is then analysed by a standard ICP unit.

#### Interpretation

The location of the soil grid in relation to the claim boundaries is shown in Fig. 6. The copper, silver and gold values are shown in Fig. 7 with the gold values contoured at 20, 50 and 100 ppb. Copper values over 200 ppm are underlined. Silver seems to be relatively insignificant.

Gold anomalies appear to be closely associated with the sheared zones interpreted by Preto. These zones are shown on Fig. 7 for reference. Only a single spot high of 230 ppb is unrelated to the shearing. Although the gold is proximal to the shear zones, it is not widespread but rather is concentrated in two main areas.

Copper anomalies show a similar but somewhat wider dispersion pattern than gold as would be expected by its greater solubility. The better gold

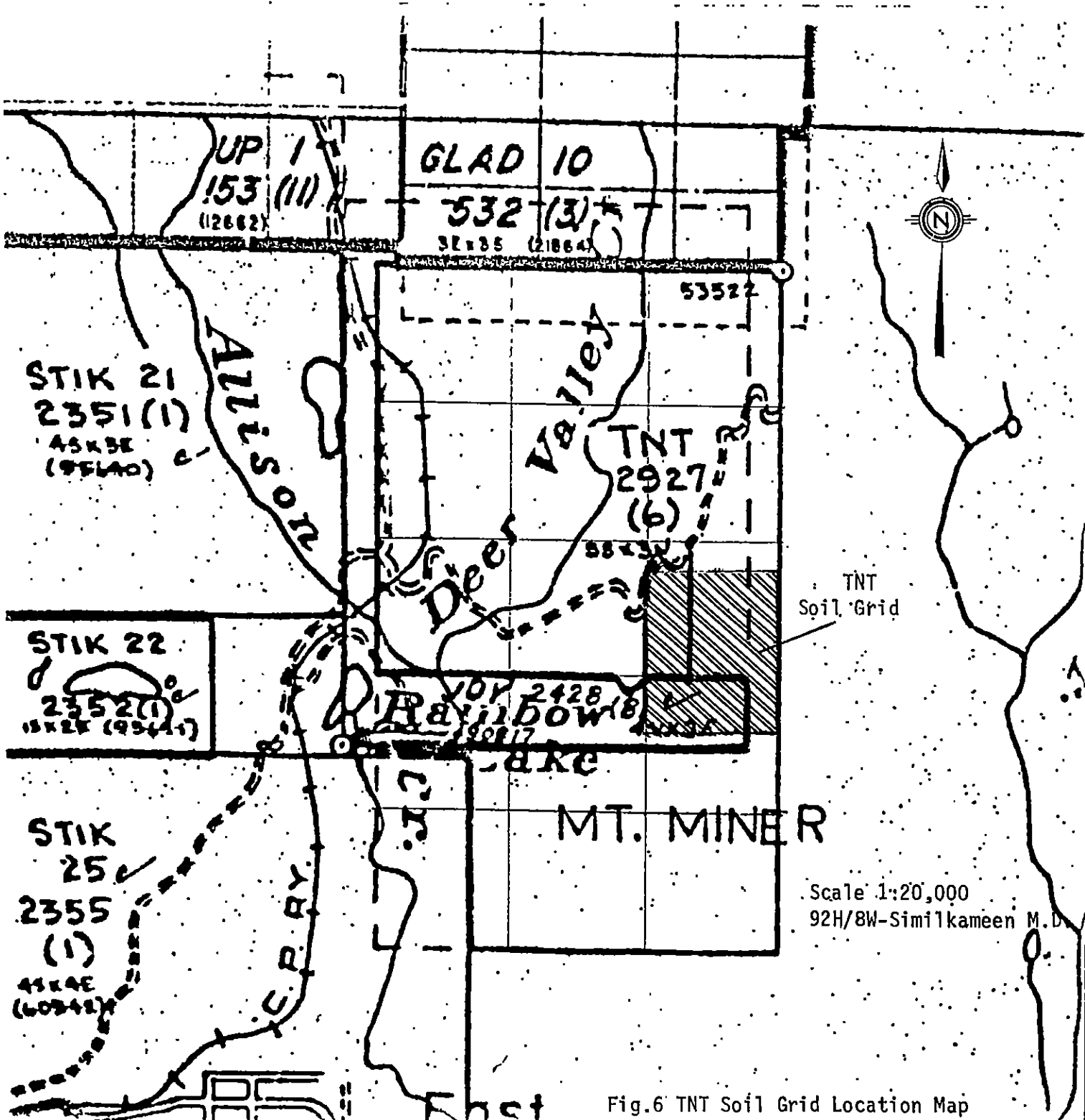
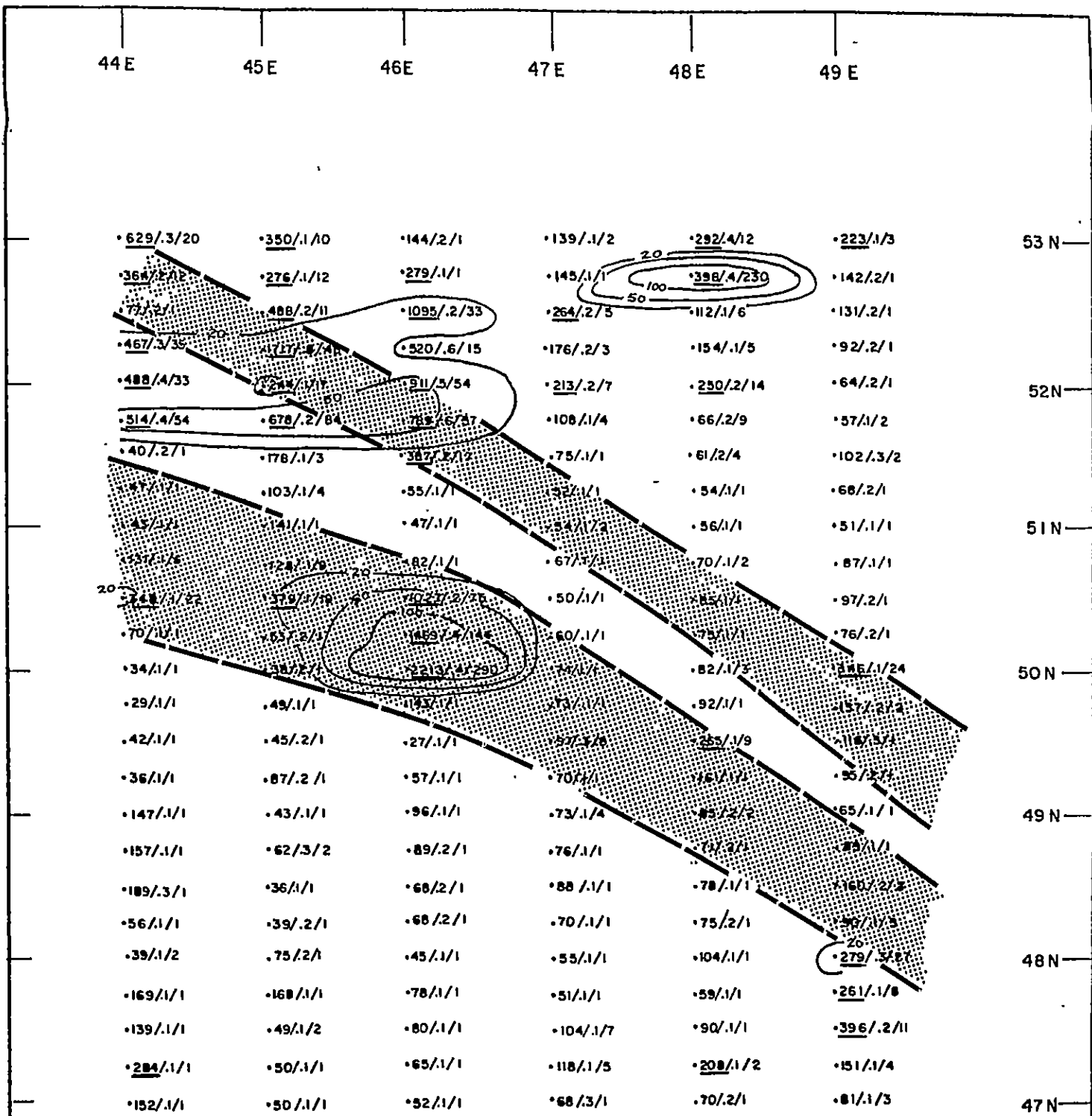


Fig.6 TNT Soil Grid Location Map





**LEGEND**

- Soil sample site
- 52/.1/1 Cu, ppm / Ag, ppm / Au, ppb
- Contours 20, 50, 100 ppb Au
- Shear zones shaded
- Cu over 200 ppm underlined



**MINGOLD RESOURCES INC.**

VANCOUVER OFFICE

**TNT CLAIMS  
SOIL GEOCHEMISTRY - Cu, Ag, Au**

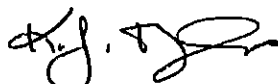
DRAWN BY: E.Y.	DATE: MAY 1988	APPROVED BY:
SCALE 1:4000 0 50 100 METRES		PLATE NO. Fig. 7;

values are invariably coincident with the higher copper values however, not all high copper values carry significant gold. This suggests that gold and copper share a common mineralizing event with gold erratically dispersed within the system.

It is too early in the exploration scheme to make any viable economic evaluation of the property. Earlier work by other companies focussed only on the copper mineralization which, although useful for suggesting future target areas, is untested for gold. The limited geochemical program covered by this report indicates gold potential to the northwest and possibly to the southeast. It also indicates that the earlier drilling in search of copper may have been too far to the northeast although I.P. results may show otherwise.

### Conclusions

Although the scope of the soil geochemical survey covered by this report was modest, it was successful in indicating the presence of low-grade gold accompanying the copper mineralization. The survey also suggests that the northwest trending shear structures noted by Preto in his 1974 examination are the locus of the copper-gold mineralization. Further work in the form of VLF-EM, soil sampling and possibly I.P. seems to be warranted.



K. J. TAYLOR,

Senior Project Geologist

Bibliography

1974 Preto, V. A. "G.E., VI" in Geology, Exploration and Mining in B. C., 1974 pp 117-118 and illustration.

1963 McKechnie, N. D. "G.E., Regal (Climax Copper Mines Limited)" in Minister of Mines and Petroleum Resources - Annual Report, 1963 pp 63-65

MMAR's: 1918 pp. 214 ; 1929 pp. 278 ; 1965 pp. 161-162 ;

G.E.M.'s: 1969 pp. 353 ; 1970 pp. 388 ; 1971 pp. 275 ; 1977 pp. E128 ; 1979 pp. 145 ; 1980 pp. 195 ; 1982 pp. 179

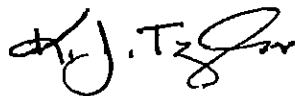
Statement of Costs

Personnel:	K. Taylor - Geologist & Supervisor	\$ 175.00 /day
	R. Wood - Sampler	90.00 /day
Dates:	September 24 and 26, 1987 - soil sampling	
Costs:	Sampling - 2 mandays @ \$90/manday	180.00
	- 1 manday @ \$175/manday	175.00
Accommodation:	Meals - 3 mandays @ \$25/manday	75.00
	Motel - 2 days @ \$40.00/day	80.00
	Truck Rental - 2 days @ \$50.00/day incl. fuel	100.00
	Analyses - 150 soils for Cu, Ag, Au @ \$8.50/sample	1275.00
	Supplies - Flagging, thread, bags	50.00
	Report Preparation - 2 days @ \$175.00/day	350.00
	Drafting - 4 hours @ \$15.00/hr.	<u>60.00</u>
	TOTAL	\$ 2345.00

Statement of Qualification

I, Kenneth J. Taylor, do hereby certify that:

1. I am a geologist with a B.Sc. in Geology from the University of British Columbia in 1973.
2. I have practised by profession continuously since 1973 to the present.
3. I supervised and co-executed the work carried out on the TNT claims in the summer of 1987.
4. I have reviewed all procedures involved with this work and found them to be in accordance with accepted practises.



K. J. Taylor, B.Sc.,  
Senior Project Geologist

ACME ANALYTICAL LABORATORIES

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*Oct 8/87*

### GEOCHEMICAL ICP ANALYSIS

.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 MN FE CA P LA CR MS BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM. - SAMPLE TYPE: SOIL AU\* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: *D. Toy* DEAN TOYE, CERTIFIED B.C. ASSAYER

MINGOLD RESOURCES PROJECT-TNT File # 87-4609 Page 1

SAMPLE#	CU PPM	AG PPM	AU* PPB
TNT L44E 53+00N	629	.3	20
TNT L44E 52+75N	364	.2	12
TNT L44E 52+50N	77	.2	1
TNT L44E 52+25N	467	.3	35
TNT L44E 52+00N	488	.4	33
TNT L44E 51+75N	514	.4	54
TNT L44E 51+50N	40	.2	1
TNT L44E 51+25N	47	.1	1
TNT L44E 51+00N	43	.1	1
TNT L44E 50+75N	131	.1	6
TNT L44E 50+50N	348	.1	22
TNT L44E 50+25N	70	.1	1
TNT L44E 50+00N	34	.1	1
TNT L44E 49+75N	29	.1	1
TNT L44E 49+50N	42	.1	1
TNT L44E 49+25N	36	.1	1
TNT L44E 49+00N	147	.1	1
TNT L44E 48+75N	157	.1	1
TNT L44E 48+50N	189	.3	1
TNT L44E 48+25N	56	.1	1
TNT L44E 48+00N	39	.1	2
TNT L44E 47+75N	169	.1	1
TNT L44E 47+50N	139	.1	1
TNT L44E 47+25N	284	.1	1
TNT L44E 47+00N	152	.1	1
TNT L45E 53+00N	350	.1	10
TNT L45E 52+75N	276	.1	12
TNT L45E 52+50N	488	.2	11
TNT L45E 52+25N	1717	.8	48
TNT L45E 52+00N	244	.1	17
TNT L45E 51+75N	678	2.0	84
TNT L45E 51+50N	178	.1	3
TNT L45E 51+25N	103	.1	4
TNT L45E 51+00N	141	.1	1
TNT L45E 50+75N	128	.1	9
TNT L45E 50+50N	379	.1	19
TNT L45E 50+25N	40	.1	10

SAMPLE#	CU PPM	AG PPM	AU* PPB
TNT L45E 50+25N	53	.2	1
TNT L45E 50+00N	38	.2	1
TNT L45E 49+75N	49	.1	1
TNT L45E 49+50N	45	.2	1
TNT L45E 49+25N	87	.2	1
TNT L45E 49+00N	43	.1	1
TNT L45E 48+75N	62	.3	2
TNT L45E 48+50N	36	.1	1
TNT L45E 48+25N	39	.2	1
TNT L45E 48+00N	75	.2	1
TNT L45E 47+75N	168	.1	1
TNT L45E 47+50N	49	.1	2
TNT L45E 47+25N	50	.1	1
TNT L45E 47+00N	50	.1	1
TNT L46E 53+00N	144	.2	1
TNT L46E 52+75N	279	.1	1
TNT L46E 52+50N	1095	.2	33
TNT L46E 52+25N	520	.6	15
TNT L46E 52+00N	911	.5	54
TNT L46E 51+75N	789	.6	57
TNT L46E 51+50N	387	.2	17
TNT L46E 51+25N	55	.1	1
TNT L46E 51+00N	47	.1	1
TNT L46E 50+75N	82	.1	1
TNT L46E 50+50N	1027	.2	75
TNT L46E 50+25N	1469	.4	144
TNT L46E 50+00N	2213	.4	290
TNT L46E 49+75N	143	.1	1
TNT L46E 49+50N	27	.1	1
TNT L46E 49+25N	57	.1	1
TNT L46E 49+00N	96	.1	1
TNT L46E 48+75N	89	.2	1
TNT L46E 48+50N	68	.2	1
TNT L46E 48+25N	68	.1	1
TNT L46E 48+00N	45	.1	1
TNT L46E 47+75N	78	.1	1
STD C/AU-S	60	7.0	52

SAMPLE#	CU PPM	AG PPM	AU* PPB
TNT L46E 47+50N	80	.1	1
TNT L46E 47+25N	65	.1	1
TNT L46E 47+00N	52	.1	1
TNT L47E 53+00N	139	.1	2
TNT L47E 52+75N	145	.1	1
TNT L47E 52+50N	264	.2	5
TNT L47E 52+25N	176	.3	3
TNT L47E 52+00N	213	.2	7
TNT L47E 51+75N	108	.1	4
TNT L47E 51+50N	75	.1	1
TNT L47E 51+25N	52	.1	1
TNT L47E 51+00N	54	.1	2
TNT L47E 50+75N	67	.1	1
TNT L47E 50+50N	50	.1	1
TNT L47E 50+25N	60	.1	1
TNT L47E 50+00N	74	.1	1
TNT L47E 49+75N	73	.1	1
TNT L47E 49+50N	97	.3	8
TNT L47E 49+25N	70	.1	1
TNT L47E 49+00N	73	.1	4
TNT L47E 48+75N	76	.1	1
TNT L47E 48+50N	88	.1	1
TNT L47E 48+25N	70	.1	1
TNT L47E 48+00N	55	.1	1
TNT L47E 47+75N	51	.1	1
TNT L47E 47+50N	104	.1	7
TNT L47E 47+25N	118	.1	5
TNT L47E 47+00N	68	.3	1
TNT L48E 53+00N	292	.4	12
TNT L48E 52+75N	398	.4	230
TNT L48E 52+50N	112	.1	6
TNT L48E 52+25N	154	.1	5
TNT L48E 52+00N	250	.2	14
TNT L48E 51+75N	66	.2	9
TNT L48E 51+50N	61	.2	4
TNT L48E 51+25N	54	.1	1
STD C/AU-S	60	7.2	51



SAMPLE#	CU PPM	AG PPM	AU* PPB
TNT L48E 51+00N	56	.1	1
TNT L48E 50+75N	70	.1	2
TNT L48E 50+50N	65	.1	1
TNT L48E 50+25N	75	.1	1
TNT L48E 50+00N	82	.1	3
TNT L48E 49+75N	92	.1	1
TNT L48E 49+50N	265	.1	9
TNT L48E 49+25N	161	.1	1
TNT L48E 49+00N	85	.2	2
TNT L48E 48+75N	71	.2	1
TNT L48E 48+50N	78	.1	1
TNT L48E 48+25N	75	.2	1
TNT L48E 48+00N	104	.1	1
TNT L48E 47+75N	59	.1	1
TNT L48E 47+50N	90	.1	1
TNT L48E 47+25N	208	.1	2
TNT L48E 47+00N	70	.2	1
TNT L49E 53+00N	223	.1	3
TNT L49E 52+75N	142	.2	1
TNT L49E 52+50N	131	.2	1
TNT L49E 52+25N	92	.2	1
TNT L49E 52+00N	64	.2	1
TNT L49E 51+75N	57	.1	2
TNT L49E 51+50N	102	.3	2
TNT L49E 51+25N	68	.2	1
TNT L49E 51+00N	51	.1	1
TNT L49E 50+75N	87	.1	1
TNT L49E 50+50N	97	.2	1
TNT L49E 50+25N	76	.2	1
TNT L49E 50+00N	346	.1	24
TNT L49E 49+75N	137	.2	2
TNT L49E 49+50N	116	.3	1
TNT L49E 49+25N	95	.2	1
TNT L49E 49+00N	65	.1	1
TNT L49E 48+75N	89	.1	1
TNT L49E 48+50N	160	.2	2
STD C/AU-S	59	7.2	47

SAMPLE#	CU PPM	AG PPM	AU* PPB
TNT L49E 48+25N	90	.1	3
TNT L49E 48+00N	279	.3	27
TNT L49E 47+75N	261	.1	8
TNT L49E 47+50N	396	.2	11
TNT L49E 47+25N	151	.1	4
TNT L49E 47+00N	81	.1	3
STD C/AU-S	60	6.9	47