

REPORT ON THE 1991  
EXPLORATION PROGRAM OF  
THE TASEKO PROPERTY

WESTPINE METALS LTD.

Vancouver, B.C.

Clinton Mining Division, B.C.

NTS 920/3W

Latitude  $51^{\circ}05'$ , Longitude  $123^{\circ}24'W$

by

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February 12, 1992

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## INTRODUCTION

The purpose of this report is to provide an overview of the work completed during the 1991, \$550,000 exploration program on the Taseko property, and to describe mineral occurrences where no work was carried out. It also outlines a program for 1992. The 1991 program consisted of 12,572 feet of diamond drilling in 20 holes, geological mapping of the large area west and northwest of Amazon Creek, geological reconnaissance in several areas and soil sampling.

Reports on the drilling and geological mapping have been written by Ellen Lambert (1991 Diamond Drilling Program of the Taseko Property, and 1991 Diamond Drilling and Soil Sampling Program of the Bluff Property) and Donald Allen (Geological and Geochemical Report on the Taseko Alteration Zone).

The program was operated by Alpine Exploration Corporation.

## LOCATION AND ACCESS

The Taseko property is located 140 miles (225 kilometres) north of Vancouver, British Columbia (Figure 1). Access is by road from Williams Lake to Hanceville then by four-wheel drive road to the property. It takes approximately six hours to drive the 270 kilometres from Williams Lake. The property may also be reached by helicopter from Gold Bridge (20 minutes) or Pemberton (45 minutes).

Significant mineral occurrences within the district include: Fish Lake, less than 30 kilometres to the north, with 600,000,000 tons of 0.32% Cu and 0.016 opt Au, and Pellaire, on the west side of Taseko Lake, with 67,000 tons of 0.669 opt Au and 2.34 opt Ag.

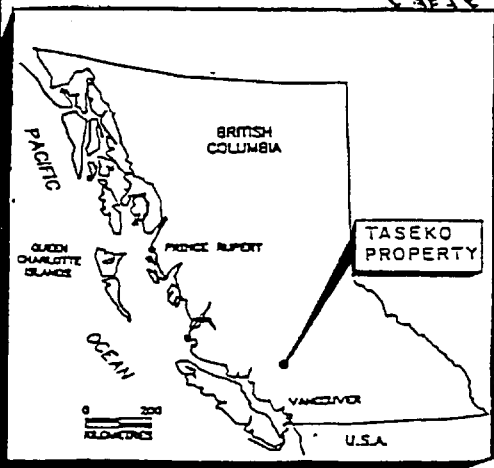
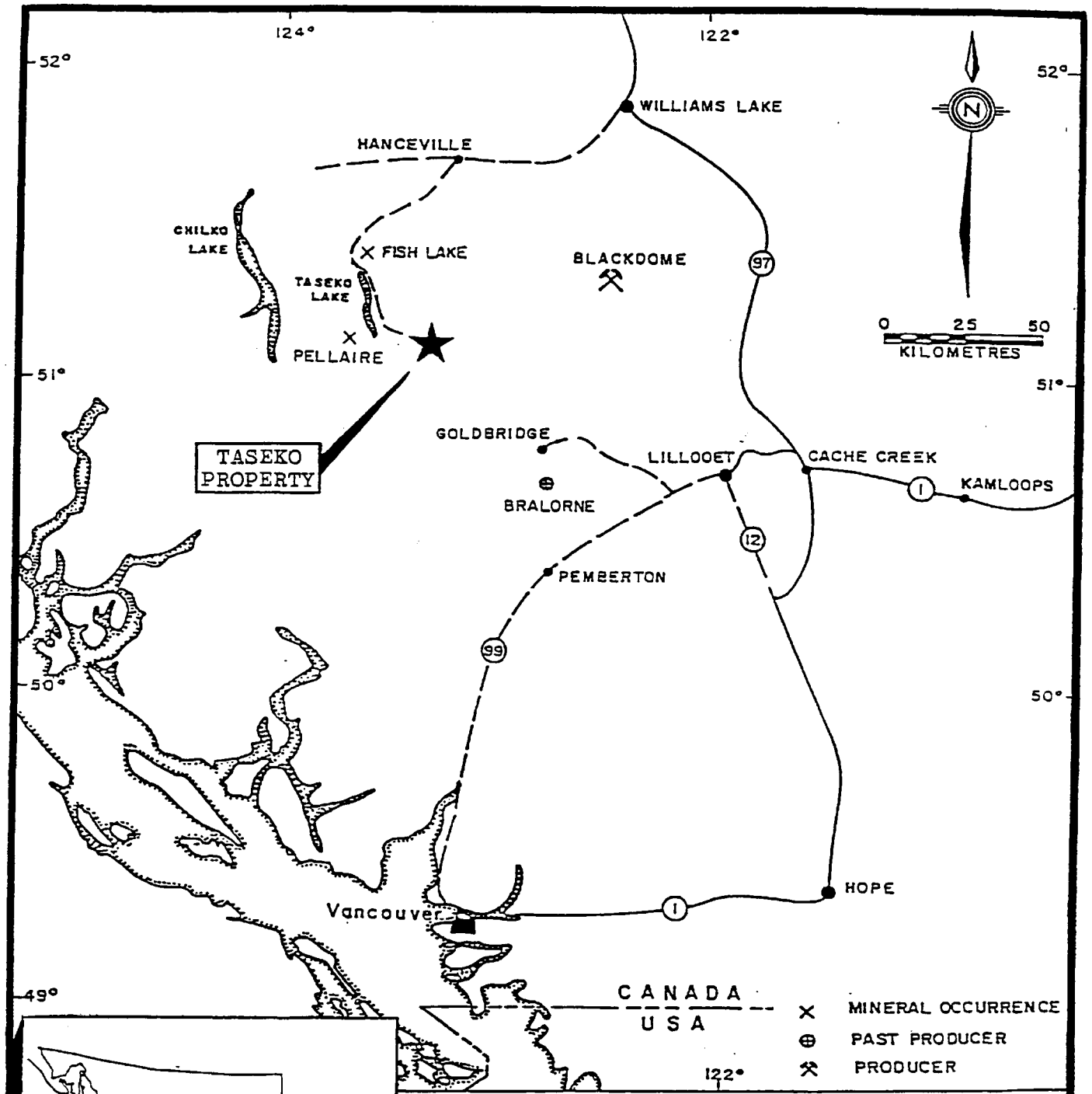
## CLAIMS OWNERSHIP

In 1991, 51 new claim units were staked and added to the property. Westpine now holds 278 claim units, or approximately 25 square miles (Figure 2).

Westpine Metals Ltd. originally had an option on the Taseko Property from New World Mines Development Ltd. In 1991, Westpine paid the last option payment to New World and now owns 100% of the property subject to a 2.5% net smelter royalty on production, up to 1.5 million dollars.

In 1990, Westpine granted the right to earn 60% of the property to ASARCO Exploration Company of Canada Limited. To exercise its right ASARCO had to fund \$3,650,000 of work and pay Westpine \$344,000 by January 15, 1994. To date, ASARCO has funded over \$1,000,000 of work and paid Westpine \$89,000.

In early January, 1992, ASARCO informed Westpine of the decision not to continue work on the property.



<b>WESTPINE METALS LTD.</b>		
<b>LOCATION MAP AND MINERAL DEPOSITS</b>		
<b>E.E. LAMBERT, P. GEOL</b>		
N.T.S. 920/3W	SCALE: 1:1,852,000	FIG.
DATE: Dec. 1991	DRAWN: E.L./dw	1

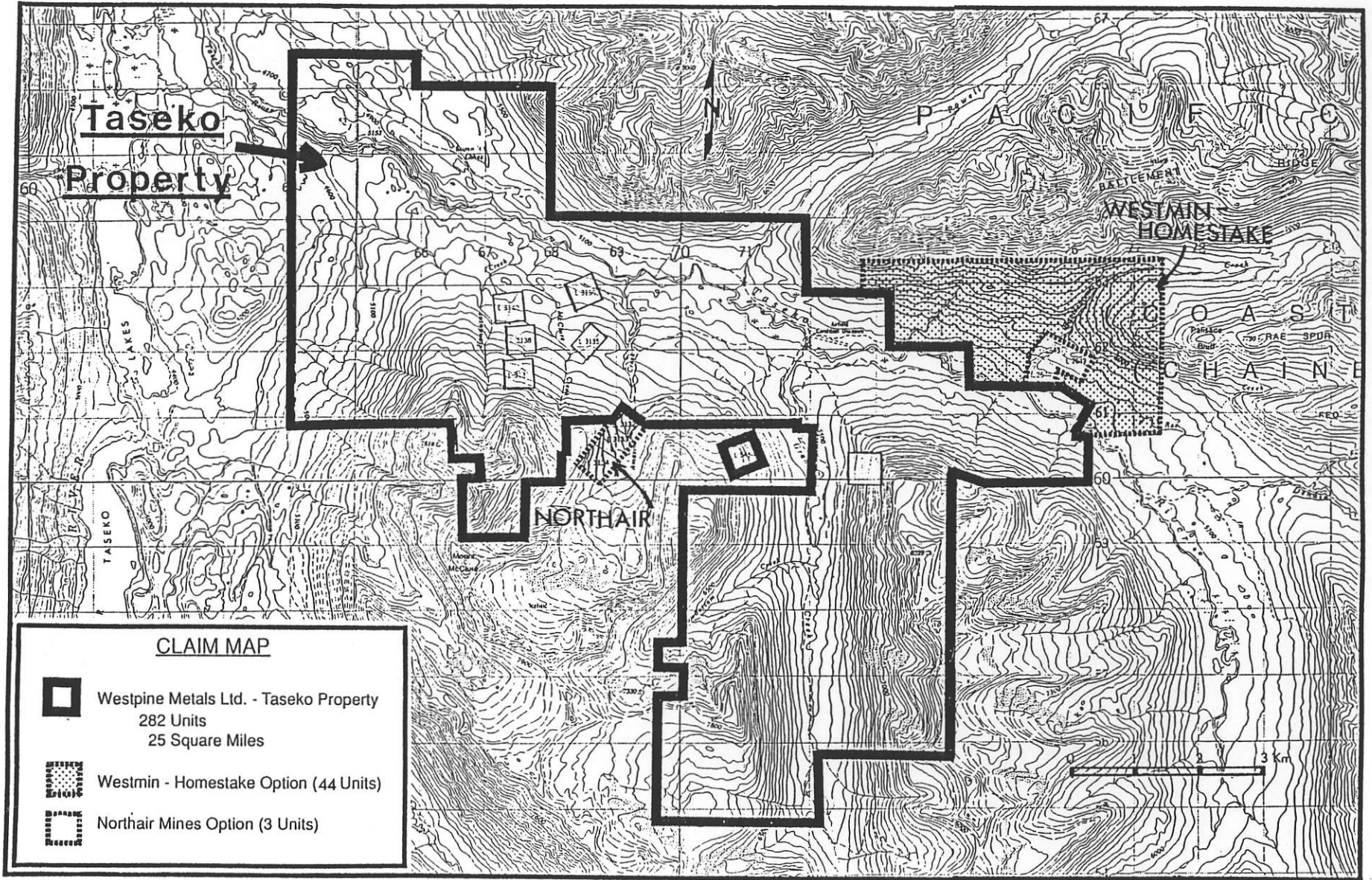


Figure 2  
CLAIM MAP

In the summer of 1991, Westpine and ASARCO optioned the Bluff Property claim group from the Westmin-Homestake joint venture, and the Limonite Group from International Northair. Under the Westmin-Homestake agreement, Westpine and ASARCO have the option to earn 50% of the 44-unit Bluff Property by completing \$400,000 of work in four years. The Bluff Property is located northeast and adjacent to the Taseko Property. In the other agreement, Westpine-ASARCO have the option to earn 100% of International Northair's Limonite claims by paying Northair \$3000 over a 2 year period, and doing \$100,000 of work over 5 years. The property is subject to a 2% royalty of which 1.5% can be purchased for \$750,000. The Limonite claims consist of 3 units and occur along Amazon Creek (Figure 2). In 1992, ASARCO's rights to these properties will be transferred to Westpine.

### THE 1988-1990 TASEKO EXPLORATION PROGRAMS

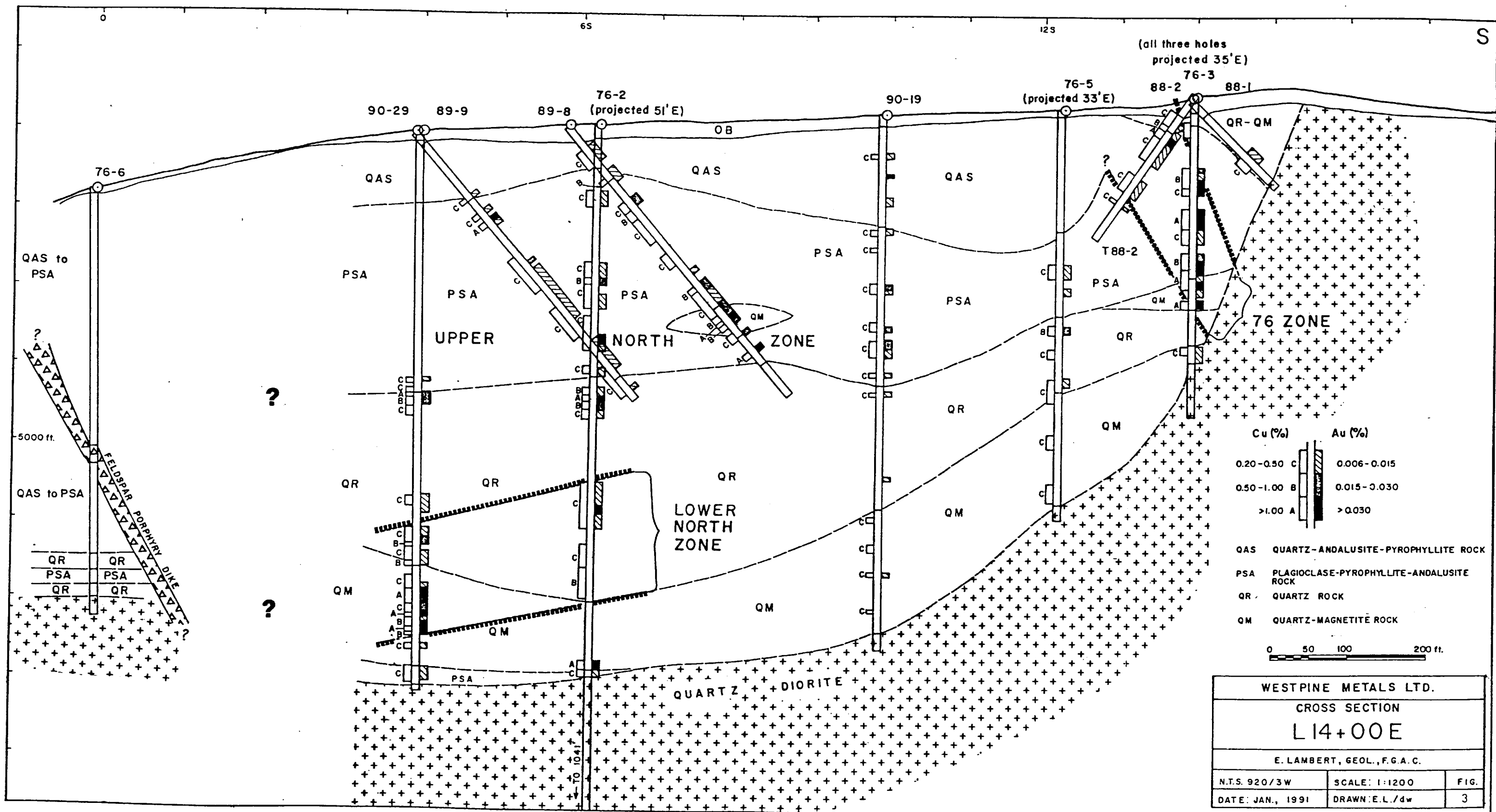
In 1988, company geologists were originally attracted to the Taseko Property for three reasons:

- 1) The occurrence of a large and intense zone of alteration;
- 2) extensive areas of copper soil anomalies; and,
- 3) intersections of copper-gold mineralization in previously drilled holes, which don't appear to have been properly followed up.

Most of the drilling during these years was completed in the Empress Area, and the following picture has emerged. Disseminated chalcopyrite with gold, as well as pyrite and magnetite, occur in intensely altered volcanic rock above and adjacent to a quartz-diorite/granodiorite intrusive. The contact between the altered volcanics and the intrusive dips steeply to the north then plateaus and remains roughly horizontal, forming a shelf on which the volcanics rest. Figure 3 shows this contact. The shelf has been traced over 4200 feet east and 8000 feet west from the Empress area, where it measures at least 2100 feet wide and from 360 to 720 feet deep.

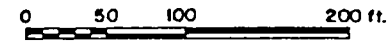
The volcanic rock has been intensely altered to the point where little remains of the protolith. Alteration types can be subdivided into units, or zones. From the intrusive up, these zones are quartz magnetite (QM), quartz (QR), and combinations of quartz (Q), andalusite (A), pyrophyllite (S) and plagioclase (P) (Figure 3). It is thought that these units represent alteration fronts.

Mineralization at the Empress occurs in three definable zones: the 76, Lower North and Upper North Zones (Figure 4). The 76 Zone has been traced for 850 feet in an east-northeast direction. Drilling indicates it could be cut off by the intrusive-volcanic contact to the southwest, but it is still open to the northeast. Although its configuration seems to change along the strike length of the zone, it measures up to 340 feet wide and 160 feet in a vertical direction. For the most part, the mineralization occurs in the upper andalusite-pyrophyllite-plagioclase-quartz unit.



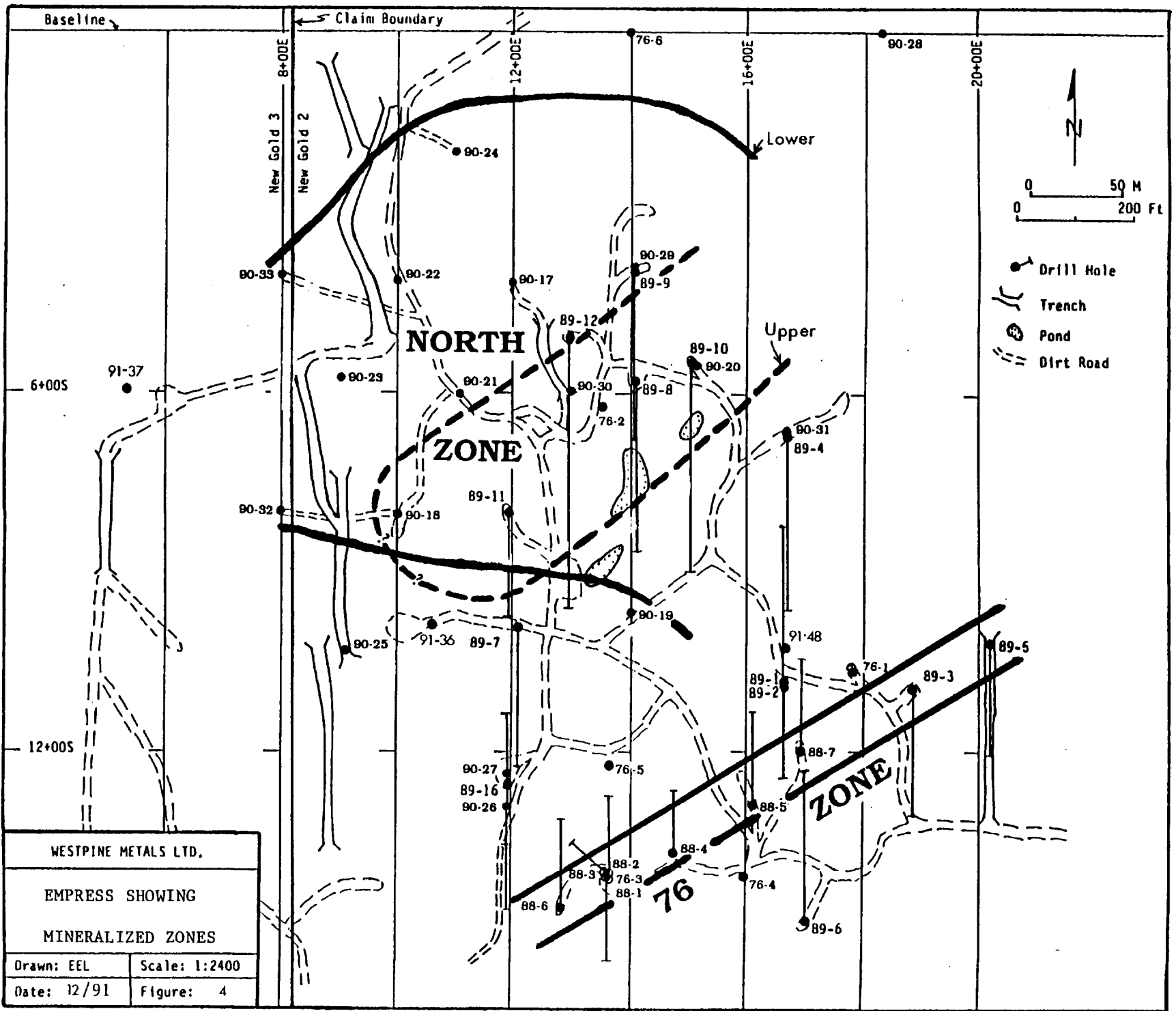
Cu (%)	Au (%)
0.20-0.50 C	0.006-0.015
0.50-1.00 B	0.015-0.030
>1.00 A	>0.030

- QAS QUARTZ-ANDALUSITE-PYROPHYLLITE ROCK
- PSA PLAGIOCLASE-PYROPHYLLITE-ANDALUSITE ROCK
- QR QUARTZ ROCK
- QM QUARTZ-MAGNETITE ROCK



WESTPINE METALS LTD.		
CROSS SECTION		
L14+00E		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE: JAN., 1991	DRAWN: E.L./dw	3





WESTPINE METALS LTD.	
EMPRESS SHOWING	
MINERALIZED ZONES	
Drawn: EEL	Scale: 1:2400
Date: 12/91	Figure: 4

The Upper North Zone is found about 600 feet north of the 76 Zone. Although its configuration is somewhat irregular, it appears to strike northeast, is up to 300 feet wide and is confined to the upper zone of QAS-PSA. It has been traced for 600 feet, seems to be cut-off to the southwest just east of Hole 90-25 and is open to the northeast. If projected eastward, the zone would pass approximately 150 feet south of Hole 90-28.

The Lower North Zone has the form of an elongate lens up to 195 feet thick and 800 feet wide. The top surface of the lens is from 450 to 550 feet below surface and is oriented in a NNE direction. An intersection in Hole 91-48, however, indicates that the lens is starting to increase in thickness to the east.

Drilling results from 1988 to 1991 appear in the Appendix.

Dr. Giles Peatfield completed a mineral inventory for the Lower North Zone using a 0.15% Cu-equivalent cut-off. His calculations indicate 7,455,100 tons of 0.73% Cu, 0.024 opt Au and 0.05 opt Ag. James Askew & Associates completed a mineral reserve estimate over the entire Empress area and identified 11,078,000 tons of 0.61% Cu and 0.023 opt Au using a 0.40% Cu cut-off.

In 1991, Bacon Donaldson & Associates Ltd. of Richmond, B.C., completed a preliminary metallurgical study. Test work of copper-gold core resulted in a recovery of 97.1% Cu and 69.3% Au. The Bacon Donaldson report recommends a microscopic examination of the tailings to determine processing options to recover the rest of the gold, which is either in pyrite or free.

Testing was carried out on core from Hole 90-21 from 503 to 718 feet, where it intersected the Lower North Zone. Below are results from two Vancouver-based labs, as well as two determinations by Bacon Donaldson, one on a 2-kg sample from the original composite sample (head) and the other from the results of the flotation tests (calculated head):

	<u>Cu (%)</u>	<u>Au (opt)</u>
Lab #1	0.90	0.036
Lab #2	0.92	0.037
B/D Head	1.12	0.037
B/D Calculated Head	1.13	0.036

In examining the results, one notices a discrepancy between copper assays from the labs and those from Bacon Donaldson. The metallurgists from Bacon Donaldson point out that this is not due to a problem with assay methods. In determining the copper content of the 215-foot interval using regular lab data, it is necessary to average the copper values from 30 different assays of six-foot sample sections. This method does not account for the different specific gravity of these six-foot sections, which is important because assay values are reported on a "per-ton" basis. Due to the fact that there is a correlation between high copper and heavier core (from magnetite and sulphides) in the Lower North Zone, the method of averaging assays introduces a downward bias to the percentage of copper (since the higher specific gravity of the heavier core is not taken into consideration).

## ADDITIONAL SIGNIFICANT ZONES OF MINERALIZATION

### Introduction

In 1988, the Empress area and Buzzer Zone were acquired under the original option agreement with New World Mines Development. Work on the Empress is described in the previous section. In 1989, the Rowbottom Zone was acquired through staking. The Buzzer Zone is located 10,000 feet east of the Empress just east of the Taseko River (Map 1, in pocket), and the Rowbottom Zone is located 7000 feet south of the Empress along Rowbottom Creek, a tributary of Granite Creek.

### Buzzer Zone

From a geological map of the Buzzer Zone (Figure 5), it is seen that a dike(?) of slightly porphyritic granodiorite occurs north and northeast of grey porphyritic quartz diorite and pink altered porphyritic quartz diorite. Chalcopyrite, molybdenite and pyrite occur within the altered and unaltered quartz diorite, whereas the granodiorite is relatively unmineralized. Alteration of the quartz diorite consists of quartz and sericite with local chlorite. The chalcopyrite is found as a replacement of mafic minerals and in vugs, whereas molybdenite and pyrite are disseminated and in hair-line fractures.

Drilling appears to have defined the limits of the mineralization in all directions but to the northeast. However, mineralized fragments with chalcopyrite, molybdenite and malachite have been found on either side of the access road on the northwest corner of Figure 5. As a result, mineralization may continue in quartz diorite on the north side of the dike.

On the basis of drilling conducted in 1976, Quintana geologists estimated the Buzzer to contain 5.5 million tons of 0.35% Cu and 0.031% Mo with gold. Unfortunately, gold assays of core are incomplete.

### Rowbottom Zone

Mineralization at the Rowbottom Zone is similar to that in the Buzzer with the exception that it occurs in variably altered porphyritic quartz monzonite rather than quartz diorite. Away from the main showing the rock is less obviously porphyritic and alteration decreases. In 1970, Sumitomo geologists concluded that although a part of the northwest side of the mineralized zone is left to be tested, it seems unlikely that the mineralization is much wider than the drilled area. The four most interesting holes drilled in 1970 are as follows:

<u>Hole</u>	<u>Depth</u>	<u>Interval</u>	<u>Width</u>	<u>Cu(%)</u>	<u>Mo(%)</u>
S-22	200'	15-200'	185'	0.41	0.034
S-24	200'	20-200'	180'	0.25	0.028
S-62	200'	70-100'	30'	0.39	0.061
S-64	300'	10-300'	290'	0.36	0.006

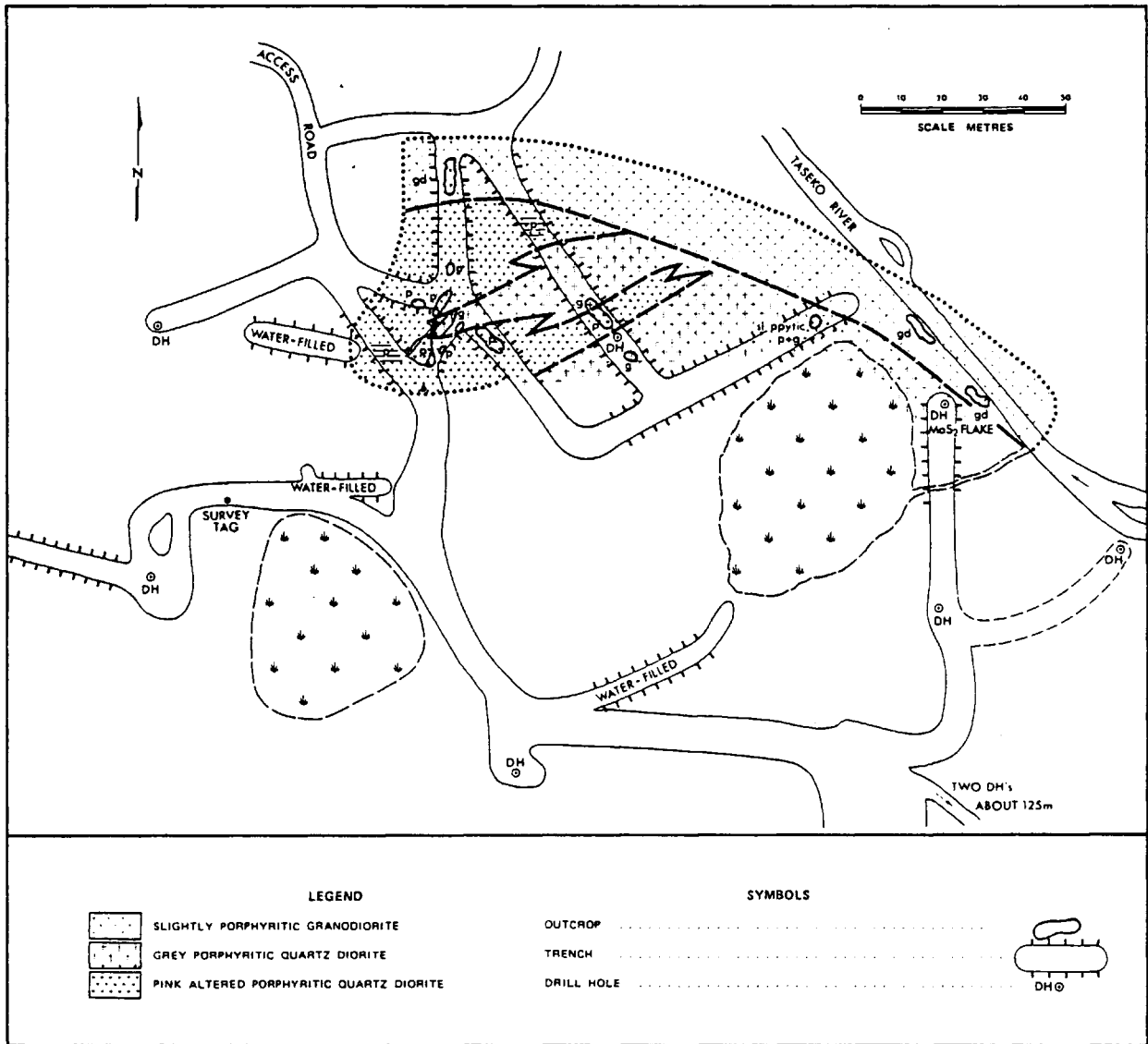


FIGURE 5: The Buzzer Zone  
(From McMillan, 1976)

On the basis of the drill-hole map alone (see Map 1, in pocket), the zone appears to be open to the north, northeast and northwest.

Over the last four years, a small soil sampling program has been conducted over the Rowbottom. Results of this program are compiled in the Appendix.

As could be expected, areas anomalous in copper, gold and molybdenum are apparent. In addition, areas anomalous in silver and lead occur. Is the Rowbottom soil residual or from glacial drift? If from glacial drift, it could come from the Rowtop area as explained next.

To the southwest of the Rowbottom Zone, up Rowbottom Creek, there are a number of occurrences of lead-zinc-silver-gold in the Rowtop area (see full description below). Could some of the soil anomalies over the Rowbottom Zone be from glacial drift, the source of which is the Rowtop area, or is this a second occurrence of similar mineralization? This must be answered.

### 1991 DRILLING PROGRAM

#### Introduction

In 1991, 12,572 feet of diamond drilling was completed in 20 holes. The main objective of the program was to attempt to find other mineralized zones similar to the Empress by drilling areas comparable in geophysical characteristics, as defined by a 1990 airborne-geophysical survey. Most holes of the 1991 program were spotted over geophysically anomalous areas. Other holes were spotted at the site of old drill holes where copper-gold mineralization had been intersected. The East Zone was discovered this way. Another objective of the 1991 program was to further delineate the Empress area. Three holes were drilled for this purpose. In drilling for an extension of the Lower North Zone to the north, the Granite Creek Zone was discovered. Additional holes were drilled in the East and Granite Creek Zones to follow up the discovery holes.

#### Geophysically Anomalous Areas

The airborne geophysical survey of 1990 was flown by Dighem Surveys to attempt to define a geophysical signature for the Empress area and to locate other similarly anomalous areas. The geophysical signature for the Empress was found to consist of rock high in resistivity overlying rock low in resistivity coincident with a magnetic high, where the level of the contact between high resistivity and low resistivity rock is between 50 and 500 feet below the surface. Several anomalous areas were outlined outside of the Empress area and 10 drill holes were located to test these areas (Figure 6).

The holes from this phase of the program with the best results include the following:

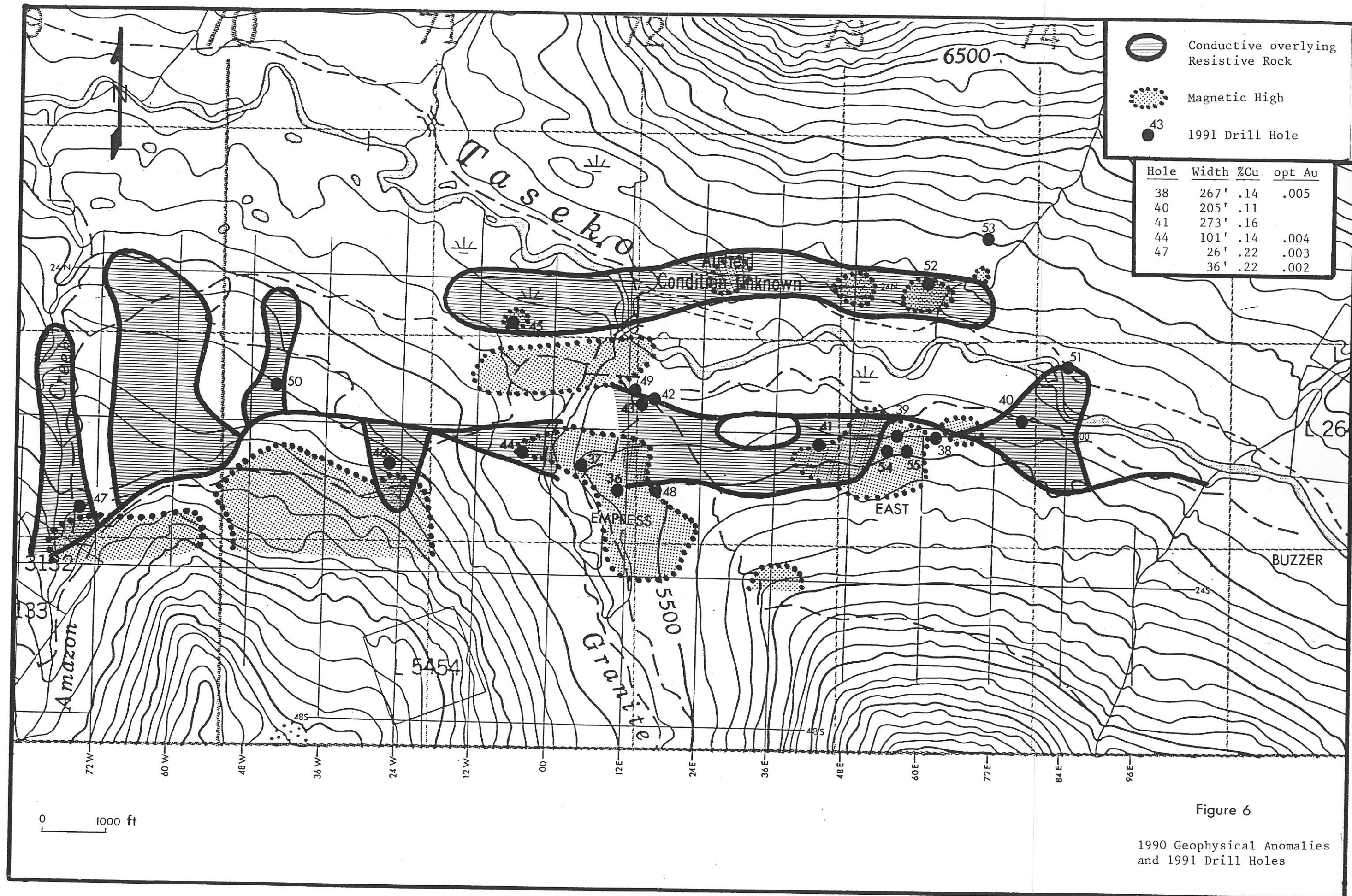


Figure 6

1990 Geophysical Anomalies and 1991 Drill Holes

<u>Hole</u>	<u>Interval</u>	<u>Width</u>	<u>Cu(%)</u>	<u>Au(opt)</u>	<u>Mo(%)</u>
91-40	372-577'	205'	0.11		
91-41	228.5-502'	273.5'	0.16	0.003	
91-44	429-530'	101'	0.14	0.004	
91-47	240-266'	26'	0.22	0.003	0.039
	454-490'	36'	0.22	0.002	0.020

Holes 91-40 and 91-41 were drilled in an area 2300 to 5600 feet east of the Empress area, while 91-47 and 91-44 were drilled west of the Empress. Hole 91-47 was the furthest hole from the Empress, located 8000 feet to the west. Although results are sub-ore grade, they are considered very good from an exploration stand point and require follow-up drilling.

#### East Zone

Two 1991 holes were located over old holes drilled in 1970 and 1976 that had intersected copper-gold mineralization. These holes, 91-38 and 91-39, located east of the Empress 4200 feet and 3800 feet respectively, returned the following results:

<u>Hole</u>	<u>Interval</u>	<u>Width</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
91-38	45-312	267'	0.14	0.005
	(45-80)	35	0.26	0.017
	388-508	120	0.14	0.004
91-39	45-64.5	19.5	0.41	0.020
	77-124	47	0.60	0.022
	353-369	16	0.34	0.009
	416.5-484	67.5	0.57	0.014
	535-554	19	0.60	0.009

Hole 91-39 was the discovery hole for the East Zone. Two other holes, 91-54 and 91-55, were drilled at the end of the program to follow up the mineralization first discovered in 91-39. Below are the results of these holes:

<u>Hole</u>	<u>Interval</u>	<u>Width</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
91-54	151-186	35	0.19	0.004
	240-279	39	0.31	0.006
	337-397	60	0.22	0.005
	397-439	42	0.63	0.019
	453-519	66	0.57	0.006
91-55	84-102	18	0.25	0.003
	163-199	36	0.49	0.003

These holes all had a number of unmineralized dikes cutting the mineralization. Figure 7 is a section of Hole 91-39 and shows an upper and lower zone of mineralization intruded by post-mineralization dikes. Hole 91-55 intersected a dike at 281 feet and was stopped at 428 feet still within the dike.

The zoned pattern of alteration first identified at the Empress is very similar to alteration seen in Hole 91-39, with the exception that very little quartz occurs above the quartz-magnetite rock. In addition, above the andalusite-pyrophyllite-plagioclase-quartz zone in Hole 91-54, there occurred 110 feet of quartz-magnetite followed by 110 feet of quartz.

As in the Empress area, chalcopyrite generally occurs in rock with magnetite.

### Empress Area

Three holes were drilled in the Empress to further delineate the zones there. Figure 4 is a map of the drill holes in the Empress area including the 1991 holes. Hole 91-36 was drilled to test the southwest end of the Upper North Zone, as well as the Lower North Zone. It intersected 142 feet (from 83 to 225 feet) of 0.24% Cu and 0.009 opt Au in the Upper North Zone, and 66 feet (from 375 to 441 feet) of 0.23% Cu and 0.009 opt Au in the Lower North Zone.

Hole 91-37 was drilled to test the Lower North Zone, 300 feet west of previous diamond drilling. It intersected 20 feet (from 449 to 469 feet) of 0.49% Cu and 0.012 opt Au.

Hole 91-48 was drilled to determine whether there might be a connection between the 76 Zone and the Lower North Zone. While it was found that the two do not connect, the hole intersected 167 feet (from 246 to 413 feet) of 0.23% Cu and 0.006 opt Au in the 76 Zone, and 90 feet (from 509 to 599 feet) of 0.40% Cu and 0.004 opt Au in the Lower North Zone.

### Granite Creek Zone

Hole 91-42 was drilled to test for an extension of the Lower North Zone to the north. Previous drilling indicated it to be lensing out toward the 0+00 Baseline, or to have been subjected to faulting with the north side being down-dropped. Airborne geophysics indicates that the volcanic-intrusive contact forms an east-west ridge here, along the Baseline. The lensing out of the Lower North Zone and the ridge can be inferred from the cross section in Figure 3. The purpose of Hole 91-42 was to determine if the zone continued on the other side of the ridge. In actual fact, a feldspar-porphyry dike was intersected immediately below overburden and the hole was halted at 188 feet still in the dike.

A second test, Hole 91-43, was attempted 200 feet west of Hole 91-42. Although this hole did not intersect the Lower North Zone, it did encounter altered as well as unaltered intrusive rock only 376 feet below altered volcanics, and contained 54 feet of mineralization assaying 0.21% Cu and 0.014 opt Au from 746 to 800 feet.



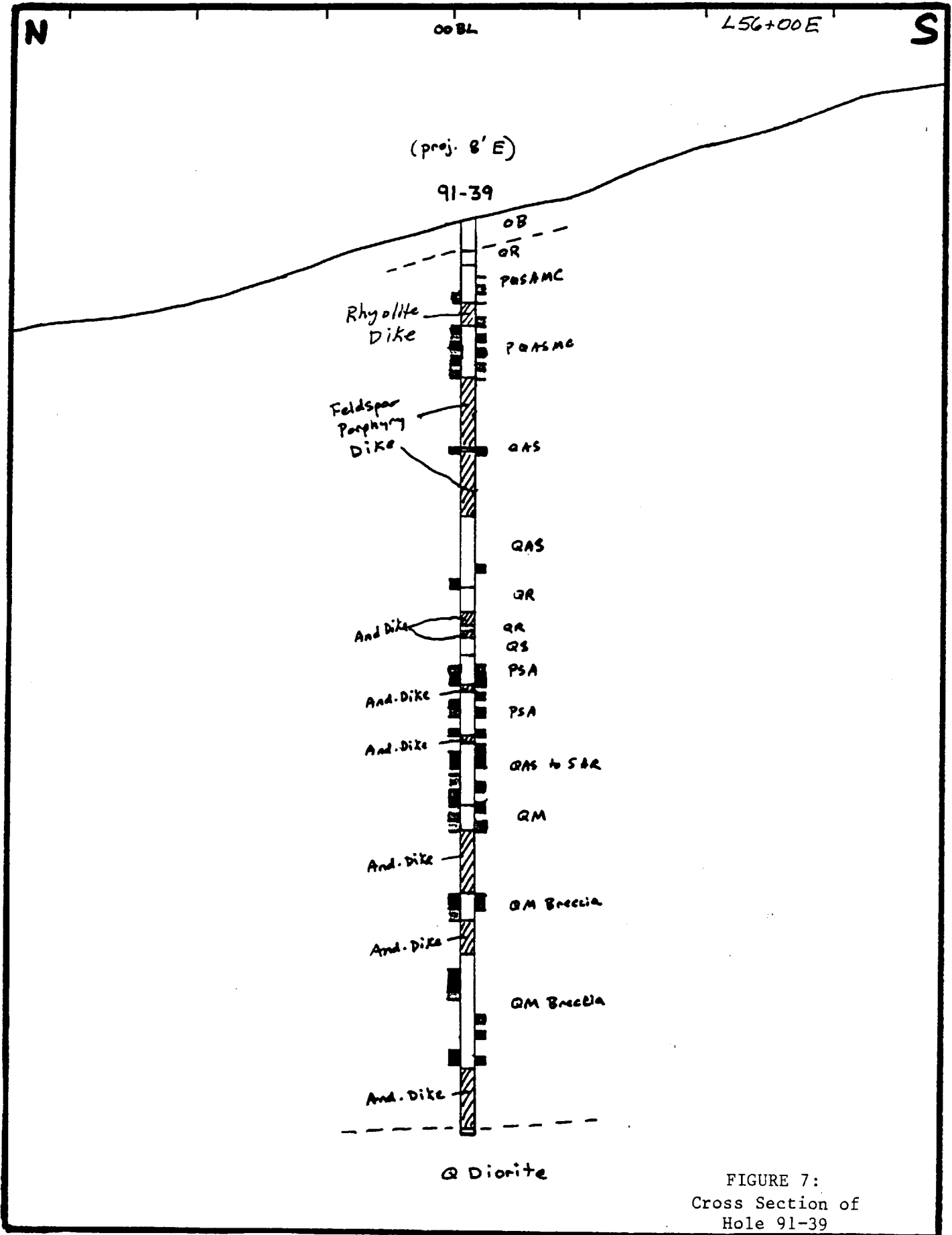


FIGURE 7:  
Cross Section of  
Hole 91-39

The significance of this hole was not only the presence of mineralization in the intrusive but also the existence of considerable thicknesses of alteration. This is in light of the fact that little in the way of alteration or copper-gold mineralization has been identified in intrusive rock below the altered volcanics under the Empress area.

Hole 91-49 was positioned northwest of Hole 91-43 so as to attempt to learn more about the mineralization and alteration intersected in Hole 91-43. This hole again intersected variably altered intrusive rock but also a considerable thickness of mineralization which includes 291 feet of 0.23% Cu and 0.008 opt Au, from 611 to 903 feet, and 251 feet of 0.035% Mo, from 186 to 437 feet. The molybdenum overlaps the contact between the overlying altered volcanics and underlying intrusive at 358 feet.

The intrusive rock is a dark grey quartz monzonite. The texture is equigranular to slightly porphyritic and medium grained. Staining indicates it to be quartz monzonite. The rock under the Empress Showing is much less altered, a similar texture and lighter grey. The question is, are we dealing with two separate intrusives or one intrusive that is more altered in places?

Hole 91-49 has a number of other interesting aspects. These include the correlation of molybdenum with a large number of gypsum veins (stockwork), which constitute from 5 to 15% of the rock from 170 to 405 feet, and the lack of quartz and quartz-magnetite zones above the intrusive contact.

## GEOLOGICAL RECONNAISSANCE

### Introduction

It would be instructional to include a brief description of the experience with geological mapping from 1988 to the present.

In 1988 it was noted on parts of the Empress area, where only one or two outcrops exist, that there were zones of similar rock fragments on the surface. In addition, it was recognized that copper soil anomalies were well defined as opposed to having a random mixture of high and low values.

Zones of fragments were mapped in 1988 and 1989. It was found that as one progressed from the southeastern part of the Empress to the northwest the zones of similar rock were less and less well defined until a random mixture of rock fragments of different types existed. Drilling indicated a poor correlation between what was found on the surface and rock immediately below overburden. As a result, the program of mapping rock fragments was discontinued. Because of the fact that little outcrop exists for a mile radius from the Empress and alteration appears to occur in flat-lying zones, drilling was used as the principal tool for compiling geological information.

At this point it is essential to stress a very important point. There are two types of soil found between the Buzzer and the Empress. One type consists of rounded granite boulders in a greyish sandy soil and is thought to be

glacial drift. The other consists of more angular, altered volcanic fragments in a reddish-brown soil and is thought to be locally transported residual soil. Where the two types occur together, the greyish soil with the granitic boulders overlies the other. The granitic boulders are thought to have been brought into the area by glaciers, probably from the south. As a result, the extensive zones of high copper soils (Figure 8) are important, not for assisting in spotting drill holes, but for indicating that a major source of copper mineralization is nearby.

In 1990, R. Gale and W. Osborne conducted geological reconnaissance in the area east of Granite Creek, and it was recognized that, unlike the Empress and surrounding areas, the area was mappable. Mapping was therefore conducted in 1991 by Donald Allen.

Also in 1991, geological reconnaissance was conducted in the area of the Breccia Zone (located north-northeast of the East Zone), the Motherlode Showing on Motherlode Mountain (southeast of the Empress area), the area of the Amazon Claim (located southwest of the Empress), and other areas to be mentioned below.

### **Breccia Zone**

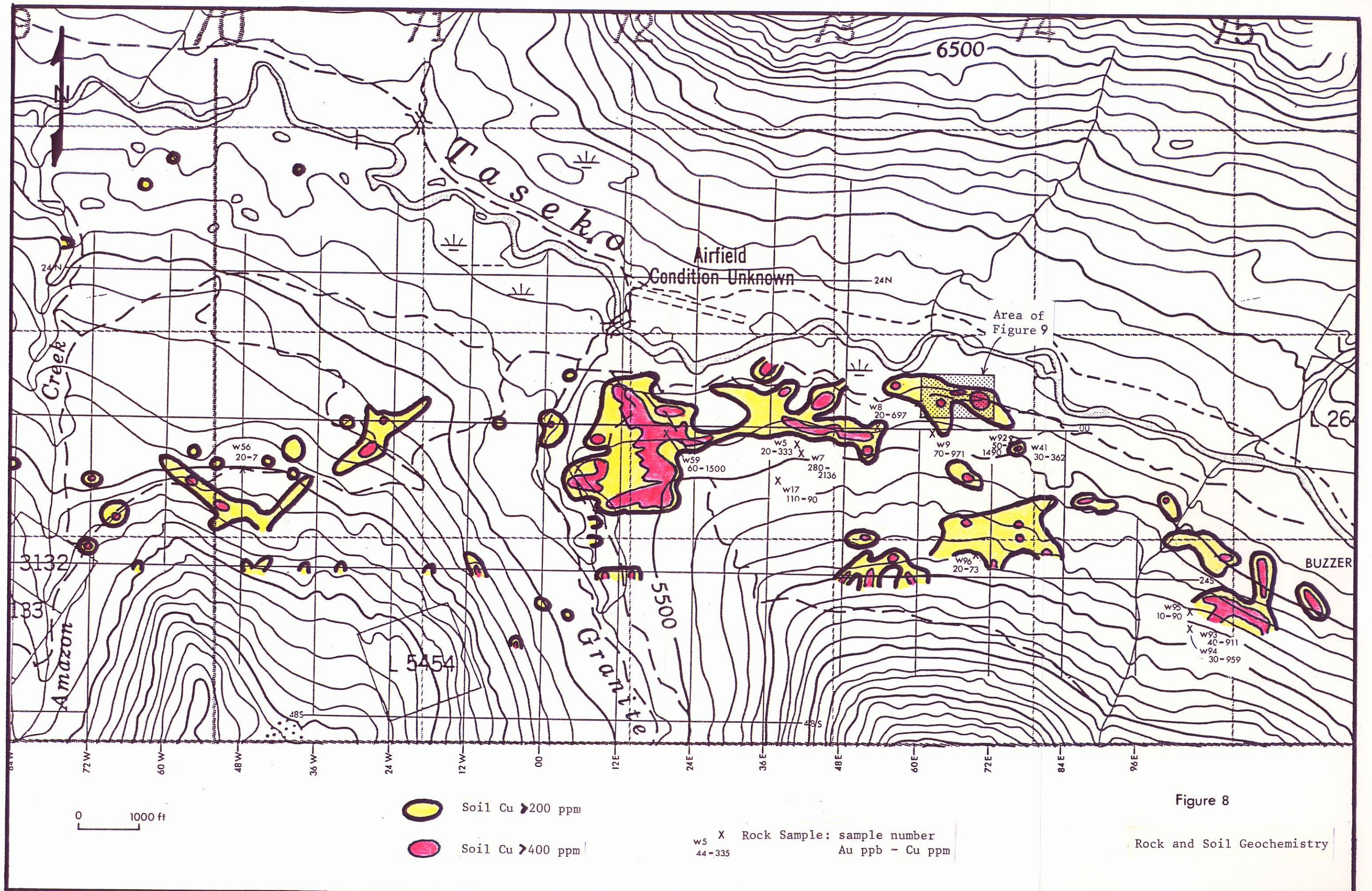
Geological mapping was conducted over what is referred to as the Breccia Zone, which is located between 60+00 and 66+00E, and 2+00 and 7+00N. Within the area there exist a number of large boulders and fragments of breccia and, to the east, altered volcanic rock mineralized with chalcopyrite (Figure 9). Again, the same problem with float fragments that is encountered in the Empress area applies here. Although it is possible to map zones of similar rock fragments, it cannot be assumed that the same rock occurs directly below the overburden. Like the Empress, however, it is thought that the fragments of rock have been transported only locally.

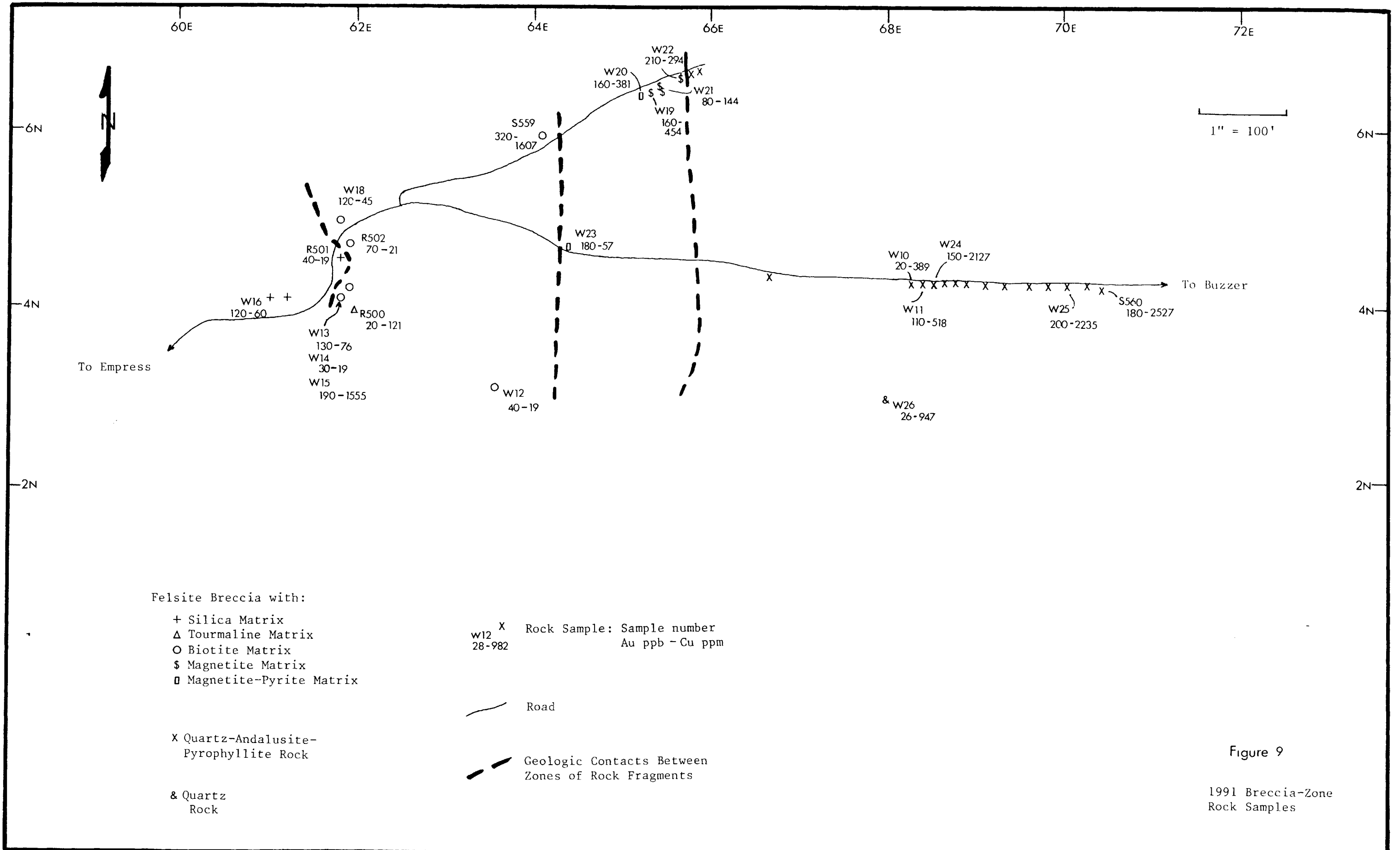
In spite of this, the geological map of the fragment-boulders in the Breccia Zone indicates some interesting relationships. Going from west to east, one traverses felsic breccia fragments in, first, a siliceous matrix, then a biotite-chlorite matrix and finally a magnetite matrix with pyrite in some places. An area of tourmaline matrix occurs on the southeast part of the biotite-chlorite zone. To the east of the Breccia Zone a large number of quartz-andalusite-pyrophyllite fragments occur.

Assays of selected fragments from this area generally show anomalous gold. Thirteen of twenty samples yielded greater than 100 ppb Au. Three samples along the road east of the Breccia Zone returned over 0.20% Cu. The source of the fragments should be located and it should be determined if there is vertical zonation to the gold mineralization.

### **Large Area of Soil Anomalies Southeast of East Zone**

A large zone of copper soil anomalies starts south of the East Zone and extends easterly 8000 feet toward the Buzzer Zone (Figure 8). Several visits





Felsite Breccia with:

- + Silica Matrix
- Δ Tourmaline Matrix
- Biotite Matrix
- \$ Magnetite Matrix
- Magnetite-Pyrite Matrix

X Quartz-Andalusite-Pyrophyllite Rock

& Quartz Rock

w12 X Rock Sample: Sample number  
28-982 Au ppb - Cu ppm

— Road

- - - Geologic Contacts Between Zones of Rock Fragments

Figure 9

1991 Breccia-Zone Rock Samples

were made to the area with little success in finding the source of the anomalous copper. A number of 1970 soil-sample sites have been resampled, and original results were confirmed.

The area of the copper soil anomalies is covered with overburden, and old trenches in the area failed to uncover appreciable outcrop. The soil has a high content of clay, and the whole area is damp with numerous seepages of water. On the last day of the 1991 program, a number of rock samples with malachite were found just south of one of the anomalous zones and about 2000 feet southwest of the Buzzer Zone. Three samples were assayed and although two gave results of only 0.10 and 0.12% Cu, this rock, which occurs as fragments in a creek, could be a clue to the large soil anomalies here. The rock itself is highly siliceous and coated with limonite. Two samples had molybdenum of 218 to 357 ppm. Interestingly, sample W93, one of the samples from here, looks similar to the more highly altered intrusive found in the Buzzer. The intervening ground is covered with overburden.

### **Motherlode Mountain**

Two traverses were conducted over Motherlode Mountain. The objectives of these traverses were two-fold: first, to examine the Motherlode Showing and second, to investigate the eastern boundary of the claims to determine whether more staking would be warranted.

The Motherlode Showing consists of an untypically dark grey quartz monzonite intrusion to the northwest in contact with a quartz diorite to the east. Within the quartz diorite is a small pendent of hornfels. Disseminated chalcopyrite and malachite were seen in the intrusive rocks, but it was more highly concentrated in the hornfels where assays on grab samples gave up to 2.20% Cu and 5000 ppb Au.

During the second traverse, many fragments of the dark grey quartz monzonite were seen in talus on the north side of the mountain, and numerous fragments were seen with limonite-covered quartz and sericite. These are probably related to breccia zones exposed in the face of the mountain. Sample W90, consisting of quartz-sericite, assayed 1928 ppm Cu and 90 ppb Au.

The east and south sides of Motherlode Mountain consist of quartz diorite. West of the peak of Motherlode Mountain, malachite and chalcopyrite were seen widely scattered in quartz veins in talus. Much lower down on the mountain and southeast of the Rowbottom Zone, weathering has reduced the quartz diorite to very small fragments. Two samples of this material were taken and, surprisingly, contained 350 and 248 ppm Cu.

### **Amazon Claim**

Westpine-ASARCO owns a claim in the middle of a neighbouring claim (the Cop 5), southwest of the Empress Showing. This claim was staked to overlap an old Crown Granted claim. A traverse was completed on the claim for assessment purposes. Results occur on Map 1 in the pocket.

The traverse first followed a lineament found from a study of air photos, which on the ground corresponds to a draw. Here, a large open area in the trees exposes a talus slope of quartz diorite containing a few quartz veins with malachite and chalcopyrite. The draw was followed beyond the outcrop and a soil sample was taken which assayed 1346 ppm Cu and 30 ppb Au.

To the west of the first draw, another draw was followed. Along this draw occur outcrops of dark grey quartz monzonite with K-feldspar alteration along fractures and chalcopyrite associated with K-feldspar. The best assay from this material came from sample W76 which yielded 4600 ppm Cu and 750 ppb Au. This rock, with chalcopyrite mineralization, was found over 250 feet in a SSE direction. The highest assay from the area came from a narrow quartz vein in the intrusive rock (sample W73R) with 1.38% Cu and 3400 ppb Au.

### Other Areas

The Rowtop system of galena, sphalerite, gold and silver occur in quartz along at least six fractures over a 450 foot width on the south side of Rowbottom valley, southwest of the Rowbottom Zone. At the valley bottom, 1700 feet north and 400 feet lower in elevation than the fractures, an eight inch lead-zinc quartz vein was found as well as a number of fragments of float. A sample across the vein assayed 0.77 opt Au and 7.52 opt Ag. Does this vein increase in width with depth? Is a similar type of mineralization found in the Rowbottom area where there is anomalous lead in the soils?

Other areas were examined along the course of the season (Map 1). A number of samples with greater than 1000 ppm Cu were taken from the Empress-East Zone areas, and several granitic fragments mineralized with copper were found in glacial drift in the vicinity of Hole 91-47.

### GEOLOGICAL MAPPING

Donald G. Allen spent 21 days in the field mapping the western part of the Taseko Property. The purpose was to get a better geological picture as well as to explain the cause of some of the anomalies discovered through the airborne geophysical survey. The following is quoted from parts of the Allen report:

"All of the features observed in the western part of the Taseko River alteration zone indicate that the zone represents a fossil geothermal or hot spring system. These features include:

1. widespread argillic and advanced argillic alteration;
2. intense silicification, with one extensive zone of jasperoid development;
3. pervasively disseminated pyrite and hematite; and

4. associated trace element geochemistry i.e., enhanced levels of mercury, antimony, bismuth, etc. and locally gold.

"As such, the zone represents an attractive epithermal precious metals target.

"At least one target area, on the northwest side of Honduras Creek, should be tested by drilling. Associated with this target is a magnetic anomaly, a number of VLF-electromagnetic anomalies and a resistivity anomaly. Detailed ground VLF-electromagnetic and magnetic surveys will assist in defining specific drilling sites. A Genie SE-88 electromagnetic survey (a rapid and relatively inexpensive electromagnetic survey) would also be useful to confirm the presence of a conductor and will also provide information on the direction of the dip.

"Elsewhere in the area mapped, siliceous zones appear to have developed by pervasive flooding of hydrothermal fluids through relatively permeable volcanoclastic rocks. Where contacts have been observed, the silica-rich zones appear to be bounded and possibly controlled by fractures. However there is no development of quartz veining or quartz vein stockworks suggesting close proximity to a porphyry-type deposit. Geochemical sampling in such areas in general has been negative, but further sampling is warranted, particularly at the headwaters of Honduras Creek as mentioned above.

"One or two holes should be drilled on the geological and geophysical target on the west side of Honduras Creek to test the jasperoid zone. Prior to drilling, VLF-electromagnetic and/or Genie SE-88 electromagnetic, and magnetic surveys should be carried out to define in more detail the VLF-conductors detected in previous surveys conducted by Esso Minerals. If results of initial drilling are favourable then a potential target perhaps as much as 7000 feet long is indicated."

## CONCLUSIONS

### Empress Area

From 1988 to 1990, exploration successfully advanced the status of the Taseko Property from a prospect to an area with mineral reserves of 11,078,000 tons of 0.61% Cu and 0.023 opt Au (including 915,000 tons of 1.90% Cu and 0.064 opt Au). This mineral reserve includes the three zones in the Empress area.

The main criticism of the property to date has concerned the depth of the zones. The reported top of the Lower North Zone, for example, is 450 to 550 feet deep. The James Askew study calculated a stripping ratio of 1 to 5.9 for the Empress using a cut-off of 0.40% Cu. The problem with this is that a cut-off of 0.40% Cu excludes much of the copper-gold mineralization in the overlying Upper North Zone and 76 Zone. If, on the other hand, the cut-off grade was reduced to 0.40% Cu *equivalent*, it is thought that a substantial tonnage would be added to the two shallower zones and the stripping ratio would be lowered.



There is another consideration as to the depth of potential Empress-type mineralized zones north of and adjacent to the volcanic-intrusive contact. Extensive soil anomalies and numerous mineralized fragments occur along much of this zone from 74+00E at the 0+00 Baseline, to Amazon Creek. The anomalous soil is thought to have been transported only locally. The source of the soils and fragments is obviously near the surface. This, in turn, could indicate near-surface zones of significant mineralization. In addition, glacial drift overlying residual soil probably masks anomalous soils in a number of areas.

Much work remains to be completed in the Empress area to fully define the three zones, all of which are open to the east. Hole 91-37, drilled 300 feet west of the most westerly 1990 holes, intersected 20 feet of 0.49% Cu and 0.012 opt Au in the Lower North Zone. The fact that the Lower North Zone still exists 300 feet west of the previous drilling is positive news. The question is whether or not the mineralization is thinning or thickening to the west.

In Figure 3, the quartz and quartz magnetite units, as well as mineralization of the Lower North Zone, seem cut-off to the north by either lensing out or faulting and subsequent incorporation within the intrusive. Along this north-south section, the intrusive-volcanic contact rises from 605 feet below the surface at 2+00S, to 360 feet below the surface 800 feet to the north. The question is: will the quartz and quartz magnetite with Cu-Au mineralization reappear when the contact presumably deepens further to the north?

Finally, there is the dilemma of high-grade float in the Empress Area (up to 7% Cu and 0.30 opt Au). Does it originate from the 76 Zone where it comes to the surface, or could at least some of it come from a zone of mineralized volcanics within the intrusive? Since there is strong, positive correlation between copper-gold mineralization and quartz-magnetite rock, the magnetic anomaly extending south from the Empress could indicate such a zone.

### East Zone

The East Zone was one of two potential new zones discovered through drilling in 1991. It is 3500 feet east of the Empress area and similar in geological environment and mineralization. Three holes intersected this zone, and it is open in all directions.

Both the zones within the Empress area and the East Zone occur in volcanics on top of an extensive shelf up to 15,000 feet long overlying the intrusive contact. Several Empress "look-alike" geophysical as well as geochemical anomalies occur over the length of this zone (Figures 6 and 8). Holes 91-38, 40, 41 and 44 intersected low grade but significant copper mineralization. The best of these holes, 91-41, which intersected 267 feet of 0.16% Cu, was drilled between the Empress area and East Zone. Does the mineralization in this hole indicate a connection between the Empress area and East Zone? What is the significance of copper, gold and molybdenum in the other holes? The mineralization in these holes should be tested through off-set drilling. In addition, more exploration is required west of Granite Creek within the large, geophysically anomalous zones occurring over the shelf area.

## Granite Creek Zone

The Granite Creek Zone is the second zone that was discovered in 1991. This zone consists of copper porphyry-type mineralization. The zone is open to the north, northwest and northeast. The occurrence of this type of mineralization near the Empress adds a whole new dimension to exploration and opens up large areas for further investigation. How extensive is the dark quartz monzonite in which the copper, molybdenum and gold occur? Similar rock without mineralization has been seen as float in the Empress area, south of the East Zone, and as outcrop on Motherlode Mountain to the south. Are these related? What is the control of mineralization? Is the large, southeast copper soil anomaly along Line 24+00S related?

## Buzzer Zone and Copper Soil Anomalies

Quintana geologists in 1976 indicated the Buzzer to have 5.5 million tons of 0.35% Cu and 0.031% Mo with incomplete gold assays. The mineralization is cut-off to the north by an apparent dike (Figure 5). The presence of Buzzer-like mineralized float on the access road to the northwest indicates the Buzzer Zone could continue north of the dike.

The 8000 foot long copper soil anomaly to the southwest of the Buzzer, as well as mineralized fragments of rock found south of this anomaly, has been described above. There is evidence that this anomaly may be transported. If so, could the rock found south of the anomaly be the source of the anomalous soils? Fragments of this rock assayed up to 0.12% Cu and 357 ppm Mo and appear very similar in appearance to altered and mineralized quartz diorite found in the Buzzer. The ground between is covered by overburden.

## Rowbottom and Rowtop Areas

Drilling on the Rowbottom Zone did not cut mineralization off to the north, northwest and northeast. Soil geochemistry shows areas anomalous in copper, molybdenum, gold, silver and lead over the zone. These anomalous areas remain open. The presence of anomalous lead in particular was not expected. Could the soils with anomalous lead have been transported by glaciers from the Rowtop area to the southwest, or are they residual?

In the Rowtop area, narrow fractures with galena and sphalerite occur on the south side of the valley of Rowbottom Creek. Four hundred feet in elevation below and to the north, in the centre of the valley, an 8 inch vein of quartz, galena and sphalerite, as well as a number of fragments of float, were found. A sample across the vein assayed 0.774 opt Au and 7.50 opt Ag. Apparently the vein(s) thicken with depth. *How is this known?*

## Additional Areas of Interest

Only four holes have tested the geophysically anomalous areas along the 8000 foot volcanic-intrusive contact west of the Empress area to Amazon Creek.

Two holes, 91-44 and 91-47, intersected copper mineralization (91-47 also contained molybdenum). Further exploration is needed in this area.

Don Allen recommends drilling on the zones of jasperoid he mapped west of Honduras Creek. The two anomalous rock samples taken southeast of the Rowbottom Zone, east of Granite Creek, must be followed up, as well as the mineralization found in Amazon Creek.

## RECOMMENDATIONS

### Introduction

An exploration program of at least \$300,000 is recommended for the Taseko Property. This would include a program of geological mapping and diamond drilling. The drilling budget would support 7500 feet of drilling in 10 holes. It is cautioned that a program of this size will partly answer only a few of the questions raised in this report.

### Drilling

1. Four holes should be spotted to further define the East Zone. One of the purposes would be to establish the trend of the main zone of mineralization. This could help to guide further drilling in the area between the Empress and East Zone, and in the Breccia Zone.
2. One hole should be located so as to test for the eastern extension of zones within the Empress.
3. One hole should test for copper-gold mineralization that could be within the magnetic anomaly extending south from the Empress. The goal would be to determine whether or not the source of some high-grade float found in the Empress area comes from the south.
4. One hole should be drilled west or northwest of the Granite Creek Zone to attempt to establish a trend of mineralization in the zone.
5. One hole should test the area northwest of the Buzzer, on the other side of the dike, to attempt to establish if there is a continuation of the mineralized zone northwest of the dike.
6. One hole should be reserved for the area containing mineralized fragments south of the southeastern copper-soil anomaly. This hole would be dependent upon results from geological mapping of the area.
7. One hole should be drilled east of Hole S-20A north of the Taseko River. This hole was drilled in 1970 to 30 feet and intersected 0.29% Cu in the last 10 feet. This is within the long resistivity and magnetic anomaly occurring there.

## Geological Mapping

Up to the present, the 1970 Sumitomo geological map has been relied upon for information in the area underlain by intrusive rock. It has been recognized that more work is required in order to map different phases of intrusive activity and related alteration. One purpose would be to attempt to define the size and location of the dark quartz monzonite that hosts the mineralization in Hole 91-49, and on Motherlode Mountain. The ultimate goal of this exercise would be to better understand the source and control of copper-gold-molybdenum mineralization from the Buzzer to the Empress and Rowbottom areas.

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**APPENDIX**

**Summary Results for Diamond Drill Holes From 1988-1991**

**Soil Geochemistry Maps for the Rowbottom Zone**

Summary Results for Diamond Drill Holes From 1988-1991

1988

<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
88-1	154	95-115	20	0.31	0.007
88-2	218	24-98 (44-64) 109.5-155	74 20 45.5	0.52 1.14 0.23	0.013 0.030 0.006
88-3	150	38-53	15	0.38	0.014
88-4	214	41-50	9	0.43	0.011
88-5	244	97-161	64	0.51	0.009
88-6	251	44-75	31	0.48	0.010
88-7	231	58-100 62.5-212 (126-212) (165-203)	42 149.5 86 38	0.34 0.53 0.73 1.15	0.009 0.015 0.019 0.026

1989

<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
89-1	388	269-299	30	0.17	0.010
89-2	430	87-387 (199-387)	300 188	0.38 0.47	0.013 0.013
89-3	358	19.5-51 250-292	31.5 42	0.44 0.22	0.027 0.008
89-4	460	362-456	94	0.22	0.006
89-5	327	69-204	135	0.23	0.005
89-6	437	64-85 376-390	21 14	0.46 0.65	0.001 0.021
89-7	355	65-113	48	0.13	0.003
89-8	447	30-372 (256-372) (305-327)	342 116 22	0.35 0.59 1.42	0.012 0.023 0.057



<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
89-9	438	101-147	46	0.28	0.009
		198-420	222	0.25	0.009
		(198-245)	47	0.39	0.014
89-10	543	291-407	116	0.38	0.014
		(335-376)	41	0.53	0.016
89-11	282	137-257	120	0.26	0.008
89-12	714	88-714	626	0.29	0.008
		(487-714)	227	0.57	0.014
89-16	167	29-40	11	0.26	0.009

1990

<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
90-17	707	472-652	180	1.45	0.054
		(581-629)	48	2.33	0.105
90-18	627	163-512	349	0.58	0.019
		(363-494)	131	1.04	0.030
90-19	687	147-311	164	0.19	0.006
		(265-311)	46	0.32	0.011
90-20	712	554-673	119	0.39	0.010
		(554-608)	54	0.50	0.012
90-21	727	503-718	215	0.93	0.036
		(509-569)	60	1.87	0.061
90-22	693	472-647	175	1.03	0.041
		(511-599)	88	1.52	0.062
90-23	677	450-562	112	0.40	0.010
90-24	647	414-468	54	0.26	0.024
		530-598	68	0.74	0.032
90-25	460	351-369	18	0.47	0.012
90-26	287	170-261	91	0.44	0.012
90-27	327	91.5-103	11.5	0.25	0.007

<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
90-28	437	60.5-151 304-338	90.5 34	0.24 0.49	0.008 0.019
90-29	717	333-351 519-644	18 125	0.88 0.62	0.023 0.019
90-30	733	39-104 540-684	65 144	0.26 0.73	0.012 0.028
90-31	673	563-623.5	60.5	0.37	0.008
90-32	593	411-454	43	0.57	0.018
90-33	667	453-479	26	0.40	0.010

1991

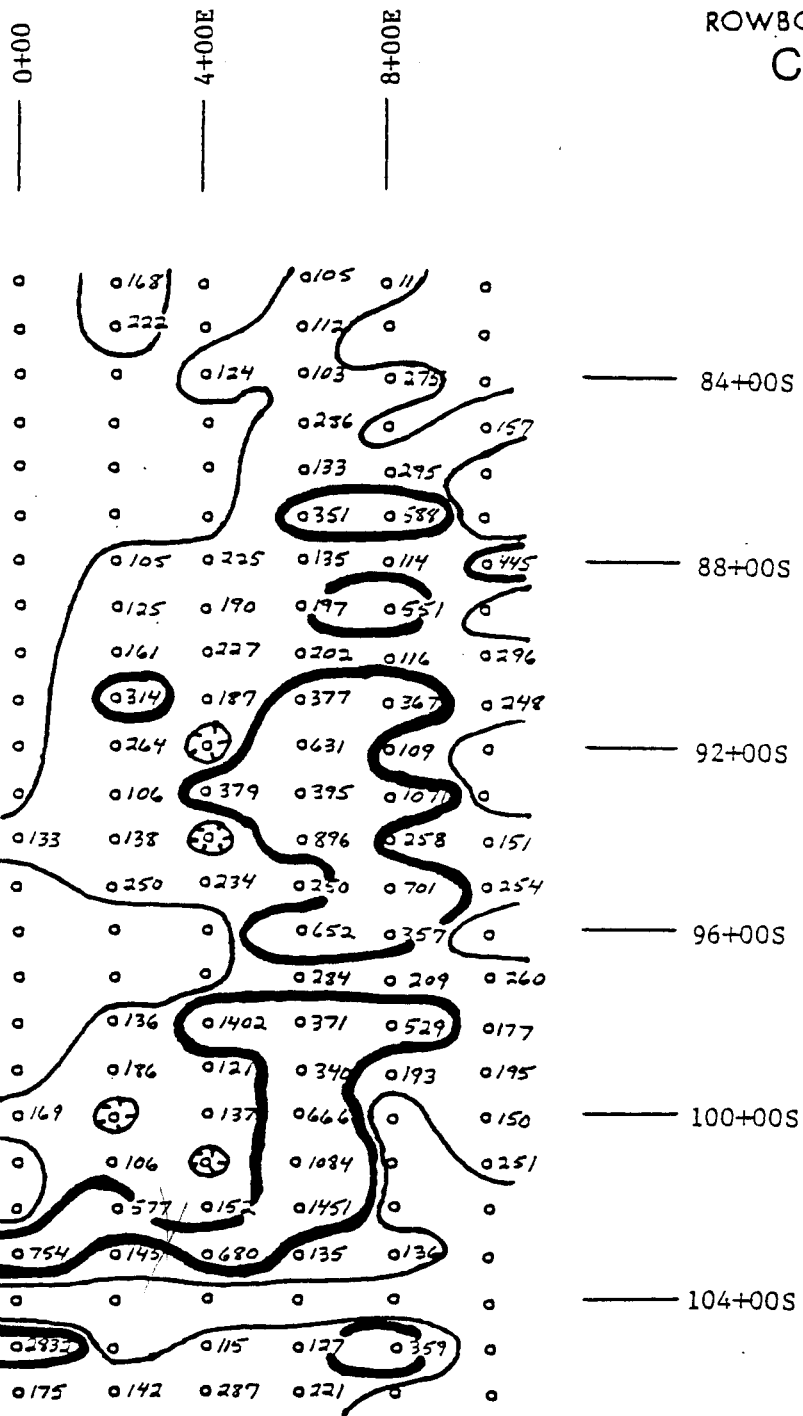
<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
91-36	480	83-225 375-441	142 66	0.24 0.23	0.007 0.008
91-37	500	449-469	20	0.49	0.011
91-38	630	45-312 (45-80) 388-508	267 35 120	0.14 0.26 0.14	0.005 0.017 0.004
91-39	728	45-64.5 77-124 353-369 375-409.5 416.5-484 535-554	19.5 47 16 34.5 67.5 19	0.41 0.60 0.34 0.25 0.57 0.60	0.020 0.022 0.009 0.006 0.014 0.009
91-40	598	372-577	205	0.11	0.001
91-41	643	228.5-502 (324-360) (390-420)	273.5 36 30	0.16 0.24 0.41	0.003 0.005 0.005
91-42	188	No Significant Mineralization			
91-43	830	134-378 746-800 (746-758)	244 54 12	0.11 0.21 0.60	0.002 0.014 0.036

<u>Hole</u>	<u>Depth (feet)</u>	<u>Interval (feet)</u>	<u>Width (feet)</u>	<u>Cu(%)</u>	<u>Au(opt)</u>
91-44	557	429-530	101	0.14	0.004
91-45	560	No Significant Mineralization			
91-46	251	No Significant Mineralization			
91-47	667	240-266	26	0.22	0.003
		454-490	36	0.22	0.002
91-48	715	198-210	12	0.49	0.029
		246-593	347	0.24	0.004
		(335-413)	78	0.30	0.007
		509-599	90	0.40	0.004
91-49	979	611-903	292	0.23	0.007
		(611-635)	24	0.76	0.035
91-50	777	No Significant Mineralization			
91-51	800	No Significant Mineralization			
91-52	732	No Significant Mineralization			
91-53	719	No Significant Mineralization			
91-54	790	151-186	35	0.19	0.004
		240-279	39	0.31	0.006
		337-397	60	0.22	0.005
		397-439	42	0.63	0.019
		453-519	66	0.57	0.006
91-55	428	84-102	18	0.25	0.003
		163-199	36	0.49	0.003

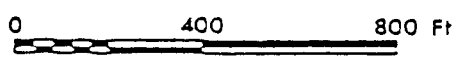
Soil Geochemistry Maps for the Rowbottom Zone



ROWBOTTOM  
CU



100 ppm  
300 ppm



WESTPINE METALS LTD.		
TASEKO PROPERTY		
SOIL GEOCHEMISTRY - CU		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE: JAN., 1991	DRAWN: E.L./dw	14

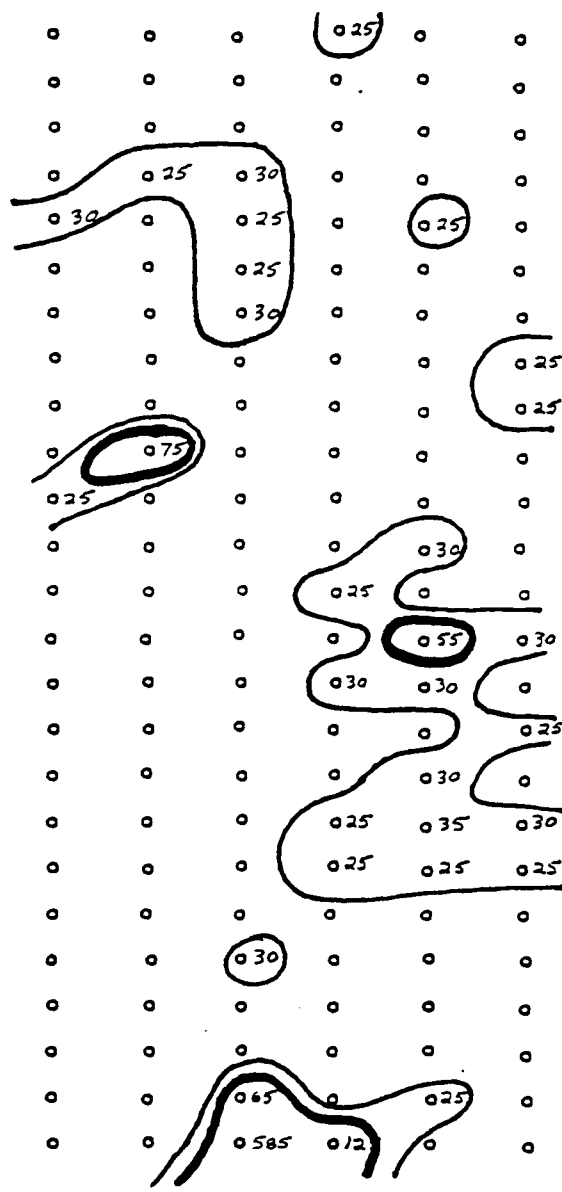


ROWBOTTOM  
AU


0+00

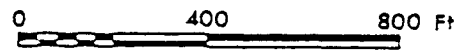
4+00E

8+00E



84+00S  
88+00S  
92+00S  
96+00S  
100+00S  
104+00S

 22 ppb  
40 ppb

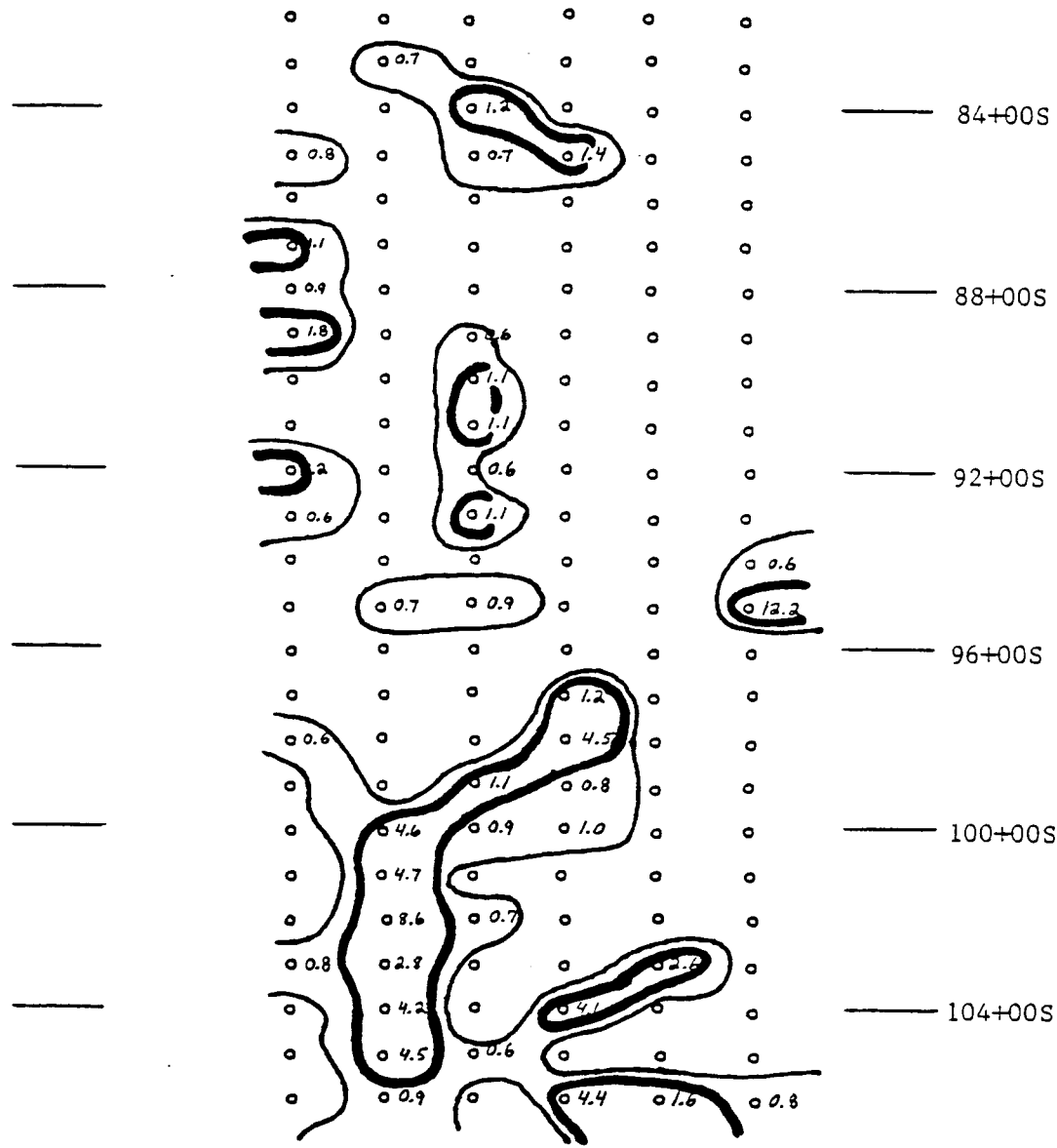




WESTPINE METALS LTD.		
TASEKO PROPERTY		
SOIL GEOCHEMISTRY - AU		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE: JAN., 1991	DRAWN: E.L./dw	15

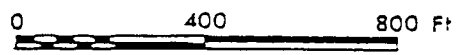


ROWBOTTOM  
AG

0+00                      4+00E                      8+00E



 0.55 ppm  
 1.05 ppm

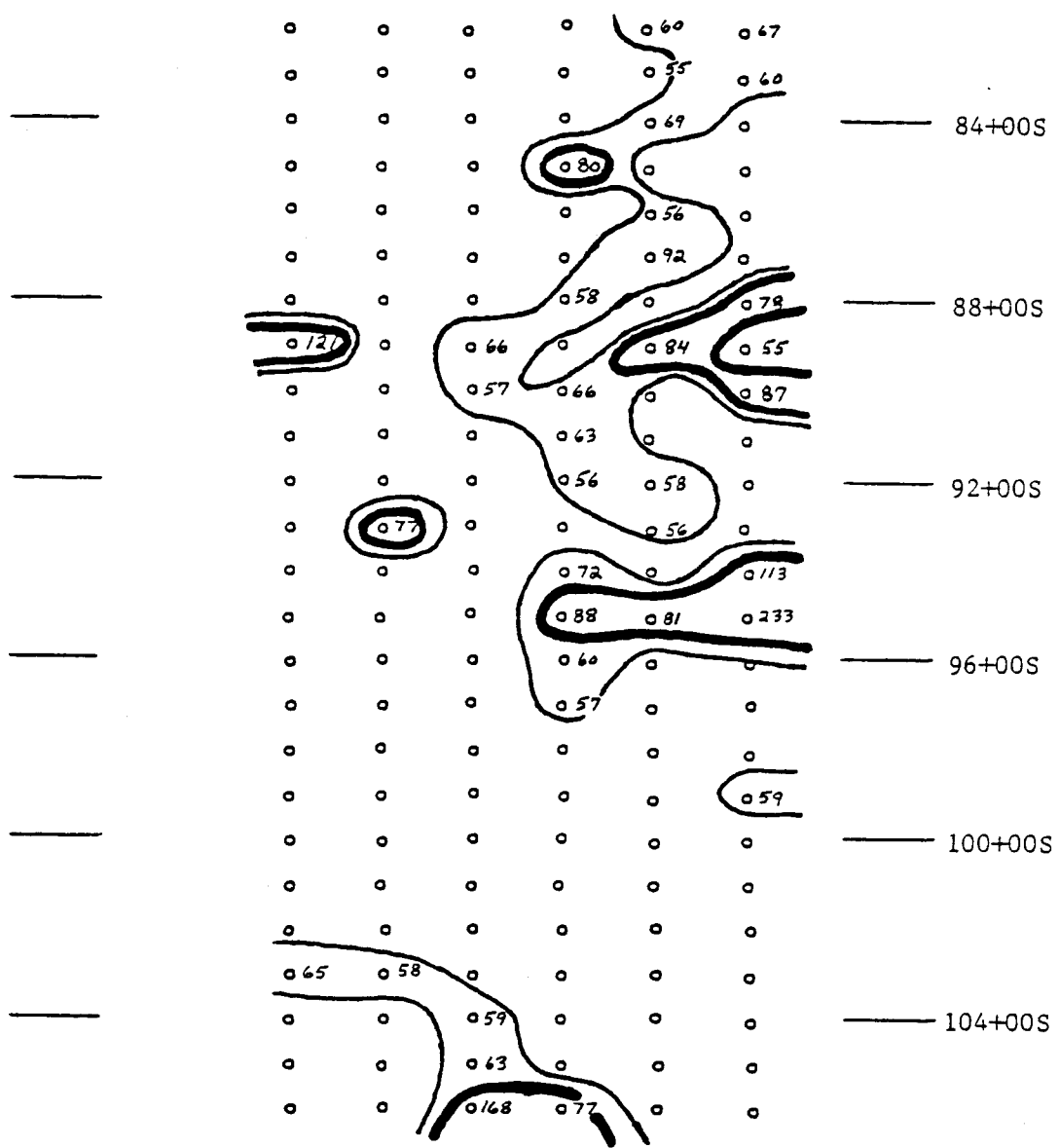




WESTPINE METALS LTD.		
TASEKO PROPERTY SOIL GEOCHEMISTRY - AG		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE: JAN., 1991	DRAWN: E.L./dvw	16

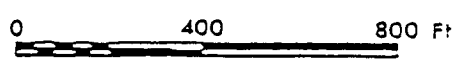


ROWBOTTOM  
PB

0+00                      4+00E                      8+00E



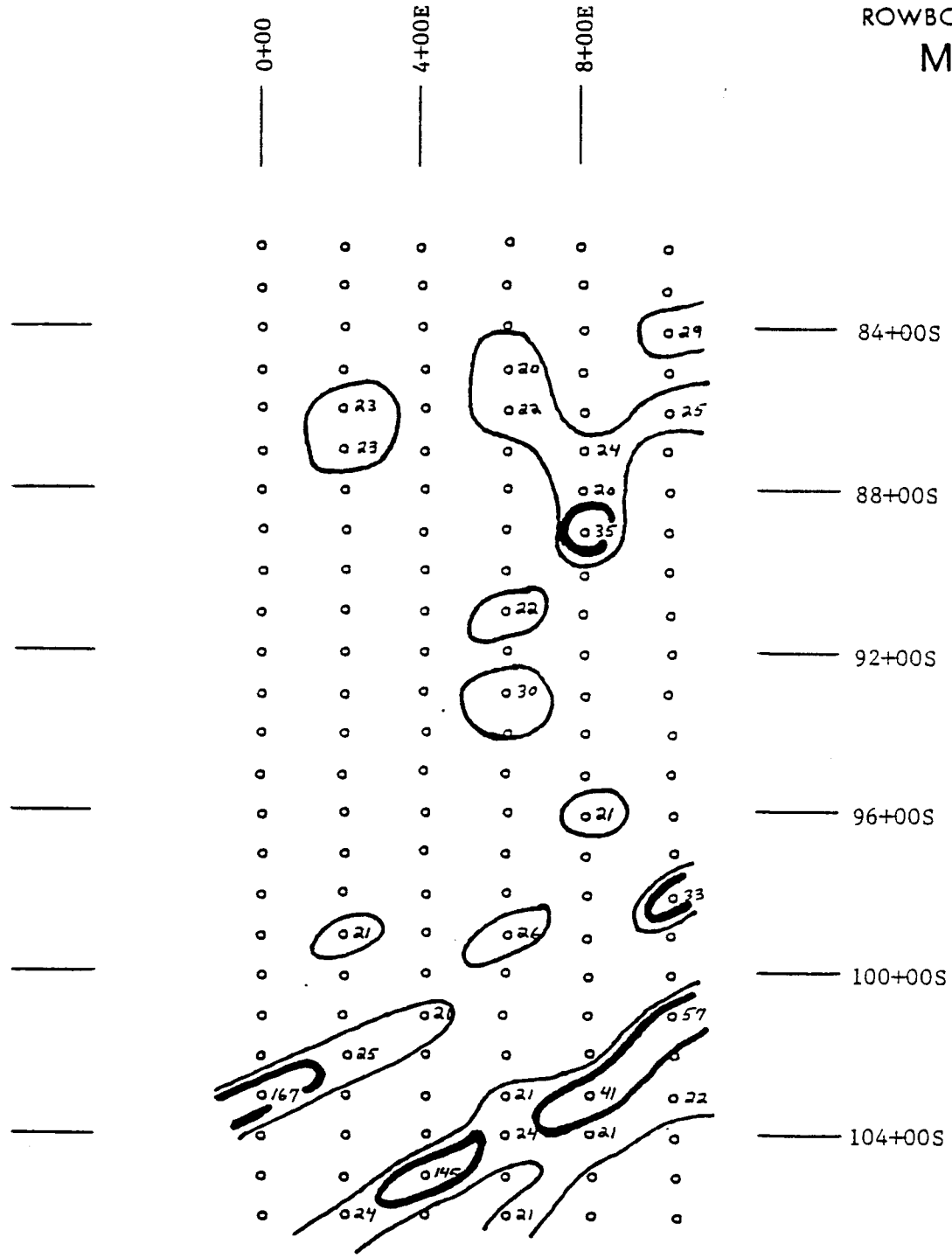
 55 ppm  
 75 ppm



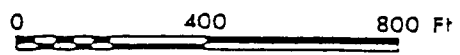
WESTPINE METALS LTD.		
TASEKO PROPERTY SOIL GEOCHEMISTRY - PB		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE JAN., 1991	DRAWN: E.L./dw	17



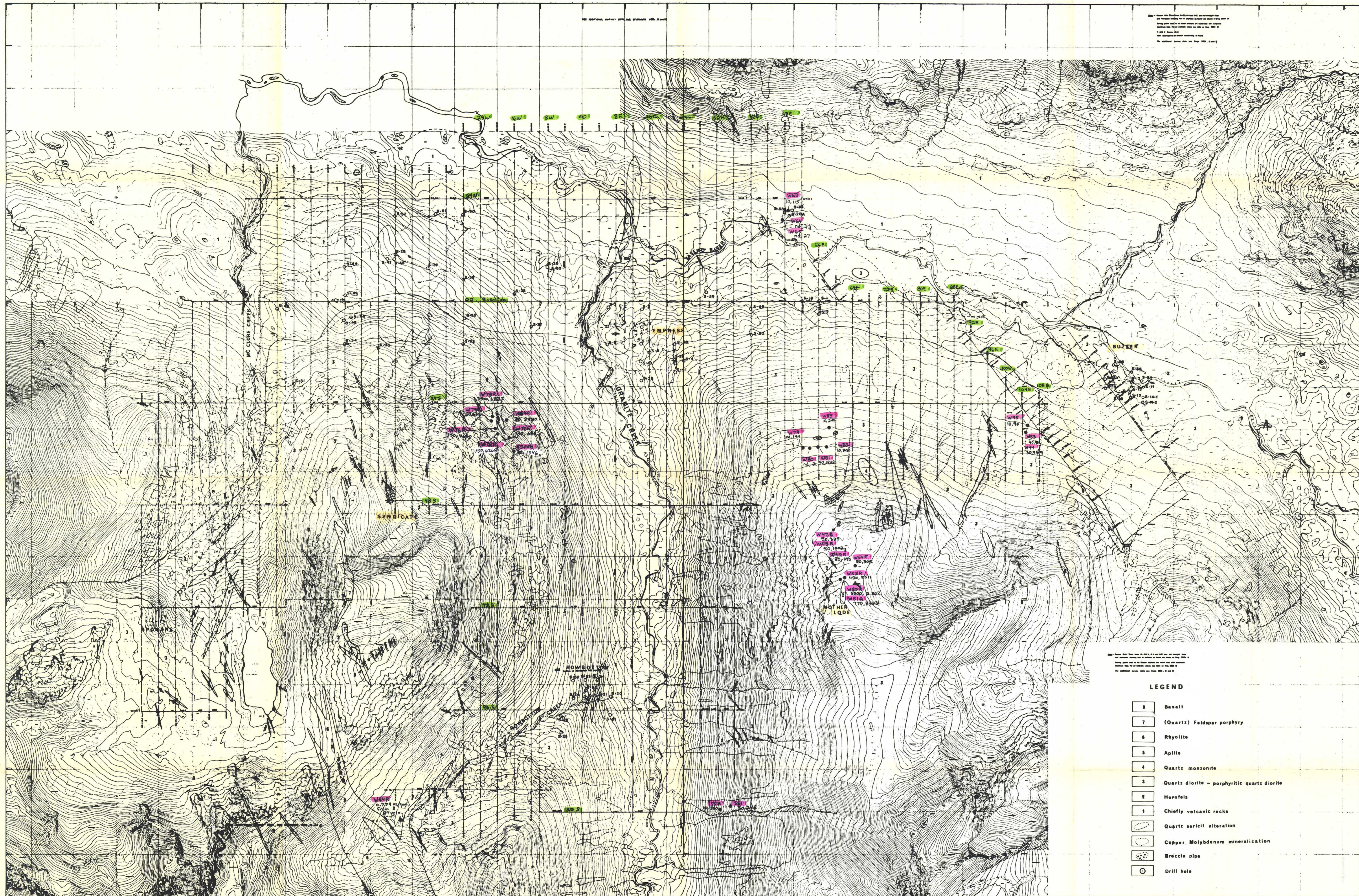
ROWBOTTOM  
MO



19 ppm  
30 ppm



WESTPINE METALS LTD.		
TASEKO PROPERTY SOIL GEOCHEMISTRY - MO		
E. LAMBERT, GEOL., F.G.A.C.		
N.T.S. 920/3W	SCALE: 1:1200	FIG.
DATE: JAN., 1991	DRAWN: E.L./dw	18



Map 1 - Taseko Metal Mining Canada Ltd. 1970. Scale 1" = 1000'. Contour interval 20 feet. Elevation in feet above sea level. Grid north referred to true north through meridian 123°25'. Bearing elevations referred to stellar observations at Top S.R.O. No. 1 (Empress) 1970. U.S. Survey Co-ordinates: D+DGN, D+ODE. High Co-ordinates: 99,000 00 N, 99,000 00 E.

**LEGEND**

- 8 Basalt
- 7 (Quartz) Feldspar porphyry
- 6 Rhyolite
- 5 Aplite
- 4 Quartz monzonite
- 3 Quartz diorite - porphyritic quartz diorite
- 2 Hornfels
- 1 Chiefly volcanic rocks
- Quartz sericit alteration
- Copper, Molybdenum mineralization
- Brassic pipe
- Drill hole

W38R = Rock Sample from outcrop  
 W47 = Float Sample  
 SS 2 = Silt Sample  
 32, 450 = Au (ppb), Cu (ppm)  
 nd = Not detected

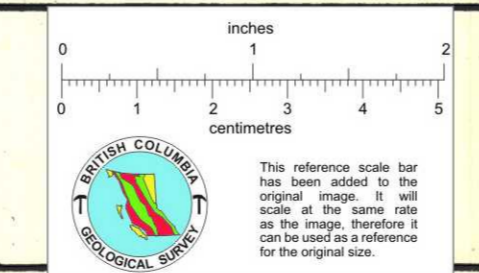
MAP 1  
 Results of 1991  
 Geological Reconnaissance

By: W.W. Osborne

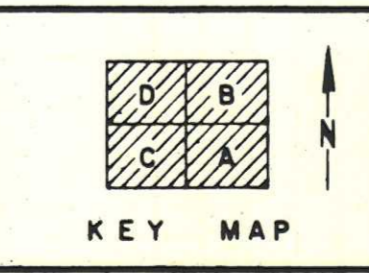
Completion note  
 Topographic mapping compiled from aerial photography flown September 1969. Elevations referred to Geodetic Datum. Grid north referred to true north through meridian 123°25'.  
 Bearing elevations referred to stellar observations at Top S.R.O. No. 1 (Empress) 1970. U.S. Survey Co-ordinates: D+DGN, D+ODE. High Co-ordinates: 99,000 00 N, 99,000 00 E.  
 MCLHANNY SURVEYING & ENGINEERING LTD. Job 0817.024221  
 MCLHANNY ASSOCIATES Job 03331-0

ISSUED TO	DATE	DESCRIPTION

REVISIONS	NO.	DATE	DESCRIPTION



LEGEND	SYMBOL	DESCRIPTION
	▲	Water Control
	○	Vent Control
	+	Target
	◆	Photo Centre
	◆	Tranch
	—	Base line
	—	Cul line
	—	Old IP line
	—	Power line
	—	Contour
	—	Spot site
	—	Swamps
	—	Tree lines
	—	Rivers
	—	Creeks
	—	Roads



SUMITOMO METAL MINING CANADA LTD.  
**TASEKO PROPERTY**  
 SCALE: 1" TO 1000' DATE: OCT 1970

**GEOLOGICAL SURVEY**  
 BY: K. UCHIDA, K. NAKASHIMA, A. SHIBUYA, L. ROBERT, K. AOKI  
 FILE No. 2-5