

**GEOLOGICAL AND GEOCHEMICAL REPORT  
ON THE  
DUMP 1 and 2 MINERAL CLAIMS  
TOPLEY RICHFIELD GOLD- SILVER PROPERTY**

**Omineca Mining Division  
British Columbia**

**NTS: 93L/9W  
54°35.5' North 126°15.5 West**

**OWNER: LORNE B. WARREN**

**AUTHOR: N.C. CARTER, Ph.D. P.Eng.**

**DATE: SEPTEMBER 4, 1999**

**GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

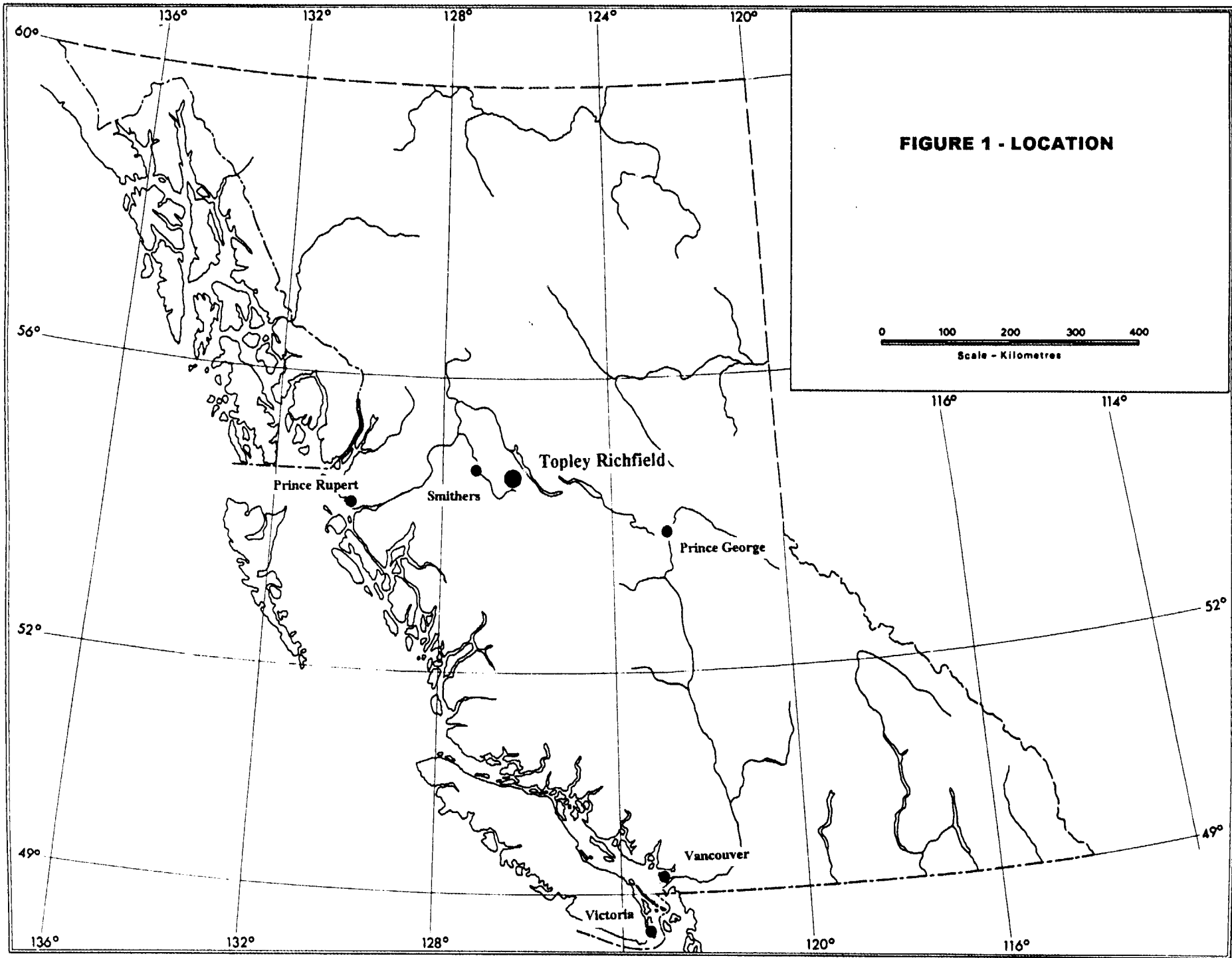
**26,020**

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## INTRODUCTION

### Location and Access

The DUMP 1 and 2 mineral claims, which cover the principal workings of the Topley Richfield gold-silver prospect, are situated in west-central British Columbia midway between Prince Rupert and Prince George (Figure 1). The claims are 10 km north of highway 16 some 60 km east-southeast of Smithers (Figure 2).

Access to the property from highway 16 at Topley (100 highway km from Smithers) is by way of 13 km of paved highway and a secondary road which is suitable for automobiles (Figure 3). Partly overgrown roads and trails provide access to most parts of the claims area.

### Mineral Property

The property currently consists of two 2-post mineral claims (Figure 4) which were located by Lorne B. Warren in June of 1996. Details are as follows:

<u>Claim Name</u>	<u>Units</u>	<u>Record Number</u>	<u>Date of Record</u>
DUMP 1	1	346697	June 13,1996
DUMP 2	1	346698	June 13,1996

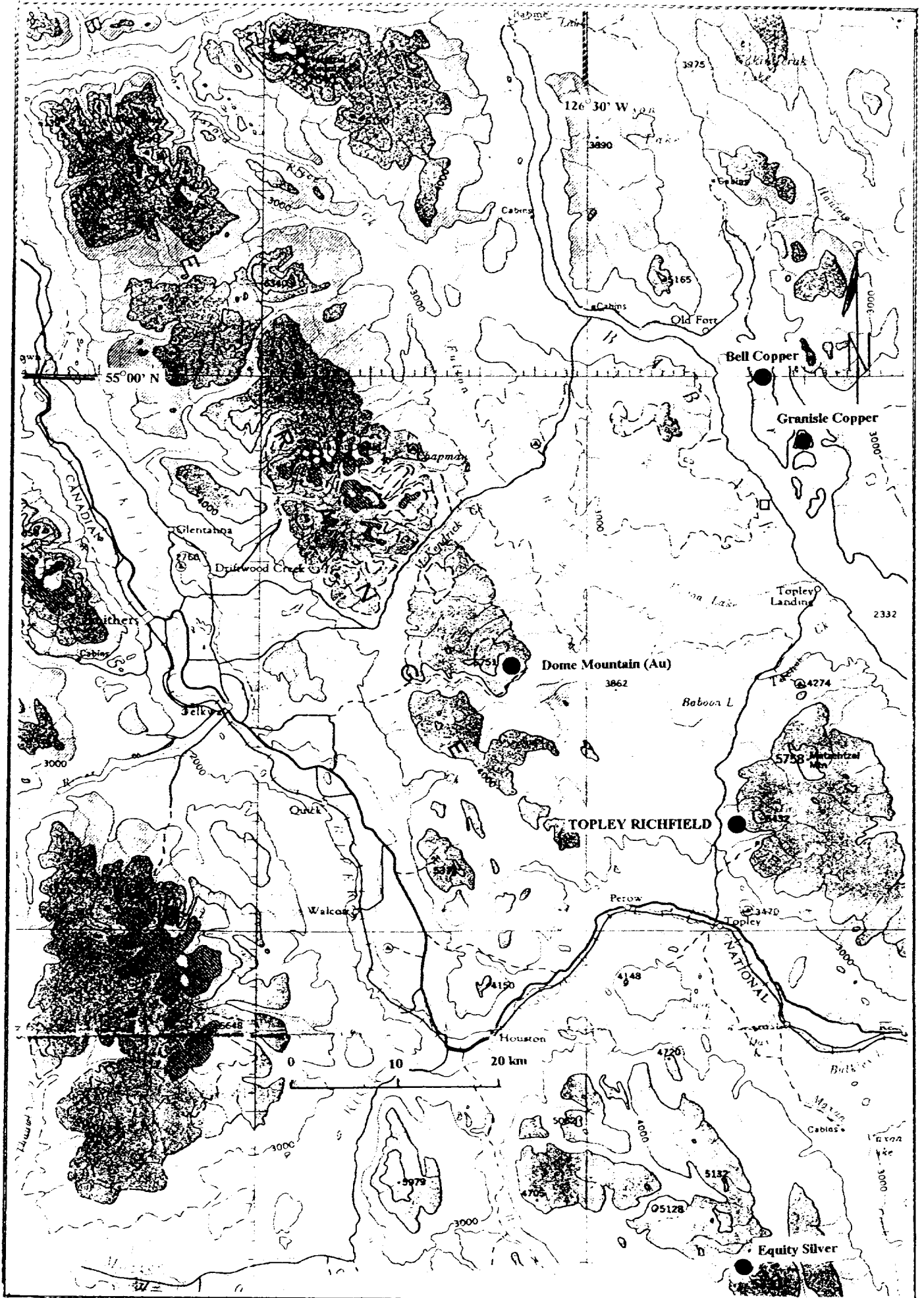
### Previous Work

Gold-silver mineralization was discovered at Topley Richfield in 1926. Subsequent work through 1929 included 1600 metres of underground development on two levels accessed by an inclined shaft plus surface and underground diamond drilling. No mining was undertaken. New owners in the 1930's discovered a gold-bearing structure a few hundred metres east of the main workings and undertook surface stripping and limited (50 metres) underground work. A 0.41 tonne bulk sample was shipped to the then operating Provincial government sample plant in Prince Rupert. No further work was reported until the early 1950's when some attempts were made to dewater the main underground workings and to complete a few surface diamond drill holes.

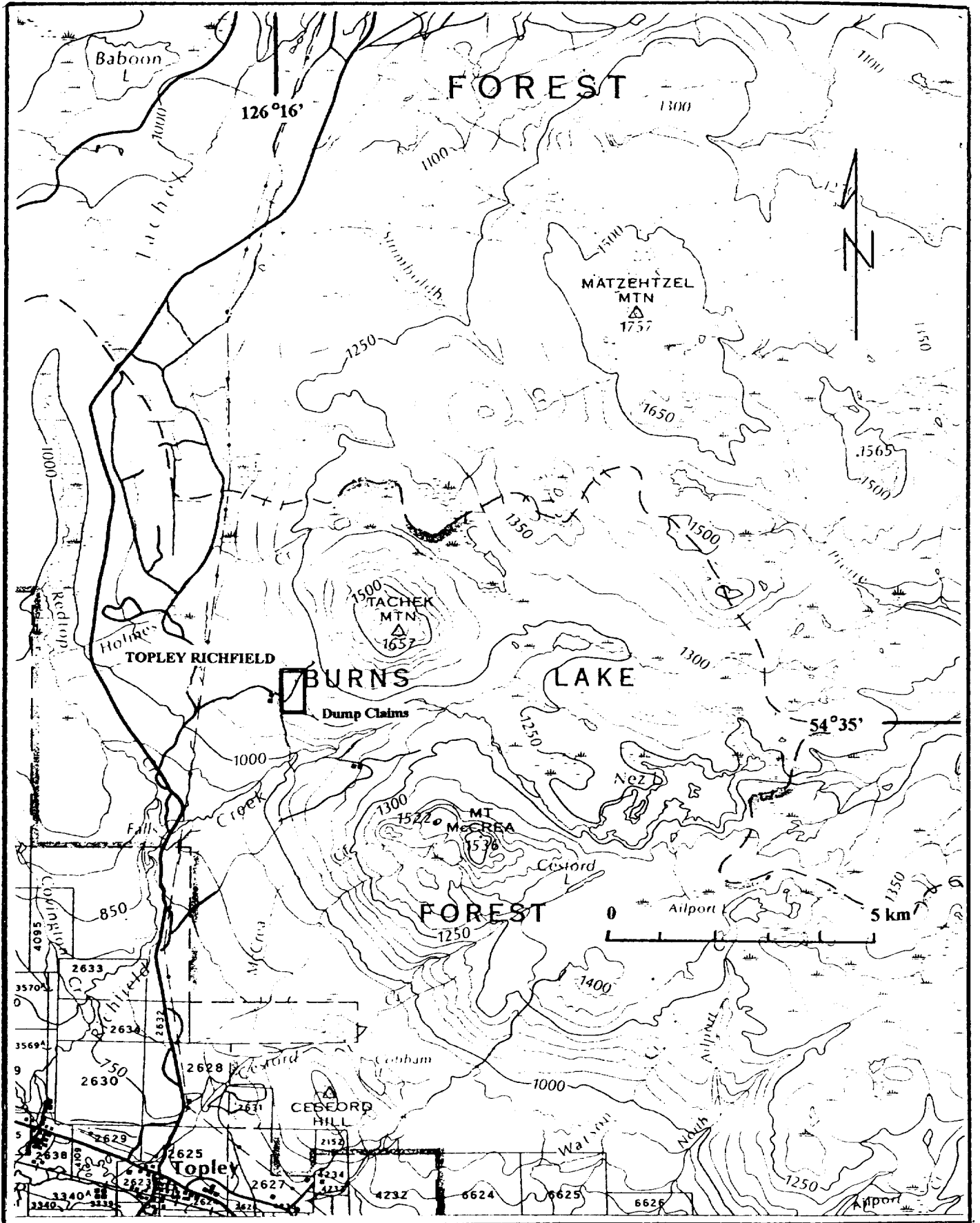
Various geochemical and geophysical surveys and limited drilling programs were completed between 1967 and 1975. A Vancouver junior company acquired the property in 1979 and work through 1988, carried out by the junior company and by two major companies by way of option agreements, consisted of magnetic, electromagnetic and Induced Polarization surveys, 7000 metres of diamond drilling and 1000 metres of reverse circulation drilling. All of this work was directed to exploring for extensions to the mineralized zones within and adjacent to the main workings.

### Present Status

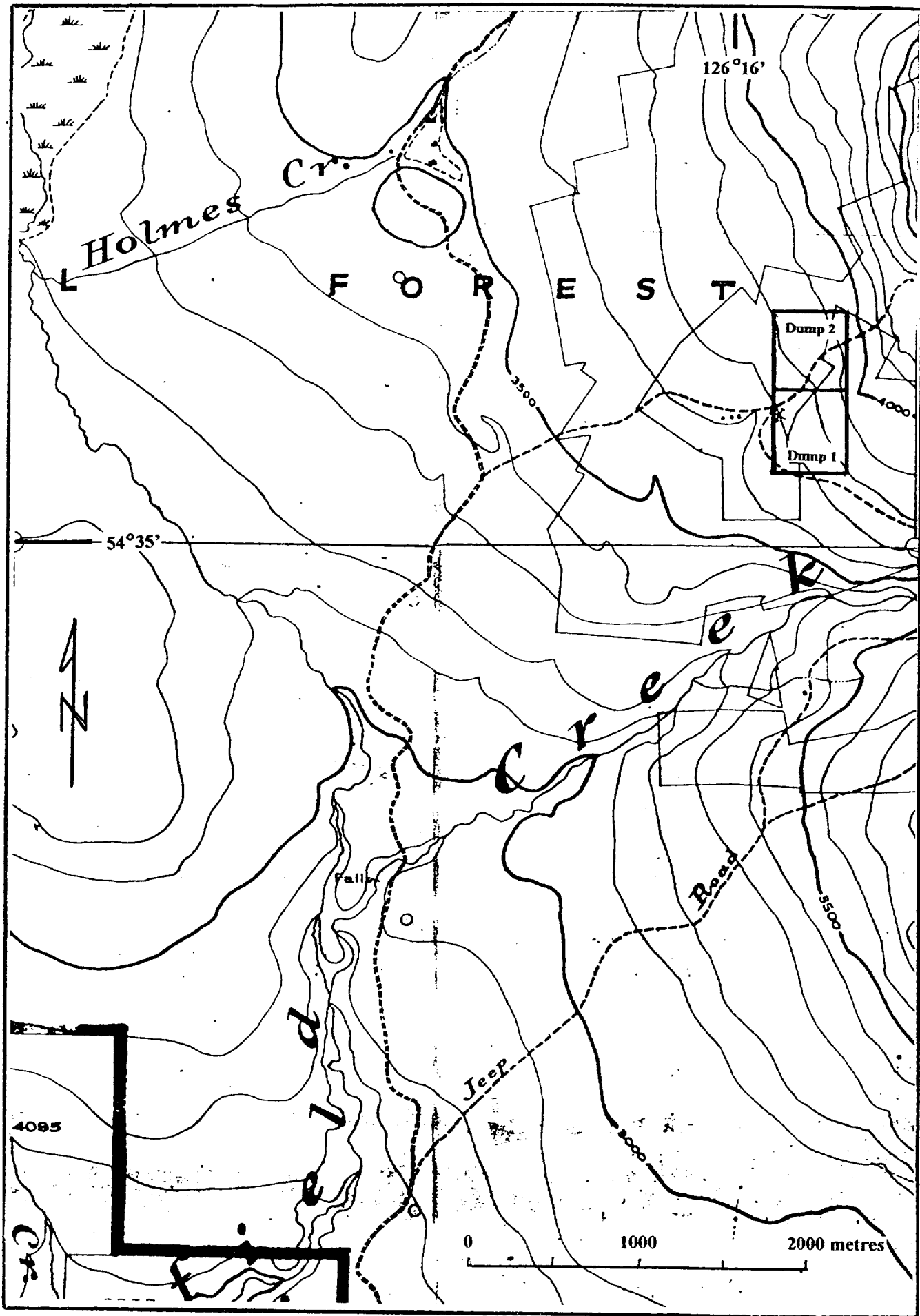
The two DUMP mineral claims were located June 13,1996. The claims were maintained in good standing through 1997 and 1998 by cash-in-lieu payments. A field investigation of the DUMP 1 mineral claim was undertaken by the writer and Lorne B. Warren September 13,1998.



**FIGURE 2 - LOCATION - TOPLEY RICHFIELD PROPERTY**



**FIGURE 3 - TOPLEY RICHFIELD - DUMP CLAIMS**



**FIGURE 4 - TOPLEY RICHFIELD - DUMP MINERAL CLAIMS**

## GEOLOGY AND MINERALIZATION

### Physical Setting

The DUMP 1 and 2 claims cover relatively subdued topography near the southwest flank of Tachek Mountain (Figures 3 and 4). Elevations within the claims area range from 1120 to 1180 metres above sea level.

Bedrock is mainly obscured by overburden which locally attains thicknesses of between 20 and 50 metres. Mature forest cover is prevalent throughout much of the claims area.

### Regional Geological Setting

The Bulkley River valley - Babine Lake region is within the Intermontane tectonic belt which consists of a number of accreted terranes, the largest of which, Stikine terrane, underlies much of this part of British Columbia.

The DUMP mineral claims are close to the axis of the Skeena Arch, a prominent northeast-trending, transverse zone of uplift during Mesozoic time. Oldest rocks in this part of west-central British Columbia are best exposed within and adjacent to this arch; these include island arc assemblage Late Triassic (Takla Group) and Early Jurassic (Hazelton Group) marine volcanic, volcanoclastic and sedimentary rocks. These layered rocks are intruded by coeval granitic rocks (Topley intrusions) a few km north of the claims and are overlain by Tertiary basalts along Richfield Creek several km southwest.

This part of British Columbia is well known for its number and diversity of mineral deposits. Polymetallic vein deposits are known in the immediate area of the DUMP claims. Dome Mountain, a mesothermal vein deposit 25 km northwest of the claims (Figure 2), hosts a resource of 200000 tonnes grading 14.90 g/t gold. Limited production in the early 1990's totaled 40000 tonnes of similar grade.

Three major, formerly producing mines in the general area include Granisle and Bell Copper, both porphyry copper deposits situated at Babine Lake (Figure 2), which collectively produced 517 577 tonnes copper, 19 267 kg gold and 97 566 kg silver between 1966 and 1992 (Carter et al, 1995). Equity Silver, southeast of Houston (Figure 2), is a somewhat unique deposit type possibly related to a porphyry system or perhaps the product of a remobilized volcanogenic massive sulphide deposit. Mining and processing of 32 600 000 tonnes yielded average recovered grades of 0.26% copper, 0.48 g/t gold and 67.3 g/t silver.

### Property Geology and Mineralization

As noted previously, bedrock within the area of the DUMP claims is mainly obscured by overburden. The few bedrock exposures, coupled with drilling and underground data, indicate that the claims area is underlain mainly by andesitic crystal and lithic tuffs with lesser interbedded greywackes and argillaceous siltstones. The volcanic - sedimentary sequence strikes north-northwesterly and dips moderately to the east (Figure 5).

Conformable with the structural trend is a +100 metres wide zone of quartz-carbonate (calcite+ dolomite+ ankerite)- sericite which has been referred to in the past as "Topleyite" and variously interpreted as being a product of hydrothermal alteration of felsic tuffs. This alteration zone is the principal host for gold-silver mineralization within the Topley Richfield underground workings which are mainly within the boundaries of the current DUMP claims (Figures 5 and 6).



Initial descriptions of the mineralized zones, based on underground observations, referred to two parallel veins including an upper arsenic-rich vein and a lower contact vein (Figure 6). Observations from 1980's drilling suggested "bedded pyrite-sphalerite-galena-tetrahedrite-arsenopyrite layers" (Whiting, 1980) within the B-C and D lenses (Figure 7) which are conformable with the quartz-carbonate-sericite altered felsic volcanics ("Topleyte") and lesser argillaceous siltstone host rocks.

The prospective "Topleyte" unit, which is reflected by coincident magnetic and IP chargeability lows, continues north and south of the main workings and is offset some 100 metres by a right-lateral east-northeast fault on the DUMP 2 claim (Figure 5).

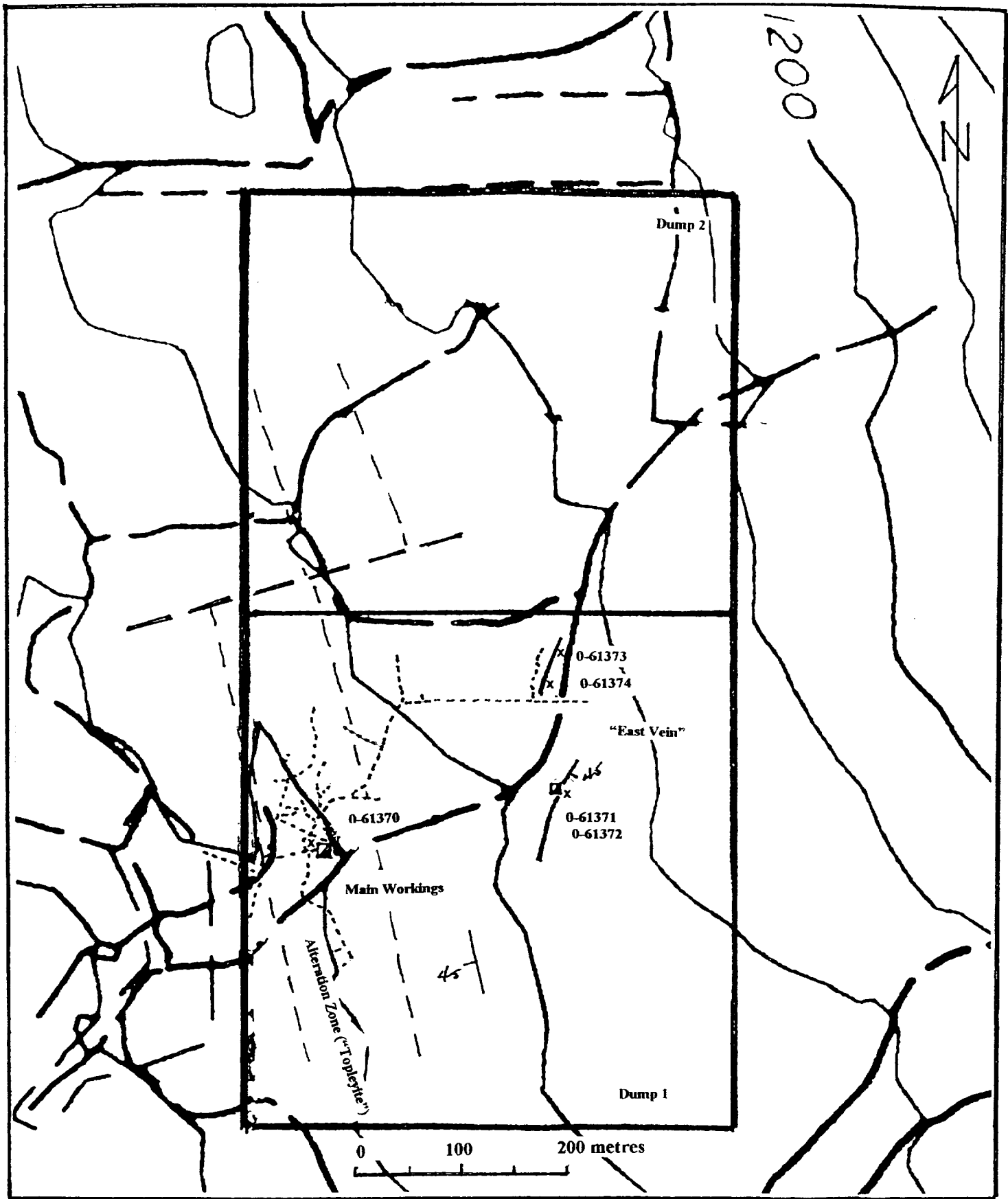
Results of detailed underground sampling (B.C. Ministry of Energy and Mines Property File) indicate a number of areas with significant gold-silver values. Locations of these are numbered 1 through 14 on Figure 6 and weighted average grades for each, as calculated by the writer, are as follows:

Table 1

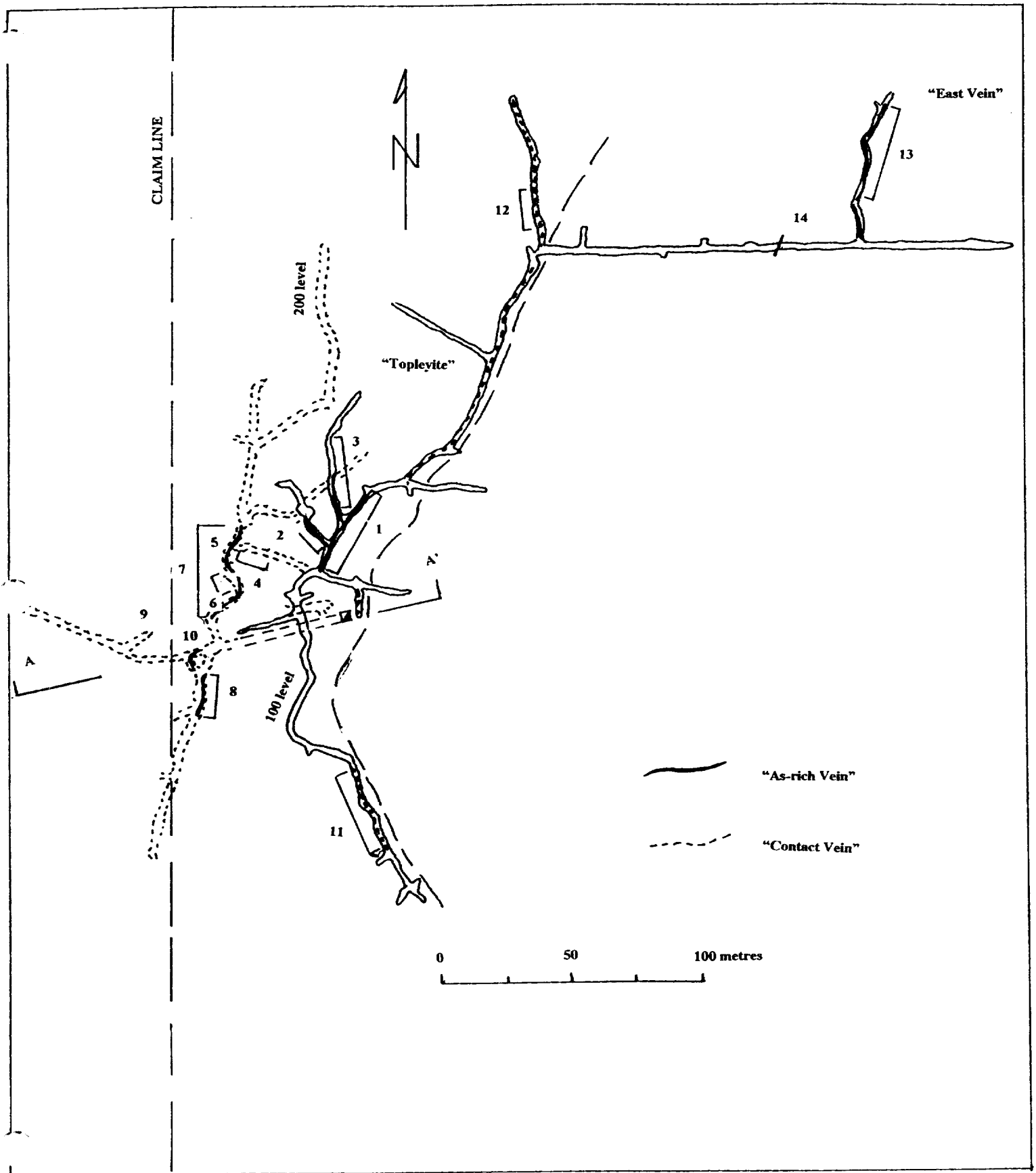
<u>Area</u>	<u>No. of Samples</u>	<u>Width(m)</u>	<u>Length(m)</u>	<u>Gold(g/t)</u>	<u>Silver(g/t)</u>
- Upper ("As-rich Vein")					
1	62	0.66	34.4	4.80	294.9
2	32	1.10	18.3	6.86	229.7
3	34	1.16	33.5	7.40	113.1
4	16	0.79	(raise samples)	6.51	552.0
5	8	0.94	(foot of raise)	8.23	2300.6
6	13	0.91	4.6	22.29	685.7
7	95	0.70	45.7	10.97	438.9
8	28	0.76	18.3	8.91	425.1
9	12	0.46	N/A	6.17	291.4
10	8	0.30	N/A	7.89	342.9
- Lower ("Contact Vein")					
11	27	0.73	30.0	tr.	72.0
12	14	0.27	13.7	tr.	20.6
- "East Vein"					
13	50	0.34	35.6	1.92	202.6
14	3	0.40	N/A	6.75	116.6

A published resource estimate for Topley Richfield, incorporating 1980's drilling information, is 181420 tonnes grading 4.25 g/t gold and 192.9 g/t silver (B.C. Ministry of Energy and Mines Minfile 93L 018). This includes the mineralized zones within the underground workings and their down-dip continuation immediately west of the current DUMP claims (Figures 6 and 7). As noted on the foregoing table, significantly higher grades are present between surface and the 200 level which is within the boundary of the current claims (Figures 6 and 7). The writer estimates a resource of 70000 tonnes grading 8.23 g/t gold and 661.7 silver within the upper "arsenic-rich vein" zone.

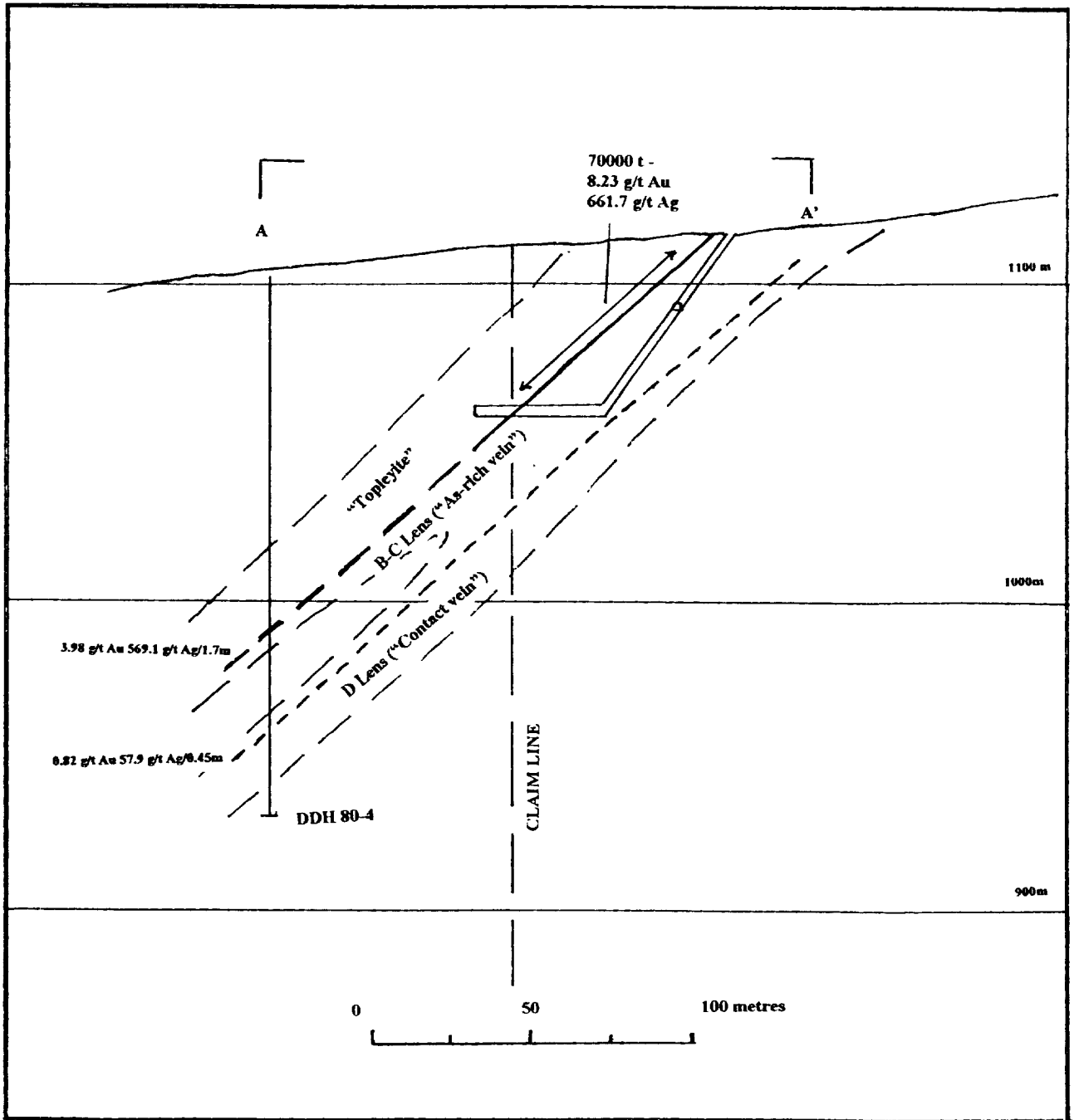
Some 20000 tonnes of dump material of unknown grade, adjacent to the inclined shaft, is situated on the DUMP 1 claim.



**FIGURE 5 - TOPLEY RICHFIELD - SURFACE PLAN**



**FIGURE 6 - TOPLEY RICHFIELD - UNDERGROUND PLAN**



**FIGURE 7 - TOPLEY RICHFIELD - SECTION A -A'**

### 1998 PROGRAM

Field work, undertaken on DUMP 1 claim September 13, 1998, included the determination of the position of the Topley Richfield inclined shaft relative to the western claim boundary and a measurement of the extent of the dump material adjacent to the shaft. The position of the reported "East Vein" was also established and several character samples of typical East Vein and main zone mineralization were collected for analyses.

The five rock samples collected were submitted to Min-En Laboratories for determination of 30 major and trace elements by induced coupled argon plasma (ICP) techniques and for gold by fire geochemistry with atomic absorption finish. Gold and silver values in excess of 10000 ppb and 100 ppm respectively were determined precisely by standard fire assay techniques; similarly, samples containing copper, lead and zinc values of more than 10000 ppm were also assayed. Complete analytical results are contained in Appendix I.

Sample locations are shown on Figure 5. Sample number 0-61370, a character sample of the "arsenic-rich vein" collected from the surface dump adjacent to the shaft, returned 46.93 g/t gold, 454.0 g/t silver, +10000 ppm arsenic and low copper, lead and zinc values.

The "East Vein" system, 200 metres east of the main workings and hosted by fragmental andesites, is exposed in two partially overgrown trenches. (Figure 5). The northernmost of these includes a north-northeast-striking, vertical to steeply east-dipping, +1 metre wide zone of pyrite-chalcopryrite-galena-sphalerite-tetrahedrite in a quartz-carbonate gangue exposed over a 50 metres length. The southern exposure, explored in the 1930's by a shallow inclined shaft and a sublevel, is similar in character and has a strike length of at least 100 metres. A 0.41 tonne bulk sample extracted from this zone in 1941 yielded recovered grades of 22.29 g/t gold, 913 g/t silver, 4.6% copper, 3.2% lead and 5.5% zinc.

The four character samples collected from the "East Vein" in 1998 (locations on Figure 5) returned the following results:

<u>Sample No.</u>	<u>Au(g/t)</u>	<u>Ag(g/t)</u>	<u>Cu(%)</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	<u>As(ppm)</u>
0-61371	18.33	660.0	1.58	1.33	5.40	1645
0-61372	0.42	31.0	0.16	0.07	1.04	195
0-61373	0.86	252.0	0.47	0.44	0.86	530
0-61374	9.13	1050.0	4.29	2.25	8.05	2820

The easterly dip of the East Vein noted in the northern trench exposure suggests that the "East Vein" structure explored by underground drifting (Figures 5 and 6 and reported in Table 1) may well be a separate structure.

## CONCLUSIONS AND RECOMMENDATIONS

The DUMP mineral claims include most of the Topley Richfield underground workings which have partially developed two parallel zones of gold-silver mineralization. These are conformable with the enclosing host rocks which include a broad zone of intense quartz-carbonate-sericite alteration of a felsic tuff protolith and lesser argillaceous sedimentary rocks. An unmined resource of 70 000 tonnes grading 8.22 g/t gold and 660 g/t silver is present within the limits of the underground workings. The gold-silver zones and the enclosing zone of intense quartz-carbonate-sericite alteration are open along strike and to depth.

A relatively untested, 1 to 2 metres wide, polymetallic vein structure (East Vein) is poorly exposed in overgrown trenches and in a shallow shaft 200 metres east of the main workings. A 1941 bulk sample and several 1998 surface samples yielded significant precious and base metals grades. There is no record of any work having been done on this structure since the 1950's and previous drilling attempts were apparently unsuccessful.

It is recommended that future work initially be directed to trenching and sampling of the East Vein structure coupled with detailed sampling of the dump adjacent to the main Topley Richfield underground workings.

## COST STATEMENT

### Wages

- September 13, 1998 -

N.C. Carter	1 day @ \$500/day	\$500.00
L.B. Warren	1 day @ \$250/day	\$250.00

### Transportation

Airfare - Victoria-Smithers (NCC - prorated)		\$107.00
Vehicle expenses		\$50.00

### Support Costs

Hotel, meals - September 12, 13		\$150.64
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### Analytical Costs

Sample Preparation - 5 samples @ \$5.62		\$28.10
ICP analyses - 5 samples @ \$7.81		\$39.05
Au analyses - fire geochem - 5 samples @ \$9.63		\$48.15
Au assay - 2 samples @ \$10.70		\$21.40
Ag assay - 4 samples @ \$9.63		\$38.52
Cu, Pb assay - 2 samples @ \$19.26		\$38.52
Zn assay - 3 samples @ \$9.63		<u>\$28.89</u>
		\$242.62

### Report Preparation

N.C. Carter -		\$300.00
Data compilation, word processing, duplicating		\$50.00

	<b>TOTAL EXPENDITURES</b>	<b>\$1,650.26</b>
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**STATEMENT OF QUALIFICATIONS****Lorne B. Warren**

1979 - Present - President of CJL Enterprises Ltd. -prospector and contract mining and claim staking  
British Columbia and western Canada

1971- 1979- Field Supervisor, Granby Mining Corporation, Smithers

1966 - 1971 - Field technician and line-cutter, prospector - Manex Mining Ltd. - Smithers area

1965 - Prospector and geological assistant - Native Mines Ltd. - Bridge River area

1964 - Geological assistant - Phelps Dodge Corp. - Stikine area

1963 - Geological assistant - Mastodon Highland Bell Mines Ltd. - Dome Mtn. area - Smithers

**AUTHOR'S QUALIFICATIONS**

I, NICHOLAS C. CARTER, of 1410 Wende Road, Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist, registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practiced my profession in eastern and western Canada, parts of the United States and abroad for more than 30 years.
4. The foregoing report on the DUMP 1 and 2 mineral claims, Topley Richfield gold-silver property, is based on a review of data pertaining to the geological setting and styles of mineralization of the subject property and on personal observations derived from a site examination September 13,1998.



N.C. Carter, Ph.D. P.Eng.  
Victoria, B.C.  
September 4,1999



**APPENDIX I**  
**Analytical Results**

MR. NICK CARTER

Attention: Nick Carter

Project:

Sample: ROCK

Mineral Environments Laboratories

8282 Sherbrooke St., Vancouver, B.C., V5X 4E8

Tel (604) 327-3436 Fax (604) 327-3423

Report No 8S0086 RJ

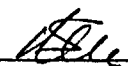
Date : Sep-22-98

MULTI-ELEMENT ICP ANALYSIS

Aqua Regia Digestion

Sample Number	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	K %	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sn ppm	Sr ppm	Ti %	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm	Au-fire ppb
0-61370	>100.0	0.03	>10000	50	<0.5	<5	2.16	<1	6	124	1250	5.39	0.02	1.00	1155	<2	0.01	28	80	5092	555	<1	<10	65	<0.01	27	10	1	4810	4	>10000
0-61371	>100.0	0.01	1645	20	<0.5	80	0.07	>100	4	93	>10000	7.48	0.02	0.09	5545	<2	0.01	14	230	>10000	2020	1	<10	5	<0.01	14	150	<1	>10000	4	>10000
0-61372	31.0	0.23	195	30	0.5	15	0.18	86	7	73	1646	2.47	0.23	0.07	260	<2	0.01	6	480	726	275	1	<10	4	<0.01	8	20	2	>10000	3	416
0-61373	>100.0	0.06	530	20	<0.5	20	0.46	40	30	121	4692	8.92	0.11	0.13	3290	<2	0.01	12	190	438	2455	1	<10	8	<0.01	17	100	<1	4673	5	862
0-61374	>100.0	0.02	2820	40	<0.5	60	0.34	>100	10	104	>10000	7.97	0.03	0.11	1245	<2	0.01	19	400	>10000	7925	1	<10	10	<0.01	14	240	<1	>10000	5	9130

A .5 gm sample is digested with 10 ml 3:1 HCl/HNO3 at 95c for 2 hours and diluted to 25ml with D.I.H2O.

Signed: 



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TELEPHONE (604) 327-3436  
FAX (604) 327-3423

**SMITHERS LAB:**  
3176 TATLOW ROAD  
SMITHERS, BC, CANADA V0J 2N0  
TELEPHONE (250) 847-3004  
FAX (250) 847-3005

*Quality Assaying for over 25 Years*

## Assay Certificate

8S-0086-RA1

Company: **MR. NICK CARTER**  
Project:  
Attn: Nick Carter

Sep-22-98

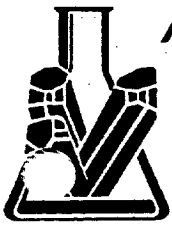
We hereby certify the following Assay of 5 ROCK samples  
submitted Sep-14-98 by NICK CARTER.

Sample Name	Au-fire g/tonne	Ag-fire g/tonne
0-61370	*46.93	454.0
0-61371	*18.33	660.0
0-61372		
0-61373		252.0
0-61374		1050.0

\* GRAVIMETRIC FINISH

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TELEPHONE (604) 327-3436  
FAX (604) 327-3423

**SMITHERS LAB:**  
3176 TATLOW ROAD  
SMITHERS, BC, CANADA V0J 2N0  
TELEPHONE (250) 847-3004  
FAX (250) 847-3005

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## Assay Certificate

8S-0086-RA2

Company: **MR. NICK CARTER**  
Project:  
Attn: Nick Carter

Sep-23-98

We hereby certify the following Assay of 3 ROCK samples  
submitted Sep-14-98 by NICK CARTER.

Sample Name	Cu %	Pb %	Zn %
O-61371	1.580	1.33	5.40
O-61372			1.04
O-61374	4.290	2.25	8.05

Certified by

Min-En Laboratories