

DU PONT OF CANADA EXPLORATION LIMITED

ASSESSMENT REPORT OF GEOLOGICAL, GEOCHEMICAL AND  
GEOPHYSICAL WORK PERFORMED ON THE

TUFF 1 CLAIM

IN 1981

LIARD MINING DISTRICT

LAT. 57°47'N, LONG. 131°52'W

NTS: 104-G-12W & 13W

OWNER OF CLAIMS: Du Pont of Canada Exploration Limited  
OPERATOR : Du Pont of Canada Exploration Limited

By,

J. A. Korenic  
1982 May 5

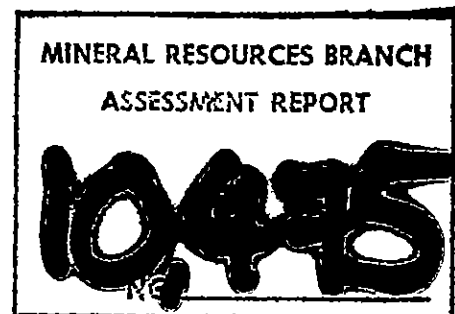


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## TUFF CLAIMS

### I. INTRODUCTION

#### 1. Location and Access

The TUFF property, centred by Mt. Barrington, is located within the northwest corner of the Telegraph Creek Map Sheet (104-G-12W & 13W), approximately 45 kilometres southwest of Telegraph creek.

Mobilization and de-mobilization for the programme was from Telegraph Creek. Camp moves were undertaken with the use of a contract 500D Viking Helicopter based at the Kutcho strip.

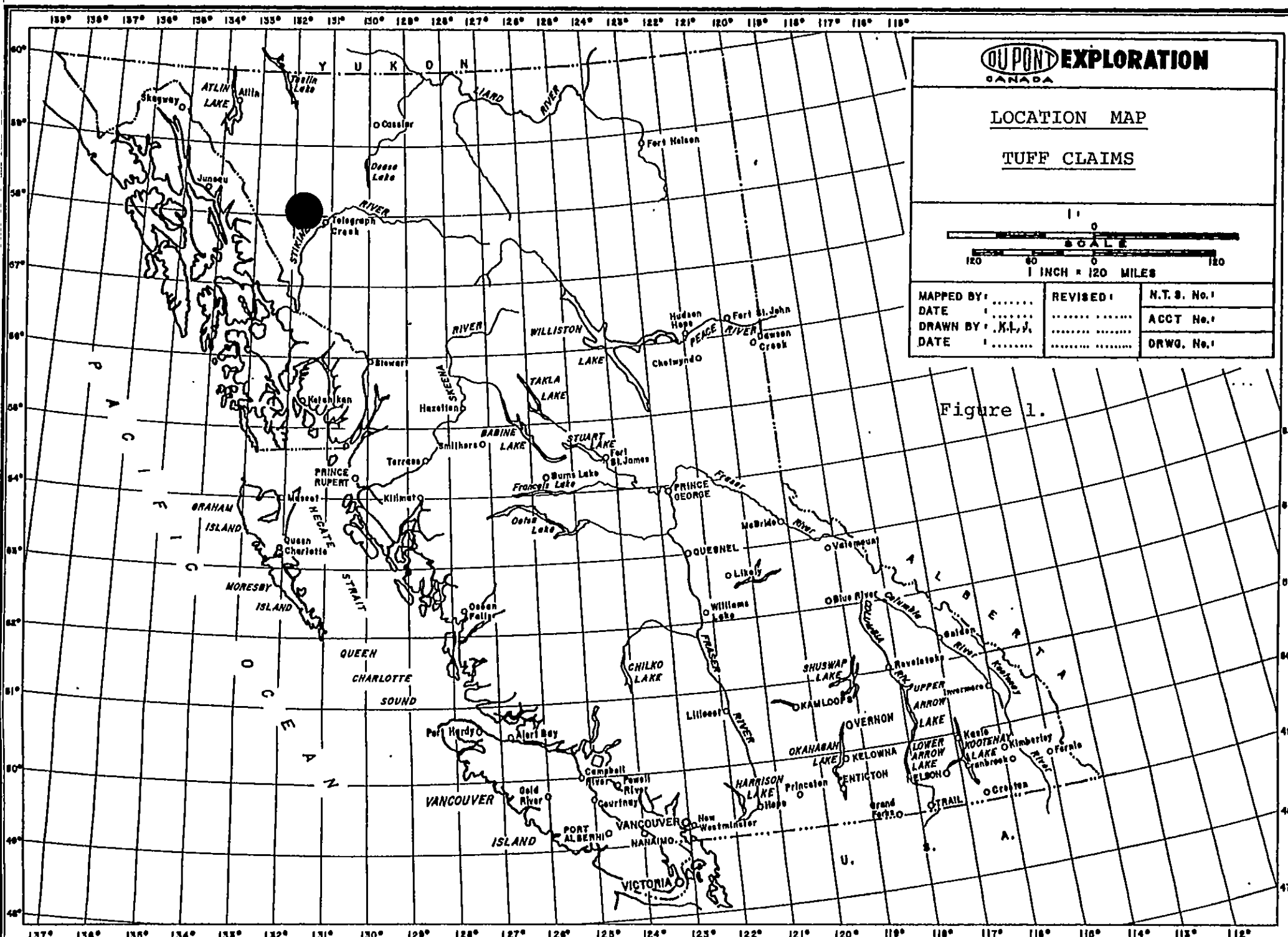
#### 2. Physiography

The Telegraph Creek area properties are situated within the Boundary Ranges of the Coast Mountains. This geographic province consists of a mountainous and glaciated terrain that exhibits relief up to and in excess of 3000 metres. Tree-line varies from 1000-1200 metres above sea level. Below this point, particularly within the lower valleys, vegetation predominantly consists of a dense growth of conifers. Active glaciation is prevalent in the area, particularly in terrain above 1500 - 2000 metres.

The property, particularly at higher elevations is characterized by precipitous gossanous and talus covered slopes. Access within these upper slopes is commonly difficult. Tree-line occurs at approximately 1200 metres above sea level and is marked by a dense tangled growth of dwarf black spruce below which there is a mature stand of spruce. North Cave Creek (TUFF 2) is overlain by an extensive moraine which is in part gossanous. Elevation over TUFF 1 varies from 915 to 1828 metres. Snow cover occupies most of Cave Creek above 1150 metres and adjacent tributaries until mid-late July.

#### 3. Summary of Work

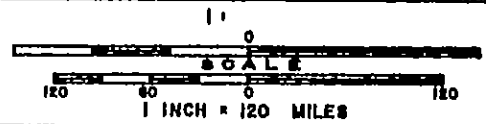
During the period July 7-13, a four person crew evaluated TUFF 1. Work consisted of geological mapping, stream sediment, rock and soil sampling and limited VLF-EM surveys. Work entailed additional



**DU PONT** EXPLORATION  
CANADA

LOCATION MAP

TUFF CLAIMS



MAPPED BY: .....	REVISED: .....	N.T.S. No.:
DATE: .....	.....	ACCT No.:
DRAWN BY: K.L.J.	.....	ORWG. No.:
DATE: .....	.....	

Figure 1.

sampling along both both branches of Cave Creek and the establishment of three grids (Barrington, Main and West) across areas of known massive sulphide ('pod-like') mineralization. A total of 40 rock, 13 stream sediments and 221 soil samples were obtained in 1981.

#### 4. Claim Status

The TUFF property presently encompasses four claims totalling 76 units. Pertinent data for each claim is outlined below.

TUFF 1: Record No. 1357  
Tag No. 55418  
Date Recorded: 1980 June 25  
No. of Units: 20

TUFF 2: Record No. 2037  
Tag No. 24909  
Date Recorded: 1981 Sept. 9  
No. of Units: 20

TUFF 3: Record No. 2038  
Tag No. 24910  
Date Recorded: 1981 Sept. 9  
No. of Units: 16

TUFF 4: Record No. 2039  
Tag. No. 24911  
Date Recorded: 1981 Sept. 9  
No. of Units: 16

The TUFF 1-4 claims are owned and operated by Du Pont of Canada Exploration Limited. TUFF 1 is in good standing until 1982 June 25, whereas TUFF 2-4 are valid until 1982 Sept. 9. This assessment report is limited to TUFF 1.

#### 5. Property History

Previous exploration in the vicinity of the TUFF claims has encountered minor chalcopyrite-molybdenite mineralization near the margin of a 3.2 by 6.4 kilometre granodiorite stock. The intrusive extends from TUFF 3 to near Limpoke Creek in the north. Upper Triassic andesite occurs in contact with the pluton. Although no significant size or grade have been developed, the mineralization within the 'New Limpoke' prospect consists of chalcopyrite,

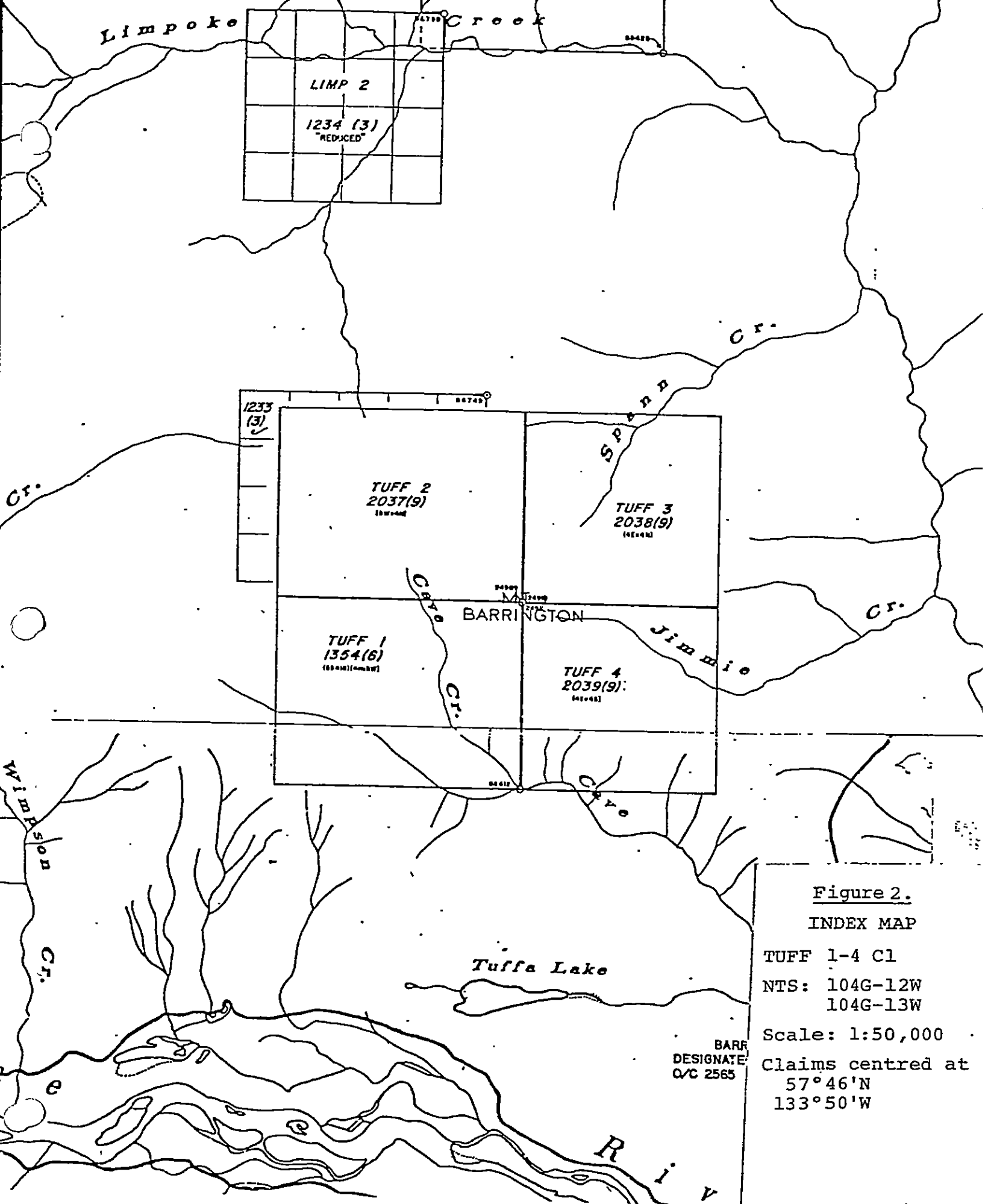


Figure 2.

INDEX MAP

TUFF 1-4 C1  
 NTS: 104G-12W  
 104G-13W

Scale: 1:50,000

Claims centred at  
 57°46'N  
 133°50'W

BARR  
 DESIGNATE  
 O/C 2565

molybdenite, pyrite and pyrrhotite within northwest dipping fractures hosted by granodiorite (Min-File, Vol. 11, 104G #24).

Along the Barrington river, upstream from the confluence of Cave Creek, placer gold occurrences have been noted within 30 metre deep gravels and terraces.

In May-June 1980, Du Pont of Canada Exploration Limited conducted a reconnaissance stream sediment sampling programme in the area. TUFF 1 was subsequently staked on the basis of highly Au anomalous heavy mineral concentrates. In August 1980, a brief follow-up programme outlined a widespread area of gold anomalous stream sediment samples. In addition, a small massive pyrite-pyrrhotite pod, hosted by porphyritic basalt contained 1.210 oz/ton Au and 0.40 oz/ton Ag.

## II. GEOLOGY

### 1. Regional

The Boundary Ranges of the Coast mountains occur along the contact of the Intermontane and Coast Crystalline geologic provinces. The latter, the bulk of which occurs across the border in the Alaskan Panhandle consists of Tertiary to Triassic foliated quartz diorite, granodiorite and migmatite associated with amphibolite gneiss, discontinuous screens of schist and lenses of marble (Souther et al, 1974). Immediately east of this crystalline complex are large, unfoliated batholiths of younger, Tertiary to Cretaceous quartz monzonite to quartz diorite. Such intrusives occur to within 2.5 kilometres of the MIST claims.

The Intermontane Belt in the vicinity of the Stikine-Chutine River area consist of Upper Triassic andesitic-basaltic volcanics abutting the crystalline complex to the west and Stuhini Group sediments and volcanics to the east. Lenticular exposures of Permian limestone and lesser Carboniferous and Permian schists and gneisses are noted in the area. The BAR, TUFF and MIST claims are all hosted by the Stuhini Group. Unlike areas further to the north or south Tertiary-Cretaceous quartz monzonite and quartz diorite are relatively sparsely distributed



occurring as small plutons up to 30 square kilometres in size.

Pliocene to recent aerial volcanism extruded rhyolites, basalts and tuffs in the Level Mountain area to the north and Edziza complex to the east. No such occurrences have been observed in the vicinity of the Telegraph creek area claims.

Mineralization within the Barrington-Chutine-Stikine River areas are restricted to 1) copper showings related to the Spann Creek granodiorite stock; 2) chalcopyrite-gold-bearing quartz veins on the eastern slope of Missusjay Mountain; and 3) placer gold occurrences adjacent the Barrington river. No significant mineral deposit has been outlined in the area.

## 2. Property

The TUFF 1 claim is predominantly underlain by Upper Triassic andesitic-basaltic volcanics of the Stuhini Group which are intercalated with black chert, grey ribbon chert and lesser limestone. Immediately northeast of TUFF 1, a 3.2 by 6.4 granodiorite stock intrudes the volcanic assemblage. Northwest from Mt. Barrington, a prominent gossanous zone is evident.

In 1981, mapping was essentially confined to the eastern two-thirds of TUFF 1. This area is underlain largely with massive basalts which tend to become andesitic to the west. Highly sheared black chert horizons are prevalent along North Cave Creek in the vicinity of the camp and the West Grid. Within the southeast corner of the claim, a 300-400 metre grey ribbon chert unit is noted. Bedding exhibits an east-west strike with a variable although predominantly steep ( $>60^\circ$ ) south dip. The black chert interbeds, particularly in the vicinity of the 'West Grid' display a near vertical attitude. In the northeast corner of the claim, near the Barrington Grid, the lithologies exhibit a northwest strike and variable northeast dip. Several intermediate-felsic post mineral dykes have been noted on the property. These generally strike NNW and are commonly narrow being less than 20 metres in width.

The following is a brief description of the various lithologies observed on the claims to date. These are illustrated on drawing AR.81-15 at a scale of 1:10 000 and AR.81-17 (1:1 000 and 1:2 000).

a. Black Chert - Unit 1a, b

This unit occurs as interbeds within the basaltic volcanics. It is commonly dark grey to black in colour, in part argillaceous, intensely sheared, slaty, hosts trace disseminated pyrite and up to 2% pyrrhotite. Locally the unit exhibits a rusty weathered surface. The chert interbeds are quite variable in size ranging up to 90 metres in width although they are more commonly 10-20 metres. It has been suggested that these chert horizons are of a chemical precipitate nature. Sample #8774D which hosts 2 percent pyrrhotite and displays a gossanous weathered surface assays 0.104 oz/ton Au, 0.11 oz/ton Ag and 0.040% Cu. Other chert analyses reveal background values.

b. Grey, Ribbon Chert - Unit 1c

This lithology occurs along North Cave Creek for a distance of 475 metres. The unit is very well bedded with individual beds varying up to 15 centimetres in width. It is milky to medium grey in colour, highly siliceous and contains minor pyrite and pyrrhotite as disseminations and fracture fillings. In part, the unit is crenulated and exhibits small scale fold features.

c. Limestone - Unit 1d

Limestone commonly occurs as narrow beds within the basalt. Near the northern margin of TUFF 1, a northwest trending limestone bed up to 40 metres in width displays a prominent resistant bluff. Generally however limestone occurs as narrow, <2 metre beds. The unit is light to medium grey in colour, crystalline and barren.

d. Basalt-Andesite (Rhyolite) - Unit 2

TUFF 1 is predominantly underlain by massive, dark green fine-grained basalts. Locally, this

unit is tuffaceous in nature. In the vicinity of the Barrington Grid, considerable carbonate occurs along fractures. West of North Cave Creek, the volcanics grade to andesite however the characteristics are similar to the basaltic variety. No well defined contact is apparent. Across the northeastern and northcentral portion of the claim a large although precipitous gossan is noted. Particularly to the northeast this zone contains up to 5% pyrite and pyrrhotite, varies from being grey, green or pink in colour and commonly exhibits a rhyolitic appearance (unit 2a). The siliceous nature of this gossanous zone may be an alteration feature associated with the sulphide mineralization.

e. Feldspar Porphyry - Unit 3a

These dyke-like bodies trend 160-180° within the upper reaches of Oblong Creek. Prominent feldspar phenocrysts average 0.5-1.0 centimetres in size although occasionally vary up to 2 centimetres. These phenocrysts account for 20-40 percent of the unit and are hosted by a dark green basaltic matrix. The dykes are massive with no evidence of veining or significant mineralization. Contacts are sharp although irregular.

f. Diorite - Unit 3b

Occurs as a set of north-south dykes up to 20 metres in width. The unit is grey in colour, medium-grained and massive. The dykes exhibit sharp, regular contacts. No mineralization is noted.

g. Granite - Unit 4

The unit includes granite, hornblende porphyry and rhyolite porphyry varieties. All appear to represent narrow dykes up to 10-20 metres in width. The hornblende porphyry occurs southeast of Oblong Creek. It is siliceous and contains prominent, up to two centimetre hornblende phenocrysts within a granitic matrix. The granite and rhyolite porphyry are texturally similar to unit 4c however are considerably more siliceous and Ksp-rich. These dykes appear to

postdate the mineralization. No preferred orientation is apparent.

h. Andesite Dyke - Unit 5

In 1980 these dykes were noted to occur within the northeast corner of TUFF 1. The matrix of this unit was described as being aphanitic casting a peculiar green colour. Small dark vitreous crystals were seen throughout. During the past season another occurrence was noted on a ridge in the centre of TUFF 1. It indicated the dykes to be relatively narrow - 2 metres, fissile and north-south trending.

3. Mineralization

Widespread, 'sweat-like' massive sulphide pods have been encountered within the northeast quarter of TUFF 1 across a known area of approximately 1200x1200 metres. Unfortunately such occurrences are restricted in size averaging less than 10 centimetres in width and 1-20 metres in length. The largest such showing is noted within the West Grid adjacent a waterfall, it is 15-25 centimetres in width. In general these pods occur oblique to bedding, are associated with carbonate (-quartz) and are composed of pyrite with lesser arsenopyrite, chalcopyrite and pyrrhotite. In most instances high gold concentrations are associated. The 15-25 centimetre wide pod within the West Grid assayed 3.575 oz/ton Au, 0.73 oz/ton Ag and 0.406% Cu. Of the 41 rock samples (primarily grab) that were assayed, 15 returned values of greater than 0.10 oz/ton Au of which 7 contained greater than 0.80 oz/t Au. In all cases results reveal high Au:Ag ratios in the following manner:

Samples >0.2 oz/ton Au	>1:1 Au:Ag
>1.0 oz/ton Ag	>2.5:1

Copper averages 0.13% within gold-bearing samples, however no uniform relationship is apparent. Seven samples from the West Grid were also analyzed for arsenic and antimony. The following results were obtained.

<u>Sample#</u>	<u>Description</u>	<u>Cu(%)</u>	<u>Zn(%)</u>	<u>Ag</u> (%)	<u>Au</u> (o/t)	<u>As</u> (o/t)	<u>Sb(%)</u>
0352E	3cm bed py-asy in andes.	0.110	0.01	0.30	0.825	7.45	0.019
0353E	Aspy bearing	0.093	0.01	0.26	0.882	8.40	0.010
0354E	Black chert (7m chip)	0.012	0.03	0.08	0.003	0.05	0.003
0335E	Massive Aspy-py	0.108	0.01	0.09	0.028	8.85	0.012
0356E	Chip gossan, base of waterfall	0.087	0.01	0.04	0.003	0.06	0.001
9597C	Black chert, (9m chip)	0.012	0.02	0.09	0.001		
9598C	Black chert, (6m chip)	0.006	0.02	0.08	0.001		
8774D	Oxid. chert/ argill.	0.040	-	0.11	0.104		

Within the extensive gossanous zone, across the northeast corner of TUFF 1, up to 5% pyrite and pyrrhotite occur in disseminated form. Trace-2% pyrite and pyrrhotite are hosted occasionally by the chert horizons. Trace iron sulphides also occur as disseminations within the andesitic-basaltic volcanics.

In summary, Upper Triassic basalts host gold-bearing massive sulphide showings. These sweat-like pods although widespread are limited in size and individually or collectively are not of economic significance.

### III. GEOCHEMISTRY

#### 1. Procedure

Following up work conducted in 1980 additional stream sediment sampling was performed in 1981 along both West and North Cave Creek and its immediate tributaries. A total of 13 samples were obtained within TUFF 1.

Three grids were established on the property and within each soil sampling was performed however due to the nature of the terrain, samples were reflective of a 'C' or a rubble horizon. The Main Grid was extended over the vicinity of the high grade gold sample obtained in 1980. The baseline was orientated at 150° with lines spaced 50 metres apart. Stations were spaced at 30 metre intervals. Two reconnaissance lines (R<sub>1</sub>, R<sub>2</sub>) were extended through heavy bush to North Cave Creek.

After discovering several massive sulphide pods, a small grid - 'Barrington' - was run in the northeast corner of TUFF 1. Lines where terrain permitted were established at 25 metre intervals with stations at 20 metre spacing. The baseline was orientated at 160°. To the west of North Cave Creek a small grid (West Grid) was established across several massive sulphide showings. Lines and stations were 30 metres apart.

A 1350 metre sidehill soil traverse was performed west of North Cave Creek at the 1400-1550 metre elevation. Samples were obtained at 50 metre intervals. This traverse is known as the West Sidehill.

A total of 13 stream sediment, 221 soil and 40 rock samples were obtained and analyzed across TUFF 1. All samples were shipped to Min-En Laboratories Ltd., North Vancouver, for preparation and analysis. All stream sediment and soil samples were sieved to -80 mesh and analyzed for Au (ppb), Ag (ppm), Cu (ppm) and Zn (ppm).

## 2. Results

Drawing AR.81-16 denotes the various stream sediment locations, its results and the coverage of the three grids.

Stream sediment results in 1981 essentially confirmed last season's results and indeed defined further areas of interest. Immediately west of North Cave Creek two tributaries returned values of 140 and 170 ppb Au respectively. The source of these samples which occur within a wooded area has yet to be determined. A small creek immediately beneath a precipitous gossan in the north of TUFF 1 indicated 2800 ppb Au.

The Main Grid revealed predominantly background values (Dwg. AR.81-18,19&21). Three spot highs ranging from 70-160 ppb were obtained. The entire length of L3+50N (the most northerly line on the grid) returned anomalous gold values varying from 30-320 ppb. Silver across the grid is in the range 0.8-3.4 ppb. No patterns nor any correlation with the anomalies gold values is apparent. Copper varies from 61-320 ppm. An open copper anomaly (>200 ppm) extends from L3+00N to L3+50N. This zone is in part coincidental with the gold anomaly. Zinc partially coincides with copper. The two exploratory lines (R<sub>1</sub> & R<sub>2</sub>) encountered four separate (1 or 2 sample) anomalies. No outcrop is present within this area. No correlation with either Cu, Zn or Ag is indicated. Two consecutive samples on R<sub>2</sub> analyzed 498 ppm Zn. The following geochemical statistics are applicable to the Main Grid:

	<u>Au</u> (ppb)	<u>Ag</u> (ppm)	<u>Cu</u> (ppm)	<u>Zn</u> (ppm)
No. Samples	143	143	143	143
Mean (b)	11	1.6	131	170
b + S <sub>1</sub>	25	2.1	195	248
Threshold (b+S <sub>2</sub> )	30	2.7	259	325
(# anomalous sample)	17	7	7	7

The Barrington grid was established over essentially rock and talus. Consequently results proved to be more extreme reflective of the talus material. Gold values ranged from 50-10,000 ppb (#6297C). Silver, with several exceptions analyzed <2 ppm. Sample #6297C analyzed 805 ppm Cu.

The West Grid exhibits several spotty anomalous gold values, in part reflective of the observed massive sulphide pods. One anomaly (>50 ppb), 110x50 metres, is centred over the gossanous zone adjacent the waterfall. The best sample analyzed 925 ppb Au and 1.3 ppm Ag. A subtle increase in silver content is noted north-south (1.0 to 2.1-4.3 ppm). A well defined copper zone (>200 ppm) 20-30 metres by 160 metres, straddles the ravine, partially overlapping and slightly offset to the south of the gold zone.

The West Sidehill traverse encountered gold values ranging from 35 - 1500 ppb across the initial

(north) 600 metres. Correspondingly, copper content averages 270 ppm. Along the southern portion of the traverse including above West Cave Creek background values were obtained. One solitary sample, #7330D, analyzed 25 ppb Au, 6.9 ppm Ag, 282 ppm Cu and 2900 ppm Zn.

In summary, the geochemical results across the TUFF 1 claim is reflective of the occurrence of the gold bearing massive sulphide pods. However, above the junction of Cave Creek the source of the anomalous samples have yet to be determined.

#### IV. GEOPHYSICS

##### 1. Procedure

A VLF-EM survey was performed across both the Main and West Grids (Dwg. AR.81-20). A Sabre Model 27 VLF-EM Receiver produced by Sabre Electronic Instruments Ltd. in Burnaby, B.C. was used for the survey. The transmitter station used was Seattle. A 'Fraser Filter' was applied to the dip angle readings.

##### 2. Results

The Main Grid displays a northwest trending conductor from L3+50N, 0+50W to L0+00, 0+10E, however no corresponding strong field strength response is associated. High field strength readings occur in the northeast corner of the grid.

Within the West Grid, one cross-over is indicated from L0+60S, 0+15W to L0+30N, 1+05W. This response is offset to the south of the anomalous gold or copper zones. South of this crossover and across the western portion of the grid high field strength readings are obtained.

#### V. SUMMARY AND CONCLUSIONS

Exploration performed in 1981 has revealed the TUFF property to be underlain by east-west, to north-west striking Triassic andesitic-basaltic volcanics which are interbedded with chert and lesser limestone. Gold mineralization occurs within limited 'sweat-like' pods of pyrite-arsenopyrite-pyrrhotite-chalcopyrite. Although such pods are observed across a widespread area in TUFF 1, their individual size and distribution



renders such zones individually or collectively uneconomic.

The source of anomalous gold geochemistry is yet to be determined within certain treed areas of TUFF 1. Although much of the anomalous geochemistry in TUFF 1 is related to minor and erratic massive sulphide pods, variables such as source, lithology and particularly structure may result in the occurrence of zones which could be of economic interest.

#### VI. PERSONNEL

During the period 1981 July 7-13, the following personnel worked on the TUFF 1 property:

Geologist (Supervisor):	J. A. Korenic
Field Geologist:	L. Holmgren
Field Assistants:	C. Hamilton
	C. Naas

#### VII. COST STATEMENT

##### 1. Personnel

1 Geologist (Supervisor), 6 1/2 man-days	\$ 954.98
1 Field Geologist, 6 1/2 man-days	412.88
2 Field Assistants, 13 man-days	<u>651.04</u>
	\$2,018.90

##### 2. Room and Board

Per diem rate of \$40.37/person, 26 man-days	\$1,049.62
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##### 3. Transportation

- Viking Helicopters Ltd., Report # July 6, #13678 (2:45 hrs) @ \$435/hr)	
July 7, #13679 (4:55 hrs) @ \$435/hr)x1/2 =	\$1,667.50
July 13, #001265 (4:20 hrs) @ \$435/hrx1/2=	<u>942.50</u>
	\$2,610.00

##### 4. Analytical Services

- Min-En Laboratories, North Vancouver, BC  
Invoice #8415, 8992, 105A:

234 stream sed/soil, Preparation @ 85¢ ea.	\$ 198.90
234 stream sed/soil, Cu,Zn,Au,Ag @ \$8.80 ea	2,059.20
40 rock, preparation @ \$2.75 ea.	110.00
40 rock, assay: Cu, Au, Ag, @ \$23.00 ea.	920.00
9 rock, assay: Zn @ \$7.50 ea.	67.50
7 rock, assay: As, Sb, @ \$20.00 ea	140.00
	<u>140.00</u>
	\$3,495.60

5. Report Preparation

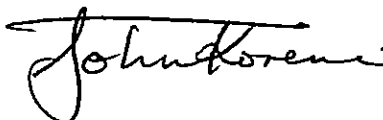
Preparation/Compilation, 7 days	\$1,028.44
Drafting, 12.2 days	1,960.91
Typing, 2 days	120.00
	<u>120.00</u>
	\$3,109.35

GRAND TOTAL: \$12,283.47

VIII. QUALIFICATIONS

I, John A. Korenic, do hereby certify that:

1. I am a geologist residing at 11758 Wildwood Crescent, Pitt Meadows, British Columbia and employed by Du Pont of Canada Exploration Limited.
2. I am a graduate of the University of Calgary with a B.Sc. degree in geology (1975).
3. I am a Fellow of the Geological Association of Canada.
4. I am a Member of the Canadian Institute of Mining and Metallurgy.
5. I have practised my profession in geology continuously for the past 7 years in the Yukon, British Columbia and various other provinces in Canada.
6. Between 1981 July 7 and September 2, I supervised/directed a field programme on the TUFF 1 claim on behalf of Du Pont of Canada Exploration Limited.



John A. Korenic  
1982 May

APPENDIX A

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke

705 WEST 15th STREET

NORTH VANCOUVER, B.C.

CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURE FOR GOLD GEOCHEMICAL ANALYSIS.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer..

A suitable sample weight 5.0 or 10.0 grams are pre-treated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

At this stage of the procedure copper, silver and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 5 ppb.

APPENDIX A*MIN-EN Laboratories Ltd.**Specialists in Mineral Environments*Corner 15th Street and Bewicke  
705 WEST 15th STREET  
NORTH VANCOUVER, B.C.  
CANADAANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORKPROCEDURES FOR Mo, Cu, Cd, Pb, Mn, Ni, Ag, Zn, As, F

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the  $\text{CH}_2\text{H}_2$ -Air flame combination but the Molybdenum determination is carried out by  $\text{C}_2\text{H}_2$ - $\text{N}_2\text{O}$  gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For Arsenic analysis a suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzeit method using  $\text{Ag CS}_2\text{N} (\text{C}_2\text{H}_5)_2$  as a reagent. The detection limit obtained is 1. ppm.

Fluorine analysis is carried out on a 200 milligram sample. After fusion and suitable dilutions the fluoride ion concentration in rocks or soil samples are measured quantitatively by using fluorine specific ion electrode. Detection limit of this test is 10 ppm F.

SABRE MODEL 27 VLF-EM RECEIVER

The model 27 EM unit was designed originally for a large Canadian mining company to overcome the deficiencies inherent in existing units.

The instrument is so stable and selective that completely reliable measurements can be made on distant stations without interference from nearby powerful transmitters. Stability and selectivity are especially important when making field-strength measurements, which are now being emphasized as a means of locating conductors.

This EM receiver is very compact, requires no earphones or loudspeakers and is housed in a heavy scotch saddle leather case. All of these features add up to make an ideal one-man EM unit of unexcelled electrical performance and mechanical ruggedness.

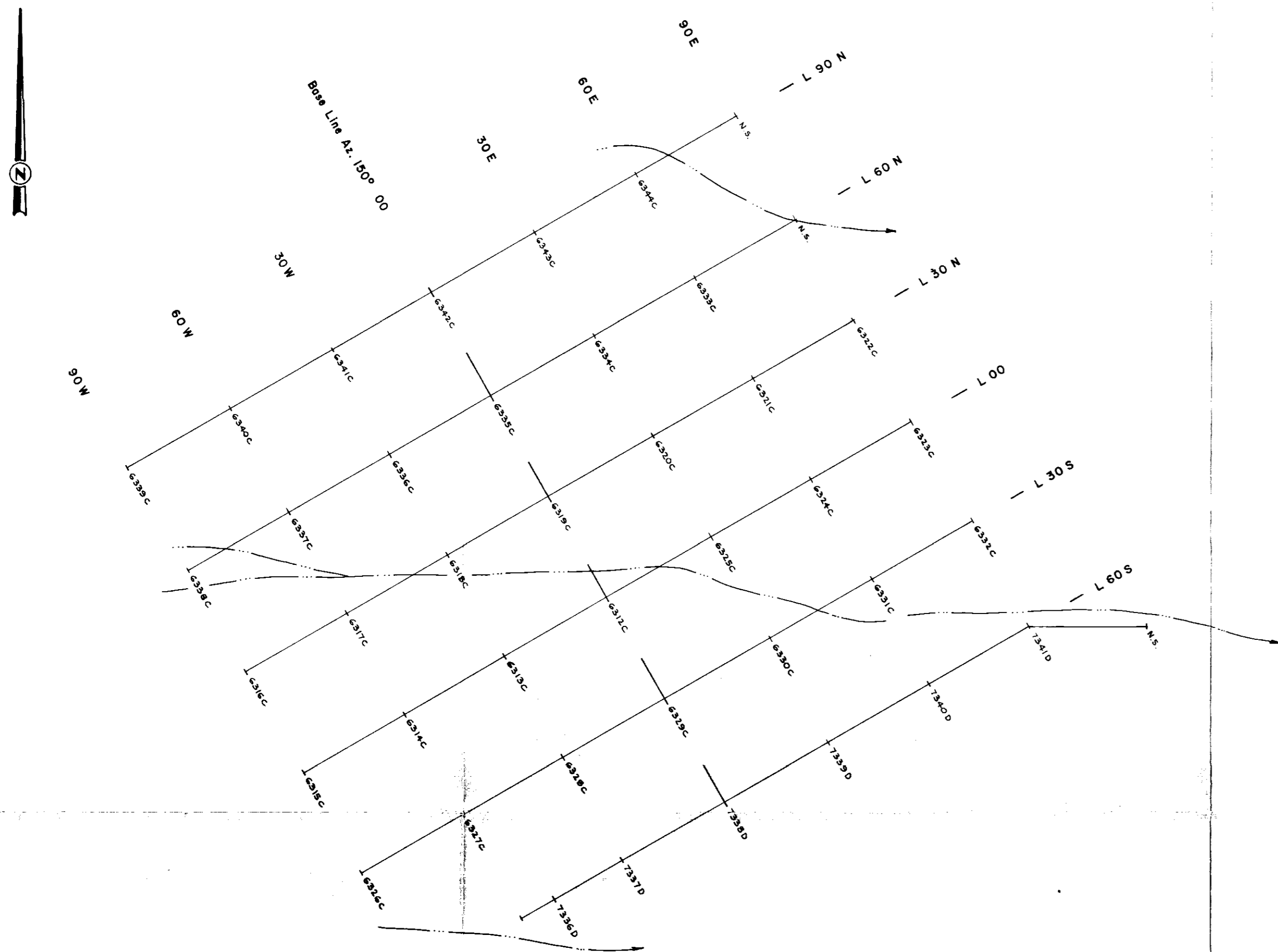
SPECIFICATIONS

Source of Primary Field - VLF radio stations (12 to 24 KHz.)

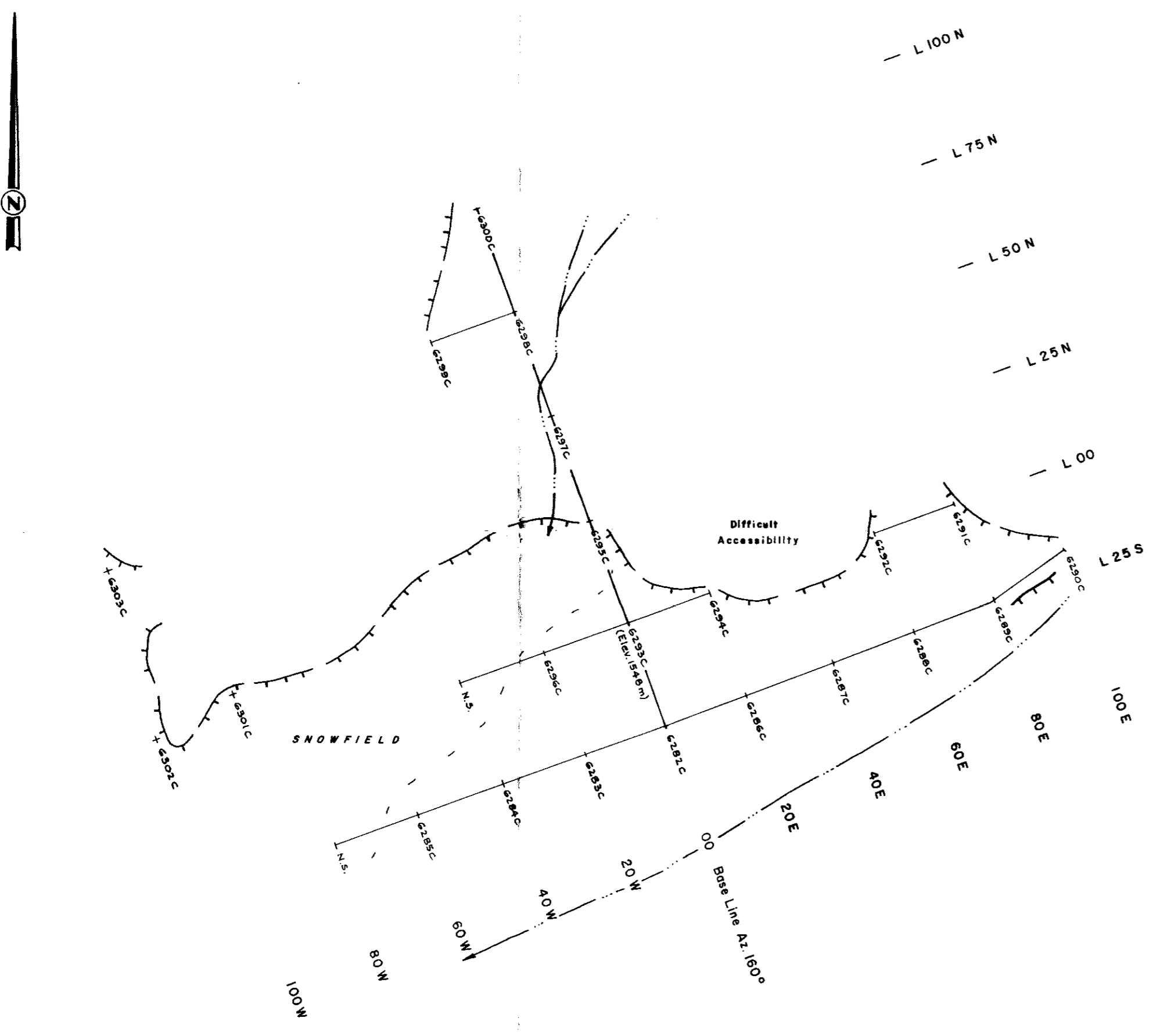
Number of Stations - 4, selected by switch; Cutler, Main on 17.8 KHz. and Seattle, Washington on 18.6 KHz. are standard, leaving 2 other stations that can be selected by the user.

Types of Measurement

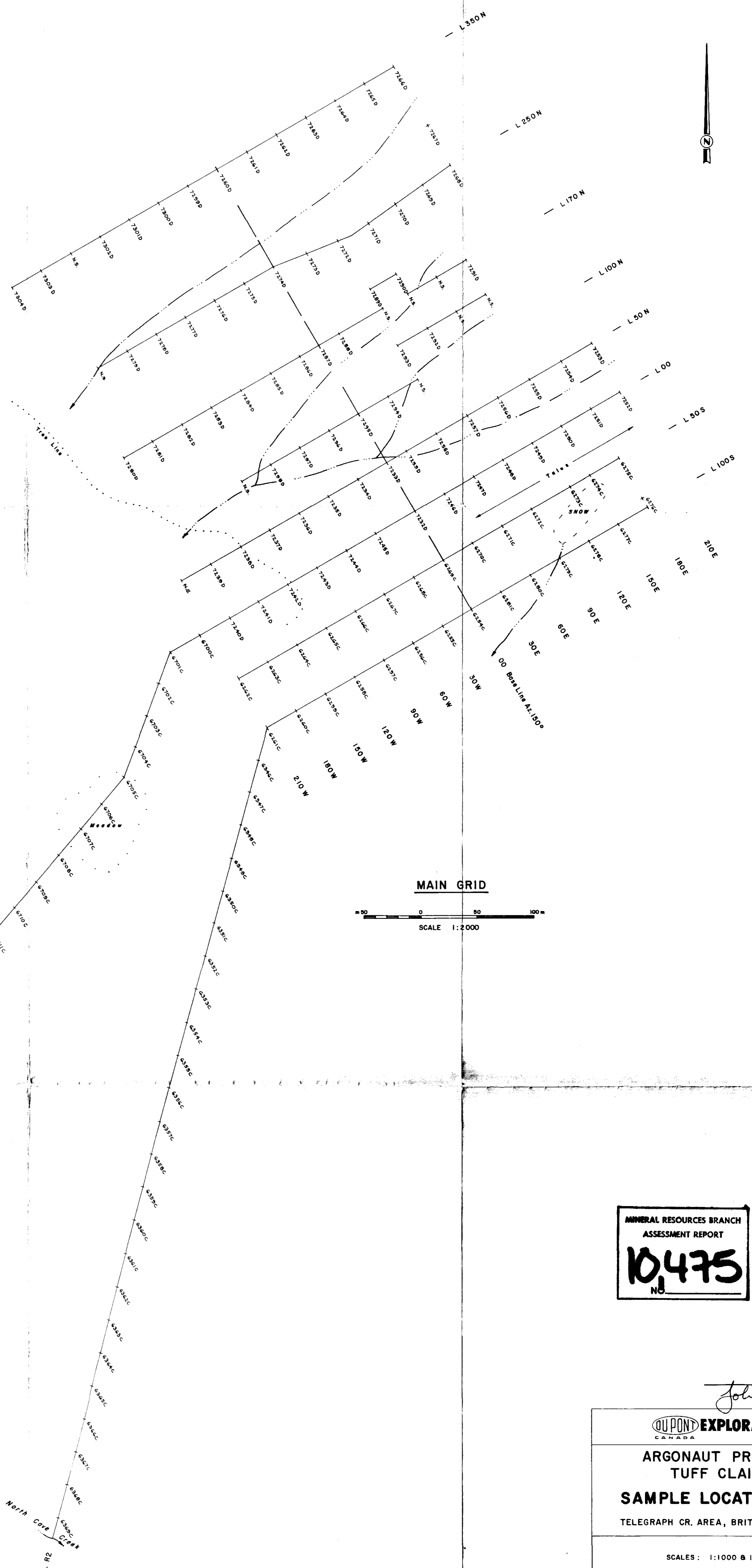
1. Dip angle in degrees, read on a meter-type inclinometer with a range of  $\pm 60^\circ$  and an accuracy of  $\pm \frac{1}{2}^\circ$ .
2. Field strength, read on a meter and a precision digital dial with an accuracy exceeding 1%.
3. Out of phase component, read on the field strength meter as a residual reading when measuring the dip angle.



**WEST GRID**  
SCALE 1:1000



**BARRINGTON GRID**  
SCALE 1:1000



**MAIN GRID**  
SCALE 1:2000

NOTE: FOR LOCATION OF GRIDS SEE DRWG No. AR.81-16

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10,475**  
No.

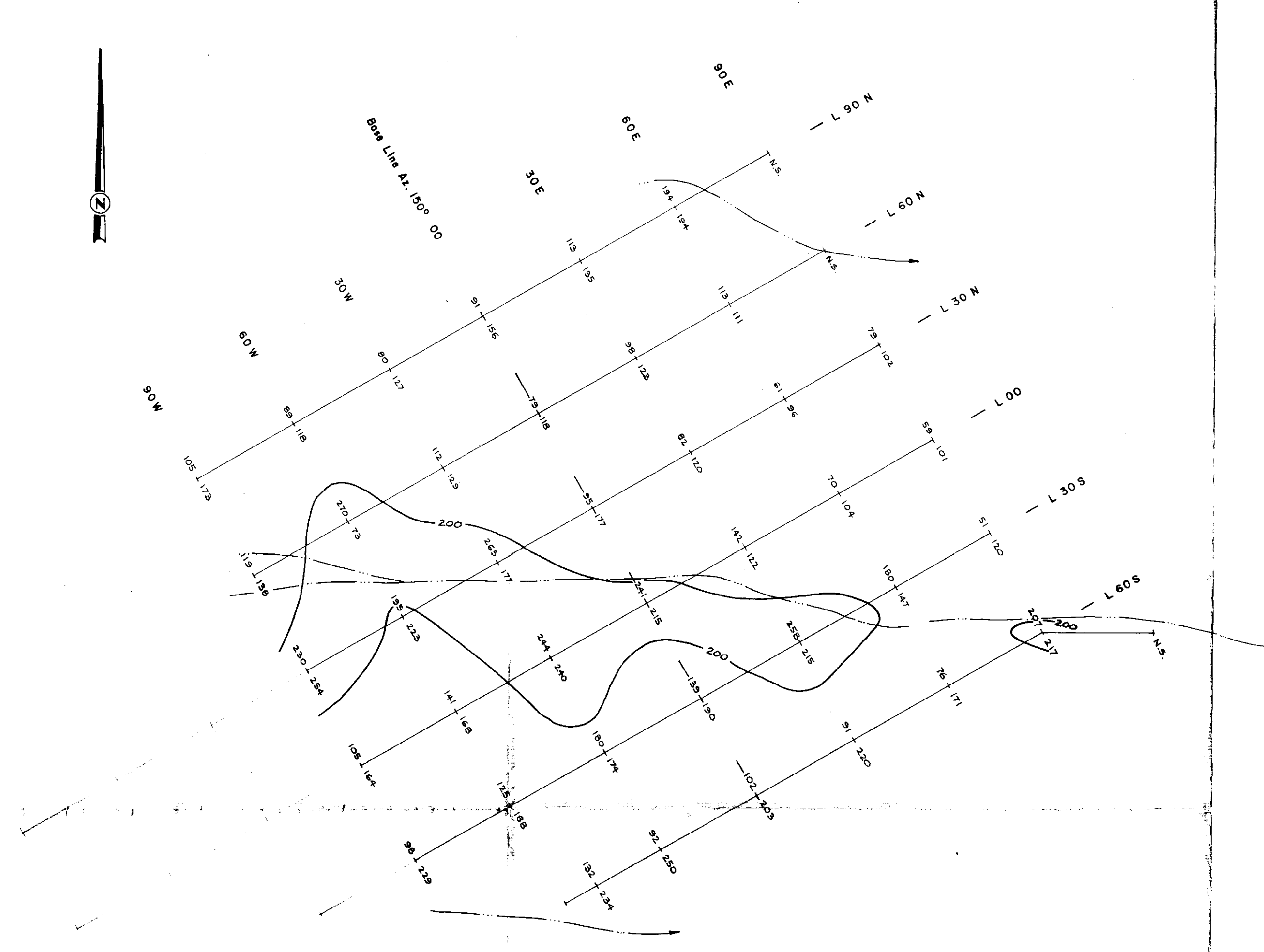
**EXPLORATION**  
CANADA

**ARGONAUT PROJECT  
TUFF CLAIMS  
SAMPLE LOCATION MAP**

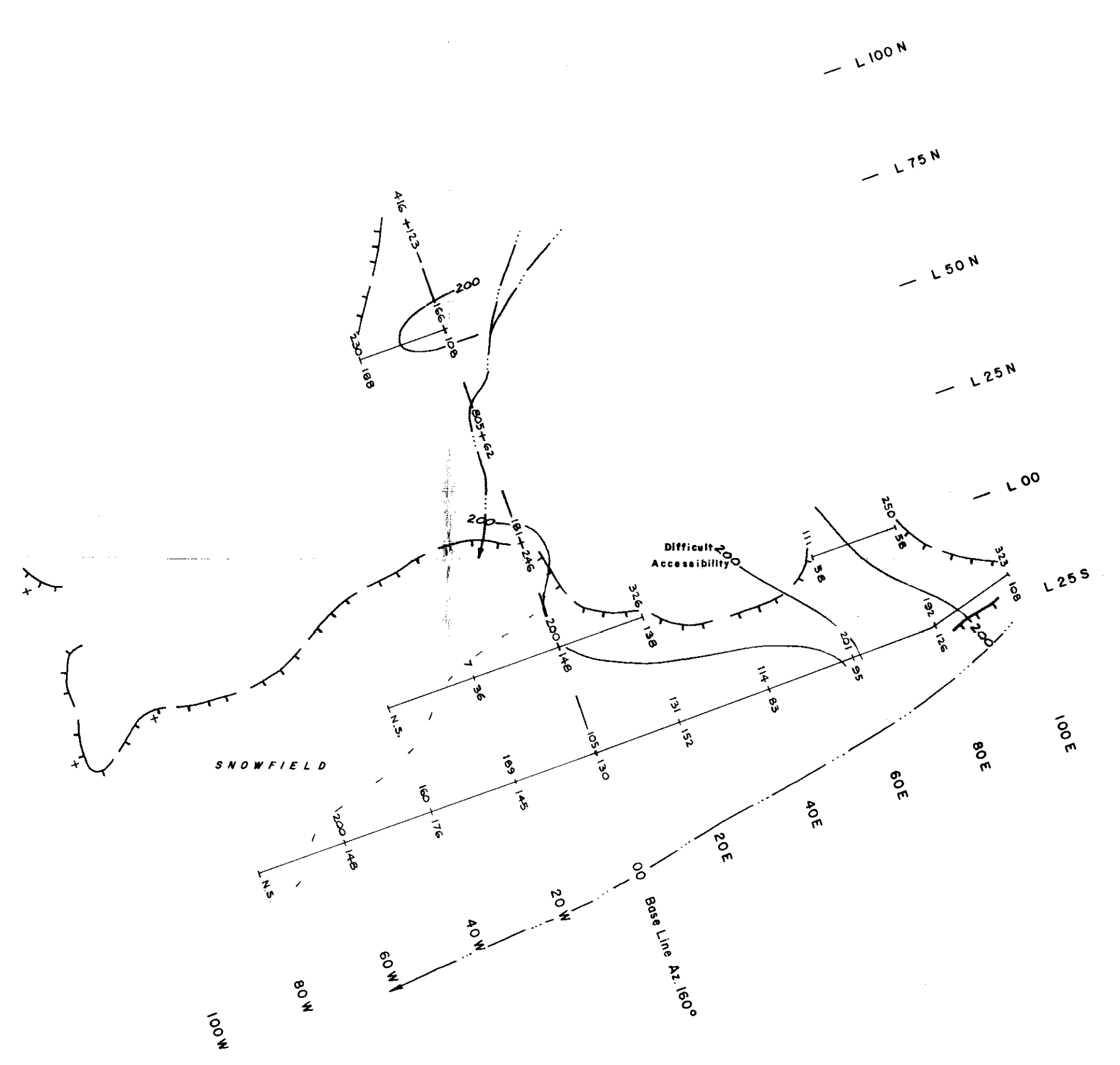
TELEGRAPH CR. AREA, BRITISH COLUMBIA

SCALES: 1:1000 & 1:2000

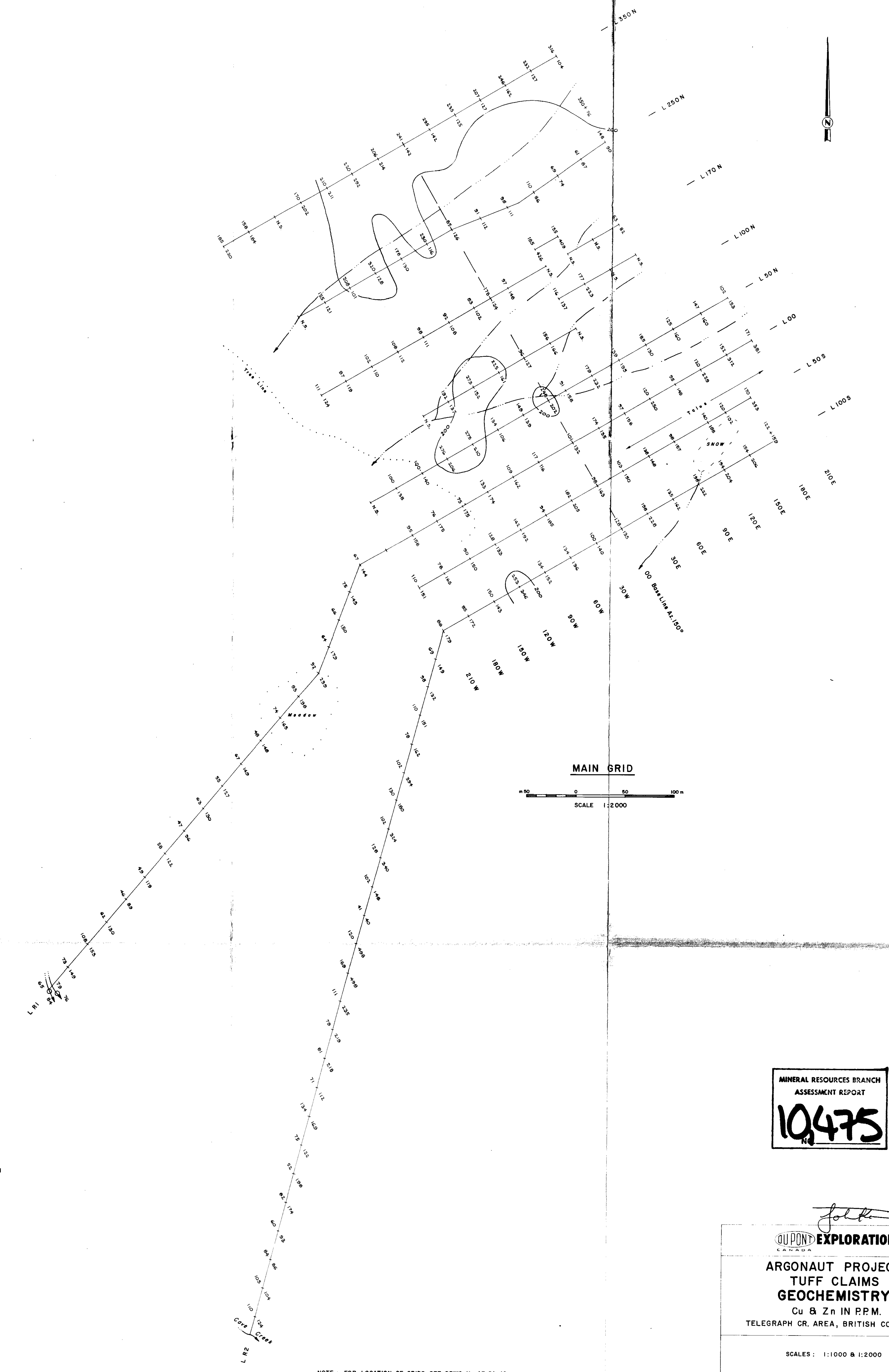
MAPPED BY: JAK, G.H., G.N.	REVISED:	N.T.S. No: 104 & 12, 13
DATE: 07-07-12		ACCT No: 347-28
DRAWN BY: R.L.F.		DRWG No: AR. 81-21
DATE: 01-12-23		



**WEST GRID**  
SCALE 1:1000



**BARRINGTON GRID**  
SCALE 1:1000



**MAIN GRID**  
SCALE 1:2000

**LEGEND**

- 02 135 GRID LINE & SOIL SAMPLE LOCATION  
COPPER VALUE IN P.P.M. TO LEFT  
ZINC VALUE IN P.P.M. TO RIGHT
- N.S. NO SAMPLE OBTAINED
- ○ — STREAM SEDIMENT SAMPLE LOCATION
- 200 — 200 P.P.M. COPPER CONTOUR
- — — EDGE OF CLIFF
- - - - EDGE OF SNOW

NOTE: FOR LOCATION OF GRIDS SEE DRWG No. AR.81-16

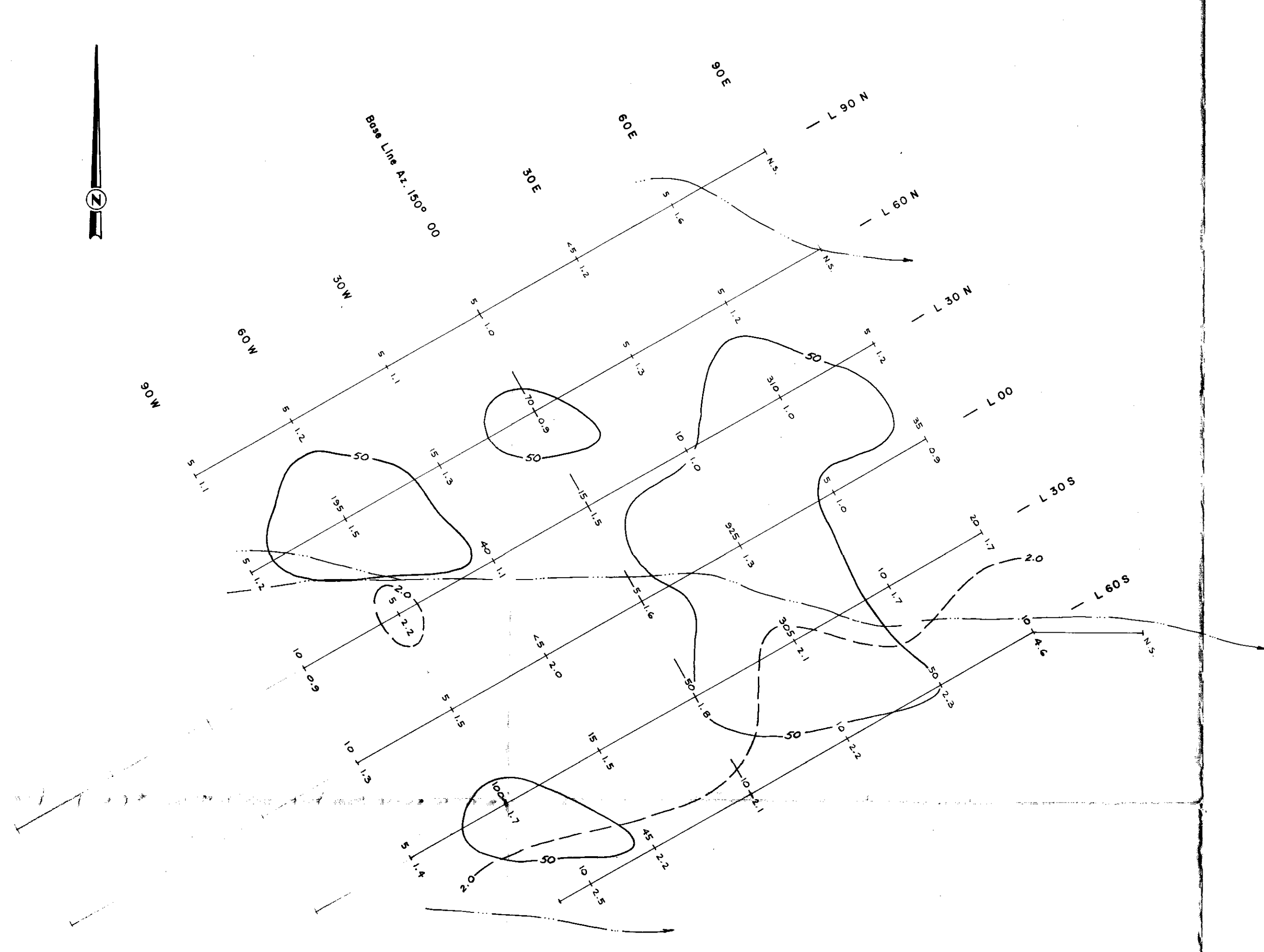
MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10475**

**ARGONAUT PROJECT  
TUFF CLAIMS  
GEOCHEMISTRY**  
Cu & Zn IN P.P.M.  
TELEGRAPH CR. AREA, BRITISH COLUMBIA

SCALES: 1:1000 & 1:2000

MAPPED BY: JAX, C.K.C.K.	REVISED:	N.T.S. No. 104 & 12, 13
DATE: 81 07-12		ACCT No. 347-28
DRAWN BY: K.L.J.		DRWG No. AR.81-19
DATE: 82 02-09		

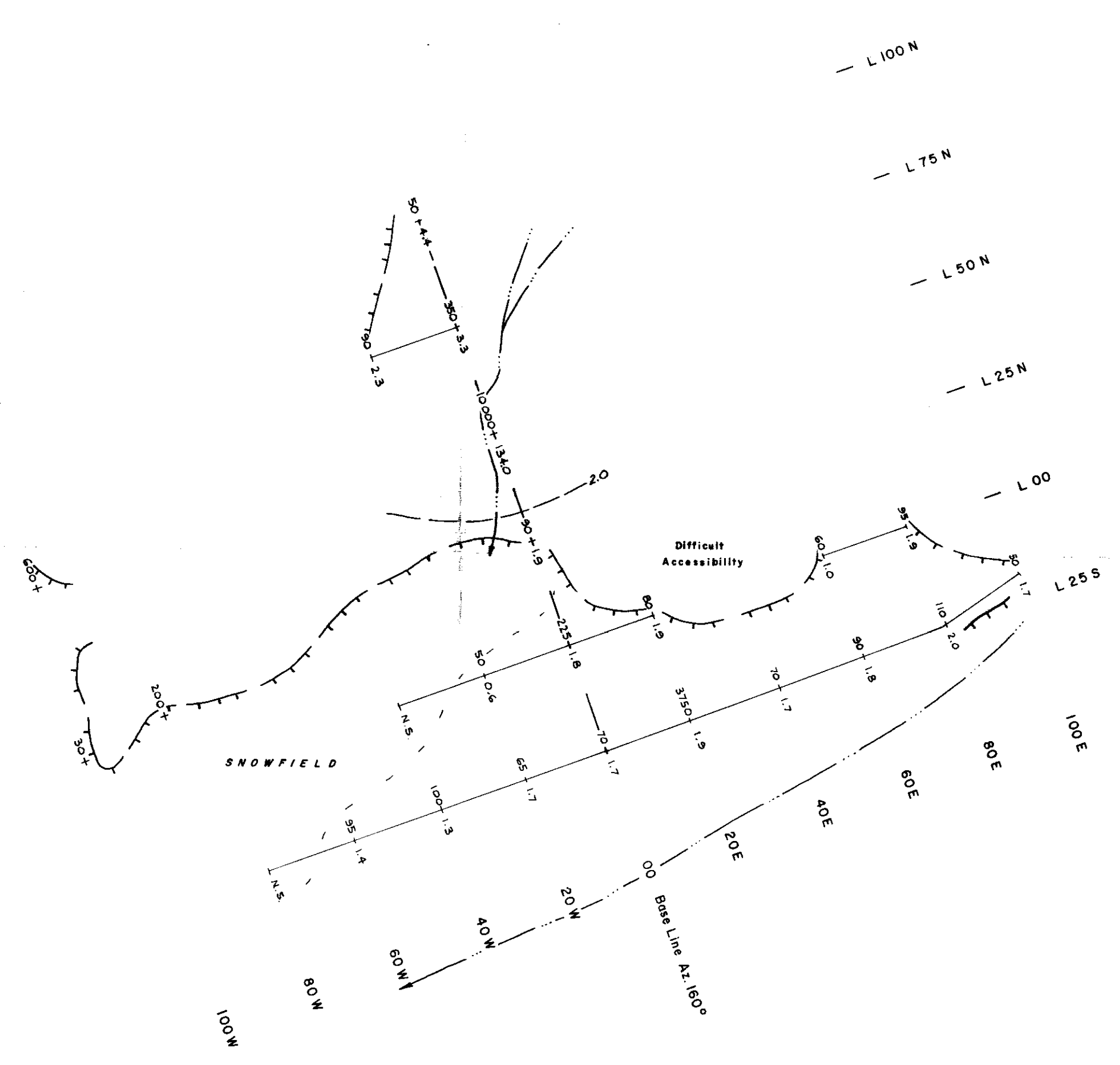




**WEST GRID**  
SCALE 1:1000



**MAIN GRID**  
SCALE 1:2000



**BARRINGTON GRID**  
SCALE 1:1000

**LEGEND**

- GRID LINE & SOIL SAMPLE LOCATION  
GOLD VALUE IN PPB. TO LEFT  
SILVER VALUE IN PPM. TO RIGHT
- NO SAMPLE OBTAINED
- STREAM SEDIMENT SAMPLE LOCATION
- 50 PPB. GOLD CONTOUR
- 2.0 PPM. SILVER CONTOUR
- EDGE OF CLIFF
- EDGE OF SNOW

NOTE: FOR LOCATION OF GRIDS SEE DRWG No. AR.81-16

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10,475**  
NO.

**EXPLORATION**  
ARGONAUT PROJECT  
TUFF CLAIMS  
GEOCHEMISTRY  
Au IN PPB. & Ag IN PPM.  
TELEGRAPH CR. AREA, BRITISH COLUMBIA

SCALE: 1:1000 & 1:2000

MAPPED BY: J.A.R., G.H.C.M.	REVISED:	N.T.S. No.: 104 & 12, 13
DATE: 01/07/18		ACCT No.: 347-28
DRAWN BY: K.L.V.		DRWG No.: AR.81-18
DATE: 02/02/05		



**WEST GRID**  
 SCALE 1:1000



**MAIN GRID**  
 SCALE 1:2000

**LEGEND**

- SURVEY GRID LINE STATION
- 10 — FILTERED NULL DIP READING (POSITIVE°)
- 54 — FIELD STRENGTH
- 5 — FILTERED NULL DIP READING (NEGATIVE°)
- 75 — FIELD STRENGTH CONTOURED AT INTERVALS OF 25 ON MAIN GRID AND 20 ON WEST GRID
- ..... TREE LINE
- CROSSOVER (CONDUCTIVE ZONE)  
 WEAK UNDEFINED, MODERATE, STRONG;  
 CORRESPONDS WITH ANOMALOUS FIELD STRENGTH

NOTE: FOR GRID LOCATIONS SEE DRWG AR.81-16

MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
**10475**

*J. K. ...*

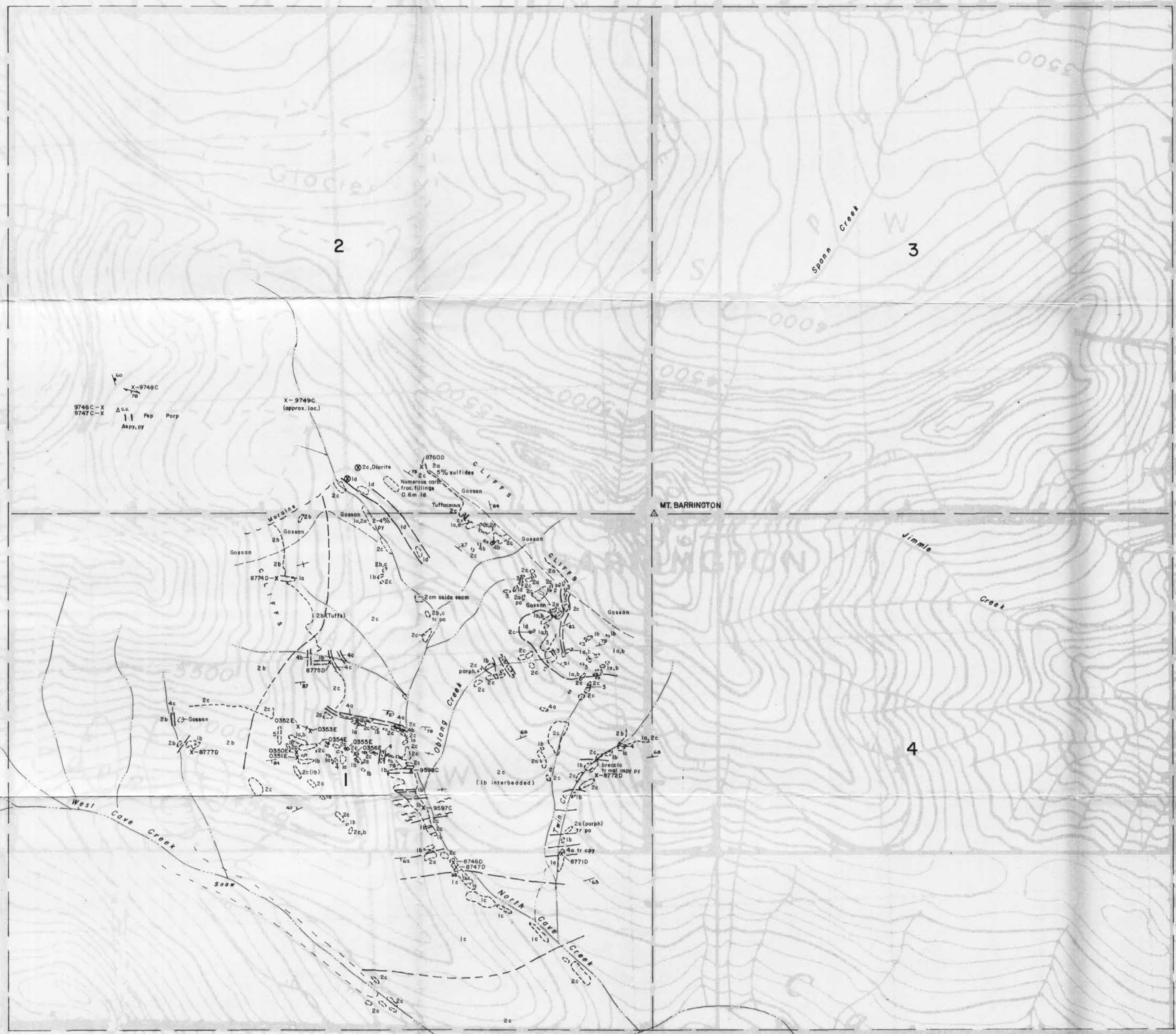
**DU PONT CANADA EXPLORATION**

**ARGONAUT PROJECT  
 TUFF CLAIMS  
 RADEM (VLF) SURVEY**

TELEGRAPH CR. AREA, BRITISH COLUMBIA

SCALES: 1:1000 & 1:2000

MAPPED BY: J.A.K.	REVISED:	N.T.S. No.: 104 G 12, 13
DATE: 81.07.07-12		ACCT No.: 347-28
DRAWN BY: K.L.J.		DRWG. No.: AR.81-20
DATE: 81.12.15		



**ABBREVIATIONS**

- aspy ARSENOPYRITE
- carb CARBONATE
- cpy CHALCOPYRITE
- c.v. CARBONATE VEIN
- Fsp. Feldspar
- mal MALACHITE
- Porp. PORPHYRY
- po Pyrrhotite
- py PYRITE
- q.v. QUARTZ VEIN

**LEGEND**

- 5 ANDESITE DYKES
- 4 GRANITE
  - a) GRANITE, HORNBLENDE PORPHYRY
  - b) RHYOLITE PORPHYRY
  - c) DIORITE
- 3 FELDSPAR PORPHYRY
- 2 VOLCANICS
  - a) RHYOLITE
  - b) ANDESITE
  - c) BASALT
- 1 BLACK CHERT
  - a) CHERT, IN PART ARGILLACEOUS
  - b) RUSTY, FISSILE
  - c) GREY RIBBON CHERT
  - d) LIMESTONE
- OUTCROP
- CONTACT
- SHEAR ZONE
- JOINTING
- FOLIATION
- BEDDING, VERTICAL, INCLINED
- DIP OF CONTACT
- X-8775D ROCK SAMPLE LOCATION & No.
- FLOAT
- GOSSAN
- MORaine
- EDGE OF SNOW
- MASSIVE SULPHIDE / OXIDE BEDS

57°45' 104 G 13 W  
104 G 12 W

57°45'

Sample	Cu %	Zn %	Ag oz/ton	As %	Au oz/ton	Sb %
0350 E	.004	.01	.02	.01	.001	.001
0351	.003	.01	.03	.01	.001	.001
0352	.110	.01	.30	7.45	.825	.019
0353	.093	.01	.26	8.40	.882	.010
0354	.012	.03	.08	.05	.003	.003
0355	.108	.01	.09	8.85	.028	.012
0356 E	.087	.01	.04	.06	.003	.001

**ROCK ASSAYS**

Sample	Cu %	Ag oz/ton	Au oz/ton	Location
8746 D	.001	.08	.002	Ribbon Chert
8747 D	.004	.06	.001	"
8760 D	.015	.08	.001	NW of Barrington Grid
8771 D	.042	.30	1.120	Twin Creek
8772 D	.075	.21	.072	"
8775 D	.080	.10	.025	Isolated west showing (adj. dike)
8777 D	.008	.11	.001	West Cave Creek
8774 D	.040	.11	.104	West Gossan

Sample	Cu %	Zn %	Ag oz/ton	Au oz/ton
9597 C	.012	.02	.09	.001
9598	.006	.02	.08	.001
9746	.048	.01	.08	.001
9747	.024	.01	.05	.001
9748	.021	.01	.02	.001
9749 C	.018	.01	.06	.001

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10,475**  
NO

*Johnston*

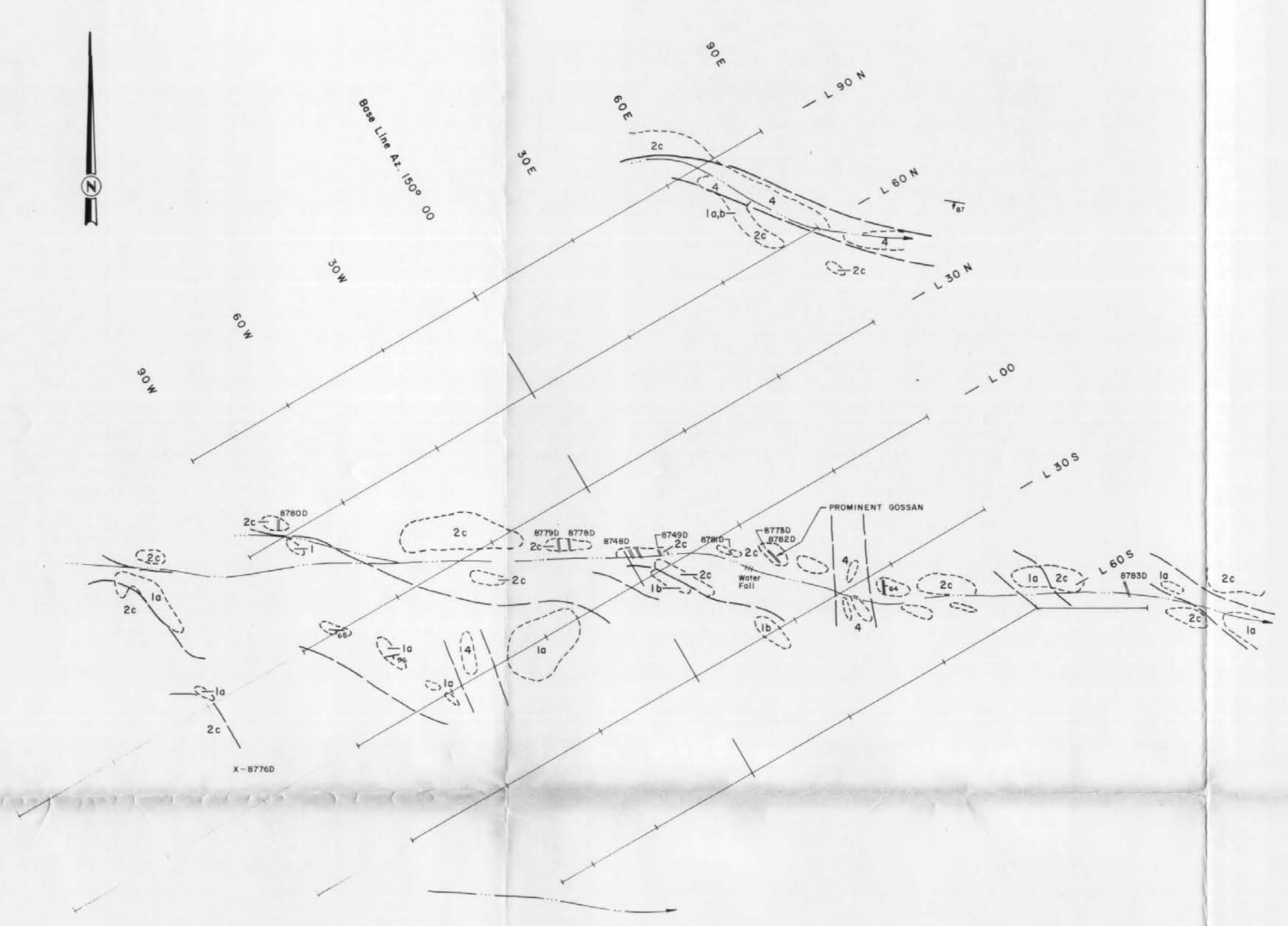
**DUPONT EXPLORATION**  
CANADA

**ARGONAUT PROJECT  
TUFF CLAIMS  
GEOLOGY**

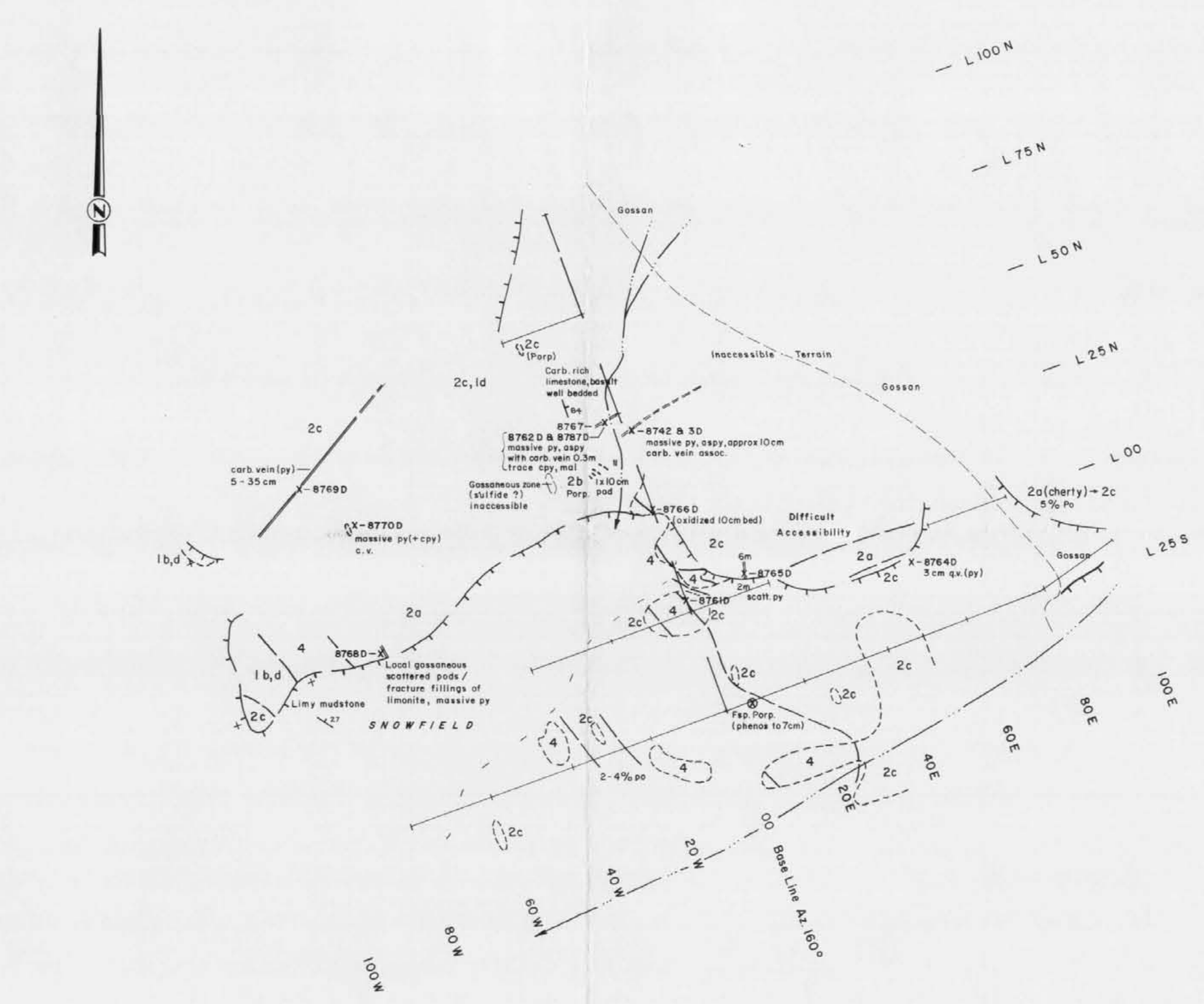
TELEGRAPH CR. AREA, BRITISH COLUMBIA

m 300 0 1:10 000 300 600 m  
SCALE  
ft. 1000 0 1000 2000 ft.  
1 INCH = 833 FEET

MAPPED BY: J.A.K., L.H. REVISIONS: N.T.S. No: 104 G 12, 13  
DATE: 81 07 02 ACCT No: 347-28  
DRAWN BY: K.L.J. DRWG. No: AR. 81-15  
DATE: 81 12 21



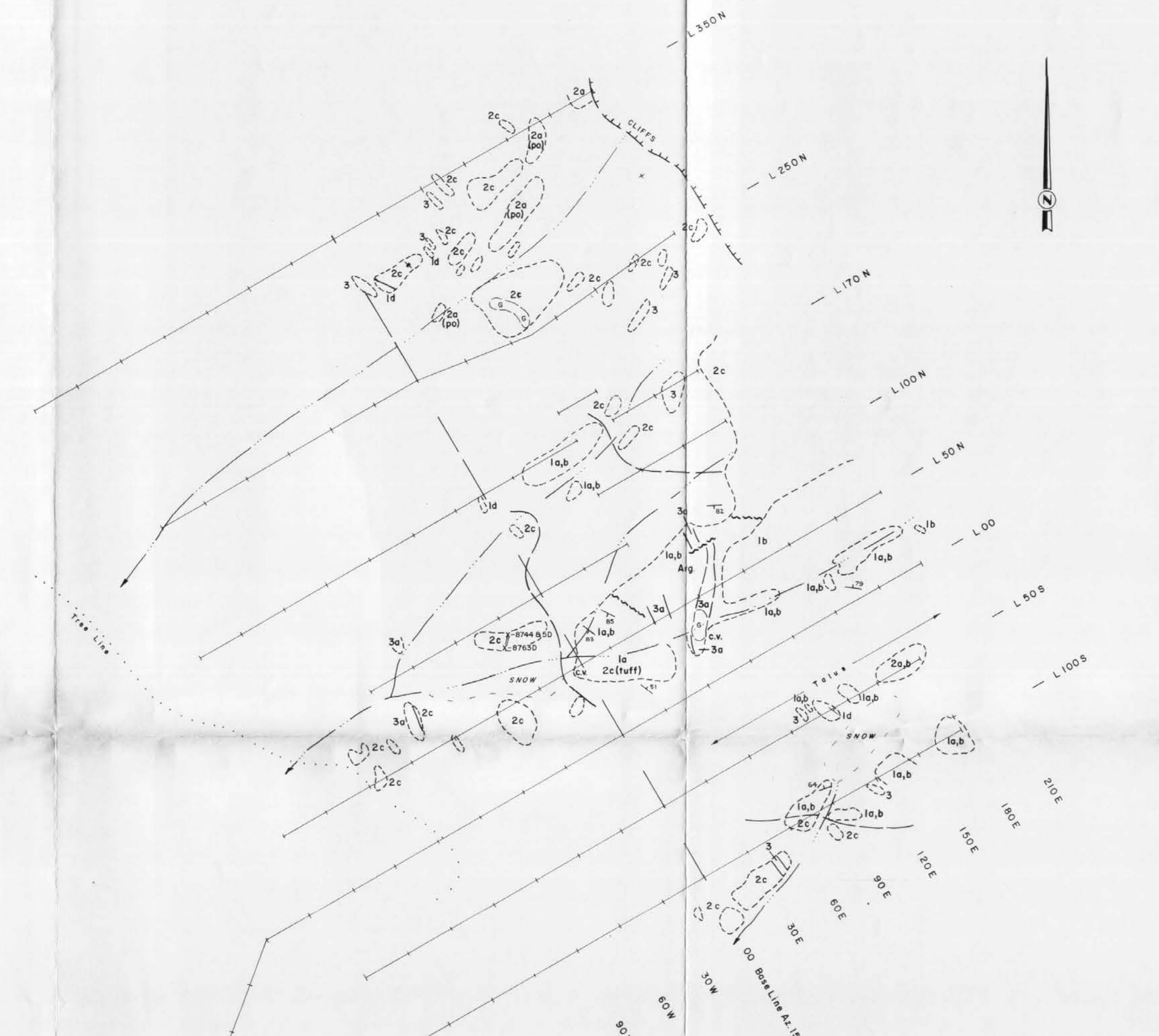
**WEST GRID**  
SCALE 1:1000



**BARRINGTON GRID**  
SCALE 1:1000

- LEGEND**
- 5 ANDESITE DYKES
  - 4 GRANITE  
a) GRANITE, HORNBLENDE PORPHYRY  
b) RHYOLITE PORPHYRY  
c) DIORITE
  - 3 FELDSPAR PORPHYRY
  - 2 VOLCANICS  
a) RHYOLITE  
b) ANDESITE  
c) BASALT
  - 1 BLACK CHERT  
a) CHERT, IN PART ARGILLACEOUS  
b) RUSTY, FISSILE  
c) GREY RIBBON CHERT  
d) LIMESTONE

- SYMBOLS**
- OUTCROP
  - CONTACT
  - SHEAR ZONE
  - JOINTING
  - FOLIATION
  - BEDDING, VERTICAL, INCLINED
  - DIP OF CONTACT
  - x-87750 ROCK SAMPLE LOCATION & No.
  - ⊗ FLOAT
  - GOSSAN
  - MORaine
  - EDGE OF SNOW
  - MASSIVE SULPHIDE / OXIDE BEDS



**MAIN GRID**  
SCALE 1:2000

**ROCK ASSAYS**

Sample	Cu %	Ag oz/Ton	Au oz/Ton	Location
8742 D	.126	.20	.015	Barrington Grid
8743	.107	.29	.142	"
8744	.237	.17	.210	Wtz/Main Grid
8745	.034	.16	.260	"
*8746	.001	.08	.002	Ribbon Chert
*8747	.004	.06	.001	"
8748	.470	.16	.230	West Grid
8749	.040	.10	.218	"
*8750	.015	.08	.001	SW of Barrington Grid
8761	.002	.09	.002	Barrington
8762	.043	.53	1.350	" (initial)
8763	.002	.61	2.210	Main Grid (87) last year
8764	.002	.10	.008	Barrington Grid
8765	.024	.11	.012	"
8766	.073	.70	.029	"
8767	.019	.32	.628	" (initial)
8768	.012	.10	.002	Barrington
8769	.001	.10	.002	"
8770	.006	.07	.002	" SW
*8771	.042	.40	1.120	Twin Creek
*8772	.075	.21	.072	"
8773	.406	.73	3.375	West Grid/best showing
*8774	.040	.11	.104	West Gossan
*8775	.080	.10	.025	Isolated west showing (ad. Jike)
8776	.034	.19	.040	West Grid (upper)
*8777	.008	.11	.001	West Cave Creek
8778	.142	.12	.051	West Grid
8779	.147	.12	.049	"
8780	.093	.10	.011	West Grid
8781	.010	.10	.445	"
8782	.471	.63	1.470	"
8783 D	.266	.09	.072	"

\* For location see drwg AR-81-15

- ABBREVIATIONS**
- aspy ARSENOPYRITE
  - carb. CARBONATE
  - cpy CHALCOPYRITE
  - c.v CARBONATE VEIN
  - Fsp. Feldspar
  - mal MALACHITE
  - Purp. PORPHYRY
  - py Pyrrhotite
  - py PYRITE
  - q.v. QUARTZ VEIN

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10475**

**OUPONT EXPLORATION**  
CANADA

**ARGONAUT PROJECT  
TUFF CLAIMS  
GEOLOGY**  
TELEGRAPH CR. AREA, BRITISH COLUMBIA

SCALE: 1:1000 & 1:2000

MAPPED BY: JAK, C.L.C.N.	REVISED:	N.T.S. No.: 104 6 12, 13
DATE: 01 07 07-12		ACCT No.: 247-18
DRAWN BY: K.L.A.		DRWG No.: AR-81-17
DATE: 02 02 12		

NOTE: FOR LOCATION OF GRIDS SEE DRWG No. AR-81-16

**Note Regarding Original Sample Results:**

The results of the analysis of the heavy mineral concentrate from the -20 (-20 +100 mesh) fraction are not weighted.

Tag No.	Mesh	ORIGINAL SAMPLE RESULTS					% H.M.
		Au P.P.M.	Hg P.P.M.	Pb P.P.M.	Cu P.P.M.	Ag P.P.M.	
0631	- 20	45	-	15	133	1.2	3.5
	-100	36	23	14	59	1.1	-
2628 D	- 20	15	8	25	170	1.4	1.78
	-100	6100	-	25	88	1.7	-

**1981 GEOCHEMICAL RESULTS**

Sample	Cu ppm		Zn ppm		Ag ppm		As ppm		Au ppb		Sb ppm	
	-80 F	-20 CHM	-80 F	-20 CHM	-80 F	+20 CHM	-80 F	+20 CHM	-80 F	+20 CHM	-80 F	+20 CHM
Sediments												
000 L	305	272	119	109	1.1	1.5	84	38	25	5	70	50
001	246	136	124	78	0.9	0.6	63	30	20	5	85	55
002	64	65	38	50	0.5	0.4	10	12	30	5	64	45
003	66	75	34	35	0.4	0.5	6	1	13	5	45	42
004	61	64	34	37	0.3	0.6	31	6	5	5	75	40
005	74	68	32	24	0.5	0.3	1	4	165	5	110	40
006 E	57	62	30	31	0.6	0.4	<1	8	55	10	75	52
6304 C	85*	60*			1.4*				15*			
6305	107		140		1.3				5			
6306	105		8*		1.3				170			
6307	103		70		1.0				140			
6308	43		81		1.1				5			
6309	83		128		1.2				1430			
6310	97		272		2.0				5			
6311	65		180		1.4				5			
6345	112		118		1.8				70			
6381	132		185		2.0				5			
6382	132		186		2.0				5			
6383 C	110		383		1.7				10			
9097	203	145	471	308	3.5	2.7	22	39	5	5	150	130
9098	166	95	376	206	2.3	1.6	17	11	5	5	105	75
9099 L	80	55	169	131	1.3	0.8	16	10	5	5	75	52
10751 C	168	151	76	60	1.4	0.5	7	7	5	10	55	50
10752	148	178	72	54	1.0	0.6	8	18	20	10	42	52
10753	76	72	50	53	1.2	0.5	44	17	145	5	56	65
10754	123	135	50	45	0.9	1.1	26	14	10	2100	60	70
10755	82	73	46	38	1.1	0.4	19	13	50	20	50	55
10756 C	86	80	55	51	1.0	0.3	8	5	70	10	55	35

Sample	Cu ppm	Zn ppm	Ag ppm	Au ppb
-80 Mesh				
Soils				
7305 D	333	99	1.6	80
7306	343	113	1.5	205
7307	240	115	1.3	170
7308	290	110	1.5	80
7309	233	78	1.4	2800
7310	315	86	1.2	1500
7311	313	94	1.3	115
7312	255	106	1.3	40
7313	253	148	1.1	90
7314	191	141	1.5	75
7315	236	150	1.5	50
7316	206	143	1.6	55
7317	275	141	1.8	85
7318	255	122	1.6	35
7319	251	115	1.4	15
7320	196	128	1.3	5
7321	243	116	1.5	40
7322	106	156	1.7	5
7323	140	176	1.4	30
7324	174	193	1.6	5
7325	183	202	1.8	35
7326	181	215	1.6	5
7327	141	140	4.2	5
7328	160	153	1.5	20
7329	196	415	2.7	5
7330	282	2900	6.9	25
7331	203	262	2.9	15
7332	204	148	2.2	15
7333	278	141	2.7	10
7334	178	249	3.2	5
7335	128	322	2.5	5

\* -40 Mesh

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**10475**  
NO.

**DUPONT EXPLORATION**  
CANADA

**ARGONAUT PROJECT  
TUFF CLAIMS  
GEOCHEMISTRY**  
Au in PPB, Ag, As, Cu, Sb & Zn in PPM.  
TELEGRAPH CR AREA, BRITISH COLUMBIA

SCALE  
1:10,000  
0 300 600 m  
0 1000 2000 ft.

MAPPED BY: J.A.K., C.H., C.M. REVISION: N.T.S. No.: 104 G 12, 13  
DATE: 81 07 07-12 ACCT No.: 347-28  
DRAWN BY: K.L.J. DATE: 81 12 22 DRWG. No.: AR. 81-16

*John Brown*

