

ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 89.02.04

ASSESSMENT REPORT 17213

MINING DIVISION: Lillooet

PROPERTY: Bralorne Ext.  
LOCATION: LAT 50 48 31 LONG 122 50 28  
UTM 10 5628335 511195  
NTS 092J15W

CLAIM(S): Bralorne Ext.  
OPERATOR(S): Van Benten, L.  
AUTHOR(S): Butler, S.P.  
REPORT YEAR: 1988, 23 Pages

GEOLOGICAL

SUMMARY: Permo-Triassic Bridge River Group sediments (argillites, cherts, and interbedded argillites and cherts) outcrop. A small outcrop of Upper Triassic Pioneer Formation mafic rocks was also found.

WORK

DONE: Geological  
GEOL 100.0 ha  
ROCK 1 sample(s) ;ME

RD.  
0502  
AS104

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**17,213**

**L. VAN BENTEN**

**Assessment Report**

**on the**

**Bralorne Ext.  
Mineral Claim**

FILE

**Gold Bridge Area  
Lillooet Mining Division, British Columbia**

**N. Latitude: 50° 48' 00"**

**W. Longitude: 122° 51' 00"**

**NTS 92 J/15 W**

**by**

**Sean P. Butler, B.Sc.**

**STRATO GEOLOGICAL ENGINEERING LTD.  
3586 King George Highway  
Surrey, British Columbia  
V4A 5B6**

SUBMITTED  
APR - 1988  
VANCOUVER, B.C.

**March 4, 1988**



SUMMARY

A reconnaissance geological mapping program was completed on the Bralorne Ext. claim in May of 1987. The Bralorne Ext. claim is located approximately three kilometers south of Gold Bridge and five kilometers northwest of the former producing Bralorne and Pioneer gold mines. These mines are the largest historic producers of gold in the Canadian Cordillera.

Only one rock sample, which returned low mineral values, was collected for analysis while the geology was compiled. Further work including soil sampling is required to best evaluate the potential of this property.

Respectfully submitted,  
Strato Geological Engineering Ltd.

*Sean P. Butler*

Sean P. Butler, B.Sc.  
Geologist

March 4, 1988



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## 1. INTRODUCTION

On May 23 and 24, 1987 a reconnaissance geological program was performed on the Bralorne Ext. claim. This program included preparing a geology map (Figure 5). One rock sample was collected and analyzed.

### 1.1 Location and Access

The Bralorne Ext. claim is located in the Gold Bridge area of British Columbia, approximately 180km north of Vancouver (Figure 1). The property is indicated on NTS map 92J/15W at latitude 50 degrees 48'N and longitude 122 degrees 51'W. The claim group is 3km south of Gold Bridge and is accessed by the Hurley River logging road and then the BR-2 logging road to the center of the claim area. The town of Gold Bridge is reached by 96km of good gravel road from the town of Lillooet. Lillooet is on the B.C. Rail Line and a paved road leads to Lytton on the Trans Canada Highway. Also, summer access is available along the Hurley River Forest Service Road, a rough gravel road from Pemberton, B.C.

### 1.2 Physiography

The topography within the region is quite rugged, but most of the Bralorne Ext. claim is relatively flat except for the cliffs down to the Hurley River canyon. The elevation varies from about 900 to 1200m over the claim area (Figure 2). Several

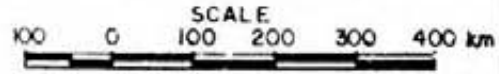


FIGURE 1

L. van Bente  
 GOLD BRIDGE AREA  
 LILLOOET M.D. — NTS 92J/15

LOCATION MAP

February, 1988



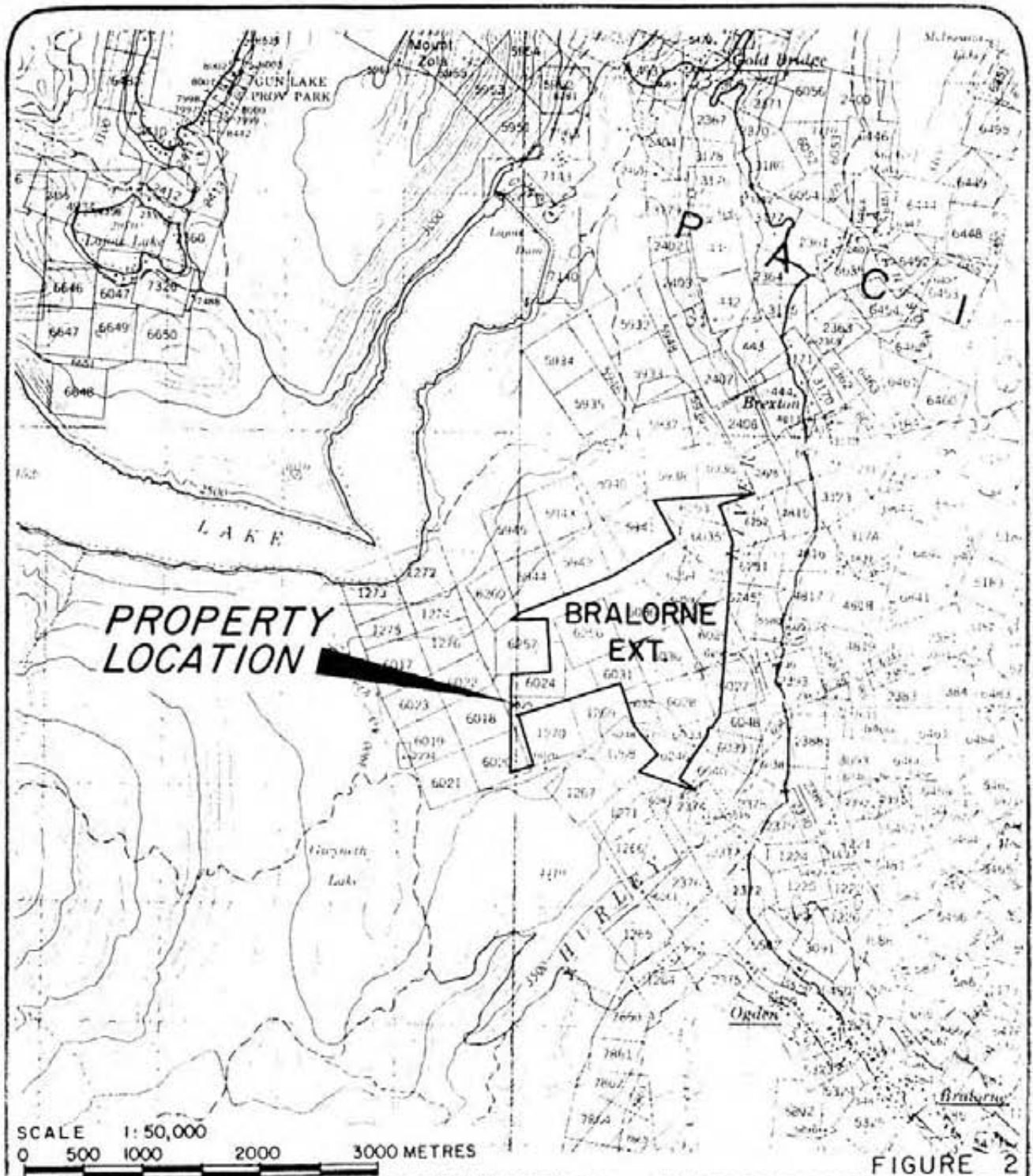
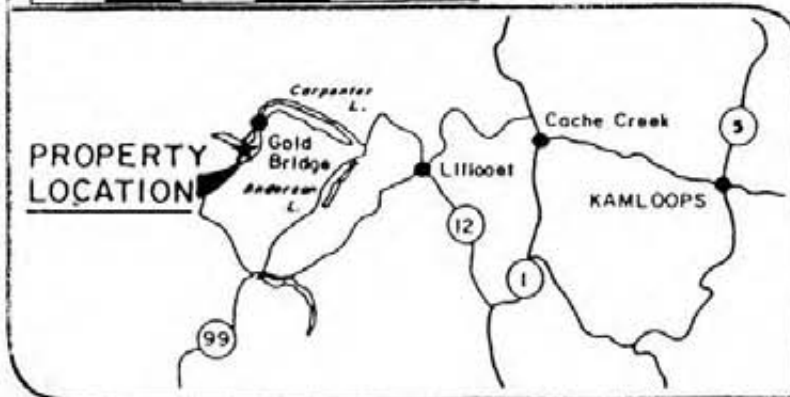


FIGURE 2



L. van Bente  
GOLD BRIDGE AREA  
LILLOOET M.D. — NTS 92J/15

TOPOGRAPHIC MAP

February, 1988





small streams traverse the property and a couple of small swampy areas are found. The claim is however generally dry and is forested by pine and fir. There are several areas that have been logged off and several logging roads afford good access to the central claim areas.

### 1.3 History

Interest in the area was developed when placer gold was found in the Bridge River district in 1863. The Bralorne and Pioneer mines, four and six kilometers to the southeast of the claim, are the largest historic producers of gold in the Canadian Cordillera, with over 4.1 million ounces. The last recorded production was in 1971 during a prolonged period of low precious metal prices. The area is presently under serious and active exploration on many properties.

There is no known record of previous exploration work on the Bralorne Ext. claim.

### 1.4 Property Status

The Bralorne Ext. claim consists of 20 units, record number 3655, and expiry date February 10, 1988. Work has been filed, this report being part of that work, to keep the claim in good standing until 1989. This claim overlaps on several crown grant and reverted crown grant mineral claims and therefore contains an area substantially less than the 20 units it covers (Figure 3).



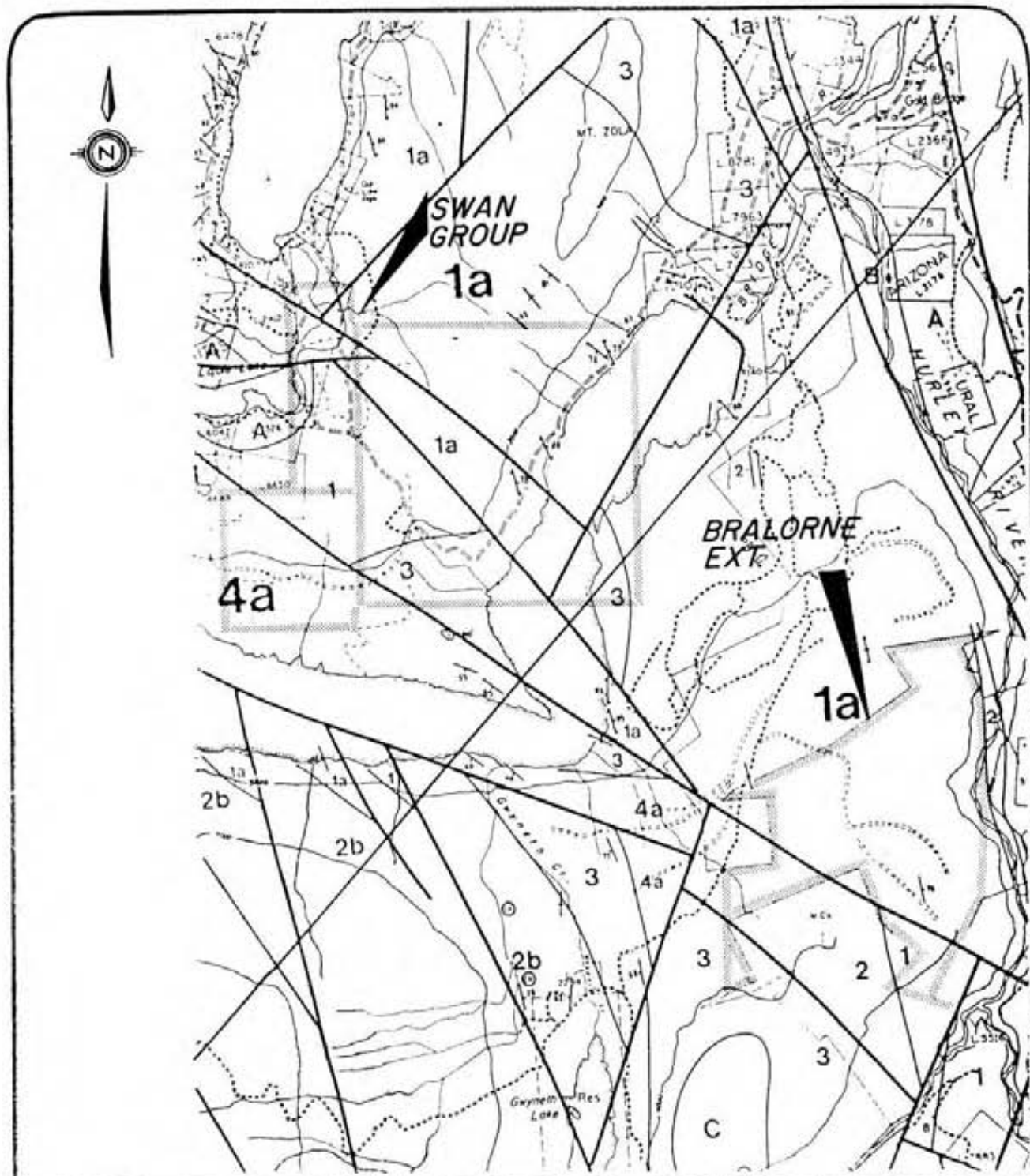
## 2. GEOLOGY

### 2.1 Regional Geology

The Bridge River area lies between the main Coast Range intrusive complex to the west and a series of outlying granodiorite intrusive bodies to the east. The area includes a regionally, northwesterly trending, faulted and folded series of sedimentary and volcanic rocks and their metamorphic equivalents (Figure 4).

The region is underlain by the late Paleozoic and/or Mesozoic, volcanic and sedimentary, rocks of the Fergusson series (Bridge River group). Also the Upper Triassic Cadwallader Group volcanics and sediments of the Noel, Pioneer, and Hurley Formations occur within the region. All of these rocks have been invaded by and locally metamorphosed by a group of small intrusive bodies of the Jurassic Bralorne intrusives. These include augite-diorite, soda granite, quartz diorite, gabbro and ultrabasic rocks.

The regional fault traversing the area is the Cadwallader Fault system which trends northwesterly for many kilometers in the Cadwallader Creek Valley south of the Bralorne area, and then turns to a northerly trend at Bralorne. The main gold production for the region is from the Pioneer and Bralorne mines which are within a fault bounded lens of Bralorne intrusives, along the



LEGEND

FROM: Church & McLEAN 1987

TRIASSIC

- 4 CADWALLADER GROUP  
HURLEY FORMATION: soft brown and green argillites, siliceous and calcareous argillites with sandstone and conglomerate (4a), siltstone (4b) and volcanoclastics (4c)
  - 3 NOEL FORMATION: mainly black argillite and siltstone with some calcareous zones
  - 2 PIONEER FORMATION: basaltic pillow lava (2a), aquagene breccia (2b), tuffs and amygdaloidal tuff (2c)
- PALEOZOIC
- 1 FERGUSSON GROUP: mostly ribbon chert (1a), ranging to bottle quartz gneiss (1b), some marble bands (1c) and fine-grained amphibolite (1d)
  - A BRALORNE INTRUSIONS: mostly heterogeneous amphibolite, diorite and gabbro with felsic veins

FIGURE 4

L. van Bente  
GOLD BRIDGE AREA  
LILLOOET M.D. — NTS 92 J/15

REGIONAL GEOLOGY MAP

February, 1988



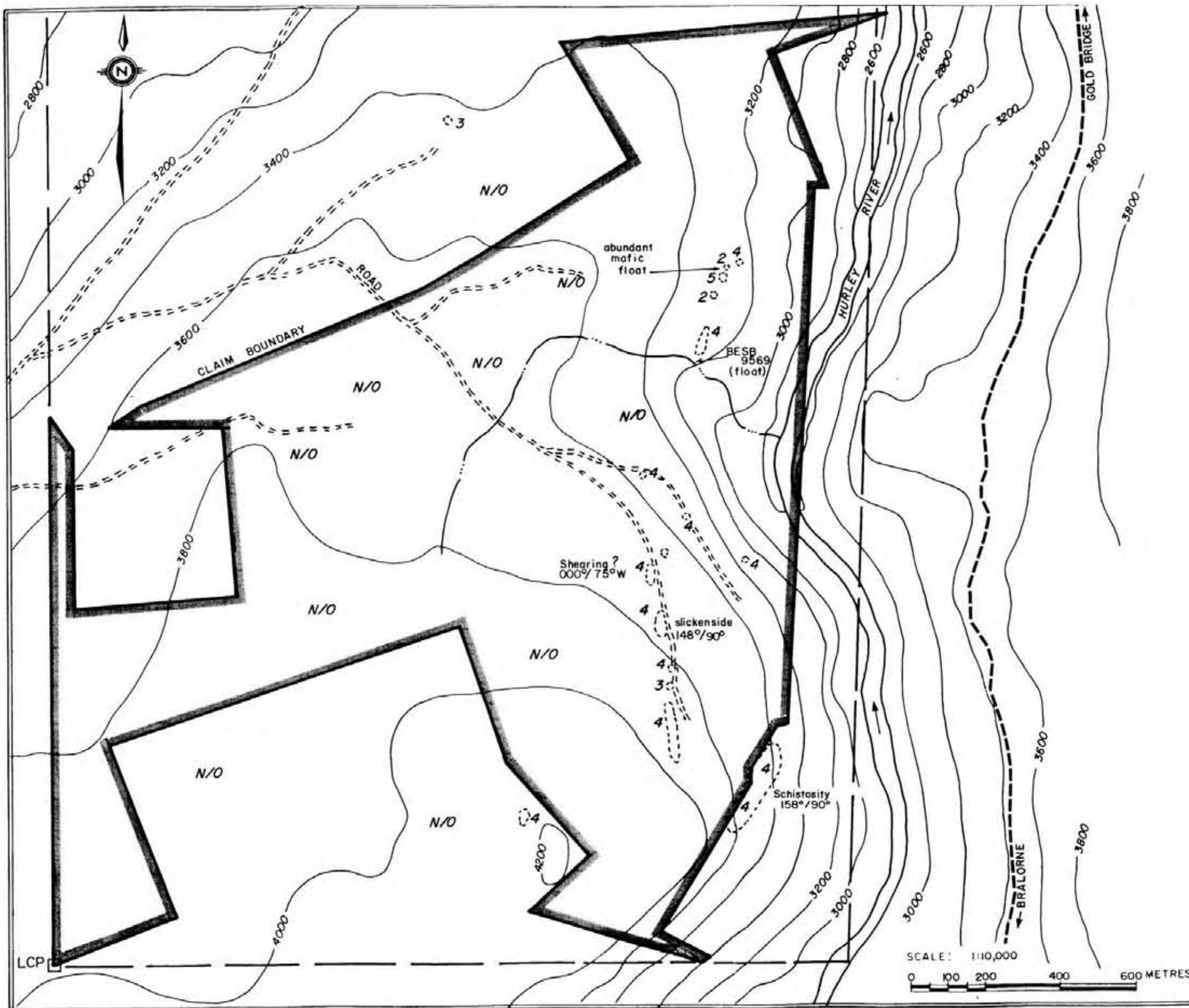
Cadwallader fault system, at the bend from a northwesterly to northerly trend. This lens is about five kilometers in length and one kilometer in width. The mineralization is in fissure veins in tension fractures.

The Bralorne intrusives are the most favourable rock unit and contain other past producers such as the Wayside property near the town of Gold Bridge. The sediments and volcanics surrounding the Bralorne intrusives contain significant mineral properties including, the Minto Mine, a past producer, and the Congress Property, both presently under exploration.

## 2.2 Property Geology and Sampling

The property is generally underlain by the sedimentary portion of the Paleozoic Fergusson Series (Bridge River Group). These rocks consist of argillites, cherts and finely interbanded argillite and chert. There are outcrops along the Hurley River canyon and occasionally along road cuts, otherwise a large proportion of the claim is covered by overburden (Figure 5). Due to this lack of outcrop the local geology is not well defined.

A small outcrop of altered mafic rocks, which has been mapped as part of the Triassic Pioneer Formation (BCDM O.F. 87-11), occurs on the top edge of the Hurley River canyon and is shown to extend down to the river below.



- Legend**
- ROAD
  - STREAM
  - Y ADIT
  - N/O NO OUTCROP
  - BRALORNE EXT. CLAIM BOUNDARY
  - AREA OF EXPLORATION
- Ferguson Series**
- 1 Metabosalt
  - 2 Chert
  - 3 Argillite
  - 4 Thinly interbedded chert & argillite
- Pioneer Formation**
- 5 Mafic Intrusives

FIGURE 5

L. van Bente	
GOLD BRIDGE AREA LILLOOET M.D. NTS 92 J/15	
<b>BRALORNE EXTENSION CLAIM GEOLOGY</b>	
To accompany a report by: S.P. Butler, B.Sc.	
Drawn by: DFN/GT	Date: February, 1988

Just south of this unit is a small depression that runs parallel to the regional Cadwallader Creek trend, but against the trend of the Hurley River. This depression was prospected and found to have chert and argillite outcrop within it. The only rock sampled on the property was collected from this depression and it is highly altered and heavily coated in iron oxides. Sample BE-SB-9569 shows no significant gold, silver or base metals.

On the south end of the property, a schistose texture in altered argillite trends at 158 degrees and dips vertically. Also, along the road, shearing or a schistose texture with a trend of 000 degrees (NS) and dipping 75 degrees to the west occurs in sheared or thinly interbedded chert and argillite.

The property is covered by a layer of volcanic ash and glacial till in most areas. This layer, up to 90cm deep, must be dug through to collect "B" horizon soil samples. Shovels or augers should be considered for future sampling programs.

### 3. CONCLUSIONS AND RECOMMENDATIONS

Due to overburden covering a major portion of the claim, the underlying geology is not well known. The one rock collected, altered and coated in iron oxides, returned no interesting precious or base metal values.

The geologic depression, with a trend comparable to the regional trend, is a good exploration target. This area warrants reconnaissance soil sampling and a thorough prospecting program.

Respectfully submitted,  
Strato Geological Engineering Ltd.

*Sean P. Butler*

Sean P. Butler, B.Sc.  
Geologist

March 4, 1988



#### 4. REFERENCES

- Cairnes, G.E. (1937)  
Geology and Mineral Deposits of Bridge River Mining Camp,  
B.C.; Geological Survey of Canada, Mem. 213, with Map 431A.
- Church, B.N., and MacLean, M., (1987)  
Geology of the Gold Bridge Area (92J/15W). BCDM Open File  
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- Cockfield, W.E. and Walker, J.F. (1932)  
Cadwallader Creek Gold Mining Area, Bridge River Area, B.C.;  
Geological Survey of Canada, Summary Report, 1932.
- Holt Engineering Ltd. (1983)  
Report on the Au 1 to 3, All 1 and Mix 5 to 8 Mineral Claims in  
the Bridge River Gold Camp, B.C., Prepared for Consolidated  
Paymaster Resources Ltd.
- Woodsworth, G.J. (1977)  
Geology of Pemberton Map Area (92J); Geological Survey of  
Canada, O.F. 482.

5. CERTIFICATE

I, SEAN P. BUTLER, of 4525 W. 2nd Avenue, of the City of Vancouver, Province of British Columbia, do hereby certify that:

1. I graduated in 1982 from the University of British Columbia with a Bachelor of Science in Geology.
2. I am employed as a geologist by Strato Geological Engineering Ltd., with offices at 3566 King George Highway, Surrey, British Columbia, V4A 5B6.
3. I have practised my profession as a geologist since 1982 and have been involved in mineral exploration in western Canada and the western United States since graduation.
4. I am an associate member of the Geological Association of Canada.
5. I have not received, nor do I expect to receive, any direct, indirect or contingent interest in the Bralorne Ext. claim.
6. This report is based on field examinations I performed and supervised on the property on May 23 and 24, 1987.

DATED at Surrey, Province of British Columbia, this 4th day of March, 1988.

*Sean P. Butler*

Sean P. Butler, B.Sc.  
Geologist

**APPENDIX 1**  
**Analytical Procedures**



## ACME ANALYTICAL LABORATORIES LTD

Assaying & Trace Analysis

4521 Hastings St., Vancouver, B.C. V6A 1H6

Telephone: 253-3158

### GEOCHEMICAL LABORATORY METHODOLOGY

#### Sample Preparation

1. Soil samples are dried at 60°C and sieved to -100 mesh.
2. Rock samples are pulverized to -100 mesh.

#### Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by:

##### A. Atomic Absorption (AA)

Ag\*, Bi\*, Cd\*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb\*, Tl, V, Zn  
(\* denotes with background correction.)

##### B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W; Zn.

#### Geochemical Analysis for Au\*

10.0 gram samples that have been ignited overnight at 600°C are digested with 30 mls hot dilute aqua regia, and 75 mls of clear solution obtained is extracted with 5 mls Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 1 ppb).

#### Geochemical Analysis for Au\*\*, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt, and Rh are determined in the solution by graphite furnace Atomic Absorption. Detections - Au=1 ppb; Pd, Pt, Rh=5 ppb

#### Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

#### Geochemical Analysis for Barium

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml.

Ba is determined in the solution by ICP.

#### Geochemical Analysis for Tungsten

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml. W in the solution determined by ICP with a detection of 1 ppm.

#### Geochemical Analysis for Selenium

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml with H<sub>2</sub>O. Se is determined with NaBH<sub>3</sub> with Flameless AA. Detection 0.1 ppm.



ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

452 F. Hastings St., Vancouver, B.C. V6A 1R6

Telephone: 253-3168

Geochemical Analysis for Uranium

0.5 gram samples are digested with hot aqua regia and diluted to 10 ml.

Aliquots of the acid extract are solvent extracted using a salting agent and aliquots of the solvent extract are fused with NaF,  $K_2CO_3$  and  $Na_2CO_3$  flux in a platinum dish.

The fluorescence of the pellet is determined on the Jarrel Ash Fluorometer.

Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with dilute hydrochloric acid.

The solution is extracted with MIBK and tin is determined in the extract by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with  $Na_2O_2$ . The melt is leached with HCl and analysed by AA or ICP. Detection 1 ppm.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA.

Detection 1 ppm.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1  $HNO_3$ . Tl is determined by graphite AA. Detection .1 ppm.

Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace. Detection .1 ppm.

Geochemical Whole Rock

0.1 gram is fused with .6 gm  $LiBO_2$  and dissolved in 50 ml 5%  $HNO_3$ . Analysis is by ICP or M.S. ICP gives excellent precision for major components. The M.S. can analyze for up to 50 elements.

**APPENDIX 2**  
**Sample Analysis Certificate**

## GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO<sub>3</sub>-H<sub>2</sub>O AT 95 DEG.C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR NH FE CA P LA CR MG BA TI B W AND LIMITED FOR NA AND K. AU DETECTION LIMIT BY ICP IS 3 PPM.  
- SAMPLE TYPE: SOIL/ROCK AU ANALYSIS BY AA FROM 10 GRAM SAMPLE.

DATE RECEIVED: MAY 30 1987

DATE REPORT MAILED: *June 6/87*ASSAYER: *D. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER

STRATO GEOLOGICAL PROJECT - SWAN-BRALORNE File # 87-1503

SAMPLE#	NO	CU	PB	ZN	AG	NI	CO	NH	FE	AS	U	AU	TM	SR	CD	SB	BI	V	CA	P	LA	CR	MG	BA	TI	B	AL	NA	K	W	AU1
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	I	I	PPM	PPM	I	PPM	I	PPM	I	I	I	PPM	PPM
56-P-001 <i>Soil</i>	1	43	10	134	.1	27	10	236	2.97	15	5	ND	3	22	1	2	2	60	.25	.002	8	24	.51	80	.14	3	2.62	.03	.00	1	6
56-P-002	1	52	10	114	.1	29	8	227	2.85	25	5	ND	3	17	1	2	2	53	.20	.092	7	24	.33	81	.14	2	2.54	.03	.09	1	3
56-P-003	2	66	11	151	.2	58	14	1396	3.00	11	5	ND	5	37	1	2	4	61	.39	.044	19	32	.60	214	.17	2	2.45	.03	.12	1	1
56-P-004	1	46	7	112	.1	39	9	665	2.53	2	5	ND	3	20	1	2	2	53	.30	.029	12	29	.49	126	.16	2	1.52	.04	.14	1	1
56-P-005	2	40	8	177	.1	47	11	718	2.82	8	5	ND	4	23	1	2	2	58	.29	.075	9	31	.51	100	.15	2	1.56	.03	.13	1	6
56-P-006	1	35	5	117	.1	46	11	669	2.77	6	5	ND	3	18	1	2	3	58	.24	.149	6	30	.58	94	.16	2	2.32	.02	.12	1	1
56-SB-9564 <i>Rock</i>	1	11	2	2	.1	4	1	59	.38	3	5	ND	1	1	1	2	2	1	.03	.001	2	2	.01	2	.01	2	.02	.02	.02	1	2
56-SB-9565	1	54	2	40	.2	15	4	349	1.61	2	5	ND	2	6	1	2	2	15	.02	.014	8	8	.38	41	.01	4	.51	.02	.07	1	5
56-SB-9566	1	6	2	19	.1	2	1	126	.75	7	5	ND	1	2	1	2	3	1	.03	.008	17	1	.01	15	.01	8	.17	.05	.09	1	2
56-SB-9567	2	74	8	63	.1	31	6	980	2.55	3	5	ND	4	8	1	2	2	18	.22	.025	18	10	.54	48	.12	15	.91	.01	.12	1	3
56-SB-9568	1	3	4	9	.6	2	1	241	.66	49	5	ND	1	65	1	3	2	1	1.72	.003	2	1	.37	8	.01	2	.02	.01	.01	134	4
BE-SB-9569	2	41	4	53	.1	42	8	518	2.54	3	5	ND	2	11	1	3	3	32	.48	.031	5	58	1.17	37	.18	3	1.14	.02	.10	1	2
STD C/AU-R	21	58	35	130	6.7	68	28	993	3.98	40	17	7	35	47	17	16	21	63	.45	.096	35	59	.89	177	.08	39	1.76	.07	.13	12	490

SG-... samples from another property.

APPENDIX 3  
Time-Cost Distribution



### TIME-COST DISTRIBUTION

The claims toward which work is being applied is the Bralorne Ext. claim. A geological mapping and prospecting program was carried out by Strato Geological Engineering Ltd. personnel on May 23 and 24, 1987.

A listing of personnel and distribution of costs is as follows:

#### Personnel

S.P. Butler, B.Sc.  
H. Penner

Project Geologist  
Geological Assistant

#### Cost Distribution

Field Crew - 2 days	\$ 900.00
4WD Truck (incl. mileage, gas, oil, insurance, etc.)	210.00
Room and Board - 4 mandays	130.00
Mob-demobilization - crew & equipment, 2 days, shared cost	400.00
Geochemical analysis	14.00
Assessment Report (incl. drafting, reproduction, copying, etc.)	<u>1,100.00</u>
TOTAL	<u>\$2,454.00</u>

Signed \_\_\_\_\_  
Strato Geological Engineering Ltd.