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VANCOUVER, B.C.

GEOLOGICAL REPORT  
ON THE  
SURF AND PUGSLEY  
MINE DUMPS

SKEENA MINING DIVISION

NTS: 103H, 2W

L at: 53°, 05'

Long: 128°, 53'

Author: C.A. von Einsiedel, BSc.  
Date submitted: February 24, 1992

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**22,169**

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## SUMMARY

Most of the background data contained in this report is based on a publication prepared by Surf Inlet Mines in 1987.

Over 1,000,000 tons of gold ore were produced from the Surf and the Pugsley Mines prior to 1942. In 1946 and 1947 further underground work established new reserves and ore potential at depth in the Pugsley Mine. Exploration for extensions of ore zones in the lower levels of the surf Mine at that time was limited by the presence of the property boundary.

The present Surf Inlet Property includes all areas adjacent to and down-dip of the Surf and Pugsley deposits. A detailed study of mine plans, sections and drilling information has resulted in well-defined exploration targets in these areas. The potential for finding additional ore shoots of significant tonnage and grade is considered excellent.

In addition to the potential for new underground reserves there is potential for the recovery of a significant quantity of gold from existing mine dumps located at various portals of the two mines.

## LOCATION AND ACCESS

The Surf Inlet property is located on Princess Royal Island 650 km northwest of Vancouver, British Columbia. The main supply base is approximately 160 km to the northwest at Prince Rupert (Figure 1). Princess Royal Channel, along the east coast of the island, is part of the "Inside Passage" for ocean-going ships travelling between Vancouver and Prince Rupert. Ships called at the head of Surf Inlet when the mines were in production.

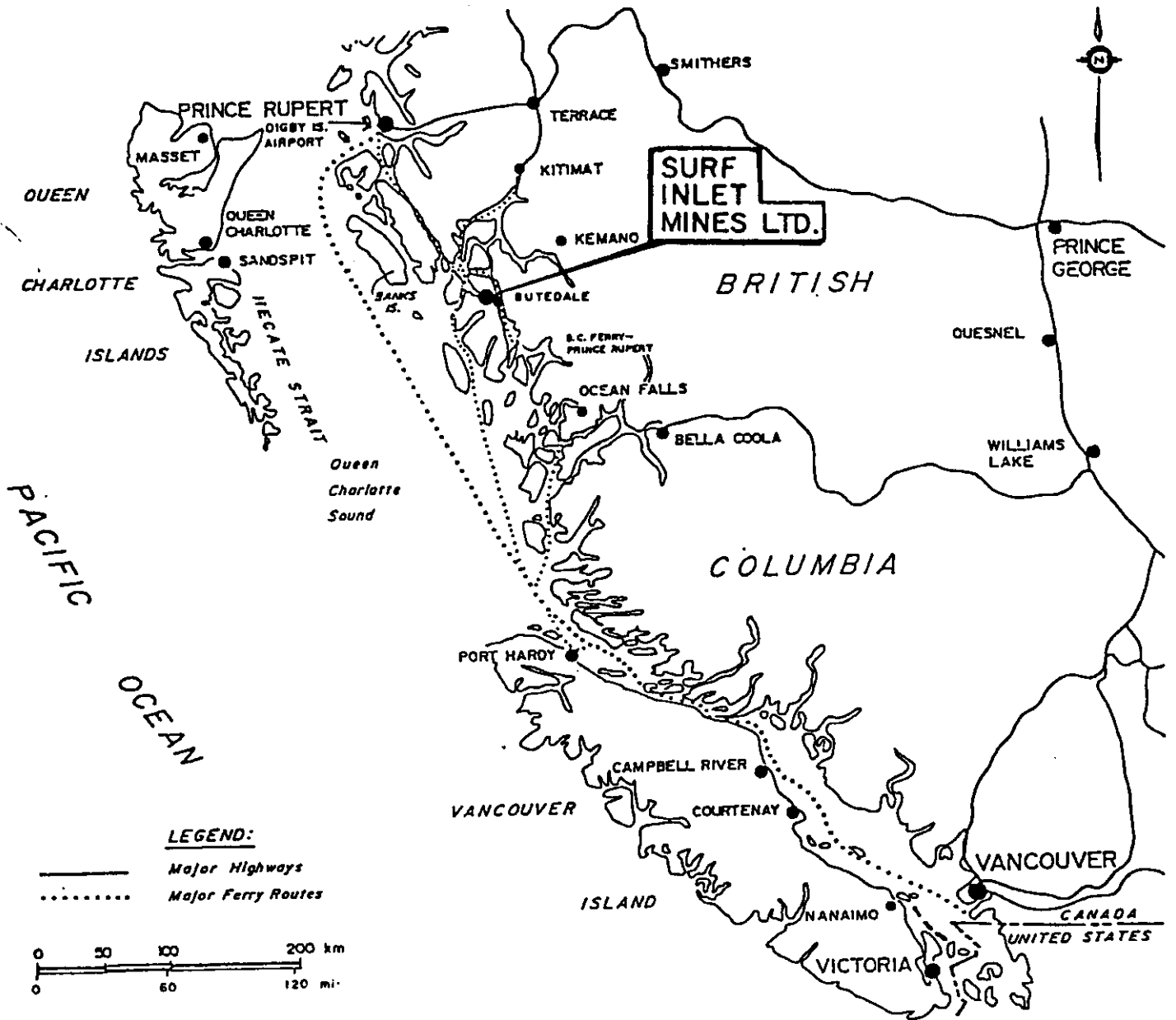
The minesite is 13 km from tidewater. Access is by air or by water. A 500 metre road from the head of Surf Inlet to Cougar Lake was completed in 1987. This road provides a barge plus road access route to the main part of the property (Figure 2).

During 1988/89 a new road was constructed along and bridging Paradise Creek thereby linking both minesites to tide water.

## PHYSIOGRAPHY

The Surf and Pugsley mines are located 500 metres apart on either side of the Paradise Creek valley. The Surf mine is situated on the northern side and the Pugsley on the south. The new road links both mine sites by a bridge across Paradise Creek. Topography is very rugged with steep-sided peaks rising to a maximum elevation of 1,100 metres above sea level.

Annual rainfall is 430 to 500 cm and snowfall is 60 to 120 cm per year. Temperatures are moderate at the elevation of the main portals and allow year-round operations. The average mean daily temperature is 2.7° in winter and 13.2° in summer.



SURF INLET MINES LTD.
LOCATION MAP
PROJECT: SURF INLET
ENG. TVW ENGINEERING LTD.
FIGURE N <sup>o</sup> : 1

## PROPERTY AND TITLE

The property has a total area of 3,250 hectares owned by or under option to Surf Inlet Mines Ltd. The tenure includes 23 mineral claims, 21 crown grants, 7 district lots, foreshore rights for docking facilities and power and storage rights for the dam at the head of Surf Inlet.

Property data pertaining to current assessment filings is supplied on the applicable Statements of Exploration and Development.

## HISTORY

The Surf and Pugsley Mines operated from the early 1900's to 1926 and from 1936 to 1942. The ore was mined from underground workings. Seven levels were developed in the Pugsley and 14 levels in the Surf. The lowest level in the Pugsley Mine is the 1,500 level, which is 500 feet (152 m) below sea level. The lowest level in the Surf Mine is the 1,400 level and is 275 feet (84 m) below sea level. Access below 900 level is from internal inclined shafts. The entire operation was electrified from a nearby hydroelectric plant.

The mine was closed in 1942 due to a scarcity of labour and general war conditions. Total recorded production from the property is 1,091,131 tons, of which 169,886 tons came from the Pugsley and the remaining 921,245 tons from the Surf ore body. From this ore were recovered 382,351 ounces of gold, 208,752 ounces of silver, and 6,314,341 pounds of copper.

In 1946 and 1947 underground work was carried out, mainly in the Pugsley Mine establishing ore reserves and new ore potential. Reserves as calculated by mine staff at that time are 47,250 tons in the Pugsley and 3,800 tons in the Surf Mine at an average grade of 0.4 oz Au/ton. Exploration and development at the lower levels of the Surf ore zone was limited due to the presence of the boundary of a northerly trending group of claims owned by a man named Wells. As a deal with Well could never be completed, this ground has never been explored.

In 1981, Cominco Ltd. and Placer Development Limited carried out an exploration program consisting of geological mapping on surface and underground, sampling of surface showings, limited geochemistry, and ten shallow diamond drill holes totalling 1,526.4 metres. The Cominco-Placer work was directed toward outlining a large tonnage open-pit deposit.

Surf Inlet Mines Ltd. began work on the property in 1985. Sampling programs, surveys and metallurgical testwork were done to evaluate the tonnage and grade of the stockpiles and toilings on the Surf Inlet property (Figure 3). Mine Dumps near the 550 Portal of the Surf Inlet Mine are estimated to contain 150,000 tons (136,000 tonnes) of material at an approximate grade of 0.1 oz Au/ton. Toilings remaining in the area at the mouth of Paradise Creek are 187,000 tons (170,000 tonnes) at an average grade of 0.033 oz Au/ton.

During 1988 the 900 level of the Surf Mine was rehabilitated in preparation for underground drill testing, however this work remains incomplete.

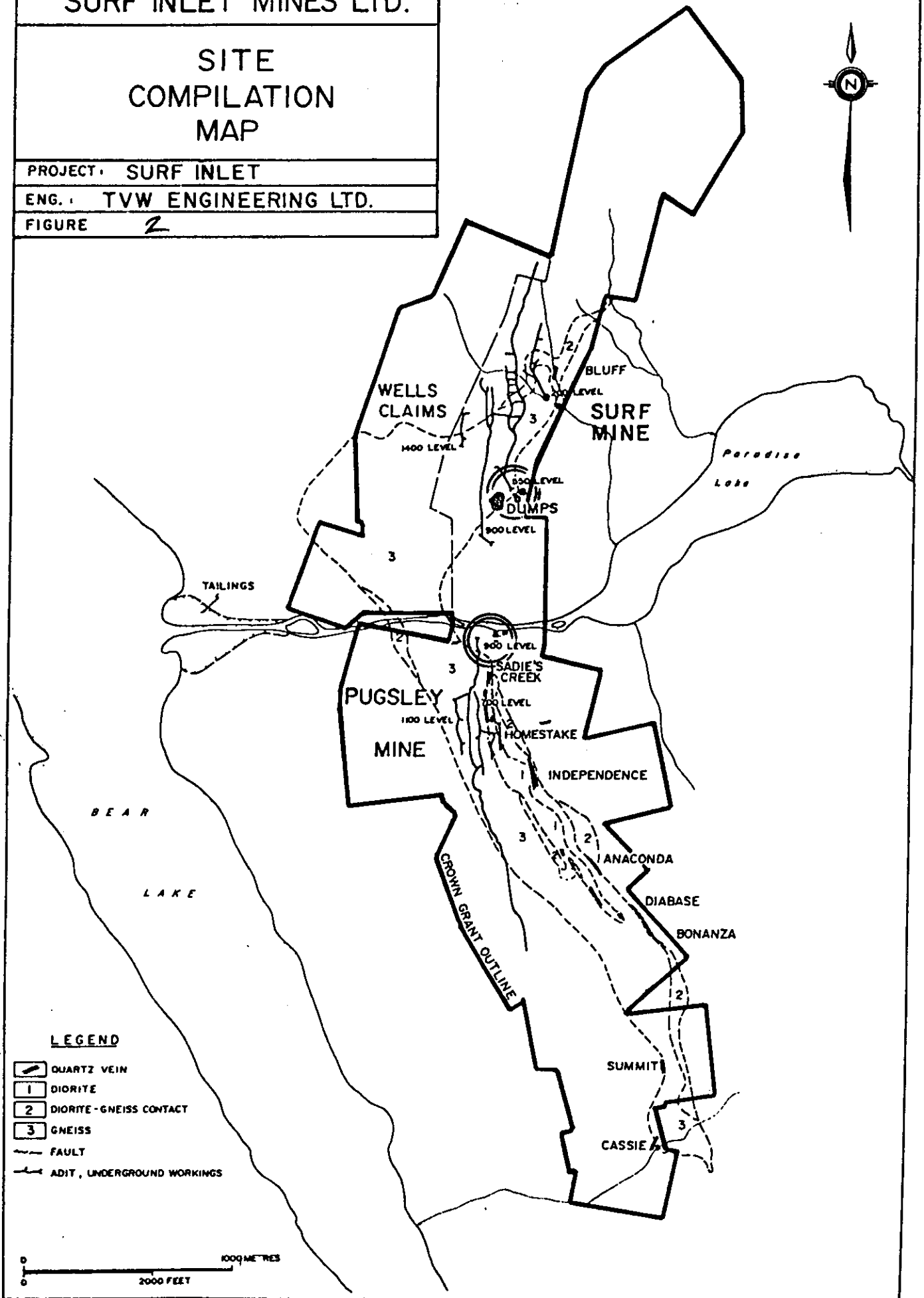
# SURF INLET MINES LTD.

## SITE COMPILATION MAP

PROJECT: SURF INLET

ENG.: TVW ENGINEERING LTD.

FIGURE 2



### LEGEND

- QUARTZ VEIN
- DIORITE
- DIORITE - GNEISS CONTACT
- GNEISS
- FAULT
- ADIT, UNDERGROUND WORKINGS

0 100 METRES  
0 2000 FEET

The objective of the present study was to obtain additional grade information for the mine dumps near the 550 level of the Surf Mine and to provide grade information for the mine dump near the 900 level of the Pugsley Mine.

#### DESCRIPTION OF 1991 EXPLORATION PROGRAM

During October 1991 the company contracted Rem Exploration to carry out a sampling program of the Surf and Pugsley Mine dumps.

Samples were collected by manually excavating 0.5 to 1.0 meter deep trenches at regular intervals around the existing mine dumps. After excavating the trenches approximately 3 to 5 kilograms of material was collected from each site and placed in plastic sample bags for assay at Vangeochem Laboratories in Vancouver.

A total of 29 samples were collected from the mine dumps and the surf 550 level and a total of 10 samples were collected from the mine dump at the Pugsley 900 level.

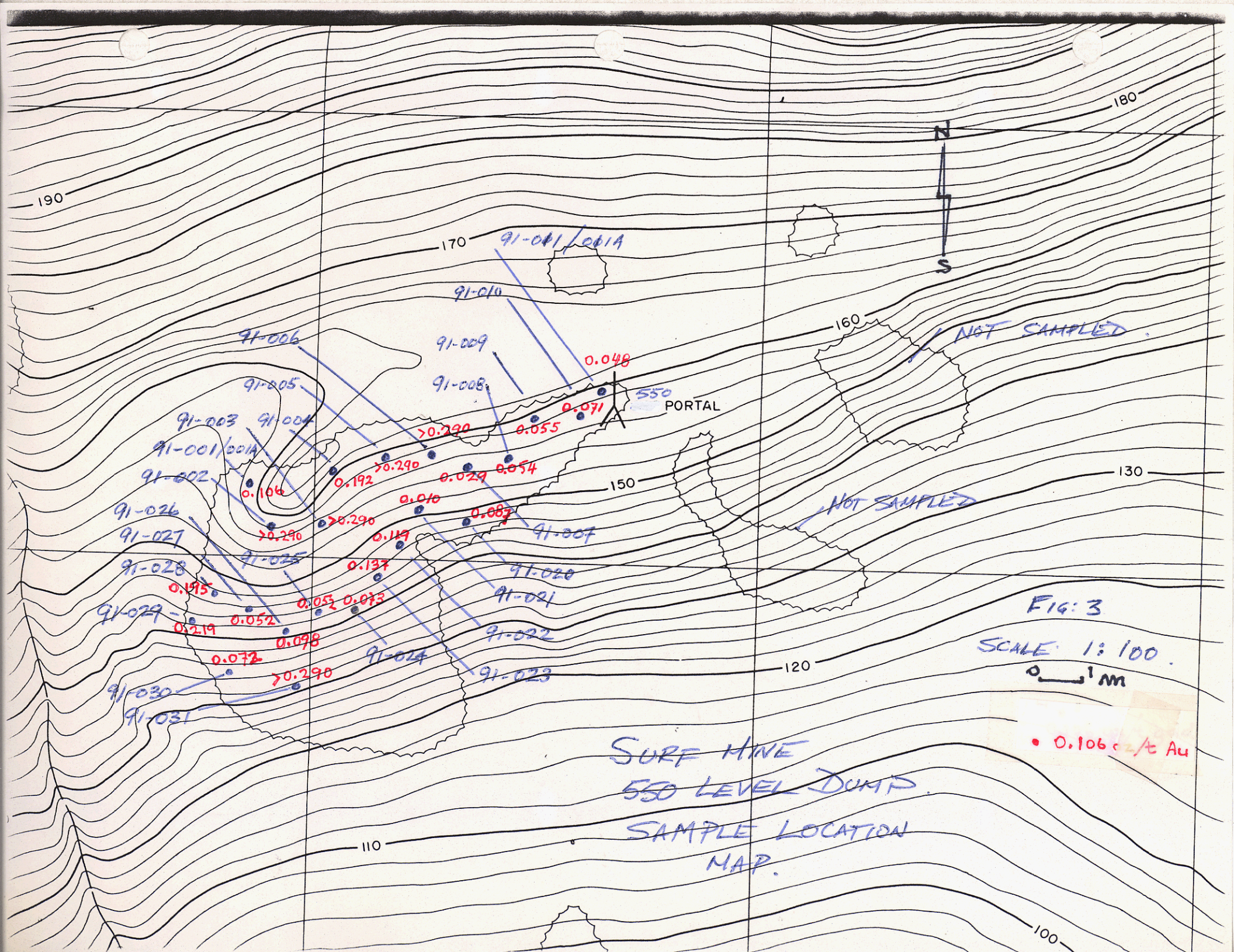
As part of the present exploration program an attempt was made to carry out an orientation magnetic survey of the Pugsley ore body. This data would have been used as a guide to interpret magnetic data along the strike of the Surf and Pugsley fault zones. Unfortunately unusually high magnetic interference was encountered in the area of the Pugsley Mine and the survey was not completed.

#### DISCUSSION OF RESULTS

Existing mine dumps consist primarily of 6" minus material with moderate oxidation of sulfide minerals.

The simple arithmetic mean of the 29 samples collected from the 550 level portal of the Surf Mine is 0.136 oz/ton gold. Sample locations are shown in Figure No. 3.

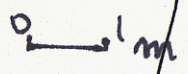
The simple arithmetic mean of the 10 samples collected from the 900 level of the Pugsley Mine is 0.072 oz/ton gold. Sample locations are shown in Figure No. 4.





32.6

FIG: 4  
SCALE 1:100



Cut Line

# RUGSLEY MINE DUMP.

## SAMPLE LOCATION PLAN.

- 91-040
- 91-041
- 91-042
- 91-043
- 91-044
- 91-045
- 91-046
- 91-047
- 91-048
- 91-049

- 0.095
- 0.148
- 0.130
- 0.033
- 0.050
- 0.019
- 0.021
- 0.056
- 0.117
- 0.053

900 LEVEL

50

09

507900 E

508000 E

40

**STATEMENT OF COSTS**  
(costs are adjusted for 7% GST)

**Personnel:**

Geologist - 11 days @ \$325.00	\$ 3,825.25
Technicians (2) - 22 days @ \$225.00	5,296.50

**Travel Expenses:**

Vehicle rental - 11 days @ \$65.00	765.05
Vehicle insurance - 11 days @ \$12.95	152.43
Mileage (Vancouver - Prince Rupert) 3,200 kilometres @ \$0.30	1,027.20
Meals, hotel, etc.	493.22

**Field Expenses:**

Float plane charter (Prince Rupert to Surf Inlet and return)	2,208.48
Camp supplies, propane, fuels, etc.	342.40
Abandoned propane accessories	235.40
Abandoned field equipment	160.50
Radio telephone rental	214.00
First aid equipment rental	107.00
Geophysical equipment rental - 11 days @ \$200.00	2,354.00
Geophysical computer rental - 11 days @ \$45	529.65
Trenching tools	79.72
Geochemical supplies	53.50
Crew accommodations costs - 33 man days @ \$65.00	2,295.15

**Technical Report:**

Geochemical assays	577.80
Geologist - 2 days @ \$325.00	695.50
Printing 1 technical maps, etc.	<u>337.05</u>

**Total costs applied for assessment credit:** \$22,086.85

## CERTIFICATE

I, Carl A. von Einsiedel of the City of Vancouver in the Province of British Columbia, certify that:

1. I am a consulting geologist with offices located at 210 - 470 Granville Street, Vancouver, B.C.
2. I am a graduate of Carleton University in Ontario in Geological Sciences with a degree of BSc.
3. I have been employed in the field of mineral exploration since 1980.
4. This report is based on: results of a personal examination of the subject property.
5. I have no interest, either direct or indirectly, in the property described in this report.

Dated this 24th day of February, 1992 at Vancouver, British Columbia.



Carl von Einsiedel, BSc.  
Consulting Geologist

## **APPENDIX 1**

REPORT NUMBER: 920014 GA

JOB NUMBER: 920014

SURS INLET MINES

PAGE 1 OF 2

SAMPLE #	Au ppb	Au oz/st
91-001	3650	0.106
91-001A	2160	0.063
91-002	> 10000	> 0.290
91-003	> 10000	> 0.290
91-004	6600	0.192
91-005	> 10000	> 0.290
91-005A	> 10000	> 0.290
91-006	> 10000	> 0.290
91-006A	6100	0.178
91-007	980	0.029
91-008	1850	0.054
91-008A	4560	0.133
91-009	1900	0.055
91-009A	1340	0.039
91-010	2440	0.071
91-011	1660	0.048
91-020	2980	0.087
91-021	360	0.010
91-022	4070	0.119
91-023	4700	0.137
91-024	2500	0.073
91-025	1800	0.052
91-025A	1600	0.047
91-026	3370	0.098
91-027	1770	0.052
91-028	6680	0.195
91-029	7500	0.219
91-030	2480	0.072
91-031	> 10000	> 0.290
91-040	3260	0.095
91-041	5090	0.148
91-042	4460	0.130
91-043	1120	0.033
91-044	1730	0.050
91-045	650	0.019
91-046	720	0.021
91-047	1920	0.056
91-048	1810	0.053
91-049	4020	0.117

DETECTION LIMIT

5

nd = none detected

-- = not analysed

is = insufficient sample