86-884-15449

NTS 92 F/2 E Lat 49° 111 N Long 124° 43′ W 44′

GEOLOGICAL AND GEOCHEMICAL ASSESSMENT REPORT

ON THE

BAIN CLAIM GROUP

Vancouver Island, British Columbia Alberni Mining Division



Owner and Operator: Clive Ashworth

ASHWORTH EXPLORATIONS LIMITED

Written by:

Elizabeth A. Scroggins, Geologist
ASHWORTH EXPLORATIONS LIMITED

FILMED

Submitted:
December 15, 1986

GEOLOGICAL BRANCH
ASSESSMENT REPORT

15,449

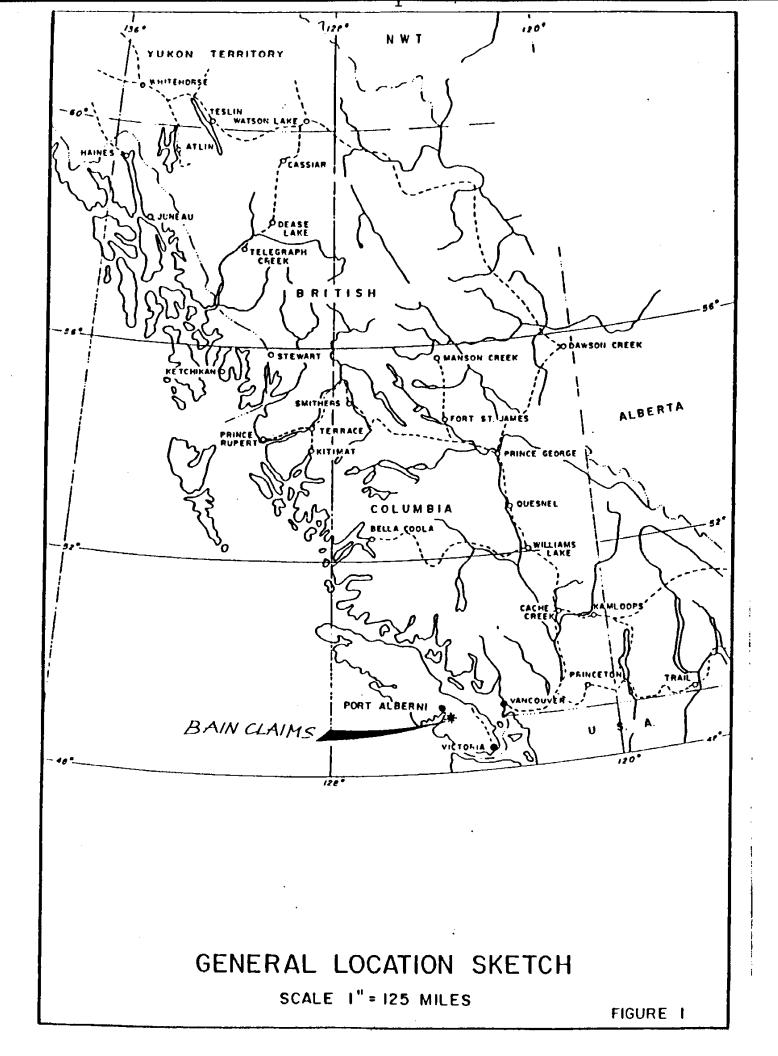


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1. INTRODUCTION

This report summarizes geological work done by H. Laanela (F.G.A.C.) in July 1986, at which time a premliminary report was written. Geochemical and limited geological work was carried out in August 1986 by Ashworth Explorations Limited. All of the above work is contained within this report for Ashworth Explorations Limited, who own the entire claim group.

2. PROPERTY

The Bain Group consists of four contiguous mineral claims totalling 76 units, all of which occur in the Alberni Mining Division, B.C. Details of the claims are listed below:

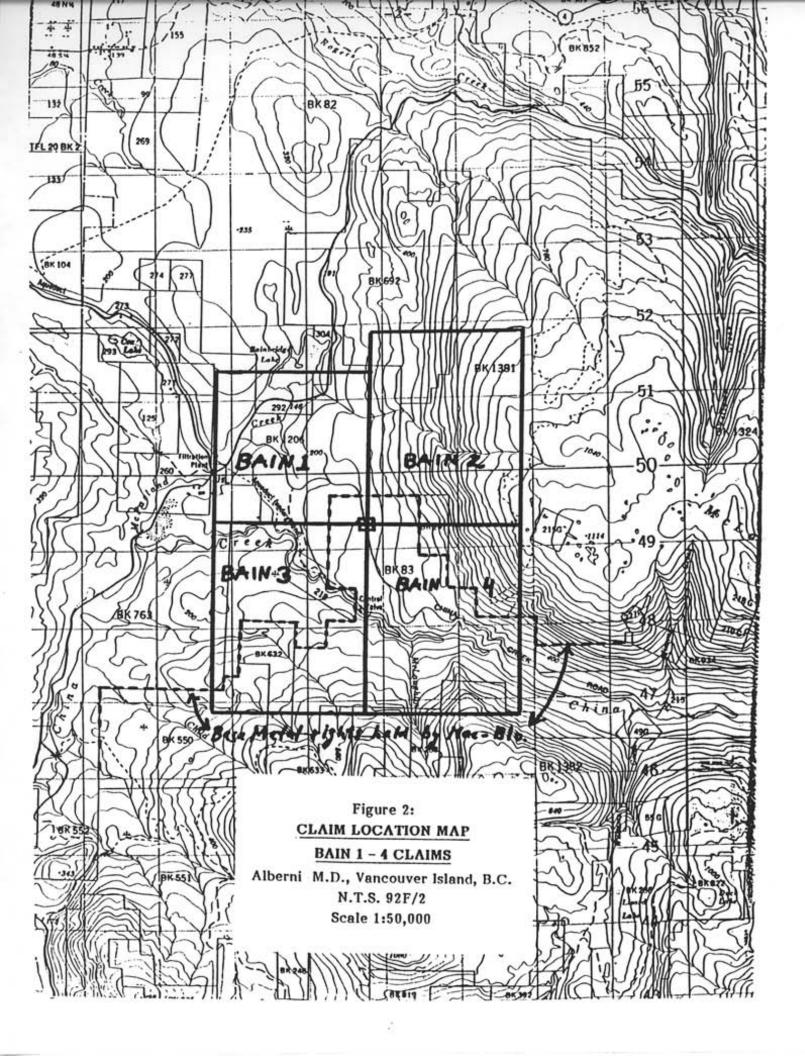
<u>Units</u>	Record #	Expiry Date
16	2777	Nov. 29, 1986
20	2776	Nov. 29, 1986
20	2775	Nov. 29, 1986
20	2774	Nov. 29, 1986
	20 20	16 2777 20 2776 20 2775

3. LOCATION, TERRAIN AND ACCESS

The centre of the claims is approximately 6 km. SE of Port Alberni, Vancouver Island, B.C. The claim group straddles China Creek and its tributary, McFarland Creek. Bainbridge Lake is located on the northern boundary of the Bain 1 claim.

The main access is by the China Creek logging road from Port Alberni and then by a branch road to Cameron River. A water pipeline, which supplies Port Alberni, follows China Creek, with the intake valve near the common boundary of the Bain 3 and Bain 4 claims.

The area is covered by thick second growth timber, mostly Douglas fir, hemlock and cedar. Topographic relief ranges from 120 metres above "mean sea level" at China Creek to about 1,000 metres along the eastern boundary of the property. Most of the steeper slopes occur on the eastern part of the Bain 2 and 4 claims.



4. HISTORY AND PREVIOUS WORK

Placer gold was found in China Creek in the 1860's, followed by a period of placer mining which eventually led to the discovery of lode deposits in the China Creek and Rift Creek headwaters in the vicinity of Mt. McQuillan. A number of placer claims were worked in the area now covered by the Bain claims, including the "Cataract: claim in the Bain 1 - 4 section of China Creek, the "Balley" claim to the west, and the "Duke of York" claim to the east, (see Miscellaneous References to China Creek placers in B.C.M.M. reports 1893 and later).

The history and geology of the China Creek camp was summarized by J.S. Stevenson (B.C.M.M. report, 1945), with specific emphasis on the lode mines and prospects in the Mt. McQuillan area, which forms the headwaters of China Creek. Several of these old mines and prospects occur very close to the Bain property:

Vancouver Island Gold Mines on Mineral Creek, about 2 km east on the Bain 4 claim, a past producer;

"Regina" Group, a Au-Ag prospect with old underground workings, about 2 km SE of the Bain 4 Claim;

"Grizzly" Arsenic showing on McLauglin Creek, just a few hundred metres south of the Bain 4 claim;

"Thistle Mine: (Au, Cu, etc.) now actively explored by Westmin Resources Limited, about 18 km to the SE, at the headwaters of Museum Creek; other areas of interest within a few kilometres of the Thistle Mine include the Black Panther, Black Lion, Golden Eagle, Havilah, Middle Vein, High Grade Vein and B & K.

Further to the south, approximately 13 kilometres to the SSE, on Mt. Spencer, is the "Mary" Cu-Zn-Mo-Ag-Au prospect, which was discovered in 1964 by Gunnex Limited (Laanela, 1964-66).

In 1962, a helicopter-borne aeromagnetic survey was flown over the area by Hunting Survey Corporation Limited on behalf of Canadian Pacific Oil & Gas (CPOG), during which a number of magnetic anomalies were discovered (including one on the present Bain 3 Claim).

In the mid 1960's, Gunnex Limited, a subsidiary of Gunnar Mining Limited (in partnership with CPOG), carried out a regional exploration program. The work consisted of regional geochemical silt and soil sampling, prospecting, and geological mapping. During this regional study, detailed work was also carried out on the present Bain claim areas. Several mineral occurrences and anomalies were located and will be discussed later on (see Section 5.3).

In 1980, Western Mines Ltd. (now Westmin Resources Ltd.), carried out a detailed geochemical soil survey program on the Lily 1 and Lily 2 claims. The Bain 2 claim now covers the southern half of the Lily 1 and northern one-third of the Lily 2 claim. The Bain 4 claim covers the remainder of the old Lily 2 claim, and is extended further south over China and McLaughlin Creek (see Figure 2). The survey covered a 50 metre by 200 metre grid over which 721 soil and 18 silt samples were collected, and analysed for Cu, Pb, and Zn. This survey indicated a NNW-trending zone which contains two series of thin (50 m) to broad (400 m) en echelon NW-trending "belts". These belts contain highly anomalous (greater than 200 ppm) concentrations of copper (Benvenuto, 1980), (Figure 5).

Several extensive work programs were initiated in October 1986 on numerous claims just to the east of the Bain Group, described below.

Westmin Resources Limited in conjunction with Nexus Resource Corporation began a drill program on their Debbie Property which joins the northeast corner of the Bain 2 claim. Reward Resources Limited is now exploring the old Vancouver Island gold mine where a grab sample contained 8.36 ounces Au/ton.

Au Resources Ltd. announced (November 13, 1986) the location of a high grade vein and nine anomalous areas trending northwesterly through their Emma group of claims. These claims are located approximately 7.5 km east of the Bain group.

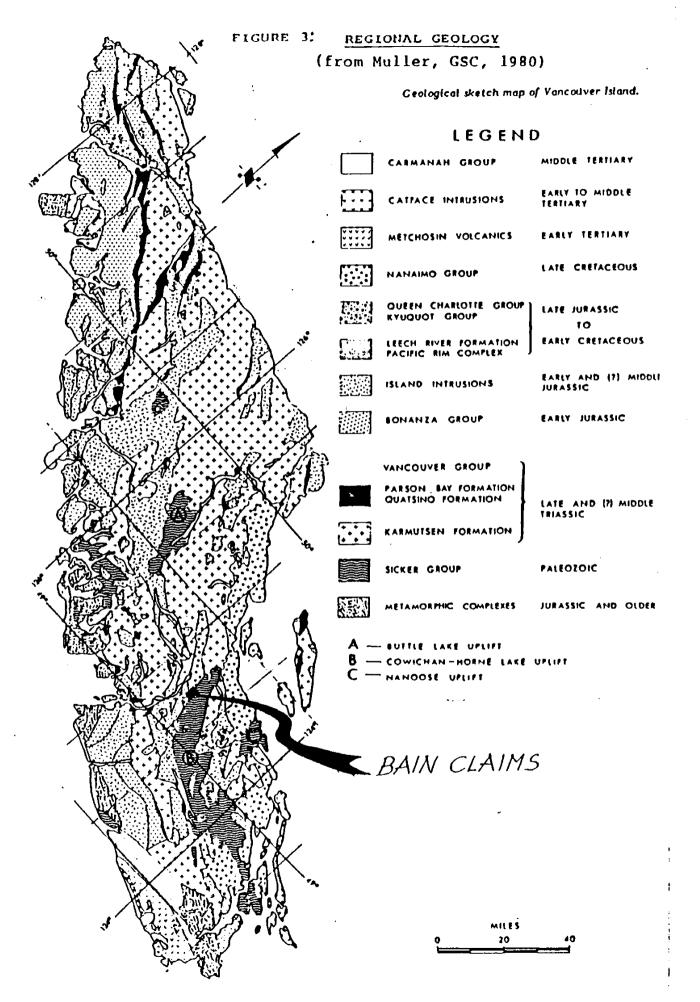
5. GEOLOGY

5.1 Regional Geology (See Figure 3)

The oldest rocks on the property, and on Vancouver Island, are those of Paleozoic Sicker Group. Muller (GSC, 1980) has divided this group, oldest to youngest, as the Nitinat Formation, an informal sediment-sill unit, Myra Formation, and Buttle Lake Formation. These Sicker Group rocks are generally overlain by Triassic Vancouver Group, here represented mainly by the Karmutsen Formation volcanics. Both groups are intruded by the Jurassic Island Intrusions, mainly dioritic stocks, and more locally by sills and dykes of Tertiary age (correlated with Catface Intrusions on west coast of Island). Along the east side of Island, and also in Port Alberni area, the Late Cretaceous Nanaimo Group sediments overlie extensively the older rocks. In places, such as at Patlicant Mountain and Bainbridge Lake area, these sediments are intruded by extensive sills of the above Tertiary Intrusions.

The most dominant regional structures on Island are series of long NNW to north trending systems of steep faults, affecting Sicker and Vancouver Group rocks and giving a "patchwork" appearance to the geological maps. There have been several periods of faulting, intrusion and volcanic activity.

The oldest, Sicker Group rocks, have been generally buried under a thick Mesozoic cover, except where they have now been exposed in three major (and some smaller) "uplift" areas or arches. These are: The Buttle Lake Uplift, toward the north, the extensive Cowichan-Horne Lake Uplift, toward the south, and the smaller Nanoose Uplift, north of Nanaimo. The Bain claims are situated along the western edge of the northern end of the Cowichan-Horne Lake Uplift.



These uplifted belts of Sicker Group, particularly where they contain the sedimentary rocks of Myra Formation, are considered to be the most geologically favourable and economically most promising areas for base and precious metal exploration on the Island. The Buttle Lake Uplift contains Westmin's volcanogenic Kuroko - type massive sulphide deposits, which also carry gold and silver. Here, the Cowichan - Horne Lake belt contains the past producers of Mt. Sicker area (including the recently discovered Abermin's Lara prospect and others), as well as the old Mt. McQuillan-China Creek camp containing numerous vein type Au-Ag deposits and prospects (e.g. Mineral Creek, Black Panther, Havilah, Golden Eagle, Regina, etc.) and also massive sulphide deposits (e.g. old Thistle Mine).

5.2 Local Geology (See Figure 4)

The following major geological units are present on the Bain Group and immediate area:

The Sicker Group rocks underlie the eastern part of the claims, forming the western edge of the Cowichan - Horne Lake Uplift along a north - trending fault contact. On the property, the Sicker Group is represented by the Lower Devonian (or older) Myra Formation which includes basic to rhyodacitic volcanics (tuffs, breccia and flows), and thinly bedded to massive argillite, siltstone and chert. The older, Nitinat Formation rocks occur a few kilometres east of here.

The western part of claim group is underlain by the basaltic Karmutsen Formation of Vancouver Group. In the SW corner of the property and near Bainbridge Lake, these volcanics have been intruded by the dioritic Island Intrusions. The contact between the volcanics and intrusives is overlain by relatively flat-lying Cretaceous Nanaimo sediments, here represented by the Comox Formation (older, toward west of Bainbridge Lake), consisting of sandstone, conglomerate and shale, and the Haslam Formation (younger, toward east) consisting of shale, siltstone and some sandstone.

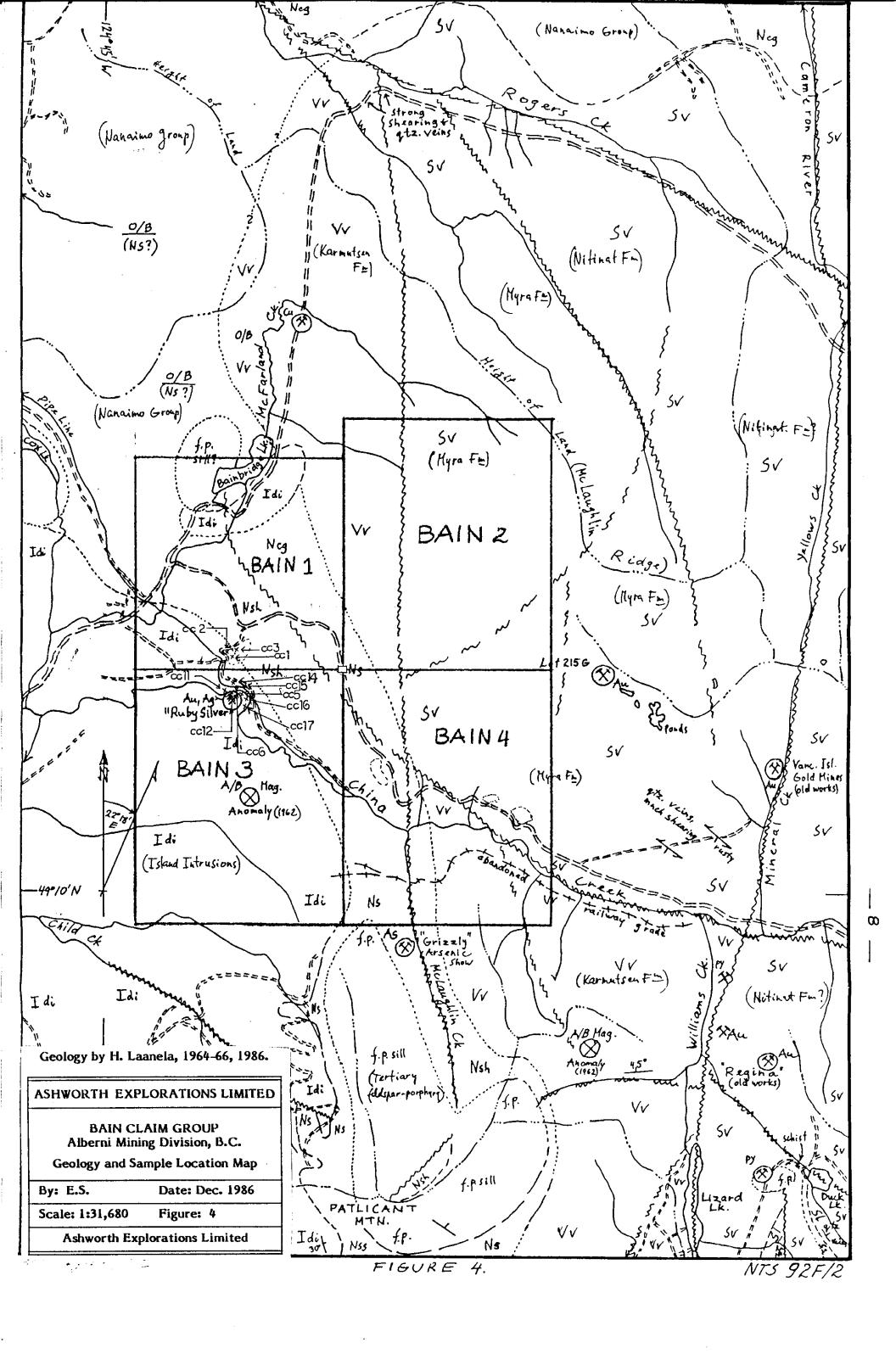


FIGURE 4: LEGEND

SYMBOLS

	Claim Boundary
	Legal Corner Post
====	Road
	Height of Land
×← cc 10	Rock Sample Location and Number
>	Adit
\otimes	Mineralized Showings
\otimes	A/B Mag Anomaly
\mathbb{O}	Area of Outcrop
~~~~	Fault (Defined, Assumed)
******	Geological Contact

## **GEOLOGY**

Ns	NANAIMO GROUP SEDIMENTS Sandstone, shale, conglomerate
Vv	VANCOUVER GROUP Karmutsen Formation - Basalt
Sv	SICKER GROUP  Myra Formation - Basic to rhyodacitic tuff, breccia  Thinly bedded to massive argillite, siltstone and chert
	Nitinat Formation- Metabasaltic lavas
I di	ISLAND INTRUSIONS Dioritic

North of Bainbridge Lake, along the north boundary of Bain 1 claim, and in Mt. Patlicant area south of the property, the Nanaimo sediments, etc., have been intruded by large sills of Tertiary "feldspar porphyry". The dykes of similar porphyry are known to occur some 10 or more kilometres southeast of here in Mt. McQuillan area where they appear to be associated with mineralized (Au - Ag) quartz veins, e.g. at Golden Eagle, Havilah, the Middle Vein and other old prospects.

The geology of the property has not been mapped in any detail, except some regional mapping by H. Laanela in the 1960's and Muller (GSC, 1977-80). Much of the low-lying area, particularly the western part of the claims, is covered with dense bush and extensive overburden, making the detail mapping difficult.

#### 5.3 Mineral Occurrences

#### 1. "Ruby Silver" Showing (on Bain 3 Claim):

This showing (a short adit?) is 6,500 feet (1,980 metres) downstream from the pipeline intake, on south bank of China Creek, at low water level and a few hundred feet below an old sluice dam of early placer mining days. Apparently there are no official reports. No work was done by Gunnex Limited, except for a short visit in August, 1964; two assay samples, taken from the adit and a pit above it assayed only traces of Au.

Workings consisted of a caved-in cut (or short inclined adit?) at water level, SW side of creek and below the bank; it was filled with gravel and water. There was an old cabin, and an old pit on the hill, above the adit.

The country rock was diorite, biabasic-looking near the adit. A sheared rusty vein, at NE/60 NW, was seen in the adit, with quartz stringers. This adit was sampled during the August visit, however no traces of Au were detected. A rusty shear was also seen on the opposite bank, north of the dam. Minor amounts of mineralization was noted, (mostly pyrite) and some iron staining as well.

#### 2. Copper Stain North of Bainbridge Lake:

In the fall of 1965, some blue and green copper stain was observed in freshly bulldozed road cuts 3/4 miles north of the east end of Bainbridge Lake, surrounded by much rust and alteration of volcanic rocks (Laanela, 1965).

The geology of the area was mapped as "Vancouver Volcanics" intruded by deeply weathered dioritic rocks by the lake. The volcanics in the road cuts appeared to be soft and quite altered, with much shearing and epidote present, and with possible diorite contact not too far below.

Diorite was exposed all along the south side of the lake. Towards the north it was covered by patches of Nanaimo Sediments and volcanics, until grading into volcanics north of the Bain 1 claim; contact appears to be gently dipping near the showings.

Tertiary (?) feldspar porphyry intrusions, possibly a sill, were exposed north of the west end of Bainbridge Lake, where extensive overburden present here covers the flat terrain. A fault contact with Sicker volcanics occurs east of here.

In one showing, copper occurred in a 2' x 10' patch of quartz-rich material, probably pegmatitic; no sulphides were seen. The prospector reported more copper stain and magnetite farther north along the road, while extensive shearing and minor specks of copper were seen in road cuts.

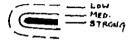
Mr. Harry Brown, a "local" used as a guide, reported finding "high grade gold float" near the lake some time ago, prior to the 1965 visit (Laanela, 1965).

Although the showings were considered to be "insignificant" it was recommended that more prospecting and soil sampling be carried out in the area (Laanela, 1966).

#### FIGURE 5

## **GEOCHEMICAL ANOMALIES**

## **BAIN CLAIM GROUP**

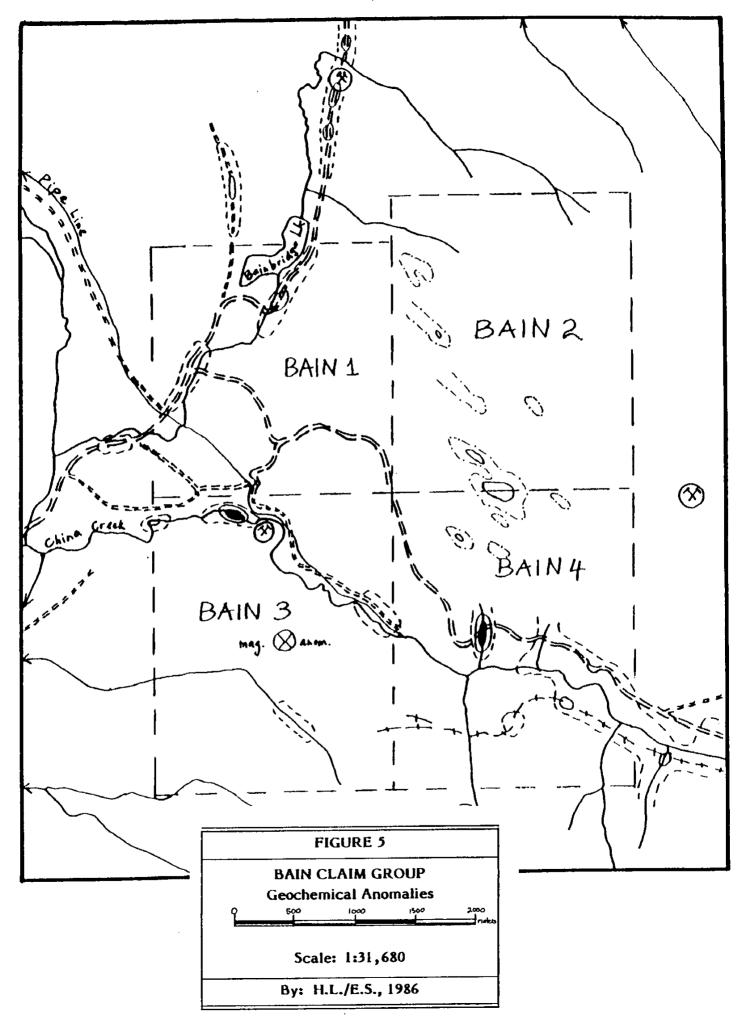


Silt and Soil Geochemical Anomalies (Cu & T.H.M.) by Gunnex Ltd., 1964 - 1965.

Soil Geochemical Anomalies (Cu)

by Western Mines Ltd., 1980.

- 2 150 PPM



#### 3. Soil Geochemical Anomalies (1965 sampling)

Soil sampling by Gunnex Limited personnel during 1965 along the above road revealed several "soil highs", e.g. up to 750 ppm Cu; some of these were related to the copper showings north of the present Bain 1 claim.

Geochemical copper and Total Heavy Metal anomalies were also found in China Creek, below the Ruby Silver Showing and in a gully, north of the China Creek road opposite McLaughlin Creek, on Bain 3 and 4 claims, respectively.

#### 4. Airborne Magnetic Anomaly (Bain 3 Claim):

Hunting's 1962 helicopter-borne survey located a magnetic anomaly close to the centre of the present Bain 3 claim. It was not examined by Gunnex Ltd. during the 1960 program. The following description of this anomaly is given (Laanela, 1965):

"Location about 500 feet (150 metres) NNW form NE corner of Block 632 (just N of a small pond). Amplitude 76 gammas. Probable topographic correlation. Cylinder approximation gives E.T.T. 200,000 tons, strike length 1,300 feet, radius 20 feet. Possibly in or near diorite instrusives. Should be checked and reappraised in view of other work done in the area."

#### 6. GEOCHEMISTRY

#### 6.1 Field Procedures

Sampling of the Bain Claims consisted of 11 rocks samples, taken in areas of intense iron staining and mineralization, as well as samples from the old "Ruby-Silver" showing.

#### 6.2 Analytical Techniques

Vangeochem Lab Limited was retained to perform the analysis. All samples were dried and sieved to minus 80 mesh. Elements Cu, Pb, Zn, and Ag were detected by atomic absorption spectroscopy, while Au and Pt were determined by fire assay and detected by atomic absorption spectroscopy.

#### 6.3 Results (See Figure 6)

For complete geochemical lab report, see Appendix A. All results will be discussed separately below.

Copper - Most of the copper values range from 4 ppm to 49 ppm, however one of the samples, (CC 5) returned a high value of 275 ppm. This sample did not correlate with highs from any other elements.

Lead - The lead values were generally quite low and most samples assayed between 10 ppm and 58 ppm. A high value of 108 ppm was reported from sample CC 2. This sample correlates with the highest gold and silver values.

Zinc - The zinc values range between 5 ppm and 139 ppm. The highest zinc, obtained in sample CC 12, correlates with a high silver result.

Silver - Five of the samples analysed detected the presence of silver, and these values range from 0.2 ppm to 1.7 ppm. The highest silver value of 1.7 ppm corresponds with the highest gold value of 15 ppb, and the highest lead value of 108 ppb.

Gold - Only two samples detected gold and these were quite low, only 5 ppb and 15 ppb. However, the sample containing 15 ppb Au, also contains high values for silver and lead, (1.7 ppm Ag and 108 ppm Pb).

Platinum - None of the samples analysed reported any detectable platinum (detection limit, 50 ppb Pt).

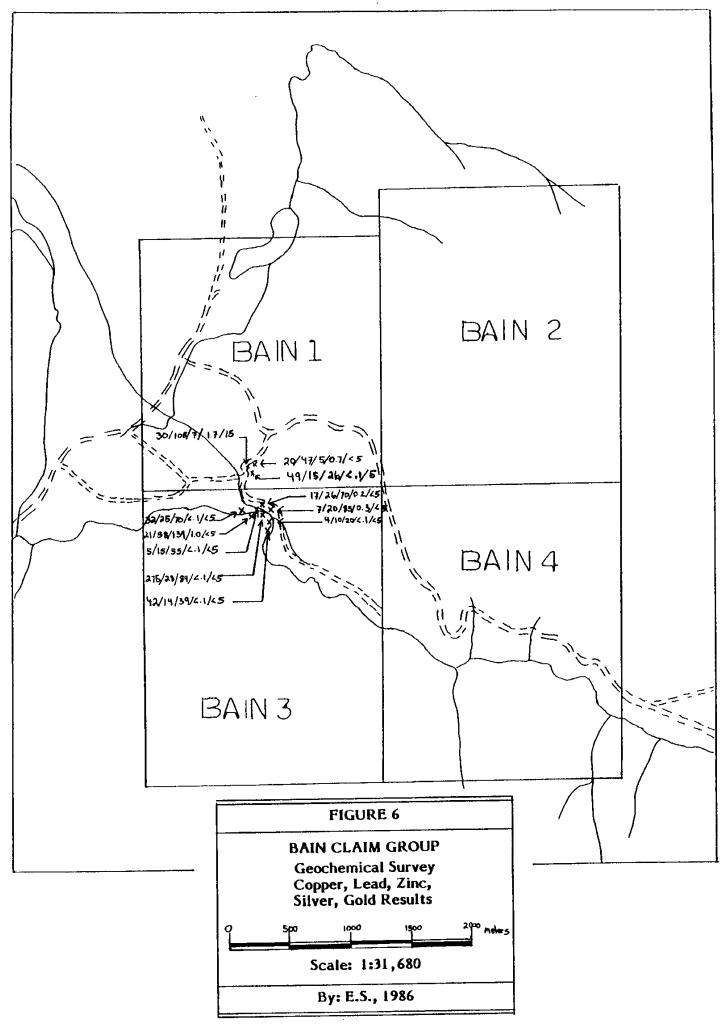
#### FIGURE 6

#### **GEOCHEMICAL SURVEY**

## **BAIN CLAIM GROUP**

X	
₾	14/36/24/0.3/5

Cu (ppm), Pb (ppm), Zn (ppm) Ag (ppm), Au (ppb)



#### 6.4 Interpretation

The copper, lead and zinc values are generally quite low however three anomalous values are reported. Two anomalous silver values were obtained and two samples assayed low gold values. None of the samples assayed any platinum values.

#### 7. CONCLUSIONS

- 1. The Bain 1 4 claims are located along the western boundary of the Cowichan-Horne Lake Uplift. This structural zone contains rocks of the Sicker Group, specifically the Myra Formation, which is considered favourable for base and precious metal deposits.
- 2. Tertiary intrusives occur in the Bainbridge Lake area, and near the southern boundary of the property. These intrusives are known to be associated with the precious and base metal deposits elsewhere on the Island, eg. Mt. McQuillan area at the headwaters of China Creek, and at Mt. Spencer, south of the property, where they occur as dykes both in Sicker and Vancouver Group rocks.
- 3. Mineralized showings, a magnetic anomaly, several geochemical anomalies and some small workings occur on the property and in the immediate area. The "Ruby Silver" showing was located and sampled.
- 4. The results obtained during the field work were not economically significant, however an initial exploration program is warranted to properly access the mineral potential of the claims.
- Due to the recent drill programs being conducted very close to the property, it would be recommended to retain the claims and conduct an exploration program to further access their potential.

#### REFERENCES

Benvenuto, G., 1980: 1980 Geochemical Soil Survey Program on Lily 1 and Lily 2 Claims, Assessment report #8249, for Western Mines

Limited.

Laanela, H., 1964-66: Geological maps of E & N Land Grant between 40000' and

40°20' latitudes, 1" = 1/2 miles; for Gunnex Limited.

Laanela, H., 1965-66: Mineral Occurrences on E & N Land Grant, Vancouver

Island, B.C.; summarized internal company reports for

Gunnex Limited.

Laanela, H., 1986: Preliminary Report on the Bain 1-4 Claims; for Ashworth

Explorations Limited.

Muller, J.E., 1980: The Paleozoic Sicker Group of Vancouver Island, B.C., Geol.

Survey of Canada, Paper 79-80.

Stevenson, J.S., 1945: Geology and Ore Deposits of the China Creek Area,

Vancouver Island, B.C.; in Annual Report of B.C.M.M., 1944,

pp. A143-A161.

#### **CERTIFICATE**

I, Elizabeth A. Scroggins, of 204 - 1549 Barclay Street, Vancouver, B.C. V6G 138, do hereby state that:

- I am a graduate of the University of Western Ontario, in London, Ontario, with a B.Sc.(Hon.) degree in Geology, 1986.
- 2. I have actively pursued my career as a geologist for four years in Ontario, Alberta, and British Columbia.
- 3. I have no direct or indirect interest in the property or securities of Ashworth Explorations Limited, nor do I expect to receive any such interest.

Respectfully submitted:

Dated at Vancouver, B.C. December 15, 1986

Elizabeth A. Scroggins, B.Sc.(Hon.)

# APPENDIX A Geochemical Lab Results



# **VANGEOCHEM LAB LIMITED**

MAIN OFFICE

1521 PEMBERTON AVE.

NORTH VANCOUVER, B.C. V7P 2S3

(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE 1630 PANDORA ST. VANCOUVER, B.C. VSL 1L6 (604) 251-5656

REPORT NUMBER: 860360GA	JOB MU	MBER: 860	360	ASHMORTH EXPLORATION LTD.	38P9	1	OF	1
SAMPLE #	Ao	Au	Pt					
	MCC	ppb	ppb					
DC 1	nd	5	rd					
$\alpha$ s	1.7	15	nd					
CC 3	.7	rd	rd					
CC 5	nd	nd	rd					
CC 6	nd	rid	nd					
SC 11	r:d	nd	nd					
CC 13	1.0	rd	nd					
CC 14	.2	nđ	٨d					
CC 15	.3	rd	nd					
CC 15	nd	nd	rd					
CC 17	rd	nd	rd					



# **VANGEOCHEM LAB LIMITED**

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REPORT NUMBER: 860360 GB	JOB NU	MBER: 868	360	ASHMORTH EXPLORATION LTD.	PAGE	1	OF	1
SAMPLE #	Cu	Pb	Zn					
	ppm	pp <b>e</b>	pp≋					
CC 1	49	15	26					
CC 5	30	108	7					
CC 3	20	47	5					
EC 5	275	28	84					
CC 6	5	15	55					
CC 11	32	25	70					
CC 12	21	58	139					
CC 14	17	26	70					
CC 15	7	29	85					
CC 16	4	19	20					
CC 17	42	14	39					

# APPENDIX B

**Itemized Cost Statement** 

# Itemized Cost Statement

Wages		
Geologist, August 7 - 10, 1986 4 days @ \$250/day (incl. mob & demob)		\$1,000.00
Geotechnicians, August 7 - 10, 1986 8 man days @ \$190/day (incl. mob & demob)		1,520.00
Supervision 1 day @ \$450/day		450
Consulting Geologist, F.G.A.C. 4 days @ \$350/day		1,400.00
Food & Accommodation 12 man days @ \$60/day		720.00
Transportation Truck & fuel, 4 days @ \$90/day Ferry fees	\$ 360.00 90.00	450.00
Materials		150.00
Analysis All samples analysed for Cu, Pb, Zn, Ag, Au, Pt 11 samples @ \$21.50/sample		236.50
Office  Report writing (Geologist, 2 days @ \$250/day)  Drafting, 10 hrs. @ \$22/hr.  Typing  Copying/Binding	\$ 500.00 220.00 150.00 100.00	970.00
Sub Total		\$6,896.50
Administration (@ 15%)		1,034.48
Total		\$7,930.98