

GEOCHEMICAL REPORT

ON

ORIGINAL

HAWK'S NEST GROUP

Skeena Mining Division
103B/13E, 52°50', 131°39'

OWNED BY

J.T. SHEARER

BY

J.T. SHEARER, M.Sc.

674024

FOR

J.C. STEPHEN EXPLORATIONS LIMITED

Field Work completed between July 2 and July 7, 1980

December 18, 1980
North Vancouver

DEC 18 1980

JULY 1980

3E/13E

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HAWK'S NEST

GEOCH

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SUMMARY

- (1) The Hawk's Nest Group is composed of five reverted ~~con~~ingrant mineral claims. They were obtained on April 25, 1979 and are located approximately 48 km southeast of Sandspit Airport.
- (2) A crew of 3 men spent 15 man days on the property between July 2 and July 7, 1980.
- (3) The claims are underlain by shattered, altered Karmutsen Formation, chloritic amygdaloidal volcanics in contact with a quartz monzonite pluton. Massive grey weathering marble, possibly Kunga Formation, was noted in isolated exposures.
- (4) A total of 80 soil samples were collected throughout the claims and several weak gold anomalies warrant limited follow up work.
- (5) Five rock samples were analyzed for gold and arsenic with one malachite bearing intrusive running 2000 ppb Au. This dyke should be checked in detail.
- (6) Due to the steepness of the terrain no systematic geological mapping was attempted and soil sampling was slow and often dangerous. Anomalous values indicated by the 1980 program should be checked with particular attention given to the series of weakly anomalous gold in soil values leading up the steep cliffs in central Blue Bell Claim. The possibility of skarn development should be considered near the intrusive contact.

INTRODUCTION

Limited prospecting, geological mapping and soil sampling were conducted in 1980 on the Hawk's Nest Group of reverted crowngrants. The claims are situated on the eastern tip of Talunkwan Island. Mineral Exploration was initiated by E.A. Hemming in the early 1900's who had the Group surveyed in 1908 and crowngranted in 1910. The 1909 B.C. Department of Mines Annual Report describes the work on page K71:

"There are two tunnels on the property from which zinc blende has been obtained, carrying very good gold values. There is also a large deposit of low-grade copper ore."

The claims reverted and had been open for many years prior to being applied for on April 25, 1979. Very little mention of the claims concerning geology or mineralization is made in available publications. Sutherland-Brown (1968) includes the Hawk's Nest in Table XXI, page 220, on mineral occurrences which are either of minor importance or about which little is known. The listing is as follows:
Map Number - 14, Name - Hawk's Nest, Location - Talunkwan Island, Metal - copper, zinc, Type - Vein?, Host - Karmutsen, Reference - Ann. Rept., 1908 p.62.

Due to the steepness of the terrain and the few safe routes between cliffs, soil sampling is a very slow and somewhat dangerous task. The exposed location of the headland often creates rough water making landing with a boat difficult.

Weakly anomalous gold in soils was found on the TA grid located on the Hawk's Nest Fraction. This zone confirms the slightly anomalous sample taken in 1979. One sample on the HN grid at 00 + 00 ran 500 ppb Au from the toe of a large landslide. This result should be re-analyzed as a check on lab errors before follow up in the field. Otherwise samples on northern sections of the property returned low values of Au and As. Rock specimens sent for lithochemistry are generally low for both Au and As with the exception of a light grey weathering diorite containing irregular blebs of chalcopyrite which gave 2000 ppb gold.

Follow up work should include checking of the soil anomalies and, if possible, chip sampling on the cliffs above the TA grid. Particular attention is required to evaluate the series of weakly anomalous gold in soil values leading up steep cliffs in Central Blue Bell Claim. More reconnaissance geological observations are needed before a systematic mapping campaign is undertaken. A statement of costs is tabulated in Appendix II with four years assessment applied to all claims for a total of \$3,000. credit.

PROPERTY - List of Claims

The following table shows the record data concerning the Hawk's Nest Group as illustrated on Figure 2.

TABLE I
Claim Data: Hawk's Nest Group

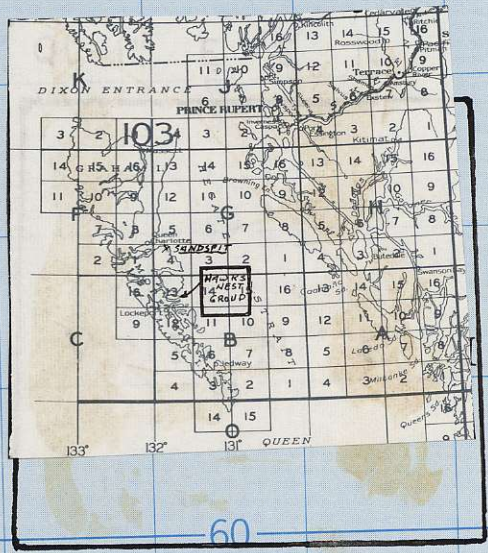
<u>Claim Name</u>	<u>Lot No.</u>	<u>No. Of Units</u>	<u>Record No.</u>	<u>Date Of App.</u>	<u>Expiry Date</u>	<u>Acreage</u>
Blue Bell	L135	1	1239	April 25/79	April 25/85	51.65
Maud	L136	1	1240	April 25/79	April 25/85	46.11
Lilly	L137	1	1241	April 25/79	April 25/85	51.65
Annie Fr.	L138	1	1242	April 25/79	April 25/85	48.41
Hawk's Nest Fr.	L139	1	1243	April 25/79	April 25/85	10.48

Field work was conducted between July 2 and July 7, 1980 for a total of 15 man days as shown in Appendix I.



1936
TL 1203

1937
TL 1204



HAWKS NEST GROUP

J. C. STEPHEN EXPLORATIONS LTD
B. C. GOLD SYNDICATE.
 LOCATION MAP
HAWKS NEST GROUP
 SKEENA M. D.

DRAWN BY: JS WORK BY: JS
 N.T.S. - 103 B 13E DATE - SEPT 1979

FIGURE 1

LOCATION AND ACCESS

The claims are located on the eastern tip of Talunkwan Island, 48 km southeast of Sandspit, as shown in Figure 1. In the early 1970's, Talunkwan Island was logged off and a network of roads extend along the central ridge. These roads come within 2 km of the western boundary of the Maud Claim. Unfortunately there is a very steep climb from tidewater on Annie Fr to the roads.

Helicopter access is only feasible at low tide. Fixed wing aircraft on floats would also have difficulty landing due to the many reefs and rocky shoreline. An inflatable boat was used in the 1980 program to transport crew members from a campsite in Thurston Harbour to the property. Often the water is relatively rough due to the exposed position of the eastern headland of Talunkwan Island making boat landings difficult.

The shoreline is everywhere fringed by steep cliffs that rise sharply to between 50 and 100 meters in elevation. Once past these cliffs, the ridges flatten and traversing becomes much easier.

FIELD PROCEDURES

Soil lines were established by pace and compass methods since the steepness of the terrain does not allow for accurate measurement with a chain. Many samples were taken in a reconnaissance fashion throughout the property. Sample sites were marked by numbered flagging. A grubhoe or rock hammer was used to collect the B horizon which seldom exceeded a depth of 15 cm. Standard soil data sheets were filled out in the field noting items such as: sample number, location, depth, horizon, colour, particle size, % organics, pH, slope, vegetation and additional remarks. Samples were placed in numbered water proof kraft bags and sent to Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver. Analytical procedures are outlined in Appendix IV.

Results are plotted on a 1:3,600 tracing mosaic of the individual survey notes by M.L. Gordon done in 1908 and obtained from the Legal Surveys Section, Ministry of Lands, Parks and Housing. This map was used in the field and some topographic corrections added. Elevation contours are taken from the 1:50,000 map sheet 103 B/13E.

GEOLOGY

(A) REGIONAL GEOLOGY

The Regional Geology of the Queen Charlotte Islands has been compiled by Sutherland-Brown (1968) on a scale of 1:125,000. A portion of this mapping is shown as Figure 2.

Eastern Talunkwan and Louise Islands lie astride a main strand of the Louscoone Inlet Fault system. This fault zone can be traced almost 200 km from Kunghit Island in the south to Rennell Sound in the north. There also appears to be a Linear on Landsat Images between the southeast shore of Talunkwan Island toward Reef Island trending about 065°.

Rocks occurring in the general Laseek Bay area are summarized in Table II.

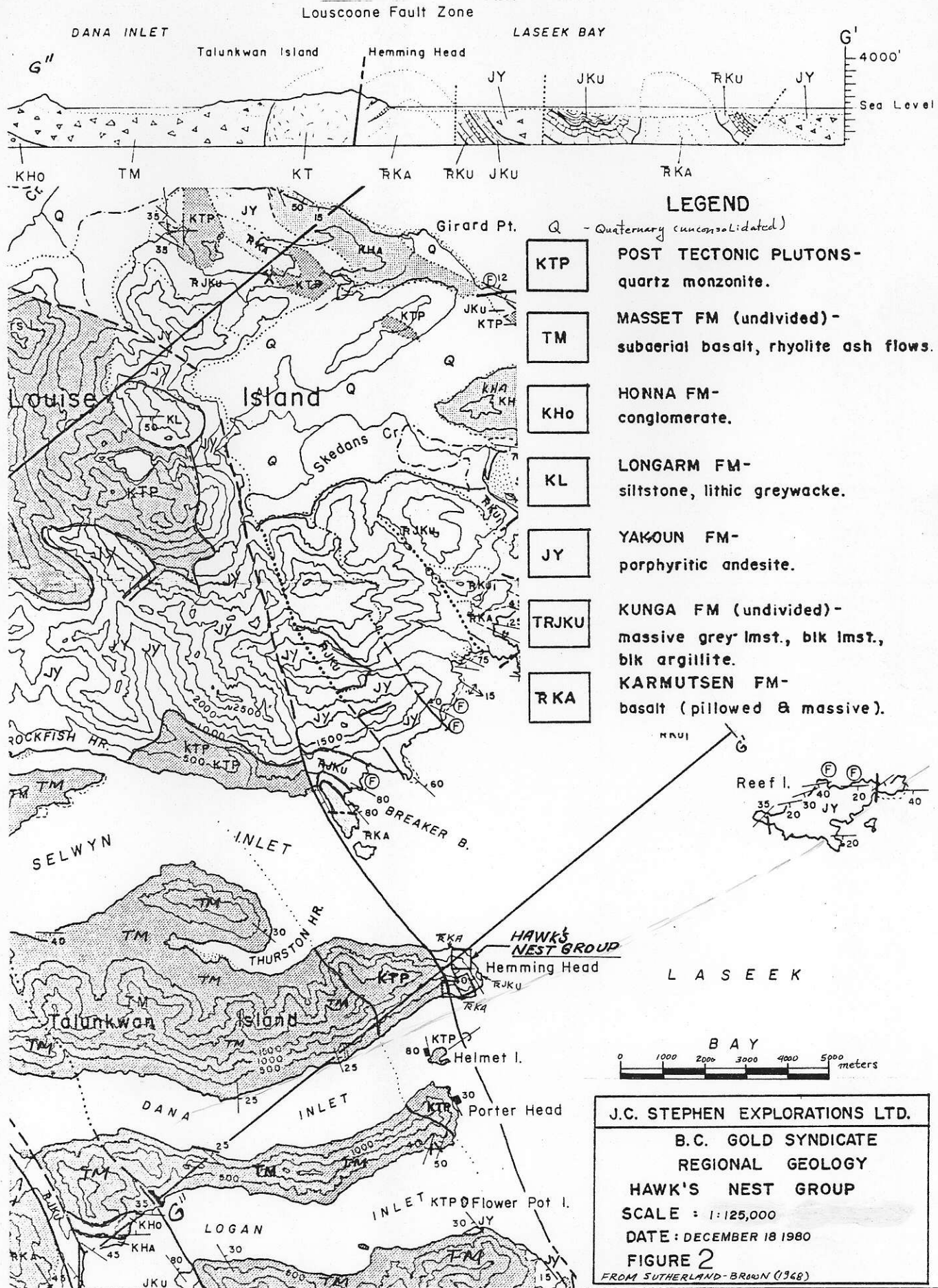


TABLE II
Stratigraphy of Laseek Bay Area

Symbol On Figure 2	Name	Age	Lithology	Thickness (feet)
TM	Masset Formation (Dana Facies)	Tertiary	Volcanic tuff breccias, minor rhyolite	5,000 +
KTP	Post tectonic plutons	Tertiary	Monzonite	Intrusive
KHo	Honna Formation	Upper Cretaceous	Polymiltic conglomerate	1300 - 4000
KHa	Haida Formation	Middle Cretaceous	shale-siltstone sandstone	+ 3,000
KL	Longars Formation	Lower Cretaceous	Calcareous siltstone	4,000 +
JY	Yakoun Formation	Middle Jurassic	Andesitic Volcanics & volcaniclastics	+ 1,000
TrJKU	Kunga Formation	Lower Jurassic	black argillite	up to 1,900
		Upper Triassic	thin bedded black limestone	700 - 900
			-grey massive marble	100 - 600
TrKA	Karmutsen Formation	Upper Triassic	Basaltic pillow lava aquagene tuff, agglomerate	14,000 +

The oldest exposed unit on the Islands is the Upper Triassic Karmutsen Formation (TrKA) which is composed mainly of pillow basalt, aquagene tuff and agglomerate that are at least 14,000 feet thick. The Hawk's Nest Group is almost completely underlain by Karmutsen Formation. Inter lava carbonate lenses are found in the Karmutsen Formation, However the poorly known internal stratigraphy of this complex submarine volcanic pile does not allow the differentiation of basal Kunga Formation from Karmutsen age carbonates. In the Laseek Bay Area, the Karmutsen rocks are exposed along a northerly plunging anticline that dips beneath younger units on southern Louise Island and is truncated on the west as shown by the regional cross section on Figure 2.

Conformably overlying the Karmutsen volcanics is the Kunga Formation (TrJKU) that can be easily divided into 3 contrasting members which from oldest to youngest are: (1) grey weathering, massive marble member (2) thin bedded, black limestone member and (3) laminated black argillite member. The Kunga Formation type section is located on the southeastern shore of Kunga Island, 8 km south of the Hawk's Nest Claims. Minor marble observed on Annie Fraction could possibly be assigned to the Kunga Formation as Sutherland-Brown (1968) has indicated on Figure 2 but the marble is likely interlava carbonate with the Karmutsen Formation as discussed in the Local Geology section.

The dominately pyroclastic Yakoun Formation (JY) is exposed on southern Louise Island and eastern Tanu Island. Yakoun Formation is found most commonly on Graham and Northern Moresby Islands where it exhibits complex intertonguing of lava centers and surrounding pyroclastics associated with facies changes to volcanic derived sediments.

Sandstones and conglomerates of the Longarm Formation (KL) occur on northern Louise Island where they apparently were deposited in a fault bounded trough controlled by segments of an early Louscoone Inlet Fault. Several rock units are juxtaposed by the Beresford Fault Splay that passes between Dana and Logan Inlets where short sections of green to black glauconitic sandstone and shale of the Haida Formation (KHa) and overlying Honna Formation (KHo) polymictic, coarse conglomerates are found.

Immediately west of the Hawk's Nest Group a monzonitic post tectonic pluton (KTP) has been emplaced along the Louscoone Fault zone. Sutherland-Brown (1968) considers the Talunkwan stock to include the intrusive rock on Louise Island north of Selwyn Inlet giving a combined area of 23 square km. The magnetic expression of the monzonite appears to cross Selwyn Inlet as shown in the B.C. Government airborne magnetometer survey flown in 1959. The Talunkwan pluton is reported to metamorphose Masset volcanics to the west. However, the exact relationship between the post tectonic intrusives and the Masset Formation is not clear since ~~post~~ tectonic clasts were noted in Masset agglomerates on Lyell Island. Probably there is a range of ages during which the post tectonic stocks were emplaced.

The Dana Facies of the Masset Formation (TM) occurs on the east coast of Moresby and adjacent Islands from Selwyn Inlet to Sedgwick Bay. Pyroclastic breccia of mixed basalt and rhyolite fragments is the dominate lithology.

Off the west coast of the Queen Charlotte Islands a segment of the Pacific Plate boundary forms a deep trough referred to as the Queen Charlotte Fault. Present day movements make the Islands the most highly seismic area in Canada.

(B) LOCAL GEOLOGY

Limited geological notes are shown on Figure 3 (in pocket) and Figure 4. The claims are underlain almost entirely by shattered, massive, chloritized, Karmutsen Formation basalt. A relict complex amygdaloidal texture is common. Tension-gash veinlets are abundant throughout the claims and are filled with an assemblage of calcite, quartz and epidote. Several ages of veinlets were noted. The youngest and most well developed set trends 340°/vertical. Some of the calcite-epidote veinlets have 2 cm bleached envelopes and potassic feldspar veining is locally abundant. Vertical cliff faces above the adits on Hawk's Nest Fraction and also on Lilly Claim show many small indistinct dykes up to 1 meter wide trending 230°/vertical, apparently very similar in composition to the enclosing basaltic greenstone.

A large cavern has formed along a joint surface in basalt near the shoreline on central Annie Fraction. The start of an old adit is visible on one side of the cavern but no sign of sulfide mineralization was noted in this area.

Angular blocks of grey weathering limestone occur along a small pebble beach on the northwest corner of Lilly Claim. Near the top of the hill in western Annie Fraction exposures of massive grey limestone were observed. This carbonate unit appears to have the discontinuous character of inter pillow lenses but the possibility remains that it could be assigned to the Kunga Formation. Sutherland-Brown (1968) describes Karmutsen Formation limestone lenses as varying from "a few feet to 200 feet or so thick". The

distribution of these lenses is discussed by Sutherland-Brown (1968) on page 43 as follows:

"The lateral continuity of lenses is not great, but in the upper part of the formation lenses are found repeatedly at about the same horizon. In some localities, limestone lenses are found that have discordant attitudes with over-all gently dipping lava piles. In part these are believed to be rafted blocks".

The Talunkwan post tectonic pluton occurs immediately west of the Claim Group and is composed mainly of quartz monzonite but becomes contaminated mafic and inclusion rich near parts of its border. Weathered float boulders of intrusive rock were noted on the Blue Bell and Annie Fraction. A diorite dyke with many rounded dark fragments is present a few meters east of the adits on Hawk's Nest Fraction. This dyke is completely submerged at high tide and is not exposed in the cliff face.

South of "Adit Cove", on Hawk's Nest Fraction, traces of chalcopyrite, malachite, hydrozincite and sphalerite were noted in patchy silicified zones hosted by intensely shattered greenstone. Along the rocky south shore an irregular light grey weathering diorite containing occasional blebs of chalcopyrite ran 2000 ppb gold.

Due to the steepness of the terrain and poor access, a comprehensive geological mapping program would be slow and expensive. More reconnaissance geological observations are needed in conjunction with detail prospecting with geochemical follow up work before a systematic mapping campaign is undertaken.

BLUE BELL
L 135

HAWKS NEST FRACTION
L 139

APPROXIMATE CLAIM BOUNDARY N 70° 12' E

LOW TIDE LEVEL

A-80-844
2,410

A-80-843
9,60

A 80 842
8,410

A 80 841
19,50

A-80-840
12,20

A-80-839
16,410

ADIT

80519
1.0/410

80520
0.5/410

FLOAT
80518
8.5/410

SMALL ADIT
COVERED WITH INTENSE
YELLOW LICHEN ON SEEPAGES

VERTICAL
CLIFF

STAINED
BY
RUSTY
SEEPAGES

VERTICAL
CLIFF

LARGE
BOULDER

KTP

DIORITE DYKE
WITH MANY DARK
ROUNDED FRAGMENTS
(SUBMERGED AT HIGH TIDE)

SMALL
BAY
("ADIT COVE")

STEEP
CLIFFS

VERY
STEEP
CLIFFS

STEEP
CLIFFS

Mainly massive chloritic greenstone.
Local abundant amygdules.
Many vague dykes up to 1m wide,
trending 230/vertical.
All rocks extremely shattered.

HIGH
TIDE
LEVEL

LOW
TIDE
LEVEL

HIGH
TIDE
LEVEL

LOW
TIDE
LEVEL

HIGH
TIDE
LEVEL

LOW
TIDE
LEVEL

STEEP
BARE
ROCK

00N+00E
TAGRID

80517
1.0/410

A-80-838
16,410

SCATTERED
SILICIFIED
ZONES
84609
TRACE
chlorite
+ sphalerite

SHATTERED
KARMUTSEN
GREENSTONE

LIGHT GREY WEATHERING
DIORITIC DYKE IN
SHATTERED TKA
BASALT

80,2000
84732

diorite trace chlorite
+ Malachite

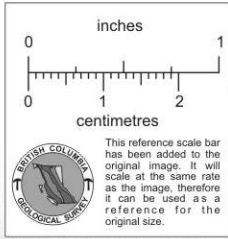
diorite

LEGEND

- A-80-843 SOIL SAMPLE
- 9,60 ARSENIC (ppm) GOLD (ppb)
- △ 84732 ROCK SAMPLE
- 80,2000 ARSENIC (ppm) GOLD (ppb)
- STEEP CLIFFS
- FAULT
- ADIT



SCALE - 1:1000 (approximately)



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

J. C. STEPHEN EXPLORATIONS LIMITED

B. C. GOLD SYNDICATE

HAWKS NEST GROUP

SKEENA MINING DIVISION

SKETCH OF SAMPLE RESULTS

NTS: 103 B/13W

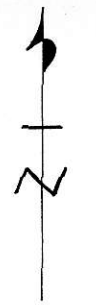
DATE: JULY 8, 1980

WORK BY: JS, GM, MH.

DRAWN BY: JS.

SCALE: 1:1000

FIGURE 4



GEOCHEMISTRY

A total of 80 soil samples were collected throughout the property. Sample locations and results are plotted on Figure 3 (in pocket) and Figure 4. Analytical values are also tabulated in Appendix V on the Certificates of Analysis.

Anomalous gold values are considered to be greater than 40 ppb Au based on previous experience throughout South Moresby and taking into account the reproducibility of atomic absorption analysis. Three areas are anomalous for gold: (1) TA grid adjacent to the old adits on Hawk's Nest Fraction, (2) the series of samples extending along a side-ridge on Blue Bell and (3) an isolated sample at HN 00 + 00 that ran 500 ppb Au.

The weakly anomalous values contained in the TA grid and along the Blue Bell ridge indicate a gold source from the steep cliffs above. Such a source could be similar to the irregular diorite dyke exposed on the south shore that ran 2000 ppb gold. The HN 00 + 00 sample should be re-analyzed to eliminate the chance of analytical errors before the area is rechecked in the field. If this sample is actually anomalous in gold the source could be anywhere above a large slide zone in the western part of Maud Claim since the sample was collected from the toe of this slide. Limited prospecting is warranted along the ridge in the Blue Bell and some rock chip sampling could be attempted on the cliffs.

Arsenic values in soils are tabulated in a frequency histogram contained in Appendix IV. The distribution shows

a marked bias toward low arsenic values. Higher gold values tend to correlate with higher arsenic. There does not appear to be any significant concentration of anomalous arsenic bearing soil on the claims.

Five rock samples were collected from along the shore lines as illustrated on Figure 3 (in pocket). Silicified specimens 84726, 84730, 84731 and 84609 containing varying amounts of sulfides all gave very low arsenic and gold results. A light grey weathering, irregular dioritic dyke (84732) with sparse blebs of malachite and chalcopyrite ran 2000 ppb gold. The extent of this unusual intrusive should be established and the mode of gold occurrence ascertained. If the average gold content of this intrusive is anomalous then a significant prospecting target would be defined.

Future work should be directed toward detail prospecting, reconnaissance geological mapping and rock chip sampling where possible on central Blue Bell and including several lines of rock chips over the dioritic dyke on southern Hawk's Nest Fraction.

CONCLUSIONS AND RECOMMENDATIONS

The little known Hawk's Nest Group of reverted crowngrants was obtained in April, 1979 and briefly examined that summer. Access is unusually difficult due to a variety of factors that include steep and dangerous cliffs, lack of campsites and exposure to rough seas.

Anomalous gold in soils taken in 1979 was confirmed and extended into central Blue Bell claim. An intriguing, irregular dioritic dyke carrying sparse chalcopyrite gave 2000 ppb Au.

Grey weathering limestone was observed at higher elevations and the possibility of skarn development near the post tectonic Talunkwan pluton should be considered. The start of a third adit was noted in the wall of a natural cavern along a joint surface in basalt but no sulfide mineralization was found in this locality. The target of this old work is not clear.

Future efforts should be directed toward detail prospecting, reconnaissance geological mapping and rock chip sampling where possible along Blue Bell ridge above the TA grid. Several lines of rock chips are required to evaluate the copper bearing dioritic dyke that ran 2000 ppb Au. This dyke could develop into a significant target if low gold values are widespread. The soil sample at HN 00 + 00 with a result of 500 ppb Au should be re-analyzed to eliminate the possibility of analytical errors.

Respectfully submitted,

J.T. SHEARER, M.Sc., F.G.A.C.

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APPENDIX I

LIST OF PERSONNEL
AND DATES WORKED

ON

HAWK'S NEST GROUP

Field time July 2 to July 7, 1980

APPENDIX I

LIST OF PERSONNEL AND DATES WORKED

<u>Name</u>	<u>Occupation</u>	<u>Address</u>	<u>Dates Worked on Property</u>
J.T. Shearer	Geologist	R.R.#1 Mason Ave., Port Coquitlam,B.C.	July 5,6,7,1980
G. Marchak	Student 2 summers experience	4455 W. 1st Ave., Vancouver, B.C.	July 2,3,4,5, 6,7, 1980
M. Heroux	Soil Sampler 1 summer experience	P.O. Box 536, Queen Charlotte City.	July 2,3,4,5, 6,7, 1980

APPENDIX II

STATEMENT OF COSTS

HAWK'S NEST GROUP

Field time from July 2 to July 7, 1980

TABLE III
STATEMENT OF COSTS
HAWK'S NEST GROUP

Field Time: July 1 to July 7, 1980

WAGES AND FRINGE BENEFITS

J.T. Shearer	3 days @ 84.33 per day	=	\$ 252.99
- G. Marchak	6 days @ 60.93 per day	=	365.58
M. Heroux	<u>6 days @ 49.62 per day</u>	=	<u>297.72</u>
Total:	15 man days		916.29

FOOD AND CAMP SUPPLIES

15 man days @ 12.00 per man	180.00
Radio Rental - 1 week	45.00
Tent Rental - 1 week	25.00
Expediting - 1 week	60.00

TRANSPORTATION

Trans Provincial Airlines	
2 Beaver trips 1.90 per mile - 120 miles	228.00
Vancouver Island Helicopters	
0.9 hours @ 355.00 per hour	319.50
Boat Rental - 1 week @ 25.00 per day	175.00
Gas & oil - 15 gal. + 1.5 $\frac{1}{2}$ of oil	19.50

GEOCHEMISTRY

Soil Samples	
80 samples @ 6.50 + 0.45 = 6.95 per sample	
Certificate No. 54530, 54531, 54532	
for Au and As	556.00

Rock Samples	
5 samples @ 6.75 + 1.75 = 8.25	
Certificate No. 54583 for Au and As	41.25

REPRODUCTION AND DRAFTING 200.00

Report Preparation, typing	300.00
----------------------------	--------

Crown grant survey notes invoice Y-1285	<u>10.36</u>
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TOTAL:	\$3,075.90
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APPENDIX III

STATEMENT OF QUALIFICATIONS

J.T. SHEARER, M.Sc., F.G.A.C.

HAWK'S NEST GROUP

APPENDIX III

STATEMENT OF QUALIFICATIONS

I. J.T. SHEARER of the City of Port Coquitlam in the Province of British Columbia, hereby certify that:

- 1) I am a graduate of the University of British Columbia (1973) B.Sc., and University of London, Imperial College (1977) M.Sc., DIC.
- 2) I am a Fellow of the Geological Association of Canada.
- 3) I have worked continuously in Mineral Exploration since 1973 for McIntyre Mines Limited, Cities Service Minerals Corp. and J.C. Stephen Explorations Ltd.
- 4) I personally worked on Hawk's Nest Group between July 2 and July 7, 1980. This report is based on an interpretation of data collected.

Dated at North Vancouver,
British Columbia

J.T. SHEARER, M.Sc., F.G.A.C.

APPENDIX IV

ANALYTICAL PROCEDURES

Chemex Labs Ltd.
212 Brooksbank Ave.,
North Vancouver, B.C.
Hart Bichler, Chief Geochemist

and

ARSENIC FREQUENCY HISTOGRAM

GEOCHEM PROCEDURES

PPM Antimony: a 1.0 gm sample digested with conc. HCl in hot water bath. The iron is reduced to Fe⁺² state and the Sb complexed with I⁻. The complex is extracted with TOPO-MIBK and analyzed via A.A. Correcting for background absorption 0.2 ppm ± 0.2 Detection limit.

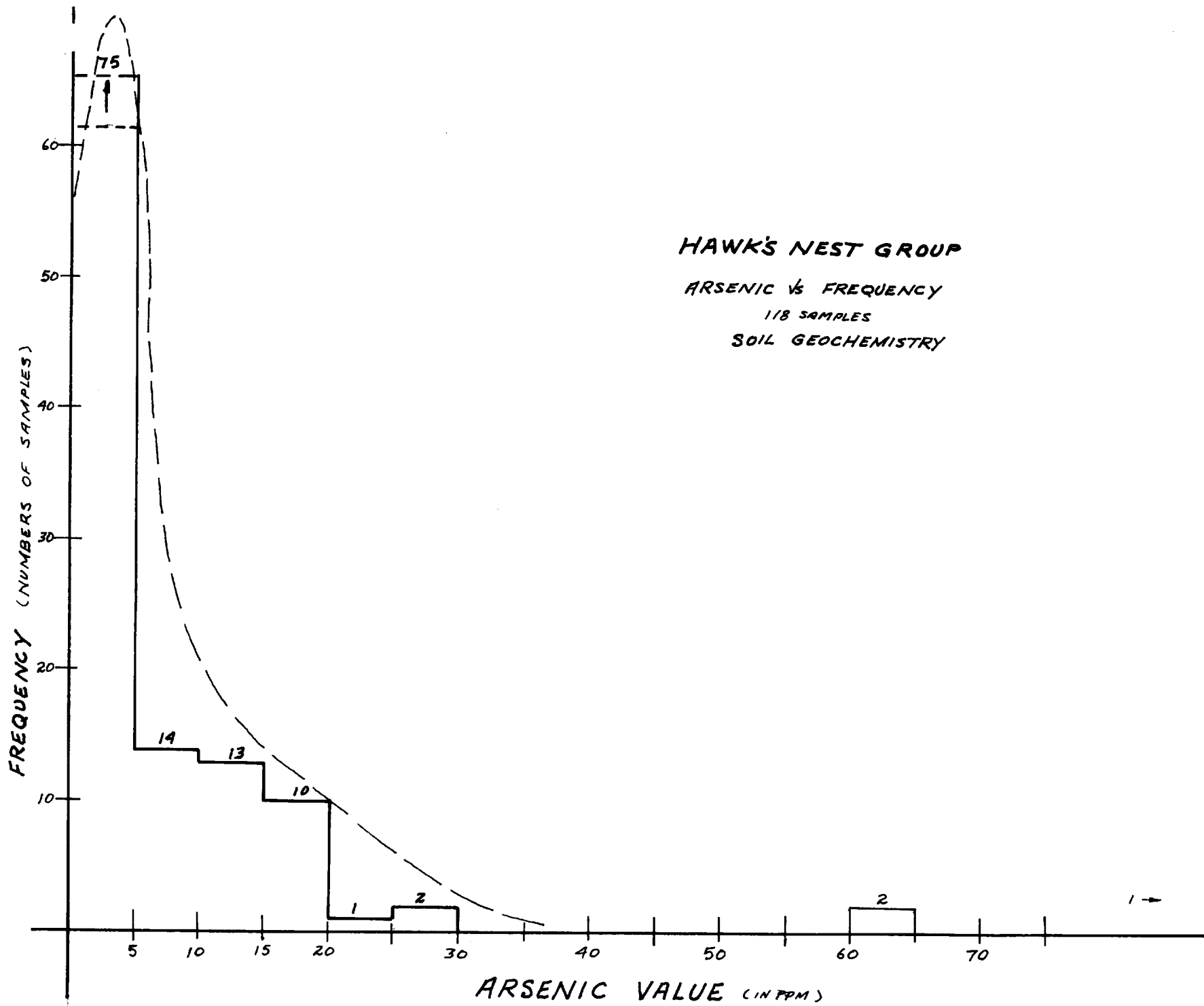
PPM Arsenic: a 1.0 gram sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with KI and mixed. A portion of the reduced solution is converted to arsine with NaBH₄ and the arsenic content determined using flameless atomic absorption.
Detection limit - 1 PPM

PPB Gold: 5 gm samples ashed @800°C for one hour, digested with aqua regia - twice to dryness - taken up in 25% HCl⁻, the gold then extracted as the bromide complex into MIBK and analyzed via A.A.
Detection limit - 10 PPB

ASSAY PROCEDURES

Gold: - Fire Assay Method.

0.5 assay ton sub samples are fused in litharge, carbonate and silicious fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighing is Ag.



APPENDIX V

CERTIFICATES OF ANALYSIS

HAWK'S NEST GROUP



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 984-0221
 AREA CODE: 604
 TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 54530

TO: J. C. Stephen Explorations Ltd.,
 1124 W. 15th St.,
 North Vancouver, B.C.
 V7P 1M9

INVOICE NO. 37209

RECEIVED July 14/80

ANALYSED July 23/80

ATTN: B. C. Gold Syndicate #147 CC. J. Shearer

SAMPLE NO. :	PPM	PPB	
	As	Au	
00N+00E TA	15	-10	<i>Near old Adits. (Hawks Nest Fr)</i>
10N	14	40	
20N	11	20	
30N	16	70	
40N	15	60	
50N+00E	10	-10	<i>on southend Maud claim</i>
00N+10E	22	100	
10N	20	60	
20N	19	40	
30N	16	70	
40N	14	40	
50N+10E TA	1	-10	
00N+00E HN	65	500	
50	1	-10	
100	1	-10	
150	1	10	<i>Blue Bell claim.</i>
200	2	-10	
250N+00E	3	-10	
280N+00E	1	-10	
300N+00E	1	-10	
350	1	-10	
400N+00E	1	-10	
00N+100E HN	1	-10	
50	3	-10	
100	2	-10	
150	3	-10	
200	1	-10	
250	1	-10	
300	1	-10	
350	2	-10	
400	1	-10	
450	1	-10	
500N+100E HN	1	-10	
837 A-80	3	-10	
838	16	-10	
839	16	-10	
840	12	20	
841	19	50	
842	8	-10	
843 A-80	9	60	

Note: - denotes less than



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY:

Hart Biddle



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 984-0221
 AREA CODE: 604
 TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: J. C. Stephen Explorations Ltd.,
 1124 W. 15th St.,
 North Vancouver, B.C.
 V7P 1M9

ATTN: B. C. Gold Syndicate #147 CC. J. Shearer

CERTIFICATE NO. 54531

INVOICE NO. 37209

RECEIVED July 14/80

ANALYSED July 23/80

SAMPLE NO. :	PPM		PPB
	As	Au	
844 A-80	2	-10	Blue Bell claim
845	2	-10	
846	5	30	
847	3	-10	off claims to west.
848	1	-10	
849	1	-10	
850	1	-10	
851	3	-10	
852	1	-10	
853	1	-10	
854	1	-10	
855	1	-10	
856	2	-10	
857	5	-10	
858	14	-10	on Lily claim
859	3	-10	
860	5	-10	
861	2	-10	
862	2	10	
863	16	10	
864	38	-10	
865	9	-10	
866	11	-10	
867	3	-10	
868	11	-10	
869	11	-10	
870	2	-10	
871	2	-10	
872	3	-10	
873	20	10	
874	61	-10	
875	29	-10	off claims
876	15	-10	
877	3	-10	
878	4	-10	
879	2	-10	
880	20	-10	
901	6	-10	off claims
902	3	-10	
903 A-80	1	-10	

Note: - denotes less than



MEMBER
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CERTIFIED BY: *Hart Biddle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 984-0221
 AREA CODE: 604
 TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: J. C. Stephen Explorations Ltd.,
 1124 W. 15th St.,
 North Vancouver, B.C.
 V7P 1M9

ATTN: B. C. Gold Syndicate #147 CC. J. Shearer

CERTIFICATE NO. 54532
 INVOICE NO. 37209
 RECEIVED July 14/80
 ANALYSED July 23/80

SAMPLE NO. :	PPM	PPB	
	As	Au	
904 a-80	110	10	OFF CLAIMS
905	2	-10	
906	2	-10	
907	2	-10	
908	1	-10	
909	2	-10	
910	2	-10	
911	3	-10	
912	1	10	
913	1	-10	
914	6	-10	
915	5	10	Northwest part of Lily
916	6	-10	
917	14	-10	
918	6	-10	
919	2	-10	
920	40	-10	
921	7	-10	
922	29	-10	
923	40	-10	
924	3	-10	east side of Lily.
925	2	-10	
926	3	-10	
927	6	10	
928A	2	-10	
923B	4	-10	
930	12	-10	
931	3	-10	
932	4	-10	
933	6	-10	
934	2	10	
935	9	10	OFF CLAIMS
936	9	-10	
937	7	-10	
938	1	-10	
939	3	-10	
940	4	-10	
941	1	-10	
942	3	-10	
943 A-80	3	-10	

Note: - denotes less than



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CERTIFIED BY: Hart Bielle



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
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TELEPHONE (604)984-0221
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: J. C. Stephen Explorations Ltd.,
1124 W. 15th St.,
North Vancouver, B.C. V7P 1M9

CERTIFICATE: 54583
INVOICE: 37265
RECEIVED: July 15/80
ANALYZED: July 25/80

ATTN: B. C. Gold Syndicate #147 CC. J. T. Shearer

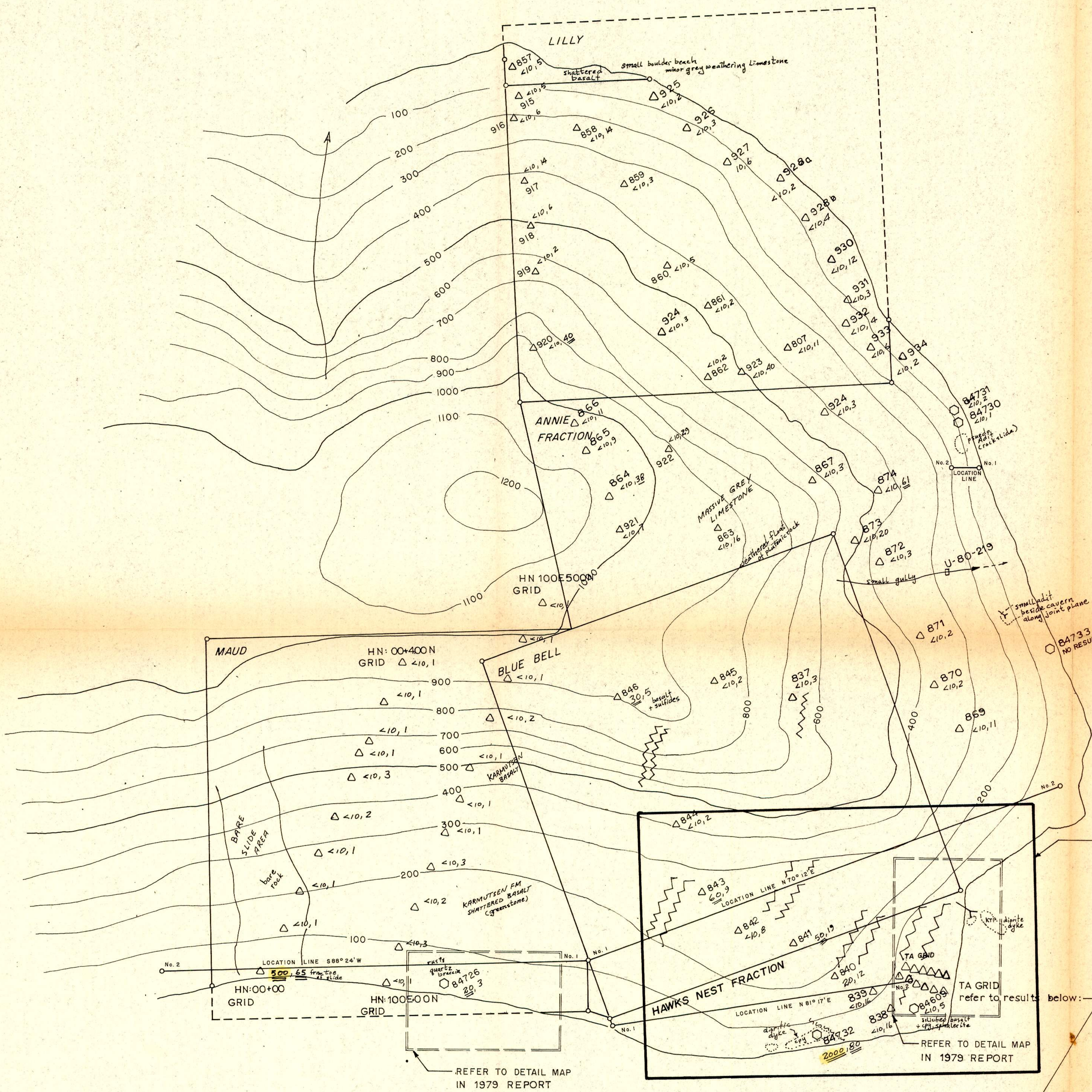
	PPM As	PPB Au	ROCKS
84608	200	-10	
✓ 84609	5	-10	
84610	15	-10	
✓ 84728	3	20	
84729	4	-10	
✓ 84730	1	-10	
✓ 84731	2	-10	
✓ 84732	80	2000	Hawks nest.
84734	3	10	

Note: - denotes less than



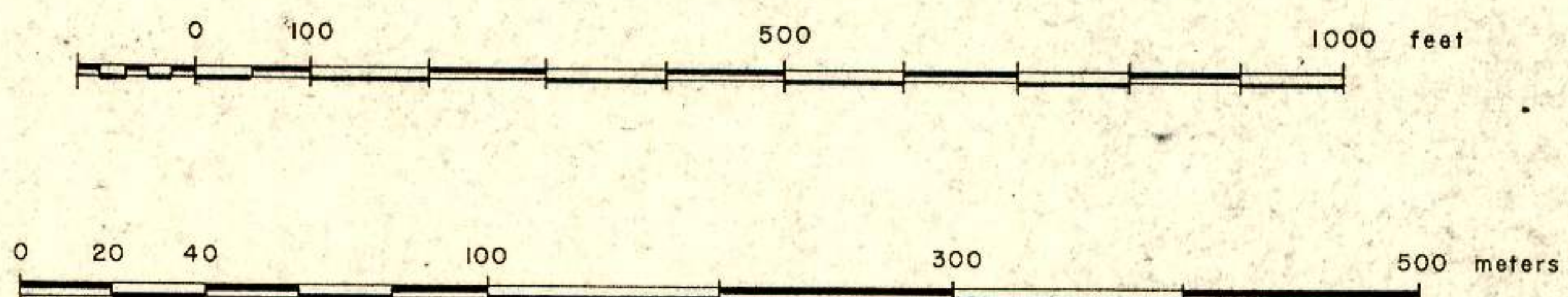
MEMBER
CANADIAN TESTING
ASSOCIATION

Certified By: Hart Biddle



- LEGEND**
- < 10 / 5.0 Au in ppb, As in ppm
 - △ A-80-845 Soil Sample Location
 - 100 — Topographic Contour
 - Claim Boundary
 - Rock Sample Location
 - ⚡ Steep Cliff

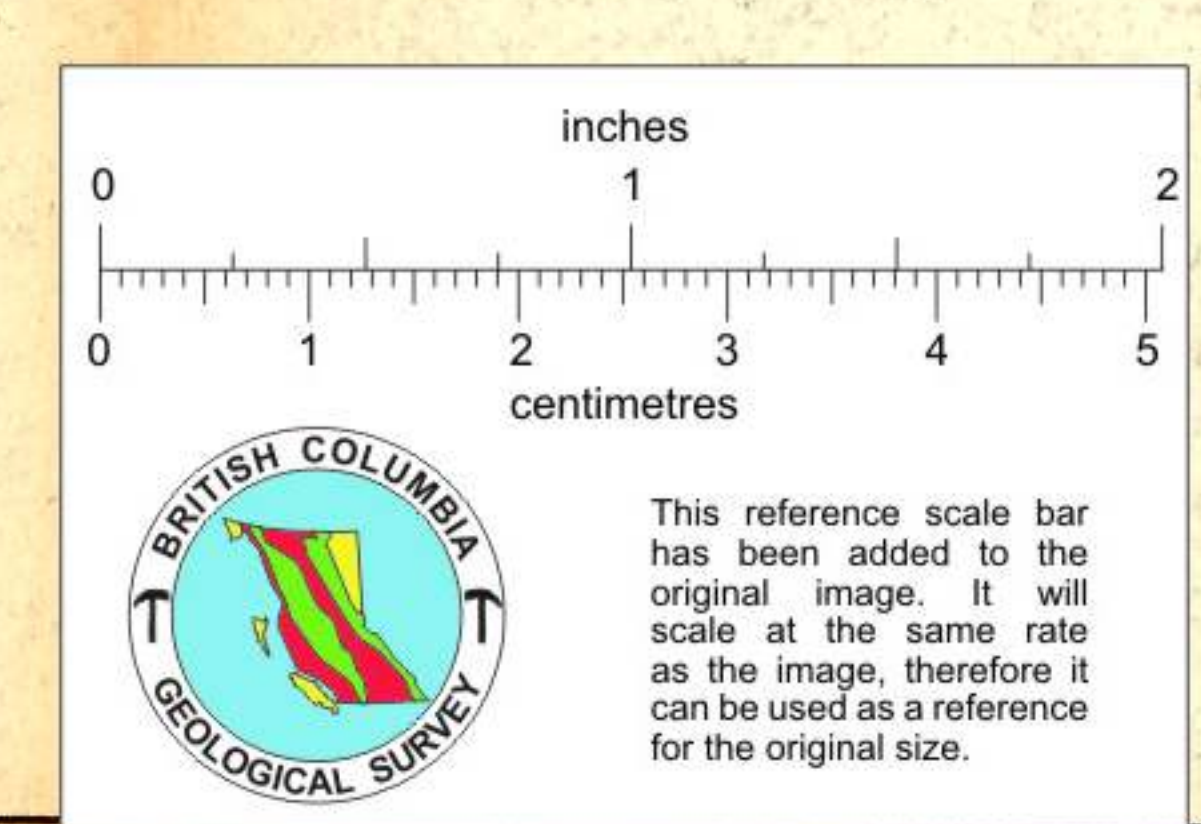
REFER TO FIGURE 4
For detail sample locations.



Scale 1:3,600

TA GRID (refer to Figure 4 for details)

As (ppm)	Au (ppb)	As (ppm)	Au (ppb)
00N+00E	15 -10	00N+10E	22 100
10N	14 40	10N	20 60
20N	11 20	20N	19 40
30N	16 70	30N	16 70
40N	15 60	40N	14 40
50N+00E	10 -10	50N+10E	1 -10



J. C. STEPHEN EXPLORATIONS LTD
 B.C. GOLD SYNDICATE
 HAWKS NEST GROUP
 SKEENA M.D.
 TALUNKWAN ISLAND
 GEOLOGY AND SOIL GEOCHEMISTRY

WORK BY GM, MH, JS
 DATE JULY 5, 1980

NTS - 103B/13E
 DRAWN BY JS, GM

FIGURE 3