

GEOLOGICAL AND GEOCHEMICAL REPORT

ON

TAR GROUP

SKEENA MINING DIVISION

103B/11W, 52° 39', 131° 28'

OWNED BY

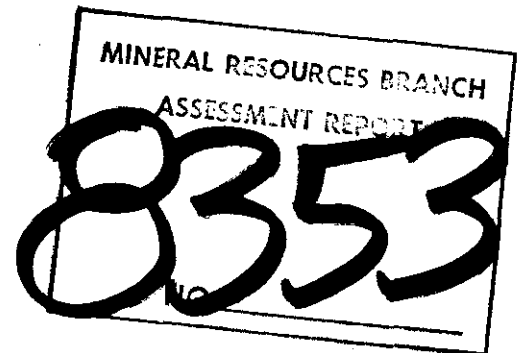
B. ATKINSON AND J. C. STEPHEN

BY

J. T. SHEARER, M. Sc.

FOR

J. C. STEPHEN EXPLORATIONS LIMITED



Field work completed between July 5 to July 18, 1980

September 4, 1980

North Vancouver, B. C.

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SUMMARY

- (1) The TAR GROUP consists of the four 2-post TAR 1 to 4 claims staked in July 1979 plus the surrounding T-ONE and T-TWO claims of 18 units each located in July 1980. The claims are situated on eastern Lyell Island approximately 70 km southeast of Sandspit.
- (2) A total of 34 man days were spent on the property by a crew of five people engaged in geological mapping and soil sampling between July 5 and July 18, 1980.
- (3) The claims are underlain by Masset Formation Feldspar porphyry, agglomerate, tuffaceous andesite and dacitic lapilli tuff which are all cut by lamprophyre and dacite dykes.
- (4) Several small sulfide rich, silicified zones were found on the claims. Rock geochemistry indicates that some of these silicified areas have slightly anomalous gold content ranging up to 1860 ppb gold.
- (5) A program of 24 rock and 100 soil samples were collected and analyzed for Au, As and occasionally Sb. Geological mapping was hampered by a relative lack of exposure within the central portion of the claims. Eleven thin sections were cut to provide a more accurate definition of major lithology types.
- (6) Several silicified zones should be sampled by drilling and blasting. Detail geological mapping is required on a scale of 1:500 around the largest silicified areas. New rock cuts made as a result of logging road construction should be examined in future work.
- (7) Assessment work in 1979-1980 totals \$6,538. A PAC Account withdrawal of \$1462 has been requested to aggregate \$8000 for two years credit on all claims in the TAR GROUP.

## INTRODUCTION

Four 2-post claims were located on eastern Lyell Island to cover several small, sulfide rich, silicified zones hosted by altered Masset Formation feldspar porphyry in July 1979 containing slightly anomalous gold content ranging up to 1860 ppb gold. A larger area was staked in 1980 around the original four claims and a program of limited geological mapping and soil sampling undertaken.

Except for the shoreline, outcrop within the area is sparse. A logging road is presently being constructed south through the middle of T-One and T-Two claims and should provide new exposures. The large creek immediately north of the map area is locally known as Gate Creek from the 1924 era of logging by T. A. Kelley Company. The present operator, Frank Beban Logging under contract to Rayonier Canada is harvesting along the northern portion of the valley. Once the question of the "Windy Bay Ecological Reserve" is settled, Rayonier hopes to extend the Gate Creek road to the north.

Selective logging on Lyell Island was initiated during the period 1914-1917 for aeroplane spruce. Larger scale logging was conducted between 1920 and 1940 by "A" frame methods mainly in the sheltered areas of Sedgwick Bay, Beresford Inlet and Atli Inlet.

No previous property work is known to have been done in the general vicinity of the Tar Group, however considerable attention has been given to Lyell Island in the past especially around Beljay Bay. A copper-magnetite showing in Lyell Bay was drilled by Falconbridge in 1956 with no subsequent followup. Some old gold showings are rumoured to be located along Beresford Inlet. Recently, the entire west half of Lyell Island has been staked by over 300 units and property work is being actively carried out by two companies in 1980.



LOUISE  
TFL 39 BK 6E  
LAND

LASKEEK BAY

QUEEN

FLATFISH BANK

TAR GROUP

LYELL  
TFL 24 BK 3

TAR CLAIMS



CHARLOTT

J. C. STEPHEN EXPLORATIONS LTD  
B.C. GOLD SYNDICATE  
LOCATION MAP TAR CLAIMS

0 5000 10000 meters  
SCALE 1:250,000

NTS 103 B/11W  
DATE: AUGUST 29/80

FIGURE 1

*March  
September 80*

PROPERTY - List of Claims

The following table lists the record data concerning the Tar Group as illustrated on Figure 2:

TABLE I  
TAR GROUP, LIST OF CLAIMS

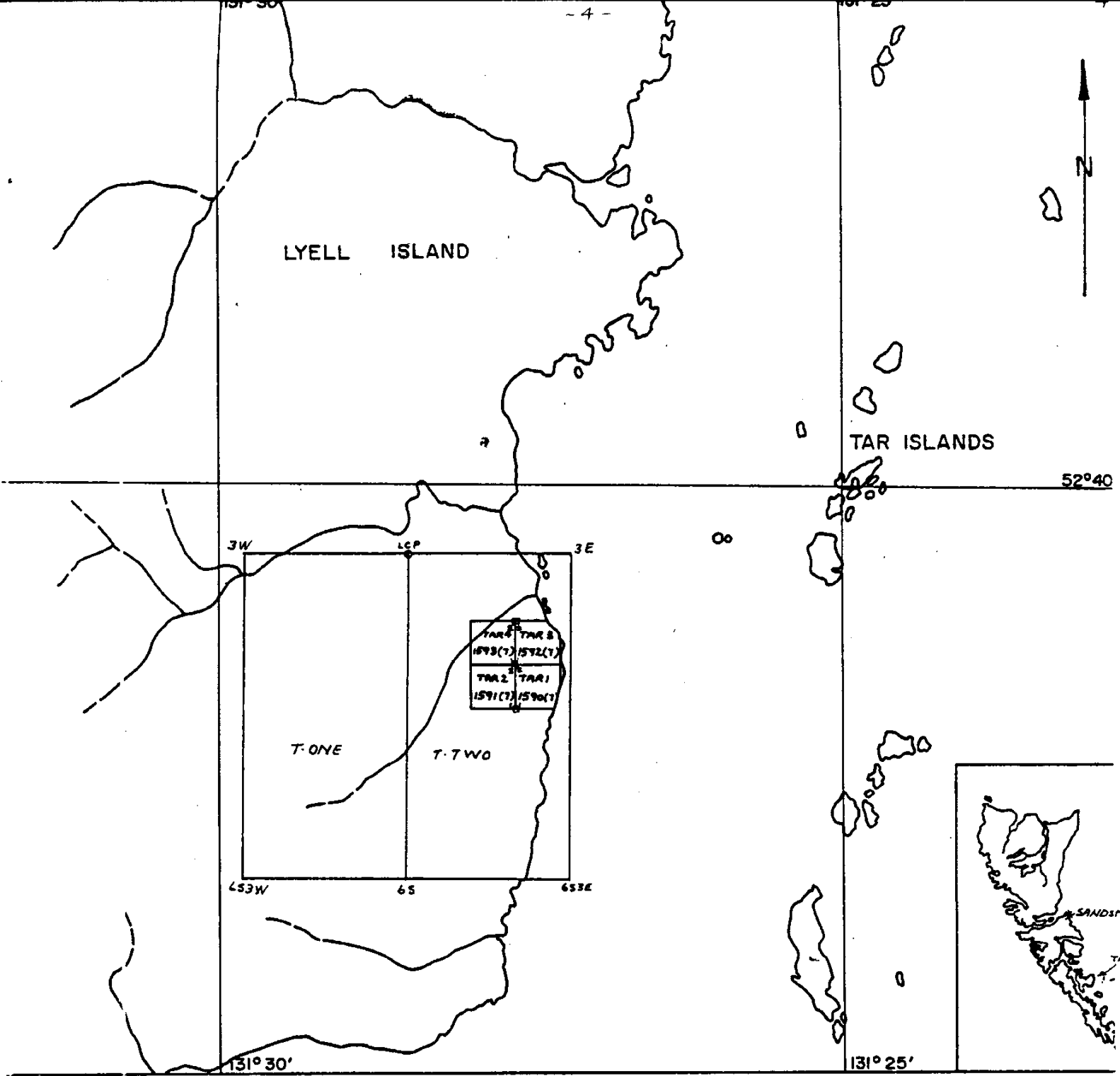
| <u>CLAIM NAME</u> | <u>NO. OF UNITS</u> | <u>RECORD NUMBER</u> | <u>DATE OF LOCATION</u> | <u>DATE OF RECORDING</u> | <u>EXPIRY DATE</u> |
|-------------------|---------------------|----------------------|-------------------------|--------------------------|--------------------|
| TAR 1             | 1                   | 1590(7)              | June 28 1979            | July 26 1979             | July 26 1982       |
| TAR 2             | 1                   | 1591(7)              | June 28 1979            | July 26 1979             | July 26 1982       |
| TAR 3             | 1                   | 1592(7)              | June 28 1979            | July 26 1979             | July 26 1982       |
| TAR 4             | 1                   | 1593(7)              | June 28 1979            | July 26 1979             | July 26 1982       |
| T-ONE             | 18                  | 2461(7)              | July 4 1980             | July 28 1980             | July 28 1983       |
| T-TWO             | 18                  | 2462(7)              | July 4 1980             | July 28 1980             | July 28 1983       |

LOCATION AND ACCESS

The TAR GROUP is located on the east side of Lyell Island, west of the Tar Islands as shown on Figures 1 and 2. The mouth of Gate Creek is 69 km southeast of Sandspit. Casual charter of fixed wing aircraft or helicopter can be made in Sandspit. Daily scheduled jet flights operate between Vancouver and Sandspit airport. A new extension of the "S" mainline logging road from Lyell Camp (Frank Beban Logging) in Powrivco Bay is presently just north of the claims and should be constructed south into the vicinity of 3S during 1980-1981.

An open forest of large spruce, cedar and hemlock characterize the map area. Old logging is confined to the northern boundary of T-ONE and T-TWO.

The South Moresby Wilderness Proposal ironically includes all of Lyell Island and a study committee is presently working on formulating recommendations for government consideration.



SCALE 1:50,000



J. C. STEPHEN EXPLORATIONS LTD.

B. C. GOLD SYNDICATE  
 TAR ISLANDS  
 LOCATION MAP

*J. C. Stephen  
 Sept 4/80*

N.T.S. 103B / 11W, 12 E  
 DATE: AUGUST, 1980

FIGURE 2



## FIELD PROCEDURES

Claim lines were run with a Silva compass and roughly measured for slope corrections using a suunto clinometer and a Topolite Belt Chain calibrated in meters for which the manufacturer gives a 0.1% accuracy. Claim lines were marked by many blazes and red flagging. The only significant departure from the true perimeter boundary was at 3W 2S where the line is offset 50 meters as shown on Figures 4 and 5.

Three soil lines were established 100 m apart on the Tar 2 post claims. Samples were taken every 30 m. A grubhoe was used to sample the B horizon which varied from a few cm to about 50 cm in depth. Soil development is generally relatively thin except in the small swampy areas where the organic layer is over 1 m thick. Many soil samples were collected in a reconnaissance fashion over the entire property. A standard soil data sheet was 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 waterproof kraft bags and sent to Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, B.C. Analytical procedures are outlined in Appendix IV.

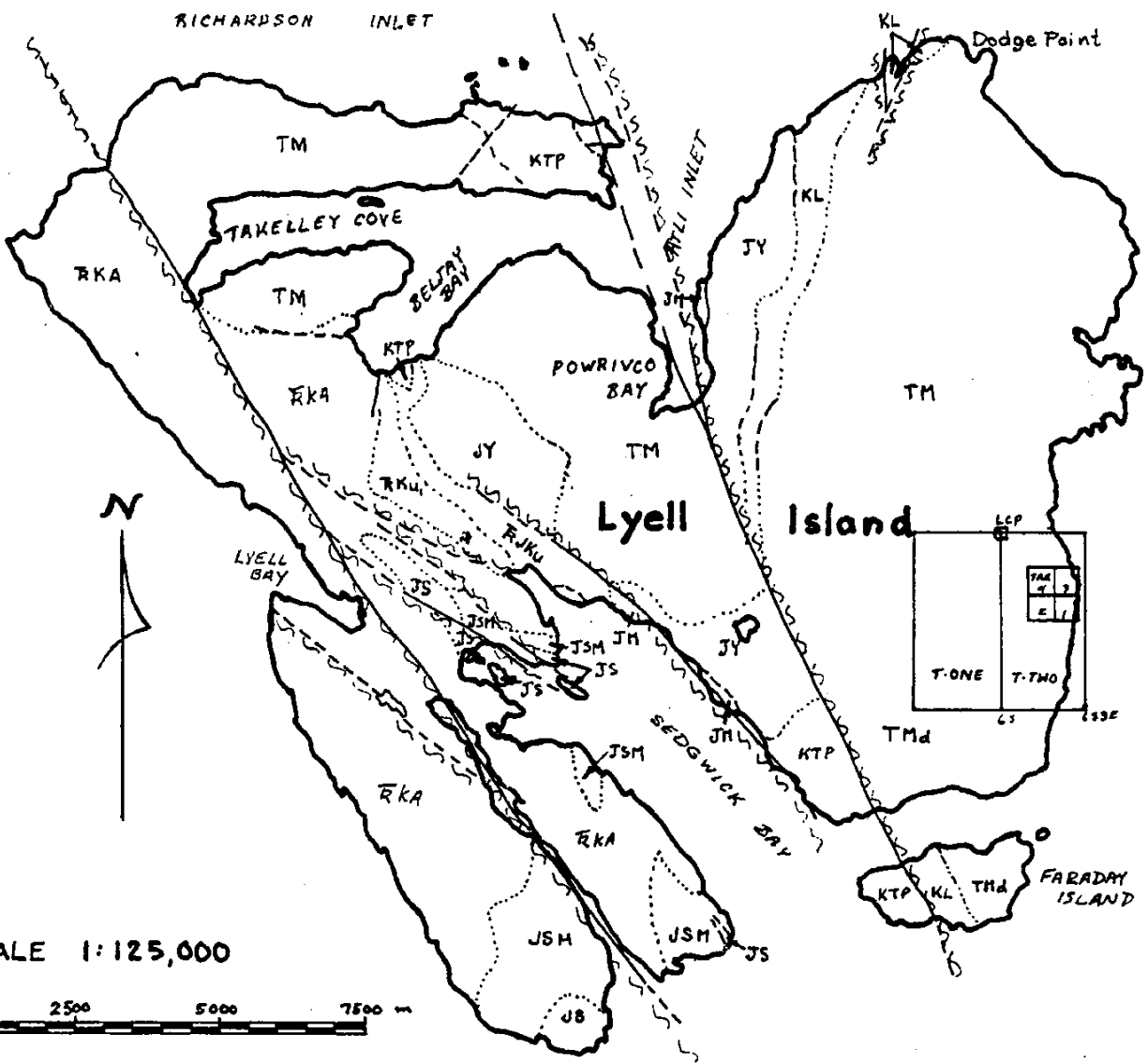
Rock samples were usually collected as continuous chips over short intervals.

All traverses for geological mapping used Hip Chain measurements for control. Airphotos from Rayonier Canada Ltd. were useful for work along the shoreline.

## GEOLOGY

### (A) REGIONAL GEOLOGY

Regional geology of the Queen Charlotte Islands has been compiled by A. Sutherland-Brown (1968) on a scale of 1:125,000. Figure 3 shows the general geological features of Lyell Island. Several rock assemblages are juxtaposed by a number of major splays in the Louseoone Inlet - Rennel Sound fault system. Four post-tectonic granitic plutons are localized along the eastern portions. Karmutsen Formation massive to amygdaloidal basalts and derived "greenstones" are exposed between Darwin Sound and Sedgwick Bay. Syntectonic granitoid rocks occur within the Karmutsen Formation and large areas of migmatite have developed.



SCALE 1:125,000



LEGEND

GEOLOGY MODIFIED FROM SUTHERLAND BROWN (1968)

PALEOCENE - EOCENE ?

**TM** MASSET FORMATION - Basalt flows, breccias undivided  
 - Rhyolite ashflows, dacite.

TMd - feldspar porphyry

CRETACEOUS

**KTP** POST TECTONIC PLUTONS

**KL** LONGARM FORMATION - Sandstone, shale

JURASSIC

**JY** YAKOUN FORMATION - Andesite agglomerate - lapilli tuff

**JM** MAUDE FORMATION - Grey blocky argillite

JURASSIC + TRIASSIC

**JJKU** KUNGA FORMATION - Massive grey lmsf. undivided  
 - Flaggy black lmsf  
 - Flaggy black argillite

**RKU** KUNGA FORMATION - massive grey lmsf. divided

TRIASSIC

**RKA** KARMUTSEN FORMATION - Basalt greenstone

JURASSIC ?

**JS** SYNTECTONIC PLUTONS  
 - Hornblende diorite  
 - quartz diorite

**JSM** MIGMATITE - Hornblende diorite and Amphibolite

FAULT  
 GEOLOGICAL BOUNDARY

J.C. STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE  
 TAR GROUP  
 REGIONAL GEOLOGY

DATE: AUG 31, 1980  
 DRAWN BY: K.S., J.S.  
 NTS 103 B/11W, 12E

FIGURE 3

*Handwritten signature and date:*  
 J.C. Stephen  
 August 31, 1980

East of Sedgwick Bay, a thick sequence of Kunga Formation massive grey limestone, thin bedded black limestone and thin bedded argillite are overlain by Maude Formation argillite and Yakoun Formation volcanics and pyroclastics. Coarse trough sediments are found on top of the Yakoun Formation east of Powrivco Bay toward Dodge Point and have been assigned to the Longarm Formation.

The entire east coast and some of the north central portion of Lyell Island is underlain by a complex group of Tertiary volcanics and high level intrusives grouped within the Masset Formation. These rocks are discussed in detail in the next section under Local Geology. Sutherland-Brown (1966) indicates several eruption centers for Masset Formation volcanics along the east coast of Lyell Island.

Off the west coast of the Queen Charlotte Islands the segment of the Pacific Plate boundary forms a deep trough called the Queen Charlotte Fault. Related earthquakes make the Islands the most highly seismic area in Canada.

(B) LOCAL GEOLOGY

Detail geological mapping was undertaken by J. Pautler and A. Heagy in 1980. Preliminary work was done in 1979 by B. Atkinson and J. Shearer. Map units are listed in Table II and their distribution shown on Figure 4 (in pocket).

TABLE II

MAP UNITS, TAR GROUP

MASSET FORMATION

| <u>Symbol</u> | <u>Rock unit</u>          | <u>Description</u>  |
|---------------|---------------------------|---|
| f             | Lamprophyre dykes ;       | fine grained, dark, often porphyritic dark weathering.        |
| e             | Andesite, Andesite Tuff ; | aphanitic to fine grained, grey to green, commonly chloritic. |

MASSET FORMATION

| <u>Symbol</u> | <u>Rock unit</u>  | <u>Description</u>   |
|---------------|-------------------|--|
| d             | Lapilli Tuff      | ; dacitic composition, small fragments to glass shards, light green, light weathering.   |
| c             | Agglomerate       | ; dacitic, fragments 3 to 10 cm, light green, light weathering   |
| b             | Feldspar Porphyry | ; white plagioclase phenocrysts in fine grained to aphanitic, dacitic matrix, variable weathering patterns, can contain fragments. |
| a             | Dacite            | ; aphanitic, light blue-green, light weathering.   |

Feldspar porphyry is the most common rock type on the property. Its composition is variable but generally consists of poorly define white plagioclase phenocrysts in an aphanitic to medium grained dacitic matrix. The porphyry varies from sparse to crowded and, in some cases, the plagioclase phenocrysts have been altered to clay minerals and sericite. Hornblende phenocrysts are locally abundant. Pyrite is a common accessory and pyrrhotite often is present up to several percent. Rounded fragments of post-tectonic intrusive rocks were noted in several localities within the feldspar porphyry and agglomerate.

The feldspar porphyry grades into an agglomerate which is dacitic in composition and contains subangular to rounded clasts that make up 60% to 80% of the total volume. Minor flow banding, striking southeast was noted in the agglomerate. Aphanitic, light weathering dacite appears to interfinger with the feldspar porphyry and agglomerate.

A lapilli tuff was found in the higher elevations on the western part of the

property containing small 1 cm fragments. A direct stratigraphic position could not be established.

Lamprophyre and andesite dykes cut all other map units. The andesite is generally tuffaceous, chloritic, fine grained and displays irregular contacts. Banding oriented north-south was observed in an andesite dyke that is exposed along the shoreline. Lamprophyre dykes are fine grained, dark coloured with dark weathering. The areas mapped as basaltic tuff in 1979 are probably lamprophyre dykes.

The overall lack of exposure on the claims, except for the shoreline, does not lend itself to the determination of relationships between the map units. Future work should concentrate on detail mapping around the silicified zones on the shoreline and location of new rock cuts uncovered by road construction.

A suite of eleven thin sections were cut and petrographic notes are contained in Appendix V. Location of thin section specimens are shown on Figure 4 (in pocket). Microscopic features reveal an intensity of sericite alteration not readily apparent in hand specimens. The feldspar porphyry could be divided into several sub units if required for future work.

## GEOCHEMISTRY

### (A) SOIL SAMPLING

The location and results of soil sampling on the TAR GROUP are illustrated on Figure 5 (in pocket). A total of 100 soils were collected mainly on three lines 100 m apart on the Tar two post claims with others taken in a reconnaissance fashion throughout the rest of the property. Some of the samples taken in 1979 are also plotted on Figure 5 although they are not included in the statement of cost calculation.

Without exception, the soil results for gold are less than 20 ppb Au. No significant values in gold are indicated by the survey, taking into consideration analytical reproducibility a gold value of more than 40 ppb Au would be needed to have an anomalous designation.

A histogram of arsenic results is contained in Appendix IV. The distribution has a simple one population shape and a threshold of approximately 60 ppm. The highest detection limit of present work is 500 ppm As. In all cases the anomalous arsenic samples correspond to low gold values. However, high arsenic soil content may reflect a wider, more mobile indication of the gold bearing silicified zones. More sampling, and perhaps soil profiles are required to establish a definite relationship between gold and arsenic in soils.

#### (B) ROCK GEOCHEMISTRY

Location and analytical results for rock geochemistry are shown on both Figures 4 and 5 (in pocket). Samples taken in 1979, as illustrated on Figure 6, range from 10 ppb to 1860 ppb gold. Several additional altered, pyritic, silicified zones were located during 1980 work. On the southeast corner of Tar 1, two specimens returned values of 660 ppb and 560 ppb gold. The remaining rock samples gave results of less than 10 ppb Au. High arsenic content of rocks corresponds to anomalous gold values.

Numerous shatter and shear zones were observed throughout the claims. Calcite veins are abundant in these areas. Pyrite, and to a lesser extent pyrrhotite, are very common in the feldspar porphyry and dacite. Minor pyrite also occurs in the other units. Arsenopyrite was noted in parts of the porphyry, dacite and lapilli tuff. Pyritic zones along the shoreline may be spatially associated with the margins of a prominent north-south trending andesite dyke.

#### CONCLUSIONS AND RECOMMENDATIONS

The TAR GROUP was located to cover several, small, sulfide rich, silicified zones carrying anomalous gold content ranging up to 1860 ppb gold.

A limited program of geological mapping, soil sampling and rock geochemistry was undertaken in 1980. Several new areas of interest were delineated by the present work. Geological mapping was hampered by a lack of exposure inland from the rocky coastline. Soil results did not show any anomalous gold zones, however high arsenic may indicate areas that warrant follow up work. Soil profiles are needed to establish the relationship between higher As and gold.

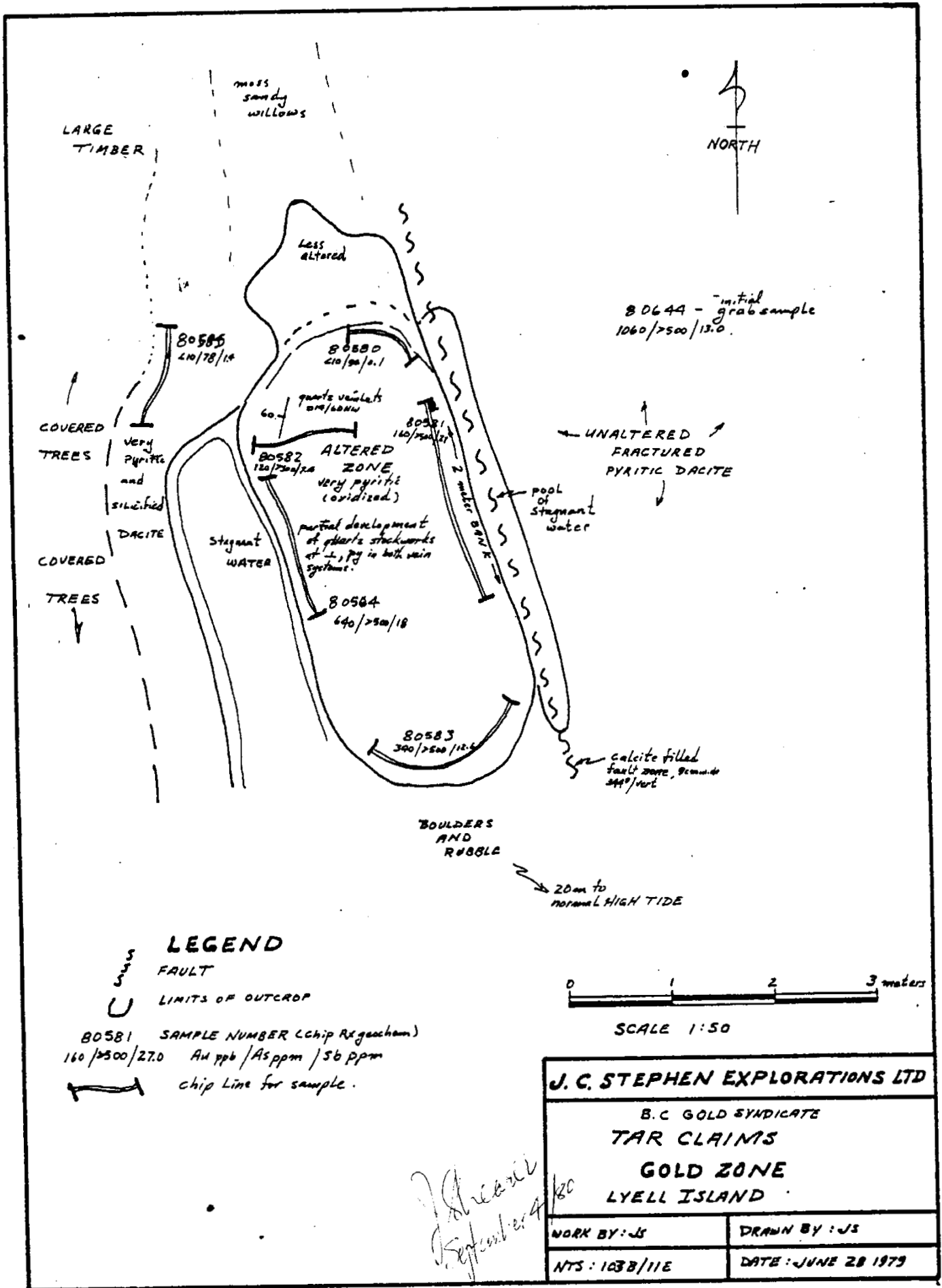
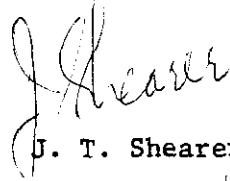


FIGURE 6

Channel sampling of the known silicified zones should be done by trenching. Detail geological mapping is required on a scale of 1:500 around the largest silicified areas. Examination of new rock cuts made as a result of logging road construction will be an important part of future work.

Assessment work in the first year, 1979-1980, totals \$6,538. A PAC Account withdrawal of \$1,462 has been requested to aggregate \$8,000 for applying two years credit on all claims in the TAR GROUP.

Respectfully submitted,



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

September 4 / 1980



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APPENDIX I

LIST OF PERSONNEL AND DATES WORKED

APPENDIX I

LIST OF PERSONNEL AND DATES WORKED

|                 |  |  |               |
|-----------------|--|--|---------------|
| J. T. Shearer   | Geologist  | R.R. #1 Mason Ave.<br>Port Coquitlam, B.C. | July 14-18/80 |
| J. M. Pautler   | Geologist<br>B. Sc.1980 Laurentian<br>3 summers experience     | 539 Moore St.<br>Cambridge, Ontario        | July 11-18/80 |
| A. E. Heagy     | Student<br>3rd year Geology,<br>Queens<br>2 summers experience | 1037 Brough St.<br>London, Ontario         | July 11-18/80 |
| S. E. Angus     | Prospector<br>4 years experience                               | 12474 Crescent Rd.<br>Surrey, B.C.         | July 5-11/80  |
| K. H. Stauffert | Student, soil<br>sampler<br>2 summers experience               | 256 Santy Bay Rd.<br>Barrie, Ontario       | July 6-11/80  |

APPENDIX II

STATEMENT OF COSTS

TABLE II  
STATEMENT OF COSTS  
TAR CLAIMS

FIELD TIME: July 5 to July 18th 1980

WAGES AND FRINGE BENEFITS

|                 |                        |               |            |
|-----------------|------------------------|---------------|------------|
| J. T. Shearer   | 5 days @ 84.33 per day | 421.65        |            |
| J. M. Pautler   | 8 days @ 72.56 per day | 580.48        |            |
| S. E. Angus     | 7 days @ 70.37 per day | 492.59        |            |
| A. E. Heagy     | 8 days @ 65.15 per day | 521.20        |            |
| K. H. Stauffert | 6 days @ 60.93 per day | <u>365.58</u> |            |
|                 | Total 34 man days      |               | \$2,381.50 |

FOOD AND CAMP SUPPLIES

|                             |               |        |
|-----------------------------|---------------|--------|
| 31 man days @ 12.00 per man | 360.00        |        |
| Food, iosol, kerosene       |               |        |
| Tent rental                 | 100.00        |        |
| Expiditing                  | 250.00        |        |
| Radio rental                | <u>174.50</u> |        |
|                             |               | 884.50 |

TRANSPORTATION

|   |                              |               |          |
|---|------------------------------|---------------|----------|
| Mob & de Mob                                | Vancouver Island Helicopters |               |          |
|   | 3.1 hours @ 390 per hr       | 1,085.00      |          |
| Fixed Wing -Transprovincial - 1 Beaver trip |                              | <u>210.00</u> |          |
|   |                              |               | 1,295.00 |

GEOCHEMISTRY

|                               |  |               |                 |
|-------------------------------|--|---------------|-----------------|
| Rock samples                  | 24 samples @ 8.75 per sample<br>certificate no.  | 210.00        |                 |
| Soil samples                  | 100 samples @ 7.75 per sample<br>certificate no. | 775.00        |                 |
| Sample shipments via PWA      |  | 42.00         |                 |
| Reproduction and Drafting     |  | 450.00        |                 |
| Report Preparation and Typing |  | <u>500.00</u> |                 |
|                               |  |               | <u>1,977.00</u> |

TOTAL

\$6,538.00

STATEMENT OF COSTS -continued      forward      \$6,538.00

| <u>Assessment</u> | <u>Due Date</u> | <u>Withdrawal Request</u> |                 |
|-------------------|-----------------|---------------------------|-----------------|
| 1styear - 4,000   | 1981            | From PAC Account          |                 |
|                   |                 | + 22.4%                   | <u>1,462.00</u> |
| 2ndyear - 4,000   | 1982            |                           | \$8,000.00      |

APPENDIX III

STATEMENT OF QUALIFICATIONS

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

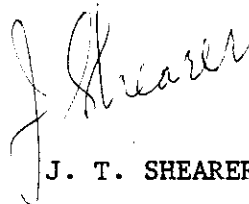
APPENDIX III

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 Tar Group between July 5 and 18, 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.

September 4 1980



APPENDIX IV

ANALYTICAL PROCEDURE

CHEMEX LABS LTD.

212 Brooksbank Avenue  
North Vancouver, B. C.

Hart Bickle, Chief Geochemist  
and  
Arsenic Histogram

## APPENDIX IV

FEB./80

Joe Shearer - J. C. Stephen Expl.

GEOCHEM PROCEDURES

PPM Antimony: a 1.0 gm sample digested with conc. HCl in hot water bath. The iron is reduced to Fe<sup>+2</sup> state and the Sb complexed with I<sup>-</sup>. 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 NaBH<sub>4</sub> 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<sup>-</sup>, 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.

SOIL ARSENIC VALUES vs FREQUENCY

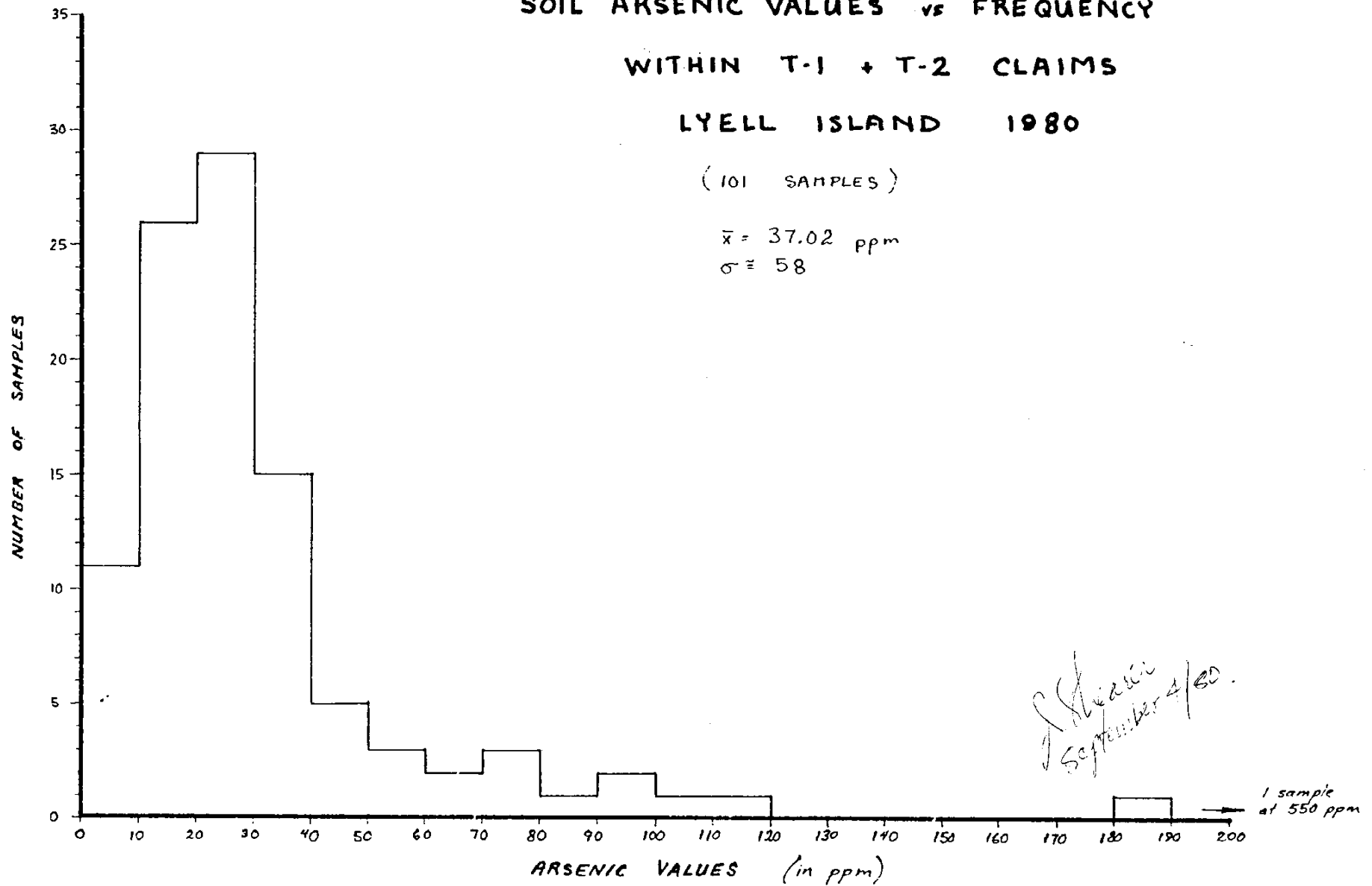
WITHIN T-1 + T-2 CLAIMS

LYELL ISLAND 1980

(101 SAMPLES)

$\bar{x} = 37.02$  ppm

$\sigma = 58$



APPENDIX V

PETROGRAPHIC NOTES

TAR GROUP

J.C.STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-1

Date August 15/80 Sample Location TAR GROUP near 6S 2E

Submitted by: J. S.

Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>                         |
|-------------------------------|---------------------|--------------------------------------|
| % MATRIX                      | 40 to 75%           | Composed of quartz and Feldspar      |
| % Fp phenos                   | 25 - 30%            | very intense development of sericite |
| % calcite                     | 10 - 20%            | pseudomorphic after Hbl?             |
| % opaques                     | .5 %                | small cubes                          |
| % chlorite                    | 1 %                 |                                      |
| %                             | %                   |                                      |
| %                             | %                   |                                      |
| %                             | %                   |                                      |

Field Name Feldspar Porphyry Original Rock Feldspar Porphyry

Alteration: HAND SPECIMEN: light brown weathering, very fine grained matrix with 1 mm feldspar phenocrysts.

MICRO: Light grey-clear, feldspar phenos are very ragged with intense development of sericite, large patches of calcite probably pseudomorphic after hornblende but also replacing Fp., abundant quartz in matrix, rinds around calcite areas, one chlorite ball associated with calcite alteration, matrix 0.06 mm, pheno up to 2 mm.

REFERENCE: JS 1980 notebook 1, page 64

J.C.STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-2

Date August 15/80 Sample Location TAR GROUP near 6S 2E, 4m east of T-1

Submitted by: J. S.

Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>                         |
|-------------------------------|---------------------|--------------------------------------|
| % Phenos                      | 30 %                | <u>sericite alteration</u>           |
| % Matrix                      | 60 %                | <u>qtz and aphanitic ground mass</u> |
| % Hbl                         | 5 %                 | <u>sericite, totally altered</u>     |
| % Opaques                     | 3 %                 | <u>very finely xline.</u>            |
| % _____                       | %                   | <u>_____</u>                         |
| % _____                       | %                   | <u>_____</u>                         |
| % _____                       | %                   | <u>_____</u>                         |

Field Name Fp porphyry dyke Original Rock Andesite dyke

Alteration: HAND SPECIMEN: light green, porphyritic, slightly rusty weathering, narrow dyke.

MICRO: euhedral, altered Fp phenos up to 0.8 mm

long, matrix microporphyritic with qtz 0.03 mm in, dark aphanitic ground mass, very finely divided, Two generations of Fp phenos, one much more altered and larger.

REFERENCE: J.S. 1980 notebook 1, page 64

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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-3

Date August 15/80 Sample Location Tar Group, 2 m east of T-2

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>                        |
|---------------------------------------|-------------------------|-------------------------------------|
| % <u>Phenos</u>                       | 40 %                    | <u>Feldspar, intense sericite</u>   |
| % <u>Matrix</u>                       | 35 %                    | <u>----- fairly crs up to .1 mm</u> |
| % <u>Muscovite</u>                    | 10 %                    | <u>----- crs xLine</u>              |
| % <u>Chlorite</u>                     | 15 %                    | <u>----- felted</u>                 |
| % <u>Opagues</u>                      | tr. %                   | <u>-----</u>                        |
| % <u>      </u>                       | %                       | <u>-----</u>                        |
| % <u>      </u>                       | %                       | <u>-----</u>                        |

Field Name dark Feldspar Porphyry Original Rock Feldspar porphyry

Alteration: HAND SPECIMEN: slightly shattered,

MICRO: Phenocrysts up to 2.5 mm long, albite twins preserved,  
pronounced rinds around crs muscovite patches, irregular chlorite  
alteration, matrix also has relatively large amount of sericite  
development.

REFERENCE: JS 1980 notebook 1, page 64

**PETROGRAPHIC ANALYSIS**

SAMPLE NUMBER T-4  
 Date August 15/80 Sample Location Tar Group, east shoreline  
 Submitted by: J.S. Petrographer J. Shearer

| Probable Original Mode |          | Present Mode |   | Notes                                  |
|------------------------|----------|--------------|---|--|
| %                      | Phenos   | 35           | % | Feldspar,                              |
| %                      | Hbl      | 5            | % | ----- totally altered to crs muscovite |
| %                      | Chlorite | 5            | % | ----- irregular masses                 |
| %                      | Matrix   | 45           | % | ----- quartz and Fp                    |
| %                      | opaques  | tr           | % | -----                                  |
| %                      |          |              | % | -----                                  |
| %                      |          |              | % | -----                                  |

Field Name Pyritic Feldspar porphyry Original Rock \_\_\_\_\_

Alteration: HAND SPECIMEN: Rusty weathering, porphyritic, well fractured

MICRO: Feldspar phenocrysts up to 3.5 mm long, moderate development of sericite, Hornblende phenos altered to muscovite, Fp twins preserved, some K-spar as phenos. Hbl may be very early and partly digested before alteration some Fp phenos rounded, zoned phenos

REFERENCE: JS 1980 note book 1, page 65



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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-5

Date August 15/80 Sample Location Tar Group, east shoreline

Submitted by: J. S. Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>        |
|-------------------------------|---------------------|---------------------|
| % Plagioclase                 | 45% - 40%           | unaltered           |
| % Augite                      | 10%                 | low bire, some blue |
| % Quartz                      | 40%                 | small grains        |
| % Opaques                     | 5%                  | irregular           |
| % Chlorite                    | 5%                  |                     |
| %                             | %                   |                     |
| %                             | %                   |                     |

Field Name Andesite dyke Original Rock Andesite

Alteration: HAND SPECIMEN: well banded in lower parts, less so in upper, 3.5 m thick, 337°/56° East, green weathering.

MICRO: crowded feldspar lathes averaging 0.8 mm long,

opaques occupying interstitial position, some large late stage

patches of augite, usually augite as small rounded anhedral grains

between plag., quartz interstitial.

REFERENCE: JS 1980 notebook 1 page 65

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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-6

Date August 15/80 Sample Location Tar Group, east shoreline

Submitted by: J.S. Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>                          |
|-------------------------------|---------------------|---------------------------------------|
| % <u>Phenos</u>               | 30-% 40             | <u>Plagioclase, sericite abundant</u> |
| % <u>Calcite</u>              | 10 %                | <u>-----</u>                          |
| % <u>Augite</u>               | tr %                | <u>-----</u>                          |
| % <u>Matrix</u>               | 35-% 50             | <u>-----</u>                          |
| % <u>-----</u>                | %                   | <u>-----</u>                          |
| % <u>-----</u>                | %                   | <u>-----</u>                          |
| % <u>-----</u>                | %                   | <u>-----</u>                          |

Field Name dacite Original Rock tuffaceous dacite

Alteration: HAND SPECIMEN: light brown weathering, speckled,  
mafic phenocrysts

MICRO: dark matrix, aphanitic large phenocrysts up to  
1.6 mm long, some broken phenos(?), calcite in irregular patches  
replacing plagioclase phenocrysts

REFERENCE: JS 1980 notebook page 65

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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-7

Date August 15/80 Sample Location Tar Group, 10 m south of 1060 ppb gold showing

Submitted by: J. S.

Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>                    |
|-------------------------------|---------------------|---------------------------------|
| % <u>Plagioclase</u>          | 25% -35             | <u>some zoned, fairly fresh</u> |
| % <u>Quartz</u>               | 45%                 | <u>interstitial</u>             |
| % <u>Myrmekite</u>            | 10%                 | <u>halos around Plag</u>        |
| % <u>Sericite</u>             | 10% -20             |                                 |
| % <u>Opagues</u>              | tr%                 |                                 |
| % <u>Calcite</u>              | tr%                 |                                 |
| % _____                       | %                   |                                 |

Field Name Crs diorite (part of dyke) Original Rock quartz diorite

Alteration: HAND SPECIMEN: coarse crystalline, dark green, micro fractures, pitted weathered surface

MICRO: very coarse crystalline, plagioclase up to 4 mm long, quartz in large anbedral grains, Myrmekite prominant as halos around large plag Xls., trace of calcite replacing quartz

REFERENCE: JS 1980 notebook 1, page 65

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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-8

Date August 15/80 Sample Location Tar Group, east shoreline, 2 m east of T-7

Submitted by: J. S.

Petrographer J. Shearer

| Probable Original Mode |                | Present Mode |   | Notes                   |
|------------------------|----------------|--------------|---|-------------------------|
| %                      | <u>Plag</u>    | 40           | % | <u>intense sericite</u> |
| %                      | <u>Matrix</u>  | 60           | % | <u>aphanitic</u>        |
| %                      | <u>Opagues</u> | tr           | % | <u></u>                 |
| %                      | <u></u>        |              | % | <u></u>                 |
| %                      | <u></u>        |              | % | <u></u>                 |
| %                      | <u></u>        |              | % | <u></u>                 |
| %                      | <u></u>        |              | % | <u></u>                 |

Field Name altered Fp porphyry Original Rock

Alteration: HAND SPECIMEN: rusty weathering, sulfide fracture fillings

MICRO: relatively fine crystalline, crowded plagioclase rich, intense sericite, most plag relict outlines up to 1 mm long, equidimensional.

REFERENCE: JS 1980 notebook page 66

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B.C. GOLD SYNDICATE

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER T-9

Date August 15/80 Sample Location Tar Group, east shoreline, 7 m directly east of 1060 ppb gold area

Submitted by: I. S. Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>   |
|-------------------------------|---------------------|--|
| % <u>Fp phenos</u>            | 15% -20             | <u>up to 2 mm long, abundant sericite + chlorite</u> |
| % <u>Matrix porph</u>         | 20%                 | <u>matrix micro porphyritic</u>                      |
| % <u>Matrix</u>               | 45%                 | <u>aphanitic matrix</u>                              |
| % <u>Augite</u>               | 15% -20             | <u></u>  |
| % <u>Opagues</u>              | tr%                 | <u></u>  |
| % <u></u>                     | %                   | <u></u>  |
| % <u></u>                     | %                   | <u></u>  |

Field Name Andesite Original Rock Andesite

Alteration: HAND SPECIMEN: dark green, porphyritic, narrow dyke, dark weathering.

MICRO: Porphyritic, large plagioclase xls up to 2 mm, matrix is microporphyritic with thin plag lathes up to 3 mm long, rest of matrix aphanitic, anhedral augite xls with occassional euhedral grain, sericite + chlorite very common in large Fp phenos. some phenos zoned, one large 2.5 mm patch of opaques.

REFERENCE: I.S. 1980 notebook 1 page 66

B.C. GOLD SYNDICATE

**PETROGRAPHIC ANALYSIS**

SAMPLE NUMBER JPT-1

Date August 15/80 Sample Location Tar Group, 1W2S

Submitted by: J.P.

Petrographer J. Shearer

| <u>Probable<br/>Original<br/>Mode</u> | <u>Present<br/>Mode</u> | <u>Notes</u>                       |
|---------------------------------------|-------------------------|------------------------------------|
| % Phenos                              | 25 %-30                 |                                    |
| % Matrix                              | 60 % 65                 | ----- aphanitic                    |
| % Chlorite                            | 5 %                     | ----- replacing some mafic mineral |
| % Opaques                             | 1 %                     | -----                              |
| % _____                               | %                       | -----                              |
| % _____                               | %                       | -----                              |
| % _____                               | %                       | -----                              |

Field Name Feldspar Porphyry Original Rock Feldspar porphyry

Alteration: HAND SPECIMEN: dark, altered porphyry, rusty weathering,  
well fractured

MICRO: Large almost completely sericitized plagioclase  
phenocrysts, floating in aphanitic matrix opaques in well formed  
cubes, many inclusions in plagioclase phenocrysts.

REFERENCE: JP notebook 1980, Tar Group

PETROGRAPHIC ANALYSIS

SAMPLE NUMBER JPT-2

Date August 15/80 Sample Location Tar Group, 3W 3S

Submitted by: J.P. Petrographer J. Shearer

| <u>Probable Original Mode</u> | <u>Present Mode</u> | <u>Notes</u>           |
|-------------------------------|---------------------|------------------------|
| % Plagioclase                 | 45%                 | equidimensional        |
| % Augite                      | 20%                 | anhedral grains        |
| % Quartz                      | 35%                 | interstitial           |
| % Opaques                     | 2%                  | uniformly disseminated |
| % Calcite                     | tr%                 |                        |
| %                             | %                   |                        |
| %                             | %                   |                        |

Field Name Andesite Original Rock Andesite(basalt.)

Alteration: HAND SPECIMEN: rusty weathering, fine grained well fractured, resessive.

MICRO: uniform, equidimensional mosaic of plagioclase lathes 0.4 mm average length, quartz as irregular patches interstitial to plag, Augite as anhedral grains, calcite in rough rectangular zones.

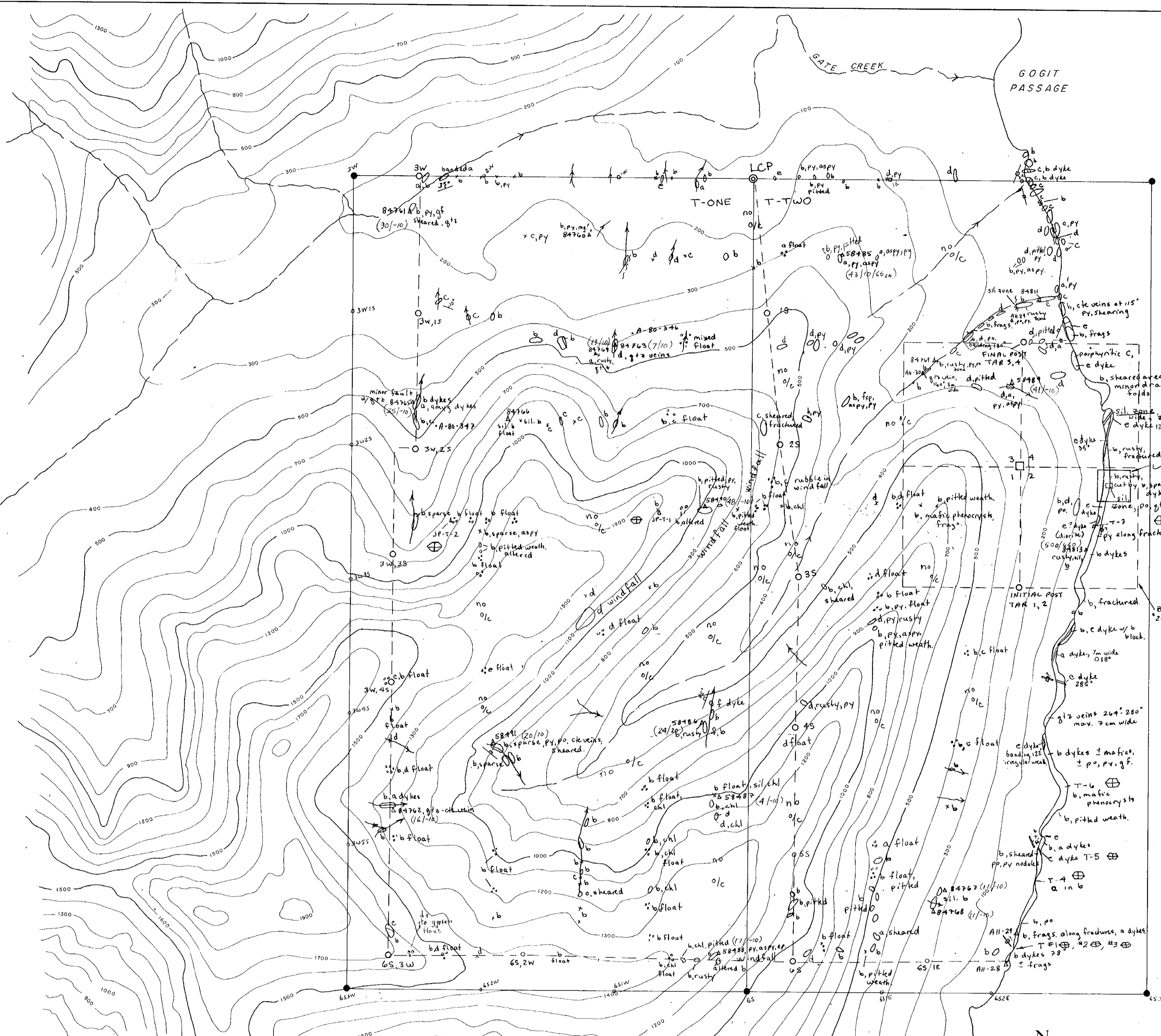
REFERENCE: JP notebook 1980, Tar Group

LEGEND:

- MASSET FORMATION:
- f lamprophyre dykes; fine-grained, dark, porphyritic, dark weathering.
  - e andesite, andesitic tuff, aphanitic to fine-grained, grey to green colour, commonly chloritic, medium weathering
  - d lapilli tuff; dacitic composition, small fragments to glass shards, light weathering, light green colour.
  - c agglomerate; dacitic, fragments 3 to 10 cm., light weathering, light green colour.
  - b feldspar porphyry; white plagioclase phenocrysts in fine-grained to aphanitic dacitic matrix, variable weathering patterns, can contain fragments.
  - a dacite; aphanitic light blue-green, light weathering.

- outcrop
- float
- x small outcrop
- ↗ strike and dip
- ↘ strike and dip of joints, fractures
- ↖ strike and dip of dykes
- fault
- △ rock specimen results in (As ppm/ Au ppb)
- 58182 creek drainage
- T-7 thin section specimen
- claim post (idealized)
- located claim post and boundary
- ⊙ LCP legal corner post
- no % large areas of no outcrop
- py pyrite
- po pschrochite
- mg magnetite
- aspy arsenopyrite
- spal sphalerite
- cte calcite
- weath weathering
- frags. fragments
- sil. silicified
- qtz. quartz
- ep. epidote
- chl chlorite

FIGURE 6



MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8353**  
NO.

J. C. STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE  
TAR CLAIMS  
LYELL ISLAND

GEOLOGY

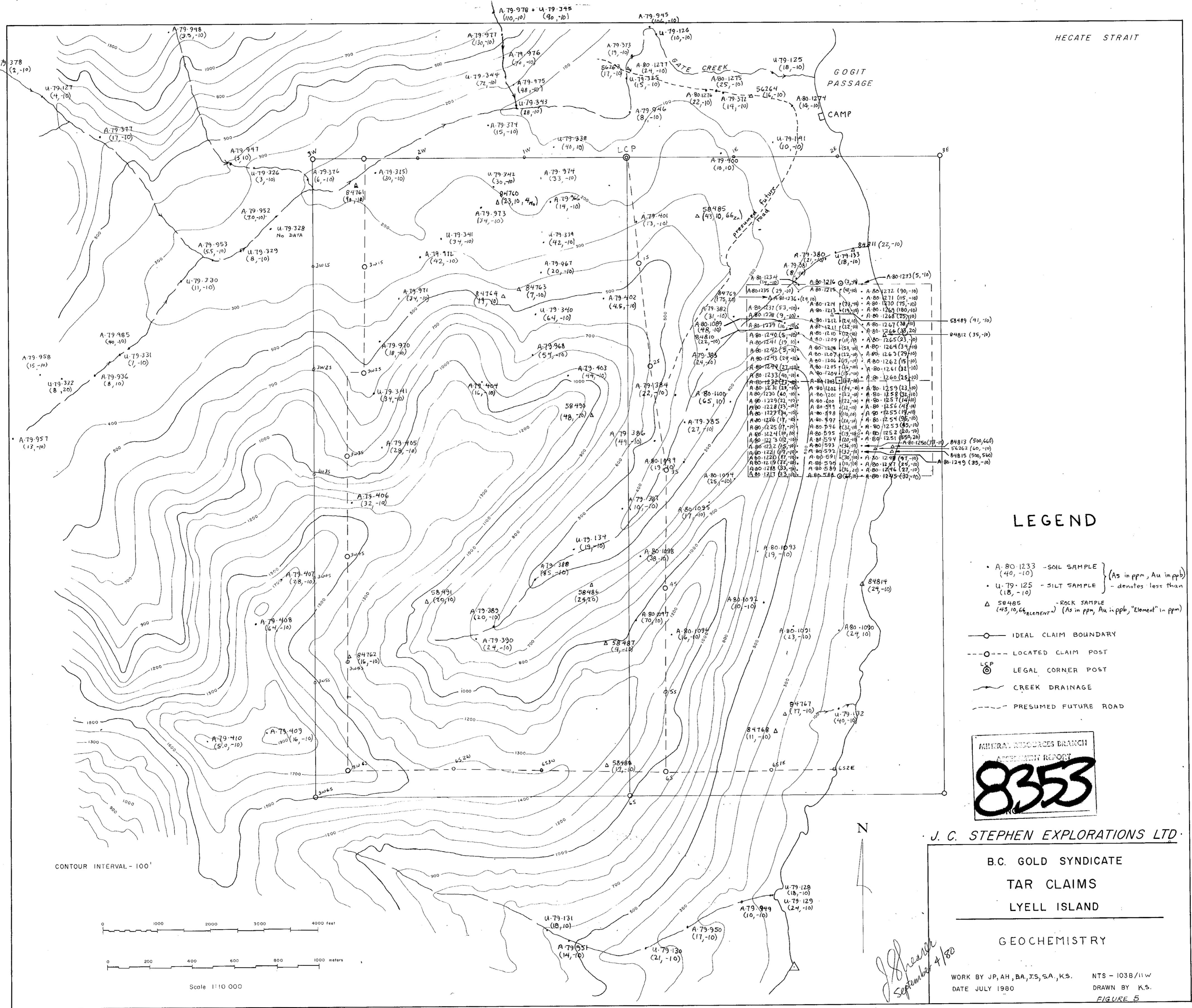
WORK BY: JP, AH, BA, JS  
DATE: JULY, 1980

NTS: 103B/11W  
DRAWN BY: JP, AH, KS.

FIGURE 4

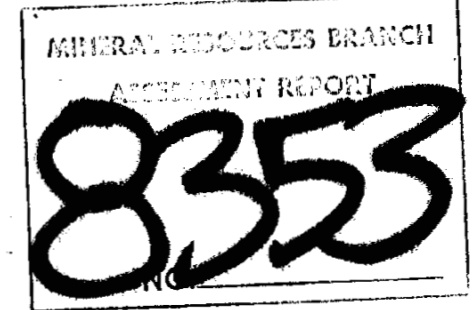
FIGURE 4





### LEGEND

- A-80-1233 - SOIL SAMPLE (40, -10) } (As in ppm, Au in ppb)
- U-79-125 - SILT SAMPLE (18, -10) } - denotes less than
- Δ 58485 - ROCK SAMPLE (43, 10, 66, Zn) } (As in ppm, Au in ppb, "Element" in ppm)
- IDEAL CLAIM BOUNDARY
- LOCATED CLAIM POST
- ⊙ LEGAL CORNER POST
- ~ CREEK DRAINAGE
- - - PRESUMED FUTURE ROAD



J. C. STEPHEN EXPLORATIONS LTD.

B.C. GOLD SYNDICATE  
TAR CLAIMS  
LYELL ISLAND  
GEOCHEMISTRY

WORK BY JP, AH, BA, JS, SA, KS. NTS - 103B/11W  
DATE JULY 1980. DRAWN BY K.S.  
FIGURE 5

*J.C. Stephen*  
September 4/80

FIGURE 5