CRESCENT CLAIM GROUP

QUEEN CHARLOTTE ISLANDS

103B/12W

AN EPITHERMAL GOLD PROSPECT

EXPLORATION SUMMARY

by

J.T. SHEARER, M.Sc.

for

J.C. STEPHEN EXPLORATIONS LTD.





# CONTENTS

			<u>Page</u>
SUMMARY			1
INTRODUCTION			4
ORE TARGET			6
EXPLORATION HISTORY			8
DIAMOND DRILL RESULT	S		10
CONCLUSIONS AND RECO	MMENDATIONS		12
RE FERENCES			13
APPENDIX I STATE	MENT OF COSTS 1979 - 1983		
APPENDIX II ESTIM	ATE OF COST FOR FUTURE EXPL	ORATION	
	LIST OF ILLUSTRATIONS		
Figure l	LOCATION MAP	1:250,000	3
Figure 2	CLAIM MAP	1:50,000	follows page 5
Figure 3	REGIONAL GEOLOGY	1:125,000	9
Figure 4	GEOLOGY OF DETAIL GRID JANUARY 1981	1:2,500	In Pocket
Table III	CRESCENT DRILLING ROCK LITHOLOGY VERSUS GOLD	CONTENT	7
Table IV	GEOCHEMICALLY ANOMALOUS DRILL INTERSECTIONS		11

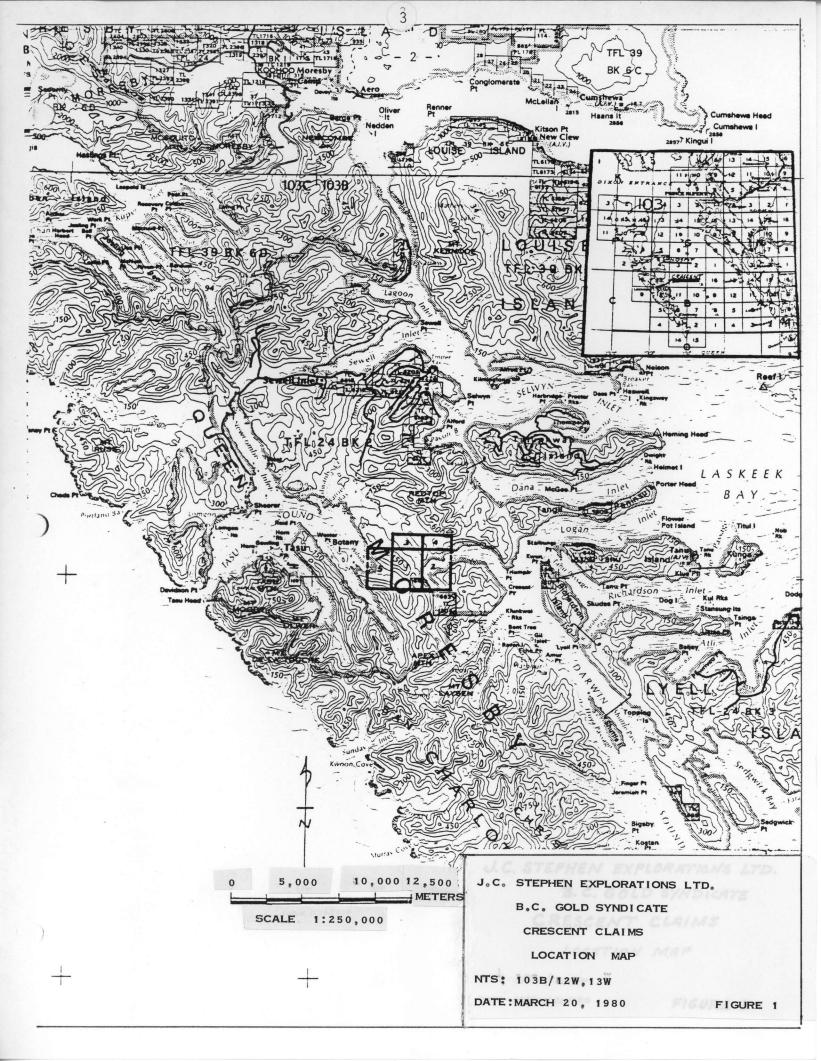
#### SUMMARY

- (1) The Crescent Claims represent a large favourable area for the occurrence of bulk tonnage gold mineralization.
- (2) The general geological setting is complex. The claims are characterized by a Tertiary mega-intrusive breccia which may be related to the lower portions of a resurgent caldera system. The gabbroic intrusive complex metamorphoses Yakoun Fm. volcanics and Kunga Fm. sediments. Related flat lying Tertiary rhyolite flows are exposed on Crescent 3 and 4. Basal Karmutsen Formation basalt occurs in the core of a domal anticline along central Crescent Inlet and south Crescent 5. Geological mapping at 1:5,000 and 1:2,500 have been completed.
- (3) Geochemically anomalous gold values up to 0.758 ounces per ton gold are found in many diverse rock types. Alteration and mineralization patterns have not been fully outlined.
- (4) Intense gold-in-soil anomalies are located along the crest of a low sub-alpine ridge. Ground magnetometer and induced polarization surveys have been carried out. Anomalous IP effects were noted along the southern portions of the 00 baseline. Limited hand trenching was done.
- (5) A program of shallow diamond drilling (total 761 m) along the axis of highest soil anomalies failed to intersect any ore grade material. However, drill results indicate several geochemically anomalous zones over significant widths with isolated highs of up to 0.226 ounces per ton Au.
- (6) The claims have been logged off recently, since the above work was done.

  Numerous roads and rock cuts have been made throughout the area of interest.

  A detail assessment of these roads and possible significant new information has been partially done.

- (7) Further diamond drilling is warranted along the south end of the gold-in-soil anomaly. Some deeper drilling will be necessary to investigate the core of the breccia zone and IP anomalies. Low cost backhoe trenching may now be feasible. A detailed assessment of alteration patterns is needed. A budget in the order of \$250,000 will probably be required.
- (8) The property can be optioned from the B.C. Gold Syndicate at reasonable terms.



#### INTRODUCTION

The Crescent Claim Group of 77 units is located on central Moresby Island, the southern main island of the Queen Charlotte Islands, approximately 54 km south of Sandspit airport. The property was staked in 1979. Geochemical soil sampling outlined extensive gold anomalies which were investigated by geological mapping, rock trenching, IP, airborne and ground magnetometer surveys and six diamond drill holes totalling 761 meters in 1980.

Since the drilling program of 1980, Western Forest Products from their base at Sewell Inlet townsite, 15 km northwest of the claims, have extended logging roads into the central portion of the claim group and harvesting commenced in 1983. Additional roads have been constructed. The Tasu townsite is 6 km west of the claims.

The most convenient access to the Crescent Claims can now be considered as via truck from Sewell Inlet. This should reduce the cost of future exploration considerably.

Present claim status is summarized below:

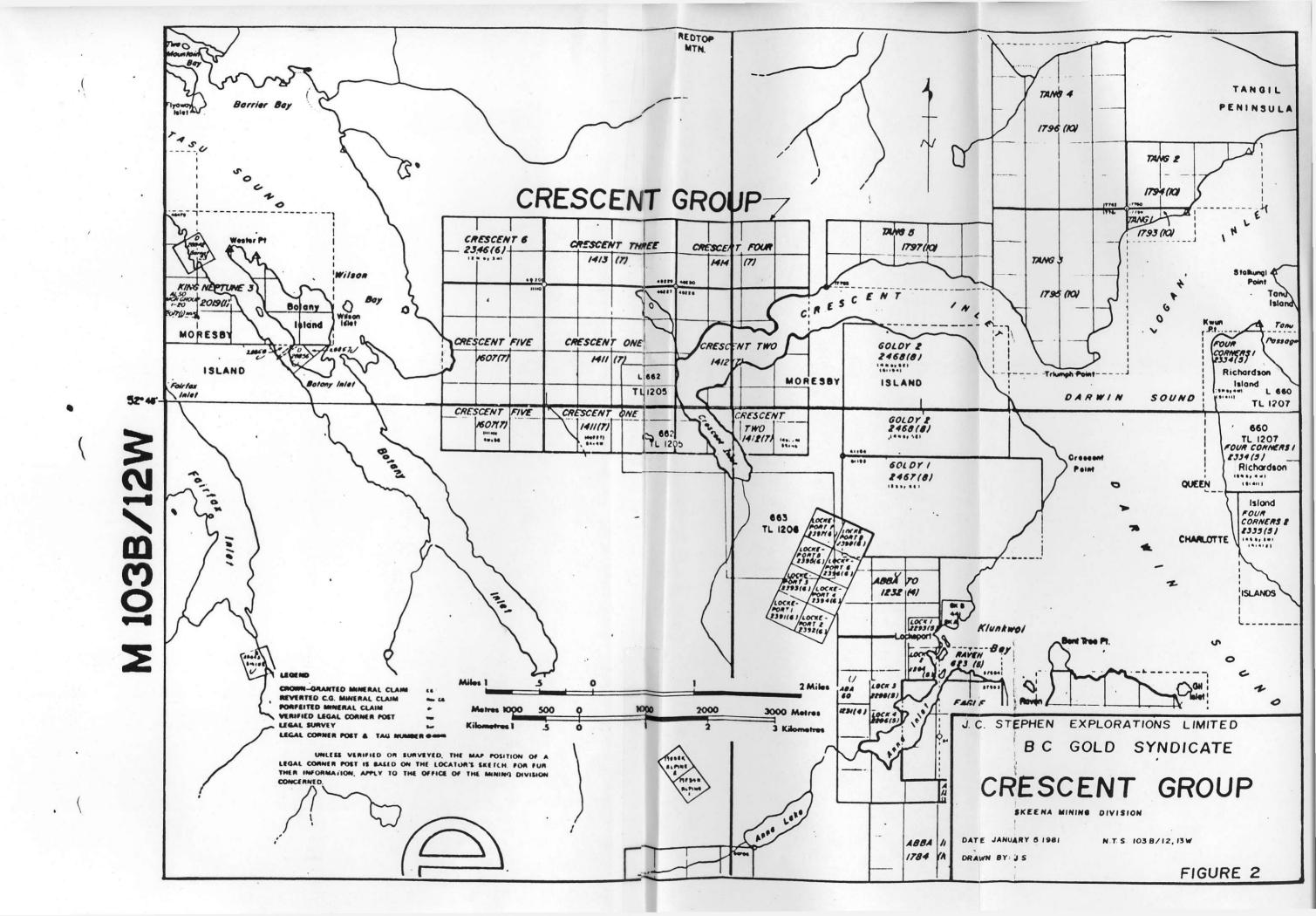
Claim Name	Unite	Record Number	Expiry Date	<u>Owner</u>
Crescent One	20	1411	July 6 1987	J.C. Stephen
Crescent Two	20	1412	July 6 1987	in trust for
Crescent Three	8	1413	July 6 1987	B.C. Gold Syndicate
Crescent Four	8	1414	July 6 1987	
Crescent Five	15	1607	July 30 1987	
Crescent 6	6	2346	June 4 1987	

The property is presently owned by Newmont, Canada Tungsten and McIntyre Mines Ltd with 30% each and the remaining in care of J.C. Stephen.

J.T. Shearer has a prospecting interest in this 10%.

Ę

South Moresby Wilderness Park has been proposed by a number of environmental organizations. A public planning committee including representatives from the B.C. Department of Mines investigated the land use conflicts and submitted a number of options to Cabinet about 2 years ago. The most northerly boundary proposed by the most radical and optimistic environmental groups would be south of Crescent Claims. The Cabinet decision, which is expected shortly, in light of the decision on Meares Island of the west coast of Vancouver Island, will likely include a compromise with some park creation in the extreme south of Moresby Island and the rest open to normal multiple use. Therefore, environmental constraints will be minimal and could be compared to the relative ease under which Tasu operated.



#### ORE TARGET

:

The Crescent Claims are characterized by a composite gabbroic pluton which contains gigantic blocks of rhyolite and dacitic tuff "floating" in the intrusive. Hypabyssal intrusions throughout the Queen Charlotte Islands are intimately associated with Late Tertiary Massett Formation acid volcanjcs. These intrusions represent consolidated vents or upper magma chambers related to nearby flows and ash falls. The goldbearing rhyolite porphyry at Cinola is such an intrusion. At Cinola, a hydrothermal system was created by the intrusion of the Cinola porphyry and a very large but low grade epithermal gold deposit was formed in the porphyry and adjacent Skonun coarse clastics.

On the Crescent Claims, a mineralizing event occurred in the composite gabbro pluton and surrounding Kunga formation argillites and Yakoun formation volcanoclastics. The gabbro body ranges from light coloured quartz diorite to dark gabbro, hornblende porphyry and prophyritic quartz diorite. Stockworks of quartz veins cut the gabbro and the rhyolite blocks within the intrusive. Many differing rock types contain geochemically anomalous high gold contents as documented by Table 3 (from Shearer 1981)

TABLE III

## CRESCENT DRILLING

## ROCK AND LITHOLOGY VERSUS GOLD CONTENT

x.= average ppb Au N = number (sample intervals 1 m and 2 m)

	DDH-80	DDH-80 2	DDH-80	DDH-80 4	DDH-80 5	DDH-80 6
Quartz diorite porphyry			none	none	none	
#1 0.6 cm wide #2 0.76 m wide overall x = 3150	N = 1	1	none	none	none 1 diorite 14a	
Rhyolite breccia overall $\bar{x}$ = 619	$\bar{x} = 27.5$ $N = 4$	> 782 14 one > 5000	37.3	12	none none	
Rhyolite overall $\bar{x} = 385$	x = 1165 N = 6 one 5000	70 1	none none	112.2 16	none none	
Chloritic Rhyolite overall $\bar{x}$ = 545	$\bar{x} = 67.7$ N = 9	2695 2 one≥5000	none none	none none	none none	
Overall x - 545						
Dacitic Lapilli tuff  overall $\bar{x} = 192$	x = 254 N = 13	172 40	none	in varioli in varioli		
Variolitic dacite	x = 96 $N = 9$	168	none	45.3	none none	
overall $x = 91.2$						
Melanogabbr <b>o</b>	$\bar{x} = 895$ N = 6	120	20.5	6.2	100.4	
overall $\bar{x} = 122.4$	one >5000					
D. L.	- 00	00.0			- 10-	
Diabase overall $\bar{x} = 28.2$	x = 20 N = 18	22.2 9	38.1 18	28.3	50 1	
Feldspar porphyry (Leucogabbro) overall x = <u>461</u>	x = 142. N = 2	5 230 4	1300	2518 2 one > 5000	194 19 one 2500	
Dacite	$\bar{x} = 50$ N = 5	none none	423 7 ne 2200	107.7 13	over 2 m 59 8	
overall $\bar{x} = 154$						
Leucogabbro $\bar{x} = 208$	n Feldspar porphyry	in Feldsp porphyr	ar 208 y 5	in Feldspar porphyry		
Fp porph						

TABLE III

## CRESCENT DRILLING

# ROCK AND LITHOLOGY VERSUS GOLD CONTENT

 $\bar{x}$  = average ppb Au N = number (sample intervals 1 m and 2 m)

	DDH-80	DDH-80 2	DDH-80 3	DDH-80 4	DDH-80 5	DDH-80 6
Quartz diorite porphyry	x =>1650 N = 1	>4650	none	none	none	
#1 0.6 cm wide #2 0.76 m wide overall $\bar{x} = 3150$	N - 1	,	none	none	none 1 diorite 14a	
Rhyolite breccia . overall $\bar{x}$ = 619	$\bar{x} = 27.5$ N = 4	> 782 14 one > 5000	37.3 13	12	none none	
Rhyolite	$\bar{x} = 1165$ $N = 6$ one 5000	70 1	none none	112.2 16	none none	
Chloritic Rhyolite overall $\bar{x} = \underline{545}$	$\bar{x} = 67.7$ $N = 9$	2695 2 one <i>→</i> 5000	none none	none none	none none	
Dacitic Lapilli tuff overall $\bar{x} = 192$	$\bar{x} = 254$ N = 13	172 40	none no <b>ne</b>	in varioli in varioli		
Variolitic dacite overall $\bar{x} = 91.2$	x = 96 N = 9	168 6	none none	45.3 7	none none	
Melanogabbro overall $\bar{x} = 122.4$ G	$\bar{x} = 895$ N = 6 one >5000	120 2	20.5 22	6.2 13	100.4 40	
Diabase overall $\bar{x} = 28.2$	$\bar{x} = 20$ N = 18	22.2 9	38.1 18	28.3 9	50 1	
Feldspar porphyry (Leucogabbr <u>o</u> ) overall x = <u>461</u>	$\bar{x} = 142.5$ N = 2	230	1300	2518 2 one > 5000	194 19 one 2500	
Dacite overall $\bar{x} = 154$	$\vec{x} = 50$ N = 5	none none on	423 7 e 2200	107.7 13	over 2 m 59 8	
Leucogabbro _ in		in Feldspa porphyry		in Feldspar porphyry	in Feldspa porphyry	
Fp porph		•				
Intrusive breccia in DDH-80-5 overall = 112	-	-	-	-	112 5	

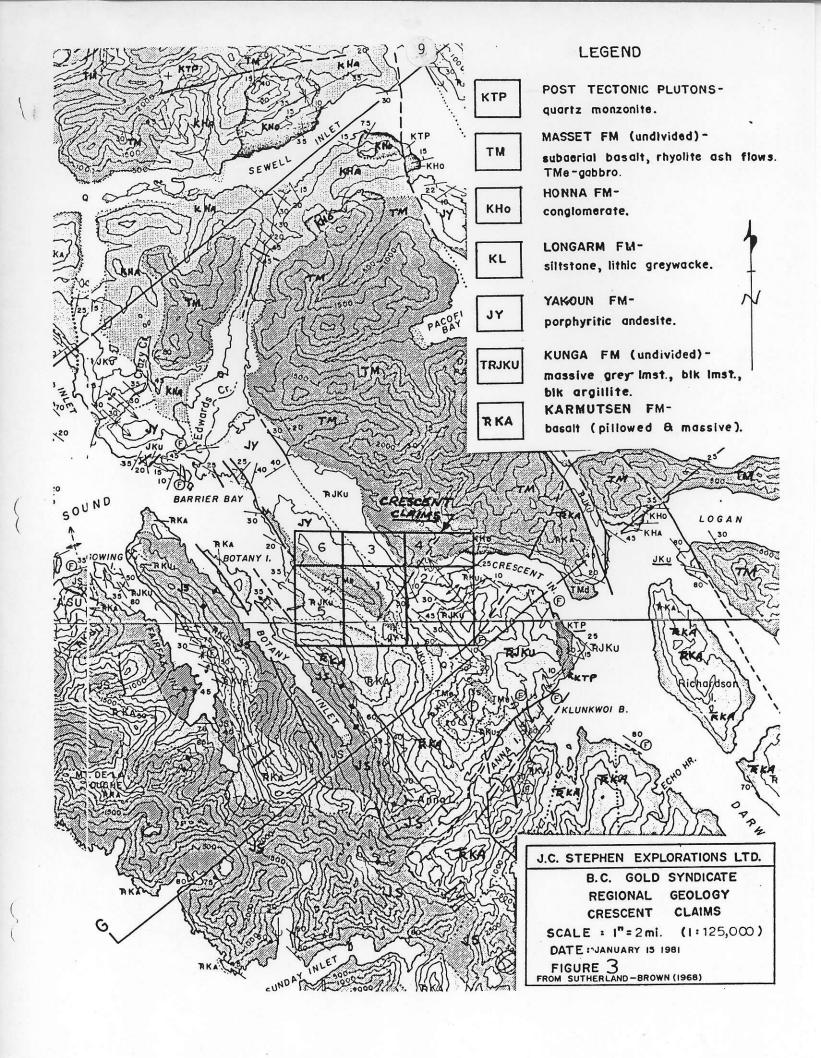
#### EXPLORATION HISTORY

The Crescent Area was a priority exploration target identified from reconnaissance work carried out in 1978 for McIntyre Mines Ltd by J.T. Shearer. In 1979 the B.C. Gold Syndicate was formed under the management of J.C. Stephen Explorations Ltd with partners; Newmont, Canada Tungsten and McIntyre Mines Ltd.

Prospecting in 1979 by J. Clarke and B. Atkinson found slightly anomalous gold-in-soil values on the south side of the gabbroic complex. Subsequent follow-up work revealed an extensive high gold-in-soil anomaly plus many geochemically anomalous gold-in-rock specimens. Several diverse rock types contain anomalous gold content ranging up to 3500 ppb Au for silicified gabbro. A narrow quartz vein assayed 0.424 oz/ton. Quartz veining in Kunga Argillite yielded a gold value of 5600 ppb.

In 1980 an airborne magnetometer survey was flown which characterized the gabbro pluton by a complex, elliptical high exceeding 58,000 gammas. Two trenches were drilled and blasted. Channel sampling returned anomalous gold values up to 1400 ppb Au over significant widths. Orientation Induced Polarization was conducted over central Crescent One with strong IP effects noted along the southern portions of the 00 baseline. Ground magnetometer surveys give complex patterns and the results should be interpreted with care. In general the high gold-in-soil area is marked by a coincident magnetic anomaly.

Bulk soils were sent for gravity fractionation. Free gold was observed in several samples. Overburden drilling demonstrated that bedrock is within 2 meters depth where tested.



Geological complexities within the gold bearing gabbro pluton do not allow a simplification of the results of the detail mapping carried out to date. A caldera collapse zone as outlined in the Assessment Report dated March 31 1980 remains a viable interpretation. Some of the main characteristics of the gabbro pluton are summarized below:

- (1) an irregular intrusive to unconformable contact between older Yakoun volcanics Kunga sediments and younger Masset Formation rhyolites and related plutonic rocks.
- (2) discontinuous ring of rhyolite and dacitic tuff around the outer edges of the intrusive complex.
- (3) a discontinuous and irregular zone of diabase near the edges of the pluton often in contact with the older Yakoun.
- (4) an elongate porphyritic hornblende quartz diorite stock located on the west central part of the pluton.
- (5) a complex inner core of melanogabbro cut by feldspar porphyry (porphyritic quartz diorite). This inner core is also intruded by plutonic breccia pipes and dykes of diabase and quartz-pyroxene rocks. A poorly understood silicified zone is a prominent feature.
- (6) A central area of very recessive weathering rhyolite-dacite is shown by drilling. A similar area is also apparent at the "Red Seam". Other largely covered volcanic zones could be present.
- (7) A small feldspar porphyry stock on the northeast boundary of the map grid.

#### DIAMOND DRILL RESULTS

Diamond drilling was initiated on the Crescent Claims to test the area immediately under the strongest gold-in-soil anomalies. A total of 761 meters of BQ core was completed in six holes. Assay values gave some sections of geochemically anomalous gold in a variety of rock types over significant widths with isolated higher values up to 0.226 ounces per ton Au. (Refer to table IV in Shearer 1981 for details). No correlation of individual rock units is evident between drill sections.

TABLE IV

GEOCH	<u>IEMICALLY</u>	ANOMALOUS DRILL INTERSECTIONS	
Interval Meters	Length <u>Meters</u>	Lithology	Average gold value <u>ppb</u> Approximate
5m-18	13	dacitic Lapilli tuff	<b>&lt;</b> 300
		variolitic dacite	
28-33	5	Rhyolite	>500
44-50	6	Chloritic Rhyolite Melanogabbro-Quartz breccia	one >5,000
7-13	6	dacitic Lapilli tuff	<b>&lt;</b> 300
18-20	2	Quartz porphyry and tuff	3,000
41-60	19	dacitic Lapilli tuff and feldspar porphyry Rhyolite	> 500
108-120	12	Rhyolite Breccia	>500
26-36	10	Feldspar porphyry Leucogabbro and diabase	>500
60 <b>-6</b> 2	2	Rhyolite	300
82-88	6	Rhyolite	300
1-11	10	Melanogabbro	< 300
32-34	2	Melanogabbro	2,500
	Interval Meters  5m-18  28-33 44-50  7-13 18-20 41-60  108-120 26-36  60-62 82-88 1-11	Interval Meters         Length Meters           5m-18         13           28-33         5           44-50         6           7-13         6           18-20         2           41-60         19           108-120         12           26-36         10           60-62         2           82-88         6           1-11         10	Meters Meters Lithology  5m-18 13 dacitic Lapilli tuff variolitic dacite  28-33 5 Rhyolite  44-50 6 Chloritic Rhyolite Melanogabbro-Quartz breccia  7-13 6 dacitic Lapilli tuff  18-20 2 Quartz porphyry and tuff  41-60 19 dacitic Lapilli tuff and feldspar porphyry Rhyolite  108-120 12 Rhyolite Breccia  26-36 10 Feldspar porphyry Leucogabbro and diabase  60-62 2 Rhyolite  82-88 6 Rhyolite  1-11 10 Melanogabbro

INDIVIDUAL HIGH VALUES AND CHECK ASSAY

			Au ppb	Assay oz/t
5-6 m in	DDH-80-1	Quartz diorite Porphyry and dacitic tuff	1650	n/a
29-30 m in	DDH-80-1	Rhyolite, 2 cm calcite vein	> 5000	0.108
49.1-49.3 in	DDH-80-1	Quartz breccia in melanogabbro	>5000	0.226
19-20 m in	DDH-80-2	Quartz diorite porphyry	4650	0.134
58-60 m in	DDH-80-2	Rhyolite, Rhyolite Bx, Chl Rhyolite	>5000	0.038
29-30 m in	DDH-80-3	Dacite, Fp porph, qtz vein 0.4 cm wide	2200	0.064
70-72 m in	DDH-80-4	Leucogabbro porphyry-Fp porphyry quartz vein 3 cm wide	>5000	0.020
32-34 m in	DDH-80-5	Melanogabbro	2500	0.082
35.66-35.95 in	DDH-80-6	Quartz vein	4700	n/a

The drilling demonstrated that the Crescent gabbro pluton contains highly anomalous gold values distributed throughout a large volume of rock. The priority is now to arrive at a better understanding of this wide reaching epithermal gold system and delineate local concentrations of ore grade gold.

One key to a basic understanding of the system will be to accurately map alteration patterns in the gabbro and mega-blocks, such as silica introduction and clay development.

The initial drilling at Cinola, especially in the complex breccia-quartz porphyry pipes, gave a similar heterogeneous, confusing picture of the mineralizing environment. Only after a considerable amount of drilling did a cohesive, relatively simple model emerge.

#### CONCLUSIONS

A large gold bearing system has been identified on the Crescent Claims. This system has not been investigated in detail. New logging roads may provide previously inaccessible information to evaluate the environment in regard to gold concentrations.

A reasonable option agreement is possible with the B.C. Gold Syndicate. While the option terms are flexible and open to netotiation the most probable deal would be:

- (a) a matching expenditure on the property by the Optionee of around \$250,000 to gain 50% interest in the property.
- (b) a decision by the syndicate partners to participate or not after the \$250,000 is spent by the optionee.
- (c) Any interest not taken up by the syndicate partners would then be available to the optionee. The remaining 10% management interest is subject to a buy-out.

As outlined in Appendix II, (Estimate of Costs for future exploration), the expenditures can be divided into two phases; Phase I \$12,000 for an initial evaluation and the remainder on an intensive, Phase II trenching and diamond drill program contingent on the results of Phase I.

Additional work that should be completed in conjunction with a drill program are a S.P. survey, trenching at 575N 150W and a comprehensive alteration map emphasizing the distribution types of silica, carbonate and sulfide facies. New road cuts should be examined for late stage quartz rich intrusive and anomalous gold concentrations.

Respectfully submitted,

#### REFERENCES

SHEARER, J.T. 1979 Monthly Reports, B.C. Gold Syndicate
Private files, J.C. Stephen Explorations Ltd.

ŧ

- 1980a Geological and Geochemical Report on Crescent Group
  One and Two
  B.C. Department of Mines Assessment Report, March 1980
  84 pp.
- 1980b Geological, Geochemical and Geophysical Report on Crescent Group One and Two.

  B.C. Department of Mines Assessment Report, August 1980

  100 pp.
- Diamond Drilling Report on the Crescent Group
  Private files, J.C. Stephen Explorations Ltd. Jan 30, 1981
  33 pp + Appendices
- STEPHEN, J.C. 1983 Report on Examination of Crescent Claim Group
  Private files, J.C. Stephen Explorations Ltd. Nov 1, 1983
  12 pp

## APPENDIXI

STATEMENT

0F

COSTS

1979 - 1983

by

B.C. GOLD SYNDICATE

## APPENDIX I

# STATEMENT OF COSTS 1979 - 1983

# BY B.C. GOLD SYNDICATE

# FROM J.C. STEPHEN EXPLORATIONS FILES

Initia	al Prospecting 1979	\$	15,000
1979	Soil sampling/geological mapping	-	30,158
1980	geological mapping/trenching/IP/magnetometer	^	46,650
1980	Airborne Magnetometer survey		4,070
1980	Diamond drilling program	1	113,812
1983	Road examination	-	3,682
	TOTAL DIRECT EXPENDITURE	\$2	213,372

APPENDIX II

ESTIMATE OF COSTS

FOR

FUTURE EXPLORATION

## PROPOSED PROGRAM

# CRESCENT CLAIMS

Phase 1	
---------	--

Phase I	
(1)	geological mapping, prospecting and sampling
	along new logging roads
	2 geologists for 21 days \$ 6,500.00
(2)	Camp + Food 42 man days @ \$30.00 per day 1,260.00
	Hotel 2 nights 225.00
(0)	To annulation to the back to the Court Tollet
(3)	·
	mob - demob 500.00
	fuel 300.00 PWA 2 persons, Vancouver-Sandspit 620.00
	PWA 2 persons, Vancouver-Sandspit 620.00
(4)	Analytical 150 Rock samples @ \$10.50 per sample 1,575.00
	150 Soil samples @ \$ 8.25 per sample <u>1,237.50</u>
	\$12,217.50
	-
Phase II	
(1)	Bulldozer trenching (if applicable)
• .	40 days 0 \$1350.00 per day \$54,000.00
(2)	Diamond drilling 1200 meters @ \$105.00 per
	meter \$126,000.00
(3)	Supervision \$11,400.00
(3)	Super v131011 411,100.00
(4)	Transportation \$20,000.00
	\$211,400.00
	Contingency - 15% 33,500.00
	Total Phase 1 and 2 = \$257,117.00

or Approximately

\$250,000

TABLE III

#### CRESCENT DRILLING

## ROCK AND LITHOLOGY VERSUS GOLD CONTENT

x = average ppb Au N = number (sample intervals 1 m and 2 m)

	DDH-89	DDH-80 2	DDH-80 3	DDH-80 4	DDH-80 5	DDH-80 6
Quartz diorite porphyry	x =>1650 N = 1	>4650	none	none	none none	
#1 0.6 cm wide #2 0.76 m wide overall x = 3150					l diorite 14a	
Rhyolite breccia . overall $\bar{x} = \underline{619}$	$\bar{x} = 27.5$ N = 4	> 782 14 one > 5000	37.3 13	12	none none	
Rhyolite overall $\bar{x} = 385$	x = 1165 N = 6 one 5000	70 1	none none	112.2 16	none none	
Chloritic Rhyolite	$\bar{x} = 67.7$ N = 9	2695 2 one>5000	none	none none	none none	
overall $x = 545$						
Dacitic Lapilli tuff	$\bar{x} = 254$ N = 13	172 40	none	in varioli in varioli		
overall $\bar{x} = 192$			a Machiner			
Variolitic dacite	$\bar{x} = 96$ N = 9	168 6	none none	45.3	none none	
overall $\bar{x} = 91.2$						
Melanogabbro	$\bar{x} = 895$ N = 6	120	20.5	6.2	100.4	
overall $\bar{x} = 122.4$						
Diabase	$\bar{x} = 20$ N = 18	22.2	38.1 18	28.3	50	
overall $\bar{x} = 28.2$	10			,		
Feldspar porphyry (Leucogabbr <u>o</u> ) overall x = <u>461</u>	x = 142. N = 2	5 230 4	1300	2518 2 one > 5000	194 19 one 2500	
Dacite	$\bar{x} = 50$ N = 5	none none	423 7 ne 2200	107.7 13	over 2 m 59 8	
overall $x = 154$						
Leucogabbro i verall $\bar{x} = 208$	n Feldspar porphyry	in Feldsp porphyr	ar 208 y 5	in Feldspar porphyry		
Fp porph						