

DIAMOND DRILL REPORT

INDIAN RIVER GROUP  
Don. Fr. (Lot 2778)

VANCOUVER MINING DIVISION

NTS 92G/10W

Lat. 49°36.5' Long. 122°58.6'

Owner: ANACONDA CANADA - Fleck Resources Ltd.

Operator: Corporation Falconbridge Copper

Author: H. L. Gibson

March 1986

FILMED

L R. 1  
L R. 4  
L R. 6  
L R. 7  
L R. 8  
Pearl

Princess No. 2  
Princess No. 3  
Myrtle B No. 1  
Myrtle B No. 2  
London No. 4

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

14,838

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## INTRODUCTION

### Location and access

The Indian River claim group is located 50 km. north of Vancouver and 17 km. east of Britannia Beach at 49°35' N latitude and 122°57' W longitude. The area is accessible by helicopter or via a 20 km. 4WD road from Squamish or a 20 km 4WD road from the head of Indian Arm (Figure 1).

Relief in the area ranges from 200m to 1500m. Topography is steep and rugged.

### Property History

The Indian River claim group (Appendix D) comprises the eastern portion of the Britannia property (Figure 2) which consists of 310 crown granted claims, 6 reverted crown granted claims and 5 staked claims (6,700 hectares). Anaconda Canada purchased the property from Britannia Mining and Smelting Co. in 1962 and Corporation Falconbridge Copper optioned the property from Anaconda in June 1984. Plack Resources Ltd. acquired Anaconda's interest in the property in late 1985.

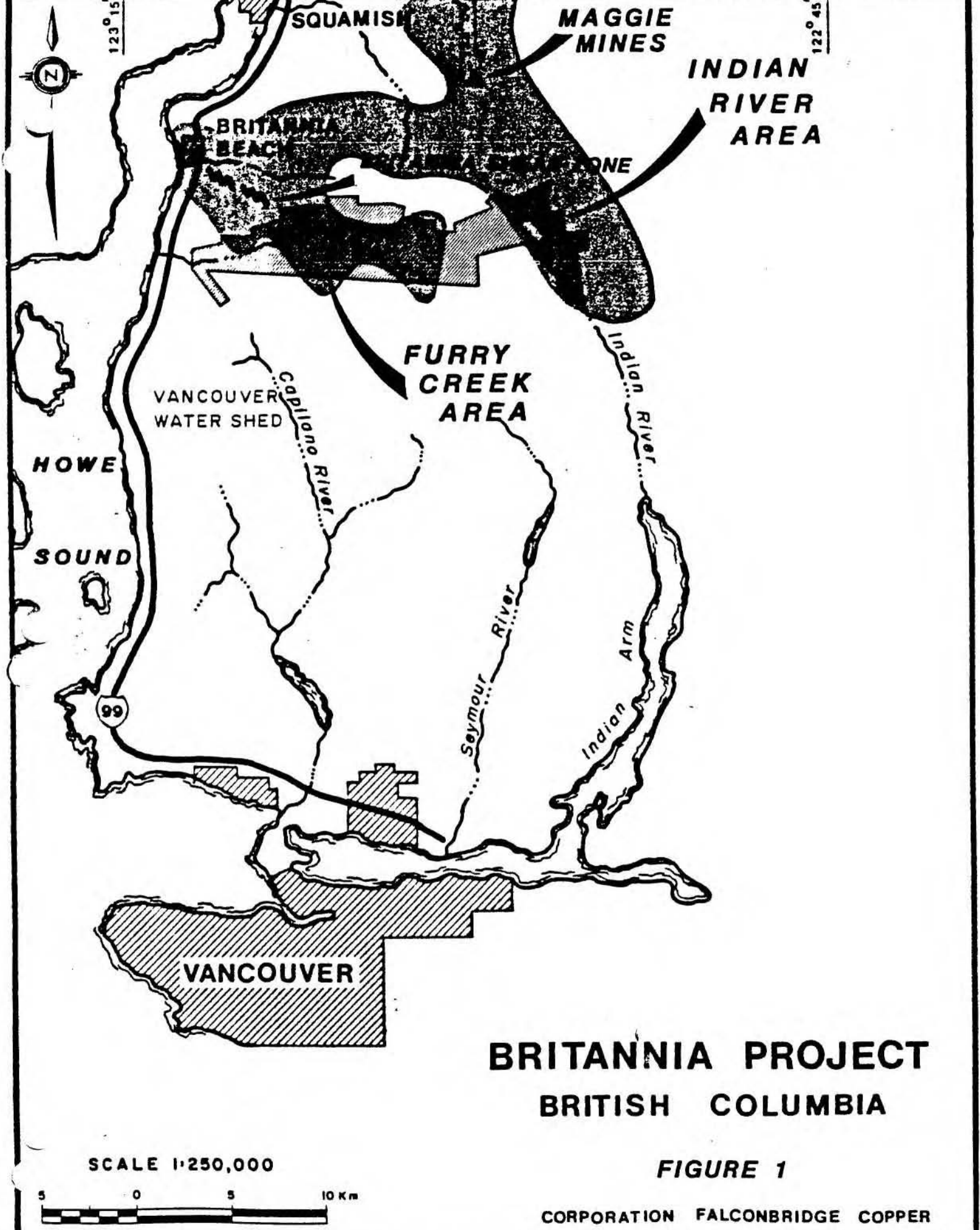
### Work Done

The Indian River area has been explored intermittently since the turn of the century. In 1985 Corporation Falconbridge Copper undertook a geologic mapping/lithogeochem program in the Roy Prospect area (Figures 2,3) and drill tested potential targets. Hole IR-85-1, located on the Don Fraction claim, was drilled to a depth of 328.7m. Core recovered was NQ size and is stored at 6415 64th Street, Delta, B.C.

## REGIONAL GEOLOGY

The Britannia property is underlain by Lower Cretaceous metavolcanic/sedimentary rocks of the Britannia Pendant, one of many NW-trending volcano-sedimentary "belts" within the Coast Plutonic Complex (CPC). The CPC comprises pre-, syn- and post-tectonic plutons of granite to gabbro composition.

The volcano-sedimentary succession in the Indian River area comprises interdigitating rhyolite flows, coarse andesitic/dacitic pyroclastic rocks and plane bedded volcanoclastic sediments and argillite (Figures 2,3). James, (1929) tentatively grouped the Indian River



SQUAMISH

MAGGIE  
MINES

INDIAN  
RIVER  
AREA

BRITANNIA  
BEACH

FURRY  
CREEK  
AREA

VANCOUVER  
WATER SHED

HOWE  
SOUND

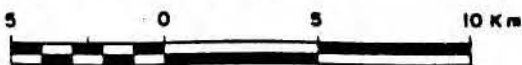
99

VANCOUVER

# BRITANNIA PROJECT BRITISH COLUMBIA

FIGURE 1

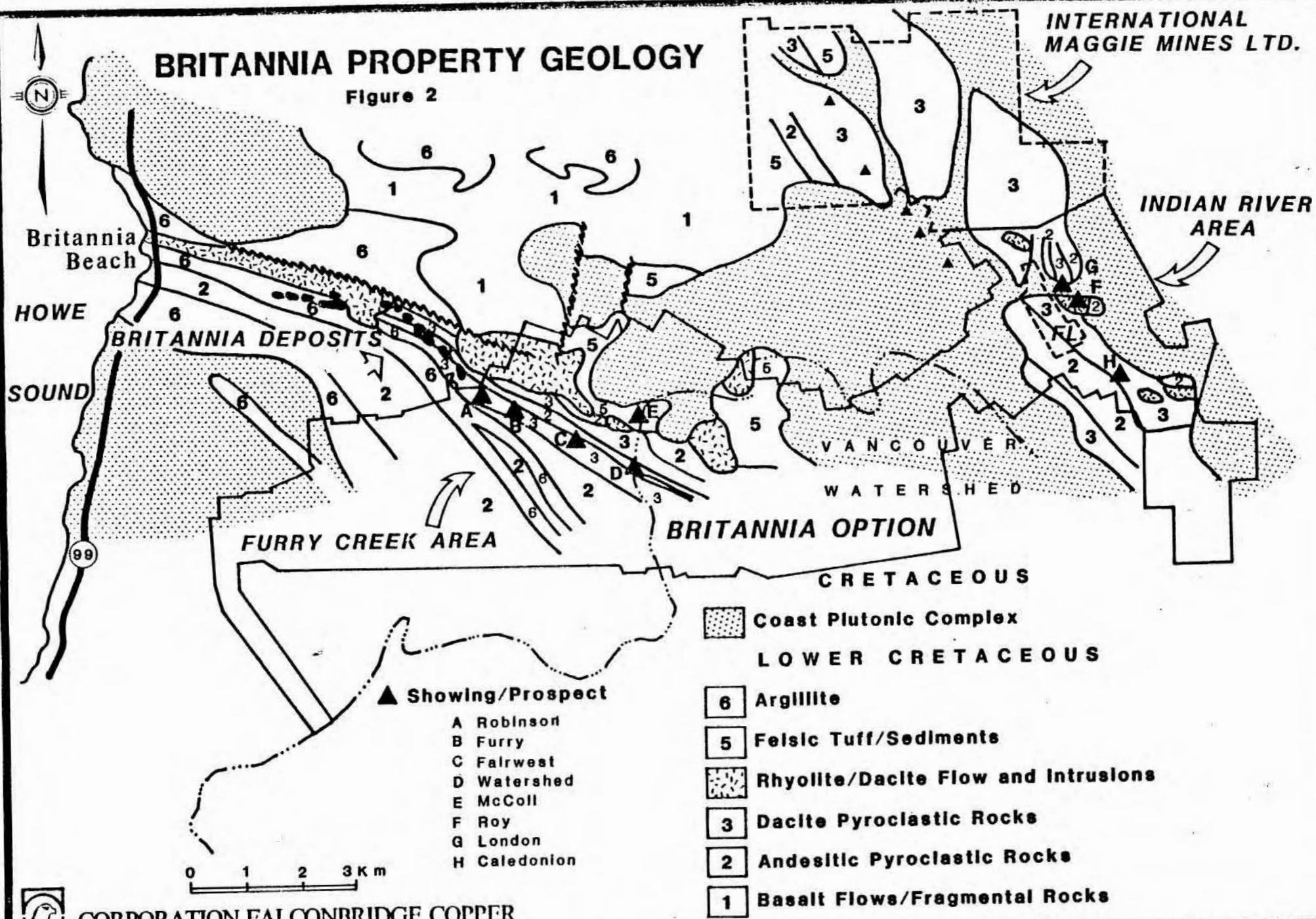
SCALE 1:250,000



CORPORATION FALCONBRIDGE COPPER

# BRITANNIA PROPERTY GEOLOGY

Figure 2



- ▲ Showing/Prospect**
- A Robinson
  - B Furry
  - C Fairwest
  - D Watershed
  - E McColl
  - F Roy
  - G London
  - H Caledonion

- Coast Plutonic Complex
- LOWER CRETACEOUS
- 6 Argillite
- 5 Felsic Tuff/Sediments
- Rhyolite/Dacite Flow and Intrusions
- 3 Dacite Pyroclastic Rocks
- 2 Andesitic Pyroclastic Rocks
- 1 Basalt Flows/Fragmental Rocks

0 1 2 3 Km

succession into the Lower member of the Goat Ridge formation which lies stratigraphically below the Britannia Mine Sequence, hosting the former Britannia Mine (5.5M tons of 1.3% Cu).

Shallow syn- and post-tectonic intrusions of quartz microporphyry, quartz-feldspar porphyritic rhyolite and fine to coarse grained plutonic rocks of the CPC dissect and disrupt the volcano-sedimentary package. Metamorphic grade is lower greenschist facies to amphibolite facies, in the contact aureole of later intrusions.

#### ROY AREA GEOLOGY

The Roy area is underlain by a complex succession of proximal rhyolitic lava domes, dacitic/andesitic pyroclastic rocks, minor chert and argillaceous metasediments (Figure 3). Metamorphic grade is lower greenschist facies; the rocks are well preserved and lack a penetrative fabric.

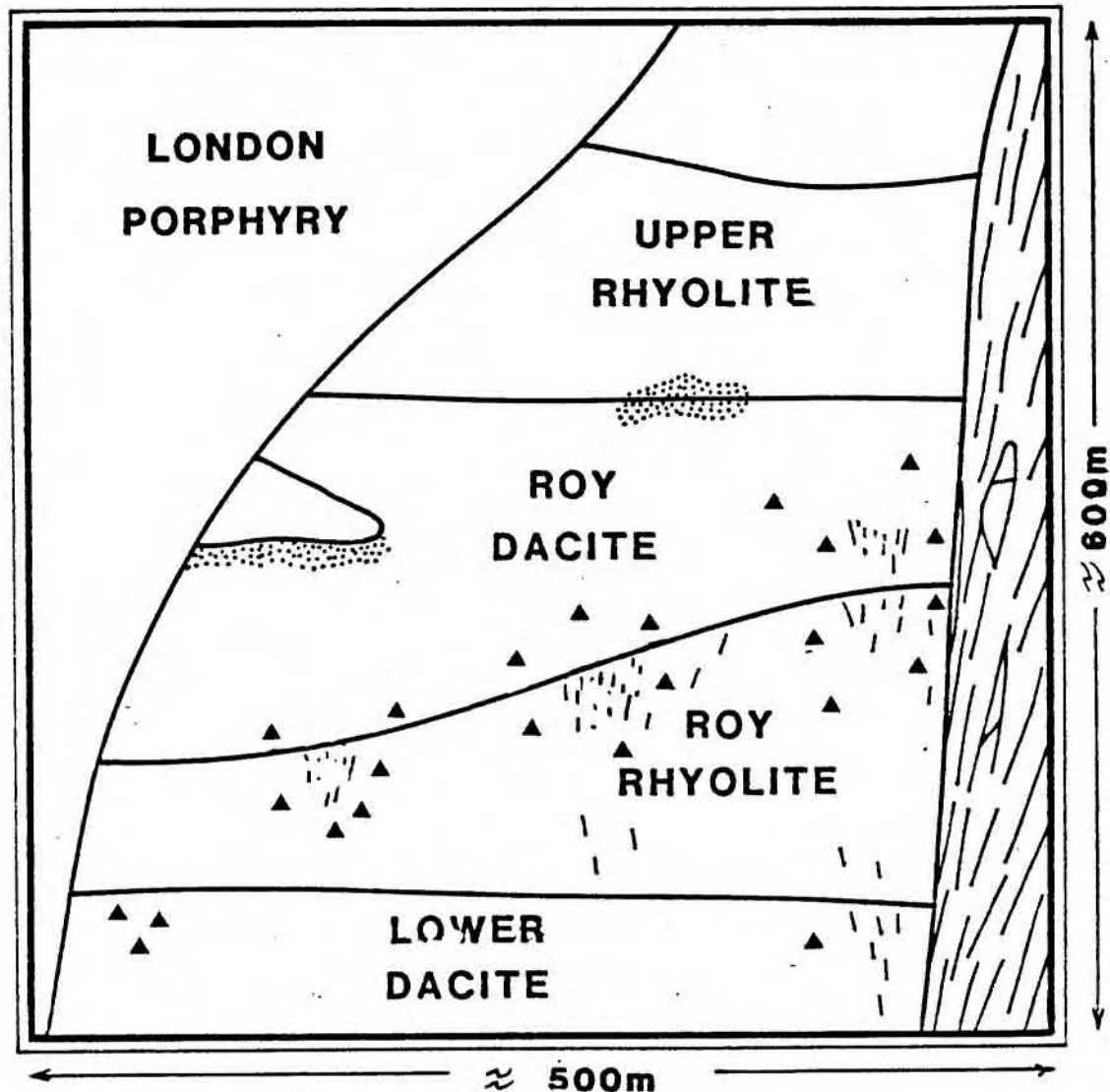
Two east-west trending intrusions cut stratigraphy of the Roy Area. The London Porphyry intrusion is a composite quartz diorite-quartz microporphyry body with disseminated and stringer pyrite-chalcopyrite and molybdenite mineralization that dips steeply north. The Killer dike complex is a swarm of predominantly andesitic and lesser basalt/rhyolite dikes (>90% dikes) and quartz diorite.




Volcanic units strike  $115^{\circ}$  dip moderately ( $30^{\circ}$ - $60^{\circ}$ ) to the north and locally are south dipping. Top indicators, cleavage-bedding angles and drill data indicate that stratigraphy south of the London Porphyry is monoclinial and north-dipping and defines the north limb of a fold whose anticlinal axis lies to the southeast. Stratigraphy north of the London Porphyry is folded about a west plunging, NW-striking synclinal axis.

Volcanic rocks between the London Porphyry and Killer Dike complex (Figure 3) are anomalous in surface mineralization and alteration. The stratigraphic succession in this window is illustrated in Figure 4, and from oldest to youngest consists of:

a) Lower Dacitic Unit - incipiently welded subaqueous ash flows and bedded, water-lain tuffs with localized dacite flows/domes.

b) Roy Rhyolite - proximal, flow-banded rhyolite lava dome. Unit is thickest within its vent area, adjacent to the Killer Dike complex, and thins to the northwest.



 **Disseminated ccp-py**  
 **Stringer ccp-py**  
 **Hydrothermal breccia**

**ROY AREA STRATIGRAPHY**

**Figure 4**



c) Roy Dacite - sequence of crystal-rich and crystal-poor ash flows and bedded waterlain tuffs, siliceous ash and chert.

d) Upper Rhyolite - composite, proximal, flow-banded rhyolite lava dome; main vent located east of Roy Prospect.

The stratigraphic succession represents a cross-section through a stacked, proximal rhyolitic vent area. The upper and lower contacts of the Roy Rhyolite and Roy Dacite package were our main target horizons.

#### DRILL RESULTS

Hole IR-85-1 (Figures 3,5) was targeted to test the Roy Dacite package and top and bottom contacts of underlying Roy Rhyolite for volcanogenic massive sulphide mineralization below and down-dip of anomalous surface mineralization and alteration. A detailed log and summary log for IR-85-1 are contained in Appendix II.

Significant mineralization was not encountered, however the Roy Dacite package is strongly chloritized (70-200m) and contains pyritic dacitic lapilli tuffs from 102-103.6m and chalcopyrite/molybdenite mineralization in scattered white quartz veins from 125.8 to 186m. Contact with underlying Roy Rhyolite is sharp and marked by two, 4mm wide seams (Laminae?) of massive chalcopyrite, in a chloritized rhyolitic flow-breccia at 200.15m.

#### CONCLUSIONS

1. No significant mineralization was encountered in hole IR-85-01, and along with previous drilling severely limit the potential of the Roy Area to host a significant VMS.
2. Intersection of the Roy Dacite, Roy Rhyolite and Lower Dacite in IR-85-01 supports our stratigraphic/structural interpretations based on surface mapping.

**INVOICE**

**M & B Drilling Ltd.**

DIAMOND DRILLING CONTRACTORS

1119 MARINE AVENUE  
 4583 FERNWOOD AVENUE - POWELL RIVER, B.C. V8A 3L5 2K3

PHONE 487-9164 (Area Code 604) PHONE 485-4454

OFFICE: 485-2530

Date Oct. 15, 1985

**IN ACCOUNT WITH**

Corporation Falconbridge Copper

6415 - 64th Street

Delta, B. C. V8K 4E2

Job Name Corporation, B. C. For period up to and incl. Oct. 15/85.

DESCRIPTION	TOTALS
Travel-	
Wages- <b>P1-85 = IR-85-01</b>	
Advances-	
Food & Lodging-	
Gas & Repairs-	
Rentals-	
Equipment Loss- 1 - 10' BW casing @ 111.00	
1 - 2W casing @ 183.00	
7% sales tax	
Waiting Time-	75.50
	52.61
Mob & Demob- :	2,000.00
Misc. TESTING: 9 man hrs. @ 26.00 = 234.00	
4 1/2 machine hrs. @ 21.00 = 94.50	
Demanding: 52 man hrs. @ 26.00 = 1352.00	
25 machine hrs. @ 21.00 = 525.00	
	2,226.10
1-85: "over 150 mtns." - 150 mtns. @ 56.20 = ...	8,430.00
<b>TOTAL FOOTAGE DRILLED</b> 216 mtns. at ... per ft. ...	11,471.10
	\$ 23,501.40

E. 4

**CORPORATION FALCONBRIDGE COPPER**

Invoice No. **184**  
 \$ 26,609.41

STATEMENT OF QUALIFICATIONS

I, Harold L. Gibson hereby certify that:

- 1) I hold an Honours Bachelor of Science Degree and a Master of Science Degree from Queen's University, Kingston Ontario and Carleton University, Ottawa, Ontario.
- 2) I am an Associate member of the Geological Association of Canada.
- 3) I have practised by profession in exploration continuously since graduation in 1976.
- 4) I have based conclusions contained in this report on knowledge of the area, my previous experience and results of field work conducted on the property.

Date *April 31<sup>st</sup> /86*

*Harold L. Gibson*

Harold L. Gibson M.Sc.

Delta, British Columbia

APPENDIX I

INDIAN RIVER GROUP

CLAIMS LIST



## MINERAL ACT

FORM I

## NOTICE TO GROUP

RECEIVED

AUG 2 1984

Gold Commissioner's Office  
VANCOUVER, B.C.Mining Division Vancouver Location Indian RiverName of group Indian River Group Map No. 92C/643

We, the undersigned owners\* of the following adjoining mineral claims, desire to group them according to the provisions of the Mineral Act:—

NAME OF CLAIM	No. of Units	Record No. or Lot No.	Month of Record	SIGNATURE OF OWNER*	File Miner's Certificate No.
London No. 4	✓ 1	755	8	A. J. Davidson	265189
Princess No. 2&3	✓ 1	756	8		
Myrtle B No. 1	✓ 1	757	8		
Myrtle B No. 2	✓ 1	758	8	Agent for Anaconda	Canada Exploration
Pearl	✓ 1	759	8	Limited	237312
IR #1	✓ 2	713	6		
IR #6	✓ 4	771	9		
IR #7	✓ 4	772	9		
IR #8	✓ 4	986	8		
IR #4	✓ 1	716	6		
Caledonian No. 1	1	2784			
Majestic Fr.	1	5060			
Golden Zone	1	5055			
Caledonian No. 2	1	2787			
Josephine	1	4989			
Arrow Fr.	1	2781			
Skeena Fr.	1	2773			
Bow Fr.	1	2774			
Wallace Fr.	1	2772			
Roy No. 1	1	2771			
Roy No. 7	1	2777			
Don Fr.	1	2778			
Roy No. 8	1	2779			
Avon Fr.	1	2780			
Humber Fr.	1	5048			
Mammoth No. 2	1	3401			
Giant	1	3400			
Saxon Fr.	1	4996			
Belmont	1	4998			
Mexico	1	5044			
Texas	1	5062			
Vermont	1	5053			
Shasta Fr.	1	5063			
Baker	1	5064			
Evans	1	5073			
Robson	1	5074			
Riga Fr.	1	4861			
Cliff Fr.	1	2903			
CH Annex	1	4227			
No. 105 Fr.	1	4242			

\* May be signed by agent on behalf of owner.



## MINERAL ACT

FORM 1

## NOTICE TO GROUP

Mining Division Vancouver Location Indian RiverName of group Indian River Group (con't) Map No. # 926100

We, the undersigned owners\* of the following adjoining mineral claims, desire to group them according to the provisions of the Mineral Act:—

NAME OF CLAIM	No. of Units	Record No. or Lot No.	Amount of Rents	SIGNATURE OF OWNER*	Fee Mined & Carriage No.
No. 106 Fr.	1	4241			
No. 108 Fr.	1	4234			
Columbia Fr.	1	2930			
Bee	1	2129			
Beaver	1	2128			
Clipper Fr.	1	3588			
Dorothy Vernon	1	4030			
Eagle Fr.	1	2918			
Hawk Fr.	1	2917			
Fly	1	4238			
Buo	1	4237			
Bella Fr.	1	2901			
Golden Pheasant	1	3730			
Peacock	1	3729			
Arctic Fir	1	3728			
Conifer Fl.	1	2198			
Fairwest	1	2191			
Wild Rose Fr.	1	2190			
Cycad Fr.	1	2197			
Wild Rose	1	2189			
Cyrtina	1	2199			
Independant	1	2097			
No. 11 Fr.	1	3948			
Pearl Fr.	1	4038			
Star Fr.	1	4037			
Hunters Best	1	2188			
Prince Fr.	1	3949			
Charmer	1	2021			
Queen	1	1928			
Princess Fr.	1	3950			
Curzon Fr.	1	4876			
Chicago	1	2187			
Reo Fr.	1	4983			
No. 28	1	4000			
No. 27	1	3999			
Dakota Fr.	1	4997			
Noyton	1	4999			
Hawk	1	4995			
Eagle	1	4994			
Thames	1	5045			

\* May be signed by agent on behalf of owner.



APPENDIX II

IR-85-01 DRILL LOG



DRILL HOLE SUMMARY

IR-85-01

Meters

Comments

0 - 200.10m

Roy Dacite Package, succession of dacitic ashflow and waterlain tuffs. Strong to moderate chloritic alteration from 70 - 200.10m.

- 3% pyrite-rich fragments in dacitic lapilli tuff from 20.7 to 25.20m and from 60.75 to 66.7m

- chloritized dacitic lapilli tuffs from 102.0 to 103.6m, soaked with 3-5% pyrite and traces, bleby chalcopyrite

-chalcopyrite associated with minor molybdenite in white vein quartz from 125.8 - 186m.

200.10 - 305.11m

Roy Rhyolite, masive, flowbanded and flow brecciated rhyolite; aphyric and aphanitic.

- weakly chloritized from 239 to 265m

- 2, 3-4mm wide seams of massive chalcopyrite in chloritized rhyolite breccia at 200.15m

- fine, crudely layered chalcopyrite in felsic ash laminae from 200.3 - 200.35

305.11 - 328.27m

Lower Dacite Package, heterolithic tuff breccias and lapilli tuffs

- trace pyrite and not altered

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**DRILL HOLE RECORD**

X METRIC UNITS  
IMPERIAL UNITS

HOLE NUMBER IR-85-01	GRID	FIELD COORDS	LAT	DEP	ELEV 606m	COLLAR BRNG. 212°	COLLAR DIP -74°	HOLE SIZE BQ	FINAL DEPTH 328.27m
PROJECT 313	CLAIM # Don Fraction 2778	SURVEY COORDS				DATE STARTED Sept 26/85	CONTRACTOR M & B Diamond Drilling	CORE STORAGE Delta. 8c CASING 12.5m	
PURPOSE Located to test Roy Dacite and contact with underlying Roy Rhyolite down dip from an area of anomalous surface mineralization and alteration.								RQD LOG COLLAR SURVEY	PULSE EM SURVEY X MULTISHOT SURVEY
ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH	CORRECTED ANGLE	DEPTH	CORRECTED ANGLE	DEPTH	AZIMUTH	DIP	DEPTH	AZIMUTH	DIP
30m	76°			39.6m	210.5°	73°			
61m	76-77°(?)			151m	218°	72°			
91m	74°			288m	219°	66°			
122m	75°								
152m	75°								
183m	73°								
213m	76°								
244m	75°?								
274m									
304.8m									
328m	67-68°								

HOLE NO IR-85-01  
ZIPPY POINT - BRIDGEPORT RICHMOND

LOGGED BY Harold Gibson

<u>From</u> <u>To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to</u> <u>Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
0 to 12.5	Casing					
12.5 to 15.4m	Feldspar Porphyritic Amygda- loidal dacite dyke	Colour - grey-green Grain Size - f.g. Massive dyke, - contains 3-4% sericite altered, weakly glomeroporphyritic feldspar phenocrysts <0.5cm - 3-5% elongate (upto 1cm) calcite filled amygdules - aphanitic groundmass	(45°) at 15.4	Light bleaching of core - pale green grey from grey - sericite?		
15.4 to 17.3	Sheared argillaceous breccia	Colour - grey Broken, foliated core at 30-20° to C.A. - chl, veined shear, felsic frags locally observed - grey sheen to core, weakly graphitic?	dyke bounded		Fine diss. pyrite, <1%	
17.3 to 20.7	Feldspar porphyritic Dacite Dyke	Colour - grey-buff to light green Grain Size - f.g. 8-12% feldspar phenocrysts from 2mm to 5mm in an aphanitic groundmass.	Contact at 17.3 @ 40° to CA	Light green-buff colour occur as patches - weak bleaching or sericite alteration - dark fractures at 30° to C.A. - chilled margins	Tr. pyrite.	
20.7 to 25.20	Dacitic - Rhyodacitic Lithic-vitric lapilli tuff "sulphide rich frags"	Colour - light grey-green Consists of subangular white to light green-grey dacitic lithic frags <15%, <10% wispy chloritic frags (pumice - vitric) and <3% feldspar crystals - frags from <0.5cm to 2.5cm - <3% sulphide (py) rich + ms pyrite fragments from <0.5cm to 2cm, subangular in form. - groundmass is a fine-grained, aphanitic light green dacite - few calcite veins at 10-15° to CA		- primarily chl alt of vitric frags	- pyrite rich fragments, frags totally composed of fine pyrite or replacing vitric frags - minor py along ft's	Dacite dyke from 20.4 20.75 at 75° to CA

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>	
25.20 to 35.35	Mass. Dacite /Rhyodacite flow or tuff	Massive dacite, similar to groundmass of above unit but no distinct frags. - possible massive flow or homogeneous massive interior of an ash flow. Dacite is massive from 25.2 to 34.2 - from 34.2-35.35 dacite is a distinct breccia containing frags of massive aphanitic dacite, fb dacite-rhyodacite and bluish quartz fragments.				Trace Pyrite	Feldspar porphyritic dacite dyke from 26.5 to 28.6 at 75° to C.A. - 2cm wide flowbanded dacite dyke at 70° at 27.8m. Massive flowbanded dacite dyke, faintly feldspar porphyritic from 28.6m to 30.94m at 30° to CA
35.35 to 51.72	Massive Rhyodacite Dyke	Colour - white Grain Size - aphanitic Aphanitic rhyodacite, (1% feldspar phenocrysts (up to 4mm) - faint flowbands locally	35-40° to C.A. at 35.35 contact at 51.72m @ 70° to CA	reddish-brown hematitic alteration along fractures locally - fractures at 70° to C.A. & (40° to C.A. - core blocky where fractured & hematitic (hematite/quartz-filled 1-2mm fractures).		Very Blocky	
51.72 to 53.5	Rhyodacite tuff - Lapilli tuff	Colour - light grey Grain Size - aphan. Massive, homogeneous aphyric tuff containing up to 5-6% wispy, irregular chl/ser frags up to 2cm X 4mm - frags oriented and subparallel at 75° to C.A. - fine-grained aphyric matrix, looks spherulitic and devitrified.	qtz vein at 53.5 (45° CA) marks gradational contact		Minor fine disseminated pyrite in chl/ser frags.		



<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
66.7 to 66.94	Dacitic Rhyodacitic Tuff	Colour - grey-green Grain Size - f.g. Massive bed of dacitic tuff, few felsic frags (<0.5cm) at base of unit.	Contact at 66.94 @ 50° CA			
66.94 to 78.16	Andesitic Tuffs	Colour - Dark green Grain Size - f.g. 66.94-67.50 F.g., aphanitic andesite tuff/ash bed 67.50-67.60 f.g. Andesitic tuff, slightly coarser grained and lighter coloured than above bed 67.60-78.16 Massive, homogeneous andesitic tuff/ash - faint, darker fragment forms observed but not definite - 1% pyrite/nodules or fragments <1cm in size - cut by calcite/quartz veins at 5°, 20° and 75° to C.A. - sericite shear from 76.7 to 76.95 at 40° to C.A. - contact at 78.16 lost to broken core			pyrite forms massive nodules/fragments, occurs in fractures and as disseminated clots to 2cm in size.	
78.16 to 83.3	Chloritized Dacitic tuff lapilli tuff	Colour - light green grey to dark green 78.16-83.3 Vitric, lithic lapilli tuff obscured by chlorite alteration Upper part of unit to 82.9 is a light green, fine dacitic lapilli tuff consisting of light to dark green subangular lithic vitric fragments (<1cm) in a fine matrix - after 82.9 unit contains large altered vitric fragments that are irregular to subangular in form in a light grey siliceous almost pinkish aphanitic matrix. - large blocks up to 12cm in size Contact at 83.3 at 40-45° to C.A.		Irregular, stringer like zones of strong chl alteration cut unit with intense, dark green chlorite alteration envelopes up to 1cm wide mantling irregular fractures - alt/ fracturing so intense locally resulting in situ bx from 78.4-78.55 79.3-79.85 80.8-81.1 - unit in total is chloritized.	Disseminated pyrite and pyrite cubes in chl dacite	

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
83.3 to 89.16	Dacitic lithic, vitric lapilli tuff	<p>Colour - light green</p> <p>83.3 to 83.55 fine, massive, non bedded dacitic tuff, CA angle at 40°</p> <p>83.55 to Dacitic lapilli tuff</p> <p>- consists of subangular to angular (up to 3cm) lithic frags of green grey aphyric to mafic porphyritic dacite and irregular light green, wispy "vitric" fragments up to 2.5cm long X 5mm wide - locally amygdaloidal and typically with mafic phenocrysts</p> <p>- dacitic lithic frags w/ porphyritic</p> <p>&gt;35-40% fragments</p> <p>- light green aphanitic matrix</p> <p>- frags elongate at 40° to C.A.</p> <p>- light green - darker green mafic porphyritic fragments are irregular in form with distinct tails - somewhat locally molded about lithic frags - incipient welding?</p>		<p>- weak but pervasive chlorite alteration</p> <p>- foliation at 60-50° to CA</p>	<p>diss. pyrite in both fragments and matrix</p> <p>- light pink hematitic color to matrix; locally accompanied by up to 1% disseminated and clotty pyrite.</p>	
89.16 to 96.16	Flowbanded Rhyolite Dyke	<p>Colour - light green</p> <p>Grain Size - aphanitic</p> <p>Flowbanded, locally flow-brecciated (in situ) margins to dyke; interior is massive, and blocky with fractures at 30-65° to CA</p>	<p>contact at 96.16 @ 40° to CA</p>			

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
96.16 to 103.60	Chloritized Dacite Lapilli tuffs	Colour - green Chloritized dacitic vitric lapilli tuff - fragments are chlorite altered, small (typically <1cm), aphanitic and vitric. (Top 10cm of unit may be base of lithic-vitric tuff described above) - fragments are irregular to shard like and sit in a light green dacitic matrix with mafic phenocrysts (<5%)		Unit is pervasively chloritized and speckled with leucoxene crystals - unit is in situ brecciated from 96.16 - 97.10 97.50 - 97.60 97.78 - 97.97 - here lapilli are broken and separated into frags (>1cm) by fine qtz - hematite veins - "a la Roy". From 102.0 - 103.6 is in situ brecciated by fine grey quartz - chert - veins.	>10% fine disseminated pyrite from 96.16 to  From 102.0 to 103.6 in situ brecciated chl lapilli tuff is soaked with fine disseminated pyrite with minor hematite - 3-5%. - pyrite found typically in chl dacite but also in qtz-vein/chert matrix - 1cm bleb of ccp at 102.80	
103.60 to 121.10	Rhyolite Dyke	Colour - grey-white Grain Size - aphanitic Massive, fine grained - aphanitic rhyolite dyke <1% (1-2mm) feldspar phenocrysts - contorted flow banding locally	Contact at 121.10 @ 30° to CA	Zip	Zip	Cave in hole between 117.95 and 120m.



<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
121.0 to 186.44	Dacitic Crystal tuff and lapilli tuff	Colour - green-grey 121.0 - 129.3 massive non bedded crystal lapilli tuff consisting of - <10% subangular - angular dark green vitric fragments (<1cm) - <10% subhedral mafic phenocrysts up to 4mm in an aphanitic light grey siliceous matrix - possible larger fragments from 129.3 - 129.3 that range in size up to 8cm (typically <2cm) 129.3 - 167 - massive and uniform dacitic vitric lapilli tuff and crystal tuff 167 - 171.9 - dacite characterized by larger chloritized fragments up to 3-4cm - subangular in form and have sharp to fuzzy contacts with matrix - fine <1cm fragments are absent - matrix is light grey-green in colour		121 - 129.3 - dacitic tuff is light grey in colour adjacent to dyke (at 121m) and gradually changes to a grey-green color at 129.7m, otherwise unit is fresh looking - unit has a grey (light pink here) color where cut by quartz veins (at 5-45° to CA) 129.3 - 164.3 - weak but pervasive chlorite alteration - incipient. 164.3 - 173 - moderate to strong chlorite alteration - interval from 165.3 - 166 has weak hematitic staining - leucoxene common	- dacite contains fine (<1mm) disseminated and fracture-filling pyrite (tr. ccp) throughout - typically <1-2% - from 129.45 to 129.68 dacite has a pink hue and contains >8% fine pyrite - chalcopyrite is typically associated with white vein quartz at 125.8 and 126.7m (1% ccp over 10cm) - reddish brown hematitic? stain associated with fractures in bleached dacite adjacent to rhyolite dyke. <1% diss pyrite (up to 3% over 10cm locally) after 129.3m to 159.9m <1% ccp in quartz veins from 137.0 - 138 and at 138.5m	Fieldspar porphyritic calcite amygdaloidal andesite dyke at 75-80° to CA from 132.45 to 134.16 Cut by magnetic basalt dyke from 133.8 - 134 at 45° to CA  Assay #3901 157.72 - 158.43 Assay #3808 126.2 - 126.95 Assay #3609 128.24 - 129.72

<u>From</u> <u>To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to</u> <u>Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
		171.9 - (186.44) Fine lapilli tuff with <10% aphyric, subangular "vitric" fragments - 8-10% mafic prismatic crystals - thin -2mm wide - chert bed at 20° to CA at 175m, possibly a vein, characterized by a white base and aphanitic grey top		171.9 - (186.44) Mottled sericite alteration to 180.5 with light grey patches in a light green matrix - good sericite selvages mantling quartz - sulphide veins from 180.5 - 181.55 - fine hematitic staining + diss pyrite from 179.4 - 180.4 - strongly sericitized and light grey-pink in colour from 183.6 to 186.44	Quartz veins containing blebs of chalcopyrite, pyrite and locally molybdenite @ 146.23 - ccp/qtz vein at 25° to CA 146.43 - ccp/qtz vein 147.90 - ccp in qtz/vein at 35° to CA 157.77 - 158.70 is a qtz-vein zone (10° to CA) with up to 1% ccp and molybdenite locally (over several m). Host dacite is soaked with 3-5% disseminated fine pyrite and is light grey in colour (sericite?) 171.9 - 186.44 1% fine diss pyrite, trace ccp - ccp in qtz veins at 179.5m 180.2-180.3m 181.12m 181.45m 185.01m 185.25	Magnetic, basalt dykes from 149.56 - 149.74 at 85° to CA and from 152.45 - 153.55 at 60° to CA  Assay #3810 145.80 - 147.10



<u>From</u> <u>To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to</u> <u>Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
200.10 to 226.3	Rhyolite Flow "Roy Rhyolite"	Colour - light grey-green Grain Size - aphanitic <u>200.10-200.60</u> Rhyolite flowbreccia, lapilli tuff - reworked & bedded fine ash interbeds up to 1cm wide (graded- tops up hole?) <u>200.60-204.90</u> Flowbanded & flow brecciated rhyolite - typically flow brecciated to 203.3 with faint diffuse bordered more chloritic fragments (flowbands) in a lighter siliceous rhyolitic matrix - predominantly intact flowbanded rhyolite to 204.90 <u>204.90-206.37</u> massive aphyric rhyolite <u>206.37-208.30</u> Basalt dyke <u>208.30-226.3</u> Flow brecciated, flowbanded rhyolite - disrupted bands of aphanitic, aphyric light grey (1cm-10cm) and light green (up to 15cm) rhyolite - few 1-2cm wide weak shears @ 40° to CA from 223.67-224.2 Flowbanding @ 85-50° to CA		Wk chlorite alteration in rhyolite from 200.10- 204.90 - faint hematitic colouration from 200.5- 201.30 Wk but pervasive chlorite alt to 220 thereafter unit is not noticeably altered from 214-(226.3) rhyolite is dotted with 1%, 1-2mm red spots - crystals of hematite - weak pink hue to core from 224.5-225	Two, 3-4mm wide seams of massive ccp in chloritized rhyolite bx at 80° to CA at 200.15 Fine-crudeily layered ccp in fine ash from 200.30-200.35 at 70° to CA (3% ccp) 1% fine ccp over 2 cm at 209.35	206.37-208.30 F e l d s p a r P o r p h y r i t i c (olivine?) basalt dyke at 80° to CA
226.3 to 233.68	Feldspar Porphyritic Andesite/ D a c i t e Dykes	Colour - light green Grain Size - aphanitic <u>226.3-230.0</u> 5% Feldspar phenocrysts (2-4mm) weakly glomeroporphyritic, subhedral phenocrysts - aphanitic andesitic groundmass. <u>230.0-230.5</u> Flowbanded rhyolite <u>230.5-233.68</u> Andesite-rhyodacite composite dyke, 230.5-231.40, feldspar porphyritic andesite dyke as above. <u>231.40-232.27</u> Feldspar, quartz porphyritic dacite dyke, distinctly quartz porphyritic from 231.60 to 232.27 <u>232.27-233.68</u> Aphanitic, mafic spotted (1-2mm) dacite dyke, weakly feldspar phyric	contacts lost	Weak epidote alt. from 226.3-231.40		ctc at 230.5 at 45° to CA at 233.60 @ 40° CA

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
233.68 to 305.11	Flowbanded and flow brecciated Rhyolite	<p>Colour - grey-green Grain Size - aphanitic Disrupted flowbrecciated flowbanded rhyolite from 233.68 to 241.40</p> <p>- Fragments of light green aphanitic rhyolite in a lighter green to white siliceous rhyolitic matrix - local sections of intact flowbanded rhyolite consisting of light grey and green alternating bands (&lt;5cm to mm scale) at 75° to CA - unit shows all stages of disruption of primary flowbanding - thin (&lt;3cm) calcite qtz vein at 65-80° to CA</p> <p><u>241.40-247.55</u> Predominantly intact flowbanded rhyolite from 241.40 to 247.55 marked by alternating green &amp; light grey-green laminae for &lt;1m to 8cm wide @ 40° to CA</p> <p><u>247.55-281.0</u> Intact flowbanded and flow-brecciated and flowbanded rhyolite as described from 233-241m Flowbanding at 90° - 35° to CA Hematitized fragments/xenoliths (1.5cm) in flowbanded rhyolite at 251.42m. Rhyolite flow contains approx. 1% light coloured and hematitized xenoliths from 256-268 (up to 4cm) Quartz vein shear/breccia at 45° to CA at 268.38 and 268.90 to 269.20 @ 40° to CA</p>		<p>Fresh looking from 233.68 to 239.75. From 239.75 to 265 unit is moderately chloritized accentuating the flowbanded (brecciated) structure of the flow. Pink, hematitic staining is pronounced from 243.55 to 247 with strong hematitic alteration in breccia (with few quartz/calcite veins at 10° to CA) from 243.57 to 243.95. Weak, faint sporadic hematite colouration from 247-253m</p> <p>Pink, hematized flowbands and fragments in flow breccia from 276.59 to 281.0. Narrow (5-10cm in width) bands of light green sericite alteration from 286.20 to 288.</p>	<p>Trace diss. pyrite at 240.15, adjacent to contact of dyke chalcopyrite mineralization with discrete bleb-like forms define a distinct band (10% ccp over 2cm) at 35° to CA - Sandwiched between ccp band &amp; dyke is a fine rhyolite breccia possibly marking an internal flow contact.</p> <p>Trace disseminated and minor fracture pyrite throughout.</p>	<p>238.86-239.45 Quartz-feldspar porphyritic flow-banded rhyolite dyke nicks core at 5° to CA Identical dyke (QFP) at 40° to CA from 240.16-240.27 with red hematitic spots (1-2mm)</p> <p>Quartz-feldspar porphyritic rhyodacite dyke from 275.15 to 276.59 @ 40° to CA</p>

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
		<p>From 270.55 to 272.13 large blocks (up to 15cm) of massive and flow banded rhyolite in a finer breccia matrix (frags &lt;1cm) comprised of finer rhyolite fragments, hematized fragments, sericitized fragment and fine ash.</p> <p>Possible flow contact breccia internal to dome/flow at approx. 70° to CA</p> <p>Weak silicified shear at 290.50-290.70 at 45° to CA and a thin chloritic shear at 50° to CA at 291.9.</p> <p>Base of rhyolite flow from 301.40 to 307.76 characterized by</p> <ul style="list-style-type: none"> <li>a) massive rhyolite to 301.40</li> <li>b) spherulitic flowbanded rhyolite (at 80° to CA) from 301.40-301.70. Irregular chloritic wisps between light grey predominantly spherulitic areas/bands.</li> <li>c) 301.70-302.55. Rhyolite flowbreccia, weakly chloritized.</li> <li>d) 302.55 to 303.23 Spherulitic &amp; chloritized flowbanded rhyolite with distinct shard-like, fragments of sericitized vitric rhyolite.</li> <li>e) 303.23-303.56 Rhyolite frags - lapilli size in a pink ash matrix.</li> <li>f) 303.56-304.5 Shard-like, sericitized rhyolite hyaloclastite fragments (angular) up to 3cm in a fine felsic ash sized matrix.</li> <li>g) flowbrecciated, flowbanded rhyolite - intact base of flow? from 304.5-304.76</li> <li>h) mixed rhyolite/andesite breccia from 304.76 - 305.11. Chaotic mixture of massive, aphanitic and aphyric rhyolite fragments &amp; fine andesite/dacite fragments (green) with minor grey ash matrix.</li> </ul> <p>- Base of flow -</p>				<p>Fine quartz-feldspar porphyritic rhyodacite dyke from 296.3 to 298.36 @ 45° to CA</p>

<u>From To</u>	<u>Rock Type</u>	<u>Texture and Structure</u>	<u>Angle to Core Axis</u>	<u>Alteration</u>	<u>Sulphides</u>	<u>Remarks</u>
305.11 to 312.60	Andesite - dacite Breccia Lapilli- Tuff and Lapilli block tuff -minor ash & tuff	Colour - green Mixture of green aphanitic aphyric massive and mafic amygdaloidal andesite frags (up to 15cm) light grey-grey/green aphanitic aphyric dacite frags and sericite/chlorite altered fragments in a fine ash matrix that is weakly hematized locally - distinct ash/crystal tuff (FP) beds (<10cm wide) near top of unit at 80-75° to CA - few shears at 50° to CA		Fragments are variably sericite/chlorite altered - strong pink hematite alteration to matrix and fragments locally.	Trace pyrite	
312.60 to 318.34	Feldspar Porphyritic Andesite Dyke	Colour - green 6% feldspar phenocrysts 1% calcite amygdules aphanitic groundmass	5° at 312.6 and 50° at 318.34			
312.60 to 328.27 E.O.H.	Andesite Lapilli tuff and ash	<u>312.6 - 320.85</u> Andesite lapilli tuff, matrix supported - 10-12% dark green to black aphanitic/aphyric chloritized andesite fragments (subangular) up to 2cm in size - <3% light grey subangular dacite fragments <1cm in size - fine andesitic ash matrix <u>320.85 - 328.27</u> Predominately a fine andesitic tuff (volcaniclastic and ash - minor lapilli tuff beds (<15cm) - weak chloritic shear at 35° CA at 324.70m.		Pervasive weak-moderate chlorite alteration - faint hematitic staining locally.	Fine fracture controlled pyrite (minor chlorite) at 321.29m.	





LEGEND

CRETACEOUS

COAST PLUTONIC COMPLEX

- 12 Granodiorite
- METAMORPHOSED INTRUSIONS
- 11 Gabbro/diorite
- 10 Quartz microporphry-sericite-pyrite altered
- 9 Rhyolite-dacite dikes
- 8 Andesite-basalt dikes

LOWER CRETACEOUS

MIDDLE GAMBIER GROUP-BRITANNIA PENDANT

METASEDIMENTARY ROCKS

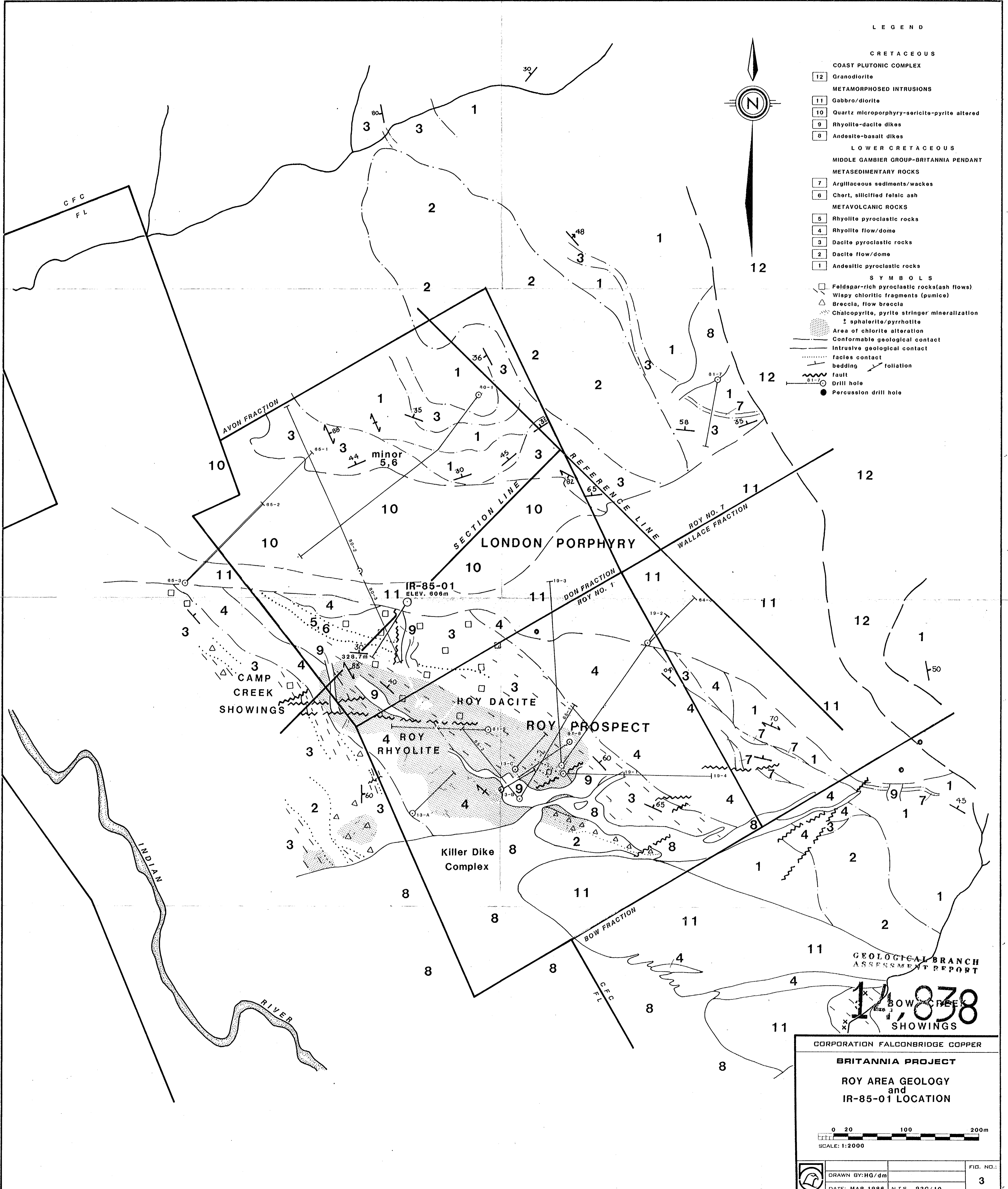
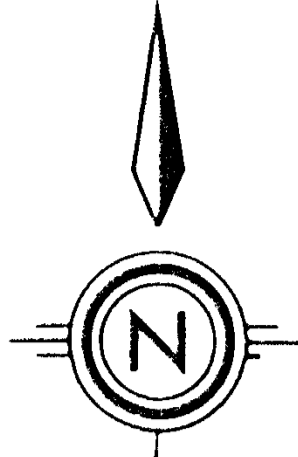
- 7 Argillaceous sediments/wackes
- 8 Chert, silicified felsic ash

METAVOLCANIC ROCKS

- 6 Rhyolite pyroclastic rocks
- 4 Rhyolite flow/dome
- 3 Dacite pyroclastic rocks
- 2 Dacite flow/dome
- 1 Andesitic pyroclastic rocks

SYMBOLS

- Feldspar-rich pyroclastic rocks(ash flows)
- Waxy chloritic fragments (pumice)
- △ Breccia, flow breccia
- ⋄ Chalcopyrite, pyrite stringer mineralization
- ⋄ sphalerite/pyrrhotite
- ⋄ Area of chlorite alteration
- Conformable geological contact
- - - Intrusive geological contact
- ⋯ facies contact
- ⋯ bedding
- ⋯ foliation
- ⋯ fault
- Drill hole
- Percussion drill hole



GEOLOGICAL BRANCH  
ASSESSMENT REPORT  
**14,838**  
CAMP CREEK  
SHOWINGS

CORPORATION FALCONBRIDGE COPPER

**BRITANNIA PROJECT**

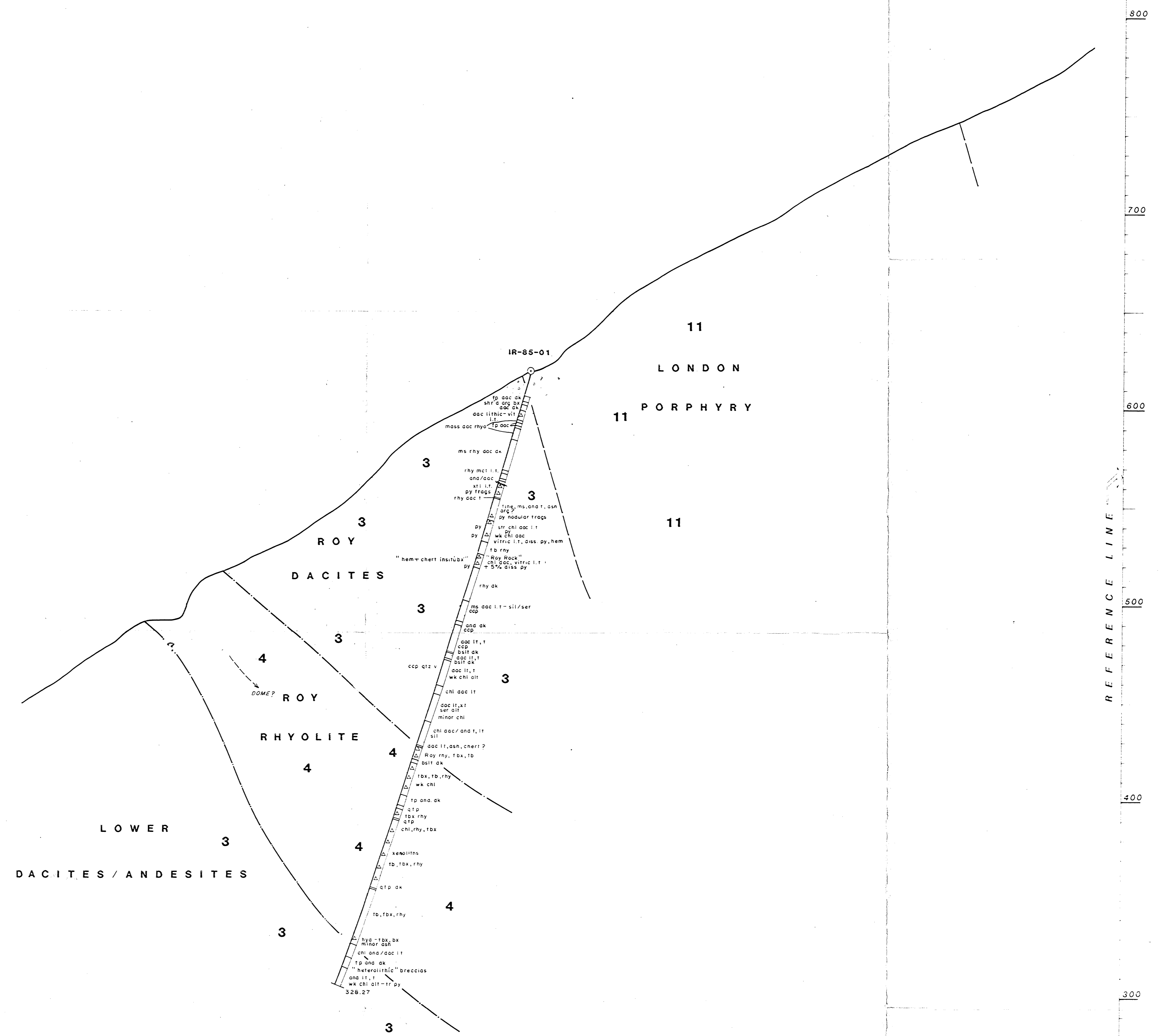
**ROY AREA GEOLOGY**  
and  
**IR-85-01 LOCATION**

0 20 100 200m  
SCALE: 1:2000

DRAWN BY: HQ/dm	FIG. NO.:
DATE: MAR. 1986 N.T.S. 92G/10	3

SW

NE



800  
700  
600  
500  
400  
300

REFERENCE LINE  
ELEVATION METRES

ABBREVIATIONS -

Dic diorite	ftra fractured
Rhy rhyolite	Shr'a sheared
Dac dacite	mtx matrix
And andesite	chl chlorite
Hycl hyaloclastic	ser sericite
Tbx tuff Breccia	sll siliceous
Lst lapillistone	qtz quartz
Lt lapillituff	ccp chalcopyrite
T tuff	py pyrite
XII crystal Tuff	FP Feldspar Porphyritic
DK dyke	QP Quartz Porphyritic
Fl flow	MP Mafic Phenocryst
Mar mafic	a amygdalite
Fel felsic	s spherulite
Fb flowbanded	spt spotted
fgr finegrained	wht white
wk weak	brn brown
Mass/Ms Massive	

14,838

FOR LEGEND SEE MAP 3

BRITANNIA PROJECT  
ROY AREA  
IR-85-01

SCALE 1:1000

DATE: NOV. 1985 N.T.S. 92G.10