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80/1509

017001

PROJECT NAME:

COMSTAFF PROPRIETARY LIMITED

TITLE:

REPORT ACCOMPANYING LICENCE RENEWAL APPLICATION
FOR EXPLORATION LICENCE 5/63
TASMANIA

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: Burnie K55-03 and
Queenstown K55-05

COMMODITY/IES: Sn, W, Cu, Pb, Zn, Ag, Ni, Au

TEXT PAGES NO: 6

PLAN NOS: TAS-2-2307, 2300, 2311, 2303, 2302,
2305, 2257, 2308, 2301, 2304, 2306

TABLE NOS:

APPENDICES: As Listed

AUTHOR/S: G. F. Pigott

DATE: 24th November 1980

OPEN FILE

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

EXPLORATION LICENCE 5/63

We hereby apply for renewal of Exploration Licence 5/63 over the existing area of 364 square kilometres for a further period of six months ending 30th June 1981. In support of our application for renewal we set out below a report on the work undertaken and currently in progress in the six months ending 31st December 1980. Also herein is our proposed work programme for the first six months of 1981 with expenditure and budget figures. Each section of the EL is discussed separately : summary plans, and copies of detailed technical reports are appended.

Work Completed

EL 5/63 Section 1 Arthur River (Plan TAS 2-2307)

An assessment of the potential for Sn bearing alluvials in the valley of the Arthur River was carried out. This assessment along with recommendations is presented herewith : "Preliminary Economic Assessment of the Arthur River Alluvials Prospect - EL 5/63 Tasmania".

The follow up prospecting programme in the Deep Gully drainage basin north east of Mount Bischoff was not completed during the winter months. It is hoped that the initial phase of this programme can be completed during the current period. Anomalous Sn values have been recorded in active stream sediment samples. It is considered likely that Bischoff dolomite and acid porphyry outcrop in the headwaters of this creek system.

EL 5/63 Section 2 Ramsay (Plan TAS 2-2300)

Geological mapping, geochemical sampling, geophysical surveying and grid cutting were carried out in the Ramsay area. Intensive prospecting in this sector is currently underway as part of the 1980-81 Summer field season. A detailed report on all phases of the programme will be compiled at the end of the season. Results of geological mapping, geochemical sampling and geophysical surveys carried out to date are presented herewith as an appendix "A compilation of results from work carried out in the Ramsay Area, EL 5/63 Part 2".

The skarn zone on CAF was further prospected by geological mapping and rock chip sampling. The skarn mineralisation is clearly defined by strong ground magnetic anomalies with coincident Sn, W and Cu geochemical anomalies. The zone remains open to the south, and extensions to the grid are planned.

The contact between the Crimson Creek Formation and the Ramsay sequence has been prospected from CAI northwards to Wombat Falls through CAJ, CAF, CAL and CAE. Additional grid lines have been cut, surveyed, mapped and sampled. This work is currently in progress.

In the region north of CAE where a major grid cutting programme is planned work is currently underway on following up stream sediment anomalies in Sn. Geological mapping, stream and heavy concentrate sampling and rock chip sampling are being carried out in the South Bischoff Area. Old workings are being sampled and mapped. Details of this project will be reported in the monthly reports to the Mines Department.

...2.

An access track into the South Ramsay area is currently being constructed in order to carry out the planned follow up programme over Input anomalies CAG and CAM. Planning is well advanced for the construction of a drill access road into the skarn zone at CAF in order to carry out diamond drilling.

EL 5/63 Section 3 Sock Creek - Mt Block (Plan TAS 2-2311)

Field work in this section during the current six monthly period has had to be deferred owing to the escalation of the East Renison project. The work carried out in Section 4 however, along with conclusions drawn from a review of all work completed and results achieved illustrates that the prospective andesite-acid volcanic contact at East Chester may be traced northwestwards into the area. Also rocks of the Que River sequence strike into the northern part of the area. Selected traverses across these sequences have been planned.

EL 5/63 Section 4 Chester-Pinnacles (Plan TAS 2-2303)

Geological mapping, ground magnetic surveys, Ao and auger geochemical sampling have been completed over the recently cut grid extensions at East Chester/Pinnacles. Induced Polarisation and Self Potential surveys are currently underway. The results of this work will be reported when the programme is completed. When all the data have been compiled, and a detailed assessment made, diamond drilling is planned.

EL 5/63 Section 5 Huskisson (Plan TAS 2-2302)

Geological mapping was carried out as part of an overall regional appraisal of the area. Sections exposed along the Pieman Road immediately to the south allow for a better understanding of the geological setting than was available before. Rocks correlated to the Crimson Creek Formation are faulted against an ultramafite-mafite complex, which in turn is faulted against Silurian sediments to the west. The intrusive complex may be traced southwards into Section 6 where diamond drilling is currently underway. More detailed geological mapping is planned in the area during the current six monthly period.

EL 5/63 Section 6 East Renison (Plan TAS 2-2305)

An intensive programme of diamond drilling, grid cutting, geophysical surveying and geochemical sampling is currently in progress in the East Renison Area. Results from work carried out so far have been highly encouraging. To date 16 diamond drill holes have been completed in this section: 410m in the latter six months of 1979, 845.2m in the first six months of 1980 and 2501m in this six monthly period (to 20th November 1980). The drilling has confirmed the existence of a major fracture system with associated zones of tin-base metal-sulphide mineralisation.

The mineralisation occurs in quartz-carbonate veins, breccia zones, shear zones and fissures. The host rocks comprise sheared carbonaceous pyritic shale, chloritic tuff, tuffaceous sandstone, pelite and talc-carbonate schist. Three distinct mineralised zones have so far been identified by the drilling - the Western or Base Metal Zone, the Central or Main Lode Zone and the Eastern or Talc-Carbonate zone. These converge to the south. Other prospective zones east of the talc carbonate have yet to be drilled.

...3.

The western or Base Metal Zone has become the main target for the current drilling programme. A number of ore grade/width intersections have been made within it. These are shown projected onto the longitudinal section (Plan TAS 2-2257). The zone varies in width from 3.0 to 7.5m and may be traced over a strike length of at least 500m to a depth of 150m.

Significant intersections of possibly economic mineralisations are listed below. The detailed drill logs, plans and sections are presented in the appendix.

	dw	Angle	t.w	%Rec	Sn	Cu	Pb	Zn	Ag
RBE 7									
63.00-65.00	2.0	50	1.53	95%	0.65%	0.27%	135	485	6
81.00-86.00	5.0	45	3.50	82%	175	528	7.59%	2.53%	106
RBE 8									
120.0-126.0	6.0	50	4.60	99%	160	0.32%	0.13%	0.58%	25.3
RBE 9									
116.2-117.2	1.0	40	0.65	100%	900	2.9%	165	0.28%	16.5
126.0-129.4	3.4	60	2.94	100%	251	0.94%	129	0.12%	19.4
157.5-161.0	3.6	50	2.80	100%	285	0.34%	1.57%	2.54%	68.3
176.0-182.6	6.6	50	5.10	100%	143	222	0.49%	1.43%	11.8
191.3-195.6	4.3	50	3.30	100%	266	402	5.25%	2.56%	168.8
RBE 10A (Note RBE 10 was abandoned before the mineralised zones were intersected)									
220.0-228.3	8.3	47.5	6.10	100%	281	0.11%	8.74%	3.12%	251.1
243.7-246.3	2.6	45	1.80	100%	0.19%	0.18%	800	0.19%	7.5
260.7-262.5	1.8	45	1.30	100%	453	1.39%	14	0.13%	27.0
RBE 11									
209.1-216.6	7.5	50	5.7	100%	663	984	1.10%	3.38%	29.0
233.6-235.5	1.9	45	1.3	76%	0.32%	0.84%	645	0.18%	14.0
252.9-254.7	1.8	45	1.3	100%	0.16%	689	23	56	2.6
RBE 12									
217.0-221.0	4.0	70(?)	3.76(?)	100%	312	833	0.80%	2.54%	15.4
230.7-233.9	3.2	45	2.26	100%	0.12%	1.23%	0.24%	1.16%	21.9
272.75-274.9	2.15	60	1.86	100%	0.10%	2.71%	152	794	46.8
RBE 13 drilled under the X Proprietary Mine									
66.9-68.0	1.1	8	0.15	100%	1150	145	185	335	1.5
87.8-88.8	1.0	30	0.5	100%	1480	354	21	106	1.4
110.0-111.5	1.5	50	1.15	100%	1150	230	40	170	0.5
124.0-125.0	1.0	50	0.77	87.5%	1100	345	55	210	1.0
RBE 14									
252.8-257.3	4.5	50	3.45	88.9%	820	1.23%	1.98%	2.18%	413
258.8-260.25	1.45	70	1.36	100%	0.22%	0.21%	0.11%	0.21%	28.9
261.9-262.8	0.9	55	0.74	100%	380	2.9%	135	0.10%	48.5

RBE 15 has been completed the final depth being 303.8m) no analytical
RBE 16 " " " " " " " 364.0m) results are
RBE 17 " " " " " " " 283.5m) available

Three further diamond drill holes are planned for the current period.

...4.

As portrayed on the attached plan additional grid lines and access tracks have been constructed. Grid lines have been surveyed, mapped and sampled. Geophysical surveys in the form of mise a la masse and ground magnetics have been carried out, with further surveys planned. The GAR grid was extended to the south to close up with the GAP grid. Grid GAT was constructed between GAR and the western boundary of the EL with the Renison ML 65M/73. Contract surveyors were employed to survey drill hole collars, access tracks and grid points. Geological mapping, geochemical sampling and geophysical surveying is currently in progress over the new grid lines to aid in drill site selection.

Geological mapping, soil sampling and a ground magnetic survey were carried out over GAP (west). a report on this work is herewith:- "Interim report on Renison East Grid (GAP West) EL 5/63 Part 6". Further work recommended in this report is scheduled for 1981. Also herewith as an appendix are the results of geological mapping, geochemical sampling and geophysical surveys carried out over grid GAR - "a compilation of results from work carried out at GAR, East Renison - EL 5/63 Part 6".

Expenditure

Expenditure on the tenement during the period 1.7.80 to 31.10.80 was $254,792 with an estimated 284,670 to be expended during November and December bringing the six monthly total to $539,462.

Proposed Programme

1. Arthur River EL 5/63 Section 1 (Plan TAS 2-2308)

   Target Sn (Cu W)

   1.1 Geological mapping, heavy concentrate sampling and stream sediment sampling will be continued in the Deep Gully Creek drainage basin north east of Mount Bischoff.

   1.2 The recommendations of the alluvial tin specialist for follow up work on the prospectivity of the Arthur River alluvials will be implemented.

2. Ramsay EL 5/63 Section 2 (Plan TAS 2-2301)

   Target Sn W (Cu Ag)

   2.1 Survey, sample, magnetic survey and geologically map grid lines established over the South Bischoff area.

   2.2 Continue and extend the prospecting activities in the vicinity of the old South Bischoff mine workings by geological mapping, rock chip and sediment sampling.

   2.3 Continue creek mapping, sediment and heavy concentrate sampling in the North Ramsay sector aimed at locating the sources of anomalous Sn contents in drainage samples.

...5.

2.4 Geologically map, sample and survey the newly cut grid extension to CAE and carry out geophysical prospecting in the form of magnetic and electro magnetic surveys.

2.5 Carry out an electro magnetic (CRONE or PULSE system) survey on grid CAL.

2.6 Extend grid CAF southwards over the skarn mineralised contact with the Meredith Granite. Survey, sample, geologically map and geophysically prospect the new lines.

2.7 Diamond drilling to test the skarn mineralisation. Allowance is made for 3 x 200m holes.

2.8 Carry out an electro magnetic survey over grid CAJ.

2.9 Cut, survey, geologically map and sample grid CAI and carry out ground magnetic and CRONE EM surveys.

2.10 Establish the field location of Input anomaly CAG. Cut, survey, geologically map and sample grid CAG. Carry out ground magnetic and CRONE EM surveys over the grid.

2.11 Carry out an integrated programme of geological mapping and stream sediment sampling in the South Ramsay sector.

3. Chester-Pinnacles EL 5/63 Section 4 (Plan TAS 2-2304)

3.1 Comprehensively review the results of the geophysical surveys currently underway.

3.2 Carry out Crone or PEM traverses over selected grid lines.

3.3 Extend the I.P. coverage to the east across the andesite-rhyodacite contact.

3.4 Diamond drilling selected targets. Allowance is made for 2 x 200m holes.

4. East Renison EL 5/63 Section 6 (Plan TAS 2-2306)

4.1 Diamond drilling will continue:-

4.1.1 The Base Metal-Tin zone at the GAR (Fentons) Prospect will be diamond drilled by banks of holes spaced at 60m centres. Intersections at RL 0m will be completed along the zone, followed in intersections at RL +75m and -75m. Allowance is made for 3600m of drilling.

4.1.2 The Quartz-pyrrhotite-arsenopyrite tin zones along the Exe valley will be diamond drilled following extensive surface prospecting.

4.2 The GAR grid south of the Murchison Highway will be geochemically sampled, probably using a power auger, and geologically mapped. Diamond drilling targets will be selected based on the results of this work integrated with the results of the geophysical surveys now underway.

...6.

4.3 Intensive surface prospecting followed by diamond drill target selection will be carried out over grid GAT. Geological mapping, geochemical sampling, ground magnetic, PEM and I.P. surveys will be carried out. This work should link up with that just completed on grid GAP west.

4.4 The work programme just completed on GAP west will be extended northwards into grid GAT.

4.5 New access tracks, the railway line and main water courses in the GAT area will be geologically mapped, and, where appropriate, geochemically sampled.

4.6 Further geological mapping will be carried out in the SW sector of the GAP grid to establish the presence or otherwise of a mineralised fault similar to the Bassett-Federal structure in the area.

Proposed Budget January-June 1981

Arthur River (Section 1)	12,703
Ramsay (Section 2)	247,943
Chester-Pinnacles (Section 4)	73,587
East Renison (Section 6)	503,854
Total	$838,087

Approved by

for R J Kernick
Exploration Manager

Compiled by G F Pigott
Senior Geologist Tasmania
24.11.80

LIST OF ATTACHED PLANS

TAS 2-2307	Section 1 Arthur River	Plan showing work completed 1.7.80 to 31.12.80	1:50,000
TAS 2-2300	Section 2 Ramsay	" " "	"
TAS 2-2311	Section 3 Mount Block	" " "	"
TAS 2-2303	Section 4 Chester Pinnacles	" " "	"
TAS 2-2302	Section 5 Huskisson	" " "	"
TAS 2-2305	Section 6 East Renison	" " "	"
TAS 2-2257	Renison Grid GAR Longitudinal Section along the Lead Zinc Silver Tin Lode		1:2,500
TAS 2-2308	Section 1 Arthur River	Plan showing proposed work 1.1.81 to 30.6.80	1:50,000
TAS 2-2301	Section 2 Ramsay	" " "	"
TAS 2-2304	Section 4 Chester-Pinnacles	" " "	"
TAS 2-2306	Section 6 East Renison	" " "	"

LIST OF APPENDICES

1. Report on the Preliminary Economic Assessment of the Arthur River Alluvials Prospect - EL 5/63 Tasmania.

2. A compilation of results from work carried out in the Ramsay Area, EL 5/63 Part 2.

3. Interim report on Renison East Grid (GAP West) EL 5/63 Part 6.

4. A compilation of results from work carried out at GAR, East Renison EL 5/63 Part 6.

017

EL 1/68

EL 5/63 AREA I

AREA CEDED TO METALS EXPLORATION P/L

WARATAH

LUINA

LEGEND

- Access road construction
- Grid lines cut
- Grid lines surveyed
- Grid lines sampled
- Stream sediment samples taken
- Geophysical survey
- Costeaning
- Geological mapping
- Drilling
- Approximate alluvium area

5 cm

COMSTAFF PROPRIETARY LIMITED

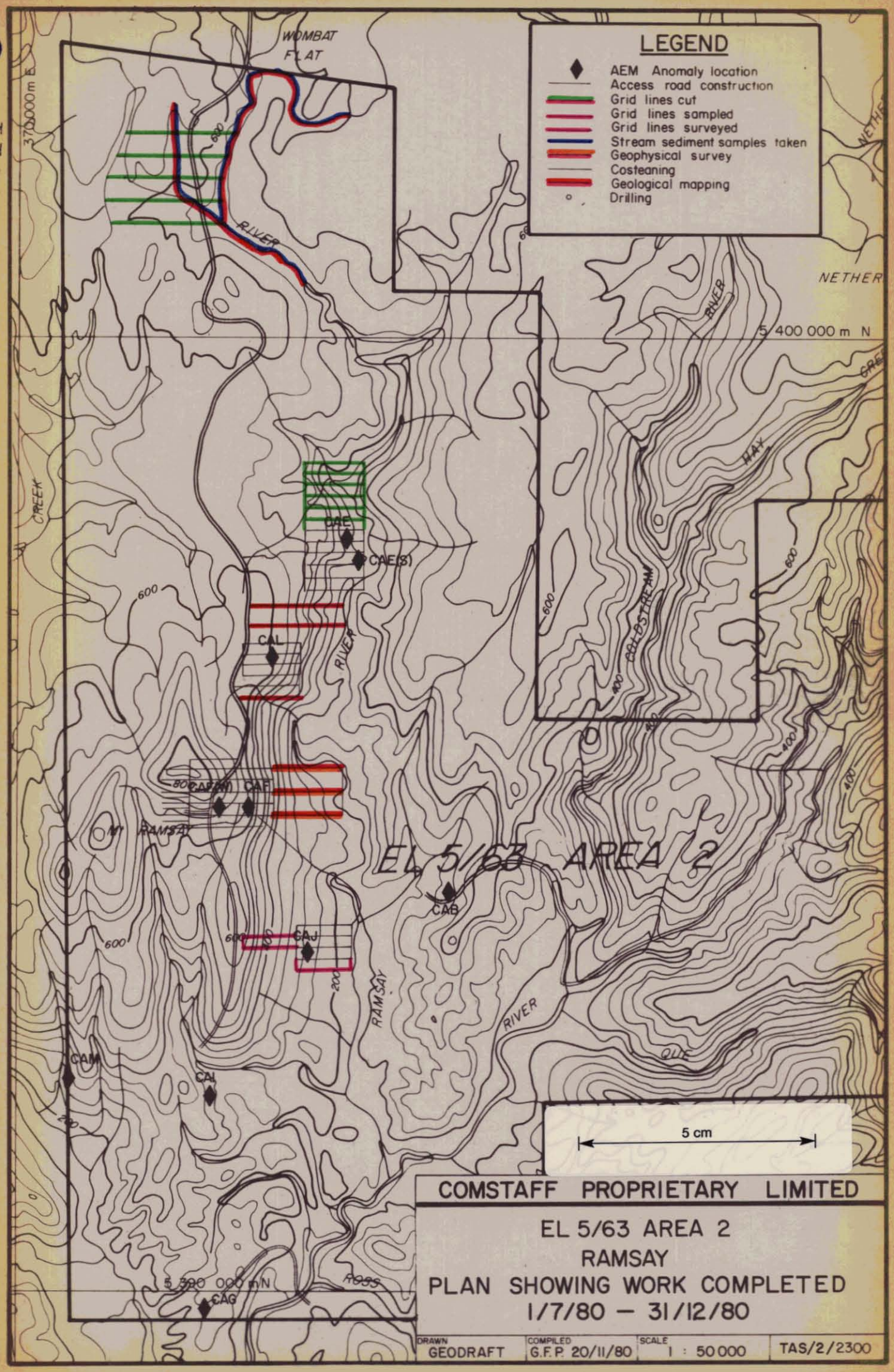
EL 5/63 AREA I
MAGNET / ARTHUR RIVER
PLAN SHOWING WORK COMPLETED
1/7/80 — 31/12/80

DRAWN	COMPILED	SCALE	
GEODRAFT	G.F.P. 21/11/80	1 : 50 000	TAS/2/2307

017010

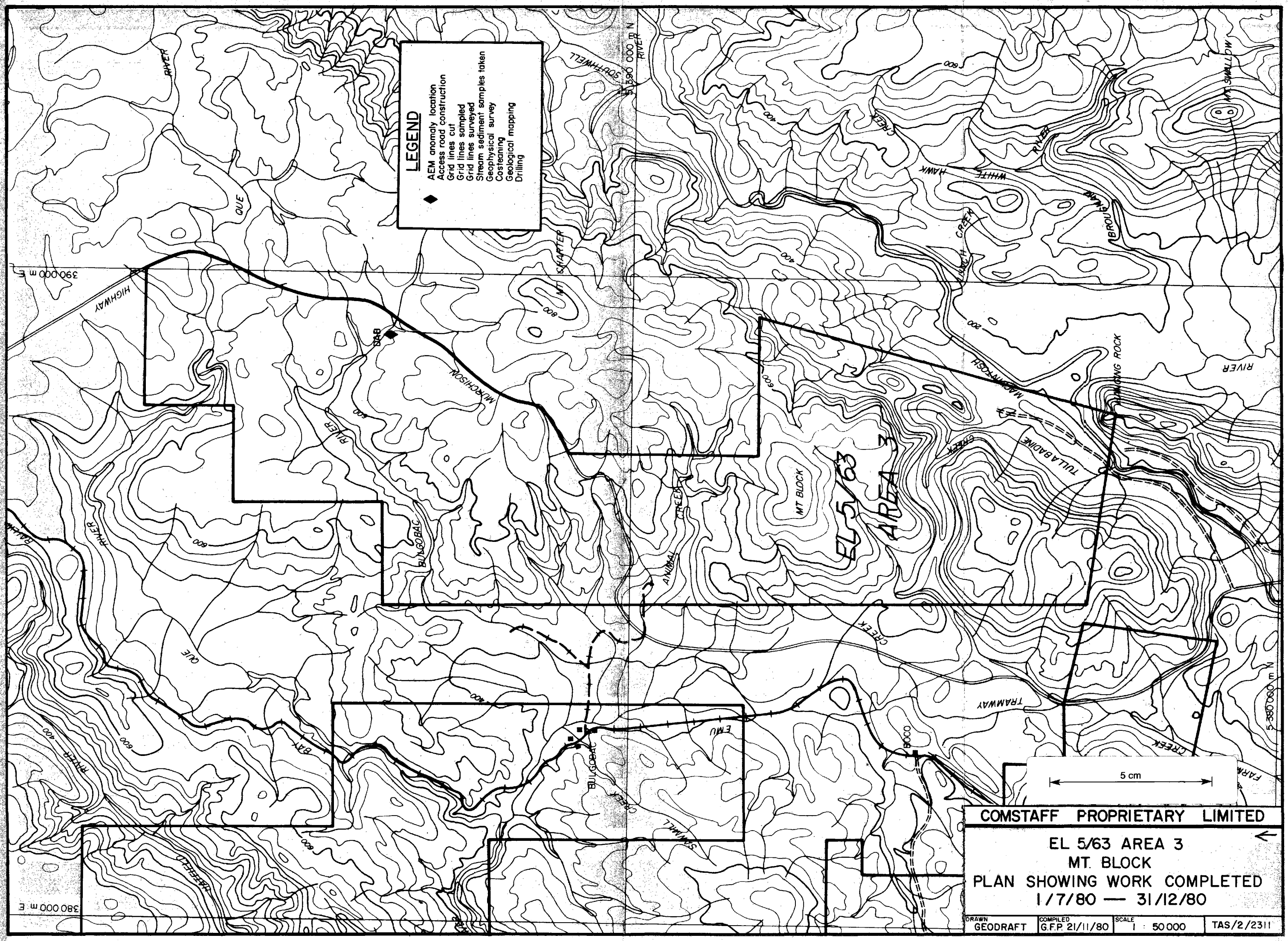
010

0170111


LEGEND
AEM Anomaly location
Access road construction
Grid lines cut
Grid lines sampled
Grid lines surveyed
Stream sediment samples taken
Geophysical survey
Costeaning
Geological mapping
Drilling
WOMBAT FLAT
RIVER
NETHER
5 400 000 m N
CAE
CAE(3)
CAL
CAE(2)
CAF
CAJ
CAB
CAM
CAI
CAG
EL 5/63 AREA 2
RAMSAY
5 390 000 mN
5 cm
COMSTAFF PROPRIETARY LIMITED
EL 5/63 AREA 2
RAMSAY
PLAN SHOWING WORK COMPLETED
1/7/80 – 31/12/80
DRAWN GEODRAFT
COMPILED G.F.P. 20/11/80
SCALE 1 : 50 000
TAS/2/2300

019

017012



COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 3
MT. BLOCK
PLAN SHOWING WORK COMPLETED
1/7/80 — 31/12/80

DRAWN	COMPILED	SCALE	
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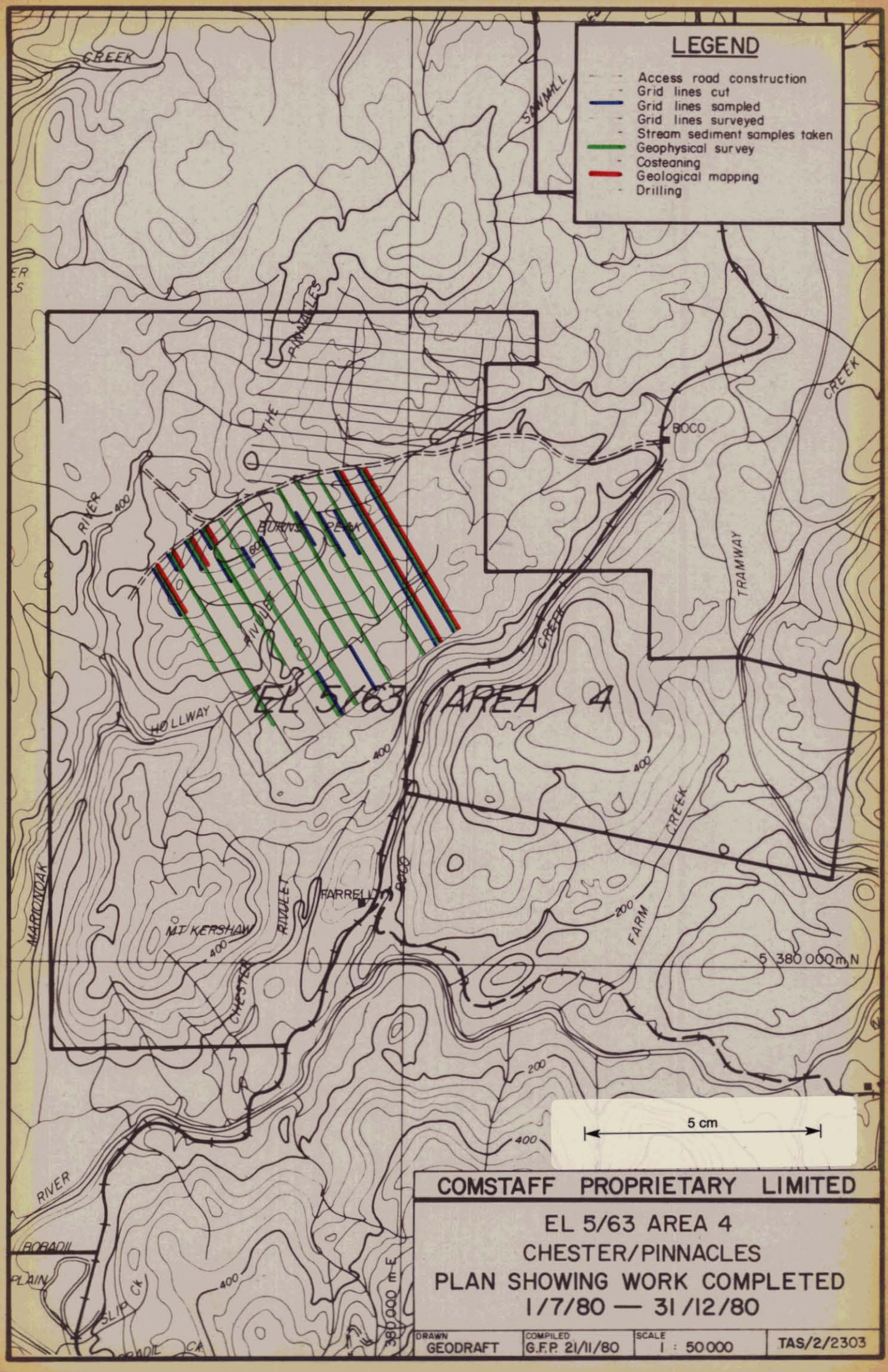
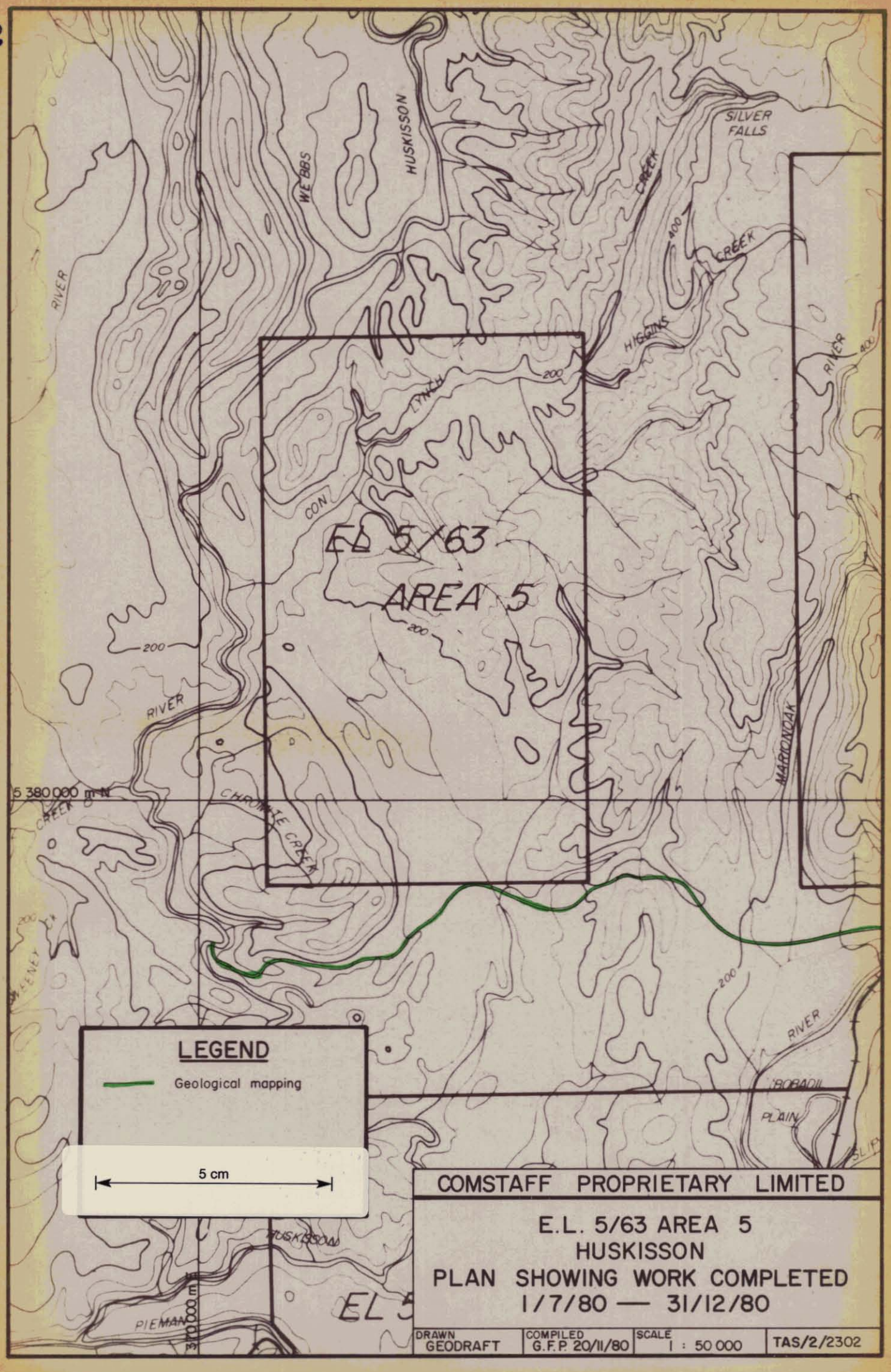
013

017013


LEGEND
Access road construction
Grid lines cut
Grid lines sampled
Grid lines surveyed
Stream sediment samples taken
Geophysical survey
Costeaning
Geological mapping
Drilling
CREEK
SAWMILL
PINNACLES
THE
BOCO
CREEK
RIVER
400
BURNS PEAK
600
RIVULET
TRAMWAY
CREEK
EL 5/63 AREA 4
HOLLWAY
400
400
CREEK
FARRELL
BOCO
MARIONOAK
MT KERSHAW
RIVULET
CHESTER
200
FARM
5 380 000 m N
200
5 cm
400
RIVER
BOBADIL
PLAIN
SLIP Ck
400
380 000 m E
COMSTAFF PROPRIETARY LIMITED
EL 5/63 AREA 4
CHESTER/PINNACLES
PLAN SHOWING WORK COMPLETED
1/7/80 — 31/12/80
DRAWN GEODRAFT
COMPILED G.F.P. 21/11/80
SCALE 1 : 50000
TAS/2/2303

012

017014



COMSTAFF PROPRIETARY LIMITED

E.L. 5/63 AREA 5
HUSKISSON
PLAN SHOWING WORK COMPLETED
1/7/80 — 31/12/80

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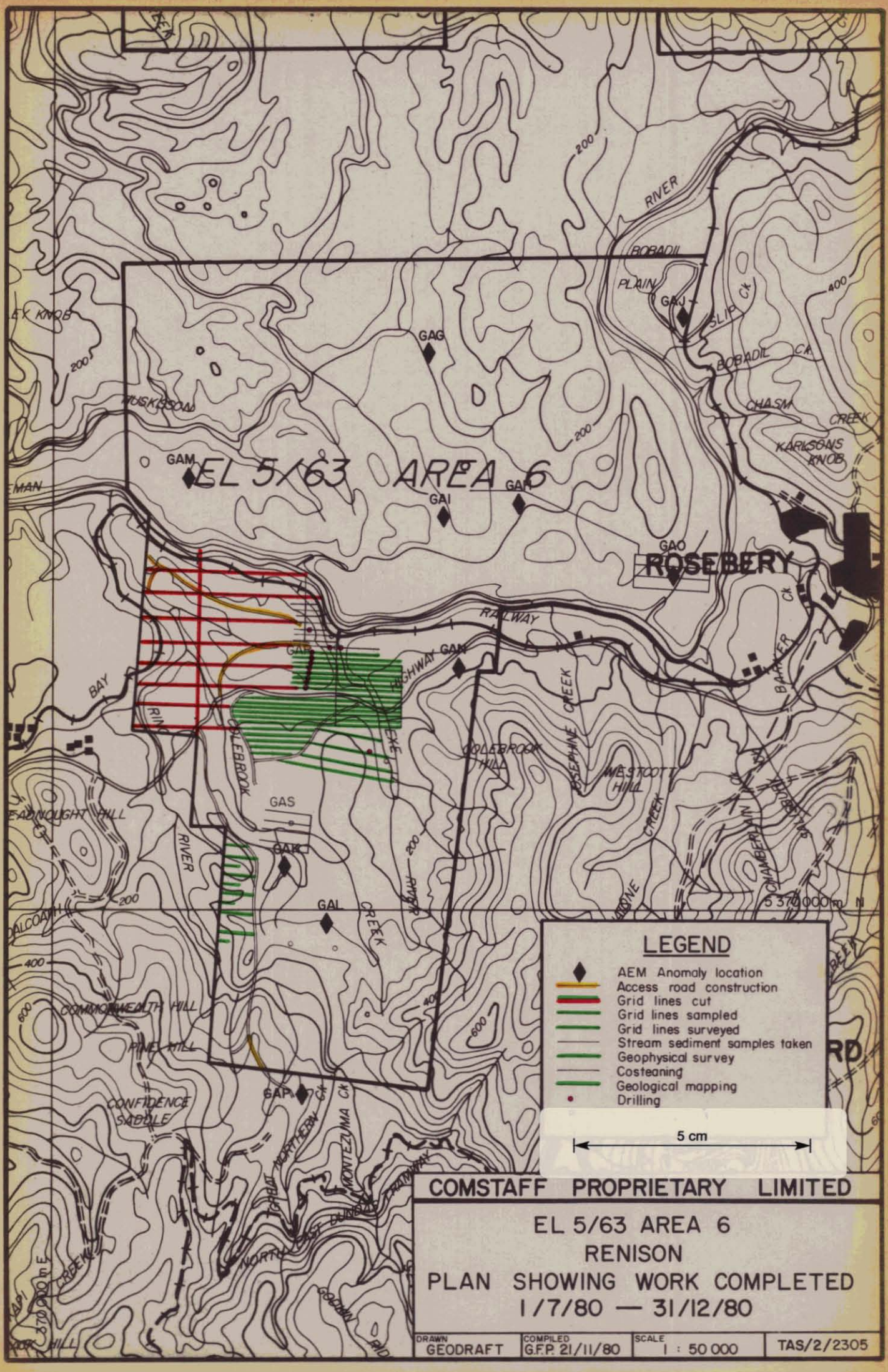
015

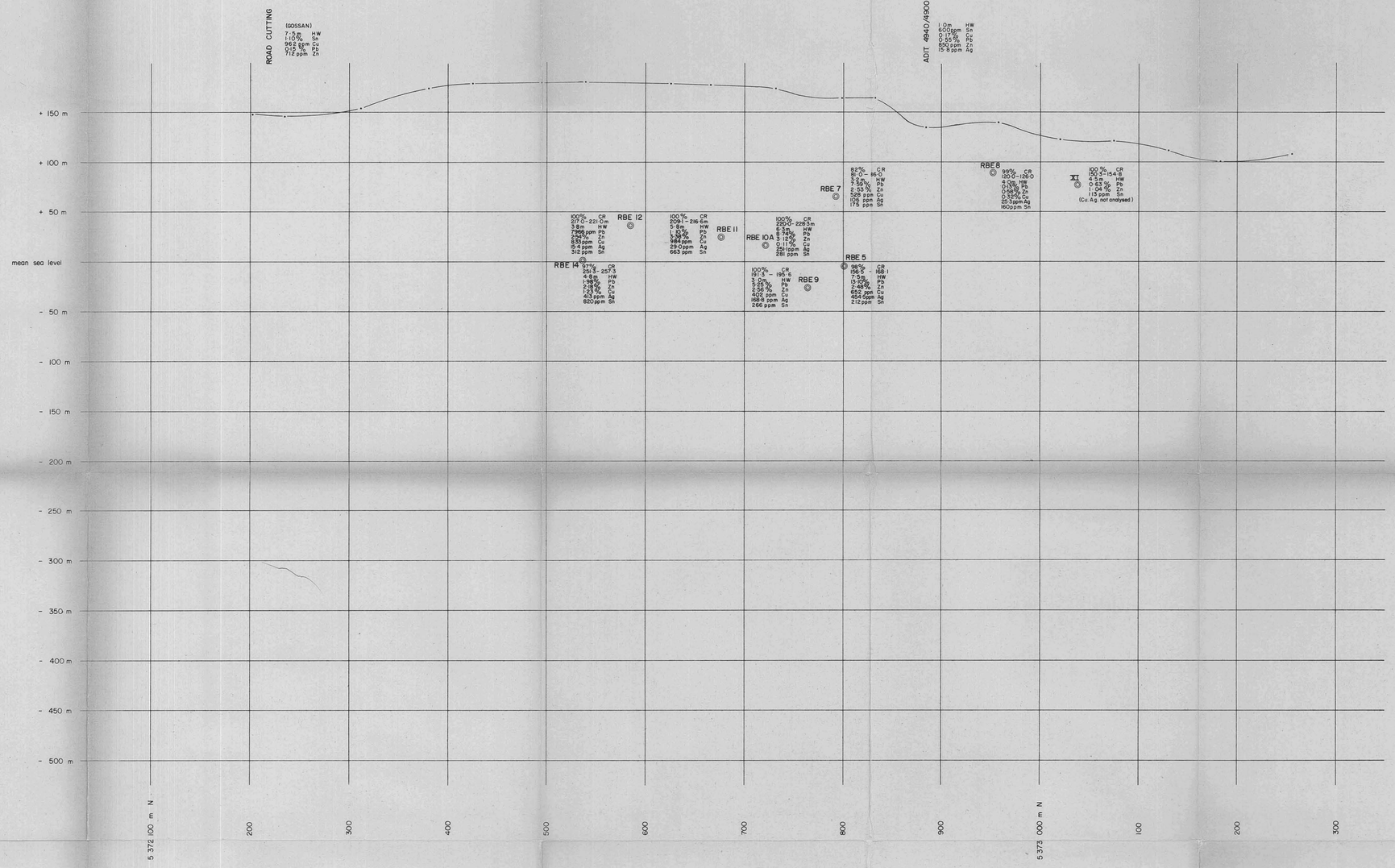
017015


EL 5/63 AREA 6
ROSEBERY
GAM
GAI
GAH
GAO
GAG
GAJ
GAN
GAS
GAK
GAL
GAP
RIVER
BOBADIL
PLAIN
SLIP Ck
BOBADIL Ck
CHASM
CREEK
KARLSONS KNOB
RAILWAY
HIGHWAY
BAY
COLEBROOK
COLEBROOK HILL
WESTCOTT HILL
CREEK
RIVER
COMMONWEALTH HILL
PINE HILL
CONFIDENCE SADDLE
MONTEZUMA Ck
5 370 000 m N
LEGEND
AEM Anomaly location
Access road construction
Grid lines cut
Grid lines sampled
Grid lines surveyed
Stream sediment samples taken
Geophysical survey
Costeaning
Geological mapping
Drilling
5 cm
COMSTAFF PROPRIETARY LIMITED
EL 5/63 AREA 6
RENISON
PLAN SHOWING WORK COMPLETED
1/7/80 — 31/12/80
DRAWN GEODRAFT
COMPILED G.F.P. 21/11/80
SCALE 1 : 50 000
TAS/2/2305

009

S

N



017016

5 cm

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAR
LONGITUDINAL SECTION ON 372875 m E
ALONG THE LEAD/ZINC/SILVER/TIN LODE
FROM LINE 4220 N TO LINE 5300 N

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	26/9/80
AMENDED	
SCALE	1 : 2500
PLAN No	TAS/2/2257

018

EL 1768

EL 5/63 AREA I

AREA CEDED TO METALS EXPLORATION P/L

WARATAH

LUINA

LEGEND

- Access road construction
- Grid lines cut
- Grid lines surveyed
- Grid lines sampled
- Stream sediment samples taken
- Geophysical survey
- Costeaning
- Geological mapping
- Drilling
- Approximate alluvium area

5 cm

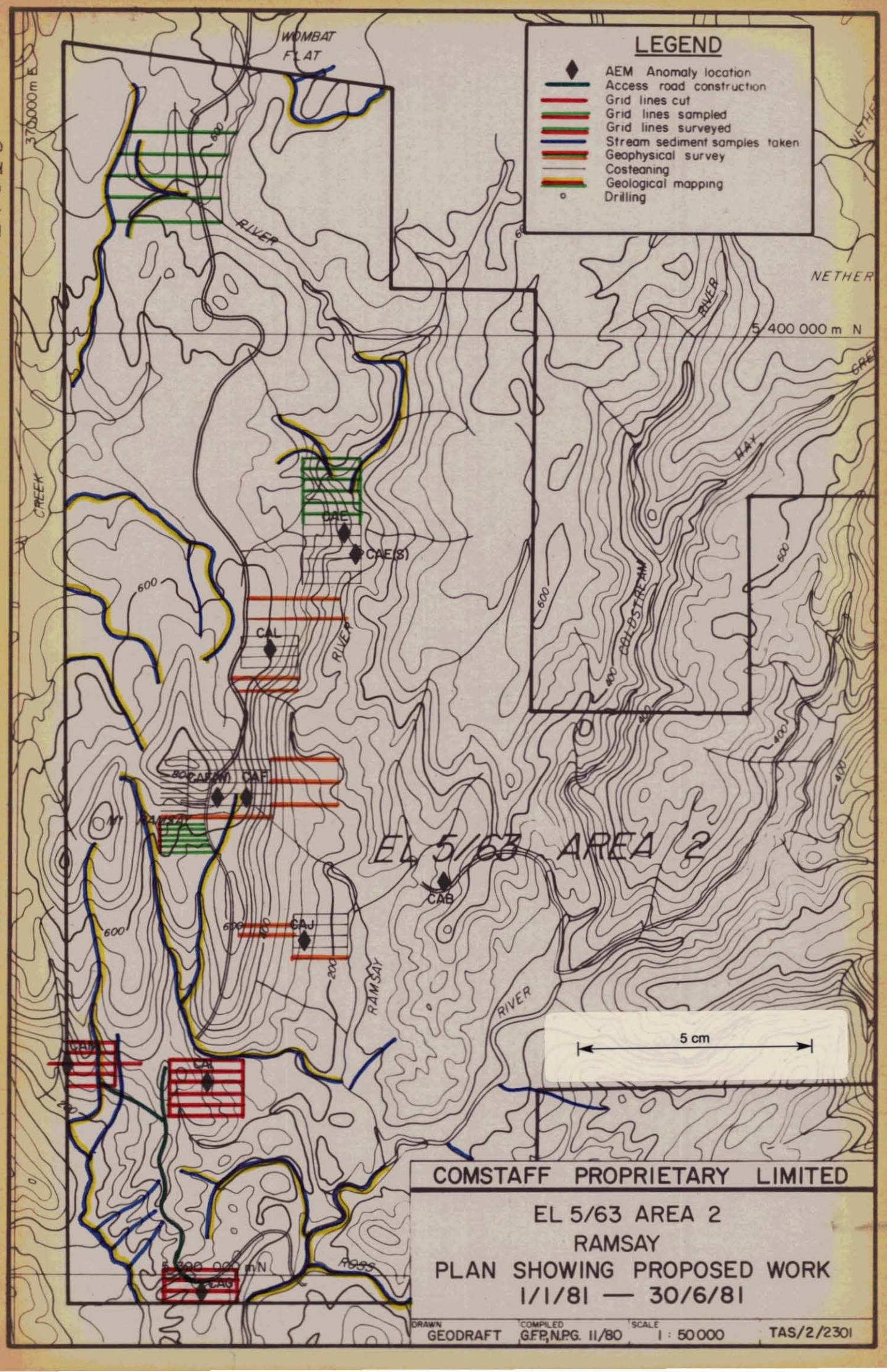
COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA I
MAGNET / ARTHUR RIVER
PLAN SHOWING PROPOSED WORK
1/1/81 — 30/6/81

DRAWN	COMPILED	SCALE	
GEODRAFT	G.F.P. 21/11/80	1 : 50 000	TAS/2/2308

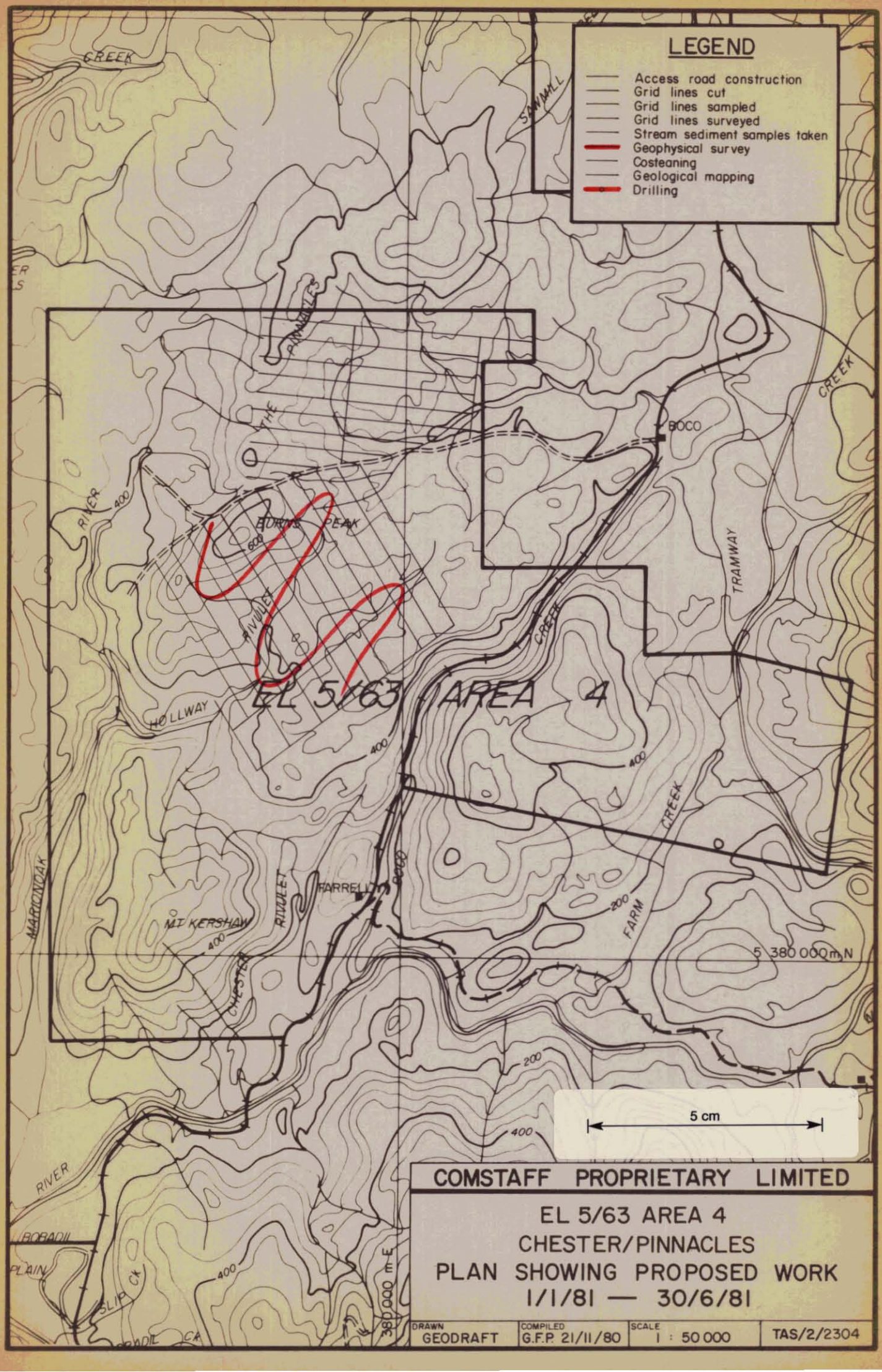
017017

017018


LEGEND
AEM Anomaly location
Access road construction
Grid lines cut
Grid lines sampled
Grid lines surveyed
Stream sediment samples taken
Geophysical survey
Costeaning
Geological mapping
Drilling
WOMBAT FLAT
370 000 m E
RIVER
NETHER
5 400 000 m N
CREEK
HAY
COLDSTREAM
CAE
CAE(S)
CAL
CAF(W)
CAF
Mt RAMSAY
EL 5/63 AREA 2
CAB
CAJ
RAMSAY
RIVER
5 cm
ROSS
5 300 000 mN
COMSTAFF PROPRIETARY LIMITED
EL 5/63 AREA 2
RAMSAY
PLAN SHOWING PROPOSED WORK
1/1/81 — 30/6/81
DRAWN GEODRAFT
COMPILED G.F.P., N.P.G. 11/80
SCALE 1 : 50 000
TAS/2/2301

014

017019



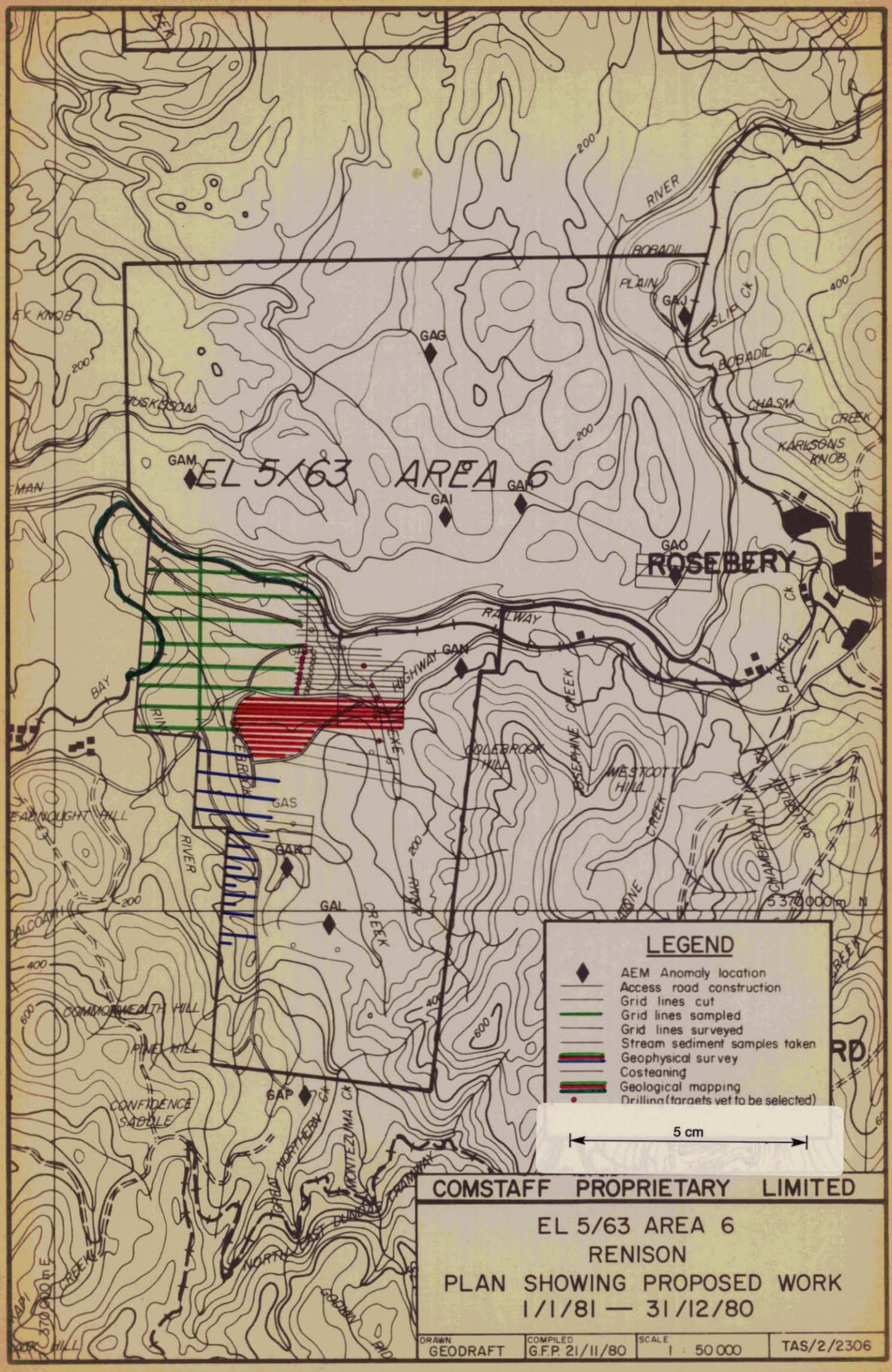
COMSTAFF PROPRIETARY LIMITED

EL 5/63 AREA 4
CHESTER/PINNACLES
PLAN SHOWING PROPOSED WORK
1/1/81 — 30/6/81

DRAWN	COMPILED	SCALE	
GEODRAFT	G.F.P. 21/11/80	1 : 50 000	TAS/2/2304

016

017020


EL 5/63 AREA 6
ROSEBERY
GAM
GAG
GAI
GAH
GAO
GAN
GAS
GAK
GAL
GAP
GAJ
RIVER
BOBADIL
PLAIN
SLIP Ck
BOBADIL Ck
CHASM
CREEK
KARLSONS KNOB
RAILWAY
HIGHWAY
BAY
COLEBROOK HILL
WESTCOTT HILL
COMMONWEALTH HILL
PINE HILL
CONFIDENCE SADDLE
NORTHERN Ck
MONTEZUMA Ck
5 370 000 m N
LEGEND
AEM Anomaly location
Access road construction
Grid lines cut
Grid lines sampled
Grid lines surveyed
Stream sediment samples taken
Geophysical survey
Costeaning
Geological mapping
Drilling (targets yet to be selected)
5 cm
COMSTAFF PROPRIETARY LIMITED
EL 5/63 AREA 6
RENISON
PLAN SHOWING PROPOSED WORK
1/1/81 — 31/12/80
DRAWN GEODRAFT
COMPILED G.F.P. 21/11/80
SCALE 1 : 50 000
TAS/2/2306

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APPENDIX 1

PROJECT NAME:

PRELIMINARY ECONOMIC ASSESSMENT

TITLE:

OF THE ARTHUR RIVER ALLUVIAL PROSPECT

EXPLORATION LICENCE 5/63, TASMANIA

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES: Tin

TEXT PAGES NO: 7

PLAN NOS: Plan I, II and III

TABLE NOS:

APPENDICES:

OPEN FILE

AUTHOR/S: W. K. Lee

DATE: 19th November 1980

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

PRELIMINARY ECONOMIC ASSESSMENT OF THE ARTHUR RIVER ALLUVIAL PROSPECT EXPLORATION LICENCE 5/63, TASMANIA

SUMMARY

Preliminary surface investigations and a limited sampling programme indicated the Arthur River Alluvial Prospect to contain 1400 tonnes of cassiterite concentrates (70% Sn) in 6.5 mil cu m of alluvium, grading 215 g per cu m. Of this reserve, 5.2 mil cu m containing 1070 tonnes are currently available to Comstaff Pty. Ltd. for mining; the balance is within a mining lease granted to Arthur River Mining Ltd. under an agreement with Comstaff.

Open-cut mining at a rate of 60,000 cu m/mth is considered suitable for the size and nature of the deposit. A preliminary economic assessment using this method to mine the available reserves shows the operation to be unprofitable.

A recommendation is made not to carry out any further drilling/pitting in the area.

1. INTRODUCTION

1.1 A field visit was made by the writer accompanied by Mr. Alan Hesketh of Comstaff Pty. Ltd. on 12th November 1980 to the Arthur River Alluvial Prospect in Tasmania. The objective was to examine the mining aspects and provide a preliminary economic assessment of the deposit for the management of the project.

1.2 Preliminary surface investigations had been carried out over the area during the second half of 1979 primarily for determining its alluvial potential. The results were submitted in the report entitled "Report On The Arthur River Alluvials, Exploration Licence 5/63, Section 1" by G. Washausen and I.G.P. Wilding and dated 25th February 1980. Following this, a limited pit sampling programme was undertaken in March 1980 to provide quantitative indications of the tin content in the alluvial deposit. The data collected have been examined and are taken into account for the ore reserve evaluation and financial assessment in the present report

...2.

2. TOPOGRAPHY

2.1 The deposit is situated in a rather broad flat valley of the upper Arthur River north of Waratah (refer Plan I). It is enclosed on both sides by hills of 25 to 30° slopes, covered with dense virgin bush which also covers the flood plain area. The surface elevations of the flat are generally within 275-300 metres above sea level. Width of the deposit varies from 180 metres in the Magnet Creek tributary to a maximum of 600 metres in the main Arthur River.

3. ACCESS

3.1 Access to the area is via the Belmont Road which branches from the Murchison Highway at Belmont Plain. Within the prospect area, the Wandle Road leads off the former and runs adjacent and parallel north-south to the Arthur River valley. Both the Belmont and Wandle Roads are gravelled all-weather logging tracks.

4. GEOLOGY AND MINERALISATION

4.1 The bedrock geology of the Arthur River Alluvials Prospect area is weathered feldspathic/mica sandstone and mudstone belonging to Triassic-Carboniferous/Cambrian ages(?). Erosion and deposition during the Tertiary and Recent periods have resulted in the formation of a tin-bearing alluvium covering the valley of Arthur River.

4.2 In the alluvium itself there are two layers, (refer Plan 3) being:-

- the upper surface layer of brown sandy clay with a mixture of some small angular stones and rounded pebbles. The depth varies from ½ to 1m.

- the bottom zone of gravels with large quantity of water worn pebbles and some 20-40cm boulders resting on the bedrock. Thickness is 1 to 3m.

4.3 Tin mineralisation occurs throughout the alluvium, being particularly more pronounced in the basal layer. In the upper layer the cassiterite values are erratically distributed between 16 and 470 g per cu m, averaging 123 g per cu m. The distribution in the gravels is variable too, ranging from 24 to 646 and averaging 236 g per cu m over a thickness of 1.6m.

4.4 The cassiterite grains are dominantly coarser than 100 mesh BSS as shown from visual examination of the heavy concentrates recovered from the pit samples by hand panning.

...3.

5. SAMPLING PROCEDURE AND TREATMENT

5.1 Two pit traverse lines, namely Track 1 and Track 2, were laid out across the valley at locations 800 metres above and 300 metres below the Arthur River/Deep Gulley Creek confluence (refer Plan 2). Six pits were excavated on Track 1 at equal spacing of 40 metres. Along Track 2, which runs diagonally across the valley six pits were also dug but at variable distances of 40-100 metres apart.

5.2 Pitting was carried out to bedrock by an International Excavator machine. On the wall of each pit vertical channel samples were taken at 50 cm sections. An amount of 5 000 cubic centimetres of sample was collected in each section.

5.3 The section samples were individually dried and screened at $\frac{1}{4}$ inch mesh . The $-\frac{1}{4}$ inch fractions were split into two portions of which 50% was sent to Analabs (Aust.) Pty. Ltd. for tin analysis. The remaining 50% was further split, half of which being hand panned to yield heavy concentrates for examination. The second half of the latter together with the $+\frac{1}{4}$ inch fractions are retained in the office at Waratah. All the sample portions had their weights recorded.

5.4 At Analabs the sample treatment involved crushing, pulverizing, splitting and sieving and finally XRF analysis for Sn. The results reported in ppm of Sn are converted into g per cu m after taking into account the $+\frac{1}{4}$ inch proportion. It is favourably assumed that all the Sn content is present in physically free cassiterite grains.

5.5 The pitting method employed is suitable and considered accurate for sampling this type of shallow deposit consisting of coarse pebbles and boulders. Completion of the 12 pits over an average depth of 2.5 m in 2 days is considered satisfactory.

5.6 The assay procedure in the above Section 5.4 reports a total tin content, giving no information of the presence of the metal in physically free or locked cassiterite grains or as ionic form in other minerals. The method however provides rather fast assay results useful for this type of preliminary work prior to further drilling commitment. In normal practise it is desirable to treat the ground samples by field panning or laboratory gravity processing (e.g. shaking table, superpanner) for the recovery of the cassiterite concentrates. The concentrates are then subject to mineralogical analysis. The results obtained would yield information on the physical nature of the cassiterite grains and quantities of other economic minerals, which are important for metallurgical considerations.

...4.

6. ORE RESERVE EVALUATION

6.1 Previous surface investigations outlined an alluvial area of 2.5 - 2.7 mil sq m with depths of 2.5 - 2.9m within the prospect, giving a volume of 6.25 to 7.83 mil cu m. The latest pit sampling indicated alluvium depths varying between 1.5 and 3.5 m and averaging 2.5m (The pit at 420m along Track 1 was unbottomed in alluvium at 3.5m depth!) On the basis of the latter depth finding and an average alluvial area of 2.6 mil sq m, the volume estimate for the deposit would be acceptable at 6.5 mil cu m.

6.2 The indicated average grade of the alluvium is 215g per cu m as calculated from the pit sampling and Analabs results. The tonnage of the cassiterite concentrates at 70% Sn in the 6.5 mil cu m therefore is 1400 tonnes.

6.3 In the Arthur River Alluvials Prospect a stretch covering the Arthur River and its immediate vicinity was issued as a mining tenement under lease 42M/77 and granted to Arthur River Mining Ltd. under an agreement with Comstaff. The former company has already commenced mining development and installation of ore treatment plant. The reserves in the lease are estimated at 340 tonnes in 1.3 mil cu m grading 261 g per cu m which is calculated from the influence of the results of the three pits nearest to the lease on plan (i.e. Pit 460 m on Track 1 and Pits 460m and 511 on Track 2). A substantial portion of the reserves underlie the present flowing river and are irrecoverable unless the latter has been deviated. However, all those extractable reserves outside of the river are likely to be completely mined out by Arthur River Mining before the lease expires on 29th March 1982.

6.4 During the start-up of a mining operation an adequate area has to be set aside for retaining the tailings/-slimes discharged from the ore treatment plant. As the surrounding topography is of hilly terrain unsuitable for retention purposes, approximately 5,000 sq m of the flat plain initially will be required for tailings/-slimes disposal. The area is equivalent to a loss of 12,500 cu m and 2.7 tonnes which however are comparatively insignificant. Further it may not be necessary to utilise this area as there is a possiblity that the lease worked out by Arthur River Mining could be available for disposal of the tailings/slimes.

6.5 As regards to the recoverability of the cassiterite in the reserves a metallurgical recovery of 90% is considered reasonable for a jig plant treating the free sandy ore and the cassiterite grains being dominantly coarser than 100 mesh BSS.

.../5

6.6 In summary the mineable and recoverable reserves for Comstaff are as follows:-

	Volume (mil cu m)	Grade (g/cu m)	Cassiterite Concentrates at 70% Sn (tonnes)
Total reserves	6.5	215	1400
Deduct reserves in Lease 42M/77	1.3	261	340
Reserves available for mining	5.2	204	1060
Recoverable reserves at 90% metallurgical recovery	5.2	185	960

7. MINING AND ORE PROCESSING CONSIDERATION

7.1 Open-cut mining is considered suitable for exploiting the deposit, involving use of hydraulic backhoe excavators to excavate and load the ore at the mine face and trucks to transport the materials to the treatment plant. The reasons favouring the method are as follows:

- the deposit is comparatively small which would exclude consideration of employing the large capital and high capacity methods such as dredging or the continuous bucket wheel/conveyor belt system;
- the hydraulic excavators and trucks would have good manoeuvrability in operating within the restricted flat area in the valley;
- the natural water level in the area is high and there is always a danger of flooding during the wet seasons. These factors can seriously affect the mining operations particularly if the machines employed are less mobile and work on the bedrock floor. Hydraulic excavators with extended arms can overcome these problems to a large extent as they are capable of scooping up materials below their standing platform level (i.e. the present ground surface);
- the deposit is shallow and its depths of 2-3m are within easy reach of the hydraulic excavators working from the ground surface.

7.2 At this preliminary stage a mining rate of 60,000 cu m/mth is envisaged for the size of the deposit. To achieve this, 4 hydraulic crawler excavators and approximately 10 trucks will be required.

...6.

7.3 Treatment of the ore material will be undertaken at a plant preferably sited at an elevation above the flat plain. Grizzley and revolving screen will be needed to remove the +3/8 inch stones. The -3/8 materials will be primarily processed through jigs and shaking tables. Final upgrading of the concentrates to marketable product may require a Willoughby box and a cleaning up sluice box.

7.4 Consideration has been given to the method of using high pressure monitors to disintegrate the ground and gravel pumps sited on the bedrock floor to deliver the slurry to the treatment outlined in the above Section 7.3. The factors weighing against this mining method are -

- requirement of large quantities of supply water and therefore entailing comparatively large virgin areas for slimes retention;

- ineffective removal of the large quantities of course pebbles and boulders which eventually would form a cover over the bedrock floor and thereby - could prevent a very significant proportion of the cassiterite values from reaching the gravel pumps.

8. CAPITAL AND OPERATING COSTS

8.1 A total capital cost of approximately $2.41 mil is required for the mining project, the breakdown of which is as follows:

	$ (mil)
Further drilling/pitting to quantify accurately the tin content and feasibility study	0.06
Housing and welfare	0.69
Transport facilities	0.04
4 hydraulic crawler excavators	0.32
10 hauling trucks	1.10
Ore treatment plant	0.20
	2.41

8.2 For this preliminary economic appraisal an in-depth study or detailed synthesis of the operating costs is considered premature. However, comparing the scale of the envisaged mining operation to that at the Sandy Flat Tin Mine in Queensland (which has an almost similar type of alluvial mining operation), an operating cost of $2.00 per cu m inclusive of overheads would be reasonable for the Arthur River project.

9. FINANCIAL VALUATION

9.1 In this exercise a simple economic appraisal of the project is carried out following the steps outlined below. It is not warranted at this stage to adopt the normal procedure of project valuation by computing the detailed cash flows for every year throughout the life of the mine operation.

Mining volume (mil cu m)	=	5.2
Recoverable grade (g per cu m)	=	185
Production (tonnes)	=	960
Price per tonne tin conc. @ 70% Sn ($)	=	9,600
Gross revenue (mil $)	=	9.22
Royalty @ 2% of proceeds (mil $)	=	0.18
Net revenue (mil $)	=	9.04
Total operating costs @ $2.00 per cu m (mil $)		10.40
Operating loss (mil $)	=	1.36
Capital (mil $)	=	2.41

* In Tasmania the royalty is 2% of proceeds in any year from sale of the mining product or 5% of profits (as determined by the Minister) from sales in that year of the mining product, whichever is the less. For this exercise the former royalty rate is taken.

9.2 From the above calculation the mining project will run into an operating loss of approximately $1.36 mil. The loss would be enhanced much more should the capital expenditure of $2.41 be incorporated into the cash flow calculation.

10. CONCLUSIONS AND RECOMMENDATION

10.1 Preliminary surface investigations and pit sampling indicated 1,400 tonnes cassiterite concentrates at 70% Sn in 6.5 mil cu m grading 215 g per cu m in the valley deposit in the Arthur River Alluvials Project. Of this reserve 1.3 mil cu m containing 330 tonnes are in the mining tenement Lease 42M/77 which has been granted to Arthur River Mining Ltd. under an agreement with Comstaff Pty. Ltd. Hence the net reserves for Comstaff are 5.2 mil cu m and 1070 tonnes.

...8.

10.2 In view of the size and nature of the deposit open-cut mining at a rate of 60,000 cu m/mth is considered suitable for exploiting it. The earthmoving equipment required for excavating and loading the ore at the mine face and transporting the materials to the treatment plant will be 4 hydraulic crawler excavators and about 10 trucks. Jigs will be used for primary beneficiation, with shaking tables and a Willoughby/cleaning-up sluice box for final upgrading of the concentrates to saleable product.

10.3 A total capital cost of approximately $2.41 mil is required for the mining project. Operating costs inclusive of overheads are assumed at $2.00 per cu m for the envisaged mining operation.

10.4 A preliminary economic assessment of mining the ore reserves shows the operation to be unprofitable, on the basis of the above mining method and operating cost and at a LME tin metal price of $14,800 per tonne. A total operating loss of $1.36 mil is estimated for a mining period of 7.2 years. The amount would be greater should the capital expenditure of $2.41 mil be taken into account in the cash flow calculation.

10.5 For a break-even operation a grade of approximately 250-280 g per cu m is necessary. This is 16-30% higher than the average 215 g per cu m estimated for the whole reserves. To achieve a remunerative financial return, say of 12% DCF yield, a much better grade is obviously required. The pit sampling results however do not appear to indicate that such order of grade exists for the deposit.

10.6 Following the above conclusions, it is recommended that no further drilling/pitting be carried out related to quantifying accurately the reserves in the area.

W. K. Lee

19th November 1980

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PROJECT NAME:

APPENDIX 2

TITLE:

A COMPILATION OF RESULTS FROM
WORK CARRIED OUT IN THE RAMSAY AREA
EL 5/63 PART 2

VOL 1 OF 2

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES:

TEXT PAGES NO:

PLAN NOS: TAS/2/2249. /2250. /2251. /2252. /2253. /2254.

TABLE NOS: /2255. /2256. /2174. /2175. /2186. /2187.

APPENDICES: /2188. /2189. /1024. /1020. /1019.

AUTHOR/S:

DATE:

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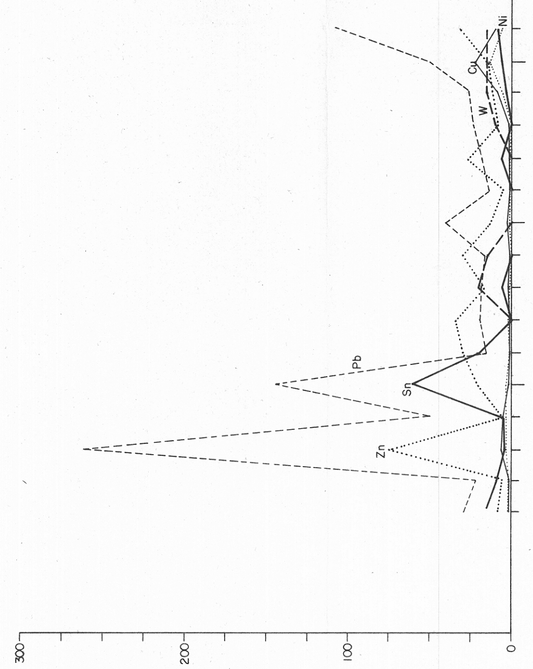
AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria



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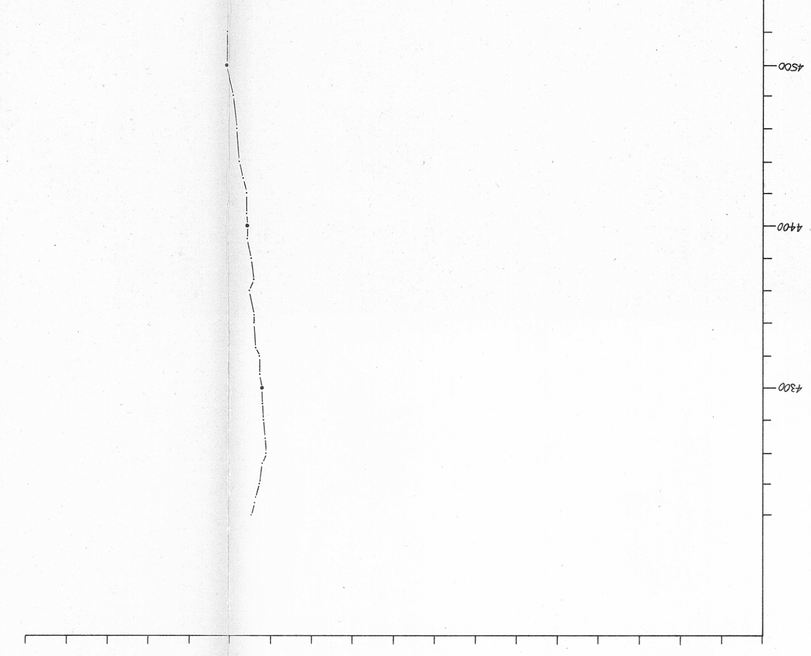
CRONE

GROUND MAGNETICS nT



TOPOGRAPHY & GEOLOGY

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017031

80-1509 3/6

COMSTAFF PROPRIETARY LIMITED

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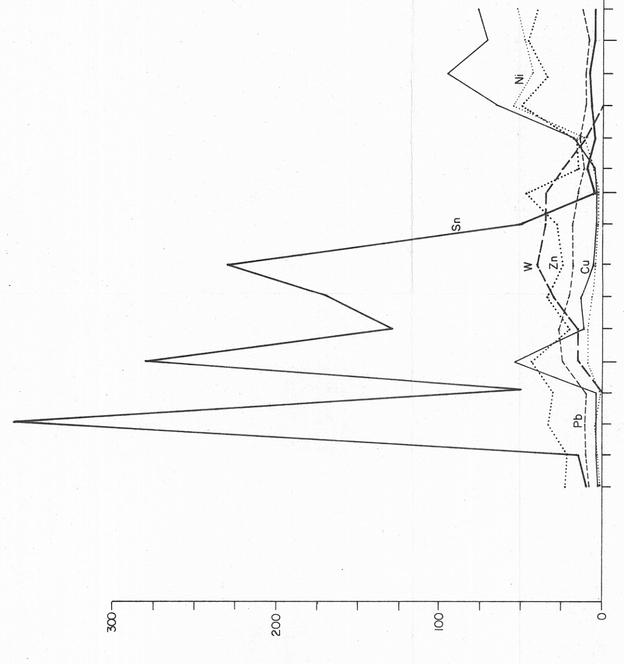

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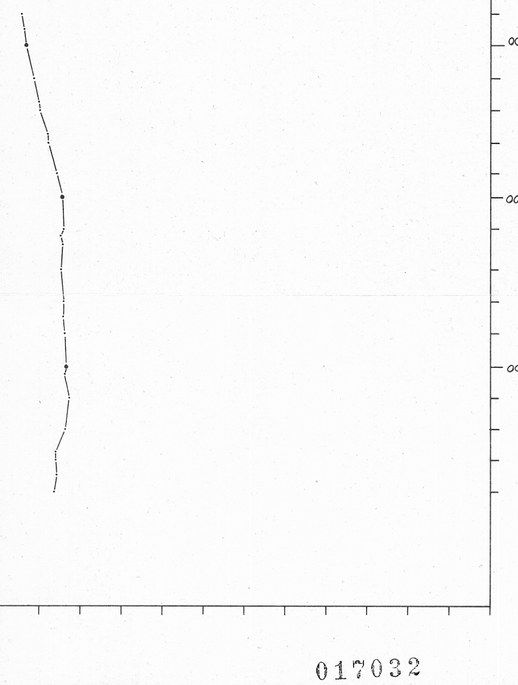

TOPOGRAPHY & GEOLOGY

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017032

30-15M 3/8

COMSTAFF PROPRIETARY LIMITED

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5094

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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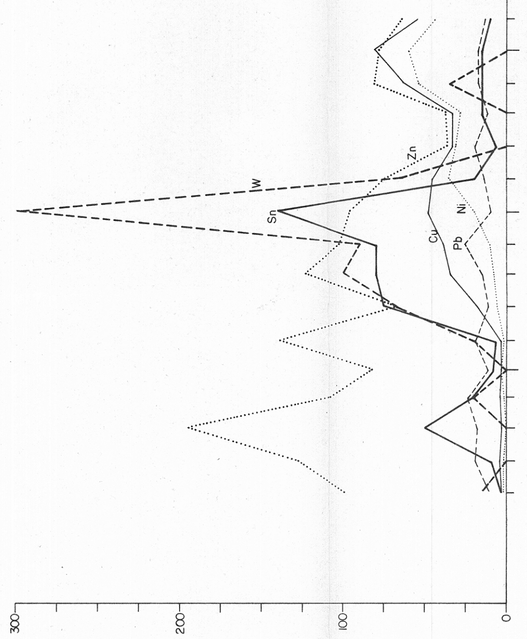

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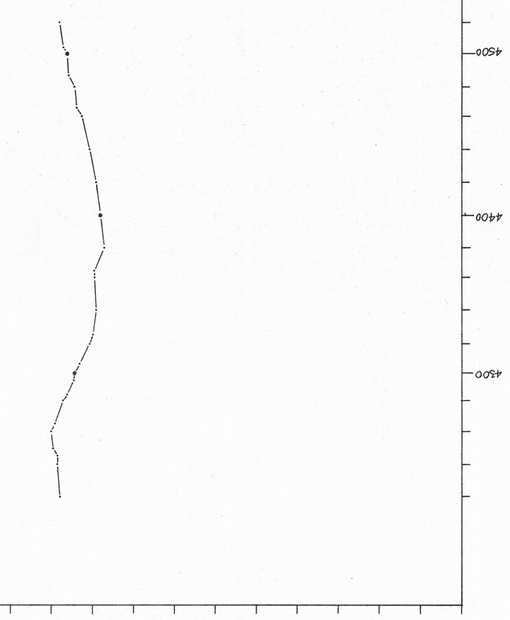

TOPOGRAPHY & GEOLOGY

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COMSTAFF PROPRIETARY LIMITED

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TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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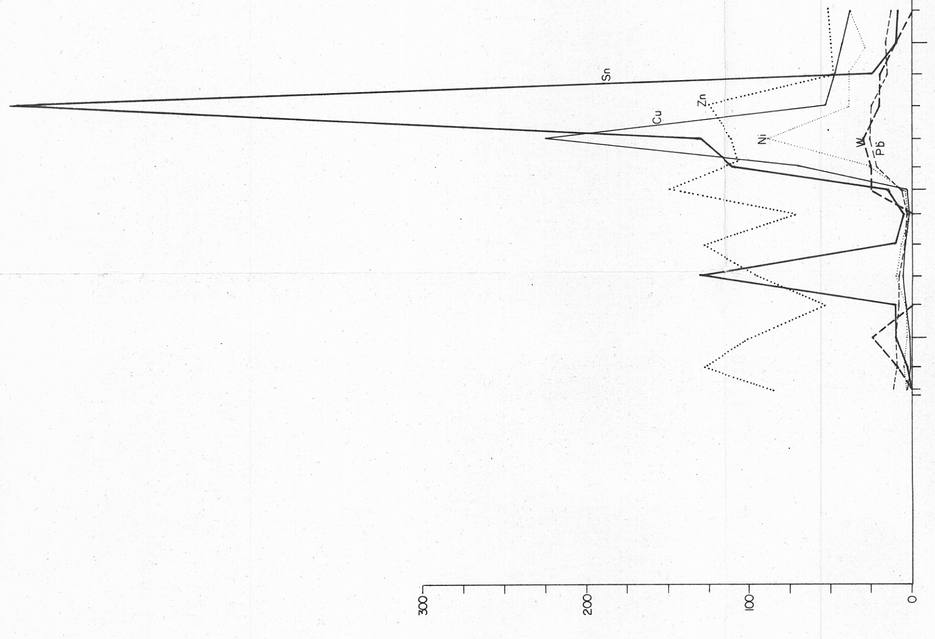

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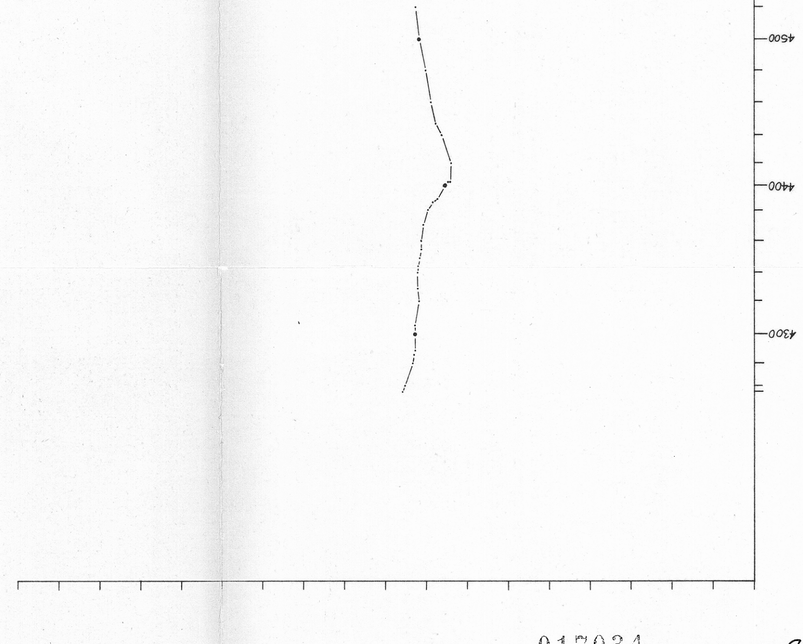

TOPOGRAPHY & GEOLOGY

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017034

80-1509 3/3

COMSTAFF PROPRIETARY LIMITED

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L 4700 N PROFILES

5096

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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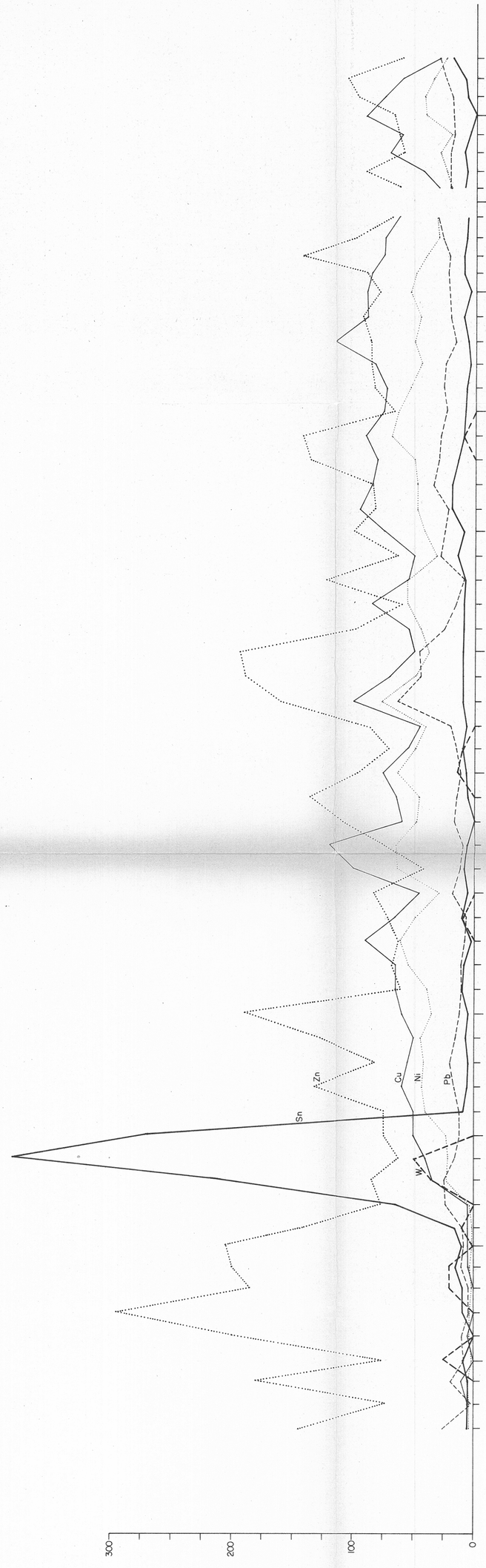

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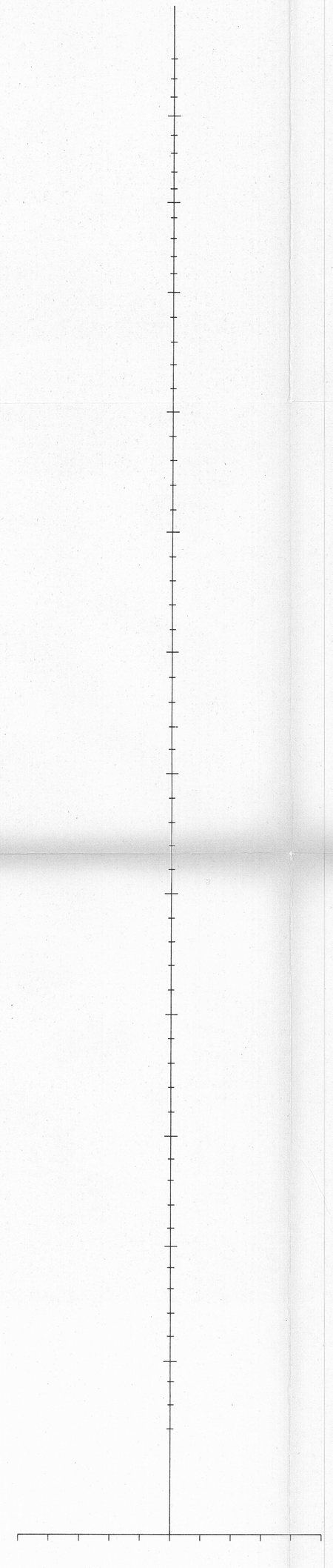

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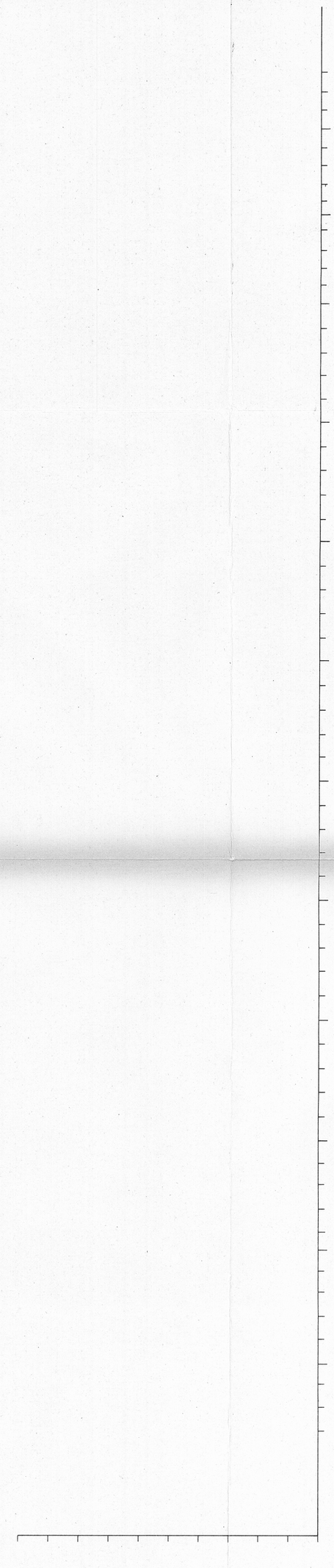

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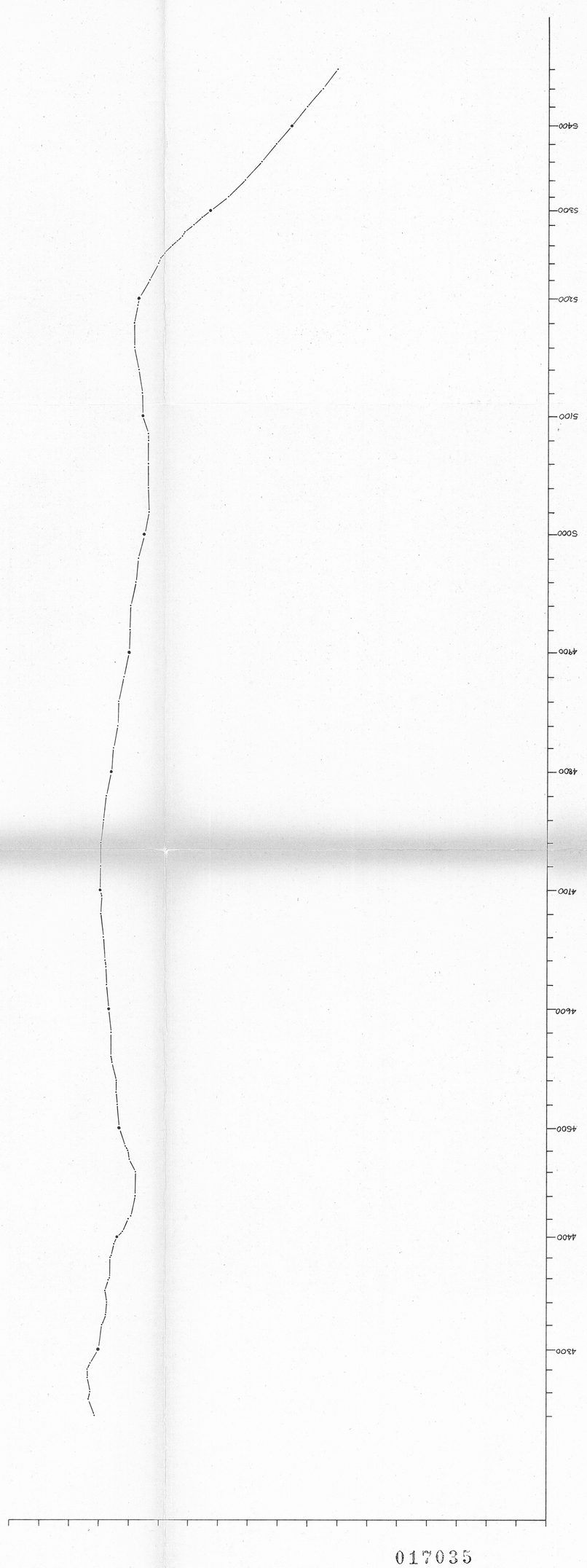

TOPOGRAPHY & GEOLOGY

017035

COMSTAFF PROPRIETARY LIMITED

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L 4640 N PROFILES 5097

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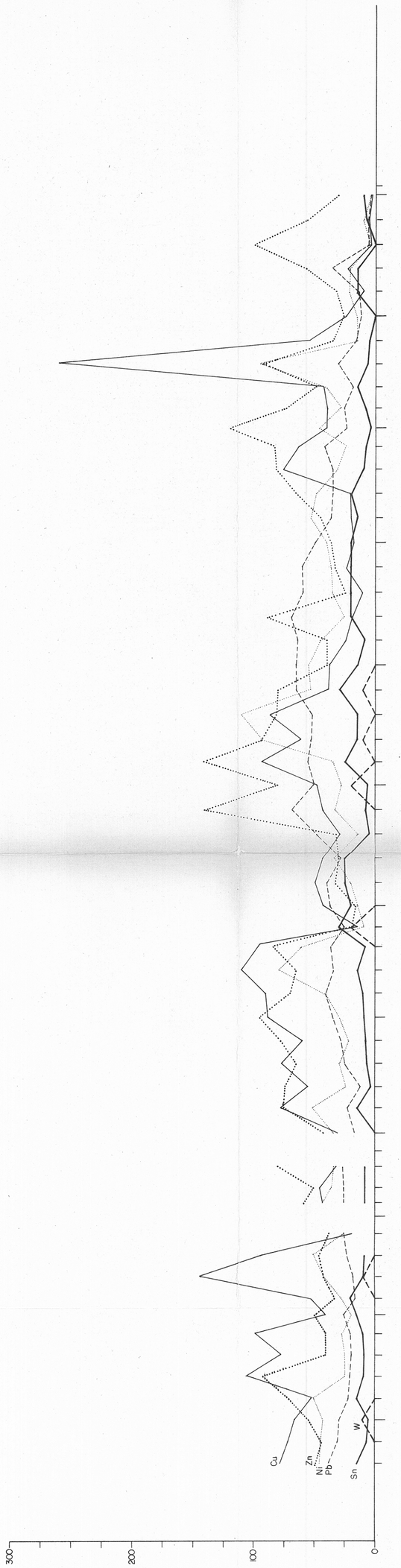

GEOCHEMISTRY ppm

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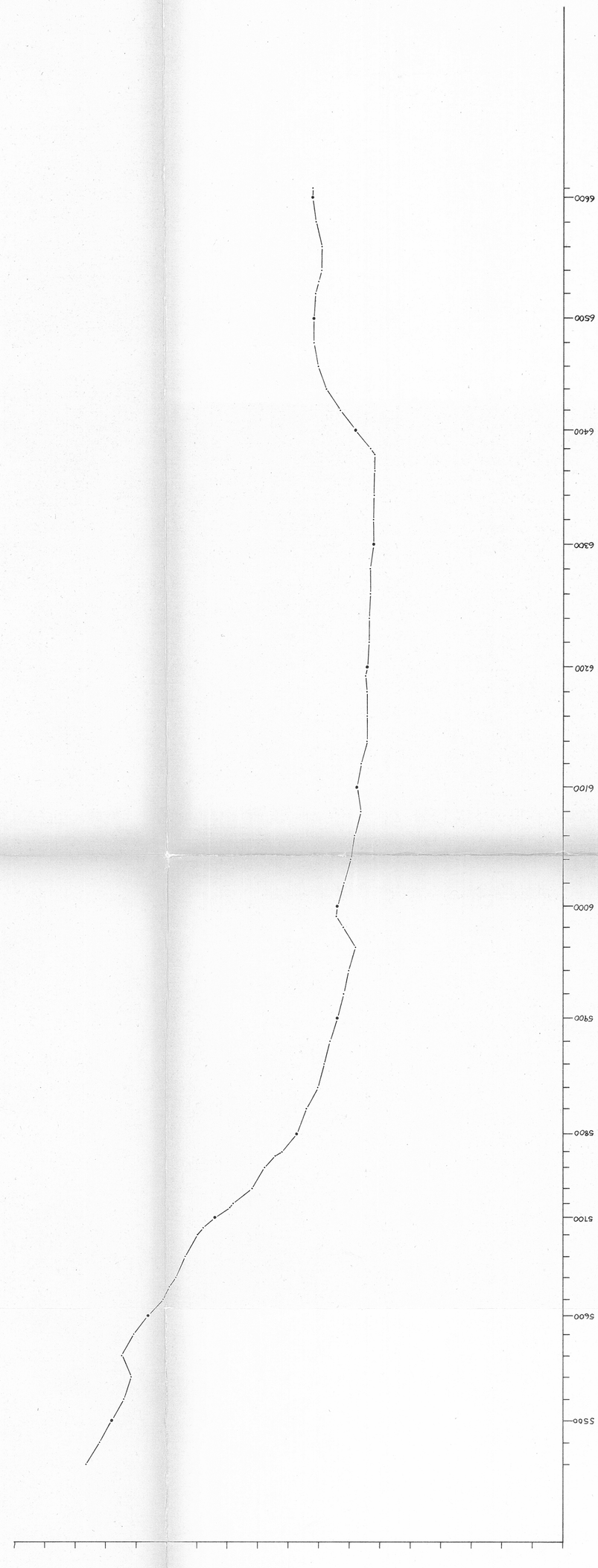

TOPOGRAPHY & GEOLOGY

017036

80-1509 3/3

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF 5098

PROFILES OF (E) EXTENSIONS OF L 5240 N

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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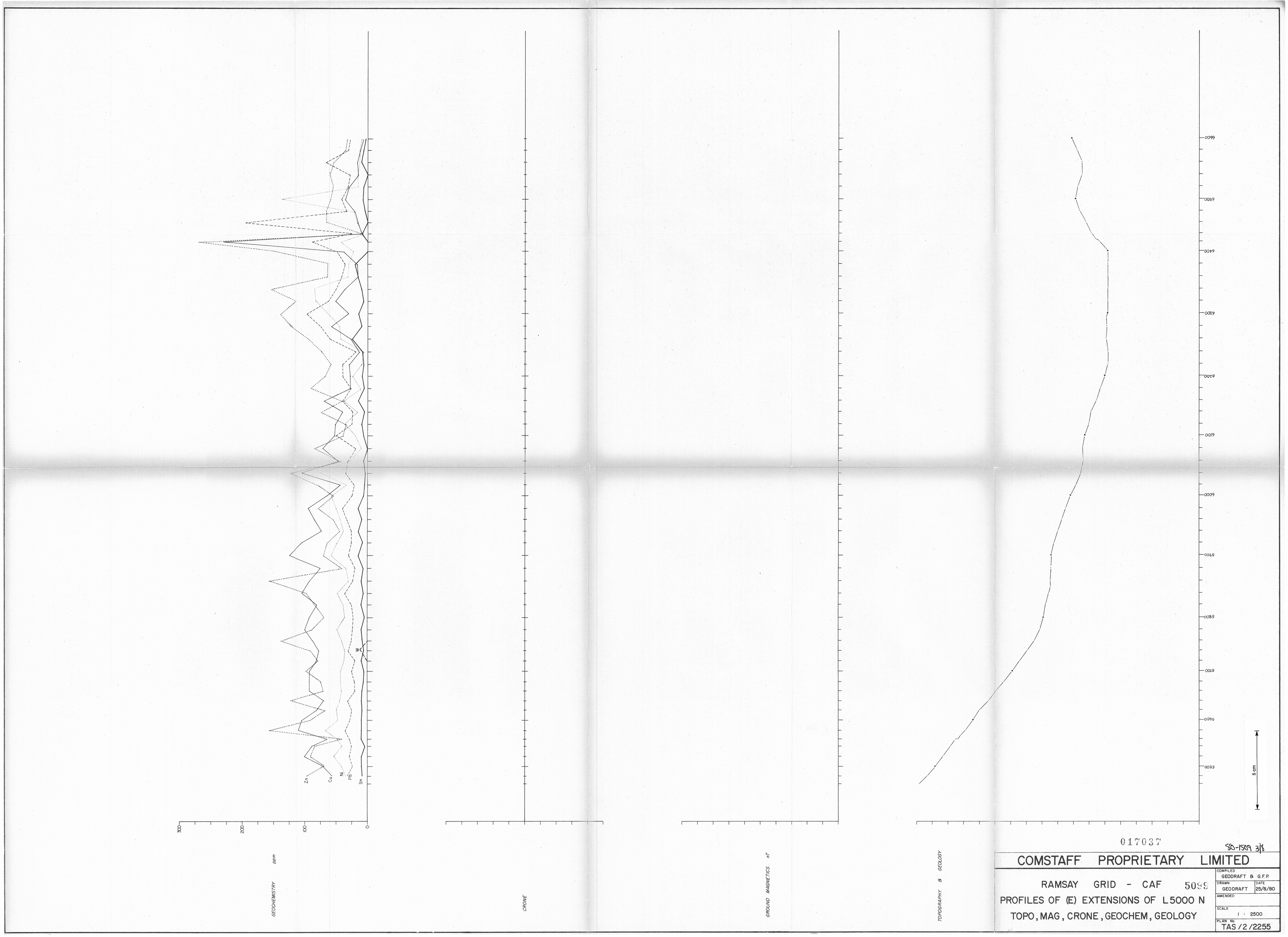

017037

80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF 5099

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TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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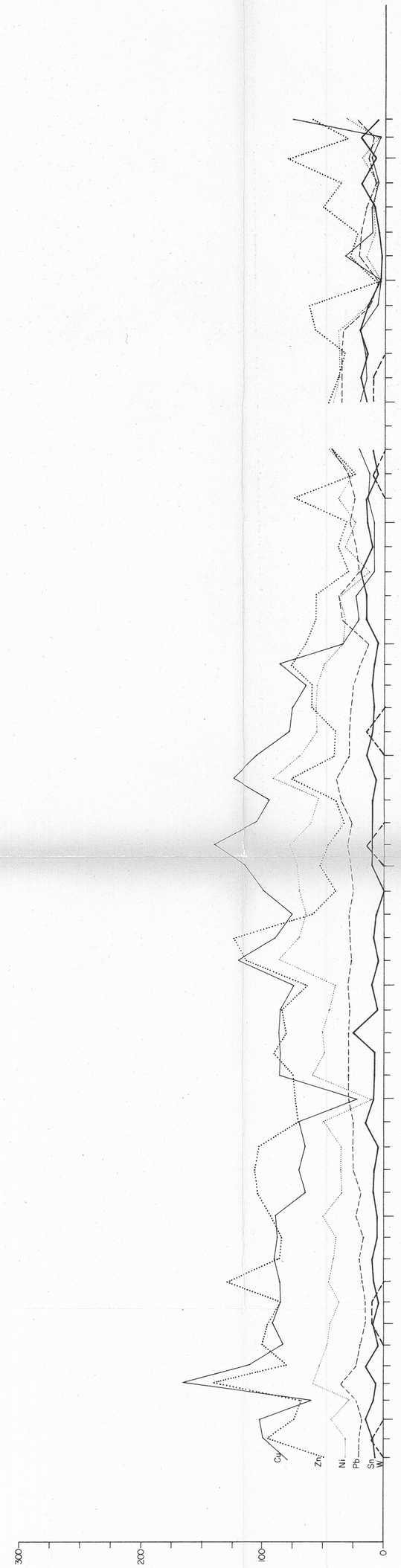

GEOCHEMISTRY ppm

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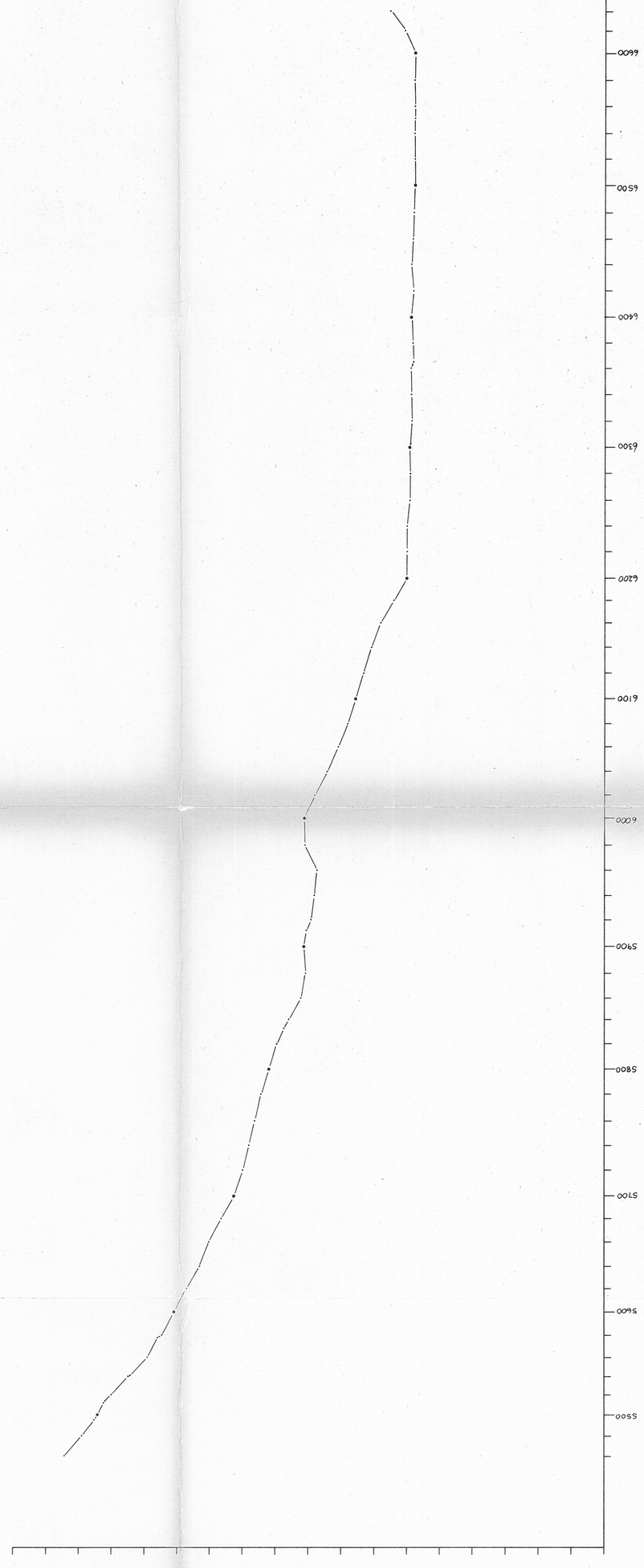
GROUND MAGNETICS nT



TOPOGRAPHY & GEOLOGY

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80-1509 3K

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF 5100

PROFILES OF (E) EXTENSIONS OF L 4760 N

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

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AMENDED:

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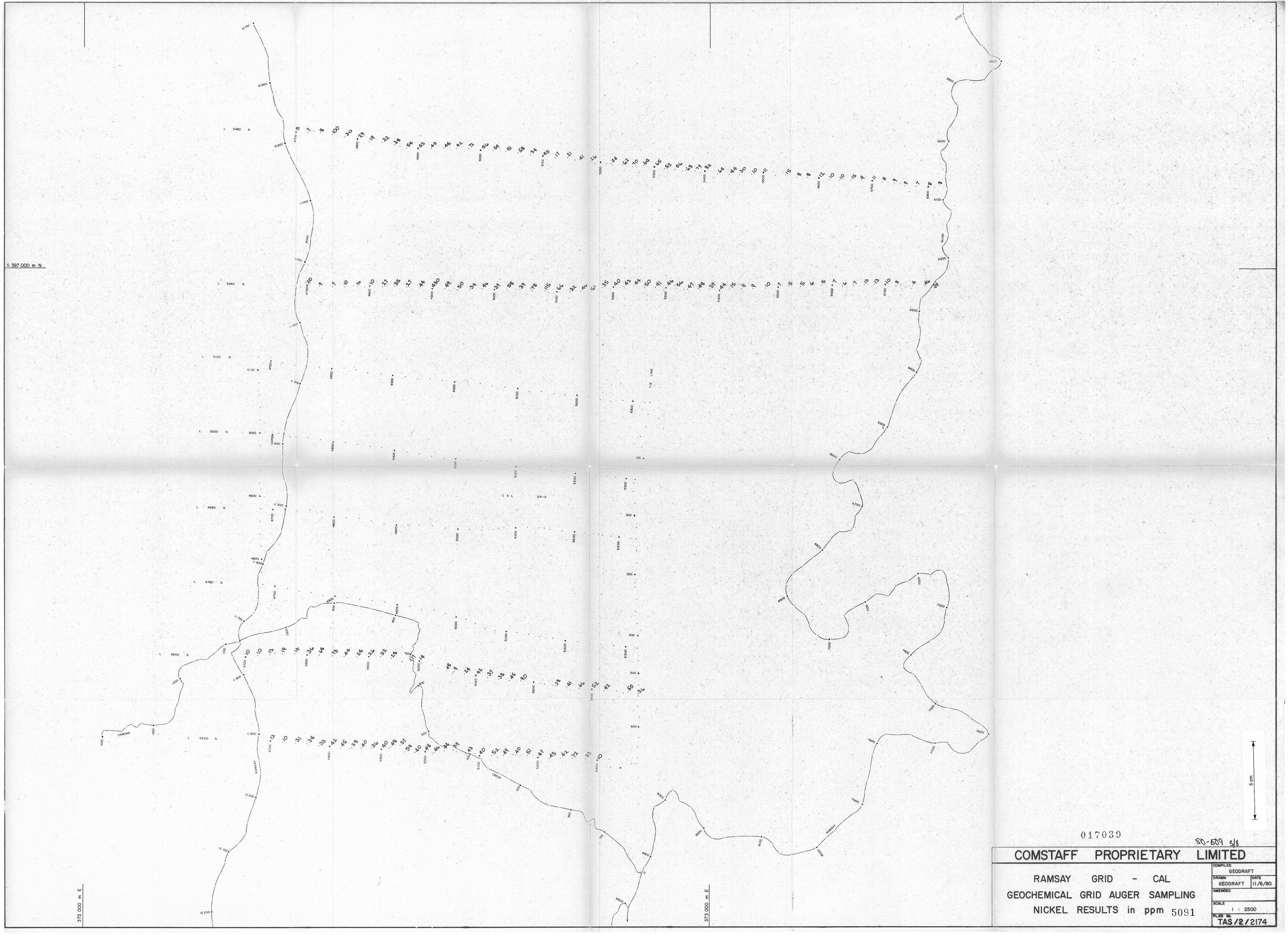

017039

80-509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL
GEOCHEMICAL GRID AUGER SAMPLING
NICKEL RESULTS in ppm 5091

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017040

80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL
GEOCHEMICAL GRID AUGER SAMPLING
ARSENIC RESULTS in ppm 5092

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	11/6/80
AMENDED	
SCALE	1 : 2500
PLAN No.	TAS/2/2175

5 395 150 m N

CAF L 4880 N

4380 E

4400 E

4420 E

CREEK

GRECO

banded fg

crystal amph sk

amph sk

bd s/l pl

f-mg crystal amph sk

inter-layered s/l pl units

crystal fg

fg crystal amph sk

fg fract pl

Randr ε 20% fg in amph

finely laminated s/l pl. fg in vars + veins

inter-layered s/l pl units

amph fg occ s/l pl units

371 250 m E

5 cm

017041

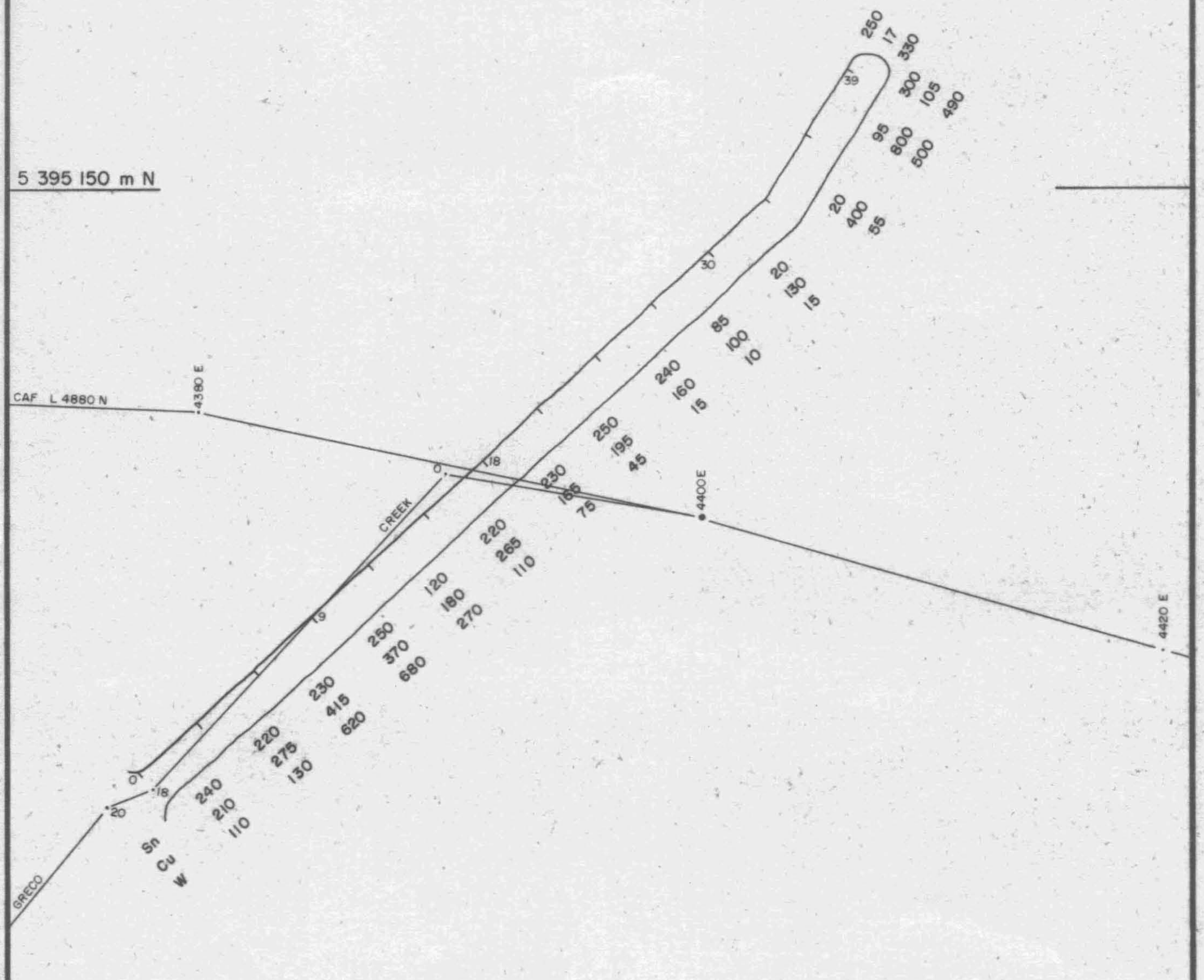
80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
ADIT ON GRECO CREEK 0018 S

DETAILED GEOLOGICAL PLAN 004

DRAWN	COMPILED	SCALE	
G.F.P. 6/80	G.F.P.	1 : 250	TAS/2/2186



017042 80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
ADIT ON GRECO CREEK 0018 S
GEOCHEMICAL CHANNEL SAMPLING
Sn, Cu, W. RESULTS 005

DRAWN	COMPILED	SCALE	
GEODRAFT 6/80	GEODRAFT	1 : 250	TAS/2/2187

371 250 m E

5 395 150 m N

371 250 m E

CAF L 4880 N

4380 E

4400 E

4420 E

CREEK

GRECO

Ni
Pb
Zn

0
18
20
0
18
19
0
18

49 4 115
44 3 135
54 4 125
67 9 53
71 7 66
68 17 90
75 23 120
56 9 120
49 5 105
76 4 130
39 3 120
60 10 120
52 3 105
51 7 100
44 4 150

5 cm

017043

80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
ADIT ON GRECO CREEK 0018 S
GEOCHEMICAL CHANNEL SAMPLING
Ni, Pb, Zn. RESULTS 006

DRAWN	COMPILED	SCALE	
GEODRAFT 6/80	GEODRAFT	1 : 250	TAS/2/2188

5 395 150 m N

CAF L 4880 N

4380 E

4400 E

4420 E

CREEK

GRECO

172
7
39
37
30
690
70
104
6
38
140
10
56
5
7
9
7
8
0
18
13
5
88
18
26
50
19
8
15
8
14
24
33
01
18
20
66
45
48
81

5 cm

371 250 m E

017044

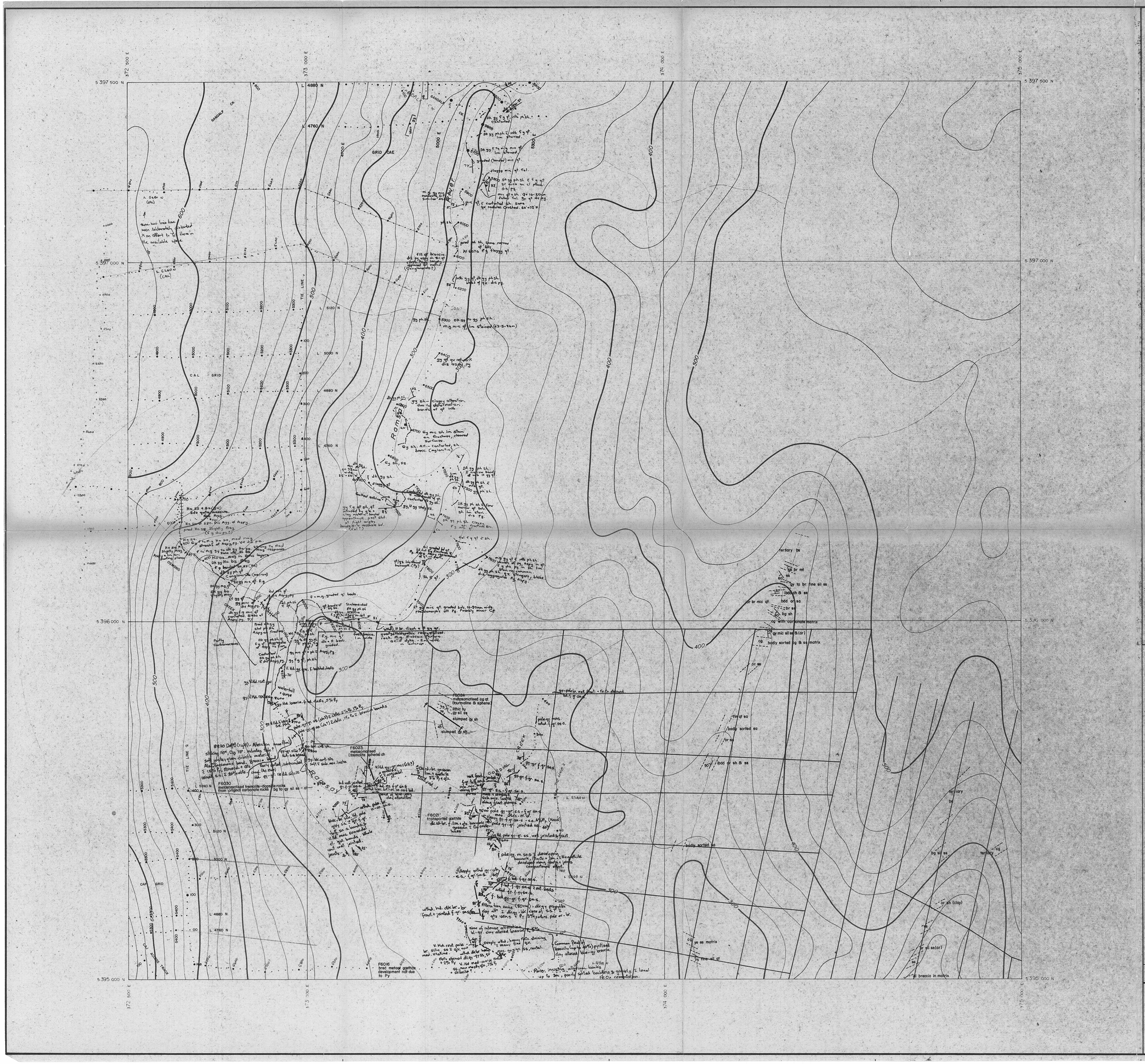
80-1509 318

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
ADIT ON GRECO CREEK 0018 S
GEOCHEMICAL CHANNEL SAMPLING
As, Bi. RESULTS

007

DRAWN	COMPILED	SCALE	
GEODRAFT 6/80	GEODRAFT	1 : 250	TAS/2/2189

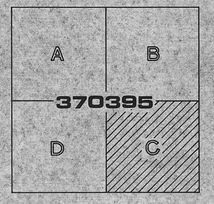


LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Rhyolitic porphyry & minor acid intrusives
sh	Shale	pyd	Dacitic porphyry & minor acid intrusives
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
sa qt ch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	ag	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

	Geological boundary		Mineralisation
	Unconformity	Asb	Asbestos
	Anticline showing direction of plunge	Az	Azurite
	Syncline showing direction of plunge	By	Barytes
	Plunge of minor anticline	Cc	Chalcocite
	Plunge of minor syncline	Ch	Chalcopyrite
	Overturned anticline	Fl	Fluorspar
	Overturned syncline	G	Galena
	Fault, showing hade	Ml	Malachite
	Shear zone	Mt	Magnetite
	Strike and dip of bedding	Py	Pyrite
	Strike of vertical bedding	Sp	Sphalerite
	Location of horizontal bedding	Sr	Sericite
	Overturned bedding	St	Siderite
	Generalised strike & dip undulating strata		
	Strike and dip of jointing		Mineral
	Strike of vertical jointing	Ag	Silver
	Location of horizontal jointing	As	Arsenic
	Strike and dip of foliation	Au	Gold
	Strike of vertical foliation	Ba	Barium
	Location of horizontal foliation	Cd	Cadmium
	Strike and dip of cleavage	Cu	Copper
	Strike of vertical cleavage	Hg	Mercury
	Location of horizontal cleavage	Mn	Manganese
	Mineral occurrence - minor	Mo	Molybdenum
	Major mineral occurrence with mine	Ni	Nickel
	Mine shaft - operating, disused	Os	Osmiridium
	Mine tunnel portal	Pb	Lead
	Costean, pit or trench	Sb	Antimony
	Trigonometrical station	Sn	Tin
	Road/track	W	Tungsten
	Railway - used/disused(or formation)	Zn	Zinc
	Peg location		
	Drillhole location		
	Building		
	Dam or lake		
	Drainage		
	Topographic contour line		
	Fence		
	Sample point		
	Quarry/dump		

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

017045 80-1509 3/8

COMSTAFF PROPRIETARY LIMITED

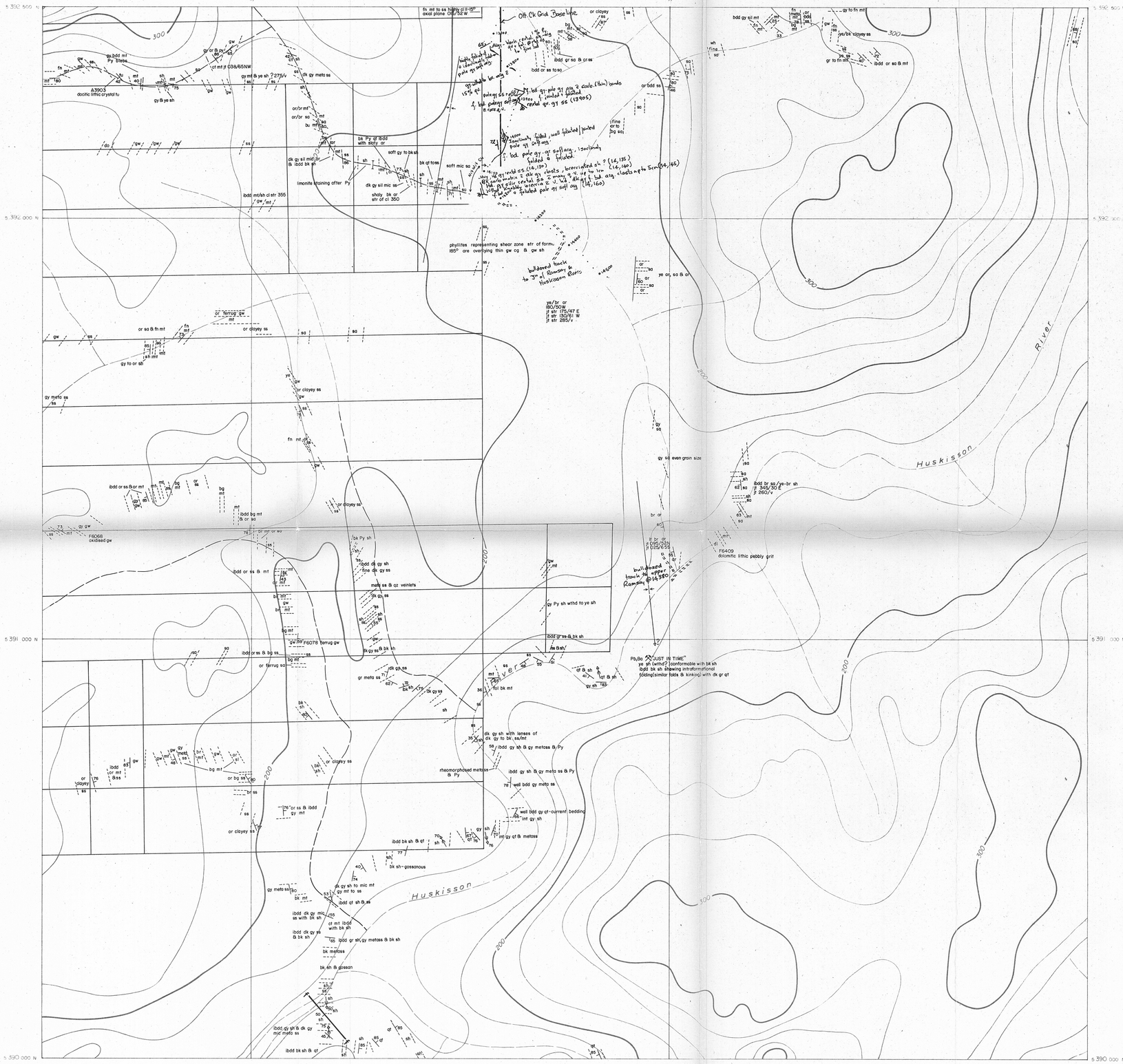
370395-C

GEOLOGY

003

DRAWN	GEODRAFT
DATE	OCTOBER 1977
COMPILED	VARIOUS
SCALE	1:5000

TAS/2/1024



LEGEND FOR GEOLOGICAL SERIES

ar	Argillite	pyr	Pyroclastic porphyry & minor associates
sh	Shale	pyd	Pyroclastic porphyry & minor associates
md,sl	Mudstone, slate	an	Andesite
ss	Siltstone	bs	Basalt
sq, qtch	Sandstone, quartzite, chert	g	Granite
cg	Conglomerate	do	Dolerite
gw	Greywacke	gb	Gabbro
gw,cg	Greywacke conglomerate	px	Pyroxenite
dl	Dolomite	sp	Serpentinite
ls	Limestone	um	Undifferentiated ultramafics
ph	Phyllite	tu	Tuffs
sc	Schist	cg	Agglomerate
ge	Gneiss	gs	Gossan
ho,am	Hornfels, Amphibolite		

- Geological boundary
- Unconformity
- Anticline showing direction of plunge
- Syncline showing direction of plunge
- Plunge of minor anticline
- Plunge of minor syncline
- Overturned anticline
- Overturned syncline
- Fault, showing hade
- Shear zone
- Strike and dip of bedding
- Strike of vertical bedding
- Location of horizontal bedding
- Overturned bedding
- Generalised strike & dip undulating strata
- Strike and dip of jointing
- Strike of vertical jointing
- Location of horizontal jointing
- Strike and dip of foliation
- Strike of vertical foliation
- Location of horizontal foliation
- Strike and dip of cleavage
- Strike of vertical cleavage
- Location of horizontal cleavage
- Cu — Mineral occurrence - minor
- Pb — Major mineral occurrence with mine
- Mine shaft - operating, disused
- Mine tunnel portal
- Costean, pit or trench
- △MT BISCHOFF — Trigonometrical station
- Road/track
- Railway - used/disused(or formation)
- +P32 — Peg location
- ○B25 — Drillhole location
- Building
- Dam or lake
- Drainage
- 250 — Topographic contour line
- Fence
- +T 3806 — Sample point
- Quarry/dump

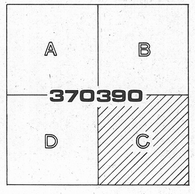
Mineralisation

As	Asbestos
Az	Azurite
By	Barytes
Cc	Chalcocite
Ch	Chalcopyrite
Fl	Fluorspar
G	Galena
Ml	Malachite
Mt	Magnetite
Py	Pyrite
Sp	Sphalerite
Sr	Sericite
St	Siderite

Mineral

Ag	Silver
As	Arsenic
Au	Gold
Ba	Barium
Cd	Cadmium
Cu	Copper
Hg	Mercury
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Os	Osmiridium
Pb	Lead
Sb	Antimony
Sn	Tin
W	Tungsten
Zn	Zinc

SHEET INDEX



5 cm

SCALE 1:5000

100 0 100 200 300 400 METRES

Contour Interval 25 Metres

Drawn by Kemp Drafting from material supplied by Australian Anglo American Limited.

017046

COMSTAFF PROPRIETARY LIMITED

370390-C

GEOLOGY

002

DRAWN	GEODRAFT
DATE	OCTOBER 1977
COMPILED	VARIOUS
SCALE	1:5000
	TAS/2/1020


372 000 E
373 000 E
374 000 E
375 000 N
5 395 000 N
5 394 000 N
5 393 000 N
CAJ GRID
ACCESS
ROAD
SOUTH RAMSAY
Ramsay Rd
Bulldozed track to South Ramsay Rd
Bulldozed track to Ramsay River (to 4460)
waterfall
SLIPPERY ROCK CREEK
RAMSAY CREEK
Back Drive C/C (inaccessible)
Talus - white - pale gy. siltstone, Trace kaolinite & large no 60% of rock coarses
Alluvium bank on right up to 2m high poorly sorted gravelly boulder alluv
Fluvial ? heavy cobbly boulder alluvium up to 2m
Gradational O/C from 10,910
Sporadic O/C from 10,940
Sporadic O/C from 11,040
Sporadic O/C from 11,080
Sporadic O/C from 11,120
Sporadic O/C from 11,160
Sporadic O/C from 11,200
Sporadic O/C from 11,240
Sporadic O/C from 11,280
Sporadic O/C from 11,320
Sporadic O/C from 11,360
Sporadic O/C from 11,400
Sporadic O/C from

017048

PROJECT NAME:

APPENDIX 2

TITLE:

A COMPILATION OF RESULTS FROM
WORK CARRIED OUT IN THE RAMSAY AREA

EL 5/63 PART 2

VOL 2 OF 2

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES:

TEXT PAGES NO: —

PLAN NOS: TAS/2/2246. /2245. /2247. /2248. /1845. /1835. /1836. /1837. /1838. /1839 /1846 /1847. /1848. /1849.

TABLE NOS: /1850. /2154. /2155. /2156. /2157. /2158.

APPENDICES:

AUTHOR/S:

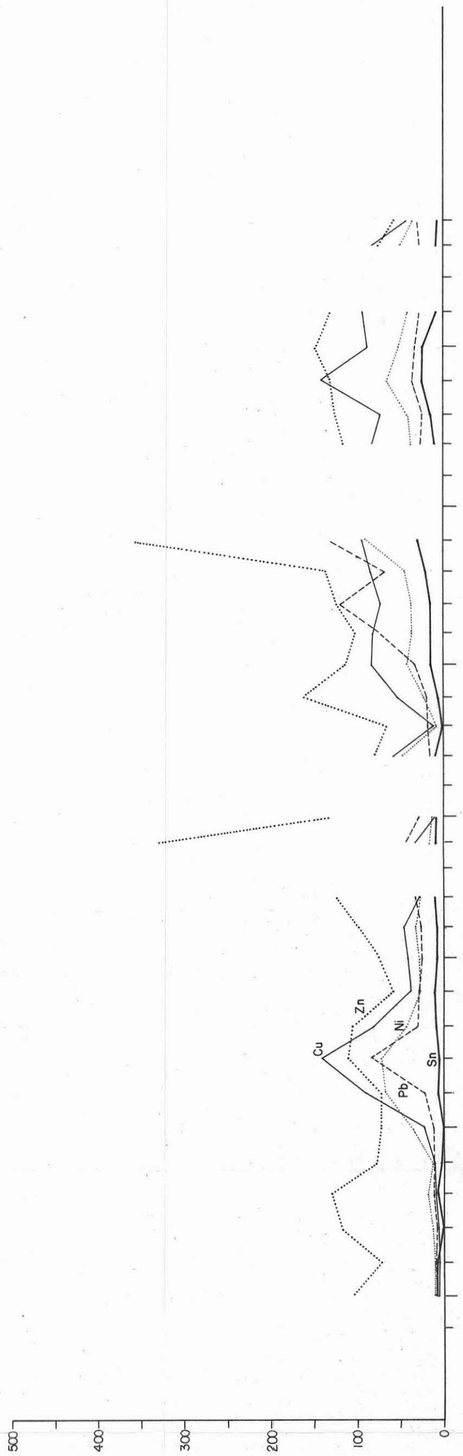
DATE:

OPEN FILE

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

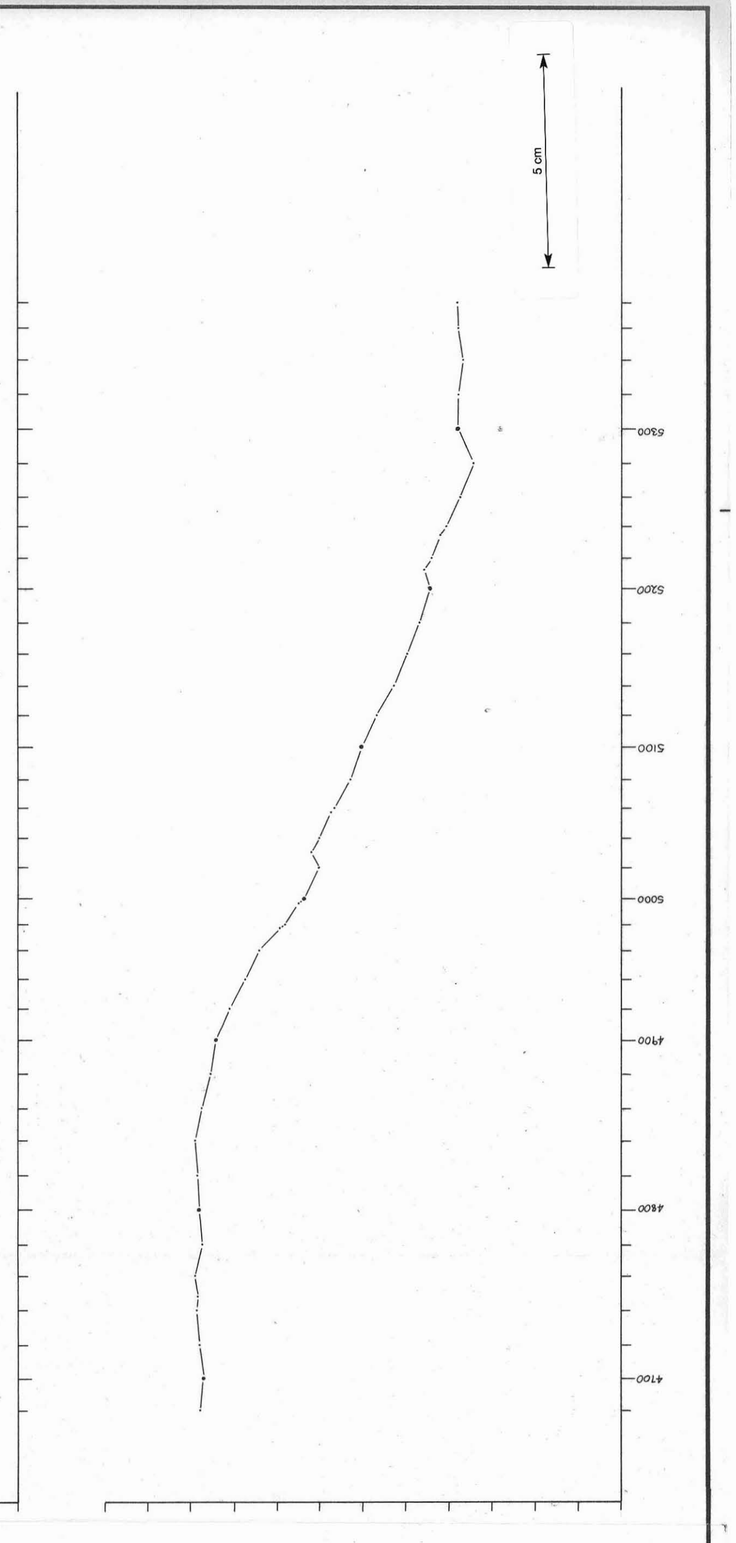
5101



GEOCHEMISTRY

CRONE

GROUND MAGNETICS



GEOCHEMISTRY & GEOLOGY

017049 80-1509 418

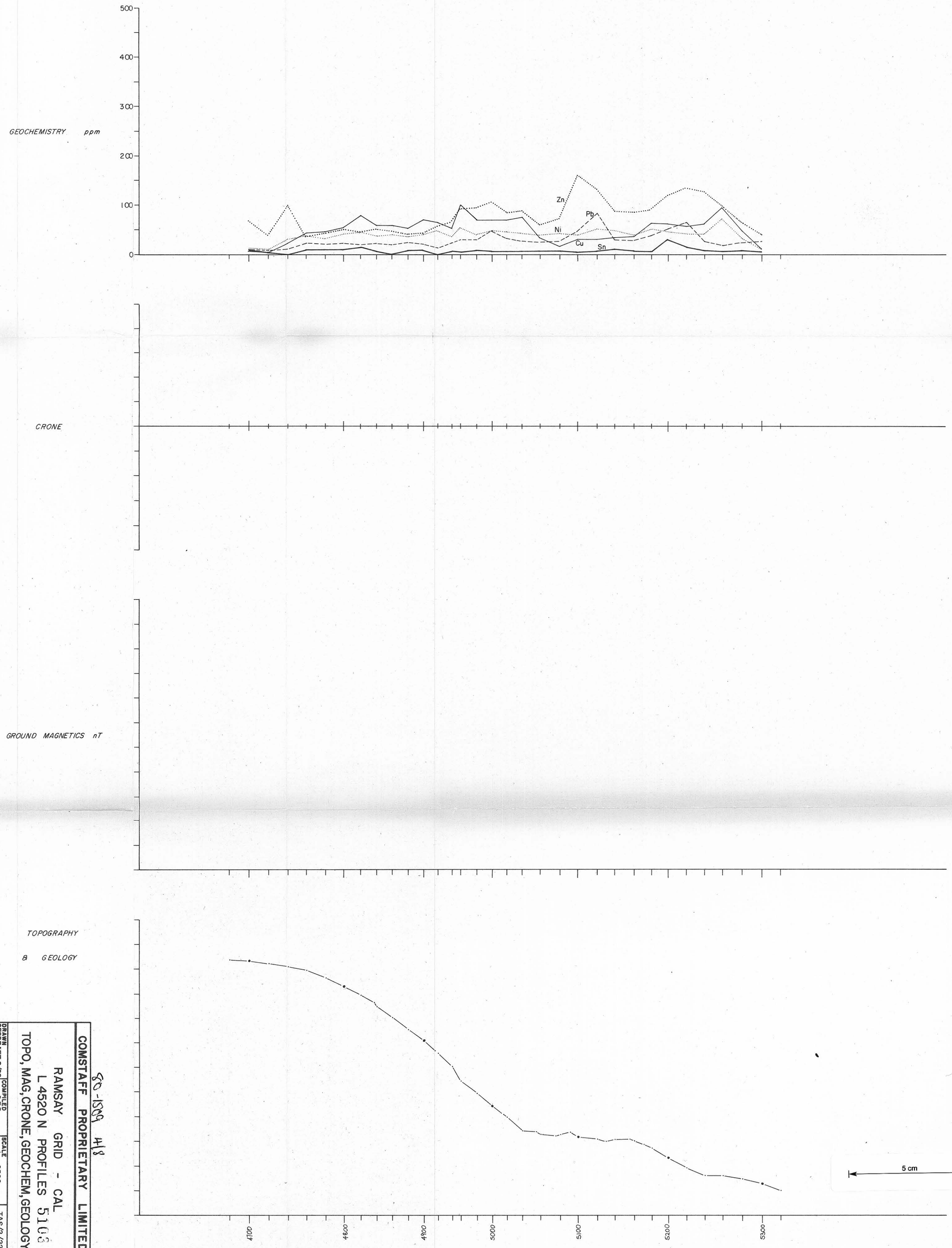
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL

L 4640N PROFILES 5102

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

DRAWN	COMPILED	SCALE	
GEODRAFT 8/80	G.F.P.	1 : 2500	TAS/2/2246

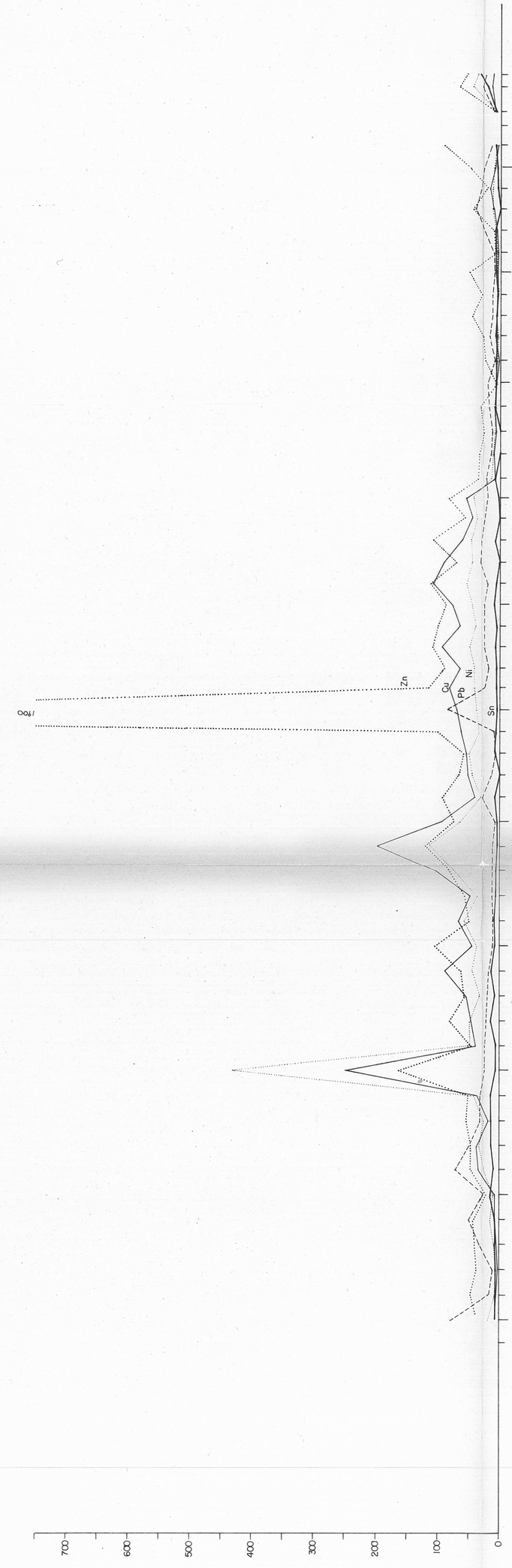


80-1509 4/8

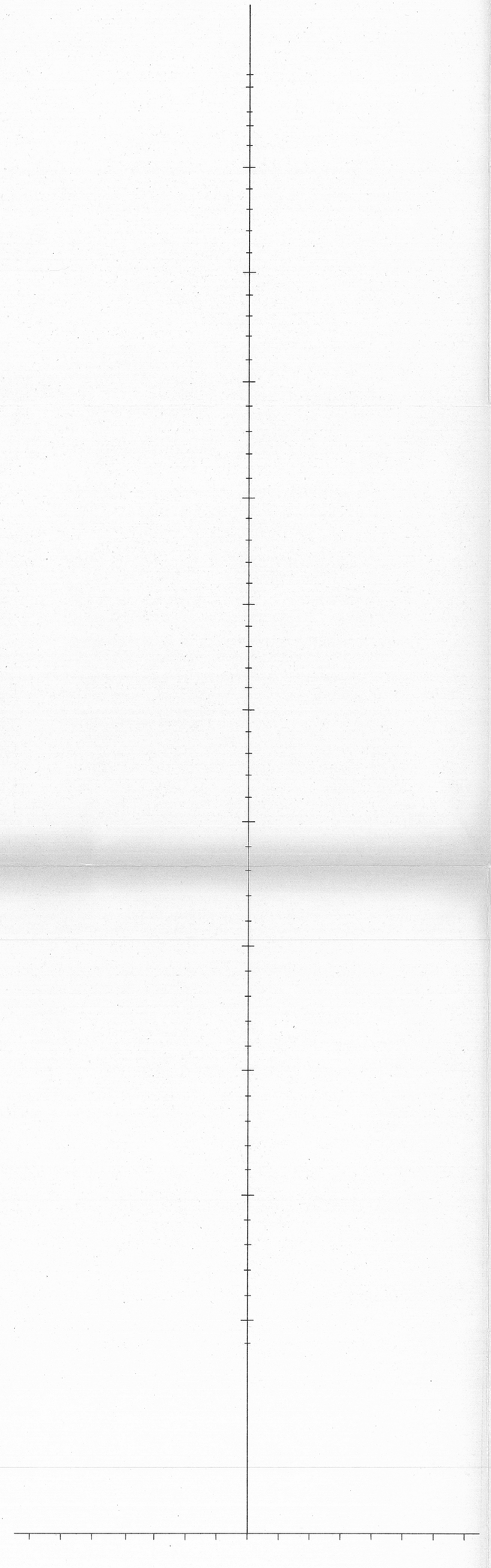
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL
L 4520 N PROFILES 5103
TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

DRAWN	COMPILED	SCALE	
GEODRAFT 8/80	G.F.P.	1 : 2500	TAS/2/2245



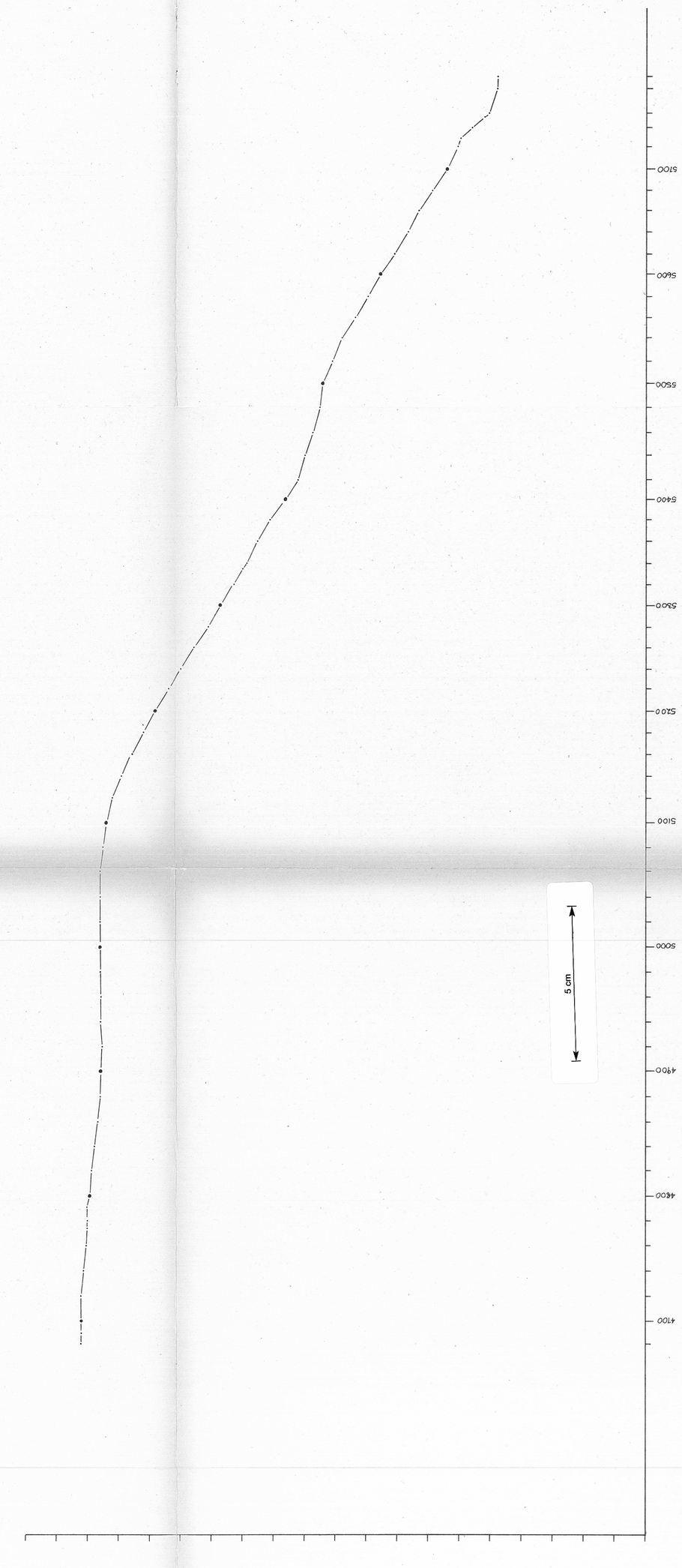
GEOCHEMISTRY ppm



CRONE



GROUND MAGNETICS nT



TOPOGRAPHY & GEOLOGY

017050 80-1509 4/8

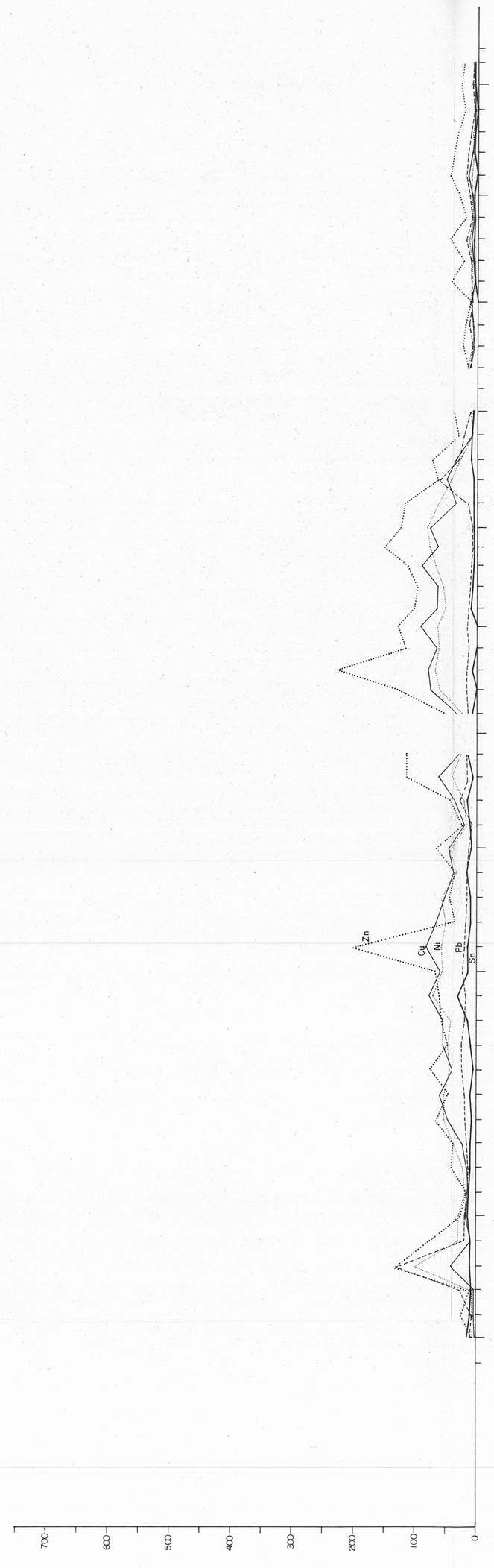
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL

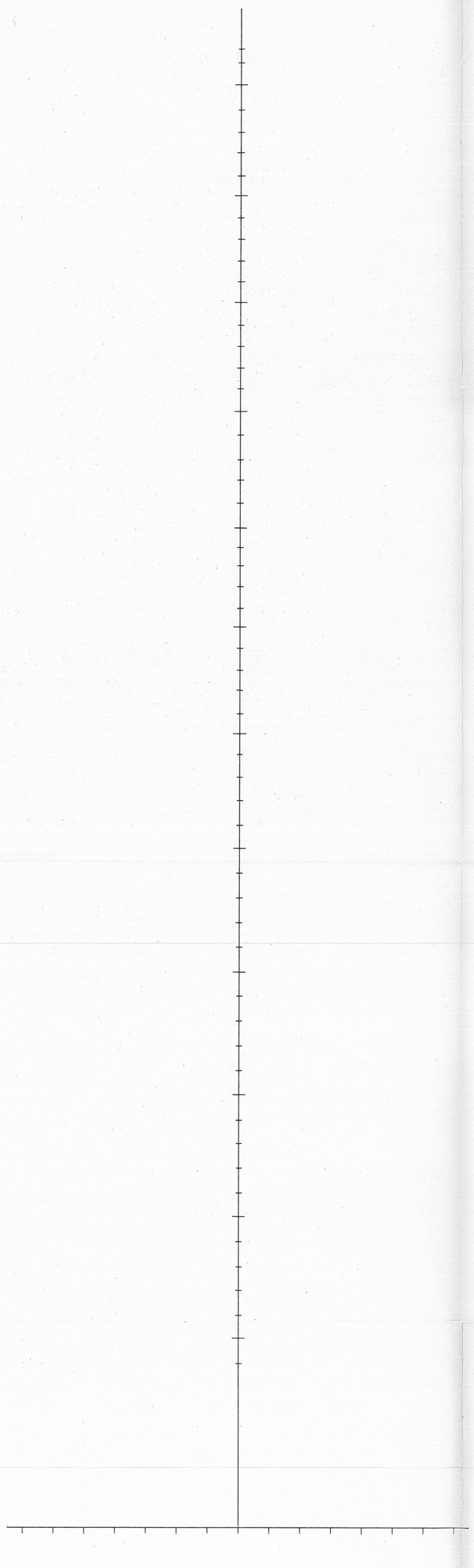
L 5240 N PROFILES 5104

TOPO, MAG, CRONE, GEOCHEM, GEOLOGY

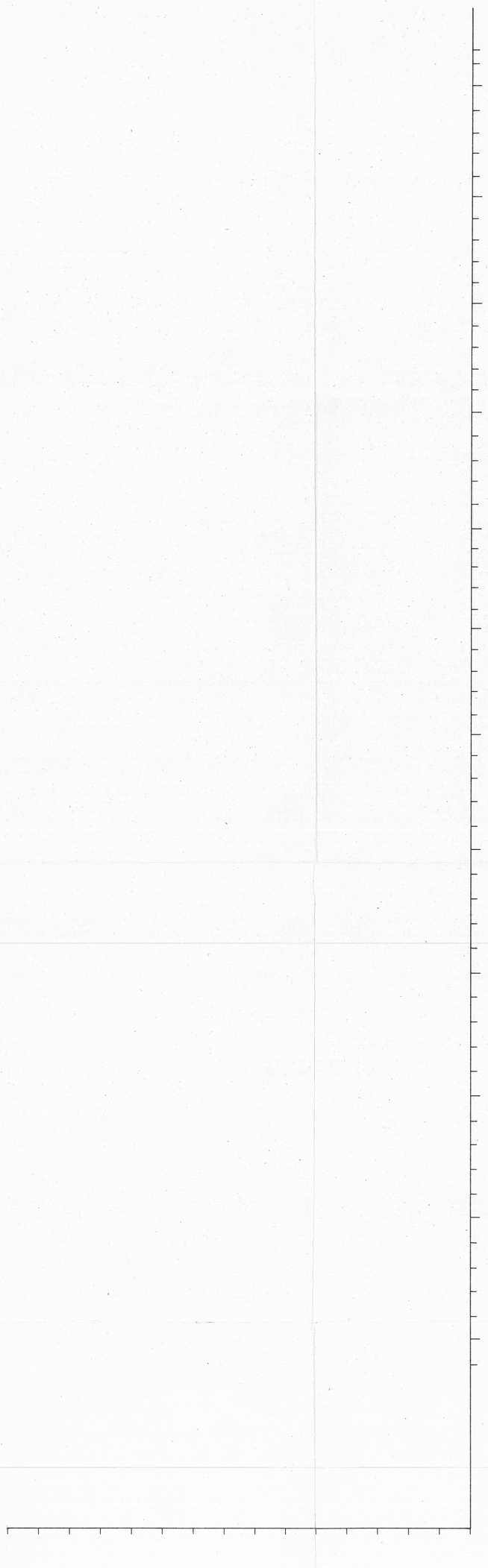
COMPILED	GEODRAFT & G.F.P.
DRAWN	GEODRAFT
DATE	25/8/80
AMENDED	
SCALE	1 : 2500
PLAN No.	TAS / 2 / 2247



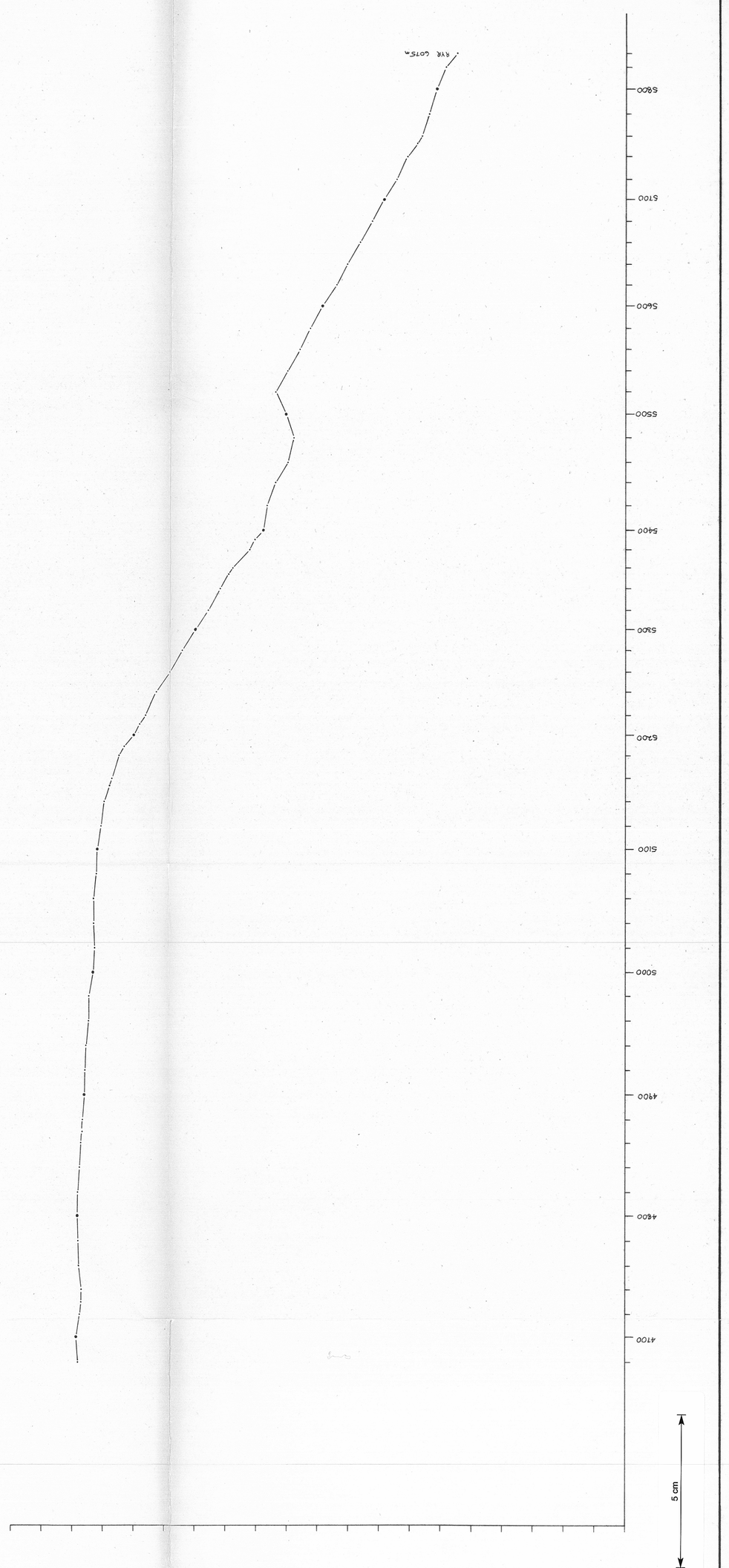
GEOCHEMISTRY ppm



CRONE



GROUND MAGNETICS nT



TOPOGRAPHY & GEOLOGY

017051 80-509 H/8

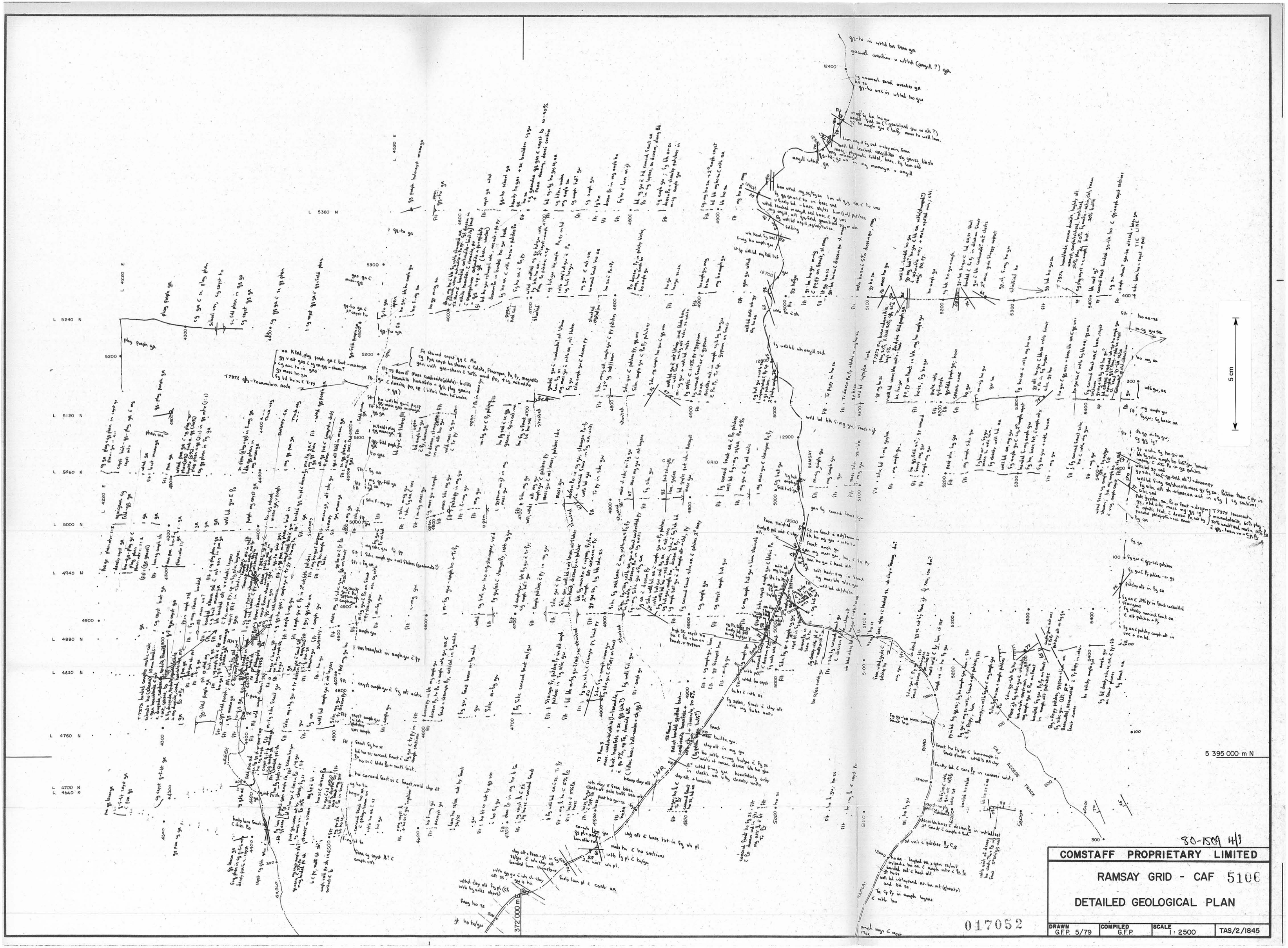
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL

L 5480 N PROFILES 5105

TOPO , MAG , CRONE , GEOCHEM , GEOLOGY

COMPILED	GEODRAFT & G.F.P.
DRAWN	GEODRAFT
DATE	25/8/80
AMENDED	
SCALE	1 : 2500
PLAN No	TAS / 2 / 2248



80-1509 4/1

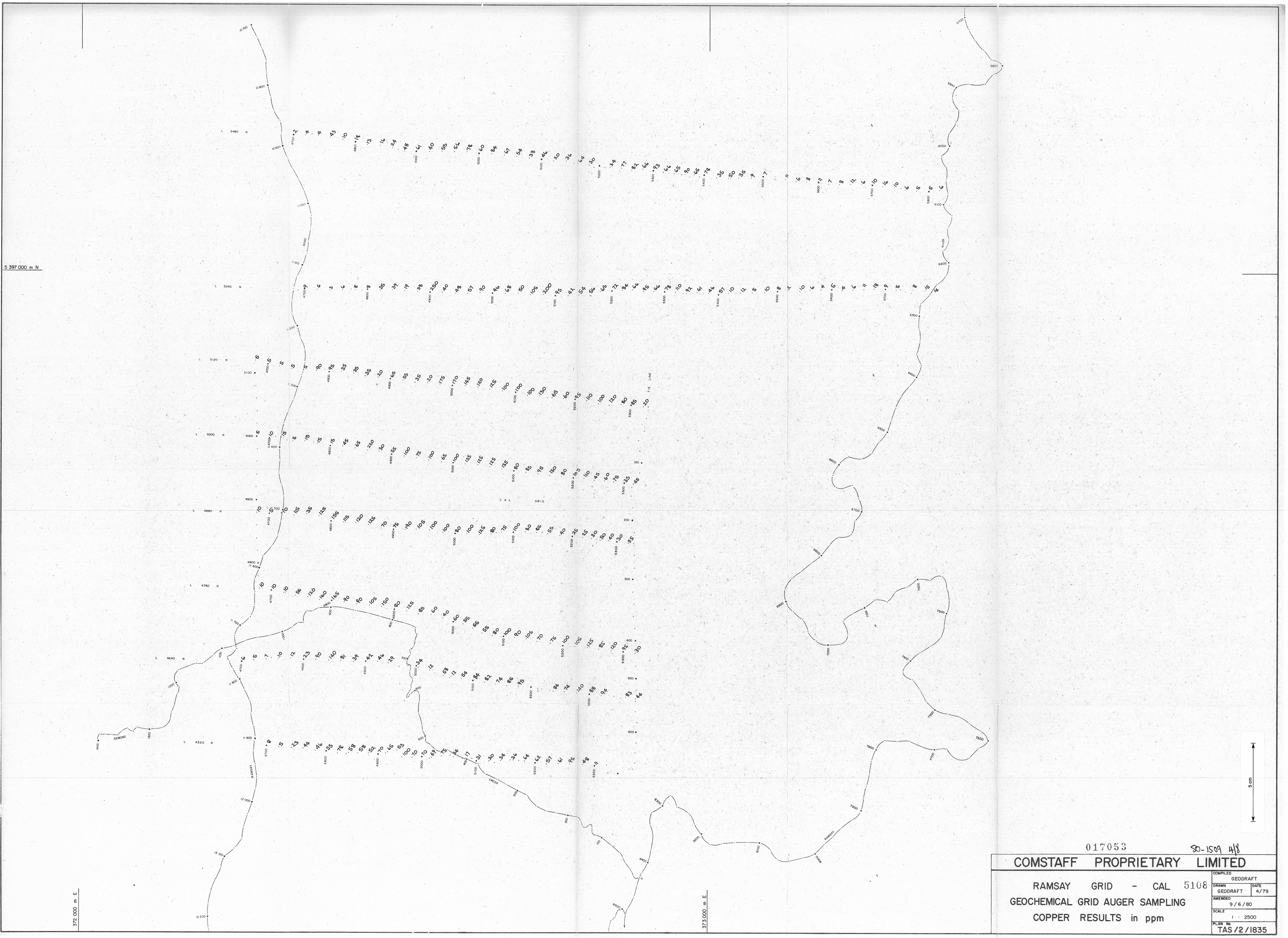
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF 5106

DETAILED GEOLOGICAL PLAN

DRAWN	COMPILED	SCALE	
G.F.P. 5/79	G.F.P.	1 : 2500	TAS/2/1845

017052



017053

80-1509 4/8

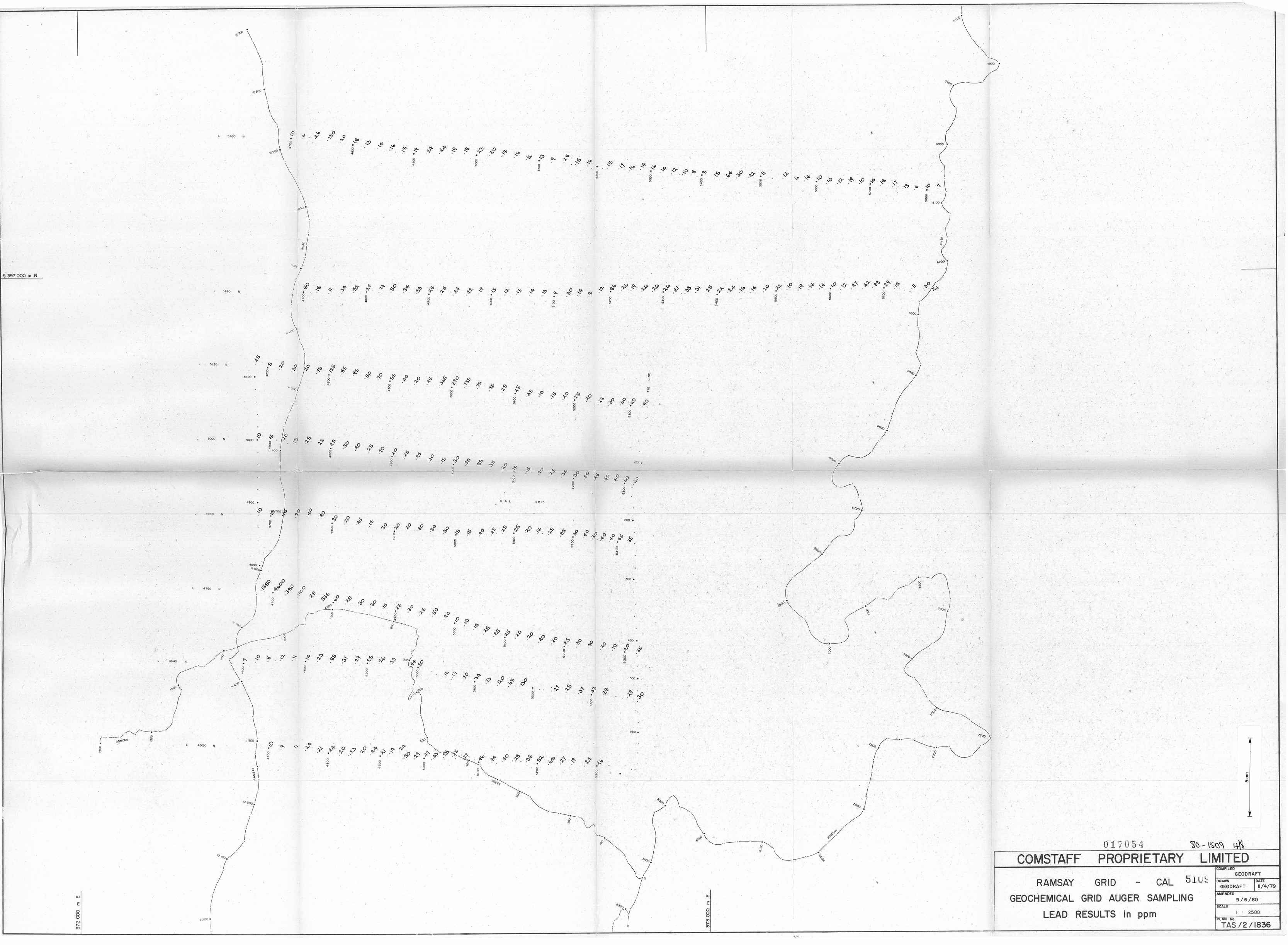
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL 5108

GEOCHEMICAL GRID AUGER SAMPLING

COPPER RESULTS in ppm

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	4/79
AMENDED	9/6/80
SCALE	1 : 2500
PLAN No.	TAS/2/1835



017054 80-1509 4/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL 5109

GEOCHEMICAL GRID AUGER SAMPLING

LEAD RESULTS in ppm

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	11/4/79
AMENDED	9/6/80
SCALE	1 : 2500
PLAN No	TAS/2/1836

5 397 000 m N

372 000 m E

373 000 m E

CAL GRID

TIE LINE

RAMSAY CREEK

OSMOND

5 cm

017055

80-1509 418

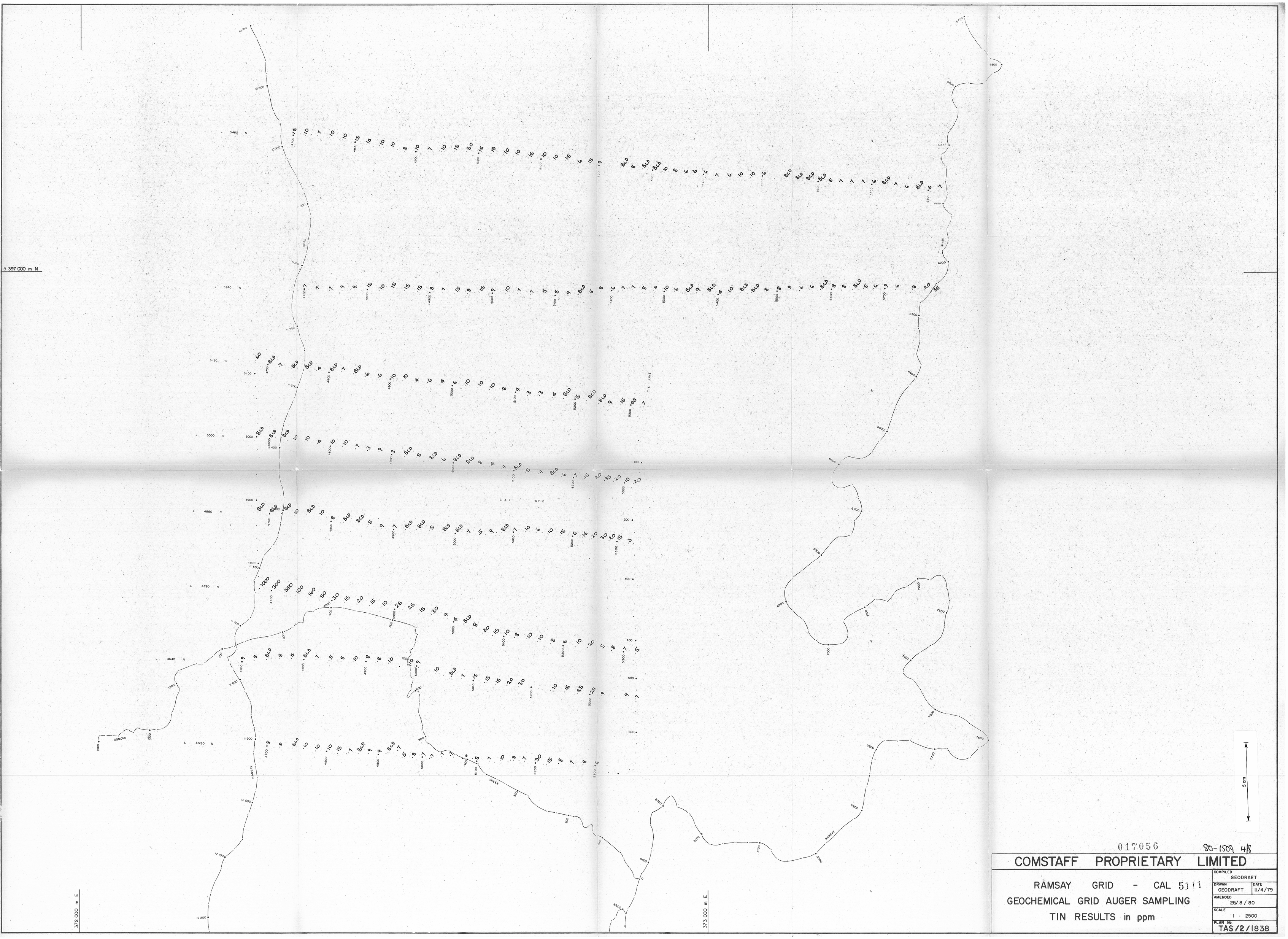
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL 5110

GEOCHEMICAL GRID AUGER SAMPLING

ZINC RESULTS in ppm

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	11/4/79
AMENDED	9/6/80
SCALE	1 : 2500
PLAN No	TAS/2/1837



017056 80-1509 4/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL 5111

GEOCHEMICAL GRID AUGER SAMPLING

TIN RESULTS in ppm

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	11/4/79
AMENDED	25/8/80
SCALE	1 : 2500
PLAN No.	TAS/2/1838

5 397 000 m N

372 000 m E

373 000 m E

L 4880 N

L 4760 N

L 4640 N

L 4520 N

CAL GRID

TIE LINE

OSMOND

RAMSAY

CREEK

5 cm

017057

80-1509 4/9

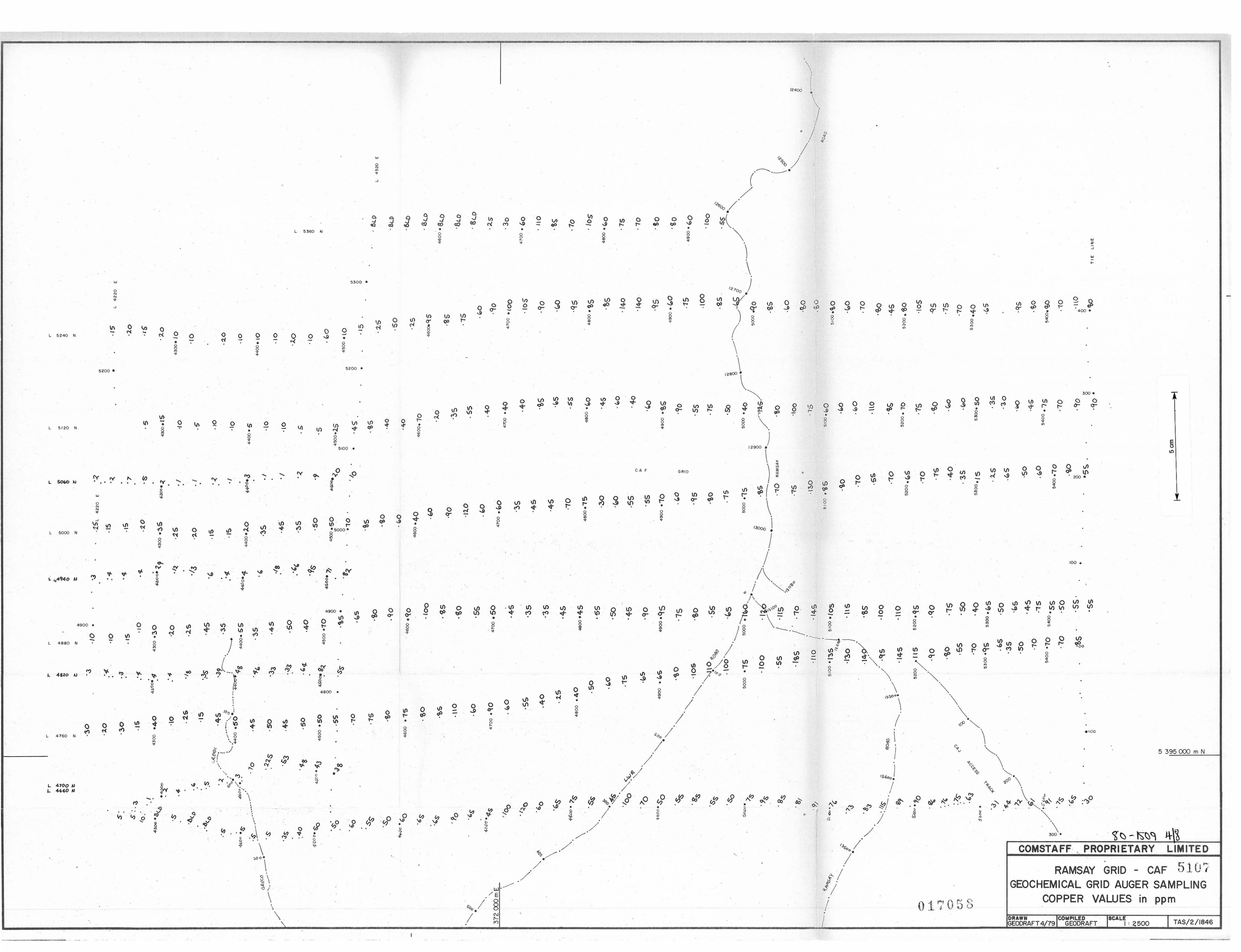
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAL 5012

GEOCHEMICAL GRID AUGER SAMPLING

TUNGSTEN RESULTS in ppm

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	11/4/79
AMENDED	25/8/80
SCALE	1 : 2500
PLAN No.	TAS/2/1839



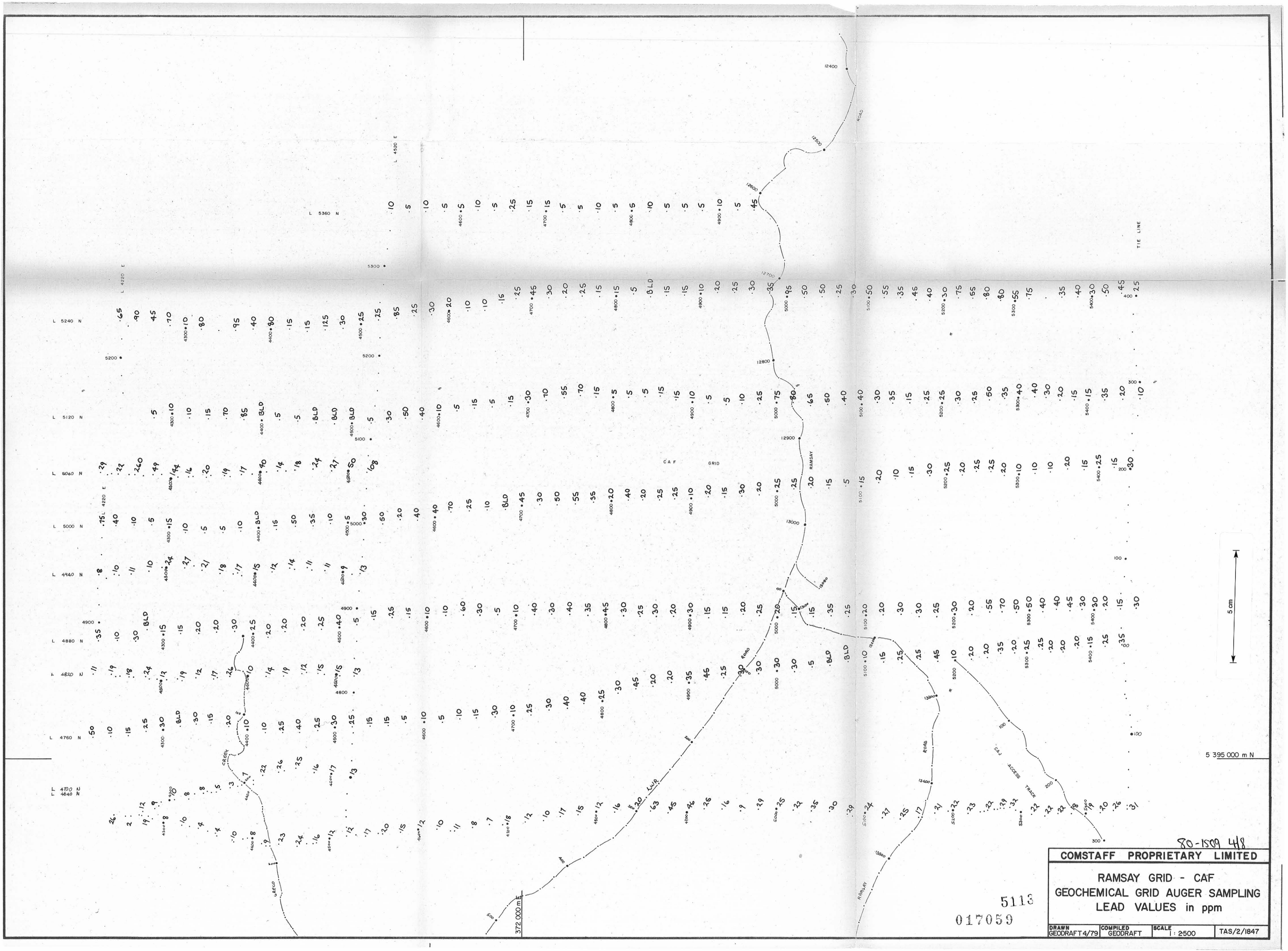
80-1509 4/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF 5107
GEOCHEMICAL GRID AUGER SAMPLING
COPPER VALUES in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 4/79	GEODRAFT	1 : 2500	TAS/2/1846

017058



80-1509 4/8

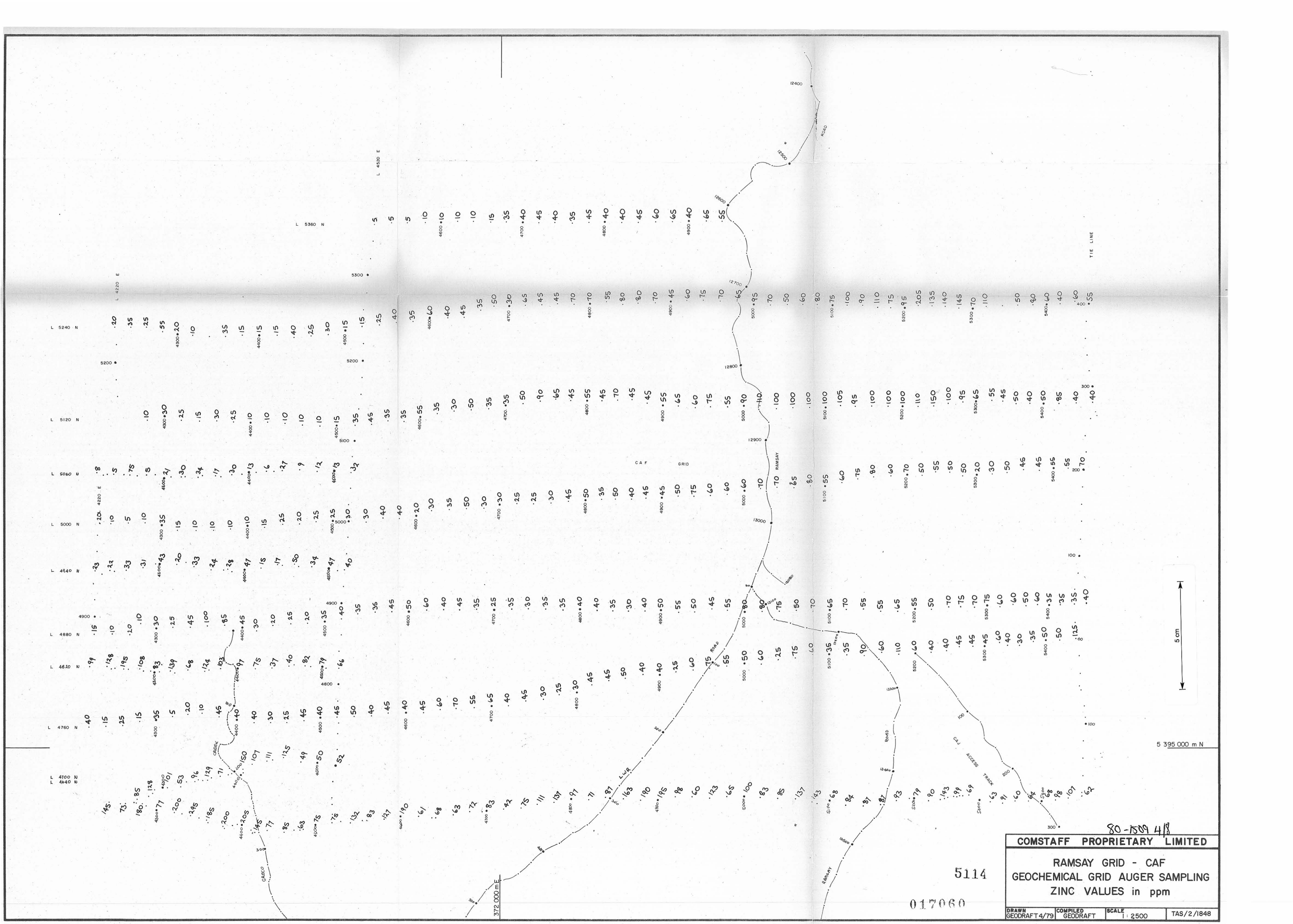
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
GEOCHEMICAL GRID AUGER SAMPLING
LEAD VALUES in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 4/79	GEODRAFT	1 : 2500	TAS/2/1847

5113

017059



80-1509 4/8

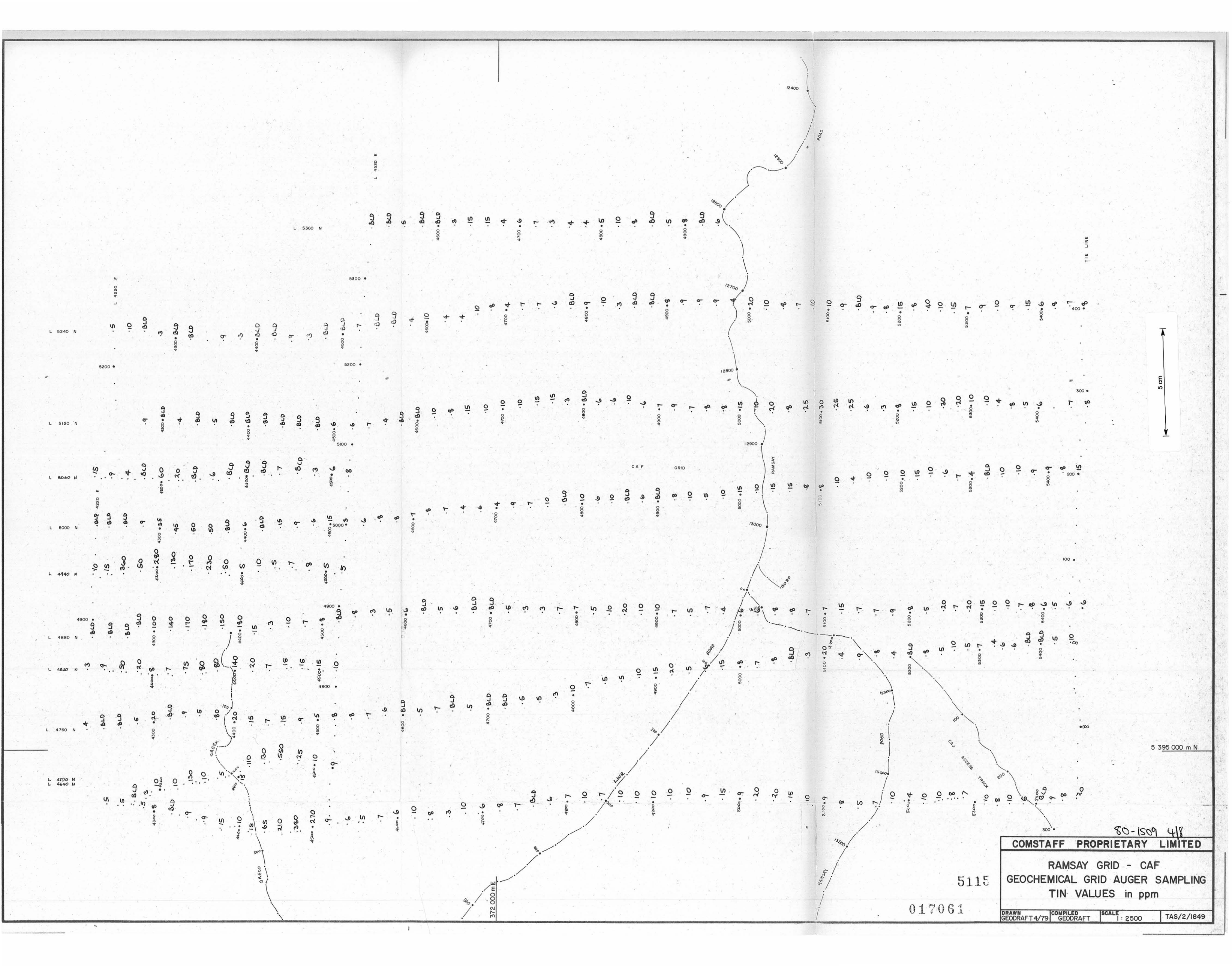
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
GEOCHEMICAL GRID AUGER SAMPLING
ZINC VALUES in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 4/79	GEODRAFT	1 : 2500	TAS/2/1848

5114

017060



80-1509 4/8

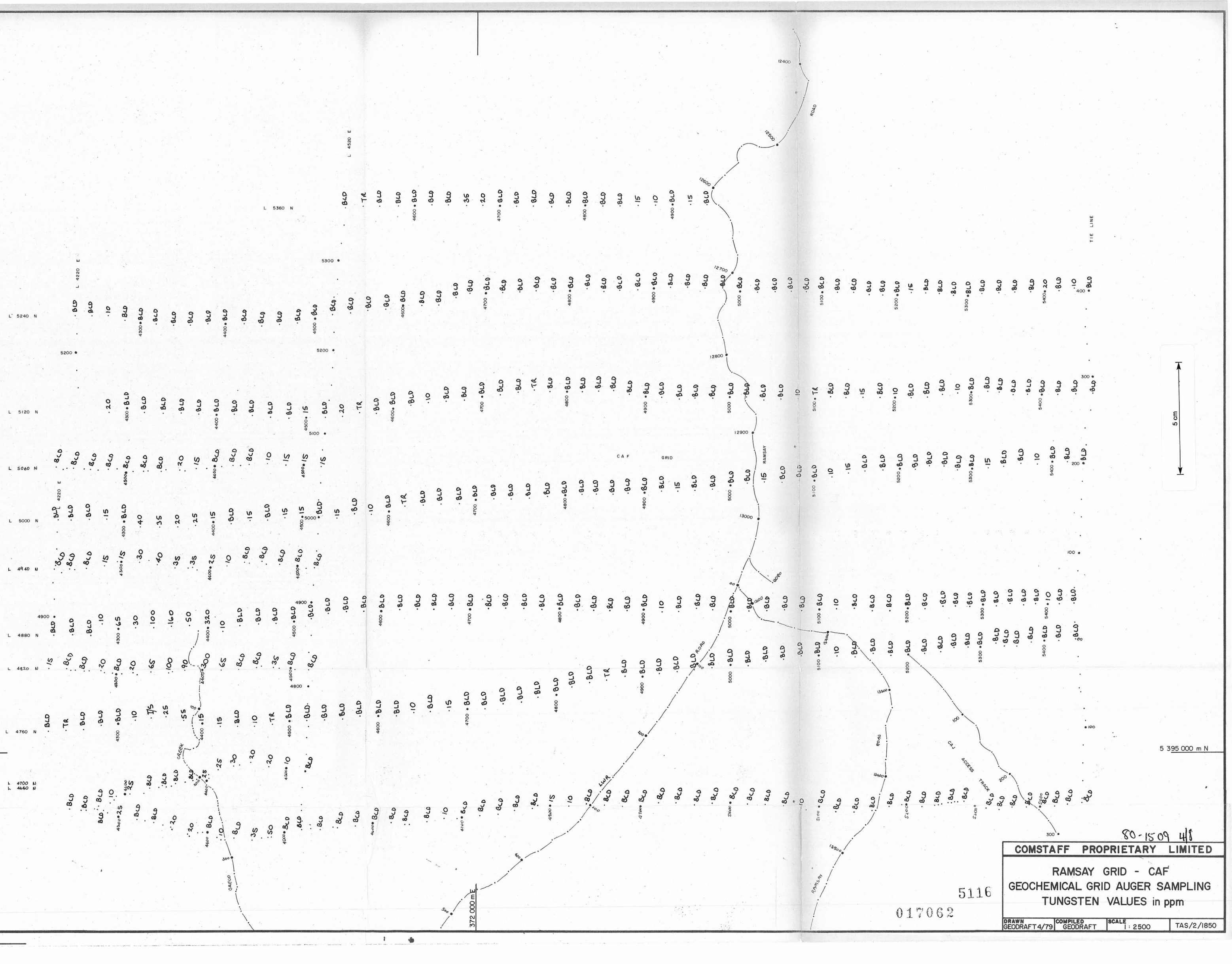
COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
GEOCHEMICAL GRID AUGER SAMPLING
TIN VALUES in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 4/79	GEODRAFT	1 : 2500	TAS/2/1849

5115

017061



80-1509 48

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID - CAF
GEOCHEMICAL GRID AUGER SAMPLING
TUNGSTEN VALUES in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 4/79	GEODRAFT	1 : 2500	TAS/2/1850

5116

017062

ORIGINAL

CAF GRID EASTERN EXTENSIONS

CAF GRID

RIVER

TIE LINE No 2

TIE LINE No 3

RAMSAY

L 5240 N

L 5000 N

L 4760 N

5 395 000 m N

373 000 m E

5 cm

80-1509 4/8

017063

5117

COMSTAFF PROPRIETARY LIMITED			
RAMSAY GRID CAF - EAST EXTENSIONS GEOCHEMICAL GRID AUGER SAMPLING COPPER RESULTS in ppm			
DRAWN GEODRAFT 5/80	COMPILED GEODRAFT	SCALE 1 : 2500	TAS/2/2154

ORIGINAL

CAF GRID EASTERN EXTENSIONS

CAF GRID

RIVER

L 5240 N

L 5000 N

L 4760 N

5 395 000 m N

373 000 m E

TIE LINE No 2

TIE LINE No 3

RAMSAY

5 cm

80-1509 48

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID CAF - EAST EXTENSIONS
GEOCHEMICAL GRID AUGER SAMPLING
LEAD RESULTS in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 5/80	GEODRAFT	1 : 2500	TAS/2/2155

017064 5118

ORIGINAL

CAF GRID EASTERN EXTENSIONS

CAF GRID

5 395 000 m N

373 000 m E

L 5240 N

L 5000 N

L 4760 N

TIE LINE No 2

TIE LINE No 3

RIVER

RAMSAY

5 cm

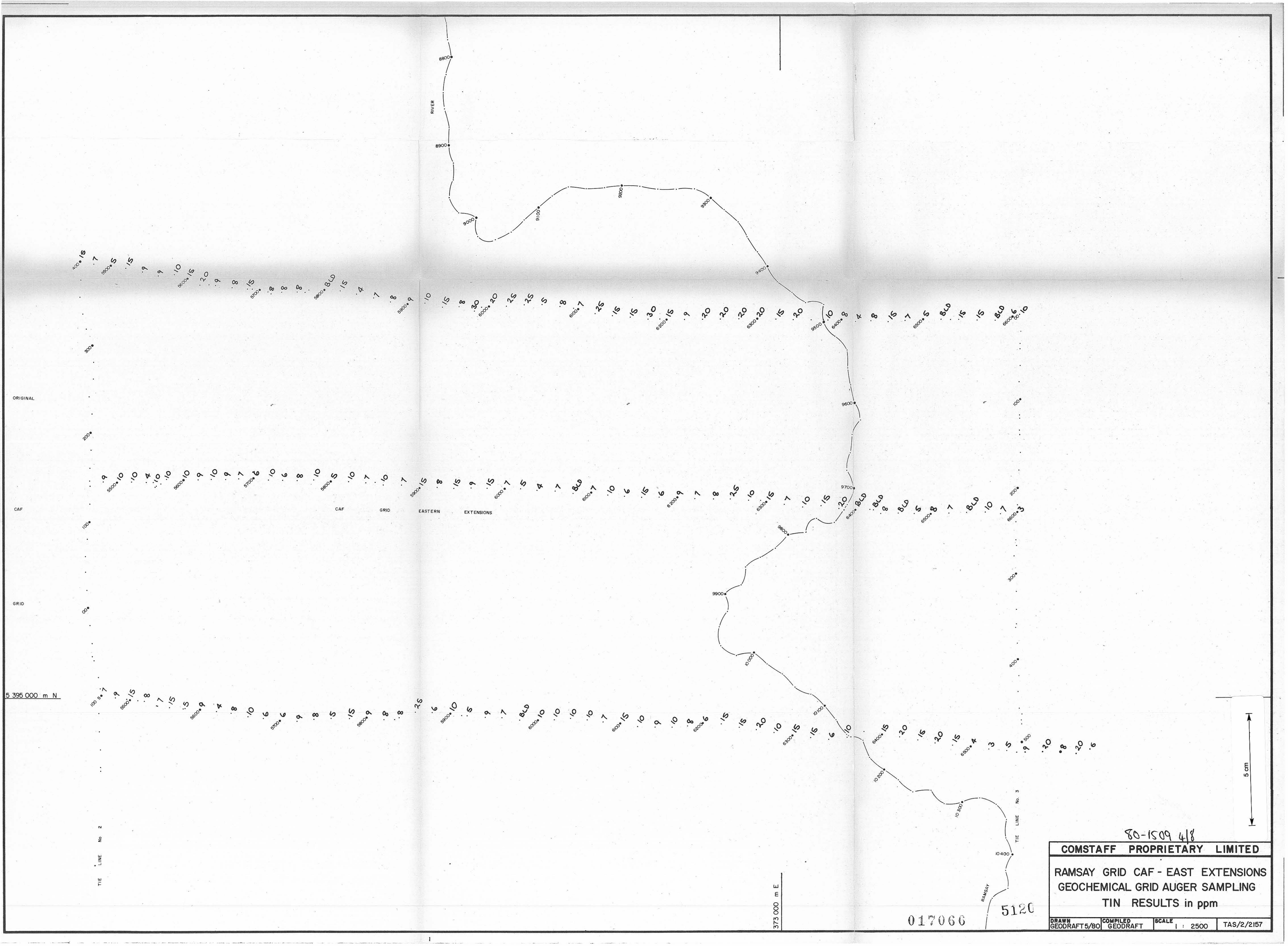
80-1509 4/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID CAF - EAST EXTENSIONS
GEOCHEMICAL GRID AUGER SAMPLING
ZINC RESULTS in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 5/80	GEODRAFT	1 : 2500	TAS/2/2156

017065 5119



80-1509 4/8

COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID CAF - EAST EXTENSIONS
GEOCHEMICAL GRID AUGER SAMPLING
TIN RESULTS in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 5/80	GEODRAFT	1 : 2500	TAS/2/2157

017066

5120



COMSTAFF PROPRIETARY LIMITED

RAMSAY GRID CAF - EAST EXTENSIONS
GEOCHEMICAL GRID AUGER SAMPLING
TUNGSTEN RESULTS in ppm

DRAWN	COMPILED	SCALE	
GEODRAFT 5/80	GEODRAFT	1 : 2500	TAS/2/2158

017067 5121

000

017068

80-1509B

PROJECT NAME: APPENDIX 3

COMSTAFF PROPRIETARY LIMITED

TITLE:

INTERIM REPORT ON RENISON EAST

(GRID "GAP" WEST)

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES: Queenstown Sheet S55/5,
Grid Co-ordinate 1000N, 5000E
Metric Co-ordinate 5368390N, 373015E

COMMODITY/IES: Tin, Copper, Lead, Zinc

TEXT PAGES NO: 12

PLAN NOS: See Appendix I TAS/2/1586, /2272, /2273, /2274.

TABLE NOS: Table 1

APPENDICES: APPENDIX 1, 2 AND 3

AUTHOR/S: W.R.H. Ramsay

DATE: 14th October 1980

OPEN FILE

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

COMSTAFF PROPRIETARY LIMITED

INTERIM REPORT ON RENISON EAST

(GRID GAP WEST)

SUMMARY

The main objective of this field programme was to prospect in detail the critical western margin of the Exploration Licence at Renison East (Grid GAP west) which abuts the mine leases held by Renison Bell Tin Mine. The work programme comprised the cutting of new grid lines and the extension of existing lines. In addition the grid was mapped and soil sampling was conducted on the new grid lines. A ground magnetic survey was also carried out.

Mapping has defined a NNE trending peridotite-gabbro-basalt complex. The western boundary of this complex is faulted (Ring River Fault) against weathered, fine grained sandstones and siltstones, whilst the eastern contact is conformably overlain by 40-50m of breccias. These breccias in turn grade upwards into bedded to massive sandstones and grey siltstones. The entire rock sequence mapped is probably Lower Cambrian in age and hence represents a time equivalent with the Crimson Creek Formation.

Interpretation of the geochemical results, by means of chemical profiles, has defined a number of anomalous zones which typically, but not always, appear to be related to the faulted boundaries of the major rock types. Two zones of particular interest are the inferred Ring River and Myrtle Grove Faults. It would appear that these fractures have acted as pathways for mineralizing hydrothermal fluids, and in one case for the intrusion of high level plutonic rocks.

Recommendations for further geological work along these fault zones are presented.

LOCATION

The grid under discussion, GAP west, comprises the western margin of EL 5/63 part 6. The grid extends southwards from line 3000N to line 2000N (TAS/2/2104) and comprises approximately ½ sq. km. The western margin of the lease abuts that held by Renison Ltd. and this portion of the ground falls away, steeply in parts, to the Ring River. The bulldozed access track, the Ring River road, forms the eastern boundary of the grid.

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PREVIOUS WORK

The grid was previously mapped by Mr. G.F. Pigott (see interim report on Renison East Grid GAP, 1978). This report, based on the mapping of grid lines, spaced approximately 200m apart, recognised the following rock types:-

1. Serpentine Hill Complex : comprises olivine-rich rocks namely harzburgite, pyroxenites, and their serpentinised and sheared equivalents. Lensoidal pods and inclusions of amphibolite and gabbro were mapped in the Ring River outside the immediate area under discussion.

2. Basaltic Complex : a sequence of extrusive lavas lacking evidence of pillows. In addition, are associated breccias with angular clasts of gabbro, granophyre and basalt in a flow banded basaltic matrix.

3. Conglomerate Lithicwacke Sequence : coarse clastic rocks which conformably overlie the basaltic complex.

4. Argillite Sequence.

5. Glacial Deposits.

WORK COMPLETED

1. Surveying : Because of the close proximity of this grid to the operating Renison Bell Tin Mine, an additional 5 kms of grid lines were cut and flagged during February 1980. These new grid lines were cut intermediate to the existing lines, such that the entire grid consisted of lines approximately 100m apart. In addition the entire grid was extended some 100-200m westwards. This decision was taken because of the uncertainty of the position of our western lease boundary. Contract surveyors were requested to survey the Ring River road from the Ring River itself to the Murchison Highway. This survey was tied in with the existing tape and compass surveyed grid lines. The positions of the contract surveyed star pickets are shown on TAS/2/2104.

2. Geological mapping : All grid lines - both existing and newly cut lines - were mapped for a total of 7.1 line kms. In addition the eastern margin of the grid, as defined by the Ring River road, was also mapped. The resulting geological data are plotted on TAS/2/2104. Representative samples for petrological examination were collected and the petrological report (Pontifex and Associates Pty. Ltd., No. 2878, 6th May 1980) is included within the appendix.

3. Geochemical surveys : All newly cut grid lines were sampled by hand auger at 20m intervals. Soil samples from the C horizon were collected and sent to Analabs for analysis of the -80# dried soil. Cu, Pb, Zn, As and Ni were analysed by AAS whilst Sn was by XRF.

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3000N	3240E - 3360E	7 samples
2900N	00 - 559	25
2800N	3260E - 3340E	5
2700N	20 - 560	28
2600N	3368E - 3480E	7
2500N	20 - 472	23
2400N	3420E - 3500E	5
2300N	20 - 500	25
2100N	20 - 590	25
2000N	3440 - 3540E	5
		155

In addition various rock chip samples were submitted for chemical analysis.

4. Geophysical Survey : Prior to the cutting of the additional grid lines in GAP west, the entire GAP grid was surveyed using a proton precession magnetometer. In addition an induced polarisation and resistivity survey was carried out on most of the grid lines whilst 16.1 line km of self-potential surveys were completed. In an attached report to the Interim Report on Renison East (1978), Dr. D.B. Trussell noted that the line spacing was too large to permit meaningful contouring of the ground magnetic data.

   Consequently with the re-examination of GAP west the grid (both old lines and new lines) was surveyed by contract geophysicists (Geoterrex) during June 1980.

GEOLOGICAL MAPPING

Summary : The rocks exposed in GAP west comprise an ophiolite complex which consists of a sequence of serpentinised ultramafics, feldspar-bearing pyroxenites, minor gabbros, and massive mafic lavas. The complex is bounded to the west and to the east by weathered and often poorly exposed sedimentary rocks. Those to the west comprise weathered light-grey to buff, fine grained sandstones, whilst to the east occurs a poorly exposed sequence of weathered breccias and partially laminated siltstones, which appear to overlie conformably, or paraconformably the mafic lavas. The ophiolite complex as a whole shows an overall facing from west to east though in detail there is a marked structural discordance between the plutonic and effusive components.

Serpentine Hill Complex : The type area for the Serpentine Hill Complex is Serpentine Hill itself on the Murchison Highway, to the west of the grid under discussion. The body of serpentinised ultramafics, which occurs in GAP west, has been correlated with the type area and mapped as "undifferentiated serpentinites" by Rubenach (1974).

Detailed grid mapping in GAP west has demonstrated a spectrum of rock types from serpentinised dunites, harzburgites, pyroxenites, to feldspathic pyroxenites and microgabbros. Much of the serpentine Hill Complex is dominated by a primary monomineralic or bimineralic assemblage of olivine, orthopyroxene, or olivine-orthopyroxene bearing ultramafics. The rocks vary from massive, to conspicuously layered, to highly foliated or schistose along the contacts, (e.g. GAP 2000N 3550E). Where layering

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is observed the individual mineral foliae, composed of orthopyroxene or variable ratios of olivine and orthopyroxene, vary from several metres to a few millimetres in thickness. The layering strikes NW to WNW with medium to steep dips to the SW. In general the trend of this layering is transverse to the Ring River Fault (which defines the western margin of the complex) and to the basalt/dolerite contact in the east. Assuming that there has been neither repetition or elision through faulting, the ultramafics in the area under study have a thickness in excess of 900m.

The rock types exposed on the grid lines are now largely converted to various serpentine mineral species, probably dominated by the compositions lizardite and clinochrysotile (seq. Rubenach 1974, Table IV). Although largely serpentinised it has, from the point of view of field mapping, been possible to subdivide the rocks into dunite, harzburgite, and pyroxenite using the weathering characteristics of the rocks. In highly sheared or schistose zones the original mineralogy has largely been obliterated and the resulting rock has been mapped as serpentinised or sheared ultramafic. Two types of sheared ultramafic rock have been recognised:

dark green serpentinite (e.g. 2000N, 3500E)

bright medium green serpentinite (e.g. 2700N 00E)

The former type is probably derived from sheared serpentinised dunite, with in places the segregation of secondary magnetite on the foliation planes.

The second type is, at least in some cases, derived from pyroxene-rich rocks (see Rubenach, 1974 - Table II, No. 38806). One unusual specimen (T8630; TL 1105m) is a particularly tough dark green serpentinite, located on the contact with the Ring River Fault. In thin section the rock is composed of subspherulitic aggregates of serpentine (antigorite?) 10-50 microns across with accessory scattered sulphedral opaque grains 30-200 microns across. The presence of antigorite is suggestive of somewhat elevated temperatures of formation, possibly representing contact metamorphic effects from near by equivalents of the Pine Hill Adamellite. This suggestion receives further credence from the presence of quartz-tourmaline intrusive rocks along the Ring River Fault (see below). The NE extension of the Ring River Fault has been identified are L2600N 3510W by the presence of carbonated schistose serpentinite. This altered pyroxene bearing dunite (T8635) has a schistose appearance with prominent aggregates of granular carbonate scattered through the rock.

In some parts of the Serpentine Hill Complex feldspar is present and gives rise to feldspathic pyroxenites or microgabbros in more extreme cases, especially on the Ring River road on L2800N. These rocks as a whole, appear in the field as medium to pale green, fine to medium grained and granular. In some cases the microgabbros show faint layering as defined by thin whitish layers or patches of altered feldspar. Where measured, this layering in the microgabbros, strikes between north and ENE in sympathy with the strike of layering in the feldspar absent ultramafics. This observation alone strongly suggests a close genetic and temporaly relationship between the microgabbros, pyroxenites, harzburgites and dunites. In thin sections where feldspar occurs (T8628, T8629) clino-pyroxene is often also present and the rocks vary from feldspar-bearing websterites to two-pyroxene gabbros. Texturally many of these rocks are granoblastic. Alteration minerals include clinozoisite, sericite,

white mica, anthophyllite?, tremolite, chlorite, prehnite. The ortho-pyroxene where present is typically pseudomorphed by fibrous amphibole, whilst the presence of minor serpentine in T8629 may reflect the former presence of olivine.

Basalt/dolerite Complex : These rocks form a massive monotonous exposure in the south and SE portions of GAP west. The rock is typically dark green and finely crystalline with thin fibrous amphibole (actinolite) present in hand specimen. Minor pyrite and secondary? quartz has been noted in some examples. The only textural variation observed was at L2000N 3710W where the rocks display a microporphyritic texture with small crystals of euhedral feldspar. The mafic body as a whole trends NE/SW.

Its western contact with the Serpentine Hill Complex, although obscured, probably is represented by a fault. The eastern contact is apparently paraconformable with overlying unsorted breccias. This contact, which occurs on the Ring River road at 2160m, is steep and probably strikes to the NE.

In thin section (T8632, GAP west 2100N 90E; T8633 2300N 160E) the rock varies from doleritic (subophitic?) to quench textured spherulitic lava containing plumose clinopyroxene. Primary minerals recognised include clinopyroxene, plagioclase, opaque oxides and pyrite? These mafic rocks have now been subjected to alteration and these secondary minerals involve actinolite, secondary quartz, sphene, epidote, and retrograde vein prehnite.

The presence of altered glass and quench textures suggests that these mafic rocks were cooled rapidly, possibly in extrusive submarine flows. Evidence in the field for pillow lavas was not observed. The presence of mineral layering within the Serpentine Hill Complex, roughly orthogonal to the ultramafic-basalt contact, is tenuous evidence that there may not be an immediate genetic relationship between the two rock types.

Sediments : Overlying the mafic lavas in the south and SE corner of the grid is a succession of fine grained to coarse clastic sediments which may be conveniently subdivided into two groupings.

1. Polymict breccias are exposed along the Ring River Road from 2100-2160m. These clastic sediments occur as massive weathered breccias with subangular to subrounded pebble to small cobble sized clasts. Clast composition noted in the field includes red and grey chert, laminated mudstone, siliceous mudstone, feldspathic pyroxenite, muscovite-bearing quartzite, and haematite stained fine grained mafic igneous? rock. Bedding is lacking, though textural variation occurs through the sequence depending on the degree of rounding and the matrix to framework ratio. Close to the basalt contact the breccia may be more accurately regarded as an orthoconglomerate. The matrix of the breccia comprises a highly weathered buff coloured clay - possibly indicative of an initial tuff component. Total thickness would be approximately 40-50m thick.

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2. Sandstone/siltstone unit (which appears to overlie the polymict breccias). These sediments comprise massive to partially bedded iron stained weathered sandstones and siltstones. Where bedding is apparent it strikes a little east of north and dips east at between 84-60° with facing to the east. Minor quartz veins cut the sequence in isolated occurrences. On the Ring River Road at 1740m the bedded siltstones have the appearance of being somewhat indurated (horn-felsed?). An unusual feature is that within some of the bedding planes at this locality are thin (1-10 cm thick) lithic breccia to tuff horizons, which appear to have been invaded in part by quartz-rich solutions. The resulting alteration assemblage developed along the thin bedding planes comprises quartz-epidote-actinolite-pyrite-(axinite?). It is suggested that this exposure is in close proximity to shallow buried equivalents of the Pine Hill Adamellite.

Quartz-tpurmaline intrusive rocks : Exposed on the tie line 1040m are numerous cobbles of intrusive quartz-tourmaline rock, which from regional consideration marks the position of the Ring River Fault. Two textural types were collected (T8636, T8637). Both are characterised by the presence of quartz and tourmaline which appear to have replaced a former microporphyritic granitoid. The clear structural control of these rocks along the Ring River Fault suggests that they represent altered equivalents of the Pine Hill Adamellite.

Glacial Deposits : Glacial and periglacial deposits are variably distributed throughout GAP west. Good exposures (3000N 3850E) are composed of white leached siliceous cobbles and pebbles set in a clay to sandy matrix. Through much of the grid these deposits do not appear to be very thick and have been identified during grid mapping by the presence of small quartz granules set in a leached white clay.

STRUCTURE

Structurally, GAP west is relatively simple. However, difficulties arise in attempting to integrate this area with the structural features found at a regional scale. The ultramafic/mafic plutonic rocks and spatially associated mafic lavas may be regarded as a disrupted ophiolite, which has been tilted on edge and now faces east. The western margin of the Serpentine Hill Complex is faulted against deeply weathered and leached sandstones and siltstones. The position of this fault (Ring River Fault) is marked by the sudden transition from serpentinised ultramafics through to sediments. This fault trends NNE and from a visual examination of magnetic data the structure dips steeply to the WNW. The SW continuation of this fault will intersect the SE extension of the Bassett Federal Fault zone in the vicinity of the Ring River itself. The Ring River Fault is regarded as the major structural feature in the area under discussion and tenuous evidence suggests that it may have commenced movement during Cambrian times and then been reactivated during the Devonian. This fault appears to continue to depth and has acted as a pathway for high level tourmalinised equivalents of the Pine Hill Adamellite.

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A second fault (Myrtle Grove Fault) running subparallel to the Ring River Fault has been mapped. Evidence for this fault is based entirely on the discordence in mineral layering in the Serpentine Hill Complex with the basalt/ultramafic contact. In both instances these faults are closely associated with geochemical soil anomalies.

The contact between the basalts and the overlying polymict breccias is either conformable or more likely paraconformable, and this contact is believed to follow the strike of the associated NNE striking sandstones and siltstones.

GEOLOGICAL HISTORY

A suggested sequence for geological events in the area covered by GAP west is as follows:-

Late Proterozoic : During the late Proterozoic, to possible early Cambrian time, there developed a sequence of miogeosynclinal sandstones, siltstones and dolomites in a shallow marine environment (Success Creek Group). These rocks are now exposed to the west of the current lease, in the Renison Mine area and may continue at depth under GAP west.

Cambrian : In the Renison Mine area this sedimentary sequence passes conformably or paraconformably upwards into the base of the Crimson Creek Group, which comprises a basal haematitic chert conglomerate, silicified carbonate rocks and tuffaceous immature sandstones. Of critical importance is the relationship of this basal portion of the Crimson Creek Group to steeply dipping sandstones and siltstones mapped within GAP west and tentatively included within the Crimson Creek Group. These latter sediments appear to have been deposited within an unstable and rapidly subsiding trough or basin whose western margin was demarcated by a major fault or a collection of faults. These faults probably date from the early Cambrian and have acted as loci for the development of the basalt/dolerite and Serpentine Hill Complexes. The mafic lavas are regarded as having formed in a rift environment. The serpentinised ultramafics and minor gabbros may represent the plutonic equivalent of these lavas, though there is tenuous evidence from the structural discordance between the two that there may not be an intermediate genetic association.

The presence of polymict breccias containing clasts of weathered lava and greenish pyroxenite, overlying the basalt/dolerite complex indicates that at least a portion of the ophiolite was exposed to erosion by early Cambrian time. This in turn suggests that the associated faults were reactivated several times from the Cambrian to at least the Devonian. These breccias fine upwards into a partially bedded sequence of sandstones and siltstones. The finer sediments probably reflect slightly deeper basinal conditions and a much reduced supply of detrital sediments.

Middle Devonian : During the early-middle Devonian a major orogenic phase (Tabberabberan Orogeny) occurred through western Tasmania. Associated with this period of folding and faulting was the upwelling and intrusion of acid magma. This magma intruded zones of structural weakness and crystallized in high-level magma chambers. Within GAP west, high-level equivalents of this magma were injected along the Ring River Fault and subsequently these rocks were altered by late-phase quartz-tourmaline bearing solutions. These paulopost or deuteric solutions apparently

contained various ore forming elements thus giving rise to anomalous soil geochemistry close to the fault on lines 2300 and 2500. In addition, near surface plutonic intrusions were possibly emplaced in the southern portion of GAP west in the vicinity of the Ring River road (1600m). Here the sediments appear to have been thermally metamorphosed and in part altered by hydrothermal solutions.

Post Devonian : The whole area was subsequently uplifted and subjected to erosion. During the Pleistocene, glacial and fluvioglacial debris was deposited over a wide area. Continued erosion during the Recent period has removed significant amounts of this glacial material leaving a thin veneer over portions of GAP west.

GEOCHEMISTRY

During this survey various rock chip samples were collected for chemical analysis, and in addition soil samples of the C horizon were obtained by hand auger. In total 155 soil samples and 9 rock chip samples were obtained and submitted for chemical analysis.

Rock Chip Geochemistry : A description of the samples, their location and their geochemical values are given in Appendix 2. The majority of samples represent floaters of ironstone collected over the ultramafics. These samples are all characterised by moderately high Zn levels (120-280 ppm) which are believed to reflect the unusually high background zinc values for the ultramafic body as a whole. One manganese-rich ironstone sample (T8610, 2500N 00E) is of note however. This specimen is characterised not only by unusually high Zn (675 ppm) but also anomalous Cu (235 ppm) and Pb (40 ppm). Moreover the location of this sample close to the mapped position of the Myrtle Grove Fault on line 2500N coupled with anomalous soil geochemistry in the elements As, Sn, Zn, Pb and Cu suggest that this sample may reflect hydrothermal mineralisation emplaced along the Myrtle Grove Fault.

Geochemical values for altered samples collected on or near the Ring River Fault, namely a carbonated serpentinite (T8606) and two quartz-tourmaline bearing plutonic rocks (T8664, T8665) gave low values for the elements analysed. However for the serpentinite sample, Zn was usually high (120 ppm). Levinson (1974) gives the average Sn content for ultramafic rocks to be 50 ppm. A partially hornfelsed and altered sediment (T9006) from the Myrtle Grove Road has anomalous geochemistry in As, Cu, Pb, Zn. This area could represent the root region of shallowly buried plutonic rocks.

Soil Geochemistry : During this survey 155 soil samples were obtained from the newly cut lines by hand auger at spacings of approximately 20m. Where possible C horizon samples were collected; however over parts of the ultramafic rocks and glacial deposits skeletal soils occur with no horizon development. Clay based soils occur over the mafic lavas and sediments.

The values of the soil sampling programme are presented in plan form (TAS/2/2105-2110) and on corresponding profiles. The recognition of significant soil geochemical anomalies has been hindered by the contrasting background geochemical values for the various rock types found in the area. World average abundance values for various rock types given by Levinson (1974) are as follows:-

Table 1

Average abundance levels for selected rocks (after Levinson, 1974)

	Ultramafic	Mafic	Shale
Cu	10	100	50
Pb	0.1	5	20
Zn	50	100	100
As	1	2	15
Sn	0.5	1	4
Ni	2000	150	70

Tin

Values for much of the area are low, and over parts of the serpentinised ultramafic, below detection level (2 ppm). However anomalous results were obtained on or close to the position of the Ring River Fault and in the vicinity of the basalt/polymict breccia contact on line 2100N. In the former case, values of 65 ppm (2300N 500E) and 170 ppm (2400N 3480E) occur on the Ring River Fault close to the mapped position of quartz-tourmaline bearing granitoid rocks.

Anomalous tin values are located also on or near the upper contact of the mafic lavas. The highest soil geochemical sample is 170 ppm reflecting possibly hydrothermal alteration within the more porous breccias.

Copper

High background copper values are characteristic of the basalt/dolerite complex and these values have tended to mask possible anomalous values associated with these rocks. As with tin an anomalous value of 215 ppm occurs near the eastern margin of the basalt/dolerite complex on line 2100N. Anomalous values also occur in sediments on the western flank of the Serpentine Hill Complex (110 and 410 ppm, Line 2600N) or on the postulated position of the Ring River Fault (Line 2300N and 2900N).

Zinc

Soil values for zinc prove to be unusually high over the Serpentine Hill Complex. These high Zn values possibly reflect high initial Zn contents within the pyroxene silicate lattice. This Zn was subsequently liberated during serpentinisation and weathering. In addition, anomalous Zn values occur along parts of the Ring River Fault and possibly on the Myrtle Grove Fault (Line 2100N).

Lead

Because of the low background levels of lead in ultramafic, mafic and many sedimentary rocks the lead soil geochemistry is of particular interest. Marked geochemical anomalies occur on the Myrtle Grove Fault (Line 2100N, 2500N) and over a portion of the Ring River Fault (Line 2300N). This latter anomaly may possibly be traced north to Line 2500N

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where it is associated with a broad arsenic anomaly. Very high anomalous values occur within sediments located near to the Ring River Fault on Line 2600N. Here values of 295, 215 and 400 ppm were obtained from 3420-3380E. In addition these high Pb values on Line 2600N are associated with anomalous Cu, Ni, Zn and As.

Geophysics

The report on the magnetics survey and the resulting profiles is to be submitted by the Anglo "in house" geophysicist.

Discussion

Debate over the origin of Renison/Bischoff style mineralisation continues unabated (Hutchison, 1979). Whilst there is some evidence from RBE 6, drilled approximately 900m to the east of GAP west, that much of the pyrite and pyrrhotite encountered within a black shale sequence is of syngenetic origin, there nevertheless are problems regarding the origin of associated Sn, Cu, Pb, Zn, Ag mineralisation. Although much of this ore deposition shows a spatial relationship with granitoid intrusions, the stratiform nature of some deposits raises the possibility of an initial syngenetic origin. Within GAP west, three areas of interest have been identified from field mapping and geochemical studies.

Ring River Fault : Of the three areas discussed below, the Ring River Fault is of particular significance for the following reasons:-

1. This fault is a long lived structural feature, which commenced activity at least during Cambrian time and has probably been reactivated several times since.

2. The fault has tapped Devonian granitoids and has acted as an intrusion pathway for high-level microporphyritic phases of these plutonics and the attendant late-phase, quartz-tourmaline bearing alteration fluids.

3. The presence of anomalous soil chemistry, for a number of elements, associated with this fault on Line 2300N and possibly on Line 2500N.

4. The south-west extension of this fault would appear to intersect the southern extension of the Bassett-Federal Fault zone. This latter fault is a major structural feature, along which tin mineralisation occurs.

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5. The intersection between these two faults is predicted to plunge approximately 50° to the north. Moreover this intersection, should it continue uninterrupted northwards, would be expected to occur at depth inside the western margin of the GAP lease from 3200N northwards.

6. An initial lineament study indicates that the Ring River Fault has been cut by a number of north-west trending lineaments. One of these lineaments is closely associated with highly anomalous soil geochemistry on the western end of Line 2600N.

It is not envisaged that suitable reactive rocks such as limestones or dolostones occur at depth along the Ring River Fault. However the presence of carbonated ultramafics (T8606) coupled with the possibility of tensional cavities developed either on the Ring River Fault itself or localised where prominent north-west trending lineaments cut this fault is of significance. This latter structural environment suggests the possibility of steeply plunging pipe-like bodies with the result that surface extent or expression of such bodies may not be significant.

The Myrtle Grove Fault : Likewise deserves further attention. This inferred fault separating the Serpentine Hill Complex from the basalt/dolerite complex, may likewise have acted as a locus for epigenetic mineralising solutions. Points to note in this connection are the anomalous soil geochemistry on Line 2500N and the anomalous manganese-rich ironstone sample (T8610). Again reactive rocks along the fault are unlikely to occur, other than the possibility of talcose and carbonated ultramafics.

Contact between basalt/dolerite complex and polymict breccias : should be carefully investigated both from the point of view of possible exhalative Cu/Zn rich ores and/or epigenetically introduced ores. Points to be noted are:-

1. Porosity and competency contrasts between the basalts and the underlying breccias, some of which approach orthoconglomerates;

2. Anomalous soil geochemistry in the vicinity of the contact on Line 2100N;

3. Possibility of high-level intrusive plutonics beneath sediments as evidenced by contact metamorphosed, and minor hydrothermally altered sediments at 1600m on the "Ring River Road (T9006).

RECOMMENDATIONS

Because of the close proximity of GAP west to the operating mine of Renison Bell the area requires additional geochemical, geophysical and where necessary geological mapping. Firstly a full interpretation of the geophysical magnetic data, including identification of the Ring River and Myrtle Grove Faults and an estimation of their attitudes, is required.

Completion of C horizon geochemical soil sampling on some of the grid lines is necessary.

Current work has delineated three zones of interest namely:

Ring River Fault;

Myrtle Grove Fault;

Sediments along the eastern margin of the basalt/dolerite complex.

Structurally, the Ring River Fault is the most important feature on the lease. The SW extension of this fault runs out of the western margin of GAP west into the Renison Bell lease. If possible this SW extension should be mapped and where possible samples collected for geochemical analysis.

...12.

In addition the entire sediment/basalt contact should be carefully reinvestigated. Sulphides may either be localised along the actual contact itself or within the sediments. Careful consideration of further geophysical work, to investigate this possibility, should be given (e.g. EM geophysics).

for W.R.H. Ramsay

14th October 1980

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Hutchison, R.W., 1979 : Evidence of exhalative origin for Tasmanian tin deposits. Canad. Instit. M. Bull., 90-104.

Levinson, A.A., 1974 : Introduction to Exploration Geochemistry. Applied Publishing Ltd., U.S.A. 924 pp.

Pigott, G.F., 1978 : Interim Report on Renison East (Grid GAP). Comstaff Pty. Ltd. 58 pp with appendices.

Rubbenach, M.J., 1974 : The origin and emplacement of the Serpentine Hill Complex, western Tasmania. J. Geol. Soc. Aust., v 21. 91-100.

APPENDIX I

List of Plans and Sections Included with Text

TAS/2/1586	Location of Comstaff Leases in Tasmania	1:2 500 000
TAS/2/2272	Renison Grid - GAP west, Geological Interpretation	1:2 500
TAS/2/2273	Renison Grid - GAP west, Cross section A-B	1:2 500
TAS/2/2274	Topographic Map Renison-Pieman area showing major lineaments	1:25 000

List of Plans and Sections Not Included with Text

(These plans are available on request at Comstaff Pty. Ltd., Mt. Bischoff Road, Waratah, Tasmania).

TAS/2/1618	Renison Grid GAP, Geological Interpretation	1: 5 000
TAS/2/1619	Renison Grid GAP, Geological Interpretation	1:500
TAS/2/2104	Renison Grid GAP west, Geology	1:2 500
TAS/2/2105	Renison Grid GAP west, Geochemical sampling, C Horizon, Copper results in ppm,	1:2 500
TAS/2/2106	Renison Grid GAP west, Geochemical sampling, C Horizon, Nickel results in ppm	1:2 500
TAS/2/2107	Renison Grid GAP west, Geochemical sampling, C Horizon Lead results in ppm	1:2 500
TAS/2/2108	Renison Grid GAP west, Geochemical sampling, C Horizon Zinc results in ppm	1:2 500
TAS/2/2109	Renison Grid GAP west, Geochemical sampling, C Horizon Arsenic results in ppm	1:2 500
TAS/2/2110	Renison Grid GAP west, Geochemical sampling, C Horizon Tin results in ppm	1:2 500
TAS/2/2275	Renison Grid GAP west, Geochemical profiles, grid line 2100N	1:2 500
TAS/2/2276	Renison Grid GAP west, Geochemical profiles, grid line 2300N	1:2 500
TAS/2/2277	Renison Grid GAP west, Geochemical profiles, grid line 2500N	1:2 500
TAS/2/2278	Renison Grid GAP west, Geochemical profiles, grid line 2700N	1:2 500
TAS/2/2279	Renison Grid GAP west, Geochemical profiles, grid line 2900N	1:2 500

APPENDIX 2

Rock Chip Descriptions and Assay Data - GAP West

Field No.	Grid Ref.	Cu	Pb	Zn	As	Sn	W	Ag	Description
T8606	GAP 2600N 3505E	10	10	120		15	10		Carbonated serpentinite.
T8607	GAP 2700N 185E	5	10	255		9	BDL		Ironstone float.
T8608	GAP 2700N 155E	5	15	210		4	BDL		Ironstone float.
T8609	GAP 2800N 3680E	5	10	285		7	15		Ironstone float.
T8610	GAP 2500N 00E	235	40	675		BDL	15		Manganese rich gossan.
T8611	GAP Tie Line 800m	60	35	280		4	10		Ironstone float.
T9006	GAP 1580m Myrtle Grove Road	415	235	185	1200	40	BDL	2.5	Altered and hornfelsed fine breccia interbedded with siltstone.
T8664	GAP Tie Line 1050m	5	5	15	44				Quartz-tourmaline altered granitoid.
T8665	GAP Tie Line 1050m	BDL	5	15	11				Quartz-tourmaline altered granitoid.

C33

017083

APPENDIX 3

Pontifex & Associates Pty. Ltd.

TEL. 332 6744
A.H. 31 3816

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

MINERALOGICAL REPORT NO. 2878

6th May, 1980

TO: Mr. W.R.H. Ramsay,
Comstaff Pty. Ltd.,
Mount Bischoff Road,
WARATAH Tasmania 7321

For rock samples
See: Core Shed

YOUR REFERENCE: Your letter dated 10/4/80
Your Consignment 80/15

MATERIAL: Rock samples (10)

IDENTIFICATION: T8628 to T8637

WORK REQUESTED: Thin section examination, comment on genesis

SAMPLES & SECTIONS: Returned to you with this report

PONTIFEX & ASSOCIATES PTY. LTD.

COMMENTS

Most rocks in this batch are derived from basalt, cumulus gabbro and pyroxenite, and dunite. The basalt shows quench textures typically developed in magnesian tholeiites which are typical associates of ophiolitic cumulus rocks.

Alteration is of a low grade type with various types of serpentine, antigorite ± carbonate or serpentine + talc + tremolite alteration. The metabasalts are now actinolite-plagioclase rocks with retrograde epidote and, in places, prehnite. In the pyroxenite the main alteration is the serpentine-amphibole replacement of orthopyroxene. Minor muscovite occurs as coarse flakes in plagioclase and some of the plagioclase is pseudomorphed by fine grained epidote. Chlorite is rare in those rocks.

The quartz tourmaline rocks appear to completely (?metasomatically) replace former porphyritic-dacite or micro-granodiorite with phenocrysts of quartz, plagioclase and of hornblende, pyroxene and/or biotite (T8636). Phenocrysts of quartz and/or plagioclase with a groundmass of felspar, biotite and/or hornblende appears to have formed the pre quartz-tourmaline replacement of T8637.

It is noted however that the identification of the minerals now replaced by tourmaline aggregates is difficult as the outlines are somewhat obscured by the replacement.

••

GAP 2900N 00E

019

T8628 : altered two-pyroxene gabbro

This is a faintly laminated grey rock composed of plagioclase, clinopyroxene and ?anthophyllite pseudomorphs after orthopyroxene, with an average size of 0.5 mm. The grain shapes are lobate and have grain boundary intersections typical of high grade metamorphic rocks (granuloblastic).

The clinopyroxene is fresh and has thin exsolution lamellae of orthopyroxene, whereas the orthopyroxene is completely replaced by fibrous ?amphibole. Probable anthophyllite overgrowths of tremolite occur in some pseudomorphs. The plagioclase contains large flakes of white mica as well as finer sericite-clay aggregates in fractures.

Small aggregates of fine granular clinozoisite may be pseudomorphs after plagioclase. They enclose white mica in places. Minor patches of coarse chlorite, with prehnite on the cleavage planes, may be replacing biotite.

This is almost certainly a cumulus rock with sintered grain boundaries.

T8629 : granular felspathic pyroxenite

This is a foliated grey granular rock similar to sample T8628 but with considerably less plagioclase and more pyroxene, especially orthopyroxene.

The orthopyroxene is again completely pseudomorphed by fibrous amphibole and/or serpentine but its grain size is larger, to over 1 mm. The plagioclase is similar to that in sample T8628 but also coarser (to 1 mm), and makes up about 10% of the rock. The clinopyroxene has the same grain size (0.5 mm) as in T8628 and is otherwise the same, except for having tremolite overgrowths.

The rock is cut by a vein of fine chlorite.

This is a cumulus rock with sintered grain boundaries, and of felspathic pyroxenite (to mafic gabbro) composition, almost certainly a mafic variant of T8628.

T8630 : massive serpentinite
probably after dunite

This is a massive serpentinite composed of subspherulitic aggregates of serpentine (?antigorite) 10 - 50 microns across with accessory, scattered subhedral opaque grains (?chromite) 30 - 200 microns across.

A shear vein is composed of lenticular opaque aggregates and parallel-fibre serpentine. Dusty opaque grains up to 20 microns occur in networks and trails outlining grain boundaries and fractures in the original ultramafic which was probably a dunite.

Minor stringers of fine carbonate (0.4 mm), also carry minor fine opaques. These opaque grains in places exceed 1 mm in size, almost certainly they are magnetite.

TB631 : massive serpentinite
after dunite

This serpentinite has areas of oriented serpentine as well as the spherulitic 'salt and pepper' textured serpentine as in most of the previous samples. The oriented serpentine occurs in cells up to several mm across, partly outlining former olivine sites.

Former olivine grain shapes and fracture patterns are further delineated by ultrafine (about 1 micron) opaque dust. Opaque euhedra (?chromite) 0.1 - 1 mm across make up about 2 - 3% of the rock.

T8632 : metabasalt (amphibolite)

This is a compact dark green rock with features resembling vesicles, and fractures. In thin section it is seen to consist of hornblende (actinolitic), plagioclase, accessory quartz and granular opaques.

The actinolite occurs as elongate replices of coarse clinopyroxene which measured about 0.1 x 1 mm, and subradiating, branching fibres and prisms after quench clinopyroxene.

Interstitial plagioclase is clouded and in part euhedral against quartz. The quartz grains are up to 0.5 mm across and may be in part, vesicle fillings, together with rare epidote.

Scattered granular opaque mineral (s) reach 0.5 mm, and enclose quartz or amphibole. Some have haloes of epidote and fine granular sphene. These are identified as Fe and/or Ti oxides, also pyrite (under binocular microscope). The fractures visible in the hand specimen are epidote-filled veins about 0.1 mm across.

The texture suggests a magnesian-tholeiite, with a quench texture, as the original rock type.

T8633 : metabasalt with epidote and prehnite veins (possibly a pillow lava)

This is a compact massive deep green rock with scattered patches of lighter veining, partly weathered out. The original igneous texture is well preserved and varies across the thin section from an equigranular doleritic texture to a quenched texture.

In the doleritic areas plagioclase is preserved, but in the quenched areas, plagioclase/glass interstitial to the original pyroxene (now amphibole) is replaced by epidote.

The doleritic areas have amphibole replicas of pyroxene grains 0.05 - 0.1 mm across, interstitial plagioclase and scattered opaque granules, in part along veins and rarely partly altered to leucoxene. The quench area contains amphibole replicas after phenocrystal and quench pyroxene in altered glass or felspar, replaced by cloudy fine-grained epidote. In a transitional area, adjacent to a prehnite vein, the felspar is replaced by prehnite.

Veins of coarse prismatic epidote up to 5 mm wide are composed of zoned prismatic grains to 3 x 0.5 mm. The zones are defined by opaque inclusions in layers around the core. Interstitial weathered (or leached out) opaque mineral(s) occur in patches up to 1 mm across, and fragments of metabasalt are enclosed in the vein. Veins of prehnite occur as extensions to the epidote vein in places and are composed of unoriented prehnite anhedra to 0.3 mm across; these occur in the quenched and doleritic parts of the rock.

The original rock was a partly quenched basalt, possibly a pillow lava. The presence of the quenched phase may indicate proximity to a pillow margin.

T8634 : serpentinised dunite, including broad veins of bowlingite/serpentine alteration after olivine; disseminated fine chromite

This is a more complex serpentinite than samples T8630 and T8631 with several serpentine varieties, and minor tremolite and talc.

Initial alteration of the olivine was to a pleochroic green to orange fibrous bowlingite-like mineral. This similar bowlingite replacement appears to have occurred along broad veins, and within each, the bowlingite occurs as anastomosing stringers enclosing residual patches.

Residual olivine was then replaced by fibrous radiating, colourless serpentine. In places, large patches of parallel-fibrous serpentine and/or decussate to well oriented talc replace large olivines up to 2 x 2 mm.

Fine 'salt and pepper' serpentinite enclosing partly resorbed tremolite grains is also common as a replacement of olivine. The olivine texture is destroyed in vein-like areas of fine fibrous colourless serpentine. Accessory, small (0.2 mm) opaque euhedra, probably chromite, are disseminated. These opaques are less abundant in the broad vein, suggesting that it is in part a fracture-filling vein.

The whole rock is cut by thin (0.03 mm) stringers of cross-fibre talc.

T8635 : serpentine-carbonate schist; (completely altered pyroxene-bearing dunite)

The schistosity of this rock is defined by fine, parallel shredded streaky folise, of cross fibre, colourless serpentine.

The matrix to these vein-like folise consists of randomly oriented lenses of cross fibre serpentine of a pale lemon-yellow colour, with fibrous colourless serpentine between.

Accessory (1 - 2%) fragmented opaque crystals (chromite ?) up to 0.5 mm across are healed by fibrous serpentine and randomly disposed. Aggregates of granular carbonate (10 - 12%) to 3 mm across, are randomly scattered through the serpentine.

Rarely the serpentine may have the form of bastite pseudomorphs after orthopyroxene grains 2 - 3 mm long.

The original rock was probably an orthopyroxene-bearing dunite.

T8636 : quartz-tourmaline rock (?completely replacing a porphyritic rock)

This sample consists of quartz and blue tourmaline (40%). The quartz occurs as large grains and aggregates of grains about 1.5 mm set in a fine granular mosaic; and as quartz veins to 10 mm across. These veins are composed largely of euhedral columnar ('dog tooth') crystals of quartz to about 5 mm long by 0.5 - 2 mm wide, and very minor fragmented blue tourmaline.

The tourmaline occurs as aggregates of prisms about 2 mm across, and as spongy porphyroblasts 1 mm across with small quartz inclusions. Rare patches of brown tourmaline with zircon inclusions are also present. Some tourmaline aggregates enclose euhedral quartz crystals 0.5 mm across.

The tourmaline appears to be replacing phenocrysts in an originally ?porphyritic dyke-rock, or lava flow. The nature of the phenocrysts is not certain but relict textures suggest that pyroxene, biotite and plagioclase are possible. Several single quartz grains are also interpreted as former phenocrysts. The spongy porphyroblasts are probably plagioclase replacement.

T8637 : quartz-tourmaline rock
(?completely replacing a porphyritic micro-granitoid rock)

This sample has coarse quartz patches to 5 mm in a matrix of finer quartz-tourmaline mosaic. Aggregates of coarser prismatic greenish tourmaline (40%), with some blue and brown tourmaline zones, and trace interstitial oxidised fine pyrite, occur in random patches.

The tourmaline masses are more ragged and irregular than those in sample T8636 and (?relict) textures suggest that they may be replacing biotite and/or hornblende aggregates. Some have amphibole-like outlines.

In a large patch the grain boundaries are permeated by limonite, seen as reddish-brown patches in hand specimen.

The gross texture (as seen petrographically and macroscopically) may be interpreted as an original porphyritic microgranitoid rock. In this rock the large quartz patches may be in part after felspar, but the exact correlation between present and part mineralogy is obscure.

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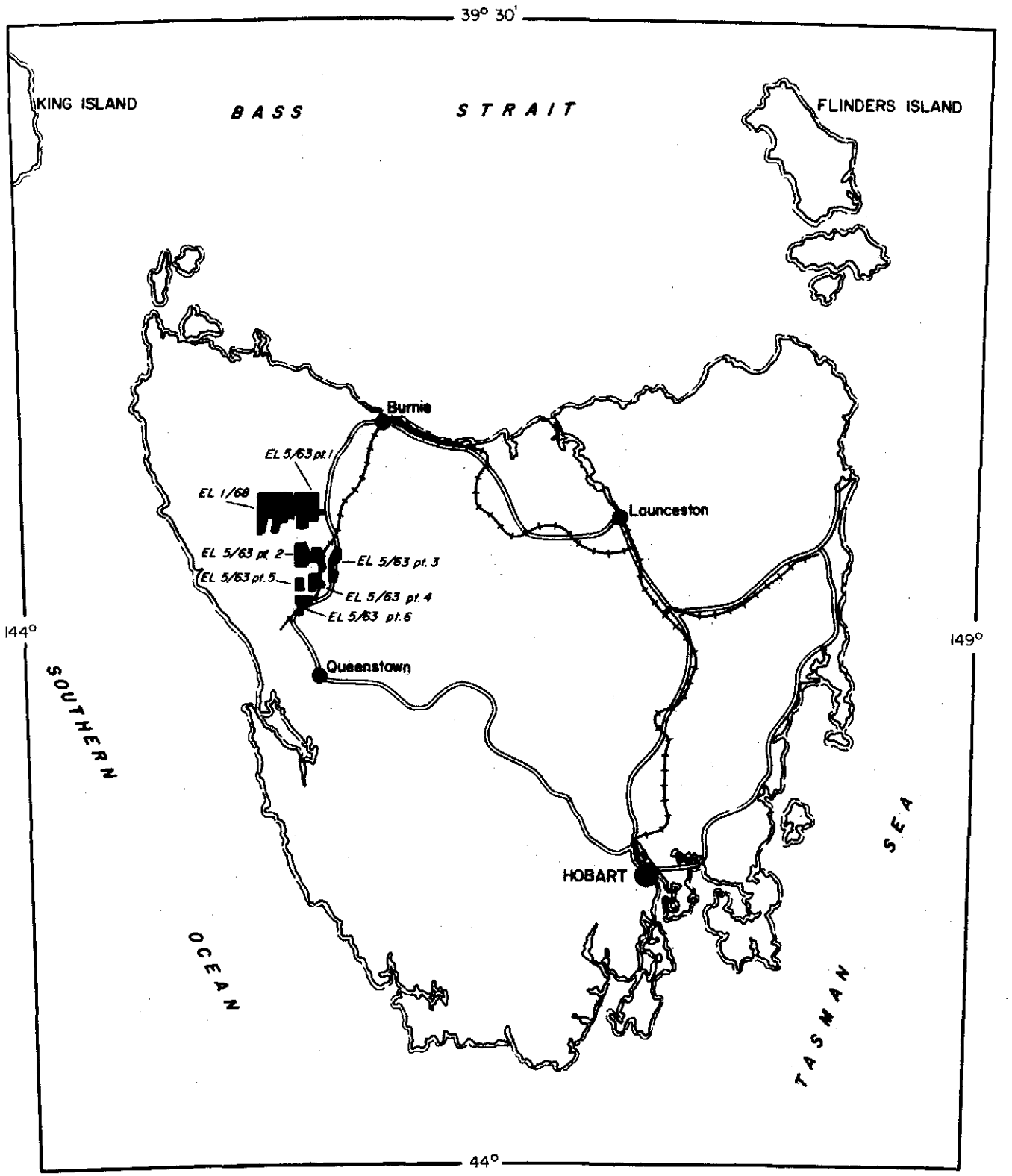
017097



0 50 100 150 200 250 300 KM

1 : 2 500 000

5 cm

Major roads

Major railways

Burnie Major towns

Comstaff lease areas

COMSTAFF PROPRIETARY LIMITED

LOCATION OF COMSTAFF LEASES IN TASMANIA

DRAWN	COMPILED	SCALE	
GEODRAFT 7/78		1 : 2 500 000	TAS/2/1586

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAP (W)

GEOLOGICAL INTERPRETATION

COMPILED	W.R.H.R.		
DRAWN	GEODRAFT	DATE	5/80
AMENDED			
SCALE	1 : 2500		
	TAS/2/2272		

5 cm

LEGEND

- g.t. — Glacial till
- ba/dr — Basalt/Dolerite complex
- qz/to — Quartz/tourmaline rock
- sa/ss — Sandstone/Siltstone
- gb — Gabbro portion of Serpentine Hill complex
- brec — Polymict breccia

NOTE :- Serpentine Hill complex has only been subdivided with regard to gabbros. Pyroxenites/Harzbergites/ Dunites were mapped as such but are included here under one heading

- Geological boundary (approx)
- Fault / Fault inferred
- Strike and dip of bedding, layering in ultramafics/vertical bedding
- Strike and dip of foliation/vertical foliation
- Strike and dip of cleavage/vertical cleavage
- Strike and dip of jointing

372 000 m E

5 370 000 m N

5 371 000 m N

NEW WESTERN TIE LINE

OLD WESTERN TIE LINE

MYRTLE GROVE FAULT

RIVER FAULT

RING RIVER

ROAD

serpentine hill complex

ba/dr

sa/ss

sa/st

g.t.

qz/to

brec

gb

A

B

C41088

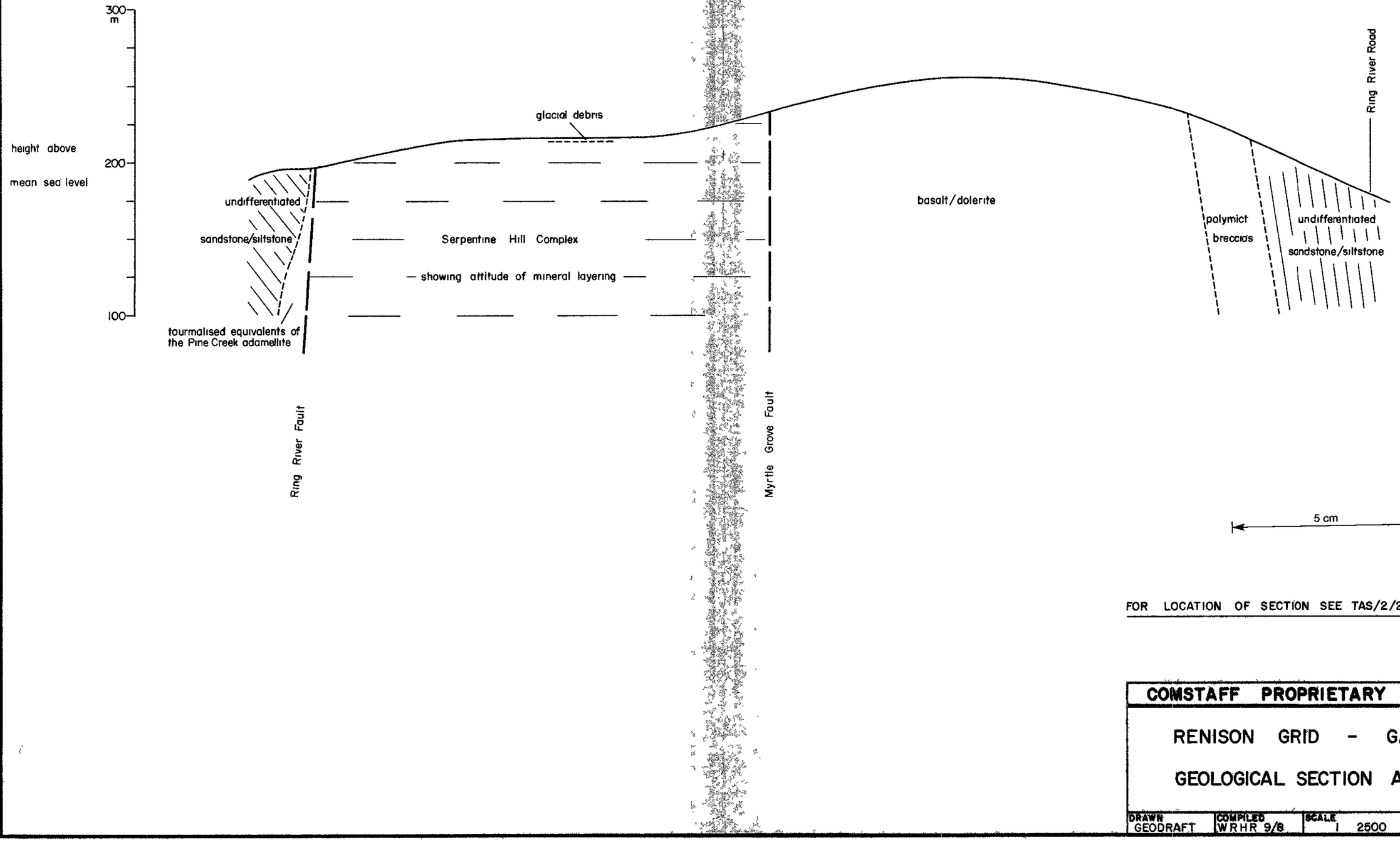
030

001

017(9

A

B



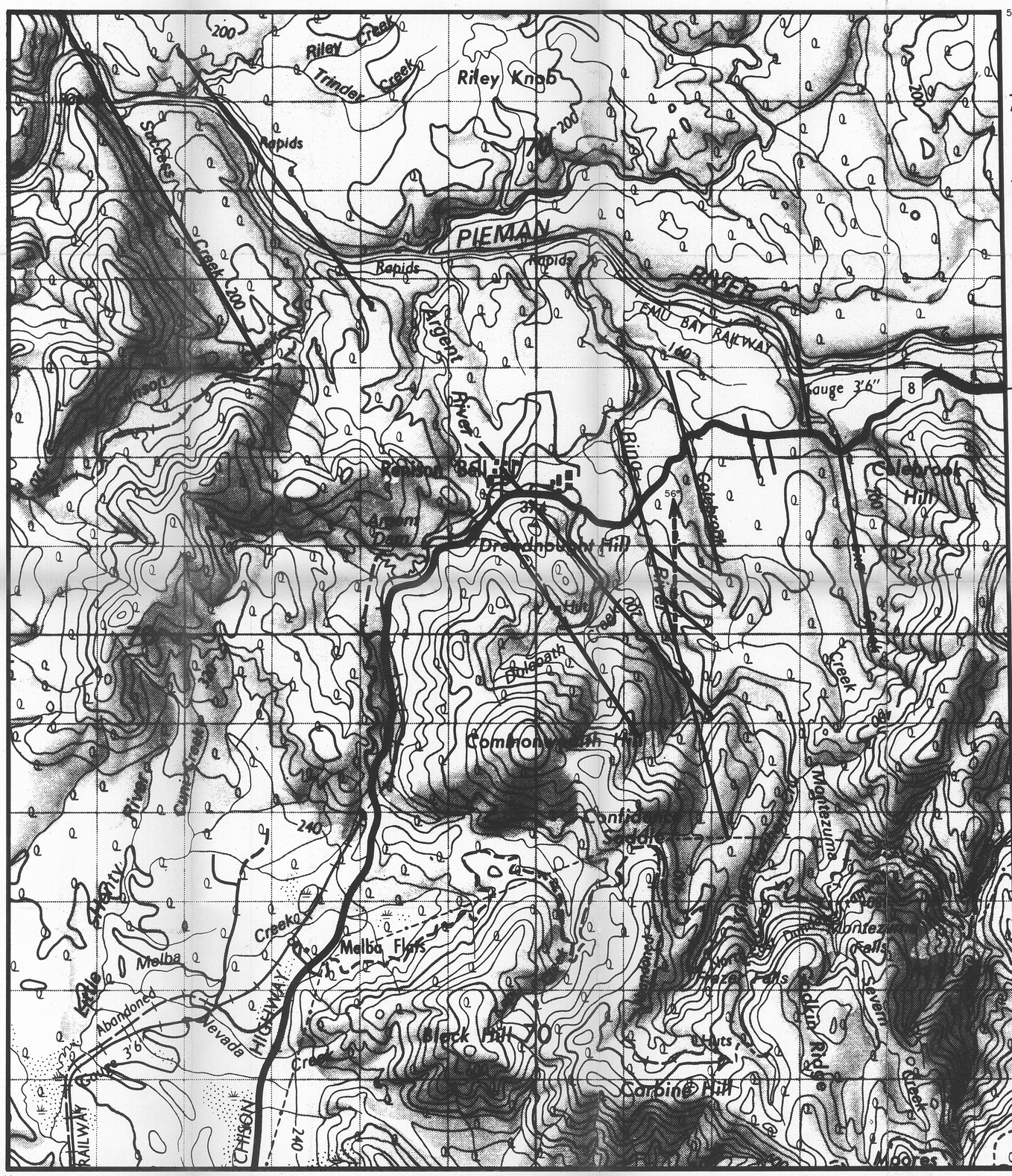
FOR LOCATION OF SECTION SEE TAS/2/2272

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAP(W)

GEOLOGICAL SECTION A - B

DRAWN	COMPILED	SCALE	
GEODRAFT	WRHR 9/8	1 2500	TAS/2/2273



COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAP(W)

TOPOGRAPHIC MAP, RENISON - PIEMAN AREA

SHOWING MAJOR LINEAMENTS

COMPILED	W.R.H.R.
DRAWN	GEODRAFT
DATE	11/80
AMENDED	
SCALE	1 : 25 000
PLAN No.	TAS/2/2274

000

017101

PROJECT NAME:

APPENDIX 4

TITLE:

A COMPILATION OF RESULTS FROM
WORK CARRIED OUT AT GAR, EAST RENISON

EL 5/63 PART 6

VOL 1 OF 3

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES:

TEXT PAGES NO:

PLAN NOS:

TABLE NOS:

APPENDICES:

AUTHOR/S:

DATE:

OPEN FILE

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

001

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

017102

PROJECT Renison	**AREA** Grid GAL.			**DRILLHOLE TYPE** DDH
CO-ORDS E~373160 N~5369940	**DEC^{LN}** 90°	**AZIMUTH** 0°	**RL** ~230m	**DH No.** RBE 6
DATE COMMENCED 8·5·1980	**DATE COMPLETED**	**DRILLED BY** Longyear	**DRILL RIG** Longyear 38	
Non Coring to: 24m	**HQ Core to:**	**NQ Core to:** 125·7m	**BQ Core to:**	**EOH** 125·7m

SURVEY DATA **Instrument:** drillhole camera.

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
60m		88·5°	358° MN				
90m		87°	314° MN				
122m		81°	283° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-20m. glacial and fluvioglacial deposits.			
20-95m. thinly bedded dark blue-grey pyritic and carbonaceous mudstones with interbedded feldspathic sandstone units. Bedding to core axis approximately 20°, facing up hole.	pyrite disseminations throughout core within sandstone units.	~3%	
95-126·7m. dark indurated carbonaceous argillite and interbedded thin feldspathic sandstone beds. Minor carbonate present as matrix to core.	pyrrhotite in places rather than pyrite - especially at the base of sedimentary beds.	~3%	

Signature **Date**

017103

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	0	9.0	0	0		Overlying fluvioglacial deposits comprising unsorted quartzose sands & quartzite conglomerates					
	9.0	9.0			9.0	Buff coloured quartzose-lithic sandstone. Medium to coarse textured sandstone which appears to be associated with the overlying fluvioglacial deposits. Various lithic fragments are rounded to well rounded, suggestive of an aqueous transport medium.	Minor limonite staining.				

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY W.R. RAMSAY FROM 0 TO 15 DATE 11/5/1980 PAGE 1 OF 9

DRILL ADVANCE

LITHOLOGY

017104

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	20.0				20.0	Thinly bedded dark blue-grey pyritic and carbonaceous mudstone. Thin interbeds of medium to coarse feldspathic sandstone rich in pyrite (up to 20%). These feldspathic units vary from 1mm to 30mm thick. Facing as deduced from sandstone units (grading, minor scour features, flare structures and rare cross-bedding) is up the hole. Note from 20-24m the samples are sludge samples, whilst at 24.0m there is 30mm of broken quartzite pebbles. These pebbles represent glacial material which has fallen down the hole.	The core is dark blue-grey in colour, and is entirely free from weathering or alteration effects.			Pyrite is ubiquitous throughout the core. Overall pyrite constitutes ≈3-4% but locally in sandstone units the pyrite may attain 20% by volume. The pyrite appears to be detrital in origin, deposited under a reducing environment.	≈3m 4% pyrite
	24.0	0.6	0.4	66%							
	24.6	1.4	0.8						Bedding to core axis: 20°		
	26.0	1.0	1.0	100%							
	27.0	2.0	2.0	100%					Bedding to core axis: 30°		
	29.0	1.0	0.8	80%							

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY ..... FROM 15 TO 30 DATE 11/5/1980 PAGE 2 OF 9

017105

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	30.0	2.6	2.5		31				Bedding to core axis: 23° facing up the hole		
						At 31.5m is a prominent 30mm thick coarse feldspathic sandstone unit within the carbonaceous mudstones.					
	32.6	2.2	2.2	100%	32						
					33				minor 10mm thick contorted bedding horizon		
	34.8	2.7	2.7	100%	34						
					35						
					36				Bedding to core axis : 20°		
					37						
	37.5	3.5	3.5	100%					Bedding to core axis: 20° facing up the hole from cross-bedding		
					38						
					39						
					40						
	41.0	2.5	2.5	100%	41						
					42				Bedding to core axis : 20°		
					43						
	43.5	1.9	1.4		44						
					45						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY ..... FROM 30 TO 45 DATE ../../.. PAGE 3 OF 9

017106

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	45.4	1.2	1.2	100%	46				50mm thick fault pug zone		
	46.6	3.1	2.8	90%	47						
					48						
					49						
	49.7	2.9	2.9	100%	50						
					51					- minor pyrite (remobilized) developed along joint planes.	
					52						
	52.6	3.5	3.5	100%	53				bedding to core axis: 20° facing up the hole		
					54				bedding to core axis: 20°		
					55						
	56.1	2.9	2.9	100%	56						
					57						
					58						
	59.0	2.7	2.4		59				bedding to core axis: 17° facing up the hole.		
					59.3	5mm thick zone of minor contorted medium grained feldspathic and quartzose sandstones interbedded within calcareous mudstones. Carbonate content <5%					
					60						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY ..... FROM 45 TO 60 DATE 11/5/80 PAGE 4 OF 9

017107

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					61						
	61·7	1·8	1·95		62						
					62·7	200 mm band of porous medium lightish coloured feldspathic sandstones with very fine dark carbonaceous mudstone units interbedded.					
	63·5	1·8	1·7	94%	63						
					64						
	65·2	1·8	1·7		65						
					66						
	67·0	1·3	1·2	92%	67						
					68				Bedding to core axis: 20°		
	68·3	2·5	2·5	100%	68·0	From 68·0 onwards the core becomes less fractured and apparently more indurated (hornfelsed) carbonaceous mudstone to thin interbedded feldspathic sandstone horizons. Sandstone to mudstone approx 1:5.	Evidence of thermal metamorphism continues to increase on progressing down the hole.				
					69						
					70						
	70·8	4·5	4·4	98%	70·9	Minute quartz vein (1 mm thick) along joint plane.					
					71						
					72						
					72·6	Minute quartz vein (1 mm thick) along joint plane.					
					73						
					74						
					75				Bedding to core axis: 20°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH R.B.E 6

LOGGED BY ... FROM 60 TO 75 DATE 11/5/80 PAGE 5 OF 9

017108

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	78·3	3.0	3.0	100%	78·4	140 mm zone of bedded whitish medium feldspathic sandstones with thin interbedded black argillite layers and black intraclast flakes.			Bedding to core axis: 22°	Very minor pyrrhotite disseminated within the core, often taking place of pyrite. Pyrrhotite continues intermittently to the end of the hole.	pyrr 20-5%
	81·3	1.5	1.4	93%							
	82·8	3.0	2.9	96%							
	85·8	5.2	5.1	98%	86·2	10 mm zone of whitish feldspathic sandstone and thin interbedded dark carbonaceous mudstone. Definite presence of carbonate ≈ 2% contained within sandy horizons					
	88·0	4.8	4.7	98%							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY ..... FROM 75 TO 90 DATE 11/5/80 PAGE 6 OF 9

017109

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					90·1	zone of closely space quartz?-carbonate veining. Veins vary from 0·5 - 20 mm thick. The carbonate (?calcite) comprises 20-30% of the veins.			quartz veins to core axis: typically 65-80°.	At 90·1 first thin quartz?-carbonate vein has very minor galena and pyrite.	2%
					90·6						
	92·8	3·0	3·0	100%					Load casts indicate facing up hole. Bedding to core axis: 22°	~2mm quartz?-carbonate-pyrrhotite vein. // bedding ~4mm quartz-carbonate pyrrhotite vein.	
	95·8	2·2	2·1		95·8	At around 95·8 the core gradually converts to a somewhat indurated "hornfelsed" dark pyritic-pyrrhotitic argillite with thin fine to medium grained interbedded feldspathic sandstone horizons. Infrequent cleavage planes in the core have a distinct sheen due to the incoming of white mica (sericite). Minor amounts of carbonate is finely disseminated throughout the core (possibly acting as a matrix) in both the argillite and sandstone units. The ratio of argillite to sandstone is still approx 5:1.			Bedding to core axis: 25°	Pyrrhotite from visual examination appears to be positively correlated with the appearance of carbonate. In many instances it takes the place of pyrite. e.g at 97·8 m and 98·2 m pyrrhotite is disseminated at the base of feldspathic medium sandstones and grades up into pyrite dissemination. Pyrrhotite up to 25% in 0·5 mm thick sandstone horizons.	
	98·0	2·0	2·0	100%							
	101·0	3·0	3·0	100%							
	104·0	2·5	2·5	100%					Bedding to core axis: 35°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 6

LOGGED BY ... FROM 90 TO 105 DATE 11/5/80 PAGE 7 OF 9

017110

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					106						
					107						
	107·5	2·5	2·5	100%	108					pyrite and pyrrhotite become less evident throughout the core. In many instances pyrite is concentrated along joint planes.	
					109						
	110	2·5	2·5	100%	110						
					111	111·1 – 111·4 Thin bedded sandstone unit with basal 5mm zone of argillite intraclasts (angular)					
					112				Bedding to core axis : 35°	pyrrhotite associated with basal breccia horizon.	
	112·5	3·1	3·1	100%	113						
					114	114·1 – 114·3 200mm thick zone of graded whitish medium to fine feldspathic sandstones and minor intraclast argillite fragments.					
					115						
	115·6	4·2	4·1		116					pyrrhotite concentrated at the base of the unit. Pyrite appears scattered (2-4%) through the upper portions of the unit.	
					117	117·2 – carbonate veins.					
					118						
					119						
						119·5 – 119·7 200mm brecciated zone within argillite. Matrix to breccia filled with white carbonate			Bedding to core axis : 43°		
	119·8	3·7	3·7	100%	120						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE6

LOGGED BY _____ FROM 105 TO 120 DATE 11/5/80 PAGE 8 OF 9

017111

DRILL ADVANCE

LITHOLOGY

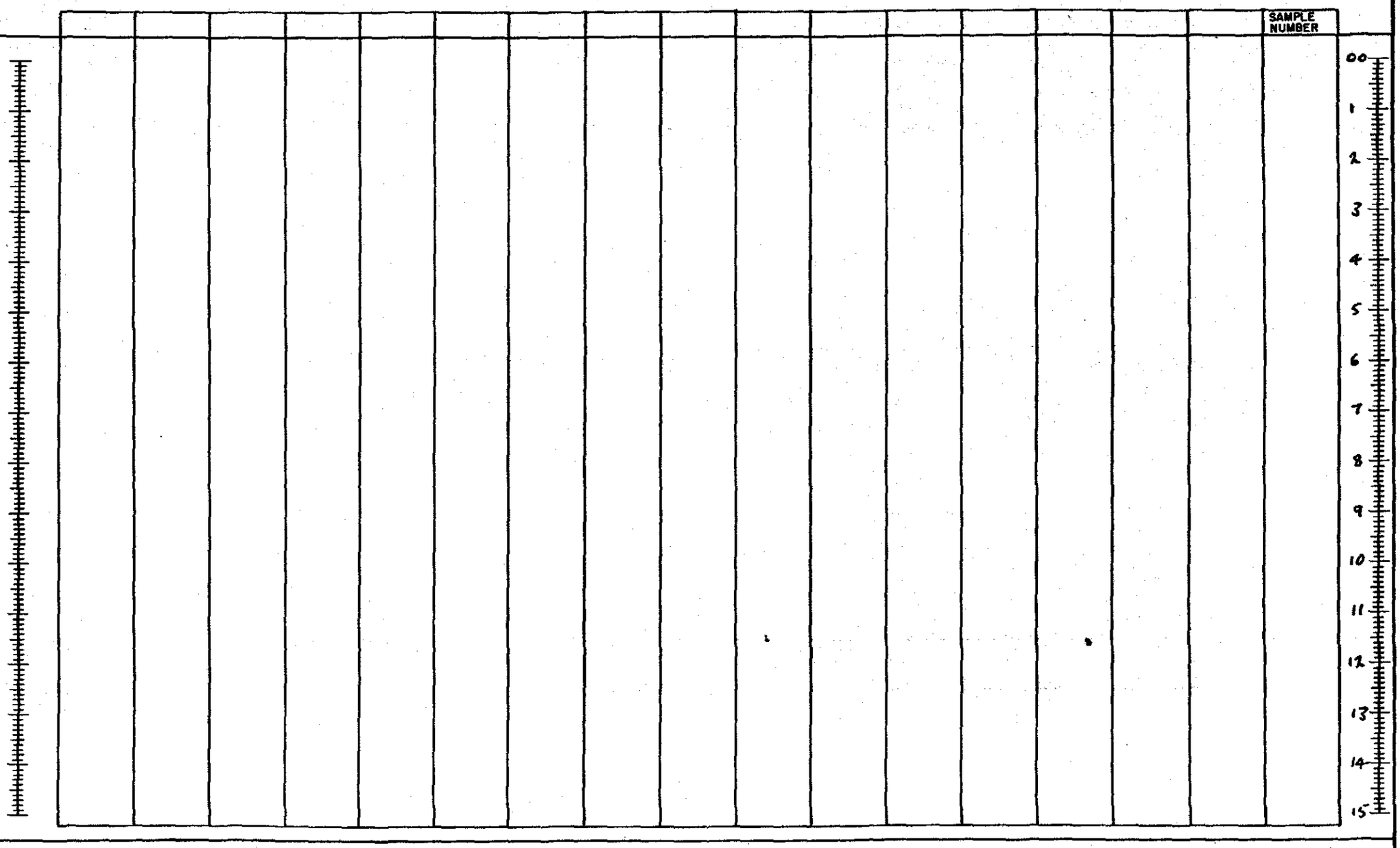
LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					121						
					122						
					123						
	123·5	2·2	2·0		124						
					125				Bedding to core axis: 52°		
					126·5	Thin carbonate veins 2mm or less thick.					
	125·7	End of Hole									

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE6

LOGGED BY ..... FROM 120 TO 125·7 DATE 11/5/80 PAGE 9 OF 9

017112



COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE6

ASSAYED BY ANALABS FROM 00·00m TO 15·00m DATE / / PAGE 1 OF 9

017113

DEPTH	Cu	Zn	As	Pb	Sn	SAMPLE NUMBER
24.00	305	780	14	10	8	
24.60	220	800	12	5	5	
26.00	170	695	18	5	7	
27.00	175	410	14	10	4	
29.00	205	390	10	15	BLD	
30.00						

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 15.00M TO 30.00M DATE / / PAGE 2 OF 9

017114

DEPTH	Cu	Zn	As	Pb	Sn										SAMPLE NUMBER
30.00	320	900	18	5	4										
32.60	140	495	17	x	7										
34.80	130	210	14	5	BLD										
37.50	120	155	9	5	4										
41.00	170	280	14	x	5										
43.50	160	350	16	15	5										

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 30.00M TO 45.00M DATE / / PAGE 3 OF 9

017115

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
45.40	105	310	12	185	15											
46.60	135	275	16	120	BLD											
49.70	115	205	16	55	BLD											
52.60	95	195	12	5	6											
56.10	130	175	14	15	BLD											
59.00	110	340	18	60	6											

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 45.00 M TO 60.00M DATE / / PAGE 4 OF 9

017116

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
61·70	145	230	12	10	5											
63·50	110	155	12	x	9											
65·20	95	150	10	x	9											
67·00	95	165	5	x	7											
68·30	80	185	12	5	BLD											
70·80	100	200	6	x	6											

60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 60·00M TO 75·00M DATE / / PAGE 5 OF 9

017117

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
75·30	110	240	16	5	3											
78·30	160	235	10	×	BLD											
79·80	120	225	10	5	6											
82·80	110	200	8	×	BLD											
88·00	95	200	6	15	3											

75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 75·00 TO 90·00 DATE / / PAGE 6 OF 9

017118

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
92.80	85	125	6	5	6											
95.80	70	150	8	10	4											
98.00	70	160	14	10	BLD											
101.00	70	110	13	15	15											
104.00	65	85	11	10	5											

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 90.00M TO 105.00M DATE / / PAGE 7 OF 9

017119

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
107·50	60	75	14	10	20											
110·00	70	100	10	5	6											
112·50	70	120	14	10	BLD											
115·60	60	85	12	5	5											
119·80	70	100	20	20	BLD											

105 106 107 109 110 111 112 113 114 115 116 117 118 119 120 121

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALYSES FROM 105·00 M TO 121·00 M DATE / / PAGE 8 OF 9

DEPTH	Cu	Zn	As	Pb	Sn											SAMPLE NUMBER
123·50	60	125	14	10	3											
125·70 END OF DDH RBE 6																

121
122
123
124
125
126

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY ANALABS FROM 121·00 M TO 125·70 M DATE / / PAGE 9 OF 9

020

017121

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

Page 0 of 13

PROJECT Renison	AREA Grid GAR		DRILLHOLE TYPE DDH
CO-ORDS E 372986·0 N 5372194·7	DEC^{LN} -45°	AZIMUTH 258° MN	RL 127·1	DH No. RBE 7
DATE COMMENCED 15·5·80	DATE COMPLETED 28·5·80	DRILLED BY Longyear	DRILL RIG Longyear 38	
Non Coring to: 5m	HQ Core to:	NQ Core to: 193·5m	BQ Core to:	EOH 193·5m

SURVEY DATA
Instrument: Downhole Camera.

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
0m		-45°	258° MN	150 m		-45°	254° MN
30m		-47·5°	256° MN	180 m		-43°	253·5° MN
60m		-46°	254·5° MN	193 m		-42·5°	253° MN
90m		-46°	254° MN				
120m		-45·25°	255° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-5m No core recovery			
5-11·2m Oxidised talcose mudstone			
11·2-44·6m Fractured chloritised siltstone			
44·6-46·5m Laminated carbonate horizon			
46·5-193·5m Interbedded, laminated dark carbonaceous argillite, fine grained tuffaceous sandstone and minor siltstone. Much of the bedding is deformed.	Pyrite disseminations typically associated with black argillite horizons.		
→ 66·8-68·7m quartz-carbonate-sulphide veining	Massive pods + disseminations of Pb, AsPy, Py, Cp	~10%	
→ 81·5-82·0m white quartz vein	200mm zone of Gl, Sp, Py.	~6%	
→ 83·5-84·9m crustiform quartz-carbonate vein	Massive Gl, Sp over 0·5m width	~55%	
→ 126·8-127·2m quartz-carbonate vein	Py, Pb, AsPy, Cp	~8%	

017122

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						No core recovery					
	5.0	1.9	1.4	73%	5.0	Stained partially sheared (to schistose) talcose mudstone to siltstone	Limonite and manganese stained. Light talc alteration.		5.0: 50 mm thick white quartz vein.	5.6 fractured talcose rock with small pits - possibly leached pyrite.	5%
	6.9	0.6	0.6	100%					7.3 sheared bedding : 30°	6.9	
	7.5	3.0	1.1	36%							
	10.5	0.2	0.1	50%							
	10.7	0.5	0.5	100%	10.8	50 mm zone of brecciated talcose siltstone and black mudstone.			10.9 fracture : 52°		
	11.2	1.2	0.7	58%	11.2	Broken and fractured massive siltstone to fine (tuff) sandstone.	Tendency to schistose texture with development of chlorite plus limonite and manganese staining down to about 16 m. Greenish colour develops below 16 m due to chlorite development.				
	12.4	1.1	1.0	90%							
	13.5	1.3	1.1	84%							
	14.8	0.9	0.9	100%					14.9 Bedding to core axis : 45°		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY W.R. Ramsay FROM 0 TO 15 DATE 24/5/80 PAGE 1 OF 13

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	16·7	0·8	0·65	81%
	16·5	1·0	1·0	100%
	17·5	0·9	0·8	88%
	18·4	1·1	0·85	77%
	19·5	0·7	0·7	100%
	20·2	0·7	0·7	100%
	20·9	1·0	1·0	100%
	21·9	0·8	0·8	100%
	22·7	0·7	0·7	100%
	23·4	0·6	0·6	100%
	24·0	0·9	0·6	67%
	24·9	1·0	0·9	90%
	25·9	0·7	0·7	100%
	26·6	1·4	1·4	100%
	28·0	2·7	1·9	70%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
17·5	Massive to thinly bedded chloritic siltstones to fine sandstones. Where laminate bedding occurs there is evidence of deformation. Core has a distinct green grey colour and is fractured and broken. Numerous thin (1-2 mm) quartz veins cut the core, and much of the sequence shows brecciation.	Minor limonite along joints and fracture zones. Chlorite development		18·0 Bedding to core axis: 35° 21·7 Bedding to core axis: 25° 21·8 20 mm thick white quartz vein. 23·7 Bedding to core axis: 10° 25·8 Bedding to core axis: 25° 26·2 5 mm quartz vein: 25° 27·0 quartz vein: 55°	21·7 20 mm zone of pyrite and arsenopyrite. minor pyrite in vein	5% 5%
28·3	thin brecciated horizon. Clasts approx <5mm.					
29·0						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 15 TO 30 DATE 24/5/80 PAGE 2 OF 13

017124

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	30·7	0·7	0·7	100%	31				31·2 Fracture / joint: 40°		
	31·4	2·1	3·0	96%	31·6				31·7 quartz vein contact: 70°	31·8 Thin pyritic layer in quartz.	10%
					31·9 32 33 34						
	34·5	1·9	1·9	100%	35				35·6 Bedding to core axis: 45°		
					36				36·0 Bedding to core axis: 90°		
	36·4	1·1	1·1	100%	37	31·0					
	37·5	3·0	2·9	96%	38	Brecciated and deformed laminated chloritic, in part carbonaceous mudstone.	chlorite, ?epidote and minor quartz.		Breccia clasts up to 30mm. Laminate bedding folded and deformed.		
					39	39·0					
					40	Laminated chloritic in part carbonaceous siltstone (? tuffaceous). Thin 20 mm thick whitish carbonate bearing beds at 39·2m.	chlorite alteration.				
					40·2						
	40·8	2·1	2·1	100%	41	Laminated carbonaceous to chloritic siltstones to dark argillites. Some of the thin lighter coloured laminae have a small carbonate component (≈5%)			41·6 Bedding to core axis: 55°		
					42				42·4 quartz vein: 5°	42·4 quartz vein with pyrite	5%
	42·6	2·0	2·0	100%	43				43·4 Bedding to core axis: 60°		
					44				44·4 quartz vein: 45°		
	44·6	2·0	2·0	100%	44·6 45						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 40 TO 45 DATE 24/5/80 PAGE 3 OF 13

017125

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					46	Pale, creamy green brecciated, laminated, carbonate bearing rock. Laminae vary from white carbonate to green chlorite bearing layers. Also minor amounts of brownish dolomite (?). Core is bleached pale green and broken.	Pale green because of chloritic laminae within carbonate.		45.5 Bedding to core axis: 55° Core is deformed with laminae in part brecciated.		
					46.5						
					47	Black carbonaceous argillite and thin dull green grey sandstone units. Numerous thin deformed quartz veins often sub parallel to bedding.					
	47.6	0.6	1.3	45%	48				48.2 Core fractured with thin pyrite -quartz veins: 10°	Pyrite and thin quartz veins. Pyrite in part in veinlets and in part disseminated through black argillite.	2%
	48.2	2.0	1.7	85%	49						
					50				50.1 Bedding to core axis: 35°		
	50.2	2.3	2.3	100%	50.6	Thin carbonate veining					
					51						
					51.5	Dull green grey, in part chloritic siltstone and fine tuff sandstone, with numerous white carbonate veinlets.			51.8 carbonate vein 6mm wide :15°		
	52.5	2.7	2.7	100%	52						
					53				53.1 Zone of deformed argillite, siltstone, sandstone.	Minor pyrite dissemination.	1%
					53.5	Minor 80mm zone of black carbonaceous argillite.			53.5		
					54						
					55				54.9 Bedding to core axis: 35°		
	55.2	3.1	3.1	100%	56						
					56.4						
					57	Black carbonaceous (graphite) argillite and minor zones of green-grey massive fine tuff sandstone. Numerous thin ptygmatic carbonate veins ramify through the rock.	Graphite present on some shear surfaces (eg 60.6). Sandstone units show a mild green grey colour but chlorite development is not strong.				
					58						
	58.3	2.9	2.9	100%	59				58.6 Bedding to core axis: 60°		
					60						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 45 TO 60 DATE 24/5/80 PAGE 4 OF 13

017126

LITHOLOGY

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	61·2	3·1	3·1	100%
	64·3	2·8	2·7	
	67·1	3·0	3·0	100%
	70·1	0·4	0·4	100%
	70·5	3·0	2·9	
	73·5	2·9	2·9	100%

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
61·2	Prominent zone of ptygmatic carbonate veining within black argillite.			61·3 30mm quartz carbonate vein : 55°	minor pyrite	1%
				62·2 Bedding to core axis: 55°		
63·4				63·6 Quartz vein in argillite	quartz, fluorite, pyrite	5%
				64·2	pyrite often parallel to beds	Py
				65·2 Brecciated quartz-carbonate crustiform zone : 50°	pyrite, sphalerite, chalcopyrite, galena.	
				65·5		
				66·8 Zone of quartz-carbonate-sulphide veining in black argillite.	Massive pods and disseminations of pyrrhotite arsenopyrite, pyrite, chalcopyrite.	10%
				68·7 Quartz vein: 50°		
				69·9 Quartz vein 200mm thick : 45°		
71·1	Prominent quartz-carbonate vein with minor sulphide.			Prominent quartz-carbonate vein with minor sulphide.	pyrite, arsenopyrite chalcopyrite.	3%
72·4	Massive to brecciated medium grey fine tuff sandstone with minor black argillite horizons and zones. Angular sandstone clasts up to 40mm.			72·4 Contact : 35°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 60 TO 75 DATE 24/5/80 PAGE 5 OF 13

017127

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	76·4	2·9	2·9	100%
	79·3	2·2	2·2	100%
	81·5	1·0	0·5	50%
	82·5	0·3	0·2	66%
	82·8	0·3	0·3	100%
	83·1	2·4	2·1	
	85·5	1·7	1·7	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
76				76·3 Fracture: 45°		
				76·5 Quartz-carbonate-sulphide vein, 20 mm thick.	76·5 Pyrite	5%
77·1	Deformed black argillite with grey medium fine tuff sandstone units, various thin quartz veins cut the sequence.	Sandstone units have a very slight greenish colour due to minor chlorite.				
78				78·6 200 mm wide white quartz vein; 65°		
79					79·0 minor pyrite disseminated through black argillite zone.	3%
80				80·7 300 mm white quartz vein	80·8	
81				81·5 White quartz vein with sulphide concentrated at 81·9	Prominent 200 mm zone of galena, sphalerite, chalcopyrite 81·9 - 82·0	6%
82				82·0		
83						
83·5	Prominent buff quartz-carbonate vein with distinct crustiform bands and fluorite banding.			Colourful and distinct crustiform textures.	minor disseminated galena, sphalerite, pyrite	4%
84					84·4 massive sphalerite, galena associated with minor quartz-carbonate.	55%
84·9	Veined carbonaceous black argillite with minor zones of green-grey, medium-fine tuff sandstone.	Partial silification of argillite in places.		vein/wall rock: 40°	minor disseminated and vein pyrite	2%
85					85·6 minor galena pod.	
86				86·2 Zone of intense white quartz veining: 35°		
87	5 cm			87	87·8 minor vein of pyrite and pyrrhotite	
88						
88·5	Dull greenish grey medium fine tuff sandstone with numerous thin quartz veins and veinlets. Some black argillite beds.					
89						
90						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 7

LOGGED BY ..... FROM 75 TO 90 DATE 24/5/80 PAGE 6 OF 13

017128

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						Minor brecciation in placas			90·2 Bedding to core axis: 50°		
	91								91 Quartz vein 200 mm thick: 55°		
					91·6						
	92					Interbedded deformed, black carbonaceous argillite and dull green-grey fine to medium tuff sandstone. Carbonate in thin deformed veins and as cement to sandstones	Flaser-like deformation structures through core		92·2 Quartz vein 200 mm thick: 90°		
	93									92·9 Minor disseminated pyrite	
										93·5	
	94								94·8 Bedding to core axis: 30°		
	95										
	96										
							96·5 Evidence of minor hydro-thermal alteration along fractures and joints			Pyrite disseminations	2%
	97										
							97·5			Minor galena in carbonate veins (at 97·6)	<1%
	98				97·9				97·9 Bedding to core axis: 60°		
	99					Massive dull greenish-grey fine-medium tuff sandstone to siltstone with thin amounts of dark carbonaceous argillite. Thin carbonate veining. Indistinct to poorly developed deformed bedding.	Minor chlorite development in sandstone units.				
	100										
	101										
	102				102·2						
						Black argillite zone with deformed carbonate veins.	Numerous thin carbonate veinlets and streaks.				
	103				103·0						
						Massive to poorly bedded greenish-grey tuff sandstone to siltstone. Infrequent deformed carbonate veins.	Minor chlorite development in sandstone units.		103·6 Bedding to core axis: 25° Facing up the hole from grading	Disseminated pyrite in sandstone unit, concentrated at base of unit.	3%
	104										
	105										

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 90 TO 105 DATE 24/5/80 PAGE 1 OF 13

017129

DRILL ADVANCE

LOST CORE | DEPTH | DRILL ADVANCE INTERVAL | CORE RECOVERY | PERCENT RECOVERY

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
105				105·4 Bedding to core axis: 28°		
106				105·7 20 mm carbonate vein: 45°		
107						
108						
109						
110						
111						
112		112 Pale creamy greenish hydrothermally altered siltstone. Fractured and minor quartz veining at 112·5m.				
113				113·1 Bedding to core axis: 30°	113·0 Pyrite associated with black argillite horizons. Either disseminated along bedding eg 113m or as small veinlets and concentrations within the black argillite.	3-5%
113·8	Interbedded black argillite and pale grey mudstones. Numerous thin white carbonate veinlets cut the core. Bedding tends to massive.					
114						
115						
116					115·6 Thin (3mm) carbonate vein with sulphide sphalerite (?).	5%
117				117·5 Bedding to core axis: 30°		
118						
119						
120						

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 105 TO 120 DATE 24/5/80 PAGE 8 OF 13

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					121				120.7 fracture : 30°		
	121.5	3.0	3.0	100%	122						
					123				122.5 Bedding to core axis : 30°		
					124						
	124.5	3.0	3.0	100%	125				Much of the core shows deformation through brecciation and microfaulting		
					126						
					126.3	speckled pink, pale green, dark green siltstone / carbonate.	metasomatism or hydrothermally altered.				
					126.8	Massive sulphide quartz vein + carbonate (siderite)			vein // wall rock contact : 15°	Pyrite, pyrrhotite, arsenopyrite chalcopyrite.	5%
					127						
					127.2	Speckled pink, pale green, dark green rock as at 126.3m. Altered siltstone, black argillite and minor carbonate (?).	metasomatized or hydrothermally altered				
	127.5	3.0	3.0	100%	128						
					128.5	Deformed and partly bedded black argillite and grey siltstone. Parts of the core, eg 130.4 are intensely veined by thin ptygmatic quartz veins. Also minor carbonate veinlets.	mild metasomatism or hydrothermally altered.		Contact : 48° Numerous microfaults and ptygmatic veins.	very minor pyrite disseminated through core.	1%
					129						
					130						
	130.5	3.0	3.0	100%	131						
					132						
					133		Thin carbonate veins now altered to hydro-grossular. e.g 133.8m				
	133.5	3.0	3.0	100%	133.7	minor fluorite in quartz vein			133.5 Bedding to core axis : 30°		
					134						
					135					135.0	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 120 TO 135 DATE 24/5/86 PAGE 9 OF 13

017131

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					136						
	136.5	3.0	2.8	93%	136.9 – 137.3	zone of intense carbonate veining in core					
					137.5	Massive dull green-grey medium to fine tuffaceous sandstones with thin interbedded siltstone and black argillite horizons.			138.5 Bedding to core axis: 30° Facing up the hole from graded bedding.		
	139.5	2.6	2.7		140						
					141				141.1 5mm thick carbonate vein : 70°		
	142.1	3.1	3.1	100%	142						
					143						
					144						
					145						
	145.2	3.1	3.1	100%	146						
					147					147.3 Pyrite disseminations and concentrations occur parallel to bedding. Locally concentrations may achieve 15%.	3%
					147.5	100mm zone of thin carbonate veins.			147.4 Bedding to core axis: 25° 147.5 Vein: 50°		
	148.3	3.1	3.1	100%	148.3	Carbonate tends to develop in the core both as cement and small veinlets.					
					149						
					150						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 135 TO 150 DATE 24/5/80 PAGE 10 OF 13

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	151·4	3·0	3·0	100%
	154·4	3·1	3·1	100%
	157·5	3·0	3·0	100%
	160·5	3·0	2·9	96%
	163·5	2·15	2·0	93%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG
153	Dark carbonaceous - in part calcareous - argillites with interbedded thin units of tuffaceous sandstone. Carbonate occurs both as deformed veinlets and as a matrix within the argillite/sandstone.		
156·5	Medium grey, medium coarse tuffaceous sandstones with thinner interbedded black carbonaceous argillite horizons. Carbonate is present throughout the core as cement and as minor veinlets.		

STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
152·4 Bedding to core axis: 25°		
	154·1 Thin 2mm-thick quartz pyrrhotite vein.	4%
	157·1	
160·5 Bedding to core axis: 90°		
163 Bedding to core axis: 30°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 150 TO 165 DATE 24/5/80 PAGE 11 OF 13

017133

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE OVER INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	165·65			
	166·5	3·0	3·0	100%
	169·5	3·0	3·15	
	172·5	3·0	3·0	100%
	175·5	3·0	3·0	100%
	178·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
167·7	Dark carbonaceous argillite with interbedded medium grey, fine to medium tuffaceous sandstones. Minor carbonate as veining or cement occurs through the core.			170·0 Bedding to core axis: 48°	167·2 Pyrite disseminations typically associated with black argillite layers. Locally, concentrations may approach 8%.	2%
172·5	Grey fine to medium sandstones and associated grey siltstone. Bedding varies from massive to thinly laminate.			172·4 Fracture: 48° 173·0 Bedding to core axis: 58° 173·2 vein: 45° 178·7 quartz-chlorite vein.	Thin quartz vein (300mm) with pyrrhotite. 174·0 Pyrite disseminations 179·5 Pyrite disseminations	1% 3%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY ..... FROM 165 TO 180 DATE 24/5/80 PAGE 12 OF 13

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	181·5	3·0	2·9	96·7%
	184·5	3·0	3·0	100%
	187·5	3·0	3·0	100%
	190·5	3·0	2·76	92%
	193·5			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
180·3	Minor amounts of carbonate cement occur throughout the core to the end of the hole. Minor deformed carbonate veins present.			181·2 Bedding to core axis: 68°	either scattered through the core or associated with laminate bedding in black argillites contained within the sandstone.	1%
				184 Bedding to core axis: 45°		
				188·2 quartz vein: 34°	188·2 Thin 10mm quartz-pyrrhotite vein.	4%
				192·5 Bedding to core axis: 80°		
	End of hole: RBE 7.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 7

LOGGED BY W.R. Ramsay FROM 180 TO 193·5m DATE 24/5/80 PAGE 13 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
5·0	20	220		80	245	0·3	460									
6·9	40	330		90	615	0·6	680									
7·5	10	295		30	1150	3·0	700									
10·5	25	220		30	900	insuff	740									
10·7	55	385		45	1450	0·9	540									
11·2	20	120		25	1300	0·8	380									
12·4	580	295		115	1250	0·9	340									
13·5	10	225		70	1850	0·3	540									
14·8	6	100		45	1300	0·4	200									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 0·0 m TO 15·0 m DATE / / PAGE 1 OF 13

017136

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
15·7	6	90		20	1500	0·2	150									
16·5	BLD	125		10	1000	0·3	17									
17·5	3	90		15	380	0·3	10									
18·4	BLD	170		50	430	0·3	9									
19·5	5	190		50	330	0·4	112									
20·2	7	170		30	315	0·2	48									
20·9	85	180		60	380	0·4	88									
21·9	85	225		45	615	0·4	114									
22·7	BLD	220		60	300	0·2	12									
23·4	3	150		35	320	0·3	11									
24·0	BLD	125		35	305	0·2	14									
24·9	3	160		35	220	0·4	8									
25·9	90	105		80	590	insufficient sample	27									
26·9	20	110		20	310	0·3	16									
28·0	BLD	120		20	285	insufficient sample	6									
26·3	3	100		20	380	0·2	B.L.D.									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 15·0 TO 30·0 DATE / / PAGE 2 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
30																
30.7	BLD	90		15	900	0.3	BLD									
31.4	10	165		25	450	0.7	68									
34.5	BLD	50		10	175	0.4	58									
36.4	BLD	90		10	276	0.4	6									
37.5	BLD	45		BLD	285	0.4	37									
40.5	BLD	70		5	550	0.4	16									
42.6	BLD	50		BLD	380	0.4	62									
44.6	50	55		15	395	0.3	10									
45																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 30.0 TO 45.0 DATE / / PAGE 3 OF 13

017138

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
45																
46																
47																
47·6	20	100		50	250	0·4	20									
48·2	35	140		170	670	1·0	48									
49																
50																
50·2	20	95		10	135	0·4	16									
51																
52																
52·8	8	85		10	130	0·2	8									
53																
54																
55																
55·2	BLD	120		45	195	0·4	4									
56																
57																
58																
58·3	20	115		65	1050	0·5	28									
59																
60																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 45·0 TO 60·00 DATE / / PAGE 4 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
61·2	40	120	BLD	375	1050	1·5	400									T8682
63·0	6500	2650	BLD	135	485	6·0	800									T8683
65·0	130	330	15	3400	1·45%	15·5	1060									T8684
66·0	650	2150	BLD	445	1150	6·0	4·4%									T8685
67·0	3800	1550	BLD	105	170	9·5	3·3%									T8686
68·0	180	2700	BLD	260	265	11·0	1800									T8687
69·0	940	1300	20	120	370	6·0	6800									T8688
70·0	110	215	BLD	45	230	0·5	740									T8689
71·0	370	4600	BLD	2300	2600	29·5	1·9%									T8690
72·0	430	735	BLD	1050	1·0%	10·5	4000									T8691
73·0	40	100	BLD	235	1300	0·5	72									T8692

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 60 TO 75 DATE / / PAGE 5 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
75·0	120	176	BLD	325	5750	2·0	1700									T8693
77·0	220	195	BLD	400	1850	3·0	920									T8694
79·0	130	385	BLD	450	565	6·5	1300									T8695
81·0	35	70	BLD	1100	4200	6·0	1500									T8696
82·0	60	430	BLD	3·35%	7300	52·0	5000									T8697
83·0	130	195	BLD	4·1%	1·0%	44·0	5800									T8698
84·0	530	1800	BLD	20·0%	10·0%	420	3200									T8699
85·0	120	145	BLD	4,000	5200	9·5	150									T8700
86·0	40	120	BLD	750	2700	3·0	150									T8916
87·0	50	90	BLD	1250	3400	3·0	520									T8917
89·0	BLD	50	BLD	105	440	BLD	50									T8918

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 75 TO 90 DATE / / PAGE 6 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
90																
91	91·0	BLD	90	BLD	175	350	1·0	340								T8919
92																
93	93·0	BLD	85	BLD	45	175	0·5	34								T8920
94																
95	95·0	BLD	135	BLD	40	110	0·5	61								T8921
96																
97	97·0	9	115	BLD	1050	1000	0·5	140								T8922
98																
99	99·0	BLD	75	BLD	40	175	0·5	24								T8923
100																
101	100·5	16	85		15	200	0·4	17								
102																
103																
104	103·5	BLD	100		5	180	0·3	10								
105																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 90 TO 105 DATE / / PAGE 7 OF 13

017142

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
105																
106																
106·5	3	70		BLD	145	0·3	11									
107																
108																
109																
109·5	BLD	50		5	140	0·5	230									
110																
111																
112																
112·5	BLD	125		20	140	0·5	44									
113																
114																
115																
115·5	8	135		260	625	0·6	30									
116																
117																
118																
118·5	BLD	115		40	170	0·3	9									
119																
120																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 105 TO 120 DATE / / PAGE 8 OF 13

017143

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
121·5	5	100		30	305	0·3	100									
124·5	BLD	90	BLD	35	250	0·5	60									T8924
126·0	50	445	BLD	330	900	2·0	7400									T8925
128·0	25	130	BLD	210	580	0·5	68									T8926
130·0	25	105	BLD	800	2000	1·5	38									T8927
132·0	BLD	115	BLD	30	125	0·5	12									T8928
133·5	9	85		70	230	1·1	18									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE7

ASSAYED BY Analabs FROM 120 TO 135 DATE / / PAGE 9 OF 13

017144

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
136·5	25	95		130	610	0·6	12									
139·5	7	85		35	245	0·4	2									
142·5	5	115		10	215	0·3	8									
145·2	25	80		380	1450	1·4	380									
148·3	BLD	100		20	160	0·5	20									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 135 TO 150 DATE / / PAGE 10 OF 13

017145

Metres	Sn	Cu	N	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
151·4	10	115		170	800	0·8	14									
154·4	3	105		30	145	0·4	10									
157·5	BLD	65		20	130	0·2	30									
160·5	10	80		15	120	0·5	30									
163·5	6	80		10	165	0·3	20									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 150 TO 165 DATE / / PAGE 11 OF 13

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
166·65	8	130		20	125	0·1	8									
169·5	BLD	110		35	145	0·3	14									
172·5	BLD	130		235	720	0·6	48									
175·5	BLD	125		30	305	0·5	64									
178·5	20	105		900	2300	1·3	180									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 165 TO 180 DATE / / PAGE 12 OF 13

017147

950

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	Bi							SAMPLE NUMBER
181·5	5	60		115	425	0·4	42									
184·5	BLD	85		30	145	0·5	10									
187·5	8	90		200	560	0·3	16									
190·5	4	70		70	330	0·2	BLD									
193·5	END	OF	HOLE	RBE	7.											

180 181 182 183 184 185 186 187 188 189 190 191 192 193 193·5

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 7

ASSAYED BY Analabs FROM 180 TO 193·5 DATE / / PAGE 13 OF 13

047

017148

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

Page 0 of 21

PROJECT Renison | AREA Grid GAR | DRILLHOLE TYPE DDH

CO-ORDS E 312729·5 N 6312957·7 | DEC LN -45° | AZIMUTH 78° MN | RL 176·5 | DH No. RBE 8

DATE COMMENCED 29·5·80 | DATE COMPLETED 13·6·80 | DRILLED BY Longyear | DRILL RIG Longyear 38

Non Coring to: 27m | HQ Core to: | NQ Core to: 156m | BQ Core to: 307m | EOH 307m

SURVEY DATA

Instrument: Downhole Camera

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
34 m		-44·75°	82° MN	181 m		-42·25°	75° MN
61 m		-45°	81° MN	211 m		-40·5°	56° MN
91 m		-46°	81° MN	241 m		-38·5°	70° MN
120 m		-45·25°	80·5° MN	271 m		-39°	77·5° MN
151 m		-43·5°	76·5° MN	307 m		-38·5°	72° MN

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-27m Glacial and fluvioglacial overburden			
27-258·6m Interbedded massive to laminated medium grey, fine grained, tuffaceous sandstone and black deformed carbonaceous mudstones. Minor intense thin carbonate and quartz veinings in parts of the core.			
→ 98·2 - 99·5m - quartz - carbonate - sulphide vein	massive to disseminated: Po, Py, Cp	~25%	
→ 123·9 - 124·6m Massive sulphide vein with interstitial quartz.	Po, Py, Sp ± Gl	~60%	
→ 244·9 - 247·1m Barren massive white quartz - carbonate vein	minor disseminated sulphides.	~1-4%	
258·6 - 284·0m Massive to laminated olivine - pyroxenite. Lower portions are serpentinised.			
284·0 - 290·1m Altered talc - carbonate ultramafic			
290·1 - 307·0m Massive to laminated, tuffaceous sandstones and interbedded carbonaceous mudstones.			

017149

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	0-27m	27m	Nil	Nil							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY W.R. Ramsay FROM 0 TO 15 DATE 1-2/6/80 PAGE 1 OF 21

017150

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	27·0	1·0	0·2	20%		Limonite stained fractured carbonaceous mudstone.	Limonite stained		Core is broken and fractured.	Very minor pyrite scattered very sparingly through parts of the core.	<0·1%
	28·0	2·0	0·87	29%		Broken black carbonaceous mudstone, in part schistose.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 15 TO 30 DATE 1-2/6/80 PAGE 2 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	31·0	0·8	0·4	50%	31						
	31·8	1·8	1·7	95%	32	Interbedded, dull greenish-grey fine grained tuffaceous sandstone and siltstone.	Core has the appearance of having undergone mild hydrothermal alteration. Alteration discernable along thin fractures and joints.				
	33·6	0·4	0·4	100%	33						
	34·0	1·5	1·36	90%	34						
	35·5	1·5	1·5	100%	35						
	37·0	1·9	1·9	100%	36				37·0 fracture zone (approx 0.2m) : 50°		
	38·9	1·1	1·04	95%	37						
	40·0	1·1	0·9	82%	38						
	41·1	1·4	1·3	93%	39						
	42·25	1·45	1·45	100%	40				42·5 Bedding to core axis: 45°		
	43·7	1·4	1·0	71·4%	41				44·0 Bedding to core axis: 60°		
					42						
					43						
					44						
					44·5	Broken and fractured carbonaceous black mudstone – minor quartz veins.	Rock is in part schistose and has the appearance				
					45						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 30 TO 45 DATE 1-2/6/80 PAGE 3 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	45·1	2·1	0·85	40·4%
	47·2	1·2	0·96	80%
	48·4	1·4	1·26	90%
	49·8	0·9	0·9	100%
	50·7	1·2	1·2	100%
	51·9	0·5	0·5	100%
	52·4	0·9	0·9	100%
	53·2	0·6	0·6	100%
	53·9	0·2	0·2	100%
	54·1	0·5	0·5	100%
	54·6	1·2	1·15	96%
	55·8	0·5	0·5	100%
	56·3	1·7	1·3	76%
	58·0	1·7	1·7	100%
	59·7	0·6	0·6	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		of mild hydrothermal alteration.		45·1 Fracture/fault zone.		
	Broken and fractured siltstone to fine grained sandstone.	Limonite staining along fracture planes. Minor quartz veins at 47·9m.		48·0 Core badly fractured and broken.	47·9 Pitted and oxidised zone, possible leached sulphides?	
50·7	Black carbonaceous siltstone to fine tuff sandstone. Presence of thin laminate bedding in part of the core.	Core shows evidence of mild hydrothermal alteration. Infrequent thin leached and partially limonite-stained quartz veins.		50·7 Bedding to core axis: 45°	Very minor pyrite scattered through the core or concentrated on fracture zones.	0·1%
51·7	Dull greenish-grey, fine-medium grained tuffaceous sandstones and minor, in part, carbonaceous siltstones. Core is broken and fractured in places.					
59·5	Prominent quartz-sulphide vein.	Part oxidised and leached		quartz vein: 53°	Pyrite & altered sulphides	10%
59·7						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 8

LOGGED BY ..... FROM 45 TO 60 DATE 1-2/6/80 PAGE 4 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	60.3	0.7	0.7	100%
	61.0	0.8	0.8	100%
	61.8	1.2	1.2	100%
	63.0	1.1	1.1	100%
	64.0	1.0	1.0	100%
	65.0	1.3	1.3	100%
	66.3	1.0	1.0	100%
	67.3	0.7	0.7	100%
	68.0	0.5	0.5	100%
	68.5	0.2	0.2	100%
	68.7	0.2	0.2	100%
	68.9	1.1	1.1	100%
	70.0	1.3	1.3	100%
	71.3	0.9	0.9	100%
	72.2	0.6	0.6	100%
	72.8	0.8	0.8	100%
	73.6	1.2	1.2	100%
	74.8	0.7	0.7	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
61.8		Limonite staining on joints and fractures ceases. Between 61.0 - 61.4 the core develops a distinct greenish tinge.				
64.2	Black carbonaceous in part sheared siltstones.	Mild hydrothermal alteration in the form of scattered 1-4mm quartz -chlorite veining.		65.7 Bedding to core axis: 70° 66.0 Thin numerous veins <1mm thick : 30°		
72.0	Dull medium grey-greenish fine-grained tuff sandstone and minor interbedded gray mudstones. 5 cm	Core shows evidence of mild hydrothermal activity. Thin quartz veins cut the core at various angles.		73.7 Thin 3mm quartz vein: 40°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 60 TO 75 DATE 3-4/6/80 PAGE 5 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	75·5	1·1	1·1	100%
	76·6	1·1	1·1	100%
	77·7	0·7	0·7	100%
	78·4	3·1	3·05	98·3%
	81·5	0·5	0·5	100%
	82·0	2·7	2·6	96%
	84·7	2·6	2·6	100%
	87·3	3·1	3·1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
78·7	Laminated dark grey-black and medium gray mudstone. Thin calcite veins cut the core.			76·6 Core broken 77·6 vein: 84° 77·8 79·0 Bedding to core axis: 78°	77·6 1mm galena vein + quartz 77·8 minor galena in broken core.	60% 3%
81·1	Dark gray, medium grey fine grained tuffaceous sandstone and minor pale gray mudstone.	Thin infrequent quartz veins cut the core - suggestive of mild hydrothermal alteration.				
84·6	Thin, dark carbonaceous laminated mudstone horizon. Laminations deformed.					
85·3	Pale grey massive mudstone. Minor bedding in parts. 5 cm			85·8 Bedding to core axis: 40° 87·1 Bedding to core axis: 70°		
88·2	Massive medium to dark grey fine medium grained tuffaceous sandstone with minor interbedded laminated mudstone and carbonaceous mudstone horizons.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 8

LOGGED BY ..... FROM 75 TO 90 DATE 3-4/6/80 PAGE 6 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	90·4	0·6	0·6	100%
	91·0	3·0	3·0	100%
	94·0	1·0	1·0	100%
	95·0	2·0	2·0	100%
	97·0	3·0	3·0	100%
	100·0	1·2	1·2	100%
	101·2	1·8	1·8	100%
	103·0	3·0	3·0	100%

INTERVAL	DESCRIPTION	ALTERATION
96·1	Black carbonaceous mudstone, fractured and broken. Minor laminate bedding.	
97·1	Dark fine-grained sandstone to mudstone.	
98·2	Prominent quartz-carbonate sulphide vein.	
99·5	Dark grey to black fine-grained tuffaceous sandstone and minor deformed black mudstone.	
101·2	Prominent zone of brecciated and intensely quartz veined medium grey tuffaceous/ feldspathic fine-grained sandstones.	Partial silicification of the core.

GRAPHIC LOG

STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
92·2 6mm quartz vein: 30° B.C.A: 65° vein to bedding: 80°		
94·2 core broken, fractured and quartz veined.		
95·0 95·8 B.C.A.: 60°		
96·1 core broken and quartz veined.		
97·0 0·1 m vein: 57°	quartz, pyrite, arsenopyrite	5%
98·2 vein contact: 38°	massive to disseminated pyrrhotite, pyrite and chalcopyrite.	25%
99·5 vein contact: 58°		
100·0 40mm quartz vein: 85°	quartz, pyrrhotite, pyrite and chalcopyrite	10%
100·7 40mm quartz-sulphide vein: 35°	quartz, pyrrhotite, pyrite chalcopyrite and arsenopyrite.	40%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 90 TO 105 DATE 4-5/6/80 PAGE 7 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	106·0	3·0	3·0	100%
	109·0	3·0	3·0	100%
	112·0	1·0	1·0	100%
	113·0	1·2	1·2	100%
	114·2	0·8	0·25	31%
	115·0	1·5	1·0	67%
	116·5	0·7	0·7	100%
	117·2	1·4	1·4	100%
	118·6	0·1	0	0
	118·7	1·4	1·4	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
105·1	Zone dominated by brecciation and white and buff quartz veins.				very minor galena and pyrite.	<1%
106·1						
106·6	White druze cavity, quartz vein.			vein to core axis: 32°	106·6 Finely disseminated galena & pyrite.	1%
109						
112·4	Dark carbonaceous fine grained sandstone and interbedded mudstones. Infrequent thin white quartz veins cut the core.					
114·2		Much of the core is fractured and broken.				
116·7				117·2 B.C.A. 40°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 105 TO 120 DATE 15/6/80 PAGE 8 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	120·1	0·9	0·9	100%
	121·0	3·0	3·0	100%
	124·0	3·0	2·95	98%
	127·0	3·0	3·0	100%
	130·0	5·0	5·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				122·8 vein to core axis: 54°	122·8 Numerous thin 5-10mm wide sulphide veins cut the core. Pyrite, pyrrhotite, sphalerite and chalcopyrite.	3%
123·9	Massive sulphide vein with minor interstitial quartz.			124·6 vein to core axis: 45°	Pyrrhotite, pyrite, sphalerite & galena.	60%
124·6	Dark grey sandstones and deformed black carbonaceous mudstones. Numerous thin, in part deformed, quartz veins cut the core.			129 B.C.A. 30°	Very minor pyrite and arsenopyrite scattered sparingly through the core	<1%
131·5	Laminated and deformed black carbonaceous mudstone with numerous thin quartz veins.	Partial silicification of core.			Disseminated pyrhotite and pyrite associated with quartz veins.	3%
132·9	Massive white quartz vein.			vein to core axis: 28°	Finely disseminated arsenopyrite, chalcopyrite & pyrite.	3%
133·9	Black, deformed carbonaceous mudstone with thin quartz veins.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 120 TO 135 DATE 6-7/6/80 PAGE 9 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	135·0	1·0	1·0	100%
	136·0	3·0	3·0	100%
	139·0	3·0	3·0	100%
	142·0	0·8	0·8	100%
	142·8	2·2	2·2	100%
	145·0	3·0	3·0	100%
	148·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
136·2	Massive tuffaceous fine-grained sandstone with very minor associated mudstone. Very minor quartz-carbonate veins cut the core.			135·9 B.C.A: 40°		
					138·1 Thin 10mm brecciated zone with minor chalcopyrite.	<1%
				139·7 calcite vein, 10 mm: 40°		
143·1	Finely laminated - in part brecciated, pale-medium grey mudstone.			143·7 B.C.A: 55°		
145·9	Deformed, in part brecciated, black carbonaceous mudstone. Numerous thin ptygmatic quartz-carbonate veins cut the core.			147·3 Intense quartz-carbonate veining: 55°	Pyrite concentrations associated with deformed veins in black argillite. Some of the pyrite is streaked out along deformed bedding planes. Locally pyrite may achieve concentrations of ≈ 10%.	2%
				149·8 vein to core axis: 50°	149·8 100 mm quartz, pyrite chalcopyrite, arsenopyrite vein.	10%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 135 TO 150 DATE 6-7/6/80 PAGE 10 OF 21

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	151·0	3·0	3·0	100%
	154·0	2·0	2·0	100%
	156·0	1·0	1·0	100%
	CHANGE OF DRILL SIZE.			
	157·0	3·0	3·0	100%
	160·0	3·0	3·0	100%
	163·0	3·0	3·0	100%

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
151·7	Dull greenish-grey, mottled fine grained calcareous sandstone with numerous thin carbonate veins cutting the core.			161·35 vein to core axis: 65°	161·35 40mm quartz sulphide vein - pyrite, chalcopyrite.	8%
153·2	Black carbonaceous mudstone with interbedded minor tuff sandstone and light grey mudstone. Much of the core is deformed with partial bracciation of the sediments or more commonly deformed thin laminations. Numerous thin, in part deformed quartz and carbonate veins cut the core.			156·2 B.C.A: 45° 156·5 vein to core axis: 55° 158·3 B.C.A: 30°	156·0 Quartz veins to 25 mm with minor galena, pyrrhotite, sphalerite 157·0 Minor veinlets and pods of pyrite cutting black argillite and minor grey mudstone 159·6	1% 2%
160·8	White quartz veining within black argillite.			vein to core axis: 40°	160·6 Sulphides disseminated in black argillite and white quartz veining. Arsenopyrite, pyrite, pyrrhotite & chalcopyrite.	4%
162·0						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 150 TO 165 DATE 8-9/6/80 PAGE 11 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	166·0	3·0	3·0	100%
	169·0	3·0	3·0	100%
	172·0	3·0	3·0	100%
	175·0	3·0	3·0	100%
	178·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
166·1				166·1 vein to core axis: 40°	166·1 5mm galena quartz vein.	10%
167·0				167·0 Core is strongly deformed with bedding to core axis varying from 45° to 0°.		
167·8	White quartz veining				Minor galena disseminations at 168·1 m	40%
168·3				168·3 vein to core axis: 50°		
169·0				169·2 B.C.A: 66°	169·0 Disseminated and recrystallized pyrite scattered along bedding planes.	≈2%
175·2				175·2 B.C.A: 38°		
176·0	Medium dull-grey tuffaceous sandstone with minor intercalcated black to medium grey mudstone. Very minor carbonate (<1%) scattered through the core as cement.					
179·1				179·1 B.C.A: 28°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 165 TO 180 DATE 8-9/6/80 PAGE 12 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	181·0	3·0	3·0	100%
	184·0	3·0	3·0	100%
	187·0	3·0	3·0	100%
	190·0	3·0	3·0	100%
	193·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
182·5	Interbedded black carbonaceous mudstone, grey mudstone and dull medium greenish-grey fine-grained sandstone. Much of the core is deformed, shows variable bedding to core axis angles and microfaulting.	Numerous thin quartz and carbonate veinlets cut the core.		182·3 B.C.A: 55° facing down hole from indistinct bedding. 182·7 quartz vein: 35°	184·0 Minor disseminated pyrite in veinlets and subparallel to bedding.	1%
				185·5 quartz vein: 52°	1mm thick galena vein	100%
				188·1 B.C.A: 50°		
191·0	Dull greenish-grey fine grained tuff sandstone with very minor amounts of black deformed carbonaceous mudstone	Thin, in part ptygmatic quartz carbonate veins cut the core.		191·0 B.C.A: 20°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 180 TO 195 DATE 8-9/6/80 PAGE 13 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	196.0	3.0	3.0	100%
	199.0	3.0	3.0	100%
	202.0	3.0	3.0	100%
	205.0	3.0	3.0	100%
	208.0	3.0	3.0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
196				195.7 B.C.A: 5°		
197						
198				198.3 B.C.A: 5°		
199						
200						
201						
202						
202.6	Black, deformed, carbonaceous argillite with minor interbedded tuff sandstone.	Extensive, thin carbonate veining.				
203						
204						
205						
206	5 cm					
207						
207.4	Carbonated, talcose mafic? rock (sill, tuff?)					
207.6	Deformed, interbedded grey tuff fine-grained sandstone, dark carbonaceous argillite, and finely laminated medium grey mudstone.					
208						
209				209.2 100mm quartz vein: 55°		
210						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 195 TO 210 DATE 8-9/6/80 PAGE 14 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	211·0	3·0	3·0	100%
	214·0	3·0	3·0	100%
	217·0	3·0	3·0	100%
	220·0	3·0	3·0	100%
	223·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
211·3 – 211·6				quartz vein: 28°	disseminated pyrite ± galena.	4%
216·3				B.C.A: 5°		
218·2	Black carbonaceous partially foliated argillite with minor sandstone intercalations.					
219·1	Intensely quartz veined black argillite.			quartz vein 200mm: 15°		
220·0				quartz vein 200mm: 10°		
220·4 – 220·6	Prominent white quartz vein with druze cavities. Intensely quartz veined black argillite with minor medium grey fine grained sandstone.			quartz vein: 10°		
222·4	Fine grained medium grey tuffaceous sandstone with minor black argillite intercalations.					
224·7				B.C.A: 45°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 210 TO 225 DATE 1/6/80 PAGE 15 OF 21

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LITHOLOGY

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	226.0	3.0	3.0	100%
	229.0	3.0	3.0	100%
	232.0	3.0	3.0	100%
	235.0	2.8	2.8	100%
	237.8	3.0	3.0	100%

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
225.3	Unusual mottled medium greenish grey carbonated talcose? rock - possibly an altered mafic sill or basaltic tuff horizon small pods of included black carbonaceous argillite.	Altered with carbonate chlorite ± talc				
229.8	Calcareous mudstone ?? Dull greenish-grey calcareous mudstone with minor black carbonaceous argillite and grey tuffaceous fine-grained sandstone.	Core has a greenish yellow grey colouration suggestive of alteration possibly a mafic tuff.		231.3 B.C.A: 30° 235.2 20mm quartz-carbonate vein: 34°		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 225 TO 240 DATE 1/6/80 PAGE 16 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	240·8	3·1	3·1	100%
	243·9	2·3	1·4	60%
	246·2	2·0	2·0	100%
	248·2	1·8	1·8	100%
	250·0	3·0	3·0	100%
	253·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
241				241·3 B.C.A: 40°		
242						
243						
244						
244·9	Quartz vein. Massive white quartz vein with minor druza cavities. Minor included buff carbonate zones (siderite).			244·9 vein to core axis: 45°	245·8 10mm sulphide vein: pyrite, I ?	5%
245						
246						
247				247·1 vein to core axis: 30°		
247·1	Sheared and quartz veined carbonaceous mudstone.					
248						
248·2	Laminated carbonaceous mudstone: with interbedded grey mudstone and minor tuffaceous sandstone. Much of the core is heavily veined with quartz-carbonate.			248·8 10mm quartz vein: 30°		
249						
250				250·0 B.C.A: ≈ 80°		
251						
252						
253						
254	5 cm					
255				255·0 10mm quartz-carbonate vein, to core axis: 5°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 240 TO 255 DATE 1/6/80 PAGE 17 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	256.0	2.6	2.6	100%
	258.6	3.1	3.1	100%
	261.7	3.1	3.1	100%
	264.8	3.1	3.1	100%
	267.9	3.1	3.1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
256						
257						
258						
258.6	Serpentised pyroxene-rich ultramafic. Core is probably a feldspar-olivine pyroxenite	Minor serpentinization with chrysotile veining negligible. Minor carbonate veins.		258.8 Igneous layering to core axis : 46°		
259						
260						
261						
262						
263						
264						
265						
266						
267						
268						
269						
270						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 255 TO 270 DATE / 6 / 80 PAGE 18 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	271·0	2·8	2·8	100%	271–272						
	273·8	2·3	2·3	100%	273–276						
	276·1	3·1	3·1	100%	276–279	Serpentised and veined ultramafic. Rock is dark green grey with numerous subparallel chrysotile veinlets.	Serpentinization, coupled with secondary introduction of numerous thin subparallel chrysotile veinlets.		276·3: 40mm sheared serpentinite zone. 279 – veins to core axis: 65°		
	279·2	2·8	2·8	100%	279–282						
	282·0	1·0	1·0	100%		5 cm					
	283·0	2·8	2·8	100%	283–285	Creamish carbonated and altered foliated serpentinite.	Alteration minerals include carbonate, secondary magnetite ± talc.			Core is strongly magnetic with secondary magnetite.	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 270 TO 285 DATE /6/80 PAGE 19 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	285·8	3·0	3·0	100%
	288·8	3·1	3·1	100%
	291·9	3·1	3·1	100%
	295·0	3·0	3·0	100%
	298·0	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
290·1	Laminated black carbonaceous mudstone interbedded with very thin numerous fine sandstone layers. Much of the rock is deformed giving the whole rock a schist-like appearance because of the kinked, folded and deformed laminated bedding.			288·6 Foliation to core axis: 32° 290·1 Fault pug 50mm thick: 56°	287·2 290·9 10mm quartz, pyrite carbonate vein.	5%
	5 cm			294·0 Bedding strongly kinked Kink plane parallel to core axis. 295·2 B.C.A: 85°		
296·6	Dull grey massive tuff sandstone.					
	Dull mottled green yellow grey rock with carbonate - possibly an altered carbonate rock or altered mafic tuff.					
299·4	Dull medium grey tuff sandstone with interbedded black argillite.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 285 TO 300 DATE /6/80 PAGE 20 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	301.0	2.8	2.8	100%
	303.8	3.2	3.2	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				301.0 B.C.A: 76°		
301.4	Black carbonaceous mudstone, in part laminated, deformed with minor tuffaceous sandstone intercalations.	Numerous thin quartz-carbonate veins subparallel to bedding		302.0 Veining and bedding to core axis: 53°	Minor disseminated pyrite.	2%
304.5	Massive light grey tuffaceous sandstone. Very minor black argillite.					
	END OF HOLE RBE 8.					

301 302 303 304 305 306 307

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 8

LOGGED BY ..... FROM 300 TO 307 DATE 13/6/80 PAGE 21 OF 21

017170

690

																SAMPLE NUMBER
				No	core	recovery										

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 0 TO 15 DATE / / PAGE 1 OF 21

017171

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
				No	core	recovery										
27·0	4	135		5	155	0·5	16	40								
28·0	5	230		65	240	0·5	4	190								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH PBE8

ASSAYED BY Analabs FROM 15 TO 30 DATE / / PAGE 2 OF 21

017172

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
31·0	3	155		10	210	BLD	26	160								
31·8	BLD	130		5	200	BLD	18	155								
33·6	5	70		10	460	BLD	4	225								
34·0	10	100		10	300	0·5	8	205								
35·5	4	165		20	230	0·5	34	140								
37·0	5	115		10	195	0·5	14	150								
38·9	BLD	90		15	155	0·5	11	140								
40·0	7	100		15	235	BLD	6	155								
41·1	BLD	120		25	215	0·5	20	130								
43·25	BLD	150		75	280	0·5	44	155								
43·7	25	80		145	250	1·0	50	140								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 30 TO 45 DATE / / PAGE 3 OF 21

017173

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
46·1	15	245		595	630	0·5	32	145								
47·2	25	180		350	510	0·5	66	120								
48·4	40	120		1050	605	0·5	28	80								
49·8	20	160		80	310	0·5	48	80								
50·7	7	90		35	690	0·5	22	125								
51·9	10	160		20	300	1·0	24	120								
52·4	BLD	120		15	410	0·5	12	125								
53·3	4	110		25	190	0·5	20	125								
53·9	3	135		20	150	0·5	10	125								
54·1	10	55		20	120	0·5	14	120								
54·6	4	65		30	350	BLD	18	130								
55·8	15	105		285	420	0·5	24	120								
56·3	7	80		55	370	0·5	30	120								
58·0	90	135		25	155	1·0	66	85								
59·7	290	100		25	250	0·5	65	150								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 45 TO 60 DATE / / PAGE 4 OF 21

017174

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
60.3	20	125		10	185	1·0	116	130								
61.0	10	120		10	200	0·5	14	135								
61.8	10	100		10	265	0·5	10	130								
63.0	9	105		15	225	0·5	12	135								
64.0	7	80		25	270	1·0	26	135								
65.0	10	135		35	390	1·0	10	135								
66.2	BLD	85		15	290	1·0	4	140								
67.3	5	135		20	210	0·5	6	160								
68.0	8	40		10	145	1·0	6	120								
68.5	4	30		10	135	1·0	7	110								
68.7	10	40		5	130	0·5	4	120								
68.9	BLD	55		5	175	1·0	2	125								
70.0	BLD	75		5	310	0·5	7	120								
71.3	BLD	145		30	360	0·5	4	135								
72.2	BLD	95		10	190	1·0	4	130								
72.8	6	105		25	310	0·5	8	140								
73.6	6	65		10	310	0·5	10	135								
74.8																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 60 TO 75 DATE / / PAGE 5 OF 21

017175

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
	6	65		25	290	0·5	24	135								
75·5	10	50		90	410	1·0	38	160								
76·6	6	85		6200	740	4·5	320	115								
77·7	15	145		1550	1850	3·0	54	125								
78·4	4	130		25	170	0·5	14	160								
81·5	8	80		10	185	1·0	4	140								
82·0	10	150		70	300	BLD	64	190								
84·7	7	60		15	190	1·0	18	130								
87·3	20	145		55	280	1·0	19	165								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 75 TO 90 DATE / / PAGE 6 OF 21

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
90																
90·4	10	105		25	255	0·5	4	155								
91·0	3	110		25	235	0·5	7	125								
94·0	9	100	BLD	50	225	1·0	28	135								T8930
96·0	110	175	BLD	165	610	1·0	5200	110								T8931
98·0	200	4050	50	3600	1·1%	20·4	5000	180								T8932
99·0	65	2200	BLD	305	710	12·2	540	205								T8933
100·0	1050	1950	BLD	270	710	4·1	6600	105								T8934
101·0	220	190	BLD	460	1350	2·5	360	100								T8935
102·0	100	165	20	720	5200	4·0	195	100								T8936
104·0	45	85	BLD	3050	4100	10·1	4400	80								T8937

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 90 TO 105 DATE / / PAGE 7 OF 21

017177

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
105																
106																
106.0																
107	15	60	BLD	105	950	3.0	4200	110								T8938
108																
108.0																
109	40	85	BLD	2950	3000	7.0	1600	95								T8939
110																
110.0																
111	10	65	BLD	70	310	1.5	380	90								T8940
112																
112.0																
113																
114	3	75	T	15	210	1.0	260	105								T8941
115																
115.0																
116	BLD	80	BLD	10	160	1.0	8	115								T8942
117																
117.0																
118																
119	6	95	BLD	80	225	1.0	22	125								T8943
120																
120.0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 105 TO 120 DATE / / PAGE 8 OF 21

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
120·0	50	1100	BLD	950	3000	18·0	540	110								T8944
123·0	210	5350	30	1650	8500	32·5	5200	90								T8945
126·0	35	130	BLD	900	2300	2·0	48	95								T8946
129·0	30	60	BLD	190	420	1·0	44	90								T8947
132·0	860	850	BLD	250	565	5·9	1·5%	70								T8948
135·0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE8

ASSAYED BY Analabs FROM 120 TO 135 DATE / / PAGE 9 OF 21

017179

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
135.0	70	60	20	165	760	0.5	400	105								T9949
136.0	65	175		85	295	0.5	27	130								
139.0	20	100		5	165	0.5	16	150								
142.0	20	95		5	145	0.5	8	125								
142.6	BLD	95		5	135	0.5	4	125								
145.0	75	215		20	165	0.5	96	135								
148.0	110	1300		95	240	2.5	5600	85								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 135 TO 150 DATE / / PAGE 10 OF 21

017180

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
151·0	95	5700		115	620	6·5	88	120								
154·0	65	305		1600	4800	3·5	48	115								
156·0	75	140		1100	3400	2·0	38	95								
157·0	60	300		320	3950	1·5	42	125								
160·0	3400	2850		430	1550	7·0	1·5%	110								
163·0	45	120		440	1600	1·0	300	90								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 150 TO 165 DATE / / PAGE 11 OF 21

017181

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
165																
166																
166.0																
167	270	135		6050	1600	9.0	680	80								
168																
169																
169.0																
170	4	80		60	135	0.5	44	70								
171																
172																
172.0																
173	BLD	100		15	125	0.5	6	90								
174																
175																
175.0																
176	BLD	90		15	120	1.0	10	105								
177																
178																
178.0																
179	6	90		15	140	BLD	14	115								
180																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 165 TO 180 DATE / / PAGE 12 OF 21

017182

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
180																
181	181.0															
183		25	115		165	800	0.5	38	125							
184	184.0															
185		15	110		2900	1450	4.5	340	90							
187	187.0															
189		20	75		25	130	0.5	7	75							
190	190.0															
193		9	85		15	160	BLD	BLD	105	"			"			
193	193.0															
195		8	90		15	140	0.5	BLD	90							

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 180 TO 195 DATE / / PAGE 13 OF 21

017183

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
196.0	3	60		25	175	0.5	4	110								
199.0	9	60		95	750	0.5	26	105								
202.0	4	85		125	460	0.5	40	105								
205.0	4	115		435	710	0.5	8	100								
208.0	25	105		790	2800	1.0	200	80								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 195 TO 210 DATE / / PAGE 14 OF 21

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
210																
211																
211·0	30	80		1250	3100	3·5	64	75								
213																
214																
214·0	10	100		1000	2750	0·5	16	90								
215																
216																
217																
217·0	15	190		780	4300	1·5	600	95								
218																
219																
220																
220·0	6	105		335	950	1·0	540	75								
221																
222																
223																
223·0	15	65		445	1950	1·0	44	85								
224																
225																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE8

ASSAYED BY Analabs FROM 210 TO 225 DATE / / PAGE 15 OF 21

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
225																
226																
226.0																
227	BLD	90		285	505	BLD	20	225								
228																
229																
229.0																
230	BLD	85		175	510	0.5	10	195								
231																
232																
232.0																
233	15	115		235	1000	0.5	58	190								
234																
235																
236.0																
236	55	80		460	2250	1.0	2150	195	1				1			
237																
237.8																
238	9	70		30	135	0.5	14	520								
239																
240																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 6

ASSAYED BY Analabs FROM 225 TO 240 DATE / / PAGE 16 OF 21

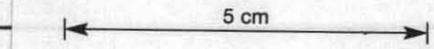
017186

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
240																
241	240·8															
242		3	65		210	525	1·0	100	645							
243																
244	243·9															
245		50	145		775	2700	1·5	2800	335							
246																
247	246·2	20	110		220	360	1·0	300	105							
248																
249	248·2	15	100		125	950	1·0	120	60							
250																
251	250·0	3	95		5	250	1·0	66	80							
252																
253	253·0															
254		3	80		10	150	0·5	34	65							
255																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 240 TO 255 DATE / / PAGE 17 OF 21

017187



Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
256.0	BLD	95		15	130	0.5	18	460								
258.6	BLD	115		5	85	0.5	4	630								
261.7	BLD	85		5	85	0.5	4	680								
264.8	BLD	100		15	100	0.5	6	465								
267.9	BLD	90		15	90	0.5	4	325								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 255 TO 270 DATE / / PAGE 18 OF 21

017188

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
271·0	4	145		5	115	0·5	6	720								
273·8	BLD	65		25	115	BLD	8	470								
276·1	BLD	5		85	100	0·5	4	2300								
279·2	BLD	5		5	80	0·5	4	1200								
282·0	10	5		BLD	90	0·5	BLD	2150								
283·0	BLD	5		BLD	90	0·5	BLD	1350								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 270 TO 285 DATE / / PAGE 19 OF 21

017189

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
285																
286	286·8															
287		15	10		BLD	60	1·0	60	1350							
288																
289	288·8															
290		140	210		110	260	1·5	1000	1050							
291																
292	291·9															
293		40	155		1050	620	1·5	48	105							
294																
295	295·0															
296		20	290		660	510	1·0	34	80							
297																
298	298·0															
299		7	75		20	190	0·5	12	130							
300																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 285 TO 300 DATE / / PAGE 20 OF 21

017190

639

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
301.0	20	100		275	2500	0.5	114	90								
303.8	7	85		185	560	1.0	34	95								
307.0					End of Hole :		RBE 8									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 8

ASSAYED BY Analabs FROM 300 TO 307 DATE / / PAGE 21 OF 21

090

017191

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

PROJECT Renison	**AREA** G.A.R			**DRILLHOLE TYPE** DDH
CO-ORDS 373025 E 6372775 N	**DEC^{LN}** -47°	**AZIMUTH** 258° MN	**RL** 110 msl.	**DH No.** RBE 9
DATE COMMENCED 16.6.80	**DATE COMPLETED** 30.6.80	**DRILLED BY** Longyear	**DRILL RIG** Longyear 38	
Non Coring to: 1m	**HQ Core to:**	**NQ Core to:** 90m	**BQ Core to:** 219m	**EOH** 219m

SURVEY DATA **Instrument:** drillhole camera.

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
0m		-47°	258° MN	145m		-43°	248° MN
30m		-47°	250·5° MN	166m		-42·5°	248° MN
61m		-45·5°	255·5° MN	190m		-42·75°	251·5° MN
90m		-44·5°	252·5° MN	210m		-41·75°	250·5° MN
124m		-44·5°	251·5° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-1·0m Overburden.			
1·0-13·1m Tuffaceous sandstone with minor intercalated carbonaceous mudstone.	Limonite occurs in fractures and veins after pyrite.		
13·1-19·4m Black carbonaceous shale with minor interbedded tuffaceous sandstone.			
19·4-25·3m Feldspathic sandstone.			
25·3-64·8m Pyritic carbonaceous shale with minor interbedded tuff. sandstone units.			
64·8-96·2m Tuffaceous sandstone with interbedded pyritic carbonaceous shale.	93·2-96·7m Pb, Cp concentrated in cross-cutting, intersecting fractures.	~10%	
96·2-101·7m Carbonated and chloritised fine grained sediments.			
101·7-102·9m. Shear zone.			
102·9-127·45m Sheared talc-carbonate-serpentine schist.	116·2-117·2m. Vein of massive sulphide predominantly AsPy & Pb, Cp.		
127·45-129·4m Quartz-sulphide-carbonate vein zone.	AsPy, Pb, Cp	~25%	
129·4-147·2m. Chloritised and sub aqueous tuff with interbedded grey shales.			
147·2-151·2m. Quartz veined breccia zone.	AsPy, Sp, Cp, Py	~20%	
151·2-157·4m. Heavily fractured, veined & sheared chlorite schist.	Pb, Cp, Sp, minor AsPy	~20%	
157·4-160·9 Carbonate vein zone.	Sp, Ga, Cp, Pb, AsPy	~10%	
160·9-172·2m. Siliceous pelite with interbedded tuff and black shale units.			
172·2-175·8m. Chloritised tuffaceous sandstone and carbonaceous mudstone.			
175·8-182·5m. $MgCO_3$ vein zone: massive veins of $MgCO_3$ & quartz form a brecciated stockwork.	Sp, Ga, Py	~5%	
182·5-192·55m. Tuffaceous sandstone with	Sp, Ga, Py in fractures and	~15%	

Signature Date

031

017192

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

PROJECT Renison	AREA GAR		DRILLHOLE TYPE DDH
CO-ORDS	DEC[LN]	AZIMUTH	RL / DH No. RBE 9
DATE COMMENCED	DATE COMPLETED	DRILLED BY	DRILL RIG
Non Coring to:	HQ Core to:	NQ Core to:	BQ Core to: EOH

SURVEY DATA

Instrument:

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
182.5 - 192.55m (con) interslumped carbonaceous shale.	veins from 189.4m.		
192.55 - 195.6 Quartz-carbonate vein zone.	Massive Ga veins & Sp, AsPy.	~25%	
195.6 - 219.0 m. Tuffaceous sandstone and carbonaceous argillite			

Signature Date

017193

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	0	1.0	0	0							
	1.0	3.4	3.4	100%	1.0	Tuffaceous sandstone coarse to medium grained grey-green with limonite staining. Clasts are poorly sorted but well bedded. Minor carbonaceous mudstone occurs as a matrix to rounded coarse lithics of tuffaceous sandstone. Minor grey to black shale interlayered units.	Limonite along fractures. Weathered rock.		1.0 45° vn 0.2m Quartz vn'd section of bk. sh. 1.3 10° F Moderate fracturing. Units moderately to well-bedded. 4.8 50°B 5.4 50°B 7.7 35°B	Limonite after xaln Py Py 1.0 1.2 Limonite in fracture and in xaln quartz veins altered Py.	10% 1%
	4.4	0.5	0.5	100%							
	4.9	0.5	0.5	100%							
	5.4	0.5	0.5	100%							
	5.9	1.0	1.0	100%							
	6.9	0.8	0.8	100%							
	7.7	1.5	1.0	66.6%			Unweathered except for limonite on fractures.				
	8.7	0.8	0.8	100%							
					9.1	Mudstone gray to black, well bedded graded units with Py concentrated at base	Minor weathering		9.7 40°B grading indicates facing down hole.	fine grained Py in coarser units. 9.1	1%
	9.5	0.4	0.4	100%							
	9.9	0.8	0.8	100%	9.9	Tuffaceous sandstone (as 1.0 to 9.1 m) with gray interbedded mudstone units, carbonaceous laminae and carbonaceous mudstone mixture.	Unweathered except for limonite on fractures.			Limonite in fractures after Py. 9.9	1%
	10.7	1.0	1.0	100%							
	11.7	1.5	1.0	66.6%							
	13.2	1.2	0.65	54.1%	13.1	Black carbonaceous shale with minor interlayered units of coarse grained tuffaceous sandstone.	Soft and friable.		Well laminated.	Py altered in part to limonite	5%
	14.4	1.0	0.6	60%							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 9

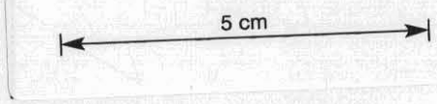
LOGGED BY G.F.P FROM 0 TO 15 DATE / / PAGE 3 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	15·4	1·0	0·3	30%
	16·4	1·5	0·5	33·3%
	17·9	1·5	0·4	26·6%
	19·4	0·3	0·3	100%
	19·7	0·2	0·2	100%
	19·9	0·8	0·5	62·5%
	20·7	0·8	0·4	50%
	21·5	0·9	0·56	62·2%
	22·4	1·2	0·9	75%
	23·6	0·5	0·5	100%
	24·1	1·1	0·5	45·4%
	25·2	2·2	0·65	29·5%
	27·4	1·0	0·4	40%
	28·4	1·5	0·5	33·3%
	29·9	0·4	0·4	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				15·3 60°B		
19·4	Feldspathic sandstone, tuffaceous, medium grained with interlayered black carbonaceous shale. Black shale component increases down hole. Sheared lithic fragments of shale occur in sandstone.	soft, possibly minor clay alteration.		Massively bedded. 24·0 20° S	Py in shale intercalations. Limonite staining in sandstone and xaln Py in fractures.	1%
25·3	Pyritic black shale, with very minor green tuffaceous sandstone interbeds.	End of weathering effects Graphite developed on cleavage planes.		Well laminated. 27·5 60°B 30·0 10°B	Xaln Py concentrated along bedding planes or remobilized into vuggy patches.	5%



5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY G.F.P FROM 15 TO 30 DATE / / PAGE 4 OF 17

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	30·3	0·6	0·6	100%					30·4 Vuggy broken quartz vein 30·5 60°B	30·5	
	30·9	0·6	0·5	100%					Well bedded	Py along bedding planes, along cleavage and fractures.	7%
	31·4	1·7	1·7	100%							
	33·1	1·1	1·1	100%					32·8 20°B		
	34·2	0·2	0·2	100%							
	34·4	3·0	2·5	83·3%					36·6 Moderate calcite veining	Xaln Py in calcite veins	
	37·4	3·0	3·0	100%					38·4 25°B		
									39·9 15° 4cm calcite vein with fluorite + brecciated margins.		
	40·4	3·0	3·0	100%	40·7	Tuffaceous sandstone, medium to fine grained, green. Intersiumped with black mudstone, 50:50			40·7 20°B Moderate calcite veining + fracturing. Micro-faulting and brecciation common.	Py in calcite veins and fractures.	5%
	43·4	3·0	1·8	60%		5 cm			44·1 20°B		
	44·9	1·3	1·2	92·3%	44·7	Carbonaceous black shale-mudstone with			Moderate calcite veining -	Py concentrated on bedding	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 9

LOGGED BY G.F.P. FROM 30 TO 45 DATE 20/6/80 PAGE 5 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					46	Very minor interslumped sandstone.			form calcite brecciated sections.	planes and in calcite veins.	7%
	46·2	3·0	3·0	100%	47				47·7 15°B	46·3 Pyrrhotite in carbonate vein.	
	49·2	3·2	3·2	100%	48				49·8 slumped structures 0-15° variable bed.		
					50						
					51				51·6 15°B		
					52		51·9 Friable and weathered. Groundwater in fissure?				
	52·4	0·2	0 Water table	0			52·6				
	52·6	2·1	2·1	100%	53				53·2 15°B		
					54						
	54·7	0·7	0·7	100%	55						
	55·4	3·0	3·0	100%	56						
					57				57·3 20°B		
					58						
	58·4	3·0	3·0	100%	59	5 cm			59·1 40°B tuffaceous sandstone unit.		
					60						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY G.F.P. FROM 46 TO 60 DATE ../../.. PAGE 6 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	61			
	61.4	3.0	3.0	100%
	62			
	63			
	64			
	64.4	3.0	2.0	100%
	65			
	66			
	67			
	67.4	3.0	3.0	100%
	68			
	69			
	70			
	70.4	3.0	3.0	100%
	71			
	72			
	73			
	73.4	3.0	2.0	100%
	74			
	75			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				61.5 Calcite + Py vein		
				64.7 65° Quartz vn	64.4 Quartz veins & blebs Py. Minor patches Sp.	5%
64.8	Interslumped tuffaceous sandstone and carbonaceous mudstone. approx 50:50			Massive bedding, brecciated appearance. Minor to moderate calcite veining.	65.1 Po blebs in calcite veins	1%
68.8	Pyritic shale gray to black, soft sediment deformation.	Graphite along fracture planes.		Well bedded 69.4 10°B	Py along calcite veinlets & on bedding. Po in calcite veins.	7%
69.7	Interslumped tuffaceous sandstone and carbonaceous mudstone.	70.4 Porous.		Microfaulting and brecciation.	Py in carbonaceous material.	1%
70.7	Black carbonaceous shale with minor interbedded fine sandstone units.			70.7 15°B Moderate calcite veining and brecciation.	Py disseminated in minor sandstone layers or in calcite veins and fractures. Bedded lenses of Py also may be primary.	7%
	5 cm			73.5 10°-0° B		
74.8	Tuffaceous sandstone, medium to fine grained				Disseminated blebs Py + Po	2%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY G.F.P. FROM 60 TO 75 DATE / / PAGE 7 OF 12

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						green feldspathic. Minor carbonaceous shale laminae and thin units.			76.0 0°B		
	76.4	3.0	3.0	100%	76.3	Carbonaceous shale with minor tuffaceous sandstone interbedded units - very irregular in shape - almost wedge-like.			76.8 15°B	Py in shales	5%
	77.6	1.2	1.2	100%							
					78.3	Tuffaceous sandstone medium to fine grained with 30% carbonaceous mudstone				Minor Po in calcite veins.	TR
	79.4	1.8	1.8	100%					79.4 50° zoned quartz/carbonate vein.	79.4 Blebs Cp, Sp in veined zone	2%
					80.2	Black carbonaceous shale with interbedded 20% tuffaceous sandstone.			80.2 20° quartz veined contact calcite veining & brecciation.	79.8 Py in carbonaceous sections	TR
										Py in shales as blebs.	2%
					81.4	Tuffaceous sandstone, coarse to medium grained.			82.0 15° quartz vein with Py	Py in quartz and calcite veined sections.	1%
	82.4	3.0	3.0	100%			83.0 friable and broken.		82.9 10°B carbonaceous laminae		
					84.2	Carbonaceous shale and siltstone, grey-green to black. Irregular interbedded fine sandstone units - contorted. From 85.5 carbonate content increases due to tuffaceous component in carbonaceous shale matrix.	84.2		84.0 20°B pelite unit Brecciated & fractured.	84.2 Pb + Py (minor) concentrated along calcite cemented fractures.	5%
	85.4	3.0	3.0	100%			85.5 Mottling effect. ? secondary carbonisation		85.4 30° Quartz vein.	85.5 Patches of Cp, minor Pb associated with calcite veined sections	1%
						5 cm			86.1 25° Quartz-carbonate vn.		
									87.0 20° 20cm, veined section of calcite.	87.0 } As Py + Pb in calcite veined section 87.2 }	5%
									87.4 10° Foliation = B ?		
					88.0	Shale green to grey, well bedded with carbonaceous interbedded units.				88.0	2%
	88.4	1.6	1.6	100%					88.5 45° B + Py conc.	Py concentrated along calcite veins.	3%
					89.3	Graywacke sandstone. Coarse to fine grained finely bedded sequence. Green			89.3 60° quartz-sulphide vn on contact.	Cp on contact and in quartz cemented fractures	2%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE9

LOGGED BY G.F.P FROM 75 TO 90 DATE / / PAGE 8 OF 17

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	90.0	4.2	4.2	100%
	94.2	3.1	3.1	100%
	97.3	3.1	3.1	100%
	100.4	3.0	3.0	100%
	103.4	3.0	2.9	96.6%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	with interbedded argillite/pelite sequences.			Moderate fracturing with quartz cementing fissures. 91.0 20° B 93.2 80° contact, possibly F. strongly deformed 93.8 20° calcite vn. Bedding obscured. 94.8 20cm quartz breccia & carb sh. clasts. 95.0 60°		
93.2	Carbonaceous mudstone and tuffaceous sandstone, black to green. Possibly sheared with lensoidal bodies of sandstone in a mudstone matrix.	Extensive calcite veining and fracturing.			Po < Py in cross cutting, intersecting fractures. Po < Cp in sheared calcite-quartz veined sections.	1%
95.0	Heavily altered tuffaceous sandstone and carbonaceous mudstone - schistose foliated texture.	Chloritized, graphite developed from carbonaceous mudstone.			Po in fracture stockwork	10%
96.2	Carbonated ? sediments, white to green. Medium grained interlocking granular network with heavily sheared sections.	Carbonate and Talc developed. Heavily veined with calcite.		96.2 75° contact. 96.7 35° calcite vein, shear 98.2 65° contact 99.5 25° B/S	96.2 Po > Cp > As Py in heavily 96.7 fractured, carbonated zone	20%
98.2	Chloritised argillite, green, finely-bedded & sheared. Mudstones or pelites.	Heavily chloritised and sheared. Some talc alteration.				
101.7	Fault zone. Heavily sheared green soft clay altered pug.	clay alteration, chlorite talc and carbonate.		101.7 Sheared		
102.9	Talc-carbonate-chlorite schist. Pale cream to green, finely foliated.	Heavily altered, mainly carbonate with chlorite.		102.9 15° calcite veined margin. Crenulations and micro folded schistose.	Scattered grains Sp. minor Po in thin fractures	1%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY GFP FROM 90 TO 105 DATE / / PAGE 9 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	106			
	106·4	3·0	3·0	100%
	107			
	108			
	109			
	109·4	3·0	3·0	100%
	110			
	111			
	112			
	112·4	3·0	3·0	100%
	113			
	114			
	115			
	115·4	3·0	3·0	100%
	116			
	117			
	118			
	118·4	2·7	2·7	100%
	119			
	120			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	– at 106·0 m predominently green – probably due to serpentine minerals. Magnetic patches of grey coloured sections may contain magnetite.			106·7 50° schistosity	106·0 Patches magnetite	2%
				110·0 70° schistosity		
	– at 112·7m predominently light cream with green serpentinite layers. Grey coloured sections of magnetite.			113 50° schistosity	112·7 Scattered fractured crystals Sp. occasional Po. Mt in grey patches.	2%
				116·2 – 35° contact 1m massive sulphide vein.	Crystals AsPy., Po, with minor Sp.	60%
				117·2 45° contact	Rounded patches Po, scattered crystals Sp.	3%
	5 cm					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY G.F.P. FROM 105 TO 120 DATE / / PAGE 10 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	121·1	2·9	2·6	89·6%							
										122·3 3cm vn xaln AsPy, Cp	
									122·8 70° sulphide vein	122·8 2cm vn xaln AsPy, Cp, Po	
	124·0	3·4	3·4	100%							
						125·7 dark green, heavily altered, soft, Fault zone.	chloritised, clay alteration prominent.		125·7 sheared + fractured possible fault.		
						126·5 Grey sheared talc-carbonate schist.			126·5		
										126·8 Po in quartz filled fractures	10%
	127·4	3·0	3·0	100%	127·45	Quartz-sulphide zone. Green to white quartz with chloritised inclusions. Sulphides occur as coarse crystalline patches at 129·1. Chloritised ?tuffaceous sandstone.	Silicification		127·45 15° vein. Predominently white quartz with secondary patches of flesh cream carbonate mineral.	Xaln AsPy with coarse patches Cp. Po either with AsPy/Cp or as discrete patches.	25%
					129·4	Tuffaceous sandstone and siltstone, grey to green, well bedded, similar to section at 96·2 m.	Chloritised, sheared.		129·4 20° contact. Rare quartz-carbonate vns	Po in fractures Py in quartz-carbonate veins.	1%
	130·4	3·0	3·0	100%					130·8 45° B or S.		
									132·7 60° B or S.		
	133·4	3·0	3·0	100%					133·7 65° 6cm quartz-pyrite vein	Py + minor Sp in quartz vn.	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 9

LOGGED BY G.F.P. FROM 120 TO 135 DATE / / PAGE 11 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					135.3	Chloritised tuffaceous sandstone-siltstone with rare carbonaceous mudstone interbeds, interlocking medium grained granular texture suggests large tuffaceous content.	Lenticular patches of quartz. Minor carbonisation.		135.3 35°B Sheared, cut by quartz veins		
	136.4	3.0	3.0	100%					137.3 15°S + sulphides	137.3 Py, Po, Sp. minor Cp in 2 cm zone.	
						-from 137.9 well bedded appearance due to interlaminated grey to black shales with coarse tuff layers and detritus.			137.9 40°B Well laminated.	Py, minor Sp associated & carbonaceous laminae or in fractures.	
	139.4	3.0	3.0	100%					139.5 40°B		
									140.3 30° 10 cm zoned quartz-carbonate vein.	140.0 Sp xals, patches Cp in vn	2%
									141.1 50°B tuff interbedded unit.		
	142.4	3.0	3.0	100%					142.8 60°B		
						-from 143.4 tend to massive tuffaceous units with interlocking granular texture.			143.5 45°B Generally massive.	Py, Po & minor Cp in scattered calcite veins	1%
	145.4	3.0	3.0	100%		5 cm			145.95 65° 10cm quartz-carb. vn.	145.95 Patches Po & AsPy, minor Cp. Bands Sp + scattered xals Sp in carbonate	
									146.4 50° 20cm carbonate vein stockwork + barren quartz vein. Py in stockwork.		
									147.2 60° contact	147.0 Sp > AsPy in quartz veins.	5%
										147.25 Po, AsPy > Cp cut by carbonate.	60%
										147.5 xaln AsPy in quartz vein	7%
										148.0 scattered Sp, minor Py	
	148.4	1.8	1.8	100%						very scattered Sp xals.	Tr.
										148.8 xaln AsPy in vein. Sp in secondary Mg carbonate vns.	2%
					147.2	Quartz veined breccia zone. Green and black finely foliated chloritised tuff and carbonaceous argillite brecciated in a quartz gangue. Cut by later Mg carbonate veins with Sp, Crystalline patches of carbonate and bands of massive sulphide.	Sediments chloritised carbonate crystalline with enclosed quartz xals.		149.1 40° Fracture	Sp, Py in veinlets.	
									149.4 Massive quartz veined zone with bands of massive	149.7 AsPy. Po. Cp Massive Po & 20% Cp	10% 70%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE9

LOGGED BY G.F.P FROM 135 TO 150 DATE / / PAGE 12 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	150·2	3·0	3·0	100%					sulphides.	150·2 Scattered xals AsPy Sp in carbonate veins.	2%
					151·2	Heavily fractured and sheared chlorite rock - probably a tuffaceous sediment.	Chlorite and ?talc heavily carbonate veined.		151·0 25° carbonate vn & Sp 151·25 30° sulphide band Heavy fracturing and veining	151·25 Massive Po & 5% Cp Secondary Mg carbonate & 5% Sp 151·5 Po in veins and fractures · stockwork effect and as replacive style disseminations. Po + Cp ≈ 10% Minor Sp in carbonate veins	50% 30%
	152·2	3·1	3·1	100%						153·2 Po in stockwork fracture system	2%
									153·9 10° band Po 154·1 0° secondary quartz vn + Po 154·55 20° Po band/chlorite sed. contact	153·9 Band Po cuts chlorite schist.	50%
					154·9	Strongly sheared chlorite schist and argillite. Chloritised tuffaceous units interfolded with carbonaceous argillite. Crenulation style folding of schistosity.	Chloritised in tuffaceous units.		154·9 margin sulphide vn. Fault, strongly sheared bedding obscured.	154·9 Po in carbonate and quartz veins. Sp in carbonate especially of zoned vuggy veins which increase in number down hole.	5%
	156·3	2·8	2·8	100%							
					157·4	Carbonate vein zone. Pale cream crystalline zoned Mg carbonate vein complex with chlorite/argillite schist inclusions at margin. Veins are zoned with botryoidal curvilinear layers. Crystalline quartz in vuggy patches and in veins.	Inclusion of sediments at vein margins are chloritised.		157·4 40° uneven contact. 157·8 6cm vn galena 35° Cockscomb textures evident - marking progressive growth stages of carbonate precipitation.	157·4 Sp in patches or as crystals adjacent to contacts of Mg carbonate with quartz + galena. Gl in later cross-cutting carb. vns Po, Cp, minor AsPy generally associated with quartzose sections and concentrated in massive pods.	10%
	159·1	1·3	1·3	100%							
	160·4	3·0	3·0	100%					160·7 30° carbonate vn cuts chlorite schist 160·9 25° carbonate vn contact.		
					160·9	Chloritised schistose rock with black argillaceous laminae as at 154·9m with interbedded laminated cherty pelite units.	Chlorite in tuffaceous and argillaceous units. Dolomitised in pelite units. Calcite and dolomite veins cross-cutting.		Schistose to well bedded 162·0 25° Carbonate quartz vein zone 20cm.	Sp, Gl, Py, AsPy disseminated in carbonate-quartz veins.	1%
					162·2	Pelite; buff to light green, finely bedded siliceous fine grained units, possibly dolomitic. 5 cm			Finely bedded to laminated Brecciated in sections. 163·5 25°B 163·8 30° Gl, Sp in carbonate.	Fine Po along bedding planes Galena, Sp in cross-cutting carbonate (Mg + Ca) veins.	2%
	163·4	3·0	3·0	100%							
									164·6 35°B minor Fault Well laminated with little	Minor patches crystalline	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE9

LOGGED BY G.F.P. FROM 150 TO 165 DATE /// PAGE 13 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				166					deformation apparent.	Py in carbonate veins	TR.
	166.4	3.0	3.0	100%					166.2 45°B		
				167		-from 167.2 Proportion of chloritised tuffaceous sandstone and carbonaceous argillite interbedded units increases.	Chlorite alteration of interbedded tuffaceous units.		167.3 20° carbonate vein + shear 167.6 0°B		
				168					168.4 20° carbonate vein Irregular sheared texture, strongly deformed in sections.		
				169							
	169.4	3.0	3.0	100%		5 cm					
				170							
				171							
				172		-from 171.6 Proportion of carbonaceous shale increases.	Graphite developed on shear and bedding planes. Chlorite in tuffaceous units. Cut by quartz, Fe, Mg + Ca carbonate veins, which increase down the hole.		171.5 40°B	Sp in carbonate vein 171.9 Py veins cross cut bedding	1%
	172.4	3.0	3.0	100%	172.2.	Carbonaceous shale with finely bedded buff ?dolomitic siltstone units.			172.5 35°B Highly deformed due to shearing superimposed on soft sediment deformation.		
				173	173.1	Tuffaceous chloritised sandstone and carbonaceous argillite. Strongly contorted, varying from shearing to brecciation.				Gl + Sp in carbonate veins. 173.9	3%
				174					174.1 Stockwork of carbonate vns and fractures with sulphides.	Py + Sp in stockwork of veins + fractures. 174.15	5%
				175					175.5 30° quartz vein	175.8	
	175.4	0.8	0.8	100%	175.8	Veined and brecciated zone. Carbonated, tuffaceous and argillite material. Brecciated, sheared and veined.	Rock totally altered to chlorite, carbonate and carbon minerals. Original texture totally destroyed.		Later quartz macro-veins incorporate brecciated and veined sediments.	Crystalline Py in vugs and in fractures. Thin bands Sp + crystalline Gl in zoned carbonate veins and in altered sediments.	10%
	176.2	1.3	1.3	100%							
				177							
	177.5	2.4	2.4	100%	177.5	Carbonated, chloritised ?tuff/argillite moderately veined.			Moderate veining. 178.4 35° quartz vein	Crystalline Gl in patches. 177.5 Sp, Py in carbonate veins.	5%
				178					178.8 25° carbonate vein	178.7	
				179	178.7	Mg-Carbonate veined zone. Massive veins of Mg carbonate and barren quartz with sheared and included	Fractured and broken included sedimentary		Complex carbonate and quartz veins, generally	Crystalline Py on ruggy quartz vein margins. Py, Sp in carbonate and quartz veined sediment.	2%
	179.9	0.4	0.4	100%	180						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE9

LOGGED BY G.F.P FROM 165 TO 180 DATE ../../.. PAGE 14 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	180·3	0·2	0·2	100%
	180·5	0·8	0·8	100%
	181·3	1·1	1·1	100%
	182·4	1·5	1·5	100%
	182·9	0·3	0·1	33·3%
	184·2	1·0	1·0	100%
	185·2	0·6	0·6	100%
	185·8	1·2	1·2	100%
	187·0	1·6	1·6	100%
	188·6	1·0	1·0	100%
	189·6	2·9	2·9	100%
	192·5	1·0	1·0	100%
	193·5	2·9	2·9	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Sections of chloritised and heavily carbonated ? tuffaceous material.	clasts are of a chlorite-carbonate assemblage.		massive. 182·0 Sp in carbonate vein 35°	Crystalline Gl scattered in sediments and bands of Sp towards contact.	10%
182·5	Tuffaceous siltstone and carbonaceous mudstone. Tuffaceous sequence - light to dark green fine sandstone and siltstone in brecciated and sheared units. Intercalcated argillaceous material encloses slumped? clasts of arenites.	Chloritised soft, with possibly clay alteration (yellow) along S planes. Carbonated in part.		182·5 contact of vein zone 50° strongly foliated 183·6 35°S slump brecciation increases down the hole. 185·9 55° quartz vein 188·1 15° carbonate veined fracture.	182·5 Sp blebs in carbonate veins and in sheared sections. Minor Py.	2%
190·4	Carbonaceous mudstone with interbedded chloritised tuffaceous sandstone. Finely interlaminated carbonate-rich layers are pyritic.	Tuff units retain original clastic texture. Carbonate irregular veins and veinlets increase down hole.		190·3 carbonate vein ć Py, 25° 190·4 45° contact. strongly deformed, but decreasing down hole. 191·3 30° Gl veins + carbonate 191·7 20° shearing + brecciation 192·0 35°B graded unit facing up hole.	189·4 Fine disseminated Sp + blebs Py in chloritised sediments, generally along veins or fractures. remobilised and incorporated into brecciated clasts. 191·3 Xal Gl, layers Sp, minor Cp Stockwork style Sp, Py + Gl in fractures + veins.	TR 5% 10% 40% 20%
192·55	Quartz vein zone. White crystalline quartz with houndstooth crystals developed in vugs. Mg carbonate in zoned patches. from 194·2 m predominently Mg carbonate zoned with distinct layers including layers of sulphides.	Inclusions and clasts of sediment are heavily carbonate veined.		192·55 35° contact: brecciated texture. 194·2 25° Gl vein 194·5 0° Sp layers in carbonate.	Coarse crystalline veins or bands of Gl parallel quartz veins. Brecciated inclusions of Gl, Sp in carbonate. Scattered AsPy crystals on quartz vein margins. Sp as layers along and within	25%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE9

LOGGED BY G.F.P FROM 180 TO 195 DATE / / PAGE 15 OF 17

017206

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	196.4	3.0	3.0	100%
	199.4	3.0	3.0	100%
	202.4	3.0	3.0	100%
	205.4	2.6	2.6	100%
	208.0	2.2	2.2	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					Mg carbonate zoned sections	15%
195.6	Carbonaceous pyritic argillite, as 190.4m. Black cleaved and apparently well bedded but not shaley.	Calcareous white interlaminated tuffaceous units.		195.6 25° quartz veined sheared contact. Fault? Calcite infills fissures and cements fractures.	Primary By on bedding planes within argillite and as blebs in tuffaceous interbeds.	5%
197.5.	Tuffaceous sandstone, carbonaceous argillite. Poorly bedded, slumped interlensed sequence of sandstone and argillite. Sandstones are grey to green in colour, poorly bedded, medium grained. Argillites are black. pyritic and include calcareous white interlaminated tuffaceous units. Increase down hole in buff coloured fine to medium grained ?dolomitic siltstone units.	Sandstones are calcareous. Soft sediment deformation and brecciation common with calcite cementing fractures.		198.3 40°B 198.4 60° quartz vein 200.5 20°B 202.5 30°B = S 205.7 20°B 207.0 20°B 208.0 5°B		1%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 9

LOGGED BY G.F.P FROM 195 TO 210 DATE / / PAGE 16 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	210·2	1·2	1·2	100%
	211·4	2·2	2·2	100%
	213·6	3·0	3·0	100%
	216·6	2·4	2·4	100%
	219	0	0	0

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
210				210·9 30°B		
211				211·2 30°B		
212						
213						
214				214·5 25°B graded unit faces up hole.	very scattered quartz veins with disseminated blebs pale Py	
215						
216						
217				217·0 25°B 217·3 25° 14cm quartz-carbonate vein.		
218						
219	End of Hole RBE 9			218·9 50°B		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 9

LOGGED BY G.F.P FROM 210 TO 219 DATE 30/6/80 PAGE 17 OF 17

017208

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
		No	core	recovery.												
1·0	10	140		95	380	0·5	55	180								
4·4	4	130		370	400	0·5	5	175								
4·9	BLD	110		770	430	0·5	14	180								
5·4	4	80		440	370	BLD	6	190								
5·9	BLD	110		1350	400	0·5	13	180								
6·9	4	115		70	300	BLD	50	140								
7·7	4	160		40	240	BLD	10	145								
8·7	BLD	145		40	180	BLD	6	145								
9·5	10	145		35	160	BLD	6	140								
9·9	7	200		40	205	BLD	19	160								
10·7	BLD	155		35	235	BLD	15	175								
11·7	BLD	95		30	205	BLD	10	150								
13·2	BLD	90		45	160	BLD	12	115								
14·4	8	140		45	80	BLD	36	90								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE9

ASSAYED BY Analabs FROM 0 TO 15 DATE / / PAGE 1 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
15·4	5	100		230	65	0·5	160	60								
16·4	BLD	115		55	70	0·5	32	75								
17·9	BLD	165		40	115	0·5	38	70								
19·4	9	280		30	180	1·5	240	90								
19·7	5	100		40	290	0·5	1500	145								
19·9	4	95		30	480	BLD	57	535								
20·7	7	120		35	900	BLD	46	710								
21·5	9	120		35	360	BLD	86	280								
22·4	5	135		40	260	BLD	44	240								
23·6	8	150		35	180	BLD	5	170								
24·1	6	110		35	250	BLD	50	190								
25·2	BLD	120		55	120	BLD	22	150								
27·4	9	110		115	110	BLD	50	105								
28·4	50	100		230	450	BLD	48	200								
29·9																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 15 TO 30 DATE / / PAGE 2 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
	40	105		120	230	BLD	52	165								
30·3	35	95		55	200	0·5	52	90								
30·9	60	100		90	300	BLD	600	120								
31·4	6	130		60	240	0·5	36	135								
33·1	BLD	120		50	240	BLD	34	110								
34·2	3	90		65	140	BLD	60	75								
34·4	BLD	130		60	150	BLD	80	100								
37·4	BLD	110		40	110	BLD	180	80								
40·4	BLD	80		40	90	BLD	34	135								
43·4	BLD	100		100	340	BLD	66	110								
44·9																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 30 TO 45 DATE / / PAGE 3 OF 17

017211

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
	BLD	150		115	450	BLD	54	110								
46·2	7	105		65	240	BLD	37	90								
49·2	4	130		40	125	BLD	6	110								
52·4	NO CORE RECOVERED						NO CORE RECOVERED									
52·6	BLD	110		55	240	BLD	10	85								
54·7	7	100		55	435	BLD	9	100								
55·4	BLD	90		40	80	BLD	4	60								
58·4	BLD	100		40	90	BLD	16	75								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 46 TO 60 DATE / / PAGE 4 OF 17

017212

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
60																
61																
61.4																
62																
63	10	130		85	55	BLD	200	95								
64																
64.4																
65																
66	15	100		210	2150	0.5	1700	110								
67																
67.4																
68	8	70	BLD	5	110	0.5	20	110								T8950
69																
69.0																
70	BLD	75	BLD	10	105	0.5	24	115								T8951
71																
71.0																
72	4	95	BLD	5	80	BLD	10	65								T8952
73																
73.0																
74	7	105	BLD	20	75	BLD	15	85								T8953
75																
74.8																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 60 TO 75 DATE / / PAGE 5 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
	6	75	BLD	20	120	0·5	44	140								T8954
76·0	6	100	BLD	25	105	0·5	114	95								T8955
78·0	50	270	BLD	625	3750	0·5	2000	110								T8956
80·0	40	85	BLD	240	850	1·0	760	115								T8957
82·0	4	75	BLD	5	145	BLD	40	120								T8958
84·0	40	110	BLD	50	180	0·5	40	125								T8959
86·0	65	75	BLD	50	360	BLD	104	90								T8960
88·0	35	95	BLD	40	205	0·5	1120	105								T8961
89·3	120	170	BLD	30	135	BLD	410	80								T8962
90·0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE9

ASSAYED BY Analabs FROM 75 TO 90 DATE / / PAGE 6 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F.					SAMPLE NUMBER
90.0	40	50	BLD	20	190	BLD	340	110								T8963
92.0	BLD	95	BLD	5	155	BLD	28	125								T8964
93.2	20	90	BLD	70	220	0.5	48	115								T8965
95.0	130	180	BLD	120	950	1.0	270	90								T8966
96.2	140	850	BLD	135	520	1.5	128	315	BLD	BLD						T8967
96.7	4	595	BLD	200	2900	2.0	980	1450	0.05							T8968
98.2	20	10	BLD	10	205	0.5	175	950	BLD							T8969
100.0	5	20	BLD	10	150	0.5	8	240	BLD							T8970
101.7	20	10	BLD	BLD	165	BLD	60	265	BLD							T8971
103.0	6	5	BLD	5	55	0.5	260	1300	BLD							T8972
105.0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 90 TO 105 DATE / / PAGE 7 OF 17

017215

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
105·0	4	5	BLD	BLD	30	0·5	12	900	0·1							T8973
106·05	10	5	BLD	BLD	15	0·5	4	1850	BLD							T8974
108·0	30	5	BLD	5	25	1·0	6	1650	BLD							T8975
110·0	6	5	BLD	5	25	0·5	2	1400	BLD							T8976
112·0	BLD	5	BLD	5	20	1·0	2	1350	0·15							T8977
114·0	10	5	BLD	BLD	30	0·5	35	1500	BLD							T8978
115·2	BLD	15	BLD	5	45	1·0	1080	1900	BLD							T8979
116·2	900	2·9%	BLD	165	2800	16·5	16·0%	720	BLD	300						T8980
117·2	15	140	BLD	10	50	1·0	2500	1850								T8981
118·2	5	20	BLD	5	40	0·5	400	1650								T8982
120·0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE9

ASSAYED BY Analabs FROM 105 TO 120 DATE / / PAGE 8 OF 17

017216

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
120.0	8	10	BLD	5	45	1.0	480	1500								T8983
122.0	15	540	BLD	BLD	60	1.0	2900	1750								T8984
124.0	15	20	BLD	5	80	0.5	480	1450								T8985
126.0	260	3550	BLD	75	360	10.0	2.2%	1150								T8986
127.4	290	3050	BLD	85	360	10.0	2.4%	790	0.05	40						T8987
128.4	200	2.4%	BLD	250	3350	42.0	2.8%	385	BLD	35						T8988
129.4	65	165	BLD	205	450	1.0	640	540								T8989
130.4	BLD	90	BLD	10	90	0.5	38	55								T8990
131.86	90	180		90	360	1.0	140	90								
133.4	70	770		145	590	1.0	76	100								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 120 TO 135 DATE / / PAGE 9 OF 17

017217

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
135																
136																
136·4	35	160		120	290	BLD	88	80								
137																
138																
139																
139·4	70	180		400	750	1·0	140	95								
140																
141																
142																
142·4	35	220		180	670	0·5	60	105								
143																
144																
145																
146·4	95	400	30	285	1700	2·5	140	85								T8318
146																
146·75	210	205	10	460	1650	4·0	82	140	BLD		1010					T8991
147																
147·0	520	755	BLD	205	1850	3·0	2·0%	70	BLD		527					T8992
148																
148·0	150	45	15	275	720	0·5	230	25	BLD		906					T8993
149																
149·0	600	1·2%	BLD	330	900	24·0	1·5%	135	BLD		BLD					T8994
150																
150·0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 135 TO 160 DATE / / PAGE 10 OF 17

017218

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
150.0	110	1050	15	950	2850	11.5	2500	105	BLD		BLD					T8995
151.0	1200	3250	1.5	2000	1.6%	24.0	460	245	BLD		256					T8996
152.0	1000	1000	BLD	820	1650	11.0	540	950	BLD		BLD					T8997
153.0	95	370	1.5	465	1150	5.0	450	490	0.25		722					T8998
154.0	1750	1950	BLD	670	2300	9.0	1040	530	0.15		383					T8999
155.0	65	65	20	240	1000	1.0	116	290	0.35		1698					T9000
156.0	110	280	BLD	1400	6750	12.0	120	240	0.05		1306					T8792
157.4	260	625	BLD	5.3%	2.4%	145	2750	115	BLD		197					T8793
158.0	400	3300	BLD	4200	1.2%	42.0	2000	305	BLD		57					T8794
159.0	330	7250	1.5	1.7%	5.2%	86.0	720	45	BLD		BLD					T8795
160.0	140	1350	1.5	3450	1.3%	31.0	1080	345	BLD		133					T8796
161.0	55	180	20	345	1200	1.0	45	180	BLD		674					T8797
162.0	170	65	BLD	3550	3750	6.0	104	175	BLD		770					T8798
163.4	70	170		5800	1400	7.5	47	200								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 150 TO 165 DATE / / PAGE 11 OF 17

017219

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
165																
166																
166.4																
167																
168	35	100		490	1600	0.5	64	285								
169																
169.4																
170																
171	55	155		1400	5150	4.0	270	370								
172																
172.4																
173																
174	40	170		1750	4300	3.5	190	115								
175																
175.4	65	45	BLD	670	2300	2.5	1800	95	BLD		3298					T8799
176																
176.0	45	95	BLD	5900	6200	18.0	3200	65	BLD		1466					T8800
177																
177.0	80	115	BLD	1.85%	1.3%	21.0	3200	85	BLD		5290					T8301
178																
178.0	130	120	BLD	1250	3850	4.0	1160	90	BLD		986					T8302
179																
179.0	85	305	1.5	1300	1.0%	7.0	1040	70	BLD		1546					T8303
180																
180.0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 165 TO 180 DATE / / PAGE 12 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F.					SAMPLE NUMBER
180·0	25	135	BLD	470	2450	2·0	2100	35	BLD		429					T8304
181·0	540	590	BLD	3400	5·6%	22·5	2·3%	40	0·05		77					T8305
182·0	70	180	BLD	2000	4800	5·5	5600	135	BLD		431					T8306
182·5	60	70	20	265	2750	1·5	260	250	BLD		1570					T8307
184·8	15	90	BLD	225	790	1·0	250	435	BLD		1002					T8308
185·0	30	110	BLD	530	2550	2·0	580	305	BLD		706					T8309
186·0	BLD	145	BLD	20	185	BLD	84	120	BLD		1178					T8310
188·0	10	80	10	120	330	0·5	260	140	BLD		504					T8311
190·0	35	130	BLD	620	1800	2·0	200	85	BLD		396					T8312
191·3	310	470	2·0	6·2%	3·5%	285	4800	100	BLD		298					T8313
192·6	200	260	BLD	6·8%	1·9%	190	3·2%	20	BLD		189					T8314
193·5	330	555	BLD	5·6%	2·6%	120	5800	20	BLD		168					T8315
194·5																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs. FROM 180 TO 195 DATE / / PAGE 13 OF 17

017221

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
	210	250	BLD	1·3%	1·6%	24·0	6600	65	BLD		255					T8316
195·6	20	115	BLD	820	1400	1·0	305	110	BLD		248					T8317
196·4	4	80		150	380	BLD	18	90								
199·4	BLD	110		50	250	BLD	14	135								
202·4	7	80		345	1200	0·5	27	115								
205·4	6	65		70	265	BLD	28	125								
208·0	6	70		70	200	BLD	16	100								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Amalabs FROM 195 TO 210 DATE / / PAGE 14 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi	F					SAMPLE NUMBER
210																
210·2	8	100		130	460	0·5	41	130								
211																
211·4	10	90		40	135	BLD	200	100								
212																
213																
213·5	8	60		45	215	BLD	220	105								
214																
215																
216																
216·6	10	130		320	1050	3·0	400	105								
217																
218																
219																
219·0				END OF HOLE:		RBE 9										

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 9

ASSAYED BY Analabs FROM 210 TO 219 DATE / / PAGE 15 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
	Extra	Split	Core	Samples.												
163.4	200	160	BLD	1·6%	2550	15·5	110	125								8366
164.0	50	155	BLD	540	1600	2·0	65	170								8367
165.0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE9

ASSAYED BY Analabs FROM 163·4 TO 165m DATE 26/8/80 PAGE 16 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni							SAMPLE NUMBER
165.0	10	75	25	120	230	1·0	70	250							T8368
166.0	50	90	BLD	765	3950	1·5	80	185							T8369
167.3	10	100	BLD	195	2200	1·0	85	185							T8370
168.3	BLD	90	BLD	25	170	BLD	35	320							T8371
169.4	5	115	BLD	20	110	BLD	15	250							T8372
170.4	10	40	BLD	110	490	BLD	15	220							T8373
171.6	40	125	BLD	1100	6100	3·0	200	245							T8374
172.6	50	110	BLD	2300	6450	3·5	145	95							T8375
173.6	25	135	25	2350	3200	5·0	195	120							T8376
174.6	75	90	BLD	5850	3650	9·0	135	120							T8377
175.4	End of	Extra	Split	Core	Samples										

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE9

ASSAYED BY Analabs FROM 165 TO 175·4m DATE 26/8/80 PAGE 17 OF 17

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AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

Page 0 of 17

017225

PROJECT Renison	AREA Grid GAR			DRILLHOLE TYPE DDH
CO-ORDS E 372755m N 6372730m	DEC[LN] 45°	AZIMUTH 078° MN	RL 175m MSL	DH No. R.B.E 10A
DATE COMMENCED 16·7·80	DATE COMPLETED 28·7·80	DRILLED BY Longyear	DRILL RIG Longyear 38	
Non Coring to: 54·7	HQ Core to:	NQ Core to: 295·5	BQ Core to:	EOH 295·5

SURVEY DATA

Instrument: Borehole Camera

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
0		45°	078° MN	181		45·5	079° MN
61		44°	082·5° MN	211		45·75°	078° MN
91		45°	081° MN	241		45°	075° MN
121		45°	083° MN	271		45·5°	080° MN
151		45°	080° MN	295·5		46°	078·5° MN

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-54·7 Predominantly glacial moraine			
54·7 - 85·6 Alternating carbonaceous shale-	Vein, disseminations - Py: 2%		
argillite and tuffaceous sandstone.			
85·6 - 169·9 Alternating carbonaceous shale-	Vein - Po < 1%; disseminated & vein		
argillite, siltstone and tuffaceous sandstone.	Py: 3%		
169·9 - 186·8 Contorted, carbonate veined	Vein - Po: 1%; disseminated & vein		
carbonaceous shale and siltstone.	Py: 5%		
186·8 - 217·9 Alternating massive tuffaceous	Vein - Py: 2%		
sandstone and highly disturbed argillaceous			
rocks.			
217·9 - 220·0 Buff siltstone, sandstone and	Vein - Py: 1%		
deformed carbonaceous shale.			
220·0 - 228·1 Mineralised siderite cemented	Vein, disseminated, replacement &		
sediment breccia and quartz.	massive: Pb, Ga, Sp, AsPy, Cp - 20%?		
228·1 - 230·7 Deformed interbedded argillite,	Vein - Py: 5%		
carbonaceous shale & tuffaceous sandstone.			
230·7 - 232·4 Altered green tuff. sandstone?	Vein - Py: 1%		
232·4 - 235·3 Buff altered argillite.	Vein - Py: 1%		
235·3 - 238·2 Mineralised quartz veining.	Patches, vuggy, vein, massive: Py, Po, Cp, AsPy, Sp, Ga.		
238·2 - 243·8 Altered buff argillite, siltstone &	Vein - Py: 1%		
deformed carbonaceous shale.			
243·8 - 246·3 Mineralised quartz and siderite	Vein, patches, massive:		
veining in siltstone and argillite.	Pb, Py, Cp, Sp, Ga - 10%		
246·3 - 251·3 Altered deformed green siltstone			
251·3 - 263·6 Mineralised foliated talc-carbonate	Includes vein, disseminated & massive: Po, Py, Cp, AsPy: 2%		
263·6 - 273·6 Pyritic carbonaceous shale - argillite.	Vein, disseminated - Py: 7%		
273·6 - 279·6 Mottled fine plutonic rock?			
279·6 - 295·5 Interbedded carbonaceous	Vein, disseminated - Py: 3%		
shale, argillite, argillite and siltstone.			

Signature Date

017226

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					45	No core recovered					
	54·7	0·8	0·8	100%	54·7	Finely bedded deformed grey-black carb. shales and intercalcated minor grey finely bedded fine tuffaceous Sandstone & rare intercalcations of medium tuffaceous sandstone and lenses of same sandstone up to 20 mm.	Pale yellow clay alteration along common thin (average <1mm) often associated & pyrite veins & quartz veins. q.v. very sparse ≤1m average 2mm.		Soft sediment deformational structures, lenses, flame structures rip up clasts. Minor faulting along veins & fractures. 56·6 @ 30° finely bedded 57·5 @ 10° ripped up carb. shale by overlying sandstone 59·4 @ 25° rip up clasts by overlying fine bedded sandstone. 60·0 15° u/c - minor unconformity	V.thin (1mm) irregular Py vns, often along bd mostly 1° vein Py up to 3mm xaln Py up to 1% mostly 2° vein Py, thin irregular veins mostly xaln Py (1°) // to bedding 2° vein Py in thin veins up to 2mm, average <1mm. Irregular, often following deformed bedding & fracture planes. cons 1° Py in minor synsl xaln (m) 2° vein Py in thin irregular veins x-cutting bd & little 1° xaln (m)	2% 15% 2% 15% 2% 20% 1%
	55·5	3·0	2·9	96·6%							
	58·5	2·6	2·6	100%							
					60						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P. GREEN FROM 45 TO 60 DATE 19/7/80 PAGE 1 OF 17

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	61.1	1.2	1.13	94.1%
	62.3	1.9	1.9	100%
	64.2	2.1	2.1	100%
	66.3	1.2	1.2	100%
	67.5	2.3	2.0	86.9%
	69.8	0.8	0.8	100%
	70.6	2.9	2.9	100%
	73.5	3.0	3.0	100%

LITHOLOGY

INTERVAL | DESCRIPTION | ALTERATION | GRAPHIC LOG | STRUCTURE | MINERALISATION | VISUAL PERCENTAGE MINERALISATION

ALTERATION

- quartz vein up to 3mm with large voids.
- quartz veining & associated calcite veins deformed within rock as well as cross-cutting unconformably. Veining more common ≈ 40 cm average 2mm.
- pervasive calcite alteration throughout rock down the hole.
- calcite veining more concentrated, every 5cm, veins very fine to coarse crystalline, up to 20mm, often sharply attenuated, highly irregular.

STRUCTURE

- 60.4 B 30° up hole
- 60.9 minor anticline
- 61.5 B 22°
- 62.5 B 35° up hole
- c small pyritic in tuff sandstone isoclinal, synclinal nose
- 65 B 45° flame stucture bedding up the hole.
- More intensely deformed, sharp edged rip up clasts, minor faults, isoclinal folding.
- 66.8 B 30° soft sediment deformational structures. bedding variable and fine to very fine.
- 67.5 B 15°
- 68.6 B 60°
- 69.9 B 80°
- 70.7 B 90°
- 71.4 Complex slump structure + possible water ejection features.
- 71.7 B 50°
- 73.4 poorly brecciated band with rounded slightly disrupted clasts.
- 74.8 B 60°

MINERALISATION

- Thin <1mm Py veins, irregular and crosscutting. — 2%
- Large vein up to 5mm, Py — 15%
- Thin < 1mm Py veins, irregular and crosscutting — 2%
- mostly 1° Py //bd AsPy in syncl. nose — 8%
- Thin < 1mm Py & v.f. disseminated Py — 1%
- mostly 1° Py, assoc. c bx. carb. shale — 10%
- Thin <1mm 2° Py veins & very fine disseminated 1° Py — 2%
- 1° conc. to vein Py — 5%
- Thin veins of Py both 1° & 2° often associated c quartz-calcite veins; veins irregular up to 2mm, usually < 1mm. — 2%
- Thin veins of 2° Py paraconform c bedding & thicker, average 2mm. Irregular Py cross-cutting veins, often along margins of calcite veins & finely disseminated Py esp. in tuffaceous beds & 'patches' of Py in or associated with calcite veining. — 1%-2%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 10A

LOGGED BY N.P.G. FROM 60 TO 75 m DATE 19/7/80 PAGE 2 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							sometimes tightly folded & pervasive $CaCO_3$ alteration.		76·0 B 62°		
	76·5	2·8	2·8	100%					77·6 B 30°		
									78·3 B 38°		
									78·6 B 42°		
	79·3	3·0	3·0	100%					79·5 B 55°	79·3 Py patches	
									81·4 B 40°		
					81·8	Grey-dark grey finely bedded fine-medium grained tuffaceous sandstone & intercalated dark grey-black carbonaceous shale.			81·6 B 80° down hole		
	82·3	3·0	3·0	100%			Mostly conformably carbonate veined of two types. 1) common fine <1 mm true veins cross-cutting bedding. Two predominant directions a. 50° down → b. 40° up 2) sparse (every 40cm) major vein system, often slight brecciated irregular carbonate veins intimately associated with concentrations of crystalline Py.		82·3 B 48°		
					83·5	'Wispy' very fine intercalated and interbedded grey fine tuffaceous sandstone and black carbonaceous shale.			82·7 B 28° up hole-graded bedding & 1° Py along erosion surface		
									83·4 B 40°		
									84·0 B 75° up hole-graded bedding	Slight increase in Py content. 1) Vein Py average <1 mm 2% 2) Patches Py associated → 3%	
	86·3	0·6	0·6	100%	85·1	Black carbonaceous shale - deformed finely bedded shale with rare small intercalations (<10cm) and lenses (<5cm) of grey-dark grey fine tuffaceous sandstone. 5 cm			Contorted bedding with ripped up clasts, minor faulting along fracture planes and veins.	Po <1% diss in core. & carbonate veining 3) Primary cubic Py often associated & tuffaceous beds prominant in coarser graded basal beds.	
	86·9	2·6	2·6	100%							
	88·5	3·0	2·9	96.6%							
					89·2	Dark grey siltstone - intercalations of black carb. shale, v. finely bedded, graded from black shale from top to sharp lower			89·1 B 40°		
									89·8 B 55° up hole-graded sa-ss-sh over erosion surface.		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 75 TO 90 m DATE 19/7/80 PAGE 3 OF 17

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	91·5	3·0	3·0	100%
	94·5	3·0	3·0	100%
	97·5	3·0	3·0	100%
	100·5	3·0	3·0	100%
	103·5	3·0	2·3	76·6%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	contact of grey fine tuffaceous sandstone.			90·3 small lenses (2mm) of gray tuff. 90·5 sandstone in siltstone & shale- graded. 90·6 B 50° B up the hole, graded bedding.		
90·5	Black carbonaceous shale with intercalations of grey fine tuffaceous sandstone graded into dark grey siltstone.	Concentrated carbonate veining & some brecciation of carbonaceous shale, average vein 3mm, up to 10 mm.		91·3 B 55° up hole, graded bedding		
91·9	Dark grey carbonaceous siltstone, disrupted with veining and some brecciation.			Partly brecciated zone associated with concentrated veining, disrupted bedding.		
92·5	Black carbonaceous shale, very finely bedded.	Common very fine veins of carbonate, mostly at 40° spidery.		92·4 B 30° up hole, graded bedding.		
93·0	White massive vein of carbonate.	White massive vein vein of carbonate & brec. shale.		deformed bedding, still finely bedded.		
93·5	Black carbonaceous shale, very finely bedded	Common very fine spidery carbonate veins.				
94·0	Gray tuffaceous sandstone:- gray-dark gray, fine-medium heavily carbonate veined tuffaceous sandstone, some brecciation associated with veining.	Heavily carbonate veined (calcite), veins up to 30cm common brecciation of sandstone & shale, carbonate = 50%		Brecciated zone (partially) associated & heavy carbonate veining.		
95·0	Dark grey-black very finely bedded carbonaceous shale.	Mostly very fine conform veining & scattered cross-cutting veins, average 1mm. Predominant direction- 40°.		Deformed bedding, as before. 96·2 B 20° Very slightly deformed & few small wavy beds. 97·5 B 75° 98·4 B 20° Bedding wavy.		
98·5	Gray fine-medium tuffaceous sandstone - finely bedded with intercalations of black carbonaceous shale as fine beds mostly.	Much irregular sharply attenuated carbonate & some quartz veining.		98·8 Contact 15° - graded sandstone down hole. 99·1 fault at 50° 100·4 isoclinal folded nose 100·7 fault at 50°	Py veins up to 5mm often associated with carbonate veins and disseminated in sandstone and replacement of sandstone. Trace Po associated & carbonate veins.	3% → 5%
101·1	Black carbonaceous shale & few small (2cm) irregular lenses of fine grey tuffaceous sandstone.	White thin average 1mm carbonate veining common & rare brecciation associated with few larger veins, mostly at ≈ 50°. Some areas veins anastomosing.		102·0 10° B down hole; graded bedding over eroded shale surface. 102·7 contorted bedding - soft sediment deformation. 102·8 B 15° up hole 103·0 B 30° down hole 103·7 B 0°	Py in veins & replacement of fine tuffaceous sandstone in places. Trace Po in carbonate veins.	2% → 3%
102·1	Gray-dark grey interbedded siltstone and carbonaceous shale, few intercalations of grey fine grained tuffaceous sandstone.					

5 cm

Pervasive carbonatisation not as prominent in black shale.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 90 TO 105 m DATE 20/7/80 PAGE 4 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
								Py+ Qz	106.0 many small (2mm) elongate rip up clasts of deformed siltstone + sandstone in shale bedding ≈ 90°		Ga<1 Sp<1 AsPy 1-2 Py 3 =
							Zone with three distinct vuggy quartz veins & little carbonate, but cream colour xaln mineral.			Vein Sp + Ga in cream min; vuggy quartz + Py + AsPy	5%
106.5	3.0	3.0	100%						107.2 B 15° down hole.		
							Few mostly very fine quartz-carbonate veins with rare zone (3cm) of vein concentration and rare cream vein (-ve reaction to HCl). Majority of veins cross cut bedding at 50 to 70°.			Pb increasing ≈ 1% associated & Py + carbonate.	
									108.9 B 15° down hole		
109.5	3.0	3.0	100%						109.6 B 10°		
										-109.9 cream vein 1cm wide & Sp + Ga 5% of vein. Pb. very fine disseminated in shale, not as apparent in tuff sandstone where cubic primary Py crystals make up 20% of bed.	3%
									112 B 30° downhole graded bedding	-112.2 vein 1cm wide of Pb.	
112.5	2.9	2.9	100%						112.8 B 25° finely bedded shale	Pb usually as veins marginal to white carbonate + thin common Py veins. Py > Pb	
							-113.5 vein, average 2 cm, of quartz xals, carbonate on margins. green translucent xals + pale purple translucent xals. (contaminated quartz?)				
						5 cm					
					115.1	graded unit of dark grey siltstone to coarsely bedded medium to coarse tuffaceous sandstone.			115.0 fault 60°		
115.4	3.1	3.1	100%						115.6 B 50°		
					115.9	dark grey- black carbonaceous shale, finely bedded.			115.8 coarse wavy bedding in sandstone from 30°- 0°.		
					116.7	medium-coarse grey tuffaceous sandstone with much primary pyrite.			116.7 sharply bounded lenses of sandstone in shale above contact. contact 10° conform down hole		
					117.6	contorted highly veined black carbonaceous shale.	White quartz carbonate veins & a cream mineral veining in larger veins; higher veining conc.				
118.5	3.0	3.0	100%		118.6	Grey fine-medium tuffaceous sandstone finely bedded with thin stringers of black carbonaceous shale.	Few thin white carbonate + quartz veins, mostly at 70°. -119.3 vein 25cm wide translucent quartz, white carbonate mineral minor cream mineral & carbonate. Very sharp contrast.		118.6 - contact finely bedded shale + fine tuff sandstone - finely bedded. -10° eroded contact - down hole	Primary Py predominant, concentrated along coarse beds. Pb - 0%	5%
									119.6 B 3° wavy bedding in sandstone & small scale faults.	+ vein white carbonate + quartz & cream mineral + patches Sp, Ga, Py	7½%
										Py as at 118.6 m	5%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 10A.

LOGGED BY N.P.G. FROM 105 TO 120 DATE 21/7/80 PAGE 5 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					120.3	Dark grey carbonaceous shale and siltstone, finely bedded with grey graded tuffaceous beds medium-fine sandstone usually with lower erosive contact.	Few thin carbonate and quartz veins & rare 'patches' carbonate with closely associated Py veins 40°-70°.		120.4 fault 75° unconformable. 120.5 fine bedding at 5° 121.1 ripped eroded shale-sandstone contact; graded sandstone downhole 15°	120.5 vein 6mm, white carbonate clear quartz, Py, Sp, Ga. Very thin Py veins and disseminated in primary form in sandstone & siltstone units Very rare thin Po veins. Py >> Po -123.3 3 veins, largest 1.5cm Py 60%, Sp+Ga 10% } in veins	5% 50% 2% 70%
121.5	3.0	3.0	100%				-123.3 White carbonate+translucent quartz vein mineralised at 65°. 1.5 cm & thinner associated veins.		124.4 } many minor eroded shale-fine sandstone contacts 124.9 } all downhole at 50°.		
124.5	3.0	3.0	100%		125.3	Highly veined black carbonaceous shale with some interbedded dark grey siltstone.	Many veins of all sizes up to 10 cm. Average - 1mm. -125.7 10cm vn. -126.9 4cm siderite vein Types - 1/ clear vuggy quartz -128.4 5cm vn:- qz, Fl, St. -128.6 vn:- qz, St, grankerite? -129.1 vn:- qz, St. 2/ white carbonate 3/ cream mineral - siderite. 4/ rare green translucent fluospar. Veins commonly at 70° Random directions	Some soft sediment deformation & small scale faulting. 126.8 40° B 127.5 B 50° 129.1 B 20° 131.2 F 70° 131.6 B 55° 132.6 B 90° down hole. graded siltstone-shale.	-125.7 St vn 2mm; Sp-trace, Ga 5% Po veins (thin <1 mm) more common, bivaricating -126.9 St, qz vn 3cm Ga-trace, Sp1% -127.1 2cm vein - Sp 5% & anastomosed - 5% Py commonly associated -128.4 4cm vn - Ga 5%, Py 2% -128.9 2cm vn - Ga 2%, Sp-trace -129.5 concentration of 1° Py cubes up to 2mm - 10% with quartz-carbonates veins & disseminated in sandstone intercalations - 2% -131.5 vn 3cm, St, qz, carbonate Py 5%, Ga 3%, Sp 2% -132.0 vn 2cm, qz-carbonate Py 2%, Sp 10%, Ga-trace. -132.7 vn qz-carbonate - AePy 1%	7%
127.5	3.0	3.0	100%								
130.5	3.0	3.0	100%								
133.5	3.0	3.0	100%		133.8	Grey fine-medium tuffaceous sandstone with few intercalations of dark grey siltstone and black carbonaceous shale.	Common thin (average <1mm) white carbonate-quartz veins - most at 60°-90°. Few with a little siderite.		Wavy bedding with few small scale faults - shale-sandstone contacts usually ripped.	Majority as 1° Py, especially in medium sandstone units concentrated up to 50% over whole bed 2%. often very finely disseminated. No Po.	2%
					134.9						

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 120 TO 135m DATE 21/7/80 PAGE 6 OF 17

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	136·5	3·0	3·0	100%
	139·5	3·0	3·0	100%
	142·5	3·0	3·0	100%
	145·5	3·0	3·0	100%
	148·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Deformed mixture of dark grey siltstone, black carbonaceous shale and a little grey fine tuffaceous sandstone.			135·8 soft sediment brecciated zone. 136·7 B 15°. 137·1 rounded ripped up clasts of fine sandstone in siltstone. B 0°		
137·7	Highly veined black carbonaceous shale, very finely bedded.	Highly white quartz-carbonate veined in random directions. Average < 1mm up to 15 mm.		138·1 B 50° deformed very fine bedding.	Py veins & rare patches up to 12mm across. Rare very thin Po veins.	5%
138·7	Grey medium-fine tuffaceous sandstone with minor interbedded black carbonaceous shale.	Few quartz-carbonate veins at 40°-50°.		138·9 B 50° downhole graded bedding sandstone mostly massive	Little finely disseminated Py	1%
139·4	Finely bedded interbedded mixture of black carbonaceous shale, dark grey shale & siltstone, grey medium-fine tuffaceous sandstone.	Many fine quartz-carbonate veins at 60°		70° B. very finely bedded interbeds of sa, ss, sh. minor shearing.	Vein Py up to 10mm often associated with sandstone beds.	8%
140·2	Grey-dark 'wispy' siltstone. Wisps of black carbonaceous shale with minor black carbonaceous shale unit at base.	Common thin irregular often discontinuous quartz carbonate, commonly at or around 60°.		140·3 B 25° fine slightly wavy bedding. few ripped up rounded clasts of dark grey carbonaceous siltstone 141·5 B 0° & black carbonaceous shale. 142·5 B 30°, graded bedding downhole	Patches Py up to 2cm across common 1° Py blebs av. 1mm throughout silt-stone. Rare Po veins.	
142·8	Grey-pale grey medium grain tuffaceous sandstone with significant lithic content, massive, especially in upper section. Lower 2m intercalated with dark grey siltstone & minor black carbonaceous shale.	Few medium sized (average 3mm) carbonate-quartz vein. Siderite more common-cream coloured.		Sandstone unit generally massive, evidence of bedding direction from small very thin elongate fragments of black carbonaceous shale. 146·6 B 15° 147·0 B 20°	Rare Py as concentrations in sandstone basal beds. Vn-St; wh qz; As Py 8%, Po 15%, Cp 2%, Py 2%	1% 27%
				Soft sediment brecciation common at contacts of sandstone & intercalated carbonaceous shale. 150·0 B 20°	147·5 St & Po vn 4mm. Rare Py as concentrations in sandstone basal beds.	5% 1%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 10A

LOGGED BY N.P.G. FROM 135 TO 150 DATE 21/7/80 PAGE 7 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	151·5	2·5	2·5	100%
	154·0	3·1	3·1	100%
	157·1	3·2	3·2	100%
	160·3	3·2	3·2	100%
	163·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
150·5	Dark grey siltstone with significant black carbonaceous shale as fine 'wisps' or irregular intercalations.	Many fine (<1mm) often spidery, white quartz-carbonate veins with associated carbonate patches, rare medium (3mm) sized siderite veins.		151·3 B 30°	151·4 - Siderite vn. 1cm, Py, Po 2%, trace AsPy, trace cp.	1% / 5%
152·1	Deformed mixture of grey fine tuffaceous sandstone and dark grey siltstone and minor black carbonaceous shale.	Common fine irregular veins + patchy impure carbonate veins + rare siderite veins (5mm). Minor quartz associated with calcite. $CaCO_3 \gg SiO_2$ Many veins, especially larger at 60-70°.		Highly deformed - soft sediment deformation. much mesofaulting. 153·4 B 30° downhole	152·0 - St 3cm; Sp 5%, Ga 2%, Po tr.	1%
					Disseminated Py especially in sandstone, no veining	3%
					154·6 Patch of Py faulted. 6cm by 2cm. 90% Py in sandstone bed.	
					155·5 Vein 7mm Sp 10% patches Py 20% in St, qz, carbonate	30%
		Few calcite veins over unit, but tend to be concentrated in zones, mostly irregular, average 2mm. Vein-patch impure calcite.				
156·6	Finely bedded dark grey siltstone with major grey interbedded and infaulted fine-medium tuffaceous sandstone component at upper contact and black carbonaceous shale at lower contact. Whole sequence may be a very wide graded bed.			Slight deformation - little wavy bedding + some mesofaulting. 157·9 B 10° downhole.	Py more common as veins and concentrated as 1° Py in sandstone + disseminated cubes through shale; trace Po associated with calcite veins.	5%
				158·7		
				159·0 B 20°		
		Common irregular pale grey-white impure calcite veining, average <1mm up to 1 cm.				
				160·2 B 30°		
160·6	Massive fine grain grey with slight green tinge tuffaceous sandstone.	Comparatively few grey impure calcite veins; <1mm siderite + quartz vein at 161·1 at 80°.		massive beds	3cm qz, St vn:- Sp 3%, Ga 1%, Po 1%	1%
					finely disseminated Py throughout.	
162·1	Sequence of deformed black carbonaceous shale with intercalated (often sharply) minor grey tuffaceous sandstone, especially at upper contact; minor finely bedded dark grey siltstone.	Common, many mostly fine <1mm, calcite veins. Mostly highly irregular, faulted and deformed. Rare siderite vein at 80°. 'Patchy' calcite associated with veining.		contact erosional unconform? 10° Slight deformation - wavy bedding - shallow folding - mesofaulting. very finely bedded. 164·3 B 12°	Py common as veins up to 15 mm wide and disseminated in sandstone + shale. Rare very thin Po veins at 1%	5-10%
					164·1 2cm vn:- Po 2%, Sp 6%, Ga 3%	10%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A.

LOGGED BY N.P.G. FROM 150 TO 165 m DATE 22/7/80 PAGE 8 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	166·5	2·0	3·0	100%
	169·5	2·9	2·9	100%
	172·4	3·1	3·1	100%
	175·5	1·7	1·7	100%
	177·2	1·3	1·3	100%
	178·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				165·3 B 40°		5%
				168·0 B 70°		10%
				168·7 B 40°		
	Base unit marked by 3m tuffaceous beds.			169·4 B 50° conform & fault.		
169·9	carbonaceous shale & siltstone. Thick highly veined, contorted, mesofaulted black carbonaceous shale and dark gray carbonaceous siltstone.	Very common impure gray calcite veins up to 5 cm, average 1mm; very irregular veins, as well as rare calcite patches. Some siderite associated with larger calcite veins. quartz rare & only in larger veins.		169·8 contact, unconform at 45° 170·2 B 45°, graded siltstone, shale up hole. 171·3 B 15° 171·8 B 30° Many mesofaults, sharp erosion surfaces and rip up clasts & some contorted bedding. 176·5 wavy bed, average 18° 177·6 B 50° 178·2 graded bed 80° up hole. 180·0 possible graded bedding?		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 165 TO 180 DATE 22/7/80 PAGE 9 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
									181.1 shallow folding 181.2 B 50° 181.4 fault at 60°		5% > 10%
	181.5	3.0	3.0	100%					182.0 B 15°		
									183.5 wavy bed ≈0°		
	184.5	3.0	3.0	100%					184.4 graded bed 75° downhole		
					186.8	Grey medium-fine tuffaceous sandstone with intercalated black deformed pyritic shale.	Few medium >2mm calcite veins, many fine < 1mm wispy calcite veins.		186.7 B 60° Massive sandstone very deformed shale intercalations, shale rip up clasts in sandstone.		
	187.5	3.0	3.0	100%					graded 60°		
					188.2	Massive grey medium grained tuffaceous sandstone.	Few medium 3mm calcite veins with diffuse contacts		Massive.	Minor Py associated with calcite veining, mostly finely disseminated in sandstone, shale is non-pyritic. No Pa	1%
					189.7	Grey medium-fine tuffaceous sandstone with intercalated black deformed shale and some dark grey siltstone. Shale and siltstone units approximately every 0.8 m and 10-20 cm wide.	Common fine irregular white calcite veins often at 60°. Rare larger grey-white impure veins up to 2 cm. Rare quartz veins associated with calcite veining.		sharp erosional unconformity at 50° 190.1 B 15°-50° 190.7 graded bedding 20° down-hole. wavy bedding sometimes contorted often faulted in shale + sandstone, sandstone mostly massive. 191.8 B 20° 192.4 B 30° 193.2 193.5 193.7 B 20°		
	190.5	3.0	3.0	100%							
	193.5	3.0	2.94	98%							

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G FROM 180 TO 195 m DATE 22/7/80 PAGE 10 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
									195·2 very sharp erosion surface at 15° uphole. massive sandstone unit. 195·8 B 35°		1%
					196·3	Black carbonaceous shale - very finely bedded deformed, highly veined & pyritic.	End of pervasive CO_3 changes/ Many irregular deformed impure calcite veins & patches up to 1cm.		contact 0° Fine wavy bedding. slightly sheared. 196·7 B 45° contact 45°	Py veins up to 2mm; few patches up to 10 mm	5%
196·5	3·0	2·9	96·6%		196·8	Slumped fine gray tuffaceous sandstone with minor deformed intercalations of black carbonaceous shale and laminated siltstone. sandstone has a definite blue-green hue.	Few scattered fine <1mm calcite veins, with a few concentrations of veins, especially associated & shale. Few siderite veins with/without quartz		Small scale slump structures with common mesofaulting mostly very finely bedded. slump split B 50° Laminated with few massive intercalations of medium sandstone 199·1 B 50° downhole 199·4 B 45°	Little scattered Py associated with calcite veins and very finely disseminated in sandstone. Trace Po.	<1%
199·5	3·0	3·0	100%						Soft sediment breccia bed & fine black carbonaceous stringers. Faulted lower contact at 90°		
							201·5 Calcite veining at 40°		201·5 fault at 40°		
							202·2 calcite veining at 20°		202·2 / 202·5 } highly disrupted slump zone		
202·5	3·0	3·0	100%			5 cm			202·8 erosional contact at ≈25° facing downhole.		
							203·2 70 mm qz-St vn at 65°			203·2 70mm vein, St-qz; Sp 3% · Py 3% · As Py - tr.	6%
					203·8	Massive fine-medium, dark grey tuffaceous sandstone with a black carbonaceous shale intercalation at 204·8m.	204·0 25 mm qz-cbte vn-50°		Generally massive, appears grada downhole, little slumping associated with shale.		
							204·8 } Wispy qz-St filled vein-zone at 90°				
							205·0 2x10mm St vns & qz. margins at 65°.			205·0 vein St-qz; Sp <1%, Py 3%	4%
205·5	3·0	3·0	100%								
					205·9	Slumped fine grey tuffaceous sandstone with minor gray siltstone and pale gray laminated argillite associated with shale.	206·2 15mm calcite vein at 60°		206·1 B 75° graded bedding down hole slump structure and many fine erosion surfaces.		
					206·7	Deformed mixture of finely bedded black carbonaceous shale, & fine gray sandstone, possibly a dolomitic shale at 207·3m with a pale purple colour.	Common fine irregular impure calcite veins, few regular pure veins mostly at ≈70°.		Elongated deformed lenses & clasts of sandstone in black shale common, direction of plane: 50°		
					208·0	Massive fine-medium tuffaceous sandstone.			faulted contact 65°		
208·5	3·0	3·0	100%		208·3	Highly deformed, almost brecciated, black carbonaceous shale and fine-medium grey sandstone.			Deformed bed similar to 206·7 - 208·0 m. 'Matrix' of black shale around clasts of sandstone. often elongate at 50° with intercalations of disturbed	Py veins up to 3 mm and disseminated primary cubes.	5%
										Very fine Py disseminated in sandstone.	<1%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 195 TO 210 DATE 24/7/80 PAGE 11 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					210.7	Grey and dark grey finely bedded siltstone with black carbonaceous shale; 'jumble' bed			sandstone & carbonaceous shale stringers, heavily mesofaulted.		
									Highly disturbed zone of ripped up, slumped, mesofaulted, angular rounded, finely		<1%
	211.5	3.0	3.0	100%			Few quartz veins with common very irregular impure calcite veins & patches.		211.9 B 50°		
					212.3	Dark grey-black very finely bedded highly deformed mixed rock.	-212.3 4cm qz-st vein at 55°		212.4 B 60° bedded clasts. No one matrix, clasts often show lamination	Thin irregular pyrite veins, little 1° Py associated with black shale. Tr. Po	3%
							-213.6 15mm grey qz-St vn @ 55°			-212.8 15mm St-qz vn @ 50° } Sp 40% Ga 3%	43%
							Siderite commonly associated & quartz veins				
	214.5	2.7	2.7	100%	214.5	Coarsely bedded-massive grey fine-medium tuffaceous sandstone.	-214.9 2 veins, 35 & 20mm of white & grey qz, little St @ 60°		214.3 B 30° contact 30°	Pyrite associated with quartz veins only. Sometimes vuggy Py. -214.9 vein: Py 15%, Po 2%, AsPy 1%, Ga tr.	20%
					215.4	Highly deformed black carbonaceous shale, finely bedded with deformed inclusions - intercalations of grey argillite, siltstone and fine sandstone.			218.3 B 75° graded downhole. contact 90°	Thin irregular Py veins. Little 1° Py associated with carbonaceous shale.	2%
							-'dendritic' bivariating thin siderite veins @ 50°.		Highly deformed, many rounded, slumped intercalations with many minor erosion-surfaces,	Zone - Few thin dendritic St vns & minor Ga 1%, Sp 2%, Py 1%	3%
	217.2	3.1	3.1	100%			Siderite occurs as pure veins as well as associated with quartz. -5mm siderite vein at 35°.		217.6 B 25° often beds finely bedded - laminated	Py mostly associated with quartz veining, few very small patches.	1%
					217.9	Grey with distinct brown tinge (buff) finely bedded siltstone - fine sandstone with highly deformed slump? zones with black carbonaceous shale intercalations.			218.6 B 50°		
					219.6	Dark grey massive sandstone with a black carbonaceous shale intercalations grading to quartz			contact 70° massive.		
					220.0	Highly veined mineralised breccia, major intercalations of slumped grey siltstone & black carbonaceous shale; matrix of siderite, clasts of grey argillite, grey siltstone, grey fine grain sandstone; all angular, few small carbonaceous shale clasts. clay altered in parts. Average clasts 3mm.	quartz veining predominant lower contact 35°		Brecciated zone; angular breccia sediment clasts	Po, qz, AsPy, Sp 1%, Ga 2% vein zone	90%
							-220.9 siderite veining @ 35°			-30mm vn @ 45°, Ga 60%, Sp 30%, Py 10% Sp	100%
	220.3	3.1	3.1	100%			≈ 20% of core is siderite		221.2 B 55° siltstone. In sideritic matrix; sulphide clasts in siderite & visa versa; interbeds of black carbonaceous shale,	Highly siderite veined & quartz veined breccia. Few Sp veins Sp 2% -10mm @ 30-60°. Sp Ga, Sp as replacement in breccia.	
							-223.1 7cm siderite vein @ 40°			Vn @ 0° Sp 10% margins, Ga 85%, Cp 5%	100%
										Po zone: Po 30%, AsPy 20%, Sp 5% Cp 2% Ga 2	60%
										Mineralized breccia Po 10%, AsPy 10%, Py 5%, Sp 3% Ga 3	30%
	223.4	2.0	2.0	100%					223.4 contact 50° pale grey argillite, minor grey-green siltstone.	upper contact 85° sharp. Ga 90% Ga 50%, Sp 15%, Cp 1%, Py 2% lower contact gradational. Ga 10%	75%
							-224.6 30cm quartz vein @ 25°			Thin <1mm veins & stringers of Ga, Sp & Py. Very minor Ga	
							siderite veining altered to pale brown, associated with				

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 10A

LOGGED BY N.P.G. FROM 210 TO 225 DATE 24/7/80 PAGE 12 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							a green alteration mineral - flusspar?		sidarita cement.	replacements of sediments in breccia. Ga 1%, Py 3%, Sp 2%	6%
	225.4	0.8	0.8	100%		5 cm	Siderita undergoing clay alteration. Quartz veining common.		225.7 B 40°, shale.		
	226.2	3.0	3.0	100%	226.9	Base of breccia bed predominantly white quartz with some radioform crystal growth.	@ 25° Siderita cement ends. 80% quartz vein & radioform off included sediment clasts. little siderita.		quartz cement, fewer larger black carbonaceous shale clasts.	Little vein Py & disseminated Py along quartz growth lapses	1%
					228.1	Very finely interbedded & highly siderita veined, almost boxworked black carbonaceous shale and grey argillite - possibly dolomitic palite, deformed.	contact at 40° Predominantly siderite veining, almost boxwork, in upper part gives way to more conform. siderite - quartz veining at ≈50°.		contact at 40° Deformed & complexly veined Py, Sl & qz almost boxworked sediments often very finely bedded.	common vein Py Especially common in 'boxworked' zone.	5%
	229.2	3.1	3.1	100%	229.5	Slightly deformed interbedded mixture of fine tuffaceous sandstone - quartz veined zone - finely interbedded grey argillite (dolomitic palite?) and black carbonaceous shale.			Slightly deformed, finely bedded, interbedded & massive fine sandstone.	-230.1 {14 cm qv zone @ 50° (Py 5%, Po 2%, Cp 2%	10%
					230.7	Green-grey altered fine tuffaceous sandstone? and intercalated black carbonaceous shale, highly deformed.	Diffuse alteration gives a -231.0 quartz vein at 35° cloudy appearance, developing -231.5 siderite vein at 60° quartz 'eyes'. common qv. <1mm Few Sl veins. -232.2 20 cm quartz vein at 50°.		230.8 B 20° Structure slightly obscured by alteration. Some soft	-231.0 very thin Ga-Sp vein. -231.5 {15 mm mineralised Sl vn @ 60° (Py 10%, Ga 1%, Sp 5%	16%
	232.3	2.0	2.0	100%	232.4	Buff, slightly altered very finely bedded argillite interbedded with minor black carbonaceous shale giving way to yellow-white highly altered and deformed sediments.	Diffuse alteration turns gradually to more severely altered sediments. Brown-straw coloured veining with common quartz veining siderite veining common.		232.2 B 55° sediment brecciation. A little very fine bedding. 234.2 B 0°-10°	Rare Py veins associated with quartz veining.	<1%
	234.3	1.2	1.2	100%							
	235.·	0.5	0.4	80%	235.3	Highly clay altered, broken rock, highly quartz veined - most of core remnants - mineralised qz+pug	Partly clay destroyed rock, core - quartz fragments and dark grey pugs.		Structure completely lost.	Stringer & vein Ga, Sp in siderite matrix. ?? & Py	10%?
	236.0	2.5	2.5	100%	236.0	Mineralised quartz veining with siderite and minor intercalated sediments, especially at base.	Quartz & siderite matrix -236.6 Sl vn at 30° between mineralization & intervained. Usually Sl in qz. qz predomint. -238.0 Sl vn at 50°		Veined & massive structure Vugs in massive Py.	Massive patches of Py & Po, vuggy Py. As Py, Ga, Cp, Sp more common towards base. Py 25%, Po 30%, Cp 5%, As Py 2% Sp 2%, Ga 1%	70%
					238.2	Minor grey-green siltstone with interbedded black carbonaceous shale, slightly altered.	Slightly altered fine pale brown veining, not wall developed.		Partly obscured deformed sometimes autobrecciation zones; few beds showing very fine bedding.	Rare Py veins & few siderite veins carrying Sp, trace Ga.	1%
	238.5	3.0	3.0	100%	238.8	Altered & slightly altered buff, often very finely bedded argillite & grey siltstone and minor black carbonaceous shale, as 232.4 to 235.3	Buff - brown alteration in fine veining, especially at base. Little quartz.				
					239.8						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 10A.

LOGGED BY N.P.G. FROM 225 TO 240 m DATE 26/7/80 PAGE 13 OF 17

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	241·5	2·3	2·3	100%
	243·8	0·7	0·7	100%
	244·5	0·8	0·8	100%
	245·3	2·2	2·2	100%
	247·5	3·0	3·0	100%
	250·5	1·5	1·5	100%
	252·0	2·8	2·8	100%
	254·8	3·1	3·1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Deformed finely interbedded mixture of black carbonaceous shale & grey siltstone, buff laminated argillite (?dolomitic pelite) often pseudo brecciated appearance. 'Clasts' - laminated argillite 'Matrix' - black carbonaceous shale. Similar to 206·7 - 208 m.	Common fine spidery 240·7 20 mm qz. st vein at 50° siderite veins & few medium >1mm siderite and quartz veins. Some clay alteration 242·5 10mm q.v. at 25° associated with veining towards base.			240·6 2mm st vein at 60° Cp	2%
243·8	Slightly mineralised quartz & siderite veining with intercalations of dark grey siltstone & grey argillite & very minor black carbonaceous shale. mineralized	contact at 30° 244·2 st vns at 50° Quartz & siderite with siderite predominant towards upper contact		Intensely quartz and siderite invaded sediments.	common vein Py associated with quartz. Patchy Po 5%, Py 5%, AsPy 3% Gen Sp 1% common vein Py associated with quartz. Quartz vein carrying vein & 'patchy' massive: AsPy 8%, Po 3%, Py 2%, Cp 1%	3% 15% 3% 14%
246·3	Green-grey very deformed altered siltstone.	247·2 3mm q.v at 50° Few fine quartz and calcite veins.		contact 45° Highly deformed sediments. 246·9 B 30° many very fine mesofaults. some soft sediment brecciation.	Very minor very fine vein Py.	<1%
		Many very fine diffuse bounded 'spidery' carbonate veins with few 10 mm qz & ? veins at 0° // to core. Veining intense at base.		Structure obscured by 'cloudy alteration' 250·5 foliation 65°		
	Sheared toward lower gradient contact.			contact gradational 60° Intensely foliated unit, some slight deformation of foliae.	Minor magnetite q.v & Po 3%, AsPy 30%, Cp 10% Py 20%	<1% 63%
251·3	Sheared mineralised. concentrated in veins green-pale grey-white talc carbonate. highly altered core. Shale - serpentinite - alteration.	251·8 40cm mineralized q.v. at 65° Pervasive talc carbonate alteration closely associated 253·7 pug zone. with shearing. Few large >10mm quartz siderite veins. Often mineralised.		252·3 foliation 60° 253·0 foliation 55° 253·7 fault locus. 254·4 foliation 50°	Disseminated & stringer magnetite & Po? Minor Py & Cp; small patches & fine veins.	2%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 10A.

LOGGED BY N.P.G. FROM 240 TO 255 DATE 28/7/80 PAGE 14 OF 17

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							255.8 10 cm mineral quartz-siderite vein. Upper contact at 38°; lower at 45°.		255.7 foliation 20-45°	255.8 10cm vn Cp 30%, Po 40%, Py 2%, AsPy tr.	72%
									258.5 foliation 55°		
									257.3 foliation 75°	257.1 3cm vn - Cp 10%, Po 3%, AsPy 1%	14%
	257.9	1.6	1.6	100%						Vein magnetite? Po?	5%
	259.5	3.0	3.0	100%						Massive: Po 25%, AsPy 50% Cp 15%, qz 5%, Py 5%	100%
							261.4 30 mm qv at 60°			contact at 68°	
							262.3 30 mm grey talc vn: 55°		foliation varying 45-5°.	262.4 6cm vn at 55°. Py 60%, Cp 15%	75%
	262.5	1.0	1.0	100%			263.2 carbonate vn at 40°				
	263.5	2.0	2.0	100%	263.6	Black carbonaceous shale, finely bedded pyritic & few intercalations of grey fine tuffaceous sandstone.	Common thin <1mm irregular impure grey carbonate veining. Few patches of white quartz associated with pyrite.		contact gradational & sheared at 60° Finely bedded & fine stretched intercalations 264.3 B 70°-very fine of fine grey tuff. sandstone 265.0 B 55° some very sharp erosion surfaces, rip up clasts etc.	Very common disseminated Py stretched along bedding planes & vein Py with some associated Cp.	7%
	265.5	3.0	3.0	100%	265.8	Altered blue-grey highly veined breccia? with minor white talc.	White-pale yellow irregular carbonate veins & patches; few pale yellow talc patches & much blue-grey quartz 'matrix'.		contact at 55° Complex structure - breccia base grading - quartz, talc, carbonate alteration now obscured breccia - totally replaced.	Common disseminated cubic Py.	2%
	268.5	3.0	3.0	100%	267.2	Black carbonaceous shale finely bedded, pyritic with minor intercalations of grey argillite and grey fine gr in tuffaceous sandstone	Common thin <1mm irregular impure grey carbonate veining. few siderite veins, few quartz veins & patches.		268 B 70° Finely bedded, much finely intercalated fine grey tuffaceous sandstone. 269.1 B 55° Slight waviness in bedding in some places.	Same as 263.6 - 265.8 m.	7%
							270: 10 cm mineralized qz-st vein. Upper contact: 45°, lower 65°			269.8 1mm Sp-Py vein at 55° 270.0 10cm vn (AsPy 5%, Py 2% Cp 1%, Ga 1%, Sp 1%	10%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 10A.

LOGGED BY NPG FROM 255 TO 270 m DATE 29/7/80 PAGE 15 OF 17

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
				271
	271·5	2·5	2·5	100% 272
				273
	274·0	3·1	3·1	100% 274
				275
				276
	277·1	0·5	0·5	100% 277
	277·6	2·9	2·9	100% 278
				279
	280·5	3·0	3·0	100% 280
				281
				282
				283
	283·5	3·0	3·0	100% 284
				285

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		270·1 pug zone = fault locus?		270·6 B at 75°	Pyrite up to 10% in places	7-10%
		270·8 grey q.v. (3mm) at 35°			cp 1%	
				272·0 B at 90°		
				272·7 B at 55°		
		273·4 q.v. at 75°		contact erosional at 25°		
273·6	Grey-green, sometimes brown tinged mottled rock - reconstituted sandstone? - mafic?			massive.	Rare Py associated with carbonate and quartz veins, confined to upper contact.	<1%
		275·3 20 mm grey carbonate vein at 55°.				
276·3	Black carbonaceous shale - finely bedded highly calcite veined and pyritic, rare intercalations grey fine tuffaceous sandstone.	276·5 15 mm grey carbonate vein at 65°		Fine bedding, small amount of shearing & stretching of Py & veins. 277·3 B at 65°	Py veins and small patches of primary? Py stretched & deformed. st vn on contact - Sp tr	5%
277·8	Grey, commonly with a brown tinge, mottled mafic? rock - microdiorite?	277·7 10 mm siderite-cbte vein at 70°. Common medium quartz and carbonate veins, 1-2 mm. Few large >10mm patches-veins carbonate. Veining slightly thinner in carbonaceous shale units. Rare siderite veins.		Massive. - disrupted towards base by 'veins' of black carbonaceous shale.	Rare disseminated Py.	<1%
279·6	Black carbonaceous shale - finely bedded, highly carbonate veined and pyritic, common intercalations of grey fine tuffaceous sandstone and grey argillite.	281·2 10 mm white carbonate vein at 30°.		280·1 B 70°	As before 277·8m	5%
				281·4 B 65° graded & // erosional surface younging up hole.		
				282·5 B 60°	Fine bedding, slightly sheared and stretched along bedding planes.	
				283·3 B 90°		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 10A.

LOGGED BY N.P.G. FROM 270 TO 285 m DATE 30/7/80 PAGE 16 OF 17

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
									285·4 B 80°		
	286·5	3·0	3·0	100%	286·5	Major intercalation of broken, faulted grey argillite - laminated in parts.	286·5 10mm white quartz & carbonate vein at 85°.		286·4 Broken, almost brecciated & bedded zone of argillite. Whole zone invaded by a black spidery 'rainwork' of shale. 287·0 B 70° contact at 65°	286·4 {4cm St-qz-carbonate vn AsPy 2%, Py 10%	12%
					287·4				287·9 B 65° Same as before 286·5		
							289·0 6cm carbonate-siderite vein at 90°.		288·9 B 80° contact @ 90°		
	289·5	3·0	3·0	100%	289·1	Finely interbedded grey siltstone, argillite, fine tuffaceous sandstone, black carbonaceous shale and rare units of grey medium massive tuffaceous sandstone.	290·1 3cm calcite vein: 65°		Finely interbedded fine sedimentl almost laminated & rare bed of massive sandstone. 289·8 B 70° 290·2 B 90° 290·8 graded bedding at 80° downhole.	Little disseminated Py associated with few coarser beds & contacts between beds.	1%
	292·5	3·0	3·0	100%					292·2 graded bedding at 60° downhole.		
									293·4 graded sandstone at 45° downhole.		
							294·5 2cm calcite vein: 80°		294·1 graded sandstone at 55° downhole. shattered core & fault locus?		
						END OF HOLE RBE 10A					
	295·5										

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 10A.

LOGGED BY N.P.G. FROM 285 TO 295·5 DATE 30/7/80 PAGE 17 OF 17

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Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
	No core recovered.							
	Ground Core Samples.							
54·7	10	95	BLD	25	560	0·9	41	
56·5	10	95	BLD	20	290	0·6	450	
59·5	6	130	BLD	35	270	0·6	360	

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 45 TO 60 DATE 7/8/80 PAGE 1 OF 17

017244

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
60								
61								
61.1	15	160	BLD	30	320	0.6	30	
62								
62.3	8	115	BLD	25	450	0.5	35	
63								
64								
64.2	6	115	BLD	20	220	0.5	26	
65								
66								
66.3	20	165	BLD	75	390	0.4	27	
67								
68								
69								
69.8	4	90	BLD	35	600	0.4	44	
70								
70.6	BLD	100	BLD	25	190	0.5	16	
71								
72								
73								
73.5	BLD	85	BLD	20	130	0.4	10	
74								
75								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 60 TO 75 DATE 7/8/80 PAGE 2 OF 11

017245

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
75																
76																
76·5	4	75	BLD	25	150	0·3	10									
77																
78																
79																
79·3	6	75	BLD	15	190	0·3	13									
80																
81																
82																
82·3	5	70	BLD	20	95	0·4	10									
83																
84																
85																
85·3	7	130	BLD	115	525	0·5	25									
86																
85·9	5	145	BLD	75	310	0·6	80									
87																
88																
88·5	9	100	BLD	20	110	0·6	230									
89																
90																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 75 TO 90 DATE 7/5/80 PAGE 3 OF 17

017246

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
91·5	BLD	85	BLD	20	90	0·3	83									
94·5	10	65	BLD	20	70	0·4	7									
97·5	4	75	BLD	15	90	0·3	17									
100·5	BLD	80	BLD	25	110	0·4	13									
103·5	15	95	BLD	690	3200	2·6	480									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 90 TO 105 DATE 7/8/80 PAGE 4 OF 17

017247

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
106·5	10	95	BLD	120	420	0·7	610									
109·5	5	170	BLD	230	350	0·7	87									
112·5	BLD	95	BLD	35	140	0·4	22									
115·4	8	90	BLD	30	100	0·3	19									
118·5	15	120	BLD	145	420	0·9	56									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 105 TO 120 DATE 7/8/80 PAGE 8 OF 11

017248

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
120																
121																
121·5																
122																
123	10	190	20	250	900	1·5	52									
124																
124·4																
125																
126	45	145	BLD	555	2300	2·3	1050									
127																
127·5																
128																
129	25	115	BLD	480	1850	1·1	500									
130																
130·5																
131																
132	10	120	20	1100	1900	3·9	1120									
133																
133·5																
134																
135	10	55	BLD	80	180	0·4	54									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 120 TO 135 DATE 7/8/80 PAGE 4 OF 17

017249

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
135																
136																
136.5																
137	5	120	15	40	215	0.3	72									
138																
139																
139.5																
140	6	105	BLD	25	110	0.4	18									
141																
142																
142.5																
143	6	110	BLD	205	1650	0.6	11									
144																
145																
145.5																
146	45	310	BLD	85	400	1.5	1780									
147																
148																
148.5																
149	10	105	BLD	45	220	0.5	41									
150																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 135 TO 150 DATE 7/8/80 PAGE 7 OF 17

017250

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
150																
151																
151·5																
152																
153	BLD	100	BLD	60	190	0·5	19									
154																
154·0																
155																
156	10	110	BLD	170	1700	0·7	48									
157																
157·1																
158																
159	5	90	BLD	100	170	0·3	6									
160																
160·3																
161																
162	15	80	BLD	180	1200	0·6	42									
163																
163·5																
164																
165	7	120	BLD	260	1050	0·6	130									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

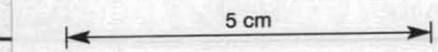
ASSAYED BY Analabs FROM 150 TO 165 DATE 7/8/80 PAGE 8 OF 17

017251

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
165																
166																
166·5																
167																
168	4	125	BLD	40	110	0·3	18									
169																
169·5																
170																
171	6	100	BLD	110	470	05	18									
172																
172·4																
173																
174	5	105	BLD	15	270	0·3	2									
175																
176·5																
176																
177	15	95	BLD	20	100	0·2	6									
177·2																
178	6	90	BLD	20	80	0·3	11									
178·5																
179																
180	BLD	100	BLD	10	110	0·3	6									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 165 TO 180 DATE 7/8/80 PAGE 9 OF 17



017252

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
180																
181																
181·5																
182																
183	4	85	BLD	170	760	0·3	3100									
184																
184·5																
185																
186	5	110	T	15	85	0·3	25									
187																
187·5																
188																
189	BLD	70	BLD	5	160	0·5	43									
190																
190·5																
191																
192	10	70	BLD	BLD	150	0·3	12									
193																
193·5																
194																
195	BLD	110	BLD	5	155	0·3	12									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 180 TO 195 DATE 7/8/80 PAGE 10 OF 17

017253

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
195																
196																
196·5																
197																
198	BLD	125	BLD	10	190	0·4	10									
199																
199·5																
200																
201	BLD	90	BLD	20	180	0·5	13									
202																
202·5																
203																
204	25	80	BLD	165	530	1·1	460									
205																
205·5																
206																
207	7	50	BLD	55	250	0·4	79									
208																
208·5																
209																
210	20	55	BLD	40	260	0·4	46									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 195 TO 210 DATE 7/8/80 PAGE 11 OF 17

Metres	Sn	Cu	W	Pb	Zn	As	As	Ni	Au	Bi						SAMPLE NUMBER
210																
211																
211·5																
212																
213	20	125	BLD	1300	4500	4·4	180									
214																
214·5																
215																
216	40	115	40	190	570	1·3	150									
217																
217·2 (+220·3)	260	470	BLD	570	2200	2·7	4800									
218																
218·0																
219	BLD	60	BLD	70	445	0·5	10	150	0·016	-						T8319
219·5	110	110	20	185	425	1·5	19	125	0·008	-						T8320
220	220·0	1350	2050	BLD	2600	1·1%	17·0	3·6%	250	0·658	54						T8321
220·4	160	260	BLD	1·8%	3·5%	26·0	1400	115	0·028	2						T8322
221	221·1	180	560	BLD	1400	2·0%	9·5	2000	160	0·025	-						T8323
222	222·0	120	2300	BLD	54%	8·0%	1050	390	35	0·016	111						T8324
222·2	860	4000	BLD	25%	6·35%	875	1000	105	0·080	79						T8325
222·7																
223																
224	540	3200	BLD	29%	6·6%	850	3500	70	0·042	67						T8326
224·3	60	125	BLD	8900	1·0%	34·0	1500	260	0·067	BLD						T8327
225	224·7	85	100	BLD	5650	3·9%	20·4	5500	140	0·050	-						T8328

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 210 TO 225m DATE 19/8/80 PAGE 12 OF 17

017255

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
225																
225.4	75	90	BLD	3750	1.8%	10.5	1000	75	0.016							T8329
226.9	BLD	40	BLD	490	495	2.5	240	170	0.008							T8330
228.3	250	165	20	3000	2950	4.5	1300	100	0.033							T8331
229.7	210	1250	BLD	1850	1650	7.0	590	125	0.016							T8332
230.2	310	100	BLD	1600	3400	6.5	340	160	0.016	4						T8333
231.2	45	105	BLD	390	900	2.5	90	130	0.008							T8334
232.4	BLD	55	BLD	245	495	1.0	360	155	0.016							T8335
235.4	40	190	BLD	4450	6350	23.0	1000	170	0.242	BLD						T8336
236.0	450	2150	BLD	405	685	16.5	7500	270	0.042	147						T8337
237.7	160	155	20	1100	3300	4.5	1000	140	0.033							T8338
238.3	20	105	BLD	620	1400	1.5	140	295	0.008							T8339
239.7																
240																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 225 TO 240 DATE 19/8/80 PAGE 13 OF 17

017256

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
	65	70	BLD	500	1800	1·0	100	215	0·008							T8340
241·5	BLD	30	BLD	65	145	0·5	10	220	BLD							T8341
243·2	60	35	30	445	1200	1·0	60	105	0·008							T8342
243·7	1850	1800	BLD	800	1900	7·5	1000	200	0·067	34						T8343
246·3	BLD	255	BLD	25	105	BLD	700	190	0·056							T8344
247·3	30	95	BLD	80	245	0·5	310	135	0·016							T8345
249·3	BLD	10	BLD	25	40	BLD	80	55	0·016							T8346
250·5	60	70	BLD	475	2800	1·5	1000	755	0·008							T8347
251·5	260	2·95%	BLD	505	4050	57·0	3·9%	655	0·133	137						T8348
252·0	BLD	110	BLD	70	90	3·0	2100	1500	0·025							T8349
253·0	BLD	40	BLD	5	45	1·0	750	1600	0·016.							T8350
254·8																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 240 TO 255 DATE 19/8/80 PAGE 14 OF 17

017257

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Au	Bi						SAMPLE NUMBER
	BLD	30	BLD	BLD	60	1·0	700	1650	0·016							T8351
255·8	260	2·05%	BLD	50	645	48·0	1600	1900	0·033	20						T8352
256·3	15	345	BLD	15	110	2·5	300	1700	0·016							T8353
258·3	BLD	40	BLD	5	65	1·0	1600	2700	0·016							T8354
259·7	BLD	305	BLD	BLD	55	1·0	1800	1800	0·025							T8355
260·7	1100	3·1%	BLD	20	3050	58·5	11·0%	900	0·692	505						T8356
261·4	35	3000	BLD	10	180	7·0	3900	2100	0·033							T8357
262·5	BLD	145	BLD	15	60	1·0	1200	635	0·008							T8358
263·7	30	495	BLD	50	185	1·0	17	135	0·016							T8359
265·9	BLD	30	BLD.	10	35	1·0	57	95	0·016							T8360 End Split. Ground
267·2 (from 265·5)	40	160	BLD	405	1400	1·2	1300									
268·5	4	105	BLD	85	155	0·5	170									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 255 TO 267·2 DATE 19/8/80 PAGE 15 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
271·5	15	240	BLD	120	500	0·9	290									
274·0	BLD	115	BLD	30	120	0·5	170									
277·1	10	140	BLD	35	110	0·7	110									
277·6	15	165	BLD	100	710	0·9	150									
280·5	20	120	BLD	130	160	0·8	410									
283·5	9	100	BLD	110	580	0·7	190									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 270 TO 285 DATE 7/8/80 PAGE 16 OF 17

017259

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
285																
286																
286·5	15	105	BLD	150	745	0·8	80									
287																
288																
289																
289·5	5	85	BLD	15	190	0·5	35									
290																
291																
292																
292·5	10	105	BLD	25	180	0·5	41									
293																
294																
295																
295·5	END	OF	HOLE:	RBE	10A.											
296																
297																
298																
299																
300																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 285 TO 295·5 DATE 7/8/80 PAGE 17 OF 17

017260

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
210																
211																
211·5																
212																
213	20	125	BLD	1300	4500	4·4	180									
214																
214·5																
215																
216	40	115	40	190	570	1·3	150									
217																
217·2																
218																
split core 219 see P18	260	470	BLD	570	2200	2·7	4800									
220																
220·3																
221																
222	470	1650	BLD	19·5%	4·0%	900	3900									
223																
223·4																
224																
225	160	250	BLD	16·0%	6·0%	133	2500									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 210 TO 225 DATE 7/8/80 PAGE 12A OF 16

017261

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
225								
225.4	90	85	BLD	1.0%	1.4%	9.6	1000	
226.2	190	140	BLD	4600	8000	15.7	1000	
227								
228								
229								
229.2	230	250	BLD	1500	2100	4.9	460	
230								
231								
232								
232.3	25	105	20	300	600	1.8	360	
233								
234								
234.3	15	45	20	75	120	0.9	320	
235								
235.5	320	695	BLD	1.9%	2.3%	insufficient sample	8700	
236								
236.0	300	1900	BLD	560	800	10.2	4100	
237								
238								
238.5	65	80	BLD	615	1400	1.8	210	
239								
240								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A

ASSAYED BY Analabs FROM 225 TO 240 DATE 7/8/80 PAGE 13A OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
240																
241																
241·5																
242	40	50	BLD	620	420	1·7	100									
243																
243·5																
244	210	85	BLD	1000	2400	2·8	4800									
244·5																
245	2550	1150	BLD	570	2000	7·0	15·0%									
245·3																
246	840	1700	BLD	355	230	5·1	5·9%									
247																
247·5																
248																
249	35	255	BLD	130	130	1·0	1800									
250																
250·5																
251	180	1·45%	BLD	465	2800	8·5	3·9%									
252																
252·0																
253	15	100	BLD	40	50	0·6	3100									
254																
254·8																
255																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 240 TO 255 DATE 7/8/80 PAGE 14A OF 16

017263

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
	30	3450	BLD	20	140	7·6	1400									
257·9	15	35	BLD	15	40	0·5	1100									
259·5	340	8800	BLD	35	620	12·7	6·1%									
262·5	15	110	BLD	20	30	0·5	2800									
263·5	45	560	BLD	45	140	1·1	500									
265·5	40	160	BLD	405	1400	1·2	1300									
268·5	4	105	BLD	85	165	0·5	170									

255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 10A.

ASSAYED BY Analabs FROM 255 TO 270 DATE 7/8/80 PAGE 15A OF 16

017264

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

PROJECT Ranison	**AREA** Grid GAR		**DRILLHOLE TYPE** DDH
CO-ORDS	**DEC^{LN}** 45°	**AZIMUTH** 078° MN **RL**	**DH No.** RBE 11
DATE COMMENCED 30·7·80	**DATE COMPLETED** 12·8·80	**DRILLED BY** Longyear	**DRILL RIG** Longyear 38
Non Coring to: 49·0m	**HQ Core to:**	**NQ Core to:** 274·5m	**BQ Core to:** **EOH** 274·5m.

SURVEY DATA **Instrument:**

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
0m		45°	078° MN	181m		45°	075·5° MN
61m		44·25°	076° MN	211m		45°	078° MN
91m		44·75°	077° MN	241m		45·25°	074·5° MN
121m		44·75°	075° MN	271m		44·5°	078·5° MN
151m		45·25°	074·5° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-49·0 : Overburden, predominantly glacials			
49·0-59·8: Carb. sh. intb s.s. and tuff ss.	Py: dis, vn	3%	
59·8-73·0: Fine tuff ss. and s.s.	Py: dis, vn	3%	
73·0-121·9: Carb sh. f.bd, deformed, pyritic	Py: vn , Po tr from 95·2 "	5%	
& intc. ss and ss.			
121·9-130·7: Tuff ss, mas, intc ss, arg sh	Py: dis, f vns	4%	
130·7-174·7: Carb sh and ss; pyritic intc ss.	Py: dis, vns	8%	
174·7-178·4: Carb sh, pyritic.	Py: dis, vns	12%	
178·4-192·2: ss, minor ss, arg.	Py: in qz & chte vns	<1%	
192·2-203·3: Mixed, deformed ss, sh, ss, arg.	Py: dis	2%	
203·3-206·2: Carb sh, deformed, pyritic.	Py: dis, tr Ga, Sp, As Py: vn	8%	
206·2-208·8: Ss, gr-gy, alt, fol.	Py: dis, f vn	<1%	
208·8-216·5: Mineralised st-qz veining	Sp, As Py, Pb, Py, Cp, Ga: mas vn	15%	
216·5-218·4: Carb sh, deformed.	Py: vn	5%	
218·4-221·5: Arg. alt, gr-gy + buff qz base.	Py: vn tr Ga, Sp in qz-Stvn	1%	
221·5-224·9: Carb sh, deformed.	Py: dis, f vns	5%	
224·9-226·5: Tuff ss, mas.	Py: in q.v.	<1%	
226·5-230·0: Arg, alt gr-gy, deformed	Py: in q.v.	<1%	
230·0-232·7: Talc-chte-alt sp. fol.	Py: in q.v.	<1%	
232·7-235·5: Mineralised broken q.v.	Py, As Py, Cp, Sp, Ga: vn, patch, mas	30%	
235·5-253·8: Talc-chte, alt, fol.	Py: dis, vn tr Pb, As Py, Cp: vns	5%	
253·8-254·6: Mineralised, alt q.v.	Py, Pb, Cp: vns patches	30%	
254·6-258·8: Carb. sh., pyritic	Py: vn	5%	
258·8-260·9: Contact zone:- hg sede?	Py: vn	5%	
260·9-263·2: Plutonic rock?, mottled	Py: assoc. & q.v.	<1%	
263·2-274·5: Intb dk gy tuff ss and pale gy ss.	Py: dis, vn	5%	

Signature **Date**

017265

DRILL ADVANCE

LOST CORE | DEPTH | DRILL ADVANCE INTERVAL | CORE RECOVERY | PERCENT RECOVERY

LITHOLOGY

INTERVAL | DESCRIPTION | ALTERATION | GRAPHIC LOG | STRUCTURE | MINERALISATION | VISUAL PERCENTAGE MINERALISATION

No core recovered.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.Green FROM 0 TO 15m DATE 1/8/80 PAGE 2 OF 19

017266

DRILL ADVANCE

LOST CORE | DEPTH | DRILL ADVANCE INTERVAL | CORE RECOVERY | PERCENT RECOVERY

LITHOLOGY

INTERVAL | DESCRIPTION | ALTERATION | GRAPHIC LOG | STRUCTURE | MINERALISATION | VISU PERCENTA MINERALISATN

16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

No core recovered.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.Green FROM 15 TO 30 m DATE 1/8/80 PAGE 3 OF 19

017267

DRILL ADVANCE					LITHOLOGY						
LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				31							
				32							
				33							
				34							
				35							
				36							
				37		No core recovered					
				38							
				39							
				40							
				41							
				42							
				43							
				44							
				45							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.Green FROM 30 TO 45m DATE 1/8/80 PAGE 3A OF 19

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					46						
					47						
					48						
		start of core			49						
	49·0	0·5	0·5	100%	49·0	Black carbonaceous shale interbedded with grey siltstone and fine tuffaceous sandstone, pyritic, carbonate (calcite) veined, finely bedded, few deformed beds, often a 'wispy' effect with thin shale. Wisps in sandstone.	Few irregular white calcite veins.		49·5 B 20° Finely bedded units of sandstone massive, few slump structures, minor mesofaulting, common wavy bedding.	Common Py as: 1. Primary disseminated Py in siltstone, sandstone 2. Stretched - slightly sheared primary Py in shale. 3. Veins, sometimes vuggy especially toward base and accompanied by a gold tarnish.	3%
	49·5	3·0	3·0	100%	50						
					51						
					52						
	52·5	2·7	2·7	100%	53				53·1 B varies 0-10°		
					54				53·8 B at 15° 54·2 B 60°		
					55				55·2 graded B 55° up hole.		
	55·2	2·8	2·8	100%	56		55·7 Common irregular grey white calcite veins often disjointed, more associated with siltstone and sandstone beds.				
					57				57·7 B 35°		
	58·0	2·4	2·4	100%	58	5 cm			58·0 B 30°	57·8 2 mm Py vein at 50°	
					59				59·5 B 32°		
					60	59·8 Fine tuffaceous sandstone and dark	contact at 25°				

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 45 TO 60 DATE 1/8/80 PAGE 4 OF 19

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	60·4	1·1	1·1	100%
	61·5	3·0	3·0	100%
	64·5	3·0	3·0	100%
	67·5	3·0	3·0	100%
	70·5	2·5	2·5	100%
	73·0	3·1	3·1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	grey siltstone with interbedded 'wisps' and beds of black carbonaceous shale					3%
				60·8 B 10°	60·6 Disseminated Py: detrital 1 mm cubes	15%
					61·2 common Py as before.	3%
		62·0 1 mm calcite vein at 15°		63·1 B 0°		
				64·1 B 25°		
				Zone of contorted bedding :- slumping? in predominantly shale and siltstone.		
				66·8 B 20°		
		67·4 Calcite + Py vein at 45°		68·8 B 20°: graded ss-sh on eroded base uphole.		
		69·0 3mm white calcite vein & Py at 30°		70·0 B 40°		
		70·5 2 mm calcite vein at 25°				
				71·6 B 20°		
	Base of bed marked by contorted beds			Zone of contorted bedding in shale + siltstone and highly irregular intercalations of sandstone :-slumping.	less disseminated Py, mostly as veins, often associated with calcite	5%
73·0	Black carbonaceous shale, finely bedded pyritic, calcite and few quartz veins, commonly deformed, irregular intercalcations of grey siltstone and very fine tuffaceous sandstone.	74·2 10 mm mineralised quartz vein at 75°		74·8 B 10°	74·2 Pb, Py, tr AsPy in vein and sandstone, siltstone intercalations and very	5%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 11

LOGGED BY N.P.G. FROM 60 TO 75 DATE 2/8/80. PAGE 5 OF 19

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	76·1	3·1	3·1	100%
	79·2	2·4	2·4	100%
	81·6	0·9	0·9	100%
	82·5	3·0	3·0	100%
	85·5	2·5	2·5	100%
	88·0	3·2	3·1	96·8%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				75·3 6mm Py vein at 10° fine 'wispy' veins along bedding planes.		5%
				76·0 B 20°		
				Wavy bedding, some contorted slump zone, deformed unconformable intercalations of sandstone.	Higher concentration of Py in veins, some 'sweating out'.	10%
		78·4 8mm impure calcite vein at 15° ℰ associated 'patches' of calcite.			As before	2%
				79·3 B 10°		
				79·9 B 10°		
				81·1 B 20°		
		82·0 25cm mineralised quartz-siderite vein: 85°			Ga 3%, Py 4%, AsPy tr, Bo tr, Sp 3%	10%
				83·4 B 20° -wavy bedding		
				84·3 B varies 0°-10°		
		84·7 5mm sharp white calcite vein at 75°		84·7 B 10°		
				85·6 B 0°		
		86·4 10mm sharp white calcite ± Py vein at 80°				
		87·1 Diffuse grey calcite alteration along bedding, grey-white mottling.		87·1 B 25°		
		88·0		88·4 B 12°		
				89·4 B 20°		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 75 TO 90 m DATE 3/8/80 PAGE 6 OF 19

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	91·2	3·0	3·0	100%
	94·2	2·4	2·4	100%
	96·6	0·9	0·9	100%
	97·5	3·0	2·85	95%
	100·5	2·8	2·8	100%
	103·3	3·1	3·1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
91·3	Black carbonaceous shale - finely bedded, many irregular calcite veins. Minor interbedded and intercalated dark grey siltstone and grey tuffaceous sandstone.	91·7 Calcite, Py vn at 45° Significant increase in calcite veining intensity both as well defined veins and more diffuse invasion of sediments, giving a 'patchy' appearance. 94·6 45 mm zone of impure calcite, Py at 40° 96·4 10 mm white calcite & Py vn at 40°.	Pervasive CO_3 alteration, especially in arenaceous units.	90·9 B 20° 91·2 Bed of contorted black shale in dk gy shale & wavy bedding ≈ 0-10° 91·7 93·1 B 15° 93·3 20 mm deformed rounded disrupted coarse tuff beds in shale - slumped? B 45° Generally disrupted, still fine bedding - deformed, 96·9 B 25° some contorted, introduct^n of siltstone and sandstone 98·1 B 55° lenses - clasts with both rounded and sharp boundaries. 99·9 B 45° Slumped, almost to soft sediment, breccia. 101·1 B in sandstone 55° 103·8 Wavy bedding 0-10° with stretched small, <1 cm lenses - ripped up sandstone still soft in shale. preferred mineralisation sites	90·7 'sweated out' patch of Py 30 mm × 20 mm. 93·6. Increase in Py, especially associated with increased calcite veining.	5%
98·2	Black carbonaceous shale, finely bedded, deformed often contorted bedding, pyritic and first introduction of Po, few interbeds of grey medium tuffaceous sandstone with bedding.	Common, fine white and grey calcite veins, usually irregular and disrupted, rare patches. 102·6 12 mm impure calcite vein at 45° 103·0 10 mm calcite vein at 45°.			98·2 First introduction of Po as very fine < 1 mm 'wispy' veins, Py mainly as fine ≈ 1 mm veins often along bedding, concentrations associated with larger calcite veins. Py ≫ Po.	5%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 11

LOGGED BY N.P.G. FROM 90 TO 105 m DATE 4/8/80 PAGE 7 OF 19

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							105.8 10 mm impure calcite and Py vn at 60°		106.0 B 30°		
	106.4	3.1	3.1	100%					106.8 B 25°		
							108.0 10 mm calcite vein at 75°		107.0 B 0°		
	109.5	3.0	3.0	100%					110.0 B 20°		
									111.2 B 75°		
	112.5	3.0	3.0	100%					112.8 B 45°		
									113.7 B 25°		
					114.4	Quartz-shale horizon, 50% quartz.	White quartz + minor hard translucent green fluospar veining at or around 30°			114.4 No Po and less Py as discontinuous veins.	2%
	115.5	3.0	3.0	100%	115.3	Black carbonaceous shale intercalated with grey argillite, highly deformed, grey argillite often laminated - slump zone?	Common quartz and carbonate veins from 30 mm to < 1 mm; rare siderite veins; rare fluospar. 116.5 20 mm st vn at 70° 116.8 30 mm qv. at 20° 118.1 3mm qv at 20° 118.8 10mm qz-cbte vn at 30°		115.8 Wavy bedding 0-30° Highly disturbed slump zone, almost of a soft sediment breccia; bedding directions inconsistent. 119.4 B 25°	116.5 St-qz vein & tr Ga, Sp. 117.7 Significant increase in Py as small irregular patches, veins and disseminated	7%
	118.5	3.0	2.8	93.3%							

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 105 TO 120m DATE 5/8/80 PAGE 8 OF 19

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	121			
	121·5	2·8	2·8	100%
	124·3	3·0	3·0	100%
	127·3	3·1	3·1	100%
	130·4	2·6	2·6	100%
	133·0	3·0	2·95	98·3%
	136			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
121·9	Tuffaceous sandstone, medium-coarse grained, massive, grey; minor dark grey-black argillite-siltstone.	122·2 10 mm white carbonate vein at 75° Few-common carbonate veins, average < 1 mm. Base marked by fine siderite-quartz veining.		contact at 75° Mostly massive.	Disseminated Py throughout sandstone at same grain size.	2%
123·8	Black carbonaceous shale, highly veined wavy bedding.	Common veins and 'patchy' irregular veins of impure grey calcite.		contact at 50° 124·1 wavy bedding varies 0-30° 124·6 B 85° Finely bedded, with little wavy bedding	Very fine Po veins, often discontinuous, < 1mm across, Py also as predominantly very fine veins. Py > Po	7%
125·4	Tuffaceous sandstone, medium grained grey, massive; minor interbedded black carbonaceous shale, grey argillite-siltstone, often deformed intercalated contacts.	Few fine < 1mm carbonate veins. 127·2 6 mm white clote vein at 80° 129·1 20 mm qz in clote vein at 20°		contact at 70° 126·4 irregular bedding, graded uphole at 50° 127·5 B 60° Mostly massive, bedding direction from interbedded argillaceous units.	Finely disseminated Py	3%
130·7	Black carbonaceous shale, deformed, highly finely veined; minor intercalations of grey medium tuffaceous sandstone.	Many fine < 1mm, highly irregular, commonly disjointed calcite veins.		contact at 35° 131·9 B 30° Deformed wavy, fine-very fine bedding. 133·6 B 80° 133·9 B 25° 134·2 B 20°	common Py veins and patches and disseminations 131·4 graded Py vein at 25° downhole. along bedding.	7%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 120 TO 135m DATE 5/8/80 PAGE 9 OF 19

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	136.0	0.7	0.7	100%
	136.7	2.8	2.8	100%
	139.5	3.0	3.0	100%
	142.5	3.0	3.0	100%
	145.5	3.0	3.0	100%
	148.5	2.8	2.8	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				135.3 B40°		
				Base marked by sandstone bed		
136.9	Siltstone and carbonaceous shale. very finely interbedded, pyritic, few stretched lenses of grey fine sandstone.	Common fine < 1mm calcite veins.		Contact at 45° 137.1 B 45° Very finely consistently bedded except at base - wavy. 138.1 B40°	Finely disseminated Py and 137.6 15 mm St vn: Po, Sp 2% very thin veins along bed.	2% 20%
138.4	Black carbonaceous shale, deformed intercalations of grey medium sandstone - tuffaceous.	Many fine average <1mm irregular, disjointed calcite veins, rare irregular calcite patches.		Contact erosion at ≈ 20° 139.1 B 20° 140.7 graded bedding at 40° down. 141.8 B15° 143.6 B40° 145.2 B wavy 0°-10°	Common fine Py veining in shale and disseminated in sandstone; very rare fine vein of Po.	10%
142.9	Dark grey siltstone and black carbonaceous shale very finely interbedded, often deformed, usually many calcite veins, pyritic, few whole black shale intercalations along with medium grey tuffaceous sandstone.			Deformed and disturbed, wavy and some contorted bedding, some mesofaulting - ripped up clasts of shale in sandstone and ripped up sandstone clasts in shale.		
145.5	Medium grey tuffaceous sandstone.	qz, cbte, St mineralised vn: 75°			145.5 Py 5%, AsPy 5%, Po 3%, Sp 1%, Ga<1% 145.5	15%
146.0				147.0 B wavy 10°-20° 149.2 B 20°	146.4 5mm St vn: tr Sp+Ga at 90°	2%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 11

LOGGED BY N.P.G. FROM 135 TO 150 DATE 5/8/80 PAGE 10 OF 19

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
									151.2 B 20°		
	151.3	2.2	2.2	100%					151.7 B 65°		
									Zone of more contorted bedding, bedding obscure.		
	153.5	0.9	0.9	100%							
	154.4	2.8	2.8	100%					155.8 B 0°-30°		
									156.5 wavy bedding 0-15°		
							156.8 5mm clean cut calcite vein at 60°.		156.9 B 45°		
	157.2	3.0	3.0	100%							
										158.8 Decrease in Py	5%
									159.4 B 60°		
					159.8	Tuffaceous sandstone - medium grained, gray and dark gray, minor irregular intercalations of black carbonaceous shale, bracciated along edges.	Common fine < 1mm irregular attenuated carbonate veins.		contact 70° Massive, slight brecciation associated with shale, intercalations, angular.	Finely disseminated Py	3%
	160.2	3.1	3.1	100%					contact 30°		
					160.7	Very finely interbedded black carbonaceous shale and dark gray siltstone, fine carbonate veining.	161.9 3mm clean cut white carbonate vein at 30°. Common fine 1mm carbonate veins often associated with Py, few > 2mm.		Very finely bedded, common wavy bedding. 162.1 B 20°	Common clear cut Py veins ≈ 1mm at 35°, patches Py common toward top and few veins of disseminated Py up to 60 mm.	10%
	163.3	3.1	3.1	100%		5 cm			163.6 B 15° 164.1 B 0° 164.6 B 75°	20	
										164.8 Irregular Py veining,	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY NPG FROM 150 TO 165 m DATE 1/8/80 PAGE 11 OF 19

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							165·1 10mm white carbonate vein at 50°		165·4 B 50°	disseminated in sandstone and siltstone.	10%
	166·5	3·1	3·1	100%					166·8 B 60°		
							167·6 More intense white-grey impure carbonate veining veins up to 30mm; rare mineralised thin siderite vein.		B 35° Contorted and deformed bedding, sandstone intercalations often		
	169·5	3·0	3·0	100%			170·0 Major calcite veining: 20% of core at 0°-15°.		169·6 B 20° sharp and slightly brecciated. 170·8 B 30°	171·6 Irregular St vn: Sp 3% cp tr	3%
	172·5	3·0	3·0	100%		5 cm	171·5 173·1 St vn: 40° common fine carbonate veins, often irregular, deformed & discontinuous.		172·9 B 40° 173·5 B 10° fine-very fine wavy bedding	173·1 St vn at 40°; Sp 1%, Ga tr	1%
					174·3	Mineralised siderite veining in black carbonaceous shale.	Siderite vein zone		Highly disrupted by veinwork	Fine veins patches of Sp-10%, tr Cp, Py	11%
					174·7	Black carbonaceous shale, finely bedded, minor interbedded grey-dark grey siltstone and fine-medium tuffaceous sandstone - often slightly brecciated along margins.	Common fine carbonate; rare siderite veins, fine 1mm; some patchy grey carbonate is associated with veining		As before 174·3m 175·2 B 35° Deformed bedding - wavy, sandstone massive. 176·7 B 50° intercalations often slightly brecciated 178·0 B 40° along margins.	175·6 15mm St vn: 2% Sp, tr Cp tr Ga Py also disseminated in shale.	3% 10-15%
	175·5	3·0	3·0	100%							
	178·5	3·0	3·0	100%	178·4	Fine tuffaceous grey sandstone and intercalated black carbonaceous shale, intensely calcite veined.	20mm calcite vein running up core ≈5° with common irregular 2° veins.		Brecciated - slumped black shale in fine sandstone & vice versa.	Py: few 'patchy' veins - irregular & discontinuous. irregular disseminations.	3%
					179·2	Grey siltstone with intercalated gray argillite, sometimes laminated and fine	Few irregular impure carbonate veins; rare		179·5 B 30° Common mesofaulting.	Py associated with carbonate and quartz veins.	<1%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 11

LOGGED BY N.P.G FROM 165 TO 180 m DATE 7/8/80 PAGE 12 OF 19

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				181		grey tuffaceous sandstone; very minor black carbonaceous shale.	quartz and siderite veins, possibly chloritic associated & quartz.		mostly finely bedded, zones of slumping common.		
	181·5	3·0	3·0	100% 182			181·7 30 mm mineralised carbonate vein at 70°			181·7 cbtz veinwork over 20cm sp 2%, Go 1%	3%
							182·4 5 mm st vein at 50°		182·8 B 45°		
				183					183·2 B 75°		
				184			183·3 40 mm cbtz vn at 40° in 20cm zone of intense carbonate veining.		184·3 B 65°		
	184·5	3·0	3·0	100% 185						185·3 Continuous 1mm threadlike vein at 55° - light brown Sp	
				186			185·5 cbtz-qz veining 26°			185·5 cbtz-q.v & AsPy 20%, Py 2%	22%
					186·1	Fine tuffaceous sandstone, well sorted, massive. minor intercalated grey-dark grey argillite.			Mostly massive, few lenses of grey argillite toward base.		
				187			187·2 Many highly irregular veins of cbtz.		Contorted soft sediment breccia zone = slump zone.		
	187·5	3·0	3·0	100% 188			187·8		188 B 65°		
				189	188·8	Dark grey siltstone with intercalated black carbonaceous shale - argillite, deformed - contorted.	Common irregular calcite veining with few associated patches mostly < 1mm & usually discontinuous.		Deformed bedding, disturbed zone associated		
				190			190·8 8mm q.v at 30°		190 B ≈ 5° with slumping - common.		
	190·5	3·0	3·0	100% 191							
					191·2	Grey siltstone - argillite with many fine black stringers of black carbonaceous shale?. brecciated at top.	Few very fine ≤ 1mm discontinuous quartz & carbonate veins.		Deformed 'mosaic' like rock, some brecciation, bedding obscure.		
				192	192·2	Mixed deformed rock - intercalated, irregularly, sometimes finely, sometimes brecciated (soft sediment) fine tuffaceous sandstone, black carbonaceous shale, grey siltstone.	Common fine-medium irregular discontinuous carbonate veins; rare st veins, usually clean cut.		Generally finely bedded - wavy; few zones of slumping.		
				193					193·2 wavy B 40°-60°	193·2 Py as thin lenses, patches, disseminations, rare fine veins.	10%
	193·5	3·0	3·0	100% 194					194 B 60°	193·9 Minor Py associated with	<1%
									194·7 B 60°	194·8 10mm q.v. & Py 2%, Po 1% tr AsPy.	3%
				195			194·8 10mm q.v at 65°				

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 180 TO 195 m DATE 8/8/80 PAGE 13 OF 19

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
										cbte. siderite + quartz veins	
										195.4 195.8 10mm St vn at 55° & Sp 5%, Ga 1%, Cp tr.	6%
	196.5	3.0	3.0	100%					197 B 60°	Predominantly disseminated Py along bedding planes + as single cubes.	3%
					197.2	Medium tuffaceous sandstone, massive, many white carbonate veins.	Many irregular carbonate veins, often discontinuous predominantly at ≥ 70°.		Massive.	Barren	0%
					198.5	Mixed rock - carbonaceous shale, fine-coarse tuffaceous sandstone; grey argillite; grey siltstone; usually finely bedded, often irregularly intercalated and deformed.	198.9 Many veins, upper mostly St, lower ones qz. 199.5 20 mm qv at 50°		199.2 B 55°	198.7 qz-minor St veinwork at 60° 198.9 Sp 4%, Ga 4%, AsPy 1% Cp < 1% tr Sp, tr Ga associated & St veinwork. 199.6	10%
	199.5	3.0	3.0	100%			199.6 Common highly irregular impure carbonate veining.		200.1 B 55° 201.0 B 65° 201.8 B 65°	Py disseminated in arenaceous units, deformed small patches in shale, minor veining.	<1%
						5 cm			Finely intercalated, disturbed sediments.	202.6 6mm qz-Sp vein at 30°	2%
	202.5	3.0	3.0	100%			203.1 25mm St vn at 90°			2 veins [5mm qz-Py 7mm qz-St-Ga 50% at 40°	50%
					203.3	Black carbonaceous shale with common siderite veining, finely bedded and slightly deformed.	203.7 50 mm St-qv. at 55° 204 20mm St-qv. & Py, AsPy at 55°. Common St veining, minor quartz veining.		204 B 55° 204.1 B 60° Very disturbed bedding and some contorted bedding minor brecciation.	Disseminated + fine veinworked Py, Sp < 1%, Ga < 1% AsPy tr; predominant vein direction is 65°	10%
	205.5	3.0	3.0	100%					205 B 65° contact at 40°	205.4 Py in veins associated with quartz + St; stretched patches	5%
					206.2	Green-grey foliated, altered (chlorite?) fine-medium sandstone.	quartz vein, minor St at 40° 206.4 Green alteration zone ⇒ soft rock, much grey diffuse very small, patchy 207.9 18 mm St-qv at 55° carbonate alteration.		Bedding obscured, appears foliated + deformed. 207.5 foliation 20°		
	208.5	3.0	3.0	100%		Yellow-grey-green base.	Yellow alteration base.			207.3 Minor vn AsPy, Py, dis. Sp 207.5 Pyrite - fine disseminations + very minor veining.	3% <1%
					208.6	Veined crustoform mineralised siderite-quartz; very minor intercalated carbonaceous shale.	Nearly completely altered zone, minor inclusion of sediment-St and quartz often		contact 55° Complex veinwork, very little brecciation.	Vein + rare disseminated: Sp 5%, AsPy 2%, Pb 1%, Ga 1%, Py < 1%, Cp < 1%	12%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G. FROM 195 TO 210 m DATE 8/8/80 PAGE 14 OF 19

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							crustoform & sometimes ruggy with very well developed quartz crystals.			Sp. 2 generations St (bk Sp (red-br: Sp (bk Sp) St	
	211·5	3·0	3·0	100%			213·2 veining at 40°				
						5 cm					
	214·5	3·0	3·0	100%			Siderite predominates at base.				
					215·2	Pb, qz, minor St.	Quartz predominates with minor siderite.		contact ≈50° Vein quartz in massive pyrrhotite.	Quartz, St, Po 75%, AsPy 3% Py 2%, Cp < 1%	80%
					216·5	Black carbonaceous shale, finely bedded, common intercalations of dark grey siltstone, deformed.	Few thin St veins at top increasing to base. quartz veins predominant. 218·1 30mm mineralised qv at 30° 218·3 3a mm qz-St vn at 35°		contact at 60° Finely bedded, deformed 217·3 B 40° irregular discontinuous intercalations of dark grey shale - siltstone.	Py limited at top, increases toward base. 218·1 30mm qv at 30° Py 15%, Po 2%	2% ↓ 10% 17%
	217·5	3·0	3·0	100%	218·4	Argillaceous sediments, altered especially at top with calcite, grey-green, some buff, sometimes laminated, black carbonaceous shale interbedded at base.	218·6 3×2mm St vn at 35° Altered & diffuse grey 219·3 15 mm qv at 30° carbonate vns at top & St veining predominate at base		Obscure at top, finely bedded - laminated in 219·2 B 10° middle & semi-massive at base; disrupted. 219·9 B 45°	218·6 3×2mm vns at 35°, upper Ga10 middle Sp 70%; lower Py 20% Py associated & calc veins 219·4 contact 40° qz, St, Ga 7%, Sp 3% 219·8 contact 65° vein Py.	1% 10% 7%
	220·5	0·5	0·5	100%	220·1	Quartz - 90% pure, minor carbonate & very minor black carbonaceous shale.	Quartz - white & milky & some rugs containing dolomite? - white, rhombic carbonate, HCl slightly + ve. very minor St.		contact at 50° Vein of quartz.	Fine < 1 mm vein Py rare & some Py in rugs.	1%
	221·0	1·3	1·3	100%							
	222·3	3·0	3·0	100%	221·8	Black carbonaceous shale, deformed, many quartz veins at top; intensely carbonate veined in middle; altered at base with intercalations of grey-green fine sandstone.	Minor quartz veins averaging 5 mm predominate at ≈ 20°-30°. 223·2 Intense grey calc, highly irregular veining. 223·7 Common quartz veins & carbonate veins - irregular commonly at ≈ 30°		contact at 30° Bedding obscure, unit disrupted by many veins. 223·1 B 55° 224·3 B 35°	Dissemination, common fine short veins of Py. 223·9 Patches of pure Py up 60mm	5%
					224·9					224·7 qz, Py vns, Py+Sp patches	20%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G FROM 210 TO 225 DATE 9/8/80 PAGE 15 OF 19

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	225·3	3·0	3·0	100%
	226·0			
	227·0			
	228·0			
	228·3	1·2	1·2	100%
	229·0			
	229·5	3·0	3·0	100%
	230·0			
	231·0			
	232·0			
	232·5	1·1	1·1	100%
	233·0			
	233·6	0·5	0·25	50%
	234·0			
	234·1	1·4	1·2	85·7%
	235·0			
	235·5	2·3	1·25	54·3%
	236·0			
	237·0			
	237·8	1·2	0·63	52·5%
	238·0			
	239·0	2·5	2·5	100%
	239·0			
	240·0			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Fine grey tuffaceous sandstone, common irregularly interbedded black carbonaceous shale.	225·4 10 mm clean q.v. at 30° Common quartz veins: average 1mm.		Mostly massive sandstone & finely bedded black shale units. 226·3 B 70°-90° contact at 70°	Py associated with quartz veins. 226·1 5% Sp in q/z vn at 15°	<1% 5%
226·5	Altered argillaceous sediments, green-grey, buff, relict fine bedding, contorted -deformed.	Green (chloritic?) & white-milky green cbte alterⁿ 227·2 10 mm qz-cbte vn at 55° 227·8 10 mm q.v.-cbte at 80°		226·9 Foliation 45°-80° Complex unit of highly contorted relict? bedding, foliated units laminated argillite & soft sediment brecciation?	Trace Cp.	
		228·3 q/z-cbte vn at 50° 228·5 229·0 20 mm mineralised milky carbonate vein at 60° Few, av 5 mm q.v. & rare green talc veins.			228·3 Py 10%, Cp 1%, AsPy tr 228·5 229·0 milky cbte & Pb 20%, Py 1%, cp tr.	12% 22%
230·0	Pale green-grey talc-carbonate altered rock and disseminated magnetite?	Talc-carbonate alteration common medium-fine, milky quartz veins.		230·2 foliation 60°-80° Foliated, well developed in middle of bed, obscure at top; foliation predominant at 40°-50°.		
230·8	Serpentine? - altered, foliated, white, green, green-gray, brown foliac.	230·85 q/z-St vn at 50° 231·05 Slightly altered fine q/z veins in serpentine or highly altered unknown host rock.			230·85 tr Sp, tr Ga 231·05	<1%
232·7	Broken quartz with altered argillaceous 'veins' and intercalations; minor siderite	Quartz is major host rock & St veining and green chloritic? alteration along veins & pervasive in sediment		Predominantly broken core, quartz vein & mineralisation. Obscure structure, argillaceous 'veins' at ≈ 20°	Py veins associated with sediments, 'veins' in quartz tr Sp	3%
233·6	Mineralised quartz and minor siderite veining; broken.				233·6 Veins, patches & minor massive: Py 15%, AsPy 30%, cp 2%, Sp 1%, Ga tr. Mineralised veins 60-65°.	50%
235·5	Talc-carbonate (altered serpentine?) foliated, pale green-pale grey, white clay alteration common.	Common fine, average <1 mm translucent q/z veining & minor St; zones of white clay alteration.		235·8 foliation 40° Deformed - contorted & irregular foliation, often obscured by alteration and veining.	Disseminated Py & minor fine veins, disseminations soft, unmagnetic, brown-black mineral (Sp?)	5%
	5 cm	238·4 Intense clay alterⁿ & erosion by ground water			238·4 Many irregular fine, average 1mm & medium-fine veins holding core together. Py.	20%
		239·0			239·0	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11.

LOGGED BY N.P.G. FROM 225 TO 240m. DATE 12/8/80 PAGE 16 OF 19

017281

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
										240.4 bedded, vuggy Py 50%, Po 40% 240.6	90%
	241.5	3.0	3.0	100%					244.3 foliated at 45°		
	244.5	1.2	1.2	100%							
	245.7	3.0	3.0	100%			245.7 Minor buff coloured alteration along foliae.			245.7 fine Py veining at 45° 246.0 qz-St, Py 20%, AsPy 10%, Cp 3%, Po 1%	34%
					246.9	Red-brown foliae present.	246.5		246.4 contact of mineralization: 50° 246.5		
	248.7	3.2	3.2	100%			249.4 q.v at 40°		248.9 foliated at 40°	249.7 30mm vn at 60°, Cp 60%, Po 20%, Py 5%	85%
	251.9	2.9	2.9	100%		5 cm	251.4 15mm q.v at 45° 252.6 q.v. at 45°		252 foliated at 35°		
					253.8	Mineralised, highly altered quartz and minor argillaceous altered sediment.	Dark grey talc predominant with quartz & creamy carbonate.		structure obscured by veining mineralization & alteration.	contact ≈ 40° Patches & vein, slightly vuggy Po 15%, Py 15%, Cp < 1% contact ≈ 40°	30%
	254.8	1.7	1.7	100%	254.6	Black carbonaceous shale, pyritic & many	Few very fine < 1mm qz		Finely bedded, little deform^{n}	common Py veins, average < 1mm	

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY NPG FROM 240 TO 255m DATE 13/8/80 PAGE 17 OF 19

017282

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	256·5	3·0	3·0	100%
	259·5	3·0	3·0	100%
	262·5	2·7	2·7	100%
	265·2	3·3	3·3	100%
	268·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	veins - quartz & carbonate, minor irregular deformed intercalations - lenses grey-dark grey fine tuffaceous sandstone, very finely spotted at top.	veins & few grey cbte veins. 255·3 Many grey-white qz vns & few patches up to 20 mm, very minor st & carbonate. —256·6 25 mm q.v. at 65°		fine lensoid inclusions of sandstone. 255·6 B 75° 256·0 B 70° conformable along bedding. 257·1 B 45° 257·7 B 50° 258·6 B 65°	discontinuous & irregular.	5%
		257·1 Few irregular white quartz veins - small patches.				
258·8	Contact zone, altered at top with quartz veins, grey spotted black-dark grey carbonaceous shale - argillite.	green alteration, sl. pitted core 20 mm St vn: 65° 259·0 qz & St & sediments		Structure obscure.		
		259·3 grey spotted alteration - hornsfelsed? siltstone, few q.v. at base.			260 Vein & dis. in spots Py	15%
		260·2 Common quartz vns. cloudy alteration of intercalated plutonic & shale.		260·7 B/fol? 75°-90°	260·2 Rare Py associated with quartz veins	<1%
260·9	Plutonic rock? green-grey with pale brown-pink? feldspar, black 'spotted' pyroxene-amphibolite.	common white irregular quartz veins. average 1mm up to 20 mm, often discontinuous.		Massive		
263·2	Mineralised quartz, St, minor sediments & plutonic rock.	white quartz, creamy carbonate, yellow siderite		Vein: qz, St at 40° contact at 30°	Vein, patchy Py, Po.	10%
263·6	Interbedded grey-dark grey fine-medium tuffaceous sandstone and pale grey siltstone with very minor black carbonaceous material often as thin irregular stringers.	Few quartz veins - av. 1mm irregular, discontinuous Rare very thin St-cbte veins < 1mm. —267·6 q.v & B at 50°		264 B 50° Mostly finely bedded siltstone, sometimes shows lamination, medium sandstone usually massive, 265·1 B 55° 265·8 B 25° black carbonaceous material sometimes disseminated, giving a speckled appearance. Also occurs in sandstone, giving a dark-grey colour. 269·2 B 50° 269·9 B 50°	Py veining, average 1mm & minor disseminations usually associated with quartz veins or carbonaceous material - less common in top.	5%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 11.

LOGGED BY N.P.G. FROM 255 TO 270m DATE 13/8/80 PAGE 18 OF 19

017283

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					271				271.1 B 65°		
	271.5	3.0	3.0	100%	272		271.1 Concentration of irregular quartz veins 15°-40°		271.9 B 35°		
							272.1		272.6 B 55°		
					273				273.4 B 35°		
					274				274.4 B 70°		
	274.5				275	END OF HOLE RBE 11					

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 11

LOGGED BY N.P.G FROM 270 TO 274.5 m DATE 13/8/80 PAGE 19 OF 19

017284

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
	No	core	recovered.													
	Start	of	ground	core	samples											
49·0	20	160	BLD	90	135	0·5	66									
49·5	BLD	110	BLD	15	130	1·0	16									
52·5	3	110	20	35	165	1·0	55									
55·2	5	110	BLD	35	110	1·0	34									
58·0	8	95	BLD	30	165	0·5	21									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 49 TO 60 m DATE 26/8/80 PAGE 1 OF 16

017285

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
60								
60.4	5	85	BLD	35	170	0.5	47	
61.5	BLD	85	BLD	25	180	0.5	34	
64.5	9	105	BLD	25	115	1.0	15	
67.5	7	95	BLD	40	290	1.0	170	
70.5	4	95	BLD	25	200	BLD	37	
73.0	8	115	BLD	15	95	BLD	26	
75								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH BBE 11

ASSAYED BY Analabs FROM 60 TO 75m DATE 26/8/80 PAGE 2 OF 16

017286

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
75																
76																
76·1																
77																
78																
79																
79·2																
80																
81																
81·6	20	135	15	1·0%	5150	25·5	2700									
82																
82·5																
83																
84																
85																
85·5																
86																
87																
88																
88·0																
89																
90																
	BLD	70	20	55	105	2·0	94									
	7	65	10	50	145	0·5	13									
	3	80	BLD	25	140	BLD	14									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 75 TO 90 m DATE 26/8/80 PAGE 3 OF 16

017287

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
90																
91																
91.2	10	75	BLD	15	100	1.0	24									
94.2	8	90	BLD	15	105	0.5	24									
96.6	10	110	BLD	30	105	0.5	66									
97.5	4	160	BLD	30	200	0.5	39									
100.5	4	105	BLD	30	60	BLD	25									
103.3	3	95	BLD	45	130	BLD	21									
105																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 90 TO 105m DATE 26/8/80 PAGE 4 OF 16

017288

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
106.4	15	150	BLD	100	135	0.5	27									
109.5	BLD	100	BLD	95	340	0.5	41									
112.5	6	130	25	25	145	0.5	700									
115.5	15	115	10	315	585	1.0	600									
118.5	6	130	BLD	20	90	BLD	27									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 105 TO 120m DATE 26/8/80 PAGE 5 OF 16

017289

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
120																
121																
121·5	BLD	70	BLD	140	310	BLD	80									
122																
123																
124																
124·3	10	90	BLD	185	480	1·0	52									
125																
126																
127																
127·3	BLD	50	BLD	20	145	BLD	48									
128																
129																
130																
130·4	5	120	BLD	20	110	BLD	6									
131																
132																
133																
133·0	4	95	BLD	50	135	0·5	4									
134																
135																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 120 TO 135 m DATE 26/8/80 PAGE 6 OF 16

017290

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
135								
136	136·0	BLD	130	BLD	55	135	BLD	18
137	136·7	3	100	10	85	260	BLD	9
139								
140	139·5	BLD	90	BLD	20	115	BLD	5
142								
143	142·5	20	105	BLD	350	1600	1·0	210
145								
146	145·8	15	150	BLD	540	1450	2·0	2300
149								
149	148·5	10	110	BLD	620	460	0·5	55
150								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 135 TO 150 m DATE 26/8/80 PAGE 7 OF 16

017291

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
151.3	15	100	BLD	60	220	BLD	31									
163.5	BLD	95	BLD	25	140	BLD	10									
154.4	4	105	BLD	35	100	BLD	13									
187.2	BLD	95	BLD	50	145	BLD	11									
160.2	7	105	BLD	55	140	BLD	12									
163.3	9	125	BLD	55	310	BLD	14									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 150 TO 165 m DATE 26 / 8 / 80 PAGE 8 OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
165																
166																
166.4																
167																
168	BLD	125	BLD	40	130	BLD	8									
169																
169.5																
170																
171	10	135	10	205	610	1.0	32									
172																
172.5																
173																
174	30	135	BLD	680	2.5%	4.5	900									
175																
175.5																
176																
177	BLD	170	BLD	175	730	1.0	61									
178																
178.5																
179																
179	9	40	10	350	360	0.5	180									
180																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 165 TO 180m DATE 26/8/80 PAGE 9 OF 16

017293

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
180								
181								
181·5								
182								
183	9	60	BLD	110	320	0·5	185	
184								
184·5								
185								
186	BLD	90	BLD	20	250	1·0	2800	
187								
187·5								
188								
189	BLD	110	BLD	15	170	BLD	120	
190								
190·5								
191								
192	5	80	20	20	160	0·5	35	
193								
193·5								
194								
194	10	90	BLD	340	695	1·5	64	
195								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 180 TO 195m DATE 26/8/80 PAGE 10 OF 16

017294

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Cd							SAMPLE NUMBER
196.5 (→ 199.5)	45	115	25	9500	9680	30.5	40	-	-							Last ground value
197.0	15	35	BLD	40	225	0.5	250	135	-							Split ↓ T8378
198.4	140	375	BLD	1.8%	1.9%	19.0	5800	120	-							T8379
199.5	25	80	BLD	680	1300	2.5	7500	125	-							T8380
200.4	20	65	T	630	1150	2.0	210	110	-							T8381
203.1	120	195	25	4600	9100	12.0	2600	105	-							T8382
204.4	140	150	BLD	2600	4000	7.0	500	105	-							T8383
206.5	150	135	25	715	2500	3.0	1600	195	-							T8384
208.2	180	395	25	695	1850	2.5	100	135	-							T8385
209.1	600	950	20	2.4%	6.9%	32.0	4100	135	260.5							T8386

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 195 m TO 210 m DATE 18/9/80 PAGE 11 OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	Cd.							SAMPLE NUMBER
210																
211																
211·4	820	745	BLD	6250	2·4%	35·0	1·9%	140	62·0							T8387
212																
213																
213·6	610	550	BLD	4400	2·2%	41·0	1·6%	150								T8388
214																
214·8	720	405	BLD	1·0%	1·75%	18·0	1·8%	125								T8389
215																
215·4	490	2250	BLD	725	5500	13·5	1·0%	160								T8390
216																
216·6	410	340	BLD	300	260	3·5	700	130								T8391
217																
218·4	170	195	BLD	1750	3950	6·5	1000	115								T8392
218																
219·2	150	150	BLD	1·6%	1·5%	70·5	5000	105								T8393
219																
220·1	15	30	BLD	325	610	5·5	700	150								T8394
220																
221																
222·1	45	155	BLD	350	1150	2·5	550	125								T8395
222																
223·85	35	165	30	80	630	1·0	70	115								T8396
224																
225																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 210 TO 225m DATE 18/9/80 PAGE 12 OF 16

017296

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	SAMPLE NUMBER
225									
226									
226·4	15	70	BLD	20	165	0·5	300	200	T8397
227									
228									
228·2	55	755	BLD	225	360	3·0	1000	460	T8398
229									
230									
230·3	15	55	BLD	1750	740	6·0	4500	740	T8399
231									
231·2	15	265	BLD	115	235	1·5	83	125	T8400
232									
232·6	230	80	BLD	435	1850	2·0	6000	210	T9901
233									
233·6	3150 ?	590	BLD	1400	4100	14·0	5·0%	470	T9902
234									
234·3	3100 ?	1·3%	LD	205	525	14·0	42·0%	520	T9903
235									
235·5	9	85	BLD	5	75	1·0	5000	1950	T9904
236									
237									
237·9	20	85	BLD	415	3900	4·5	5000	1650	T9905
238									
239									
239·0	10	35	BLD	110	450	1·5	2900	2450	T9906
240									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 225 TO 240m DATE 18/9/90 PAGE 13 OF 16

017297

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni	SAMPLE NUMBER
240									
240·5	80	3400	BLD	75	435	7·5	900	1200	T9907
240·8	BLD	35	BLD	15	130	1·0	2500	2000	T9908
241·8	6	15	BLD	5	50	0·5	900	1600	T9909
243·2	15	50	BLD	15	60	1·0	3000	2050	T9910
245·0	7	900	BLD	15	105	2·5	4500	1700	T9911
245·9	210	1·95%	BLD	110	390	35·5	5·0%	695	T9912
246·4	4	120	BLD	10	55	2·5	2600	2150	T9913
247·4	BLD	25	BLD	5	45	1·0	2400	1850	T9914
249·7	1100	1800	BLD	10	75	3·5	2200	1950	T9915
252·9	220	40	BLD	25	40	1·5	4100	1850	T9916
253·9	3400	1500	BLD	20	75	4·0	1300	1600	T9917
254·7	200	340	25	45	340	1·5	120	235	T9918
255									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 240 TO 255 m DATE 18/9/80 PAGE 14 OF 16

017298

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
255.2	150	210	BLD	395	1000	1·5	120	135								T9919
258.1	110	360	BLD	135	560	2·0	120	1 5								T9920
259·0	1·1%	1900	BLD	550	2500	8·5	950	2 0								T9921
259·3	120	230	20	270	670	1·5	55	160								T9922
260·3	15	215	BLD	75	365	1·0	55	355								T9923 End of Split.
261·7 (from 259·5)	50	175	15	130	355	1·0	85	-								Ground
262·5	120	65	20	50	255	0·5	270	-								
268·2	15	90	BLD	55	225	0·5	80	-								
268·5	15	95	BLD	100	235	BLD	120	-								

255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 255 TO 270 m. DATE 18/9/90 PAGE 15 OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
270																
271																
271·5																
272	8	115	BLD	70	225	BLD	80									
273																
274																
274·5	End	of	Hole	RBE 11.												
275																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 270 TO 274·5m DATE 26/8/80 PAGE 16 OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As								SAMPLE NUMBER
														Ground Core Values replaced by split from 197.0 → 261.7m	
196.5	45	115	25	9500	9650	30.5	40								
199.5	8	70	BLD	320	320	3.0	160								
202.5	100	215	30	5150	6200	14.0	790								
205.5	90	85	25	1400	2900	4.5	900								
208.5	410	650	BLD	3.85%	9.7%	146.0	2300								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Arelabs FROM 195 TO 210 DATE 26/8/80 PAGE 11A OF 16

017301

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
211·5	890	1500	BLD	6250	4·0%	64·0	8000									
214·5	370	1600	15	1900	7950	18·5	4300									
217·5	200	190	30	1·15%	3850	37·0	1400									
220·5	10	220	120	125	345	3·0	200									
221·0	40	130	70	495	1400	3·0	1400									
222·3	45	205	50	240	1400	1·5	210									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 210 TO 225 DATE 26/8/80 PAGE 12A OF 16

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
225								
225·3	15	70	25	160	505	1·0	350	
226								
227								
228								
228·3	60	190	20	245	305	1·5	600	
229								
229·5	20	105	10	470	360	2·5	1300	
230								
231								
232								
232·5	70	160	120	305	900	1·0	200	
233								
233·6	860	680	100	1850	5300	22·5	1300	
234								
234·1	5900	1·55%	BLD	405	2350	50·0	14·0%	
235								
235·5	60	70	BLD	15	98	2·5	4700	
236								
237								
237·8	70	150	40	300	5950	4·5	5600	
238								
239								
239·0	35	190	25	80	450	1·5	2100	
240								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 225 TO 240 m DATE 26/8/80 PAGE 13A OF 16

017303

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
240								
241								
241·5								
242								
243	20	30	BLD	10	80	0·5	2000	
244								
244·5								
245	10	230	BLD	15	85	0·5	3700	
246								
248·7								
247	25	3500	BLD	30	135	9·0	6100	
248								
248·7								
249								
250	180	1000	BLD	20	80	4·0	2100	
251								
251·9								
252								
253	3300	850	10	15	125	3·0	1700	
254								
254·8								
255								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 240 TO 255m DATE 26/8/80 PAGE 14A OF 16

017304

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
255								Ground core ↓
256	85	205	20	290	720	1·5	160	
256·5								
257								
258	1450	460	25	325	1000	2·5	1700	
259								
259·5								
260								
261	50	175	15	130	355	1·0	85	
261·7	Split Core Ends							
	Recommence Ground Core Values							
262								
262·5								
263								
264	120	65	20	50	255	0·5	270	
265								
265·2								
266								
267	15	90	BLD	55	225	0·5	80	
268								
268·5								
269								
269	15	95	BLD	100	235	BLD	120	
270								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 255 TO 270 m DATE 26/8/80 PAGE 15A OF 16

204

01730

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG

Summary Sheet

PROJECT Ranison	AREA Grid GAR		DRILLHOLE TYPE DDH
CO-ORDS E3712766·4 N8372591·0	DEC LN -45°	AZIMUTH 78° MN	RL 179·1	DH No. RBE 12
DATE COMMENCED 13·8·80	DATE COMPLETED 4·9·80	DRILLED BY Longyear	DRILL RIG Longyear 38
Non Coring to: 69·0m	HQ Core to:	NQ Core to: 117·0m	BQ Core to: 303·5m	EOH 303·5m

SURVEY DATA

Instrument: downhole camera

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
73m		-44·75°	81·5° MN	226m		-40·5°	79° MN
103m		-45·5°	79·5° MN	253m		-36·5°	82·5° MN
133m		-45·75°	82° MN	283m		-37·0°	82·5° MN
163m		-46°	80·5° MN	303·5m		-38·5°	81·5° MN
193m		-41·75°	78° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
69·0-77·3m: ss, sa, carb ar sequence with soft sed deformation	Py in q.v.	2%	
77·3-84·7m: tuf sa & ss.			
84·7-104·6m: sa, ss, ar sequence with deformed carb sh.	Py associated with q.v.	1%	
104·6-146·2m: alt & deformed sa & ss with deformed carb. shale.			
146·2-156·4m: carb sh with interslumped units of ss & tuf sa.			
156·4-208·4m: tuf sa & intc. slumped units of ss & carb sh.			
208·4-214·8: carb. sh.	Py dis & in q.v.	5%	
214·8-217·8: alt cbte veined sa & s.s.	Gl, Sp in cbte vns	2%	
217·8-221·0: cbte-qz-sul vn zone & sed. inc.	Patchy Pb, dis Cp, Sp, Gl; vn Sp Gl	15%	
221·0-224·9: alt. intc sa, ss, carb sh sequence.	dis Py, Pb, Py, AsPy, Cp in cbte-qz vn	2-40% (vn)	
224·9-230·2: chloritised lam. ss.			
230·2-233·4: qz-cbte-sul zone	mass Pb, AsPy; patchy Sp, Cp	40%	
233·4-245·1: talc-cbte schist.			
245·1-246·8: deformed sa, ss, sh.	Py, Pb, Sp in vn along upper contact	50% (vn)	
246·8-248·4: alt. mafic? intrusive.			
248·4-254·3: carb sh & intc. tuf sa.	Py as stringer vns & patches	5%	
254·3-256·0: qz-cbte veined zone	Sp, AsPy, Py along veins	7%	
256·0-267·0: tuf sa & s.s & interlayered carb sh.	dis Py	2%	
267·0-268·3: alt. mafic? intrusive			
268·3-272·75: intb carb sh; tuf sa & s.s.	dis Py	5%	
272·75-274·9: qz-sul zone	Pb, Cp, Py, AsPy massive patches	15%	
274·9-283·1: intc carb sh, tuf sa & s.s.	Py dis, Pb in q.v	3%	
283·1-303·5: slump carb Py mt deposit & inc of ss & sa.	Py in lenses & around clasts	10%	

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					1–15	No core recovered.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N.P.Green FROM 0m TO 15m DATE 22/8/80 PAGE 2 OF 22

017307

LITHOLOGY

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISU PERCENTA MINERALISATN
16	No core recovered.					
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N.P.Green FROM 15 m TO 30 m DATE 22/8/80

017308

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					31–45	No core recovered.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N.P.Green FROM 30 TO 45m DATE 22/5/80 PAGE 4 OF 22

017309

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VIS. PERCENT MINERALISAT
					46	No core recovered.					
					47						
					48						
					49						
					50						
					51						
					52						
					53						
					54						
					55						
					56						
					57						
					58						
					59						
					60						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N.P.Green FROM 45m TO 60m DATE 22/8/80

017310

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					61						
					62						
					63						
					64	No core recovered.					
					65						
					66						
					67						
					68						
69·0	1·5	1·45	96·7%	69	69·0	Carbonaceous argillite, highly deformed, black. Many quartz veins, mostly eroded out, pyritic.	Many irregular; pitted, eroded out q.v. ---- common chlorite alteration associated		Very common soft sediment deformation, contorted in argillaceous units. generally massive	common Py as highly irregular veins associated with pitted quartz veins. little disseminated Py.	5%
				70			11·0 q.v. at 25° few eroded q.v. usually pitted		70·9 B 60° sandstone beds - few rip clasts + lenses of		
70·5	3·0	3·0	100%	71	70·4	Siltstone - grey-green. highly deformed - soft sediment, quartz vein top.	with q.v. and along fracture planes.		72·2 B 30°-58° argillaceous material.	TR2 Trace Py associated with pitted quartz veins.	Tr.
				72	72·2	Sandstone - siltstone - black carbonaceous argillite, highly deformed, intercalated mixture rock, grey - dark grey - black, sandstone altered.	Yellow-brown clay (weathered carbonate?) along fractures and few very fine, short veins.		73·0 B 55° Very fine stringers of 73·8 B ≈ 30° black carbonaceous material locally common.		
73·5	1·0	1·0	100%	73							
				74	73·9	Siltstone - argillite - dark grey, highly deformed.					
74·5	1·0	1·0	100%	75							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 12

LOGGED BY N.Green FROM 60 m TO 75 m DATE 22/8/80 PAGE 6 OF 22

017311

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	75·5	0·5	0·5	100%							
	76·0	0·5	0·5	100%	76·0	Siltstone - carbonaceous argillite - sandstone, grey-green-black argillite, sandstone altered.			76·3 B 35°		
	76·5	0·7	0·7	100%							
	77·2	0·6	0·6	100%	77·3	Fine tuffaceous sandstone - siltstone, minor argillite, green-grey altered.	Green-grey alteration associated with chlorite.		77·3 B 35° graded downhole.		
	77·8	1·0	1·0	100%							
	78·8	0·7	0·7	100%							
	79·6	0·5	0·2	40%							
	80·1	0·7	0·2	28%							
	80·8	0·3	0·3	100%							
	81·1	0·8	0·8	100%							
	81·9	1·1	1·1	100%	81·9	Fine tuffaceous sandstone - siltstone, minor argillite.	Dark grey - grey unaltered.				
	83·0	0·5	0·5	100%							
	83·5	1·0	1·0	100%	83·5	Fine medium tuffaceous sandstone, minor siltstone.	Green-grey alteration End of chloritic alteration along fractures				
	84·5	1·0	1·0	100%	84·7	Intercalated dark grey siltstone, grey sandstone & minor pale grey argillite, deformed pre-lithification.			85·9 B 60°		
	85·5	1·0	1·0	100%							
	86·5	1·4	1·4	100%					87·5 B 50° graded downhole.		
	87·9	1·2	1·2	100%							
	89·1	1·4	1·4	100%							

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 75 m TO 90 m DATE 22 / 8 / 80 PAGE 7 OF 22

017312

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						Gray-green siltstone-argillite common towards base.					
	90·5	0·4	0·4	100%	90·6	Siltstone with minor fine tuffaceous sandstone, grey-dark grey with slight purple hue.			90·7 B 40°	90·6 Rare small patches Py + disseminations associated with pitted quartz veins.	<1%
	90·9	2·9	2·9	100%	92·1	Deformed mixed rock - fine tuffaceous sandstone, siltstone, minor argillite, pale green-grey, slight alteration.	Rare dark grey-black irregular veins = chloritic altered carbonaceous material?		91·9 B 50°		
	93·8	0·7	0·7	100%			93·6 common quartz veining, often pitted veins at base + diffuse patches at top.			93·6 Py intimately associated with strong quartz veining	2%
	94·5	3·0	3·0	100%			94·8			94·8 Rare Py as before.	<1%
					96·2	Intercalated fine tuffaceous sandstone + siltstone, minor argillite, dark grey-grey.	Few very fine discontinuous 'wisps' of carbonate, often eroded out or altered to pale brown-white clay; rare argillite beds sometimes finely spotted.		Relatively slightly deformed bedding.		
	97·5	1·5	1·5	100%					97·9 B ≈ 45°	97·0 Trace Py in pitted quartz + carbonate veins?	tr
	99·0	1·5	1·3	86%					99·5 B 45°		
	100·5	3·0	3·0	100%	100·2	Deformed mixed rock - fine tuffaceous sandstone, siltstone, argillite. Argillite beds sometimes show pale red-pale grey colour, main beds grey + gray-green.	Common quartz veining in top of unit with green altered sediment inclusions - chloritic; white carbonate veins also common associated with quartz + also independently as veins up to 25 mm, usually fine + irregular. 102·6 20 mm cbte vn at 65° 103·9 30 mm cbte vn at 70°		quartz cemented altered sediment breccia.		
	103·5	2·6	2·6	100%							
					104·6	Fine tuffaceous sandstone, cloudy	Very fine diffuse 'fibrous'		massive.		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 90 m TO 105 m DATE 23/8/80 PAGE 8 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
				106
	106·1	2·9	2·4	82%
				107
				108
	109·0	1·0	1·0	100% 109
	110·0	1·0	1·0	100% 110
	111·0	1·5	1·5	100% 111
				112
	112·5	3·0	3·0	100%
				113
				114
				115
	115·5	1·5	1·5	100%
				116
	117·0	1·5	1·5	100% 117
				118
	118·5	3·0	3·0	100%
				119
				120

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	alteration : grey-dark grey.	network of q.v.?-carbonate. Few very fine calcite veins.				
		20mm calcite vn @ 65°				
106·0	Deformed siltstone, with intercalated argillite & minor fine tuffaceous sandstone, pale grey-green.	Few fine irregular slightly deformed white-grey carbonate veins; chloritic alteration?		107 @ 40°	Prevalent soft sediment deformation, disrupted irregular beds.	
		108·5 20 mm white calcite vn at 30°		108·5 @ 50°		
				110·0 @ 45°		
				111·7 @ 60°		
				contact @ 45°		
112·4	Altered sandstone, green-grey with minor deformed intercalations of black carbonaceous shale, grey siltstone	113·4 10 mm calcite vn at 35°		Bed predominantly massive barring intercalated argillaceous sediments.		
		Much white carbonate alteration as veins, average 2mm, fine patches throughout unit; slightly mottled, green alteration tinge in sandstone; rare quartz veins. Quartz associated with carbonate veins. Very rare siderite veins.				
		116·9 20cm zone of 1mm sf? spots throughout core.				

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 105m TO 120m DATE 23/8/80 PAGE 9 OF 22

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					121						
	121·5	3·0	3·0	100%	122		122·2 30mm qz-clste vn at 80°				
					123					123·4 80 mm st, qz, clste vn at 75° & Py 20%, Pb 10%, cp 1%	31%
					124						
	124·5	3·0	3·0	100%	125		124·6 40mm qz-sediment brecciation at 40°				
					126		126·2 80mm deformed clste vein at 20°.				
					127						
	127·5	3·0	3·0	100%	128				127·5 B 30°		
					129						
					130	129·4	common irregular white carbonate veining, sometimes patchy, rare St and q.v. Fine clste veining commonly at ≤60°		129·6 B 50°	Small patches .2 mm, of Py associated with black carbonaceous shale.	<1%
	130·8	3·0	3·0	100%	131	Intercalated fine grey tuffaceous sandstone, black carbonaceous shale, grey-dark grey siltstone, deformed and commonly carbonate veined, rare brown-grey argillite.			130·3 B 40° graded uphole		
					132				Soft sediment deformation predominant, highly irregular contacts, common fine mesofaults.		
					133						
	133·5	2·7	2·7	100%	134				134·4 B 45°		
					135						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 120 m TO 135m DATE 30/8/80 PAGE 10 OF 22

017315

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	136.2	2.9	2.9	100%
	139.1	0.4	0.4	100%
	139.5	3.0	3.0	100%
	142.5	2.8	2.8	100%
	145.3	2.7	2.7	100%
	148.0	1.4	1.4	100%
	149.4	2.1	2.1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
135.5	pale purple brecciated (soft sediment) clasts of argillite common.					
136.7				139.0 B ≈60°	138.6 Deformed St, Ankerite, qz & cbte vn at 30°. Ga 2%, Sptr. Acty 1% 139.0	4%
		139.8 20mm white cbte vein at 35°				
				contact ≈45°		
146.2	Black carbonaceous shale, contorted, highly carbonate veined, minor intercalated fine tuffaceous sandstone and siltstone, especially towards base.			Completely disrupted bed-slumped zone.		
149.8	Intercalated grey siltstone, fine grey	Common fine cbte &		considerably deformed		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 12

LOGGED BY N. Green FROM 135 m TO 150 m DATE 31/8/80 PAGE 11 OF 22

017316

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
				151
	161.5	2.9	2.9	100%
				152
				153
				154
	154.4	2.9	2.9	100%
				155
				156
				157
	157.3	3.2	3.2	100%
				158
				159
				160
	160.5	2.1	2.1	100%
				161
				162
	162.6	3.0	3.0	100%
				163
				164
				165

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	tuffaceous sandstone, minor black carbonaceous shale.	150.1 10 mm St vn at 80° quartz veins average 2mm Rare St veins. 151.5 Irregular, average 50 mm clste-qz vn. contacts		slightly obscured by massive nature of sandstone. 151.8 B 50°	150.2 at 50° qz, St, sed zone? Po 60%, Py 10%, Cp 2%	62%
151.9	siltstone, pale grey, often laminated.	Few medium, 3mm, carbonate-quartz veins.		Deformed at top, only slightly away from top. 152.7 B 5° 153.3 B 10°	Barren.	
154.2	Black carbonaceous shale, highly deformed intercalated grey siltstone & tuffaceous sandstone.	Very common irregular patches of white carbonate. 10cm qv at base at 55°.		Highly deformed - soft sediment, ripped up clasts, very common minor erosion surfaces.	Rare disseminated Py. 10cm qv. St, Py 2%, Ga 1%, As Py tr	<1% 4%
156.4	Fine grey tuffaceous sandstone with intercalated grey siltstone, minor black carbonaceous shale.	Common regular white carbonate veins at ≈ 60°-70°. 161.6 12cm qz, clste, St vn at 50°		Common soft sediment deformation associated with siltstone intercalations sandstone is massive. 161.0 B 40°	Very rare St-clste carrying tr Ga, Sp, Py, Po	tr.

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 150m TO 165m DATE 31/8/80 PAGE 12 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	165·6	0·9	0·9	100%
	166·5	1·5	1·5	100%
	168·0	1·5	1·5	100%
	169·5	3·0	3·0	100%
	172·5	3·0	3·0	100%
	175·5	3·0	3·0	100%
	178·5	2·2	2·2	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
166·8	Black carbonaceous shale, highly quartz + carbonate vein at top. Contorted slumped zone? minor fine sandstone.	166·9 – 5% white carbonate – 5% 167·6 Very common patchy + vein cbte; few siderite patches + veins; quartz associated with carbonate.		Contorted slump zone? 168·7 B 35°. 171·1 B 55°	Disseminated Py	2%
171·2	Intercalated fine grey tuffaceous sandstone, pale grey siltstone, black carbonaceous shale. Deformed.	172·1 10 mm cbte vn at 30° Few carbonate veins, especially in shale beds. 175·1 pale purple cloudy alterat^{n} 175·5		Deformed. 172·2 B 50° 175·5 B 60°	Very rare fine qz-cbte-St veins carry tr Ga, Sp, Py. 175·5 Disseminated Py in shale bed. 176·4	tr. 3%
177·5	Tuffaceous sandstone, fine-medium, grey, massive.	Few irregular, diffuse 178·4 6mm rhodochrosite -carbonate vein. carbonate veins.		Massive.		
179·5	Intercalated fine grey tuffaceous sandstone, dark grey siltstone,	Very common cbte veining, common St		179·6 B 50°. contorted fine-medium	Py disseminated in shale.	1%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 165m TO 180m DATE 31/8/80 PAGE 13 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	180·7	3·1	3·1	100%
	183·8	0·7	0·7	100%
	184·5	2·4	2·4	100%
	186·9	3·1	3·1	100%
	190·0	2·9	2·9	100%
	192·9	0·6	0·6	100%
	193·5	2·5	2·5	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
180·7 – 183·8	black carbonaceous shale.	veins, few quartz veins. 180·7 8cm qz-St-cbte vn: 60° 180·9 Common patchy white carbonate veins		intercalations. 180·7 qz, St-cbte & tr Ga at 60° Slightly deformed. 182·1 B 40°		tr
183·8 – 186·9		182·7 Very common patchy white carbonate veins; few quartz veins. 184·5 10mm white cbte vn at 35° 186·4 8mm white cbte vn at 30°		183·3 B 55° Deformed - slumped, shale often contorted; sandstone usually massive. 187·0 B 70°	Disseminated Py in shale.	<1%
186·9 – 190·0		186·9 Common fine & very small patchy siderite veins. 188·1				
190·0 – 193·5				190·0 B 45°		
		194·9 Intensely cbte-St-qz				

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green. FROM 180 m TO 195m DATE 1/9/80 PAGE 14 OF 22

017319

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	196·0	1·1	1·1	100%
	197·1	2·4	2·4	100%
	199·5	3·0	3·0	100%
	202·5	3·0	3·0	100%
	205·5	3·0	3·0	100%
	208·5	1·3	1·3	100%
	209·8	1·7	1·7	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		veined zone st at 35°.			195·1 st-qz vn ± tr Ga, tr sp	1%
195·4	Fine tuffaceous sandstone, grey and dark grey. few intercalations of grey siltstone, minor intercalated black carbonaceous shale.	195·2		195·9 B 65° slightly deformed in intercalated argillaceous zones	Py associated with argillaceous intercalations	tr.
		197·6 Few fine white carbonate veins.		197·9 B 50°		
		199·5		199·9 B 70°		
		200·5 6cm st-cbte vn at 40° Common fine white carbonate veins, mostly regular; few straw coloured siderite veins, with minor quartz.		201·0 B 60°		
				201·9 B 50°		
		203·1 12mm cbte vn at 80°		203·5 B 45°		
				207·6 B 70° - graded sediment with increasing carbonaceous content downhole younging.		
208·4	Black carbonaceous shale, contorted; common intercalations dark grey siltstone; common carbonate veins; pyritic.	Very common, highly irregular fine white-grey cbte veining; & fine-medium st-qz veins.		208·5 B 45° contorted-slumped zone?	Disseminations & few fine veins Py, associated with quartz veins.	5%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Greco FROM 196 m TO 210 m DATE 1/9/80 PAGE 15 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	211·5	3·0	3·0	100%
	214·5	3·0	3·0	100%
	217·5	3·0	3·0	100%
	220·5	3·0	3·0	100%
	223·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		210·2 12mm q-v at 62° 210·7 15mm St-clste-qz vn at 60° 211·5 15mm St-q-v at 55° 212·1 40mm clste-St-qz vn at 45°. 213·1 20 mm St-qz-clste vn at 50° 214·4 60 mm clste-qz vn: 75° 214·7 130 mm St-clste-q-v: 60°			210·2 qz, Py 10%, Sp 3% vn 211·5 St-q-v, Sp 2%, Ga tr 213·1 St-qz-clste: Py 50%, Cp 1% vn	13% 3% 51%
214·8	Altered grey sandstone with common deformed intercalations of dark grey siltstone and contorted fine intercalations of black carbonaceous shale.	Fine, diffuse network of grey-white carbonate veining, giving cloudy appearance. Common irregular St-qz veins. 216·7 10mm St-qz vn at 10°		Contorted zones especially associated with shale, structure obscured in arenaceous units.	216·1 disturbed St-qz, Sp 2%, Ga 2%	4%
216·9	Highly altered partially sheared, pale green, pale brown, pale grey siltstone?	St, qz, clste - 80% of core; minor talc.		Partially finely sheared. 217·4 fol at 65°	Few fine Ga + Sp veins	2%
217·8	Mineralized, intercalated siderite, quartz, sediment and sulphide.	Major siderite + quartz vein replacement; minor Ankerite. St - 40%, qz - 20% veining at ≈ 70°.		Partial colloform structure developed in few St zones minor brecciation 219·4 B55° associated with Sp-St.	Few fine Sp + minor Ga veins; disseminated Sp, Cp, Ga; patchy Po. Sp 2%, Ga 1%, Cp tr, Po tr	4%
					Patchy Po 30%, diss. Cp 1%	31%
221·0	Altered, dark grey + grey-green intercalated fine sandstone, siltstone, black carbonaceous shale.	221·2 5mm St-qz vn at 70° Fine-medium diffuse network of grey-white carbonate veining, cloudy, common irregular quartz veining.		contact at 75°	221·2 St-qz-Py 15% vn Disseminated Py	15% 2%
224·5	Mineralized quartz veining.	quartz - 50 %		Vein qz at 45°	Po 30%, Py 10%, AsPy 1%, Cp tr, Sp tr, Ga tr at 45°	42%
224·9						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY N. Green FROM 210 m TO 225 m DATE 3/9/80 PAGE 16 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	226·5	3·0	3·0	100%
	229·5	1·3	1·3	100%
	230·8	2·0	2·0	100%
	232·8	2·7	2·7	100%
	235·5	3·0	3·0	100%
	238·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Heavily chlorite altered green, grey-green, foliated siltstone?, green or green-grey serpentine.	Pervasive chloritic? alteration. 226·5 7mm white cbte vn at 30° Few fine quartz and carbonate veins, usually regular.		225·7 fol at 60° 226·5 fol at 55° 227·8 fol at 40° Highly deformed structure minor lamination? in siltstone? finely foliated otherwise when not obscured by alteration.		
230·2	Mineralized quartz, siderite, green altered host rock.	Quartz + siderite gangue to mineralisation minor green altered sediments. qz - 40%, st 15% altered sediments - 5%		Sulphide-quartz veining at ≈60°	Disseminated Sp 3%, Ga <1%, Py 1%, Pb 2%, tr Cp, tr AsPy 231·7 Vein: AsPy 70%, Pb 3%, Cp 1% 232·4 Patchy Sp 3%, Galr, AsPy 5%, Pb 8% 232·8 Massive AsPy 70%, Pb 5%, Cp 20%, Py 5%	7% 74% 16% 100%
233·4	Talc Carbonate, foliated, veined, green, grey, white, pale brown, often mottled rock.	Completely altered rock; Common quartz veins		Regularly foliated, some deformation of foliae. 235·6 fol at 70° 238·6 fol at 65°	Few very fine Py veins 236·0 14cm qz, AsPy 80%, Pb 5%, Cp 8% vein.	1% 93%

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 12

LOGGED BY N. Green FROM 225 m TO 240 m DATE 3/9/80 PAGE 17 OF 22

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				241							
	241.5	3.0	3.0	100% 242					242.3 fol 85°		
				243		5 cm				243.4 qz, Po 85%, Cp 5%, Py 3% vein at 50°	93%
				244							
	244.5	3.0	3.0	100% 245						Vein, patchy: Py 30%, Pb 20, Sp tr	50%
					245.1	Intercalated, deformed, fine grey sandstone, black carbonaceous shale, dark grey siltstone.	Few quartz-cbte veins, rare cbte patch.		245.7 B 60° Soft sediment deformation common - slumped?	245.5 Disseminated & vein Py associated with quartz.	1%
				246			246.2 20mm St-qz vn at 65°				
				247	246.8	Altered plutonic? finely mottled; pale brown mottles on dark grey-green background, with black carbonaceous intercalations.	Common, white, medium, average 2mm, discontinuous, cbte veins.		247.4 fol 35° finely foliated.		-
	247.5	3.0	3.0	100% 248					248.1 fol 52° contact at 70°		
					248.4	Black carbonaceous shale, veined with white carbonate & pyritic. Increase in fine tuffaceous sandstone interbedded units down hole.	Very common, irregular discontinuous, average 1mm, cbte veins.		Slightly deformed.	Fine patches, disseminated fine, irregular, discontinuous veins: Py	5%
				249					249.8 B 65°		
				250							
	250.5	2.0	2.0	100% 251							
				252							
	252.5	1.0	1.0	100% 253	252.3	Fine tuffaceous sandstone, pale grey-grey, minor intercalated dark grey siltstone at base.	Common, irregular, fine, discontinuous siderite veins. Rare quartz veins.		Relatively undisturbed, 253.2 B 45° deformed at base.	Crystalline Py, fine-grained Sp in quartz-cbte veins. Py as blebs & disseminations along cleavage planes.	3%
	253.5	1.8	1.8	100% 254							
					254.3	Intensely quartz & siderite veined zone slightly mineralized; altered grey siltstone.	St & qz veining predominant.		Intense veining, some brecciation, sediment	Honey, fine-grained Sp concentrated along zoned qz-	7%
				255							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 12

LOGGED BY N. Green FROM 240m TO 255m DATE 3/9/80 PAGE 18 OF 22

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	255.3	3.0	3.0	100%			qz -50%, St 15%		highly deformed, finely bedded.	cbte veins. Scattered xaln bk sp in St-Ank veins. Sp 5%, AsPy 1%, Py 1%	7%
					256.0	Intercalated grey fine tuffaceous sandstone, dark grey siltstone, minor black carbonaceous shale. Moderately well-bedded with minor soft sediment deformation.	Common white cbte veins; rare qz + St veins. Relatively unaltered with individual grains readily discernable		Contact at 40°	scattered disseminated crystals Py.	1%
	258.3	2.7	2.7	100%					258.0 B 80°		
							258.9 qz-cbte zoned veins.		259.0 Contact at 50°. houndstooth quartz crystals in vuggy sections.	259.0 Fine grained bands Sp.	3%
							259.2 Minor calcite veining.			259.3 Disseminated crystalline Py in tuffaceous sandstone. Py in black shale interbeds. crystalline Py in scattered vuggy quartz veins.	2%
	261.0	1.5	1.5	100%					260.15 B 35°. graded tuffaceous sandstone unit. facing up hole (30 cm unit)		
							261.5 q.v. 40°		261.5 q.v 40°, increase in intensity downhole.		
							261.8 White q.v. zone with sediment clasts. V. minor cbte				
	262.5	1.5	1.0	66%			262.5		262.7 B 30°		
							262.9 Moderate clay alteration of tuffaceous units. Friable brown sericite? developed along S+F planes.		Deformed with cleavage prominent.		
	264.0	0.5	0.5	100%					263.9 q.v. at 80° 10cm	263.9 Disseminated Py, AsPy in q.v.	
	264.5	3.1	3.1	100%					264.9 S at 30°		
							265.5				
					267.0	Mottled green-grey + pink-brown plutonic? coarse grained (somewhat similar to 246.8) with intercalations of carbonaceous mudstone.	Few irregular white carbonate veins.		cross-cutting contact at 85°		
	267.6	3.0	2.85	95%							
					268.3	Intercalated black carbonaceous shale, fine-medium tuffaceous sandstone, gray and dark gray siltstone.	269.2 Xaln q.v. & cockscomb carbonate		Poorly bedded with moderate soft sediment and structural deformation. Tuffaceous sandstone units graded. 269.2 B 30° 269.5 B 50° 269.6 B 60°	Pyrite disseminations in carbonaceous shale units.	5%
							269.6				

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY G. Pigott FROM 255m TO 270m DATE 4/9/80 PAGE 19 OF 22

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	270·6	3·1	3·1	100%
	273·7	3·0	3·0	100%
	276·7	0·8	0·8	100%
	277·5	3·0	3·0	100%
	280·5	3·0	3·0	100%
	283·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	at 271·95 - heavily deformed calcite veined black shale.	Calcareous matrix to sandstone units. Friable weathered appearance.		270·2 ∡ 20° microfaulting. 271·6 B 35° graded facing up hole		
272·75	Quartz-sulphide zone: predominantly white milky quartz with minor grey bands containing secondary cream carbonate patches. Minor inclusions of sedimentary rocks.	Sulphide patches appear to post-date quartz.		contact at 65° Massive vein 274·6 60° banding on vein margin	Patches of fine grain massive sulphides become more massive down hole. Pb 7%, Cp 5%, Py 2%, AsPy 1%	15%
274·9	Interealated black carbonaceous shale, medium grained tuffaceous sandstone, grey-green siltstone. Siltstone is finely laminated. Sections strongly deformed with tuffaceous sandstone and siltstone clasts in carbonaceous mudstone matrix.	Moderate calcite and quartz veining throughout section.		Moderately bedded with fractured-bracciated sections cemented by calcite. 276·5 70° 20cm q.v. & 10% Cp 277·6 40° B 278·35 50° 3cm q.v. ruggy 278·7 65° 25cm carbonate-qz veined section. 279·2 65° 28cm bracciated q.v.	Patches Py in calcite veined sections. Py along ss ∥ in carbonaceous shale units. Cp in patches mainly in q.v. 278·7 black Sp layers in vein & Py disseminated crystals. 279·2 coarse crystalline AsPy finely grained Py in vein.	3%
		from 281·0 - increase in intensity of quartz-carbonate breccia and veining.		281·0 40° q.v. 281·6 55° qz-carbonate vn	Pb patches in q.v.; minor Sp in carbonate veins.	5%
283·1	Slump conglomerate deposit. Unsorted angular clasts of tuffaceous sandstone, calcareous siltstone in black carbonaceous pyritic mudstone matrix.	Strongly calcareous.		283·0 50° 12 cm q.v. zone. Intensely deformed - soft sediment deformation. 284·4 50° carbonate vein	Py along margins of clasts or concentrated in lenses - originally primary Sp in carbonate veins - concentrated along vein contacts.	10%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY G. Pigott FROM 270m TO 285m DATE 4/9/89 PAGE 10 OF 22

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						Well bedded in sections where more massive arenaceous lenses occur. Laminae in shale heavily contorted.			285.6 70°B		
	285.8	3.1	3.1	100%	286						
					287						
					288						
	288.9	2.0	2.0	100%	289						
					290						
	290.9	0.6	0.6	100%	291						
	291.5	3.0	3.0	100%	292				291.6 Moderate quartz-carbonate veining. 293.8 65° vein contact.	Fluospar in quartz vein.	
					293						
					294						
	294.5	3.0	3.0	100%	295						
					296						
					297						
	297.5	3.0	3.0	100%	298				298.3 70°B		
					299						
					300						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY G. Pigott FROM 286m TO 300m DATE 5/9/80 PAGE 21 OF 22

017326

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	300.5	3.0	3.0	100%	301				300.3 60°B		
					302						
					303						
	303.5				304	End of Hole RBE 12					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 12

LOGGED BY G. Pigott FROM 300 m TO 303.5 m DATE 5/9/80 PAGE 22 OF 22

017327

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
69.0																
	10	105	BLD	35	210	1·0	35									
70·5																
	20	105	BLD	15	200	BLD	20									
73·5																
	15	165	BLD	15	215	0·5	17									
74·5																
	10	10	15	5	180	0·5	7									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 69 m TO 75 m DATE 22/9/80 PAGE 1 OF 17

017328

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
75																
76.5	BLD	10	15	5	135	1·0	11									
76.0	9	15	15	5	165	1·5	8									
76.5	6	255	15	20	250	1·0	18									
77.2	7	120	BLD	5	200	1·0	7									
77.8	8	75	BLD	5	175	1·5	7									
78.8	BLD	120	30	5	245	0·5	15									
79.5	6	130	BLD	10	190	1·0	30									
79.6	7	240	BLD	10	270	1·0	38									
80.1	BLD	145	30	10	240	0·5	17									
80.8	3	35	BLD	5	155	1·0	410									
81.1	BLD	60	BLD	10	170	1·0	37									
81.9	4	25	BLD	15	210	1·0	17									
83.0	9	25	15	5	235	1·0	11									
83.5	10	220	15	10	190	0·5	22									
84.5	BLD	50	BLD	5	235	1·5	20									
85.5	4	15	BLD	10	275	1·5	29									
86.5	10	10	BLD	20	250	0·5	8									
87.9	6	10	BLD	10	265	1·0	7									
89.1	4	40	BLD	30	405	10	17									
90																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 11

ASSAYED BY Analabs FROM 75m TO 90m DATE 22/9/80 PAGE 2 OF 17

017329

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
90								
90.5	7	15	BLD	5	315	1.0	8	
90.9	BLD	525	15	10	180	1.0	15	
93.8	6	85	BLD	25	175	0.5	11	
94.5	6	30	BLD	30	320	BLD	12	
97.5	6	10	BLD	5	115	0.5	6	
99.0	6	5	BLD	10	95	0.5	12	
100.5	15	25	BLD	30	200	0.5	290	
103.5	10	260	20	55	160	BLD	26	

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 90 m TO 105m DATE 22/9/80 PAGE 3 OF 11

017330

632

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
105								
106								
106.1								
107	10	30	BLD	15	125	BLD	17	
108								
109								
109.0	15	15	BLD	15	120	BLD	15	
110								
110.0	10	20	BLD	15	110	BLD	9	
111								
111.0	15	20	BLD	25	120	BLD	23	
112								
112.5								
113								
114	BLD	200	BLD	25	125	1.0	13	
115								
115.5								
116	7	165	BLD	45	150	0.5	34	
117								
117.5								
118	9	165	BLD	455	115	1.0	250	
119								
118.5								
120	6	170	BLD	120	315	1.0	48	

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 105m TO 120m DATE 22/9/80 PAGE 4 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
120																
121																
121·5																
122																
123	20	490	BLD	145	730	3·0	210									
124																
124·5																
125																
126	BLD	150	BLD	15	165	1·0	21									
127																
127·5																
128																
129	10	130	BLD	30	150	BLD	11									
130																
130·5																
131																
132	BLD	135	BLD	15	140	0·5	11									
133																
133·5																
134																
135	15	75	BLD	50	155	0·5	11									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 120m TO 135m DATE 22/9/80 PAGE 3 OF 17

017332

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
135								
136								
126·2								
137								
138	20	35	BLD	1550	565	4·5	550	
139								
139·1	15		BLD					
139·5								
140								
141	7	260	BLD	20	145	2·0	12	
142								
142·5								
143								
144	4	95	BLD	20	125	2·0	12	
145								
145·3								
146								
147	10	155	BLD	120	1400	1·5	12	
148								
148·0								
149	6	100	BLD	25	160	1·5	10	
149·4								
150	50	585	20	275	615	4·0	80	

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 135 m TO 150 m DATE 22/9/80 PAGE 6 OF 17

017333

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
150																
151																
151·5																
152																
153	15	75	BLD	115	280	2·5	23									
154																
154·4																
155																
156	20	90	20	720	1050	4·0	230									
157																
157·3																
158																
159	10	90	BLD	620	275	3·0	20									
160																
160·5																
161																
162	35	95	BLD	235	800	3·0	33									
162·6																
163																
164	BLD	80	BLD	20	145	2·5	6									
165																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 150 m TO 165 m DATE 22/9/80 PAGE 1 OF 17

017334

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
165																
166	166·6	15	35	BLD	10	105	2·0	12								
167	166·5	BLD	40	30	15	60	2·0	34								
168	168·0	BLD	105	BLD	40	115	2·0	13								
169	169·5															
170		30	75	BLD	520	1100	2·5	35								
171																
172																
173	172·5															
174		10	30	BLD	25	160	2·0	40								
175																
176	175·5															
177		10	125	BLD	65	250	2·0	12								
178																
179	178·5															
180		20	70	25	230	330	2·0	120								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 165m TO 180m DATE 22/9/80 PAGE 8 OF 17

017335

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
180																
181	180·7															
182		15	85	BLD	225	315	2·0	61								
183																
184	183·8	BLD		20												
185	184·5															
186		9	85	BLD	50	185	2·0	28								
187	186·9															
188		BLD	90	BLD	25	150	2·0	11								
189																
190	190·0															
191		BLD	110	BLD	20	160	2·0	10								
192																
193	192·9	BLD		BLD												
194	193·5															
195		35	40	BLD	370	1000	2·5	40								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 180 m TO 195 m DATE 22/9/80 PAGE 9 OF 17

017336

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
196.0	20	35	BLD	135	385	2·5	170	
197.1	9	105	BLD	40	285	2·5	16	
199.5	40	30	BLD	465	850	2·5	90	
202.5	45	80	BLD	280	2350	2·5	50	
205.5	15	65	BLD	85	530	2·5	39	
208.5	15	105	BLD	65	175	2·0	27	
209.8								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 195m TO 210m DATE 22/9/80 PAGE 10 OF 17

017337

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
	70	160	40	1400	4350	4·5	39									
211·5	310	135	BLD	1150	1750	4·0	480									
214·5	120	105	BLD	750	2100	1·5	300						Split Core Commences			18275
215·5	55	195	BLD	640	2000	1·5	65									18276
216·4	75	20	BLD	1350	1800	1·5	95									18277
217·0	80	55	BLD	3650	7300	4·0	1600									18278
217·8	430	1050	BLD	6800	3·7%	25·5	1200									18279
218·25	360	445	BLD	2·35%	6·6%	81·0	2200									18280
219·1	200	560	BLD	710	1·1%	7·5	360									18281
219·65	210	150	BLD	5800	1·7%	19·0	5100									18282
220·45	740	3850	25	1600	6200	9·5	6000									18283
221·0	60	115	BLD	265	645	1·0	300									18284
222·0	40	220	BLD	330	1150	2·0	100									18285
223·5	160	1100	BLD	950	2650	6·0	550									18286
224·5	15	55	BLD	235	385	BLD	54									18287
224·9																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 210 m TO 225 m DATE 22/9/80 10/10/80 PAGE 11 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	SAMPLE NUMBER
	9	45	BLD	15	120	0·5	17	T8288
225·9	10	50	BLD	50	170	0·5	23	T8289
226·9	5	25	BLD	25	140	0·5	29	T8290
226·1	BLD	40	BLD	5	60	BLD	12	T8291
229·1	15	20	BLD	135	260	BLD	28	T8292
230·15	160	760	BLD	650	4650	3·0	330	T8293
230·7	2550	205	BLD	3600	1·3%	5·0	2700	T8 94
231·3	1500	1250	BLD	2200	9500	11·5	25%	T8295
231·65	450	1·8%	BLD	2300	7600	17·0	26%	T8296
231·95	1450	1750	BLD	3950	2·3%	11·0	4·7%	T8297
232·65	430	5·6%	BLD	1100	5250	80·0	15%	T8298
233·4	25	1850	BLD	35	245	8·0	1·3%	T8299
233·9	540	150	BLD	15	75	1·0	1400	T8300
234·9	890	2000	BLD	16	200	3·5	2400	T9014
235·9	190	2·1%	BLD	130	625	45·0	15·0%	T9015
236·2	20	180	BLD	80	195	2·0	3300	T9016
237·2	35	25	BLD	5	75	1·0	400	T9017
238·5	15	80	BLD	5	80	1·0	2700	T9018
240·0								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 225m TO 240m DATE 10/10/80 PAGE 12 OF 17

017339

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
240.0	10	100	BLD	20	130	1·5	1000									TQ019
241.1	15	165	BLD	20	60	1·0	500									TQ020
242.1	BLD	40	BLD	10	40	0·5	580									TQ021
243.1	720	1600	BLD	95	1200	4·0	1000									TQ022
243.6	BLD	35	BLD	5	50	1·0	380									TQ023
244.5	BLD	30	BLD	5	40	0·5	380									TQ024
244.95	1500	2900	BLD	210	1000	9·5	1000									TQ025
245.4	180	385	40	90	325	3·0	100									TQ026
246.1	390	245	BLD	375	1450	3·5	110									TQ027
246.8	15	85	BLD	100	260	1·0	300									TQ028
247.8	20	85	BLD	295	550	1·0	430									TQ029
248.4	300	155	BLD	505	1150	2·5	220									TQ030
249.4	25	115	BLD	200	345	2·5	110									TQ031
250.5	20	120	BLD	385	595	2·0	65									TQ032
251.5	40	105	BLD	1050	2450	2·0	100									TQ033
252.3	160	145	BLD	790	3350	2·5	140									TQ034
253.3	60	45	BLD	1350	5900	2·5	470									TQ035
254.3	150	155	BLD	1250	1·2%	9·5	2900									TQ036

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 240 m TO 255 m DATE 10/10/80 PAGE 13 OF 17

017340 633

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
255·5	200	155	BLD	3450	3·1%	26·0	200									Tq037
256·1	30	55	BLD	760	1700	2·5	80									Tq038
257·1	4	80	BLD	160	365	1·0	90									Tq039
258·3	60	85	20	1050	6050	5·0	520						Split Core Finishes			
261·0	7	75	T	40	185	0·5	50									
262·5	50	45	BLD	195	480	1·0	630									
264·0	55	315	25	220	1000	2·0	320									
264·5	40	75	BLD	380	545	3·0	320									
267·6	350	120	BLD	565	1350	2·5	1300									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 255 m TO 270 m DATE 22 /9 /80 PAGE 14 OF 17

017341

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
270																
270.6	30	55	BLD	20	175	1·0	130						Split Core Recommences			19040
271																
271.75	290	260	BLD	25	185	1·5	2.6%									19041
272																
272.75	350	3·7%	BLD	170	1100	59·5	1500									19042
273																
273.75	2200	2·0%	BLD	220	700	42·5	180									19043
274																
274.3	1000	1·7%	BLD	60	370	29·5	180									19044
274.9	300	570	20	BLD	160	3·0	120									19045
275																
275.9	100	155	BLD	20	215	0·5	12.0									19046
276																
276.65	65	2950	BLD	85	305	3·0	360									19047
277																
277.0	65	360	BLD	70	285	1·0	2.2%						Split Core Finishes.			19048
277.5	320	305	45	60	1900	1·5	5000									
278																
279																
280																
280.5	75	180	20	8300	3200	10·0	170									
281																
282																
283																
283.5	42	155	25	1350	4500	3·5	200									
284																
285																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 270m TO 285m DATE 22 /9 /80 PAGE 15 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
285																
285·8	30	95	BLD	515	1900	1·5	60									
288·9	10	120	25	100	480	0·5	70									
290·9	10	100	BLD	30	185	BLD	170									
291·5	10	100	30	60	575	1·0	2900									
294·5	7	100	BLD	25	210	BLD	80									
297·5	7	90	BLD	15	95	BLD	30									
300																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 285m TO 300m DATE 22/9/80 PAGE 16 OF 17

017343

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
300																
300.5																
301	6	100	BLD	35	105	BLD	50									
302																
303																
303.5			End	of	Hole:	RBE	12									
304																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 300m TO 303.5m DATE 22/4/80 PAGE 17 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
Start of Ground Values (Replaced by Split Core)																
214·5	70	70	BLD	1450	2550	3·5	260									
217·5	320	520	150	10·5%	3·25%	120·0	1400									
220·5	200	595	BLD	1000	1650	6·0	2100									
223·5	100	355	30	520	1300	5·0	250									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 214·5 TO 225m DATE 22/9/80 PAGE 11A OF 17

017345

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
225																
226																
226·5																
227																
228	15	40	30	135	220	3·0	45									
229																
229·5																
230	1600	730	30	775	2650	6·5	1100									
230·8																
231																
232	860	2550	BLD	3600	1·65%	16·5	9·0%									
232·8																
233																
234	270	2·0%	20	310	1450	29·0	5·5%									
235																
235·5																
236																
237	40	755	BLD	40	155	4·0	1·1%									
238																
238·5																
239	15	70	BLD	15	75	2·0	780									
240																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 225m TO 240m DATE 22/9/80 PAGE 12A OF 17

017346

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
240																
241																
241·5																
242																
243	130	345	BLD	10	130	2·0	620									
244																
244·5																
245																
246	190	570	20	195	725	3·5	380									
247																
247·5																
248																
249	160	125	BLD	245	675	3·0	310									
250																
250·5																
251																
252	35	100	BLD	505	1250	3·5	140									
252·5																
253	100	105	20	400	2400	4·0	180									
253·5																
254	170 ?	170	60 ?	670	9000	6·5	420									
255																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 240 m TO 255 m DATE 22/9/80 PAGE 13A OF 17

017347

Metres	Sn	Cu	W	Pb	Zn	Ag	As									SAMPLE NUMBER
255																
255·3	250	235	830	3650	4·6%	31·0	1700									
255·8	55	85	BLD	685	3850	2·5	460									
258																
258·3 End of	Ground core Values (which have been replaced by split)															
259																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 255m TO 258·3m DATE 22/9/80 PAGE 14A OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As								SAMPLE NUMBER
270															
270·6	510	4·6 %	BLD	95	1150	71·5	1500								
271															
272															
273															
273·7	810	1·0%	35	110	430	23·5	6500								
274															
275															
276															
276·7	65	425	25	80	270	2·0	380								
277															
277·5															
278															

Ground Core Values (which have been replaced by Split Core)

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 12

ASSAYED BY Analabs FROM 270·6 TO 277·5 m DATE 22 /9 /80 PAGE 15A OF 17

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017349

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

PROJECT Ranison	**AREA** Grid GAR.		**DRILLHOLE TYPE** DDH
CO-ORDS E 313318·1 N 5371664·7	**DEC^{LN}** 70°	**AZIMUTH** 216° MN	**RL** 200·8	**DH No.** RBE 13
DATE COMMENCED 19·8·80	**DATE COMPLETED** 25·8·80	**DRILLED BY** K. Parry	**DRILL RIG** Boyles
Non Coring to: 2·6 m	**HQ Core to:**	**NQ Core to:** 54 m	**BQ Core to:** 151·8 m	**EOH** 151·8 m

SURVEY DATA **Instrument:** Downhole Camera.

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
0m		70°	216° MN	145·8 m		39°	248° MN
25·8m		70°	214° MN				
55·8m		66·5°	224° MN				
85·8m		61·0°	236° MN				
115·8m		48·0°	248° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
0-2·6m Overburden			
2·6-35·7m Interbedded siltstone and sandstone, highly weathered, broken.			
35·7-42·0m Interbedded siltstone with sandstone beds, few brown weathered zones.	Vein Po, AsPy, Cp, Cs	<1%	
42·0-101·0m Interbedded dark grey siltstone and sandstone, often slightly altered.	Vein Po, AsPy, Cp, Cs	<1%	
101·0-151·8m Well interbedded siltstone and sandstone, hornfelsed.	Vein Po, AsPy, Cp, Cs	<1%	

017350

DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						No core recovered - overburden.					
	2.6	1.0	1.0	100%	2.6	Interbedded siltstone and sandstone, highly weathered and broken, brown-red-brown-black, sandstone medium-fine, probably lithic and/or tuffaceous. originally grey, sandstone beds less than 50 mm.	Few quartz veins and green-grey alteration associated with sandstone beds after sulphides.? Much Fe oxide + Mn oxide, especially along fractures. -8.0 2mm weathered, Mn oxide stained, quartz vein at 80°. -10.4 3mm vuggy q.v: 10° -11.5 2mm wthd q.v at 10°		Generally well-bedded common lisegangues red + red-brown. 4.0 B 10° 5.6 B 10° 7.5 B 35° 8.1 B 25° 9.0 B 25° 9.6 B 30° 10.9 B 35° 13.3 B 35° 14.0 B 20° - pitted sandstone bed after pyrite.	Weathered Py? sites especially in sandstone beds, dark red-black staining associated with green-grey alteration, leaves pitted beds. -10.4 3mm q.v at 10°, carrying fine black mineral - cassiterite?	<1%
3.6	1.7	1.7	100%								
5.3	1.8	1.8	100%								
7.1	1.7	1.7	100%								
8.8	1.5	1.5	100%								
10.3	1.5	1.5	100%								
11.8	2.2	2.2	100%								
14.0	1.0	1.0	100%								

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — **DRILLHOLE LOG FOR** DDH RBE 13

LOGGED BY N.P.Green FROM 0 TO 15 m DATE 20/8/80 PAGE 2 OF 12

017351

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	15·0	1·2	1·2	100%
	16·2	1·3	1·3	100%
	17·5	1·6	1·6	100%
	19·1	1·5	1·5	100%
	20·6	0·4	0·4	100%
	21·0	1·1	1·1	100%
	22·1	1·5	1·8	100%
	23·6	1·8	1·8	100%
	25·4	0·6	0·6	100%
	26·0	1·0	1·1	100%
	27·0	3·5	3·0	85·7%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		-19·7 3mm weathered q.v. at 0°		15·5 B 45° 16·1 B 35° { pitted gy-gr sandstone after py 17·0 B 40° 18·5 B 50° 19·7 B 40° 21·4 B 60° 22·9 B 55° 25·3 B 35° 26·8 B 30° 28·0 B 25°		
		-24·2 5mm q.v. at 20° & associated weathered sulphide sites.				
		-28·8 haemiform Mn oxide along fracture at 25°.				

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G FROM 15 TO 30 m DATE 20/8/80 PAGE 3 OF 12

017352

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	30·5	1·5	1·6	100%
	32·0	4·0	4·2	100%
	36·0	1·5	1·75	117%
	37·5	1·5	1·6	100%
	39·0	1·5	1·5	100%
	40·5	1·5	1·4	93·8%
	42·0	2·5	2·5	100%
	44·5	1·9	1·35	71%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		30·6 grey weathered-clay soft siltstone & sandstone 31·5 33·5 grey-green clay, soft weathered siltstone & sandstone 34·0 34·5 2mm weathered q.v. at 10° Brown weathered.		30·1 B 25° 31·4 B 30° 33·6 B 30° 34·0 fracture 10° 35·4 fracture 10°, B 30°	33·5 Disseminated & patchy Py 34·0	3%
35·7	Siltstone c̄ interbedded grey-purple fine sandstone - maximum 40 mm wide, siltstone soft & grey, hardens down hole, few brown weathered zones, sandstone beds very fine sericitic.	Little brown weathering, soft. 5mm mineralised q.v. 38·7 : 10° 39·1		36·0 B 30° 36·8 B 25° - graded uphole. 37·8 B 25° - graded uphole. 38·9 B 30° 40·1 B 25° 41·9 B 30° Very well bedded, medium-fine, undisturbed.	Finely disseminated Po in purple hued sandstone beds, minor fine dis. Py in rare beds, weathering out to stain core brown. Po concentrated in coarser sandstone fraction. 39·0 5mm qz, Py 40%, AsPy 10% vein at 10°.	<1% 50%
42·0	Core more competent, no sericite.	Few fractured zones. weathered brown. brown fractured, weathered q.v.		42·2 B 30° 42·3 Few lenses of grey sandstone in purple-grey sandstone, picked out by pale purple halos.	3mm pitted qz-Py-Cs? vein at 10°, extends for 30cm	

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 13

LOGGED BY N.P.G. FROM 30 TO 45m DATE 21/8/80 PAGE 4 OF 12

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					46						
	46·4	1·6	3·3	201%			45·1 Fracture, q.v. mineralised zone, some q.v approaching 90°			Py veins common, especially associated with q.v. AsPy in veins.	10%
	48·0	1·5	1·7	100%	47		46·8		47·1 B 30°, graded uphole.	Common thin average 3mm mineralised q.v. running at 25°: Py, AsPy, Cp, Cs, often pitted. AsPy - aggregates, rare crystals with striae. Cs - fine crystals associated with quartz. Pb-AsPy fine disseminations in rare medium-fine sandstone beds.	3%
	49·5	1·5	1·1	73·3%	48				48·3 B 30°		
	51·0	1·5	1·6	100%	49		50·0 Completely unweathered core. Few fine q.v. at 0°-10° little green alteration associated with sandstone beds, faint purple hue in some sandstone beds.		50·5 B 25°		
	52·5	1·5	1·45	96·7%	50				51·8 B 30°		
	54·0	2·0	1·65	82·5%	51				53·6 B 30°, graded uphole.		
	56·0	0·7	0·8	100%	52					54·9 2mm qz-Cs vn at 10°, extends 15cm.	
	56·7	1·3	1·2	92·3%	53				55·5 B 15°		
	58·0	1·6	1·45	90·5%	54				57·7 B 28°		
	59·6	1·4	1·3	92·8%	55				58·6 B 23°, graded uphole	58·0 Increase in disseminated Pb, Py, AsPy along sandstone beds.	5%
					56				59·3 B 30°		
					57						
					58						
					59						
					60						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 45 TO 60m DATE 24/8/80 PAGE 5 OF 12

017354

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					61				60·3 B 30°		
	61·0	2·3	2·65	125%					61·8 B 25° - uphole graded bd.		
					62		62·2 10 cm impure grey q.v. & green + brown thin halo at 30°.			62·5 5mm AsPy, qz, Py, tr Cp vn at 10°, extends 23 cm.	
					63						
	63·3	1·0	0·85	85%							
					64					64·3 2mm Py, AsPy, Cs? vn at 5°, extends 40 cm.	
	64·3	0·7	1·05	170%							
	65·0	2·3	2·05	89·1%	65				65·3 B 30°		
					66						
									66·7 B 30°		
					67					67·0 10mm qz, Py, Pb, Cs? vn at 8°, extends 30 cm.	
	67·3	3·0	3·1	100%							
					68						
					69					69·2 5mm vuggy Py vein at 65°	
										69·6 Cp, Pb, AsPy + tr. Py 3mm vn at 10°, extends 25 cm.	
					70				70·9 B 30°		
	70·3	2·7	2·7	100%					much dis B		
					71				grey f. ss?		
					72						
									73·1 B 35°		
	73·0	2·8	2·85	100%	73					73·8 2 parallel veins 13 cm apart at 15°, Pb, Py, AsPy, Cp, Cs?	
					74					74·5 eroded Cs? vein at 20°	
									74·8 B 35°		
					75						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 60 TO 75m DATE 24/8/80 PAGE 6 OF 12

017355

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	75·8	2·6	2·65	100%
	78·4	2·4	1·2	50%
	80·8	1·0	2·15	215%
	81·8	3·0	3·2	100%
	84·8	3·0	3·0	100%
	87·8	3·2	3·1	96·9%

LITHOLOGY

INTERVAL | DESCRIPTION | ALTERATION | GRAPHIC LOG | STRUCTURE | MINERALISATION | VISUAL PERCENTAGE MINERALISATION

76 77 78 79 80 81 82 83 84 85 86 87 88 89 90

spots pale grey as alteration halo.

pale gr-wh f. sa ε dis. Po.

80·8 Cloudy diffuse grey alteration.

86·4 40mm irreg q.v. at ≈75°

86·6 5 mm q.v. at 85°

87·1 25 mm qz replaced bed at 50°

qz + sediment, slightly mineralised, grey altered sed. vn at ≈30°

88·4

qz + sed vn at 45°

89·0

5 cm

76·5 B 35°

77·9 B 40° graded uphole.

80·4 B 45°

81·4 B 40°

Cloudy alteration obscuring structure.

82·8 B 35°

83·7 B 35°

84·9 B 50° graded uphole.

86·3 B 60°

87·5 B 55°

89·8 B 50°

76·2 3mm impure qz, Py, tr Po, cs? vn at 15°.

81·1 3mm qz, Po, tr Py vn at 12°

83·7 2 parallel 3mm wide vns at 15°, AsPy, Po, Cp, CS, extend 50 cm; associated 30mm Po dis. in sa. bed at 83·8 m.

85·1 4mm qz, AsPy, Po, Cp, Cs vn at 15°, extends 40 cm.

85·7 Dis. Po, tr AsPy in altered sandstone bed. 20%

86·0

87·8 q.v ε sed, Po 10%, tr Cp, tr AsPy 11%

88·4

88·8 q.v. ε sed, Po 5%, cut by thin 2° 3mm 5%

89·0 AsPy-Cp vn at base at 20°.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 13

LOGGED BY NPG FROM 75 TO 90m DATE 26/8/80 PAGE 7 OF 12

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	91·0	3·0	3·0	100%
	94·0	3·0	3·05	100%
	97·0	3·0	3·1	100%
	100·0	1·4	1·3	92·8%
	101·4	2·6	2·2	84·6%
	104·0	3·0	3·15	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				91·5 B40°	91·1 5mm qz, Po, Cs, AsPy, Cp vn at 10°	
		gr-gy sa & dis Po; 10cm; pale gy-wh qz; Cp; Po; gy qz		92·8 B55°	92·4 3mm qz, Cp, AsPy, Po, Cs vn at 10°, extends 30cm.	
				93·7 B50°		
					95·1 Fine lacework Po vns.	
		end of cloudy alteration		95·9 B50°		
		96·0			96·4 4mm qz, Po, Cp, Cs vn at 10°, extends 20cm.	
				97·0 B55°		
		gy-gr oval shaped qz unconformable lense & dis. Po in centre.		98·4 B60°		
				99·3 B55°		
		100·3 10 mm enlarged to 20 mm pale gy-gr-wh milky qv. at 50°		100·9 B55°	100·2 70 mm massive Po vn at 40°.	
101·0	Very well bedded siltstone-sandstone sequence appears hornfelsed, faint spots. core very hard, very sharp fracture.	101·7 Oblong conformable 20 mm pale gy-gr-wh q.v. & dis. Po at 50°.		101·3 B50°		
				102·5 B50°	102·0 4mm AsPy, Cp, qz, Po vn at 30°	
					102·7 10mm densely Po dis. vn at 55°.	
				104·5 B55°	104·2 6mm qz, Po, AsPy, Cs? vn at 25°	
					105·0 2x3mm qz, Po, AsPy, Cs vns at 25°.	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 90 TO 105m DATE 26/8/80 PAGE 8 OF 12

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
							Few very fine dark grey-black veins, irregular, short, at varying angles to bedding, restricted to certain beds.		105·8 B50°	106·1 4mm qz, AsPy, Po vn at 30°	
	107·0	3·0	3·0	100%					107·5 B50°		
									108·2 B60° - graded uphole.	108·1 2x3mm AsPy, Po, Py, Cs vns at 25°.	
										109·4 5mm AsPy, qz, Cs, Po, Cp vn at 30°	
	110·0	3·0	3·05	100%					110·2 B50°		
										110·7 10cm zone of conc. dis Po, minor AsPy at 50°	
										112·0 4cm very concentrated zone dis Po - massive c Cp: 35°	
									112·5 B60°	112·4 4 veins over 20cm, average 7mm; qz, Po, Cs, AsPy at 30°-50°.	
	113·0	2·4	2·4	100%					113·2 B40°		
									115·3 B50°		
	115·4	3·1	3·05	98·4%						116·7 4mm qz, AsPy, Po, Cs vn at 30°.	
									117·7 B55°		
										118·1 2x5mm AsPy, Po, Cs, qz vns at 30°	
	118·5	2·0	2·1	100%	118·9		Grey-green pervasive alteration sediments with many mostly very fine cream carbonate veins.			119·3 4mm qz, Py, Cs? vn at 35°	

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 105 TO 120m DATE 26/8/80 PAGE 9 OF 12

017358

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	120·5	0·4	0·4	100%
	120·9	3·1	3·1	100%
	124·0	1·2	1·05	87·5%
	125·2	2·8	2·7	96·4%
	128·0	1·6	1·9	119%
	129·6	0·4	0·4	100%
	130·0	0·7	0·5	71·4%
	130·7	0·6	0·6	100%
	131·3	2·2	2·2	100%
	133·5	3·0	2·85	95%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
120·3		8mm qtV at 25°		Sediments well cleaved.		
				121·5 B 55° graded uphole.		
				123·7 B 50°		
		124·0 Cloudy grey-brown alteration common. Sandstone beds often grey-green altered.		Cloudy alteration obscures structure.		
				126·5 B 50°	126·2 3mm qz, AsPy, Po, Py vn at 25°	
					126·7 5mm qz, Po, Cp, AsPy vn at 40°	
				127·6 B 50°		
					128·1 7mm qz, AsPy, Po, Cp, Cs vn at 30°	
		halo of gray-white milky qz concentrated dis. Po		129·3 B 45°		
		129·6 Common, fine, white irregular carbonate veining.				
		131·0				
					131·5 4mm qz, Po, Cp, Cs vn at 35°.	
				132·4 B 45°		
		very concentrated dis. Po halo & massive Po core		133·8 B 50°		
					134·6 4mm qz, Po, Cp, Cs vn at 40°.	

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G FROM 120 TO 135m DATE 27/8/80 PAGE 10 OF 12

017359

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	136.5	1.6	1.6	100%
	138.1	1.9	2.0	100%
	140.0	1.5	1.6	100%
	141.5	1.5	1.4	93.3%
	143.0	3.0	3.0	100%
	146.0	3.0	3.0	100%
	149.0	2.8	2.9	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		135.1 10mm q.v. minor AsPy at 35°.			135.7 3mm qz. AsPy. Po, Cp, Cs vn at 40°	
				137.3 B55°	136.9 3mm qz, Cp, Po, Cs vn at 40°	
					137.9 3mm qz. Po, AsPy vn at 30°	
					138.4 2mm AsPy, q.v. at 40°	
				139.5 B60°-graded uphole	139.6 5mm qz, Py, Po, Cp, Cs vn at 45°	
					140.1 7mm qz, AsPy, Cp, Cs vn at 40°	
					141.4 3mm qz, AsPy, Po, Cp, Cs vn at 35°	
142.8	Sandstone units, average 5cm, more pronounced, slightly coarser grainsize medium-fine, tuffaceous corrlant prominant.			142.4 B55°-graded uphole 142.9 B55°-graded uphole	142.0 20mm conc. dis. Po in sandstone - 70% - at 50°	
				144.4 B45° ripped up clasts of argillite incorporated in base of sandstone bed, younging direction up hole.	145.3 3mm Cp, Cs, Po vein at 30°	
				146.2 B50°	145.8 3mm AsPy, Cp, Po, Cs vn at 35°	
				147.9 B55°		
				148.8 B70°		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 135 TO 150m DATE 27/8/80 PAGE 11 OF 12

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					151				150.2 B 85° 150.9 B 75°		
	151.8				152	End of Hole RBE 13.					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 13

LOGGED BY N.P.G. FROM 150 TO 151.8m. DATE 21/8/80 PAGE 12 OF 12

017361

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au								SAMPLE NUMBER
Start of Sampling - All Split Core.																
44·5	200	185	BLD	235	200	4·0	100	BLD								TQ085

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 30 TO 45 m DATE 16/10/80 PAGE 1 OF 9

5 cm

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	SAMPLE NUMBER
45									
45·7	650	500	20	225	435	3·5	700	BLD	TQ086
46·8	120	180	BLD	115	490	2·0	80	BLD	TQ087
47·8	40	500	BLD	115	425	2·0	630	BLD	TQ088
47·9	140	1000	BLD	195	295	2·0	4700	BLD	TQ089
48·0	60	105	BLD	60	295	BLD	110	BLD	TQ090
49·0	40	115	BLD	40	135	BLD	55	BLD	TQ091
49·5	130	350	BLD	170	365	1·5	4600	BLD	TQ092
51·3	95	120	BLD	155	290	1·5	140	BLD	TQ093
52·3	670	765	120	145	550	3·0	2500	BLD	TQ094
53·0	50	110	BLD	85	285	1·0	60	BLD	TQ095
54·2	35	150	BLD	15	95	0·5	39	BLD	TQ096
55·5	140	350	BLD	165	405	1·5	680	BLD	TQ097
57·1	45	115	BLD	95	190	1·0	45	BLD	TQ098
58·0	55	150	BLD	20	150	BLD	33	BLD	TQ099
59·8									

60

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 45 TO 60 m DATE 16/10/80 PAGE 2 OF 9

017363

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au								SAMPLE NUMBER
	35	105	BLD	30	120	0·5	31	BLD								Tq100
60·5	680	255	20	95	265	1·5	7500	BLD								Tq101
61·9	80	105	BLD	115	170	1·5	120	BLD								Tq102
62·5	30	75	BLD	75	140	1·5	60	BLD								Tq103
63·9	170	610	BLD	145	170	3·0	4300	BLD								Tq104
64·3	150	120	BLD	190	275	0·5	450	BLD								Tq105
65·2	30	75	BLD	50	100	BLD	45	BLD								Tq106
66·9	1150	145	BLD	185	335	1·5	1900	BLD								Tq107
68·0	55	285	BLD	85	235	0·6	310	BLD								Tq108
69·4	780	565	BLD	90	300	0·5	190	BLD								Tq109
70·3	110	170	BLD	125	480	0·5	200	BLD								Tq110
71·7	45	105	BLD	45	150	1·0	50	BLD								Tq111
73·4	680	705	BLD	70	430	2·0	650	BLD								Tq112
74·4	190	250	BLD	70	300	1·0	80	BLD								Tq113

60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 60 TO 75m DATE 16/10/80 PAGE 3 OF 9

017364

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	SAMPLE NUMBER
75·4	65	95	BLD	55	250	1·5	30	BLD	rq114
76·0	40	105	BLD	40	190	0·5	80	BLD	rq115
77·5	150	145	BLD	55	165	1·0	130	BLD	rq116
79·1	230	365	BLD	30	380	1·0	8000	BLD	rq117
80·2	520	225	BLD	115	370	2·0	170	BLD	rq118
81·8	30	85	BLD	40	135	1·5	40	BLD	rq119
82·7	80	110	BLD	120	300	1·5	670	BLD	rq120
83·5	900	1650	BLD	145	1050	4·5	5000	BLD	rq121
84·1	60	635	BLD	65	270	3·0	490	BLD	rq122
85·1	300	1550	BLD	50	345	4·0	5000	BLD	rq123
85·5	500	520	BLD	35	260	2·5	1600	BLD	rq124
86·7	50	135	BLD	90	215	1·5	800	BLD	rq125
87·8	2300	540	40	25	70	2·0	140	BLD	rq126
88·4	250	75	BLD	15	160	BLD	80	BLD	rq127
88·8	190	510	BLD	100	85	2·0	1·3%	BLD	rq128
89·1	90	250	BLD	35	180	0·5	6500	BLD	rq129
89·7									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 75 TO 90 m DATE 16/10/80 PAGE 4 OF 9

017365

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au								SAMPLE NUMBER
/	30	120	BLD	25	115	BLD	130	BLD								TQ130
91.1	70	115	BLD	85	265	1.0	650	BLD								TQ131
92.2	60	800	BLD	100	350	2.0	800	BLD								TQ132
93.4	BLD	100	BLD	20	90	1.0	30	BLD								TQ133
94.4	140	250	BLD	35	190	1.0	1000	BLD								TQ134
96.0	80	370	BLD	65	275	1.5	650	BLD								TQ135
97.5	90	390	BLD	70	275	2.0	1000	BLD								TQ136
99.0	210	180	BLD	75	235	2.0	800	BLD								TQ137
100.1	85	950	BLD	20	120	1.5	40	BLD								TQ138
100.4	40	85	BLD	25	130	BLD	30	BLD								TQ139
101.4	370	950	240	55	290	3.0	5300	BLD								TQ140
102.5	320	585	30	45	265	1.5	750	BLD								TQ141
103.4	220	170	BLD	60	190	1.0	2700	BLD								TQ142
104.5	400	490	BLD	70	420	2.0	2800	BLD								TQ143

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 90 TO 105 m DATE 16/10/80 PAGE 5 OF 9

017366

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	SAMPLE NUMBER
105									
105.5	95	170	BLD	45	195	1·0	2600	BLD	TQ144
107·0	450	330	BLD	50	215	1·5	2700	BLD	TQ145
108·5	620	305	140	45	195	0·5	1150	BLD	TQ146
110·0	1150	230	40	40	170	0·5	210	BLD	TQ147
111·5	300	295	BLD	40	170	1·0	410	BLD	TQ148
113·0	300	185	BLD	15	125	0·5	2600	BLD	TQ149
114·5	140	190	BLD	15	120	BLD	1100	BLD	TQ150
116·0	750	300	30	50	200	1·0	3400	BLD	TQ161
117·5	240	220	BLD	60	185	0·5	6500	BLD	TQ152
119·5	220	120	BLD	105	300	BLD	120	BLD	TQ153
120	119·5								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 105 TO 120m DATE 16/10/80 PAGE 6 OF

017367

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au								SAMPLE NUMBER
	510	800	BLD	80	340	2·0	4500	BLD								TQ154
121·0	260	360	BLD	55	395	0·5	2700	BLD								TQ155
122·5	200	200	BLD	35	145	1·0	700	BLD								TQ156
124·0	1100	345	BLD	55	210	1·0	2700	BLD								TQ157
125·0	380	240	BLD	50	220	1·0	1800	BLD								TQ158
126·6	90	260	BLD	30	150	1·0	280	BLD								TQ159
128·0	210	195	30	30	140	1·0	2700	BLD								TQ160
129·5	510	200	BLD	45	160	1·0	160	BLD								TQ161
131·0	280	320	BLD	25	180	0·5	1000	BLD								TQ162
132·5	320	230	BLD	20	140	0·5	1000	0·05								TQ163
134·0	590	295	BLD	25	160	0·5	2600	BLD								TQ164

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 120 TO 135 m DATE 16/10/80 PAGE 7 OF

017368

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au	SAMPLE NUMBER
135									
135.5	540	495	30	25	245	1.0	3000	BLD	Tq165
136.5	340	450	70	35	155	1.0	750	BLD	Tq166
137.9	430	400	BLD	15	140	1.0	1900	BLD	Tq167
139.0	130	155	BLD	20	155	0.5	70	BLD	Tq168
140.0	650	1050	40	20	240	1.5	3800	BLD	Tq169
141.5	830	190	BLD	25	150	1.5	750	BLD	Tq170
143.0	120	175	BLD	15	130	0.5	800	BLD	Tq171
144.5	230	450	BLD	20	185	1.0	2700	BLD	Tq172
146.0	530	635	BLD	15	160	1.5	2600	BLD	Tq173
147.0	160	210	BLD	20	145	0.5	1100	BLD	Tq174
148.0	150	140	BLD	20	120	0.5	1000	BLD	Tq175
149.0	60	40	BLD	15	130	0.5	600	BLD	Tq176
150.0									

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 135 TO 150 m. DATE 16/10/80 PAGE 8 OF 9

017369

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Au								SAMPLE NUMBER
150·0																
	95	95	BLD	10	150	BLD	31	BLD								TQ177
151·8		End of	RBE 13	at 151·8m.												
		End of	ground	core	samples.											

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 13

ASSAYED BY Analabs FROM 150 TO 151·8 m DATE 16/10/80 PAGE 9 OF 9

017370

AUSTRALIAN ANGLO AMERICAN LIMITED
DRILLHOLE LOG
Summary Sheet

PROJECT Renison	**AREA** Grid GAR		**DRILLHOLE TYPE** DDH
CO-ORDS 372723·3 E 8372547·0 N	**DEC^{LN}** -45°	**AZIMUTH** 78° MN	**RL** 178·2	**DH No.** RBE 14
DATE COMMENCED 7·9·80	**DATE COMPLETED** 22·9·80	**DRILLED BY** Longyear	**DRILL RIG** Longyear 38

Non Coring to: 45·0 m **HQ Core to:** **NQ Core to:** 93·0 m **BQ Core to:** 291·5 m **EOH** 291·5 m

SURVEY DATA

Instrument: downhole camera

DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH	DEPTH	DECLINATION Uncorr	DECLINATION Corr	AZIMUTH
61 m		-45°	81·5° MN	211 m		-41°	80·5° MN
91 m		-45·5°	80·5° MN	241 m		-42°	80° MN
121 m		-45°	82·5° MN	271 m		-42·25°	82·5° MN
151 m		-45°	82° MN	291 m		-42°	90·5° MN
181 m		-42°	81·5° MN				

LOG SUMMARY

ROCK TYPE	MINERALIZATION Style	Grade	Intersection width (Corr)
45·0-68·65: carb sh & interslumped tuf sa & ss	dis & bedded Py	10%	
68·65-102·8: carb s.s & sh, slumped	patches Py; Pb in microveins	2%	
102·8-108·6: carb sh & interslumped bd tuf sa	Po & Py in lensoid patches	5%	
108·6-111·5: tuf sa.			
111·5-149·3: carb ss & sh & slumped tuf sa.	f Py along bd planes, fols in calcite vns.	7%	
149·3-153·4: tuf sa.			
153·4-156·5: carb sh slump deposit	Py along frac & calcite vns	10%	
156·5-158·3: intermediate to mafic tuff.			
158·3-190·1: sa, ss, ar & lnth carb sh & ss units	Py in ar & carb units	1%	
190·1-202·1: carb ss.	Py along bedding planes	10%	
202·1-213·7: ss-ar sequence			
213·7-231·0: ss-sh-sa sequence & minor units of crystal tuff.	Py, Po in carb layers.	5%	
	As Py, Gl, Sp, Cp in clste vns	Tr	
231·0-235·25: alt crystal-lithic tuff.			
235·25-244·6: ss-sh-sa sequence			
244·6-249·6: sbd, chloritised tuf sa.			
249·6-253·1: graphitic sh & ss & units of chloritised tuff.	dis Py; Po, Py, Sp, minor Gl in fracture stk & clste vns	10%	
253·1-257·3: qz-clste-sul vein zone.	mas Pb; veins Sp, Gl, Cp	25%	
257·3-258·8: alt argillaceous sed.	patches Pb; vns As Py	5%	
258·8-260·25: qz-Pb vn zone	mas Pb & minor inc Cp	30%	
260·25-266·3: talc-clste schist.	As Py, Pb, Cp in rare vns.	60% (in vn)	
266·3-291·5: ss, tuf sa & carb sh sequence	Py in stringers & along bedding planes in carb units	5%	

DRILL ADVANCE

LOST CORE | DEPTH | DRILL ADVANCE INTERVAL | CORE RECOVERY | PERCENT RECOVERY

LITHOLOGY

INTERVAL | DESCRIPTION | ALTERATION | GRAPHIC LOG | STRUCTURE | MINERALISATION | VISUAL PERCENTAGE MINERALISATION

No core recovered.

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 0 TO 15 m DATE 10/9/80 PAGE 2 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					16	No core recovered.					
					17						
					18						
					19						
					20						
					21						
					22						
					23						
					24						
					25						
					26						
					27						
					28						
					29						
					30						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 15 TO 30m DATE 10/9/80 PAGE 3 OF 21

LOST CORE

DRILL ADVANCE

DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
30–45	No core recovered					

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 30 TO 45m DATE 10/9/80 PAGE 4 OF 21

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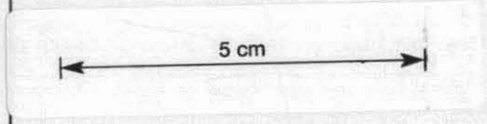
DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	45.0	1.5	0.5	33%	45.0	Carbonaceous shale, black, well laminated, pyritic with green-brown limonitic inclusions of tuffaceous sandstone.	Weathered with limonite after pyrite on B and S planes. Core very broken and fractured; generally soft, friable or decomposed.		45.0 20cm q.v + Py Moderate to intense fracturing, limonite or goethite infilling matrix and in veinlets. Bedding is highly contorted.	Crystalline pyrite (→ limonite) as disseminated crystals in carbonaceous matrix. Gossanous pyritic quartz veins.	1%
	46.5	1.0	0.44	44%							
	47.5	2.0	1.6	80%							
	49.5	1.4	0.9	64%							
	50.9	1.6	0.3	18%							
	52.5	1.2	0.2	16%	52.5	Tuffaceous sandstone, green-brown, fractured and heavily limonitic.	Weathered, with limonite developed; friable.				
	53.7	1.0	0.6	60%	53.7	Carbonaceous shale with 20% inclusions of poorly sorted siltstone/fine grained sandstone clasts. Shale generally soft.	Part weathered; soft and friable; limonite along B and S.		53.7 gossanous q.v.		
	54.7	0.8	0.1	12%							
	55.5	1.3	1.0	76%			55.5 Limonite after pyrite only on major fracture planes.			55.5 Medium-coarse crystalline Py in soft carbonaceous mudstone concentrated in bedded lenses.	10%
	56.8	1.2	1.2	100%							
	58.0	2.0	1.9	95%	58.1	Carbonaceous shale/mudstone slump breccia. Black mudstone forms matrix to grey-white calcareous, tuffaceous sandstone debris. Inclusions	Calcareous; calcite in matrix of inclusions, and cements micro- 59.2 (End limonite weathering) fractures.		58.2 @ 50° Moderate to heavy microfracturing with calcite infilling S, F planes.	Py concentrated along fractures and as coarse disseminations. Scattered massive	1%



SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 45 TO 60 m DATE /9/80 PAGE 5 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	60·0	1·5	1·5	100%		vary from insumped bedded lenses to angular clasts.		S Py vn	60·2 50°S - concentration of Py along S. 61·0 55°S - cut by calcite vein + Py at 80°	concentrations - patches of Py, may be remobilised primary sulphide. Irregular dissaminations of Py in tuffaceous inclusions, which are unusually well rounded.	7%
	61·5	3·0	3·0	100%					Well laminated and strongly calcareous. 63·7 30°S, possibly B		
	64·5	3·0	3·0	100%			64·7 sooty texture due to carbon. Part weathered with vuggy textures. Decalcified with calcareous sections weathered out.		66·8 75° Py on B 2° F 67·1 0-5° S-B contorted	64·7 Coarse disseminated crystalline Py. Py heavily concentrated on fractures	15%
	67·5	3·0	3·0	100%			67·6 Interbedded tuffaceous sandstone units slightly calcareous - partially decalcified with vugs.		67·6 50° B - coarse grained tuffaceous sandstone units.	67·6	10%
					68·65	Carbonaceous siltstone-shale sequence. Similar to above with a predominance of dark grey siltstone with irregular sections of black mudstone - as a matrix to the siltstone in parts. overall it has a slump-conglomerate/ breccia texture.	Calcareous in siltstone and fine grained sandstone sections. Calcite cements micro-fractures. Vuggy in sections due to decalcification.		68·65 50°B Bedding and foliations strongly contorted. Minor microfracturing General fractured/ brecciated texture is probably predominantly a primary sedimentary feature.	Scattered irregular patches of crystalline Py (3%). Fine grained Py in microveins (2%) associated with calcite. 70·5	5%
	70·5	3·0	3·0	100%							2%
	73·5	3·0	3·0	100%					74·9 45°B		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 14

LOGGED BY G. Pigott FROM 60 TO 78m DATE /9/80 PAGE 6 OF 21

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
					76				76.4 30° B	76.0 Pb concentrated along calcite, patches rimmed with Cp.	1-2%
	76.5	3.0	3.0	100%	77						
					78						
					79						
	79.5	2.2	2.1	95%	80	at 79.7 Inclusions of medium grained andesitic lava or tuff - yellow stained.			79.8 55° Calcite in 2° fracture		
					81		80.6 Friable partially weathered - decalcified? with vugs 82.2				
	81.7	0.8	0.74	92%	82						
	82.5	1.1	1.1	100%	83						
	83.6	1.9	1.8	94%	84						
					85						
	85.5	3.0	3.0	100%	86				85.3 85.7 ∃45° 86.3 60° calcite vn Moderate calcite veining + calcite infilling microfractures.	Scattered fine grained Pb in microveins and small patches Py along S planes.	1%
					87						
					88						
	88.5	4.5	4.4	97%	89				89.0 0°-40° contorted fol^{n} 89.45 70° calcite vein.	89.45 Trace Gl Py in calcite vein.	
					90						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 75 TO 90 m DATE 7/9/80 PAGE 7 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
NQ BQ	93.0	1.5	1.5	100%
	94.5	3.0	2.8	93%
	97.5	3.0	3.0	100%
	100.5	3.0	3.0	100%
	103.5	3.0	3.0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		end section of decalcification 92.3 Moderate-strongly calcareous. Inclusions of tuffaceous sandstone and siltstone are calcareous. Finely interlaminated units of grey siltstone are calcareous. Calcite cements tension fissures and micro-fractures. Secondary undeformed calcite veins cut sequence.		92.6 70° rounded inclusion of fine-grained tuffaceous sandstone with disseminated Py concentrated on margin. 94.0 10° irregular contact between black shale and calcareous tuffaceous sandstone lens. 95.5 35° contorted B.	90.5 Cp as disseminated round clots and crystalline Py, Po in grey calcareous tuffaceous sandstone 91.9 sections. Py as bedded lenses in black shale sections, often concentrated in calcite veined fissure structures. Grey calcareous siltstone inclusions are noticably magnetic due to fine grained disseminated Po.	3% 5%
				99.0 30° slumped lens of calcareous siltstone face up hole - beds underneath disturbed.	sulphide content in calcareous sandstone, siltstone inclusions varies from trace to 50%. Py » Po » Cp	
				101.5 50° calcite vein		
102.8	Carbonaceous shale with interbedded tuffaceous sandstone. Shale is dark grey to black, carbon rich, well laminated. Interbedded units are deformed and show soft sediment structures; they are			102.8 70° B 103.2 40 cm unit grey calcareous siltstone, fractured with carbonaceous mudstone in fractures.	102.1	1%
					103.7 Fine grained Po concentrated in lensoidal interbedded calcareous siltstone.	10%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED

DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 90 TO 105m DATE /9/80 PAGE 3 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						light grey calcareous fine-grained sandstone to siltstone.				Sandstone. Py 105·3 concentrated along B and F in shale.	10%
	106					from 106·5 Predominantly laminated black shale.	106·5 minor calcite veining.		Laminated to well bedded slump textures die out.		5%
	106·5	3·0	3·0	100%					108·1 55° crenulated B		
	107								gradational contact		
	108				108·6	Tuffaceous sandstone. Poorly bedded medium to coarse grained sandstone. Green to grey lithic clasts and feldspathic grains form framework. Includes minor interbeds grey siltstone and carbonaceous mudstone laminae. Carbonaceous mudstone infills hairline fractures.	Matrix to sandstone chloritic. Calcite occurs in minor fracture network.		109·6 60° B interbedded siltstone unit. 110·2 20cm calcite veined section.	Py as blebs in calcite veins.	1%
	109										
	109·5	3·0	3·0	100%							
	110										
	111										
					111·5	Carbonaceous siltstone and shale sequence. Siltstones are grey, well bedded to laminated and calcareous. Shales are black, highly carbonaceous and non-calcareous. Minor interbedded irregular units of lithic sandstone occur similar in composition to 108·6 - 111·5 above. Sandstone units have slump breccia texture with inclusions of shale and siltstone. Inclusions of sandstone also occur within siltstone & shale units. Siltstone units are massive with shale intercalations. Carbonaceous shale associated with tuffaceous sandstone units.	Siltstone and fine grained sandstone units are calcareous. Microfractures in black shale units are calcite filled.		111·5 35° contact 111·9 45° 4cm calcite vn & Py 112·45 45° 6cm calcite vn. 113·4 20° B 113·95 – 114·7 Green tuffaceous sandstone unit with brecciated laminated grey siltstone intercalations. Moderate to well bedded but contorted. 116·2 – 116·9 30° B green sandstone unit with black-grey siltstone shale clasts. 115·5 25° B 119·1 60° Py on secondary fracture 119·6 25° B	Crystalline Py in calcite veins and associated with calcite filling fractures and fissures in black shale. Concentrated Py on margins of sandstone units and as disseminations in sandstone. Pb occurs as fine grained disseminated crystals in most sandstone units and inclusions. Pb also occurs in sections of grey siltstone. Py + Pb 2° crystalline on crosscutting undeformed fractures of 10cm spacing. 119·5 Blebs and lensoid patches	
	112·5	3·0	3·0	100%							
	113										
	114										
	115										
	115·5	3·0	3·0	100%							
	116										
	117										
	118										
	118·5	3·0	3·0	100%							
	119										
	120										

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 105 TO 120 m DATE /9/80 PAGE 9 OF 21

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DRILL ADVANCE / LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
				121						possibly remobilised primary Py in siltstone. Concentrations of Py along calcite veins and calcite filled fractures. Scattered concentrations of very fine grained Po.	10%
	121·5	3·0	3·0	100% 122					122·1 80°B		
				123					123·1 20cm calcite veined zone with Py.	123·1 Py in microfractures cutting black shale. Disseminated Py and very fine grained Po in grey siltstone units. Py tends to concentrate in irregular patches.	7%
	124·5	3·0	3·0	100% 124 125	124·5	Carbonaceous shale with interbedded siltstone and tuffaceous sandstone. Slump textures evident with the sandstone units broken up and lenticular.	Interslumped tuffaceous sandstone inclusions are moderately calcareous.		Moderate to contorted bedding. Overall a sedimentary breccia texture.		
				126 127							
	127·5	3·0	3·0	100% 128							
				129					124·1 30° Py in cross-cutting fracture cut crenulated laminae		
				130	129·8	Tuffaceous siltstone with sandstone and shale interbedded units. Sandstone units are 30cm, vary from fine to medium grained, are massively bedded and contain interlaminated wispy inclusions of shale and siltstone. Siltstone and shale are finely bedded, light to dark grey and pyritic.	Highly calcareous.		129·9 30°B	Disseminated medium grained crystalline Py in siltstone, shale units. 131·0	3%
	130·5	3·0	2·9	96% 131					131·0 15°B Well bedded in siltstone/shale units. Massive to roughly graded in sandstone units.		7%
				132							
				133					133·6 30°B		
	133·5	3·0	3·0	100% 134	133·9	Carbonaceous shale. Black, graphitic, laminated shale with gray calcareous	Moderate to strong calcite veining.		133·9 65°F, faulted contact Calcite in microfractures. 134·6 80°B Contorted bdg. 134·8 35cm section of Ca. Mg veining	Py concentrated with calcite in cemented fissures and in cross-	10%
				135							

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 120 TO 135 m DATE /9/80 PAGE 10 OF 21

DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
						siltstone and fine grained tuffaceous sandstone interbedded units. Moderate soft sediment deformation apparent.			135.6 15° 5cm calcite vn + Py 136.7 45° B 138.2 75° B 140.5 50° B 141.5 20cm Mg dolo vn. 144.0 strongly veined over 60cm with calcite. 144.1 40° 4cm dolo-sulphide vn 144.6 end veined section 145.95 35cm section calcite breccia 20° sharp contact — possible folding. 147.5 60° B 148.8 65° B 149.3 50° disconformable contact.	cutting secondary fractures. Disseminated Py and fine grained Po concentrated in sandstone layers. —141.5 Sp. Py + tr Gl in veined section. —144.1 stringers Py, blebs Po + scattered crystals Gl in 4cm zone.	
136.5	3.0	3.0	100%	136							
				137							
				138							
				139							
139.5	0.9	0.9	100%	140							
140.4	2.1	2.1	100%	141							
				142							
142.5	3.0	3.0	100%	143							
				144							
				145							
145.5	2.5	2.5	100%	146							
					146.3	Siltstone, carbonaceous shale. Predominantly dark grey calcareous siltstone with interbedded and interlaminated black shale. Minor inclusions and interbedded layers of medium grain tuffaceous sandstone.	Minor calcite-quartz veins.			Py in microfractures and as lenticoidal patches parallel to bedding. Disseminated Py, minor Po in siltstone and sandstone.	7%
148.0	3.0	3.0	100%	147							
				148							
				149		— from 148.7 Interbedded units of medium to fine grained tuf sandstone + green siltstone/sh.				148.7 Blebs Po in sandstone units	5%
					149.3	Tuffaceous feldspathic sandstone. Medium grained feldspathic sandstone,	Rare calcite tension fissures and			Trace Po as blebs. Py in shale/siltstone	
				150							

SCALE 1:100 (1cm = 1m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 135m TO 150m DATE /9/80 PAGE 11 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
				151
	151·0	0·8	0·8	100%
	151·8	2·7	2·7	100% 152
				153
	154·5	3·0	3·0	100% 154
				155
				156
	157·5	3·0	3·0	100% 157
				158
				159
				160
	160·5	2·9	2·9	100% 161
				162
				163
	163·5	2·0	2·0	100% 164
				165

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION
	green to grey with minor intercalated light grey shale and siltstone irregular inclusions or slumped layers. Noticably high SG.	microveins.
	—from 153·2 { intercalated black carbonaceous shale, tuf sandstone.	
153·4	Carbonaceous shale slump deposit. Black pyritic carbonaceous shale and siltstone with dark grey to dark green medium grained tuffaceous sandstone, fine grained sandstone & grey siltstone irregular clastic inclusions & slump	Siltstone & sandstone layers and inclusions are strongly calcareous Calcite in irregular fractures.
	—from 155·7 Increase { brecciated layers in proportion of interlayered green sandstone & siltstone.	
156·5	Mafic tuff with interbedded slump brecciated siltstone unit. Tuff is medium to coarse grained, ophitic textured, green "andesitic" appearance	Tuff is chloritised. Minor mesoveins of calcite.
158·3	Sandstone, siltstone, argillite sequence Repetitive interbedded units of green, medium to fine grained tuffaceous sandstone and lithic wacke; green to grey well bedded siltstone; green light grey & black argillite. Brecciated or slump textures evident in sections with intermixing of the various lithologies. Sequence becomes well bedded and with dominant siltstone down hole.	Very minor to rare calcite veins. Development of argillite rather than shale suggests a degree of induration or minor hornfelsing.
	—from 163·4 Sequence is brown to light green-grey in colour. Argillite units are purple-brown and increase in proportion to siltstone and sandstone units.	

GRAPHIC LOG

STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
Hairline fracture stockwork cuts core with black-carbonaceous? along F planes.	sections.	
152·0 40°B 152·1 50° calcite vein & Py		
152·7 40°B	152·7	2%
153·4 30°B varies		
Brecciated textures.	Crystalline Py along fractures and calcite veins. Disseminated Py concentrated in arenaceous inclusions.	10%
156·7 } Brecciation, slumped siltstone with tuffaceous sandstone inclusions (lapilli)? 157·3 }	Minor Py in black argillite.	tr.
158·3 50° contact		
Slumping, brecciation features die out down hole.		
160·2 30°B, 20cm coarse grain tuff sandstone unit. 160·4 20°B? or microfault.		
161·9 35°B - well bedded siltstone, shale & sandstone.		
163·8 25°B		

5 cm

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 150 TO 165 m DATE /9/80 PAGE 12 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	165·4	1·6	1·6	100%
	167·0	2·5	2·5	100%
	169·5	3·0	3·0	100%
	172·5	3·0	3·0	100%
	175·5	3·0	3·0	100%
	178·5	2·2	2·2	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	167·4 – 168·0 feldspathic lithic sandstone unit with green argillite to lithics.			167·1 30° B 168·0 40° B		
	Graded sedimentary texture indicates turbiditic environment.			170·3 30° fracture & sulphides. 170·5 30° B grading suggests facing down hole. 172·1 25° B	170·3 stringers Cp, Po along calcite veined fracture.	
	from 172·8 units poorly bedded, contorted due to slumping or rapid deposition. Increase in dark grey to black argillite in sequence. Where grey and carbonaceous core is well bedded to laminated.	175·0 Increase in quartz, ca. Mg carbonate veining associated with increase in carbonaceous shale component.		172·8 20° B	Minor Py in black argillite/shale thin layers	172·8 1%
				176·1 30° B 10 cm zone & brec clote vn 4 start qz-clote vein zone 177·1 – 177·6 50 cm massive q.v & minor dolomite. 25° q.v. zone contact. Fractured calcite vn stockwork dies out downhole. 178·4 end veined zone	176·3 Patches Po in Mg, Fe carbonate veins and in tension fissures.	
178·8	Predominantly dark grey-black carbonaceous shale finely interbedded with grey-green siltstone.			179·1 20° very fine B.		
179·4						

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 14

LOGGED BY G. Pigott FROM 165 TO 180m DATE / 9 / 80 PAGE 13 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	180·7	2·2	2·2	100%
	182·9	1·6	1·6	100%
	184·5	3·0	3·0	100%
	187·5	3·0	3·0	100%
	190·5	1·7	1·7	100%
	192·2	3·1	3·1	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
180·7	Carbonaceous siltstone. Dark grey siltstone/fine grained sandstone with black carbonaceous shale interbedded thin units.	Moderate veining with cream carbonate/quartz vein.		180·4 30° qz-clste vn Fractured, with thin fracture planes filled with carbonate. 181·8 of shear/vein zone. 182·8 36° fractured clste-q.v zone.	180·4 1% Cp, 2% As Py in vn 1% Po, 1% As Py in sheared, fractured & brecciated carbonate veins.	3% 2%
185·1	As before with turbiditic feldspathic sandstone units dominant.	Minor veins - mainly of crystalline zoned carbonate style.		25° B, erosion contact 185·35 45°, 3mm clste vn & sulphide. 186·5 45° 7cm zoned clste-q.v. 186·8 65° crystalline clste vn. 10cm. 187·6 70° B	185·35 Vein Gl, Sp in thin clste vn. Minor Cp in zoned clste-q.v.	1%
188·05 188·55	Purple argillite unit.					
190·1	Carbonaceous siltstone. Dark grey siltstone to fine-grained sandstone with carbonaceous shale. Interbedded grey siltstone/sandstone units over first 30 cm sequence.	Calcite in irregular tension fissures, veinlets and in patches of sandstone matrix.		189·8 85° slumped contact 190·6 10cm Po-clste vein zone. Bedding obscured as units are gradational. Slump brecciation is evident.	189·8 Po in irregular fracture 190·4 Disseminated crystalline Py concentrate in more 'shaley' layers. Patches Py = Po are fracture controlled. Po in cross-cutting carbonate veins.	3% 5%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 180 TO 195 m DATE /9/80 PAGE 14 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	195·3	1·2	1·2	100%
	196·5	2·2	2·2	100%
	198·7	2·9	2·9	100%
	201·6	3·1	3·1	100%
	204·7	2·9	2·9	100%
	207·6	2·8	2·8	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	from 196·4 - interbedded light grey tuffaceous fine grained sandstone units.	198·45 Moderate calcite veining. 199·8		196·7 60°B 197·5 35°B Finely bedded sections, structurally contorted. 199·5 60° calcite vein. 199·7 36°B	198·45 Coarse crystalline Py concentrated in grey sandstone inclusions and layers.	
202·1	Siltstone - argillite sequence. Pale green to grey, finely bedded units of siltstone, shale and argillite. Includes very finely bedded buff argillite interbeds.	Overall pale green colour may indicate chloritic or similar peripheral hydro-thermal alteration. Minor calcite veining.		80° gradational contact over 10 cm. 203·5 45°B Vary from relatively undeformed fine bedding to contorted. 205·9 55°B, 70°F 207·2 20°B	Minor development of Py along carbonaceous laminae.	tr.
	from 205·9 interbedded medium grained tuffaceous feldspathic sandstone units. Resembles 158·3 sequence in sedimentological features. Dominantly grey-green argillite shale.	207·8 Microfractured with F planes irregular and infilled with graphite carbonaceous shale and ? chlorite				

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 14

LOGGED BY G. Pigott FROM 195 m TO 210 m DATE /9/80 PAGE 15 OF 21

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DRILL ADVANCE

LITHOLOGY

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY	INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	210·4	1·1	1·1	100%		From 210·6 Black to dark grey carbonaceous shale interbedded units. Green sandstone units contain coarse sub-angular lithic fragments of green argillite in sections.			211·75 60°B cut by 70° F 212·9 35°B		
	211·5	3·0	2·9	96%							
	214·5	3·0	3·0	100%	213·7	Siltstone, shale, sandstone sequence. Finely bedded alternating units of laminated dark grey to black shale, grey to green, fine to massive siltstone and light green feldspathic sandstone. Distinctive banded or striped appearance due to variations in colour with grain size. Bedding is irregular to fragmented with brecciated slump textures in parts. Minor purple-brown altered tuff units increase downhole and sequence becomes more arenaceous. Altered tuff units are carbonate rich.	Graphite developed on B/S planes.		80° gradational contact Well bedded-foliated B may parallel S as shearing is intense fragmenting B. 216·7 65°B - altered crystal tuff layer? 217·65 35° fluospar in cbte/q.v.	Py as lenticoidal patches in tension fissures within carbonaceous layers. Disseminated Py in sandstone, siltstone slumped inclusions.	5% 3% 1%
	217·5	3·0	2·9	96%							
	220·5	3·0	3·0	100%	220·3	Sandstone predominant with very altered tuff? units (crystal). Sandstone is medium-fine grained, massively bedded, light green and feldspathic. Tuffs are coarsely fractured but medium grained.	Interbedded crystal tuffs? are recrystallised and brecciated, also calcareous, therefore are carbonated.		219·4 70° foliation parallels B 55° calcite vn'd contact 221·4 65°B in altered black shale, green siltstone. 70° B. microfaulted contact	220·3	tr
	223·5	3·0	3·0	100%	222·5	Similar to 213·7 sequence.	224·6 Quartz veins-irregular cut core, give	sulphide	222·95 60° cream st vn č sul·3cm 223·05 60° zoned st-calc vn-20mm 223·45 č q.v along margins-40cm 223·9 65°B	222·95 AsPy, Po, Py along fracture and in stockwork vns marginal to zoned cbte vn. Ga, Sp, Cp in main vn. 223·65 Minor disseminated Py.	20% 5% 10% tr
						5 cm				Po, Py in q.v and associated	3%

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 210 TO 225m DATE /9/80 PAGE 16 OF

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	226			
	226·5	3·0	3·0	100%
	227			
	228			
	229			
	229·5	3·0	3·0	100%
	230			
	231			
	232			
	232·5	3·0	3·0	100%
	233			
	234			
	235			
	235·5	3·0	3·0	100%
	236			
	237			
	238			
	238·5	3·0	3·0	100%
	239			
	240			

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
		brecciated texture.			with calcite.	
				60° B contact		
225·6	Carbonaceous shale. Black shale interbedded with grey calcareous siltstone. Includes very altered fractured brown-green mafic? tuff units. Siltstone is finely laminated and strongly calcareous.	Carbonated with irregular calcite veinlets and patches. Mafic ?tuffaceous units soft with carbonate alteration.		226·3 60° B Probably strongly sheared with calcite development in tension fractures.	Py disseminated in carbonaceous layers. Pb, Py concentrated in calcite patches. Pb 3%, Py 7%	10%
228·0	Similar to 213·7 sequence with an altered ?tuff unit at contact.	Moderate hydrothermal alteration; intense in ?tuff units. Increase in apparent alteration effects downhole with talc or clay mineral developed in siltstone & sandstone units.		229·2 50° cbte vn cuts 65° B Strongly cleaved and finely foliated. 230·5 55° fol.	Py in carbonaceous shale layers and in quartz veined fractures. 229·2	3% 1%
231·0	Altered igneous unit. Similar to minor ?tuff units observed above. Possibly a crystal - lithic tuff comprised of heavily altered sometimes zoned ? feldspathic crystals and laminated brown sedimentary lithics. Matrix is dark green. Unit has a stronger igneous component than any seen above.	Intense hydrothermal alteration with talc development. Matrix is chloritised. Cut by minor crystalline calcite veins.		Heavily brecciated or fragmented texture.	232·6 fine grained Cp in stockwork and occasional patches Bn along fractures. 233·3	3% -
235·25	Carbonaceous siltstone and shale sequence. Heavily veined. Minor green feldspathic sandstone units interbedded show a similarity to 213·7 sequence.	Extensively veined with calcite, dolomite and siderite.		235·3 65° 20cm cbte/q v. Fractured on vein zones. 236·3 40° cbte vn; calcite mainly & cream?St on margins 237·5 35 cm cbte vn/d section.	Patches Bn in vuggy fissure in carbonate vein. Py along cleavage in black shale; Scattered angular crystals Sp; minor AsPy in veins Coarse patches Py in veined section.	1%
		238·0 Moderate calcite veining.			238·65	
238·65	Similar to 213·7 sequence.			239·0 50° B 239·3 70° 5cm cbte vn. 239·7 30° B-fol.		tr

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 225 TO 240 m DATE 1/9/80 PAGE 17 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	241.5	3.0	3.0	100%
	244.5	3.0	3.0	100%
	247.5	3.0	3.0	100%
	250.5	1.5	1.5	100%
	252.0	0.8	0.6	75%
	252.8	3.1	3.1	100%

LITHOLOGY

5 cm

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	— from 240.1 Predominantly grey siltstone, argillite with green interbedded siltstone. feldspathic sandstone.			240.7 65°B cut by microfaults		
				241.4 45°B graded tuf sa unit face 241.6 10cm calcite vn'd shear. down hole	241.6 Coarse patches Py, Cp in shear.	1%
				242.25 50°B 242.45 60° shear. 242.6 35° 10cm coarse xaln q.v. & cbte along margins. 242.9 65°B 243.1 60° cbte vn with sulphides.	242.45 Po along shear planes. 242.8 Xaln dark Sp in cbte vns.	4% 2%
	243.0 – 243.5 } carbonaceous shale units.	242.6 Increase in zoned quartz-carbonate crystalline vuggy veins.			243.0 Py in carbonaceous shale	5%
				243.85 cbte vn zone cream to white & xaln quartz in vugs. 244.2	243.5 Sp layers along vn contacts 243.85 Xaln Gl in cbte/q.v. Scattered dk brown Sp along cbte vn.	2% 3%
	increase in degree of deformation.	243.85 Extensive microveins of Mg, Ca carbonate and quartz. Heavily chloritised.		— 55° q.v. & sulphides —	patchy Cp in q.v.; fine stringers Po 244.6	5%
244.6	Sheared, chloritised sediments. Dark green, strongly foliated schistose sequence. Tuff or mafic rock. very heavily veined & strongly foliated. Green to grey in colour.	— from 245.4 carbonate veined, brecciated zone.		244.8 65° AsPy schistose, strongly foliated.	Bands massive xaln AsPy & patches xaln Cp, Po 244.8 – 244.9 Xaln dk br. Sp in cream cbte/q.v. 244.95	60%
	— from 246.8 Grey foliated schistose unit with graphite developed on foliation planes - sedimentary units.	246.1 Moderate, irregular carbonate-quartz veining 246.8 Extensively veined.		Extensive carbonate veining. strongly foliated.	Scattered crystals Gl, Po, Sp, Cp in carbonate veins.	2%
249.6	Graphitic shale and siltstone. Well bedded, dark grey, interlayered sequence of graphitic shale, grey siltstone and grey, fine grained sandstone. — from 251.75: green chloritised tuffaceous units predominant	Zoned siderite/ankerite-quartz mesoveins. 251.75 heavily chloritised, high S.G.		248.2 30° fol. 249.8 40°B 251.3 45°B 251.5 60° 7cm xaln crustiform cbte/q.v. 251.7 65° 7.5cm cbte-q.v.	249.8 Disseminated xaln Py throughout. Py, Sp, xaln Gl in fracture stockwork. Patches Po. Py 5%, Po 2%, Sp 2%, Gl 1%	10%
252.75	Mineralised chlorite schist.	Heavily carbonate veined.		brecciated on cbte veins.	Po in patches, veins & foliations	15%
253.1	Quartz-carbonate-sulphide vein zone. Sheared, veined & foliated at contact & chloritised siltstone inclusions.			55° contact Heavily sheared & foliated.	Massive patches Po. Scattered Sp in white quartz gangue.	25%
	— from 254.0 Crystalline vuggy quartz-carbonate vein with irregular dispersions of sulphides. Po passes down into Sp & Po; then into Gl			254.0. 50° con. crystalline complex vein; clay minerals, houndstooth quartz in vugs.	Patches Cp, Sp in quartz; massive xals Po & inclusions Cp; minor AsPy. 254.5 254.8 Curvilinear layers xaln	5% 30%

SCALE 1:100 (1cm = 1 m)

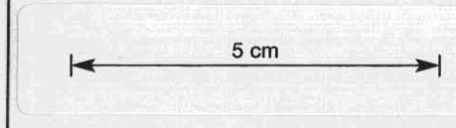
COMSTAFF PROPRIETARY LIMITED **DRILLHOLE LOG FOR** DDH RBE 14

LOGGED BY G. Pigott FROM 240 TO 255m DATE / 9 / 80 PAGE 18 OF 21

DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	255·9	3·6	3·1	86·1%
	259·5	2·4	2·4	100%
	261·9	3·0	3·0	100%
	264·9	3·0	3·0	100%
	267·9	2·6	2·6	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG
	includes a crystalline section of light brown carbonate mineral - ? ankerite.		
257·3	Altered sediments. Sheared, contorted and partly brecciated, interfoliated (bedded) sequence of black argillite/shale, grey siltstone, grey, fine grained tuffaceous sandstone. Also light br. finely laminated, incl or brec layers sil. pel.	Chloritised and strongly sheared.	
258·8	Quartz-pyrrhotite vein zone. Quartz gangue with minor pale cream patches of carbonate from 259·6 Chlorite schist inclusions predominate.	Inclusions of sediment and ?talc-carbonate material. Intensely chloritised.	
260·25	Talc-carbonate zone. Dark brown, cream and white foliae.	Strongly foliated with total alteration to talc chlorite and Mg carbonate.	
261·9	Quartz-arsenopyrite vein zone. Crystalline sulphides massive to quartzose patches.	Clay alteration on contacts of vein.	
262·8	Talc carbonate zone, fine grained, generally dirty white to pale green in colour. 	Talc alteration intense, core is soft and friable	
		264·1 Strongly foliated.	
		264·9 Secondary silicification in veins.	
266·3	Siltstone, tuffaceous sandstone and black shale. An interbedded sequence of essentially unaltered, moderately well bedded units. Siltstone is gradational from tuffaceous sandstone to fine grained, laminated mudstone. Generally green to grey. Interbedded units of carbonaceous shale are calcareous.	Carbonate veined breccia on contact. Calcite in tension fissure and veins in black shale units. Sandstones are slightly calcareous and chloritised.	

STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	brown Sp; with margins of dark brown-black SR. Bands disseminated brown Sp & crystals Gl; patches Po, minor Cp, crystals Py. Sp 7%, Gl 4%, Po 2%, Cp 1%, Py 1%	15%
	256·8 coarse patches Cp & Sp margins. Band vein AsPy on contact	30%
85° AsPy vn at contact		
257·7 35°S Irregular foliae parallel bedding.	crystalline Po patches and scattered crystals AsPy in quartz veins. Py > minor Sp in quartz veinlet stockwork.	5%
258·78 35° q.v & Po		
75° contact	Massive Po and irregular 259·0 patches Po & inclusions Cp. Veinlets Sp.	80% 15%
	259·6 stockwork crystalline Po in chlorite schist.	15%
50° contact & Sp developed	260·05 vein AsPy layered on cbte	10%
260·9 55°S Foliation is crenulated.	260·25 Minor irregular patches Po; scattered crystals angular Sp.	1%
60° contact, friable	coarse grained massive vein AsPy with patches coarse Cp & Po. AsPy 40%, Cp 10%, Po 10%	60%
55° contact	Fine hairline fracture stockwork of Py, Cp, Sp. Massive Po in crosscutting vein.	5%
263·4 50° 2cm Po vein. massive.		
45°S	Fine Py, Cp in hairline fracture	1%
264·65 55° 10cm cbte-sulphide zone	264·65 vein Py, Cp, AsPy in vn.	20%
265·05 45° 15cm q.v & fluospar. Crenulated foliae.	264·75 Disseminated Py, Cp.	1%
60° veined contact	266·2 Red/brown patches + vns 266·4 Sp; vein Gl; Py in 2° vns.	15% 10%
267·0 40°B	266·55 Disseminated patches Py minor Cp in black shale units.	2%
269·4 70°B		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 255 TO 270 m DATE /9/80 PAGE 19 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
	270·5	3·0	3·0	100%
	273·5	1·0	1·0	100%
	274·5	3·0	3·0	100%
	277·5	3·0	3·0	100%
	280·5	2·2	2·2	100%
	282·7	0·8	0·8	100%
	283·5	3·0	3·0	100%

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG
	From 272·5 includes units of finely bedded alternating grey and green siltstone.		
276·1	Carbonaceous shale and siltstone. Black carbonaceous pyritic shale - finely laminated with irregular interslumped tuffaceous sandstone inclusions. Finely bedded grey calcareous siltstone is interlayered with the shale. Wispy textured grey laminated siltstone occurs on units where siltstone predominates shale.	Moderate to extensive calcite and quartz veining; mainly in thin irregular discontinuous structures.	
279·5	Grey fine grained sandstone-siltstone unit with increasing amount of carbonaceous shale laminae down hole.		
280·1			
282·2	Grey fine grained sandstone with interlaminated siltstone and black shale.		
283·3			
284·8			

STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
270·4 70°B		
271·0 85° 7cm q.v & Pe.	271·0 Patches fine grained Pe in quartz vein; Cp along lower margin.	
271·8 50°B		
272·8 48°B		
274·6 70°B.	274·5 Minor q.v & patches Sp.	
276·1 65°B contact		
Well bedded to laminated	By disseminated in irregular stringers, concentrated in calcite cemented patches and in hairline fractures	10%
277·5 60°B		
279·5 55°B	279·5 Disseminated By crystals.	5%
280·4 50°B	280·1 By in stringers and along B.	10%
	282·2 Disseminated crystalline Py. Py concentrated along fracture parallel to B.	5%
	283·3 By along laminae and in calcite infilled fissures	10%
40°B contact		

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED DRILLHOLE LOG FOR DDH RBE 14

LOGGED BY G. Pigott FROM 270 TO 285m DATE /9/80 PAGE 20 OF 21

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DRILL ADVANCE

LOST CORE	DEPTH	DRILL ADVANCE INTERVAL	CORE RECOVERY	PERCENT RECOVERY
				286
	286·5	3·0	3·0	100% 287
				288
				289
	289·5	3·0	3·0	100% 290
				291
	291·5			292

LITHOLOGY

INTERVAL	DESCRIPTION	ALTERATION	GRAPHIC LOG	STRUCTURE	MINERALISATION	VISUAL PERCENTAGE MINERALISATION
	Feldspathic sandstone, siltstone and carbonaceous shale. Massive to slumped units of green, medium grained tuffaceous greywacke with interbedded grey siltstone – black shale finely bedded units.	Moderate calcite veining concentrated in argillaceous units.		287·8 30°B - finely lam. argillite. 288·0 30° 10 cm qz-sul. vn zone	Disseminated Py in sandstone units. 288·0 Patches Cp, Po, minor Sp in veins.	Tr
		289·55 Concentrations of calcite veins in more argillaceous section.		289·55 40°B		289·55
		290·35		290·5 65° 5cm q.v.	290·5 Patches Po in q.v.	290·25 2%
	End of Hole RBE 14			291·4 20°B		Tr

SCALE 1:100 (1cm = 1 m)

COMSTAFF PROPRIETARY LIMITED — DRILLHOLE LOG FOR DDH RBE 14.

LOGGED BY G. Pigott FROM 285 TO 291·5m DATE ../9./80 PAGE 21 OF 21

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
No core recovered until 45·0m.																
45·0	50	245		355	785	13·5	60	100								
46·5	9	70		195	270	0·5	80	45								
47·5	20	130		1100	320	2·5	75	55								
49·5	9	90		265	800	1·0	120	80								
50·9	9	310		355	1650	2·5	410	110								
52·5	150	1000		2900	3400	29·5	700	240								
53·7	40	185		450	950	3·5	110	130								
54·7	140	220		580	2200	7·5	360	150								
55·5	15	130		80	590	2·0	38	125								
56·8	6	140		65	450	2·0	33	150								
58·5	6	120		60	160	1·5	32	120								
60·0																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 45 TO 60m DATE 7/10/80 PAGE 1 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
60.0	5	100		125	210	1.0	17	70								
61.5	BLD	100		55	230	1.0	18	70								
64.5	5	110		65	405	1.0	9	80								
67.5	9	95		65	800	0.5	26	130								
70.5	4	105		45	375	1.0	31	130								
73.5	10	100		15	200	0.5	19	120								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 60 TO 75 m DATE 7/10/80 PAGE 2 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
76·5	10	85		55	270	BLD	15	120								
79·5	4	90		40	230	BLD	26	120								
81·7	6	90		25	230	BLD	21	120								
82·5	10	50		30	100	BLD	19	100								
83·6	4	60		25	120	BLD	16	110								
85·5	7	60		10	125	BLD	19	120								
88·5	7	130		15	170	BLD	20	140								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 75 TO 90 m DATE 7/10/80 PAGE 3 OF 17

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Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
90																
91																
92																
93																
93·0	BLD	120		45	170	BLD	3	190								
94																
94·5	BLD	130		50	155	BLD	3	140								
95																
96																
97																
97·5	BLD	110		50	235	BLD	16	160								
98																
99																
100																
100·5	4	110		90	175	BLD	10	125								
101																
102																
103																
103·5	BLD	130		55	125	0·5	8	110								
104																
105																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 90 TO 105m DATE 7/10/80 PAGE 4 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
106·5	3	110		60	190	0·5	23	150								
109·5	9	110		120	265	BLD	39	130								
112·5	5	130		105	280	BLD	14	140								
115·5	3	120		90	150	BLD	7	120								
118·5	BLD	135		55	225	BLD	28	115								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 105 TO 120m DATE 7/10/80 PAGE 5 OF 17

017396

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
120 – 121																
121·5 – 122 – 123 – 124	BLD	90		60	125	0·5	17	80								
124·5 – 125 – 126 – 127	3	120		45	120	0·5	17	110								
127·5 – 128 – 129 – 130	BLD	100		40	150	BLD	11	95								
130·5 – 131 – 132 – 133	BLD	90		45	115	1·0	25	95								
133·5 – 134 – 135	20	290		1150	4100	2·0	410	100								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 120 TO 135m DATE 7/10/80 PAGE 6 OF 17

017397

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
136·5	BLD	150		290	210	1·5	95	80								
139·5	9	180		395	225	1·0	500	110								
140·4	10	150		390	730	1·5	200	80								
142·5	6	260		325	690	2·0	200	95								
145·5	3	160		120	200	1·0	290	100								
148·0	10	120		60	190	0·5	41	110								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs. FROM 135 TO 150 m DATE 7/10/80 PAGE 1 OF 17

017398

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
151·0	10	80		30	180	BLD	90	140								
151·6	BLD	150		25	180	0·5	46	110								
154·5	9	110		5	160	0·5	100	245								
157·5	7	130		15	155	BLD	32	310								
160·5	4	340		10	175	BLD	12	120								
163·4	BLD	110		20	150	0·5	31	120								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14.

ASSAYED BY Analabs FROM 150 TO 165m DATE 7/10/80 PAGE 8 OF 17

017399

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
165																
165.4	7	100		30	145	0.5	11	115								
166																
167																
167.0	7	180		25	160	1.0	29	120								
168																
169																
169.5	4	140		20	185	BLD	37	120								
170																
171																
172																
172.5	6	120		20	180	0.5	27	120								
173																
174																
175																
175.5	160	190		200	650	0.5	27	110								
176																
177																
178																
178.5	85	160		270	555	1.0	200	130								
179																
180																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 165 TO 180 m DATE 7/10/90 PAGE 9 OF 17

017400 662

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
198.3	10	150		70	285	BLD	31	120								
198.5	7	200		70	475	0.5	30	130								
198.7	10	130		70	850	0.5	26	115								
201.6	7	140		65	200	0.5	22	145								
204.7	6	165		65	230	BLD	11	160								
207.6	10	130		60	185	BLD	20	160								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 195 TO 210 m DATE 7/10/80 PAGE 11 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
210·4	15	110		60	170	BLD	27	155								
211·5	10	100		35	160	0·5	10	130								
214·5	5	180		20	165	BLD	34	115								
217·5	15	150		20	200	0·5	39	110								
220·5	35	90		1550	2150	9·5	5600	120								
223·5	20	130		295	2450	2·0	190	100								

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 210 TO 225.m DATE 7/10/80 PAGE 12 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
225																
226																
226.5																
227																
228	120	160		80	350	0.5	65	100								
229																
229.5																
230																
231	6	120		15	160	0.5	30	90								
232																
232.5																
233																
234	25	140		160	465	1.0	110	170								
235																
235.5																
236																
237	20	70		245	1050	1.0	270	370								
238																
238.5																
239																
239	20	40		60	295	1.5	29	120								
240																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 225 TO 240.m DATE 7/10/80 PAGE 13 OF 17

Metres	Sn	Cu	W	Pb	Zn	Ag	Au	Ni.					End of start of	Ground Split	Core Core	SAMPLE NUMBER
241·5	15	160	BLD	405	1250	1·5	75									TQ049
242·5	65	70	BLD	1050	1550	2·0	650									TQ050
243·5	110	75	BLD	700	3900	2·0	750									TQ051
244·8	290	8500	BLD	740	3350	22·5	4·2%									TQ052
244·95	65	95	20	465	2600	1·5	800									TQ053
245·3	30	80	BLD	660	1550	1·5	1000									TQ054
246·3	15	30	BLD	260	580	1·0	280									TQ055
247·3	30	210	BLD	740	3600	3·0	430									TQ056
248·3	45	50	BLD	1650	3150	2·5	240									TQ057
249·3	45	1850	30	4500	1·0%	13·5	650									TQ058
249·6	30	70	BLD	800	2250	2·0	150									TQ059
250·6	30	90	BLD	735	2500	3·0	170									TQ060
251·3	55	110	BLD	1200	5100	3·5	430									TQ061
252·0	260	475	30	1100	3650	5·0	350									TQ062
252·8	450	150	30	3000	6650	4·5	730									TQ063
253·15	370	435	BLD	1250	4300	8·5	2400									TQ064
253·75	250	460	BLD	6650	1·7%	15·5	1500									TQ065
254·0	1600	1500	BLD	3900	7300	43·5	6500									TQ066
254·5	1500	1·1%	BLD	6400	2·3%	98·5	1900									TQ067
254·8																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 240 TO 255 m DATE 20/10/80 PAGE 14 OF 17

017404

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
	1000	320	40	1·2%	3·4%	84·5	3100									19068
255·8	450	8000	BLD	4·5%	2·3%	1420·0	650									19069
256·8	1100	8·5%	BLD	5·0%	4·3%	645·0	1·6%									19070
257·3	50	165	BLD	625	950	11·0	500									19071
258·3	110	115	BLD	170	210	4·5	720									19072
258·8	350	4650	BLD	1700	2150	65·0	550									19073
259·4	3500	260	BLD	710	2050	3·5	1·8%									19074
260·25	15	55	BLD	400	1200	1·5	1600									19075
260·9	BLD	60	BLD	30	50	1·0	1600									19076
261·9	380	2·9%	BLD	135	1000	48·5	35·0%									19077
262·8	480	400	BLD	95	365	6·0	2600									19078
263·8	20	2900	BLD	85	800	10·5	2400									19079
264·8	BLD	30	BLD	25	60	1·5	1400									19080
265·8	BLD	30	BLD	105	130	2·0	800									19081
266·2	470	715	40	6200	4·0%	15·5	750									19082
266·55	60	40	BLD	375	1350	1·5	220									19083
267·0	20	110	BLD	50	200	0·5	110									19084
267·9	10	110		15	160	0·5	29	125								

End of Split Core
Recommence Ground Core

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 4

ASSAYED BY Analabs FROM 255 TO 270m DATE 29/10/80 PAGE 15 OF 17

017405

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
270																
270·5	30	180		295	1150	2·0	190	160								
271																
272																
273																
273·5	15	70		290	950	1·5	90	175								
274																
274·5	20	110		165	410	1·5	55	130								
275																
276																
277																
277·5	5	110		30	125	1·0	16	100								
278																
279																
280																
280·5	9	120		125	780	1·0	44	110								
281																
282																
283																
283·5	BLD	100		10	140	1·0	21	110								
284																
285																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 270 TO 285 m DATE 7/10/80 PAGE 16 OF 17

[redacted]

017406

Metres	Sn	Cu	W	Pb	Zn	Ag	As	Ni								SAMPLE NUMBER
285																
286																
287																
288																
288.5	15	290		345	1400	2.5	27	120								
289.5	110	100		155	815	2.0	80	190								
290																
291																
291.5														End of	Hole:	RBE 14
292																

COMSTAFF PROPRIETARY LIMITED ASSAY RESULT SHEET FOR DDH RBE 14

ASSAYED BY Analabs FROM 285 TO 291.5 m DATE 7/10/80 PAGE 17 OF 17

017407

aac

OPEN FILE

PROJECT NAME:

APPENDIX 4

TITLE:

A COMPILATION OF RESULTS FROM
WORK CARRIED OUT AT GAR, EAST RENISON

EL 5/63 PART 6

VOL 2 OF 3

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

COMMODITY/IES:

TEXT PAGES NO:

PLAN NOS:

TAS/2/2115 · /2117 · /2116 · /2118 · /2264 · /2119 · /2120 · /2121 · /2122 · /2123 · /2124 · /2125 · /2126 · /2127 · /2128 · /2129 · /2130 · /2176 · /2114 · /2117A · /2242 · /2117B · /2081 · /2216 · /2217 · /2218 · /2177

TABLE NOS:

APPENDICES:

AUTHOR/S:

DATE:

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

5122

5 373 000 m N

373 000 m E

017408

5 cm

80-1509 7/8

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAR 5125

DETAILED GEOLOGICAL PLAN

COMPILED	WRHR
DRAWN	WRHR
DATE	5/80
AMENDED	
SCALE	1 : 2500

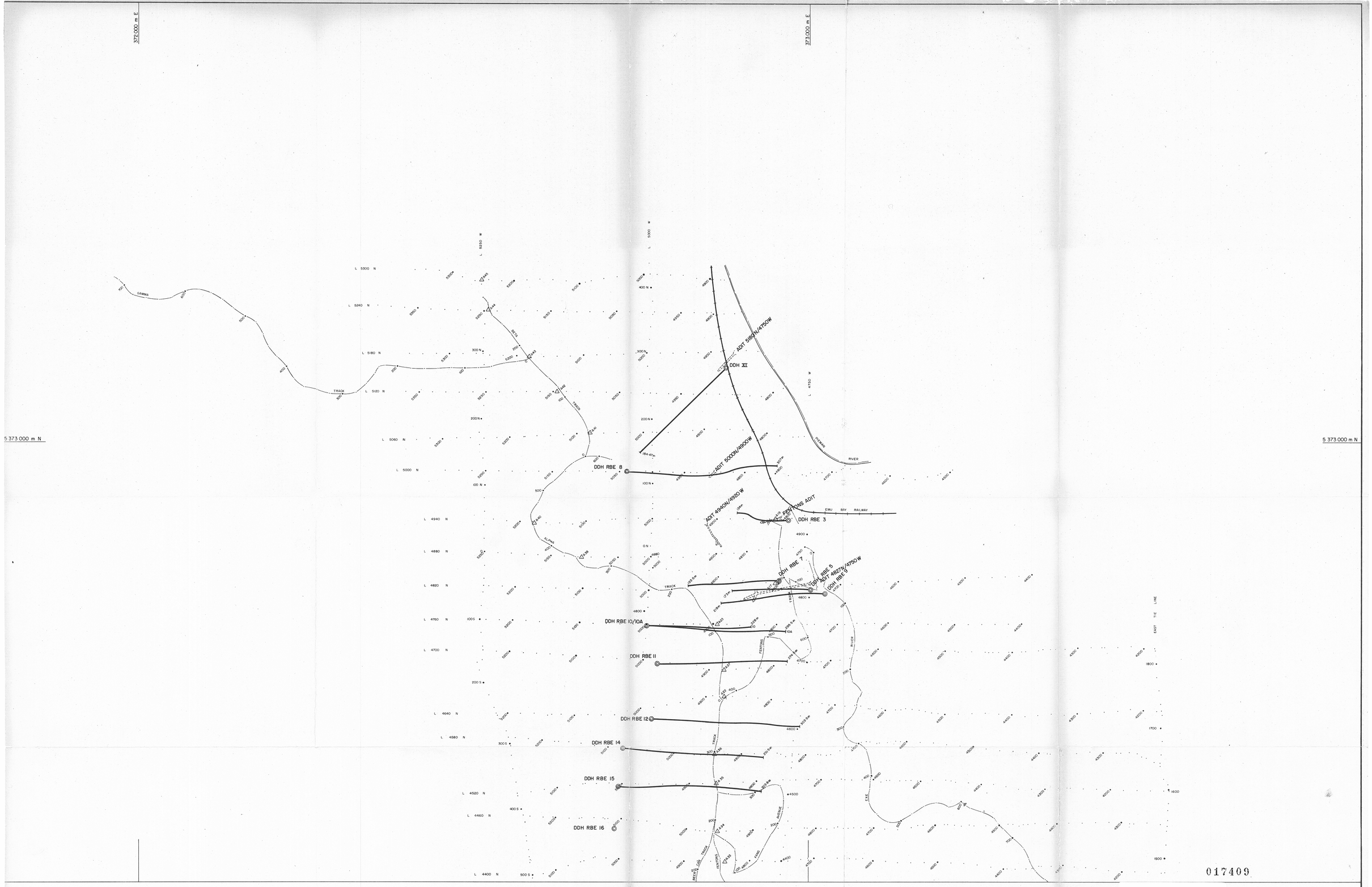
TAS/2/2115

TAS/2/2115

TAS/2/2116

SHEET INDEX

TN



017409

5 cm

80-1509 7/8

TAS/2/2117
TAS/2/2118

SHEET INDEX

TN

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAR 5127

LOCATION OF DRILLHOLES AND ADITS

COMPILED	GEODRAFT
DRAWN	GEODRAFT
DATE	16/5/80
AMENDED (REDRAFTED 20/9/80)	11/10/80
SCALE	1 : 2500
PLAN No	TAS/2/2117

5 372 000 m N

373 000 m E

TAS/2/2115

TAS/2/2116

SHEET INDEX

TN

5 cm

017410

80-1509 7/8

COMSTAFF PROPRIETARY LIMITED

RENISON GRID - GAR

5126

DETAILED GEOLOGICAL PLAN

COMPILED	WRHR
DRAWN	WRHR
DATE	5/80
AMENDED	
SCALE	1 : 2500

TAS/2/2116