EXPLORATION LICENCE 34/82

CLEVELAND

TASMANIA

FINAL REPORT ON EXPLORATION TO OCTOBER 1989

Prepared by:

S. W. Rand
GEOLOGIST

Issued by:

D. B. Wallace
REGIONAL MANAGER

September, 1989.

Distribution

Tasmanian Dept. of
Resources & Energy
Aberfoyle - Hawthorn
Aberfoyle - Burnie

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLATES

1.0 SUMMARY AND CONCLUSIONS

Exploration within Exploration Licence 34/82 Cleveland during 1988/89 involved a soil sampling programme on Foleys East grid, following up mapping and sampling undertaken in 1988 (Purvis, 1988). The programme was aimed at detecting geochemical indicators of potential replacement style mineralisation at depth within favourable host rocks intersected by the Foley Lineament.

No significant anomalies requiring follow up were detected during the programme. No further work is recommended for the Foleys East area.

Following a comprehensive review of previous exploration within the licence (Rand, 1989) it was concluded that the EL contained only limited potential for the discovery of economic mineralisation. It is considered that all significant anomalies located during the previous 26 years of exploration in the licence have been investigated in sufficient detail to preclude discovery of a major ore body.

No further work is recommended for the licence.

2.0 INTRODUCTION

2.1 Tenure

Exploration Licence 34/82 Cleveland, covers 26 square kilometres around the Cleveland tin deposit at Luina, Western Tasmania (refer to plate CL2). The licence was granted to Cleveland Tin Limited, a division of Aberfoyle Resources Limited, on October 30th, 1982 for ten years, with no reduction requirements.

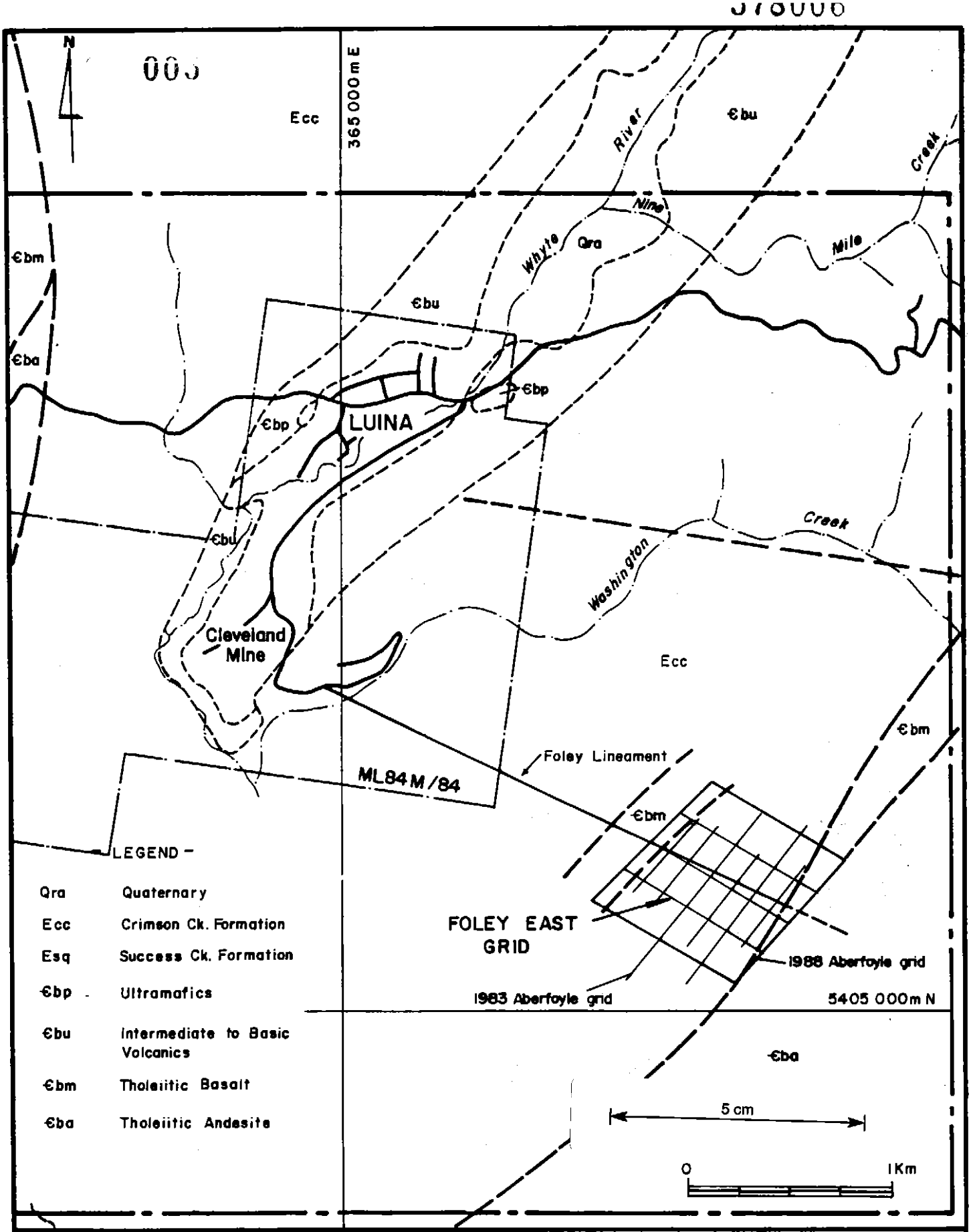
2.2 The Cleveland Ore Deposit

The Cleveland deposit, in the centre of the licence, comprises a number of stratabound pyrrhotite-cassiterite-stannite-chalcopyrite lenses that replaced finely layered calcareous shales and shaly limestone (Collins et al., 1989). The host calcareous units are restricted to a transitional sequence (Halls Formation) between mafic volcanics (Deep Creek Volcanics) and a turbidite sequence (Crescent Spur Sandstone).

A distinct zonation can be recognised in the mineralogy of the ore and hydrothermal alteration assemblages (Ransom and Hunt, 1975 and Collins et al., 1989). At depth, a primary skarn assemblage including amphibole, garnet, danalite, magnetite and scheelite, grades upwards and outwards through various assemblages of chlorite-tourmaline-carbonate-fluorite-sulphides to unaltered limestone.

The mineralisation is considered to have been produced by metasomatic replacement of the limestone (and skarn) beds by moderately saline hydrothermal fluids derived from a granitic source (Collins, 1981, 1983). The ore lenses are disrupted by a series of sub-parallel faults, considered to have provided conduits for the mineralising fluids. The alteration assemblages and cassiterite mineralisation appear to be centred on a quartz porphyry intrusive plug in the footwall of the Crescent Spur Formation (Collins et al., 1989). The plug occurs within an ~ east-west trending lineament termed the Foley Lineament.

The intrusive plug is an altered (topazised) quartz-feldspar porphyry which strikes east-west, dipping 80-85° N (Dronseika, 1989). The dyke is surrounded by a tungsten-molybdenum-bismuth mineralised quartz-fluorite stockwork with at least twelve different phases of veining.



Aberfoyle Resources Limited

EXPLORATION DIVISION

REVISIONS			
Init.	Date	Init.	Date
JBPrje	10-9-88		

NORTH WEST TASMANIA

CLEVELAND E.L. 34/82

SUMMARY PLAN

Compiled : DBW

Drawn :

Traced : JLR

Checked :

Location Code :

Scale : 1:25,000

Date : June, 1988

Plate No. : CL 2

2.3 Previous Exploration

Previous exploration in the licence involved routine mine exploration by Cleveland Tin Limited up to 1st October, 1986. From this date, until 6th November, 1987, Billiton Australia managed exploration of the licence in a joint venture with Aberfoyle. Aberfoyle resumed management of the EL when Billiton terminated the Joint Venture. A comprehensive review of previous exploration is available in Rand (1989).

Exploration within the licence before 1988 concentrated predominantly on the strike extensions of the Cleveland stratigraphy (Halls Formation) (Purvis, 1988). However, since recognition of the Foley Lineament and its contribution to the metasomatising event that produced the Cleveland mineralisation, exploration by Aberfoyle has centred on areas where the structural conduit intersects favourable host lithologies.

1988 exploration, undertaken by G. P. Purvis and Associates on behalf of Aberfoyle, involved a detailed mapping and sampling programme east of the Cleveland mine, in the upper catchment area of Falls Creek. The area was selected due to the previously recognised presence of lithologies similar to the Halls Formation (Brown, 1984) occurring along the eastern extension of the Foley Lineament.

A 4.8 line km, 200m x 25m grid was established parallel to the likely trend of the Foley Lineament and at right angles to the strike of the rock units, in order to detect prospective host rocks with possible replacement tin mineralisation extending from the lineament. The gridded area was mapped in detail with 54 rock chip samples submitted for petrological and/or geochemical analysis.

The results of the 1988 programme indicated that the rocks in the area are very similar to those of the Halls Formation, with some potential host calcareous sandstone units noted (Purvis, 1988). A number of faults have been mapped in the area, the major one of these, trending ESE, is considered to be the Foley Lineament. The geological interpretation for the area is shown on plate CL3, with full descriptions of the lithologies and structure available in Purvis (1988).

While the programme recognised potential host rocks, geochemical analysis of many carefully selected rock samples (veined, fractured or altered rocks) failed to detect any significant anomalies.

The conclusions drawn from the 1988 programme were that the presence of favourable host rocks cut by faults, considered to be part of the Foley Lineament, indicated that the area had potential for hosting Cleveland-style mineralisation (Purvis, 1989).

The lack of appreciable veining, alteration or geochemical anomalies, suggested that no mineralising intrusive porphyries existed at shallow depth along the Foley Lineamentin the area. The potential for tin mineralisation was therefore considered to be at depth. A deep search UTEM survey was recommended to test for this possibility (Purvis, 1989).

2.4 1989 Exploration Aims

1989 exploration by Aberfoyle was aimed at detecting geochemical indications of potential mineralisation at depth in the favourable host rocks intersected by the Foley Lineament. Soil samples were collected at 20m intervals on 100m spaced lines across the main fault. Samples were analysed for a range of elements in order to detect any anomalies produced by 'leakage' up the fault from potential mineralisation at depth.

3.0 1988/89 EXPLORATION

3.1 Soil Sampling

Exploration in 1988/89 comprised a soil sampling programme on the Foley's East grid, 2km east of the Cleveland mine. Samples were collected at 20m intervals on 100m spaced Cleveland mine gridlines cut in 1983 (lines FE100E to FE800E, from 260S to 100N, refer to plate CL4). The gridlines sampled run approximately NE-SW. This allowed samples to be taken roughly perpendicular to the main fault in the area, interpreted to be the Foley Lineament (Purvis, 1988).

Samples were analysed for copper, lead, zinc, silver, arsenic, molybdenum, fluorine and tin.

3.2 Results

Sample locations and numbers are shown on plate CL5, with analyses included as Appendix 1 and plotted on plate CL6.

The results of the soil sampling programme are generally disappointing with no significantly anomalous values recorded for any of the elements analysed.

Peak values for copper, lead and zinc are 260 ppm, 115 ppm and 310 ppm respectively. None of these peak values coincide, and only the copper values appear to form any trends possibly relatable to the geology.

Contoured data for the copper analyses (plate CL5A/Cu) indicates that the haematite mudstone (**hm**) units and also the basalts (**vb**) are elevated in copper relative to the other units in the area.

Contoured data for the zinc analyses shows no significant relation to either the lithology or the structure (plate CL5A/Zn). Four isolated samples in sandstone (**ss**) contain zinc values greater than 200 ppm, but are not anomalous in any other element. The 100 ppm contours for zinc show no obvious relationship to the faults and cross many different lithologies.

No contoured data is included for lead as only four scattered analyses are greater than 50 ppm (maximum 115 ppm).

Only one sample contains a molybdenum level above the detection limit of 3 ppm (8 ppm). No samples contain silver above the detection limit.

Arsenic and tin values are rarely above background levels. Only three scattered samples contain arsenic levels greater than 20 ppm (maximum 45 ppm) and only four similarly scattered samples contain tin values greater than 10 ppm (maximum 25 ppm).

003

Fluorine values generally varied between 200 and 800 ppm, with a spot high of 1400 ppm. These values are very similar to those of rock chips from the area (refer to Purvis, 1988), and are not considered anomalous.

4.0 DISCUSSION AND RECOMMENDATIONS

The results of the soil sampling programme are disappointing. No positive indications of significant Cleveland style mineralisation at depth were obtained. The calcareous sandstone units (cs) mapped by G. J. Purvis, thought to represent favourable replacement style mineralisation host units, are not significantly anomalous in any of the elements analysed. Two samples, 517695 and 517696, however, are weakly anomalous in tin (20 and 25 ppm), lead (90 and 110 ppm), and arsenic (10 ppm). These samples were taken from calcareous sandstone associated with a minor strike-slip fault. The samples are not anomalous in copper, zinc, silver, molybdenum or fluorine.

Copper is the only element with contours that could possibly be attributed to leakage up the fault(s) from mineralisation at depth. The relationship of the contours to the haematite mudstone and basalt units, however, suggests that possibly the 'anomalies' are due only to originally elevated copper values in these lithological units. Elevated copper and also zinc values within basic volcanic units is a feature that has also been observed for other areas of the licence (refer to Hespe, 1983 and Rand, 1989).

A comparison of the results obtained for the soil sampling programme on Foleys East grid with those obtained for the Cleveland mine area is shown in table 1. Similarly, stream sediment results for the Foleys East gridded area compared to the Cleveland mine area are included.

While some of the samples from the Foleys East grid contain values which would be considered anomalous in the Cleveland mine area, the lack of any coincident zones and generally background levels for most samples suggests that the possibility of significant Cleveland style mineralisation in the area of Foleys East grid is unlikely.

The 1989 soil sampling programme provided no positive indications of potential Cleveland style mineralisation at depth. No further exploration on the Foleys East grid is recommended.

Following an assessment of previous exploration within the licence (Rand, 1989) it was concluded that the EL contained only limited potential for the discovery of economic mineralisation. It was considered that all significant anomalies discovered during the previous 26 years of exploration in the licence have been investigated in sufficient detail to preclude discovery of a major ore body.

No further work is recommended for the licence.

TABLE 1 - Geochemistry for the Cleveland Mine Area compared with the Foley's East Grid Area.

Soil Geochemistry

	[1]Cleveland Mine Area	Foley's East
Zinc:-	50 and 100 ppm contours, with 500 ppm contours in immediate vicinity of ore lenses.	100 ppm contours, maximum 310 ppm.
Lead:-	50 and 100 ppm contours, with 500 ppm contours in immediate vicinity of ore lenses	Only 5 samples with Pb >50 ppm, 1 with Pb > 100 ppm (110 ppm).
Tin:-	20 and 200 ppm contours, 1000 ppm contours in vicinity of ore lenses. (>50 considered anomalous)	Only 11 samples with > 10 ppm Sn, maximum 25 ppm.

[2]Stream Sediment Geochemistry

Cleveland Mine Area	Foley's East
Maximum tin, copper, lead, and zinc values for streams draining the Cleveland mine area are 3000, 2500, 2000 and 1100 ppm.	For streams in the immediate vicinity of the Foley's East gridded area, the maximum values are Sn 20 ppm, Cu 26 ppm, Pb 22 ppm and Zn 57 ppm.

---

[1] From 1985 Cleveland Mine maps CL 1G (Zinc), CL 1H (Lead), CL 1J (Tin).

[2] From 1985 Cleveland Mine map CL 1D.

5.0 REFERENCES

Brown, A. V., 1984. Regional Geology of the Mt. Youngbuck - Magnet Area. Geol. Survey of Tasmania Map 1:25,000 scale.

Collins, P. L. F., 1981. The Geology and Genesis of the Cleveland Tin Deposit, Western Tasmania. Econ. Geol. p.p. 365 - 392.

Collins, P. L. F., 1983. Geology and Mineralisation at the Cleveland Mine, Western Tasmania. Unpub. Ph.D. Thesis, Univ. Tasm. 446p.

Collins, P. L. F., Brown, S. G., Dronseika, E. V. and Morland, R., 1989. Mid-Palaeozoic Ore Deposits. in Burret, C. F. and Martin, E. L. (Eds.)., Geology and Mineral Resources of Tasmania. Geol. Soc. Aus. Spec. Pub. 15. pp. 270 - 292.

Dronseika, E. V., 1989. Foley Zone (Cleveland Mine). in Burret, C. F. and Martin, E. L. (Eds.), Geology and Mineral Resources of Tasmania. Geol. Soc. Aus. Spec. Pub. 15. pp. 287.

Hespe, A. M., 1983. EL 34/82. Previous Exploration and Exploration Proposals 1983/84. Unpub. Report Cleveland Tin Limited.

Purvis, G. P., 1988. Exploration Licence 34/82 Cleveland Western Tasmania. Report for Period 1 November, 1987 to 30 October, 1988. Unpub. Report to D.O.M.

Rand, S. W., 1989. An assessment of the Exploration Potential of Exploration Licence 34/82 Cleveland. Unpub. Report to Aberfoyle Resources Limited.

Ransom, D. M. and Hunt, F. L., 1975. Cleveland Tin Mine. in Knight, C. L. (Ed.) Economic Geology of Australia and Papua New Guinea, 1. Metals. Aus. Inst. Min. and Met., Monograph 5. pp 584 - 591.

578014

APPENDIX 1

Soil Sample Geochemistry

ANALABS

A division of MacDonald Hamilton & Co. Pty. Ltd.

Phone (09) 458 7999 — 52 Murray Road, Welshpool, W.A. 6106 — Telex AA92...
FAX: 004 31 8890

ANALYTICAL REPORT No. 23.3.08.06436

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA.

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

ORDER No. 8403 — PROJECT CTL

DATE RECEIVED 22/08/89 — RESULTS REQUIRED ASAP

No. OF PAGES OF RESULTS	DATE REPORTED	No. OF COPIES	TOTAL No. OF SAMPLES
6	22/09/89	1	144

STATE OF SAMPLES	PRE-TREATMENT								ANALYSIS		
REFER BELOW	SAMPLE NUMBERS	DRY	CRUSH	SPLIT	PULVERISE	SIEVE	OTHER SEE REMARKS	NONE	REFER TO ANALYSIS SECTION	PREPARATION	METHOD
	Various	So	Prep: 005,017						Cu,Pb,Zn,Ag/101,As/114		
	Various	pu							Sn,Mo/401		
	Various	pu							F/129		

RESULTS TO

Aberfoyle Resources Limited
Exploration Division
P.O. Box 952
Burnie Tasmania 7320

RESULTS TO

REMARKS

STATE OF SAMPLES		ANALYSIS — PREPARATION				ANALYSIS — METHOD	
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorbtion	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemical means	CHEM
tissue	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC
stream sediment	SS					fluorescence	FLUOR
heavy mineral	HM					inductively coupled plasma	ICP

AUTHORISED OFFICER

1-015

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	1 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517638	105	20	110	<0.5	-	10	<3	6	440
2	517639	105	30	110	<0.5	-	8	<3	8	370
3	517640	135	10	115	<0.5	-	<2	<3	6	310
4	517641	110	15	100	<0.5	-	4	<3	7	310
5	517642	110	20	125	<0.5	-	<2	<3	3	290
6	517643	60	25	75	<0.5	-	15	<3	5	530
7	517644	60	25	80	<0.5	-	10	<3	6	350
8	517645	80	20	95	<0.5	-	<2	<3	7	310
9	517646	100	25	105	<0.5	-	4	<3	9	300
10	517647	145	90	105	<0.5	-	30	8	9	420
11	517648	125	5	105	<0.5	-	3	<3	4	340
12	517649	160	<5	145	<0.5	-	3	<3	<3	340
13	517650	190	10	130	<0.5	-	3	<3	9	330
14	517651	260	10	135	<0.5	-	10	<3	10	380
15	517652	225	25	110	<0.5	-	8	<3	7	280
16	517653	90	15	65	<0.5	-	<2	<3	4	330
17	517654	85	5	75	<0.5	-	<2	<3	6	310
18	517655	85	5	80	<0.5	-	<2	<3	5	290
19	517656	95	25	90	<0.5	-	2	<3	7	310
20	517658	25	20	65	<0.5	-	<2	<3	10	300
21	517659	20	20	50	<0.5	-	<2	<3	5	470
22	517660	30	30	95	<0.5	-	10	<3	9	300
23	517661	30	170	145	<0.5	-	95	<3	7	330
24	517662	30	20	50	<0.5	-	4	<3	9	400
25	517663	35	30	100	<0.5	-	25	<3	10	340

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

578016

U16

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	2 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517664	25	30	60	<0.5	–	4	<3	15	300
2	517665	35	25	75	<0.5	–	10	<3	15	280
3	517666	25	25	60	<0.5	–	10	<3	9	390
4	517667	110	30	100	<0.5	–	5	<3	10	340
5	517668	30	25	60	<0.5	–	2	<3	5	380
6	517669	65	40	85	<0.5	–	6	<3	6	380
7	517670	20	15	55	<0.5	–	9	<3	10	300
8	517672	40	25	55	<0.5	–	6	<3	9	400
9	517673	75	35	85	<0.5	–	45	3	7	330
10	517674	35	15	75	<0.5	–	5	<3	10	360
11	517675	80	20	95	<0.5	–	<2	<3	8	310
12	517676	140	15	125	<0.5	–	20	<3	5	270
13	517677	105	5	110	<0.5	–	2	<3	5	300
14	517678	30	20	70	<0.5	–	8	<3	6	400
15	517679	15	10	25	<0.5	–	2	3	5	340
16	517680	45	20	100	<0.5	–	10	<3	7	390
17	517682	30	10	95	<0.5	–	6	<3	10	390
18	517683	45	25	120	<0.5	–	9	<3	7	380
19	517684	65	30	120	<0.5	–	8	<3	9	550
20	517685	65	20	95	<0.5	–	6	<3	8	500
21	517686	35	30	75	<0.5	–	5	<3	6	510
22	517687	80	25	85	<0.5	–	2	<3	6	410
23	517688	55	20	75	<0.5	–	2	3	9	500
24	517689	40	10	60	<0.5	–	5	<3	10	490
25	517690	95	20	95	<0.5	–	9	<3	9	490

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

578017

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	3 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517691	55	10	80	<0.5	–	5	<3	7	530
2	517692	75	25	90	<0.5	–	9	<3	9	540
3	517693	35	15	40	<0.5	–	9	<3	6	580
4	517694	30	125	140	<0.5	–	95	<3	6	560
5	517695	25	110	85	<0.5	–	10	<3	20	620
6	517696	25	90	45	<0.5	–	10	<3	25	540
7	517699	40	25	55	<0.5	–	6	<3	6	520
8	517700	65	15	60	<0.5	–	3	<3	9	530
9	517701	80	30	75	<0.5	–	3	<3	7	550
10	517702	40	25	45	<0.5	–	3	<3	6	540
11	517703	60	30	45	<0.5	–	3	<3	8	500
12	517704	30	15	40	<0.5	–	7	<3	5	450
13	517705	50	<5	70	<0.5	–	<2	<3	6	440
14	517707	100	10	105	<0.5	–	<2	<3	9	380
15	517709	55	10	40	<0.5	–	<2	<3	4	500
16	517713	115	15	130	<0.5	–	<2	<3	9	780
17	517715	125	<5	90	<0.5	–	2	<3	5	680
18	517718	30	5	40	<0.5	–	<2	<3	5	1400
19	517719	65	5	65	<0.5	–	7	<3	6	850
20	517720	25	<5	35	<0.5	–	5	<3	4	990
21	517721	40	30	50	<0.5	–	8	<3	4	980
22	517722	20	15	20	<0.5	–	3	<3	<3	790
23	517723	35	20	40	<0.5	–	7	<3	7	990
24	517724	105	15	60	<0.5	–	15	<3	9	960
25	517725	30	15	50	<0.5	–	8	<3	3	950

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

578018

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	4 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517726	20	30	40	<0.5	–	<2	<3	6	830
2	517727	25	20	45	<0.5	–	5	<3	<3	820
3	517728	55	15	60	<0.5	–	10	<3	5	820
4	517729	30	145	125	<0.5	–	85	<3	<3	820
5	517730	95	<5	60	<0.5	–	<2	<3	6	660
6	517731	75	10	70	<0.5	–	3	<3	4	580
7	517732	75	15	90	<0.5	–	5	<3	7	570
8	517733	50	15	65	<0.5	–	<2	<3	4	550
9	517734	85	15	45	<0.5	–	5	<3	<3	600
10	517735	45	20	45	<0.5	–	9	<3	4	740
11	517736	30	20	35	<0.5	–	4	<3	<3	680
12	517739	60	25	90	<0.5	–	3	<3	6	750
13	517740	45	10	45	<0.5	–	8	<3	9	810
14	517741	35	10	35	<0.5	–	7	<3	4	640
15	517742	35	10	40	<0.5	–	8	<3	5	640
16	517743	25	10	40	<0.5	–	4	<3	7	650
17	517744	35	10	40	<0.5	–	5	<3	<3	660
18	517745	30	25	310	<0.5	–	4	<3	<3	640
19	517746	30	20	55	<0.5	–	9	<3	<3	660
20	517747	30	15	75	<0.5	–	7	<3	<3	660
21	517748	25	20	45	<0.5	–	5	<3	<3	640
22	517749	20	20	45	<0.5	–	4	<3	<3	680
23	517750	20	20	280	<0.5	–	3	<3	<3	660
24	517751	20	25	60	<0.5	–	6	<3	<3	680
25	517752	20	5	45	<0.5	–	<2	<3	7	520

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
– = element not determined

AUTHORISED OFFICER

013

ANALABS

A Division of Macdonald Hamilton & Co. (Pty. Ltd.)

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	5 OF 6

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517753	20	20	45	<0.5	–	3	<3	6	630
2	517754	20	20	50	<0.5	–	6	<3	3	660
3	517755	25	30	220	<0.5	–	4	<3	4	640
4	517756	20	25	55	<0.5	–	3	<3	<3	660
5	517758	SNR	SNR	SNR	SNR	–	SNR	SNR	SNR	SNR
6	517759	20	15	55	<0.5	–	2	<3	4	700
7	517760	25	20	55	<0.5	–	4	<3	7	660
8	517761	30	15	130	<0.5	–	4	<3	7	670
9	517762	20	20	40	<0.5	–	5	<3	9	620
10	517763	30	15	50	<0.5	–	7	<3	3	680
11	517764	30	30	60	<0.5	–	5	<3	<3	640
12	517765	100	15	80	<0.5	–	3	<3	<3	540
13	517766	95	35	200	<0.5	–	3	<3	6	580
14	517767	50	30	105	<0.5	–	4	<3	8	630
15	517768	60	20	60	<0.5	–	3	<3	6	620
16	517769	80	20	75	<0.5	–	4	<3	3	520
17	517770	60	30	55	<0.5	–	<2	<3	6	640
18	517771	50	25	105	<0.5	–	10	<3	5	800
19	517772	25	25	55	<0.5	–	15	<3	4	710
20	517773	120	70	70	<0.5	–	3	3	5	840
21	517774	165	35	110	<0.5	–	10	<3	6	470
22	517775	95	15	90	<0.5	–	<2	<3	6	480
23	517776	105	15	110	<0.5	–	4	<3	3	580
24	517777	30	165	160	<0.5	–	90	<3	<3	630
25	517778	35	15	45	<0.5	–	<2	<3	3	480

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

578020

020

ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

ANALYTICAL DATA

SAMPLE PREFIX	REPORT NUMBER	REPORT DATE	CLIENT ORDER No.	PAGE
	23.3.08.06436	22/09/89	8403	6 OF 6

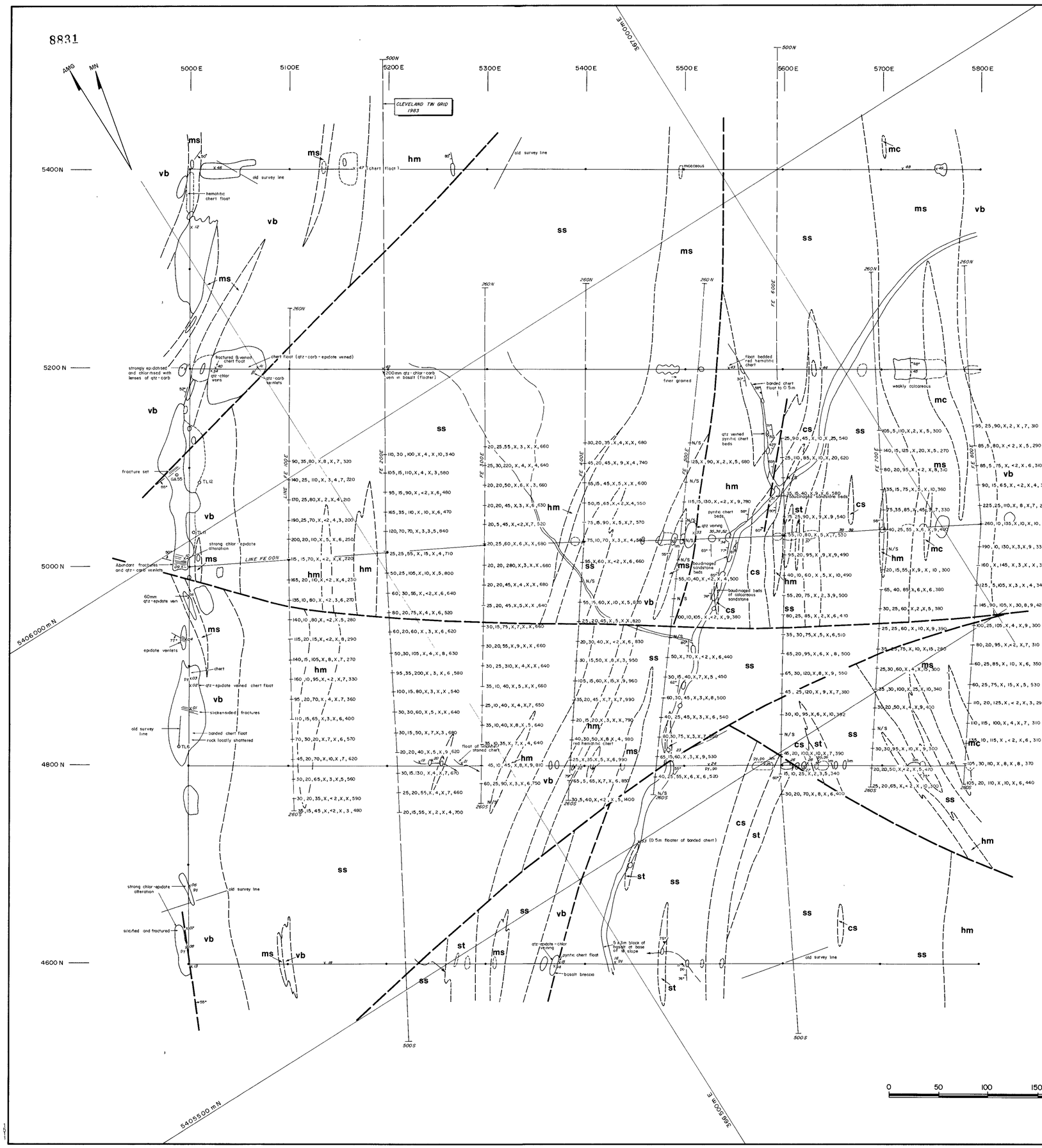
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	As	Mo	Sn	F
1	517779	30	20	35	<0.5	–	<2	<3	<3	590
2	517780	30	20	65	<0.5	–	3	<3	5	560
3	517781	45	20	70	<0.5	–	10	<3	7	620
4	517782	70	30	70	<0.5	–	7	<3	6	570
5	517783	110	15	65	<0.5	–	3	<3	6	400
6	517784	95	20	70	<0.5	–	4	<3	7	360
7	517785	160	10	95	<0.5	–	<2	<3	7	330
8	517786	140	15	105	<0.5	–	8	<3	7	270
9	517787	115	20	115	<0.5	–	<2	<3	8	290
10	517788	100	10	80	<0.5	–	<2	<3	5	280
11	517789	135	10	80	<0.5	–	<2	3	6	270
12	517790	165	20	110	<0.5	–	<2	<3	4	230
13	517791	115	15	70	<0.5	–	<2	<3	<3	220
14	517792	200	20	110	<0.5	–	5	<3	6	250
15	517793	190	25	70	<0.5	–	<2	4	3	200
16	517794	170	25	80	<0.5	–	2	<3	4	210
17	517795	140	25	110	<0.5	–	3	4	7	220
18	517796	90	35	80	<0.5	–	8	<3	7	320
19	517797	25	110	165	<0.5	–	90	3	<3	540
20										
21										
22	SNR = Sample Not Received									
23	DETECTION	5	5	5	0.5	1	2	3	3	20
24	UNITS	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
25	METHOD	101	101	101	101	114	401	401	401	129

Results in ppm unless otherwise specified
T = element present; but concentration too low to measure
X = element concentration is below detection limit
— = element not determined

AUTHORISED OFFICER

578021

8831



— LEGEND —

(Not in Stratigraphic order)

CAMBRIAN (CRIMSON CREEK FORMATION CORRELATES)

vb — BASALT LAVA Dark green, sometimes porphyritic Non vesicular In places doleritic with sub-ophitic texture Some inter-flow chert Western mafic unit strongly magnetic Eastern unit non-magnetic

ms — MAFIC SANDSTONE Green, hard and massive Composed of mafic volcanic detritus and feldspar crystals, in siliceous and chloritic matrix Often magnetic and slightly hematitic Ubiquitous minor pyrite

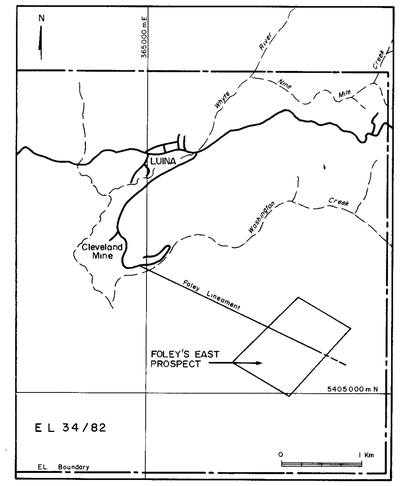
mc — MAFIC PEBBLE CONGLOMERATE Some breccio-conglomerate Green, hard, massive Characterised by well-rounded clasts, average 5mm, of finely-amygdaloidal pale green basalt, in felsic and chloritic matrix Some clasts silicified and pyritised

hm — HEMATITIC MUDSTONE Red or purple-brown chocolate mudstone, cherty in places Much soft-sediment deformation of bedding, and a weak bedding-parallel schistosity Minor intercalated beds of soft hematitic sandstone, or harder boudinaged quartz-mica sandstone

ss / st / cs — MUDSTONE, SILTSTONE AND SANDSTONE Mostly grey, khaki or creamy, mudstone Slightly vitric in places Lesser intercalated similar siltstone, and quartz feldspathic micaceous lithic sandstone (st) Rare chert beds Occasional units of bluish or greenish-grey, hard, massive, calcareous quartz feldspathic micaceous sandstone (cs), with disseminated pyrite and pyrrhotite

- Outcrop
- Sub-outcrop
- Interpreted geological boundary
- 60° Fault, attitude if known
- 75° Fractures, joints and veins, attitude if known
- 55° Bedding
- 75° Schistosity
- x 45 Rock sample (all numbers prefixed 4828--)
- py, po Pyrite, pyrrhotite
- qtz Quartz
- chlor Chlorite
- carb Carbonate
- TL16 Old survey peg and survey line
- Small creek
- Large creek

— LOCATION PLAN —



5 cm

578022

Assay results in ppm Cu, Pb, Zn, Ag, As, Mo, Sn, F
X = below limit of detection
N/S = No sample

89-3029

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init.	Date

NORTH WEST TASMANIA

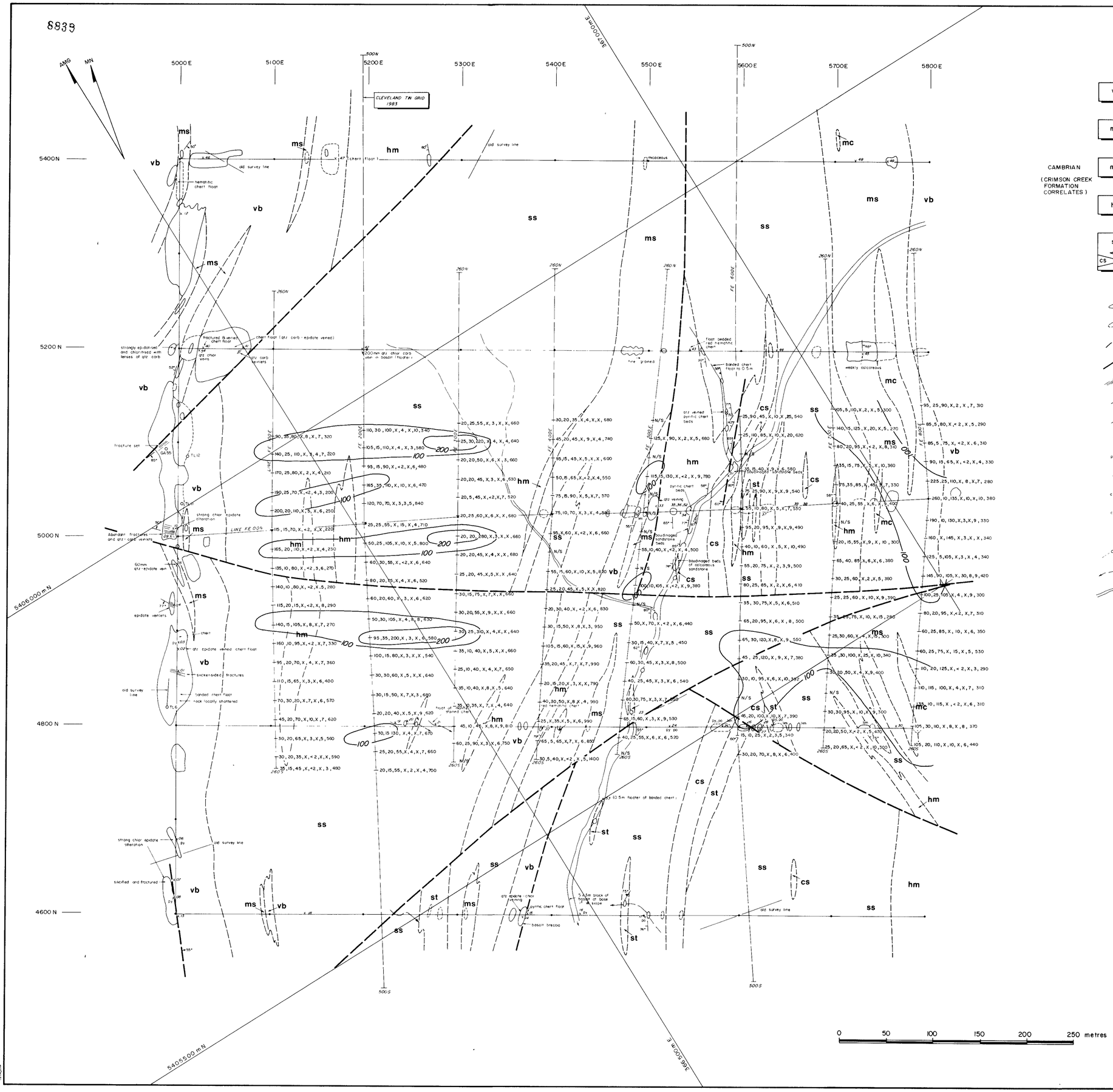
CLEVELAND E.L. 34/82

FOLEY'S EAST PROSPECT

SOIL SAMPLE ASSAY RESULTS

Compiled	J G Purvis
Drawn	J G P
Traced	RJE
Checked	J G P
Plate No.	CL 5
Location Code	
Scale	1:2000
Date	October, 1988

8839



— LEGEND —

(Not in Stratigraphic order)

CAMBRIAN (CRIMSON CREEK FORMATION CORRELATES)

vb — BASALT LAVA Dark green, sometimes porphyritic Non vesicular In places doleritic with sub-ophitic texture Some inter-flow chert Western mafic unit strongly magnetic Eastern unit non-magnetic

ms — MAFIC SANDSTONE Green, hard and massive Composed of mafic volcanic detritus and feldspar crystals, in siliceous and chloritic matrix Often magnetic and slightly hematitic Ubiquitous minor pyrite

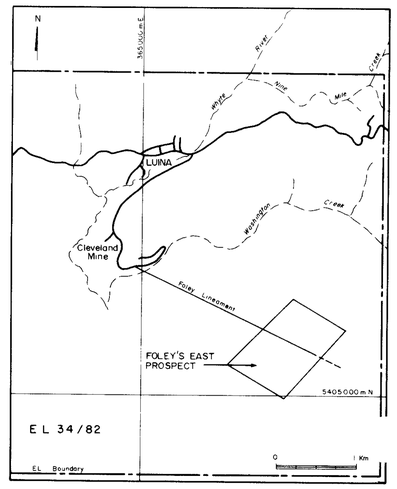
mc — MAFIC PEBBLE CONGLOMERATE Some breccio-conglomerate Green, hard, massive Characterised by well-rounded clasts, average 5mm, of finely-amygdaloidal pale green basalt, in felsic and chloritic matrix Some clasts silicified and pyritised

hm — HEMATITIC MUDSTONE Red or purple-brown chocolate mudstone, cherty in places Much soft-sediment deformation of bedding, and a weak bedding-parallel schistosity Minor intercalated beds of soft hematitic sandstone, or harder boudinaged quartz-mica sandstone

ss / st / cs — MUDSTONE, SILTSTONE AND SANDSTONE Mostly grey, khaki or creamy, mudstone Slightly vitric in places Lesser intercalated similar siltstone, and quartz feldspathic micaceous lithic sandstone (st) Rare chert beds Occasional units of bluish or greenish-grey, hard, massive, calcareous quartz feldspathic micaceous sandstone (cs), with disseminated pyrite and pyrrhotite

- Outcrop
- Sub-outcrop
- Interpreted geological boundary
- Fault, attitude if known
- Fractures, joints and veins, attitude if known
- Bedding
- Schistosity
- x 45 — Rock sample (all numbers prefixed 4828--)
- py, po — Pyrite, pyrrhotite
- qtz — Quartz
- chlor — Chlorite
- carb — Carbonate
- TL16 — Old survey peg and survey line
- Small creek
- Large creek

— LOCATION PLAN —



578023

5cm

Assay results in ppm Cu, Pb, Zn, Ag, As, Mo, Sn, F
X = below limit of detection
N/S = No sample

89-3029

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date
Location Code			

NORTH WEST TASMANIA

CLEVELAND EL 34/82
FOLEY'S EAST PROSPECT
SOIL — ZINC CONTOURS in ppm

Scale	1:2000
Date	October, 1988
Compiled	J G Purvis
Drawn	J G P
Traced	R J E
Checked	J G P
Plate No	CL 5A/Zn

— LEGEND —

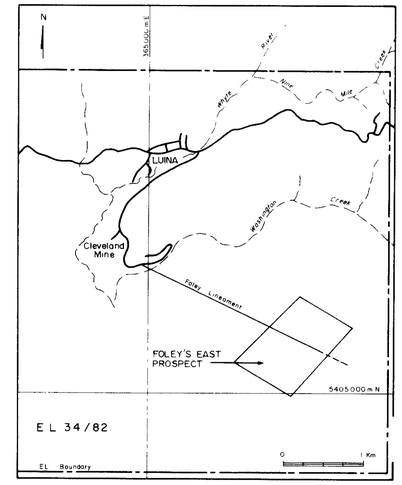
(Not in Stratigraphic order)

CAMBRIAN (CRIMSON CREEK FORMATION CORRELATES)

- vb — BASALT LAVA. Dark green, sometimes porphyritic. Non vesicular in places doleritic with sub-ophitic texture. Some inter-flow chert. Western mafic unit strongly magnetic. Eastern unit non-magnetic.
- ms — MAFIC SANDSTONE. Green, hard and massive. Composed of mafic volcanic detritus and feldspar crystals, in siliceous and chloritic matrix. Often magnetic and slightly hematitic. Ubiquitous minor pyrite.
- mc — MAFIC PEBBLE CONGLOMERATE. Some breccio-conglomerate. Green, hard, massive. Characterised by well-rounded clasts, average 5mm, of finely-amygdaloidal pale green basalt, in felsic and chloritic matrix. Some clasts silicified and pyritised.
- hm — HEMATITIC MUDSTONE. Red or purple-brown chocolate mudstone, cherty in places. Much soft-sediment deformation of bedding, and a weak bedding parallel schistosity. Minor intercalated beds of soft hematitic sandstone, or harder boudinaged quartz-mica sandstone.
- ss / st / cs — MUDSTONE, SILTSTONE AND SANDSTONE. Mostly grey, khaki or creamy, mudstone. Slightly vitric in places. Lesser intercalated similar siltstone, and quartz feldspathic micaceous lithic sandstone (st). Rare chert beds. Occasional units of bluish or greenish-grey, hard, massive, calcareous quartz feldspathic micaceous sandstone (cs), with disseminated pyrite and pyrrhotite.

- Outcrop
- Sub-outcrop
- Interpreted geological boundary
- Fault, attitude if known
- Fractures, joints and veins, attitude if known
- Bedding
- Schistosity
- x 45 — Rock sample (all numbers prefixed 4828--)
- Py, Po — Pyrite, pyrrhotite
- qtz — Quartz
- chlor — Chlorite
- carb — Carbonate
- O.L.6 — Old survey peg and survey line
- Small creek
- Large creek

— LOCATION PLAN —



578024

5 cm

Assay results in ppm Cu, Pb, Zn, Ag, As, Mo, Sn, F
X = below limit of detection
N/S = No sample

89-3029

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date

Location Code

NORTH WEST TASMANIA

CLEVELAND E L 34/82

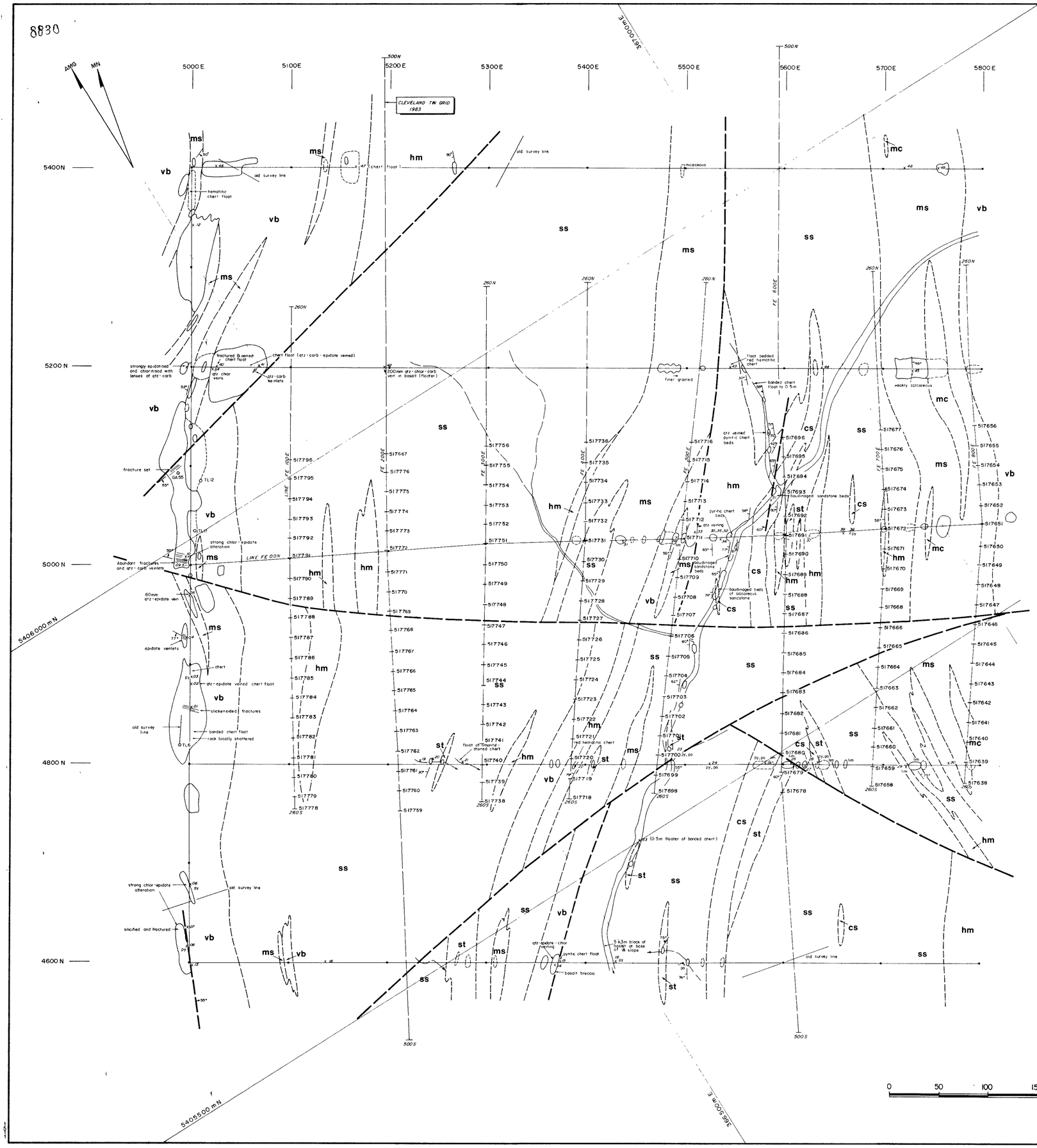
FOLEY'S EAST PROSPECT

SOIL - COPPER CONTOURS in ppm

Scale 1:2000 | Date October, 1988

Compiled	J G Purvis
Drawn	J G P
Traced	R J E
Checked	J G P
Plate No	CL 5 A/Cu

8830



— LEGEND —

(Not in Stratigraphic order)

CAMBRIAN
(CRIMSON CREEK FORMATION CORRELATES)

vb — BASALT LAVA Dark green, sometimes porphyritic Non vesicular In places doleritic with sub-ophitic texture Some inter-flow chert Western mafic unit strongly magnetic Eastern unit non-magnetic

ms — MAFIC SANDSTONE Green, hard and massive Composed of mafic volcanic detritus and feldspar crystals, in siliceous and chloritic matrix Often magnetic and slightly hematitic Ubiquitous minor pyrite

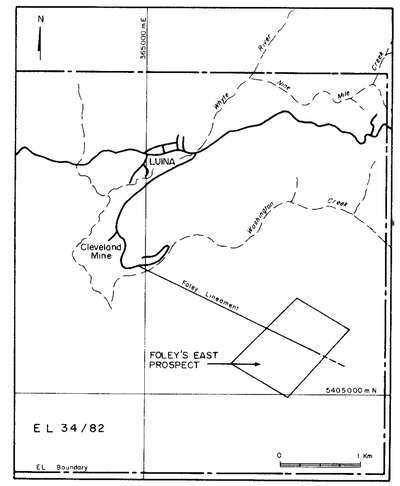
mc — MAFIC PEBBLE CONGLOMERATE Some breccio-conglomerate Green, hard, massive Characterised by well-rounded clasts, average 5mm, of finely-amygdaloidal pale green basalt, in felsic and chloritic matrix Some clasts silicified and pyritised

hm — HEMATITIC MUDSTONE Red or purple-brown chocolate mudstone, cherty in places Much soft-sediment deformation of bedding, and a weak bedding parallel schistosity Minor intercalated beds of soft hematitic sandstone, or harder boudinaged quartz-mica sandstone

ss / st / cs — MUDSTONE, SILTSTONE AND SANDSTONE Mostly grey, khaki or creamy, mudstone Slightly vitric in places Lesser intercalated similar siltstone, and quartz feldspathic micaceous lithic sandstone (st) Rare chert beds Occasional units of bluish or greenish-grey, hard, massive, calcareous quartz feldspathic micaceous sandstone (cs), with disseminated pyrite and pyrrhotite

- Outcrop
- Sub-outcrop
- Interpreted geological boundary
- Fault, attitude if known
- Fractures, joints and veins, attitude if known
- Bedding
- Schistosity
- x 45 — Rock sample (all numbers prefixed 4828--)
- py, po — Pyrite, pyrrhotite
- qtz — Quartz
- chlor — Chlorite
- carb — Carbonate
- OTL6 — Old survey peg and survey line
- Small creek
- Large creek

— LOCATION PLAN —



5 cm

578025

89-3029

Aberfoyle Resources Limited
EXPLORATION DIVISION

REVISIONS			
Init	Date	Init	Date
SWR/jr	21 8 89		

NORTH WEST TASMANIA

CLEVELAND EL 34/82

FOLEY'S EAST PROSPECT
SOIL SAMPLE LOCATIONS

Location Code

Scale 1:2000 | Date October, 1988

Compiled J G Purvis
Drawn J G P
Traced RJE JLR
Checked J G P
Plate No CL 4