

000

890001

87-2691
COPY 1 (FINAL)

ANNUAL REPORT

E.L. 14/86

HUSKISSON RIVER AREA

WESTERN TASMANIA 1986-87

87-2697 Copy 1.

MICROFILMED

BLACK HORSE MINING N.L.

PREPARED BY:

N Davis

N. DAVIS
GEOLOGIST

C.C. Mines Department

OPEN FILE

C O N T E N T S

- 1. Summary
- 2. Introduction
 - 2.1 Summary of Results
- 3. Licence Tenure
- 4. Previous Work
 - 4.1 Sampling By Renison Ltd
 - 4.2 Diamond Drill Holes
 - 4.3 Adit Rock Chip Sampling
 - 4.4 Previous Work Reports
- 5. Work Completed 1986-87
 - 5.1 Regional Stream Sediment Sampling
 - 5.1.1 Sampling by Renison Ltd
 - 5.1.2 Sampling by Black Horse Mining N.L.
 - 5.2 Diamond Drill Holes
 - 5.3 Adit Rock Chip Sampling
- 6. Results
 - 6.1 Stream Sediment Results
 - 6.1.1 Renison Ltd Sampling
 - 6.2 Diamond Drill Holes
 - 6.3 Adit Chip Samples
- 7. Recommendations and Proposed Exploration Programme
 - 7.1 Proposed Exploration Budget 1987-88

LIST OF FIGURES

Figure	Title	Scale
1	Merton Hill Interpretive & Factual Geology	1 : 1,000
2	Huskisson River Tenement & Regional Geology	1 : 50,000
3	Huskisson River Stream Sediment Survey	1 : 10,000
4	Sketch Geology Adits 1 + 3 Merton Hill (Renison Ltd)	1 : 200
5	Location of Rock Chip Samples Within Adits 1 + 3	1 : 200

A P P E N D I C E S

APPENDIX	TITLE
1	Gold Assay Values for Stream Sediment Samples
2	Gold Assay Values for Diamond Drill Hole Samples
3	Gold Assay Values for Adit Rock Chip Samples
4	Ag, Au and P.G.E. Analysis. 4 Samples
5	Analysis of Mineral Samples
6	Photogeological interpretation of Huskisson River Area (Robertson Research. See attached letter)

25th August, 1987.

1. SUMMARY

Work carried out in 1986-87 consisted of original stream sediment survey with reconnaissance geological mapping and minor rock chip sampling. This work resulted in the outline of anomolous areas worthy of further detailed ground follow up. Preliminary geological mapping of the exploration licence was commenced concentrating on a drainage diagram of the area. The old workings were located and mapped as were major geological features. Samples taken from the area were assayed for chromite, platinum group elements and gold, results of which are contained in this report.

An independant geological report was obtained from Robertson Research, Sydney. Pulps from core samples taken during the drilling programme by Rennison Limited were obtained with the approval of the Mines Department, Tasmania and assayed for gold. Bulk samples were taken from Merton Creek and Chromite Creek and panned off to give a concentrate of heavy for assay for chromite.

The above work cost \$61,347.00 to complete.

In 1987-88 it is proposed to expend \$22,000 on E.L. 14/86 in four main areas;

1. Detailed geological mapping.
2. Stream sediment sampling and soils analysis for chromite, platinum group elements, and gold analysis.
3. Hollow core augering where access permits on a limited basis.
4. Cutting of access tracks across tenements to any successful areas in particular Limestone Creek area. Minor Gridding and further track clearing will be undertaken when results of initial stream sediment sampling have been obtained.

2. INTRODUCTION

Exploration Licence (E.L. 14/86) covers an area of 30 sq kilometres (Figure 1) in Western Tasmania. Access into the area is good via the Pieman Dam Road.

The area covers tributaries of the Wilson and Huskisson Rivers which in the first quarter of the century were prospected and locally worked for alluvial concentrations of osmiridium, and gold. The major recorded production of osmiridium, (488 kgs) from this region came probably from an area of 25 kilometres to the north and immediately to the west of the exploration licence.

Geologically, E.L.14/86 covers the eastern border of a 2 kilometre wide zone of steeply dipping ultramafic rocks (dunite, peridotite) which are the southern extension of the Cambrian Heazlewood River Complex. East of the ultramafic rocks, the E.L. is underlain by a synclinally folded sequence of Ordovician to Devonian sediments, comprising dominantly limestones overlain by sandstone. In the vicinity of Merton Hill and to the south there is a zone of small granite periphery.

The arcuate boundary between the ultramafic rocks and the synclinal sediments is a complex fault zone, illustrated by a segment of overturned westerly dipping sediments at Merton Hill.

The ultramafic rocks, which contain chromite, are the source of the osmiridium which, being very heavy, concentrates like gold in the alluvial gravel of the creeks during the weathering process. Recent exploration by Callina N.L. in the adjacent area to the west has shown that osmiridium is associated, probably as inclusions, with the chromite of the soil and weathered rock profile overlying the ultramafic rocks.

Government geological reports state that osmiridium, gold and locally tin were recovered from the majority of the tributary creeks draining into the Huskisson and Wilson Rivers in the central and southern parts of the E.L. The prospectors probably only worked with the active stream channels and the records mention "rich patches" of osmiridium and gold located in Limestone Creek, and alluvial workings of note in Merton and Sweeney Creeks. Tributaries of the Huskisson River draining the sediments in the eastern part of the tenement also carried locally osmiridium, gold, chromite and tin; these being probably derived from the reworking of older river terraces when the drainage pattern was significantly different. The records also mention some osmiridium being worked from weathered clayey-bedrock materials.

At Merton Hill, early prospectors drove three small adits to

extensive exploration programme including seven diamond drill holes. Low grade tin, lead, zinc and silver mineralization were encountered in a complexly faulted environment and the area was relinquished. Silver was the only precious metal assayed for during the exploration programme.

SUMMARY OF RESULTS

Recent exploration for osmiridium, chromite and gold has been undertaken by sampling of creek alluvium in the south eastern part of the E.L. Laboratory work on the heavy mineral sweep has identified osmiridium in all seven samples studied to date and also noted gold in three samples.

There is insufficient information in the old records to identify a major alluvial resource. Several drainages with recorded workings (e.g. Limestone Creek, Merton Creek, Christina Creek) and tributaries of the Wilson River clearly merit evaluation and provide an aggregate of 4 to 5 kilometres of prospective alluvium.

Iridium associated with a chromite bearing weathered lateritic profile of the ultramafic rocks represents a possible exploration target. An examination of air photography covering these rocks in E.L. 14/86 suggests that a weathered profile, albeit locally eroded, is present in some areas.

Alluvial gold has been reported from a number of creeks, and in particular Limestone Creek, but no hardrock occurrences of gold mineralisation have been recorded. However, it is worth noting that the Devonian granites of the region provided a major hydrothermal tin mineralising episode with several major deposits (e.g. Zeehan, Renison Bell) and a minor occurrence of this type in at Merton Hill. Renison did not apparently assay for gold at Merton Hill. Thus, the close spacial relationship of reactive carbonate rocks (Ordovician and Silurian limestones), local hydrothermal plumbing systems and ultramafic rocks along the major fold - fracture system extending from south of Merton Hill, through Limestone Creek, and north along the Wilson River provides an attractive conceptual environment for hardrock gold mineralisation. Carbonate hosted gold mineralisation may be very fine grain and could have been missed by the early prospectors.

Several worthwhile exploration targets for alluvial and weathered bedrock osmiridium mineralisation, and a more speculative and conceptual gold target associated with carbonate rocks have been delineated for further exploration.

3. LICENCE TENURE

L.E. Webb is the registered proprietor of exploration licence 14/86 in the state of Tasmania as trustee for Black Horse Mining N.L. The licence is current to 1st September, 1987 and covers an area of 30 square kilometres.

4. PREVIOUS WORK

4.1 SAMPLING BY RENISON LTD

Renison Ltd conducted a stream sediment orientation survey during 1980-81. The survey was carried out in the immediate streams surrounding Merton Hill to determine the density of sampling, what sieve size fractions to use and those elements to present for assay. A total of 59 samples were taken at spacings of approximately 150 metres. Three size fractions were screened out at -180 um, -300 um and -425 um. Each fraction was assayed for Sn, As, WO, Cn, Pb, Zn and Ni.

The results of the 1980-81 survey showed slightly anomolous responses around the adits and small responses along drainage from the adits. The survey also showed that sample spacing should be less than 200 m and that there is little distinction between assay results for the 3 size fractions.

4.2 DIAMOND DRILL HOLES

Renison Ltd completed 7 diamond drill holes druing their 1980-81 and 1981-82 exploration programme around Merton Hill. A mineral zone was intersected and mineralised intervals were assayed for Sn, As, Cn, Pb, Zn, S, Fe and WO3 by X.R.F. and for Ag, Bi, Sn, Cr, Ni, Sb, Mo by A.A.S.

4.3 ADIT ROCK CHIP SAMPLING

Renison Ltd located 3 adits cut into Merton Hill during tin mining in the early 1900's. Two adits were chip sampled at 1m intervals and the samples were analysed for Ag, Zn, Pb, and Sn.

4.4. PREVIOUS WORK REPORTS

Previous work covering sections of E.L. 14/86 is reported in the following list of reports submitted to the Tasmanian Mines Department:-

RENISON LIMITED
Gradient Array E.I.P. Survey
Mt. Merton Grid 1979/80

RENISON LIMITED
Mt. Lindsay Area
Annual Report 1979/80

RENISON LIMITED
Merton Hill Area
Progress Report May 1980

RENISON LIMITED
Mt. Lindsay Area; Merton Hill
Area Progress Report 1982

RENISON LIMITED
Summary Report on the 1982
Geophysical Surveys over the Little
Wilson River Infill Grid. September 1982

RENISON LIMITED
Detailed E.I.P. Gradient Array Survey
Little Wilson River Grid. October 1982

GOLD FIELDS EXPLORATION PTY LTD
Alfred River Final Report. October 1985

008
5.WORK COMPLETED 1986/87

The work carried out in 1986/87 was directed towards establishing a mining camp as a base from which exploration works could be conducted into the exploration licence. Field work consisted mainly of reconnaissance to relocate old workings, to take stream sediment samples from active streams within the area, to accurately map a drainage diagram of the area, to obtain rock chip samples from existing adits. Air photo interpretation by Robertson Research was also carried out on behalf of Black Horse Mining N.L.

Pulps from previous exploration were obtained courtesy of Renison Ltd and included mineralised sections from diamond drill holes, stream sediment samples and adit rock chip samples.

1. STREAM SEDIMENT SAMPLING5.1.1. RENISON LTD

The samples obtained from Renison Ltd were re-analysed for Au. Sample site locations are shown on Figures 1 and 3.

5.1.2 BLACK HORSE MINING N.L.

Samples obtained from reconnaissance survey of the area were analysed Au, P.G.E.'s and chromite and a complete element analysis was conducted on some samples. Sample sites are shown on Figures 1 + 3.

The company began sampling the heavy mineral fractions of the streams surrounding Merton Hill, notably Merton Creek, Osmiridium Creek and Sweeney Creek. The creeks were sampled at 200 m intervals and above the junction of any two creeks (Figure 3). High water associated with winter rains forced an early suspension of the programme for the 1986-87 season.

Material was collected from the active stream channel and screened at 4 mm. The 4 mm fraction was then panned to a concentrate. Four lots of concentrate were used to provide approximately 100 grams to 200 grams of sample. Where heavy minerals were abundant only two pans of material provided sufficient concentrate.

5.2 DIAMOND DRILL HOLES

The pulps from the mineralised sections of diamond drill holes Mh1, Mh2, and MH6 were obtained from Renison Ltd. Figure 1 shows the location of the drill holes and table 1 summarises the intervals used.

Samples were re-analysed for Au.

T A B L E 1

<u>DRILL HOLE</u>	<u>MINERALISED ZONE</u>	<u>INTERVAL (M)</u>	<u>NO OF SAMPLES</u>
MH1	48.9 m - 56.5 m	0.5	14
MH2	76.5 m - 113.18 m	1	23
MH6	227 m - 240 m	1	13

5.3 ADIT ROCK CHIP SAMPLING

The pulps from the chip sample conducted by Renison Ltd were obtained and 20 samples were re-analysed for Au. Sample locations are shown in Figure 5

6. RESULTS

6.1. STREAM SEDIMENT RESULTS

6.1.1 RENISON LTD SAMPLING

The -180 micron stream sediment samples were obtained from Renison Ltd and submitted for gold analysis by fire assay. The assay values are shown in appendix I and sample locations on Figure 3.

The results indicated anomalous gold values in two stream channels within the survey. One value (3.30 ppm) was of particular interest given the fine grained nature of screened samples. There is undoubtedly some gold shed from fluvio-glacial gravels in the general area. It remains to be seen how these anomalous values relate to such deposits.

6.1.2 BLACK HORSE SAMPLING

Samples obtained from the interrupted stream sediment survey have yet to be submitted for assay.

Samples collected from a previous reconnaissance survey were assayed for Au and P.G.E.'s. The results in Appendix 4 & 5 show significant gold values are again present and Cr₂O₃ and P.G.E.'s are also present.

6.2. DIAMOND DRILL HOLE

The Au analysis results for the mineralised sections of drill holes are shown in appendix 2. No significant values were recorded.

6.3. ADIT CHIP SAMPLES

The Au analysis results for 20 Adit chip samples are shown in Appendix 3. No significant values were recorded.

7. RECOMMENDATIONS AND PROPOSED EXPLORATION PROGRAMME
1987 88

- (i) A more detailed geological mapping programme will be undertaken in the coming field season. In particular the Limestone/Ultramafic contact will be carefully examined. Access for mapping and sampling will be via stream channels and the existing tracks cut by Renison with minimal requirement for further clearing. Helicopter access will be used in the northern portion of the lease where required.
- (ii) Supplementary to the Renison stream sediment sampling and making use of the existing map and grid data base, more intensive stream sediment sampling will be undertaken in conjunction with the work above. Screened (-2 mm) samples will be collected for bulk cyanide leach tests. When visible gold is present a concentrate sub sample will be collected for microscopic and mineralogical examination. Similar tests will be carried out on gold concentrates from likely source rocks.
- (iii) Where appropriate sampling grids used by Renison will be received and numbered as per original reports.
- (iv) Camp facilities will be upgraded to accomodate field personnel from both Black Horse Mining and Callina N.L.

PROPOSED EXPLORATION BUDGET 1987-88

1.	Mapping Programme	\$3,500
2.	Stream Sediment Sampling & Analysis	\$10,000
3.	Minor Gridding and Access Track Clearing	\$3,500
4.	Pro rata provision of camp facilities	<u>\$5,000</u>
	TOTAL	\$22,000 =====

A P P E N D I X 1

GOLD ASSAYS VALUES FOR
STREAM SEDIMENT SAMPLES

(Sampling by Renison Ltd)

PRELIMINARY ANALYTICAL DATA

REPORT NUMBER
Sample 999.21.08.04496

REPORT DATE
26/05/87

013

STREAM SEDIMENTS	Au	AuChk	AuChk	STREAM SEDIMENTS	Au	AuChk	AuChk
MHSS 1	0.01	-	-	MHSS 33	<0.01	-	-
MHSS 2	<0.01	-	-	MHSS 34	<0.01	-	-
MHSS 3	<0.01	-	-	MHSS 35	<0.01	-	-
MHSS 4	<0.01	-	-	MHSS 36	<0.01	-	-
MHSS 5	<0.01	-	-	MHSS 37	<0.01	-	-
MHSS 6	<0.01	-	-	MHSS 38	<0.01	-	<0.01
MHSS 7	0.07	-	-	MHSS 39	<0.01	-	<0.01
MHSS 8	<0.01	-	-	MHSS 40	<0.01	-	<0.01
MHSS 9	<0.01	-	-	MHSS 41	<0.01	-	-
MHSS 10	<0.01	-	-	MHSS 42	3.30	-	-
MHSS 11	<0.01	-	-	MHSS 43	0.01	-	-
MHSS 12	<0.01	-	-	MHSS 44	<0.01	-	-
MHSS 13	<0.01	-	-	MHSS 45	<0.01	-	-
MHSS 14	<0.01	-	-	MHSS 46	<0.01	-	-
MHSS 15	<0.01	-	-	MHSS 47	<0.01	-	-
MHSS 16	<0.01	-	-	MHSS 48	<0.01	-	-
MHSS 17	<0.01	-	-	MHSS 49	<0.01	-	-
MHSS 18	0.03	-	-	MHSS 50	0.14	-	-
MHSS 19	0.05	-	-	MHSS 51	<0.01	-	-
MHSS 20	<0.01	-	-	MHSS 52	<0.01	-	-
MHSS 21	0.44	-	-	MHSS 53	<0.01	-	-
MHSS 22	<0.01	-	-	MHSS 54	<0.01	-	-
MHSS 23	<0.01	-	-	MHSS 55	<0.01	-	-
MHSS 24	0.34	-	-	MHSS 56	<0.01	-	-
MHSS 25	0.02	-	-	MHSS 57	<0.01	-	-
MHSS 26	<0.01	-	-	MHSS 58	<0.01	-	-
MHSS 27	0.04	-	-	MHSS 59	<0.01	-	-
MHSS 28	<0.01	-	-				
MHSS 29	<0.01	-	-				
MHSS 30	<0.01	-	-				
MHSS 31	<0.01	-	-				
MHSS 32	<0.01	-	-				

890014

A P P E N D I X 2

GOLD ASSAY VALUES

FOR DIAMOND DRILL HOLE

SAMPLES MINERALISED SECTIONS

(Sampling By Renison Ltd)

PRELIMINARY ANALYTICAL DATA

REPORT NUMBER
Sample 999.21.08.04496

REPORT DATE
26/05/87

015

HOLLOW CORE DRILL SAMPLES				HOLLOW CORE DRILL SAMPLES			
	Au	AuChk	AuChk		Au	AuChk	AuChk
MH1	48.9-49.4	<0.008	-	MM2	104.4-104.7	<0.008	-
MH1	49.4-49.9	<0.008	-	MM2	104.7-105.0	<0.008	-
MH1	49.9-50.4	<0.008	-	MM2	105.0-105.3	<0.008	-
MH1	50.4-50.9	<0.008	-	MM2	150.3-105.6	<0.008	-
MH1	50.9-51.4	<0.008	-	MM2	105.6-105.9	<0.008	-
MH1	51.4-51.9	<0.008	<0.000	MM2	105.9-106.2	<0.008	-
MH1	51.9-52.4	<0.008	-	MM2	106.2-106.5	<0.008	-
MH1	53.4-53.9	0.020	-	MM2	106.5-106.8	<0.008	-
MH1	53.9-54.4	<0.008	-	MM2	106.8-107.1	<0.008	-
MH1	54.4-54.9	<0.008	-	MM2	107.1-107.4	<0.008	-
MH1	54.9-55.4	<0.008	-	MM2	107.4-107.7	<0.008	-
MH1	55.4-55.9	<0.008	-	MM2	107.7-108.0	<0.008	-
MH1	55.9-56.5	<0.008	-	MM2	112.8-113.18	<0.008	-
MM2	76.5-78.0	<0.008	-	MH6	227-228	<0.008	-
MM2	78.0-81.0	SNR	-	MH6	228-229	<0.008	-
MM2	84.0-87.0	<0.008	<0.008	MH6	229-230	<0.008	-
MM2	87.0-88.0	<0.008	-	MH6	230-231	<0.008	-
MM2	88.0-89.0	<0.008	-	MH6	231-232	<0.008	-
MM2	89.0-90.0	<0.008	-	MH6	232-233	<0.008	-
MM2	90.0-90.75	<0.008	-	MH6	233-234	<0.008	-
MM2	101.53-101.95	0.050	-	MH6	234-235	<0.008	-
MM2	103.8-104.1	<0.008	-	MH6	236-236	<0.008	-
MM2	104.1-104.4	<0.008	-	MH6	236-237	<0.008	-
				MH6	237-238	<0.008	-
				MH6	238-239	<0.008	-
				MH6	239-240	<0.008	-

890016

A P P E N D I X 3

GOLD ASSAY VALUES

FOR ADIT ROCK CHIP SAMPLES

(Sampling by Renison Ltd)

019

890018

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

Phn: (004) 31 6837

14 Thirkell Street, Coose, Tasmania, 7320.

FAX: 004 31 8890

PRELIMINARY ANALYTICAL REPORT No. 999.21.08.04587

INVOICE TO:

ORDER No.

PROJECT

Callina Mining
100 Mill Point Rd.
South Perth
WA 6151

DATE RECEIVED
30/06/87

RESULTS REQUIRED
ASAP

No. OF PAGES
OF RESULTS
1

DATE
REPORTED
01/10/87

No.
OF COPIES
1

TOTAL No. OF SAMPLES
20

SAMPLE NUMBERS

SAMPLE DESCRIPTION & PREPARATION

ELEMENT/METHOD

Various

SD Prep: 005,016

Au, AuChk/309

M+M 20.21R

SD Prep: 005,016

Au, AuChk/309

Various

SD Prep: 005,016

Ag/101

M+M 20.21R

SD Prep: 005,016

Ag/101

RESULTS TO:

REMARKS:

Callina Mining
100 Mill Point Rd.
South Perth
WA 6151

ATT. NICK

AUTHORISED OFFICER



019

890020

A P P E N D I X 4

Ag, Au AND P.G.E. ANALYSIS

OF 4 PANNED SAMPLES FROM CHROMITE CREEK

LABORATORY REPORT

2 DAVISON ST. MADDINGTON, W.A. 6109. P.O. BOX 144 GOSNELLS W.A. 6110
 TELEPHONE (09) 459 2272, 459 4343. TELEX GLS 96166

KALGOORLIE SAMPLE PREPARATION DIVISION 241 DUGAN ST. KALGOORLIE W.A. 6430
 P.O. BOX 388 KALGOORLIE W.A. 6430 TELEPHONE (090) 21 6057

030

JOB INFORMATION

JOB CODE : 218.0/861856
 NO. SAMPLES : 7
 ELEMENTS : 7
 CLIENT O/N :
 DATE RECEIVED :
 DATE COMPLETED :

LEGEND

'X' = LESS THAN DETECTION LIMIT
 'N/L' = SAMPLE NOT RECEIVED
 '*' = RESULTS CHECKED
 '()' = RESULTS STILL TO COME
 'I/S' = INSUFFICIENT SAMPLE FOR ANALYSIS

COMMENTS : ATTENTION : L. KILLIGREW....
 COMMENTS : MAGS....

SAMPLE INFORMATION

ELEMENTS	Ag	Au	Pt	Pd	Rh	Ru	Ir
UNITS	ppm	ppb	ppb	ppb	ppb	ppb	ppb
DETECTION	1	2	0.5	0.5	0.5	0.5	0.5
METHOD	C/AAS	B2/AAS	B2/AAS	B2/AAS	B2/AAS	B2/AAS	B2/AAS
SAMPLE NUMBERS							
1 CROME-CK-1	X	36	12.0	4.5	6.5	30.0	30.0
2 CROME-CK-2	X	140	7.0	4.5	5.5	40.0	22.0
3 CROME-CK-3	X	7100	3.0	3.5	6.0	21.0	22.0
4 CROME-CK-4	X	68	9.0	17.0	8.5	45.0	38.0
5 Ch.0001 (CROME-CK-1)) X	32	10.0	6.0	6.0	33.0	32.0

6 STD 1:M1	29						
7 STD 2:099			200.0	160.0			

890021

PLEASE NOTE: COARSE REJECTS AND PULPS WILL BE STORED FOR 60 DAYS WITHOUT CHARGE. AFTER THIS PERIOD ALL BE DISCARDED AND PULPS STORED AT A RATE OF \$25/cubic metre/month FOR A MAXIMUM OF 12 MONTHS , UNLESS OTHERWISE

A P P E N D I X 5

ANALYSIS OF MINERAL SAMPLES

REFERENCE NUMBER 218/861091
4th June, 1986 218/861092
ORDER NUMBER Verbal

022

GENALYSIS LABORATORY SERVICES PTY. LTD.

P.O. BOX 144
GOSNELLS W.A. 6110

ANALYSIS OF MINERAL SAMPLES

- M.H.1 Stream sediment MacArthur Creek NW of Merton Hill near drillsite
- M.H.2 Stream sediment Tributary Creek 50 metres downstream from M.H.1
- M.H.3 Laterite samples composite over 1 km from hill summit south of Lippy Jane Creek
- M.C. Chromite concentrate from Merton Creek
- C.S. Chromite swamp composite. North of E.L. 14/86. Not applicable.

890023

023

RECONNAISSANCE SURVEY SAMPLES

REFERENCE NUMBER 218/861091 218/861092

SAMPLE NUMBER	Au 1 ppb	Au 2 ppb	Pt ppb	Pd ppb	Rh ppb	Ru ppb	Ir ppb
MH1	< 1						
MH2	< 1						
MH3		1	5.6	0.1	4.7	53	61
CS composite		240	11	<0.1	4.9	23	9.2
MC +500u low mag		41	630	0.2	75	1.0m	3.6m
MC +500u high mag		84	2.7	<0.1	4.0	28	20

REFERENCE NUMBER 218/861233

SAMPLE NUMBER	Au ppb	Pt ppb	Pd ppb	Rh ppb	Ru ppb	Ir ppb
MC Mags	5	1.7	1.4	1.6	9.7	8.5
MC Hi Mags -500	380	3.5	0.6	1.8	16	15
MC N Mags -500	120	850	0.6	96	2.3m	13m
MC N Mags +500	7	2.5m	3.4	340	11m	49m
MC 5 (Oversize) + 2mm	3	2.6	<0.1	1.5	17	27
MC 6 (Oversize) + 3mm	5	1.4	<0.1	1.9	30	35

REFERENCE NUMBER 218/861091

SAMPLE NUMBER	Cr2O3 %	SiO2 %	Fe2O3 %	TiO2 %	Al2O3 %	CaO %	MgO %	B ppm	S %
MH1									
MH2									
MH3	6.71	7.20	68.2	0.23	3.53	0.04	1.04	< 10	0.09
CS composite	52.0	2.13	20.2	2.14	12.9	<0.01	8.31	<100	0.03
MC +500u low mag	63.6	1.74	23.6	0.03	4.38	0.11	8.89	<100	<0.01
MC +500u high mag	35.2	11.7	31.7	0.10	2.84	0.08	13.6	<100	0.06

890024

021

TOTAL ELEMENT ANALYSIS

SAMPLE DET LIMIT

Li = <200 ppb	Be = <200 ppb	Na = ppm	P = < 5 ppm	K = ppm	V = <500 ppb
Mn = < 2 ppm	Ni = <500 ppb	Co = <200 ppb	Cu = < 1 ppm	Zn = < 5 ppm	Ga = <500 ppb
Ge = < 5 ppm	As = < 2 ppm	Se = < 10 ppm	Rb = <200 ppb	Sr = <200 ppb	Y = <100 ppb
Zr = <500 ppb	Nb = < 1 ppm	Mo = < 1 ppm	Ag = <500 ppb	Cd = < 1 ppm	In = < 50 ppb
Sn = < 2 ppm	Sb = <500 ppb	Te = <500 ppb	Cs = < 50 ppb	Ba = <500 ppb	La = <100 ppb
Ce = <200 ppb	Pr = < 50 ppb	Nd = <500 ppb	Sm = <100 ppb	Eu = < 50 ppb	Gd = <500 ppb
Tb = < 50 ppb	Dy = <100 ppb	Ho = < 50 ppb	Er = <200 ppb	Tm = < 50 ppb	Yb = <200 ppb
Lu = < 50 ppb	Hf = <200 ppb	Ta = <100 ppb	W = < 1 ppm	Re = <100 ppb	Au = <200 ppb
Tl = < 50 ppb	Pb = < 5 ppm	Bi = <100 ppb	Th = <100 ppb	U = < 50 ppb	

SAMPLE MH 3

Li = 1.4 ppm	Be = <200 ppb	Na = 44 ppm	P = 140 ppm	K = 840 ppm	V = 52 ppm
Mn = 1200 ppm	Ni = 1200 ppm	Co = 180 ppm	Cu = 10 ppm	Zn = 120 ppm	Ga = 2.3
Ge = < 5 ppm	As = 4 ppm	Se = < 10 ppm	Rb = 4.2 ppm	Sr = 2.6 ppm	Y = 1.3
Zr = 19 ppm	Nb = 3.2 ppm	Mo = 1.3 ppm	Ag = <500 ppb	Cd = < 1 ppm	In = <50
Sn = < 2 ppm	Sb = <500 ppb	Te = <500 ppb	Cs = 350 ppb	Ba = 23 ppm	La = 1.7
Ce = 4.0 ppm	Pr = 350 ppb	Nd = 1.3 ppm	Sm = 200 ppb	Eu = 100 ppb	Gd = <500
Tb = < 50 ppb	Dy = 400 ppb	Ho = < 50 ppb	Er = <200 ppb	Tm = < 50 ppb	Yb = <200
Lu = < 50 ppb	Hf = 400 ppb	Ta = 2.3 ppm	W = < 1 ppm	Re = <100 ppb	Au = <200
Tl = 50 ppb	Pb = 5 ppb	Bi = <100 ppb	Th = 2.2 ppm	U = 400 ppb	

SAMPLE CS COMPOSITE

Li = 3.5 ppm	Be = <200 ppb	Na = 89 ppm	P = 100 ppm	K = 93 ppm	V = 160 ppm
Mn = 340 ppm	Ni = 110 ppm	Co = 48 ppm	Cu = 6 ppm	Zn = 320 ppm	Ga = 2.1 ppm
Ge = < 5 ppm	As = < 2 ppm	Se = < 10 ppm	Rb = 1.3 ppm	Sr = 1.2 ppm	Y = 16 ppm
Zr = 45 ppm	Nb = 17 ppm	Mo = < 1 ppm	Ag = <500 ppb	Cd = < 1 ppm	In = 150 ppb
Sn = 4 ppm	Sb = 500 ppb	Te = <500 ppb	Cs = < 50 ppb	Ba = 1.2 ppm	La = 69 ppm
Ce = 170 ppm	Pr = 19 ppm	Nd = 70 ppm	Sm = 12 ppm	Eu = 1.7 ppm	Gd = 9.6 ppm
Tb = 900 ppb	Dy = 4.0 ppm	Ho = 650 ppb	Er = 1.3 ppm	Tm = 200 ppb	Yb = 1000 ppb
Lu = 200 ppb	Hf = 1.2 ppm	Ta = 1.3 ppm	W = 1.4 ppm	Re = <100 ppb	Au = <200 ppb
Tl = < 50 ppb	Pb = < 5 ppm	Bi = <100 ppb	Th = 2.8 ppm	U = 750 ppb	

890025

SAMPLE MC +500u LOW MAG

Li = <200 ppb	Be = <200 ppb	Na = 44 ppm	P = 15 ppm	K = 13 ppm	V = 8.0 ppm
Mn = 220 ppm	Ni = 910 ppm	Co = 32 ppm	Cu = 4 ppm	Zn = 37 ppm	Ga = <500 ppb
Ge = < 5 ppm	As = < 2 ppm	Se = < 10 ppm	Rb = 600 ppb	Sr = 200 ppb	Y = <100 ppb
Zr = <500 ppb	Nb = < 1 ppm	Mo = < 1 ppm	Ag = <500 ppb	Cd = < 1 ppm	In = < 50 ppb
Sn = < 2 ppm	Sb = <500 ppb	Te = <500 ppb	Cs = < 50 ppb	Ba = <500 ppb	La = <100 ppb
Ce = <200 ppb	Pr = < 50 ppb	Nd = <500 ppb	Sm = <100 ppb	Eu = < 50 ppb	Gd = <500 ppb
Tb = < 50 ppb	Dy = <100 ppb	Ho = < 50 ppb	Er = <200 ppb	Tm = < 50 ppb	Yb = <200 ppb
Lu = < 50 ppb	Hf = <200 ppb	Ta = <100 ppb	W = < 1 ppm	Re = <100 ppb	Au = <200 ppb
Tl = 50 ppb	Pb = < 5 ppm	Bi = <100 ppb	Th = <100 ppb	U = < 50 ppb	

SAMPLE MC +500u HIGH MAG

Li = 200 ppb	Be = <200 ppb	Na = 44 ppm	P = 25 ppm	K = 13 ppm	V = 6.6 ppm
Mn = 990 ppm	Ni = 3700 ppm	Co = 160 ppm	Cu = < 2 ppm	Zn = 87 ppm	Ga = <500 ppb
Ge = < 5 ppm	As = 2 ppm	Se = < 10 ppm	Rb = <200 ppb	Sr = 1.4 ppm	Y = 600 ppb
Zr = 1.4 ppm	Nb = < 1 ppm	Mo = < 1 ppm	Ag = <500 ppb	Cd = < 1 ppm	In = < 50 ppb
Sn = < 2 ppm	Sb = <500 ppb	Te = <500 ppb	Cs = < 50 ppb	Ba = 4.3 ppm	La = 1.0 ppm
Ce = 2.9 ppm	Pr = 250 ppb	Nd = 1000 ppb	Sm = 200 ppb	Eu = < 50 ppb	Gd = <500 ppb
Tb = < 50 ppm	Dy = 200 ppb	Ho = < 50 ppb	Er = <200 ppb	Tm = < 50 ppb	Yb = <200 ppb
Lu = < 50 ppm	Hf = <200 ppb	Ta = <100 ppb	W = < 1 ppm	Re = <100 ppb	Au = <200 ppb
Tl = < 50 ppm	Pb = < 5 ppb	Bi = <100 ppb	Th = 300 ppb	U = 50 ppb	

025

890026

REFERENCE NUMBER 218/861091, 218/861072 ORDER No VERBAL

PAGE 2

026

NOTES ON ANALYSIS OF THESE SAMPLES

An 'm' Suffix after a result implies results are expressed in ppm for this sample

Au 1

HAS been determined by Fire Assay (Lead collection) of a 50 gm sample. The Noble Metal pill has been dissolved and the solution analysed by Inductively Coupled Plasma - Mass Spectrometry.

Au 2 Pt Pd Rh Ru Ir

HAVE been determined by Fire Assay of the sample (in NEW pots) using Nickel Sulphide as the collection media. The Platinoids have been recovered from the Nickel Sulphide and analysed by ICP-Mass Spectrometry.

890027

REFERENCE NUMBER 218/861091, 218/867092 ORDER No VERBAL

PAGE 2

NOTES ON ANALYSIS OF THESE SAMPLES

Cr2O3 SiO2 Fe2O3 TiO2 Al2O3 CaO MgO B S

HAVE BEEN BROUGHT INTO SOLUTION BY FUSION WITH SODIUM PEROXIDE.

THIS FUSION PROCEDURE RESULTS IN TOTAL EXTRACTION OF THE ELEMENTS OF INTEREST.

THE DIGEST HAS BEEN ANALYSED BY INDUCTIVELY COUPLED PLASMA EMISSION SPECTROPHOTOMETRY.

027

890028

REFERENCE NUMBER 218/861091, 218/861092 ORDER No VERBAL

PAGE 3

028

NOTES ON ANALYSIS OF THESE SAMPLES

All samples except "RB 3" contained acid insolubles.

These elements have been determined on the sample after digestion with Nitric, Hydrofluoric and Perchloric acids to fumes. The digest has then been taken up in Nitric and Hydrochloric acids. This digest approaches total extraction for many elements, however some minerals, particularly Chromite and Cassiterite and high levels of some of the refractory minerals, may not be recovered in total. Although reported, Zirconium, Hafnium results via this digestion will probably be low.

The elements Na and K have been determined by Atomic Absorption.

The elements .. V, Ni, As, Zn, Cu, P and .. have been determined by Optical Emission Plasma Spectrometry.

All other elements have been determined by Inductively Coupled Plasma - Mass Spectrometry. Since short integration times have been used in assessing element concentrations, these results should be considered SEMI-QUANTITATIVE.

The element detection limits for this analytical run have been reported, and consideration should be given to them in relation to low level positive results on samples.

890029

A P P E N D I X 6

ROBERTSON RESEARCH LETTER



890031

27th October, 1987

Black Horse Mining N.L.,
1st Floor, 100 Mill Point Road,
SOUTH PERTH W.A. 6151

Attention: Nick Perrignon

Dear Nick,

RE: PHOTOGEOLOGY OF EL 14/86 (HUSKISSON RIVER)

With regard to your letter of 26/10/87 re the photogeology study of this tenement. RRA's report included in the Explanatory Memorandum to Shareholders of Black Horse Mining N.L. mentioned 'a brief examination of air photography' which was reference to said examination of photo data in the offices of Black Horse by the undersigned.

No separate report or map compilation was made at that time by RRA for the Directors of Black Horse. The examination of photography was made in order to comment in the Memorandum on the possibility of weathered (lateritic) profiles overlying the ultramafic rocks within the EL.

I hope the above explanation is satisfactory.

Yours sincerely,
ROBERTSON RESEARCH (AUSTRALIA) PTY LIMITED

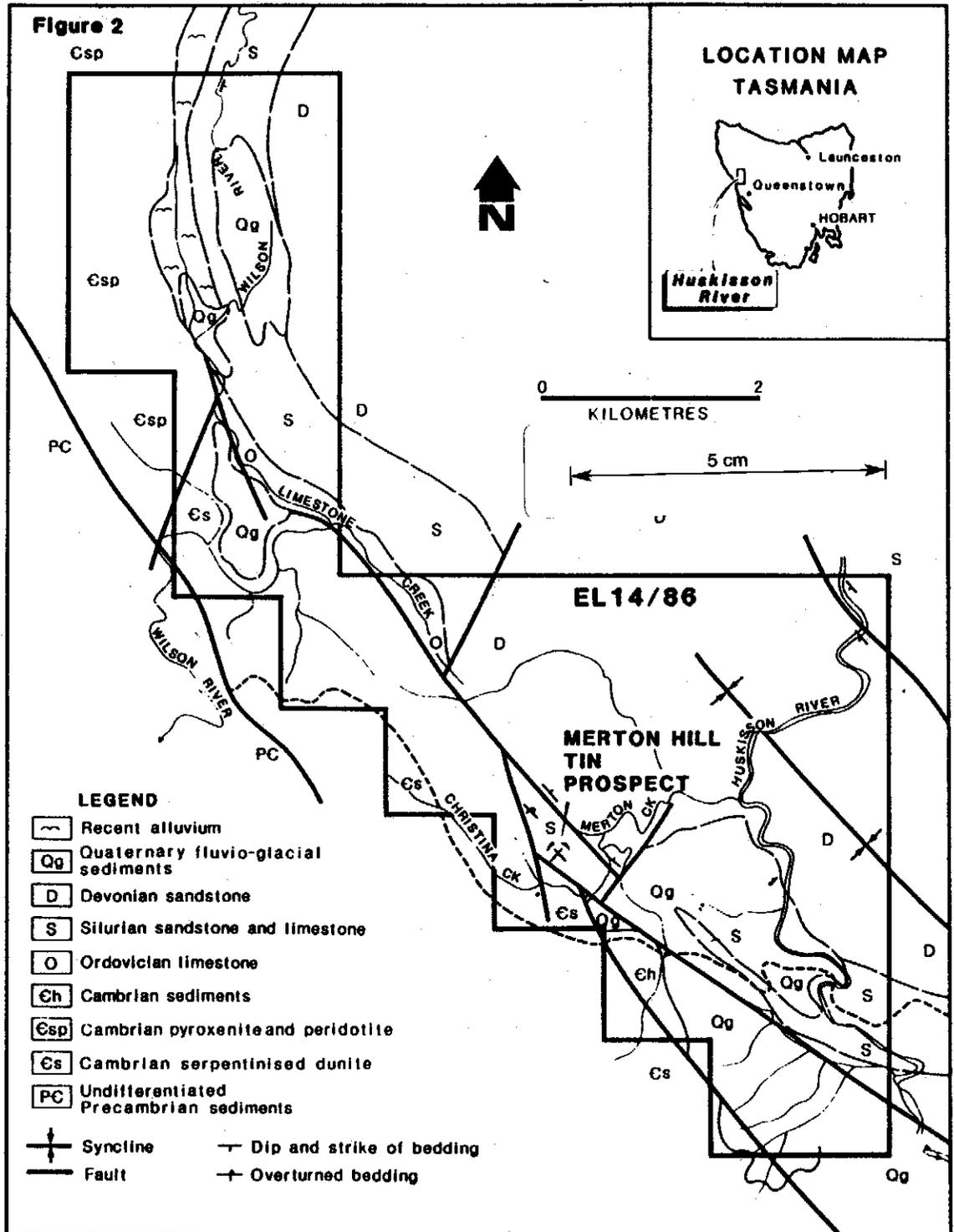
Colin M. Thomas

C.M. THOMAS,
Chief Geologist - Minerals

CMT/mzo/443

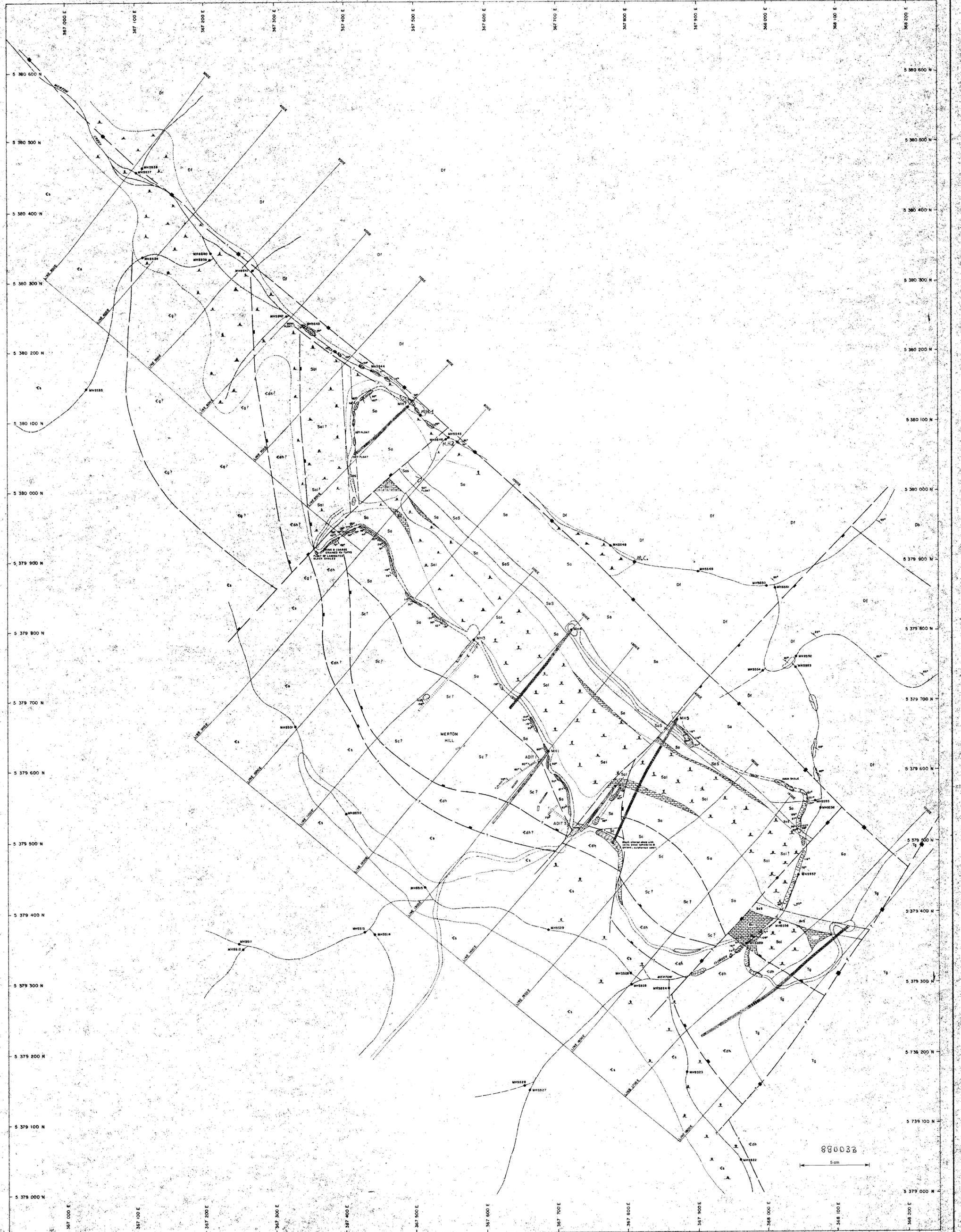


HUSKISSON RIVER Tenement and Regional Geology



BLACK HORSE MINING N.L.

This illustration was prepared by Robertson Research (Australia) Pty Limited for inclusion in this Document



ROCKS		SEDIMENTARY ROCKS	
Tertiary Basalt		Quaternary	
Devonian Merced Granite		Recent Alluvium	
Devonian? Acid intrusives		Tertiary	
Upper Cambrian Sarcinites, and Mafic-ultra-mafic complexes		Tertiary Gravels	
Combion Basic or Gabbroic Rocks		Devonian	
		Df Belt Shale	
		Df Florence Quartzite	
		Silurian	
		Undiff. Amber Shale	
		Siliceous Sandstone member	
		Limestone member	
		So	
		Crafty Quartzite	
		Ordovician	
		Gordon Limestone	
		Mona? Sandstone	

SYMBOLS

- Dip & Strike of Bedding (Facing known)
- Dip & Strike of Bedding (Facing unknown)
- Dip & Strike of Compehension bedding
- Dip & Strike of Cleavage, undifferentiated
- Axial Plane of small anticline
- Anticlinial, Synclinal Axis
- Observed outcrop
- Fossil locality
- Interpreted Boundary
- Fault, approximate position
- Fault, definite position
- Compositional layering in ultra-mafic
- Cleavage, parting, shear

890033

5 cm

Fig 1

SCALE 1:2000

DATE: OCT '87

SCALE 1:2000

BLACK HORSE MINING N.L.

87-2697 Copy 1

HUSKISSON RIVER TASMANIA

MERTON HILL

INTERPRETIVE AND FACTUAL

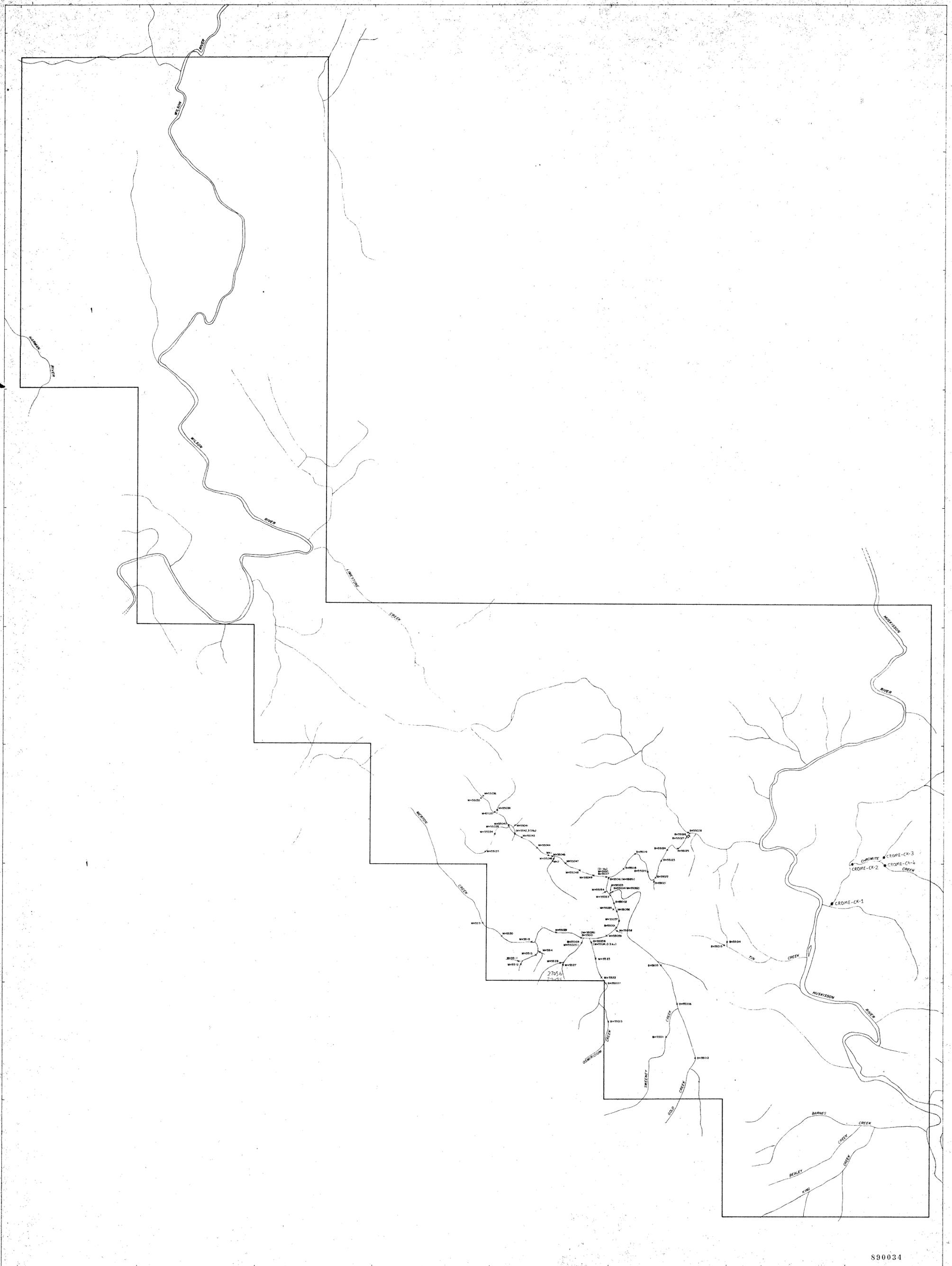
GEOLOGY

035

after Rankin Ltd Plan 52, 53, 66 B 67 1981

COMPILED: N. DAVIS DATE: OCT '87

SCALE: 1:2000 DRAWN: CARTO-GRAPIK



890034

Scale 1:10 000

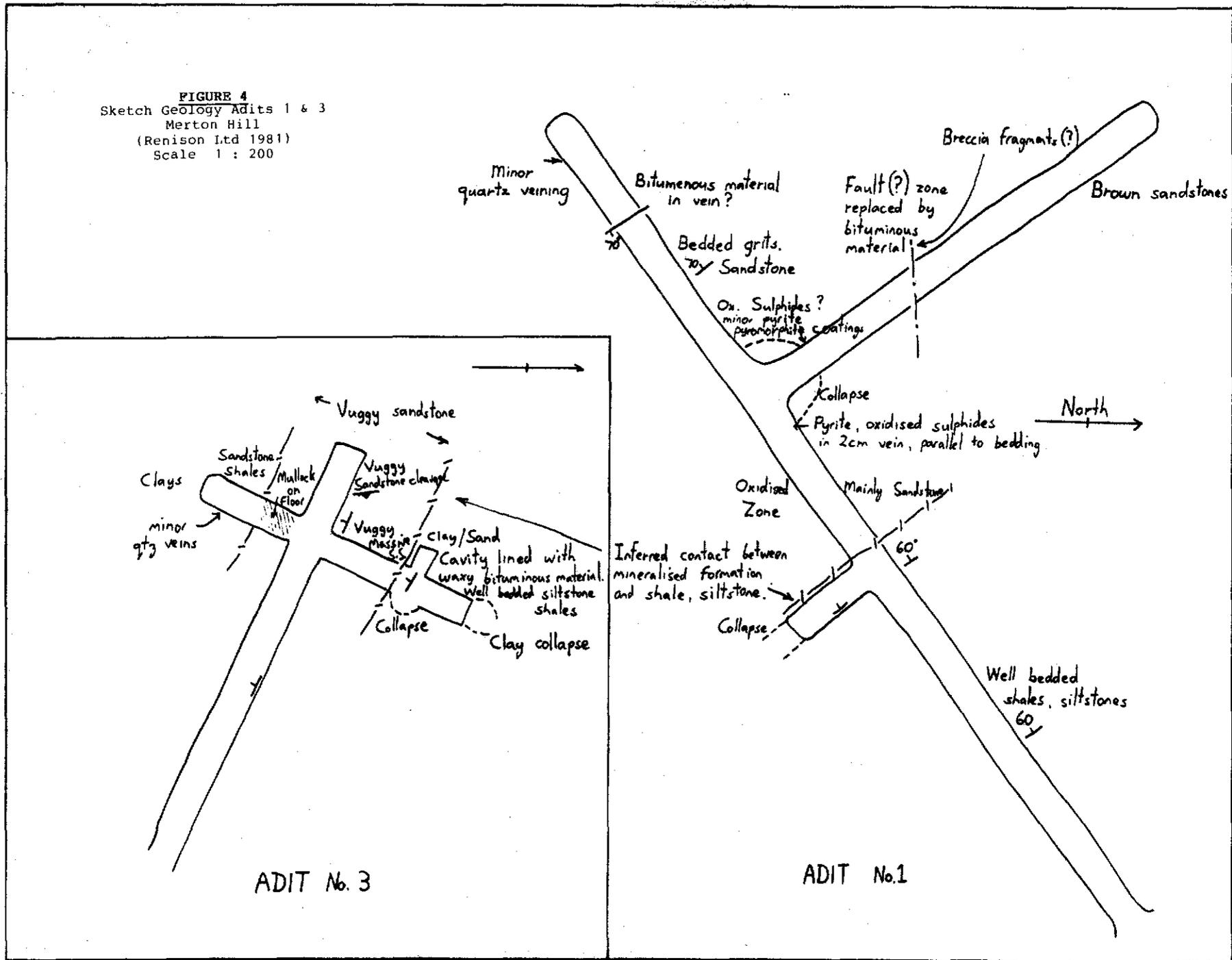
5 km

STREAM SEDIMENT SURVEY

BLACK HORSE MINING NL	
87-2697 Copy 1	
HUSKISSON RIVER TASMANIA	
E 14/86	
Date	October, 1987
Drawn	Carto-graphic
Compiled	N. Davis
Figure no.	3



FIGURE 4
Sketch Geology Adits 1 & 3
Merton Hill
(Renison Ltd 1981)
Scale 1 : 200



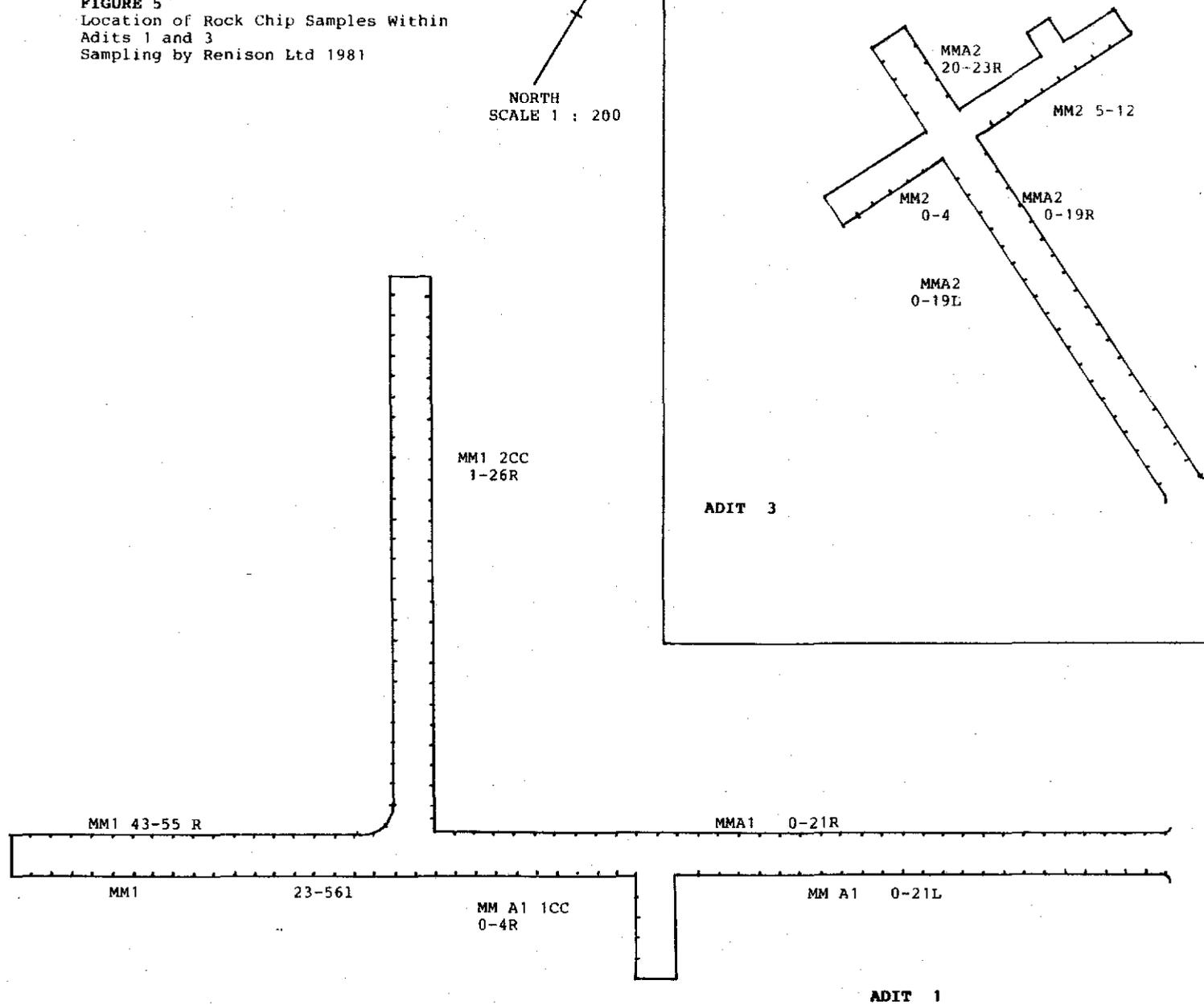
033

890035

FIGURE 5
Location of Rock Chip Samples Within
Adits 1 and 3
Sampling by Renison Ltd 1981

NORTH
SCALE 1 : 200

NORTH



052

890036