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CRA EXPLORATION PTY.LTD.

EXPLORATION AT THE RAZORBACK TIN MINE, WESTERN TASMANIA

JANUARY 1981 - APRIL 1982.

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CRAE Hobart
CRAE Burnie

CONTENTS

1. SUMMARY

Two diamond drill holes drilled below the Razorback carbonate - hosted tin orebody intersected only minor mineralisation (e.g. 0.32% tin over 1.6 metres).

Geochemical and geophysical surveys elsewhere in the mining lease identified at least one drilling target.

2. INTRODUCTION

The Razorback Tin Mine, situated some 8km east of Zeehan in Western Tasmania, was estimated to contain 365,000 tonnes of ore at 0.72 per cent tin with possible extensions of 130,000 tonnes at similar grade. (Purvis, 1980.)

The mineralisation is associated with pyrrhotite in a talc-carbonate unit within a black shale - conglomerate - volcanic? - talc carbonate-serpentinite sequence of probable Lower Cambrian age.

The 1980 drilling programme intersected only weak mineralisation, but it was concluded that a "deep trough-like feature within the talc-carbonate unit appeared to be controlling the location of the known orebody" (Purvis, 1980.). The 1981 holes were designed to test "prospective areas delineated at depth towards the southern end of the mine where this trough appears to be enlarging, giving it the potential to host a major body of mineralisation" (Purvis, 1980).

Ground follow-up of airborne electro-magnetic anomalies (Flis, 1981) together with soil geochem sampling was undertaken to identify drilling targets outside the immediate mine area.

3. CONCLUSIONS

1. The mineralisation encountered at depth beneath the Razorback orebody has not proved encouraging.

2. The morphology of the talc-carbonate unit is more complicated than previously indicated.

3. Although usually associated with pyrrhotite, tin content is not proportional to the amount of sulphide present.

4. Most of the high soil geochem results are due to contamination, but a significant anomaly with coincident geophysical response occurs west of the Old Mill site near the Dundas Rivulet.

1 sample / 1 sample for Pb & Zn.

4. RECOMMENDATIONS

1. Discouraging intersections below the Razorback orebody indicate that no further drilling in this area be undertaken.

2. Future drilling should test new targets in the mining lease, beginning with the relatively weak geochem/geophysical anomaly west of the Old Mill site on line EMW5.

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5. DIAMOND DRILLING

Two diamond drill holes of 305 and 404 metres were completed, the second requiring wedging due to poor drilling conditions.

DD81 RC4 encountered only 15.2 metres of talc-carbonate in contrast to the 140 metres intersected in DD80 RC1 only 60 metres to the north (Purvis, 1980).

In DD81 RC5 three intersections of talc-carbonate seperated by serpentinite were encountered, again contrasting with intersections in earlier holes. The total thickness of talc-carbonate in DD81 RC5 is 70 metres.

Massive and disseminated pyrrhotite was intersected towards the bottom of the talc-carbonate in both holes. In DD81 RC4 the pyrrhotite rich section covers some 1.6 metres and contains 0.32 percent tin, occurring 6 metres above the black slate contact. In DD81 RC5 the pyrrhotite occurs over some 3.8 metres immediately above the conglomerate contact but averages only 252 ppm tin.

6. GEOCHEM SURVEY

A soil geochem survey was undertaken south of the mine to cover geophysical anomalies in the area. (Flis, 1981.)

Most of the anomalous results reflect contamination around the Old Mill site and related tramways north of the Dundas rivulet.

Perhaps the only significant result is that on line EMW 5 (210 ppm tin; 6950 ppm?; 1.45% lead; 1550 ppm,? 1650 ppm zinc) coinciding with an EM anomaly. The underlying rocks here are pyritic black Hodge slates.

J.ODELL

They appear to have
moved towards from
974272 + 974271

7. REFERENCES

Flis, M. 1981 — Airborne and ground geophysical survey at the Razorback ML, Western Tasmania.

Purvis, J.G. 1980 — Exploration at the Razorback Tin Mine, Western Tasmania. March 1979 - September, 1980.

8. KEYWORDS

Tin, black shale - pyritic, carbonate, upper Proterozoic - Cambrian, drill - diamond, geochemistry.

Queenstown SK55-5

9. LIST OF PLANS

Plan Number	Title	Scale
Tv 303	Locality Plan	1:100 000.
TASh 721	Razorback Tin Mine Section 4440N (DD81 RC4)	1:1000
TASh 720	Razorback Tin Mine Section 4640N (DD81 RC5)	1:1000
TASh 722	Razorback Tin Mine Geochem	1:1000

10. LIST OF APPENDICES

Appendix I — Drill Log Sheets DD81 RC4, DD81 RC5.

Appendix II — Geochem Sample Ledger

APPENDIX I

Drill Log Sheets DD81 RC4, DD81 RC5.

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C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 1 of 2

TENEMENT NAME RAZORBACK No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES 4440N 2972E AZIMUTH 250° MAG DRILLERS PARRY COMMENCED 29-9-81 DEPTH 305m HOLE No. DD81RC4

RL COLLAR 235m INCLINATION -47° DRILL TYPE Boyles 37 COMPLETED 23-10-81 CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
0	3.0				TRICONE		974401	3.0	11.5		6	-	15	20	65	-	2200	275
3.0	177.4				SERPENTINITE		402	11.5	17.0		-	-	5	5	50	-	2250	365
							403	17.0	23.0		-	15	-	15	50	-	2250	340
							404	23.0	28.0		7	15	-	10	50	-	2350	385
							405	28.0	34.0		-	-	5	15	55	-	2300	405
							406	34.0	40.0		-	-	-	5	50	-	2300	335
							407	40.0	47.0		-	-	-	10	50	-	2450	405
							408	47.0	53.0		-	-	5	15	55	-	2300	345
							409	53.0	59.0		-	-	-	5	50	-	2300	365
							410	59.0	65.0		-	-	-	5	45	-	2200	325
							411	65.0	71.0		-	-	5	15	50	-	2150	325
							412	71.0	77.0		-	-	5	15	55	-	2450	350
							413	77.0	83.0		-	-	-	5	55	-	2300	320
							414	83.0	89.0		-	-	-	10	50	-	2100	275
							415	89.0	95.0		-	-	-	10	65	-	2150	285
							416	95.0	101.0		-	10	-	-	60	-	2100	360
							417	101.0	107.0		-	10	-	15	55	-	2300	285
							418	107.0	113.0		-	-	-	10	70	-	2450	260
							419	113.0	119.0		-	-	-	10	60	-	2300	435
							420	119.0	125.0		-	-	5	15	55	-	2250	310
							421	125.0	131.0		-	10	-	5	55	-	2350	350
							422	131.0	137.0		-	-	-	-	60	-	2350	250
							423	137.0	143.0		-	-	-	10	60	-	2300	305
							424	143.0	149.0		-	-	5	-	70	-	2300	345
							425	149.0	155.0	-	-	-	-	10	65	-	2150	345
							426	155.0	161.0				-	5	65	-	2200	290
							427	161.0	167.0				-	15	65	-	2250	270
							428	167.0	173.0				-	15	75	-	2250	385
							429	173.0	179.0				-	15	60	-	2300	340
							430	179.0	185.0				-	15	65	-	2400	320
							431	185.0	191.0				-	10	60	-	2350	345

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DRILL CORE LOG

SHEET No. 2
TENEMENT NAME RAZOR BIKK No.
PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No. RD 81 RC 4
RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
							G 974432	191·0	197·0		-	-	-	5	65	-	2250	305
							G 433	197·0	203·0		-	-	-	5	60	-	2450	285
							" 434	203·0	209·0		-	-	-	10	75	-	2300	425
							" 435	209·0	215·0		-	-	-	5	80	-	2300	335
							" 436	215·0	221·0		-	-	-	-	65	-	2400	330
							" 437	221·0	227·0		-	-	-	-	70	-	2350	190
							" 438	227·0	233·0		-	-	-	-	70	-	2250	230
							" 439	233·0	239·0		-	-	-	-	70	-	2400	265
							" 440	239·0	245·0		-	-	-	5	70	-	2300	370
							" 441	245·0	251·0		-	-	5	10	70	-	2300	280
							" 442	251·0	257·0		-	-	-	10	65	-	2200	255
							" 443	257·0	263·0		-	-	-	5	65	-	2300	215
							" 444	263·0	269·0		-	-	5	10	70	-	2200	250
							" 445	269·0	277·4		3	-	15	10	80	'	1950	260
277·4	292·6				TALC-CARBONATE, Qz. RICH	Pyrrhotite-rich section 285·0 - 286·0	" 446	277·4	278·4		10	-	-	60	330	-	675	465
							" 447	278·4	279·4		15	-	-	65	105	1·0	610	405
							" 448	279·4	280·4		15	-	-	40	105	-	1550	700
							" 449	280·4	281·4		-	-	-	50	85	-	1550	815
							" 450	281·4	282·4		10	-	-	20	70	-	2350	490
							" 451	282·4	283·4		10	-	-	30	70	-	2200	780
							" 452	283·4	284·4		10	-	5	35	60	-	2050	870
							cut 453	284·4	285·0		2550	-	175	65	80	-	1400	1050
							" 454	285·0	286·0		3050	-	1800	290	190	3·0	1350	1550
							" 455	286·0	287·0		140	-	45	205	215	0·5	1200	1000
							" 456	287·0	288·0		55	-	30	75	135	-	1400	655
							" 457	288·0	289·0		6	-	5	10	50	-	1400	550
							" 458	289·0	290·0		5	-	-	-	30	-	1200	410
							" 459	290·0	291·0		3	-	5	20	30	-	1150	385
							" 460	291·0	292·0		20	1	5	-	25	-	1250	360
							" 461	292·0	292·6		20	-	5	-	15	-	1550	430
292·6	305·0				HODGE SLATE	Some bedded pyrite	G 462	292·6	297·0		9	15	25	-	65	-	1150	370

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DRILL CORE LOG

SHEET No. 3

TENEMENT NAME RAZORBACK No.

PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No. DD81 RC4

RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by) Sn	W	Cu	Pb	Zn	Ag	Ni	Co
							G 974463	297·0	300·0		9	25	80	40	185	-	135	35
							G 464	300·0	305·0		380	25	45	580	20	2·5	120	40
					SURVEY: 250M. AZIMUTH 238° (MAGNETIC INTERFERENCE)	DIP -39°												

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DRILL CORE LOG

SHEET No. 1

TENEMENT NAME RAZORBACK No.

PLAN – MAP REFERENCE

CO-ORDINATES 4640 N 3031 E AZIMUTH 250° MAG (GRID U) DRILLERS PARRY COMMENCED 24-10-81 DEPTH 404.0 m HOLE No. DD81RC5

RL COLLAR 253 m INCLINATION -55° DRILL TYPE BOYLES 37 COMPLETED 8-3-82 CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by) Sn	U	Cu	Pb	Zn	Ag	Ni	Cr
	51.0				TRICONE IN SERPENTINITE		974505	51.0	59.0		3	-	5	15	40	-	2300	240
51.0			NQ		SERPENTINITE		506	59.0	65.0		5	-	-	10	40	-	2100	390
							507	65.0	71.0		5	-	-	10	40	-	2050	335
							508	71.0	77.0		-	-	-	10	40	-	2000	360
							509	77.0	83.0		3	-	-	15	40	-	2000	315
							510	83.0	89.0		5	-	5	35	50	-	2050	340
							511	89.0	95.0		-	-	-	10	40	-	2050	410
							512	95.0	101.0		-	-	-	10	40	-	2000	345
							513	101.0	107.0		4	-	-	-	40	-	1850	385
			BQ from 111.0m				514	107.0	113.0		3	-	35	30	80	-	2000	400
							515	113.0	119.0		3	-	-	10	50	-	2050	420
							516	119.0	125.0		-	-	-	-	45	-	2100	330
							517	125.0	131.0		9	-	-	30	65	-	2150	295
							518	131.0	137.0		10	-	5	55	85	-	2000	380
							519	137.0	143.0		-	-	-	-	50	-	2150	365
							520	143.0	149.0		-	-	-	5	55	-	2150	455
							521	149.0	155.0		-	-	5	5	60	-	2050	400
						159.9 2cm wide Qz vein. Magnetite	522	155.0	161.0		5	-	10	5	60	-	1950	390
							523	161.0	167.0		-	-	5	10	60	-	2300	420
							524	167.0	173.0		-	-	5	5	55	-	2000	340
						175.8 - 176.1 Qz-siderite. Magnetite	525	173.0	179.0		-	-	5	5	60	-	2150	390
							526	179.0	185.0		4	-	-	-	55	-	2100	350
							527	185.0	191.0		-	-	5	10	60	-	2150	495
							528	191.0	197.0		4	-	5	5	55	-	1850	495
							529	197.0	203.0		6	-	-	5	50	-	2100	300
							530	203.0	209.0		-	-	-	10	55	-	2000	335
							531	209.0	215.0		-	-	-	15	50	-	1850	310
							532	215.0	221.0		3	-	5	10	55	-	2100	530
							533	221.0	227.0		7	-	5	40	75	0.5	2100	280
						230.3 - 230.4 Silicified. Magnetite	534	227.0	233.0		-	-	10	15	65	-	2150	325
							535	233.0	239.0		7	-	10	20	60	-	2200	330

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DRILL CORE LOG

TENEMENT NAME RAZORBACK No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. DD81RC5

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ni	Cr	Ag
							974536	239·0	245·0		6	T	10	10	60	2150	395	-
							537	245·0	251·0		-	10	10	5	65	2050	375	-
							538	251·0	257·0		-	-	10	5	55	2200	310	-
							539	257·0	263·0		-	-	10	-	60	2050	395	-
							540	263·0	269·0		-	10	10	5	60	2200	510	-
							541	269·0	275·0		-	-	10	-	60	2150	385	-
							542	275·0	281·0		5	-	10	10	65	2050	410	-
							543	281·0	285·8		-	-	15	20	80	1900	310	0·5
							544	285·8	287·0		4	-	5	30	45	2000	320	-
						285·8 - 287·0 Silicified. Magnetite	cut 545	287·0	288·8		6	-	-	-	60	1650	365	-
							cut 546	288·8	290·0		150	-	10	20	295	910	550	-
288·8	293·0				TALC CARBONATE	Silicified	cut 547	290·0	291·0		30	-	10	25	110	700	590	-
							cut 548	291·0	292·0		-	-	5	55	60	640	590	0·5
							cut 549	292·0	293·0		-	-	5	30	65	820	500	0·5
							cut 550	293·0	294·0		-	-	5	15	50	1750	340	-
293·0	309·5				SERPENTINITE	Soft, broken core down		551	294·0	295·0		-	-	10	30	55	2050	565	-
						to 302 m		552	295·0	296·0		3	-	5	135	55	1950	480	0·5
								553	296·0	297·0		8	-	5	25	60	2050	475	-
						* Sludge sample		554	297·0	297·0	*	-	-	-	95	65	2650	905	-
								555	297·0	299·0	1·3	-	-	-	90	55	1800	370	-
								556	299·0	300·0		3	-	-	20	50	1750	630	-
								557	300·0	301·0		-	-	5	70	60	1650	580	-
								558	301·0	302·0		-	-	5	160	55	1900	460	-
								559	302·0	303·0		-	-	5	25	45	1950	210	-
								560	303·0	304·0		-	-	-	10	40	1650	335	-
								601	304·0	305·0		3	-	15	20	45	1600	125	-
								602	305·0	306·0		7	-	20	5	45	1950	200	-
								603	306·0	307·0		10	-	20	10	40	2150	130	-
								604	307·0	308·0		7	-	15	10	45	1850	155	-
								605	308·0	309·5		4	-	10	10	60	1600	280	-

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C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 3

TENEMENT NAME RAZORBACK No.

PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No. RD 81 AC 5

RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) Sn	W	Cu	Pb	Zn	Ag	Ni	Co
309·5					TALC CARBONATE	cut	974606	309·5	310·5		-	-	10	5	35	-	485	300
							cut 607	310·5	311·5		-	-	10	10	30	-	615	335
							cut 608	311·5	312·5		510	-	20	10	105	-	995	500
							cut 609	312·5	313·5		9	-	10	10	40	-	465	400
							cut 610	313·5	314·5		-	-	10	10	40	-	385	345
							cut 611	314·5	315·5		-	10	10	5	35	-	500	330
							cut 612	315·5	316·5		6	-	10	5	35	-	410	245
							cut 613	316·5	317·0		8	-	10	10	45	-	610	315
					SURVEYS: 50 m		Dip. -55°											
					100 m		-55°											
					150 m		-53·5°											
					200 m		-53°											
					250 m		-53°											
					300 m		-52°											

DEFLECTED INTERSECTION
300 - 323 METRES

808014

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 4 of 13

TENEMENT NAME RAZORBACK No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No. DD81 RC5

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
300·0	307·0				SERPENTINITE		9746614	300·0	303·5		10	-	20	50	105	0·5	2000	200
							615	303·5	307·0		4	-	15	15	75	0·5	2400	355
307·0	317·7				TALC - CARBONATE		CUT 616	307·0	308·0		8	-	5	10	75	-	1350	570
							" 617	308·0	309·0		10	-	-	20	40	-	815	775
							" 618	309·0	310·0		240	-	5	-	55	-	1250	580
							" 619	310·0	311·0		8	-	-	-	60	-	650	740
							" 620	311·0	312·0		-	-	-	-	45	0·5	570	690
							" 621	312·0	313·0		3	-	10	-	55	-	730	780
							" 622	313·0	314·0		-	-	5	5	50	-	520	840
							" 623	314·0	315·0		5	-	-	-	60	-	640	940
							" 624	315·0	316·0		6	-	-	15	50	-	620	665
							" 625	316·0	317·0		-	-	-	-	55	-	600	1150
							" 626	317·0	317·7		30	-	5	10	65	-	910	545
317·7	323·0				SERPENTINITE		627	317·7	320·0		-	-	-	15	55	-	2250	385
							628	320·0	323·0		-	-	-	5	60	-	2500	265

WEDGED INTERSECTION
185·0 – 404·0 METRES

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 5

808015

TENEMENT NAME Razorback No.

PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No. DP BV RC 5

RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To(M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
185·0	286·2				SERPENTINITE		974629	185·0	191·0		-	-	10	25	70	-	2100	390
							630	191·0	197·0		6	-	15	10	70	-	2650	660
							631	197·0	203·0		4	-	5	20	65	-	2350	370
							632	203·0	209·0		-	-	15	20	70	1·0	2300	370
							633	209·0	215·0		6	-	15	10	70	-	2450	390
							634	215·0	221·0		4	15	5	30	65	0·5	2450	340
							635	221·0	227·0		-	-	5	20	65	-	2400	300
							636	227·0	233·0		-	-	10	20	70	0·5	2750	420
							637	233·0	239·0		-	-	-	10	60	-	2250	280
							638	239·0	245·0		-	-	10	10	65	1·0	2500	460
							639	245·0	251·0		4	-	10	30	65	-	2400	275
							640	251·0	257·0		-	-	15	5	80	-	2450	355
							641	257·0	263·0		-	-	5	20	70	0·5	2600	345
							642	263·0	269·0		-	-	-	20	60	-	2600	420
							643	269·0	275·0		-	-	5	20	65	1·0	2500	495
							644	275·0	281·0		5	-	10	25	85	0·5	2250	290
							645	281·0	286·2		-	-	25	20	90	0·5	2200	405
286·2	295·2				TALC - CARBONATE		CUT 646	286·2	287·0		80	-	10	30	60	1·5	1200	535
							- 647	287·0	288·0		15	-	5	25	60	-	970	525
							- 648	288·0	289·0		3	-	-	20	80	-	1800	350
							- 649	289·0	290·0		-	-	-	15	85	-	1750	470
							- 650	290·0	291·0		6	-	-	25	80	0·5	1800	355
							- 651	291·0	292·0		-	-	-	40	75	1·0	900	620
							- 652	292·0	293·0		-	-	-	15	50	0·5	850	630
							- 653	293·0	294·0		5	-	-	-	45	0·5	770	695
							- 654	294·0	295·2		3	-	105	55	55	0·5	755	760
295·2	303·2				SERPENTINITE		655	295·2	299·0		-	-	20	50	70	-	2150	455
							656	299·0	303·2		-	-	20	20	85	0·5	2200	435
303·2	320·0				TALC - CARBONATE		CUT 657	303·2	304·0		15	-	10	25	60	-	950	1450
							658	304·0	305·0		160	-	5	-	65	0·5	890	885
							659	305·0	306·0		7	-	-	5	70	-	660	890

C.R.A. EXPLORATION PTY. LIMITED

808016 DRILL CORE LOG

SHEET No. 6 of 11

TENEMENT NAME RAZORBACK No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES ..... AZIMUTH ..... DRILLERS ..... COMMENCED ..... DEPTH ..... HOLE No DD 81 RC 5

RL COLLAR ..... INCLINATION ..... DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Ni	Co
						CUT	974660	306·0	307·0		-	-	5	5	65	-	575	920
						"	661	307·0	308·0		-	-	5	-	45	-	520	785
						"	662	308·0	309·0		35	-	5	5	55	-	580	950
						"	663	309·0	310·0		140	-	5	-	60	-	815	1450
						"	664	310·0	311·0		-	-	10	-	55	-	840	1100
						"	665	311·0	312·0		-	-	-	-	50	-	650	885
						"	666	312·0	313·0		-	-	5	-	50	-	575	955
						"	667	313·0	314·0		3	-	-	5	50	-	660	790
						"	668	314·0	315·0		-	-	-	10	55	-	620	945
						"	669	315·0	316·0		-	-	5	15	60	-	580	1200
						"	670	316·0	317·0		-	-	5	5	55	-	570	720
						"	671	317·0	318·0		-	-	5	-	40	-	695	905
						"	672	318·0	319·0		-	-	5	-	30	-	700	735
						"	673	319·0	320·0		8	-	-	20	30	-	735	690
20·0	350·9				SERPENTINITE		674	320·0	326·0		-	-	25	215	765	-	2150	505
							675	326·0	332·0		-	6	-	30	75	-	2350	450
							676	332·0	338·0		-	4	10	20	85	-	1800	360
							677	338·0	344·0		-	-	15	10	80	-	2100	590
							678	344·0	350·9		-	7	10	15	45	-	2050	465
			NQ	TO	353·5		679	350·9	353·5		5	-	15	15	60	-	1150	1000
			BQ	FROM	347·2 (DRILLED OUT SIDE OF HOLE)		680	347·2	350·9		-	-	10	10	50	-	2250	520
50·9	325·8				TALC CARBONATE	Silicified to 357m CUT	681	350·9	352·0		4	-	15	40	200	0·5	1050	705
						Occasional siderite veins "	682	352·0	353·0		-	-	5	15	50	-	950	575
						Disseminated magnetite, "	683	353·0	354·0		-	6	5	115	35	-	945	570
						pyrrhotite "	684	354·0	355·0		-	4	-	15	55	-	710	810
						"	685	355·0	356·0		-	-	5	15	45	-	710	755
						"	686	356·0	357·0		-	-	-	5	35	-	725	785
						"	687	357·0	358·0		-	-	5	15	35	-	790	700
						"	688	358·0	359·0		-	-	-	10	45	-	685	855
						"	689	359·0	360·0		-	4	-	5	35	-	645	830
						"	690	360·0	361·0		4	-	-	15	25	-	540	470

808017

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 7

TENEMENT NAME RAZORBACK No DD81/45

PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No.

RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
						CUT	974691	361·0	362·0		-	-	-	5	25	0·5	535	395
						"	692	362·0	363·0		-	-	-	15	35	-	465	805
						"	693	363·0	364·0		-	-	-	5	25	-	455	625
						"	694	364·0	365·0		-	-	-	20	45	-	425	1750
						"	695	365·0	366·0		-	-	-	15	40	0·5	505	1030
						"	696	366·0	367·0		-	-	5	25	35	-	580	1200
						"	697	367·0	368·0		-	-	5	10	115	0·5	675	920
						"	698	368·0	369·0		-	-	5	15	35	-	570	805
						"	699	369·0	370·0		-	-	5	-	35	-	820	810
						"	700	370·0	371·0		-	-	10	315	55	-	685	1150
						"	701	371·0	372·0		5	-	5	10	35	0·5	675	795
						"	702	372·0	373·0		36	-	5	15	25	-	830	725
						"	703	373·0	374·0		11	-	5	5	30	-	815	845
						374·5 m - narrow pyrrhotite	704	374·0	375·0		17	-	5	5	25	0·5	850	920
						see thin	705	375·0	376·0		171	-	55	10	35	-	650	890
						"	706	376·0	377·0		119	-	80	35	105	-	780	1150
						"	707	377·0	378·0		15	-	5	5	25	-	760	780
						"	708	378·0	379·0		-	-	-	35	25	0·5	560	940
						"	709	379·0	380·0		15	-	-	15	25	-	755	910
						"	710	380·0	381·0		-	-	-	10	25	-	650	895
						"	711	381·0	382·0		11	-	10	25	40	-	725	1150
						"	712	382·0	383·0		75	-	20	20	35	-	745	1025
						"	713	383·0	384·0		-	7	5	10	30	-	580	1150
						"	714	384·0	385·0		-	-	-	25	50	-	715	680
						"	715	385·0	386·0		-	-	5	30	45	-	775	855
						"	716	386·0	387·0		-	-	-	20	40	-	645	970
						"	717	387·0	388·0		-	-	-	30	45	-	865	945
						"	718	388·0	389·0		-	-	-	15	50	-	680	1000
						"	719	389·0	390·0		-	5	5	30	45	-	635	1050
						"	720	390·0	391·0		27	-	5	30	35	-	760	845
						"	721	391·0	392·0		-	4	5	25	45	-	970	665

808018

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 8

TENEMENT NAME RAZORBACK No. DDH1C5

PLAN – MAP REFERENCE

CO-ORDINATES AZIMUTH DRILLERS COMMENCED DEPTH HOLE No.

RL COLLAR INCLINATION DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH From (M)	DEPTH To (M)	Core Rec. (M)	Core Size	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by) Sn	W	Cu	Pb	Zn	Ag	Ni	Cr
						392 - 395·8 Pyrrhotite-rich sulphide section (5-10% oriented in foliation)	722	392·0	393·0		4	-	5	30	40	-	1200	660
							723	393·0	394·0		126	6	160	120	210	1·5	1450	1000
							724	394·0	395·0		254	-	510	80	135	-	1250	575
						395·8 Massive pyrrhotite in narrow siderite vein	725	395·0	395·8		377	-	555	76	65	-	1450	650
						395·9 - 394·1 30-40% pyrrhotite with minor pyrite												
395·8	404·0				CONGLOMERATE		726	395·8	400·0		13	53	430	65	405	0·5	205	160
							727	400·0	404·0		-	65	205	40	245	-	405	630

SURVEYS:

Depth	Azimuth	Dip
200	196	52·5
250	175	51·5
300	145	50·5
350	330	50·0
404	053	49·0

APPENDIX II

GEOCHEM SAMPLE LEDGER

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name RAZORBACK No. ..... Sample numbers 974201-296 Collected by I.H., M.W. Sheet no. 1

Area / Prospect .....

Map / Photo reference ..... 800620 Analysed by ANALABS DPO no.....

Date SEPT. '81

GTD

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** AUGER	Carbon	Metal content ppm or % Sn	W	Cu	Pb	Zn	Ni	Grid ref	Geological Observations
974201	S	cm. 40									310	-	40	1900	800	2800	ENV1 0m	Dark brown,
202	"	40									190	-	5	565	270	330	" 25	Light brown
203	"	40									290	-	15	1700	460	210	" 50	" "
204	"	20									35	-	-	20	95	15	" 75	Very light grey
205	"	20									150	-	-	30	125	15	" 100	Light grey
206	"	20									100	-	-	35	130	25	" 125	Light brown
207	"	30									120	-	10	940	350	165	" 150	Dark brown
208	"	40									5	-	5	55	40	20	" 175	Yellow brown
209	"	60									9	-	10	40	45	40	" 200	Light yellow
210	"	50									8	-	25	20	60	65	" 225	Yellow grey
211	"	70															" 250	Green grey
212	"	50									4	-	15	50	70	45	" 275	Light grey
213	"	50									5	-	40	40	90	25	" 300	Light brown
214	"	60									5	-	25	35	70	45	" 325	Yellow brown
215	"	50									7	-	-	35	65	30	" 350	" "
216	"	40									35	-	-	45	380	1850	ENV2 0m	Dark brown
217	"	40									110	-	-	40	505	180	" 25	Light brown
218	"	60									130	-	-	45	375	55	" 50	Light grey
219	"	100									60	-	5	30	375	20	" 75	" "
220	"	50									100	-	-	20	600	30	" 100	" "
221	"	40									40	-	-	15	160	15	" 125	" "
222	"	30									50	-	15	30	70	10	" 150	Light brown
223	"	50									6	-	5	35	25	30	" 175	Green grey

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gr = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name RAZORBACK No. Sample numbers Collected by Sheet no. 2

Area / Prospect Date

Map / Photo reference 808021 Analysed by DPO no.

Sample No.	Type as * oc f s	as channel ** fl wi al co ca pH; o/c sample type ***; s sample type **** AUGER	Carbon	Metal content ppm or % Sn W Cu Pb Zn Ni	Grid ref	Geological Observations
974224	S	cm 40		10 - 5 30 20 15	EMN2/200	Light grey
225	"	40		6 - - 15 30 10	" 225	Light yellow brown
226	"	50		10 - - 25 25 15	" 250	Light grey
227	"	40		8 - - 30 25 10	" 275	Light brown
228	"	40		6 - 5 35 45 20	" 300	Light yellow brown
229	"	60		5 - 15 25 30 25	" 325	Yellow brown
230	"	100		8 - 20 25 50 30	" 350	Yellow brown
231	"	30		550 - 45 390 615 805	EMN3/0	Light brown
232	"	60		140 - 15 85 485 705	" 25	" "
233	"	20		55 - 15 45 625 85	" 50	Dark brown
234	"	30		120 - 5 25 200 40	" 75	Light grey
235	"	100		460 - 45 100 955 805	" 100	Yellow brown
236	"	40		20 - 10 20 35 10	" 125	Dark brown
237	"	40		25 - - 25 35 10	" 150	Dark grey
238	"	60		9 - 15 30 35 15	" 175	" "
239	"	40		6 - - 60 15 10	" 200	Light grey
240	"	60		8 - - 20 25 15	" 225	Dark grey
241	"	30		7 - 5 45 40 10	" 250	Dark brown
242	"	30		15 - 10 30 25 15	" 275	Dark grey
243	"	50		6 - 10 45 30 30	" 300	Light brown
244	"	60		10 - 10 25 30 25	" 325	Yellow brown
245	"	70		5 - - 5 10 15	" 350	" "
246	"	30		660 - 45 295 410 415	EMN4/0	Light brown

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name RAZORBACK No. ..... Sample numbers ..... Collected by ..... Sheet no. 2 of 2

Area / Prospect .....

Map / Photo reference ..... 808022 Analysed by ..... Date ..... DPO no .....

Sample No.	Type	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** AUGER	Carbon	Metal content ppm or % Sn	W	Cu	Pb	Zn	Ni	Grid ref	Geological Observations
974247	S	cm 30									85	-	15	30	960	100	EMN4/25	Light grey
248	"	150									15	-	140	710	1550	1650	" 50	Yellow brown
249	"	30									10	-	5	30	200	30	" 75	Light grey
250	"	30									15	-	-	5	160	20	" 100	" "
251	"	40									20	-	-	25	20	25	" 125	Light brown
252	"	40									9	-	5	15	15	20	" 150	Light grey
253	"	30									15	-	-	25	15	25	" 175	Grey brown
254	"	30									9	-	-	20	10	20	" 200	Light grey
255	"	70									10	-	-	15	20	30	" 212	" "
256	"	70									15	-	5	20	10	20	" 225	" "
257	"	30									10	-	5	25	15	20	" 238	Light brown
258	"	50									4	-	-	5	5	15	" 250	Dark grey
259	"	60									7	-	-	-	10	15	" 262	Light grey
260	"	100									9	-	-	5	10	15	" 275	" "
261	"	40									8	-	-	15	10	15	" 288	" "
262	"	40									10	-	-	20	10	15	" 300	" "
263	"	40									10	10	10	45	10	25	" 325	Light brown
264	"	60									-	-	-	-	10	20	" 350	Yellow brown
265	"	40									170	15	320	1·85%	8450	215	EMN5/0	Dark brown (River bank)
266	"	100									3850	-	185	3400	3100	235	" 25	Light brown (" ")
267	"	110									160	-	165	1·2%	2350	140	" 50	Grey-black (" ")
268	"	70									7	-	-	-	95	15	" 75	Light grey
269	"	40									90	-	40	1650	220	90	" 100	Light brown

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name RAZOR BACK No. ..... Sample numbers ..... Collected by ..... Sheet no. 4

Area / Prospect .....

Map / Photo reference .....

808023

Analysed by ..... Date ..... DPO no .....

Sample No.	Type ss * oc f s	ss channel ** fl / wi / al / co / ca / pH; o/c sample type ***; s sample type ****	Carbon	Metal content ppm or % Sn	W	Cu	Pb	Zn	Ni	Grid ref	Geological Observations
974270	S			25	-	5	195	40	20	EMW5/125	Yellow brown
271	"			45	-	220	1·45%	1650	40	" 150	Light brown
272	"			210	-	130	6950	1550	95	" 175	Dark brown
273	"	INSUFFICIENT SAMPLE FOR ACCURATE ANALYSIS		70	-	30	440	140	35	" 188	" "
274	"			25	-	10	195	70	25	" 200	" "
275	"			10	-	-	-	-	10	" 212	Light grey
276	"			8	-	-	20	5	15	" 225	" "
277	"			9	-	10	-	10	15	" 238	" "
278	"			7	-	10	25	5	20	" 250	Light brown
279	"			20	-	30	20	20	25	" 275	Dark brown
280	"			9	-	-	-	10	10	" 300	Light grey
281	"			30	-	30	1300	315	230	EMW6/0	Light brown
282	"			15	-	-	10	60	10	" 25	Light grey
283	"			55	-	5	255	150	30	" 50	Dark brown
284	"			70	-	-	30	95	25	" 75	" "
285	"			180	-	5	25	120	70	" 100	Yellow brown
286	"			20	-	15	75	30	55	" 125	Dark grey
287	"			35	-	-	10	15	10	" 150	Light grey
288	"			40	-	45	2150	265	80	" 175	" "
289	"			20	-	35	1350	180	35	" 188	Yellow brown
290	"			-	-	10	195	50	25	" 200	Yellow grey
291	"			10	-	-	15	10	10	" 212	Light grey
292	"			15	-	-	25	20	10	" 225	" "

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) ca = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name RAZORBACK No. ..... Sample numbers ..... Collected by ..... Sheet no. 5

Area / Prospect ..... Date .....

Map / Photo reference ..... 808024 Analysed by ..... DPO no .....

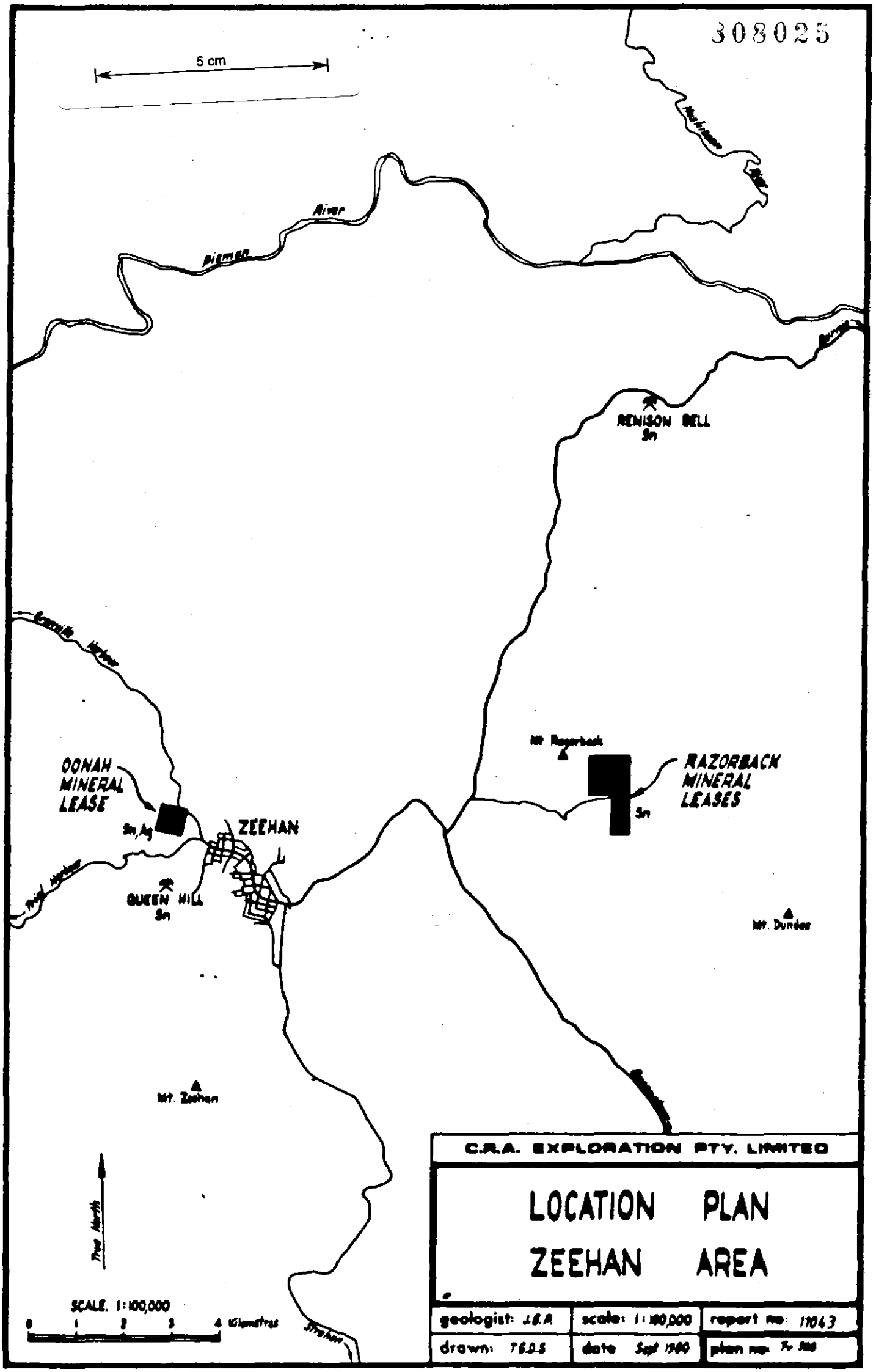
Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
	ss * oc f s	fl	wi	si	co	ca	pH		Sn	W	Cu	Pb	Zn	Ni						
		o/c sample type ***																		
		s sample type **** AUGER																		
974293	S	CM 40							9	-	10	20	20	10					EMW6/250	Light Brown
294	"	30							10	-	-	-	10	10					" 250	" "
295	"	40							7	-	-	-	5	5					" 275	Light grey
296	"	40							45	-	25	1950	310	40					" 300	Yellow Brown

* Sample type ss = stream sediment oc = outcrop f = float s = soil

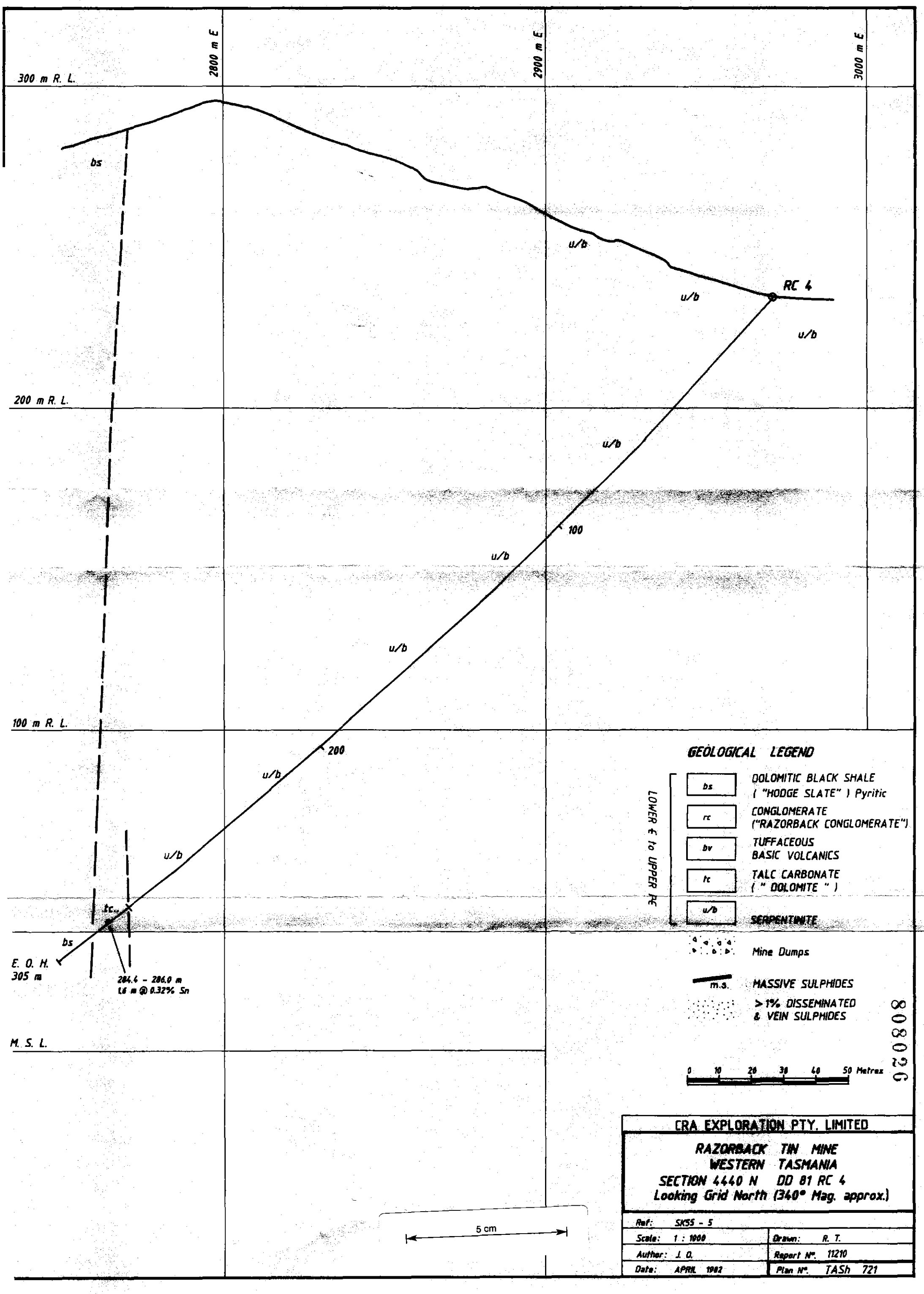
** Stream sed. sample description fl = flow m3/sec wi = width m si = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon


5 cm
River
RENISON BELL
Sn
OONAH
MINERAL
LEASE
Sn, Ag
ZEEHAN
QUEEN HILL
Sn
Mt. Razorback
RAZORBACK
MINERAL
LEASES
Sn
Mt. Dundas
Mt. Zeehan
True North
SCALE. 1:100,000
0 1 2 3 4 Kilometres
C.R.A. EXPLORATION PTY. LIMITED
LOCATION PLAN
ZEEHAN AREA
geologist: J.E.R.
scale: 1:100,000
report no: 11063
drawn: T.G.D.S
date Sept 1980
plan no: Fr 388

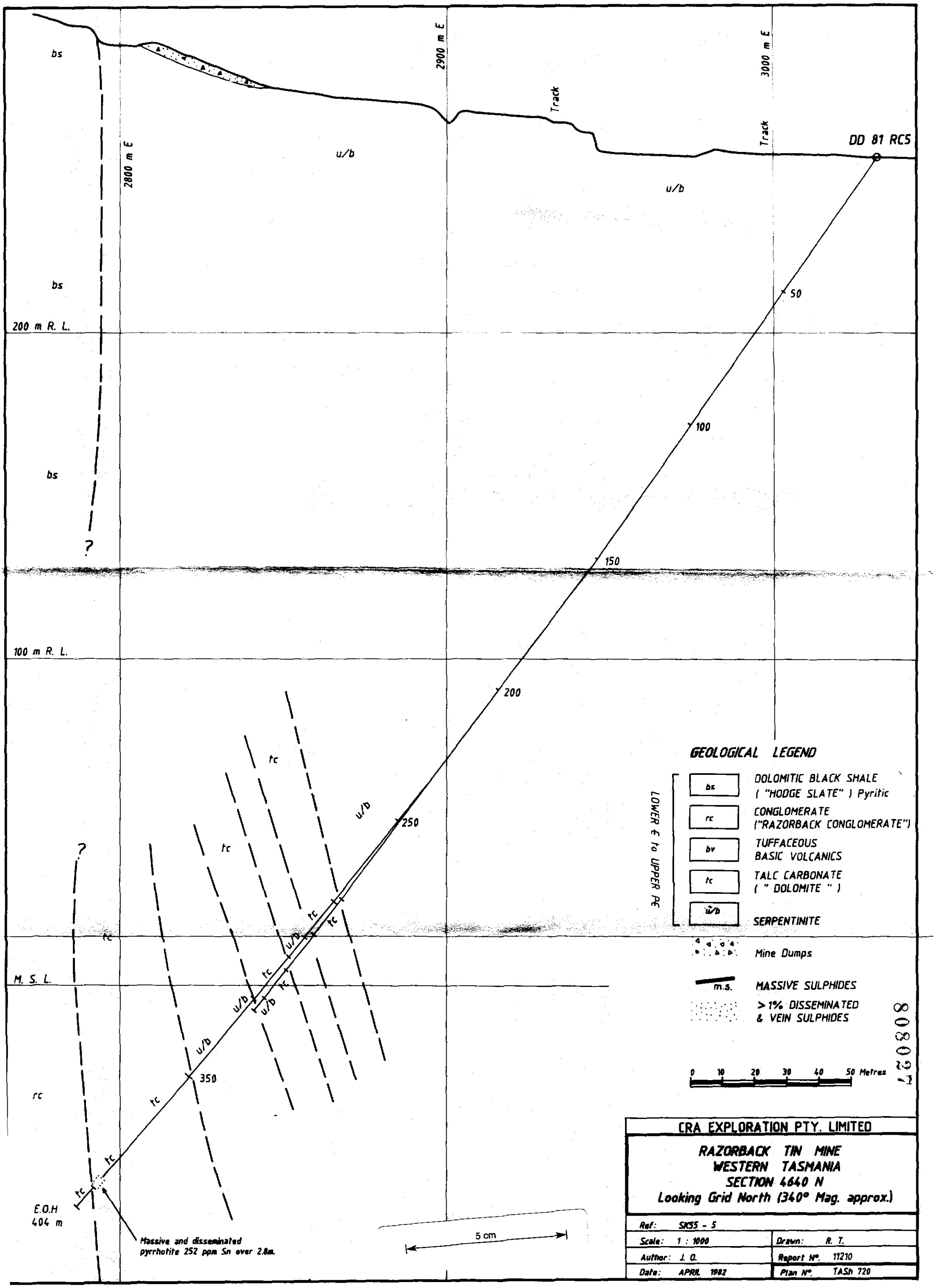
025



CRA EXPLORATION PTY. LIMITED

RAZORBACK TIN MINE
WESTERN TASMANIA
SECTION 4440 N DD 81 RC 4
Looking Grid North (340° Mag. approx.)

Ref: SK55 - 5	
Scale: 1 : 1000	Drawn: R. T.
Author: J. O.	Report N°. 11210
Date: APRIL 1982	Plan N°. TASh 721


2800 m E
2900 m E
3000 m E
Track
Track
DD 81 RC5
bs
u/b
u/b
bs
200 m R. L.
bs
?
50
100
150
200
250
100 m R. L.
tc
u/b
tc
tc
tc
u/b
u/b
u/b
u/b
tc
tc
tc
tc
tc
M. S. L.
?
350
rc
tc
tc
tc
E.O.H
404 m
Massive and disseminated
pyrrhotite 252 ppm Sn over 2.8m.
5 cm
GEOLOGICAL LEGEND
bs
DOLOMITIC BLACK SHALE
("HODGE SLATE") Pyritic
rc
CONGLOMERATE
("RAZORBACK CONGLOMERATE")
bv
TUFFACEOUS
BASIC VOLCANICS
tc
TALC CARBONATE
(" DOLOMITE ")
u/b
SERPENTINITE
LOWER E to UPPER PE
Mine Dumps
m.s.
MASSIVE SULPHIDES
>1% DISSEMINATED
& VEIN SULPHIDES
0 10 20 30 40 50 Metres
CRA EXPLORATION PTY. LIMITED
RAZORBACK TIN MINE
WESTERN TASMANIA
SECTION 4640 N
Looking Grid North (340° Mag. approx.)
Ref: SK55 - 5
Scale: 1 : 1000
Drawn: R. T.
Author: J. O.
Report N°. 11210
Date: APRIL 1982
Plan N°. TASh 720

027

OPEN CUT

340

300

DUMP

DD 81 RC 5

OFFICE

HODGES MILL

MILL

TANKS

DD 81 RC 4

400

369400

EMW 1

EMW 2

EMW 3

EMW 4

EMW 5

EMW 6

OLD MILL

369 100 mE

5 363 000 mN

LEGEND

Sn — GRID LINE — Soil Geochem Results in P.P.M.

Pb
Cu
Ni
Zn

Sn Contours

5 cm

CRA EXPLORATION PTY. LIMITED

RAZORBACK TIN MINE
WESTERN TASMANIA

GEOCHEMISTRY

808028

Ref. SK55 - 5	
Scale: 1 : 1000	Drawn: R. T.
Author: J. O.	Report N°. 11210
Date: APRIL 1982	Plan N°. TASh 722