

790001

MINERAL HOLDINGS AUST. PTY.  
LTD., & TOMIC EXPLORATION  
PTY. LTD.

71-834

C.R.A. EXPLORATION PROPRIETARY LIMITED

Ref. No. T.59  
Keith River

**MICROFILMED**

SUBJECT:

FINAL REPORT ON THE KEITH RIVER  
PROSPECT E.L. 43/70 NORTHWEST  
TASMANIA

**OPEN FILE**

AUTHOR:

T. M. Porter

DATE:

December, 1971

638-12  
71-839

The contents of this report remain the property  
of C.R.A. Exploration Pty. Limited and may not  
be published in whole or in part nor used in a  
company prospectus without the written consent  
of the Company.

790B

C.R.A. EXPLORATION PTY. LIMITED

December, 1971

Memorandum to : G. W. PATTERSONCopies to : D. S. Carruthers  
H. J. Evans

From : T. M. Porter

**MICROFILMED**Final Report on the Keith River Prospect  
E.L. 43/70 Northwest TasmaniaSUMMARY

The Keith River Gossan occurs within a sequence of siltstones, dolomitic siltstones and quartzites which are members of the "Older Precambrian" metamorphics known as the Keith Beds.

Three fold limbs have been mapped in the main prospect area, defining an anticline and adjacent syncline. These represent a strike length of some three miles of the gossanous zone, in the main prospect area, with extensions of one, or more of these limbs being traceable over a further two miles to the northeast.

The sequence, including the sulphide horizon itself, exhibits marked and rapid facies changes, both along strike and down dip. Consequently, the gossan is discontinuous along strike, and in parts of the horizon has lensed out altogether.

Approximately 120,000 tons per vertical foot of gossanous material has been estimated in the main prospect area.

The contents of this report remain the property of C.R.A. Exploration Pty. Limited and may not be published in whole or in part nor used in a company prospectus without the written consent of the Company.

Geochemical soil sampling over the main prospect, to the west of the Keith River has delineated 46,000 tons per vertical foot of +100 ppm copper and 12,500 tons per vertical foot of +200 ppm enclosing small eyes with levels in excess of 1000 ppm copper.

Reconnaissance soil sampling over extensions to the northeast outlined smaller areas of the same general tenor.

Two diamond core holes have indicated that the gossan represents a stratiform pyritic occurrence.

No economic base metal mineralisation was encountered in drill core. Copper and zinc were the only metals present in any significant quantity, but neither returned values in excess of 1500 ppm.

Iron in the form of oxides does not attain economic significance.

## INTRODUCTION

### General

The Keith River prospect lies within the confines of a joint agreement area of some 2.6 square miles, which is in turn embraced by E.L. 43/70. This E.L. is held by Mineral Holdings Aust. Pty. Ltd. and Tomic Exploration Pty. Ltd., the partners with C.R.A.E. in this joint venture.

### Mapping

Detailed geological mapping on a scale of 1 inch to 100 feet was undertaken, over the main prospect area to the west of the Keith River.

Reconnaissance mapping, on a 1 inch to 200 feet scale, was executed over the remainder of the joint area, and lapping over the Arthur River to the east.

The detailed mapping was based on a series of tape and compass lines cut perpendicular to the major structures and spaced from 200 feet to 600 feet apart. Elsewhere lines were put in, in an attempt to delineate extensions of the Keith River Gossan between the Keith and Arthur Rivers.

These lines were tied to the main grid reference by a plane table and alidade survey of the existing bulldozed tracks within the prospect, thus compensating for the effect of magnetite bands on compasses.

As the exposure of bedrock was found to be extremely poor, all geological boundaries are inferred. Mapping is based on what outcrop is available, tracks bulldozed to bedrock, rock found in the roots of fallen trees, and rock brought up in weathered bedrock soil samples. Nevertheless, the structural interpretation from this mapping has been basically confirmed by the subsequent diamond drilling.

#### Geochemistry

An initial program of 200 x 100 feet weathered bedrock soil sampling was executed over the apparent thickest gossan section, the obvious primary drilling target. This was undertaken so that sufficient information would be available to commence drilling before the weather deteriorated. Further samples were taken along broadly spaced lines over the remainder of the main prospect area.

Subsequently, gossanous areas indicated in the latter, as yielding anomalous copper levels were subjected to sampling on a 100 x 25 feet basis, with 200 x 50 feet and 600 x 50 feet samples over the length of the gossan not already covered on a high density.

003

Further soil samples were extracted at 25 and 50 feet intervals along a few lines which revealed extensions of the gossan in the Keith to Arthur section.

All samples were assayed by The Zinc Corporation at Broken Hill.

### Drilling

Two diamond core holes were drilled to probe the gossan below the zone of oxidation. The first, DD71KR1 was intended to test the apparent thickest section of the Keith River Gossan, and the second, DD71KR2 to pass below the highest copper levels delineated by soil sampling.

DD71KR1 was commenced on 15th April, 1971 and completed at 797 feet on 17th August, 1971. Its grid co-ordinates are 10520N, 10680E with an azimuth of 143° magnetic and dip 60°. It was drilled by Associated Diamond Drillers Pty. Ltd. Overall core recovery was 65%.

As it was considered that both the time taken and core recovered by the contractor while drilling KR1 was unsatisfactory, DD71KR2 was drilled by C.R.A.E. personnel. It was commenced at co-ordinates 10270N, 10110E on 4th September, 1971 and terminated at 545 feet on 17th October, 1971. The dip was 60° with an azimuth of 300° magnetic. Core recovery was 82%.

KR1 was terminated at a depth below which no sulphide intersections could be expected, as implied by surface mapping. Due to the absence of base metal mineralisation KR2 was stopped when it was considered to have reached a depth below which, on the basis of the interpreted structure, any mineralisation encountered would not be of an economic thickness.

Sulphide-rich sections of the core from each hole were split and sampled in ten feet lengths.

Portion of the core from KR1 was assayed by R. J. Gluyas in Adelaide, the remainder by The Zinc Corporation.

## GEOLOGICAL SETTING

### Regional

The Keith River Gossan is found within a sequence of dolomites, siltstones, shales and quartzites. These are members of the "Older Precambrian" Keith Beds which comprise predominantly, muscovite, chlorite and biotite schists, quartz mica schists, micaceous quartzites and quartzites. The Keith Beds and their equivalents outcrop over a belt extending from just west of Wynyard on the northwest coast, to the Savage River area to the southwest. It appears likely that the Savage River magnetite deposit is equivalent to the Keith River Gossan.

These schists and quartzites are overlain to the west by the "Younger Precambrian" Neasey quartzites and slates which are of a lower regional metamorphic grade.

Immediately to the north of the Keith River prospect a major northeast-southwest trending fault separates Keith Beds from Permian greywackes, dark shales and tillite which overlie Precambrian metamorphic sediments north and east of the Arthur River.

A few Tertiary basalt cappings cover both Permian and Precambrian sediments in places.

Extensive Tertiary white quartz gravels are obvious in the area and effectively mask the older rocks.

### Local

The stratigraphic sequence is tightly folded in the main prospect area; a syncline and adjacent anticline being defined by the three limbs mapped (see Plans Nos. T.797 and T.798).

The lowest stratigraphic unit outlined in the detailed mapping is a pale brown, fissile shale containing abundant amounts of a grey-green mica. This rock type is slightly phyllitic in appearance and its upper boundary marks the change from the overall schistose nature of the Keith Beds to the non-micaceous rocks enclosing the Keith River Gossan. This micaceous shale grades fairly rapidly, by the decrease and loss of mica, to a pale brown shale and thence to a sandy shale and siltstone. Bands of grey quartzite and quartz sandstone become apparent within 200 feet stratigraphically above the micaceous shale.

The lower portions of KR1 reveal a succession of fine grained grey quartzites and grey, slightly sandy siltstones overlain by 25 feet of pale green bedded siltstone with thin calcite veins parallel to bedding. Above these beds and preceding the sulphide zone 15 feet of a dark green fine grained amphibolite was encountered. Sub-rounded to sub-angular quartzite pebbles are evident in the bottom 2 feet of this intersection. This could possibly represent a metamorphosed intermediate to basic intrusive, although it is also likely to be a portion of an intruded amphibolite dyke of the type noted elsewhere in the region.

The sequence above the sulphide zone revealed by the upper portions of KR2 comprises grey quartzites, ranging from three to forty-five feet in thickness, alternating with green, grey and pale siltstone and sandy siltstone bands of comparable thickness (see Plan No. T.785). A comparable succession is represented in KR1, over the corresponding intervals.

Two intersections, one of 91 feet and the other of 118 feet of a crystalline medium grained amphibolite were encountered above the sulphide zone in DD71KR1. This rock type is composed predominantly of a dark green amphibole with lesser white feldspar and minor fine quartz. The upper intersection was rotten, but, unlike the fresh occurrence, displayed a foliation by the elongation of feldspar crystals.

No amphibolite was encountered in KR2 and it seems likely that it is present in the form of a dyke, or series of dykes.

The rotten nature displayed by this rock type down to 100 feet below ground level suggests that it is unlikely to be represented in the very limited surface outcrop. Hence its failure to appear on the geological mapping.

Although the rock types intersected in the drill core are similar, there is no comparison of thickness or sequential order of individual beds. Considered in conjunction with surface mapping and geochemical soil contours, this suggests rapid and frequent facies changes along strike and down dip.

In the Keith to Arthur section the gossan occurs within a sequence comprising predominantly shales, sandy shale and micaceous shale with lesser quartzite (see Plan Nos. T.799 and T.800).

#### The Sulphide (or Gossan) Zone

##### (a) Surface

The gossanous zone, as mapped, consists of intercalated grey quartzites and grey laminated siltstones, with lenses of iron oxide. In the presence of iron oxide the siltstones have been bleached to a cream or white powdery rock. The degree of bleaching appears to be proportional to the proximity to ferruginous bands. This siltstone often exhibits fine magnetite specks or specular hematite.

The percentage of the mapped gossan zone that actually displays magnetite or cellular oxides, varies considerably along strike, being highest on the "eastern limb",

extending from line K1 to 10200N in the hinge zone, and on the "central limb" between lines K3 and K13 (see Plan Nos. T.797 and T.798). Elsewhere this percentage is lower and in parts the sequence almost completely lacks ferruginous material.

A number of small gossanous lenses define a horizon just above the main formation.

The iron oxide is primarily limonite with lesser hematite and magnetite. The limonite is usually cellular to some degree and occasionally has associated pyrite. It is apparent that these iron oxides represent primary pyrite-magnetite.

In outcrop the ferruginous sections exhibit, in the main, a definite banding. Distinct cellular limonite layers after pyrite are enclosed by, and parallel to, the more massive iron oxide bands in some outcrops.

Continuous outcrops of iron oxide up to 100 feet thick have been mapped, only containing occasional thin bands or lenses, up to a few inches in thickness, of siltstone or quartzite. In addition, bands of angular quartz grains from 1 mm. to 5 mm. grain size are apparent within the ferruginous material.

Using the conversion factor of 10 cubic feet/ton, 350,000 tons per vertical foot has been interpreted from the mapping as being gossanous and ferruginous, or potentially so.

Due to the limited exposure and discontinuous nature of gossan lenses, only by undertaking extremely detailed mapping would it be possible to delineate individual gossan lenses and bands.

For this reason a "cumulative" type calculation was made of the percentage that is actually ferruginous at the surface. This was based on estimated percentages for the gossan zone along mapped lines at roughly equal spacings along strike. This indicated that 35% of the mapped gossan zone is actually ferruginous, yielding a figure of 120,000 tons/ vertical foot, with the exclusion of the western limb northeast of line K11.

(b) Sub-Surface

Table 1 summarises and compares the intersections of the sulphide zone seen in the core from each hole.

Bands of fine pyrite from 1 mm. to 1 inch thick, occur parallel to bedding in green siltstone, grey and green dolomitic siltstone and dolomite. Massive coarsely crystalline pyrite is evident in some layers. Minor chalcopyrite and traces of pyrrhotite accompany the pyrite in some intervals. Layers of fine magnetite up to a foot, but averaging about half an inch in thickness, parallel to bedding, alternate with pyrite bands of a similar size, in green siltstone, in the upper section of the sulphide zone.

Green siltstones, adjacent to the more pyritic bands, carry pyrite dispersed through the rock, apparently unrelated to bedding.

Grey to green siltstones, sandy siltstones and sandstones to quartzites are found within the sequence, with only minor traces of sulphides.

Minor specular hematite occurring as patches, or single flakes are obvious over some intervals.

009

Examination of the diamond drill core indicates that the Keith River Sulphide Horizon constitutes a stratiform pyritic occurrence.

Sulphides are apparently present in discontinuous lenses and bands. This is obvious from a comparison of surface mapping and the pyritic band intersected by KR2. At the surface there is a strong development of cellular limonite and magnetite over much of the mapped gossan zone totalling some 300 feet, in contrast to a stratigraphic thickness of only 50 feet in the drill core.

It is possible that some of the non-cellular limonite found in outcrop is due to a secondary surface process and not straight oxidation of sulphides.

All core was exposed to ultra-violet light but failed to reveal any scheelite mineralisation.

### STRUCTURE

Surface mapping in conjunction with information yielded by the diamond drilling indicates that the Keith River sulphide zone has been subjected to two periods of folding deformation.

The first period is responsible for the more intense deformation with overall northeast-southwest trending axes, with a second gentler folding having northwest-southeast axial direction superimposed.

Interpretations based on the drilling results suggest that the axial planes of the first period dip to the west at an angle of around  $60^{\circ}$ , resulting in structural thinning of the "eastern limb", with a consequent thickening of the "central limb".

First period axes appear to be generally horizontal, with plunges in either direction as a consequence of the second folding. In this event the hinge zones exposed at either end of the prospect are topographically controlled by the lower ground found in these regions.

A parasitic fold has been defined to the east of the "eastern limb", from information yielded by core from drill-hole KR1. Its main development as seen at the surface, is between lines K1 and K9. This accounts for the apparent thickening of the gossan zone in this region, and the "double nose" of the syncline to the north.

Two faults have been outlined in the main prospect area. A major regional northeast-southwest dislocation with a downthrow to the north exposes Permian sediments immediately to the northwest of the main prospect.

A local northwest-southeast fault truncates the nose section of the main syncline found in the gossan zone, in the northern section of the main prospect. This fault has a downthrow to the north, resulting in the re-appearance of the gossan zone to the north.

## GEOCHEMISTRY

### (a) Soil Sampling

#### i. Main Prospect (see Plans Nos. T.801 and T.802)

Weathered bedrock geochemical soil sampling has outlined a limited area yielding marginally anomalous copper levels with a few sporadic above background zinc and nickel values.

Anomalous copper levels are almost wholly restricted to the "central limb" between lines K39 and K10 with only minor areas in the "eastern limb" between lines K10 and K1.

Copper values have been contoured at 100, 200 and 1000 ppm intervals, delineating 46,000 tons per vertical foot of +100 ppm and 12,500 tons per vertical foot of +200 ppm Cu enclosing small eyes with levels in excess of 1000 ppm.

Contoured copper levels, with the exception of +1000 ppm lenses, do not define sharp geochemical peaks in a background "plain".

Copper contours have been drawn in a "lensing" fashion, in an intuitive attempt to approach the dimensions of the stratiform mineralisation responsible for the anomalies.

Although the geochemical copper levels are of a low tenor, it was thought that due to the high degree of gossan development and leaching of sulphides at the surface, that these might represent much higher grades below the level of oxidation. However, much of the sulphides responsible for gossan development at the surface above DD71KR2 have apparently lensed out at depth, with the consequence that they were not extensively intersected by that hole. It seems likely that copper levels accompanying these sulphides at the surface may also be absent in the diamond core.

Contoured anomalous copper levels were found to be discontinuous along strike, confirming the rapid facies changes indicated previously (see Plan Nos. T.801 and T.802).

Several samples yielded zinc levels up to 800 ppm around co-ordinates 9800N, 11400E on line K8, 9900N, 11800E on line K10 and 10875N, 10800E on line K5. A number of +100 ppm nickel values up to 600 ppm were received from samples on lines K3, K33 and K11 in the "central limb". One nickel level of 220 ppm accompanied a high copper value on line K12 in the "western limb".

Anomalous zinc and nickel values were not found to be common enough to be amenable to contouring.

ii. Keith to Arthur Section (see Plan No. T.799)

A limited number of lines were sampled in this section. Although sufficient to show that detailed gridding was not warranted, there was not enough data available to contour the marginally anomalous copper and zinc levels obtained. For this reason "zones containing anomalous zinc and copper levels" have been drawn. Zinc ranges from 250 ppm to 500 ppm and copper was found to lie in 100 ppm to 200 ppm limits in these zones.

The anomalous zones thus delineated extend over some 1,800 feet of strike length and appear to be associated with the extensions of the "central limb" in this section.

Auger sampling was not possible in areas covered by Tertiary gravels, except along deeply gouged tracks.

iii. Victory Section (see Plan No. T.800)

As the exposures of the gossan on this sheet lie outside of the boundaries of the joint agreement area, only a few soil samples were collected. These were taken within the confines of the gossan zone in positions where a reliable sample was assured. All returned anomalous copper and zinc values ranging from 100 ppm to 500 ppm for each metal. The old Victory copper workings are within the gossan near samples 211550, 201551 and 201552. The actual location of these workings has been obliterated by recent bulldozing.

(b) Drill Core (see Plan Nos. T.784 and T.785)

Pyritic sections of the core from each hole were split in ten foot lengths. One half was despatched to The Zinc Corporation to be crushed and assayed, while the remainder was retained in Wynyard.

Twenty intervals were sampled from KR1 and nine from KR2. All samples were assayed for Pb, Zn, Cu, Ni, Co and Ag in ppm and total Fe and sulphur in percent. Composites over lengths of around 100 feet were prepared and assayed for gold.

No intersection yielded economic base metal grades. The highest values were received for zinc and copper. Zinc attained levels in excess of 1000 ppm over a width of 20 feet in KR1, with successive values of 1400 and 1560 ppm. Levels of 730 ppm and 830 ppm were from respectively above and below the +1000 ppm zone.

In the core from KR2 no zinc value exceeded 600 ppm. These compared to general levels of 50 ppm to 300 ppm elsewhere in the sulphide zone. No zinc sulphides have been identified.

Several copper values from 400 ppm to 800 ppm were yielded by core from each hole. These contrasted to levels ranging from 30 ppm to 200 ppm in KR1 and averaging around 200 ppm in the pyritic intersections of KR2. Traces of chalcocopyrite are evident in the sampled intervals yielding higher assays.

In general, high copper and zinc intervals overlapped but did not completely coincide.

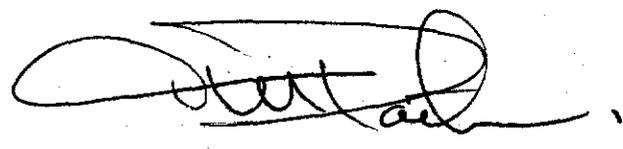
Lead and nickel returned assays from 30 ppm to 200 ppm.

No silver value exceeded 2.5 ppm.

All composites yield gold assays of less than 0.04 ozs./ton.

The iron content in the form of oxides in the core of KR1 was found to be negligible, being in all cases less than 10%. Little magnetite was noted in the visual inspection of the core, with the exception of the first two sample intervals.

Iron oxides in KR2 were also of a low grade, although slightly above those intersected in KR1. The most significant levels are 10 feet of 17%, 10 feet of 21.7% and 20 feet of around 15% iron as the oxide. The remainder of the samples submitted for assay were found to contain less than 10% iron in the form of oxides.



TMP:ro's

T. M. Porter

REFERENCES

McNeill, R. D.	1960	Geological Reconnaissance of Part of the Arthur River Area. Tas. Mines Dept. Tech. Rep. No. 5, pp. 46-59.
Porter, T. M.	1971	Progress Report on the Keith River Prospect, Northwest Tasmania, 24th March, 1971. C.R.A.E. Report (unpubl.).

KEYWORDS

Copper, dolomite, drill-diamond, iron, sediments-undiff., geol.-mapping - detailed, zinc, Precambrian, geochem.-soil, stratiform.

Locality: Burnie SK55-3 1:250,000 map sheet.

PLANS

<u>Plan No.</u>	<u>Fig. No.</u>	<u>Title</u>	<u>Scale</u>
T.796	1	Locality Plan. Keith River Prospect Northwest Tasmania.	1" = 10 miles
T.797	2	Keith River Prospect. Geological Plan. West Sheet.	1" = 100'
T.798	3	Keith River Prospect. Geological Plan. East Sheet.	"
T.799	4	Keith River Prospect. Keith to Arthur Section. Geological-Geochemical Map.	1" = 200'
T.800	5	Keith River Prospect. Victory Section. Geological-Geochemical Map.	"
T.801	6	Keith River Prospect. Geochemical Soil Sample Plan, Lead, Zinc, Copper and Nickel Values. West Sheet.	1" = 100'
T.802	7	Keith River Prospect. Geochemical Soil Sample Plan, Lead, Zinc, Copper and Nickel Values. East Sheet.	"
T.784	8	Keith River Prospect. DD71KR1 - 10680E.	1" = 50'
T.785	9	Keith River Prospect. DD71KR2 - 10270N 10110E.	"

Attach: Geochemical Soil Ledgers - 21  
 Drill Log Sheets - 5  
 Drill Assay Sheets - 2

TABLE 1

## Summary and Comparison of the Sulphide Zone in DD71KR1 and KR2

DD71KR1				DD71KR2			
From	To	Stratigraphic Thickness	Description	From	To	Stratigraphic Thickness	Description
			Amphibolite dyke.	203'9"	222'0"	15'6"	Dark green siltstone with magnetite and pyrite. Bedded in part. Distinct magnetite bands up to 1 foot thick.
299'0"	312'0"	11'0"	Laminated fine, pale green siltstone with magnetite and pyrite bands	222'0"	262'3"	35'	Well bedded green siltstone with magnetite and pyrite bands up to ½" thick comprising approximately 50% of rock. Pyrite/magnetite 40/60%. Some massive pyrite bands up to 3" thick. Traces of chalcopyrite with pyrite.
312'0"	316'0"	3'6"	Laminated fine dark green siltstone with few pyrite bands and minor magnetite. Traces chalcopyrite with pyrite.	262'3"	282'0"	19'6"	Dark green siltstone. Well bedded in part. Low pyrite content. Quartz veins with chalcopyrite at 262'6".
316'0"	360'6"	40'	Poorly laminated fine pale green siltstone. Very fine pyrite throughout. No bands.	282'0"	330'0"	40'	Grey-green unbedded silty sandstone. Grades to a sandy siltstone and to a dark green siltstone in places. Low pyrite content dispersed throughout.
360'6"	388'0"	25'	Soft slightly sandy poorly laminated green siltstone with 10 to 60% pyrite; not banded. Minor specular hematite.	330'0"	421'0"	70'	Grey-green to pink poorly bedded quartzite with minor thin silty bands. Minor traces pyrite and less chalcopyrite in places
				421'0"	423'3"	2'	Dark grey to black laminated siltstone.
388'0"	396'6"	7'	Fine green siltstone with up to 10% dolomite bands. Up to 30% pyrite - in silt bands.	423'3"	467'6"	30'	Soft, dark green laminated siltstone with thin calcitic lenses up to ½" thick, parallel to bedding. No sulphides.
396'6"	439'0"	40'	Grey dolomite with bands and patches of pyrite with traces of chalcopyrite.	467'6"	481'0"	11'6"	Poorly bedded pale green dolomitic siltstone (up to 30% dolomite). No pyrite.
439'0"	460'0"	20'	Pale grey weakly laminated soft slightly sandy siltstone. Traces of pyrite.	481'0"	545' T.D.	50'	Dark grey poorly laminated siltstone. Develops to slate in parts. Minor traces of pyrite and chalcopyrite in bedding planes in places
460'0"	467'0"	5'6"	Medium grained grey to green sandstone and grey sandy siltstone with pyrite bands				
467'0"	418'6"	50'	Pale grey laminated dolomitic siltstone grading to massive pyritic dolomite. Pyrite bands with some specular hematite.				

Geochemical Soil Ledgers

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

790020

ZC D.P.O. 1362 1

G.I. D.P.O. 1362

(202752-757, 202772-774)

AREA Kath River aspect Tas.SAMPLE Nos. 202751 → 202782COLLECTED BY T.M.P.MAP OR PHOTO REFERENCE C.R.A.E. Plan T 778/1ANALYSED BY Zinc Cont Broken Hill  
+ Gifford Inteco

3533

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock			Metal content, p. p. m.											Geological observations		
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell Chart No.)	pH	Outcrop	Concealed	Est. Depth	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo	As	U			
9900N 10,000E	202751	40	-	30	30	-	B/WB	24"	brown	4	-	✓	30"	<1	<1	<1	4	<1					<1	<2	<5	1	No ofc. Rock fine white quartz
9800N	202752	20	-	60	20	-	B/WB	12"	beige	5	-	✓	16"	<1	3	15/21	5	1					<1	<2	<5	2	No ofc. Rock, qtz.
9700N	202753	20	-	30	50	-	B/WB	18"	beige	5	✓	-	18"	44	7	35/20	8	6					<1	<2	5	6	o/c Vein qtz + Hm + LM Rock qtz + Hm + LM
9600N	202754	30	-	30	40	-	B/WB	6"	brown	5	-	✓	6"	30	36	30/14	10	6					<1	<2	<5	1	rock finely laminated silt/s No ofc
9500N	202755	50	-	10	40	-	B/WB	12"	beige	5	-	✓	12"	6	13	4	4	1					<1	<2	<5	1	rock laminated silt/s No ofc
9400N	202756	50	-	20	30	-	B/WB	24"	beige	5	-	✓	24"	21	11	21	6	1					<1	<2	5	1	rock laminated silt/s No ofc
10000N	202757	20	-	70	10	-	WB	48"	grey	5	-	✓	48"	<1	<1	<1	2	<1					<1	<2	<5	2	o/c fine white s/s
10,000N 10,000E	202758	10	-	80	10	-	WB	30"	grey	5	-	✓	36"	<1	<1	<1	2	<1					<1	<2	<5	1	No ofc. Bedrock not identified
9900N	202759	5	-	10	20	65	B	36"	beige	4	-	✓	48"	<1	3	20	5	3					<1	<2	<5	2	No ofc. Bedrock not identified
9800N	202760	15	-	10	10	65	B	24"	beige	4	-	✓	48"	40	11	35	11	6					<1	4	5	3	Float limonite No ofc
9700N	202761	20	-	10	10	60	B/WB	30"	beige	4	-	✓	48"	34	52	48	9	6					<1	<2	5	1	Rock laminated silt/s No ofc
9600N	202762	-	-	5	25	70	B/WB	30"	beige	4	-	✓	50"	11	13	24	6	4					<1	<2	5	1	No ofc
9500N	202763	30	-	10	10	50	B/WB	24"	brown	4	-	✓	48"	38	21	19	4	1					4	<2	<5	1	No ofc. Rock finely laminated silt/s
9400N	202764	20	-	10	10	60	B/WB	12"	brown	4	-	✓	12"	130	24	24	5	3					<1	<2	<5	1	No ofc. Rock laminated sandy silt/s
10000N 10,000E	202765	5	-	-	30	65	WB	20"	beige	5	-	✓	20"	1	6	16	5	1					4	4	<5	3	Rock hematite
9900N	202766	-	-	-	30	70	WB	51"	"	-	-	✓	32"	24	52	540	13	7					4	4	5	4	-
9800N	202767	10	-	5	20	65	"	20"	"	6	-	✓	20"	8	11	12	7	3					<1	2	<5	2	Rock beige slightly sandy well indurated shale
9700N	202768	-	-	-	20	50	B/WB	36"	yellow	-	-	✓	40"	4	9	13	6	3					<1	2	<5	2	Bright yellow clay
9600N	202769	-	-	-	20	50	"	36"	"	5	-	✓	48"	24	17	71	7	4					<1	<2	<5	2	As above
9500N	202770	10	-	-	25	65	WB	22"	"	-	-	✓	22"	6	7	9	5	<1					<1	<2	<5	1	Rock clear qtz fragments
9400N	202771	10	-	-	60	30	B/WB	12"	beige	-	-	✓	12"	18	14	14	5	1					<1	<2	<5	2	Clear waxy qtz with limonite veins
10000N 10,000E	202772	20	-	-	65	15	"	12"	brown	5	-	✓	12"	2	11	45/33	4	<1					<1	4	<5	2	Rock hm.
9900N	202773	20	-	5	25	50	"	9"	red-brown	-	-	✓	9"	1	14	36	4	1					<1	4	5	2	Rock hm + lim with fragmented qtz
9500N	202774	10	-	10	20	60	WB	18"	"	4	-	✓	18"	1	16	10/18	13	8					<1	2	<5	1	Rock hm + frag white qtz
9700N	202775	10	-	5	70	15	B/WB	12"	brown	-	-	✓	12"	8	14	16	8	4					<1	2	<5	2	Rock fine white s/s
9600N	202776	-	-	-	10	90	"	36"	yellow	6	-	✓	48"	8	19	30	5	3					<1	2	15	2	-
9500N	202777	10	-	-	10	80	WB	36"	"	-	-	✓	36"	30	14	20	7	3					<1	2	<5	2	Rock beige silt/s
10000N 10,000E	202778	-	-	10	25	60	B/WB	34"	brown	5	-	✓	50"	1	7	2	4	<1					<1	2	<5	2	Sand angular qtz
9900N	202779	10	-	-	50	40	"	32"	grey	5	-	✓	32"	5	7	8	5	4					<1	4	5	4	grey shaly material with hm. 50/50
9500N	202780	20	-	-	55	25	WB	60"	red-brown	-	✓	-	5	16	53	4	3					<1	6	<5	5	o/c banded hm with lim + specular hm	
9700N	202781	20	-	-	50	30	"	20"	brown	4	-	✓	20"	1	11	20	2	1					<1	4	<5	5	Rock banded hm + lim
9600N	202782	20	-	-	30	50	B/WB	12"	yellow	-	-	✓	12"	1	11	19	4	1					<1	<2	5	2	Rock fine white s/s



# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

Z.C. D.R.O. 13602  
G.I. D.R.O. 13601 3  
(211671-673, 211674, 675)

AREA *Kieths River Prospect (Two)*SAMPLE Nos. *211664 → 211699*COLLECTED BY *T.M.F.* 790022

MAP OR PHOTO REFERENCE

*C.R.A.E. Plan no T778/1 T777/1*ANALYSED BY *Zinc Dept. Robert Hill*  
*+ Gifford Miller*

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock			Metal content, p. p. m.										Geological observations			
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell)	Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As	U	
<i>10100N/11400E</i>	<i>211664</i>	<i>10</i>	<i>-</i>	<i>25</i>	<i>25</i>	<i>40</i>	<i>B/L</i>	<i>15"</i>	<i>beige</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>20"</i>	<i>1</i>	<i>41</i>	<i>2</i>	<i>1</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>2</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - lm</i>	
<i>10200N/11400E</i>	<i>211665</i>	<i>20</i>	<i>-</i>	<i>35</i>	<i>45</i>	<i>-</i>	<i>WB</i>	<i>24"</i>	<i>grey</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>24"</i>	<i>1</i>	<i>3</i>	<i>6</i>	<i>1</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>4</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - lm</i>	
<i>10300N/11400E</i>	<i>211666</i>	<i>10</i>	<i>-</i>	<i>20</i>	<i>70</i>	<i>-</i>	<i>WB</i>	<i>6"</i>	<i>brown</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>6"</i>	<i>3</i>	<i>15</i>	<i>21</i>	<i>2</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>4</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - lm impreg. g/lz</i>	
<i>10400N/11400E</i>	<i>211667</i>	<i>15</i>	<i>-</i>	<i>20</i>	<i>45</i>	<i>20</i>	<i>WB</i>	<i>30"</i>	<i>brown</i>	<i>6</i>	<i>-</i>	<i>✓</i>	<i>30"</i>	<i>8</i>	<i>8</i>	<i>5</i>	<i>8</i>	<i>4</i>				<i>&lt;1</i>	<i>2</i>	<i>&lt;5</i>	<i>2</i>	<i>B/R - silt/s</i>	
<i>10500N/11400E</i>	<i>211668</i>	<i>30</i>	<i>-</i>	<i>50</i>	<i>20</i>	<i>-</i>	<i>WB</i>	<i>24"</i>	<i>grey</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>24"</i>	<i>1</i>	<i>1</i>	<i>&lt;1</i>	<i>2</i>	<i>1</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - qb</i>	
<i>10100N/11200E</i>	<i>211669</i>	<i>20</i>	<i>-</i>	<i>20</i>	<i>40</i>	<i>20</i>	<i>WB</i>	<i>12"</i>	<i>brown</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>10</i>	<i>18</i>	<i>30/21</i>	<i>3</i>	<i>2</i>				<i>&lt;1</i>	<i>#16</i>	<i>20</i>	<i>5</i>	<i>3</i>	<i>B/R - lm</i>
<i>10200N/11200E</i>	<i>211670</i>	<i>30</i>	<i>-</i>	<i>75</i>	<i>25</i>	<i>20</i>	<i>WB</i>	<i>15"</i>	<i>brown</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>15"</i>	<i>10</i>	<i>9</i>	<i>5/12</i>	<i>5</i>	<i>3</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>10</i>	<i>2</i>	<i>B/R - lm</i>	
<i>10300N/11200E</i>	<i>211671</i>	<i>10</i>	<i>-</i>	<i>20</i>	<i>10</i>	<i>60</i>	<i>B/L</i>	<i>24"</i>	<i>beige</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>20"</i>	<i>8</i>	<i>2</i>	<i>5/7</i>	<i>7</i>	<i>4</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - lm</i>	
<i>10400N/11200E</i>	<i>211672</i>	<i>30</i>	<i>-</i>	<i>5</i>	<i>35</i>	<i>30</i>	<i>B/L</i>	<i>24"</i>	<i>beige</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>24"</i>	<i>6</i>	<i>4</i>	<i>15/15</i>	<i>7</i>	<i>5</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>B/R - silt/s</i>	
<i>10500N/11200E</i>	<i>211673</i>	<i>20</i>	<i>-</i>	<i>30</i>	<i>40</i>	<i>10</i>	<i>WB</i>	<i>12"</i>	<i>beige</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>#3</i>	<i>41</i>	<i>10/14</i>	<i>3</i>	<i>2</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>41</i>	<i>B/R - lm</i>	
<i>10100N/11000E</i>	<i>211674</i>	<i>30</i>	<i>-</i>	<i>25</i>	<i>45</i>	<i>0</i>	<i>B/L</i>	<i>12"</i>	<i>brown</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>6</i>	<i>5</i>	<i>19</i>	<i>2</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>2</i>	<i>5</i>	<i>1</i>	<i>B/R - laminated silt/s</i>	
<i>10200N/11000E</i>	<i>211675</i>	<i>30</i>	<i>-</i>	<i>20</i>	<i>50</i>	<i>0</i>	<i>B/L</i>	<i>12"</i>	<i>brown</i>	<i>4</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>6</i>	<i>3</i>	<i>10</i>	<i>3</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>4</i>	<i>&lt;5</i>	<i>2</i>	<i>B/R - lm</i>	
<i>10300N/11000E</i>	<i>211676</i>	<i>15</i>	<i>-</i>	<i>10</i>	<i>15</i>	<i>60</i>	<i>"</i>	<i>36"</i>	<i>beige</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>36"</i>	<i>8</i>	<i>4</i>	<i>6</i>	<i>7</i>	<i>3</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>Rock fine white quartz</i>	
<i>10400N/11000E</i>	<i>211677</i>	<i>15</i>	<i>-</i>	<i>5</i>	<i>70</i>	<i>10</i>	<i>"</i>	<i>24"</i>	<i>brown</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>24"</i>	<i>6</i>	<i>16</i>	<i>44</i>	<i>21</i>	<i>7</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>5</i>	<i>1</i>	<i>As above</i>	
<i>10500N/11000E</i>	<i>211678</i>	<i>15</i>	<i>-</i>	<i>-</i>	<i>75</i>	<i>10</i>	<i>"</i>	<i>12"</i>	<i>"</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>16</i>	<i>18</i>	<i>86</i>	<i>18</i>	<i>9</i>				<i>&lt;1</i>	<i>4</i>	<i>15</i>	<i>2</i>	<i>Rock light brown sandy shale</i>	
<i>10100N/10900E</i>	<i>211679</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>55</i>	<i>35</i>	<i>WB</i>	<i>10"</i>	<i>"</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>10"</i>	<i>21</i>	<i>8</i>	<i>21</i>	<i>2</i>	<i>2</i>				<i>&lt;1</i>	<i>4</i>	<i>10</i>	<i>1</i>	<i>Rock lm.</i>	
<i>10200N/10900E</i>	<i>211680</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>20</i>	<i>70</i>	<i>B/L</i>	<i>30"</i>	<i>beige</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>30"</i>	<i>13</i>	<i>11</i>	<i>43</i>	<i>6</i>	<i>5</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>5</i>	<i>2</i>	<i>As above</i>	
<i>10300N/10900E</i>	<i>211681</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>70</i>	<i>20</i>	<i>"</i>	<i>33"</i>	<i>brown</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>36"</i>	<i>10</i>	<i>7</i>	<i>15</i>	<i>19</i>	<i>14</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>2</i>	<i>Rock grey ferruginous shale</i>	
<i>10400N/10900E</i>	<i>211682</i>	<i>20</i>	<i>-</i>	<i>20</i>	<i>60</i>	<i>-</i>	<i>B</i>	<i>36"</i>	<i>grey</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>50"</i>	<i>1</i>	<i>&lt;1</i>	<i>&lt;1</i>	<i>2</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>Rock fine grey quartz</i>	
<i>10500N/10900E</i>	<i>211683</i>	<i>15</i>	<i>-</i>	<i>-</i>	<i>15</i>	<i>70</i>	<i>WB</i>	<i>30"</i>	<i>beige</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>36"</i>	<i>3</i>	<i>3</i>	<i>27</i>	<i>7</i>	<i>6</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>Rock ferruginous shale</i>	
<i>10100N/10600E</i>	<i>211684</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>20</i>	<i>70</i>	<i>"</i>	<i>48"</i>	<i>"</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>60"</i>	<i>16</i>	<i>23</i>	<i>70/57</i>	<i>4</i>	<i>4</i>				<i>&lt;1</i>	<i>4</i>	<i>5</i>	<i>2</i>	<i>Rock lm.</i>	
<i>10200N/10600E</i>	<i>211685</i>	<i>15</i>	<i>-</i>	<i>-</i>	<i>60</i>	<i>25</i>	<i>"</i>	<i>6"</i>	<i>brown</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>6"</i>	<i>6</i>	<i>3</i>	<i>10/12</i>	<i>2</i>	<i>2</i>				<i>&lt;1</i>	<i>4</i>	<i>&lt;5</i>	<i>2</i>	<i>Rock lim. lm.</i>	
<i>10300N/10600E</i>	<i>211686</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>75</i>	<i>15</i>	<i>B</i>	<i>12"</i>	<i>"</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>3</i>	<i>3</i>	<i>2</i>	<i>4</i>	<i>5</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>2</i>	<i>Rock grey quartz</i>	
<i>10400N/10600E</i>	<i>211687</i>	<i>20</i>	<i>-</i>	<i>20</i>	<i>60</i>	<i>-</i>	<i>WB</i>	<i>36"</i>	<i>grey</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>36"</i>	<i>1</i>	<i>5</i>	<i>&lt;1</i>	<i>1</i>	<i>&lt;1</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>As above</i>	
<i>10500N/10600E</i>	<i>211688</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>25</i>	<i>75</i>	<i>B</i>	<i>36"</i>	<i>brown</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>18"</i>	<i>3</i>	<i>5</i>	<i>5</i>	<i>3</i>	<i>2</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>-</i>	
<i>10100N/10400E</i>	<i>211689</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>35</i>	<i>65</i>	<i>B</i>	<i>36"</i>	<i>"</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>60"</i>	<i>3</i>	<i>3</i>	<i>2</i>	<i>3</i>	<i>2</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>-</i>	
<i>10200N/10400E</i>	<i>211690</i>	<i>40</i>	<i>-</i>	<i>10</i>	<i>30</i>	<i>20</i>	<i>B</i>	<i>27"</i>	<i>"</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>30"</i>	<i>1</i>	<i>5</i>	<i>3</i>	<i>1</i>	<i>1</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>Rock grey quartz</i>	
<i>10300N/10400E</i>	<i>211691</i>	<i>20</i>	<i>-</i>	<i>-</i>	<i>15</i>	<i>65</i>	<i>WB</i>	<i>48"</i>	<i>red</i>	<i>5</i>	<i>✓</i>	<i>-</i>	<i>-</i>	<i>30</i>	<i>51</i>	<i>210</i>	<i>11</i>	<i>13</i>				<i>1</i>	<i>#14</i>	<i>25</i>	<i>5</i>	<i>Rock lm.</i>	
<i>10400N/10400E</i>	<i>211692</i>	<i>15</i>	<i>-</i>	<i>-</i>	<i>35</i>	<i>50</i>	<i>B</i>	<i>36"</i>	<i>brown</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>50"</i>	<i>60</i>	<i>106</i>	<i>3000</i>	<i>14</i>	<i>9</i>				<i>&lt;1</i>	<i>4</i>	<i>&lt;5</i>	<i>22</i>	<i>As above</i>	
<i>10500N/10400E</i>	<i>211693</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>20</i>	<i>70</i>	<i>WB</i>	<i>12"</i>	<i>red</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>12"</i>	<i>19</i>	<i>15</i>	<i>55</i>	<i>16</i>	<i>10</i>				<i>&lt;1</i>	<i>4</i>	<i>10</i>	<i>1</i>	<i>As above</i>	
<i>10100N/10200E</i>	<i>211694</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>15</i>	<i>85</i>	<i>B/L</i>	<i>36"</i>	<i>beige</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>50"</i>	<i>38</i>	<i>41</i>	<i>81</i>	<i>26</i>	<i>9</i>				<i>1</i>	<i>4</i>	<i>15</i>	<i>2</i>	<i>-</i>	
<i>10200N/10200E</i>	<i>211695</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>30</i>	<i>60</i>	<i>"</i>	<i>24"</i>	<i>brown</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>24"</i>	<i>16</i>	<i>18</i>	<i>160</i>	<i>11</i>	<i>9</i>				<i>&lt;1</i>	<i>#12</i>	<i>15</i>	<i>4</i>	<i>Rock mag. lm.</i>	
<i>10300N/10200E</i>	<i>211696</i>	<i>25</i>	<i>-</i>	<i>-</i>	<i>35</i>	<i>40</i>	<i>"</i>	<i>18"</i>	<i>red</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>20"</i>	<i>26</i>	<i>18</i>	<i>83</i>	<i>14</i>	<i>9</i>				<i>1</i>	<i>4</i>	<i>35</i>	<i>3</i>	<i>Rock fine pink → cream silt/s with fine mag.</i>	
<i>10400N/10200E</i>	<i>211697</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>35</i>	<i>65</i>	<i>"</i>	<i>30"</i>	<i>red</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>40"</i>	<i>25</i>	<i>20</i>	<i>56</i>	<i>42</i>	<i>11</i>				<i>&lt;1</i>	<i>4</i>	<i>35</i>	<i>3</i>	<i>-</i>	
<i>10500N/10200E</i>	<i>211698</i>	<i>10</i>	<i>-</i>	<i>-</i>	<i>30</i>	<i>60</i>	<i>B</i>	<i>24"</i>	<i>brown</i>	<i>5</i>	<i>-</i>	<i>✓</i>	<i>48"</i>	<i>3</i>	<i>3</i>	<i>7</i>	<i>3</i>	<i>2</i>				<i>1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>3</i>	<i>Rock quartz</i>	
<i>10100N/10000E</i>	<i>211699</i>	<i>15</i>	<i>-</i>	<i>-</i>	<i>20</i>	<i>65</i>	<i>B</i>	<i>33"</i>	<i>grey</i>	<i>-</i>	<i>-</i>	<i>✓</i>	<i>50"</i>	<i>6</i>	<i>10</i>	<i>2</i>	<i>3</i>	<i>1</i>				<i>&lt;1</i>	<i>&lt;2</i>	<i>&lt;5</i>	<i>1</i>	<i>Rock lm.</i>	

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

790023

 Z.C. D.P.O. 1362 (21700 → 21532)  
 G.I. B.E.C. 5601 (21700)  
 Z.C. D.P.O. 1364 (21519 → 532)
AREA *Kidd River Project Tasmania*

SAMPLE Nos. 211700: 211501 → 211532

COLLECTED BY *T.M.P.*

A

3636

MAP OR PHOTO REFERENCE

C.R.A.E. Plan no T 777/1 T 778/1

ANALYSED BY *Zinc Corp. Broken Hill*

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock		Metal content, p. p. m.										Geological observations	
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As
<del>9540N</del> <del>9600E</del>	211700	15	-	10	35	40	R/WB	8"	red brown	-	✓	-	10	14	55/36	5	2			21	8	15	3	of limestone with angular white quartz bands.
<del>9700N</del> <del>9700E</del>	211501	20	-	-	35	45	"	12"	brown	4	-	✓	12	18	19	73	7	9		1	6	20	3	Rock lim + quartz (2 types)
<del>9800N</del> <del>9800E</del>	211502	20	-	-	15	65	WB	4R"	red brown	-	✓	-	11	46	92	22	9		21	6	5	3	of fairly limonitic light sandy shale	
<del>9850N</del> <del>9850E</del>	211503	-	-	10	60	30	R/WB	30"	light brown	-	-	✓	32	1	3	41	4	1		21	2	5	2	Fine quartz sand
<del>9150N</del> <del>9150E</del>	211504	25	-	15	50	10	"	12"	"	-	-	✓	12	5	5	13	7	6		21	4	25	2	Rock quartz with fine mag
<del>9080N</del> <del>9080E</del>	211505	10	-	10	25	55	"	18"	grey brown	-	-	✓	20	6	11	10	7	6		21	2	15	2	Rock grey quartz
<del>8980N</del> <del>8980E</del>	211506	15	-	10	65	10	"	12"	"	4	-	✓	12	6	11	4	3	1		21	2	25	2	Rock limonitic quartz
<del>9550N</del> <del>9550E</del>	211507	20	-	-	65	15	"	12"	brown	-	-	✓	12	7	14	18	7	6		21	4	25	2	Rock silt/s with minor mag
<del>9650N</del> <del>9650E</del>	211508	15	-	-	65	20	"	12"	brown	-	-	✓	12	7	13	23	13	11		21	4	25	2	Rock limonitic silt/s
<del>9750N</del> <del>9750E</del>	211509	10	-	-	60	30	"	30"	"	-	-	✓	30	7	11	24	14	9		21	4	25	2	As above
<del>8620N</del> <del>8620E</del>	211510	10	-	-	75	15	B	8"	"	-	-	✓	12	7	11	14	7	4		21	6	25	2	Rock limonitic quartz pebbles
<del>8600N</del> <del>8600E</del>	211511	15	-	-	30	55	R/WB	12"	"	-	✓	-	31	41	92	7	8		21	8	25	5	c/c limonite (35%) + mag (5%) + haematite (10%)	
<del>9020N</del> <del>9020E</del>	211512	25	-	10	45	20	"	15"	"	-	-	✓	15	8	7	2	8	6		21	4	25	4	Rock slightly limonitic quartz
<del>8300N</del> <del>8300E</del>	211513	20	-	-	70	10	B	24"	"	-	-	✓	24	10	11	1	18	9		21	4	25	4	Rock pale grey shale with fine lim and quartz
<del>8750N</del> <del>8750E</del>	211514	10	-	5	75	10	"	24"	"	-	-	✓	24	6	8	41	14	8		21	6	25	4	Rock ferrug quartz
<del>8850N</del> <del>8850E</del>	211515	15	-	-	50	35	R/WB	30"	"	-	✓	-	13	11	45	10	9		1	16	25	4	of massive lim + minor lim	
<del>8850N</del> <del>8850E</del>	211516	15	-	-	20	65	"	15"	red brown	-	-	✓	20	8	6	14	23	27		21	4	10	3	Rock beige shale
<del>9030N</del> <del>9030E</del>	211517	10	-	-	35	55	WB	12"	light brown	-	✓	-	6	11	11	7	5		21	2	25	3	of beige silt/s with lim bands	
<del>1000N</del> <del>1000E</del>	211518	20	-	10	20	50	"	12"	"	-	-	✓	12	8	9	26	8	5		21	4	25	3	Rock as above
<del>10100N</del> <del>10100E</del>	211519	5	-	-	10	85	"	12"	red brown	-	✓	-	16	23	100	9			1	6	5	4	of cellular lim + lim	
<del>10300N</del> <del>10300E</del>	211520	-	-	-	10	90	"	30"	yellow	-	-	✓	30	39	26	94	20		1	4	7	2	-	
<del>10750N</del> <del>10750E</del>	211521	10	-	-	10	80	"	30"	"	-	-	✓	30	28	44	210	144		1	2	25	2	Rock lim + lim	
<del>10840N</del> <del>10840E</del>	211522	-	-	10	10	80	"	12"	"	-	✓	-	22	21	20	11			21	6	7	4	of cellular lim + lim	
<del>10620N</del> <del>10620E</del>	211523	30	-	80	20	10	B	24"	red brown	-	-	✓	24	21	11	15	1		21	6	25	1	Rock quartz	
<del>10700N</del> <del>10700E</del>	211524	-	-	-	30	70	R/WB	36"	red brown	-	-	✓	36	10	23	19	22		1	4	5	1	-	
<del>10800N</del> <del>10800E</del>	211525	10	-	-	30	60	"	36"	beige	-	-	✓	36	8	18	36	23		1	2	25	1	Rock white silt/s	
<del>10900N</del> <del>10900E</del>	211526	10	-	-	20	70	WB	24"	"	-	-	✓	24	36	38	85	17		1	6	7	3	Rock lim + lim	
<del>10600N</del> <del>10600E</del>	211527	10	-	-	25	65	"	28"	red brown	-	-	✓	30	19	33	58	16		1	4	25	2	Rock lim	
<del>10400N</del> <del>10400E</del>	211528	10	-	-	30	60	"	12"	"	-	-	✓	15	24	64	90	93		1	8	5	4	Rock limonitic quartz	
<del>10400N</del> <del>10400E</del>	211529	-	-	-	10	90	R/WB	18"	beige	-	-	✓	24	25	90	65	19		1	2	10	2	-	
<del>10900N</del> <del>10900E</del>	211530	10	-	-	50	40	"	24"	red brown	-	-	✓	30	21	21	18	18		21	4	7	2	Rotten light brown silt/s	
<del>10530N</del> <del>10530E</del>	211531	10	-	-	25	65	WB	12"	beige	-	✓	-	50	47	240	11			1	8	25	3	of lim	
<del>10650N</del> <del>10650E</del>	211532	10	-	-	40	50	R/WB	36"	red brown	-	-	✓	36	57	144	260	16		1	2	25	3	of cellular lim + lim	

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

20070 13604 (21533 - 550 - 21551 - 554)

790024

5.

AREA Keith River Prospect - TasmaniaSAMPLE Nos. 21533 - 21550, 201551COLLECTED BY W. J. ...MAP OR PHOTO REFERENCE Keith River Prospect, West sheet (T777), East sheet (T778) Victory SectionANALYSED BY Zinc Cop. Broken Hill

3637

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock			Metal content, p. p. m.										Geological observations			
		Rock %	Lignite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell Chart No.)	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo	As		U		
0530 N 9830 E	21533	10	-	-	20	70	WB	30"	red	-	✓	-	-	23	61	210	22						1	4	15	3	o/c cellular hum + hum
10620 N 9800 E	21534	10	-	-	20	70	"	34"	"	-	✓	-	-	19	33	83	22						1	8	7	3	o/c hum + hum
10720 N 9800 E	21535	10	-	-	20	70	"	24" large	-	-	✓	24"	23	28	140	14						1	10	15	3	Rock hum	
10410 N 9850 E	21536	20	-	-	30	50	"	12"	"	-	✓	-	-	24	64	100	11					1	6	10	4	o/c cream silts	
10510 N 9800 E	21537	5	-	-	10	85	"	12"	red brown	-	✓	-	-	12	61	67	20					<1	4	15	3	o/c hum + hum	
10250 N 9800 E	21538	5	-	-	20	75	WB	34"	"	-	-	✓	~40"	14	16	120	6					1	8	10	2	Rock hum	
10400 N 9800 E	21539	5	-	-	10	85	WB	32"	red to yellow	-	-	✓	~36"	18	21	210	8					1	24	25	4	Rock hum	
10710 N 9250 E	21540	10	-	-	20	70	"	12"	"	-	-	✓	~15"	16	38	140	27					1	6	5	3	Rock rather yellow silt/c	
10200 N 9210 E	21541	10	-	-	20	70	"	20"	"	-	✓	-	-	19	18	65	16					1	8	15	3	o/c pale green silt/c and bands of hum + hum	
10600 N 9400 E	21542	-	-	-	30	70	B	32"	red	-	-	✓	~40"	19	18	65	100					1	6	15	3	-	
10140 N 9430 E	21543	10	-	-	15	75	WB	24"	red brown	-	-	✓	24"	33	50	360	9					1	4	15	7	Rock hum + hum	
10050 N 9440 E	21544	15	-	-	30	55	"	12"	red to yellow	-	✓	-	-	23	28	270	8					1	4	15	5	o/c banded hum + hum with cellular bands	
Amphibolite dike on Arthur R.	21545	20	-	-	45	35	WB	96"	large	-	✓	-	-	23	100	170	93					1	4	7	2	o/c fragment amphibolite	
	21546	5	-	-	60	35	WB	120"	brown	-	✓	-	-	14	126	22	62					1	2	5	2	As above	
	21547	20	-	-	40	40	WB	96"	large	-	✓	-	-	16	144	120	93					1	2	10	2	As above	
14210 N 20420 E	21548	30	-	10	20	40	"	48"	yellowish brown	-	✓	-	-	30	82	63	50					1	10	5	3	o/c banded hum + hum	
13960 N 1840 E	21549	20	-	15	40	25	"	48"	large	-	✓	-	-	46	144	140	54					2	22	25	9	As above	
13600 N 1830 E	21550	10	-	10	40	10	"	36"	brown	-	✓	-	-	9	590	55	42					<1	12	15	1	o/c rather calcitic slightly or ferruginous material	
13570 E	201551	10	-	20	40	30	"	46"	greenish brown	-	✓	-	-	53	950	140	50					1	12	15	2	o/c dolomite in "pyroxenite"	
13720 N 18520 E	201552	10	-	5	70	15	"	60"	large	-	✓	-	-	14	100	47	32					<1	12	15	2	o/c pyroxenite	
13940 N 18300 E	201553	10	-	75	15		"	24"	brown	-	✓	-	-	34	100	140	52					1	12	5	6	o/c banded hum + hum	
13440 N 18040 E	201554	30	-	15	40	15	"	36"	large	-	✓	-	-	7	135	140	34					<1	2	10	1	o/c banded hum + hum with cream silts	
	201555	Cashed mesample from KRI										Not submitted										Amphibolite with mineral resembling native Cu for 200"					



# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

790026

D.P.O. 15602 (to 2022)

D.P.O. 15609 (from 2022)

AREA *Kait River District*SAMPLE Nos. *212227 - 212258*COLLECTED BY *[Signature]*MAP OR PHOTO REFERENCE *C.R.A.E. plan no T 778/1A*ANALYSED BY *Zinc Corp. Broken Hill*

Grid Co-ordinate	Sample No.	Soil composition				Soil horizon	Sample			Bedrock			Metal content, p. p. m.										Geological observations		
		Rock %	Laterite %	Sand %	Silt %		Clay %	Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As	U
<i>1045 N</i> <i>9835 E</i>	212227	10	-	5	75	WB	32"	<i>yellow</i>	-	✓	-	31	45	180	12	9					1	8	40	11	<i>of cream silt/s with bands of humus.</i>
<i>10405 N</i> <i>9850 E</i>	212228	10	-	10	80	"	12"	<i>red</i>	-	✓	-	41	46	250	9	8					2	18	20	5	<i>As above.</i>
<i>10390 N</i> <i>9850 E</i>	212229	20	-	20	55	"	40"	<i>yellow</i>	-	✓	-	18	38	240	11	10					3	8	20	5	<i>As above + fine mag bands.</i>
<i>10340 N</i> <i>9835 E</i>	212230	5	-	5	10	80	24"	<i>grey</i>	-	✓	24"	19	48	280	10	11					3	6	25	3	<i>Rock rotten silt/s + fine mag.</i>
<i>10275 N</i> <i>9745 E</i>	212231	5	-	10	85	"	34"	"	-	✓	34"	10	35	27	15	7					1	2	30	2	<i>Rock cream silt/s</i>
<i>10625 N</i> <i>10100 E</i>	212232	-	-	20	45	35	24"	<i>brown</i>	-	✓	-	91	178	3600	12	10					1	2	5	18	<i>of banded silty hum + hum.</i>
<i>10650 N</i> <i>10675 N</i>	212233	-	-	25	45	35	32"	<i>grey</i>	-	✓	32"	18	92	280	18	13					2	2	25	6	<i>mg hum + hum sand.</i>
<i>10675 N</i> <i>10725 N</i>	212234	-	-	30	70	"	30"	<i>grey</i>	-	✓	30"	27	300	200	680	66					2	2	15	2	<i>clay v. rotten grey silt/s.</i>
<i>10725 N</i> <i>10750 N</i>	212235	15	-	10	20	55	36"	<i>grey</i>	-	✓	36"	23	118	98	470	66					1	2	10	2	<i>Rock grey silt/s with humus</i>
<i>10750 N</i> <i>10775 N</i>	212236	10	-	5	20	65	40"	<i>green</i>	-	✓	40"	40	188	130	120	62					1	2	20	3	<i>Rock rotten green silt/s</i>
<i>10775 N</i> <i>10825 N</i>	212237	20	-	5	20	55	42"	<i>yellow</i>	-	✓	42"	30	51	100	84	14					1	2	15	3	<i>Rock cream silt/s with hum.</i>
<i>10825 N</i> <i>10850 N</i>	212238	25	-	10	20	45	18"	<i>grey</i>	-	✓	-	38	51	46	22	16					1	2	15	2	<i>of grey slightly fissure silt/s.</i>
<i>10850 N</i> <i>10875 N</i>	212239	20	-	5	15	60	30"	"	-	✓	30"	23	26	17	14	5					2	2	25	2	<i>Rock grey silt/s.</i>
<i>10875 N</i> <i>10625 N</i>	212240	20	-	5	15	60	12"	"	-	✓	12"	25	24	22	11	6					2	4	25	2	<i>Rock grey silt/s.</i>
<i>10625 N</i> <i>10650 N</i>	212241	-	-	10	90	WB	42"	<i>yellow</i>	6	✓	50"	20	26	22	15	7					2	2	25		<i>Clay possibly rotten amorph.</i>
<i>10650 N</i> <i>10675 N</i>	212242	20	-	15	20	35	29"	<i>red</i>	5.5	✓	30"	14	17	13	9	4					2	2	25		<i>Rock s/s + hum.</i>
<i>10675 N</i> <i>10700 N</i>	212243	10	-	5	20	65	24"	"	6	✓	24"	18	14	32	14	7					2	2	5		<i>Rock hum.</i>
<i>10700 N</i> <i>10725 N</i>	212244	15	-	10	15	60	34"	<i>red</i>	5	✓	34"	31	22	120	20	10					2	2	5		<i>of hum + hum.</i>
<i>10725 N</i> <i>10750 N</i>	212245	10	-	5	55	30	16"	<i>red</i>	5	✓	16"	46	18	83	8	7					1	4	5		<i>Rock hum.</i>
<i>10750 N</i> <i>10775 N</i>	212246	10	-	10	80	50	36"	<i>red</i>	6	✓	36"	22	22	27	16	5					1	2	5		<i>As above.</i>
<i>10775 N</i> <i>10800 N</i>	212247	10	-	10	80	WB	42"	"	6	✓	50"	21	26	27	21	6					1	2	5		<i>Rock rotten grey silt/s.</i>
<i>10800 N</i> <i>10825 N</i>	212248	5	-	10	55	WB	30"	"	6	✓	30"	35	34	50	20	7					1	4	10		<i>As above.</i>
<i>10825 N</i> <i>10850 N</i>	212249	5	-	70	25	"	15"	"	6	✓	15"	22	41	111	130	16					1	2	5		<i>Rock rotten silt/s.</i>
<i>10850 N</i> <i>10875 N</i>	212250	-	-	10	90	"	30"	"	6	✓	30"	24	31	50	70	14					1	2	5		-
<i>10875 N</i> <i>10900 N</i>	212251	10	-	5	20	65	26"	"	6	✓	26"	24	31	119	66	12					1	2	5		<i>Rock rotten yellow silt/s.</i>
<i>10900 N</i> <i>10925 N</i>	212252	5	-	30	65	WB	42"	"	6	✓	50"	24	31	59	64	12					1	2	15		<i>Rock hum.</i>
<i>10925 N</i> <i>10950 N</i>	212253	-	-	30	70	WB	24"	"	6	✓	24"	24	27	54	65	12					1	2	10		-
<i>10950 N</i> <i>10975 N</i>	212254	10	-	5	20	65	24"	"	6	✓	24"	25	27	50	57	12					1	2	10		<i>Rock hum.</i>
<i>10975 N</i> <i>10510 N</i>	212255	-	-	35	65	WB	36"	"	5.5	✓	48"	30	31	65	57	12					2	2	10		-
<i>10510 N</i> <i>10100 E</i>	212256	10	-	25	65	WB	24"	<i>grey</i>	6	✓	-	57	26	140	9	10					2	2	10		<i>of rotten yellow silt/s.</i>
<i>10100 E</i> <i>10535 N</i>	212257	15	-	10	20	55	24"	"	-	✓	24"	25	18	57	11	9					1	2	5		<i>Rock hum + hum.</i>
<i>10535 N</i> <i>10560 N</i>	212258	5	-	20	75	"	36"	<i>red</i>	6	✓	36"	22	12	38	8	7					1	2	10		<i>Rock rotten silt/s + hum.</i>

3639

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. 13609

8

790027

AREA Kait River DistrictSAMPLE Nos. 212259 - 212292COLLECTED BY [Signature]MAP OR PHOTO REFERENCE CRAE Plan no T 778/1AANALYSED BY Zinc Corp, Broken Hill

3640

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock	Metal content, p. p. m.										Geological observations				
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH		Outcrop	Concealed	Est. Depth	Pb	Zn	Cu	Ni	Co	Cr	Mn		Ag	Mo	As	
10585N	212259	5	-	5	10	80	WB	30"	red	-	-	✓	30"	46	19	50	11	7	-	-	-	-	1	42	10	Rock hum. l.
10610N	212260	20	-	5	15	60	"	29"	red	6	✓	-	30	17	38	13	7	-	-	-	-	1	42	15	of c. hm + lesser hm.	
10635N	212261	-	-	5	20	75	"	24"	"	-	-	✓	24"	24	16	32	21	9	-	-	-	1	42	15	Sand fine hm.	
10660N	212262	-	-	5	20	75	"	30"	red	6	-	✓	30"	21	19	89	72	23	-	-	-	1	42	10	Rock hm + yellow silt/c.	
10685N	212263	5	-	-	10	85	"	24"	yellow	-	-	✓	24"	21	19	92	69	17	-	-	-	1	42	10	Rock rotten limonite silt/c.	
10710N	212264	10	-	-	15	75	"	24"	"	5.5	-	✓	24"	21	27	54	44	10	-	-	-	41	42	10	Rock red limonite silt/c.	
10735N	212265	5	-	-	30	65	"	20"	yellow	-	-	✓	20"	25	21	52	18	7	-	-	-	41	42	20	Rock yellow silt/c.	
10760N	212266	-	-	-	10	90	"	20"	grey	5.5	-	✓	20"	24	18	31	13	5	-	-	-	41	42	10	-	
10785N	212267	-	-	-	10	90	"	30"	"	-	-	✓	30"	24	20	26	11	5	-	-	-	41	42	15	-	
10810N	212268	-	-	-	10	90	"	30"	"	5.5	-	✓	30"	20	10	13	4	2	-	-	-	41	4	15	Clay rotten yellow silt/c.	
10835N	212269	-	-	-	10	90	"	36"	"	-	-	✓	36"	14	17	21	6	6	-	-	-	41	4	15	As above.	
10860N	212270	-	-	-	20	80	"	24"	"	6	-	✓	24"	35	15	15	6	4	-	-	-	1	6	20	-	
10570N	212271	5	-	5	10	80	WB	38"	red	6	-	✓	40"	21	34	52	16	9	-	-	-	1	42	15	Rock rotten yellow silt/c.	
10595N	212272	15	-	5	10	70	WB	24"	"	-	-	✓	24"	32	26	72	15	9	-	-	-	1	42	20	Rock rotten limonite silt/c.	
10620N	212273	10	-	5	10	75	"	44"	"	6	-	✓	44"	48	23	84	18	9	-	-	-	1	42	20	Rock hm.	
10645N	212274	20	-	5	10	65	"	24"	"	-	-	✓	24"	49	34	110	14	9	-	-	-	1	10	25	Rock hm.	
10670N	212275	20	-	10	20	50	"	30"	"	6	✓	-	31	39	81	40	10	-	-	-	1	12	5	of c. hm + hm.		
10695N	212276	20	-	5	10	65	"	38"	"	-	-	✓	38"	29	44	350	200	160	-	-	-	1	2	10	Rock grey silt/c with hum. l.	
10720N	212277	10	-	5	10	75	"	38"	"	6	-	✓	38"	17	36	140	160	25	-	-	-	1	2	10	Rock rotten limonite silt/c.	
10745N	212278	10	-	10	10	70	"	36"	"	-	-	✓	36"	25	41	120	130	30	-	-	-	1	2	5	Rock rotten grey limonite silt/c.	
10770N	212279	5	-	-	15	80	"	38"	"	5.5	-	✓	38"	18	34	110	98	25	-	-	-	1	2	5	Rock rotten yellow silt/c.	
10795N	212280	10	-	-	15	75	"	35"	"	-	-	✓	35"	32	21	48	27	9	-	-	-	1	4	10	As above.	
10820N	212281	5	-	-	20	75	"	33"	"	6	-	✓	33"	32	29	50	20	7	-	-	-	1	2	20	As above.	
10600N	212282	15	-	10	45	30	"	20"	brown	4	-	✓	20"	6	8	5	10	4	-	-	-	41	2	45	Rock yellow silt/c + minor hm.	
10625N	212283	10	-	-	40	50	"	15"	beige	-	✓	-	9	12	12	17	7	-	-	-	1	2	25	of c. fine quartz (shale??)		
10650N	212284	15	-	-	65	20	"	12"	brown	6	-	✓	12"	9	14	18	19	7	-	-	-	1	2	45	Rock quartz.	
10675N	212285	20	-	-	25	55	"	34"	beige	-	-	✓	33"	7	12	5	13	5	-	-	-	41	2	45	Rock rotten grey - yellow silt/c with hm.	
10700N	212286	15	-	-	35	50	"	20"	red	5.0	-	✓	20"	30	31	32	13	8	-	-	-	41	2	5	Rock hm + hm.	
10725N	212287	5	-	-	55	40	"	26"	"	-	-	✓	26"	23	27	38	26	10	-	-	-	1	2	45	Rock yellow silt/c + hm.	
10750N	212288	10	-	-	20	70	"	31"	"	5.5	-	✓	31"	25	27	56	49	12	-	-	-	1	2	5	Rock limonite silt/c.	
10775N	212289	15	-	-	30	55	"	15"	red	-	-	✓	15"	28	24	69	50	15	-	-	-	1	2	45	yellow silt/c.	
10800N	212290	10	-	-	15	75	"	33"	red	6	-	✓	33"	25	24	74	83	23	-	-	-	41	2	5	Rock red to yellow silt/c.	
10825N	212291	20	-	-	15	65	"	14"	yellow	-	-	✓	14"	20	21	37	32	12	-	-	-	41	2	10	feruginous silt/c.	
10850N	212292	20	-	-	65	15	"	24"	yellow	5.5	-	✓	22"	26	27	41	27	8	-	-	-	41	42	10	Rock yellow limonite silt/c.	
																										Rock grey silt/c.



# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

D. 20. 1969. 10

AREA

*Kuth River Doopt*

SAMPLE Nos. 212426 - 212457

COLLECTED BY

790029

MAP OR PHOTO REFERENCE

*CRAE plan no T778/1A T777/1*

ANALYSED BY

*Zinc Corp., Broken Hill*

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock		Metal content, p. p. m.										Geological observations			
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As		
10475N	212426	10	-	10	20	60	WB	14"	red	-	✓	-	30	23	120	7	10						2	6	10	o/c banded cellular hum + lm.
10450N	212427	10	-	-	30	60	"	9"	red	6	✓	-	38	21	150	10	10						2	8	10	o/c yellow silt/s + spec hum.
10425N	212428	20	-	-	30	50	"	14"	red	-	✓	-	22	28	120	14	21					*1	6	5	As above.	
10400N	212429	5	-	-	20	75	"	36"	yellow	6	✓	-	26	25	160	13	12					*1	6	15	o/c yellow silt/s with banded cellular hum + lm.	
10375N	212430	65	-	10	15	10	"	12"	brown	-	✓	12"	11	30	38	8	4					<1	4	<5	Rock quartz, possibly ore.	
10350N	212431	-	-	15	30	55	"	12"	red	6	✓	12"	16	28	94	9	10					1	8	5	Sand hum grains.	
10325N	212432	10	-	10	25	55	"	12"	brown	-	✓	-	22	30	200	12	14					2	14	30	o/c banded hum + lm.	
10300N	212433	20	-	5	10	65	"	36"	"	6	✓	-	22	35	180	11	15					2	6	20	As above.	
10275N	212434	20	-	-	20	60	"	20"	"	-	✓	-	32	28	190	14	15					*2	8	15	As above.	
10250N	212435	25	-	-	20	55	"	16"	"	6	✓	16"	24	21	130	10	12					2	8	15	Rock rotten grey silt/s	
10225N	212436	-	-	-	35	65	WB	19"	brown	-	✓	20"	35	23	140	9	12					2	20	25	-	
10200N	212437	10	-	10	15	65	WB	18"	red	6	✓	18"	33	18	110	8	10					2	14	20	Rock yellow silt/s + lm.	
10175N	212438	10	-	-	20	70	"	24"	red	-	✓	-	38	23	110	12	10					2	8	30	o/c yellow silt/s and banded hum + lm.	
10150N	212439	10	-	-	20	70	"	24"	"	5.5	✓	24"	35	18	75	14	9					1	6	20	Rock yellow silt/s + hum.	
10125N	212440	10	-	5	25	60	"	18"	"	-	✓	18"	25	21	38	19	10					1	6	15	As above.	
10100N	212441	5	-	-	10	85	"	18"	red	5.5	✓	18"	24	33	63	150	23					2	2	10	Rock yellow silt/s	
10075N	212442	15	-	-	20	65	"	24"	red	-	✓	24"	21	35	81	170	25					*2	<2	<5	Rock rotten green limonitic silt/s	
10050N	212443	20	-	-	15	65	"	24"	red	5.5	✓	24"	18	33	42	74	15					1	<2	5	Rock yellow silt/s	
10025N	212444	20	-	-	15	65	"	24"	red	-	✓	24"	21	30	40	59	17					1	<2	5	Rock rotten grey silt/s	
10000N	212445	5	-	-	10	85	"	36"	red	5.5	✓	-	19	23	19	32	12					1	<2	10	o/c yellow silt/s	
9975N	212446	-	-	20	20	60	"	26"	red	6	✓	26"	3	4	41	41	2					<1	<2	5	Sand yellow silt/s dips	
9950N	212447	-	-	-	60	40	"	42"	red	-	✓	42"	7	21	41	7	4					<1	<2	<5	Clay rotten yellow silt/s (possibly rotten amphibolite)	
9925N	212448	5	-	5	60	30	WB	27"	brown	6	✓	27"	9	33	2	14	5					1	<2	<5	Rock rotten yellow silt/s	
9900N	212449	15	-	10	35	40	WB	24"	brown	-	✓	24"	20	45	200	8	12					*2	2	25	Rock grey limonitic silt/s	
9875N	212450	-	-	-	70	30	"	33"	yellow	6.5	✓	33"	12	42	57	14	8					1	<2	<5	Silt rotten yellow silt/s	
9850N	212451	20	-	-	40	40	"	36"	"	-	✓	36"	22	18	68	14	8					1	2	<5	Rock rotten yellow silt/s	
9825N	212452	20	-	-	45	35	"	9"	"	5.5	✓	9"	19	16	210	16	10					1	2	5	Rock limonitic yellow silt/s	
9800N	212453	15	-	20	75	40	WB	20"	brown	-	✓	20"	7	6	3	2	2					<1	<2	5	Rock grey silt/s + quartz + lm.	
9775N	212454	20	-	10	20	40	WB	18"	red	4	✓	-	30	30	230	10	17					2	6	10	o/c banded cellular hum + lm.	
9750N	212455	25	-	-	10	65	"	33"	"	-	✓	-	22	42	340	12	15					*2	4	5	o/c amphibolite + cellular hum + lm.	
9725N	212456	5	-	-	30	65	"	20"	"	6.5	✓	20"	28	45	220	8	12					2	8	10	Rock lm.	
9700N	212457	20	-	5	10	65	"	16"	"	6	✓	16"	38	35	410	11	17					2	30	25	Rock hum + lm.	

3642

**C.R.A. EXPLORATION PTY. LIMITED**  
**GEOCHEMICAL SOIL SAMPLING LEDGER**

D.P.C. 13609 (6212477)  
S.E.C. 13610 (from 30450) 11

AREA Kaiti River Project

SAMPLE Nos. 212458 - 212489

COLLECTED BY [Signature]

790030

MAP OR PHOTO REFERENCE C.R.A.E. Plan no T777, T778

ANALYSED BY Zinc Corp, Broken Hill

3643

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock	Metal content, p. p. m.										Geological observations		
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH		Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn		Ag	Mo
10190N	212458	20	-	5	10	65	WB	38"	red	6	✓	-	41	40	310	12	21	-	-	-	3	18	25	of banded cellular hm + lm.
10170N	212459	30	-	-	20	50	"	36"	red	6	✓	-	28	20	150	12	15	-	-	-	2	10	20	of rotten amphibolite.
10215N	212460	40	-	-	15	45	"	48"	red	6	✓	-	33	35	290	26	13	-	-	-	2	2	10	of rotten green → yellow silt/s
10210N	212461	15	-	5	20	60	"	60"	red	-	✓	60"	26	40	180	22	19	-	-	-	2	8	20	Rock grey silt/s.
10200N	212462	20	-	10	15	55	"	38"	"	6	✓	-	30	25	120	17	16	-	-	-	2	6	20	of cellular hm + lm + yellow silt/s
10205N	212463	30	-	-	15	55	"	48"	"	6	-	✓	48"	28	21	100	15	13	-	-	2	6	15	Rock grey silt/s.
10200N	212464	30	-	-	20	50	"	60"	"	-	✓	-	29	15	100	14	11	-	-	-	2	6	15	of yellow silt/s with massive spha. hm.
10405N	212465	10	-	5	20	65	"	72"	"	6	-	✓	72"	28	22	140	17	11	-	-	2	14	25	Rock hm + yellow silt/s.
10395N	212466	20	-	-	15	65	"	72"	"	-	✓	-	25	17	96	17	11	-	-	-	2	8	25	of green to yellow silt/s
10395N	212467	5	-	-	10	85	"	60"	"	6	-	✓	60"	27	17	140	14	11	-	-	2	8	20	Rock rotten yellow silt/s + hm.
10405N	212468	40	-	-	25	35	"	42"	large	-	-	✓	42"	19	16	52	17	9	-	-	1	4	10	Rock green to yellow silt/s
10415N	212469	25	-	-	20	55	"	24"	"	6	-	✓	24"	23	29	74	18	70	-	-	2	8	10	Rock yellow silt/s + hm.
10455N	212470	20	-	-	35	45	"	28"	"	-	✓	-	35	36	120	220	38	-	-	-	2	4	10	of green to yellow silt/s
10465N	212471	30	-	-	15	55	"	26"	"	6	-	✓	26"	20	17	45	34	10	-	-	1	4	10	Rock rotten to green to yellow silt/s
10485N	212472	30	-	-	15	55	"	24"	yellow	-	-	✓	24"	19	16	51	21	9	-	-	1	4	10	Rock green silt/s + hm.
10500N	212473	25	-	-	20	55	"	48"	large	6	✓	-	19	31	57	150	17	-	-	-	1	4	10	of yellow silt/s + hm.
10535N	212474	25	-	-	20	45	"	18"	"	-	✓	-	20	14	25	10	5	-	-	-	2	2	10	of grey silt/s
10560N	212475	20	-	-	25	55	"	36"	"	-	✓	-	29	26	16	10	5	-	-	-	2	2	10	of grey to yellow silt/s
10620N	212476	20	-	-	35	45	"	60"	"	5.5	-	✓	60"	30	44	28	7	4	-	-	2	12	10	Rock rotten limonitic silt/s
10615N	212477	30	-	15	20	35	"	12"	red	-	✓	-	22	14	52	6	7	-	-	-	1	6	10	of banded partly cellular hm + lm.
10610N	212478	25	-	5	30	40	"	72"	large	6	✓	-	20	10	44	5	5	-	-	-	2	4	10	As above.
10610N	212479	5	-	-	10	85	"	36"	yellow	-	-	✓	36"	18	8	19	3	4	-	-	2	2	10	Rock rotten yellow silt/s.
10275N	212480	20	-	5	10	65	"	24"	red	6	-	✓	24"	36	22	20	11	16	-	-	3	14	55	Rock hm + lm.
10270N	212481	5	-	-	70	25	WB	14"	"	-	-	✓	14"	33	22	60	11	15	-	-	2	18	40	As above.
10255N	212482	5	-	-	70	25	"	26"	"	6	-	✓	26"	33	19	250	11	15	-	-	2	18	20	Rock hm.
10250N	212483	15	-	10	10	65	WB	6"	limonite	-	-	✓	16"	15	14	57	7	10	-	-	2	4	10	Rock hm + mag.
10205N	212484	60	-	20	15	5	WB	18"	"	4.5	-	✓	18"	13	14	38	6	5	-	-	1	2	10	Rock mag. ground + hm.
10180E	212485	5	-	10	30	10	WB	15"	"	-	-	✓	15"	16	12	29	6	5	-	-	1	4	10	As above.
10160N	212486	20	-	10	30	40	"	15"	"	5.5	-	✓	18"	18	14	49	7	6	-	-	1	2	10	Rock hm + mag.
10155N	212487	20	-	10	15	55	"	18"	large	-	-	✓	18"	13	10	44	7	6	-	-	1	2	10	As above.
10110N	212488	-	-	-	25	75	"	36"	"	4.5	-	✓	36"	15	12	36	7	5	-	-	1	2	5	-
10215N	212489	15	-	10	20	55	"	20"	red	-	-	✓	20"	29	16	160	10	15	-	-	2	12	40	Rock hm.

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

 D.P.O. 12610 (to 212307)  
 D.P.O. 12613 (from 212308)

3844

AREA

Kath River Project

SAMPLE Nos.

212490 → 212500  
212301 → 212318

COLLECTED BY

[Signature]

790031

MAP OR PHOTO REFERENCE

C.R.A.E. Plan nos T777, T778

ANALYSED BY

Dine Corp., Broken Hill

Grid Co-ordinate	Sample No.	Soil composition						Soil horizon	Sample			Bedrock		Metal content, p. p. m.										Geological observations	
		Rock %	Laterite %	Sand %	Silt %	Clay %	Depth (inches)		Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo	As		
10310N 9455E	212490	20	-	10	10	60	WB	19"	red	6	✓	-	31	19	230	13	15				3	*20 12	35	ofc banded calcareous lim + hum + mag.	
10365N 9445E	212491	5	-	7	75	20	B/WB	12"	red	-	✓	-	41	19	140	12	15				3	18 *16	30	ofc calcareous lim + hum.	
10390N 9455E	212492	10	-	5	50	35	WB	24"	"	6	✓	-	84	22	230	10	11				2	18 *16	45	ofc banded calcareous lim + hum with white quartz veins	
10410N 9425E	212493	10	-	-	20	70	"	38"	"	-	✓	38"	63	19	210	11	13				2	18	50	Rock rotten yellow silt/s + hum.	
10430N 9415E	212494	10	-	-	25	65	B/WB	18"	"	6	-	✓	20"	50	17	170	11	12			2	*14 14	40	As above.	
10455N 9400E	212495	10	-	5	10	75	WB	72"	red	-	✓	72"	45	19	250	13	13				2	16	40	Rock rotten green silt/s + hum.	
10480N 9395E	212496	10	-	10	10	70	B/WB	30"	"	6	-	✓	30"	45	19	180	13	13			2	*14 4	5	Rock yellow silt/s + hum.	
10675N 9385E	212497	40	-	35	25	-	B/WB	12"	beige	-	✓	12"	3	2	12	9	21				21	22	50	Rock quartz.	
10650N 9385E	212498	-	-	-	10	90	"	24"	"	6	-	✓	30"	8	7	42	7	4				21	22	25	-
10675N 9385E	212499	10	-	5	85	"	"	28"	"	-	✓	28"	14	7	57	13	6				1	22	3	Rock lim.	
10725N 9385E	212500	5	-	-	20	75	WB	30"	"	-	✓	30"	14	7	49	15	7				2	22	5	Rock rotten yellow silt/s	
10750N 9385E	212301	5	-	-	20	75	"	24"	"	6	-	✓	24"	16	8	44	14	6				1	2	10	Rock rotten yellow silt/s + hum.
10800N 9385E	212302	-	-	-	40	60	B/WB	33"	beige	-	✓	36"	12	12	47	20	8				1	22	25	-	
10825N 9385E	212303	10	-	-	20	80	WB	24"	beige	-	✓	24"	8	19	80	34	11				2	2	15	Rock rotten yellow silt/s	
10850N 9385E	212304	15	-	10	40	35	B/WB	24"	"	-	✓	24"	11	34	25	29	140				1	22	5	As above.	
10875N 9385E	212305	-	-	-	80	20	WB	30"	green	7.5	-	✓	24"	35	360	30	49	30			2	22	5	Silt unconsolidated green silt/s with py + pyrrhotite.	
10925N 9385E	212306	-	-	-	10	90	B/WB	26"	beige	-	✓	26"	39	50	110	69	13				1	22	10	-	
10950N 9385E	212307	15	-	-	10	75	WB	24"	yellow	-	✓	24"	22	63	140	220	40				1	22	5	Rock rotten yellow silt/s	
9945N 9385E	212308	20	-	10	10	60	"	60"	red	-	✓	-	26	23	150	8	12				21	22	15	ofc banded lim + hum.	
9930N 9385E	212309	20	-	5	50	25	"	16"	red	-	✓	16"	16	26	110	10	13				21	22	15	Rock lim + hum.	
9895N 9385E	212310	10	-	10	25	55	B/WB	14"	beige	-	✓	-	9	16	100	8	10				4	8 *6	25	ofc rotten yellow to grey silt/s with hum + lim bands	
9970N 9385E	212311	15	-	10	40	35	WB	18"	"	-	✓	-	83	28	210	7	12				21	*12 14	25	ofc banded calcareous lim + hum.	
9995N 9385E	212312	20	-	-	55	25	"	14"	"	-	✓	-	58	23	150	10	12				21	*12 14	15	ofc yellow silt/s with lim bands	
10020N 9045E	212313	15	-	5	45	35	"	13"	"	-	✓	13"	40	23	110	10	9				21	*10 10 *12	20	Rock yellow silt/s + lim.	
10070N 9045E	212314	15	-	5	45	35	"	14"	"	-	✓	14"	20	16	92	8	10				21	10 *8	20	As above.	
10095N 9045E	212315	10	-	-	55	35	"	8"	"	-	✓	16"	16	11	63	7	9				21	*6 *6	10	Rock yellow silt/s	
10120N 9045E	212316	10	-	-	35	55	"	15"	"	-	✓	18"	12	9	57	8	10				21	*4 *4	5	As above.	
10145N 9045E	212317	15	-	-	80	35	"	12"	beige	-	✓	12"	12	14	72	15	12				21	*4 *4	5	As above.	
10145N 9045E	212318	25	-	-	25	50	"	18"	"	-	✓	18"	9	16	54	13	12				21	14	45	As above.	

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. 13613 (to 212336)  
D.P.O. 13614 (from 212337) 13

3645

AREA

Keith River Prospect

SAMPLE Nos. 212319 → 212350, 210301 → 210302

COLLECTED BY

H. J. P.

790032

MAP OR PHOTO REFERENCE

C.R.A.E. Plan no. T777, T778 - "Keith to Arthur Section"

ANALYSED BY

Zinc Corp, Broken Hill

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock			Metal content, p. p. m.										Geological observations				
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell Chart No.)	pH	Outcrop	Concealed	Est. Depth	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo	As					
9550N																												
9600E 9600W	212319	20	-	15	10	55	WB	36"	grey	6	-	✓	36"	*4	*8	*1	*4	*1			*21	*4						Rock yellow silts
9650N	212320	20	-	10	30	40	"	18"	red brown	-	-	✓	-	18	13	98	7	10			21	8	25				of banded calcareous limestone	
9700N	212321	15	-	10	25	50	"	18"	"	5.5	-	✓	18"	13	11	210	8	13			21	*24	25				Rock yellow silts + humus	
9750N	212322	10	-	-	20	70	"	30"	brown	-	-	✓	30"	14	16	100	23	14			21	22	10				Rock rather yellow silts + hum.	
9800N	212323	10	-	-	25	65	"	30"	red	6	✓	✓	-	16	14	54	13	10			21	22	5				of yellow silts + humus.	
	212324	20	-	10	30	40	"	34"	grey	-	-	✓	34"	16	14	72	7	10			21	22	10				Rock yellow to green silts with hum.	
9850N	212225	20	-	10	25	45	"	24"	brown	6	-	✓	24"	18	11	19	15	9			21	22	10				Rock red → grey silts + hum.	
9900N	212326	20	-	-	10	70	"	24"	grey	-	-	✓	24"	17	18	76	14	10			21	6	10				Rock hum + hum.	
9950N	212327	15	-	-	20	65	"	34"	"	6	-	✓	34"	14	16	54	15	10			21	6	15				Rock yellow silts + hum.	
1000E 1000W	212328	20	-	-	5	75	"	24"	yellow	6	-	✓	24"	7	11	2	4	4			21	6	10				Rock rather yellow silts	
1010E 1010W	212329	20	-	20	35	25	"	12"	various	-	-	✓	12"	9	9	*72	*2	*5			21	*12	35				Rock hum + hum.	
1020E 1020W	212330	20	-	-	25	55	"	34"	red brown	5.5	-	✓	34"	6	11	57	6	8			21	22	30				As above.	
1030E 1030W	212331	10	-	10	20	60	"	26"	yellow	-	-	✓	26"	16	11	33	8	6			21	22	15				Rock rather yellow silts + hum.	
1040E 1040W	212332	10	-	5	5	80	"	39"	large	6.5	-	✓	39"	9	16	28	9	7			21	22	20				Rock yellow sandy silts + hum.	
1050E 1050W	212333	10	-	-	25	65	"	24"	"	-	-	✓	24"	9	20	27	15	13			21	22	10				Rock hum.	
1060E 1060W	212334	20	-	-	10	70	"	26"	yellow	6	-	✓	26"	9	23	17	20	16			1	22	15				Rock yellow silts + hum.	
1070E 1070W	212335	10	-	-	10	80	"	24"	grey	-	-	✓	24"	13	15	50	16	12	*		*1	*6	10				Rock yellow silts + hum.	
1080E 1080W	212336	25	-	15	30	30	"	4"	red brown	5	-	✓	14"	30	20	78	15	12			21	22	20				Rock grey silts + hum.	
1090E 1090W	212337	10	-	-	-	90	"	36"	yellow	6.5	-	✓	36"	6	6	28	3	4			21	22	10				Rock yellow silts	
1100E 1100W	212338	10	-	-	10	80	"	24"	grey	-	-	✓	24"	2	2	14	3	4			21	22	15				Rock rather yellow silts	
1110E 1110W	212339	5	-	-	35	60	B/WB	20"	yellow	5	-	✓	30"	2	21	6	3	2			21	22	15				As above.	
1120E 1120W	212340	20	-	5	15	60	WB	20"	yellow	-	-	✓	20"	2	21	9	5	3			21	22	15				Rock hum + hum.	
1130E 1130W	212341	30	-	-	10	60	"	36"	"	5.5	-	✓	36"	6	2	11	3	4			21	22	5				Rock limonitic yellow silts	
1140E 1140W	212342	20	-	-	15	65	"	34"	"	-	-	✓	34"	2	21	2	3	2			21	22	15				Rock rather yellow silts + hum.	
1150E 1150W	212343	-	-	-	10	90	"	24"	"	5.5	-	✓	24"	6	21	6	3	3			21	22	15				-	
1160E 1160W	212344	5	-	-	20	75	"	36"	"	-	-	✓	36"	21	21	2	1	1			21	22	15				Rock rather yellow silts + dolomite.	
1170E 1170W	212345	5	-	-	10	85	"	36"	"	5.5	-	✓	36"	2	2	6	5	1			21	22	15				Rock dolomite + hum.	
1180E 1180W	212346	20	-	10	10	60	"	36"	grey	-	-	✓	36"	2	21	4	3	1			21	22	15				Rock rather red yellow silts	
1190E 1190W	212347	10	-	-	30	60	"	36"	yellow	5.5	-	✓	36"	2	21	33	5	3			21	22	5				Rock rather yellow micaceous shale.	
1200E 1200W	212348	30	-	-	10	60	"	36"	"	-	-	✓	36"	2	2	41	5	6			21	22	10				Rock rather yellow shale.	
1210E 1210W	212349	30	-	-	10	60	"	36"	grey	6	-	✓	36"	2	21	18	3	3			21	22	10				As above.	
1220E 1220W	212350	15	-	-	20	65	"	36"	"	-	-	✓	36"	4	21	11	5	3			21	22	15				Rock rather yellow silts.	
1230E 1230W	210301	5	-	5	10	80	"	36"	yellow	5.5	-	✓	36"	2	2	7	3	2			21	22	15				As above.	
1240E 1240W	210302	10	-	-	20	70	"	36"	"	-	-	✓	36"	8	6	21	7	7			21	22	10				Rock rather yellow red silts	

# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

B.F.C. 13614

149

AREA *Keith River District*SAMPLE Nos. *210303 - 210335*COLLECTED BY *[Signature]*

790033

MAP OR PHOTO REFERENCE *"Keith to Arthur Section", CRAE Plan no. T77, T78*ANALYSED BY *Zinc Corp., Broken Hill*

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock			Metal content, p. p. m.										Geological observations
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo	As	
<i>9820 N</i> 13080 E 9795 N 9770 N	210303	-	-	-	20	80	WB	36" <i>white</i>	5.5	-	✓	36"	2	2	2	3	2				<1	22	45	-
	210304	45	-	20	25	10	Bp	36" <i>grey</i>	-	-	✓	50"	21	21	21	21	1				<1	22	45	Rock white quartz.
	210305	-	-	-	10	90	WB	32" <i>yellow</i>	6	-	✓	32"	1	4	21	5	6				<1	22	10	-
Line K11	210306	10	-	-	10	80	"	44" <i>red</i>	-	-	✓	54"	24	17	100	78	19				1	8	35	Rock yellow silt/s + hum.
"	210307	10	-	-	20	70	"	28" <i>"</i>	5.5	-	✓	28"	24	12	61	24	13				1	8	30	As above.
"	210308	10	-	-	10	80	"	12" <i>"</i>	-	-	✓	12"	28	12	52	14	10				1	10	25	Rock rotten yellow silt/s.
"	210309	20	-	5	10	65	"	28" <i>"</i>	5.0	-	✓	28"	20	14	57	14	10				<1	6	20	Rock rotten yellow silt/s + spec. hum.
"	210310	20	-	-	15	65	"	16" <i>"</i>	6	✓	-	48	43	230	10	10				1	16	100	o/c banded hum. l.	
"	210311	20	-	-	15	65	"	34" <i>"</i>	-	-	✓	34"	26	17	80	10	10				1	10	30	Rock rotten grey silt/s.
"	210312	15	-	0	10	65	"	20" <i>"</i>	5.5	-	-	34	24	180	12	12				1	18	60	Rock yellow silt/s + hum.	
"	210313	60	-	10	10	20	B/WB	24" <i>"</i>	5.5	✓	-	15	22	140	8	9				<1	18	30	o/c banded hum. l. + mag.	
"	210314	60	-	10	10	20	"	14" <i>"</i>	-	✓	-	4	10	24	3	4				<1	2	5	As above.	
"	210315	50	-	10	10	20	"	16" <i>"</i>	6	✓	-	2	10	19	3	4				<1	2	5	As above.	
"	210316	60	-	10	20	10	"	12" <i>"</i>	-	-	✓	12"	4	10	26	3	4				<1	4	5	Rock hum. l. + mag.
"	210317	10	-	-	25	65	WB	20" <i>beige</i>	6	-	✓	20"	8	10	33	12	10				<1	2	5	Rock hum. yellow silt/s.
"	210318	20	-	-	15	65	"	44" <i>"</i>	-	-	✓	44"	6	12	19	12	8				<1	2	45	Rock rotten grey silt/s.
"	210319	15	-	-	35	50	"	36" <i>"</i>	6	-	✓	36"	6	12	16	16	10				<1	2	45	Rock rotten yellow silt/s.
Line K12	210320	5	-	-	10	85	"	28" <i>yellow</i>	4.5	-	✓	28"	4	8	2	8	6				<1	4	45	As above.
"	210321	30	-	-	25	45	"	18" <i>beige</i>	-	-	✓	18"	6	12	11	8	10				<1	2	45	Rock rotten grey silt/s.
"	210322	20	-	-	45	35	B/WB	8" <i>red</i>	5.5	-	✓	8"	22	20	100	8	12				<1	10	20	Rock hum. l.
"	210323	20	-	5	50	25	WB	12" <i>beige</i>	5.5	-	✓	12"	10	12	26	14	11				<1	8	15	As above.
"	210324	30	-	-	55	25	B/WB	12" <i>beige</i>	-	-	✓	12"	13	8	54	12	12				<1	6	5	As above.
"	210325	10	-	-	55	35	"	12" <i>"</i>	6	-	✓	12"	13	14	82	16	12				<1	4	5	As above.
"	210326	5	-	-	70	25	"	8" <i>"</i>	-	-	✓	8"	13	12	49	12	13				<1	22	45	As above.
"	210327	30	-	-	45	25	"	8" <i>"</i>	5.5	-	✓	8"	8	17	23	18	10				<1	22	45	Rock grey silt/s.
"	210328	15	-	5	55	25	"	12" <i>"</i>	-	-	✓	12"	17	23	14	11	11				<1	4	45	Rock hum. l.
Line K13	210329	50	-	20	25	5	B/WB	12" <i>grey</i>	-	-	✓	12"	21	2	21	21	21				<1	22	45	Rock gift.
"	210330	40	-	0	48	5	WB	16" <i>"</i>	6	✓	-	41	2	2	1	41					<1	22	45	o/c banded cellular hum. l.
"	210331	25	-	5	55	15	"	14" <i>beige</i>	5.5	✓	-	6	6	23	8	7					<1	22	5	o/c limonitic silt/s. (sandy).
"	210332	25	-	10	15	50	"	12" <i>"</i>	6	✓	-	6	10	38	8	9					<1	22	5	o/c banded hum. l.
"	210333	15	-	-	60	25	"	36" <i>beige</i>	6	-	✓	36"	6	8	21	18	13				<1	22	5	Rock yellow silt/s.
Track AL	210334	5	-	-	20	75	"	30" <i>"</i>	-	-	✓	30"	17	10	21	20	15				<1	6	5	Rock limonitic yellow silt/s.
"	210335	10	-	-	20	70	"	12" <i>"</i>	-	✓	-	18	14	38	18	14					<1	6	10	o/c cellular hum. l. or yellow silt/s.

3346





# C.R.A. EXPLORATION PTY. LIMITED

## GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. 12621

17

790036

AREA

Kaitiaki District

SAMPLE Nos. 210007-210041

COLLECTED BY

D. J. [Signature]

MAP OR PHOTO REFERENCE

C.R.A.E. Plan no. T-778

ANALYSED BY

Zinc Cap. Robinson Hill

Grid Co-ordinate	Sample No.	Soil composition					Soil horizon	Sample			Bedrock		Metal content, p. p. m.										Geological observations	
		Rock %	Laterite %	Sand %	Silt %	Clay %		Depth (inches)	Colour (Munsell) Chart No.	pH	Outcrop	Concealed	Est. Depth	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Mo		As
line K9	210007	20	-	15	20	45	WB	24"	brige	-	✓	24"	7	11	25	10	8				21	12	25	Rock grey sandy silts of yellow limonitic silts
"	210008	10	-	-	35	55	"	24"	red	-	✓	-	13	18	140	26	19				1	4	10	Rock rotten grey silts
"	210009	15	-	-	25	60	"	24"	brige	-	✓	24"	11	18	120	22	13				1	12	15	Rock rotten grey silts
"	210010	20	-	-	35	45	"	24"	"	-	✓	24"	11	15	200	26	17				1	12	30	Rock rotten yellow silts
"	210011	5	-	-	15	80	"	47"	"	-	✓	46"	17	20	220	28	12				1	2	10	Rock lim. ic yellow silts
"	210012	10	-	-	25	65	WB	9"	brige	-	✓	9"	9	15	90	26	11				1	2	5	Rock rotten red silts
"	210013	20	-	-	25	55	WB	12"	brige	-	✓	12"	7	14	40	24	11				1	4	25	Rock yellow silts + lim
"	210014	15	-	-	30	55	WB	48"	"	-	✓	55"	7	15	26	18	10				1	12	25	Rock rotten lim. ic silts
"	210015	25	-	-	30	45	WB	12"	brige	-	✓	12"	5	11	7	20	8				1	12	25	Rock yellow silts
"	210016	15	-	-	20	60	"	36"	brige	-	✓	36"	7	18	29	16	22				1	12	25	As above
"	210017	25	-	-	10	65	"	34"	"	-	✓	34"	5	11	19	16	10				1	12	25	Rock rotten white silts
"	210018	20	-	-	40	40	WB	12"	brige	-	✓	12"	5	10	26	4	3				1	10	20	Rock lim + lim
"	210019	10	-	-	55	35	R	12"	"	-	✓	12"	2	4	4	2	3				1	12	5	Rock lim.
"	210020	5	-	-	60	35	WB	28"	"	-	✓	28"	3	4	9	4	5				1	2	10	As above
line K6	210021	10	-	-	30	60	WB	36"	brige	-	✓	36"	16	15	120	130	29				1	2	10	Rock rotten yellow silts
"	210022	15	-	-	20	65	"	24"	red	-	✓	24"	15	18	93	37	11				1	4	10	Rock lim.
"	210023	10	-	-	20	70	"	24"	"	-	✓	24"	13	13	67	32	11				1	2	10	Rock yellow silts + lim
"	210024	10	-	-	25	65	"	46"	"	-	✓	50"	13	13	71	32	11				1	2	10	As above
Stn 58.	210025	10	-	10	10	70	"	65"	brige	-	✓	65"	12	13	69	12	6				1	12	5	Rock rotten brige silts?
Stn 57 to 55.	210026	15	-	10	5	70	"	40"	"	-	✓	40"	11	13	26	4	5				1	12	5	Rock grey lim. ic silts
"	210027	10	-	-	5	85	"	24"	"	-	✓	24"	3	26	23	10	6				1	12	5	Rock rotten yellow silts
"	210028	10	-	10	10	70	"	28"	"	-	✓	28"	3	18	16	5	3				1	2	15	Rock rotten red to grey silts
"	210029	20	-	-	5	75	"	30"	"	-	✓	30"	3	11	12	5	3				1	12	10	Rock rotten yellow silts
"	210030	20	-	5	5	70	"	30"	"	-	✓	30"	5	31	26	8	7				1	2	10	As above
"	210031	10	-	5	5	80	"	28"	"	-	✓	28"	5	13	4	5	5				1	2	10	As above
"	210032	20	-	5	5	70	"	36"	"	-	✓	36"	3	25	29	8	6				1	12	10	As above
"	210033	20	-	5	5	70	"	36"	"	-	✓	36"	3	20	26	6	6				1	12	10	As above
"	210034	30	-	-	5	65	"	48"	"	-	✓	48"	6	53	36	6	6				1	12	10	As above
"	210035	30	-	5	5	60	"	48"	"	-	✓	48"	3	38	29	8	11				1	2	10	As above
"	210036	25	-	5	10	60	"	65"	"	-	✓	-	9	150	78	11	15				1	12	20	of red to yellow ferrous silts
"	210037	10	-	5	5	80	"	48"	"	-	✓	48"	6	10	28	20	7				1	2	15	Rock rotten lim. ic silts
"	210038	5	-	15	5	75	"	24"	grey	-	✓	24"	9	6	14	33	3				1	12	10	Rock rotten grey silts
"	210039	5	-	15	-	80	WB	20"	"	-	✓	30"	10	18	2	10	21				1	12	5	Rock grey silts
"	210040	-	-	20	5	70	"	20"	"	-	✓	40"	5	20	1	2	21				1	12	25	Sand fig. pits
line K7	210041	20	-	5	25	50	WB	12"	brige	-	✓	12"	2	5	45	3	3				1	22	10	Rock lim.









## Drill Log Sheets

## KEITH RIVER Tasmania DIAMOND DRILL CORE LOG

CO-ORDINATES 10520N/10680E

AZIMUTH 143°

DRILLERS A.D.D.

COMMENCED 15/4/71

DEPTH 797'

HOLE No. DD71 KR 1

R.L. COLLAR 985 ft

ANGLE FROM HORIZONTAL 60°

DRILL TYPE WINDRILL F52

COMPLETED 17/8/71

CASING LEFT -

SHEET No. 1

790042

3654

FOOTAGE		CORE REC. (Ft.)	CORE SIZE	Core Description	Mineralisation	SAMPLE NUMBERS	FOOTAGE SAMPLED	
From	To						From	To
0	13'	0		No core recovered.				
13'	23'	0' 4"	HQ	Fine grained quartz, stained pink to yellow. Contains thin veins up to 3mm wide, of white quartz. Ferruginous coatings on fractures. Possibly from a boulder and not in situ bedrock.				
23'	33'	~1'	HQ	As above.				
33'	43'	~1'	HQ	Fragmental quartzite. Rectangular fragments up to 4mm x 1cm with limonitic cement. 3" yellow clay.				
43'	134'	24'	HQ	Rotten "amphibolite". Composed of rotten feldspar? weathered to subangular white clay "particles" up to 2mm across, with red-brown rotten, and fresher green ferromagnesian minerals (amphiboles?). Texturally resembles amphibolite below 181'. Gradational variations in the percentages of the main minerals are obvious. Elongation of ex-feldspars? define a secondary foliation $\approx 50^\circ$ to L.C.A. between 53' and 63'. Low ex-feldspar content from 73'-84'. Up to 80% slightly coarser ex-feldspar from 84'-134'. Has a high ferromagnesian content over 16" in interval 115'-124'.				
134'	138'	1'	HQ	Angular broken core of both grey and iron stained quartz.				
138'	146'	0		No core recovered.				
146'	155'	5'	HQ	Rotten grey to grey brown siltstone				
155'	170'	8'	HQ	Broken grey to dark green quartz. Exhibits bedding $\approx 65^\circ$ to L.C.A. Has occasional crosscutting quartz veins	Minor specular haemite and pyrite on joints and fractures.			
170'	181'	11'	HQ	Well bedded grey quartzose siltstone. Gross bedded in part. Bedding $\approx 85^\circ-90^\circ$ to L.C.A. Laminations vary from pale grey to dark greenish-grey. Has random crosscutting quartz veins. Becomes darker and finer below 179', with abundant quartz veining.	Joints and fractures have coatings of limonite. Quartz veins display cellular limonite in part. Fine pyrite and specular haematite are dispersed throughout the rock.			
181'	188'	4'	HQ	Fine grained green amphibolite composed predominantly of a green amphibole with up to 10% fine quartz and up to 10% pale feldspar. Exhibits no primary or secondary foliation				
188'	299'	89' 6"	HQ to NQ	Medium grained amphibolite - composed as above. Has a crystalline texture. Epidote on joints in parts. throughout intersection. Grain size and texture uniform throughout. No primary or secondary foliation.	"Pinkish" quartz veins from 1 to 5mm thick contain micaceous hm. and py. plus occasional lm after py. In part veins become massive mic. hm + py. with minor quartz. These veins low frequency. Quartz veins no fixed orientation w.r.t. L.C.A. Veins contain, and joints & fractures have coatings of a soft "copper coloured" iron oxide. Fine py dispersed throughout - some may be pyrrhotite. Blebs of cp up to 3mm across in thin dogtooth quartz veins at 230', 239', 252', 273'. Usually accompanied by mic. hm + py. Fine cp on joint at 277'.			
299'	312'	5' 2"	NQ	Laminated, fine, pale green siltstone with magnetitic and strongly pyritic laminations. Bedding $\approx 45^\circ$ to L.C.A. at 300' and 305'. $\approx 90^\circ$ to L.C.A. at 303'. Suggests drag folding.	About 40% of laminations strongly pyritic being from 1 to 4mm thick between 302' $\rightarrow$ 305' and 310' $\rightarrow$ 311'. Elsewhere v fine py throughout. Magnetite laminations from 300' $\rightarrow$ 302', 305', 309' $\rightarrow$ 310'. cp with py in bands at $\approx$ 310' and as minor blebs parallel to bedding at 312'.	207501	298	306
						207502	309	318'

## SUMMARY AND SPECIAL COMMENTS

Fine quartz 13'  $\rightarrow$  43', Rotten amphibolite 43'  $\rightarrow$  134', Quartz 134'  $\rightarrow$  138', siliceous siltst. 146'  $\rightarrow$  155', Quartz 155'  $\rightarrow$  170', siliceous siltst 170'  $\rightarrow$  181'. Amphibolite 181'  $\rightarrow$  299'. "Iron formation" begins 299'. Traces of cp in amphibolite with slightly more in the "iron formation". Core very broken - all footages to nearest one foot.

LOGGED BY *[Signature]*DATE 20/4/71  $\rightarrow$  26/6/71.

## KEITH RIVER Tasmania DIAMOND DRILL CORE LOG

790043

CO-ORDINATES 10520N/10620E  
R. L. COLLAR 935 ftAZIMUTH 143°  
ANGLE FROM HORIZONTAL 60°DRILLERS A.D.D.  
DRILL TYPE MINDRILL FS2COMMENCED 15/4/71  
COMPLETED 17/8/71DEPTH 797'  
CASING LEFT -HOLE No. DD71 KR1  
SHEET No. 2

3655

FOOTAGE		CORE REC. (Ft.)	CORE SIZE	Core Description	Mineralisation	SAMPLE NUMBERS	FOOTAGE SAMPLED	
From	To						From	To
302	316	3'6"	NQ	Laminated, fine, dark green siltstone with few pyritic bands. Core broken to sand size 314' → 316'	Occasional pyritic bands ~ 1mm thick Elsewhere very fine py throughout. Minor magnetite from 314' → 316'. Minor cp at 313, 314, in several fragments from 314' → 316'.	207502	309	318
316	360'6"	31'2"	NQ	Poorly laminated, fine, pale green siltstone. Bedding obvious from 319' → 320' but core too broken to measure. Bedding $\approx 70^\circ$ to h.c.a. at 356'.	No py bands. Very fine py throughout Veinlets of spec. hm up to 1mm thick from 320' → 322'. Minor cp at 316, 317, 318, 319, 320, 337'.	207503 207504 207505	318 328 338	328 338 347
360'6"	388'	14'7"	NQ	Soft, friable, slightly sandy, poorly laminated green siltstone with from 10 to 60% fine py. Has a brown colouration in patches from 370' → 373' and 382' → 388' associated with higher py areas and is possibly due to limonite. Minor milky vein quartz at 372'6", 373, 377, 378'6" → 379'. Bedding $\approx 90^\circ$ to h.c.a. at 360'; $\approx 65^\circ$ to h.c.a. at 383. Appears brecciated at 384'6". No core recovered 386' - 388'.	From 10 to 60% py throughout. Minor spec. hm bands near 361'. Minor cp in laminations from 360'6" → 361', at 366'. Minor bn near 383'.	207506 207507 207508 207509	349 358 368 378	358 368 378 386
388'	391'	2'1"	NQ	Fine green siltstone with ~10% dolomitic bands up to 1/4" thick. Bedding $\approx$ to L.C.A. variable, and drag folds evident.	Up to 30% py in siltstone bands.	207510	388	398
391'	393'2"	1'9"	NQ	Green to, brown (limonitic?), highly pyritic, slightly sandy siltstone	Up to 75% py throughout. Pyrite in siltstone bands and directly related to bedding.			
393'2"	396'6"	3'4"	NQ	Green siltstone with ~40% dolomite bands up to 1/4" thick. Strongly pyritic in parts. Bedding $\approx 65^\circ$ to L.C.A.	Sulphides predominantly py with lesser pyrrhotite and cp. In parts sulphides not as bands, but "patches" apparently unrelated to bedding.	207511 207512 207513	398 408 418	408 418 428
396'6"	422'	18'8"	NQ	Grey dolomite with up to 30% bands from 1mm to 1cm thick of fine sulphide.	Sulphides mainly py with lesser pyrrh. and traces of cp.			
422'	428'	1'2"	NQ	Very broken low recovery core. White dolomite within grey amorphous dolomite with "patches" of sulphides	Traces of py.			
428'	433'	nil	-	No core recovered.				
433'	435'	1'7"	NQ	White to grey dolomite with included angular blocks of a cream to yellow carbonate.				
435'	439'	9"	NQ	White to pale grey dolomitic, very soft, unlaminated siltstone.		207514	433	444
439'	444'	1'4"	NQ	Pale grey, weakly laminated, soft, slightly sandy siltstone. Exudes a strong odour of sulphur. Bedding $\approx 90^\circ$ to L.C.A.	Minor fine py.			
444'	454'	nil	-	No core recovered.				
454'	455'	3"	NQ	Soft, grey unbedded siltstone.				
455'	460'	nil	-	No core recovered.				
460'	463'	3'	NQ	Medium grained grey to green sandstone. A 1" thick band of white dolomite at 461'.	Sparsely dispersed py throughout.	207515	460	470
463'	467'	3'9"	NQ	Laminated grey slightly sandy siltstone with py bands. At 465' a band of red unlaminated sandy silt with a higher py content. Bedding $\approx 50^\circ$ to L.C.A.	Bands of fine py parallel to bedding.			
467'	468'6"	1'6"	NQ	Grey siliceous and dolomitic silt with irregular bands up to 1/4" thick of sulphides.	Sulphides predominantly py with minor pyrrh. + traces of cp.			
468'6"	518'8"	36'3"	NQ	Pale grey laminated dolomitic silt grading to a massive pyritic dolomite at 486'. In parts from 486' the bands of massive py have been brecciated with subsequent dolomitic in filling. The massive sulphide bands are chloritic and contorted by microfolding. In places from 489' to 499' the dolomite with massive sulphides is brecciated and enclosed by a brownish massive quartz sandstone with sparsely dispersed py. Grades to a dolomitic sandstone 517' → 518'6".	Sulphides py + pyrrh with minor cp. Dark patches of spec. hm + py at 508'3", 508'6", 507'6".	207516 207517 207518 207519 207520	470 480 490 500 510 520	480 490 500 510 520
518'6"	533'2"	13'6"	NQ	Dark green fine grained amphibolite with randomly oriented calcite veins. From 530'10" has a conglomeratic appearance enclosing subrounded fragments of fine quartz.	Traces of py + cp in veins and dispersed through amphibolite.			

## SUMMARY AND SPECIAL COMMENTS

Bedded siltstone, sandy siltstone, dolomite and dolomitic siltstone with banded sulphides related to bedding to 518'6". Amphibolite probably representing a metamorphic extrusive from 518'6" to 533'2". Trobari reading at 400' - 60°.

LOGGED BY: A.D.P.

DATE 26/6/71 → 3/7/71.

KEITH RIVER Tasmania DIAMOND DRILL CORE LOG

790044

CO-ORDINATES 10520 N / 10630 E  
R.L. COLLAR 985 ft

AZIMUTH 143°  
ANGLE FROM HORIZONTAL 60°

DRILLERS R.D.D.  
DRILL TYPE MINDRILL FS2

COMMENCED 15/4/71  
COMPLETED 17/8/71

DEPTH 797'  
CASING LEFT -

HOLE No. D.D. 71 KR1  
SHEET No. 3

3656

FOOTAGE		CORE REC. (Ft.)	CORE SIZE	Core Description	Mineralisation	SAMPLE NUMBERS	FOOTAGE SAMPLED	
From	To						From	To
533'2"	600'4"	72'7"	NO.	Pale green bedded siltstone with calcite veins from 1mm to 5mm thick predominantly parallel to bedding. From 564'10" to 567'3" a scour and fill structure with infilling of a conglomeratic sandstone. Bedding $\times$ wrt h.c.a. variable eg. 5° at 539'; 25° at 543'; 45° at 550'; 20° at 554'; 2° at 563'. Overall averaging around 20°.	Traces of py, cp and pyxite both within veins and the siltstone.			
600'4"	653'0"	4'8"	NO.	Dark grey bedded sandy siltstone grading in part to a sandstone. Has calcitic veins both parallel to and crosscutting bedding. Veins become quartzose below 635'. Bedding $\times$ to h.c.a. 40° at 602'; 45° at 609'; 55° at 617'; 65° at 627'; 20° at 644'.	Traces of spec. hm at 636'6"			
653'	690'	35'7"	NO. 8xHR from 673'	Fine grey quartzite with crosscutting randomly oriented white to pink quartz veins.				
690'	712'	14'4"		Grey slightly sandy siltstone. Brecciated from 691' to 693'. Bedding $\times$ 30° to h.c.a. at 691'.	Traces of py at 691'.			
712'	795'9"	67'7"	NO. from 716'	Grey fine grained quartzite. Bands of grey to green siltstone at 790' and 794' to 795'9". Bedding $\times$ 25° to h.c.a. at 790'.	Minor fine py on some joints. Rare pinkish quartz veins with traces of spec. hm.			
	T.D.							

SUMMARY AND SPECIAL COMMENTS

Trough readings at 600'-65', 790'-54'.  
Pale green bedded silts with calcite veins to 600', then grey sandy silts and quartzite. No base metal mineralisation.

LOGGED BY: YMD  
DATE: 18/8/71

## KEITH RIVER Tasmania DIAMOND DRILL CORE LOG

790045

CO-ORDINATES 10270N 1010E.  
R.L. COLLAR 1055 ft.AZIMUTH 350°  
ANGLE FROM HORIZONTAL 60°DRILLERS C.R.A.E.  
DRILL TYPE MINDRILL FS2COMMENCED 1/9/71  
COMPLETED 17/10/71DEPTH 545 ft.  
CASING LEFT NILHOLE No. DD.71. KR2  
SHEET No. 1

FOOTAGE		CORE REC. (FT.)	CORE SIZE	Core Description	Mineralisation	SAMPLE NUMBERS	FOOTAGE SAMPLED	
From	To						From	To
0	20	nil		Non-coring.				
20	75'6"	48'11"	HQT.	Poorly bedded grey quartzite with minor limonitic bands. Fine white quartz veins cutting the quartzite in random directions. Thin yellow "clayey" bands up to 2" thick from 64'6" to 66'0". Bedding $\times 60^\circ$ to L.C.A. @ 48'.	Spec hm on fractures at 59'0" and 64'0" and in bedding planes from 42'6" to 61'0".			
75'6"	78'0"	11"	"	Rotten grey to yellow silt/s.				
78'0"	81'2"	1'11"	"	Grey quartzite.				
81'2"	100'0"	12'11"	"	Rotten grey, to beige limonitic, siltstone.	Minor thin magnetic bands between 84'9" and 86'3". Strongly cellular limonitic bands at 89' and from 93'9" to 94'6".			
100'0"	125'0"	11'11"	"	Very soft, laminated white silt/s grading to sandy silt/s @ 112'. Bedding $\times 75^\circ$ to L.C.A. @ 105'6"				
125'0"	172'9"	32'0"	"	Grey sandstone with minor soft silty sections. Grades to a white slightly silty s/s @ 131' and to a coarse grey s/s @ 146'. Band of pale grey to off-white rotten silt/s from 169'9" to 171'0". Bedding $\times 37^\circ$ to L.C.A. @ 127', $50^\circ$ @ 135', $60^\circ$ @ 148', $55^\circ$ @ 165'.	Magnetite grains in bedding planes give a speckled appearance from 125' to 131'.			
172'9"	194'6"	20'11"	"	Poorly laminated pale grey to off-white rotten silt/s. Becomes harder and laminated from 181'. Bedding obviated by fine magnetite flecks in bedding planes. Bedding $\times 37^\circ$ to L.C.A. @ 181', $\times 68^\circ$ @ 183', $\times 72^\circ$ @ 190'.	Magnetite in bedding planes from 181'.			
194'6"	205'9"	5'11"	"	Pale green sandy silt/s with a coarse sandy band from 202'6" to 203'. Bedding $\times 55^\circ$ to L.C.A. @ 204'.	10% py in bedding planes from 204'0".			
205'9"	222'0"	14'5"	"	Dark green silt/s with magnetite and pyrite. Bedded in part. Bedding $\times 63^\circ$ to L.C.A. @ 207', $\times 60^\circ$ @ 211', $\times 55^\circ$ @ 219'.	Predominantly soft fine magnetite with lesser py 205'9" to 208', 209' to 210' 217' to 219'2".	207521	204'	214'
					213'6" to 217' no mag. but up to 20% py.	207522	214'	224'
222'0"	262'3"	40'0"	"	Well bedded green silt/s with mag+py bands up to 1/2" thick comprising about 50% of the rock. Soft pale green silt/s with low mag+py 234'0" to 236'9". Bedding $\times 58^\circ$ to L.C.A. @ 226', $\times 60^\circ$ @ 229', $\times 77^\circ$ @ 259'.	Up to 50% mag+py in bands up to 1/2" thick. Mag./py about 60/40. Some massive py bands up to 3" thick. Traces of cp with py.	207523	224'	234'
					Massive fine crystalline py with lesser coarse crystals 261' to 262'3".	207524	234'	244'
					Low py throughout occurring as coarse individual crystals.	207525	244'	254'
					1" thick gutz vein @ 263' and 1/2" thick @ 262'6" with blebs of cp up to 1/8" in diameter.	207526	254'	264'
262'3"	282'0"	12'11"	"	Dark green silt/s. Well bedded to 270'. Chloritic in part. Bedding $\times 77^\circ$ to L.C.A. @ 266'6".	Minor fine py+cp dispersed through rock 282' → 283' and 320' → 324'9".			
282'0"	330'0"	35'9"	"	Grey-green unbedded silty sandstone. Grades to a sandy silt/s in places and to a dark green silt/s from 320' → 324'9".	Minor fine sulphides mainly py with lesser cb dispersed through rock. Minor py+spec. hm on fractures.			
330'0"	421'0"	83'2"	HQT to 361' NR.	Grey-green to pink poorly bedded quartzite with minor thin silty bands to 340'. Bedding $\times 40^\circ$ to L.C.A. @ 333'.	Minor cp in calcitic and gutz veins and dispersed through rock from 354' to 360'. Aggregates of cp up to 1/4" thick 367'6" and 371'0" to 372'.	207527	351'	361'
					Bands of py+cp, up to 1/2" thick @ 369'6", 408'9", 412'9", 416'9".	207528	365'	375'
					Very fine sulphides comprising cp+py up to 2% to 3% of rock 416'9" to 421'.	207529	411'	421'
421'0"	425'3"	1'0"	NR.	Dark grey to black laminated silt/s. Bedding $\times 45^\circ$ to L.C.A.				

## SUMMARY AND SPECIAL COMMENTS

Tropari reading @ 460'  $\times 60^\circ$ . Bedded silt/s, s/s and quartzite to 205'9".  
Several thin gossanous bands between 85' and 95'. Bedded massive sulphides from 205'9" to 262'3" with bands of magnetite. This is followed by silt/s, sandy silt/s and quartzites.

LOGGED BY SWD  
DATE 30/9/71.

3657

KEITH RIVER Tasmania DIAMOND DRILL CORE LOG

790046

CO-ORDINATES 10270 N 10110 E

AZIMUTH 300°

DRILLERS C.R.A.E.

COMMENCED 1/9/71

DEPTH 545 ft.

HOLE No. D.D.71.KR2

R.L. COLLAR 1055 ft.

ANGLE FROM HORIZONTAL 60°

DRILL TYPE MINDRILL F52

COMPLETED 17/10/71

CASING LEFT Nil.

SHEET No. 2

3658

FOOTAGE		CORE REC. (Ft.)	CORE SIZE	Core Description	Mineralisation	SAMPLE NUMBERS	FOOTAGE SAMPLED	
From	To						From	To
423'3"	467'6"	36'11"	NQ	Soft dark green laminated siltstone with thin calcitic lenses up to 1/2" thick parallel to bedding. Bedding $\times$ 25° to L.C.A. @ 437', $\times$ 50° @ 466'.				
467'6"	481'0"	12'6"	NQ	Poorly bedded pale green dolomitic silt/s, comprising up to 30% dolomite. Bedding $\times$ 55° to L.C.A. @ 477'.				
481'0"	545' T.D.	59'4"	NQ	Dark grey poorly laminated siltstone. Develops into a massive hard grey-brown shale to slate from 494' to 495' and 495'6" to 498' and into a dark grey shale to slate from 510' to 534' and 541' to 545'. Blocks of quartz up to 1"x1" occur within the silt/s. in part. Bedding $\times$ 50° to L.C.A. @ 492 and 539.	Traces of cp occur as fine crystalline films up to 0.1" square on fracture surfaces intermittently throughout. These occurrences sparse. The largest example 1/2" in diameter by 0.1" thick @ 534'. Blebs of cp up to 1/2" in diameter @ 498', 498', 535'. Fine cp+py in small quartz block @ 497'4".			

SUMMARY AND SPECIAL COMMENTS

Tropari @ 540' - 59'. Laminated silt/s, dolomitic silt/s and poorly laminated dark silt/s to slate.

## Drill Assay Sheets

KEITH RIVER Tasmania ASSAY LEDGER

CO-ORDINATES. 10270N 10110E  
R.L. COLLAR. 1055

AZIMUTH. 300°  
ANGLE FROM HORIZONTAL. 60°

ASSAYING BY ZINC CORE BROKEN HILL.  
D.P.O. 13619, 13629, 13622.

790048  
HOLE No. D.J.71 KR2.  
DEPTH . . . 545.  
SHEET . . . 1.

3060

SAMPLE NUMBER	DEPTH		FOOTAGE DRILLED	CORE RECOVERED (ft.)	TOTAL WEIGHT SAMPLE (lbs.)	ASSAYING AND ANALYTICAL DETAILS																		
	FROM (ft.)	TO (ft.)				Fe%	S%	A.A.S. ppm.							ozs/ton									
								Pb	Zn	Cu	Ni	Co	Mn	Ag	Au									
207521	204	214	10	8'5"	18.5	23.8	7.95	76	340	190	40	56		1										
207522	214	224	10	9'2"	24.75	30.1	9.67	68	520	210	23	58		1										
207523	224	234	10	10'0"	31.0	26.6	14.52	40	410	250	21	45		1	<0.04									
207524	234	244	10	9'7"	27.75	29.3	16.51	36	300	210	18	40		1										
207525	244	254	10	10'0"	34.25	15.9	9.64	33	174	110	22	32		1										
207526	254	264	10	10'0"	26.0	20.3	13.01	150	196	740	28	25		1										
207527	351	361	10	9'7"	18.5	6.5	1.66	30	31	14	33	13		<1										
207528	365	375	10	9'6"	14.0	6.4	2.17	25	29	27	35	15		<1										
207529	411	412	10	8'5"	12.5	4.0	0.77	22	18	9	35	10		<1										

SUMMARY AND SPECIAL COMMENTS

DATE . . . . .

SIGNED . . . . .

3050

KEITH RIVER Tasmania ASSAY LEDGER

HOLE No D.P. 71 KR 1

CO-ORDINATES. 19520N / 10680E

AZIMUTH. 143°

ASSAYING BY ZINC CORP. BROKEN HILL 207501 - 8

DEPTH .797'

R.L. COLLAR .985'

ANGLE FROM HORIZONTAL .60°

D.P.O. Z.C. 13507 R.J. GLUYAS ADELAIDE 207509 - 520

SHEET 1

ASSAYING AND ANALYTICAL DETAILS

SAMPLE NUMBER	DEPTH		FOOTAGE DRILLED	CORE RECOVERED (ft.)	TOTAL WEIGHT SAMPLE (lbs.)							Fe%	S%	A.A.S. ppm.							Au 023/ton.
	FROM (ft.)	TO (ft.)												Pb	Zn	Cu	Ni	Co	Mn	Ag	
207501	298	306	8'0"	4'								11.3	5.39	40	118	140	55	38		<1	
207502	309	318	9'0"	6'6"								20.5	14.47	48	131	180	45	35		1	
207503	318	328	10'0"	7'9"								4.7	1.49	35	64	57	36	29		<1	
207504	328	338	10'0"	6'9"								5.5	1.12	35	92	110	34	24		<1	20.04
207505	338	347	9'0"	6'0"								4.3	1.04	30	100	37	32	23		<1	
207506	349	358	9'0"	8'2"								4.9	1.66	35	103	82	43	24		<1	
207507	358	368	10'0"	7'2"								15.3	8.58	27	330	480	39	56		1	
207508	368	378	10'0"	5'7"								21.2	22.06	32	730	480	34	56		1	
207509	378	386	8'0"	3'10"	5.0							24.12	19.75	85	1400	815	125	140		2	
207510	388	398	10'0"	9'4"	12.9							20.72	21.55	65	1560	192	75	75		2	
207511	398	408	10'0"	9'6"	14.2							9.94	10.55	35	890	110	125	60		2	<0.01
207512	408	418	10'0"	7'3"	9.4							14.07	15.33	180	100	157	165	20		2.5	
207513	418	428	10'0"	1'11"	2.7							9.94	9.31	65	130	440	125	40		0.5	
207514	433	444	11'0"	3'8"	4.5							4.41	1.30	20	268	232	125	30		1	
207515	460	470	10'0"	9'5"	10.6							9.71	8.19	95	200	145	65	50		2.5	
207516	470	480	10'0"	6'2"	6.8							6.25	6.90	95	115	100	30	35		2	
207517	480	490	10'0"	6'5"	8.6							12.01	11.05	110	250	167	30	55		1	0.01
207518	490	500	10'0"	9'4"	10.4							18.62	26.17	50	285	440	30	75		1	
207519	500	510	10'0"	8'5"	10.0							15.20	11.44	63	273	227	30	55		1.5	
207520	510	520	10'0"	4'7"	5.2							4.52	2.63	37	88	25	65	35		1.5	

SUMMARY AND SPECIAL COMMENTS

CRAE PLAN No M.323  
DATE .....  
SIGNED .....

790050

BASS STRAIT

N.

AMG  
341070mE  
5477000mN

Smithton

Black R

BASS HWY

Wynyard

Somerset

Burnie

Arthur R

Inset

EL 43/70

Yolla

Takone

Joint agreement area

Rapid R

Lyons R

Keith R

Heillyer R

WARATAH HWY

Gulfe R

Frankford R

Donaldson R

Savage R

Whyte R

Savage River

Arthur R

Waratah

INDIAN OCEAN

Rosebery

AMG  
378000mE  
5373050mN

Fig. 1

### LOCALITY PLAN

### KEITH RIVER PROSPECT

N.W. TASMANIA

T. M. PORTER

APRIL 1971

Scale: 1" = 10 Miles

--- Main road  
- - - Minor road

5 cm

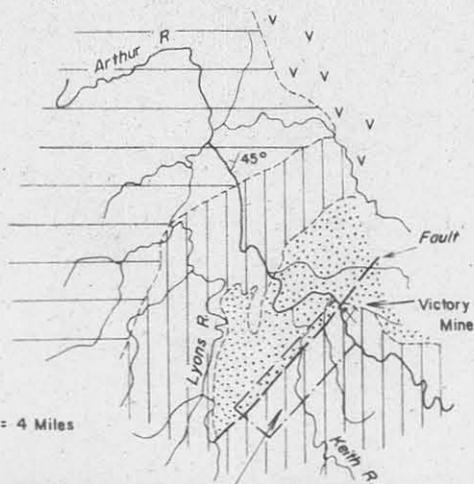
AMG REFERENCE POINTS ADDED

Plan No. T 796

#### GEOLOGY - KEITH RIVER AREA

- TERTIARY  Basalt
- PERMIAN  Undifferentiated
- PRECAMBRIAN  Neasey quartzites and slates
- PRECAMBRIAN  Keith Beds

N.



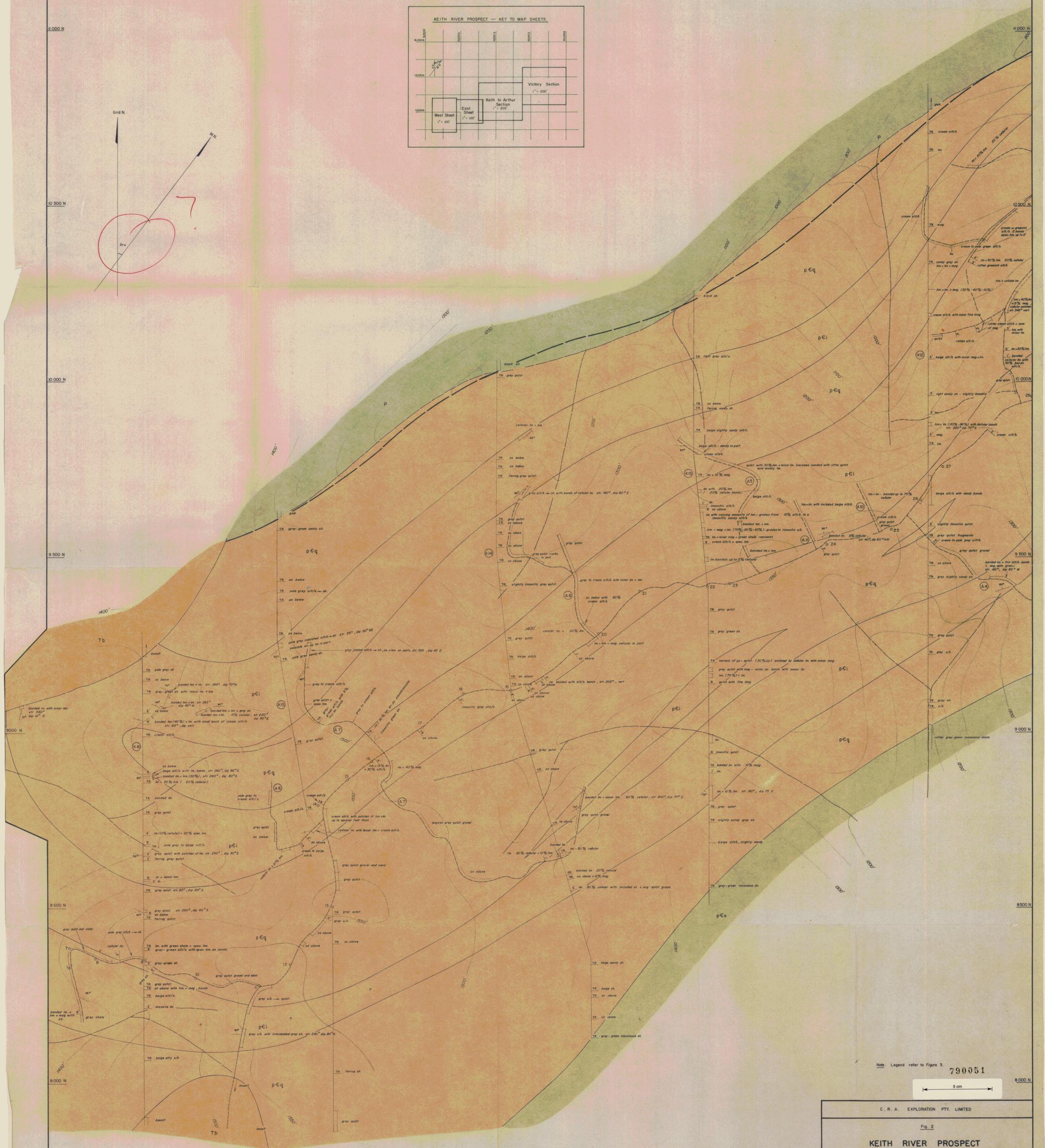
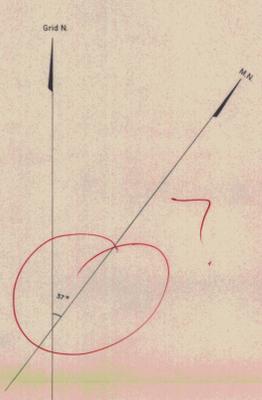
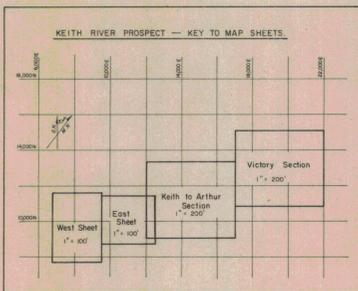
SCALE: 1" = 4 Miles

JOINT AGREEMENT AREA

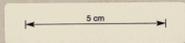
41-839

11 500 N 11 000 N 10 500 N 10 000 N 9 500 N 9 000 N 8 500 N 8 000 N

7 000 E 7 500 E 8 000 E 8 500 E 9 000 E



Note: Legend refer to Figure 3. 790051



C. R. A. EXPLORATION PTY. LIMITED

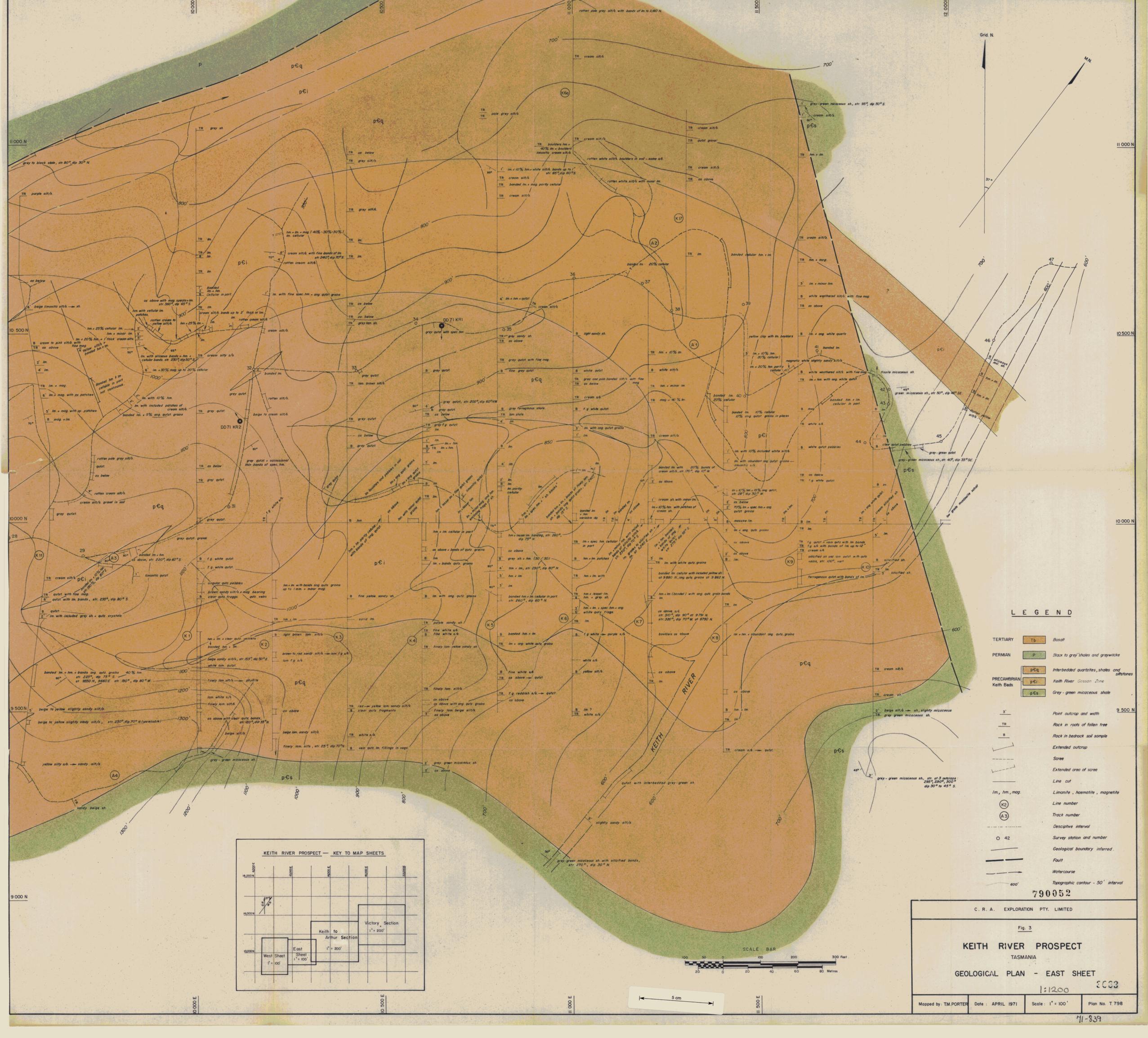
Fig. 2

**KEITH RIVER PROSPECT**  
TASMANIA

GEOLOGICAL PLAN — WEST SHEET

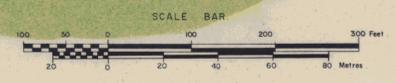
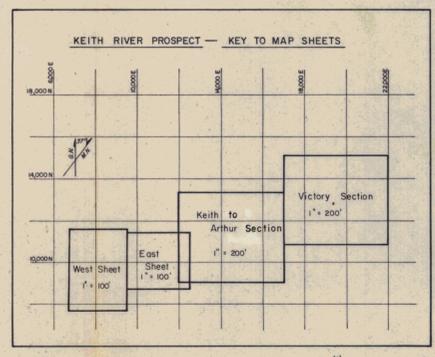
3002

Mapped by: T.M. PORTER	Date: APRIL 1971	Scale: 1" = 100'	Plan No. T 797
---------------------------	---------------------	---------------------	----------------



**LEGEND**

- TERTIARY  Basalt
- PERMIAN  Black to grey shales and greywacke
- PRECAMBRIAN  Interbedded quartzites, shales and calcstones
- Keith Beds  Grey-green micaceous shale
- Point outcrop and width
- Rock in roots of fallen tree
- Rock in bedrock soil sample
- Extended outcrop
- Scree
- Extended area of scree
- Line cut
- Limonite, haematite, magnetite
- Line number
- Track number
- Descriptive interval
- Survey station and number
- Geological boundary inferred.
- Fault
- Watercourse
- Topographic contour - 50' interval



790052

C. R. A. EXPLORATION PTY. LIMITED

Fig. 3

**KEITH RIVER PROSPECT**

TASMANIA

**GEOLOGICAL PLAN - EAST SHEET**

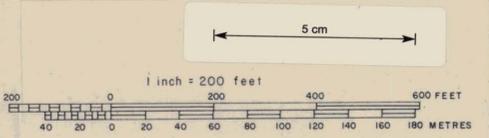
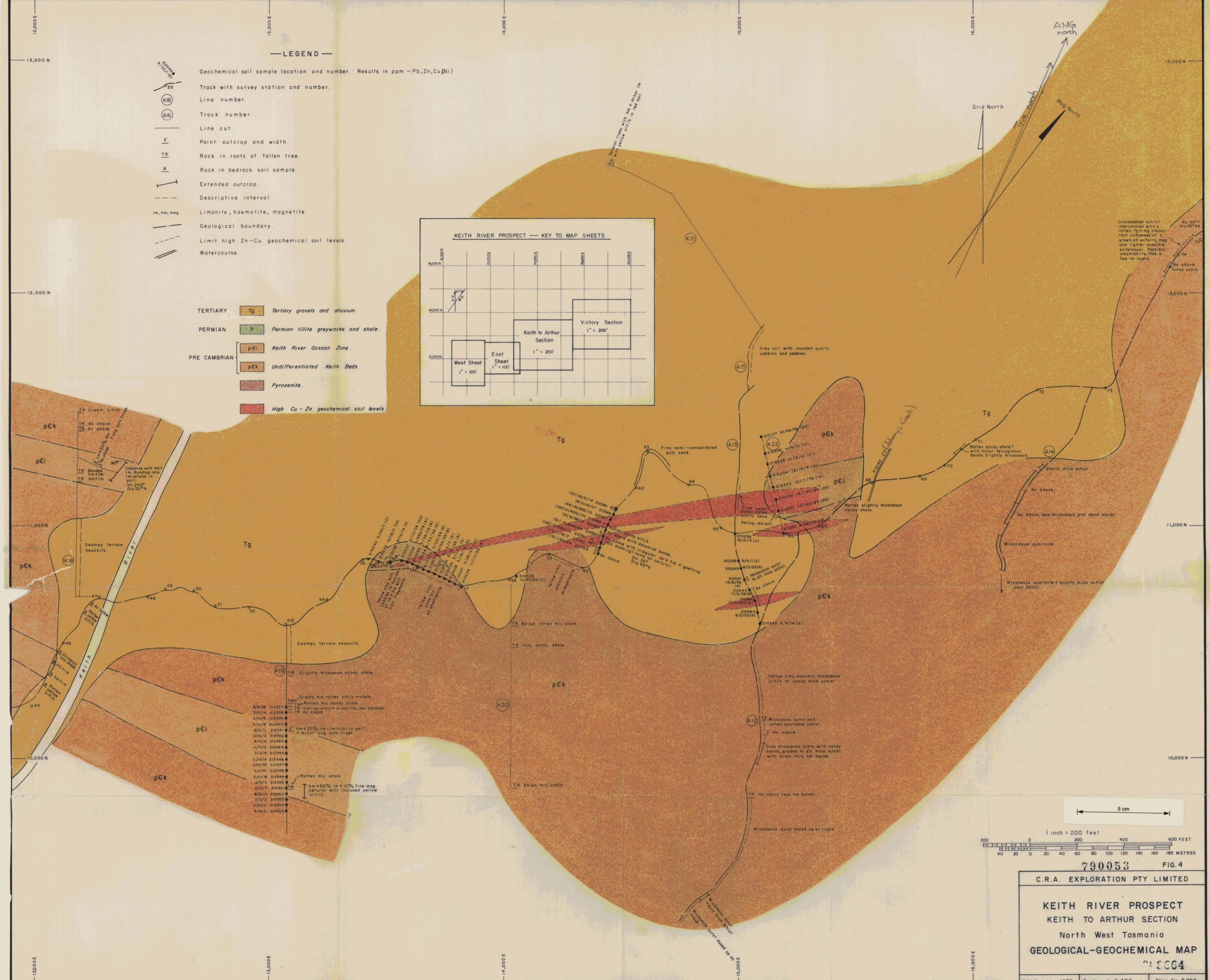
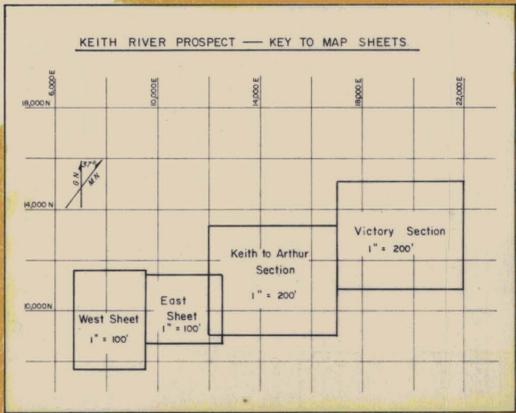
1:1200 3003

Mapped by: TM PORTER Date: APRIL 1971 Scale: 1" = 100' Plan No. T 798

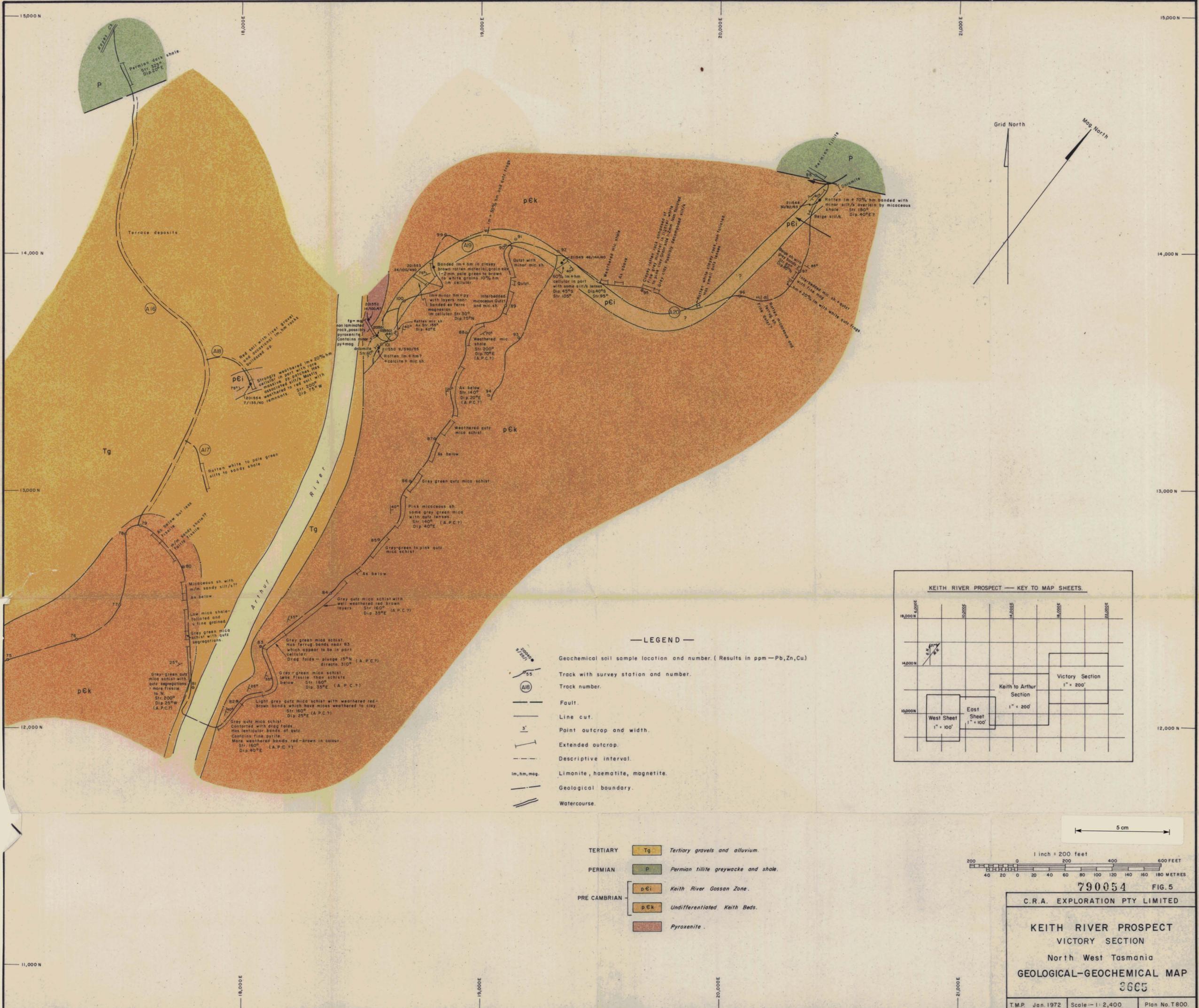
7/1-839

- LEGEND —**
- Geochemical soil sample location and number. Results in ppm - Pb, Zn, Cu (Ni)
  - Track with survey station and number.
  - Line number.
  - Track number.
  - Line cut.
  - Point outcrop and width.
  - TR Rock in roots of fallen tree.
  - B Rock in bedrock soil sample.
  - Extended outcrop.
  - Descriptive interval.
  - lm, hm, mag Limonite, haematite, magnetite.
  - Geological boundary.
  - Limit high Zn-Cu geochemical soil levels.
  - Watercourse.

- TERTIARY** Tg Tertiary gravels and alluvium.
- PERMIAN** P Permian tillite greywacke and shale.
- PRE CAMBRIAN**
- pCi Keith River Gossan Zone.
  - pEk Undifferentiated Keith Beds.
  - Pyroxenite.
  - High Cu - Zn geochemical soil levels

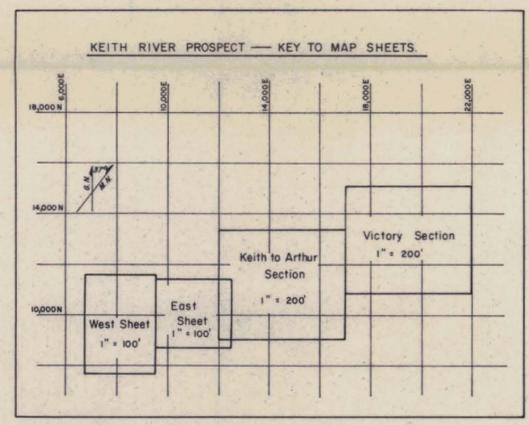


790053 FIG. 4  
 C.R.A. EXPLORATION PTY LIMITED  
 KEITH RIVER PROSPECT  
 KEITH TO ARTHUR SECTION  
 North West Tasmania  
 GEOLOGICAL-GEOCHEMICAL MAP  
 T.M.P. Jan. 1972 Scale - 1" = 2,400' Plan No. T.799

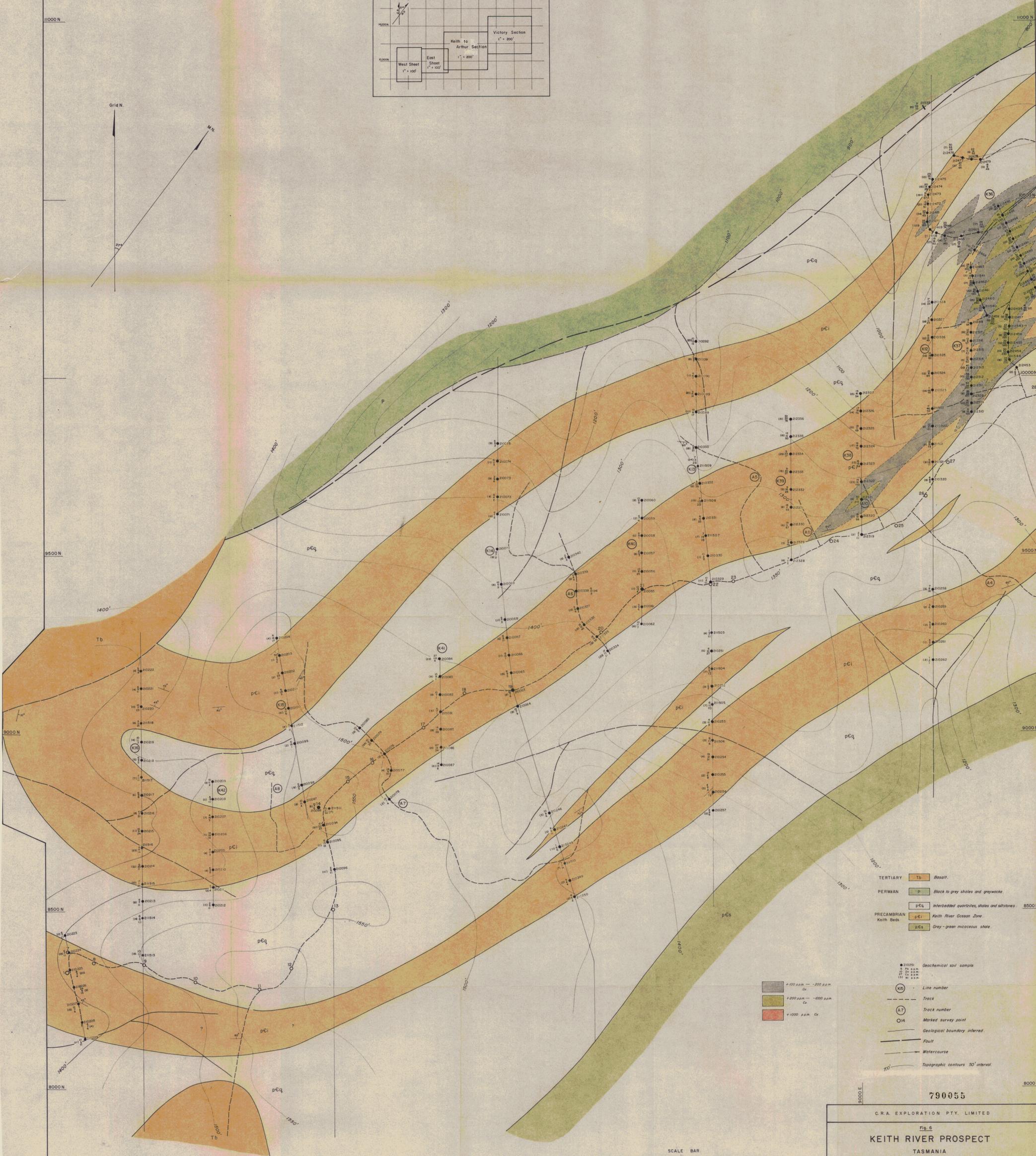
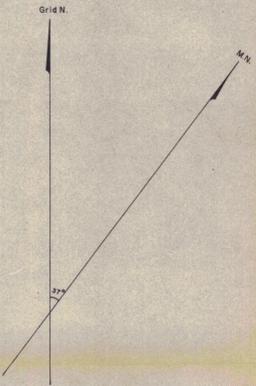
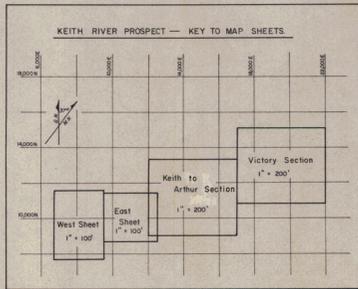


- LEGEND —
- Geochemical soil sample location and number. (Results in ppm—Pb,Zn,Cu)
  - Track with survey station and number.
  - Track number.
  - Fault.
  - Line cut.
  - Point outcrop and width.
  - Extended outcrop.
  - Descriptive interval.
  - Limonite, haematite, magnetite.
  - Geological boundary.
  - Watercourse.

- TERTIARY Tertiary gravels and alluvium.
- PERMIAN Permian tillite greywacke and shale.
- PRE CAMBRIAN Keith River Gossan Zone.
- Undifferentiated Keith Beds.
- Pyroxenite.



790054 FIG. 5  
 C.R.A. EXPLORATION PTY LIMITED  
 KEITH RIVER PROSPECT  
 VICTORY SECTION  
 North West Tasmania  
 GEOLOGICAL-GEOCHEMICAL MAP  
 3665  
 T.M.P. Jan. 1972 Scale: 1:2,400 Plan No. T.800.



TERTIARY  
Tb Basalt.

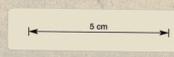
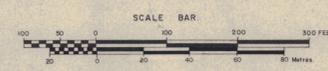
PERMIAN  
p Black to grey shales and graywacke.

PRECAMBRIAN  
pE Interbedded quartzites, shales and siltstones.  
pC1 Keith River Gosson Zone.  
pC2 Grey-green micaceous shale.

● Geochemical soil sample  
Pb p.p.m.  
Zn p.p.m.  
Cu p.p.m.  
Ni p.p.m.

■ +100 p.p.m. — 200 p.p.m. Cu  
■ +200 p.p.m. — 400 p.p.m. Cu  
■ +1000 p.p.m. Cu

○ K5 Line number  
— Track  
○ A7 Track number  
○ O14 Marked survey point  
— Geological boundary inferred  
— Fault  
— Watercourse  
— Topographic contours 50' interval



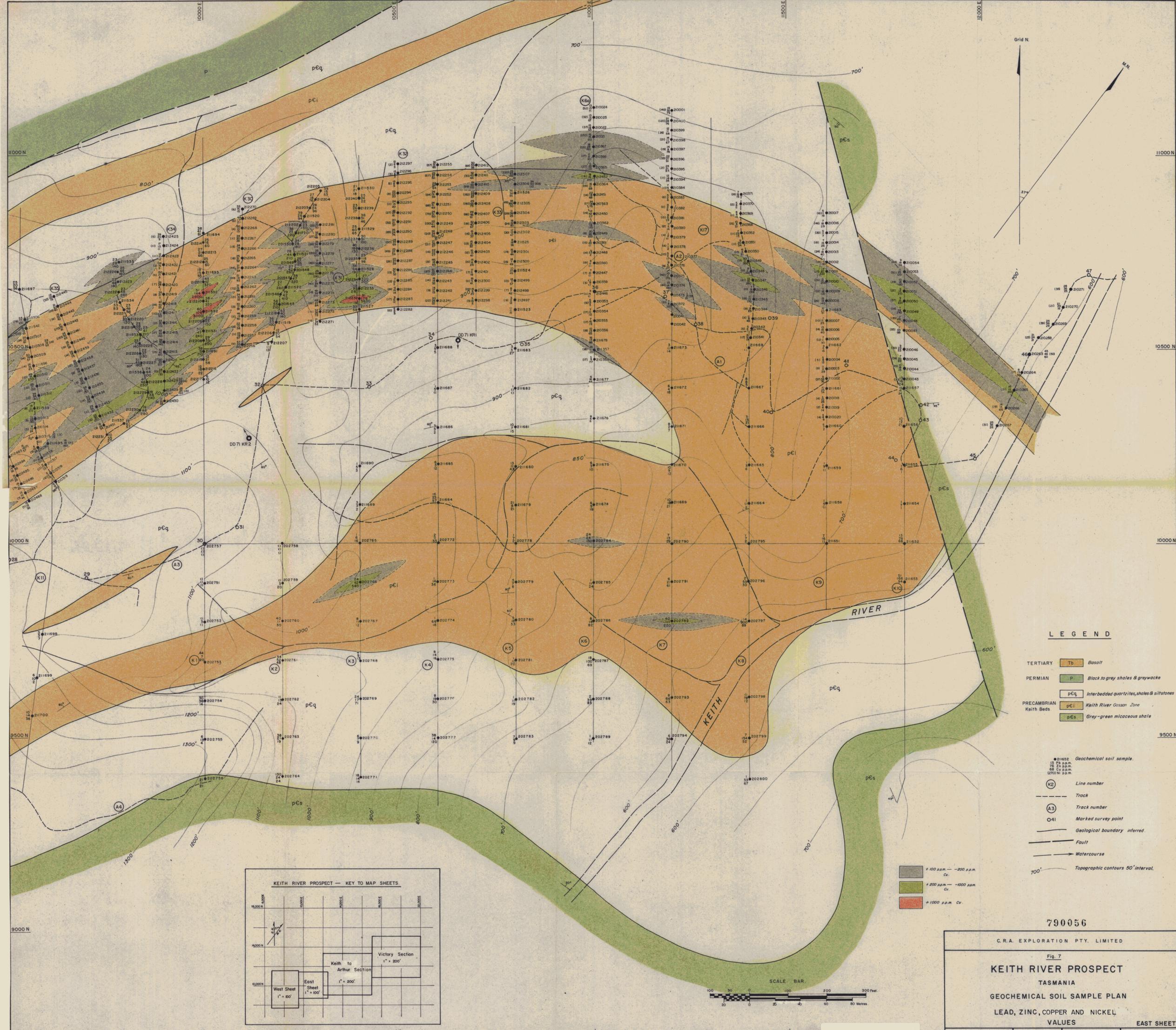
790055

C.R.A. EXPLORATION PTY. LIMITED

Fig. 6  
**KEITH RIVER PROSPECT**  
TASMANIA  
GEOCHEMICAL SOIL SAMPLE PLAN  
LEAD, ZINC, COPPER AND NICKEL  
VALUES

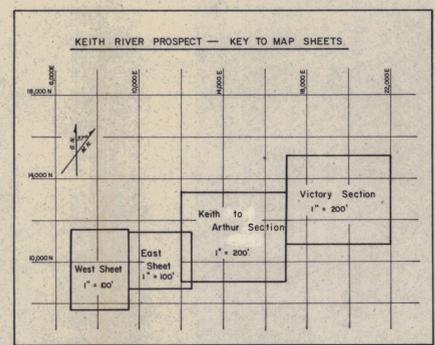
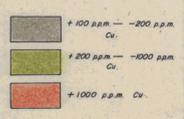
WEST SHEET

GEOLOGIST: T.M. PORTER    DATE: MAY, 1971    SCALE: 100 FT. TO 1 IN.    PLAN No T 801



**LEGEND**

- TERTIARY Tb Basalt
- PERMIAN P Black to grey shales & greywacke
- PRECAMBRIAN Keith Beds
  - pCq Interbedded quartzites, shales & siltstones
  - pCi Keith River Gossan Zone
  - pCs Grey-green micaceous shale
- 211552 Geochemical soil sample.
- 13 p.p.m. Cu
- 28 p.p.m. Cu
- 68 p.p.m. Cu
- 1070 p.p.m. Cu
- (K2) Line number
- Track
- (A3) Track number
- 41 Marked survey point
- Geological boundary inferred
- Fault
- Watercourse
- 700' Topographic contours 50' interval.



790056

C.R.A. EXPLORATION PTY. LIMITED

Fig. 7  
**KEITH RIVER PROSPECT**  
 TASMANIA  
 GEOCHEMICAL SOIL SAMPLE PLAN  
 LEAD, ZINC, COPPER AND NICKEL  
 VALUES

EAST SHEET

GEOLOGIST: T.M. PORTER    DATE: DEC, 1971    SCALE: 100 FT. TO 1 IN.    PLAN No T. 802

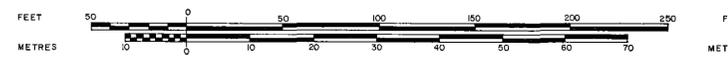
3667 71-939



Sample No.	Total Fe%	S%	Pb(ppm)	Zn(ppm)	Al(ppm)	Ca(ppm)	Mg(ppm)	As(ppm)	Other
207501	20.2%	5.39%	80	151	180	57	35	<1	
207502	4.7%	1.49%	35	64	110	34	24	<1	
207503	5.5%	1.04%	30	100	82	34	23	<1	
207504	4.3%	1.66%	30	103	480	39	58	1	
207505	4.9%	8.56%	32	150	192	75	140	2	
207506	15.3%	12.06%	65	150	157	125	40	2.5	
207507	21.2%	19.75%	65	100	440	125	40	0.5	
207508	24.0%	19.75%	65	100	232	125	30	1.0	
207509	20.7%	10.55%	35	180	890	157	185	2.0	
207510	9.9%	15.88%	65	100	288	125	30	1.0	
207511	14.07%	8.31%	65	200	148	65	50	2.5	
207512	9.9%	1.30%	20	115	167	30	75	1.0	
207513	4.41%	1.30%	20	115	167	30	75	1.0	
207514	5.71%	8.18%	65	110	280	440	30	1.0	
207516	12.0%	11.04%	65	110	280	273	27	0.8	
207517	18.82%	28.17%	65	110	280	273	27	0.8	
207518	15.82%	11.44%	65	110	280	273	27	0.8	
207519	4.52%	2.45%	37	68	25	68	35	1.5	
207520									

**SURFACE FERRUGINOUS ZONES AS MAPPED.**

AZIMUTH 143°, DIP 60°



SCALE 1" = 600  
1" to 50 ft.



- Interpreted boundary of Gossan Zone
- Diamond Drill Hole
- Inferred dip from bedding angle to L.C.A.

790057 Fig 8  
 CRA EXPLORATION PTY LIMITED  
**D.D.71 KRI-10680 E**  
**KEITH RIV. PROSPECT**  
**N-W TASMANIA**  
 T.M.P., NOV 1971 SCALE 1" to 50ft PLAN NO T 784

