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Progress Report

on the

MACKINTOSH AREA, EL 2/70, Tasmania

1971/72

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July 20, 1972.**

INDEX

SUMMARY

1. INTRODUCTION

- 1.1 General
- 1.2 Statistical
- 1.3 Access and Topography

2. REGIONAL GEOLOGY

3. GEOLOGY OF THE BACK PEAK-MT. REMUS SUBAREA

- 3.1 Pre-Cambrian
- 3.2 Cambrian
- 3.3 Mineralisation
- 3.4 Structure

4. GEOCHEMISTRY

- 4.1 Method
- 4.2 Regional Stream Sediment Reconnaissance
- 4.3 Soil Sampling
- 4.4 Trench Sampling - Kimber Area

5. GEOPHYSICAL

- 5.1 General
- 5.2 Results
- 5.3 Follow-up Exploration

6. CONCLUSIONS

7. RECOMMENDATIONS

REFERENCES

APPENDIX I

002

ILLUSTRATIONS

- Fig. 1 **Locality map.**
- Fig. 2 **Geological Interpretation**
- Fig. 3 **Soil Geochemistry - Copper**
- Fig. 4 **Soil Geochemistry - Lead**
- Fig. 5 **Soil Geochemistry - Zinc**
- Fig. 6 **Soil Geochemistry - Silver**
- Fig. 7 **Stream Sediment Geochemistry
Copper, Lead, Zinc, with Regional
Geology.**
- Fig. 8 **Trench Profile - Kimber Area**

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SUMMARY

A seasonal programme of integrated regional geochemical and geophysical evaluation was resumed in Exploration Licence Area 2/70 early in the summer of 1971/72.

Concurrent semi-detailed geochemical and geological evaluation was extended into the Back Peak-Mt. Remus subareas.

Both phases of exploration resulted in the delineation of targets of further geochemical and geological interest. A geochemically anomalous subarea was located to the south east of the headwaters of the Que River in the west of the E.L. area. Several zones of anomalous lead-zinc, copper and silver concentrations were located in the Back Peak area in the east of the EL area. In addition, geophysical targets comprising mainly anomalous conductivity zones exist over widely scattered areas.

The Ordovician and Silurian sediments in the centre of the EL area proved unresponsive to stream sediment geochemistry and airborne geophysical scans. These rocks are considered to have a low potential for large tonnage economic Cu-Pb-Zn mineralisation.

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1. INTRODUCTION

1.1 General

The summer programme of 1971/72 in EL area 2/70 followed on from the previous season's regional and semi-detailed investigations conducted by Paringa Mining and Exploration Co. Ltd. It comprised the following concurrent activities undertaken between October 1971 and May 1972:

- 1) Continuation of reconnaissance stream sediment sampling to cover the western, south-western and east-central areas of EL 2/70.
- 2) Gridding and line cutting with semi-detailed soil sampling and geological mapping in the Back Peak-Mt. Remus area (in former SPL 54) south west of grid line 21 S.
- 3) Fill-in soil sampling over a limited area between lines 1N and 37N on the southern grid south of the Fleece River.
- 4) Geological examination and sampling of some old trenches in the Kimber Area south east of the head-waters of the Que River.
- 5) Airborne geophysical: A combined helicopter magnetic and electromagnetic survey mainly over Cambrian, Ordovician and Silurian rocks in the north, west and south west of the EL area.
- 6) Geochemical and geological follow up work over the northern half of E.M. conductivity zone 11 in the Fury Plains area.

1.2 Statistical

Geochemical:

<u>type of sample</u>	<u>no. of samples</u>	<u>no. of analysis</u>	<u>Elements</u>
stream sed.	106	318	Cu, Pb, Zn.
fill-in soil	135	440	Cu, Pb, Zn, Ag.
recce soil	717	2,806	Cu, Pb, Zn, Ag.
trench	29	116	Cu, Pb, Zn, Ag.
rock	7	14	Cu, Pb, Zn, Ag.
EM follow up	264	1,056	Cu, Pb, Zn, Ag.
Check analyses	122	423	Cu, Pb, Zn, Ag.
Totals	1,380	5,173	

Geological:

Fill-in gridding	9,600 ft.
recce. gridding	88,000 ft.
E.M. follow up gridding	28,800 ft.
Total	126,400 ft.

Geological mapping	116,800 ft.
Petrological Descriptions	20 samples

Geophysical:

Airborne E.M. - magnetic survey: 600 line miles approx.

1.3 Topography and Access

With the exception of follow up work on the Fury Plains in the north east most exploration activities were conducted in heavily timbered, rugged, mountainous terrain up to altitudes of 3500 feet.

Swampy button grass plains and dense vegetation made access to most areas of operations difficult. The Back Peak-Mt. Remus subarea can be reached across the Fury button-grass plains by specialised vehicles. The area around and to the west of Mt. Remus is only accessible on foot at the present time.

Several logging tracks and H.E.C. gravel tracks penetrate eastwards off the Murchison Highway to the western boundary of the E.L. area. From there access to all areas of interest is on foot.

2. REGIONAL GEOLOGY

The regional geology and structure of most of the area has been described by Campana et al (1958), Banks (1962) and Solomon (1965). Most of the area was mapped by the Tas. Dept. of Mines on a scale of 1" to 1 mile.

Briefly, folded metamorphosed and foliated quartzites of the Tyennan massif occupy most of the eastern margin of the Exploration Licence area. Lenses of unfaulked sandstones of the unmetamorphosed pre-Cambrian Mt. Sumer Group (Burns 1963) occur near the contact with the overlying Cambrian rocks.

A sequence of Cambrian rocks of volcanic origin which include porphyries, acid to intermediate lavas, tuffs and agglomerates as well as shales and sandstones lie along the western flanks of the Tyennan massif in two NE trending belts which converge to the south. This sequence was deformed by gentle folding during the Upper Cambrian Jukesian Orogeny along north-north east trending axes.

Conglomerates, sandstones and limestones of Ordovician age unconformably overlie the suite of Cambrian rocks along a north east trending belt in the central and western sector of the EL area. These sediments are locally covered by quartzites and shales of Silurian age. Strong deformation of this volcanic/sedimentary pile occurred during the mid-Devonian Taberabberan Orogeny.

Areas of Tertiary basalt forming part of the southern fringe of the Waratah basalt plateau obscure the lower Palaeozoic geology in parts of the EL area in the north. A further remnant of basalt occurs approximately 1 mile west of Mt. Nomulus.

Quaternary gravels are common in the flatter valleys and flood plains of the major rivers in the area.

Widespread deposits of Quaternary glacial material were mapped by the Tas. Geol. Survey throughout the region.

A large granitic mass of Devonian age intrudes the pre-Cambrian sediments in the south.

Late tectonic movements resulted in the development of north east trending faults throughout the area with various displacement along them.

A number of small, uneconomic mineral occurrences are scattered throughout the Exploration Licence area. These comprise pyrite, haematite, galena/sphalerite, chalcopyrite and cassiterite mineralisation.

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3. GEOLOGY OF THE BACK PEAK-MT. REMUS SUBAREA

The major rock units and geological succession of the area mapped to the south west of grid line 21S is as follows:

- Quarternary : Glacial cover
- Cambrian volcanic sequence } Coarse grained Bond Range Porphyries. Greenish, foliated, indurated sandstone. mainly acid volcanics with tuffs, cherty tuffs, agglomerates, with minor sandstones. Interbedded thin dark shales, tuffs and cherty tuffs.

unconformity

Pre-Cambrian : unmetamorphosed; sandstone of the Mt. Sumer Group.

? Fault

Pre-Cambrian : metamorphosed; quartzites, quartz-chlorite schists, quartz-muscovite-schists; graphite schists; dark shales.

Dré Pre-Cambrian

Metamorphosed folded white and pinkish quartzites, darker quartz-muscovite schists occasionally with chlorite and carbonaceous schists along the north eastern fringe of the Tyennan Massif are the oldest rocks in the area. The strike of the foliation, schistosity and rare bedding is generally north easterly with dips ranging from 25° to 70° to the north west. At least two sets of crenulations and lineations were identified in the schists. These suggest at least two phases of deformation, but the tectonic history of these rocks was not pursued on account of their apparent low economic potential.

A distinctive group of white to buff, generally massive medium to fine grained, granular quartzites and sandstones were located to the south of the head waters of Devil's Ravine. These are thought to belong to the unmetamorphosed, pre-Cambrian Mt. Sumer formation of Burns (1963). The latter states that members of this group occur as unfaulted blocks in the older metamorphosed pre-Cambrian rocks. The problematical lenses of occasionally pyritic sandstone and quartzite at the Cambrian-pre-Cambrian contact encountered by Varley and Ross (1971) west and north of the Fury Plains may also belong to this group.

3.2 Cambrian

The oldest Cambrian rocks in the area mapped are a sequence of finely interbedded tuffs, silicified tuffs and black shales which unconformably overlie the pre-Cambrian schists. This sequence strikes east to north east and dips steeply to the north. Graded bedding in a few of the tuff bands south of Back Peak indicated that the sequence is facing up. Limonite was noted in minor small cavities in the black shales. The mineral also occurs in some small fissures and

fractures in the black shale in association with micro-faults.

Good exposures of this sequence can be found in the creek bed near the head waters of Devil's Ravine where they may have been preserved in a structural embayment in the Tyennan Massif. An exposure of chloritic schist at the south east extremity of line 47S resembles the units immediately to the north and south of the "Fury Mine" on the Fleece River adjoining the pre-Cambrian massif (Krummel 1970). These rocks could be older than the banded shales and tuffs. They could however, be considered to be dynamically metamorphosed members of the banded tuffs and shales as a result of their being overthrust or faulted against the Tyennan massif.

These units are overlain by a complex series of north dipping pyroclastics and mainly acid lavas which include porphyritic rhyolites.

Individual horizons are not distinctive and cannot be followed along strike for any great distances due to glacial cover and scree.

A ?discontinuous bed of greenish medium to fine grained indurated coarsely bedded sandstone lies on top of the sequence of acid lavas. The dip of this sandstone horizon is moderate, northwesterly.

The youngest and western-most sequence of Cambrian rocks in this subarea are distinctive, massive, pink, pale green or yellowish, structureless, coarse grained porphyries, porphyritic rhyodacites, and toscanites. These are correlated with the Bond Range porphyries of Burns (1963).

In the vicinity of Mt. Remus these porphyries unconformably overlie pre-Cambrian schists and quartzites.

Small areas of Quaternary glacial material can be identified on some of the flatter parts of the ridges in the area.

3.3 Mineralisation

No sulphide mineralisation of possible economic import was noted in the area. However, limonite staining was observed in association with faulting in the area. Limonite filled cavities and fissures, possibly after sulphide, occur sporadically in the black shales of the interbanded shale/tuff unit. Small, leached rectangular cavities, possibly after pyrite were also noted in several samples of sandstone of the Mt. Sumer Group.

3.4 Structure

The gradual decrease in the dips of the Cambrian sequence to the north west suggests that the rocks in the area mapped lie on the eastern limb of a major syncline. This is further supported by a limited number of observations of facing data.

Two northwest trending faults are proposed for the area on the basis of field evidence and photogeological indications. In both cases only limited displacement appears to have occurred along the structures.

4. GEOCHEMISTRY

4.1 Methods

Soil samples were collected by hand auger from the B or C horizon, below the humic layer. In areas of transported material samples were taken from as great a depth as possible below the humic layers. Along bare ridges, spurs and cliffs rock samples were collected.

The minus 80 mesh fraction of the soil samples and the pulverised rock samples were analysed for Cu, Pb, Zn and Ag by atomic absorption spectroscopy using Cominco's laboratory facilities in Adelaide. The minus 80 mesh fraction of the dried stream sediment sample was analysed for Cu, Pb and Zn.

Check analyses on samples tested during previous seasons by Geomin were undertaken. Acceptable agreement was found to exist for Pb, Zn and Cu values. The contouring of silver results posed a problem on account of the greater analytical resolution for the element offered by Geomin. Differences in extraction techniques could also account for the relatively higher mean value for silver obtained from the current series of analyses.

4.2 Stream Sediment Geochemistry

A composite plot of the analyses for each sample location is shown on a regional geological map (Fig. 7.).

Anomalous Pb-Zn trails were found to emanate from an area of Cambrian volcanics and sediments in the Kimber area east and south-east of the head waters of the Que River. Values reached maxima of 300 ppm lead and 360 ppm zinc. Copper values are low, ranging up to 55 ppm.

In the east central area anomalous values up to 250 ppm lead and 360 ppm zinc were encountered in several short, steep east flowing creeks near their confluence with the Fury River. These creeks drain Cambrian porphyries approximately 1 mile south west of former S.P.L. 54.

Two additional samples in this general area, numbers 1020 and 1021, revealed 220 ppm and 100 ppm lead respectively with attendant higher concentrations of zinc possibly emanating from an area covered by floaters of Cambrian porphyry.

Results over Ordovician and Silurian sediments as well as Tertiary basalts in the region are generally low and do not attract as targets for further follow up work.

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4.3 Soil Sampling

4.3.1 Back Peak-Mt. Remus subarea

The values for copper, lead, zinc and silver were contoured. The patterns obtained for each element was compared with those of the other elements and with available bedrock geology.

Copper

Patchy low values up to 79 ppm Cu occur in the Back Peak area over Cambrian sediments and volcanics. A high of 100 ppm Cu was recorded in a sample on the slopes of Mt. Remus near the contact of pre-Cambrian schists and Cambrian porphyries (Fig. 3).

Two areas are of some interest. These are situated near the north western extremities of lines 31S (max 79 ppm) and 127S which coincide with anomalous areas of lead, zinc and silver. These areas are situated at or near the contact between Cambrian porphyries with a sequence of pyroclastics and volcanics of the same age.

Lead

Visual examination of the broad dispersion patterns of the element and comparisons with bedrock geology suggest a stratigraphic control on the source of the element. Values over pre-Cambrian sediments and Cambrian porphyries are generally low. These rise to a somewhat higher background over the Cambrian pyroclastics and associated acid volcanics.

A number of zones showing in excess of 300 ppm Pb were delineated throughout the area. (Fig.4). A maximum of 1775 ppm Pb lies at the centre of one of two adjacent, en echelon dispersion haloes in a zone near the north western extremity of line 127N at or near the contact between porphyries and acid volcanics with pyroclastics, all of Cambrian age.

A spot high of 6875 ppm Pb occurs at the south west end of a narrow, anomalous zone 900 feet long on line 111S/8900E which overlies a sequence of interbanded black shales, tuffs and cherts.

Zinc

Several elongate anomalous areas with concentrations of zinc in excess of 100 ppm were located. (Fig. 5).

One extension low anomalous area with a strike length of about 2600 feet lies across the north western extremities of lines 23S - 47S.

A second major anomalous zone is situated near the ends of line 103S - 127S in the geological setting outlined above. This anomaly appears to pinch out just to the south west of line 135S. The strike length of the axis of this anomaly approximates 3400 feet along which pockets of higher values occur. In this area a spot high of 8000 ppm Zn apparently overlies Cambrian porphyries.

Silver

The change of analyst and adoption of some-what different extraction methods led to some analytical divergencies, raised background values, decreased detection sensitivities for silver concentrations below 2 ppm and introduced problems in the use of the data for comparative purposes. However, values for the element still remain low.

A high of 26 ppm Ag was detected on line 63S/9700E over cherty tuffs and cherty volcanics. This value is not reflected by a corresponding rise in the concentrations of copper, lead and zinc.

Another high of 55 ppm Ag lies on line 71S 87E over acid volcanics. An off set zinc (270 ppm) and lead (400 ppm) high occur in this area.

The dispersion patterns of silver in this area resemble those of lead in that they appear to follow the trends of the underlying bedrock.

4.4 Trench sampling - Kimber Area

Five old trenches were located in the Kimber area SE of the headwaters of the Que River. The south wall of the most recent trench was channel sampled at regular intervals. The samples were analysed geochemically for Cu, Pb, Zn, Ag.

Silver, though generally present in concentrations of 2-3 ppm or less, showed a marked increase of up to 12 ppm in mottled clays at the north western end of the trench. Lead values in excess of 2000 ppm are frequent in clays towards the north western end of the trench. No marked concentrations in the tuff and agglomerate were exposed. (Fig. 8)

The distribution of zinc shows an almost antipathetic relationship to lead in that up to 2900 ppm Zn were recorded in the weathered tuff exposed in the trench. Only low values occur in the NW of the diggings.

Copper values are generally low, they show a dispersion pattern and concentration characteristics similar to those of zinc as values generally increase towards bedrock up to a maximum of 310 ppm. The metal is not concentrated to any marked degree in the clays in the north west of the trench.

5. GEOPHYSICAL

5.1 General

A combined airborne electromagnetic-magnetic reconnaissance survey was implemented over an area outlined in Fig. 7. Traverses were flown at average altitudes of 450 feet above the surface along north westerly lines approximately 1000 feet apart.

The McPhar H-400 electromagnetic system operating on sequential frequencies of 340 Hz and 1070 Hz was used on a time sharing basis in conjunction with an airborne Barringer proton free precession magnetometer. The E.M. unit measured the quadrature response of a conductor while the proton magnetometer recorded variations in the absolute values of the Earth's magnetic field along the flight lines.

Three important parameters are used in the interpretation of the EM results. These are

- i) the shape of the anomaly
- ii) the amplitude of the peak response at the lower frequency
- iii) the apparent conductivity ratio.

The latter is the ratio of the response at 340 Hz compared to the response at 1070 Hz. Generally ratios of less than 0.7 indicate poor conductivity while those greater than 1.0 indicate good to excellent conductivity.

Variables which can affect the response at any given point include the ground conductivity; permeability; size, depth and attitude of the conductive body; the frequencies used; the geometry and angle of flight intersection; flying height, and changes in transmitter-receiver configurations which in turn depend on the aircraft's speed, attitude and flight path.

5.2 Results

At least 17 anomalous conductivity zones were located throughout the area and these were selected for comment by the contractor. A summary of these anomalies is given in Appendix I. Their approximate location is shown on Fig. 7. For an accurate place fix for these anomalies, detailed technical data and general interpretive comment the reader is referred to McPhar's (1972) report on the survey.

In addition to the areas indicated above a number of isolated, weaker responses were located. The latter's significance can only be assessed on the basis of results obtained from follow up work on some of the major conductivity zones.

The most significant response in the area was obtained over zone 11 over the Fury Plains.

Zone 8 is of interest on account of its location in a geologically favourable area which also shows a positive geochemical response.

Zones 3 and 6 appear to lie just outside EL 2/70 in the north west. Zones 13 and 14 appear to lie in the Cradle Mountain National Park, and are therefore inaccessible for follow up work.

5.3 Follow up Exploration

Conductivity zone 11 lies in Pre-Cambrian schists and shales on the Fury Plains to the east of the northern grid established during 1970/71. The position of this zone on the ground was located from air photo mosaics. Gridding, geological mapping and soil sampling was undertaken over the northern half of this zone. (viz Fig. 2-6 incl.)

Two reconnaissance lines were laid out over the central and southern extensions of this trend.

Soil sampling located a small, low order copper-lead-zinc anomaly at the northern extremity of this conductivity zone in association with floaters of fractured black shale and a sub-outcrop of schist breccia. A limonite stained sample of the latter rock contained 110 ppm Cu, 90-110 ppm Zn, 150 ppm Pb and 7 ppm Ag.

Mapping over the anomalous zone revealed the presence of quartz-muscovite-schist, graphitic schists and carbonaceous shales.

From this reconnaissance check-out it would appear that the conductivities in the northern half of zone 11 could be due to graphitic and black shale horizons.

6. CONCLUSIONS

- 1) Regional stream sediment sampling outlined a geochemically anomalous area over Cambrian rocks to the east and south east of the head waters of the Que River (Kimber area). The potential of this area is reinforced by the presence of an area of anomalous conductivity.
- 2) A second anomalous area is indicated by stream sediment sampling approx. 2 miles north of Mt. Romulus. The rocks associated with this anomaly are thought to be Cambrian porphyries but this relationship requires confirmation.
- 3) Semi-detailed geochemical and geological work in the Back Peak-Mt. Remus subarea indicated at least two copper-lead-zinc-silver anomalies worthy of further investigation.
- 4) Work in the Mackintosh area over the last two seasons indicates that geochemistry could be employed as a crude mapping tool in areas of poor outcrop.
- 5) The combined helicopter electromagnetic-magnetic survey outlined a number of conductive zones throughout the exploration licence area. Some of these anomalies show direct or flank correlations with generally weak magnetic responses.
- 6) Only a few of the EM-mag anomalies are located in areas of positive geochemical response.
- 7) The lack of significant geochemical and geophysical response of the Ordovician and Silurian sediments situated in a north east trending belt in centre of the exploration licence area greatly reduces their potential as hosts for economic base metal mineralisation.

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7. RECOMMENDATIONS

1) Relinquish the area contained by the lines joining the following points on the state grid co-ordinate system on the grounds of unfavourable geology and a relative lack of geochemical and geophysical response:

380,000yE	884,000yN
377,000yE	878,000yN
373,000yE	873,000yN
371,000yE	868,000yN
374,000yE	868,000yN
376,000yE	872,000yN
390,000yE	884,000yN

2) Self potential surveys should be undertaken over the major geochemical anomalies in the Fury Plains-Back Peak-Mt. Remus subareas, supported by more detailed investigations where warranted. This would test cheaply and rapidly the significance of these anomalies as indicators of sulphide mineralisation in the underlying bedrock.

3) More detailed integrated investigations should be initiated to locate the source of the anomalous concentrations of lead and zinc found in the streams in the Kimber Area.

4) Attempts should be made to locate on the ground by geophysical means some of the more prominent airborne EM-magnetic anomalies. The VHEM or Crone method may be suitable for this purpose. In order of priority, the zones of interest are zone 11, zone 8, zones 9 and 12, and zones 4, 2 and 1.

A check on the geology and sources of zones 15 and 16 would also be warranted.

The usual logical methods of geochemical and geological follow up should be implemented if a positive ground EM response is obtained at any one of the above locations.

5) A reconnaissance evaluation should now be undertaken of the potential of the High Tor Granite as host to disseminated, economic cassiterite mineralisation. The granite area, which contains two known occurrences of tin mineralisation does not appear to have been investigated to any great detail in the past.

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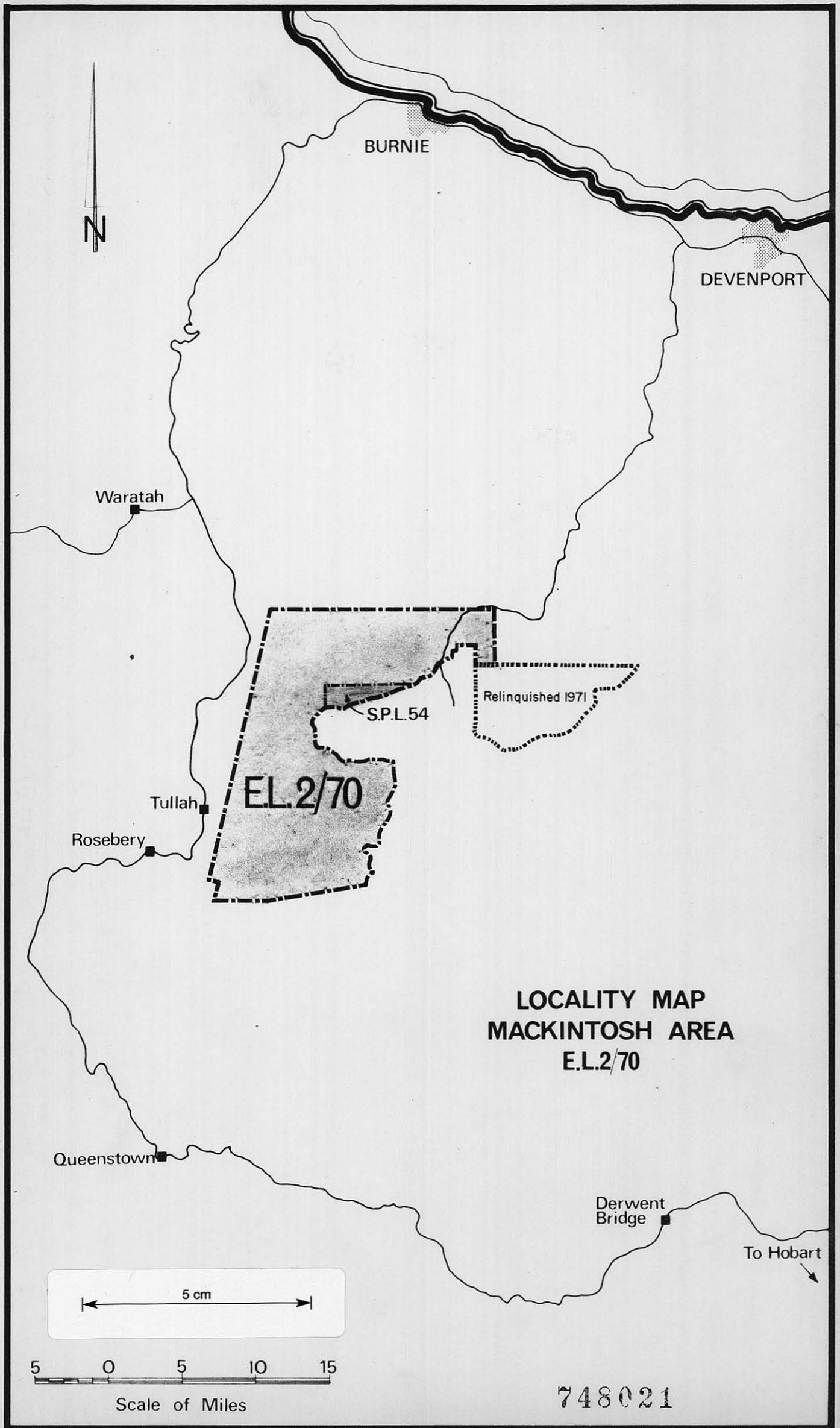
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COMBINED MAGNETIC - E.M. SURVEYAnomalous Areas

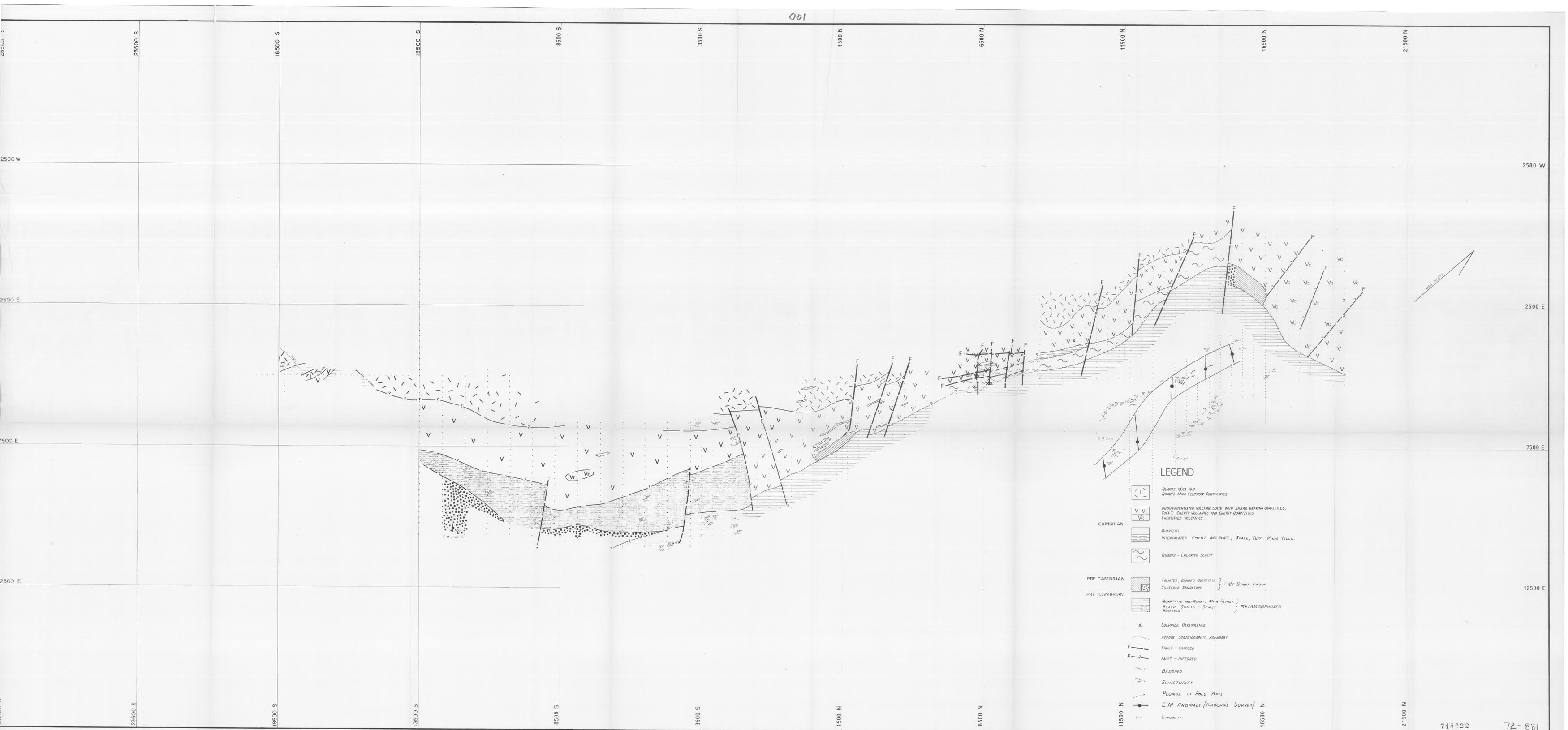
ANOMALOUS		E.M. RESPONSE		MAGNETIC	GEOLOGICAL	COMMENT
ZONES	Shape	Amplitude (ppt)	Conductivity ratio	RESPONSE %	CORRELATION	(by Contractor)
1	A and D	3 & 2 resp	1.0 & 0.4 resp.	90 & 50 % resp.	Cambrian acid volcanics	Ground follow up recommended.
2	B,C,C,D. resp	5,5,6,7.	0.6,0.6,0.7, 0.6	90,--,--,--	Tertiary basalt	Zone may be surface conductor. Low priority follow up.
3	D,D.	2,2.	0.3, 0.4	Low	Cambrian sediments	Source could be surface conduct@
4	B,D,D.	3,3,3.	0.7,0.6,0.7	Low	Cambrian "porphyries"	Follow up B category anomaly
5	A	2	1.0	30 %	Tertiary basalts	Warrants follow up
6	B	A	2.0	20 %	Tertiary basalts	Warrants follow up
7	B	2	1.0	30 %	Tertiary basalts	Low priority follow up
8	A	5	0.5	Low	Cambrian and volcanics	Follow up recommended.
9	B,B.	4,2.	0.5, 0.4	none	Cambrian volcanics	Low priority follow up
10	B,D,B.	2,2,3.	0.5,0.5,0.4	none	Pre-Cambrian sediments and Cambrian volcanics	Low priority follow up
11	A,A,B,A,B.	5,8,5,8,3.	0.8,0.5,0.6,0.8, 0.5	none	Pre-Cambrian pelites and quartzites	Limited geological geochemical follow up undertaken revealed mainly black shale.
12	D,D.	6,3.	0.3,0.6	none	Alluvial cover over ?Cambrian volcanics	
13	B	2	0.5	100	Near volc/sed. C/PE Contact	In National Park
14	A	9	0.9	15	?Pre-Cambrian pelites	In National Park Follow up recommended
15	D,D.	3,3.	0.6, 0.5	-	?Gordon limestone	Follow up not recommended
16	B,B.	3,3.	1.0, 0.8	-	?Gordon limestone	V. low priority follow up
17	D,D,C.	3,3,3.	0.4, 0.6,0.7	-	Swamp over Pre-Cambrian volcanics	Could be due to surface conductivity. Low priority follow up.



**LOCALITY MAP
MACKINTOSH AREA
E.L.2/70**

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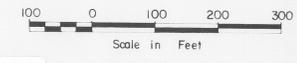
FIG 1



P.M.E.C.L.
MACKINTOSH AREA-E.L. 2/70
 GEOLOGY-INTERPRETATION

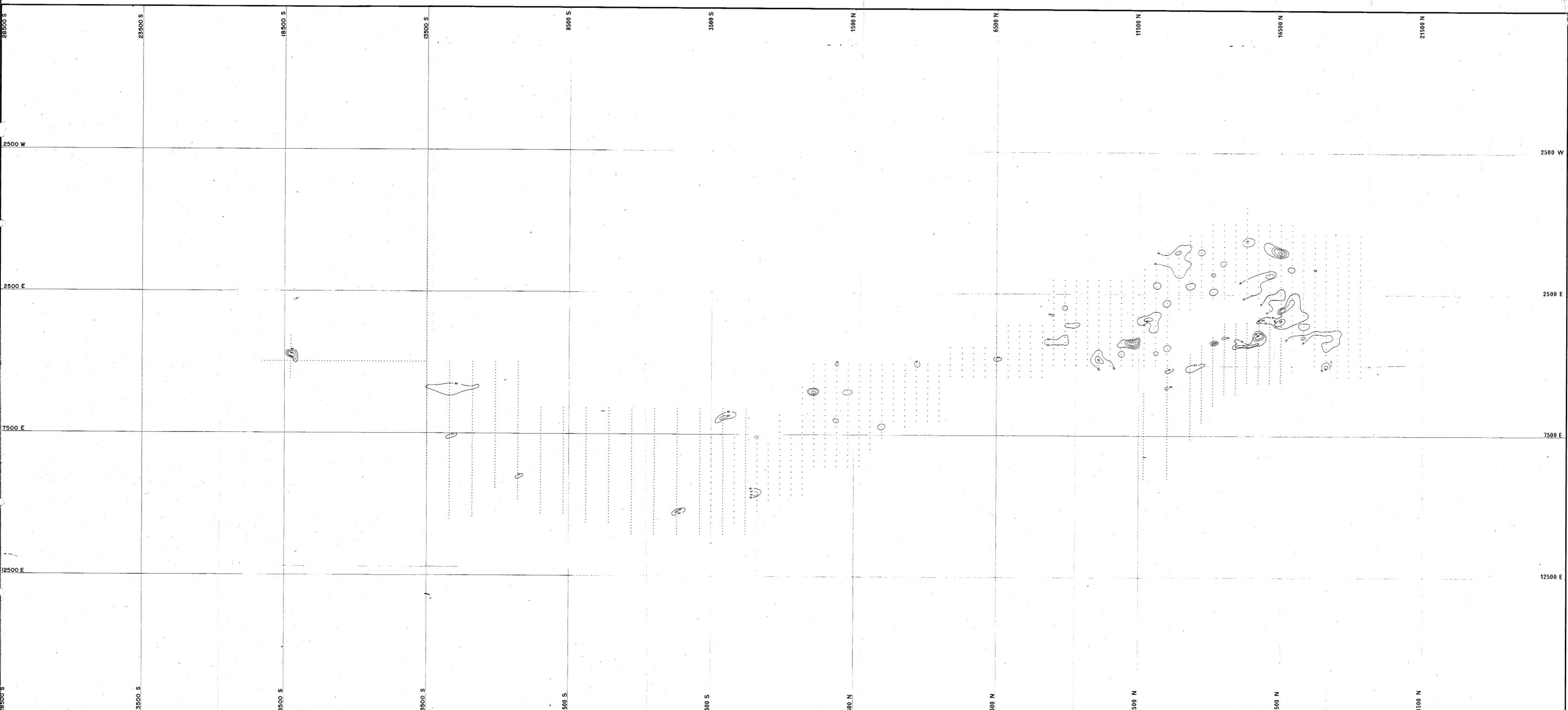
FURY PLAINS - BACK PEAK
 MT. REMUS SUB-AREAS

- LEGEND**
- QUARTZ MICA AND QUARTZ MICA FELDSPAR PORPHYRIES
 - UNDIFFERENTIATED VOLCANIC SUITE WITH SHARD BEARING QUARTZITES, TUFF, CHERTY VOLCANICS AND CHERTY QUARTZITES, CHERTIFIED VOLCANICS.
 - CAMBRIAN**
 - QUARTZITE
 - INTERCALATED CHERT AND SLATE, SHALE, TUFF, MINOR VOLC.
 - QUARTZ-CHLORITE SCHIST
 - PRE CAMBRIAN**
 - FOLIATED, BANDED QUARTZITE, SILICEOUS SANDSTONE } ? MT. SUMNER GROUP
 - QUARTZITE AND QUARTZ MICA SCHIST, BLACK SHALES - SCHIST, BRECCIA } METAMORPHOSED
 - x SULPHIDE OCCURRENCE
 - APPROX STRATIGRAPHIC BOUNDARY
 - FAULT - EXPOSED
 - FAULT - INFERRRED
 - BEDDING
 - SCHISTOSITY
 - PLUNGE OF FOLD AXIS
 - E.M. ANOMALY (AIRBORNE SURVEY)
 - LIMONITE



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SURVEY 001
 GEOLOGY
 DRAWN
 TRACED
 DRAWING No - FIG 2



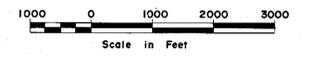
P.M.E.C.L.
 MACKINTOSH AREA - EL2/70
 SOIL GEOCHEMISTRY
 p.p.m. COPPER

FURY PLAINS BACK PEAK
 MT REMUS SUB-AREAS

CONTOUR INTERVAL

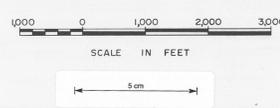
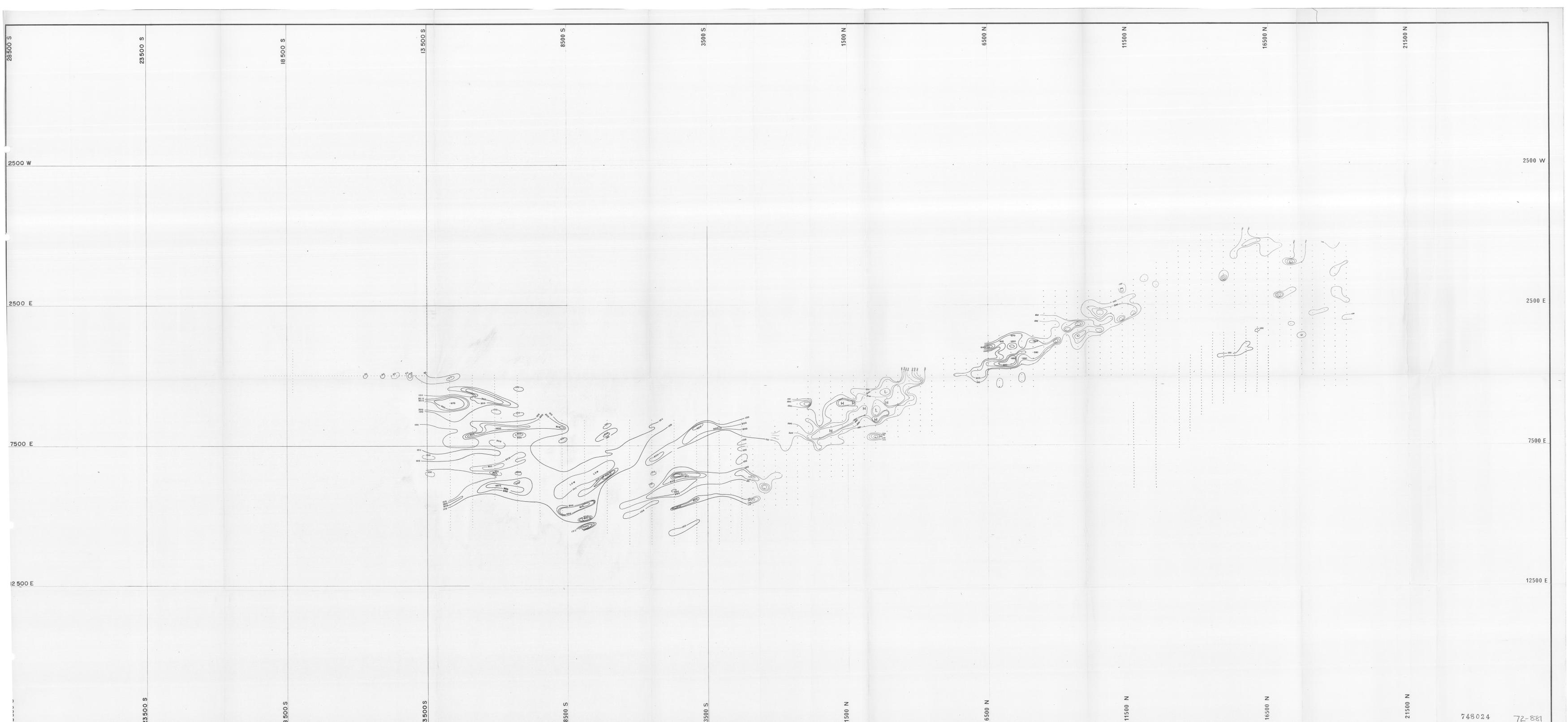
0	< 30	p.p.m.
30	< 60	"
60	< 90	"
90	< 120	"
120	+	"

SURVEY	-	-	//
GEOLOGY	R.J. VARLEY	-	12/70
DRAWN	B.R.J.	-	8/71
TRACED	-	-	//
DRAWING No. - FIG 3			



72-881

72-881



P.M.E.C.L.
 MACKINTOSH AREA - EL. 2/70
 SOIL GEOCHEMISTRY
 p.p.m. LEAD

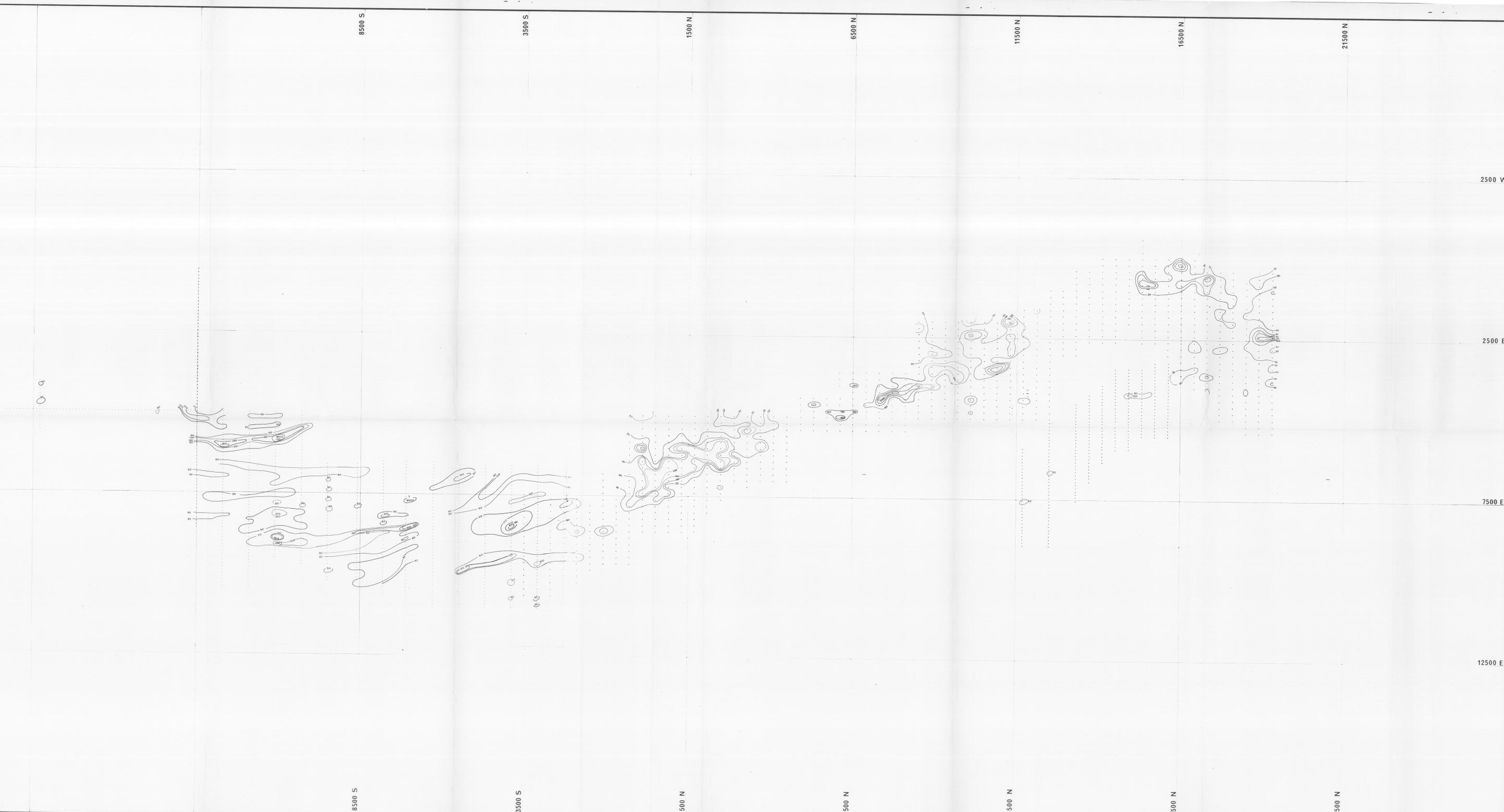
FURY PLAINS - BACK PEAK
 MT. REMUS SUB-AEAS

CONTOUR INTERVAL

0	< 100	p.p.m.
100	< 200	"
200	< 300	"
300	< 400	"
400 +		"
H	High > 4000	
L	Low < 100	

SURVEY 003
 GEOLOGY R.J. VARLEY 4/72
 G.K. 7/72
 DRAWN B.R.J. 3/72
 D.L.
 TRACED
 DRAWING No. - FIG 4

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P.M.E.C.L
 MACKINTOSH AREA EL. 2/70
 SOIL GEOCHEMISTRY
 p.p.m. ZINC

FURY PLAINS - BACK PEAK
 MT. REMUS SUB-AREAS

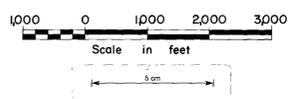
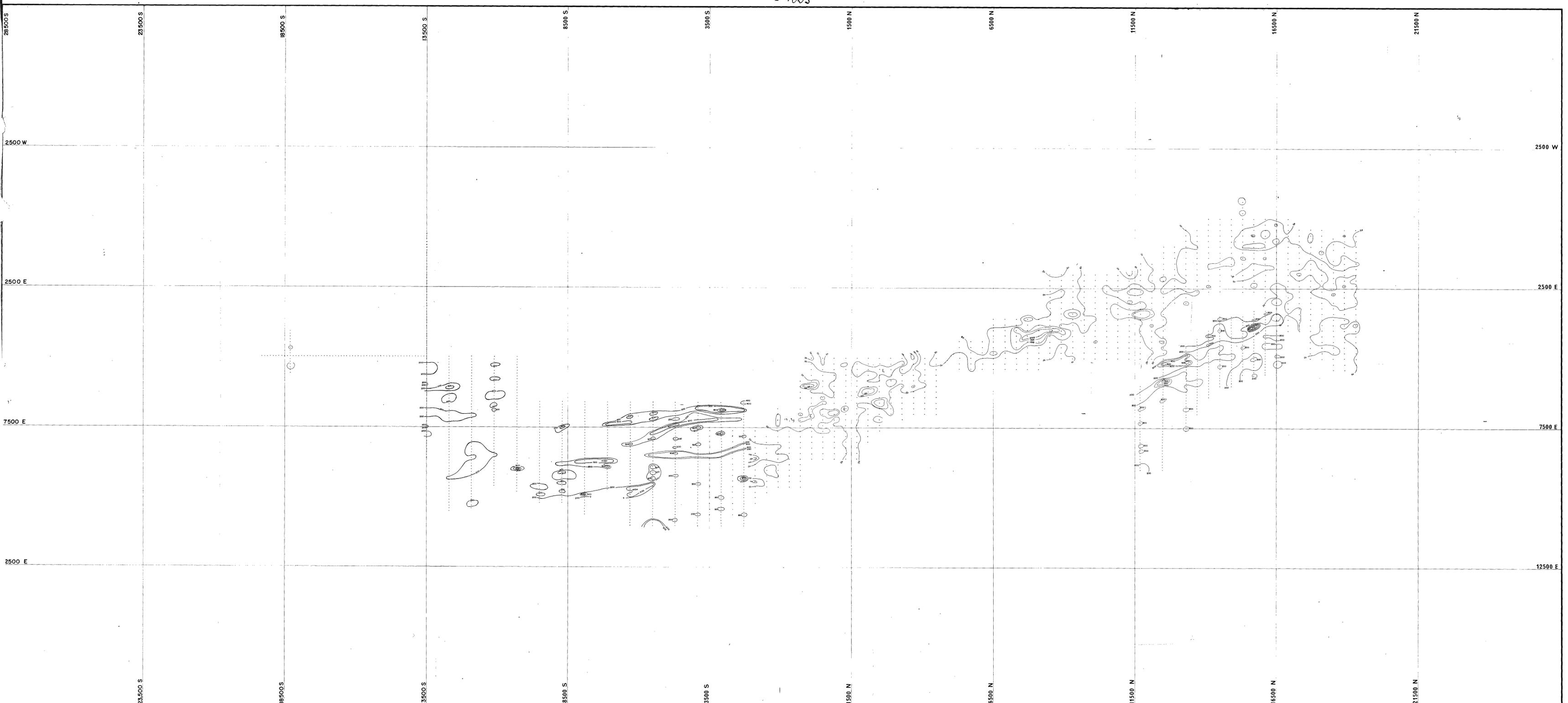
CONTOUR INTERVAL

0	< 50	ppm
50	< 100	"
100	< 150	"
150	< 200	"
200	+	"

SURVEY

GEOLOGY	R.J. VARLEY	4/70
DRAWN	S.K.	7/72
TRACED	S.R.J.	3/71
	U.T.	7/72

DRAWING No. - FIG 5



P.M.E.C.L.
 MACKINTOSH AREA-E.L.2/70
 SOIL GEOCHEMISTRY
 p.p.m. SILVER x 100

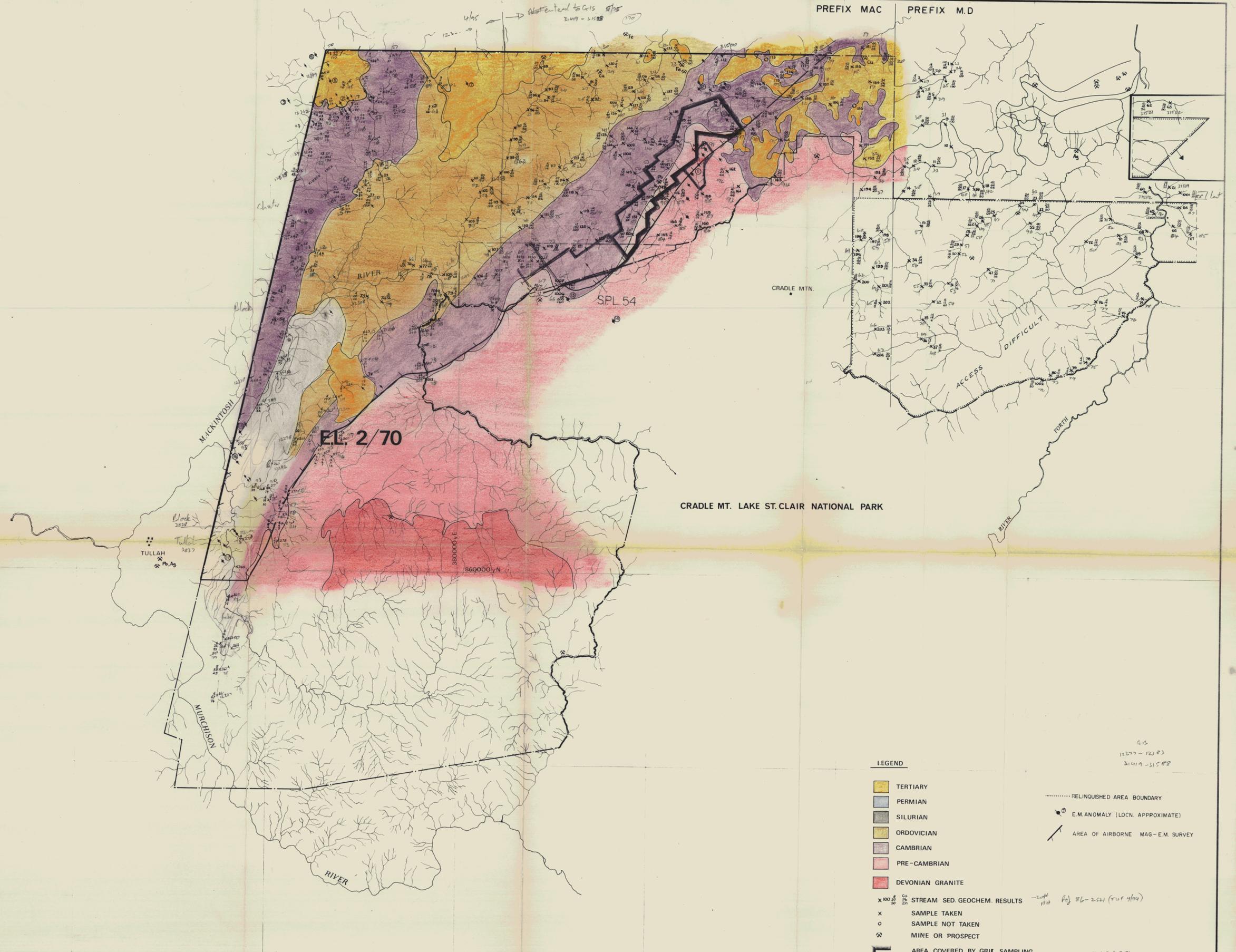
FURY PLAINS - BACK PEAK
 MT. REMUS SUB-AREAS

CONTOUR INTERVAL

0 - < 50	ppm
50 - < 100	"
100 - < 150	"
150 +	"
L	Low < 50

SURVEY	-	-	1/1
GEOLOGY	-	R.J. VARLEY	1/2/70
		D.R.	1/12
DRAWN	-	B.R.J.	3/72
		D.T.	1/1
TRACED	-	-	1/1
DRAWING No. - FIG 6			

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PREFIX MAC PREFIX M.D

4/05
 Note extend to G-15
 31419 - 31528

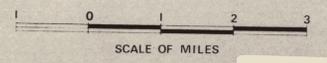
E.L. 2/70

SPL 54

CRADLE MT. LAKE ST. CLAIR NATIONAL PARK

LEGEND

- TERTIARY
- PERMIAN
- SILURIAN
- ORDOVICIAN
- CAMBRIAN
- PRE-CAMBRIAN
- DEVONIAN GRANITE
- RELINQUISHED AREA BOUNDARY
- E.M. ANOMALY (LOCN. APPROXIMATE)
- AREA OF AIRBORNE MAG-E.M. SURVEY
- STREAM SED. GEOCHEM. RESULTS
- SAMPLE TAKEN
- SAMPLE NOT TAKEN
- MINE OR PROSPECT
- AREA COVERED BY GRII SAMPLING



P.M.E.C.L.
 MACKINTOSH AREA - E.L.2/70
 COMPOSITE PLAN
 STREAM SEDIMENT GEOCHEMISTRY
 & REGIONAL GEOLOGY

Revised 11-72
 7-6-72

SURVEY	-	-	//
GEOLOGY	-	-	//
DRAWN	- B.R.J.	-	/3 71
TRACED	-	-	//
DRAWING No. - FIG 7			

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