619001

Prospect 602

CSR LIMITED - MINERALS DIVISION

EXPLORATION GROUP

ANNUAL REPORT - 1982

EXPLORATION LICENCE 15/76

DUNDAS, TASMANIA

VOLUME I - Text

EMR 2/83

HOBART

January, 1983

P.M. MACNAMARA

P.D. ELLIS

619002

EL 15/76

(2)

Aluminium, Minerals And Chemicals Division

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2 February 1984

The Director of Mines,
Department of Mines,
Gordon's Hill Road,
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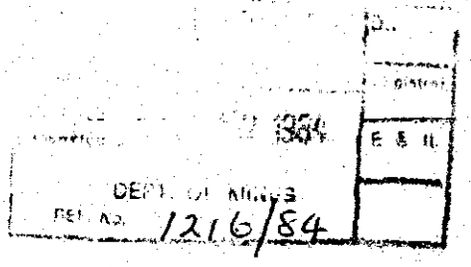

Dear Sir,

EXPLORATION LICENCE 15/76, DUNDAS

I refer to your letter of 17th January, 1984 to our Senior Geologist in Hobart requesting additional data to our 1982 Annual Report on the above Licence.

I enclose:-

1. 16 transparencies of infill aeromagnetic data for the Dundas area including contour maps of residual magnetics, total magnetic intensity profile maps and flight path plots, and

2. Geological plans to accompany the consultant's report (Poltock Brothers) on the Mt Dundas area and provided by EZ Co. Appendix IV.

Yours faithfully,

G.K. Alexander
TITLES OFFICER

Filed in Vertaplan

KC
29/2/84

33-1718

619003 E.L. 15/76 (1)

KC:AB

Our Ref: 83-1928

K. Corbett 6504

17 JAN 1984

Geologist in Charge,
CSR Minerals Division,
Exploration Group,
35 East Derwent Highway,
ROSE BAY,
Tasmania. 7015

Dear Sir,

ANNUAL REPORT 1982 ON E.L. 15/76 - DUNDAS

Could you please provide the following data applicable to this report:

(1) Transparencies of infill aeromagnetic data - contours, flight paths and profiles if possible.

(2) Geological plan to accompany consultant's report (Poltock Brothers) on Mt Dundas area.

As many of the covers of the various volumes of your report have already become detached, we would suggest you use a more robust system of filing in future.

Yours faithfully,

kc.

(R.C. Thomas)
ACTING DIRECTOR OF MINES

619004

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APPENDICES (Continued)

LIST OF ILLUSTRATIONS

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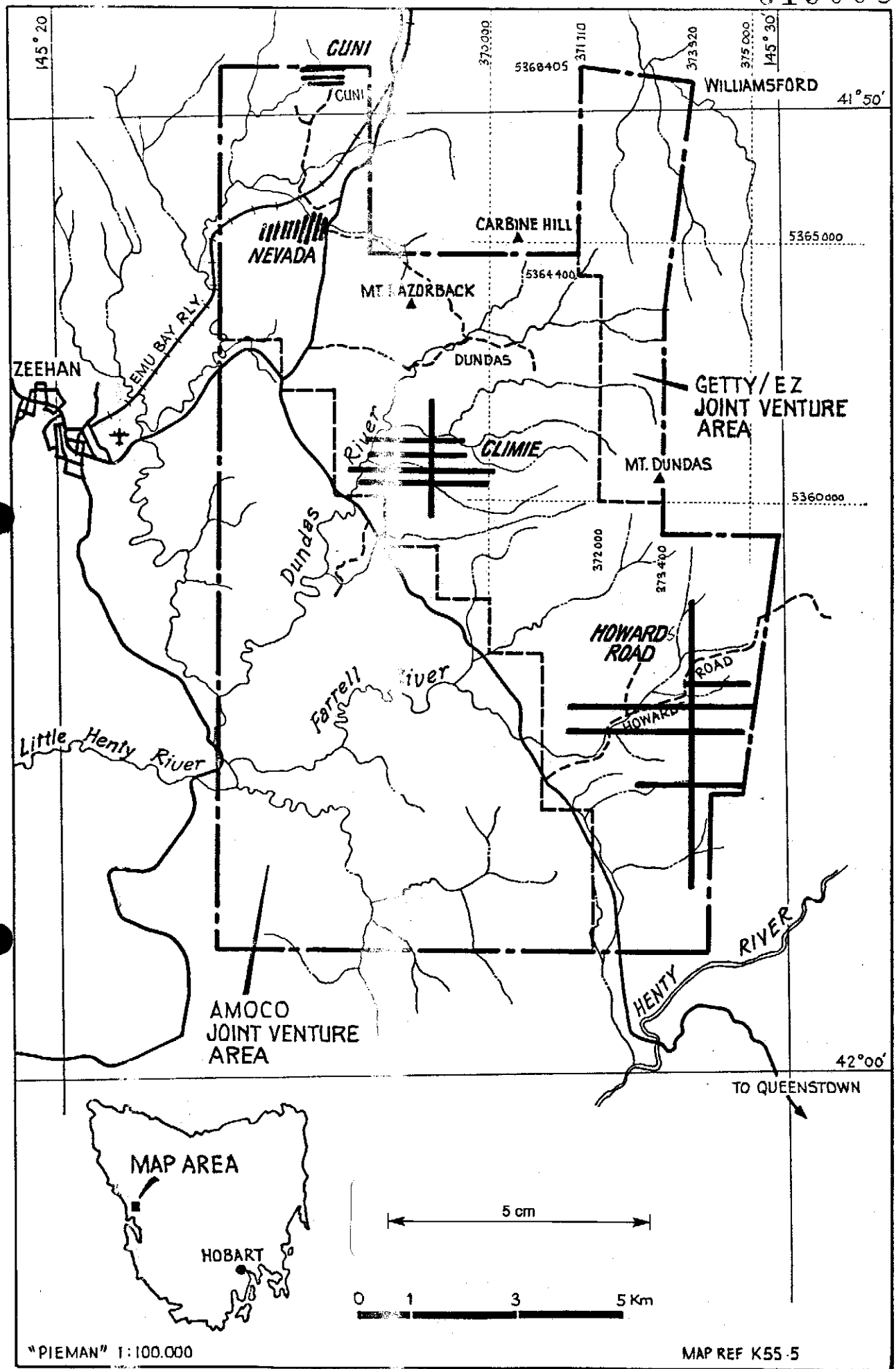


FIG. 1. LOCATION MAP E.L. 15/76 DUNDAS, TASMANIA
SHOWING JOINT VENTURE AREAS & CSR 1982 GRIDS

KEYWORDS

TASMANIA	EXPLORATION
TIN	MINERALISATION
COPPER	SOIL
ZINC	DRAINAGE
LEAD	GEOLOGY
GOLD	GEOCHEMISTRY
BISMUTH	SAMPLING
SILVER	PANNING
NICKEL	HEAVY MINERAL
COBALT	8SK55-Ø3
CHROMIUM	REPORT
E L 15/76	JOINT VENTURE

1. INTRODUCTION

Exploration Licence 15/76 (E.L. 15/76) was granted to CSR Limited on 2nd February, 1976. This Licence covers an area of 145 km^2 situated about 4 km east of Zeehan on the west coast of Tasmania (Figure 1). The Licence extends south from Melba Flats and Williamsford to the Henty River and west from Mt. Dundas to the Little Henty River.

This area contains small silver/lead/zinc deposits at Dundas (central), a small tin deposit at Mt. Razorback (central north), smaller copper/nickel shows at Cuni (northwest), small complex lead/antimony bearing sulphides (with Sn, Ag, Bi, W) at Montezuma (northeast) and several small lead/zinc/fluorite shows at Mariposa (southwest). There are also possibilities of the occurrence at silver/lead/zinc with tin sulphides in the upper units of the Oonah Formation (Oonah mine type), copper/zinc/lead/silver/tin associations in the acid volcanics of the Dundas Group and Renison type replacement tin deposits. Consequently the area has been intensely prospected.

Prior to 1976 tne area was held by many companies and individuals as well as investigated by government research. Since 1976 CSR Limited has undertaken exploration to evaluate the Licence. Recently two portions of the Licence have been joint ventured to Amoco (southwest of the Murchison Highway) and EZ/Getty (northeast corner).

On 2nd February 1982 the Licence was renewed for a further 12 month period. This report summarises most of the work completed in 1982.

2. SUMMARY

The exploration of E.L. 15/76 was continued through 1982 by CSR Limited and two groups of joint venture partners - Amoco and E.Z./Getty.

Amoco continued gridding, soil and rock chip sampling and magnetic and gravity surveys over areas of Gordon Limestone in the southeast of the Licence. Geochemical and geophysical anomalies were located on the Mariposa (two) and Black Jacks (one) grids. These will be further investigated in the next period.

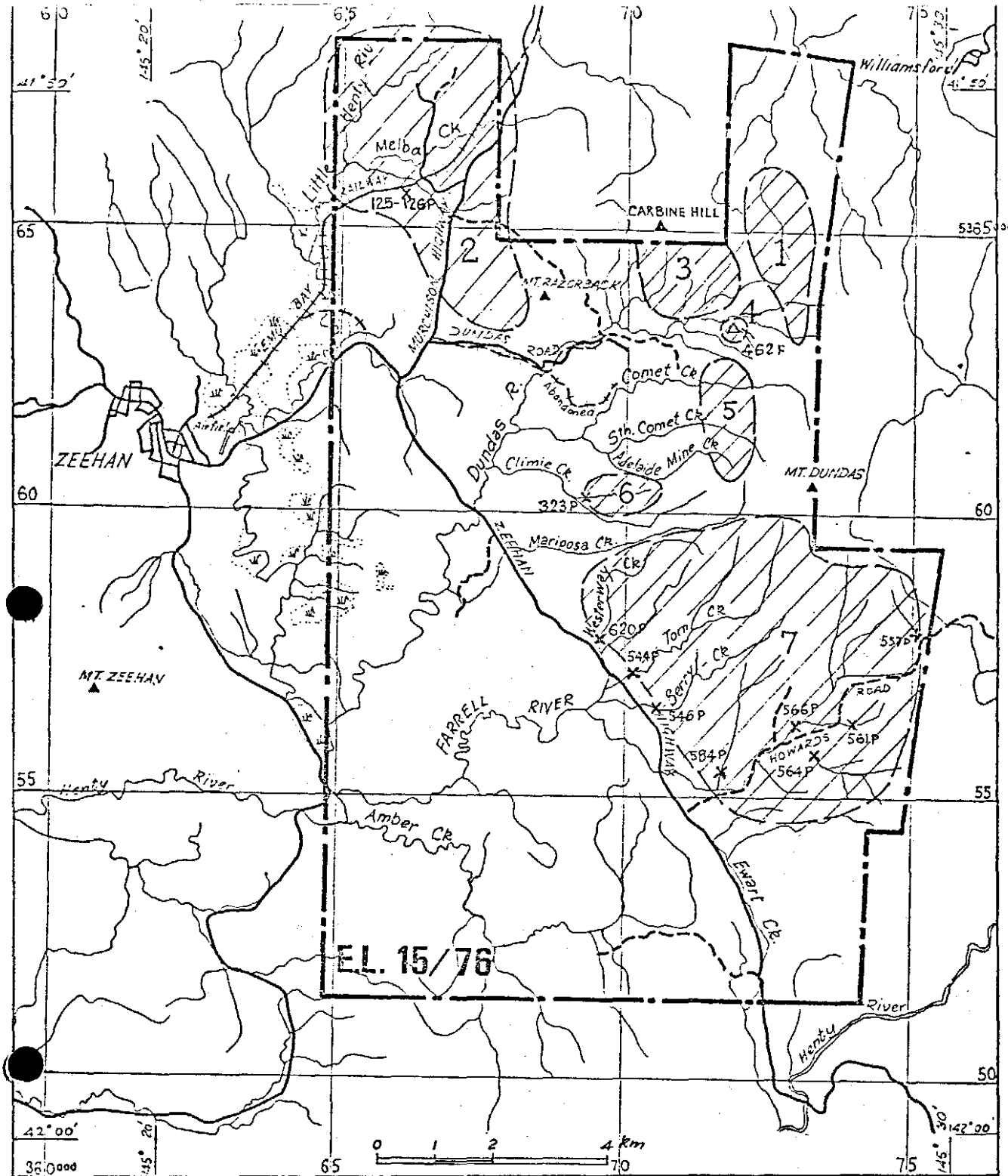
E.Z./Getty commenced work in the Montezuma area (NE) of the Licence by recutting and extending the CGFA grid. Geochemical soil sampling located a single line of tin anomalies and a separate lead anomalous zone. Geophysical evaluation of anomalies will commence during the next period.

CSR gridded areas of anomalous drainage geochemistry at Howards Road, Cuni and Nevada. Soil geochemistry, mapping and geophysics located several low grade anomalies.

Regional drainage sampling has located several zones of anomalous geochemistry most of which are associated with known mineralisation. Similarly a regional (northern) Dighem survey delineated known structures and minor mineralisation. Only very weak Dighem anomalies occurred away from the known mineralisation.

A regional historical review indicated that a vast quantity of exploration has been completed within E.L. 15/76. A new exploration concept is required.

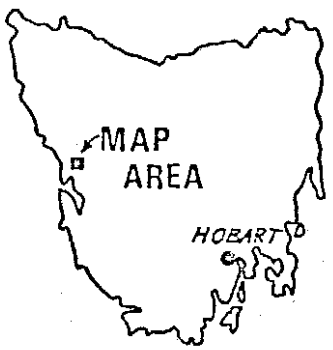
Proposed work is follow-up of anomalies located during 1982 and to develop a new concept of trace element analysis to define deep drill targets.



584P × PANNED CONCENTRATE SAMPLE No. 602 584 P

△ FLOAT SAMPLE

(2) ANOMALOUS AREAS



ANOMALOUS DRAINAGE AREAS AND SAMPLE LOCATIONS: 1977-1978 SURVEY

E.L. 15/76 DUNDAS TASMANIA

E.M.R. 60/80

FIG. 2

5 cm

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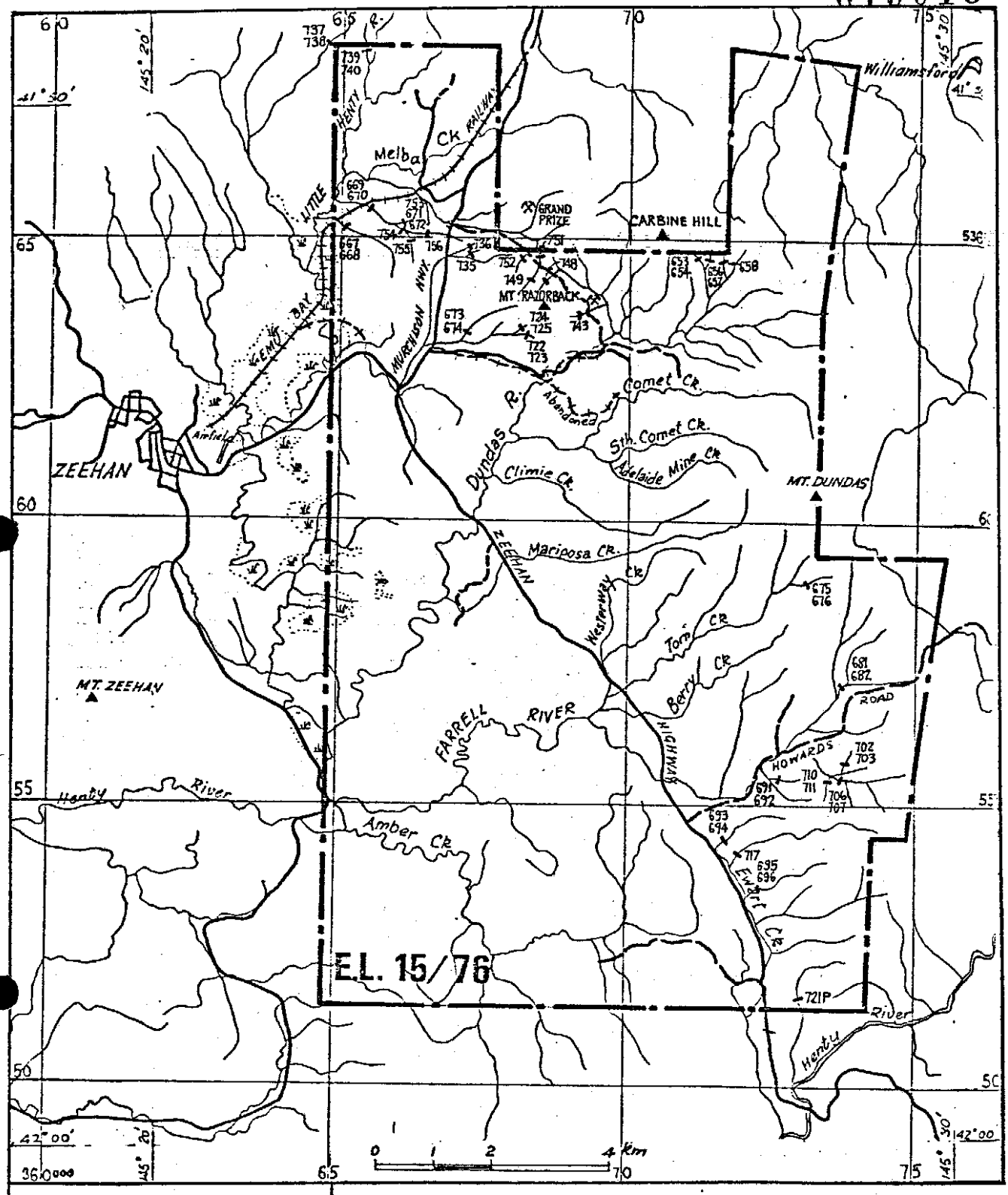
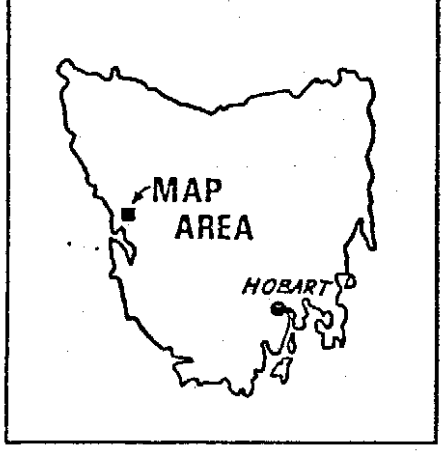
3. LOCATION AND ACCESS

E.L. 15/76 is situated 4 km east of Zeehan (Figure 1) in the Land District of Montagu on the west coast of Tasmania. The sealed Murchison Highway diagonally bisects the Licence from the Cuni area (northwest) to the southeast corner. A series of unsealed roads, tracks and old tramways give reasonable access to most areas of the Licence.

All but the northeast of the Licence is drained by tributaries of the westerly flowing Little Henty River system. The northeastern corner is drained by the headwaters of the Ring River which flows into the westerly draining Pieman River system. Most of the streams are small and steep; typically "zoning" streams. On the flat areas of the easily eroded Gordon Limestone (southeastern corner) the streams form swamps.

The vegetation cover in areas of the Silurian, Devonian and Ordovician rocks is generally buttongrass with local areas of dense ti-tree/sword grass/bowrah scrub. The remainder of the licence is covered by cool temperate rainforest with patches of dense "horizontal" scrub. Minor areas of open grasslands occur in the cleared areas at Dundas and Cuni.





NOTE : SAMPLE No PREFIX 602
e.g. 717 (602717)

ANOMALOUS DRAINAGE AREAS AND SAMPLE LOCATIONS : 1979 SURVEY

5 cm

E.L. 15/76 DUNDAS TASMANIA

FIG. 3

4. PREVIOUS EXPLORATION

4.1 Pre CSR Limited

Intense prospecting of the area covered by E.L. 15/76 occurred after the discovery of galena at the Silver Queen Mine in 1887. This led to the discovery of the Dundas field (galena) in 1889, the Mariposa field (silver/lead/zinc) in 1890, the Northeast Dundas/Montezuma field (complex sulphides) in 1891, the Cuni field (copper/nickel and zinc/lead) in 1893 and the Razorback area (tin) in 1909. These fields have been intermittently mined on a small scale (Ellis, 1982).

Since the 1950's a total of 22 exploration licences (including SPL's) have been held over portions of E.L. 15/76 by major exploration companies. Many prospectors and small companies have also held leases within the boundaries of E.L. 15/76. Several government departments (BMR and Tas. Dept. of Mines) have also conducted research projects on areas of known mineralisation within E.L. 15/76 (DRG No. K555-32).

These investigations included regional airborne magnetic and E.M. by Rio Tinto, airborne Af mag. by Comstaff, stream sediment (Cu, Pb, Zn, Sn) by McIntyre, airborne Turam EM by North Broken Hill and airborne Turain EM and magnetics by Geophoto. The remaining investigations were ground studies of anomalies and known mineralisation mainly in the old mining fields. Techniques used included I.P., gravity, magnetics, S.P., E.M., Turam E.M., Gun E.M., VLF-EM, stream and heavy mineral geochemistry, deep and shallow soil geochemistry and diamond drilling. Overall results were disappointing with only minor mineralisation being found. All previous mining and exploration activity within E.L. 15/76 has been summarised by Ellis (1982).

4.2 CSR Limited

Initial work by CSR Limited in 1977-79 was a wide spaced drainage sampling programme for Cu, Pb, Zn, Sn, Bi,

Ag, Au, Ni, Co, Cr and some for Mn, Mo, W, As and Fe. The 1977/78 sampling (Macnamara, 1979a) delineated seven anomalous areas (Figure 2). Several of these were confirmed by the 1979 sampling (Macnamara 1980a) which also delineated several other anomalous areas (Figure 3).

Follow-up work of the Montezuma anomaly was hampered by access problems in 1978/79. Only one of the old CGFA lines was resampled and confirmed the CGFA anomaly (Macnamara 1979b). This area has now been joint ventured with E.Z./ Getty.

Most other CSR Limited investigations (until 1981/ 82) were confined to the northeast of the Licence (Cuni/Lead Blocks area). This drainage anomaly was covered by 16 grid lines which were traversed with magnetics, VLF-EM and 1850 auger soil samples. Three anomalous zones were located:-

(a) Lead Blocks area showed Sn/Cu/Zn/Pb/Ag/Ni/Co anomalies (Macnamara, 1980b). Diamond drill testing of these showed only minor intersections of Pb/Zn/Ag mineralisation (Macnamara, 1981a).

(b) Cu/Zn/Pb/Ag/Co anomalies at Cuni have not been confirmed (Macnamara 1981b).

(c) Cu/Zn/Pb/Au/Ni/Co/Cr anomalies in the Nevada Grid were associated with ultramafics on the Razorback Conglomerate-Hodge Slate contact.

The only other pre 1982 investigation of E.L. 15/76 by CSR Limited was an airborne input/magnetic test survey of four lines. The six anomalies located related to stratigraphic, cultural or intrusive features in areas which had been thoroughly investigated (Macnamara, 1981c).

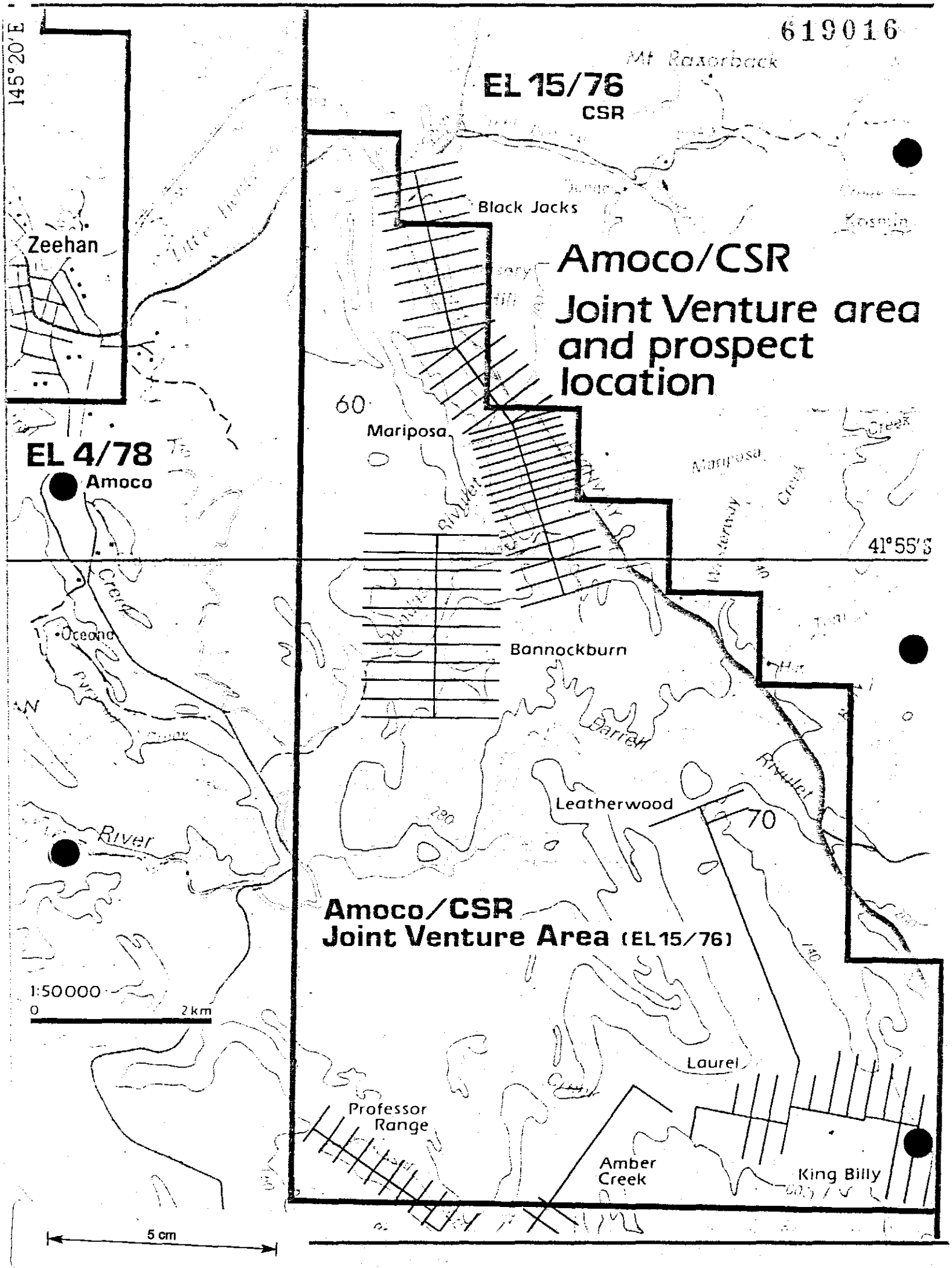


FIG. 4 CSR JOINT VENTURE - E.L. 15/76 DUNDAS TAS.

5. GEOLOGY

The geology of the area of E.L. 15/76 was described by Blissett (1962). This has recently been revised by Brown (1982). While auger sampling has provided more detail on lithological variations, the general geology is similar.

Briefly, the area is composed of the basal Proterozoic Oonah Formation (and correlates) overlain by the Eocambrian Success Creek Group and Crimson Creek Formation and the Cambrian Dundas Group. The Oonah Formation and Success Creek Group are composed of mudstones, siltstones, sandstones, quartzites and conglomerates with dolomites and only a minor volcanic component. The Crimson Creek Formation and Dundas Group contain similar rocks but with a higher proportion of tuffaceous and volcaniclastic material.

In the southeastern portion of the Licence the Proterozoic and Cambrian rocks form rugged hills in which strikes trend northwards towards Dundas. Near Dundas geological trends swing northwesterly to the highway and then swing northwards through the Cuni area.

The southwestern part of the Licence is underlain by a basin of shallow water Ordovician, Silurian and Devonian sediments which include the Gordon Limestone. Alluvium-covered topographic lows tend to form on this limestone unit.

Quaternary morainal material covers some of the steep country in the southeast of the Licence and the topographic lows on the Gordon Limestones. Remnant morainal gravels also form high level heavy mineral rich cappings on the Oonah Formation rocks.

The Proterozoic-Cambrian rocks are tightly folded and were apparently deposited into unstable environments. The Ordovician-Devonian sediments were deposited under more stable conditions and contain only open folding.

/....

6. CURRENT EXPLORATION

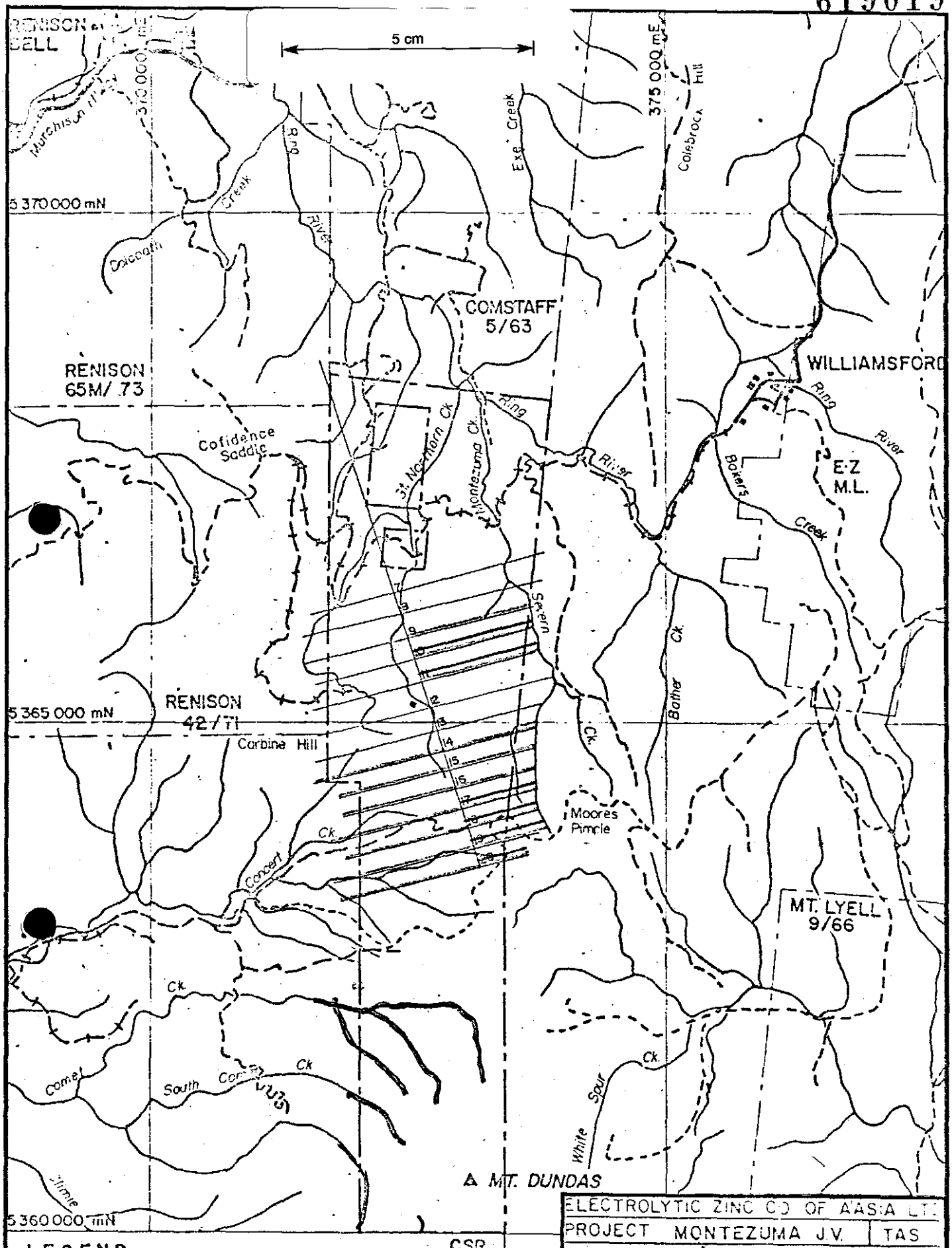
Current exploration of E.L. 15/76 is conducted by four companies in three separate areas. The southwestern 58 km^2 (west of the Murchison Highway) is explored by Amoco for Mississippi-type lead/zinc deposits in the Gordon Limestone. The northeastern 13.85 km^2 (Montezuma area) is explored by E.Z. (active partner of the E.Z./Getty partnership) for tin and sulphides; the remainder of the Licence (the central northwest to southeast strip) is explored by CSR Limited for Renison type replacement tin, volcanogenic massive sulphides and/or volcanogenic gold.

6.1 Amoco Joint Venture Area

As Amoco's main interest is Mississippi-type lead/zinc deposits most of their exploration has been confined to the Gordon Limestone horizon. All limestone outcrops are being covered by one of eight grids (Black Jacks, Mariposa, Bannockburn, Leatherwood, King Billy, Laurel, Amber Creek and Professor Range). The grid lines will be at 200 m spacings (50 m infills on Black Jacks and 100 m on Mariposa) with sample points at 25 m intervals (Figure 4).

Mapping of the Mariposa and Black Jacks grids has commenced. Many of the old workings have been located. Geochemical sampling using bombadier mounted power augers has been completed in the Mariposa, Black Jacks and Bannockburn grids) except for areas too steep for the bombadiers. These areas will be sampled using hand augers or hand held power augers. Samples obtained have been analysed for Cu, Pb, Zn, Ag and Sn. Rock chip samples collected during the mapping were analysed for these elements plus W, As, Sb, Ba, Au, Ni, Co, Bi, Mo, V, Cd and Mn.

Geochemical analyses from the Mariposa prospect show two parallel anomalous zones; a 950 m x 75 m zone of up to 1.75% Pb, 0.97% Zn and 85 g/t Ag adjacent to the



LEGEND

- Access - formed; Geology mapped
- Creek - cut; Geology mapped; sampled (• Sediment; o Heavy mineral concentrate)
- Line - cut, pegged, soil sampled, geology mapped.
- Line
- Soil pit - dug and sampled
- Follow-up mapping and sampling
- MZP 241 → Diamond Drillhole

ELECTROLYTIC ZINC CO OF AASIA LTD

PROJECT MONTEZUMA J.V. | TAS

WORK COMPLETED
PERIOD TO
20. 11. 1982

FIG.5

SCALE 1:50000 | Survey | Plotted

Reference | Date 7.12.82

faulted contact of Gordon Limestone and Cambrian Dundas Slate; and a 500 m x 75 m western anomaly with up to 4.8% Pb, 3.2% Zn and 489 g/t Ag along the Mariposa lode horizon. The Black Jacks geochemistry showed a 300 m x 100 m zone with up to 1.5% Pb, 2.5% Zn and 75 g/t Ag over the old Black Jacks prospect and two lower order anomalies to the north. An anomalous zone 600 m x 200 m assaying 0.06% Pb, 0.8% Zn and 55 g/t Ag to the south of the old workings was located on the Bannockburn Grid.

The Mariposa grid lines have been traversed with a gravitymeter at 50 m intervals. Results show the Gordon Limestone is marked by a 1.5 mgal response. Superimposed on the western flank of this is a 1.0 mgal high about 300 x 100 m coincident with the Mariposa workings. Modelling is required to define a source.

An airborne magnetometer survey of east-west lines at 250 m spacings (in conjunction with a regional survey by the Mines Department) was flown over the area (total E.L. 15/76). One major anomaly to the west of the Bannockburn grid requires ground follow-up, as do several smaller anomalies.

The results of the above work have been reported by Jones (1982a, 1982b and 1982c - Appendices I, II and III).

6.2 E.Z./Getty Joint Venture Area

E.Z./Getty's target in the Montezuma area is a Renison style replacement type carbonate hosted tin deposit. Lead/zinc or complex sulphide deposits are of only minor interest.

After an initial review of all previous data, E.Z. (the operating partner in the joint venture) had topographic base plans (3 sheets) prepared from February 1982 1:23,000 scale colour air photographs. A Dighem II survey (with magnetics and EM) was flown over 98 line km in February 1982.

Ground work commenced with the upgrading of access via the Northeast Dundas tram and the Geophoto drill access track. The old CGFA lines 7 to 13 were recut. Seven additional lines (14 to 20) spaced at 200 m intervals to the south of the old CGFA lines were also cut (Figure 5). Lines 14-20 and 9E, 10E and 11E were pegged, soil sampled and geologically mapped. The soil samples were analysed for Cu, Pb, Zn, Ag, Fe, Mn, Cr, As, Sn and W. 48 stream sediment samples collected during reconnaissance mapping of the area to the south of the grid were analysed for Cu, Pb, Zn, Ag, Fe, Mn, Co, As, Sn and W.

The Dighem survey delineated 41 E.M. anomalies as 3 single line and 9 group anomalies in the northern part of the area. The group anomalies are subparallel north to northeast trending linear zones which parallel the known fault direction of the area. No pyrrhotite hosted cassiterite body is indicated.

A comparison of the old CGFA and the resampled E.Z. soil sample analyses on lines 9E, 10E and 11E showed good agreement. The soil samples from lines 14 to 20 showed a southwards continuation of the CGFA Sn anomaly. This 20-120 m wide anomaly is open to the south of line 20W. Discontinuities along this Sn anomaly possibly represent cross-faulting. A second southeasterly trending anomalous zone is shown by Pb between lines 14 and 18W. Anomalous Zn, As, Ag, Fe and Mn accompany the elevated Pb values.

Stream geochemistry is characterised by elevated Cu, Pb and Zn background values possibly explained by Mn scavenging. Apart from two (55 and 20 ppm) all samples had less than 10 ppm Sn. W showed inexplicable variations to 100 ppm.

The results of the above work have been reported by Sainty (1982), Appendix IV.

6.3 CSR's Retained Area

CSR has retained the central strip of E.L. 15/76 which includes the Cuni and Dundas mineral fields. Most of CSR's work has been confined to this retained strip. The past work outlined areas which required follow-up exploration. This follow-up formed the basis for CSR's 1982 exploration.

During 1982 four grids were cut and pegged; Cuni, Nevada, Howards Road and Climie grids. All but the latter were soil sampled and traversed with VLF-EM and magnetic surveys. Drainage samples were also collected from previously untested parts of the Licence.

Copies obtained & filed in Vertipac

Infill aeromagnetics were flown at 250 m spacings over the entire Licence in conjunction with the Department of Mines regional survey. A Dighem survey was completed over the northeastern portion of the Licence with several test lines being flown in the Howards Road area.

A detailed review and compilation of all previous exploration within the Licence was undertaken.

6.3.1 Howards Road Grid

General. Widespread anomalous gold has been indicated by panned drainage samples in the Howards Road area east of the Queenstown Highway in the SE sector of E.L. 15/76. Each panned concentrate comprised the bromoform-separated heavy minerals from an original 4 to 5 pan sample (0.02 m^3, approximately). The highest gold values were recorded from two locations immediately south of Howards Road (Macnamara, 1980a, Table 1). These are :-

Sample No.	Au (ppm)	Ag (ppm)	Location (AMG/Howards Road Grid*)
602692P	114	4	5355.6N/372.55E
602707P	48	1	5355.6N/373.85E

* Howards Road Grid is approximately coincident with Australian Map Grid.

/....

Widespread Quaternary moraine is recorded in the general area of Howards Road on the Zeehan 1 Mile Geological Sheet. Exposures along tracks and creek traverses indicated morainal cover is thin in some places at least. This plus lack of gold working in the morainal material suggested the gold was related to a fairly local bedrock source.

Work Completed in 1982. In order to locate the approximate position of, or low grade halo associated with, the primary source of the detrital gold, and at the same time eliminate the possibility of morainal transport from outside the E.L., four lines were soil sampled into bedrock in the vicinity of the above-mentioned drainage anomalies. These lines are 54500N, 55050N, 55500N and 56500N. VLF-EM and ground magnetic surveys were also carried out along the lines.

Locations of the augered soil samples are shown on DRG No. K555-40 and chemical analyses of the -20 mesh samples A138904-A139683 in Appendix V.

Results. Widespread low level anomalous gold values were located on lines 55050N and 55500N, especially between 7290E and 73700E. These anomalous results are plotted on DRG No. K555-40. The highest gold-in-soil value was A139370 (0.2 ppm) at 55050N/73340E, in the centre of the gold anomalous zone. Immediately to the east, from about sample A139380 eastwards (73500E) there is a general increase in Cu-Pb-Zn-Ni-Co-Cr values. Values occur up to 220 ppm Cu, 500 ppm Pb and 380 ppm Zn.

Eastward again on line 55050N, samples A139407 (73760E) to A139417 (73860E) contain elevated Cu-Zn-Pb, with values up to 970 ppm Cu, 125 ppm Pb and 380 ppm Zn in the vicinity of a dolerite/felsite contact.

All geochemical, magnetic and VLF-EM data are at present being computerised. Some statistical

treatment of data will be required prior to final report preparation. However the data available do confirm that bedrock gold sources exist in the vicinity of the original anomalous panned concentrates. Further grid work will be required to define any high grade sections in the main, fairly wide zone between 7290E and 73700E and to check outlying anomalous soil samples. Full recommendations will be made in the final report.

6.3.2 Nevada Grid

General. Reconnaissance soil sampling on lines NEV 1, 2 and 3 previously indicated strong Cu-Zn-Ni-Pb-Co-Cr values associated with limonitic chert and pyritic black clay. The anomalous values appeared to occur in a stratigraphic horizon below the Razorback Conglomerate/Hodge Slate contact immediately south of Nevada Creek (Macnamara, 1981a, Table 1). Anomalous values were recorded on all three lines, with results up to 670 ppm Cu, 2800 ppm Zn, 1240 ppm Pb, 10 ppm Ag, 1.5 ppm Au, 5000 ppm Ni, 560 ppm Co and 15.3% Cr. The horizon was apparently a part of the Hodge Slate.

Work Completed in 1982. In early 1982, 11 short lines were cut and surveyed across the strike, using Cuni grid line 5146M as an oblique reference "base line". Peg positions on the cross lines were measured north and south of Cuni line 5164N, the intersection being designated 5146N on each line. These lines are shown on DRG No. K555-39 as 5900E, 6000E, etc. up to 6820E. The earlier reconnaissance lines NEV 1, 2 and 3 are also shown, as is Cuni base-line 6200E and Cuni cross-line 5164N. This series of lines has been designated as the Nevada Grid.

Results. Auger sampling has extended the geochemical anomaly over a +500 m strike length, with strongest reponse in base metal signature occurring at each end of the anomaly. Values were recorded up to

850 ppm Cu, 6900 ppm Zn, 5200 ppm Pb, 4 ppm Ag, 0.1 ppm Au, 6700 ppm Ni, 490 ppm Co and 9.6% Cr, confirming the original anomaly and extending it in strike length.

Sample locations are shown on DRG No. K555-39 and results are contained in Appendix VI.

The anomaly is associated in places with limonitic chert containing disseminated chromite crystals and siliceous sintery quartz with chromite.

The anomalous zone appears to be along a contact between overlying Hodge Slate shale and an underlying ultramafic. The width of the ultramafic is uncertain as even in the best outcrop area shale and sintery quartz scree almost totally conceal the contact zone.

Extensive grey sintery quartz carrying chromite is developed everywhere along the zone but especially in the central part around line 6340E (DRG No. K555-39).

Magnetic, VLF-EM, geochemical and geological data are currently being computer-processed prior to preparation of a final report, and recommendations for further work. A geochemical anomaly has been established. Drill targeting may require an IP survey in order to confirm the presence of an associated sulphide body and to indicate the best place for a drill site.

6.3.3 Cuni Grid

General. Early drainage sampling (Macnamara, 1979a) and subsequent soil sampling (Macnamara, 1980b) confirmed the Cuni area was prospective for Sn, Cu, Pb-Ag-Zn and Ni-Co-Cr. A two hole diamond drill programme in 1980 (Macnamara, 1981a) on Sn-Zn-Pb-Ag-Cu anomalies with associated VLF-EM "cross-overs" located high grade but narrow Pb-Zn-Ag mineralisation at depth.

The early 1982 field programme included drainage sampling in untested sectors of the E.L. including parts of the Cuni area. In addition, it comprised follow-up grid testing aimed at outlining the extent of Cu-Zn-Pb-Ag anomalies indicated on Cuni Grid line 8221N between 6600E and 6920E (Macnamara, 1981b, Table 1). These anomalies included values up to 2300 ppm Cu.

During the drainage reconnaissance, previously unknown Zn-Ag prospects were located west of the 6200E Cuni baseline in two locations (DRG No. K555-41). The approximate positions are :-

.. 5367.78N/366.1E (AMG Grid)
(see Sample A138876, Appendix VII)
.. 5367.5N/365.35E (AMG Grid)

Both appear to be associated with dark grey and black shales. The most western line of prospects occur over several hundred metres strike length, immediately west of a major creek. The host rocks appear to be stratigraphically the lowest mineralised rocks in the Cuni area and presumably close to the tin prospective Oonah Quartzite/Crimson Creek Formation contact.

Both prospects need further investigation to check for tin mineralisation as well as the more obvious Pb-Zn-Ag.

Line 7485N could be extended westwards to test the zones around the Zn-Pb-Ag prospects, including the magnetic high MH 181.85 on Geoterrex EM test line 1SE (DRG No. K555-41).

Work Completed in 1982. Lines 8000N, 8100N and 8300N between 6500E and 7300E were cut, surveyed and augered at 10 m intervals. A number of sub-sample duplicates from earlier augering on line 8221N (Macnamara, 1981b), including those in the anomalous

zones between 6600E and 6920E, were re-analysed. Additional samples were augered on line 8221N in positions adjacent to the previous anomalous sample sites.

Chemical analyses are tabulated in Appendix VII and sample locations on lines 8000N, 8100N, 8221N and 8300N shown on DRG No. K555-41.

Results. Results confirm that the general area is a high background one for a number of elements including Zn and Pb. Samples highly anomalous in Cu-Pb-Zn-Ni occur on all lines. Fewer, anomalous in Au, also occur. In particular, two zones contain especially high Cu-Zn-Pb values and these occur in the vicinity of 6900E and 6600E. Weak but anomalous Sn values are present in some places.

Values range up to 2000 ppm Cu, 6500 ppm Zn, 9500 ppm Pb, 1200 ppm Ni, 730 ppm Co. Ag values in most soil samples appear subdued and results are low in some sub-samples which previously reported up to 16 ppm Ag, i.e. line 8221N in the vicinity of 6900E (see Macnamara, 1981v, Table 1).

Anomalous gold values up to 0.15 ppm occur in the vicinity of the 8221N/6900E zone.

Currently all soil sampling data. VLF-EM and ground magnetic data are being computerised. Multivariate analysis of the data will be required prior to interpretation and final report preparation in order to delineate the geochemical anomalies and select possible drilling sites. This work is in hand.

6.3.4 Drainage Sampling

General. Reconnaissance drainage and heavy mineral sampling of the more accessible streams within the Licence has outlined several areas for further

detailed exploration (Cuni, Nevada, Climie and Howards Road). Although most of the streams have been sediment sampled by CSR, many of the old samples have unreliable results due to the analysis technique. Also only a few of the drainages have been checked for heavy mineral content.

Work Completed in 1982. In mid-1982 the main drainages throughout the Licence were pan concentrate sampled. Forty heavy mineral samples were obtained and are being examined by binocular microscope. These samples will be chemically analysed when the petrographic examination has been completed.

During the heavy mineral sampling of the main drainage systems, the remaining unsampled minor drainages were sediment sampled. 296 samples were obtained, sieved to -20 mesh and analysed for Sn, Cu, Zn, Ag, Au, Pb, Ni, Co, Cr, Mn and Fe.

Chemical analyses are tabulated in Appendix VIII and sample locations are shown on DRG No. K555-6 and K555-7.

Results. Apart from isolated samples all the anomalous tin values were from drainages off the Razorback/Grand Prize line of mineralisation and from beyond the northern boundary of the Licence. The highest values (up to 1100 ppm) were from the Razorback area. Most of the 23 anomalous gold values (up to 450 ppb) were generally isolated samples and require no further investigation.

Anomalous copper and nickel values were concentrated in the Cuni area. The highest stream sediment values was 0.22% Cu, although one rock sample assayed at 10.2% Cu and 6.4% Ni. These samples came from the known Cuni mineralisation. Outside the Cuni area isolated anomalous Cu and Ni values occurred. These were only in the order of 100 ppm.

/....

Lead and zinc had high background values, although the silver background was very low. The high lead and zinc values were expected due to known mineralisation around the Dundas and Lead Blocks area.

Currently the stream sediment analyses are being computer processed prior to preparation of a detailed final report containing recommendations for further work.

6.3.4 Dighem

General. Dighem was flown by E.Z./Getty in the northeast joint venture area adjacent to the prospective Razorback/Dundas CSR retained area. Problems had been encountered in previous attempts to cover the Licence with airborne EM using fixed wing aircraft.

Work Completed in 1982. A Dighem survey of 276 line km was flown over E.L. 15/76 in February, 1982. Of this, 98 line km was for E.Z./Getty over the joint venture area and 11 line km was on two test lines (5 and 6 km long) 2,000 m apart in the Howards Road area. The remaining 167 line km were to the west of the E.Z./ Getty joint venture area and consisted of 41 lines at 200 m spacings.

All parts of the survey were analysed briefly and reported on by Peters and Frazer (1982) from Dighem (Appendix IX). The portion flown by E.Z./Getty was re-analysed by J. Bishop while CSR's area was reanalysed by W.J. Langron.

Results. Both the Dighem and CSR analyses of the two southern test lines concluded that there were no EM anomalies although there were two magnetic peaks on both lines. No further work is required on these two lines.

/....

Dighem defined 9 single line and 17 group anomalies in the survey area. Of these, two anomalies (7A and 14D-15C) are to the east of E.L. 15/76, 3 single line and 9 group anomalies are in the joint venture area and three anomalies (1A, 16Ax-17A-18Ax-18A) were in the control area held by Renison Ltd. Thus 4 single line and 5 group anomalies were defined by Dighem in the CSR retained area. A full analysis of these is shown in Appendix IX.

CSR's (Langron) analysis of the Dighem data defined similar anomalies to Peters and Fraser (1982) with only minor variations (Appendix X). Of these only four can not be explained by previous work (Appendix X). None of these four (or any of the anomalies in the CSR area) are strong EM and/or magnetic anomalies. Past work adjacent to anomalies 19C-20Ax and 26C-23B-24Bx (Geophoto) have shown minor VLF-EM and magnetic/IP/Zn anomalies respectively.

6.3.5 Aeromagnetics

General. The Tasmanian Department of Mines arranged a regional aeromagnetic survey of the central west coast area for 1981/early 1982. In E.L. 15/76 this magnetic survey consisted of 500 m spaced east-west aligned flight lines.

Copies obtained & filed in Zeehan

CSR took the opportunity to have 250 m spaced infill lines surveyed in conjunction with the Mines Department survey. The infill lines were flown at the completion of the Mines Department regional survey.

Results. The Department of Mines regional survey has been summarised by Corbett, et al (1982). This report contains a 1:250,000 scale plot of the aeromagnetic contours. These contours are also plotted at scales of 1:100,000, 1:63,630 and 1:50,000 as sets of seven sheets. At 1:63,630 and 1:50,000 scales there are also flight path plots and magnetic line profiles.

/....

Data tapes of the survey are available from Geoex Pty. Ltd.

The 250 m spaced infill lines over E.L. 15/76 were presented as four 1:100,000 scale sheets with each sheet area having a set of three plans (flight lines, contours and profiles).

A comparison of the Dighem and Geoex magnetics showed several significant discrepancies. These discrepancies were analysed by Pitt Research, who then reprocessed the magnetic data from the northwestern sheet (Cuni area). The original magnetic contouring package appears faulty. All sheets are now being reprocessed.

which? Geoex or Dighem?

6.3.6 Historical Review

Although CSR have held E.L. 15/76 since 1976 no comprehensive review of past exploration data had been undertaken. A brief review of previous company work showed a vast quantity of data on past exploration was available.

To prevent repetition of past exploration a complete review of all exploration data was undertaken. This review (Ellis, 1982) showed most of the Licence had been covered by regional airborne magnetic and EM (Rio Tinto), Af mag (Comstaff) and Turair EM and magnetic surveys and regional stream sediment and rock chip sampling programmes. Anomalous areas have been covered by local magnetic, gravity Turam EM, VLF-EM, SP, IP, Gun EM and/or soil geochemical programmes. Any further exploration requires a new exploration concept, such as deep drilling.

7. PROPOSED EXPLORATION

7.1 Amoco Area

In an extended term of the Licence, Amoco intend to restake the Amber Creek and Professor Range grids (destroyed by Forestry Commission burn-offs) before cutting and pegging 40 line km of the Leatherwood, King Billy, Laurel and Amber Creek grids.

Geological mapping will continue on the Mariposa, Black Jacks and Bannockburn grids before being extended to the newly cut grids.

Geochemical sampling of the Mariposa and Bannockburn grids will be completed and commenced on the Leatherwood and Professor Range grids. New grids will be sampled on 400 m spaced lines except over known workings (North Henty, United Silver Lead and East Amber).

Ground magnetic traverses will be run over completed grids and areas of anomalous responses outlined by the Dept. of Mines airborne magnetic survey.

Trenching and geological interpretation may be undertaken over the geochemical and geophysical anomalies.

7.2 E.Z./Getty Area

In an extended term of the Licence E.Z./Getty intend to detail an estimated three anomalies for drill testing by 450 m holes.

The area of Dighem anomaly A (E.Z./Getty) will be traversed by 4 line km of gridding. This area will be soil sampled. Similarly the re-opened grid lines 12 and 13 will be resampled. Both these areas of gridding will be trenched to bedrock on soil anomalies for sampling of soil profiles.

The geological mapping and rock sampling of the grids will be completed.

/....

Magnetic and G.E.N.I.E.-EM traverses will be run over areas of soil geochemical and Dighem anomalies. A "deep sensing" EM survey (Sirotem) will be run over resultant anomalous areas in an attempt to define drill targets.

An estimated three diamond drill holes will be required to test gochemical and/or geophysical targets. These holes will be cased with PVC and surveyed with down-hole EM .

7.3 CSR Area

During an extended term of the Licence the evaluation of the geochemical and geophysical surveys over the Cuni and Nevada grids will be completed. Prospective areas will be detailed using ground geophysical techniques to aid selection of drill targets.

Airborne Dighem anomalies will be located on the ground using VLF-EM. When located these areas will be examined by geological, geochemical and geophysical techniques.

Anomalous drainage samples from the 1981/82 programme will be followed-up by check sampling and, if warranted, gridding followed by ground geophysics and geochemistry. Similar follow-up of the Howards Road gold-in-soil anomaly in planned.

Old drill core from the Dundas/Razorback area will, be examined if possible, and sampled for trace element analysis. The aim is to define a target for a deep drill testing for a Renison-style tin deposit.

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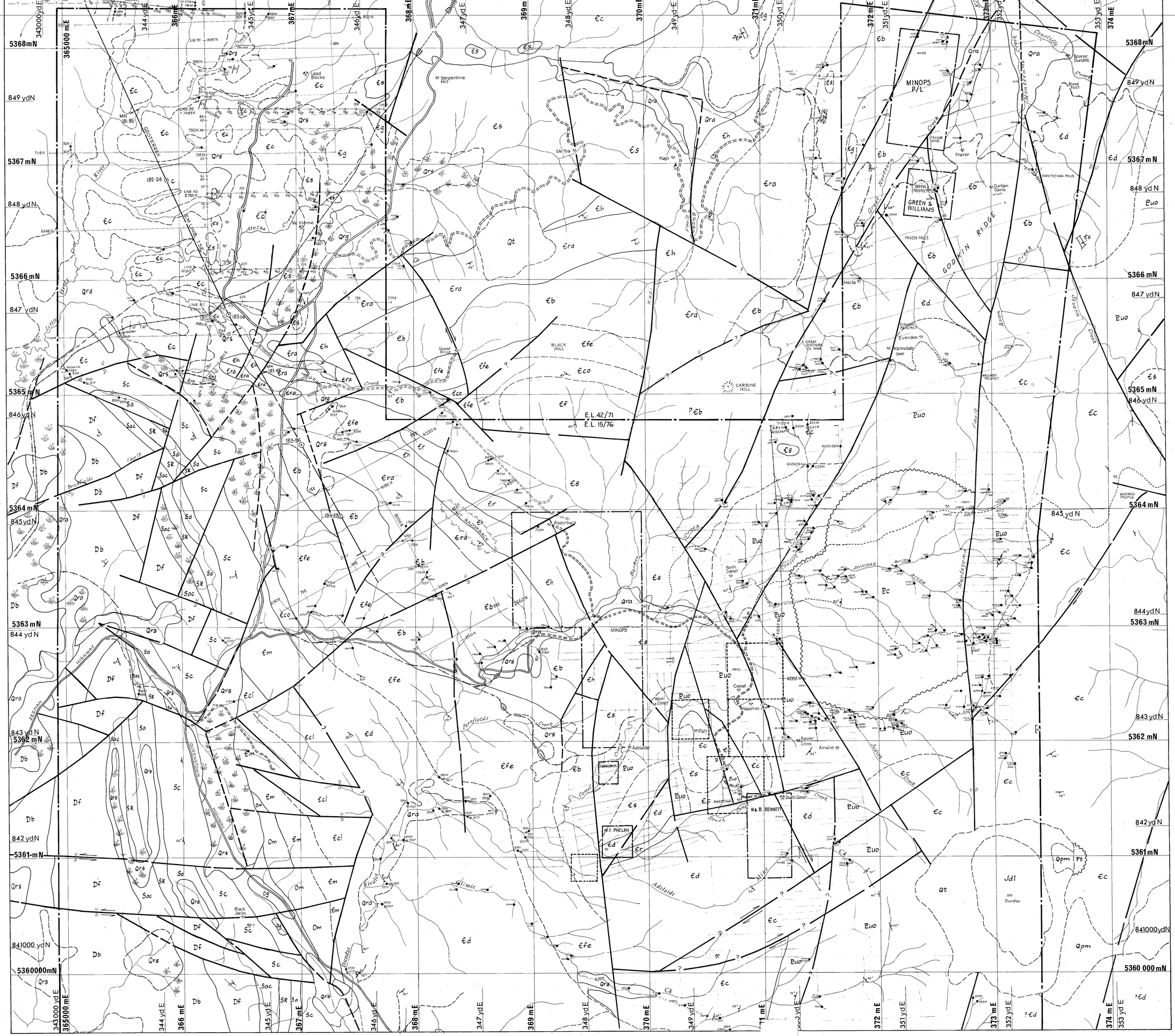
PMM/PDE : SS
January 1983



QUATERNARY		Qra	Alluvium
		Qrg	Gravels
		Qt	Conglomerate talus
	Q	Qt	Dolerite talus
		Qrs	Older alluvium marsh deposits downwash etc.
		Qpf	Fluvioglacial & lacustrine deposits
		Qpm	Moraine
PERMIAN	P	Pt	Zeehan Glacial Formation
DEVONIAN	D	Db	Bell Shale
		Df	Florence Quartzite
SILURIAN	S	Sac	Austral Creek Siltstone
		Sk	Keel Quartzite
		Sa	Amber Slate
		Sc	Crotty Quartzite
		S	Unassigned
ORDOVICIAN	O	Og	Gordon Limestone
		Om	Moina Sandstone
		Oz	Mt. Zeehan Conglomerate
CAMBRIAN	€	€m	Misery Conglomerate
		€cl	Climie Formation
		€f	Fernflow Formation
		€co	Comet Formation
		€fe	Fernfields Formation
		€b	Brewery Junction Formation
		€ra	Razorback Conglomerate
		€h	Hodge Slate
		€r	Red Lead Conglomerate
		€d	Dundas Group unassigned
		€c	Crimson Creek Formation
		€	Cambrian unassigned
PROTEROZOIC	P	Puo	Oonah Quartzite & Slate
		Pc/Pw	Concert Schist / Whyte Schist
IGNEOUS ROCKS			
JURASSIC		Jdl	Jurassic Dolerite
DEVONIAN	D	Dqp	Quartz porphyry
CAMBRIAN	€	€g	Gabbro, norite and dolerite
		€s	Serpentinite and pyroxenite

- Stream sediment (M)
- Panned concentrate (P)
- Rock chip, Float (R, F)
- Limonite (L)

181 — 182 GEOTERREX BARRENGER SYSTEM AIRBORNE TEST E.M. LINE 1.5E (1978)

MH 208·20 MAGNETIC HIGH AT FIDUCIAL 208·20 ON FLIGHT LINE

EM 206·45 E.M. ANOMALY AT FIDUCIAL 206·45 ON FLIGHT LINE

619037

5 cm

PACMINEX PTY. LIMITED

GEOTERREX E.M. TEST LINES AND DRAINAGE SAMPLE NUMBERS

E. L. 15/76 - North Sheet

DUNDAS, WEST TASMANIA

SCALE	1 : 10 000
DRAWN	P.M.M. / P.H.
DATE	Jan '79
REVISED	May '81, Oct. '81

K 555 - 6

83-1928 Vol 7/7

1203.

PACMINEX PTY. LIMITED

GEOTERREX EM TEST LINES AND DRAINAGE SAMPLE NUMBERS

619038

E.L. 15/76 - South Sheet

DUNDAS, WEST TASMANIA

SCALE	1:10000
DRAWN	P.M.M. / P.H.
DATE	December 1977
REVISED	Jan '79, May '81, Oct '81

K555-7

83-1928 Vol 1/7

1204

365 000mE 366 000mE 367 000mE 368 000mE 369 000mE 370 000mE 371 000mE 372 000mE 373 000mE 374 000mE 375 000mE 376 000mE 377 000mE

5 369 000mN
5 368 000mN
5 367 000mN
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5 365 000mN
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5 353 000mN
5 352 000mN
5 351 000mN

GUNI (CSR 1982)
E.Z NORTH MELBA FLAT GRID
BMR CUNI GRID
CSR PRE 1982 GRID
E.Z EAST MELBA GRID
E.Z DEVEREAU GRID
BMR CUNI EXTENSION GRID
NEVADA (CSR 1982)
GEOTERREX EM LINE 1 S
ANOMALY 'A' SUB GRID
RENISON SPL 20
GRAND PRIZE GRID
CSR FRAZER GRID PRE 1982
INTERMEDIATE GRID
CARBINE WEST GRID
CARBINE EAST GRID
RAZOR BACK GRID
COMSTAFF GRID WITH I.P. ANOMALIES
MONTEZUMA NORTH GRID
NORTH COMET GRID
RAZOR BACK GRID
HASSETT GRAVEL PIT GRID
AINSLIE GRID
MONTEZUMA SOUTH GRID
WEST COMET GRID
COMET
PLATT GRID
ROSMINSKY
ADELAIDE GRID
GRID
EAST SOUTH COMET GRID
SILVER GRID
TENNECO A.R. DOBSON BLACK JACK GRID EM MAG. S.P. GRAVITY
RED LEAD GRID
BONANZA GRID
SOUTH COMET GRID
MARIPOSA WEST GRID
MARIPOSA EAST GRID
MT. DUNDAS GRID
CLIMIE (CSR 1982)
MARIPOSA SOUTH GRID
BMR / NTH. BROKEN HILL MARIPOSA GRID GRAVITY MAG. DRILL.
GEOPHOTO GRID
Mc INTYRE ANOMALY 1 AREA SOIL GEOCHEM. - Pb Zn, Cu
GEOTERREX EM LINE 2E
MAG.
Mc INTYRE MARIPOSA GRID I.P. SP. SOIL GEOCHEM. Cu., Pb., Zn DDH's
RIO TINTO MARIPOSA GRID
GEOTERREX EM LINE 35W
GEOPHOTO HOWARD GRID
GEOPHOTO AMBER CREEK GRID
EM MAG SOIL GEOCHEM Cu, Pb, Zn, Co, Ni, Ag
HOWARD ROAD (CSR 1982)

5 cm

CSR LIMITED-MD

E.L. 15/76 / DUNDAS W. TAS.

PAST EXPLORATION SUMMARY

619039

SCALE : 1:20,000	DRG. No.
DRAWN : P.E./P.R.	K555-32
DATE : Dec. '82	
REVISED :	

83-1928 Vol 1/7

1205

NOTE : 1962 ZEEHAN 1 MILE SHEET GEOLOGY SUPERIMPOSED OUTSIDE GRID MAPPED LITHOLOGIES

SEE REPORT EMR 46/81

GEOTERREX AIRBORNE EM ANOMALY 185-15

PITS IN LIMONITE

RED CHERT HILL

CUNI LINE 5487 N

CUNI B/L PROJECTED

NEVADA CREEK

YELLOW CLAY ZONE

HIGHWAY

RAZORBACK BASELINE

MURCHISON

GEOTERREX FLIGHT LINE 1 SE

REFERENCE

ROCK UNITS

QUATERNARY

- Qra Alluvium
- Qrg Gravels T3 High level gravels 2-4 m above creeks ; T2 Intermediate, Terrace level ; T1 Low level
- Qrs Older alluvium, downwash
- L Limonite terrace capping

CAMBRIAN

- €b Brewery Junction formation
- €ra Razorback Conglomerate (Prefix R)
  - (i) Upper - cg > g : Purple & green siltstone & chert clast greywacke pebble/cobble conglomerate (cg) and sandstone (g), green greywacke matrix ie. Rcg Razorback greywacke conglomerate
  - (ii) Middle - S3 Bedded platy green siltstone with occasional greywacke bands, usually fine greywacke sandstone (gss) - Symbol RS3
  - (iii a) Lower - CSS "Chip" breccia sandstone - a fine variety of Cb - not always present on top of Cb.
  - (iii b) Lower - Cb "Chip" breccia conglomerate - clasts of red, pink and white shale and chert chips, some subrounded - Typical €ra? Symb. Rcb
- €h Hodge Slate (H prefix) medium green platy to thinly bedded siltstone (S3) and shale. Apparently lacks greywacke bands unlike €ra middle unit - Symbol HS3
- €c Crimson Creek Formation
- €g } Gabbro, dolerite
- €s } Serpentinite

LITHOLOGY TYPES

(1) Conglomerate - c
- 1-1 cg - Greywacke congl. with mixed large pebbles/cobbles, generally red & green siltstones, green greywacke matrix
- 1-2 cb - €ra "Chip" breccia, pale.
- 1-3 Css - A finer variety of Cb - a pale gritstone.

(2) Greywacke - g
- 2-1 g - greywacke - coarse grained with rock clasts
- 2-2 gss - greywacke sandstone
- 2-3 gs - greywacke siltstone
- 2-4 gsh - greywacke shale

(3) Siltstone - S
- 3-1 S1 - grey siltstone
- 3-2 S2 - grey-blue siltstone
- 3-3 S3 - green siltstone (gs 2 = green greywacke siltstone)
- 3-4 S4 - black siltstone / shale.
- 3-5 S5 - dark green contorted schist (possibly €s?)

(4) Quartz / Chert - Q/ch
- 4-1 Ch - chert: red (rch), grey (gch), white (wch)
- 4-2 Fch - brown limonite chert ("gossanous" chert)
- 4-3 QS - siliceous sintery quartz, often with 1-5% black f-g crystals/chromite?) Usually with chert, limonitic chert & quartz veins. Derived from €s ?

(5) Δ - Scree slope material
ie. ΔQS - quartz sinter slope scree.

BASE OR CHANGE OF SLOPE
RIDGE TOP
GEOLOGICAL BOUNDARY
WATERCOURSE
FAULT
STREAM SEDIMENT SAMPLE
PAN CONCENTRATE SAMPLE
A551 + or +
AUGERED SOIL SAMPLE SERIES A1/0651-875 (1982). SEE EMR 20/80 FOR RESULTS ON LINES NEV 1-3 SAMPLES 602 NEV 001-122

5 cm

CSR LIMITED - M D

GEOLOGICAL MAP & SAMPLE LOCATIONS

619040

NEVADA GRID

E.L. 15/76 DUNDAS, TASMANIA

SCALE	1:2500
DRAWN	PMM/CJL
DATE	DEC 1982
REVISED	

K 555 - 39

83-1928 Vol 1/7 1205

GEOTERREX E M LINE 2E

MH 191 93

MH 193-10

MH 193-10

ORIGIN DESIGNATED 56900N/74000 E

AIRBORNE EM LINE 3 SW

GEOTERREX

McINTYRE - Pb IN SOIL ANOMALY

200 ppm

GEOCHEM PRECISION TEST SITE

BASE OF SLOPE

RIDGE

RIDGE

RIDGE

LINE 54500 N

ACID TO INTERMEDIATE VOLCANICS AND PYROCLASTICS

TOM CREEK

BERRY CREEK

EMART CREEK

AMOCO FARMOUT AREA

GEOPHOTO'S HOWARDS GRID

?€d

Qpm

Om

Qrs

Qpm

Puo

Og

Sa

Qpm

€d

Es

Eg

€d

Chloritic felsp Tuffit

A307D

A308D 75° grey slst

A309D

A310D

A311D

A196D 676P

679M 680M 682P 681M

dk grey bk Sh 85°

191-55

538M 791M 792P

876M 877PQ

793M

192-37

794M 795P 559M

dk gr slst

786M 787PQ 555M 782M 783PQ 556M 784M 785P 778M 789P 790M 75°

554M 780M 781P

839y N

838y N

53 58

53 57

53 56

53 55

53 54

56500N

55500 N

55050N

54500 N

54000N

74000E

75000E

73000E

72000E

74000E

73000E

72000E

74000E

75000E

74000E

A183D 5WM 67°

A184D 3WM

A181D 5WM

A182D 5WM

A185D

A186D

A187D A036D

A035D

A038P A031D A032D

A029D A030D

A028D blue grey micac. ST

A027D

A034P A025P A026D

A021D A023D A022P

A024D

A020

A019D (0.2 ppm Au)

A018D

A039D

A040D

A017D (19ppm Au) A346D A016D

A014D A015P A015D

A012D

A011D

A005D A007P A006D

A162D 194-15 665M

A199D 5WM

A193D

A196D

A346D

A347D

A348D

A349D

A350D

A351D

A352D

A353D

A354D

A355D

A356D

A357D

A358D

A359D

A360D

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A363M

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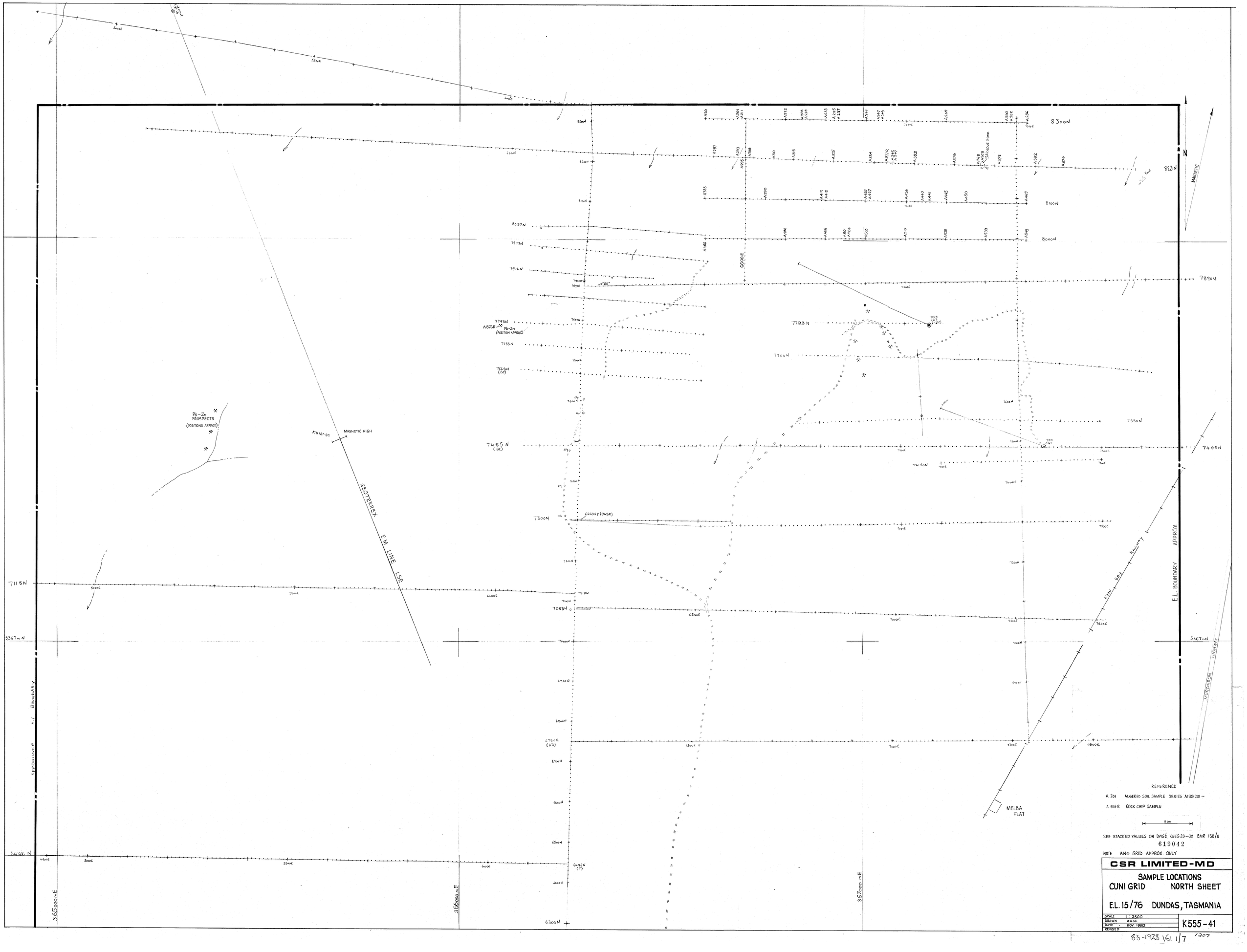
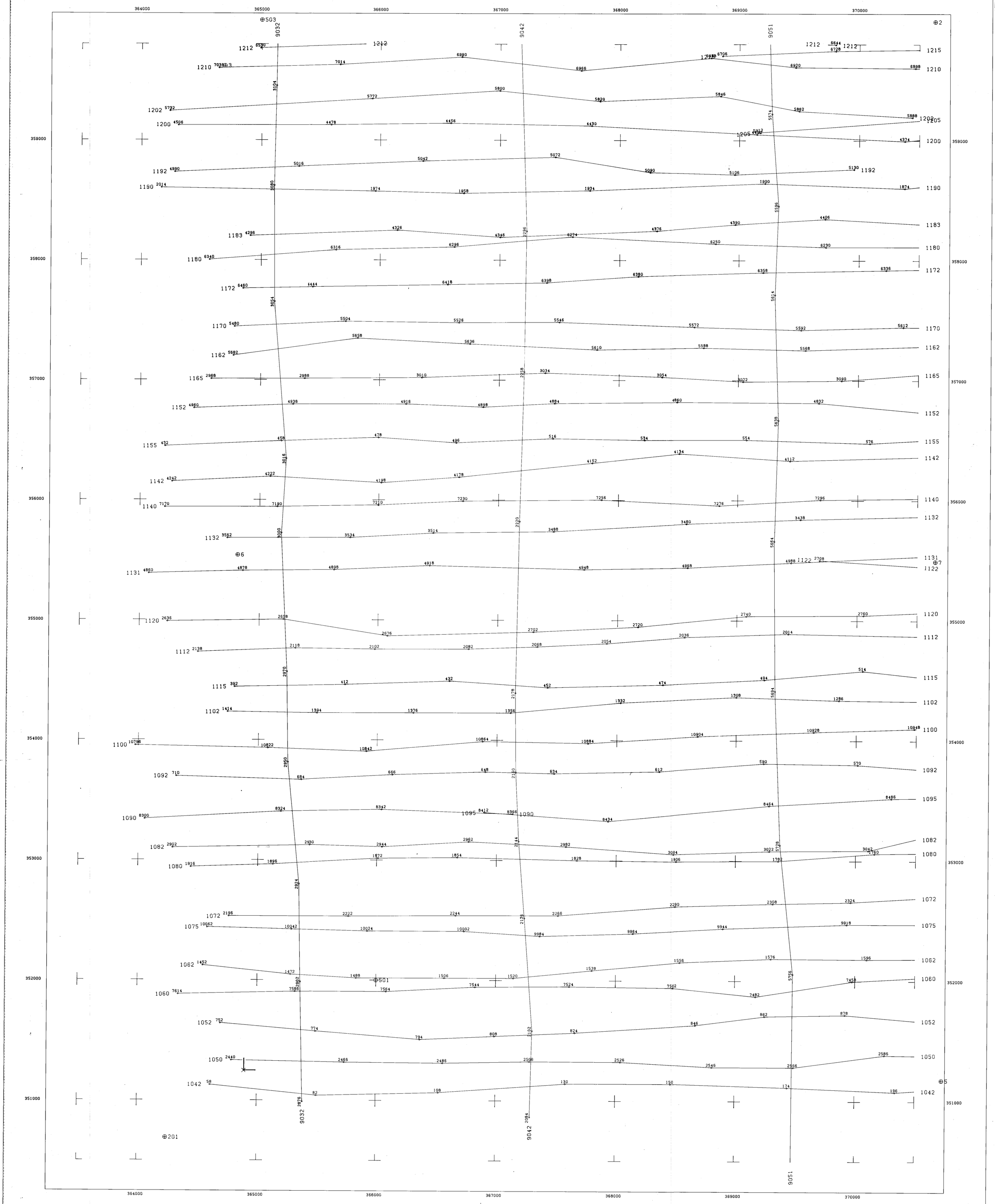

8300N
8221N
8100N
8037N
8000N
7977N
7916N
7890N
7793N
AB76R Pb-Zn (POSITION APPROX)
7733N
7700N
7668N (BJ)
7600N
7550N
7485N (BC)
7450N
7300N
62684X (BASE)
7200N
7118N
7083N
7000N
6900N
6800N
6775N (AD)
6700N
6600N
6500N
6446N (T)
6400N
6300N
5367mN
5000E
5500E
6000E
6500E
7000E
7500E
8000E
5600E
MAGNETIC
N
Pb-Zn PROSPECTS (POSITIONS APPROX)
MH181-85
MAGNETIC HIGH
GEOTERREX E.M. LINE 15E
APPROXIMATE E.L. BOUNDARY
E.L. BOUNDARY APPROX
FMU BAY RAILWAY
VICTORIA HIGHWAY
MELBA FLAT
365000 mE
366000 mE
367000 mE
A201
A876R
Siliceous zone
REFERENCE
A 201 AUGERED SOIL SAMPLE SERIES A138 201 –
A 876 R ROCK CHIP SAMPLE
5 cm
SEE STACKED VALUES ON DWGS K555-28–30 EMR 138/8
619042
NOTE ANG GRID APPROX. ONLY
CSR LIMITED-MD
SAMPLE LOCATIONS
CUNI GRID NORTH SHEET
E.L. 15/76 DUNDAS, TASMANIA
SCALE 1:2500
DRAWN P.M.M.
DATE NOV. 1982
REVISED
K555-41
83-1928 Vol 1/7
1207

6190424

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

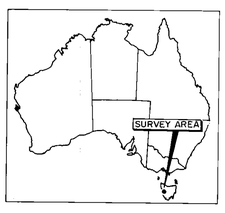
DUNDAS AREA TASMANIA

FLIGHT PATH PLØT

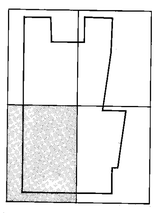
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LØCATION



SHEET INDEX

Navigation control was by reference to photomosaics and/or photo strips.
Flight path analysis was achieved by identification of 16mm. ground tracking photographs on the navigation control. The ground tracking camera was operated at a rate of one camera frame for two data samples, such that successive camera frames overlap.
An attempt was made to recover fiducials at intervals of 1.0 kilometre, and only recovered fiducials are shown on the map.
During processing the photomosaic was controlled using the Australian Metric Grid control points.

SURVEY BØUNDARY
⊕ Registration point identified on photomosaic.
+ 1000 metre Australian Metric Grid.

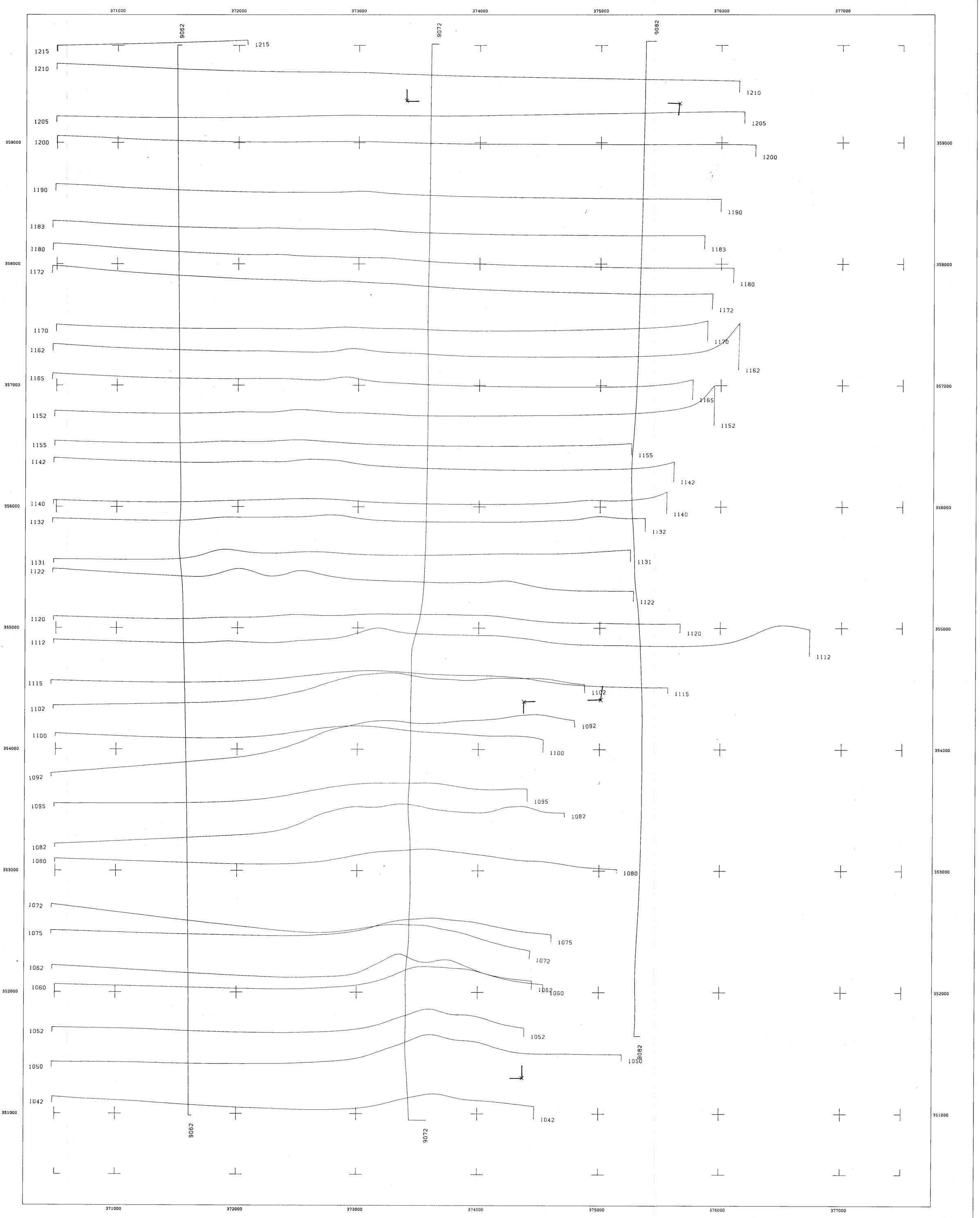
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND1 SCALE 10000

6190428

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

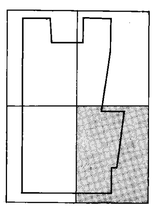
PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm

SURVEY LOCATION



SHEET INDEX

SURVEY BOUNDARY

BASELINE VALUE 0 nT VERTICAL SCALE 200

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND4 SCALE 10000 /1 BASE 0 VERT SCALE 200 FILTER 1

619042C

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS

Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

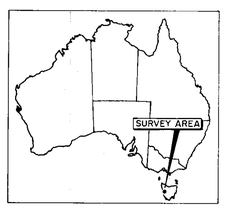
DUNDAS AREA TASMANIA

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENSITY

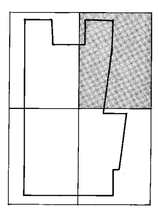
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



SHEET INDEX

The data presented is the residual magnetic intensity, after subtracting the International Geomagnetic Reference Field from the observed Total Magnetic Intensity. The data was corrected for diurnal drift using a base station monitor at QUEENSTOWN Airfield, Latitude 42.077 S, Longitude 145.529 E, Altitude 259 Metres. The sensor height was 3 metres. The adopted value for this location was 62888 nT. Final detailed levelling of the data was performed using tie-line crossover analysis. A simple 3 point filter was applied to the data, which was then gridded and contoured using a 75m by 75m mesh cell.

SURVEY BOUNDARY

CONTOUR INTERVAL 5 nTesla

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

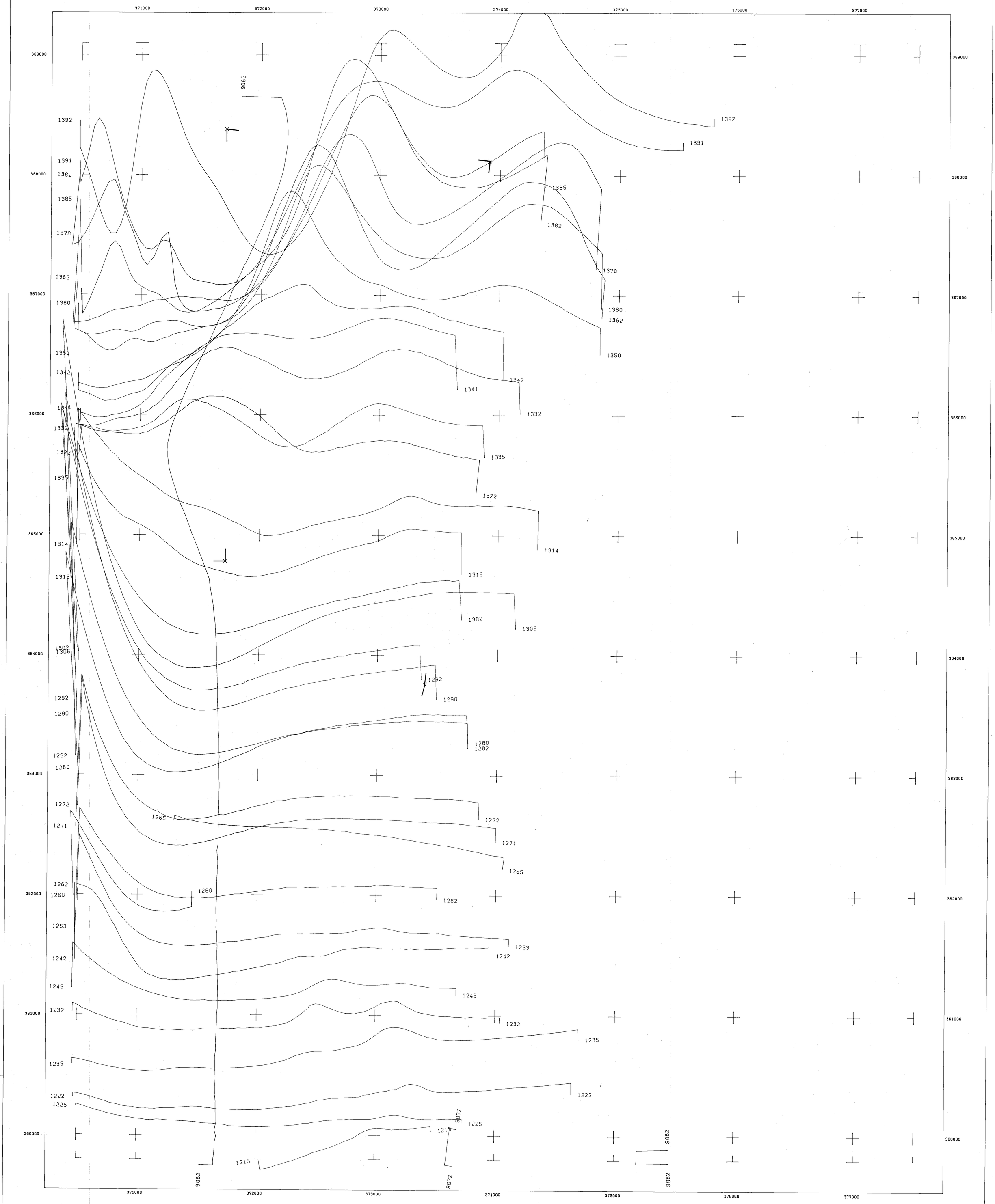
EQUIPMENT SPECIFICATIONS
Cessna A185E Aircraft
SONOTEK IGS51 SYSTEM
0.1 nT MAGNETOMETER
256 CHANNEL SPECTROMETER
24 Litre NaI(Tl) DETECTOR
KING KA810 RADAR ALTIMETER
16mm Ground Tracking Camera
Industry Standard 9 track
32 RPmm Magnetic Tape
8 Channel Analogue Recorder
3 Channel Analogue Recorder for Magnetometer

The nominal flight line separation was 250 metres, and the nominal tie-line bearing was 0 degrees. The observed mean sample interval in the flight direction was 41 metres, achieved with a nominal aircraft speed of 100 Knots, and a reading interval of 0.8 seconds. The mean sensor height was 150 metres, using a towed bird configuration. The magnetometer accuracy is 1.0 nT, and the resolution 0.1 nT.

619042D

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

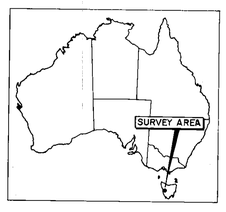
0 200 400 600 800 1000 METRES

5 cm

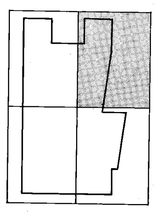
SURVEY BOUNDARY

BASELINE VALUE 100 nT VERTICAL SCALE 25nT/cm.

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982



SURVEY LOCATION



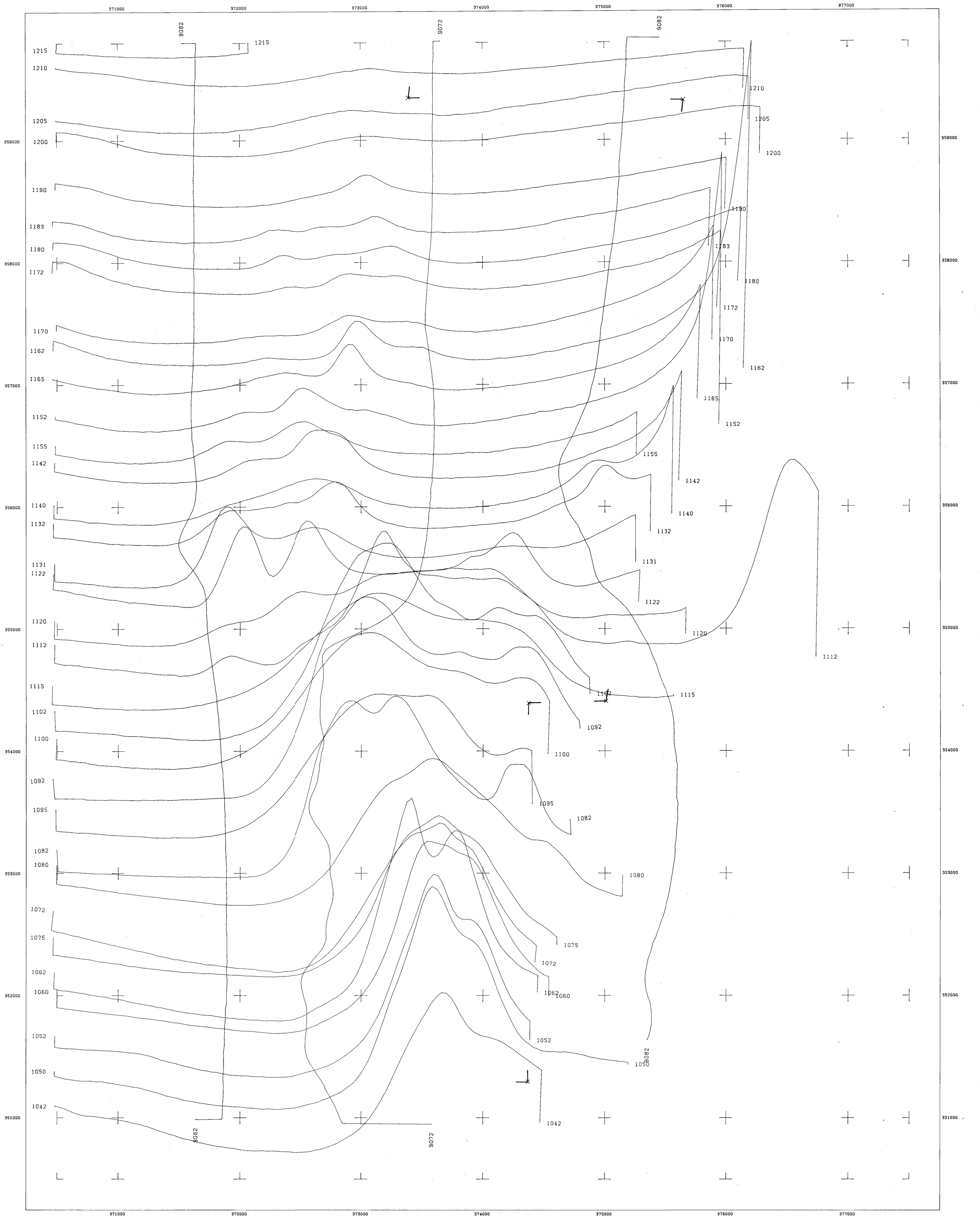
SHEET INDEX

DUND5 SCALE 10000 /1 BASE 100 VERT SCALE 25 FILTER 1

619042 E

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

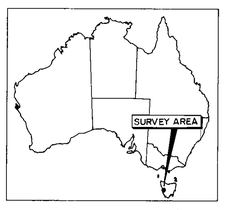
DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

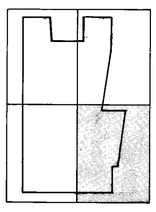
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



SHEET INDEX

SURVEY BOUNDARY

BASELINE VALUE 100 nT VERTICAL SCALE 25nT/cm.

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND4 SCALE 10000 /1 BASE 100 VERT SCALE 25 FILTER 1

619042 F

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS

371000 372000 373000 374000 375000 376000 377000

369000 368000 367000 366000 365000 364000 363000 362000 361000 360000

9062 1392 1391 1382 1385 1370 1362 1360 1350 1342 1341 1332 1322 1335 1314 1315 1302 1306 1292 1290 1282 1280 1272 1265 1271 1262 1260 1253 1242 1245 1232 1235 1222 1225 9072 1215 9082

Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

0 200 400 600 800 1000 METRES

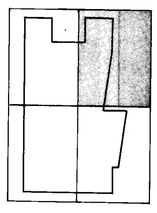
5 cm

SURVEY BOUNDARY

BASELINE VALUE 0 nT VERTICAL SCALE 200

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

SURVEY LOCATION



SHEET INDEX

DUNDS SCALE 10000 /1 BASE 0 VERT SCALE 200 FILTER 1

619042 G

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS

364000 365000 366000 367000 368000 369000 370000

359000 358000 357000 356000 355000 354000 353000 352000 351000

Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C.S.R. LIMITED

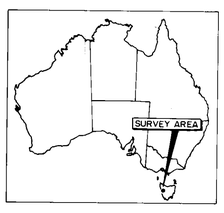
DUNDAS AREA TASMANIA

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENSITY

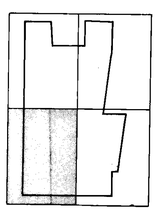
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



SHEET INDEX

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SURVEY BOUNDARY

CONTOUR INTERVAL 5 nTesla

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

EQUIPMENT SPECIFICATIONS
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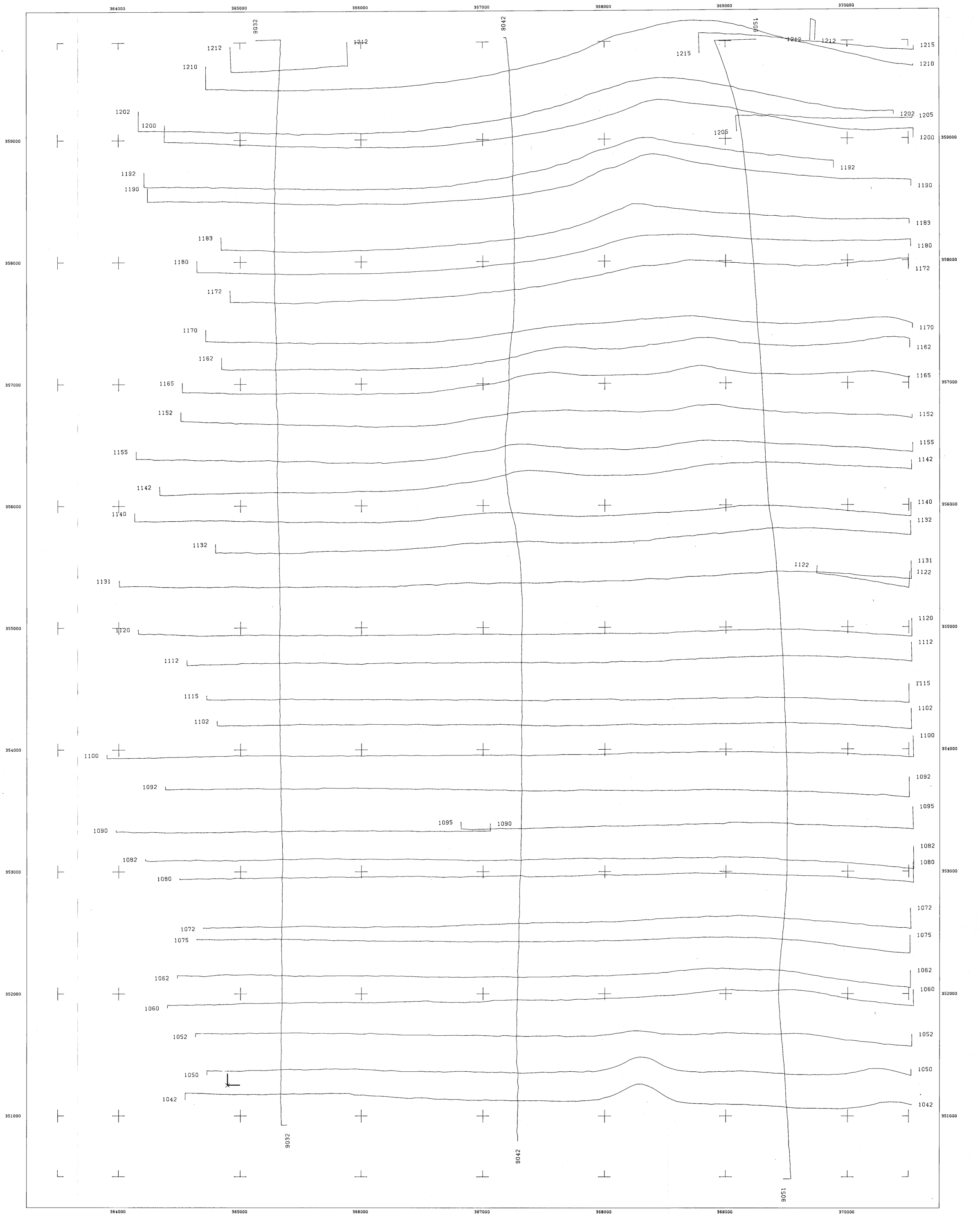
SONOTEK IGSS1 SYSTEM
0.1 nT MAGNETOMETER
256 CHANNEL SPECTROMETER
24 Litre NaI(Tl) DETECTOR
KING KRA10 RADAR ALTIMETER
16mm Ground Tracking Camera
Industry Standard 9 track 32 BPmm Magnetic Tape
8 Channel Analogue Recorder
3 Channel Analogue Recorder for Magnetometer

The nominal flight line separation was 250 metres, and the nominal tie-line bearing was 0 degrees.
The observed mean sample interval in the flight direction was 41 metres, achieved with a nominal aircraft speed of 100 Knots, and a reading interval of 0.8 seconds. The mean sensor height was 150 metres, using a towed bird configuration. The magnetometer accuracy is 1.0 nT, and the resolution 0.1 nT.

619042 H

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

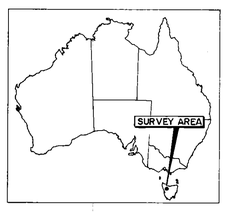
DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



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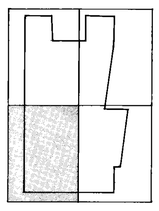


SHEET INDEX

SURVEY BOUNDARY

BASELINE VALUE 100 nT VERTICAL SCALE 25nT/cm

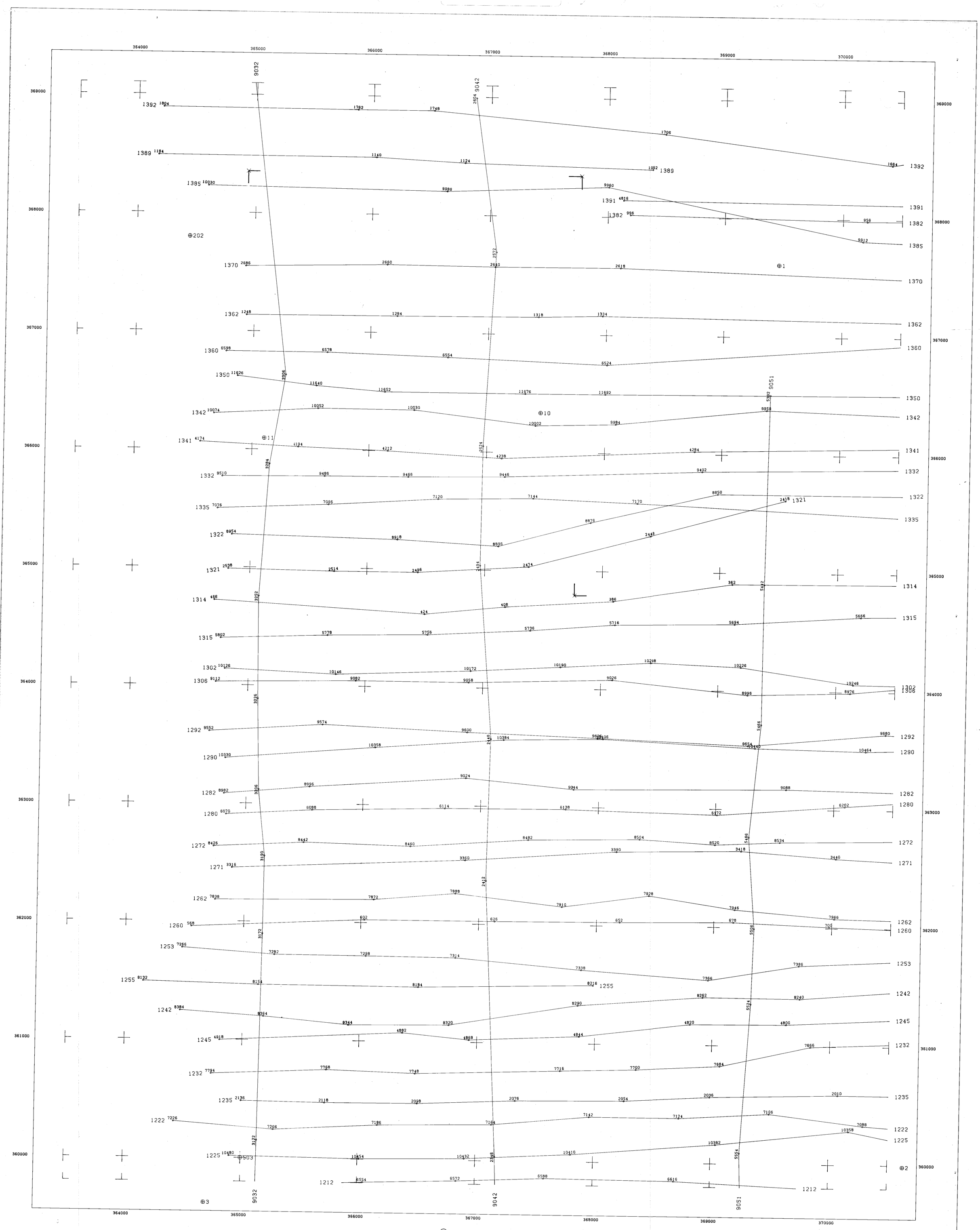
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

FIND1 SCALE 10000 /1 BASE 100 VERT SCALE 25 FILTER 1

6190421

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

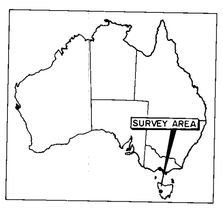
DUNDAS AREA TASMANIA

FLIGHT PATH PLOT

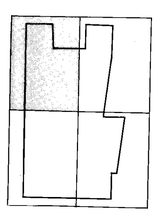
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



SHEET INDEX

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Flight path analysis was achieved by identification of 16mm. ground tracking photographs on the navigation control. The ground tracking camera was operated at a rate of one camera frame for two data samples, such that successive camera frames overlap.
An attempt was made to recover fiducials at intervals of 1.0 kilometre, and only recovered fiducials are shown on the map.
During processing the photomosaic was controlled using the Australian Metric Grid control points.

SURVEY BOUNDARY
⊕ Registration point identified on photomosaic.
+ 1000 metre Australian Metric Grid.

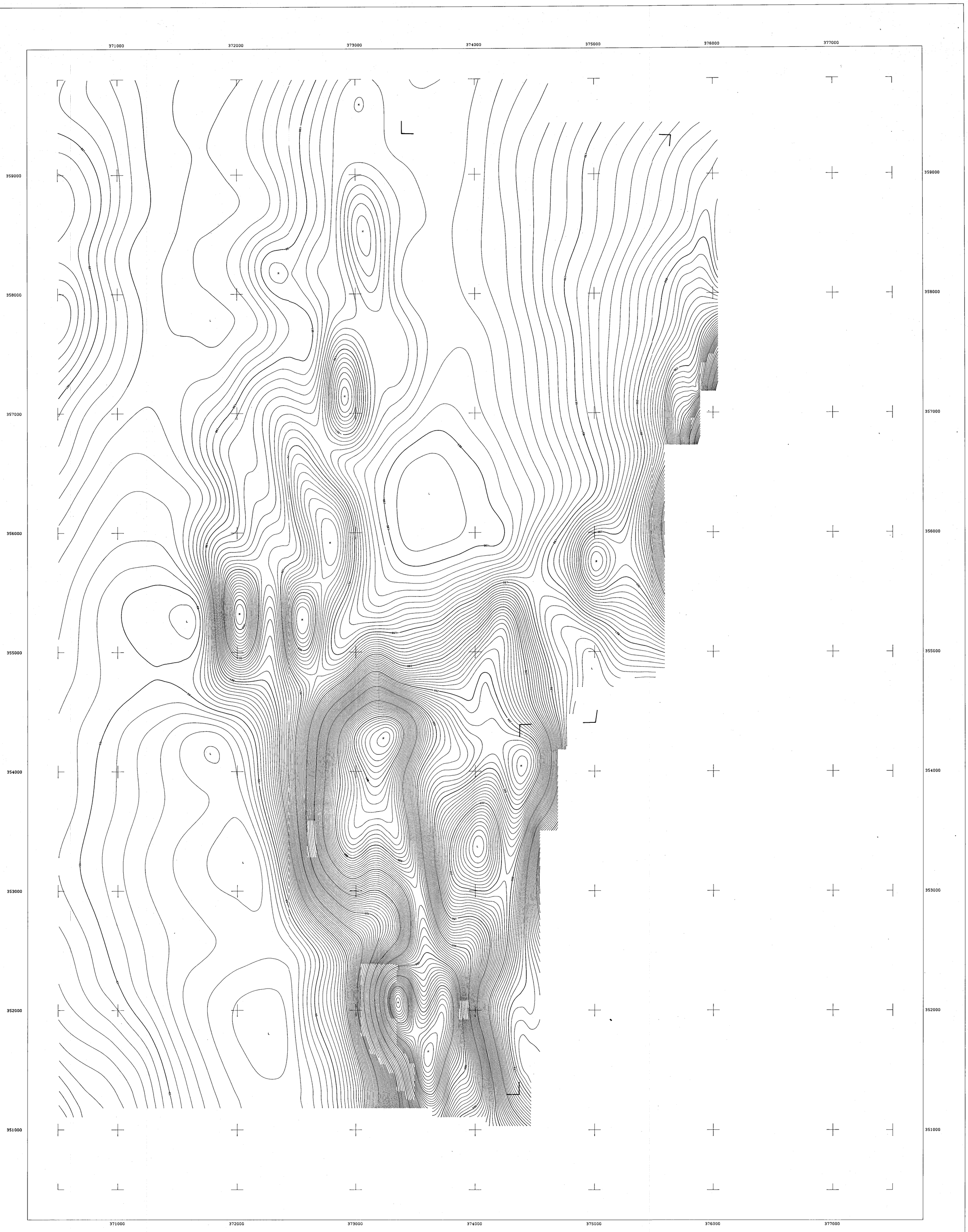
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND2 SCALE 10000

619042J

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

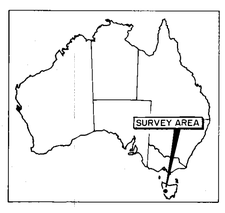
DUNDAS AREA TASMANIA

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENSITY

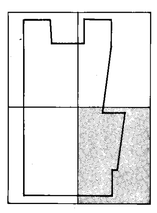
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



SHEET INDEX

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SURVEY BOUNDARY

CONTOUR INTERVAL 5 nTesla

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

EQUIPMENT SPECIFICATIONS
Cessna A185E Aircraft
SONOTEK IGSSI SYSTEM
0.1 nT MAGNETOMETER
256 CHANNEL SPECTROMETER
24 Litre NaI(Tl) DETECTOR
KING KRA10 RADAR ALTIMETER
16mm Ground Tracking Camera
Industry Standard 9 track
32 BPmm Magnetic Tape
8 Channel Analogue Recorder
3 Channel Analogue Recorder for Magnetometer

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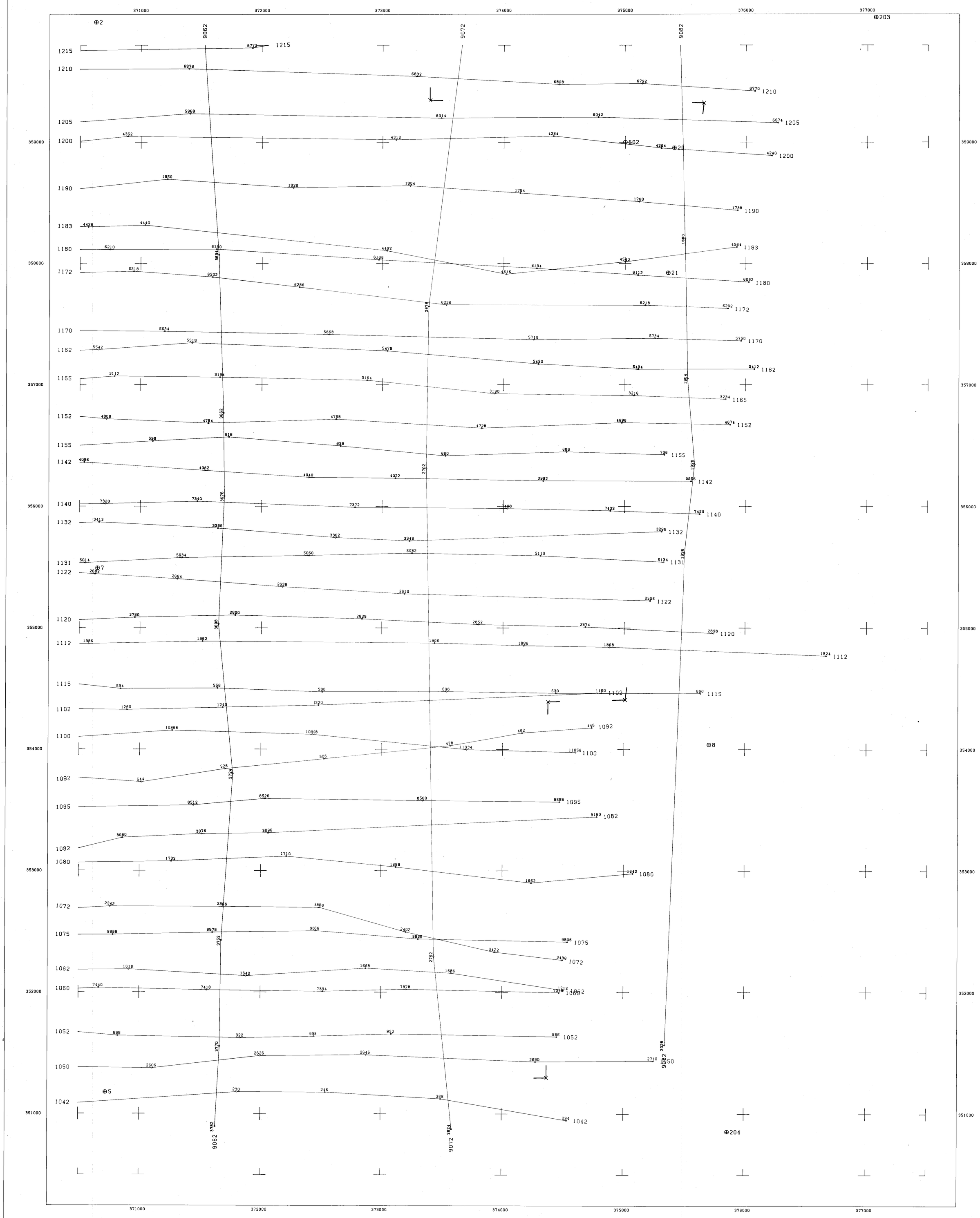
619042 K

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

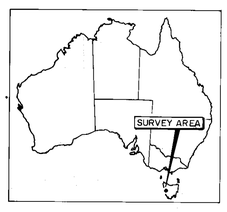
DUNDAS AREA TASMANIA

FLIGHT PATH PLØT

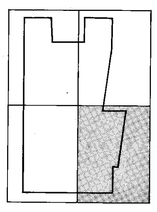
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



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An attempt was made to recover fiducials at intervals of 1.0 kilometre, and only recovered fiducials are shown on the map.
During processing the photomosaic was controlled using the Australian Metric Grid control points.

SURVEY BOUNDARY
⊕ Registration point identified on photomosaic.
+ 1000 metre Australian Metric Grid.

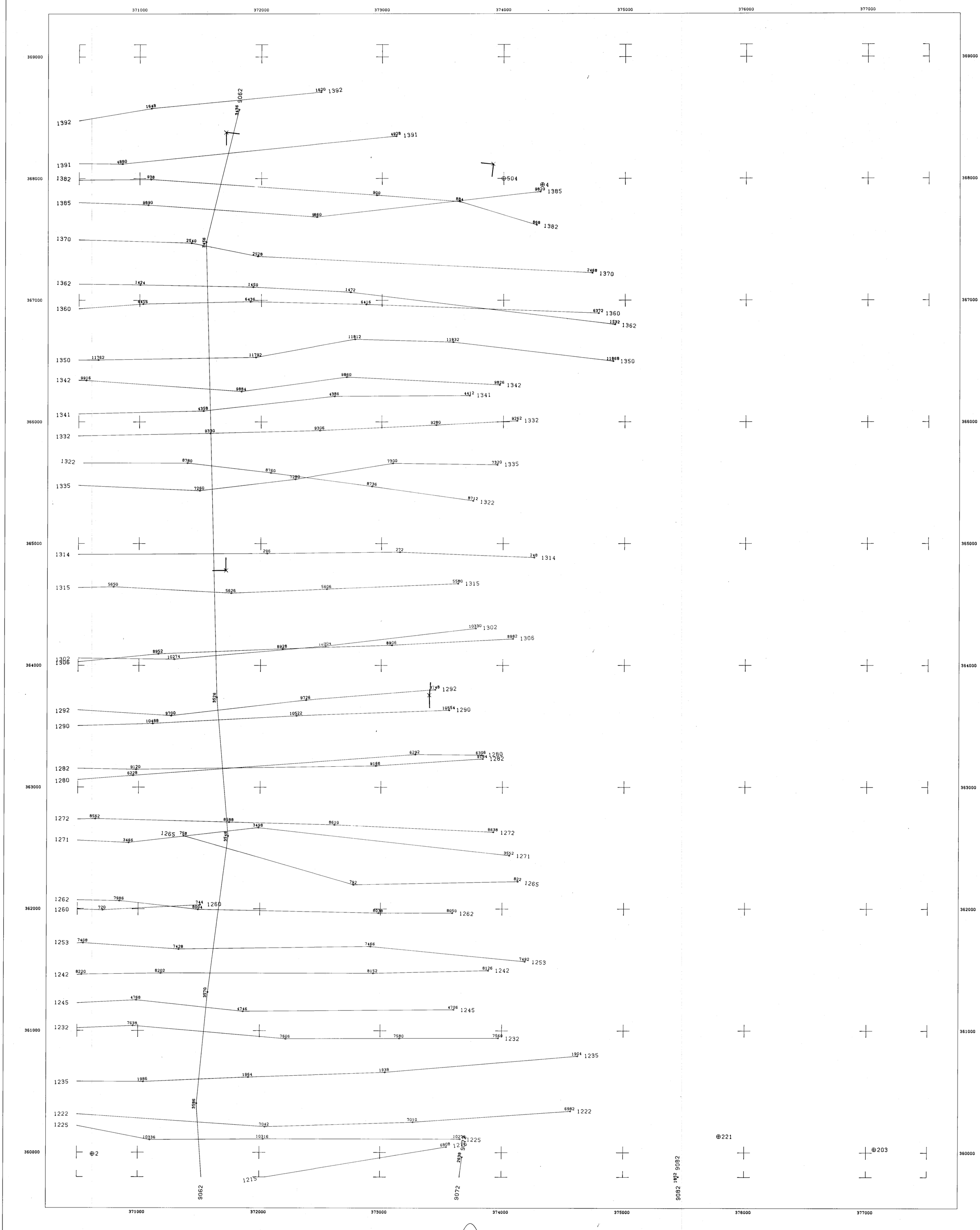
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND4 SCALE 10000

6190424

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

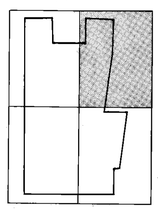
FLIGHT PATH PLOT

SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm

SURVEY LOCATION



SHEET INDEX

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Flight path analysis was achieved by identification of 16mm. ground tracking photographs on the navigation control. The ground tracking camera was operated at a rate of one camera frame for two data samples, such that successive camera frames overlap.
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SURVEY BOUNDARY
⊕ Registration point identified on photomosaic.
+ 1000 metre Australian Metric Grid.

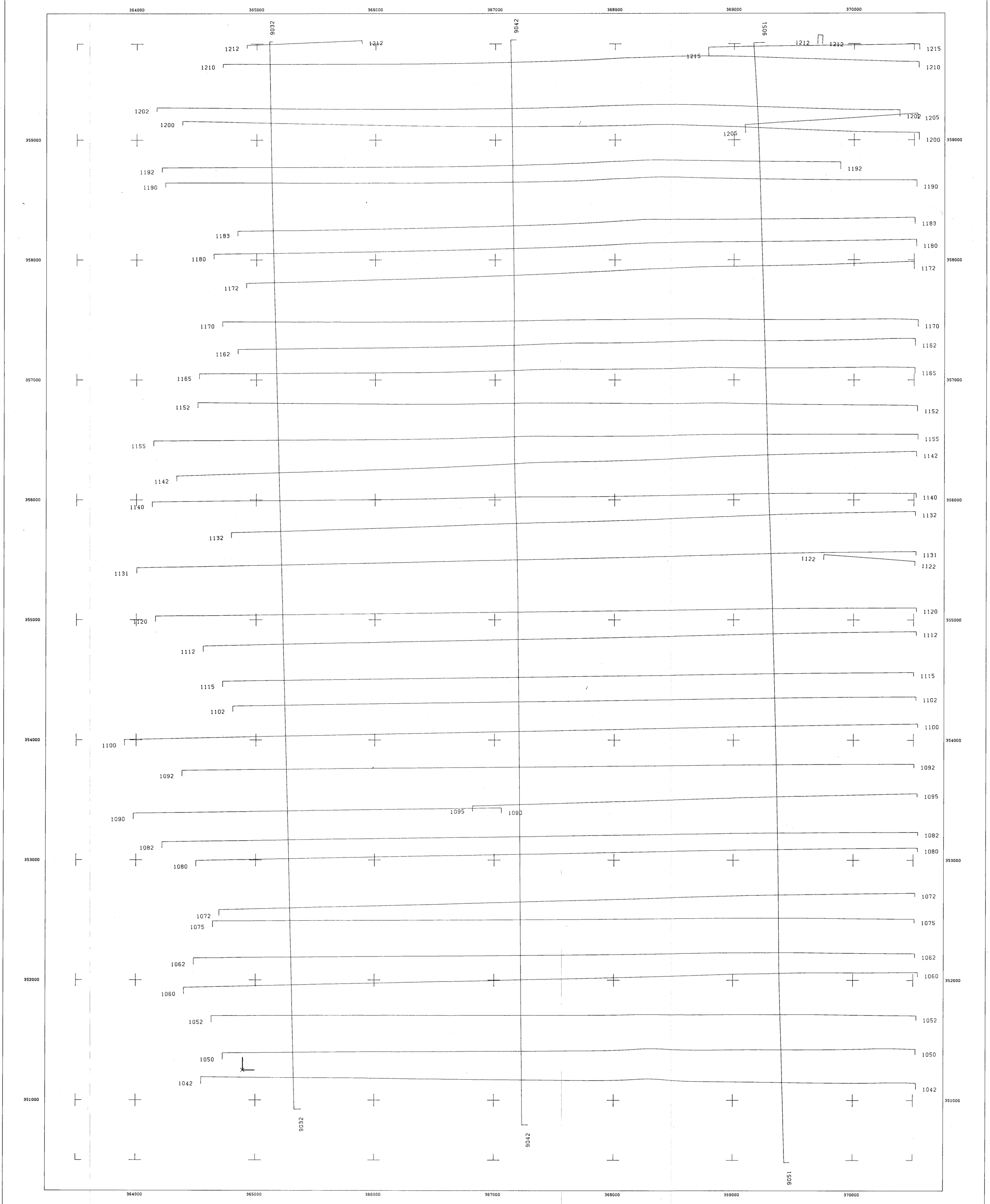
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUNDS SCALE 10000

619042 M

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm

SURVEY LOCATION

SHEET INDEX

SURVEY BOUNDARY

BASELINE VALUE 0 nT VERTICAL SCALE 200

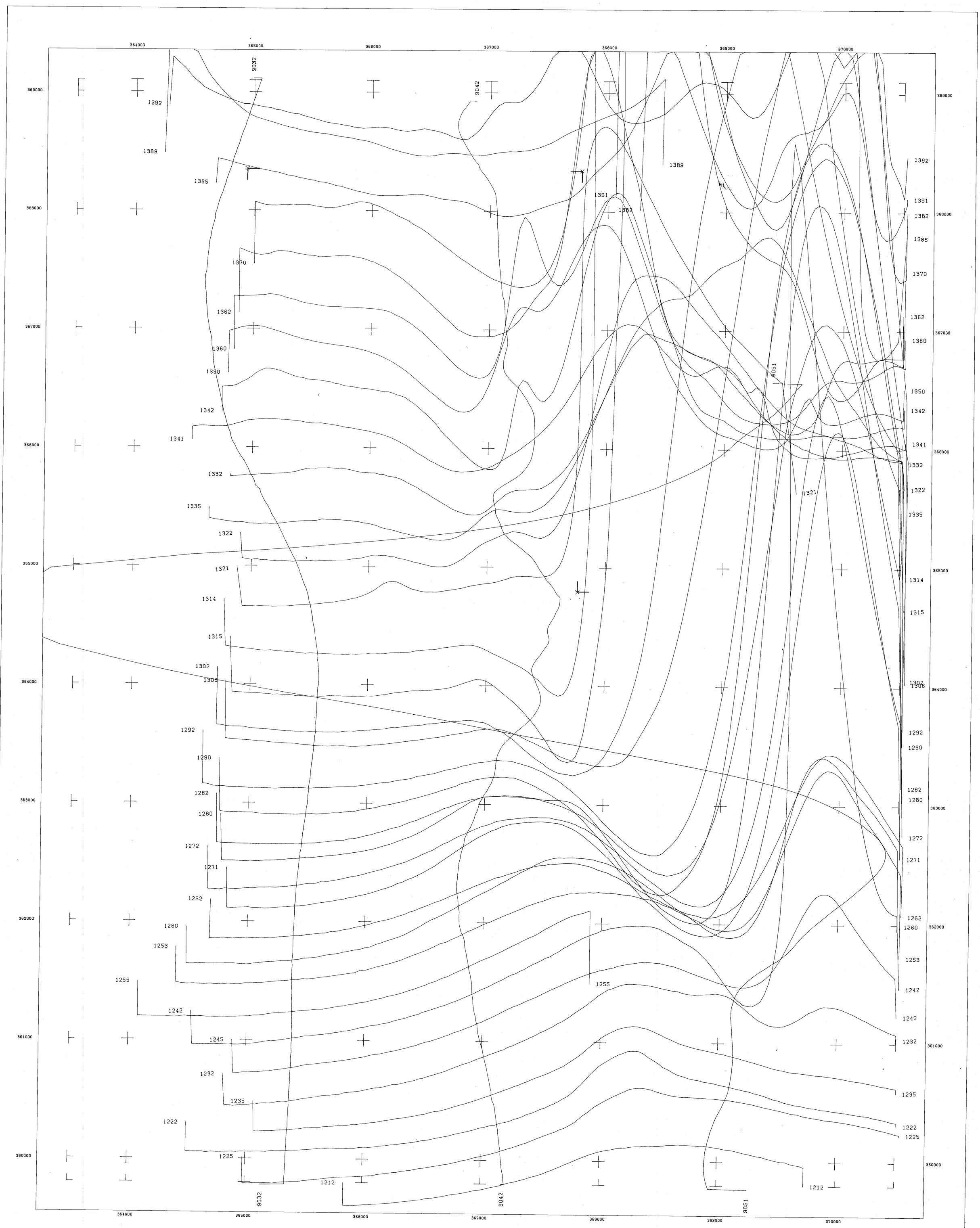
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND1 SCALE 10000 /1 BASE 0 VERT SCALE 200 FILTER 1

619042 N

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

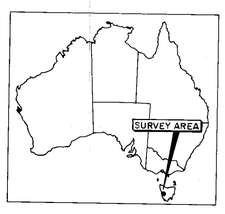
0 200 400 600 800 1000 METRES

5 cm

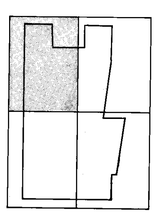
SURVEY BOUNDARY

BASELINE VALUE 100 nT VERTICAL SCALE 25nT/cm

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982



SURVEY LOCATION



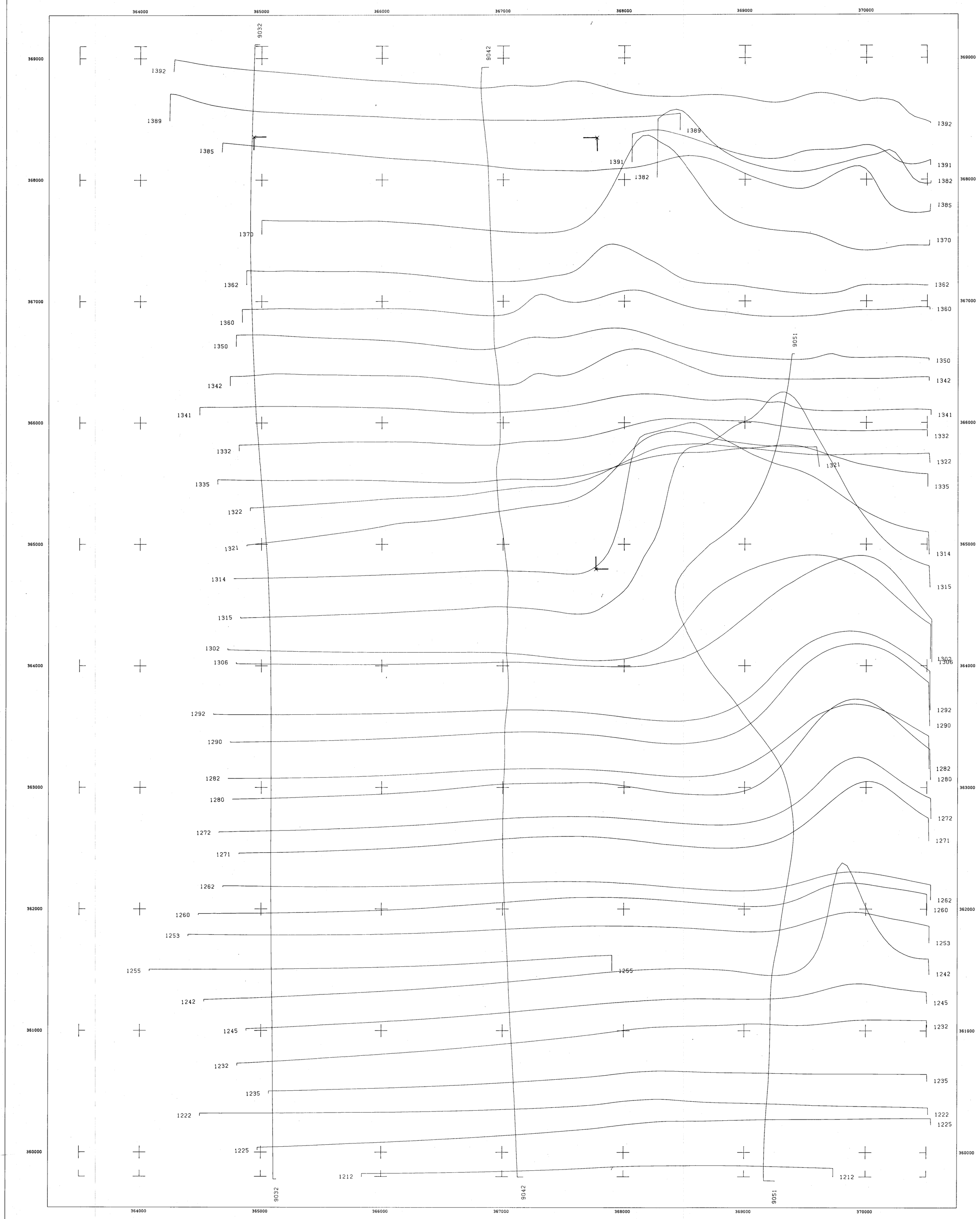
SHEET INDEX

DUND2 SCALE 10000 /1 BASE 100 VERT SCALE 25 FILTER 1

6190420

TCR 83-1928
CSR-Dundas Area

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

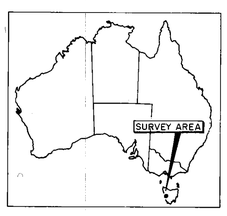
DUNDAS AREA TASMANIA

PROFILES OF TOTAL MAGNETIC INTENSITY

SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



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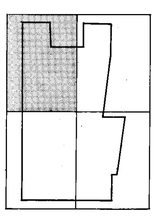


SHEET INDEX

SURVEY BOUNDARY

BASELINE VALUE 0 nT VERTICAL SCALE 200

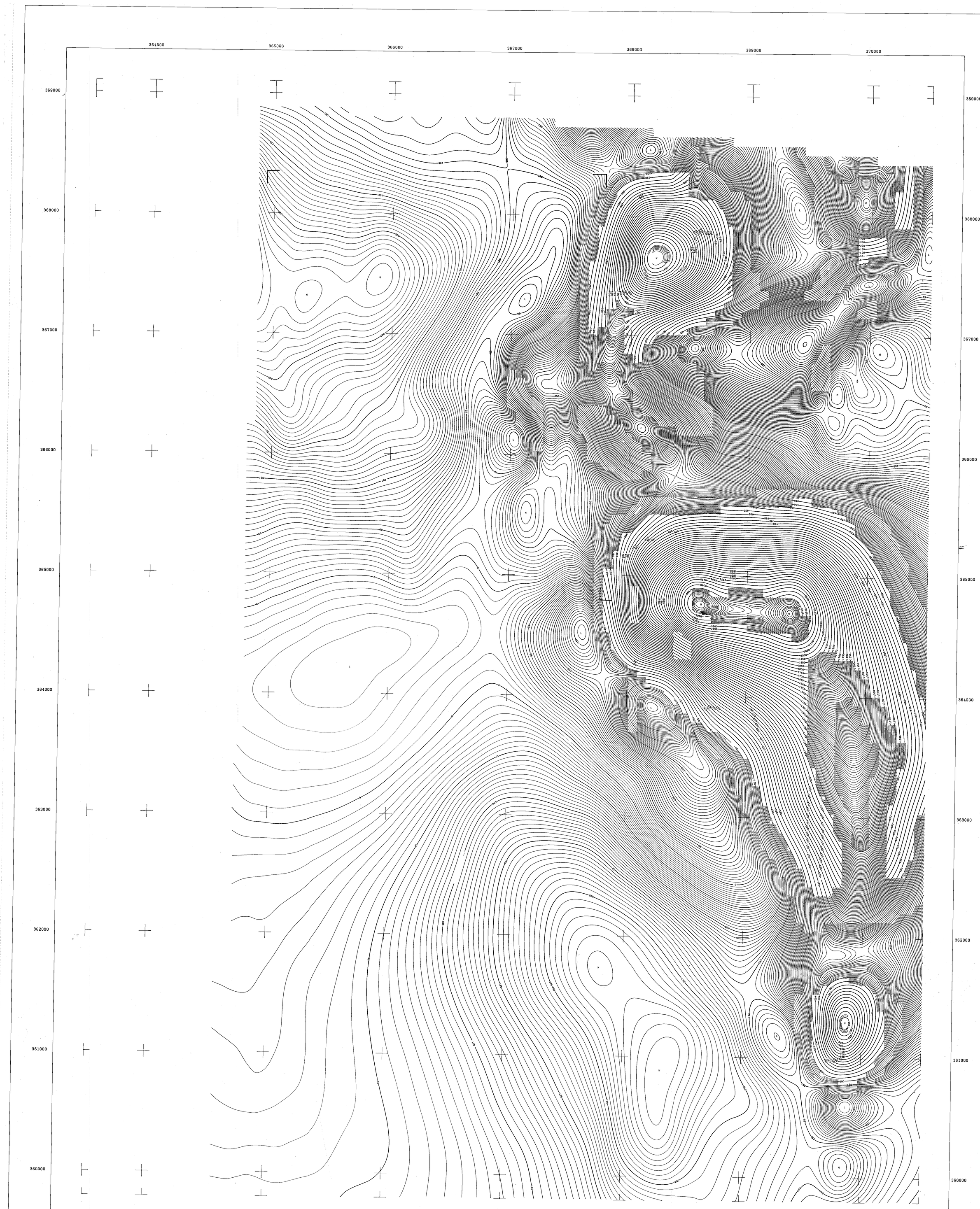
PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

DUND2 SCALE 10000 /1 BASE 0 VERT SCALE 200 FILTER 1

TCR 83-1928
CSR-Dundas Area

619042.P

INFILL AEROMAGNETICS



Airborne Geophysical Survey and Compilation by GEOEX PTY LTD

for

C. S. R. LIMITED

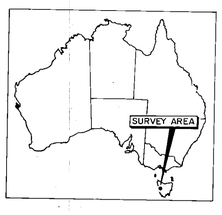
DUNDAS AREA TASMANIA

CONTOURS OF RESIDUAL TOTAL MAGNETIC INTENSITY

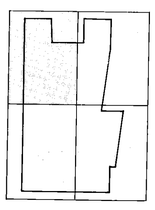
SCALE 1:10000

0 200 400 600 800 1000 METRES

5 cm



SURVEY LOCATION



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SURVEY BOUNDARY

CONTOUR INTERVAL 5 nTesla

PROJECT NUMBER 82713 SURVEYED FEBRUARY 1982

EQUIPMENT SPECIFICATIONS
Cessna A185E Aircraft
SONOTEK IGSS1 SYSTEM
0.1 nT MAGNETOMETER
256 CHANNEL SPECTROMETER
24 Litre NaI(Tl) DETECTOR
KING KRA10 RADAR ALTIMETER
16mm Ground Tracking Camera
Industry Standard 9 track
32 BPmm Magnetic Tape
8 Channel Analogue Recorder
3 Channel Analogue Recorder for Magnetometer

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APPENDIX - 1

AMOCO MINERALS, PROGRESS REPORT,

OCTOBER 1981 TO FEBRUARY 1982,

JOINT VENTURE AREA

PART E.L. 15/76, DUNDAS

PART PROJECT A-80-82 DISC 96

PROGRESS REPORT

OCTOBER 1981 TO FEBRUARY 1982

AMOCO - CSR JOINT VENTURE

PART EXPLORATION LICENCE 15/76

DUNDAS, TASMANIA

P.A. JONES MARCH 1982 REPORT 287

619045

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- ● Sydney
- o Field

CONTENTS

FIGURE

61904

Project Location

SUMMARY AND CONCLUSIONS

Exploration Licence 15/76 was granted to CSR for the period of six months from August 1976 with further six month renewals subject to Mines Department approval. Amoco negotiated a joint venture with CSR to farm into a 58 square kilometer portion of EL 15/76 embracing the remainder of the prospective Gordon Limestone sequence to the east and southeast of Amoco's EL 4/78. The tenement embraces potential shale or carbonate hosted, basemetal prospects.

Exploration as distinct from prospecting for basemetals in the areas appears to have been non existent until the late 1940's when Zeehan Explorations commenced a program of assessment on the Mariposa prospect. Eight holes were drilled outlining a resource of approximately 500,000 tonnes assaying 9.2% lead, 1.7% zinc, 4.7oz silver. The mineralized zone is open both to the north and

south and at depth, with the deepest hole intersecting 2 meters of 13.9% lead, 1.9% zinc, 13.9oz silver at approximately 75 meters vertical depth. Further work was conducted by Rio Tinto and McIntyre Mines (Aust) Pty Ltd in the vicinity of the Mariposa, however a large IP response directly coincident with the mine zone was not tested. Drilling by McIntyre (4 holes) was concentrated south up to 1000 meters distant of the Mariposa shaft on chargeability anomalies observed in a shale horizon. Tenneco also conducted a limited program on isolated areas within the prosective zone.

There has been no recent systematic exploration within the farm in portion of the CSR tenement for a dolomitic shale hosted lead-zinc or a carbonate hostrock lead-silver orebody.

Precambrian basement sediments are overlain by Cambrian sediments and volcanics which are localized within graben structures. These are in turn overlain by Lower Ordovician conglomerate. Transgressive upon these units are Ordovician to Devonian basinal units including sandstones, siltstones, shales, dolomites and limestones.

Eighty eight line kilometers of grids were staked to cover the Black Jacks, Mariposa, Bannockburn, Leatherwood, King Billy, Laurel, Amber Creek and Professor Range prospects.

Culture mapping was completed on the Mariposa and is presently underway on the Black Jacks grid.

Hydraulic auger sampling using a Jackro 200 auger mounted onto a bombadier was initiated to alleviate the problem of thick gravels occurring in the valleys occupied by the Gordon River Limestone. Significant results were obtained from the part completed Mariposa grid with soil values ranging up to 4.8% lead, 3.2% zinc and 85 g/t silver over a zone 800 by 100 meters.

Amoco recently commenced a gravity survey on the Mariposa prospect.

Anomalous responses observed from the airborne magnetometer survey conducted by the Department of Mines will be ground checked.

Geochemical surveys using the Jackro auger rig will be conducted on the remaining areas of the Mariposa and Black Jacks grids and commenced on the Bannockburn prospect. Further surveys will concentrate on areas where known workings exist, these being the North Henty, United Silver-Lead, East Amber and Australasian workings, rather than blanket sampling of the entire limestone sequence.

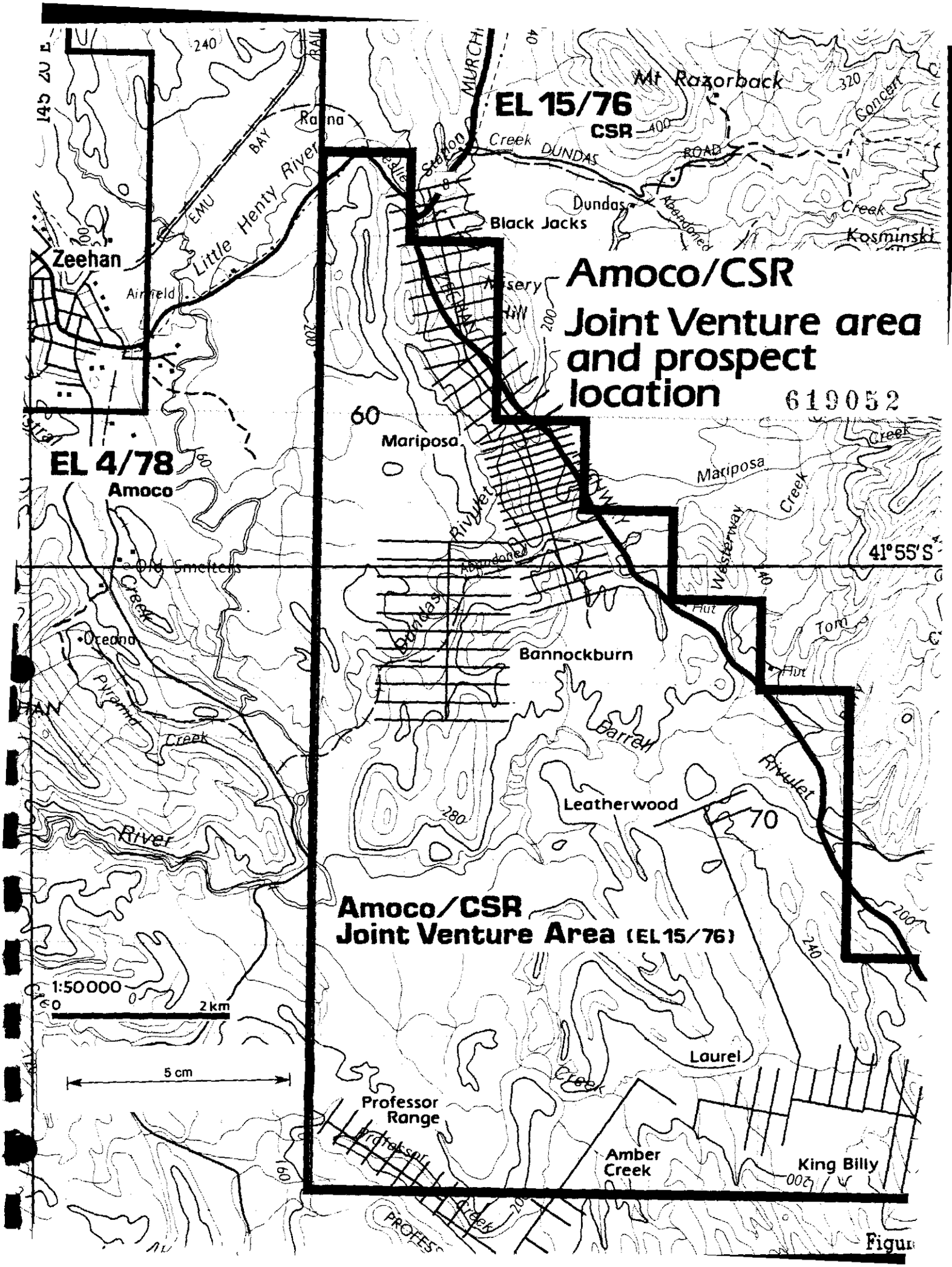
The gravity program will be completed and the results contoured and interpretated in light of recent drilling data obtained from Amoco's adjoining EL 4/78.

The Mariposa grid will be geologically mapped in detail and any workings compositely sampled.

LOCATION AND ACCESS

Exploration Licence 15/76 abuts Amoco's EL 4/78 three kilometers east of the town of Zeehan which has a population of approximately 5000 (Figure 1). The Emu-Bay Railway and a sealed road connect Zeehan with the port of Burnie, located 140 kilometers to the north. Access within the tenement is relatively good for Western Tasmania, as a number of logging tracks and a sealed highway traverse the prospective dolomite-limestone horizons which form topographic lows. Bombadier access on some grids will be necessary to conduct the porposed exploration programs.

Zeehan is the service town for the Renison Tin Mine, and no difficulties would be anticipated with respect to power, water, labor and transport should a mine be developed. The area has an annual rainfall of 250 centimeters.


Amoco/CSR
Joint Venture area
and prospect
location
619052
EL 15/76
CSR
EL 4/78
Amoco
Amoco/CSR
Joint Venture Area (EL 15/76)
Zeehan
Black Jacks
Mariposa
Bannockburn
Leatherwood
Laurel
Professor
Range
Amber
Creek
King Billy
Mt Razorback
Dundas
Little Henty River
Pyramid
Creek
River
Barrett
Rivulet
Creek
Mariposa
Creek
Westerway
Creek
Tom
Hut
Old Smelters
Oreana
Abandoned
Dundas
Rivulet
41°55'S
1:50000
0
2km
5 cm

Figur

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Amoco Minerals Australia Company negotiated a joint venture with CSR Pty Ltd to farm in to a 58 square kilometer portion of EL 15/76, embracing the remainder of the prospective Gordon Limestone sequence to the east and southeast of Amoco's EL 4/78 (Figure 1). Exploration Licence 15/76 was granted to CSR for the period of six months from August, 1976. Renewal of the tenement for further periods of six months was dependent on Mines Department approval of previous exploration and proposed programs, however this has since been extended to a twelve month time period.

No pre-existing mining leases or mineral claims are present within the farm-in portion of the tenement.

HISTORY AND EXPLORATION TO DATE

After the discovery of silver-lead-zinc mineralization in the Zeehan area in 1882 activity increased to a peak in the early 1890's declining thereafter. The Spray and Big Ben mines which were discovered in 1898 and 1922 are the only notable exceptions.

There is a direct relationship between the life of each mine and its silver content. The carbonate hosted mines within both Amoco and CSR tenements were relatively poorer in silver compared to the deposits in basement rocks and lower production resulted. A table listing the silver-lead production is enclosed (Table 1).

TABLE 1

LEAD-SILVER PRODUCTION FROM MINES WITHIN AND ADJACENT TO AMOCO TENEMENT 4/78

Mine	Age	Lead (tonnes)	Silver(kgs)
Spray	PreCambrian to Cambrian	450	1850
Nubeena	" "		
Maxim	Upper Cambrian	60	283
Montagu	to	117	42
Watt & McAuliffes	Lower Ordvician	254	1417
Austral	" "	812	935
		+52 Zn	
Oceana	Upper	15382	17433
	Ordovician	+13 Zn	
Mariposa	to	455	652
Zeehan Bell	Devonian	610	780
Silver King	" "	5080	9922
		+4 Cu	

Exploration as distinct from prospecting for basemetals in the areas appears to have been non-existent until the late 1940's when North Broken Hill in joint venture with Broken Hill South commenced a program of assessment (as Zeehan Explorations Pty Ltd). This included geophysical surveys (conducted by the Bureau of Mineral Resources - W. Langron) at the Oceana and Mariposa mines (gravity and ground magnetic) and diamond drilling. Subsequently to these programs the Oceana Mine was re-opened in 1954, producing 128,000 tonnes of ore averaging 11.63% lead and 4.79oz silver until ceasing production in 1960.

Zeehan Explorations commenced their program of assessment on the Mariposa Mine during 1951. The mine, including the Alameda, Martini and Nevada workings, was worked for a period of eighteen years from 1891 to a maximum depth of 45 meters. Zeehan Explorations conducted an eight hole (holes 4 to 11 inclusive)

diamond drilling program over a strike length of 150 meters outlining a mineralized zone averaging 1.5 meters (varying from 1 to 4 meters) in width and assaying 9.2% lead, 1.7% zinc, 4.70oz silver. The zone is open along strike both to the north and south and at depth, the deepest hole, hole 11 penetrating the mineralized horizon at approximately 75 meters vertical depth. At this depth the lode was approximately 2 meters in width and assayed 13.9% lead, 1.9% zinc, 13.9oz silver possibly indicating an increase in grade and thickness at depth.

Recoveries within the ore zone were poor (averaging approximately 50%) due to poor drilling techniques, cavities and infill zones of black mineralized clays.

Rio Tinto conducted minor geophysical (including gravity, ground EM and magnetic) surveys over the Bannockburn (Mariposa Extended) portion of the Gordon Limestone, southwest of the Mariposa during 1959. The small grid of 200 by 75 meters failed to detect any gravity anomalies, (due to its limited areal extent) however, a small coincident EM/magnetic response was delineated and left untested.

McIntyre Mines (Aust) Pty Ltd conducted an intensive exploration program from 1968 to 1972 on SPL 46, concentrating south of the Mariposa workings on zones of anomalous IP. Stream sediment sampling, gridding, soil sampling, mapping, IP geophysical surveys and four diamond holes were drilled up to 1000 meters south of the Mariposa shaft. Hole 4 passed through weakly mineralized (1 to 3% lead) limestone, however a well defined IP anomaly coincident with the old workings remained untested.

Tenneco Australia Inc. conducted limited helicopter borne electromagnetic surveys (during the early 1970's) and followed up anomalies using ground Turam, SP and limited gravity surveying. A number of shallow Turam anomalies were defined and no exploration conducted.

There has been no recent systematic exploration within the farm-in porion of the CSR tenement for a dolomitic shale hostrock lead-zinc or a carbonate hostrock lead-silver orebody.

CSR work to date has included three test Input EM lines and minor coverage by Dighem. The input traverses have indicated that the area is suitably resistive, however no anomalies were observed within the prospective horizon. No results have been obtained from the Dighem survey.

REGIONAL GEOLOGY

Large blocks of Pre-Cambrian sediments form the basement complexes of both northwest and central Tasmania. These are overlain by Cambrian volcanics and marine sediments which host the Rosebery-Hercules, Mt. Lyell and MacIntosh (Que River) orebodies.

Overlying these rocks is a sequence of Cambrian to Devonian basinal sediments. This sequence hosts the Renison and Cleveland orebodies.

The above units were intruded by granites during the Devonian and Carboniferous times which introduced the tin mineralization. During the Jurassic and Tertiary periods, the sequence was blanketed by basic volcanics. Recent fluviatile and Pleistocene glacial erosion have produced the present topography.

Major folding and block faulting are particularly evident in the Zeehan region. Uplift and folding accompanied accumulation of thick piles of sediment and volcanic material in various troughs during the Cambrian period. The Ordovician was marked by the onset of terrestrial and shallow marine sedimentation (the Owen Conglomerate, Moina Sandstone, and Gordon Limestone). The major deformation accompanied the Paleozoic Tabberaberan orogeny and large northwest trending fold structures were formed.

GEOLOGY OF THE FARM-IN PORTION OF THE TENEMENT

Minor Pre-Cambrian Oonah Formation basement rocks, comprised of schists, quartzites, siltstones, shales, spillitic lavas and pyroclastics, form an infaulted block within the Cambrian Dundas Group in the central eastern portion of the farm-in area.

Cambrian sedimentation appears confined to fault bounded blocks or graben structures abutting the Pre-Cambrian Tyennan Block to the east. The rocks are predominantly rapidly deposited, shallow water sediments including argillites, grits, conglomerates, greywackes and shales with minor cyclical volcanic sedimentation (agglomerates, tuffs and tuffaceous cherts and shales).

The Ordovician to Devonian Strata of the Zeehan Basin occur within a series of synclinal structures with north-west axial trends. The quartzose and hematitic Mt. Zeehan Conglomerate at

Mt. Misery was deposited within a graben structure in the Lower Ordovician period and is transgressively overlain by micaceous siltstones, tubicolar sandstones, grits and minor shales. It is the time equivalent of the Moina Sandstone which was deposited within the Zeehan Basin. The Moina Sandstone is overlain disconformably by the Ordovician Gordon Limestone. The disconformity is occasionally marked by a white quartz conglomerate followed by an interbedded sequence of siltstones, dolomites, and minor sandstone and limestone. The Gordon Limestone is comprised of interbedded limestones and dolomites with numerous breccia horizons and zones of clastic sedimentation including fossiliferous calc-arenties, siltstones and shales. Siluro-Devonian sediments within the basin are fossiliferous marine, coarse grained and cross-bedded quartzose sandstones, siltstone, minor quartzites, and dolomitic to pyritic shales and siltstones.

Extensive Tertiary and Quaternary deposits blanket much of the prospective dolomite and shale units.

The Zeehan area has been intensely disturbed by the Paleozic Tabberaberan orogeny which caused major north-west folding and faulting. East and north-west trending fault systems are considered to have been contemporaneous. North, northeast striking faults are thought to have developed in post Permian times.

WORK CONDUCTED BY AMOCO

Work conducted during the period October 1981 to March 1982 included gridding, culture mapping, geochemical and gravity surveys and data collection and synthesis of previous work.

Gridding

An intensive program of gridding was carried out in preparation for regional gravity and geochemical surveys, 88.3 line kilometers being staked. Baselines were steel picketed (Figure 1). Eight separate grids (Black Jacks, Mariposa, Bannockburn, Leatherwood, King Billy, Laurel, Amber Creek and Professor Range) were staked with lines 200 meters apart and pegged at 25 meter intervals along lines. Part of the Mariposa grid was infilled to 100 meter spacings centered on the old workings. A further 40 line kilometers of gridding remains to complete the program.

Mapping

Culture mapping has been completed on the Mariposa prospect and has commenced on the Black Jacks. Numerous workings are present at the Mariposa although a number of these have been obliterated by thick talus and scree slips occurring on the steep slopes.

Geochemistry

The bombadier mounted Jackro auger rig was used to penetrate thick gravel deposits blanketing much of the prospective horizon, and to negotiate steep country containing thick talus and scree deposits. Areas too steep for bombadier work, as at Mariposa, were handauger sampled. A total of 472 top of bedrock samples were taken on two prospects, 333 at Mariposa and 139 samples at Black Jacks with holes being drilled at 25 meter intervals along grid lines at depths varying from one to seven meters.

Samples were dried, crushed and pulverised before being split and despatched to Comlabs Pty Ltd in Adelaide where they were analyzed for copper, lead, zinc, silver and tin. Check assays on every twentieth sample were carried out by Amdel in Adelaide. Analysis for basemetals was by AAS after hydrochloric acid digestion and tin by XRF. Road side samples are prepared in the same manner as soils.

Sampling on both grids is incomplete. Results obtained to date on the Mariposa prospect show two parallel anomalous zones of approximately 600 to 800 meters by 75 to 100 meters wide. The eastern response of dimensions 800 by 75 meters ranges up to 1.75% lead, 0.97% zinc and 85 gm/t silver. The western anomaly of dimensions 600 by 100 meters, coincident with the Mariposa line of lode, has values ranging up to 4.8% lead, 3.2% zinc and 48 g/t silver.

Thick talus deposits and accompanying steep slope mask portions of the Mariposa line of lode precluding bombadier sampling and effective hand auger sampling. This will create an erroneous

picture of the top of bedrock geochemistry results computer contoured.

One anomalous tin sample of 439 ppm was obtained near old workings and will require further investigation.

Assay results are awaited for 139 bombadier/Jackro auger samples drilled on the Black Jacks prospect.

Road Side Sampling

Sixteen composite five meter channel samples were taken from road cuttings along a 4.5 kilometer stretch of the Zeehan Highway, commencing three kilometers south of the Zeehan turnoff. The samples averaged 265 ppm lead and 46 ppm zinc, ranging up to 2600 ppm lead and 290 ppm zinc indicating further anomalous zones require field checking. Copper values were anomalously high in 50% of the samples, possibly relating to contamination by passing Mount Lyell Mining and Railway Co. ore trucks travelling to Melba Flats railhead. Part of Pb anomaly may be due to contamination too!

Geophysics

Gravity surveying was commenced on the Mariposa prospect during mid February using a La Coste Lomberg Gravity meter. Readings were taken at 50 meter intervals along grid lines. The meter became defective during the program and was replaced by a Sodin. The current program is estimated to be completed by mid April and contoured results will be available shortly afterwards.

The detailed gravity survey was implemented on the basis that anomalies observed both at the Oceana and Mariposa mines were coincident with drilled mineralization. However, the Mariposa prospect was resurveyed as the 1950 BMR survey was considered to be too rough and limited in areal extent to use as a guide for drilling.

Geoex was contracted to fly an airborne magnetometer survey over

EL 15/76, in conjuction with a planned regional survey being carried out by the Mines Department. Lines were spaced at 250 meter intervals, oriented east-west across the tenement aiding exploration for possible tin deposits as well as assisting with regional mapping. Results from this survey are anticipated in mid 1982.

PROPOSED PROGRAM

Geochemical surveys, using the bombadier mounted Jackro 200 auger rig and hand augering will be conducted on the remaining areas of the Mariposa and Black Jacks grids and commenced on the Bannockburn prospect. Further surveys will concentrate on areas where known workings exist, these being the North Henty, United Silver-Lead, East Amber and Australasian workings, rather than blanket sampling of the entire limestone sequence. The top of bedrock auger sampling program has been designed to overcome the presence of Quaternary gravels and talus within the tenement.

Any anomalous responses delineated from the airborne magnetometer survey will be ground checked using a Geometrics G816 magnetometer. Zones of anomalous geochemistry will be surveyed in detail using the magnetometer, as it has recently been ascertained that the siderite gangue associated with the lead-

zinc mineralization is weakly magnetic.

The Mariposa grid will be geologically mapped and an airphoto interpretation study commenced on the areas containing the prospective limestone sequence.

Costeaning will be carried out where necessary to aid the geological interpretation and elucidate the extent and type of mineralization observed at or near the surface on all the grids.

SIGNED: ..... For .....

P.A. JONES

C.S.R. JOINT VENTURE - TASMANIA

EXPENDITURE TO DECEMBER 31, 1981

Salaries and Wages	6,007.13
Benefits	172.37
Supplies - Office	2,143.19
Cookery	5,514.97
Field Office Rent	1,704.01
Field Supplies	4,839.43
Freight	1,440.44
Travel	2,372.85
Communications	1,967.40
Geophysics	5,000.00
Other Contractors	28,129.50
Equipment Rental	4,776.10
Equipment Operations	1,689.24
Drafting Maps	9.00
Outside Services	51.23
Consultants	3,400.00
Assays	625.00
	69,841.86
Overhead	6,984.19
	$76,826.05

T.J. CONQUEST

ACCOUNTANT

DUNDAS JOINT VENTURE
BUDGET JANUARY 1 TO DECEMBER 31, 1982

SALARIES AND WAGES	$35,000.00
BENEFITS	1,660.00
SUPPLIES OFFICE	500.00
COOKERY	7,000.00
FIELD OFFICE RENT	600.00
FIELD SUPPLIES	2,500.00
FREIGHT	3,000.00
TRAVEL	1,500.00
COMMUNICATIONS	300.00
GEOPHYSICS	3,000.00
OTHER CONTRACTORS	1,000.00
EQUIPMENT OPERATIONS & RENTAL	70,000.00
DRAFTING	2,000.00
OUTSIDE SERVICES	300.00
ASSAYS	8,000.00
	136,360.00
OVERHEAD	13,640.00
	$150,000.00

APPENDIX II

AMOCO MINERALS, PROGRESS REPORT, JANUARY TO JUNE, 1982, JOINT VENTURE AREA PART E.L. 15/76, DUNDAS

PROGRESS REPORT

JANUARY TO JUNE 1982

AMOCO - CSR JOINT VENTURE

PART EXPLORATION LICENCE 15/76

DUNDAS, TASMANIA

P.A. JONES

JUNE 1982

REPORT 311

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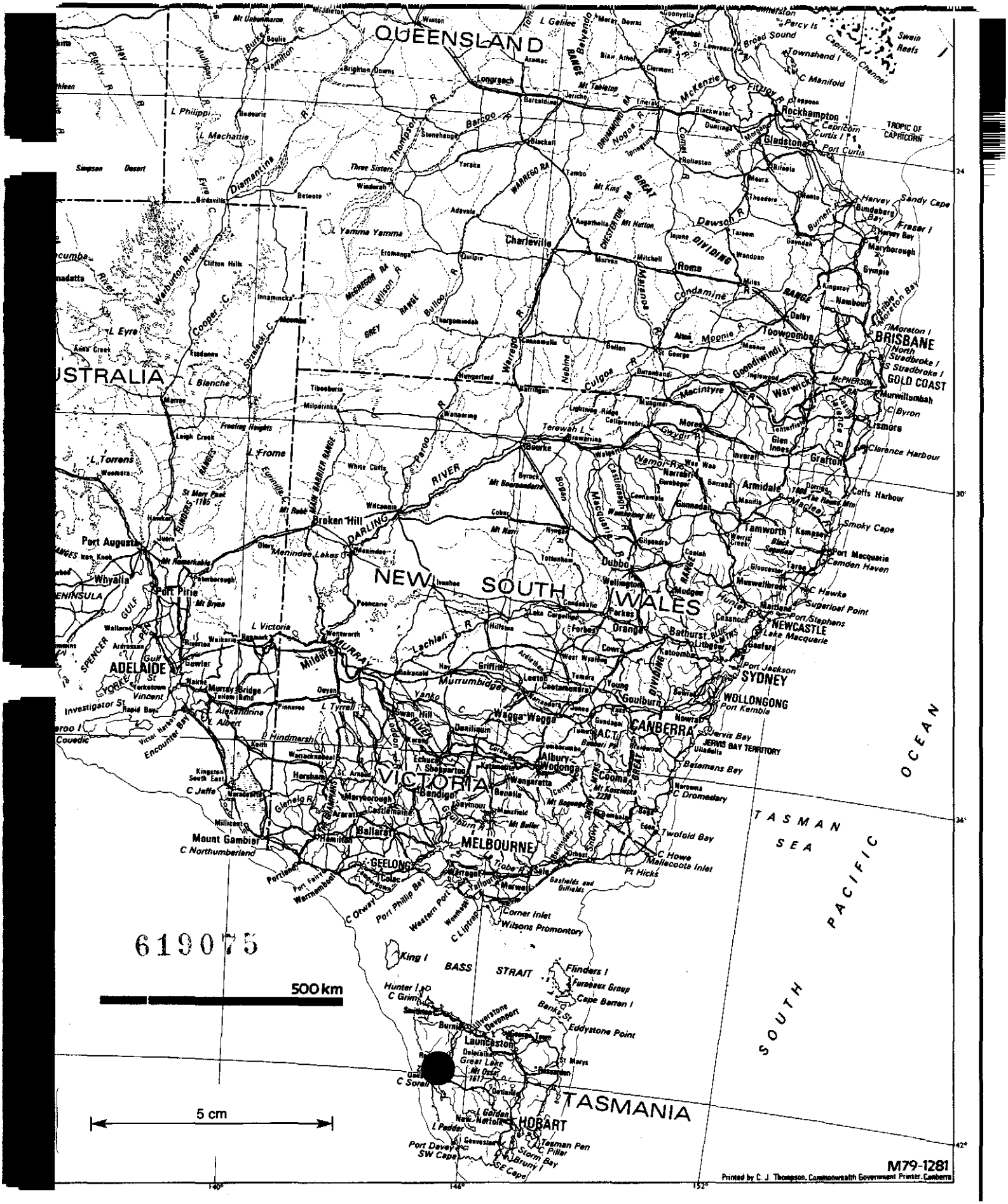

Project Location

SUMMARY AND CONCLUSIONS

Exploration Licence 15/76 was granted to CSR for the period of six months from August 1976 with further 12 month renewals subject to Mines Department approval. Amoco negotiated a joint venture with CSR to farm into a 58 square kilometer portion of EL 15/76 embracing the prospective Gordon Limestone sequence to the east of Amoco's EL 4/78. The tenement embraces potential shale or carbonate hosted basemetal prospects.

Systematic exploration for basemetals in the areas commenced in the late 1940s when Zeehan Explorations commenced a program of assessment on the Mariposa prospect. Eight diamond holes were drilled to a vertical depth of 75 meters intersecting encouraging mineral-ization assaying 9.2% lead, 1.7% zinc and 4.7 oz silver. The mineralization is open both to the north and south and at depth, with the deepest hole intersecting two meters of 13.9%

lead, 1.9% zinc and 13.9 oz silver. Further work was conducted by Rio Tinto and McIntyre Mines (Aust) Pty Ltd in the vicinity of the Mariposa, however a large IP response directly coincident with the mine zone was not tested. Drilling by McIntyre (four holes) was centered approximately 1000 meters to the south of the Mariposa shaft on chargeability anomalies within in a shale horizon. Tenneco also conducted a limited program on isolated areas in the prospective zone.

There has been no recent systematic exploration within the farm-in portion of the CSR tenement for a dolomitic shale hosted lead-zinc or a carbonate hosted lead-silver orebody.

Precambrian basement sediments are overlain by Cambrian sediments and volcanics which are localized within graben structures. These are in turn overlain by Lower Ordovician conglomerate. Transgressive upon these units are Orodivician to Devonian basinal units including sandstones, siltstones, shales, dolomites and limestones.

Geologic mapping has commenced on both the Mariposa and Black Jacks prospects with numerous workings being evident.

Hydraulic auger sampling using Jackro 200 and 350 augers mounted onto bombadiers was initiated to alleviate the problems of thick gravels occurring in the valleys occupied by the Gordon River Limestone. Significant results were obtained from the partially completed Mariposa grid with soil values ranging up to 4.8% lead, 3.2% zinc and 85g/t silver over two zones from 500 to 950 meters in length by 75 meters in width. Strongly anomlous results were also obtained on the Black Jacks prospect with one zone of dimensions 300 by 100 meters assaying up to 11.5% lead, 2.5% zinc and 75g/t silver.

Rockchip results of outcropping ironstone zones on the Black Jacks prospect proved to be only weakly anomalous.

A gravity survey was completed on the Mariposa prospect outlining a 1.5 milligal gravity response with a superimposed 1.0 milligal response on its western flank. The latter anomaly is coincident with the Mariposa line of lode as well as highly anomalous bedrock geochemistry ranging up to 4.8% lead, 3.2% zinc and 48g/t silver.

Anomalous responses observed from the airborne magnetometer survey conducted by the Department of Mines will be ground checked using a Geometrics G856 magnetometer.

Geochemical surveys using the Jackro auger rigs will be conducted on the remaining areas of the Mariposa and Black Jacks grids and commenced on the Bannockburn prospect. Further surveys will concentrate on areas where known workings are present including North Henty, United Silver-Lead, East Amber and the Australasian workings.

Geologic mapping will be completed on the Mariposa grid.

Costeaning will be carried out where necessary to aid the geological interpretation and elucidate the extent and type of mineralization.

INTRODUCTION

This report details work conducted under joint venture between CSR Pty Limited and Amoco Minerals Australia Company on EL 15/76. Amoco negotiated a joint venture with CSR to farm-in to a 58 square kilometer portion of EL 15/76 (Figure 1) earning a 50% interest in the property over a period of three years.

Details of all work conducted prior to January 1982 was submitted previously by CSR in their January 1982 six monthly report to the Mines Department.

The joint venture area is considered to have excellent potential for a dolomitic shale hostrock lead-zinc or a carbonate hostrock lead-silver orebody of the Howards Pass or Navan type.

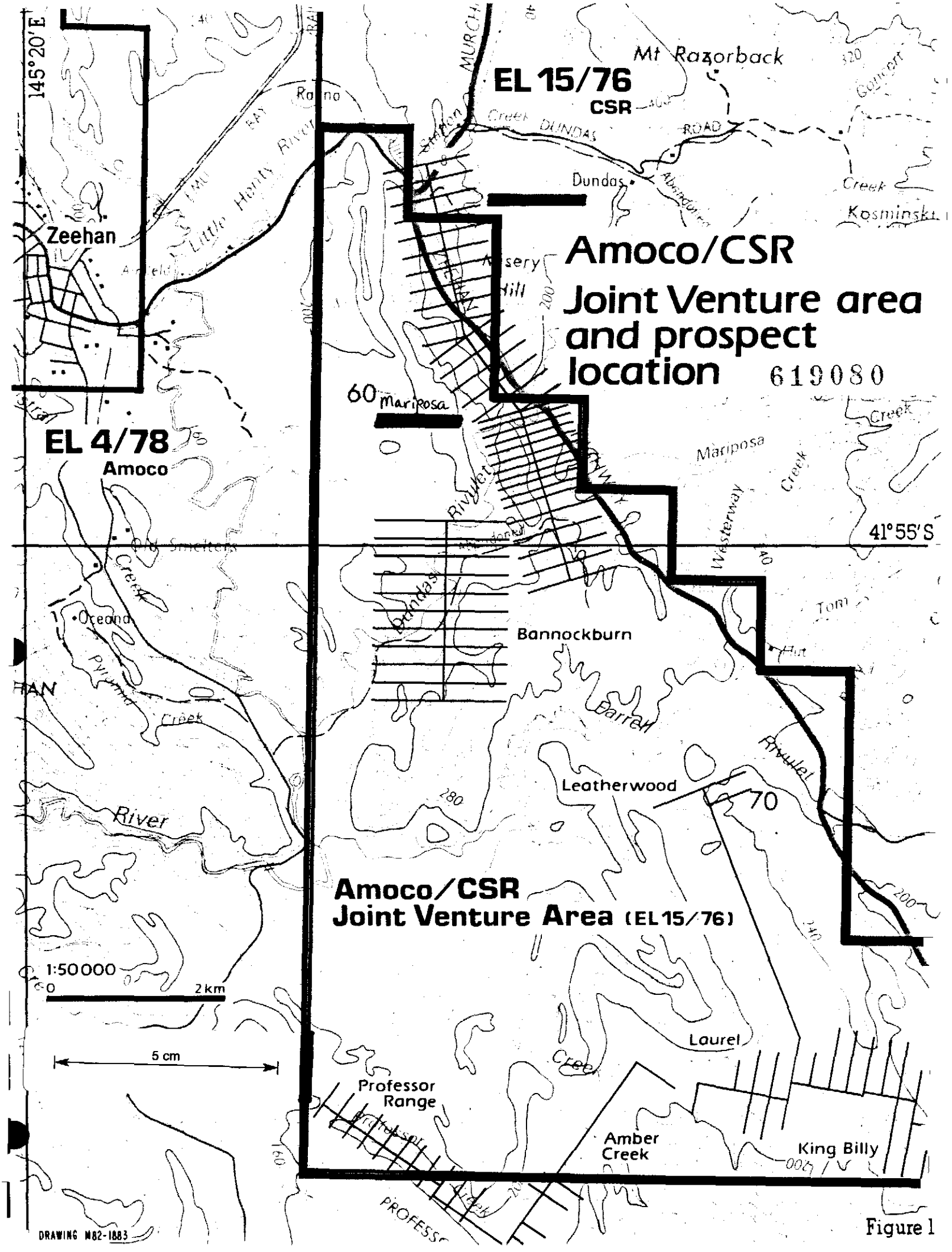
EL 15/76
CSR
Amoco/CSR
Joint Venture area
and prospect
location
619080
EL 4/78
Amoco
Amoco/CSR
Joint Venture Area (EL 15/76)
145°20'E
41°55'S
Zeehan
Mt Razorback
Dundas
Mariposa
Bannockburn
Leatherwood
Laurel
Professor
Range
Amber
Creek
King Billy
Oreana
Little Henty River
Henty River
Pyllinga Creek
Darragh
Westerway
Mariposa Creek
Dundas Rivulet
1:50000
0
2km
5 cm
DRAWING M82-1883

Figure 1

LOCATION AND ACCESS

Exploration Licence 15/76 abuts Amoco's EL 4/78 three kilometers east of the town of Zeehan which has a population of approximately 5000. The Emu-Bay Railway and a sealed road connect Zeehan with the port of Burnie, located 140 kilometers to the north. Access within the tenement is relatively good for Western Tasmania, as a number of logging tracks and a sealed highway traverse the prospective dolomite-limestone horizons which form topographic lows. Bombadier access on some grids is necessary to conduct the proposed exploration programs.

Zeehan is the service town for the Renison Tin Mine, and no difficulties would be anticipated with respect to power, water, labor and transport should a mine be developed. The area has an annual rainfall of 250 centimeters.

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Amoco Minerals Australia Company negotiated a joint venture with CSR Pty Ltd to farm in to a 58 square kilometer portion of EL 15/76, embracing of the prospective Gordon Limestone sequence to the east and southeast of Amoco's EL 4/78 (Figure 1). Exploration Licence 15/76 was granted to CSR for the period of six months from August, 1976. Renewal of the tenement for further periods of twelve months is subject to Mines Department approval of previous exploration and proposed programs.

No pre-existing mining leases or mineral claims are present within the farm-in portion of the tenement.

HISTORY AND EXPLORATION TO DATE

After the discovery of silver-lead-zinc mineralization in the Zeehan area in 1882 activity increased to a peak in the early 1890's declining thereafter. The Spray and Big Ben Mines which were discovered in 1898 and 1922 are the only notable exceptions.

There is a direct relationship between the life of each mine and its silver content. The carbonate hosted mines within both Amoco and CSR tenements were relatively poorer in silver compared to the deposits in basement rocks and lower production resulted. A table listing the silver-lead production is enclosed (Table 1).

TABLE 1

LEAD-SILVER PRODUCTION FROM MINES WITHIN AND ADJACENT TO AMOCO TENEMENT 4/78

MINE	AGE	LEAD (tonnes)	SILVER(kgs)
Spray	PreCambrian to Cambrian	450	1850
Nubeena	" "		
Maxim	Upper Cambrian	60	283
Montagu	to	117	42
Watt & McAuliffes	Lower Ordvician	254	1417
Austral		812	935
		+52 Zn	
Oceana	Upper	15382	17433
	Ordovician	+13 Zn	
Mariposa	to	455	652
Zeehan Bell	Devonian	610	780
Silver King		5080	9922
		+4 Cu	

The Mariposa Mine, including the Alameda, Martini and Nevada workings, were worked for a period of eighteen years from 1891 to a maximum depth of 45 meters.

Systematic exploration for basemetals in the areas commenced in the late 1940's when North Broken Hill in joint venture with Broken Hill South commenced a program of assessment (as Zeehan Explorations Pty Ltd). This included geophysical surveys (conducted by the Bureau of Mineral Resources - W. Langron) at the Oceana and Mariposa mines (gravity and ground magnetics) and diamond drilling. Subsequent to these programs the Oceana Mine was re-opened in 1954, producing 128,000 tonnes of ore averaging 11.63% lead and 4.79oz silver until ceasing production in 1960.

Zeehan Explorations commenced their program of assessment on the Mariposa Mine during 1951. An eight hole (holes 4 to 11

inclusive) diamond drilling program was conducted over a strike length of 150 meters outlining a mineralized zone averaging 1.5 meters (varying from 1 to 4 meters) in width and assaying 9.2% lead, 1.7% zinc, 4.70oz silver. The zone is open along strike to the north and south and at depth, hole 11,the deepest hole, penetrated the mineralized horizon at approximately 75 meters vertical depth. At this depth the lode was approximately 2 meters in width and assayed 13.9% lead, 1.9% zinc, 13.9oz silver possibly indicating an increase in grade and thickness at depth. Recoveries within the ore zone were poor (averaging approximately 50%) due to poor drilling techniques, cavities and infill zones of black mineralized clays.

Rio Tinto conducted minor geophysical (including gravity, ground EM and magnetics) surveys over the Bannockburn (Mariposa Extended) portion of the Gordon Limestone, southwest of the Mariposa in 1959. The small grid 200 by 75 meters failed to detect any gravity anomalies, however, a small coincident EM/magnetic response was delineated but not tested.

McIntyre Mines (Aust) Pty Ltd conducted an intensive exploration program from 1968 to 1972 on SPL 46, concentrated drilling south of the Mariposa workings on zones of anomalous IP responses. Stream sediment sampling, gridding, soil sampling, mapping, IP geophysical surveys and four diamond holes were drilled. Hole 4 passed through weakly mineralized (1 to 3% lead) limestone, however a well defined IP anomaly coincident with the old workings remained untested.

Tenneco Australia Inc. conducted limited helicopter borne electromagnetic surveys (during the early 1970's) and followed up anomalies using ground Turam, SP and limited gravity surveying. A number of shallow Turam anomalies were defined but no exploration conducted.

There has been no recent systematic exploration within the farm-in porion of the CSR tenement for a dolomitic shale hostrock lead-zinc or a carbonate hostrock lead-silver orebody.

CSR work to date has included three test Input EM lines and minor coverage by Dighem. The Input traverses indicated the area is suitably resistive, however no anomalies were observed within the prospective horizon. A moderate tenor Dighem response was outlined on the northern portion of the Black Jacks grid, trending obliquely to the stratigraphic sequence and lying in close proximity to a weakly defined ironstone zone. Follow up ground EM and geochemical sampling surveys are planned for the anomaly.

REGIONAL GEOLOGY

Large blocks of Pre-Cambrian sediments form the basement complexes of both northwest and central Tasmania. These are overlain by Cambrian volcanics and marine sediments which host the Rosebery-Hercules, Mt. Lyell and MacIntosh (Que River) orebodies.

Overlying these rocks is a sequence of Cambrian to Devonian basinal sediments. This sequence hosts the Renison and Cleveland orebodies.

The above units were intruded by granites during the Devonian and Carboniferous times which introduced the tin mineralization. During the Jurassic and Tertiary periods, the sequence was blanketed by basic volcanics. Recent fluviatile and Pleistocene glacial erosion have produced the present topography.

Major folding and block faulting are particularly evident in the Zeehan region. Uplift and folding accompanied accumulation of thick piles of sediment and volcanic material in various troughs during the Cambrian period. The Ordovician was marked by the onset of terrestrial and shallow marine sedimentation (the Owen Conglomerate, Moina Sandstone, and Gordon Limestone). The major deformation accompanied the Paleozoic Tabberaberan orogeny and large northwest trending fold structures were formed.

LOCAL GEOLOGY

Minor Pre-Cambrian Oonah Formation basement rocks, comprised of schists, quartzites, siltstones, shales, spillitic lavas and pyroclastics, form an infaulted block within the Cambrian Dundas Group in the central eastern portion of the project area.

Cambrian sedimentation appears confined to fault bounded blocks or graben structures abutting the Pre-Cambrian Tyennan Block to the east. The rocks are predominantly rapidly deposited, shallow water sediments including argillites, grits, conglomerates, greywackes and shales with minor cyclical volcanic sedimentation (agglomerates, tuffs and tuffaceous cherts and shales).

The Ordovician to Devonian strata of the Zeehan Basin occur within a series of synclinal structures with north-west axial trends. Mt. Zeehan Conglomerate at Mt. Misery, was deposited

within a graben structure in the Lower Ordovician period and is transgressively overlain by micaceous siltstones, tubicolar sandstones, grits and minor shales. These transgressive units are time equivalents of the Moina Sandstone which was deposited within the Zeehan Basin. The Moina Sandstone is overlain disconformably by the Ordovician Gordon Limestone. The disconformity is occasionally marked by a white quartz conglomerate followed by an interbedded sequence of siltstones, dolomites, minor sandstone and limestone. The Gordon Limestone is comprised of interbedded limestones and dolomites with numerous breccia horizons and zones of clastic sedimentation including fossiliferous calc-arenties, siltstones and shales. Siluro-Devonian sediments within the basin are fossiliferous marine, coarse grained and cross-bedded quartzose sandstones, siltstone, minor quartzites, and dolomitic to pyritic shales and siltstones.

Extensive Tertiary and Quaternary deposits blanket much of the prospective dolomite and shale units.

The Zeehan area has been intensely disturbed by the Paleozoic Tabberaberan orogeny which caused major north-west folding and faulting. East and north-west trending fault systems are considered to have been contemporaneous. North, northeast striking faults are thought to have developed in post Permian times.

WORK CONDUCTED BY AMOCO

Data collection, synthesis of previous work, geologic mapping, geochemical and gravity surveys and were conducted during the period. Exploration to date has centered on two major prospects, the Mariposa and Black Jacks. All computer contouring of bedrock geochemistry and gravity results from these projects was carried out by CEANET of Sydney.

Geologic Mapping

Detailed geologic mapping at 1:2500 scale of the Mariposa and Black Jacks prospects was commenced. Numerous workings (adits, shafts, pits and costeans) are present at the Mariposa as seen from BMR plan No. G32/52 (Figure 2), although a number of these have been obliterated by thick talus and scree slips occurring on the steep slopes. Minor shallow pits and trenches have been observed on the Black Jacks prospect, and generally concealed by

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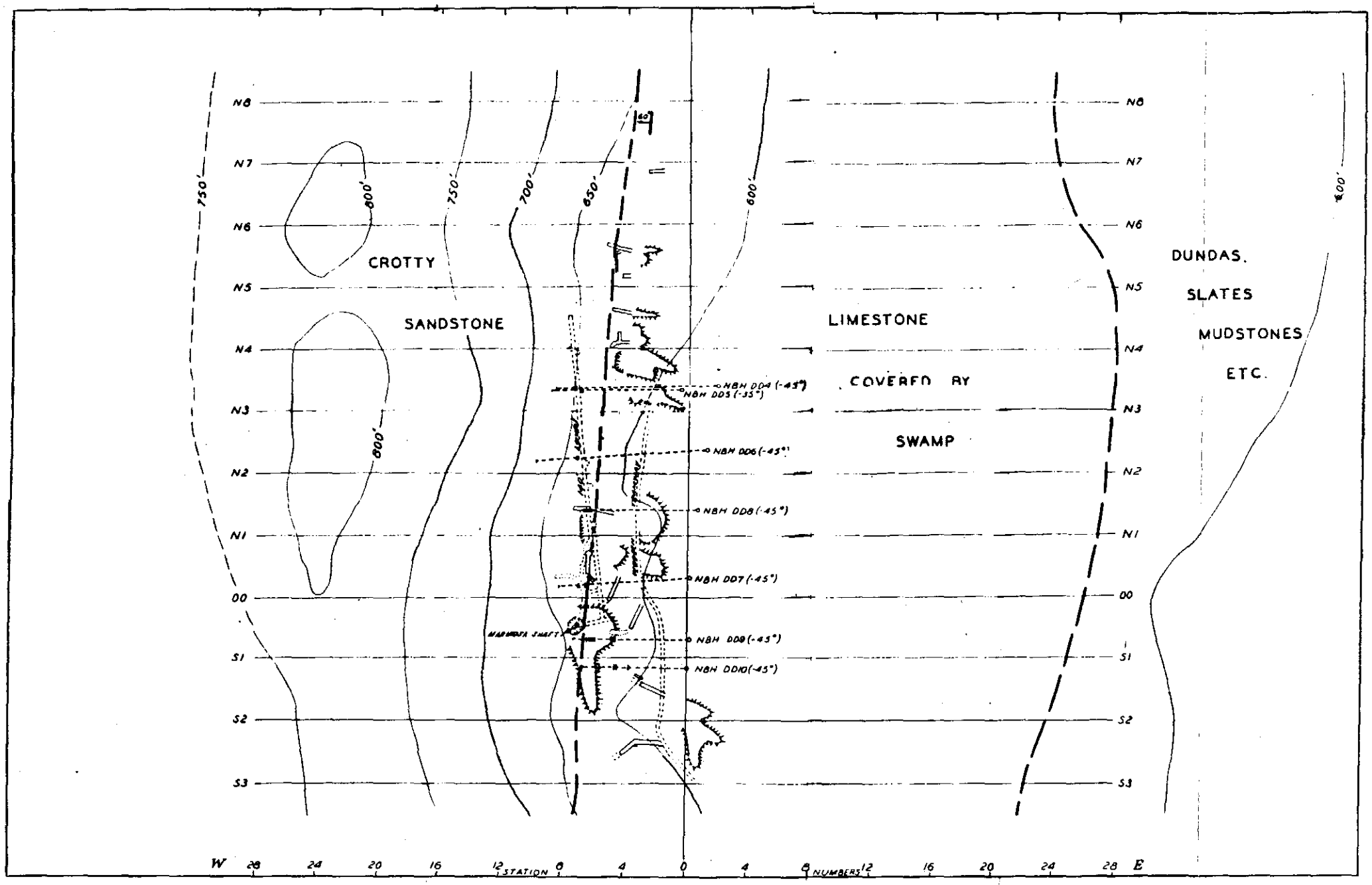


GEOPHYSICAL SURVEY AT ZEEHAN, TAS.

MARIPOSA AREA

SURFACE PLAN,

MINE WORKINGS AND DIAMOND DRILLING

G32/52

LEGEND

Surface Contours

Geological Contacts

Diamond Drill Holes and Intersections

SCALE

100 0 100 200 feet

N. Kelly

Geophysicist

Geophysical Section, Bureau of Mineral Resources, Geology and Geophysics

Figure 2

5 cm

thick vegetation.

Geochemistry

Two bombadier mounted Jackro hydraulic auger rigs, Bombadier Muskeg/Jackro 350 and Bombadier J5/Jackro 200 combinations, were used to penetrate thick gravel deposits blanketing much of the prospective horizon, and to negotiate steep country containing thick talus and scree deposits. Areas too steep for the bombadier were either hand auger sampled or sampled using a Stihl power auger. A total of 932 bedrock samples were taken on the two prospects, 373 at Mariposa and 559 at Black Jacks with holes being drilled at 25 meter intervals along grid lines at depths varying from one to seven meters. Sampling on both grids is incomplete, however most of the bombadier sampling has been conducted.

Samples were dried, crushed and pulverised before being split and despatched to Comlabs Pty Ltd in Adelaide where they are analysed for copper, lead, zinc, silver and tin. Check assays on every twentieth sample were caried out by Amdel in Adelaide. Analysis for basemetals was by AAS after hydrochloric acid digestion and tin by XRF.

Rock chip samples were prepared in the same manner as the soils but were analyzed for an additional 12 elements being tungsten, arsenic, antimony and barium (by XRF) and gold, nickel, cobalt, bismuth, molybdenum, vanadium, cadmium, manganese (by AAS).

Mariposa:

Results obtained to date on the Mariposa prospect (Appendix 1) show two parallel anomalous zones of approximately 500 and 950 meters in length by 75 meters in width. The eastern response of dimension 950 by 75 meters ranges up to 1.75% lead, 0.97% zinc and 85g/t silver. The anomalous zone lies adjacent to the faulted contact of the prospective Ordovician Gordon Limestone and the Cambrian Dundas Slate and is marked by numerous small

pits, trenches and minor quartz veining. The western anomaly of dimensions 500 by 75 meters, coincident with the Mariposa line of lode, has values ranging up to 4.8% lead, 3.2% zinc and 48g/t silver. The highly anomalous bedrock geochemistry extends the strike extent of the known mineralized horizon by a further 350 meters. A zone of smaller areal extent (200 by 50 meters), with values assaying up to 2.85% lead, 0.8% zinc and 28g/t silver occurs further north of the western anomalous zone. The response appears to be the southwest-northeast cross faulted northern portion of the Mariposa lode horizon, extending the known mineralization even further.

Thick talus deposits and accompanying steep slope mask portions of the Mariposa line of lode precluding bombadier sampling and effective hand auger sampling. This creates an erroneous picture of the bedrock geochemistry results when computer contoured.

One anomalous tin sample of 43.9 ppm was obtained near old workings and requires further investigation.

Black Jacks:
Black Jacks was originally sampled at 200 meter line spacings, however, numerous percentile values were obtained necessitating infill sampling on 100 and 50 meter spaced lines.

Approximately two thirds of the gridded area has been sampled, and the results contoured (Appendix 2). Strong, nebulous geochemical anomalies were outlined.

An anomalous zone of dimension 300 by 100 meters, with values ranging up to 1.5% lead, 2.5% zinc and 75g/t silver occurs roughly coincident with the original Black Jacks prospect. Further pecentile lead and zinc values occur within this high tenor anomaly which appears to lie directly on a northeast trending fault zone. Only minor, scattered pits and trenches occur within this anomaly.

Two additional anomalies of dimensions 300 by 50, and 300 by 100 meters having values ranging up to 1.85% lead and 1.1% zinc occur 500 meters to the north of the above anomaly.

Rockchip Geochemistry

Five composite rockchip samples taken from the Black Jacks prospect comprised predominantly pisolitic ironstone (Table 2). Assay results were low with maximum basemetal values of 640 ppm zinc, 60 ppm lead, 16 ppm copper and <1 ppm silver.

Geophysics

A gravity survey was conducted on the Mariposa prospect using a La Cost Lomberg gravity meter. Readings were taken at 50 meter intervals along grid lines, however the very steep sections were left unsurveyed. The meter became defective during the program and was replaced by a Sodin after conducting a comparison survey along a grid line (Appendix 3).

The detailed gravity survey was implemented on the basis that anomalies observed both at the Oceana and Mariposa mines were coincident with drilled mineralization. However, the Mariposa prospect was resurveyed as the 1950 BMR Survey (Figure 3) was considered to be too rough and limited in areal extent to use as as a guide for diamond drilling.

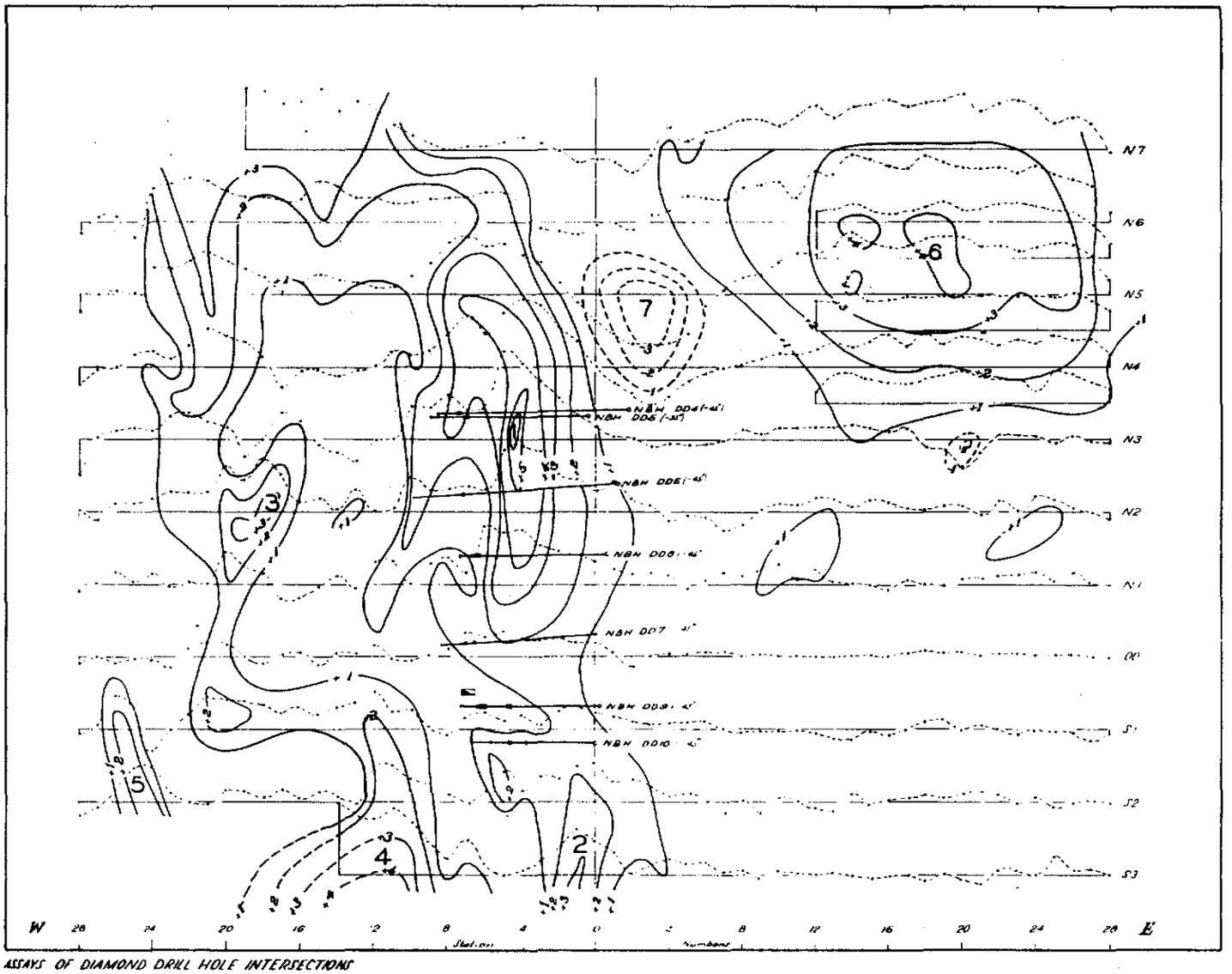
A 1.5 milligal gravity response of dimensions 700 by 250 meters was delineated (Appendix 4) coincident with the Gordon Limestone horizon. Superimposed on the western flank of this response is a 1.0 milligal gravity high, approximately 300 by 100 meters, lying coincident with the Mariposa line of workings. Bedrock geochemistry results along this zone assay up to 4.8% lead, 3.2% zinc and 48g/t silver. Detailed modelling will be necessary, to define a source.

Geoex was contracted to fly an airborne magnetometer survey over

TABLE 2 BLACK JACKS - COMPOSITE ROCKCHIP RESULTS

SAMPLE	CO-ORD	ROCK TYPE	As	Sb	Sn	W	Cu	Pb	Zn	Ni	Bi	Co	Cd	Mn	Ag	Mo	V	Au	Ba
66635	62009N 67432E	Ironstone - Limonite Dump Sample	55	<4	<4	<10	16	50	640	115	<4	48	<1	<4	20	<4	20	<0.05	
66636	61995N 67444E	Ironstone Flat Outcrop?	55	6	10	<10	6	12	145	20	<4	8	<1	90	<1	<4	10	<0.05	
66637	61998N 67516E	Ironstone Dump/Outcrop?	55	6	<4	20	12	60	370	16	<4	<4	<1	130	<1	<4	10	<0.05	
66638	62018N 67516E	Ironstone Float	60	8	4	<10	6	8	22	16	<4	6	<1	125	<1	<4	10	<0.05	
78035	62400N 67695E	Ironstone Float/Outcrop	-	-	<4	<10	14	20	615	-	-	-	-	980	<1	-	-	-	85

PLATE 4



ASSAYS OF DIAMOND DRILL HOLE INTERSECTIONS

D D H	Intersection. Width ft.	Depth ft.	True width ft.	Assay. Lead % over width	Zinc % over width	Silver oz. per ton over width
4 (45°)	185	230	3·5	5·3	1·6	1·7
5 (35°)	175	113	5·5	0·4	2·3	2·5
6	175	205	4·0	5·5	2·2	0·75
8	160	170-180	11·3	8·3	2·5	1·8
7 A	162	167	2·6	13·8	3·4	1·5
B	175	180	2·9	0·8	0·3	0·6
9 A	113	117	1·1	5·5	1·5	8·7
B	117	121	1·8	0·4	0·4	3·2
C	150	153	7·6	4·3	1·2	0·9
D	158	161	2·1	2·4	1·2	3·3
10 A	95	95	0·9	12·3	3·7	14·4
B	110	110-115	4·5	9·3	1·3	3·0
C	115					
D	140	140	0·7	16·1	2·4	0·7

GEOPHYSICAL SURVEY AT ZEEHAN. TASMANIA

MARIPOSA AREA

PLAN SHOWING

RESIDUAL GRAVITY PROFILES AND CONTOURS, RESULTS OF DIAMOND DRILLING

SCALES

HORIZONTAL 0 100 200 300 400 500 FEET

VERTICAL 0·5 0 0·5 1 1·5 2 2·5 MILLIGALS

Contour interval 0·1 milligal

5 cm

R. Hall Ltd
Geophysicist

G32-54

Geophysical Section, Bureau of Mineral Resources Geology & Geophysics. 6.10.50

Figure 3

619097

EL 15/76, in conjunction with a planned regional survey being carried out by the Mines Department. Lines were spaced at 250 meter intervals, oriented east-west across the tenement aiding exploration for possible tin deposits as well as assisting with regional mapping. Results from this survey are anticipated within the next month.

PROPOSED PROGRAM

Geochemical surveys, using the bombadier mounted Jackro auger rigs (Muskeg/Jackro 350 and J5/Jackro 200 combinations) and hand augering will be conducted on the remaining areas of the Mariposa and Black Jacks grids and commenced on the Bannockburn prospect. Further surveys outside of these prospect areas, will concentrate around known workings including the North Henty, United Silver-Lead, East Amber and Australasian workings. The bedrock auger sampling program has been designed to overcome the presence of Quaternary gravels and talus within the tenement.

Any anomalous responses delineated from the airborne magnetometer survey will be ground checked using a Geometrics G856 magnetometer. Zones of anomalous geochemistry will be surveyed in detail using the magnetometer, as it has recently been ascertained from work conducted on Amoco's Exploration Licence

4/78, that the siderite gangue associated with the lead-zinc mineralization is weakly magnetic.

Geologic mapping of the Mariposa grid will be completed and an airphoto interpretation study commenced on the areas containing the prospective limestone sequence.

Costeaning will be conducted where necessary to aid the geological interpretation and elucidate the extent and type of mineralization observed at or near the surface on all the grids.

SIGNED ..... for .....

P.A. JONES

EXPENDITURE FROM JANUARY 1, 1982 TO JUNE 30, 1982

Salaries and Wages	25,113.41
Benefits	1,314.99
Supplies Office	(199.33)
Cookery	3,623.85
Field Office Rent	1,940.01
Field Supplies	8,625.97
Freight	1,642.79
Travel	870.77
Communications	1,127.43
Geophysics	2,214.90
Contractors	(4,487.50)
Equipment Operation and Rental	43,199.53
Drafting Maps	440.00
Outside Services	339.67
Consultants	-
Assays	3,871.36
Entertainment	271.75
	89,909.60
Overheads	8,863.97
	$98,773.57

T. J. CONQUEST,
Accountant.

APPENDIX 1

MARIPOSA - GEOCHEMISTRY - COPPER, LEAD, ZINC, SILVER, TIN

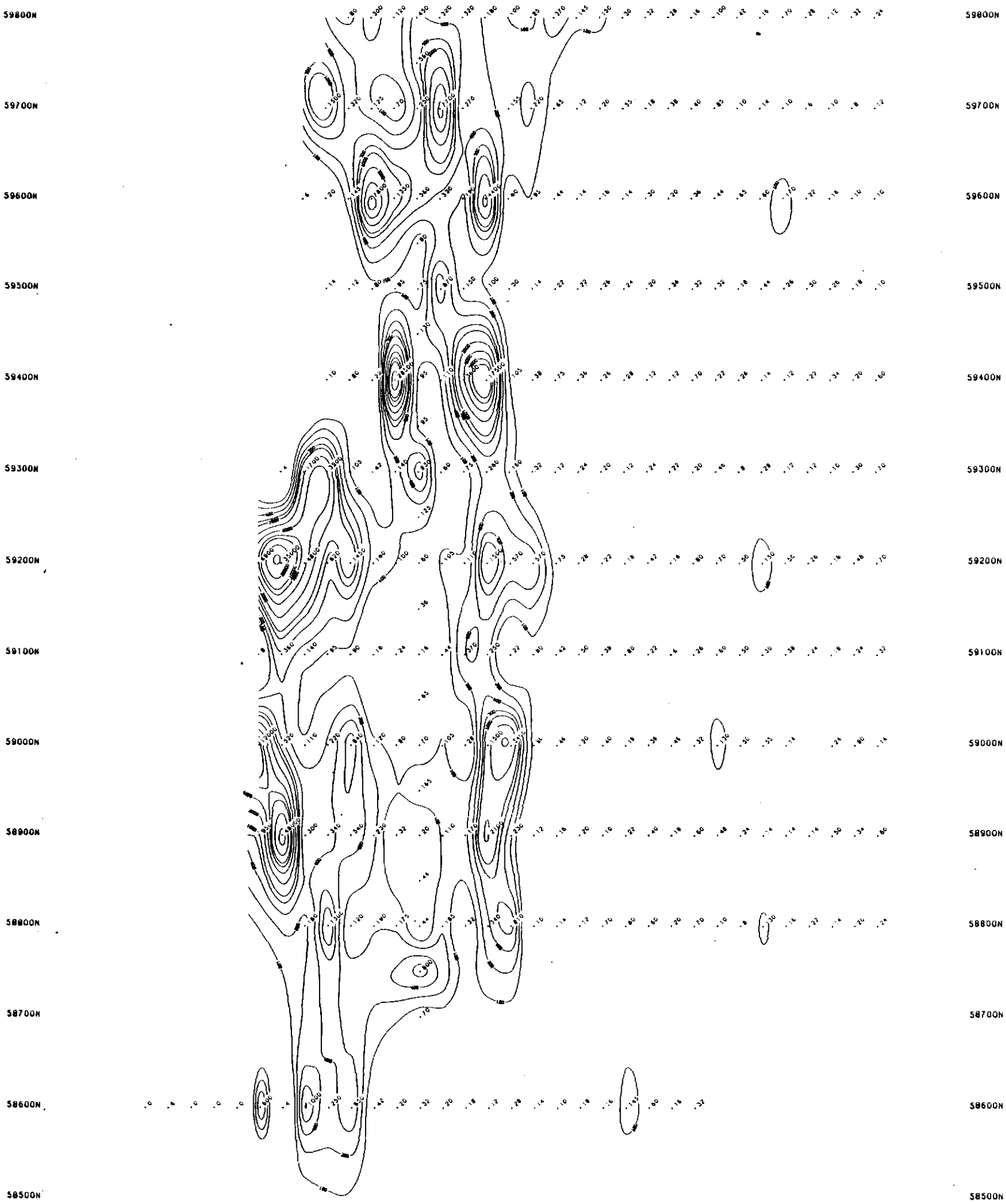
A-80-82 MARIPOSA COPPER BEDROCK GEOCHEM MARCH 1982
6 CONTOURS PER DECADE 1:5000

5 cm

Appendix 1

67000E | 67100E | 67200E | 67300E | 67400E | 67500E | 67600E | 67700E

59800N
59700N
59600N
59500N
59400N
59300N
59200N
59100N
59000N
58900N
58800N
58700N
58600N
58500N



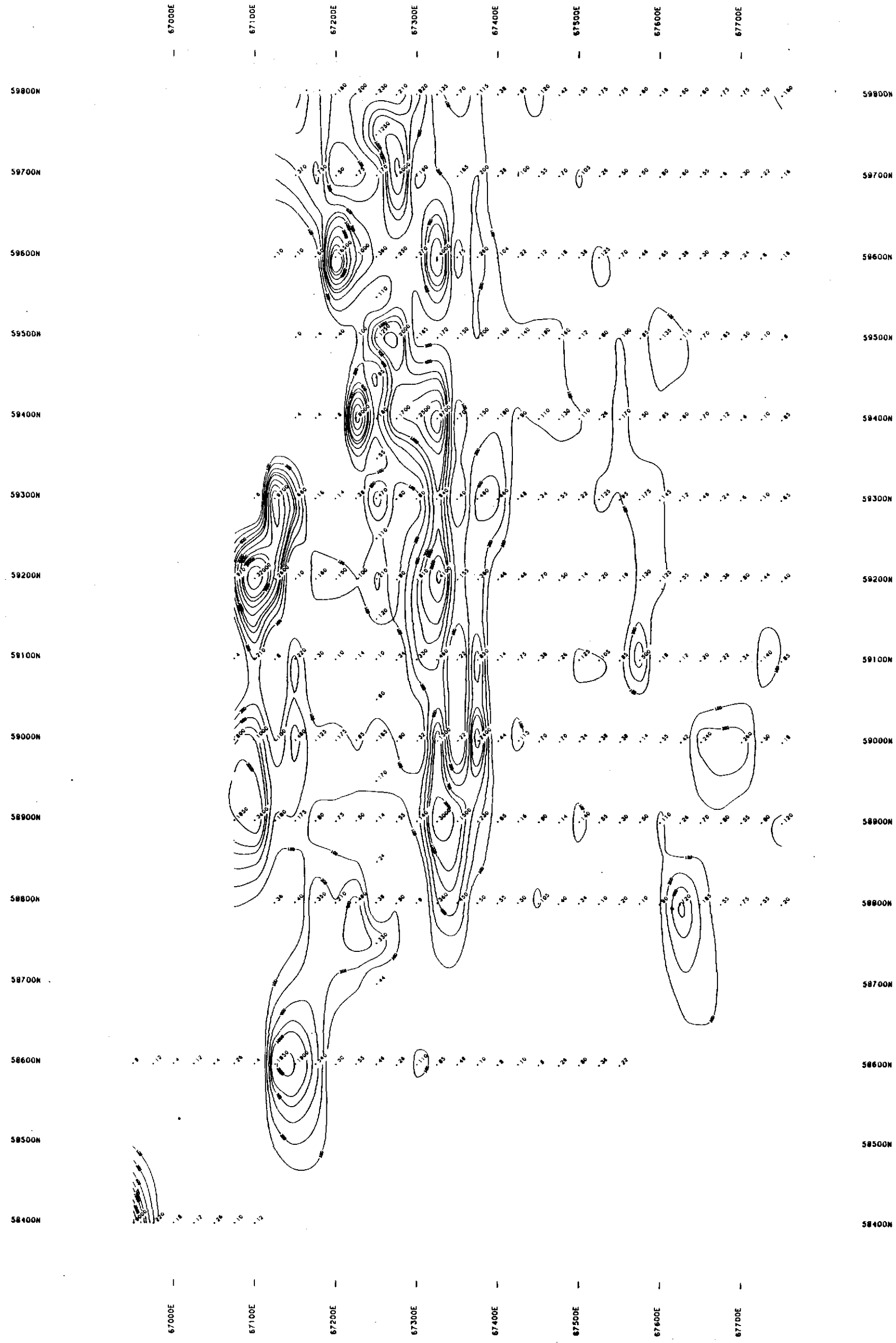
58400N

67000E | 67100E | 67200E | 67300E | 67400E | 67500E | 67600E | 67700E

A-80-82 MARIPOSA LEAD BEDROCK GEOCHEM MAR 1982
4 CONTOURS PER DECADE 1:5000

5 cm

Appendix 1



A-80-82 MARIPOSA ZINC BEDROCK GEOCHEM MARCH 1982
4 CONTOURS PER DECADE 1:5000

5 cm

67000E 67100E 67200E 67300E 67400E 67500E 67600E 67700E

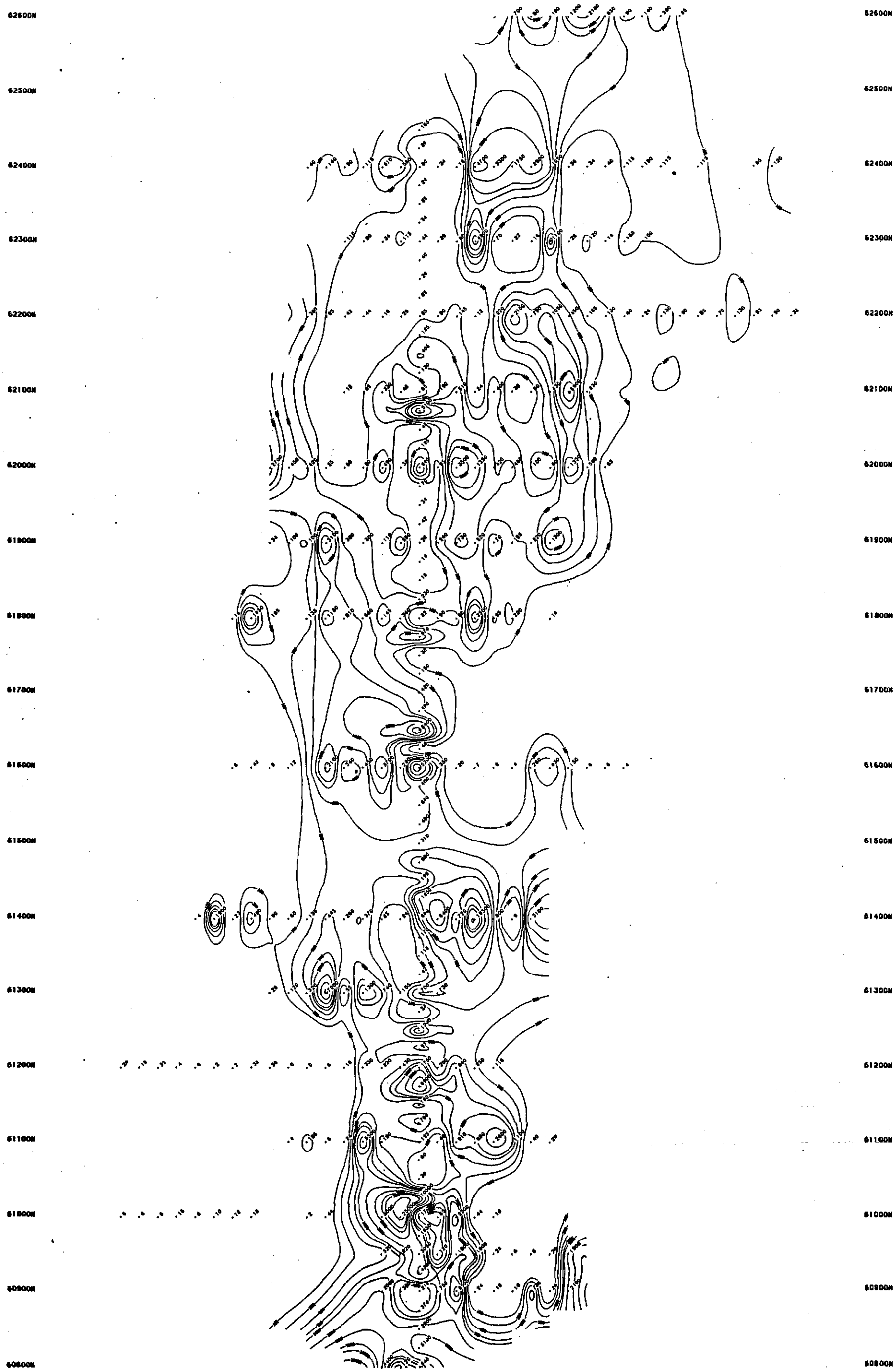
59800N 59700N 59600N 59500N 59400N 59300N 59200N 59100N 59000N 58900N 58800N 58700N 58600N 58500N 58400N

67000E 67100E 67200E 67300E 67400E 67500E 67600E 67700E

A-80-82 MARIPOSA SILVER BEDROCK GEOCHEM MARCH 1982
6 CONTOURS PER DECADE 1:5000

5 cm

Appendix I



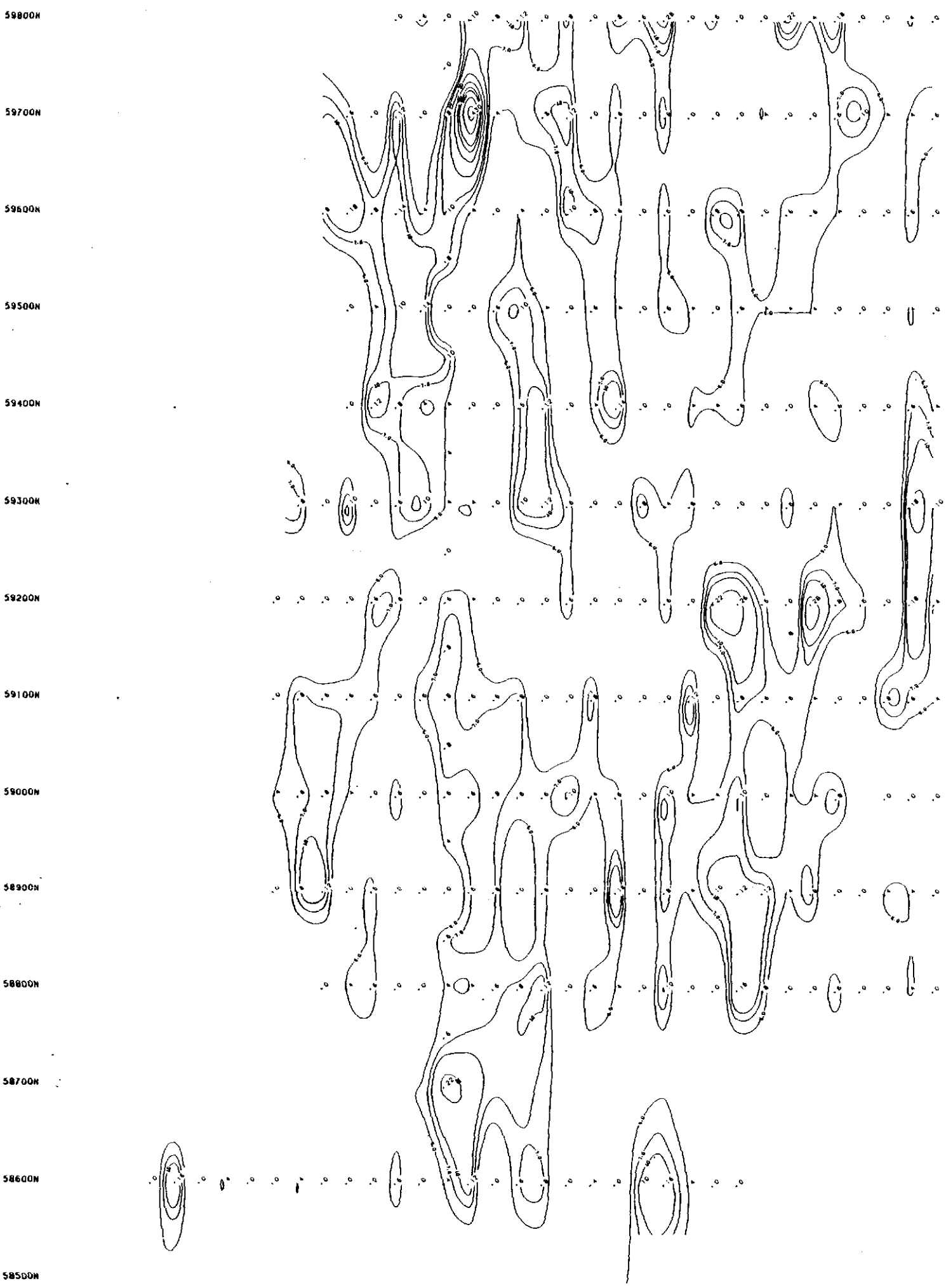
A-80-82 BLACK JACKS ZINC BEDROCK GEOCHEM MAR 1982
4 CONTOURS PER DECADE 1:5000

5 cm

Appendix 2

67000E 67100E 67200E 67300E 67400E 67500E 67600E 67700E

59800N 59700N 59600N 59500N 59400N 59300N 59200N 59100N 59000N 58900N 58800N 58700N 58600N 58500N 58400N



67000E 67100E 67200E 67300E 67400E 67500E 67600E 67700E

A-80-82 MARIPOSA TIN BEDROCK GEOCHEM MARCH 1982
4 CONTOURS PER DECADE 1:5000

5 cm

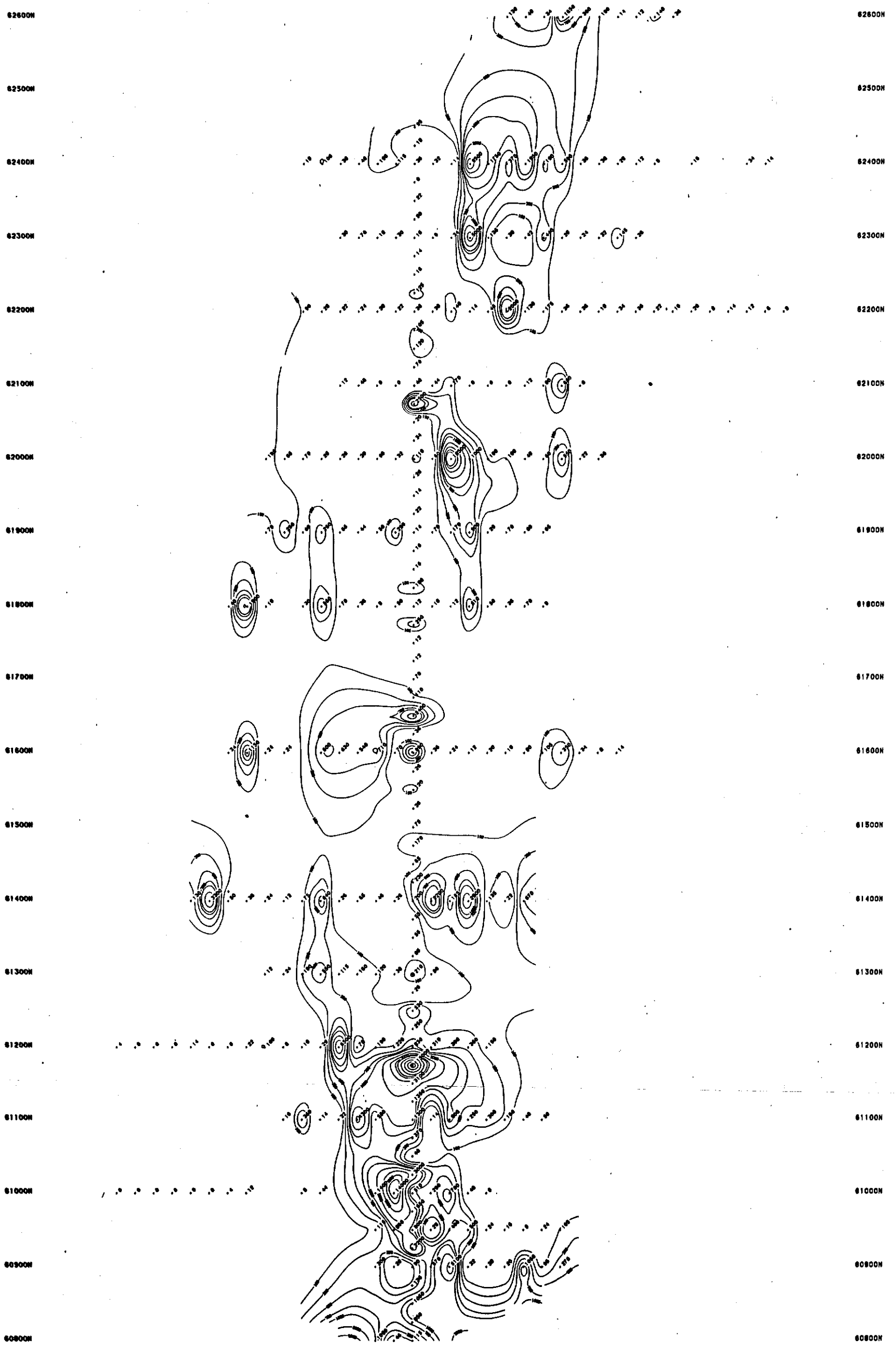
Appendix I

61605

619109

APPENDIX 2

BLACK JACKS - GEOCHEMISTRY - LEAD, ZINC



A-80-82 BLACK JACKS LEAD BEDROCK GEOCHEM MARCH 1982
4 CONTOURS PER DECADE 1:5000

5 cm

Appendix 2

619111

APPENDIX 3

MARIPOSA - GEOPHYSICS - COMPARISON OF LACOSTE AND SODIN

Mariposa Grid

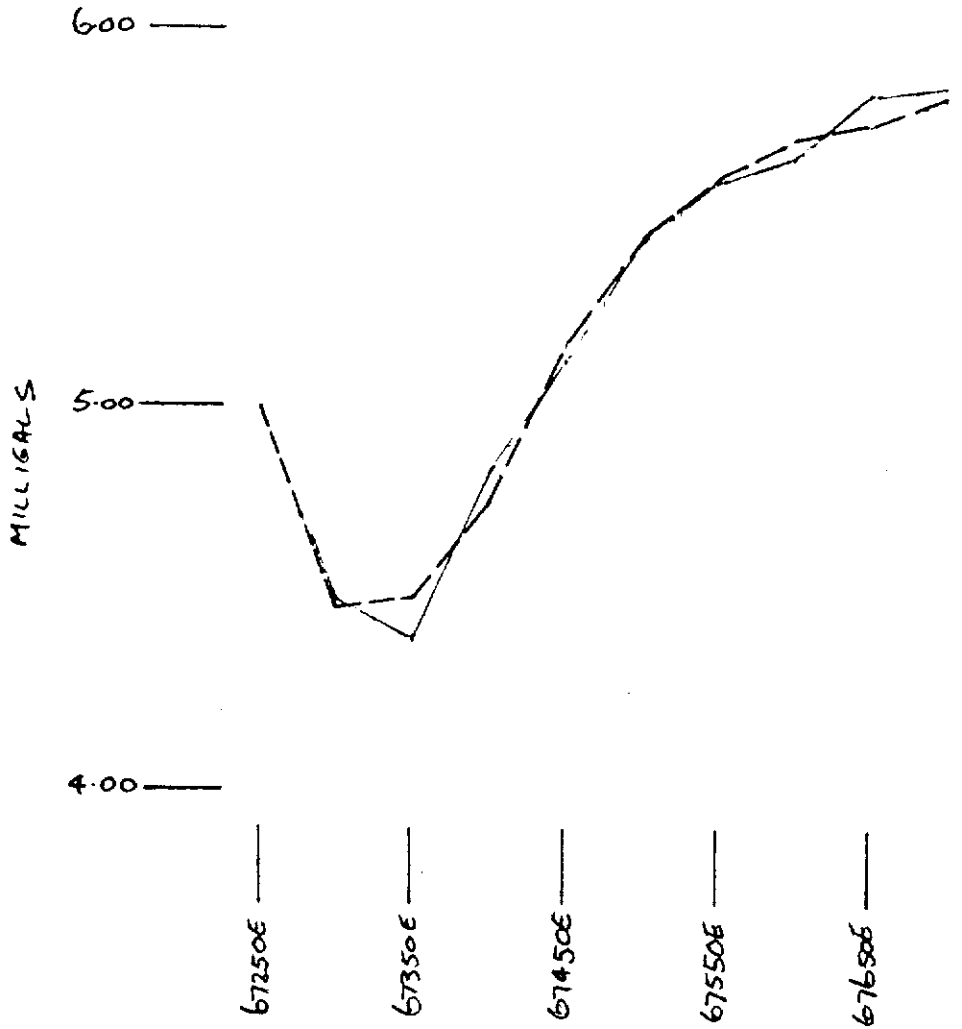
Baseline Levelling (67250E)

STN (N)	First Run	Second Run	Comment
59800	88.598	88.596	Δ = 2 mm
59700	89.353	89.349	4
59600	89.640	89.633	7
59500	91.370	91.364	6
59400	93.293	93.285	5
59300	95.794	95.790	4
59200	97.218	97.213	5
59100	98.693	98.691	2
59000	99.961	99.957	4
58900	100.655	100.653	2
58800	100.000	100.000	Assigned value
58700	98.666		)
58600	99.198		)
58500	91.485		) Run once only _
58400	101.136		) closure of loops
58300	106.711		) of traverses
58200	113.133		) ensure accuracy
58100	116.328		)
58000	117.410	117.41	
57900	122.025	122.014	Δ = 6 mm
57800	124.123	124.114	9

COMPARISON OF LACOSTE AND SODIN GRAVITY METERS

MARIPOSA - TRAVERSE 58800N

BOTH METERS ADJUSTED FOR 5.00mgal AT STATION 67250E

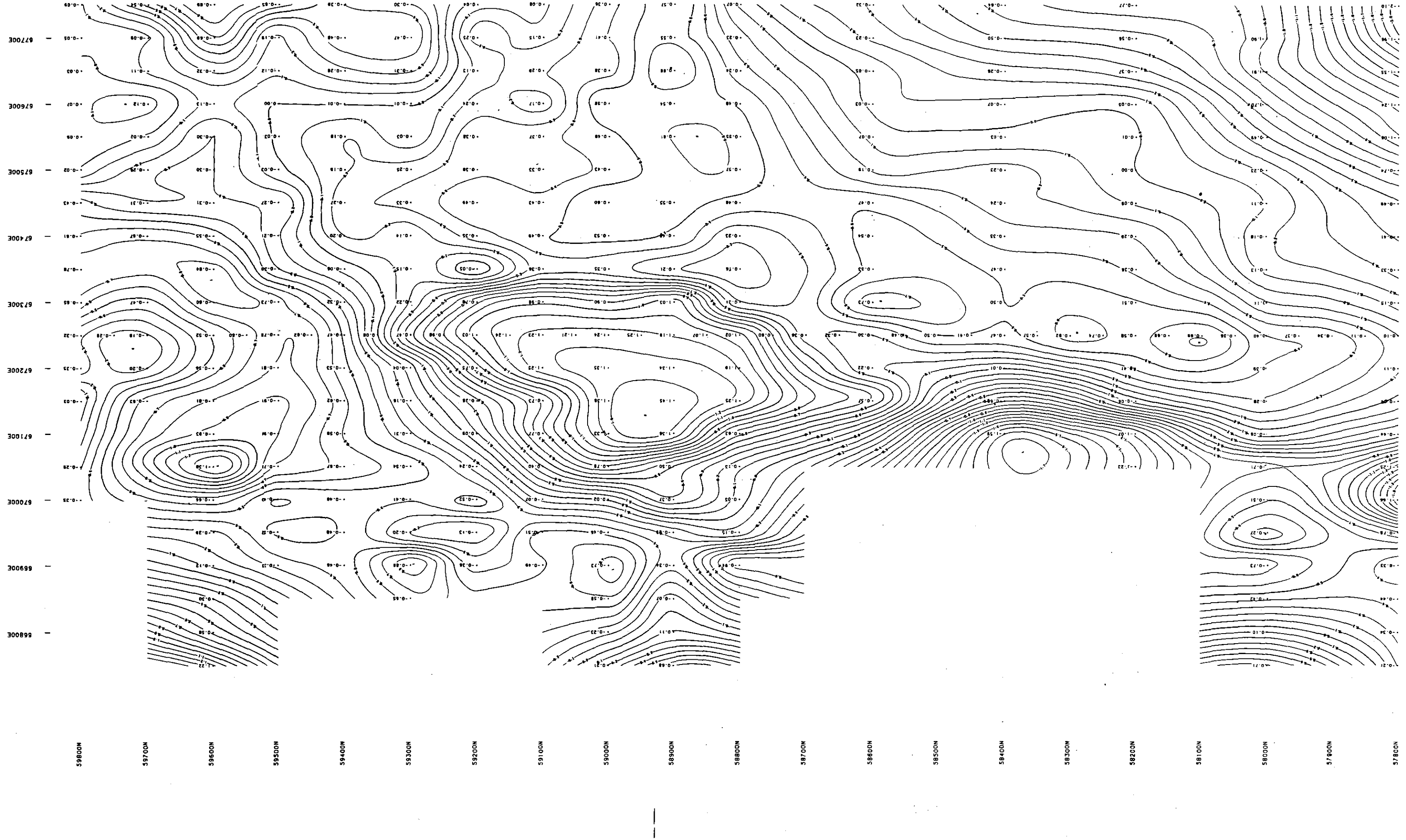


LA COSTE METER - 02 MARCH 1982

SODIN METER - 07 MARCH 1982

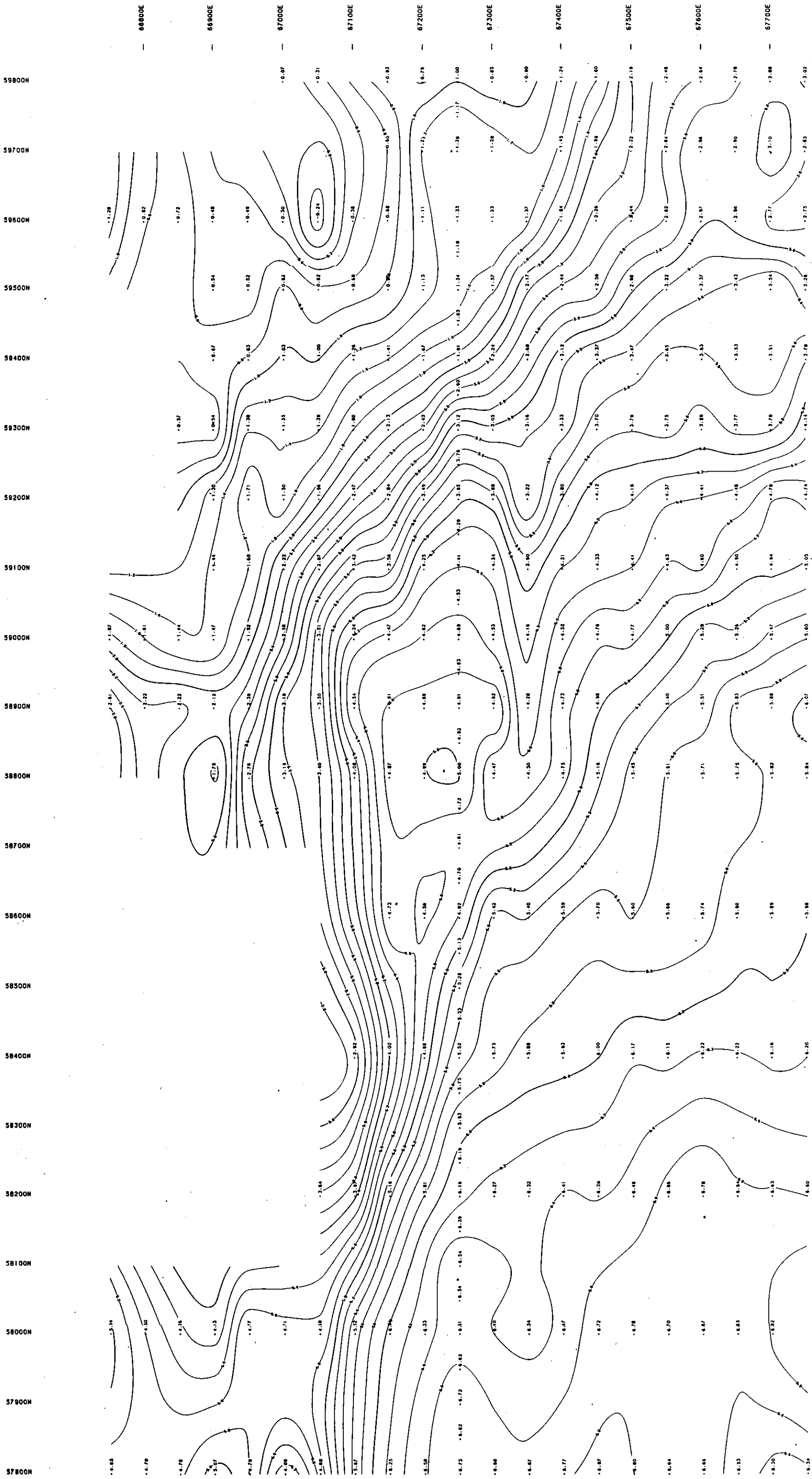
APPENDIX 4

MARIPOSA - GEOPHYSICS - GRAVITY RESIDUALS
- GRAVITY



A-78-60 ZEEHAN CSR JV MARIPOSA GRID GRAVITY RESIDUALS P.MEWKILL MAR 8
CONTOUR INTERVAL .1 MILLIGALS LINEAR TREND REMOVED 1:5000

Appendix 4



A-78-60 ZEEHAN CSR JV MARIPOSA GRID GRAVITY VALUES P.MEWKILL MAR 82
CONTOUR INTERVAL .2 MILLIGALS 1:5000

5 cm

Appendix 4

A4

61619

Amoco Minerals Australia Company.
Mariposa Grid - Zeehan TAS 619117

Levelling work: Feb. Mar 1982.

Particularly on the western side of the grid it was impossible (due to terrain and vegetation) to level between ends of traverses to create a closed loop. For reasons of time, it was impractical to level back from the end of a traverse to the baseline. (In many instances up to 8 hours were required to level 400 - 500 metres).

Closures were possible on the eastern side of the grid. Closure errors were: 0.049 m, 0.008 m, 0.015 m, 0.006 m, 0.022 m, 0.021 m, 0.009 m, 0.006 m, 0.013 m,

Thus the greatest closure error was 4.9 cm, with an average error of 1.66 cm.

To ensure accuracy of the baseline levelling, this survey was run twice. All readings checked to within five millimetres.

All stations are marked with, and were levelled to, a dumpy peg.

Using EDM equipment the Mariposa grid was tied to a reference station - the bus shelter at the Zeehan - Rosebery - Queenstown intersection. At this time the R.L. of this station is not known however station 67250E/58800N which has an assigned R.L. of 100.000 m is 12.214 m below the bus station reference.

Comparison of Data:
La Coste meter G 607 / Sodin 040-014
02 March 1982 07 March 1982

Traverse 58800N : (All readings adjusted for value 5.00 mgals at 67250 E).

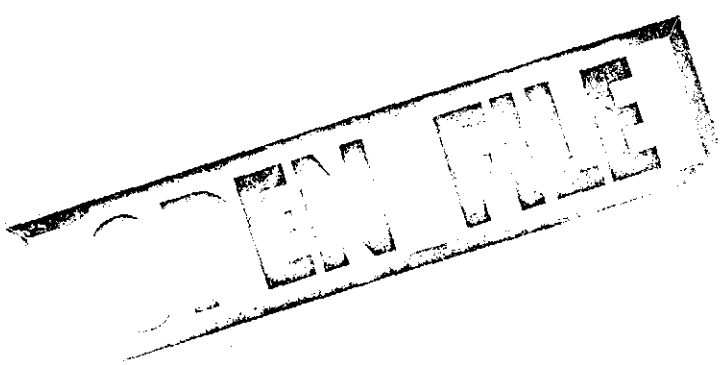
STN	LACOSTE	SODIN	Δ
67250	5.00	5.00	0.00
67300	4.47	4.49	-0.02
67350	4.50	4.39	0.11
67400	4.75	4.83	-0.08
67450	5.16	5.12	0.04
67500	5.45	5.44	0.01
67550	5.61	5.60	0.01
67600	5.71	5.66	0.05
67650	5.75	5.83	-0.08
67700	5.82	5.86	-0.04

?

Average error (of $|\Delta|$) is 0.05 mgal.

APPENDIX III

AMOCO MINERALS, PROGRESS REPORT, JULY TO DECEMBER 1982, JOINT VENTURE AREA PART E.L. 15/76, DUNDAS



Amoco Minerals Australia Company

PROGRESS REPORT JULY TO DECEMBER 1982

Part EL 15/76 Dundas, Tasmania

[redacted]

PROJECT A-80-82

DISC 134

PROGRESS REPORT

JULY TO DECEMBER 1982

AMOCO/CSR JOINT VENTURE

PART EXPLORATION LICENCE 15/76

DUNDAS, TASMANIA

P.A. JONES

JUNE 1982

REPORT 339

DISTRIBUTION

- CSR - Mines Department
- CSR - Hobart Office
- CSR - Sydney Office
- Denver
- Sydney
- Field
- Spare

619123

CONTENTS

FIGURES

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ENCLOSURES

619125

M79-1281

Printed by C. J. Thompson, Commonwealth Government Printer, Canberra

Project location

SUMMARY AND CONCLUSIONS

Exploration Licence 15/76 was granted to CSR for the period of six months from August 1976 with further 12 month renewals subject to Mines Department approval. Amoco negotiated a joint venture with CSR to farm into a 58 square kilometer portion of EL 15/76 embracing the prospective Gordon Limestone sequence to the east of Amoco's EL 4/78. The tenement embraces potential shale or carbonate hosted basemetal prospects.

McIntyre Mines (Aust) Pty Ltd conducted a shallow soil sampling program and a self potential survey on the Mariposa prospect. Results from the SP program proved to be of little use and due to the shallow sampling depths the soil sampling survey failed to delineate the anomalous zone coincident with the Mariposa line of workings.

Geophoto Resources Consultants conducted VLF-EM Turair, ground magnetometer and both shallow soil sampling and limited bedrock sampling programs over an area called Amber Creek (incorporating portions of the Leatherwood and King Billy grids). A number of geophysical responses were delineated and soil sampled with latter bedrock sampling obtaining peak values of 0.26% zinc and 0.11% lead.

There has been no recent systematic exploration within the farm-in portion of the CSR tenement for a dolomitic shale hosted lead-zinc or a carbonate hosted lead-silver orebody.

Precambrian basement sediments are overlain by Cambrian sediments and volcanics which are localized within graben structures. These are in turn overlain by Lower Ordovician conglomerate. Transgressive upon these units are Ordovician to Devonian basinal units including sandstones, siltstones, shales, dolomites and limestones.

The old Mariposa tramway was cleared of regrowth to allow access to the Bannockburn prospect.

Culture mapping of the three prospects (BlackJacks, Mariposa, and Bannockburn) was completed and detailed geological mapping is currently underway. Numerous workings including shafts, adits, costeans and prospecting pits have been located on the grids.

Forty-one composite rockchip samples were taken from the three prospects, many of which have been highly mineralized dump material. However numerous ironstones and ferruginous rocks were also sampled returning highly anomalous values.

Hydraulic auger sampling using Jackro 350 and 200 augers mounted onto bombadiers delineated strongly anomalous trends on all grids. Two zones at Mariposa were outlined, the western zone (coincident with the Mariposa line of lode) proved to be strongly

anomalous with values to 4.8% lead, 3.2% zinc and 48 g/t silver, and the eastern zone, moderately anomalous with assays to 1.75% lead, 0.97% zinc and 85 g/t silver. Strong nebulous geochemical anomalies were outlined on the Black Jacks grid with the major zone of dimensions 800 by 200 meters assaying up to 11.5% lead, 2.5% zinc and 75 g/t silver. The anomaly lies adjacent to a major northeast trending fault zone. Limited sampling on the Bannockburn prospect has outlined an anomalous zone 800 by 200 meters with assays to 0.96% lead, 0.8% zinc and 5 g/t silver. Several anomalous tin values (up to 55ppm) occur in an area where magnetic interference made gridding difficult. The zone remains open to the west and will be closed off with further smapling.

A gravity survey conducted at Mariposa prospect outlined a 1.5 milligal gravity response with a superimposed 1.0 milligal response on its western flank. The latter anomaly is semi coincident with the Mariposa line of workings as well as highly anomalous bedrock geochemistry to 4.8% lead, 3.2% zinc and 48 g/t silver.

Results were received from an airborne magnetic survey conducted in conjunction with a Tasmanian Mines Department survey late 1981. A number of anomalies require ground follow up.

Geoterrex is presently surveying the Mariposa prospect using a transient electromagnetic (Geonics EM-37) system to define the known mineralized zone and delineate further conductors. Results of the survey will be submitted in the next Progress report.

Further gridding and sampling programs will be conducted on 400 meter spaced lines traversing the prospective Gordon Limestone sequence. Detailed geologic mapping will continue on the Mariposa, Black Jacks and Bannockburn prospects.

Anomalous trends observed on the Mariposa and Black Jacks prospects are to be costeaned, mapped and sampled.

Detailed ground magnetometer surveys will be conducted on gridded areas in an attempt to locate buried ironstones and/or lead/zinc mineralization near surface.

INTRODUCTION

This report details work conducted under joint venture between CSR Pty Limited and Amoco Minerals Australia Company on EL 15/76. Amoco negotiated a joint venture with CSR to farm-in to a 58 square kilometer portion of EL 15/76 (Figures 1 and 2) earning a 50% interest in the property over a period of three years.

Details of all work conducted prior to July 1982 were submitted previously by CSR in their October 1981 and January 1982 six monthly report to the Mines Department.

The joint venture area is considered to have excellent potential for a dolomitic shale hostrock lead-zinc or a carbonate hostrock lead-silver orebody of the Howards Pass or Navan type.

619131

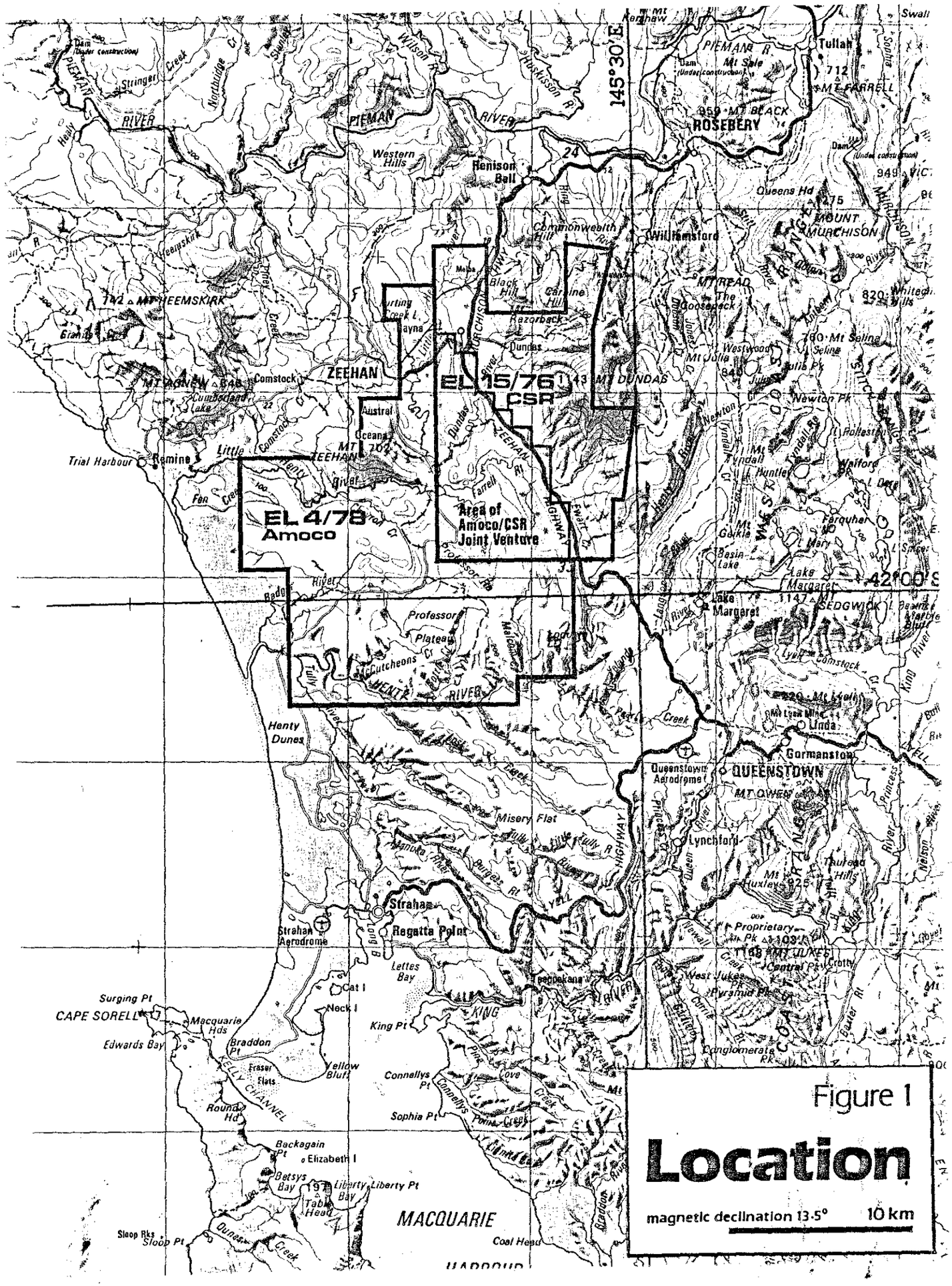
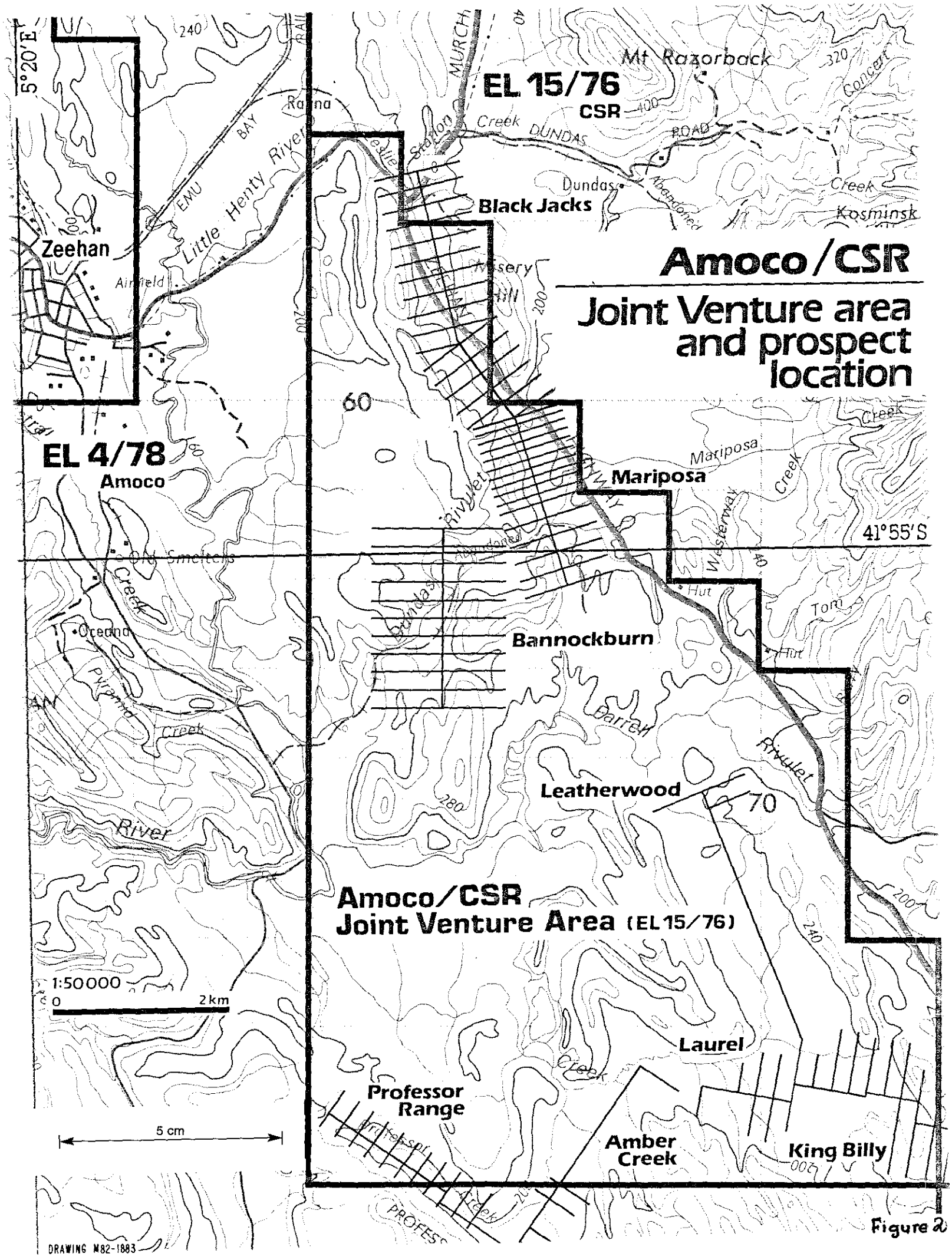


Figure 1

Location

magnetic declination 13.5°

10 km


EL 15/76
CSR
EL 4/78
Amoco
Amoco/CSR
Joint Venture area
and prospect
location
Amoco/CSR
Joint Venture Area (EL 15/76)
Zeehan
Black Jacks
Mariposa
Bannockburn
Leatherwood
Laurel
Professor
Range
Amber
Creek
King Billy
Mt Razorback
Little Henty River
Henty River
Pyramid Creek
Dundas
Abandoned
Creek
Kosminsk
Concert
Road
Western
Tom
Hut
Barren
Rivulet
Airfield
Oceana
Old Smelters
Mariposa
Creek
Bundas
Creek
Creek
Creek

LOCATION AND ACCESS

Exploration Licence 15/76 abuts Amoco's tenement EL 4/78 three kilometers east of the town of Zeehan of population of approximately 5000. The Emu-Bay Railway and a sealed road connect Zeehan with the port of Burnie, located 140 kilometers to the north. Access within the tenement is relatively good for Western Tasmania, as a number of logging tracks and a sealed highway traverse the prospective dolomite-limestone horizons which form topographic lows. Bombadier access has been necessary on some grids to conduct the exploration programs.

Zeehan is the service town for the Renison Tin Mine and no difficulties would be anticipated with respect to power, water, labor and transport should a mine be developed. The area has an annual rainfall of 250 centimeters.

DESCRIPTION OF THE PROPERTY AND OWNERSHIP

Amoco Minerals Australia Company negotiated a joint venture with CSR Pty Ltd to farm in to a 58 square kilometer portion of EL 15/76, embracing of the prospective Gordon Limestone sequence to the east and southeast of Amoco's EL 4/78 (Figures 1 and 2). Exploration Licence 15/76 was granted to CSR for the period of six months from August, 1976. Renewal of the tenement for further periods of twelve months is subject to Mines Department approval of previous exploration and proposed programs.

No pre-existing mining leases or mineral claims are present within the farm-in portion of the tenement.

HISTORY AND EXPLORATION TO DATE

A detailed description of the mining history and exploration carried out within the joint venture area has been summarized in two previous Amoco progress reports - CSR Joint Venture, Dundas Tasmania:-

October 1981 to February 1982	Amoco Report 287
January 1982 to June 1982	Amoco Report 311

Ongoing literature searching has located further data from within the joint venture area, McIntyre Mines report on the Mariposa mine area and Geophoto Resources Consultants on the Amber Creek area.

McIntyre conducted a shallow 0.3 to 0.5 meter soil smapling program and also implemented a self potential survey. The latter

was found to be of little use in detecting sulfide mineralization in a carbonate environment. The soil sampling program detected an anomalous area encompassing the Nevada workings 450 meters south of the Mariposa shaft. The shallow sampling failed to locate the highly anomalous trend delineated over the Mariposa line of lode by Amoco's bedrock sampling.

Geophoto Resources Consultants was contracted by Texin Development Pty Ltd to investigate the posssible occurrence of lead/zinc mineralization within the Gordon Limestone some seven kilometers south, southwest of the Mariposa prospect. VLF-EM, Turair and magnetometer geophysical surveys were conducted in conjunction with both shallow soil sampling and bedrock sampling programs. A number of weak to moderate tenor Turair and VLF anomalies were delineated and checked by soil geochemistry. No significant magnetic responses were observed. Bedrock sampling programs were conducted to penetrate the fluvio-glacial gravel which generally overlies the prospective horizon. Only 80 samples from a very limited area were drilled using a small percussion Cobra drill with peak values from the program being 0.26% zinc and 0.11% lead.

REGIONAL GEOLOGY

Large blocks of Pre-Cambrian sediments form the basement complexes of both northwest and central Tasmania. These are overlain by Cambrian volcanics and marine sediments which host the Rosebery-Hercules, Mt Lyell and MacIntosh (Que River) orebodies.

Overlying these rocks is a sequence of Cambrian to Devonian basinal sediments. This sequence hosts the Renison and Cleveland orebodies.

The above units were intruded by granites during the Devonian and Carboniferous times which introduced the tin mineralization. During the Jurassic and Tertiary periods, the sequence was blanketed by basic volcanics. Recent fluviatile and Pleistocene glacial erosion have produced the present topography.

Major folding and block faulting are particularly evident in the Zeehan region. Uplift and folding accompanied accumulation of thick piles of sediment and volcanic material in various troughs during the Cambrian period. The Ordovician was marked by the onset of terrestrial and shallow marine sedimentation (the Owen Conglomerate, Moina Sandstone, and Gordon Limestone). The major deformation accompanied the Paleozoic Tabberaberan orogeny and large northwest trending fold structures were formed.

LOCAL GEOLOGY

Minor Pre-Cambrian Oonah Formation basement rocks comprised of schists, quartzites, siltstones, shales, spillitic lavas and pyroclastics, form an infaulted block within the Cambrian Dundas Group in the central eastern portion of the project area.

Cambrian sedimentation appears confined to fault bounded blocks or graben structures abutting the Pre-Cambrian Tyennan Block to the east. The rocks are predominantly rapidly deposited, shallow water sediments including argillites, grits, conglomerates, greywackes and shales with minor cyclical volcanic sedimentation (agglomerates, tuffs and tuffaceous cherts and shales).

The Ordovician to Devonian strata of the Zeehan Basin occur within a series of synclinal structures with north-west axial trends. Mt Zeehan Conglomerate at Mt Misery was deposited within

a graben structure in the Lower Ordovician period and is transgressively overlain by micaceous siltstones, tubicolar sandstones, grits and minor shales. These transgressive units are time equivalents of the Moina Sandstone which was deposited within the Zeehan Basin. The Moina Sandstone is overlain disconformably by the Ordovician Gordon Limestone. The disconformity is occasionally marked by a white quartz conglomerate followed by an interbedded sequence of siltstones, dolomites, minor sandstone and limestone. The Gordon Limestone is comprised of interbedded limestones and dolomites with numerous breccia horizons and zones of clastic sedimentation including fossiliferous calc-arenties, siltstones and shales. Siluro-Devonian sediments within the basin are fossiliferous marine, coarse grained and cross-bedded quartzose sandstones, siltstone, minor quartzites, and dolomitic to pyritic shales and siltstones.

Extensive Tertiary and Quaternary deposits blanket much of the prospective dolomite and shale units.

The Zeehan area has been intensely disturbed by the Paleozoic Tabberaberan orogeny which caused major north-west folding and faulting. East and north-west trending fault systems are considered to have been contemporaneous. North, northeast striking faults are thought to have developed in post Permian times.

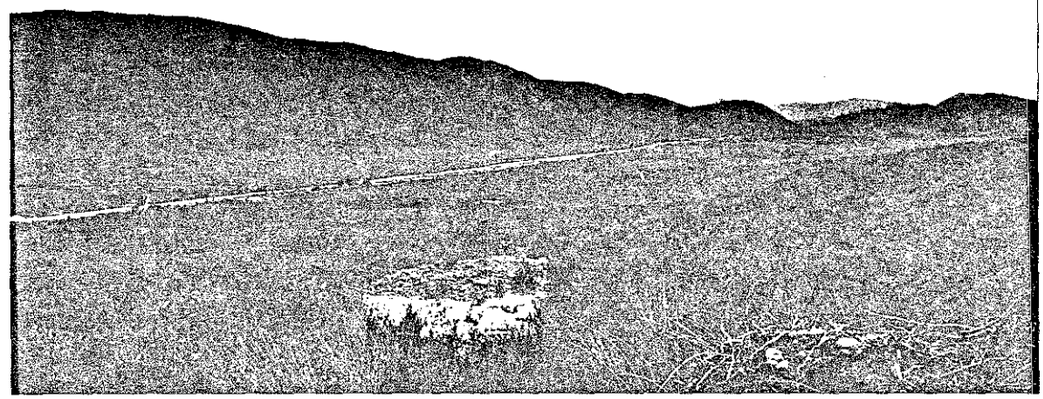
WORK CONDUCTED BY AMOCO

Work during the period entailed data collection, synthesis of previous work, access cutting, geologic mapping and geophysical and geochemical surveys. Exploration to date has centered on three prospects, the Mariposa and Black Jacks and to a lesser extent the Bannockburn prospect.

All computer contouring of geochemical and geophysical surveys was conducted by Ceanet of Sydney.

Access Cutting

The Mariposa tramway southwest of the Mariposa prospect had to be cleared of regrowth to allow access to the Bannockburn grid. The tramway proved to be the only vehicular access to the prospect.



Looking northwest across the Zeehan Highway on the Blackjacks Grid.

Remains of dam built by previous explorers in the Mariposa/ Bannockburn area.

Geologic Mapping

Culture mapping of the three prospects (Mariposa, Black Jacks and Bannockburn) is complete and detailed geological mapping is in progress. The grids were mapped and presented at a scale of 1:2500 (Enclosures 1,4 and 12). Numerous workings including shafts, adits, costeans and prospecting pits have been located on the grids, many of which have been masked by vegetation regrowth or by scree slips as at Mariposa.

The Mariposa prospect, (Enclosure 4) is marked by a number of major cross fractures and a meridional trending fault bringing Cambrian Dundas Formation volcanoclastic sediments in contact with the prospective Ordovician Gordon Limestone. The west dipping limestone sequence is overlain by Silurian Crotty Quartzites which in turn is overlain by the Amber Slate and Keel Quartzite Formations. Most workings occur adjacent to the Silurian Crotty Quartzite/Ordovician Limestone contact and include the Nevada, Mariposa, Alameda and Martini workings. Further prospecting pits occur coincident with high tenor bedrock geochemistry some 25 meters west of the meridional trending fault zone. The large residual gravity response (1.5 milligals - Enclosure 10) lies directly over the limestone horizon. Superimposed on the western flank of the larger high is a 1.0 milligal anomaly lying semi-coincident with the Mariposa line of workings and high tenor geochemistry. The limestone horizon is truncated to the south by a major cross fault which passes through the Nevada prospect 450 meters south of the Mariposa shaft. Further workings or outcropping disseminated galena mineralization occur some 800 meters north of the Mariposa prospect within the Gordon Limestone sequence.

Analytical Techniques

Rockchip and bedrock geochemical samples were dried, crushed and pulverized and despatched to Comlabs Pty Ltd in Adelaide and to Analabs in Tasmania for analysis for copper, lead, zinc, silver and tin. Analysis for basemetals was by AAS after hydrochloric

acid digestion and tin by XRF.

Rockchip samples were analyzed for an additional twelve elements, tungsten, arsenic, antimony and barium by XRF and gold, nickel, cobalt, bismuth, molybdenum, vanadium, cadium and manganese by AAS. Check assays on every twentieth sample were carried out by Amdel in Adelaide.

Rockchip Geochemistry

Black Jacks:

Five composite rockchip samples taken from the Black Jacks prospect comprised predominantly pisolitic ironstone (locations are shown on Enclosure 1 with rock types and assay results summarized in Table 1). Assay results were low with maximum basemetal values of 640 ppm zinc, 60 ppm lead, 16 ppm copper and <1 ppm silver.

Mariposa:

A total of 19 composite rockchip samples were taken from outcropping ferruginous clays, ironstones, galena mineralized quartzites and siliceous limestones and dump material (locations are shown on Enclosure 4 with rock types and assay results summarized in Table 2).

Dump material assayed up to 1.30% copper, 26.5% lead, 40.0% zinc and 150 g/t silver (Sample 1). Ferruginous clays outcropping in the same stratigraphic horizon but up to 400 meters south of the Mariposa mine were sampled and assays ranged up to 0.33% lead, 0.38% zinc and 10 ppm silver. An ironstone (Sample 5) with associated minor workings also proved highly anomalous, ranging up to 2.2% lead, 2.55% zinc and 30 g/t silver.

Values for vein association minerals, bismuth, molybdenum, vanadium, gold, tungsten and tin were generally below detection limits or of background order only.

TABLE 1 BLACK JACKS - COMPOSITE ROCKCHIP RESULTS

SAMPLE	CO-ORD	ROCK TYPE	As	Sb	Sn	W	Cu	Pb	Zn	Ni	Bi	Co	Cd	Mn	Ag	Mo	V	Au	Ba
66635	62009N 67432E	Ironstone - Limonite Dump Sample	55	<4	<4	<10	16	50	640	115	<4	48	<1	<4	20	<4	20	<0.05	
66636	61995N 67444E	Ironstone Flat Outcrop?	55	6	10	<10	6	12	145	20	<4	8	<1	90	<1	<4	10	<0.05	
66637	61998N 67516E	Ironstone Dump/Outcrop?	55	6	<4	20	12	60	370	16	<4	<4	<1	130	<1	<4	10	<0.05	
66638	62018N 67516E	Ironstone Float	60	8	4	<10	6	8	22	16	<4	6	<1	125	<1	<4	10	<0.05	
78035	62400N 67695E	Ironstone Float/Outcrop	-	-	<4	<10	14	20	615	-	-	-	-	980	<1	-	-	-	85

TABLE 2 - MARIPOSA ROCKCHIP SAMPLES

NO.	SAMPLE	CO-ORDINATES	ROCK TYPE	Cu	Pb	Zn	Ag	Sn	Au	Sb	Ni	Co	Bi	Mo	V	Cd	Mn	W	As	Ba
1	78036		Ore dump, composite sample	1.3%	26.5%	40.0%	150	<4	<0.05	8600	12	6	10	<4	10	2000	14	<10	500	15
2	78037		Black dolomite outcrop	28	650	790	2	4	<0.05	22	16	6	6	<4	30	2	16	10	32	290
3	78038		Dolomite abutting SSt	40	910	140	2	8	<0.05	16	14	<4	<4	4	20	<1	10	<10	46	340
4	78039		Limestone	6	32	190	<1	<4	<0.05	6	10	<4	<4	<4	20	<1	400	<10	5	135
5	78040		Ironstone (dump)	120	2.20%	2.55%	30	28	<0.05	70	18	4	<4	<4	20	80	7.9%	<10	100	2650
6	78041		Ferrug. sandy clays	48	430	1900	1	<4	<0.05	38	14	6	<4	<4	60	<1	350	<10	90	300
7	78042		Orange clays	440	3300	3800	<1	6	<0.05	230	55	18	4	6	80	<1	750	<10	290	260
8	78043		Orange clays	46	300	290	<1	6	<0.05	20	18	<4	<4	<4	50	<1	90	<10	140	340
9	78044		V. ferrugin. gossany shales	44	185	60	<1	<4	<0.05	4	16	<4	<4	<4	40	<1	24	<10	18	380
10	78045		Gossany ironstained quartzite	12	115	26	<1	8	<0.05	10	8	<4	4	<4	50	<1	20	<10	42	145
11	78046		Cherty qtzite + fine sst	26	4500	620	3	<4	<0.05	12	6	<4	<4	<4	20	2	1650	<10	125	55
12	78047		Orange sandy clays	200	690	1900	<1	4	<0.05	210	80	24	<4	<4	40	<1	650	10	220	210
13	78048		Orange sandy clays	360	1700	1850	1	6	<0.05	95	250	28	<4	<4	40	<1	800	<10	870	360
14	78049		Mottled black & orange dol	260	165	270	10	4	<0.05	100	150	<4	<4	<4	110	<1	40	<10	165	380
15	78050		Orange clays	660	2100	2800	10	<4	<0.05	100	35	16	<4	14	40	3	4000	<10	70	350
16	78480		Ferruginous quartzite	10	270	270	<1	4	<0.5	4	42	6	4	12	10	<1	1300	<10	6	75
17	78481		Limestone silicified	6	120	210	<1	8	<0.05	<4	16	<4	18	10	20	<1	930	<10	2	55
18	78482		Breccia. Limestone silicified	10	270	270	<1	<4	<0.05	10	65	22	6	10	20	<1	3850	10	12	195
19	78483		Pisolitic ironstone	18	55	90	<1	8	<0.05	16	<4	<4	28	<4	70	<1	1200	<10	42	75

Note : Results in ppm unless indicated

Bannockburn:
Seventeen composite dump and minor outcrop rockchip samples were collected (locations are shown on Enclosure 12 with rock types and assay results summarized in Table 3). Rock types varied from mineralized siltstones with assays ranging up to 53.4% lead, 10.6% Zn and 232 ppm silver. Minor elements such as copper and manganese return relatively high values consistent with the high lead/zinc/silver assays, this being similar to that found at Amoco's Oceana prospect.

Bedrock Geochemistry

Two bombadier mounted Jackro hydraulic auger rigs, bombadier Muskeg/Jackro 350 and bombadier J5/Jackro 200 combinations were used to penetrate thick gravel deposits blanketing much of the prospective horizon and to negotiate steep country containing thick talus and scree deposits. Areas too steep for the bombadier were either hand auger or power augered. A total of 1129 bedrock samples were taken on the three prospects, 663 at Black Jacks, 397 at Mariposa and 69 at Bannockburn with holes being drilled at 25 meter intervals along grid lines at depths varying from one to seven meters. Sampling on all grids is incomplete, however most of the bombadier sampling has been finalized.

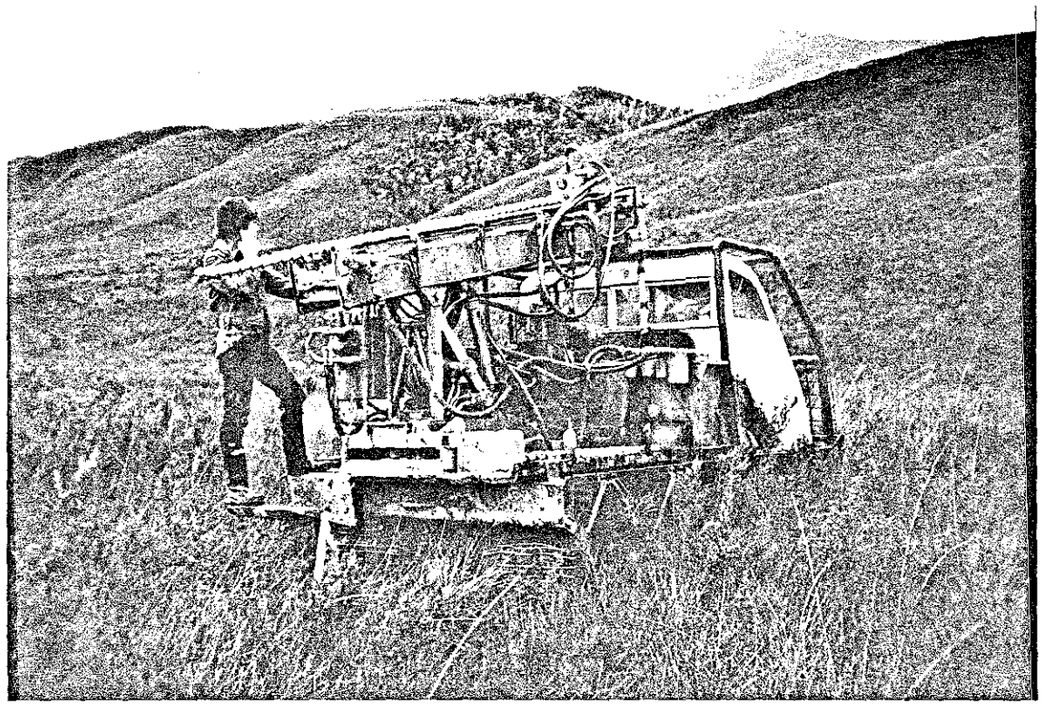
Black Jacks:
Black Jacks was originally sampled at 200 meter line spacings however, numerous percentile values were obtained necessitating infill sampling on 100 and 50 meter spaced lines.

Approximately two thirds of the gridded area has been sampled with coverage of the limestone being approximately 90% (Enclosures 2 and 3). The major anomaly has dimensions of 800 by 200 meters with values ranging up to 11.5% lead, 2.5% zinc and 75 g/t silver. The anomaly occurs roughly coincident with the original Black Jacks prospect and is adjacent to a major northeast trending fault zone. Only minor scattered pits and

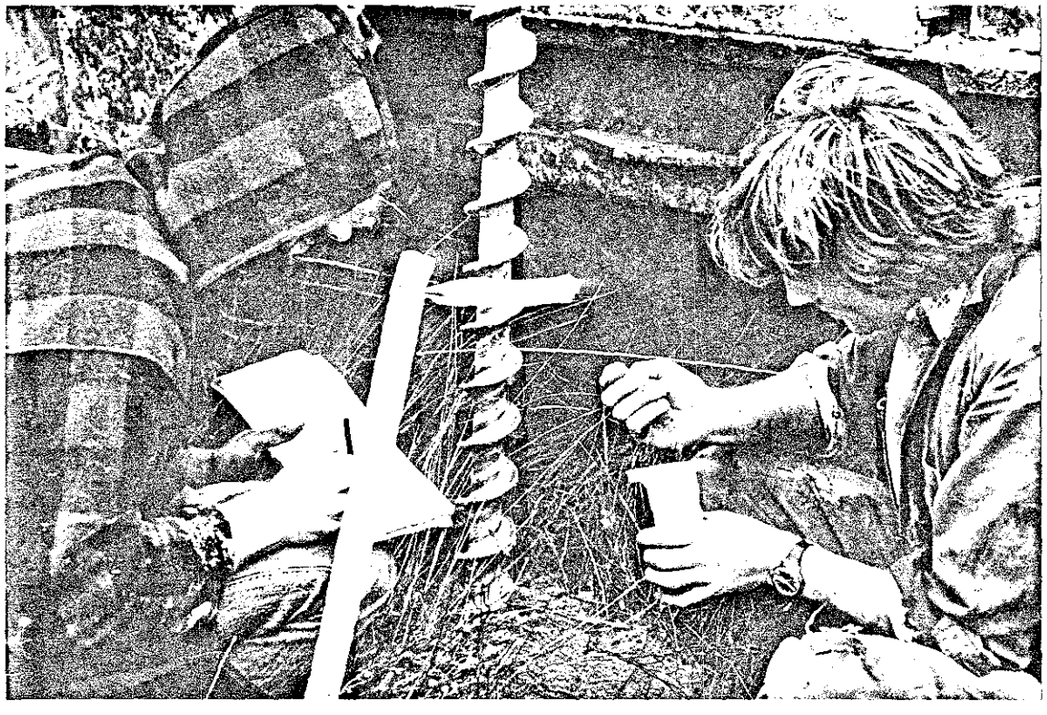
TABLE 3 - BANNOCKBURN ROCKCHIP AND DUMP SAMPLING

NO.	SAMPLE	CO-ORDINATES	ROCK TYPE	Cu	Pb	Zn	Ag	Sn	Au	Sb	Ni	Co	Bi	Mo	V	Cd	Mn	W	As
1	79648	57610N:66070E	Ferruginous siltstone (dump)	100	5100	3100	6.5	3	-	15	80	60	-	-	80	3.5	3800	0.5	58
2	79649	56850N:65800E	Ferruginous siltstone? (dump)	395	2.68%	1.56%	26	7	-	6	160	75	-	2	80	17.5	3900	4.5	95
3	79650	56840N:65805E	Black Clay (o/c)	50	9100	200	6.0	9	-	14	15	-	-	2	70	-	30	2	100
4	78487	56950N:65800E	Micaceous grey s.st (dump)	90	6550	0.88	4.0	-	-	1	95	75	-	-	60	55	2.0%	3	9
5	78488A	56960N:65765E	Mineralized Siltst (dump)	3650	38.6%	1.46%	232	6	-	215	10	-	2	-	-	100	50	-	35
6	78488B	56960N:65770E	Black Clay (dump)	40	1.63%	150	6.0	7	-	15	10	-	-	-	35	1.5	20	-	8
7	78489	56935N:65785E	Ore dump - micaceous sst.+ironstone	465	37.4%	10.6%	102	-	-	27	25	20	-	-	-	650	2100	-	5
8	78490	56950N:65785E	Ore dump - mineralized silst.	860	37.3%	4.84%	230	-	-	23	15	-	-	-	-	295	270	-	8
9	78491	56825N:65800E	Siltst. and black clay (dump)	20	4250	190	3.5	6	-	8	10	10	-	-	40	0.5	25	2	20
10	78492	57040N:65840E	Black + ferruginous clay (dump) minor mineral	50	17.7%	440	47	4	-	22	10	-	-	-	45	3.0	10	2	32
11	78493	57060N:65830E	Silty dolomite (dump)	20	2650	70	2.5	4	-	1	10	-	2	2	35	-	15	1	8
12	78494	57100N:65850E	Silty dolomite - minor mineral (dump)	30	2.46%	1.82%	7.5	8	-	2	80	30	-	-	20	95	7500	0.5	3
13	78495	57100N:65815E	Ore dump - silty dolomite	400	38.2%	3.59%	107	6	-	6	105	30	-	-	-	145	1200	-	100
14	78496	57100N:65850E	Ironstone (outcrop)	25	8450	5450	2.5	-	-	7	50	60	-	2	140	8.5	3600	1	60
15	78497	57840N:65580E	Mineralized siltst. (dump)	355	53.4%	1.61%	151	-	-	17	-	-	-	-	5	100	100	-	3
16	78498	58225N:65270E	Ironstone in trench (dump)	255	2250	1350	3.0	4	-	7	30	40	2	-	120	1.0	30	-	130
17	78499	58000N:653406	Siltst. and Ironstone (dump)	45	1.14%	3200	3.5	3	-	4	50	45	2	-	80	1.5	330	2	17

Note : Results in ppm unless indicated



The Muskeg/Jackro 350 auger rig at Bannockburn



Logging and packeting sample from the auger rig.

trenches occur within the anomalous zone.

Additional anomalous areas have values ranging up to 1.85% lead and 1.1% zinc and occur approximately 400 meters to the north of the above anomaly.

Mariposa:
Results obtained to date at Mariposa (Enclosures 5 thru 9) show two parallel anomalous zones. The eastern response of dimension 950 by 75 meters ranges up to 1.75% lead, 0.97% zinc and 85g/t silver. The anomalous zone lies adjacent to the faulted contact of the prospective Ordovician Gordon Limestone and the Cambrian Dundas Slate and is marked by numerous small pits, trenches and minor quartz veining. The western anomaly of dimensions 500 by 75 meters coincident with the Mariposa line of lode, has values ranging up to 4.8% lead, 3.2% zinc and 48g/t silver. The highly anomalous bedrock geochemistry extends the strike extent of the known mineralized horizon by a further 350 meters. A zone of smaller areal extent (200 by 50 meters), with values assaying up to 2.85% lead, 0.8% zinc and 28g/t silver lies further north of the western anomalous zone. The response appears to be the southwest-northeast cross faulted northern portion of the Mariposa lode horizon, extending the known mineralization even further.

Thick talus deposits and accompanying steep slope mask portions of the Mariposa line of lode precluding bombadier sampling and effective hand auger sampling. This creates an erroneous picture of the bedrock geochemistry results when computer contoured.

One anomalous tin sample of 43.9 ppm was obtained near old workings and requires further investigation.

Bannockburn:
Limited bombadier sampling on 200 meter spaced lines has outlined a highly anomalous zone 800 by 200 meters assaying up to 0.96%

lead, 0.8% zinc and 5 g/t silver. Numerous workings occur within the anomalous zone which encompasses an infaulted block of prospective Gordon Limestone. Several anomalous tin values, up to 55 ppm occur approximately 200 meters south of old workings in an area where gridding became difficult due to magnetic interference. Follow up sampling west of the Dundas River will be conducted to define these anomalous zones.

Geophysics

A gravity survey was conducted on the Mariposa prospect using both Las Coste Romberg and Sodin Gravity meters. The entire prospective zone was covered with readings taken at 50 meter intervals along grid lines with the very steep sections being left unsurveyed.

A 1.5 milligal gravity response of dimensions 700 by 250 meters was delineated (Enclosure 10) coincident with the Gordon Limestone unit. Superimposed on the western flank of this response is a 1.0 milligal gravity high, approximately 300 by 100 meters lying semi coincident with the Mariposa line of workings. Detailed modelling as yet to be conducted to define a soruce.

Results were received from an airborne magnetic survey with lines spaced at 250 meter intervals conducted in conjunction with a Tasmanian Mines Department survey late in 1981 (Figure 4). A number of anomalies require ground checking (Enclosure 11). Department of Mines Regional Bouguer Gravity contours covering the joint venture area are also included in this report (Figure 3).

Geoterrex is presently surveying the Mariposa prospect with a transcient electromagnetic system (Geonics EM-37) utlizing a 500 by 350 meter loop. Encouraging results obtained on Amoco's Oceana prospect using this system warranted extending useage in defining the generally poorly conducting lead-zinc bodies. Anomalies will be rated according to strength and likely origin

619152

FIGURE-3

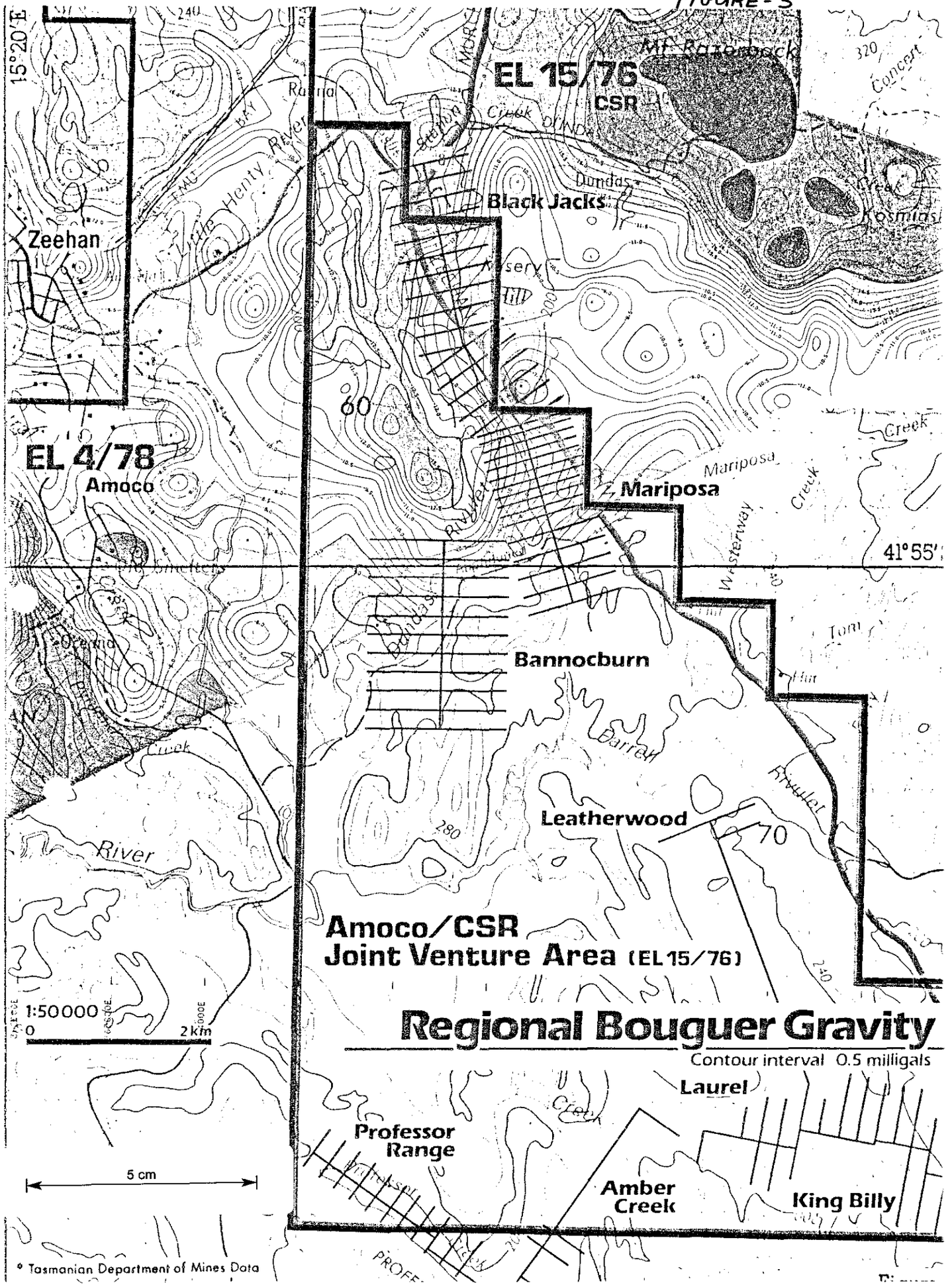
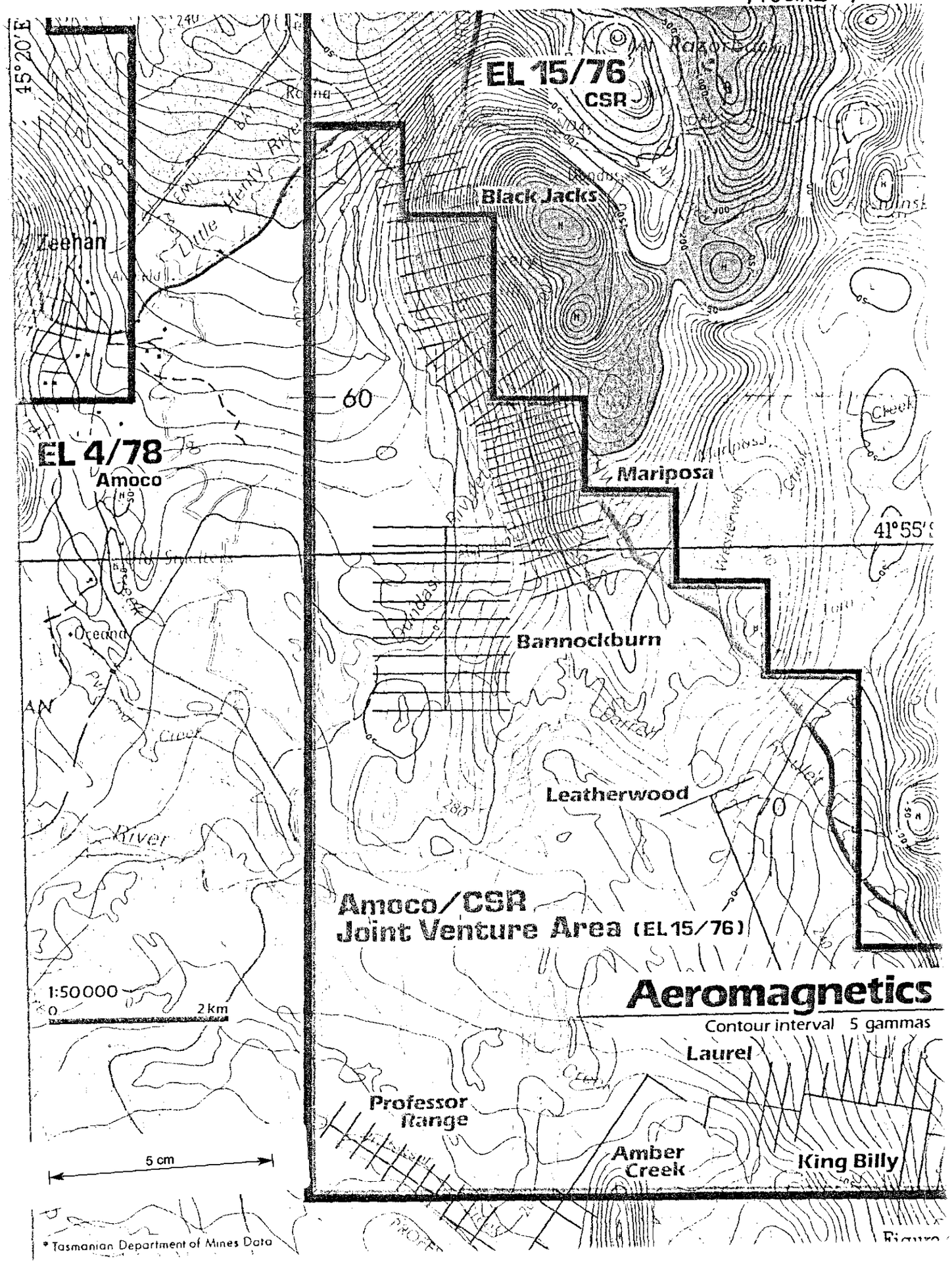


FIGURE-4


EL 15/76
CSR
Black Jacks
Zeehan
EL 4/78
Amoco
Mariposa
Bannockburn
Leatherwood
Amoco/CSR
Joint Venture Area (EL 15/76)
Aeromagnetics
Contour interval 5 gammas
Laurel
Professor Range
Amber Creek
King Billy
Oceana
Razorback
1:50000
0 2km
5 cm
* Tasmanian Department of Mines Data

and will be presented with full interpretation in the next six monthly progress report.

A detailed ground magnetic survey of the three gridded areas was postponed due to equipment malfunction.

PROPOSED PROGRAM

Gridding is proposed during the next period with approximately 20 line kilometers to be staked at 400 meter intervals across the prospective Gordon Limestone unit on the Leatherwood, King Billy, Laurel and Amber Creek grids. A further 15 line kilometers is to be restaked in the vicinity of the Amber Creek and Professor Range grids due to Forestry Commission hazard reduction burn offs.

Detailed geologic mapping will continue on the Black Jacks, Mariposa, and Bannockburn prospects with the major emphasis being lithological control (Gordon Limestone) and structure (major cross faulting through the prospective horizon).

Anomalous geochemical trends observed on both the Black Jacks and Mariposa prospects are to be costeaned using a JCB 808 hydraulic

excavator, and the trenches geologically mapped and sampled assaying for copper, lead, zinc, silver and tin.

Bombadier/Jackro sampling will be undertaken on the western portion of the Bannockburn prospect to delineate the anomalous tin values (up to 55 ppm) obtained from previous augering surveys. Jackro sampling on the southern grids (Leatherwood to Professor Ranger) will be conducted on lines spaced at 400 meter intervals. Programs will concentrate on areas of recorded workings such as North Henty, United Silver Lead and East Amber prospects.

Anomalous responses outlined by the Mines Department (Geoex) airborne magnetic survey will be checked by ground magnetometer traverses (using a Geometrics G816 proton procession magnetometer), reconnaissance soil sampling and rockchip sampling.

A G856 magnetometer will be used to traverse the gridded areas endeavoring to locate buried ironstones and or lead/zinc mineralization near surface as the lead/zinc with associated siderite is weakly magnetic.

SIGNED: .....

P.A. JONES

AMOCO MINERALS AUSTRALIA COMPANY

EXPENDITURE FOR THE PERIOD JULY 1, 1982 to DECEMBER 31, 1982

DUNDAS JOINT VENTURE ON PART EXPLORATION LICENCE NO 15/76

Salaries and Wages	14,254.07
Supplies	(883.27)
Supplies - maps	55.00
Cookery	1,947.37
Field Office Rent	285.61
Field Supplies	(6,036.27)
Freight	(411.57)
Aircraft Charter	-
Travel	513.92
Communications	1,119.31
Geophysics	(2,200.00)
Consultants/Contractors	(446.00)
Drilling	
Assays	2,758.23
Legal Fees	
Equipment Rental	
Equipment Operation & Maintenance	12,084.45
Property Payments	
Outside Services	446.72
	23,487.57
Overhead	2,348.75
	25,836.32

T.J. CONQUEST
ACCOUNTANT

EL 15/76
Amoco/CSR Joint Venture

To Zeehan

To Burnie

MURCHISON HIGHWAY

67600 E
67500 E
67400 E
67300 E
67200 E
67100 E
67000 E
66900 E
66800 E

62800 N
62600 N
62400 N
62200 N
62000 N
61800 N
61600 N
61400 N
61200 N
61000 N
60800 N A
60800 N
60600 N
60400 N
60200 N
60000 N

5362000 N
5361000 N
5360000 mN AMG

39°53'S
39°54'S

145°23'E
145°24'E

366000 E
367800 E

Dump
Adit
Cut
Track
Watercourse
78035
Minor Ironstone

Limit of Amoco/CSR Joint Venture

Ironstone float 66638
Ironstone trench 66635
66637
Ironstone dump
66636
Ironstone float
Quarry

ZEEHAN HIGHWAY

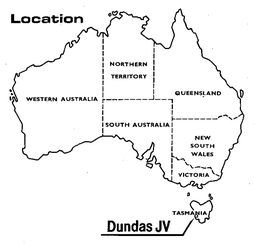
Misery Hill

Dozer track
Dozer track
Dozer track
Quarry
Old Black Jack workings
Minor Ironstone float
165°T
Watercourse
Natural drainage
Trench
Track
Drainage channel
Quarry
140°T
Ties to Mariposa
58800 N

DUNDAS RIVULET

To Rosebery

Location



TN 11° MN

1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Notes

Rockchip sample location and number * 66638
See Table1 of report 339 for results

619158

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner	CSR				
Dundas JV	Black Jacks				
ROCKCHIP GEOCHEMISTRY SAMPLE LOCATION					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1949

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Enclosure 1

EL 15/76

Amoco/CSR Joint Venture

Limit of Amoco/CSR Joint Venture Area

MURCHISON HIGHWAY

ZEEHAN HIGHWAY

Misery Hill

Quarry

Dump

Adit

Cut

Trench

Watercourse

Natural drainage

Drainage channel

Boxer track

Track

Ties to Mariposa

DUNDAS RIVULET

to Zeehan

to Rosebery

62800 N

62600 N

62400 N

62200 N

62000 N

61800 N

61600 N

61400 N

61200 N

61000 N

60800 N

60600 N

60400 N

60200 N

60000 N

60800 N A

5362000 N

5361000 N

5360000 mN AMG

39°53'S

39°54'S

145°23'E

145°24'E

366000 E

367000 E

67000 E

67100 E

67200 E

67300 E

67400 E

67500 E

67600 E

67700 E

67800 E

67900 E

68000 E

68100 E

68200 E

68300 E

68400 E

68500 E

68600 E

68700 E

68800 E

68900 E

EL 15/76

Amoco/CSR Joint Venture

Limit of Amoco/CSR Joint Venture Area

MUNCHISON HIGHWAY

ZEEHAN HIGHWAY

Watercourse

Track

Dump

Adit

Cut

Quarry

Misery Hill

Bozer track

Trench

Natural drainage channel

DUNDAS RIVULET

Ties to Mariposa

To Zeehan

To Rosebery

5362000 N

5361000 N

5360000 mN AMG

39°53'S

39°54'S

145°23'E

145°24'E

366000 E

367000 E

62800 N

62600 N

62400 N

62200 N

62000 N

61800 N

61600 N

61400 N

61200 N

61000 N

60800 N A

60800 N

60600 N

60400 N

60200 N

60000 N

58800 N

67200 E

67300 E

67400 E

67500 E

67600 E

67100 E

67000 E

66900 E

66800 E

67700 E

67800 E

67900 E

67100 E

67000 E

66900 E

66800 E

140° T

Location

TN 11° MN

1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in ppm

200
700
2000
7000

Notes

Computer graphics by CEA, North Sydney

619160

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner					CSR
Dundas JV				Black Jacks	
BEDROCK GEOCHEMISTRY **ZINC**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1951

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Enclosure 3

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145°24'E

367000E

368000E

57800N

59800N

59700N

59600N

59500N

59400N

59300N

59200N

59100N

59000N

58900N

58800N

58600N

58400N

58200N

58000N

67600E

67500E

67400E

67300E

67200E

67100E

67000E

66900E

66800E

67700E

342°T

to Zeehan

to Queenstown

Ties to Blackjacks

Ties to Bannockburn

Fault

Watercourse

Track

Creek

Purple shale

Yellow orange shale and siltsone

Conglomerate

qtz/chl

Limit of Amoco/CSR Joint Venture Area

ZEEHAN HIGHWAY

Tramway abandoned

Mariposa

DUNDAS

RIVULET

AMBER SLATE

CROTTY QUARTZITE

Shale

Cut

Adit

Dump

Trench

Trenches

Mineralization

Mariposa Main shaft

Nevada Adit

Rockchip sample 6*

4 NBH drillholes

ZDDH 4

ZDDH 3

Ironstone

SILURIAN

CROTTY QUARTZITE

ORDOVICIAN

GORDON LIMESTONE

CAMBRIAN

Sandstones, siltstones, conglomerate

SILURIAN

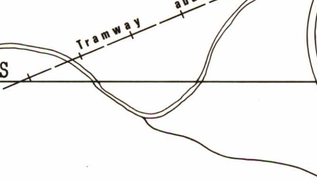
CROTTY QUARTZITE

AMBER SLATE

CROTTY QUARTZITE

Shale

Location



1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Notes

Rockchip sample location and number 6*

See Table 2 of Report 339 for rockchip results

619161

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner					CSR
Dundas JV					Mariposa
PRELIMINARY GEOLOGY					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1952

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Enclosure 4

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145° 24'E

367000E

368000E

59800 N
59700 N
59600 N
59500 N
59400 N
59300 N
59200 N
59100 N
59000 N
58900 N
58800 N
58600 N
58400 N
58200 N
58000 N
57800 N

67600 E
67500 E
67400 E
67300 E
67200 E
67100 E
67000 E
66900 E
66800 E

RIVULET

DUNDAS

Mariposa

Watercourse

Creek

HIGHWAY

To Zeehan

To Queenstown

342° T

Ties to Blackjacks

Ties to Bannockburn

Cut

Adit

Track

Tramway abandoned

Dump

4 NBH drillholes

5

6

7

8

9

10

Trench

ZDDH 4

ZDDH 3

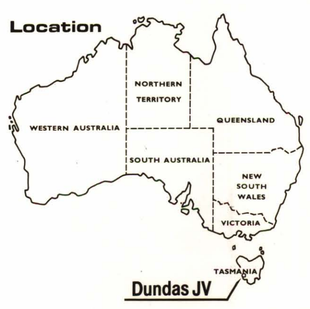
Mariposa Main shaft

Nevada Adit

Ironstone

Limit of Amoco/CSR Joint Venture Area

Location



TN 11° MN

1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in ppm

100
200
300
400

Notes

Computer graphics by CEA, North Sydney

619162

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A·80·82
Project Partner					CSR
Dundas JV					Mariposa
BEDROCK GEOCHEMISTRY **COPPER**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P. J., J. S.	Date	1982	Scale	1:2500
Drawn	R. S-K., S. F.	Date	December 1982	Drawing Nº	M83-1953

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Enclosure 5

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

39°55'S

5358000 mN AMG

145° 24' E

367000E

668000E

669000E

670000E

671000E

672000E

673000E

674000E

675000E

676000E

677000E

677800E

679000E

680000E

681000E

682000E

683000E

684000E

685000E

686000E

687000E

688000E

689000E

690000E

691000E

692000E

693000E

694000E

695000E

696000E

697000E

698000E

699000E

700000E

701000E

702000E

703000E

704000E

705000E

706000E

707000E

708000E

709000E

710000E

711000E

712000E

713000E

714000E

715000E

716000E

717000E

718000E

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145°24'E

367000E

368000E

57800 N

59800 N

59700 N

59600 N

59500 N

59400 N

59300 N

59200 N

59100 N

59000 N

58900 N

58800 N

58600 N

58400 N

58200 N

58000 N

67600 E

67500 E

67400 E

67300 E

67200 E

67100 E

67000 E

66900 E

66800 E

342°T

Watercourse

Watercourse

RIVULET

DUNDAS

Mariposa

Creek

Track

Track

Track

Track

Track

Track

Track

Ties to Blackjacks

Ties to Bannockburn

Cut

Adit

Dump

4 NBH drillholes

Trench

ZDDH 4

ZDDH 3

Mariposa Main shaft

Nevada Adit

Ironstone

Tramway abandoned

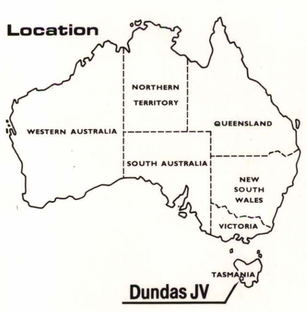
to Zeehan

to Queenstown

ZEEHAN HIGHWAY

Limit of Amoco/CSR Joint Venture Area

Location



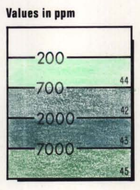
1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in ppm



Notes

Computer graphics by CEA, North Sydney

619164

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner					CSR
Dundas JV				Mariposa	
BEDROCK GEOCHEMISTRY **ZINC**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P. J., J. S.	Date	1982	Scale	1 : 2500
Drawn	R. S-K., S. F.	Date	December 1982	Drawing Nº	M83-1955

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Enclosure 7

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145°24'E

367000E

368000E

57800 N

58200 N

58000 N

58400 N

58600 N

58800 N

58900 N

59000 N

59100 N

59200 N

59300 N

59400 N

59500 N

59600 N

59700 N

59800 N

67600 E

67500 E

67400 E

67300 E

67200 E

67100 E

67000 E

66900 E

66800 E

342°T

RIVULET

DUNDAS

Mariposa

Creek

Watercourse

Track

ZEEHAN HIGHWAY

to Queenstown

to Zeehan

Ties to Blackjacks

Ties to Bannockburn

Cut

Adit

Dump

4 NBH drillholes

Trenches

Mariposa Main shaft

Trench

ZDDH 4

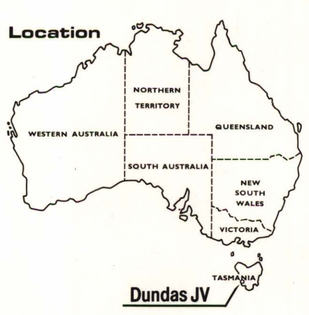
ZDDH 3

Nevada Adit

Ironstone

Limit of Amoco/CSR Joint Venture Area

Location



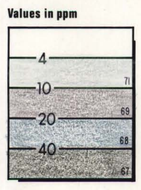
1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in ppm



Notes

Computer graphics by CEA, North Sydney

619165

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A·80·82
Project Partner					CSR
Dundas JV					Mariposa
BEDROCK GEOCHEMISTRY **SILVER**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1957

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Enclosure 8

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145°24'E

367000E

368000E

57800N

59800N

59700N

59600N

59500N

59400N

59300N

59200N

59100N

59000N

58900N

58800N

58600N

58400N

58200N

58000N

67600E

67500E

67400E

67300E

67200E

67100E

67000E

66900E

66800E

66900E

67000E

67100E

67200E

67300E

67400E

67500E

67600E

67700E

RIVULET

DUNDAS

Mariposa Creek

Watercourse

Watercourse

Track

Track

Track

Track

Tramway abandoned

Ties to Blackjacks

Ties to Bannockburn

to Zeehan

to Queenstown

ZEEHAN HIGHWAY

Cut

Adit

Dump

4 NBH drillholes

5

6

8

7

9

10

Trench

Trenches

Mariposa Main shaft

ZDDH 4

ZDDH 3

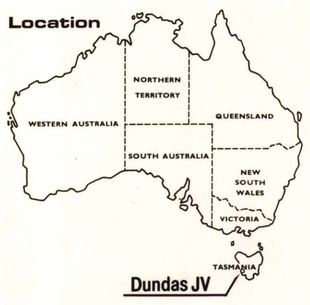
Nevada Adit

Ironstone

342° T

Limit of Amoco/CSR Joint Venture Area

Location



TN 11° MN

1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in ppm

7	58
10	80
40	83
100	+83

Notes

Computer graphics by CEA, North Sydney

619166

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A·80·82
Project Partner					CSR
Dundas JV					Mariposa
BEDROCK GEOCHEMISTRY **TIN**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1958

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Enclosure 9

EL 15/76

Amoco/CSR Joint Venture

5356000 N

5359000 N

5358000 mN AMG

39°55'S

145°24'E

367000 E

368000 E

59800 N

59700 N

59600 N

59500 N

59400 N

59300 N

59200 N

59100 N

59000 N

58900 N

58800 N

58600 N

58400 N

58200 N

58000 N

57800 N

67600 E

67500 E

67400 E

67300 E

67200 E

67100 E

67000 E

66900 E

66800 E

RIVULET

DUNDAS

Mariposa

Creek

Track

Watercourse

ZEEHAN HIGHWAY

To Zeehan

To Queenstown

Ties to Blackjacks

Ties to Bannockburn

Cut

Adit

Trench

Trenches

Dump

4 NBH drillholes

Mariposa Main shaft

Nevada Adit

Irenstone

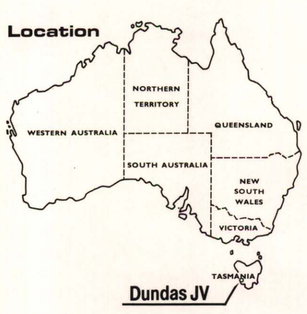
ZDDH 3

ZDDH 4

Limit of Amoco/CSR Joint Venture Area

Tramway abandoned

Location



TN 11° MN

1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Contour Intervals

Values in milligals

1.0	12
0.6	7
0.2	2
-0.2	
-0.6	34
-1.0	33

Notes

Computer graphics by CEA, North Sydney
Gravity survey by Peter Mewkill
Correction density 2.67 gm/cc

619167

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A·80·82
Project Partner					CSR
Dundas JV				Mariposa	
RESIDUAL **GRAVITY**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P. J., J. S.	Date	1982	Scale	1 : 2500
Drawn	R. S-K., S. F.	Date	December 1982	Drawing Nº	M83-1959

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Enclosure 10

EL 15/76

Amoco/CSR Joint Venture

5356000N

5359000N

5358000 mN AMG

39°55'S

145°24'E

367000E

368000E

59800N 59700N 59600N 59500N 59400N 59300N 59200N 59100N 59000N 58900N 58800N 58600N 58400N 58200N 58000N 57800N

669000E 670000E 671000E 672000E 673000E 674000E 675000E 676000E 677000E

RIVULET

DUNDAS

Mariposa

Creek

Waterourse

Track

Tracks

Tracks to Blackjacks

Ties to Bannockburn

Mariposa Main shaft

Nevada Adit

4 NBH drillholes

ZDDH 3

ZDDH 6

Trench

Dump

Cut

Fill

Treastone

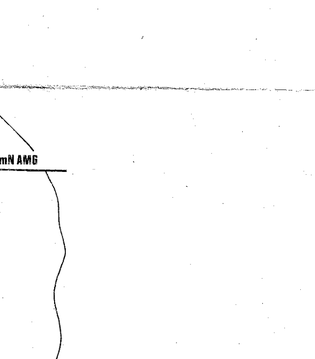
to Queenstown

ZEEHAN HIGHWAY

Tramway abandoned

Limit of Amoco/CSR Joint Venture Area

Location



1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Notes

Contour interval is 0.2 milligals
Computer graphics by CEA, North Sydney
Gravity survey by Peter Mewkill
Correction density 2.67 gm/cc

619168

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner					CSR
Dundas JV				Mariposa	
BOUGUER GRAVITY					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1960

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Enclosure 11

within EL 15/76

Amoco/CSR Joint Venture

65300 E 65400 E 65500 E 65600 E 65700 E 65800 E 65900 E 66000 E 66100 E 66200 E 66300 E 66400 E 66500 E 66600 E 66700 E

Ties to Mariposa 58600 N

Watercourse

to Teehan 58400 N

Creek

Mariposa

39°55'S

Trench 16

Grey shaley siltstones

58200 N

Track

5358000 N

Trench 17

* Creamy grey siltstone

RIVULET

Greenish/grey laminar siltstones minor gritty quartz veining

58000 N

Quartz veined fawn siltstone quartzite

Maroon_pink siltstones

Adit 14 Shaft 15

Grey quartzite

abandoned

57800 N

Coarse grey quartzite

Tramway

1

57600 N

DUNDAS

57400 N

57200 N

Watercourse

13 12 14 11 10

5357000 mN AMG

57000 N

6 5 8 4 7

2 3 Gravel pit 9

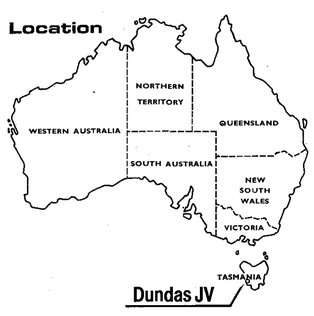
56800 N

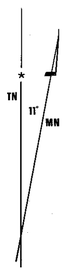
181° T

56600 N

65300 E 65400 E 65500 E 145°23'E 366000 E 65600 E 65700 E 65800 E 65900 E 66000 E 66100 E 66200 E 66300 E 66400 E 66500 E 367000 E 66600 E 66700 E

Location





1:2500

0 100 200 meters

Basemap compiled from field mapping and airphoto enlargement
Discrepancies exist

Notes

Rockchip/dump sample location and number . . 17
See Table 3 of report 339 for results

Old workings dump . . . . . (oval)

Outcrops . . . . . *

619169

5 cm

Amoco Minerals Australia Company

Project	GORDON RIVER			Nº	A-80-82
Project Partner					CSR
Dundas JV				Bannockburn	
ROCKCHIP GEOCHEMISTRY **SAMPLE LOCATION**					
Map Ref. ANG	K-55-5	Latitude	39° 55' S	Longitude	145° 25' E
Surveyed	P.J., J.S.	Date	1982	Scale	1:2500
Drawn	R.S-K., S.F.	Date	December 1982	Drawing Nº	M83-1961

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Enclosure 12