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ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

WEST COAST MINES

Report on Exploration Undertaken In the Bulgopac Exploration Licence 12/77

OPEN FILE

GEOLOGICAL DEPARTMENT

Report No. 128

R. H. HANSON

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SUMMARY OF EXPLORATION ACTIVITY

The following work has been undertaken during 1976-77 in the Bulgobac Exploration Licence.

1. A grid was prepared over the Boco Area.

2. Geophysical Surveys (comprising Gradient Array IP, Apparent Restivity and Ground Magnetics) over the Boco Grid.

3. A Geochemical soil survey over the southern part of the Boco Grid.

4. Geological mapping of cut lines and access in the Boco Area.

5. Diamond Drilling of three I.P. anomalies in areas of glacial cover.

6. Construction of an access track into the northern area (to the sites of the Airbourne Input EM. anomalies in the vicinity of Que River).

7. Regional mapping in the Bulgobac Area (in progress).

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1. LICENCE

Exploration Licence 12/72 was acquired in 1972 when Comstaff Pty. Ltd. relinguished selected areas from their E.L. 5/63. This has resulted in the licence having irregular shape (see figure 1.1. and table 1.2.). It covers an area of approximately 94 square kms.

Work in the E.L. is presently undertaken under Joint Venture Agreement with Getty Oil Development.

For the purpose of this report the licence area has been divided into the following areas, (refer to plate 1.):-

1. Southern Area
2. Northern Area
3. Western Area

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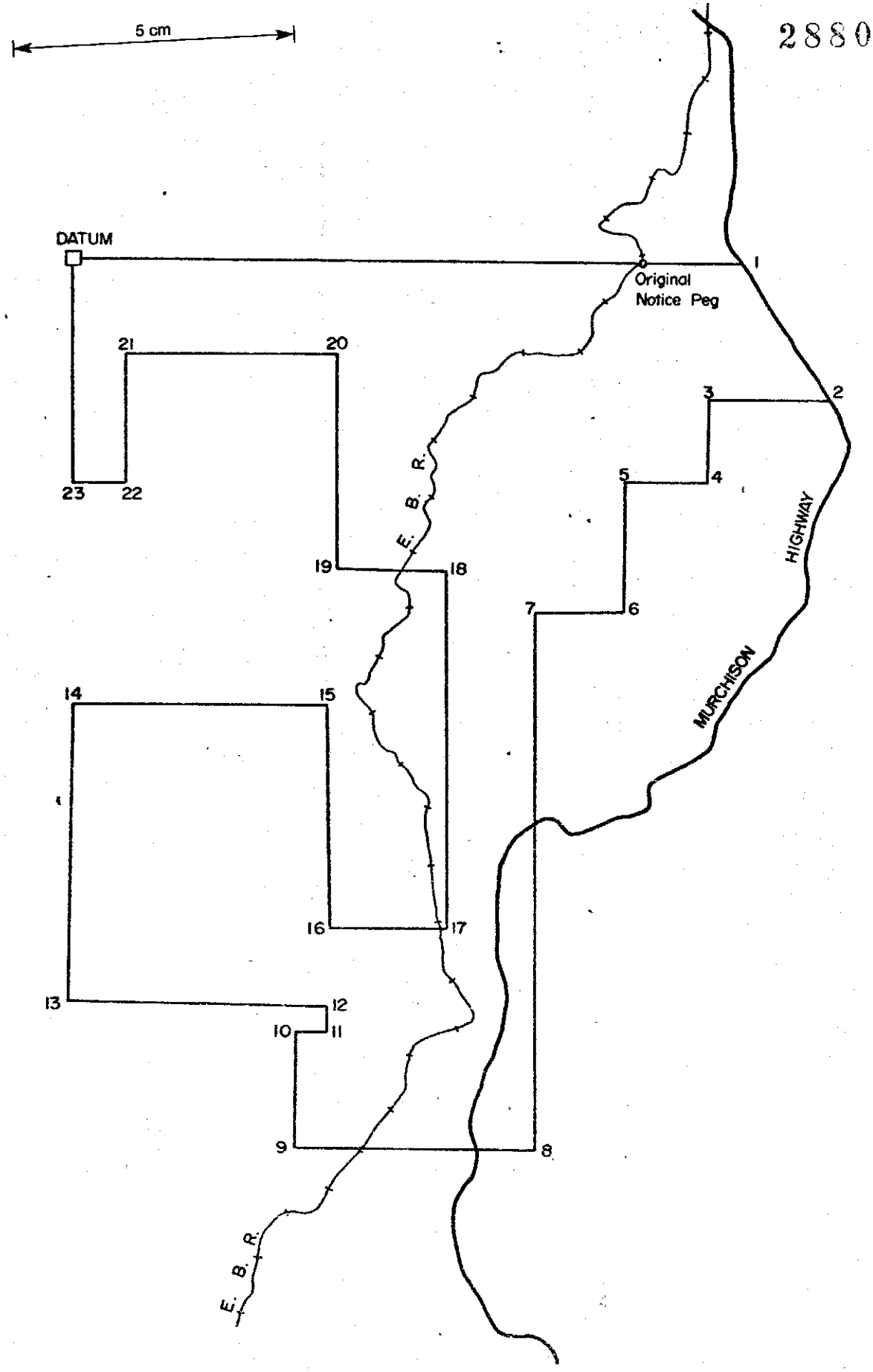

PLAN SHOWING THE BOUNDARIES OF EXPLORATION LICENCE 12/72 BULGOBAC

FIGURE 1.1

Corner No.	Metres N	Metres E
DATUM*	5 399 800	376 760
Position of Original Notice	5 399 774	386 372
1**	5 399 800	388 570
2	5 397 530	390 010
3	5 397 505	387 860
4	5 396 135	387 875
5	5 396 120	386 415
6	5 393 835	386 440
7	5 393 815	384 840
8	5 384 215	384 950
9	5 383 170	380 790
10	5 386 360	380 770
11	5 386 370	381 315
12	5 386 915	381 310
13	5 386 865	376 865
14	5 392 075	376 805
15	5 392 125	381 250
16	5 388 195	381 295
17	5 388 220	383 395
18	5 394 530	383 325
19	5 394 505	381 405
20	5 398 348	381 360
21	5 398 305	377 705
22	5 396 020	377 730
23	5 396 005	376 760

* North West Corner - New Datum Point from reissued Mines Dept. Schedule.

** Co-ordinates not specified in reissued Mines Dept. Schedule.

TABLE 1.2 Licence boundary co-ordinates. (Refer to figure 1.1 for the location of the numbered corners.)

2. ACCESS

2.1. Southern Access

2.1.1. EXISTING ACCESS

The Emu Bay Railway Line and Murchison Highway pass through the Bulgobac Exploration Licence. Railway siding facilities are established at Boco.

The highway, a sealed all weather road is the main access to the southern area. Two all weather tracks join the highway in the Boco Area.

A short length of well made road runs to Boco Siding. A second track (which is usually impassable in winter) leaves this road near the Railway Line and provides access to the abandoned Bulgobac Sawmill 3 kms to the north.

The other all weather track leaves the Murchison Highway approximately 1 kilometre south of the Boco Siding turnoff. It runs across the centre of the southern area providing access to the Chester, Pinnacles and Marionoak River Areas.

2.1.2 LINE CUTTING - BOCO GRID

57.5 km of grid lines were cut and pegged at 40m intervals by contractors, in the southern area. This is known as the Boco Grid. Grid north is 45° east of true north. The local origin has the following co-ordinates.

Boco Grid Co-Ordinates	AMG Co-Ordinates
15,000 N	5,387,000 N
10,000 E	384,000 E

During 1976/77 Boco Grid North had a magnetic bearing of 033.3°.

(Table 2.1. gives the Grid Coverage)

Using contractors to peg the lines proved most unsatisfactory (due to pegging errors and lack of topographic correction). These pegging errors have been recorded.

Points on the grid have been picked up on air-photographs. From these base plans of the corrected grid (at 1:10,000 and 1:5,000 scale) has been compiled.

2.1.3. DRILL SITE PREPARATION

Three drill sites were prepared and relevant access made. (Figure 7.1. shows the locality of these sites and access tracks.)

2.1.4. H.E.C. WORK IN THE AREA

The H.E.C. are constructing access for a power transmission line which passes through the centre of the Boco Area. (The proposed position of this power line is shown on plate 1.) Other H.E.C. development within the E.L. 12/72 includes special loading facilities at Boco Siding, several

LINE	FROM	TO	LENGTH (METRES)
16,920 N	8,510 E	9,760 E	250
16,600 N	8,770 E	9,800 E	1,030
16,440 N	8,860 E	10,320 E	1,460
16,280 N	9,000 E	10,160 E	1,160
15,960 N	9,000 E	10,520 E	1,520
15,800 N	9,000 E	10,100 E	1,100
15,640 N	9,000 E	10,800 E	1,800
15,480 N	8,750 E	11,360 E	2,610
15,320 N	9,000 E	11,060 E	2,060
15,160 N	9,000 E	10,100 E	1,100
15,160 N	10,720 E	11,400 E	680
15,000 N	9,000 E	12,200 E	3,200
14,840 N	9,450 E	11,760 E	2,310
14,680 N	9,450 E	11,760 E	2,310
14,520 N	9,450 E	11,400 E	1,950
14,360 N	9,150 E	11,700 E	2,550
14,200 N	9,450 E	11,400 E	1,950
14,040 N	10,240 E	11,400 E	1,160
13,880 N	9,450 E	11,400 E	1,950
13,720 N	8,960 E	11,480 E	2,520
13,400 N	8,920 E	11,340 E	2,420
13,240 N	8,520 E	11,960 E	3,440
13,080 N	8,840 E	11,600 E	2,760
12,760 N	8,840 E	11,650 E	2,810
12,600 N	9,440 E	11,560 E	2,120
12,280 N	9,440 E	11,600 E	2,160
12,120 N	9,200 E	11,800 E	2,600
11,960 N	9,120 E	11,720 E	2,600
11,640 N	9,450 E	10,660 E	1,210

CROSS OVER LINES

9,450 E	12,120 N	11,640 N	520
11,000 E	15,320 N	15,000 N	320
11,350 E	13,240 N	11,960 N	1,280

TABLE 2.1

COVERAGE OF THE BOCO GRID

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bombadier tracks, a temporary power line to Boco Siding and a long cut line (sub parrellel to the transmission line.).

2.2. Western Area

2.2.1. EXISTING ACCESS

Most of the Western Area of E.L. 12/72 is inaccessible at present. A track heading north from the Marionoaks track gives limited access to the southern part of this area. A series of tracks originating at the abandoned Bulgobac sawmill gives access to the north east corner of this Area.

2.3. Northern Area

2.3.1. TRACK FORMING - NORTHERN ACCESS TRACK

Two main periods of work were undertaken. The first was in December, 1976, when it was attempted to extend the track, that crosses the head waters of the Bulgobac River just north of Sock Creek. Heavy clay developed over basalt, and the very poor weather produced very boggy conditions which ultimately lead to the abandonment of this route.

The second phase was undertaken, from late March to early May using a different bulldozer contractor.

An abandoned logging track heading westerly from Sock Creek to an abandoned rail siding was upgraded. The track was then pushed north, across the Bulgobac River, and following spurs and ridges it reached the immediate vicinity of input anomalies CS-27A

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and CS-28A.

A track was pushed south from the abandoned rail siding to connect with the highway in the vicinity of Boco.

Approximately 9km of track was formed (see plate 1). In wet weather the present track is only suitable for tracked vehicles. It is anticipated that some improvements (i.e. lagging boggy sections) and fine weather would allow four-wheel drive vehicles to use the track for limited periods in summer.

3. TOPOGRAPHIC BASE PLANS IN THE BULGOBAC REGION

3.1. Standard Plans

3.1.1. E.Z. STANDARD 1:10,000 SCALE PLANS.

A set of eight AO size plans covers an area of the Mt. Read Volcanics, from Rosebery to the Hatfield River. The area covered and layout of sheets is shown in figure 3.1.

These plans were produced by Associated Survey Pty. Ltd. from aerial photography flown in 1975.

3.2. Special Plans

3.2.1. SPECIAL TOPOGRAPHIC PLANS AT 1:10,000 SCALE

To conveniently cover areas of interest in the Bulgobac E.L. (12/72), two special AO size plans have been compiled. Figure 3.2 shows the area covered and layout of these two sheets.

The southern sheet covers the Boco - Siding Area and the northern sheet covers the Que River Area.

3.2.2. SPECIAL PLANS AT 1:5,000 SCALE

3.2.2.1. Boco - Siding

In order to plot the more detailed data two special AO size plans at 1:5,000 scale were drawn up. Figure 3.3. shows the area covered and layout of these two sheets.

The topographic detail of these plans is highly simplified and has been enlarged from the standard 1:10,000 scale sheet using a pantograph.

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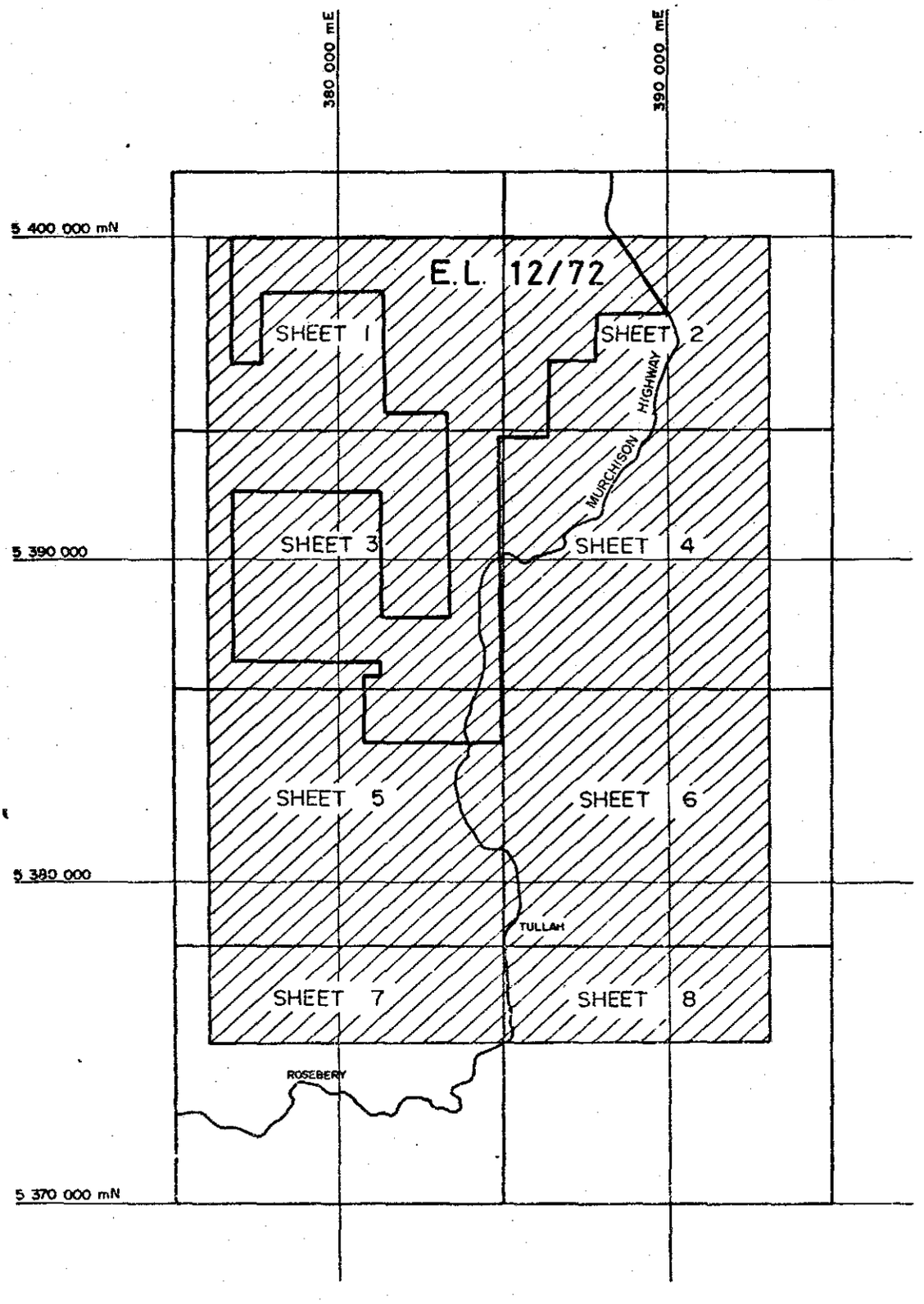

AREA OF TOPOGRAPHIC DETAIL

5 cm

FIGURE SHOWING LAYOUT OF STANDARD 1:10000 SCALE PLANS OF THE BULGOBAC AREA

FIGURE 3.1

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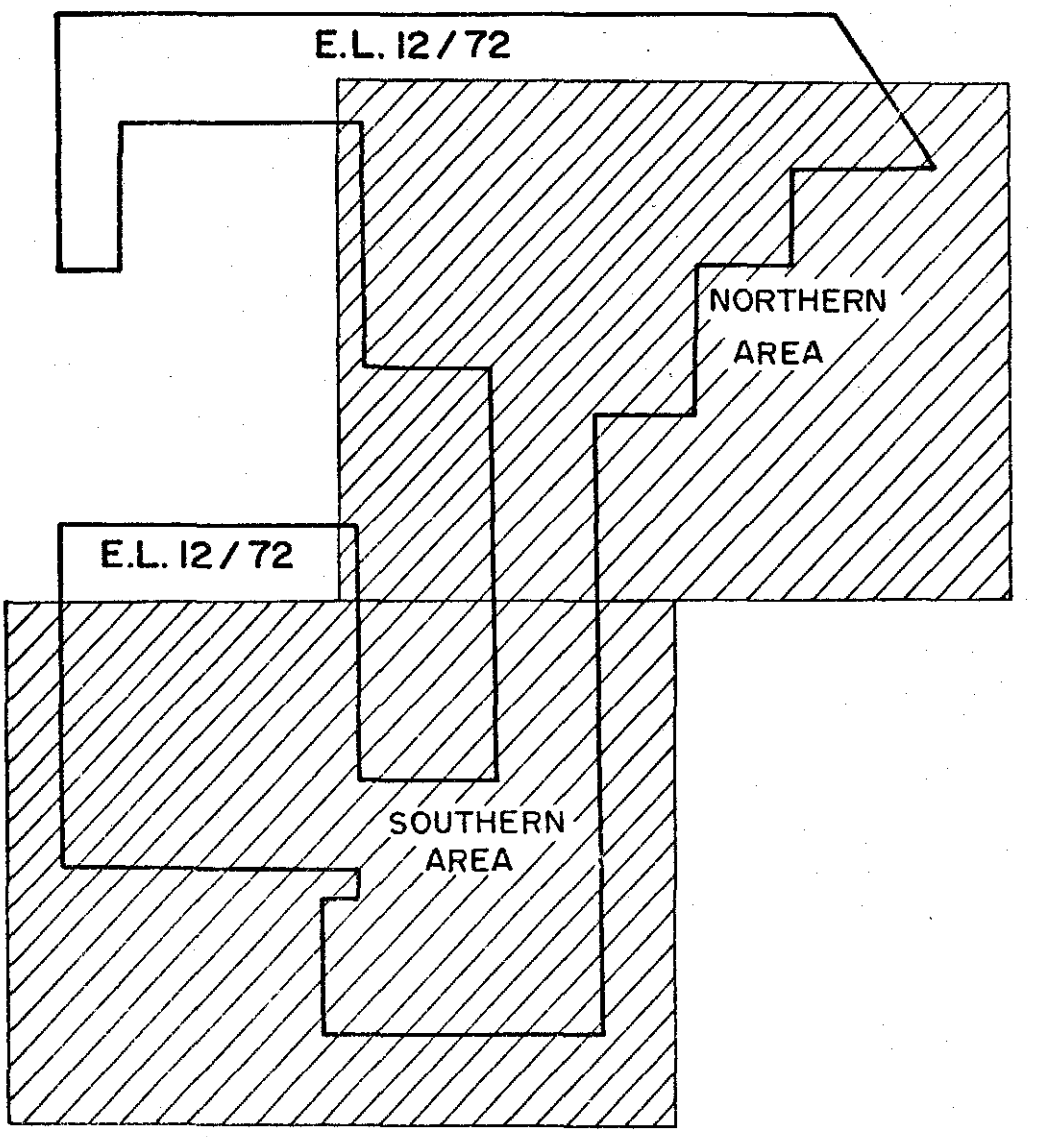

FIGURE SHOWING SPECIAL 1:10000 SCALE PLANS FOR THE BULGOBAC EXPLORATION LICENCE

5 cm

FIGURE 3.2

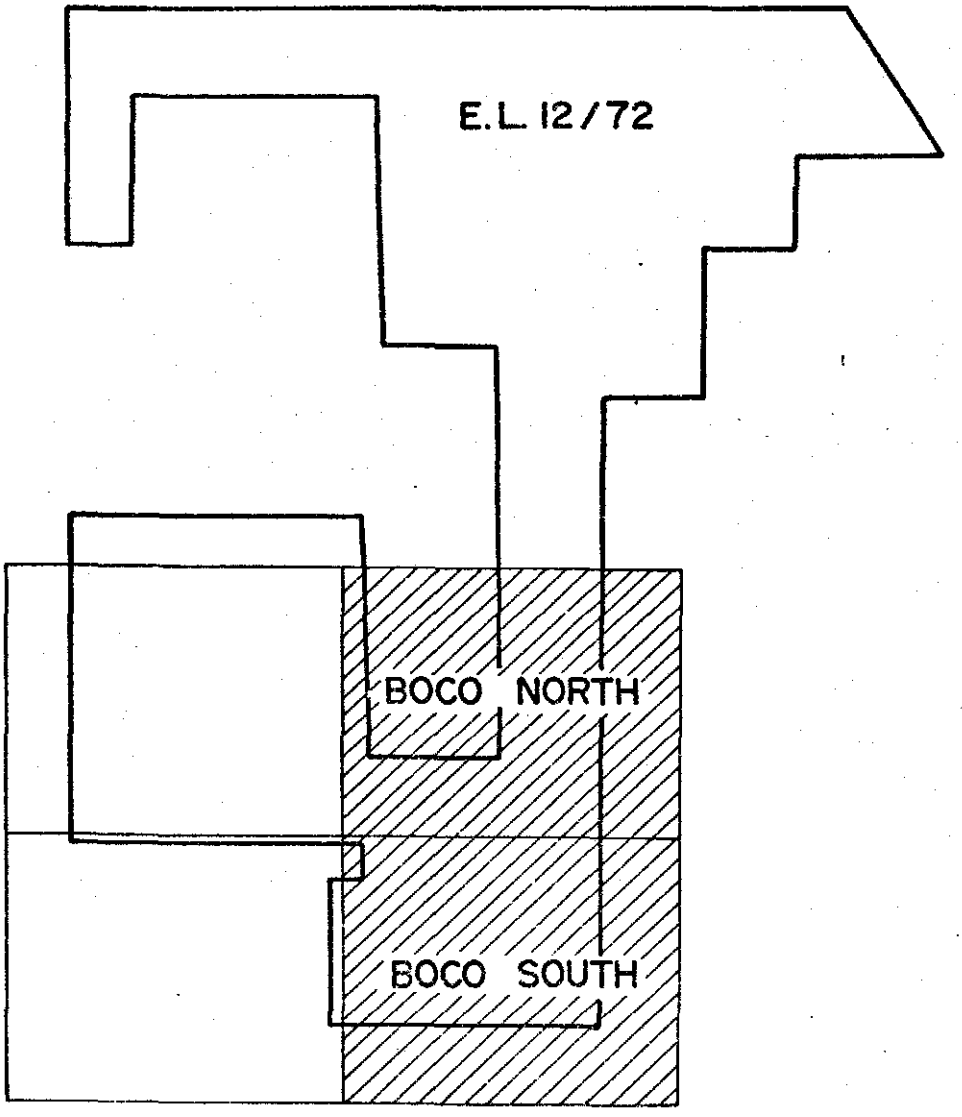

FIGURE SHOWING LAYOUT OF SPECIAL 1:5000 SCALE PLANS OF THE BOCO AREA

5 cm

FIGURE 3.3

4. GEOLOGY

Two main phases of mapping have been undertaken in the Bulgobac Area.

1) Grid line mapping at Boco
2) Regional mapping from Rosebery to Que River.

The first phase was completed in September, 1976, whilst the second phase is still in progress.

4.1. Geology of the Boco Area

Geological work in the Boco Area initially involved routine mapping of cut lines and access. This information has been compiled and recorded on two 1:5,000 scale plans (see plates 4 & 5) using the standard legend (appendix E).

Although much of the area mapped is covered by glacials, there are several areas with limited exposure. All significant scree, rubble and outcrop have been recorded on the factual plan. Where possible structural information has been collected and recorded, however because of the following factors

1. poor exposure,
2. weak development of the texture or feature being measured,
3. uncertainty of hill side creep effects,

the reliability of these readings is questionable.

4.1.1. THE GLACIALS

A large percentage of the Southern part of E.L. 12/72 is covered by glacials. The majority of material is of fluvio-glacial origin. Photo-interpretation carried out by Warren Batt (see figure 3.1.) suggests two glaciers or periods of glaciation, one moving to the south west and a second to the south. The second

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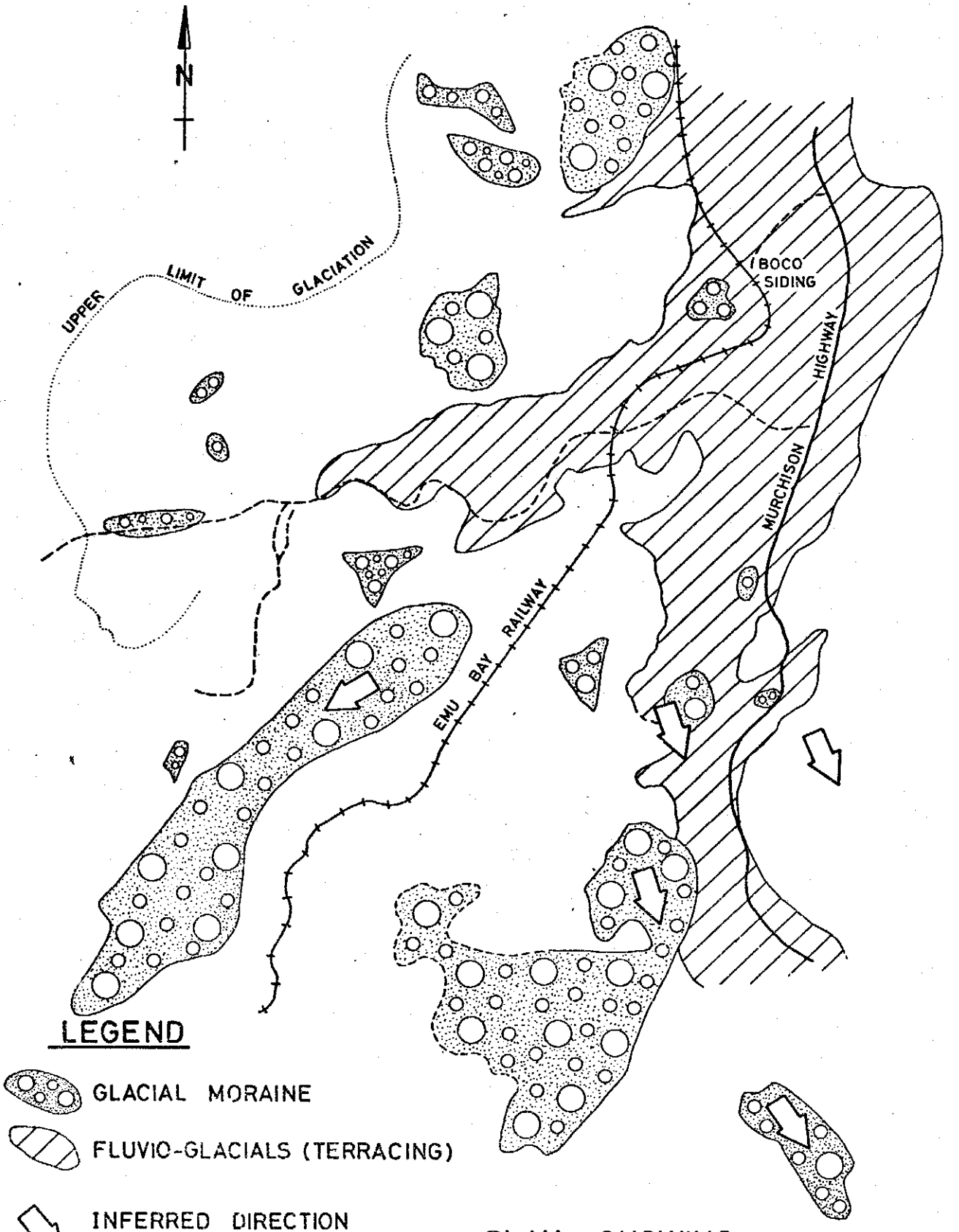


PLAN SHOWING

PHOTO INTERPRETATION OF THE

GLACIAL GEOLOGY IN THE BOCO AREA

COMPILED BY W. D. BATT

APPROX. SCALE: 1:40 000

FIGURE 4.1

sequence is the more extensive and probably younger. A series of terraces (rising to the north) were developed by the second 'period' of glaciation.

To assess the depth of glacials in the Boco Area three electrical depth soundings were carried out during the Geophysical Survey.

Three layers were suggested, an upper resistive layer of low chargeability 8 - 20 metres thick. Then a less resistive layer also of low chargeability to a depth not greater than 70 - 100 metres. The third layer being more resistive and chargeable is inferred to be fresh rock whilst the other two are probably till and compacted fluvioglacial gravels, sands and silts.

4.1.2. ACID VOLCANIC ROCKS

To the east of the sediments (Que River Shale equivalent) two distinct volcanic sequences have been recognised. The first is predominantly pyroclastic (Primrose Pyroclastic equivalent?) while further to the east is a sequence of lavas and/or intrusives (probably dacitic in composition).

4.1.2.1. The Pyroclastic Sequence

A number of different rock types have been grouped to form a spacially well defined sequence, occuring throughout the Boco Area, between the 'Dacitic' lavas and intrusives to the east and sediments to the west.

The dominant rock type is a fine to medium grained crystal to vitric tuff. The crystals and crystal fragments are feldspar (generally pink and ranging in size from less than 0.5mm to 6mm) in a green-grey matrix, which shows little or no texture. Large and corroded quartz crystals have been observed in a tuff like rock of this type, at one locality. However, this rock is deeply leached and probably represents weathered rhyolitic lava rather than a tuff.

Most of the rock types intersected in the three drill holes are crystal tuff of this general type. The intrusive feldspar porphyries (recognised in drill core because of their sharp contacts with adjoining rock types) could be easily mistaken for crystal tuff, in a limited exposure where contacts are not seen. Thus some rocks described as crystal vitric tuffs in surface outcrops are possibly intrusive rather than pyroclastics. Only thin section work would be able to ascertain their true origin.

Several agglomeritic and lithic tuff units have been recorded in the vicinity of Boco Creek and E.B.R. railway. Fragments within these units range in size from 40cm to not less than 5mm. Larger fragments probably exist but may not have been recognised, as most outcrop is of limited size. The most abundent fragments are feldspar porphry (5mm feldspar crystals in a green matrix) and crystal tuff, while fiamme, 'bleached' ryholite, highly siliceous fine grained tuff (having a cherty appearance) and 'streaky' chloritic fragments are also present. These units correlate well between lines, and strike north-easterly.

Some measurements of a poorly developed primary flow texture have been made, but do not give a reliable dip. This makes estimation of individual unit thickness difficult. However, all units recognised are in excess of 20m thick. They appear to represent ash flows that are relatively close to their source (i.e. an erruptive centre).

Three large 'pods' of rhyolitic lava also occur within this pyroclastic sequence. Their appearance in hand specimen varies greatly; from a 'bleached' rock containing corroded quartz crystals and showing little or no texture, to a rich brown porphyritic rock showing distinct flow banding. Crystals of magnetite have been recognised in one specimen of this rock type. The positions of these units are well defined by highs in the magnetic surveys. By folding the pyroclasic sequence it is possible to correlate the three occurances to roughly the same stratigraphic horizon. However, given the rapid facies changes of an active acid volcanic enviroment, the likely high vicosity of this lava type and probability that they are in part intrusive, it is more reasonable to assume that the three units are discrete occurrences. Being a highly viscous lava these rhyolites would not have travelled far from their source. This adds further weight to the existance of an erruptive centre in the Boco Area.

A number of varities of sediments have been recognised in the pyroclastic sequence. Unfortunately most occur as float. These sediments are generally shale and siltstone, but at one locality a few boulders by micaceous sandstone were observed (similar to those observed in the sedimentary sequences to the north-west - see section 4.1.3.). Two probable outcrops have been

located, both are beside the Chester - Pinnacles track west of the E.B.R. railway crossing. The western most of these can be directly correlated with the contact of sediment and pyroclastics to the north west. The shales exposed here clearly dip to the west but are apparently overlain by more pyroclastics.

The most conclusive occurrence of sediments within the pyroclastic sequence observed to date is that intersected in B.B.P. 208. Here a contorted and 'interrupted' unit of interbedded fine grained tuffaceous sediments (shales and siltstones) and reworked tuffs occur in a sequence of ash flow pyroclastics. Graded bedding is clearly displayed in some of the coaser grained reworked tuff units indicating an easterly dip and facing at this locality.

4.1.2.2. Dacitic Lavas and Intrusives.

This sequence is generally spacially well defined, occuring to the east of the predominately pyroclastic sequence.

This unit is characterised by its uniform composition. Feldspar crystals (generally white but sometimes pink) ranging in size from 4mm to 8mm are evenly spaced throughout a green matrix. Occassionally this matrix appears white or pale grey-green, but this is probably due to weathering rather than a composition difference. The lack of quartz and mafic mineral suggest an acid-intermediate and more probably dacitic composition.

In the Boco Area, where good outcrops of this unit are rare, it is assumed for simplicity that this is a sequence of lavas. Outside the Bulgobac exploration licence two good exposure of this rock type have been studied (on Murchison Highway in the vicinity of

Tramway Creek and on the new H.E.C. road near Farm Creek). Both show a uniform overall composition and appearance whilst containing sharp intrusive contacts and chilled margin affects. It is likely that at least some of this unit in the Boco Area is also intrusive.

An interesting exposure of this unit occurs beside the Murchison Highway just south of Anomally 111. Here large blocks of the above composition occur in a finer grained, but again feldspatic, matrix. Initially these were interpreted as coarse lithic pyroclastics, however, the similarities of fragments and matrix, along with their occurrence at the inferred base of the lava sequence suggest that they represent autobrecciated lavas. A thin unit of similar appearance was intersected in B.B.P. 208 within pyroclastics.

A few exposures of lavas of this general type have been recorded by earlier workers to the south and in the vicinity of the old Bulgobac Sawmill. Their correlation with the above rocks is not yet established.

4.1.3. SEDIMENTS

North of the Boco Area, sediments outcrop along the Murchison Highway. They are generally well laminated siltstones and shales which dip and face west. Occassionally beds of crystal rich reworked tuff occur within these sediments.

Sediments of a similar nature have been observed in old logging tracks to the west of Boco Siding. However, here the dominate rock type is a fine to medium grained micaceous sandstone.

This general band of sediments can be traced north along the highway to the Que River shales. Their correlation to the south is more tentative. As discussed in section 4.1.2.1. the inferred contact (it may be a fault or unconformity) of these sediments with the pyroclastic sequence may be projected to an outcrop of shale on the Chester-Pinnacles track.

4.1.4. STRUCTURE

Since only limited structural data can be obtained from the volcanics, it is difficult to establish a structural interpretation for the Boco Area. Both the following adequately explain the facts at hand to date.

1. The complete volcanic sequence in the Boco Area is conformable. It dips and faces east and is not significantly folded. The sediments to the north dip and face west and thus either unconformably overlay or are faulted against the pyroclastics.

2. The volcanics are folded (either a dome or plunging anticlinal fold) centred on an axis along Boco Creek. The sediments to the north can either be faulted against or interfinger into the pyroclastics.

A number of possible faults and other lineations have been recognised on E.R.T.S. photography, standard aerial photographs and the various geophysical plans. However, these also are difficult to interpret with the limited data available.

The distinct lineation formed by Boco Creek can be interpreted as a fault or shear zone, as its northern extension can be traced into a highly sheared and fractured unit that has been extensively silicified. This zone was intersected in B.B.P. 207.

4.2. Regional Mapping - Bulgobac Area

Knowledge of the geology (particularly structure) is still far from complete. Compilation of known mapping onto standard sheets through the area was undertaken in early 1976. As part of a larger mapping project (which is still in progress), the access to the Chester - Pinnacles Mines was mapped in November, 1976 (see appendix C). This along with mapping on the Boco Grid has been compiled onto the special 1:10,000 scale sheet for E.L. 12/72 (see plates 2 & 3).

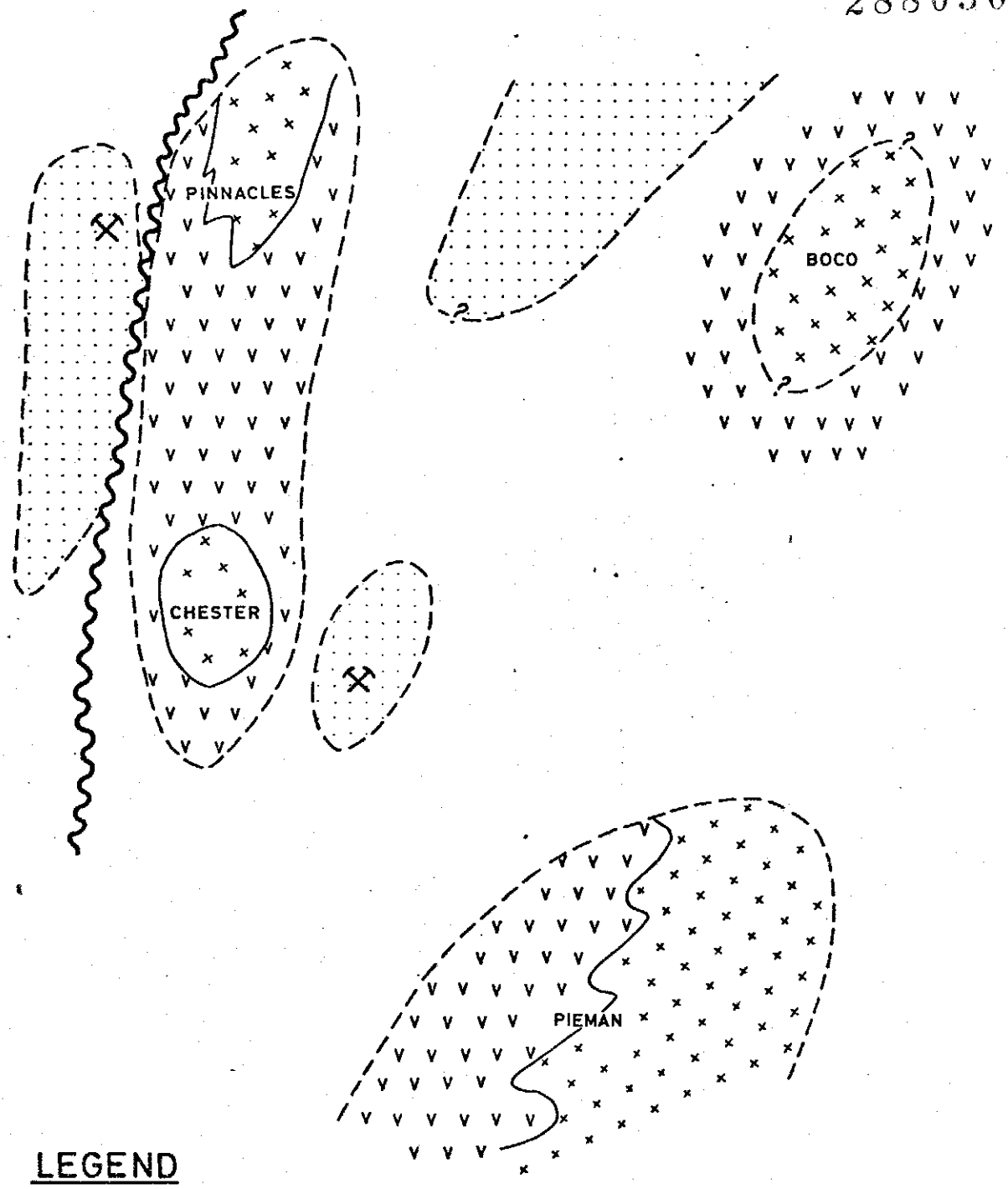
4.3. Potential Zones for Volcanogenic Sulphide Mineralization.

Trying to locate the favourable 'Stratigraphy' for volcanogenic massive sulphide deposits in the Bulgobac Area is very difficult given the elementary state of the geological knowledge. It can, however, be concluded that the pyroclastic sequence which trends north-easterly through the Boco Area is highly prospective as it represents a period of active acid volcanism with minor sedimentation.

W. Batt's interpretation of the region shows four possible erruptive centres (see figure 4.2.). At Boco the inferred erruptive centre is located in the vicinity of Boco Creek and south of the Chester - Pinnacles track. Reasons for positioning it here are discussed in section 4.1.2.1.

029

288030



LEGEND

- PYROCLASTICS AND TUFFS
- RHYOLITE EXTRUSIVES / INTRUSIVES
- SEDIMENTS
- MAJOR DISLOCATION

SKETCH PLAN SHOWING SUGGESTED DISTRIBUTION OF ERUPTIVE CENTRES AND SEDIMENTARY BASINS

5 cm

COMPILED BY W. D. BATT

FIGURE 4.2

288031

030

Of further interest is the zone of alteration. (silicification, with some sericite and chlorite development) which straddles the railway and Boco Creek extending north at least as far as Anomaly XVI. On the surface this alteration is not continuous but may have only been recognised in the best outcrops. The mineralization intersected in B.B.P. 207 (which carries minor base metal values) is apparently associated with this alteration as well as later silicification.

Another favourable condition is the existence of some sedimentary units in the pyroclastics close to this zone of alteration. (Unfortunately their existence is mainly interpreted from float rock). Accurately locating their bedrock occurrence would be of advantage as they may represent quiescant periods within the active volcanism, in which volcanogenic sulphide would have 'time' to concentrate.

Away to the east (above the zone of alteration and active volcanics), drill hole B.B.P. 208 intersected minor pyrite and sphalerite associated with bedding. Here the sequence is disrupted and contorted interbeds of pyroclastics and sediments.

Petrological and limited mineralogical work is planned to help understand the geology of the drill holes and some of the rock specimens collected during mapping. This should prove an aid to better correlation and assist paleo-enviromental reconstruction.

5. GEOPHYSICS

5.1. Barringer Input E.M. Survey

An airbourne Electromagnetic Survey covering E.L. 12/72 was flown in April, 1975, using the Barringer Input System. It was part of a larger survey undertaken by Geoterrex Pty. Ltd. for Comstaff Pty. Ltd. and E.Z.

The table below list anomalies within E.L. 12/72 and their classifications:-

Table 5.1. Summary of Conductors in E.L. 12/72

Bedrock			Surficial		
Good	Fair	Poor	Good	Fair	Poor
-	CS-27A	CS-29	-	CS-28	CS-27
	CS-29A	CS-30			
		CS-27B			

Reproduced in this report are:-

(1) individual description of the above anomalies (Appendix A).

(2) 1:10,000 scale plan showing the flight lines and anomalies within E.L. 12/72 (plates 6 & 7)

5.1.1. FOLLOW-UP OF INPUT ANOMALIES

The initial gradient array IP Survey in the Boco Area (see section 5.2.) was designed to cover input anomalies associated with CS-27 (the main anomaly being on line 217E reference fiducial 271.20). This survey failed to locate these "conductors" (resistivity lows) and the input anomalies have been explained as superficial conductive effects within the button grass plains and overburden.

Anomaly CS-27A (on line 243W, reference fiducial 163.53 and on line 243CE, reference fiducial 144.83) and anomaly CS-27B (on line 241W, reference fiducial 206.28) have been selected for follow-up. The northern access track, (see section 2.3.1.) was constructed to provide access for IP follow-up in the 1977/78 field season.

5.2. Gradient Array Induced Polarization Survey

A gradient array induced polarization survey was undertaken in the Boco Area by Scintrex Pty. Ltd. using their standard 2 seconds on, 2 seconds off, time domain system and IPR - 7 receivers. A total magnetic field intensity survey was conducted using proton procession magnetometers.

At the conclusion of the initial survey it was decided to cover the prospective ground in the Boco Area using this technique as a reconnaissance tool.

5.2.1. SURVEY DETAILS

A current electrode separation of 1600 metres, across strike, was used. Measurements were taken using a 20 metre potential electrode separation along the current electrode lines and on adjacent lines up to 480 metres from the current electrode line.

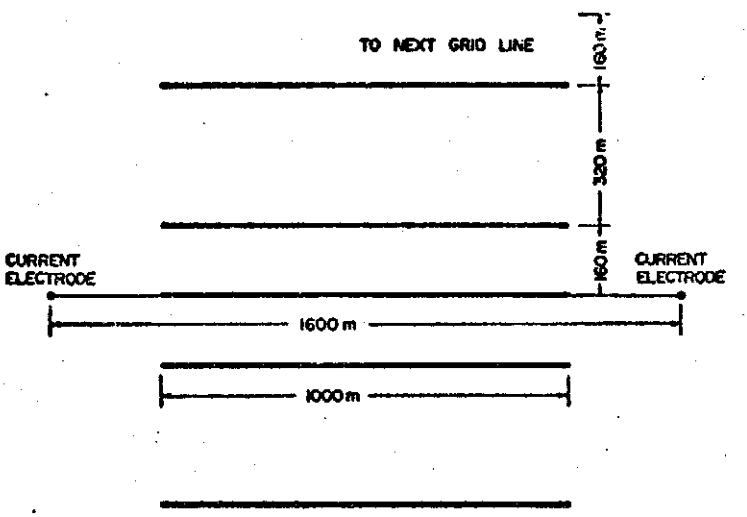


Figure 5.2 Diagram showing Gradient Array configuration used.

The basic line separation was 320 metres, however as the outer-most lines are situated towards the lateral limit of this array the spacing between individual setups was reduced to 160 metres. Furthermore, in most cases the current electrode line had to be cut so this line was also read, resulting in the majority of the lines having a separation of 160 metres rather than the planned 320 metres.

Total Magnetic field readings were taken at 20 metre intervals along the lines.

The IP survey was conducted in three phases between March and July. 55.4 line kilometres were read. This required a total of 53 days, being 41 production and 12 stand down days due to breakdowns and bad weather.

5.2.2. RESULTS OF GRADIENT ARRAY IP SURVEY

The results of the Geophysical Survey undertaken over the Boco Grid are discussed in detail in the Scintrex Report - Tas. - 033.

"A report on a Gradient Array
Electrical Induced Polarization Reconnasissance
Survey. Bulgobac Area (Boco Grid)
West Coast Tasmania
on behalf of Electrolytic Zinc
Company of Australasia Limited."

A total of 22 significant IP responses were observed. The table below lists these anomalies and their classification.

288035

Table 5.3 Summary of IP Anomalies

Note: Geophysical Anomalies have been numbered as per Scintrex Report - Tas - 033.

A	A/B	B	B/C	C	C/D	D	CULTURAL
	V	III	IV	I	VI	IA	VII RAILWAY
	XIX	XI	XII	II	XIV	VIII	
		XIII		XV		IX (E)	
		XX		XVI		IX (W)	
		XXI				X	
		XXII?				XVII	
						XVIII	

The anomalies were classified according to the following geophysical priority.

A. Moderate to high chargeability, appreciable decline in apparent resistivity (I.E. in all respects like the type response).

B. Moderate increase in chargeability above back-ground, with some decrease in apparent resistivity.

C. Some increase in chargeability, no material decrease in apparent resistivity.

D. Increases in chargeability with increase in apparent resistivity.

5.2.3. PRESENTATION OF DATA

5.2.3.1. By Scintrex

The data was compiled in two formats.

Line profiles - Apparent resistivity and

chargeability are jointly shown on one set of profiles; Total Magnetic Field Instensity on another. Three Schlumberger Array soundings are presented as graphs.

Contour plans - Each Geophysical Property was contoured separately onto the special 1:5,000 scale (Boco north and south) sheets. In addition a Physical Properties Map was compiled from the data and presented on the same base plan.

5.2.3.2. In this Report

The six contour and two Physical Properties plans compiled by Scintrex are presented in this report (plates 8 to 15), as uncloured prints.

Colouring the plans can assist detailed analysis of the geophysical properties and their inter-relation. The following colour schemes are suggested to help clarify anomalies and trends.

Chargeability - The high values can be coloured conventionally.

Range (in Milliseconds)	Colour
14 - 16	Purple
12 - 14	Deep Red
10 - 12	Light Red
8 - 10	Orange

Resistivity - Is best coloured on two levels (the low levels - greens, to represent 'conductive areas' and the high level - yellows to represent resistive areas).

Range (In OHM Metres)	Colour
Upper level-	
10,000 plus	Deep Yellow
5,000 - 10,000	Pale Yellow
Lower level-	
1,000 - 1,500	Aqua
500 - 1,000	Bright Green
0 - 500	Dark Green

Total magnetic field - can be coloured conventionally.

Range (grammes - 62,000)	Colour
900 plus	Purple
800 - 900	Dark Red
700 - 800	Light Red
650 - 700	Orange
600 - 650	Yellow
550 - 600	Dark Green
500 - 550	Light Green
450 - 500	Light Blue

5.3. Follow-up of IP Anomalies in the Boco Area

A geochemical soil survey was undertaken over the southern section of the Boco Grid (see section 6) to help evaluate geophysical anomalies in areas of outcrop. No significant geochemical anomalies were found.

Three drill holes (B.B.P. 207, 208 and 209) were used to test IP anomalies (XVI, III and XIII respectively). All these anomalies are in areas of glacial cover (see section 7). Holes B.B.P. 207 and 208 intersected disseminated pyrite and trace base metals

288038

corresponding well in position to the geophysical anomalies, B.B.P. 209 did not intersect sulphides, instead a zone of "gossaneous" (manganese and iron oxides) infilling of a delicate fracture pattern was obtained in the area of the presumed geophysical source.

Down hole geophysics was attepted in May, 1977, but caving within the hole prevented re-entry in each case. Should any further drilling be carried out, it is recommended that down hole geophysics be undertaken as soon as the hole is completed.

Geophysical anomalies I, IA, XVII, XVIII, XIX and XXI all lie either outside or straddling the boundary of E.L. 12/72 and have not been considered in follow-up work.

Of the anomalies remaining untested XX, XXII and XI are the more promising. XX and XXII however, are probably due to 2 - 5% disseminated pyrite as found in float rock in the vicinity of both anomalies. XI is not a very large IP response but it is associated with a marked 'conductive zone'. Anomally V, although significantly down graded by the geochemistry results, warrants further consideration because of its favourable geological setting (see section 4.5.). Anomalies XII, XIV and XV will be of little interest until the response of anomaly XIII is better understood.

288039

6. GEOCHEMISTRY

6.1. Survey Details

To follow-up IP Anomalies in areas of moderate outcrop close spaced soil geochemistry (20metres sample spacing) was used. Areas of significant glacial cover are unsuitable for detailed soil geochemical techniques since a true soil profile is not developed and distribution of metals within the glacials differs from that in the bedrock. Hence the only portion of the Boco Grid that is suitable for detailed soil geochemistry is the hilly area either side of Boco Creek and the Emu Bay Railway.

The geochemical soil survey was undertaken by E.Z. Personnel. A total of 445 samples were collected. In all cases a collection of a 'C' horizon sample was attempted. However, as some of the area has little or no soil profile developed (e.g. moss covered scree slopes) a true 'C' horizon sample could not always be taken. Rarely were the augers able to penetrate more than 40 cm due to rocks and pebbles, with most samples coming from a 10 - 20cm depth. This resulted in a number of samples having a high organic content.

The complete set of samples was sent directly to Analabs Pty. Ltd., in Perth W.A. as any processing at Rosebery (such as sieving) would be likely to contaminate the sample (i.e. dust fallout from the mine workings).

6.2. Results of 'C' Horizon Soil Survey

Descriptions of each sample were recorded, these plus the relevant chemical analysis are presented

288040

in appendix B. This data is plotted onto the standard 1:5,000 Boco plans, refer to plates 16, 17 and 18.

6.2.1. STATISTICAL ANALYSIS

The data was statistically analysed to calculate population distribution, threshold and background values. The statistical technique employed was the 'cummulative per cent frequency plot' as outlined in Hawkes and Webbs "Geochemistry in Mineral Exploration". The plots were made on 3 cycle log probability paper (see figures 6.1., 6.2. and 6.3.). Several points of inflection can be seen in the lead zinc graphs. However, these graphs do not conform to the established 'Classical' geochemical distribution (see also figures 6.4., 6.5. and 6.6.).

The copper and silver values were too low (compared with the limits of accuracy of the chemical analysis) to gain any clear picture. The following ranges were chosen with the aid of the above statistical analysis.

COLOUR	ZINC	LEAD	COPPER
RED	- 135ppm	- 80ppm	
ORANGE	81 - 135ppm	51 - 80ppm	- 50ppm
YELLOW	41 - 80ppm	36 - 50ppm	31 - 50ppm
AQUA	11 - 40ppm	8 - 35ppm	8 - 30ppm
WHITE	0 - 10ppm	0 - 7ppm	0 - 7ppm

6.2.2. INTERPRETATION OF RESULTS

Other than those samples taken down slope from E.B.R. railway line, there were no significant anomalies recorded. The area to the east, down

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SOIL GEOCHEMISTRY - BOCO AREA

POPULATION PLOT FOR LEAD

(COMPLETE DATA) 445 SAMPLES

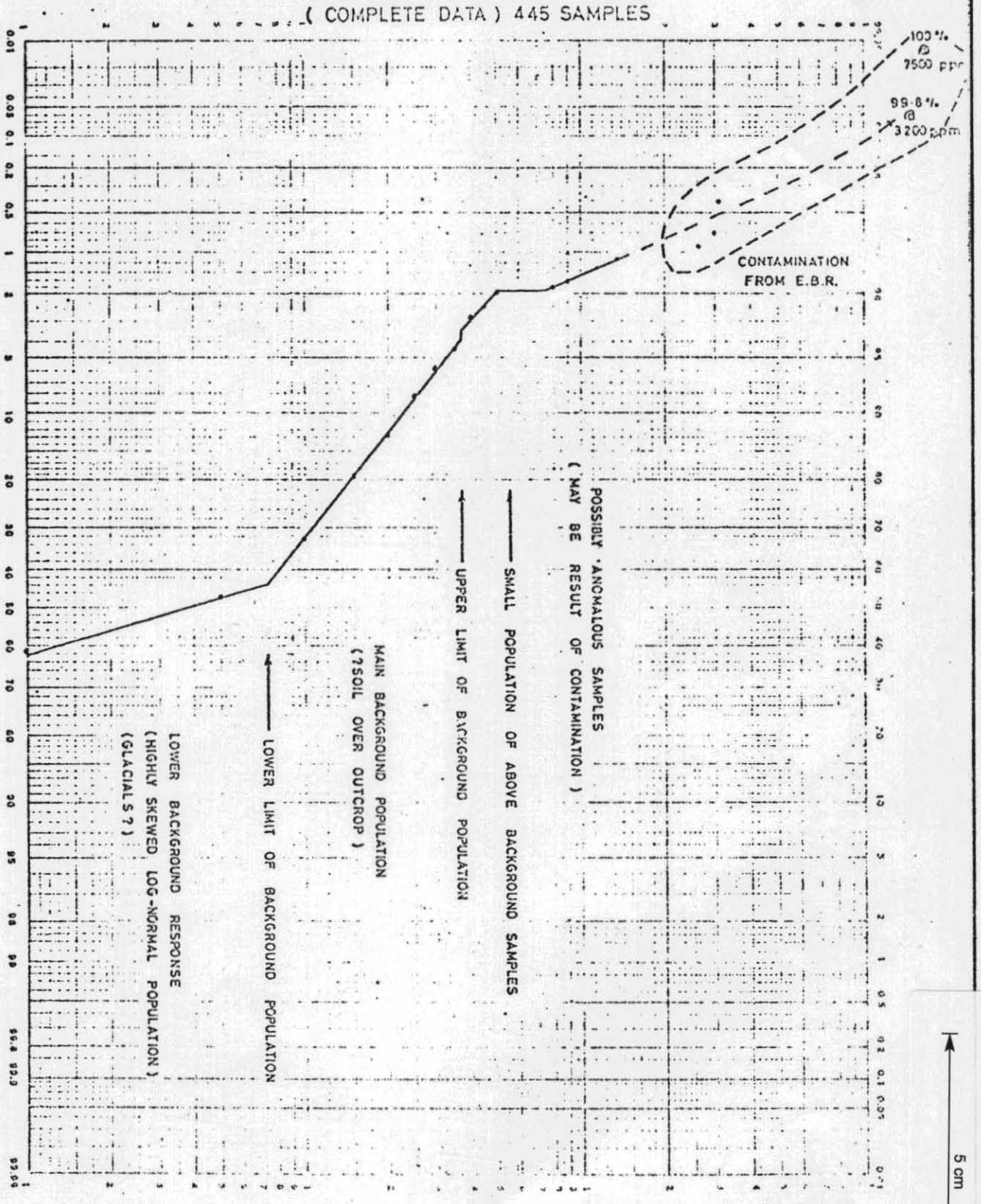


FIGURE 6.1

041

288042

SOIL GEOCHEMISTRY - BOCO AREA

POPULATION PLOT FOR ZINC

(COMPLETE DATA) 445 SAMPLES

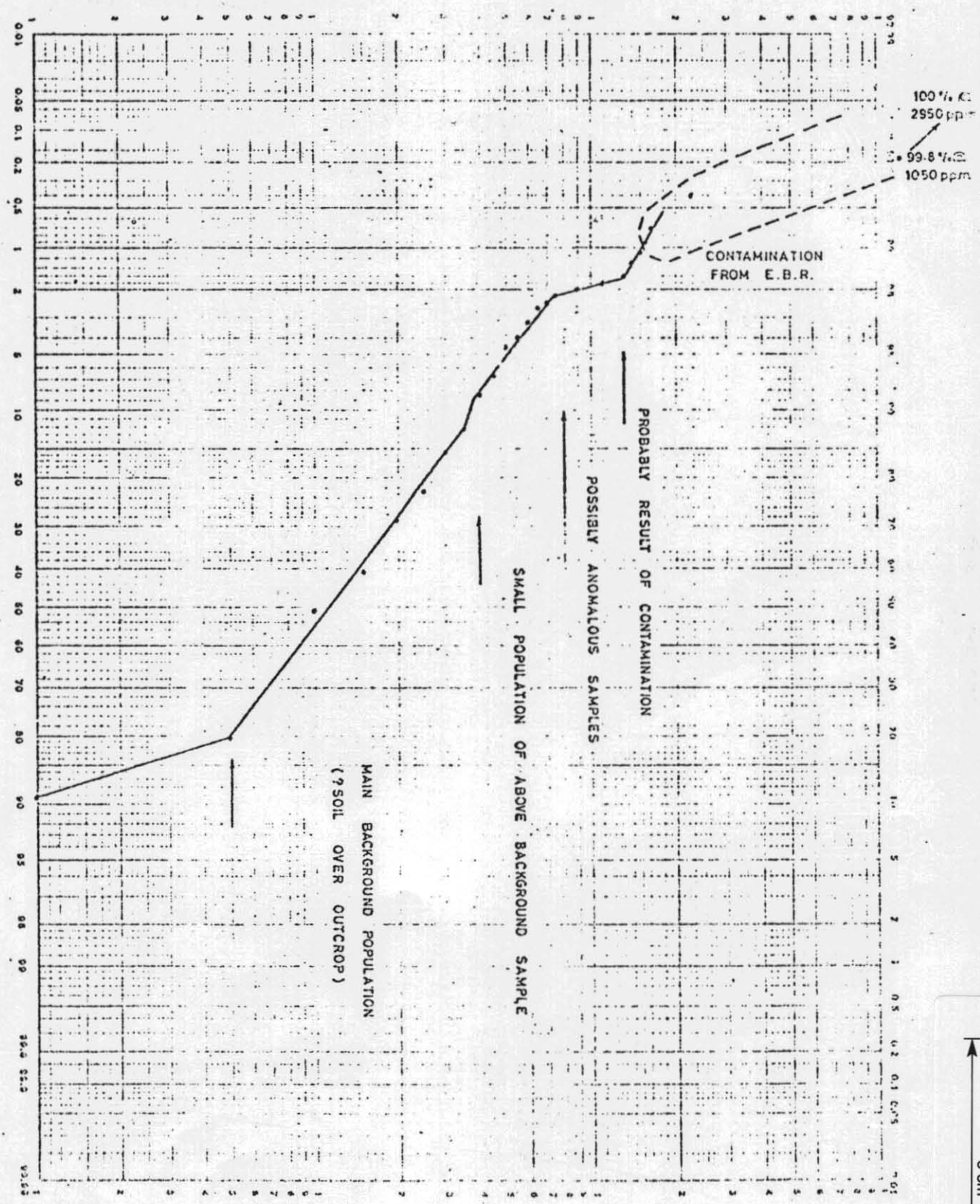


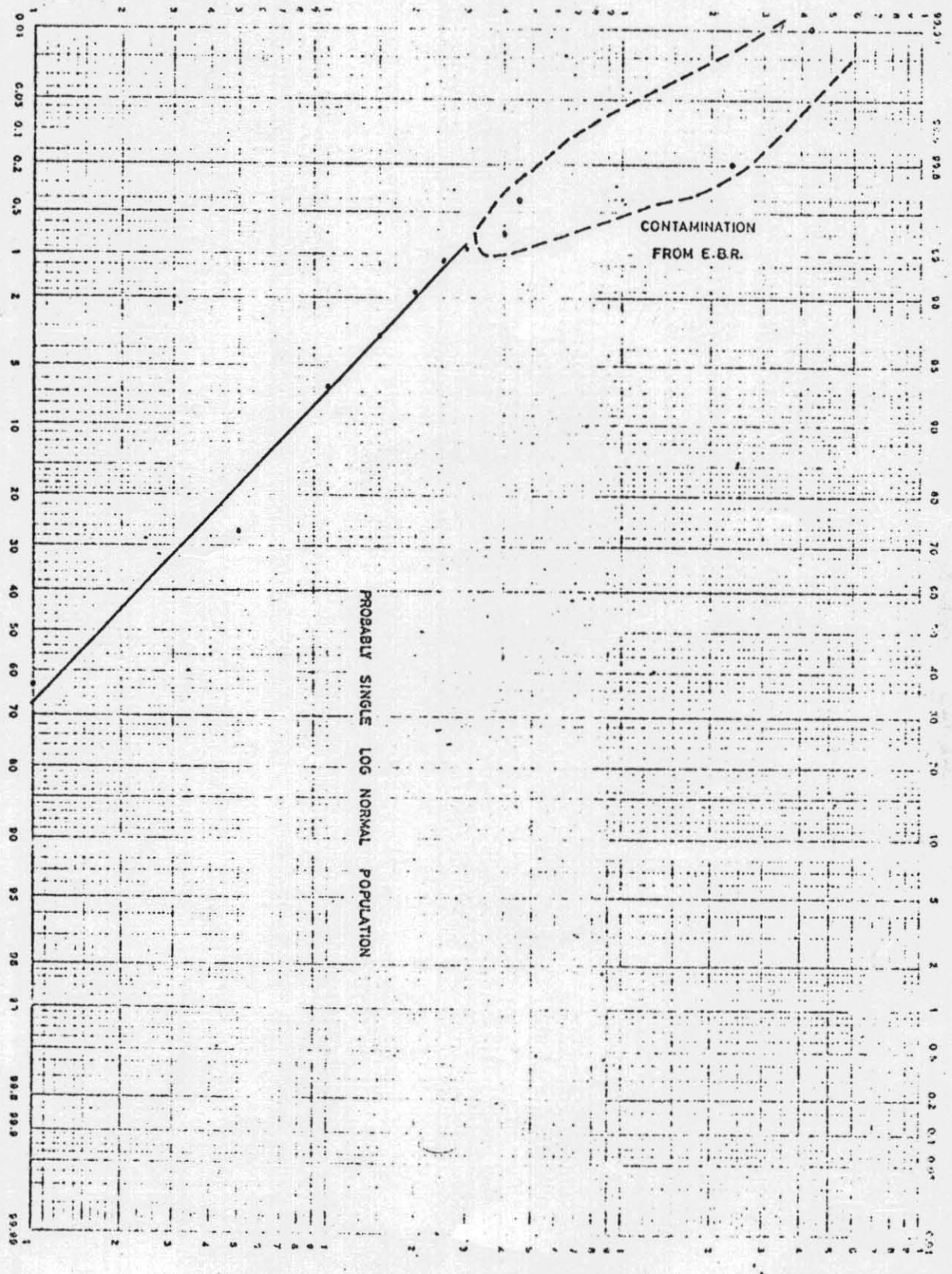
FIGURE 6.2

288043

042

SOIL GEOCHEMISTRY - BOCO AREA

POPULATION PLOT FOR COPPER
(COMPLETE DATA) 445 SAMPLES



5 cm

FIGURE 6.3

043

SOIL GEOCHEMISTRY -BOCO AREA

HISTOGRAM OF Pb. VALUES

COMPLETE DATA 445 SAMPLES

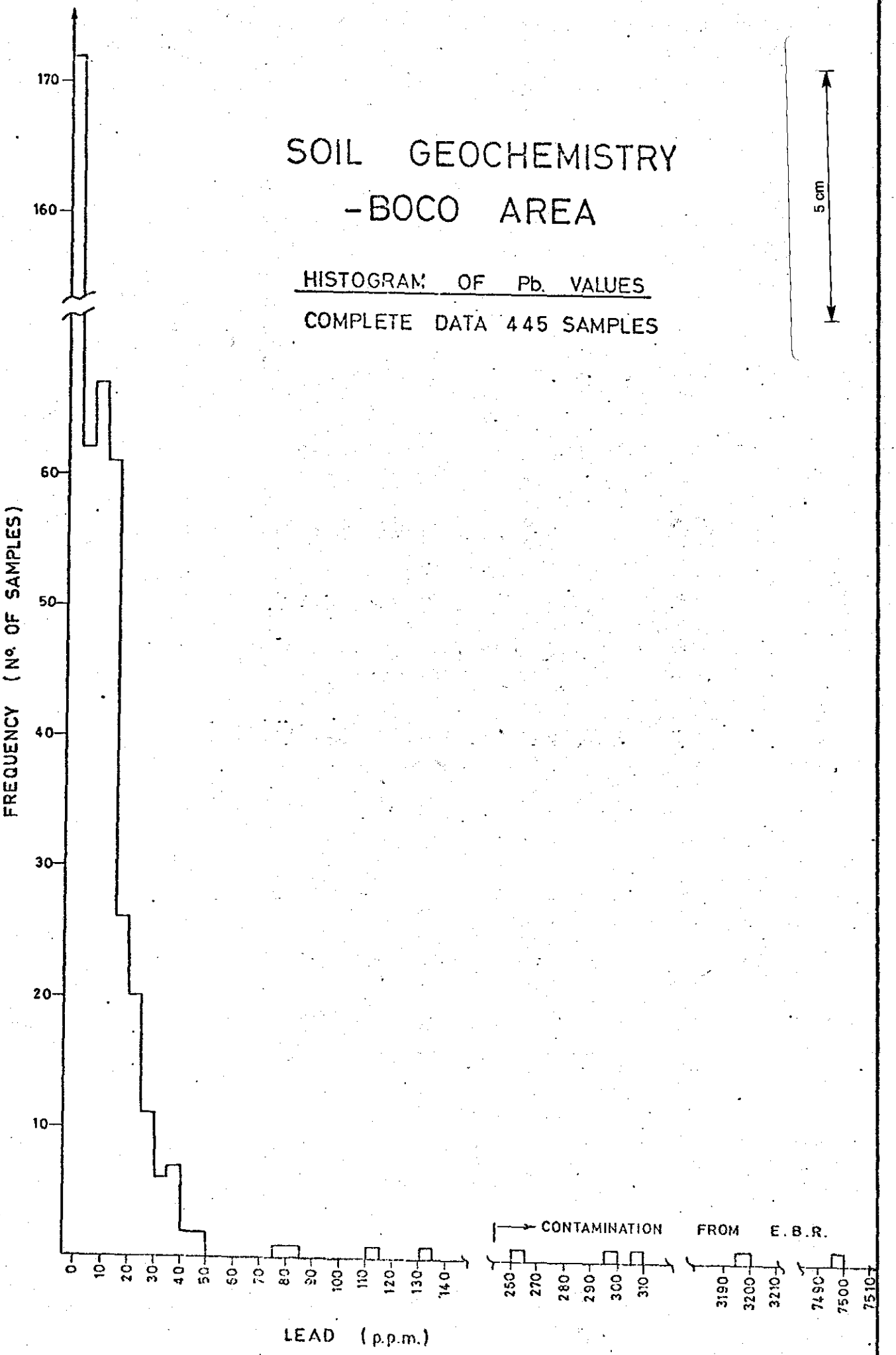


FIGURE 6.4

044

288045

SOIL GEOCHEMISTRY
-BOCO AREA

HISTOGRAM OF Zn. VALUES

COMPLETE DATA 445 SAMPLES

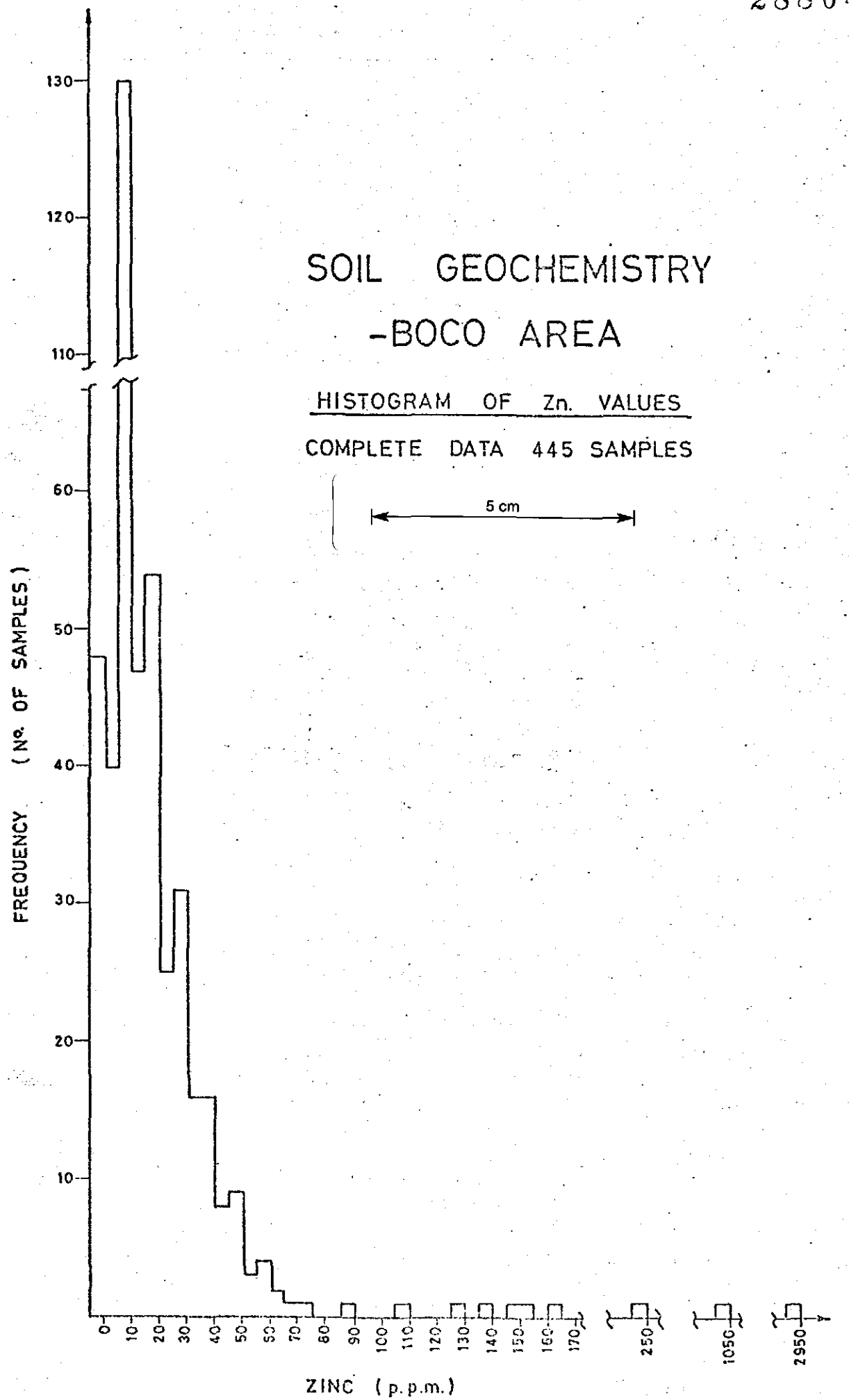


FIGURE 6.5

045

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SOIL GEOCHEMISTRY
-BOCO AREA

HISTOGRAM OF Cu. VALUES

COMPLETE DATA 445 SAMPLES

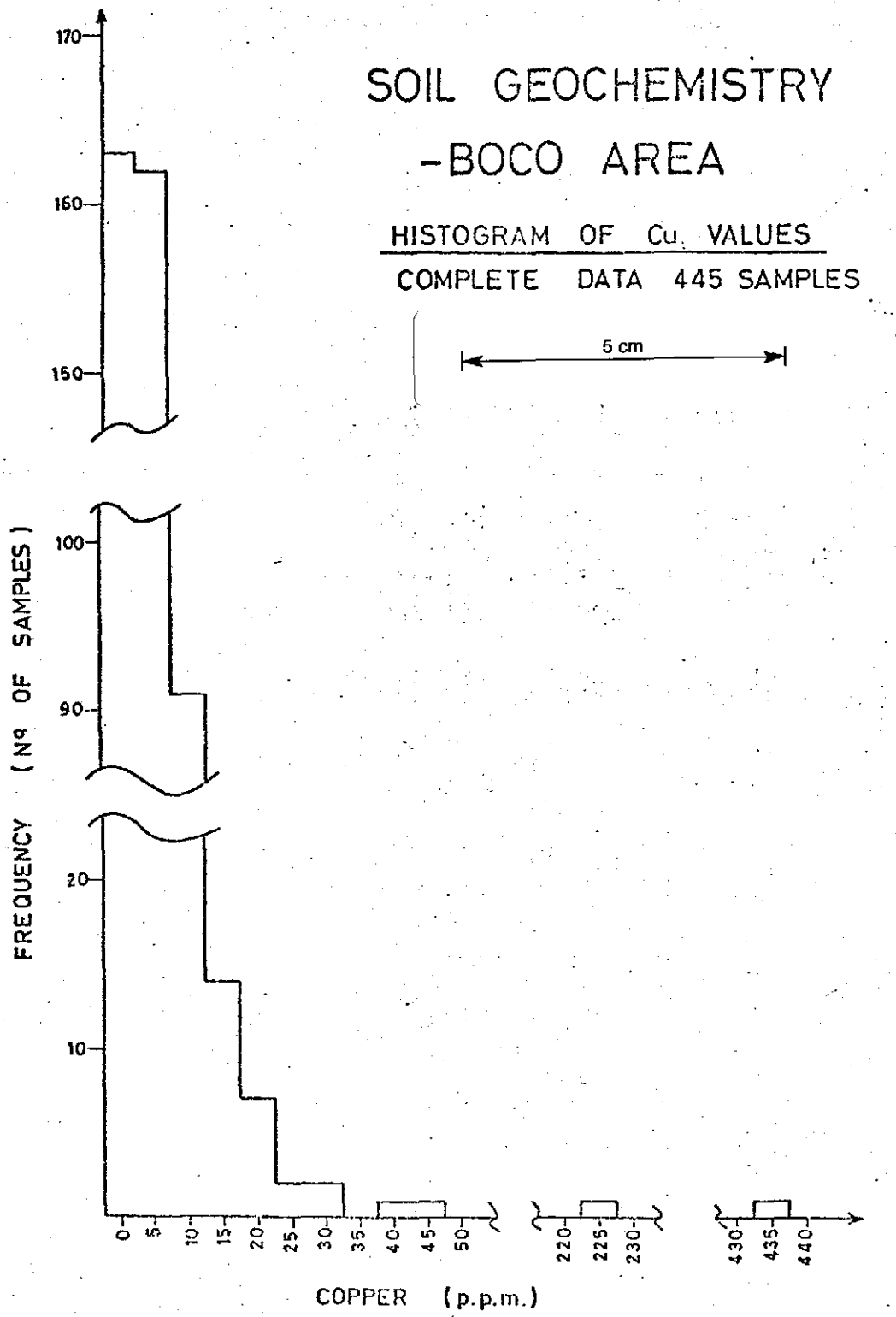

FIGURE 6.6

slope, from the railway line is considered to be contaminated by down slope migation of metals introduced into the area by spillage of concentrates from rail wagons. The E.B.R. has been carrying mineral concentrates for the last 40 years. It is possible that some of the track ballast is mine waste or tailings. Further evidence that this anomalous zone is cultural is -

i) It follows the railway line

ii) Values decrease away from the railway line and then show normal distribution on the other side of Boco Creek.

Of some interest is the 'Upper-background 'Population' (yellow) for lead and zinc which corresponds with geophysical anomalies (IV, V, VII and VIII).

The higher organic content of some samples did not seem to bias the results. Samples taken over the glacials generally showed values below the detection limits of the elements tested.

6.3. Conclusions

1. No significant anomalies were located.

2. Samples taken downslope of the E.B.R. are anomalous due to contamination by concentrate spillage from rail wagons.

3. The fact that 'Upper-background' areas correspond with some of the geophysical anomalies, indicates that these geophysical anomalies may be due to a

288048

low concentration of mineralization in acid volcanics.

(i.e. disseminated pyrite with trace base metal values - as intersected in both B.B.P. 207 and 208). These geophysical anomalies are thus not enhanced and will require further favourable geological or geophysical factors before follow-up work is justified.

7. DIAMOND DRILLING

7.1. Choice of Drill Targets

To follow-up IP Anomalies in areas of glacial cover, it was decided to use short diamond drill holes. As well as testing the source of the particular anomaly they would also provide additional geological information (where there was little or no exposure).

IP Anomalies $\overline{III}$ and $\overline{XIII}$ were chosen as they represent the largest chargeability effects in areas of glacial cover. Anomaly $\overline{XVI}$ was also chosen for testing, as it roughly corresponded with a limited exposure of altered and pyritised acid volcanics, surrounded by glacial cover. (Thus soil geochemistry could not be used to test this particular anomaly).

7.2. Location and Access

IP Anomalies $\overline{XVI}$ and $\overline{III}$ are located close to existing access, and only minor site preparation was required. Although anomaly $\overline{XIII}$ was only 800m from existing access, several problems were encountered in crossing creeks and peaty areas.

Figure 7.1. shows the location of and access to the three drill sites.

7.3. Problems with Glacial Overburden

Difficulties were experienced in collaring each of the drill holes through the glacial overburden. Drill

049

288050

5 cm

E.L. 12/72

5388000N

5387000N

5386000N

5385000N

5384000N

381000E

382000E

383000E

384000E

HIGHWAY

BOCO SIDING

MURCHISON

XIII b B.B.P 209

XII

XVI b B.B.P 207

III b B.B.P 208

RAILWAY

EMU BAY Creek

Boco Creek

Tramway Creek

E.L. 12/72

XIII GEOPHYSICAL ANOMALY

b DRILL HOLE

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: BULGOBAC E.L.12 72 | TAS.

LOCALITY PLAN OF DRILL SITES AND ACCESS

SCALE: 1 20000 | REF. NO.

REFERENCE:

DATE: 20/8/1977 | GEOLOGY: N.H.H | FIGURE 7.1

288051

hole B.B.P. 208 intersected 9m of glacials and B.B.P. 209 intersected 17m of glacials. Both holes took several days to drill through the glacials, with severe bit damage being incurred.

Major problems were experienced in the drilling of B.B.P. 207 causing approximately two weeks delay. Despite the outcrop of bedrock within 50m of the drill collar, this hole intersected 48m of glacial material. During the drilling fine sand and silts (from the fluvioglacials) were washed into the hole, probably by ground water pressure. These then became lodged between the drill string and casing jamming the rods. Once the drill rods were freed the hole was cemented to just above glacial-bedrock contact and redrilled. Re-occurrence of these problems were successfully avoided by continuous drilling (two long shifts) and filling the hole with a heavy mixture of drilling mud whenever work was stopped for any appreciable time.

7.4. Results of Diamond Drilling

Collar position and orientation for each drill hole is presented in table 7.2. The collar positions are given as Boco Grid co-ordinates (i.e. position on cut lines) and Australian Metric Grid Co-ordinates (drill sites were located on the 1:5,000 scale plan of Boco Grid and A.M.G. Co-ordinates measured from these plans).

The drill holes were surveyed using an Eastman single shot drill hole camera. This survey data is reproduced in drill logs (see appendix D).

DRILL HOLE B.B.P. 207

COLLAR CO-ORDINATES

Boco Grid	A.M.G.
13,880mN 10,150mE	5,380,130mN 383,370mE
R.L. 360m A.S.L.	360m A.S.L.

COLLAR ORIENTATION:

DIP -60° Direction 288° Boco Grid *

TOTAL DEPTH: 159m.

DRILL HOLE B.B.P. 208

COLLAR CO-ORDINATES

Boco Grid	A.M.G.
13,720mN 11,240mE	5,385,315mN 383,935mE
R.L. 332m A.S.L.	332m A.S.L.

COLLAR ORIENTATION:

DIP: -60° Direction 265° Boco Grid *

TOTAL DEPTH: 154m.

DRILL HOLE B.B.P. 209

COLLAR CO-ORDINATES

Boco Grid	A.M.G.
13,720mN 9,440mE	5,386,525mN 382,730mE
R.L. 411m A.S.L.	411m A.S.L.

COLLAR ORIENTATION:

DIP: -50° Direction 270° Boco Grid *

TOTAL DEPTH: 162m.

7.2. TABLE OF DRILL COLLAR LOCATION

*NB Each hole was drilled parallel to the cut line grid, hence small differences in direction from true Boco Grid west.

Some azimuth readings in holes B.B.P. 208 and 209 are believed to be in error. (These are shown in brackets on the drill logs.) These errors were caused by using metal clad batteries in the camera assembly which effected the compass card. Unfortunately the problem was diagnosed too late to repeat the readings.

Summaries of the major rock units are presented in tables 7.3.1., 7.3.2. and 7.3.3. Detailed descriptions of rock type, mineralization and structural data are present in the drill logs (see appendix D).

Two sets of cross-sections are presented in this report. The first shows the geology and mineralization in an annotated form (see figures 7.4., 7.5. and 7.6.) whilst the second set shows the geophysical profiles and assay results compiled onto one cross-section (see figures 7.7., 7.8. and 7.9.).

7.4.1. GEOLOGY

The relationship of rock types intersected in the three drill holes with existing geological data is discussed in detail in section 4.1.

A Petrological study of selected drill core is proposed to give a better knowledge of the units intersected their composition, microscopic textures and alteration.

7.4.2. MINERALIZATION

Drill holes B.B.P. 207 and 208 intersected sulphides forming the apparant sources of the IP anomalies. In both cases this was disseminations and fracture infillings by pyrite, with occassional minor base metal values.

0	-	48m	Glacials and fluvioglacials and weathered and leached rock.
48	-	58m	Sheared siliceous tuff.
58	-	61.20m	Siliceous altered (tuff), having a blotchy pink appearance.
61.20	-	91.20m	Sheared siliceous tuff, locally coarse grained.
91.20			Hole abandoned and recommenced at 49m.
49	-	56.70	Sheared siliceous tuff.
56.70	-	60.50m	Siliceous sericitic (tuff) with blotchy pink alteration.
60.50	-	94.70m	Sheared siliceous (crystal - lithic) tuff, locally coarse grained to agglomeritic.
94.70	-	108.60m	Siliceous (tuff) with blotchy pink alteration.
108.60	-	115.30m	Basic intrusive.
115.30	-	129.60m	Siliceous sericitic (tuff) with blotchy pink alteration.
129.60	-	130.90m	Basic intrusive.
130.90	-	151m	Siliceous (crystal tuff) with blotchy pink alteration.
151	-	157.30m	Sheared siliceous (crystal) tuff.
157.30	-	157.50m	Clay infilling fault zone.
157.50	-	159.50m	Highly siliceous seritic rock, somewhat cherty in appearance.
159.50			End of hole.

TABLE 7.3.1. B.B.P. 207

SUMMARY OF MAJOR ROCK UNITS

0	-	9m	Glacials.
9	-	27m	Tuffs and agglomerate.
27	-	44m	Grey porphry.
44	-	51.50m	Pink porphry.
51.50	-	53m	Basic intrusive.
53	-	56m	Pink prophry.
56	-	60m	Basic intrusive.
60	-	63m	Pink porphry.
63	-	92m	Interbedded tuff, sediment (and possible intrusive).
92	-	96m	Basic intrusive.
96	-	114m	Interbedded, tuff sediment (and possible intrusive).
114	-	119m	Basic intrusive.
119	-	154m	Ash flow tuffs.
154m			End of hole

TABLE 7.3.2. B.B.P. 208

SUMMARY OF MAJOR ROCK UNITS

0	-	23m	Glacials.
23	-	35m	Ash flow Tuffs.
35	-	63m	Interbedded Fragmental and Porphry (possibly Auto Breccia Lava).
63	-	148m	Sheared (Tuff) locally showing blotchy pink alteration (basic intrusives at 93-94, 102-104, 106-107 & 108-110m).
148	-	152m	Siliceous feldspar porphry (possibly intrusive).
152	-	163m	Sheared Siliceous. (Tuff)
163m			End of hole.

TABLE 7.3.3. B.B.P. 209

SUMMARY OF MAJOR ROCK UNITS

U56

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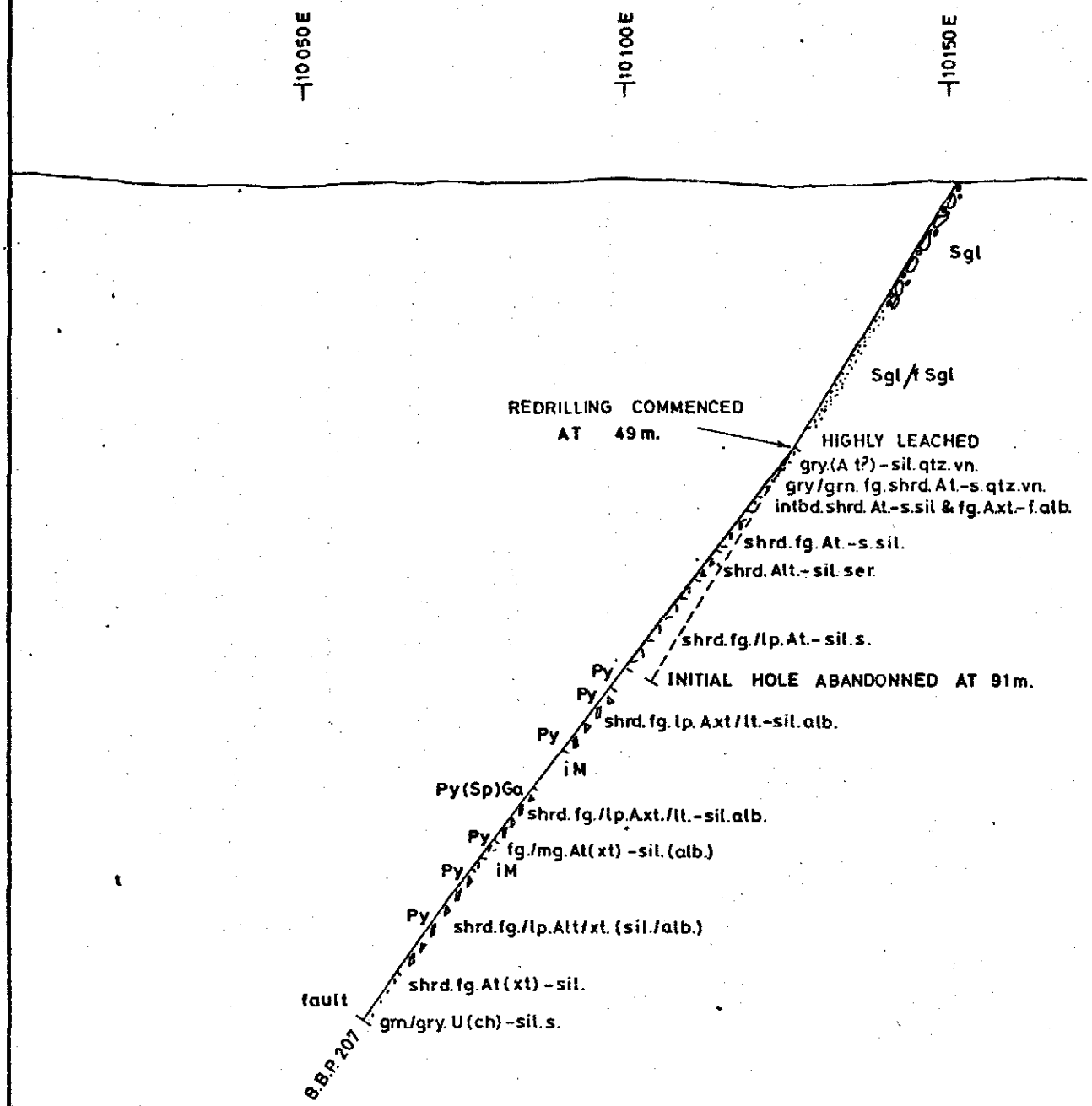


CROSS SECTION OF B.B.P. 207

SHOWING GEOLOGY

LINE 13 880 N. BOCO GRID

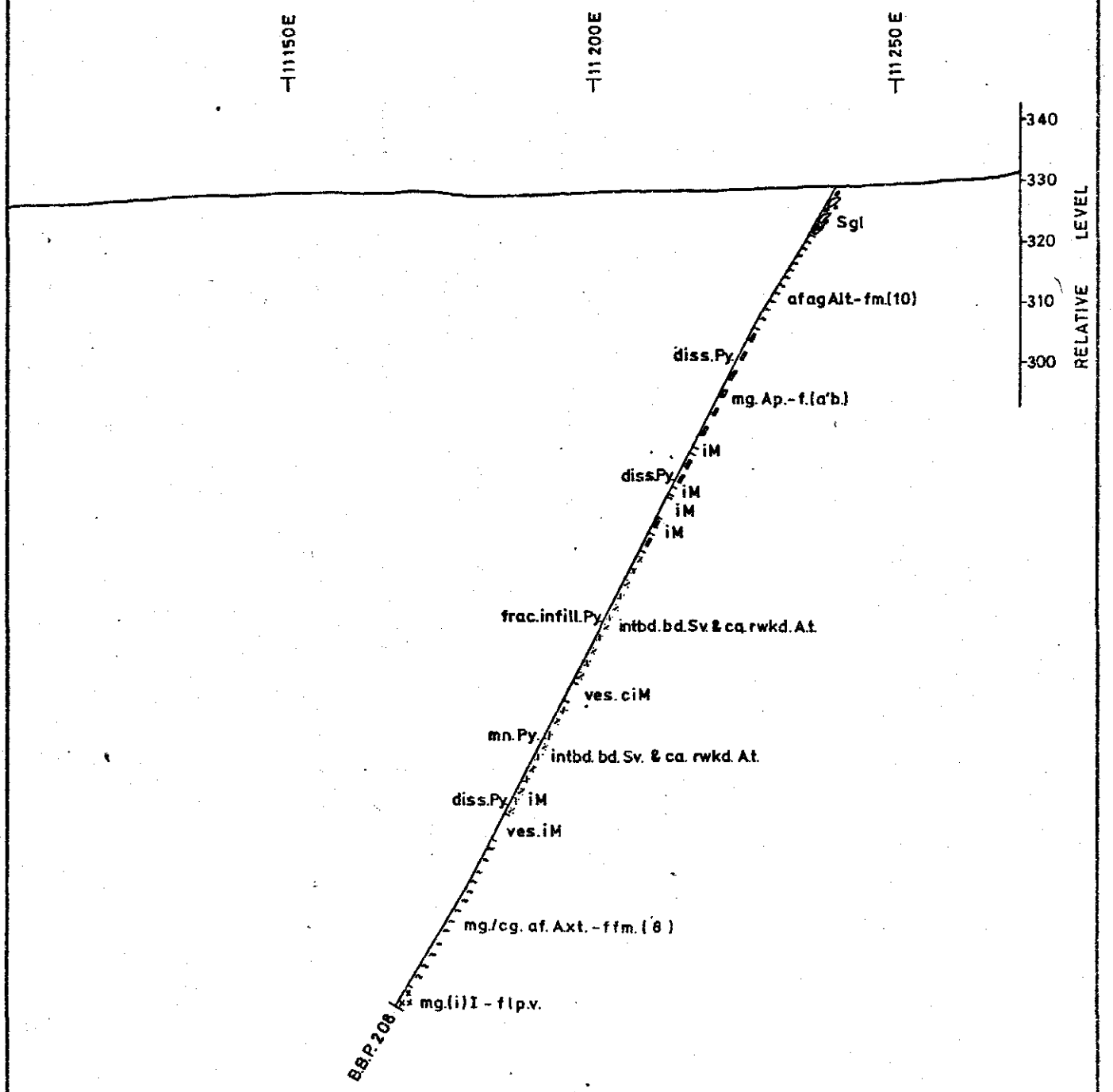
SCALE : 1 : 1 000

5 cm

FIGURE 7.4

05.

288058



CROSS SECTION OF B.B.P. 208

SHOWING GEOLOGY

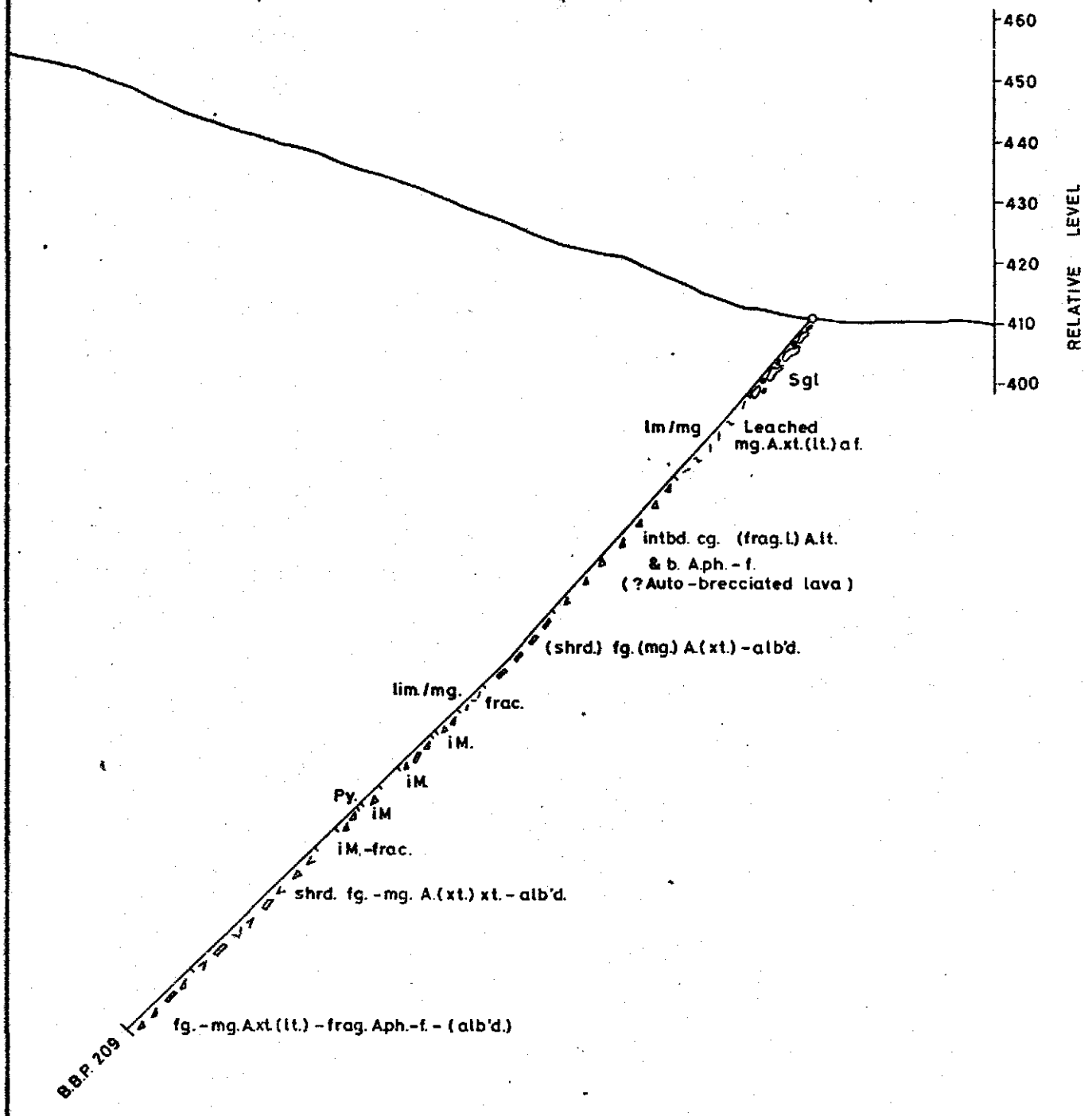
LINE 13 720 N. BOCO GRID

SCALE : 1 : 1000

5 cm

FIGURE 7.5

288059



CROSS SECTION OF B.B.P. 209

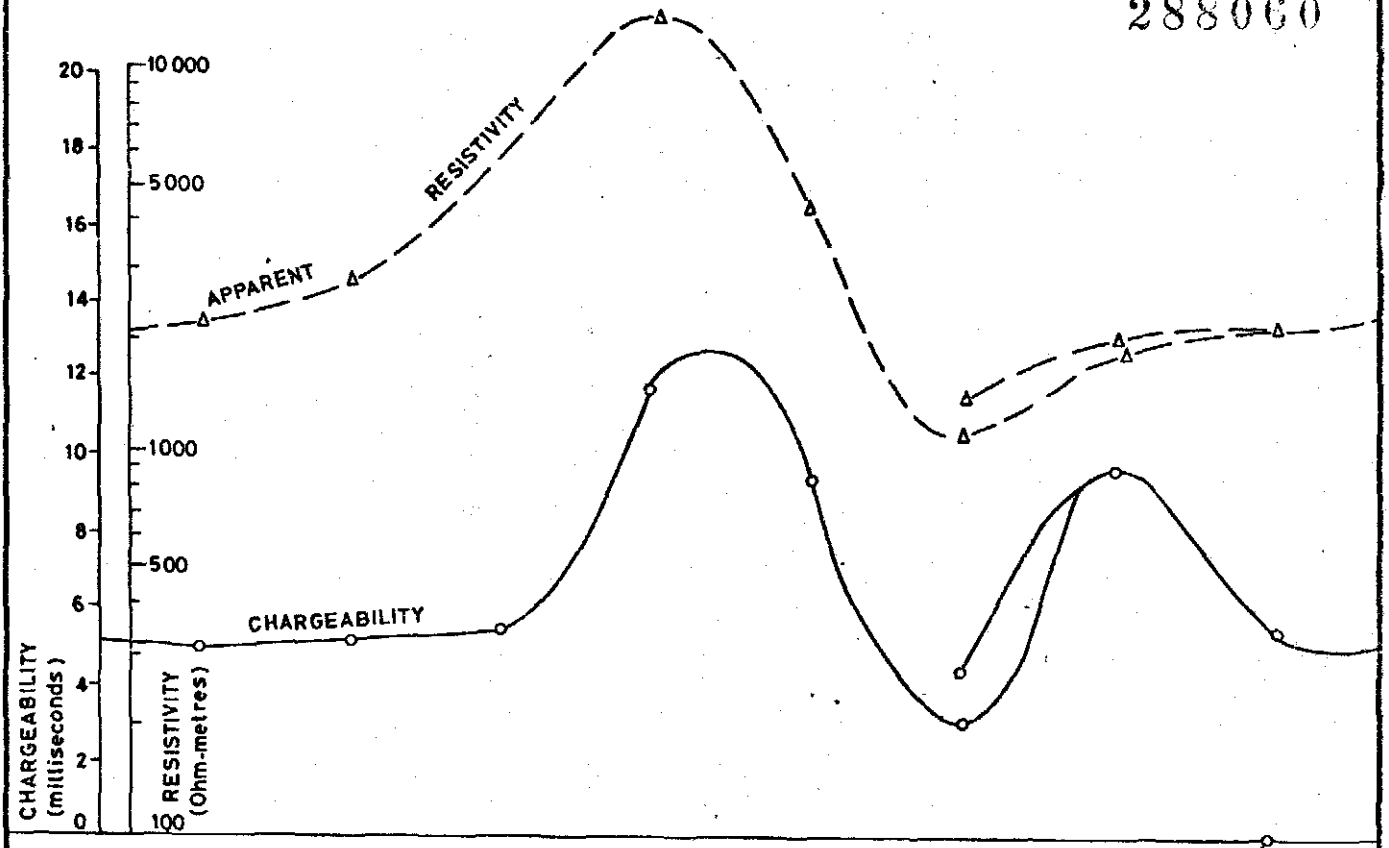
SHOWING GEOLOGY

SCALE: 1 : 1000

LINE 13 720N. BOCO GRID

5 cm

FIGURE 7.6

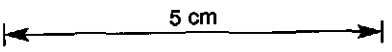


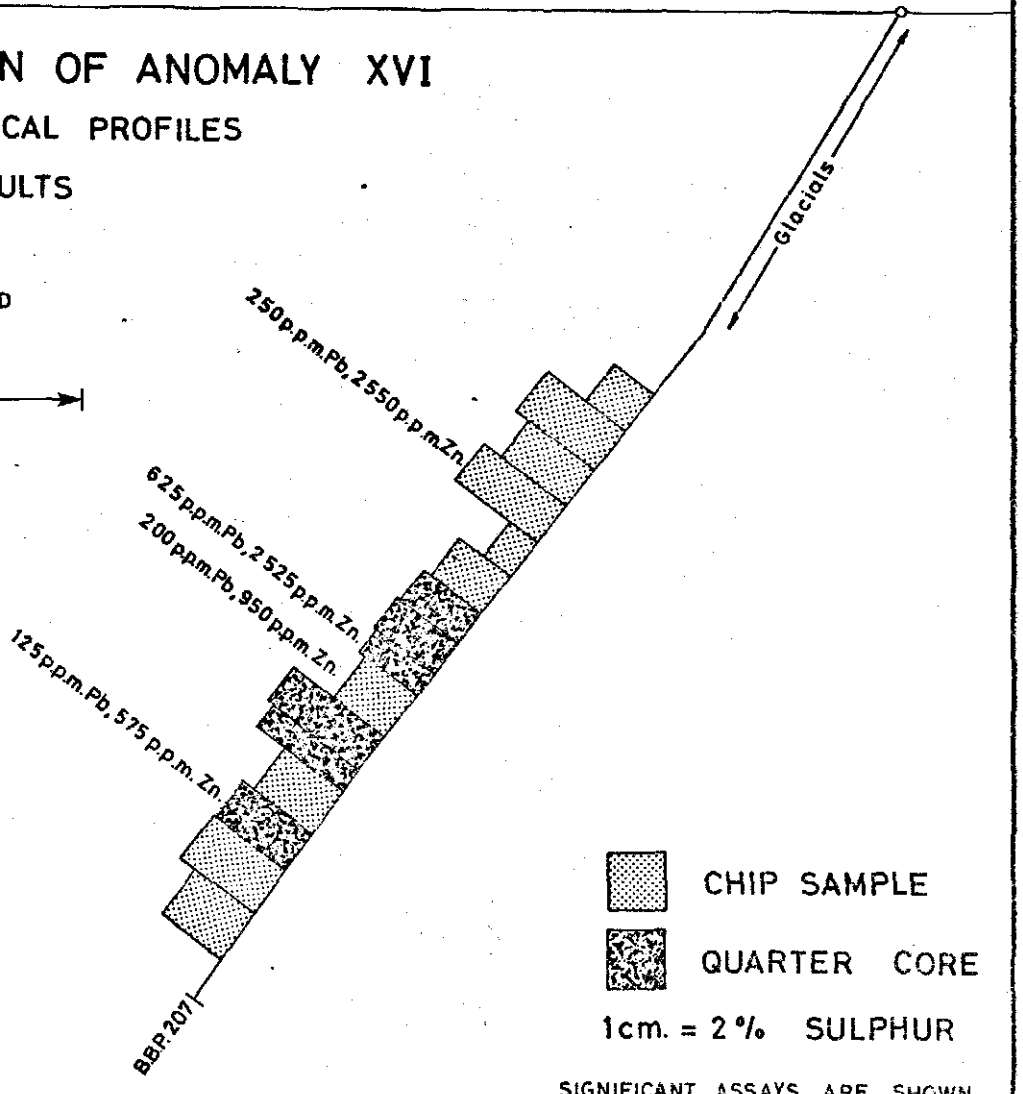
CROSS SECTION OF ANOMALY XVI

SHOWING GEOPHYSICAL PROFILES AND ASSAY RESULTS

SCALE : 1 : 1 000

LINE 13 880 N. BOCO GRID





CHIP SAMPLE

QUARTER CORE

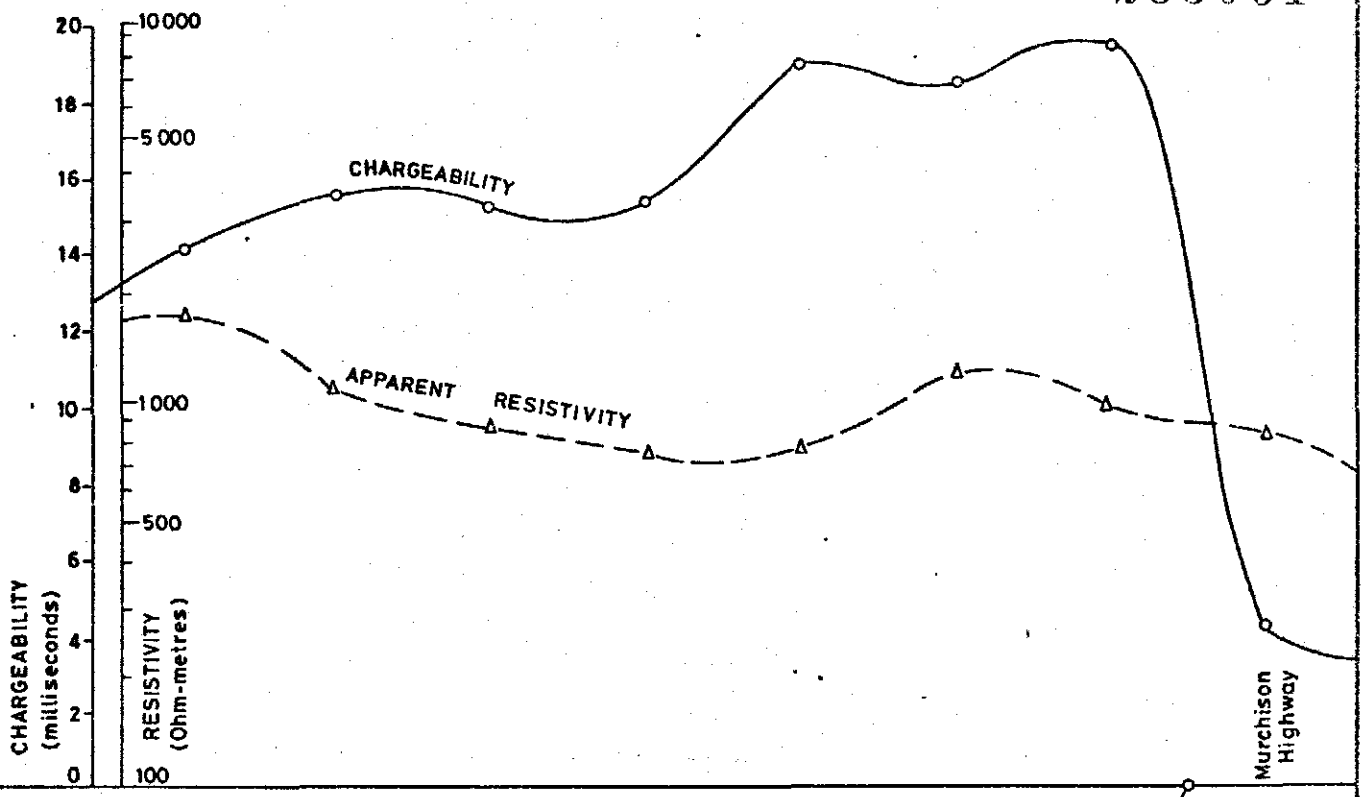
1 cm. = 2 % SULPHUR

SIGNIFICANT ASSAYS ARE SHOWN AGAINST RELEVANT INTERVALS

10 000E 10 050E 10 100E 10 150E

FIGURE 7.7

288061

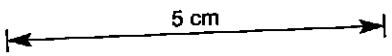


CROSS SECTION OF ANOMALY III

SHOWING GEOPHYSICAL PROFILES AND ASSAY RESULTS

SCALE: 1:1000

LINE 13720N. BOCO GRID



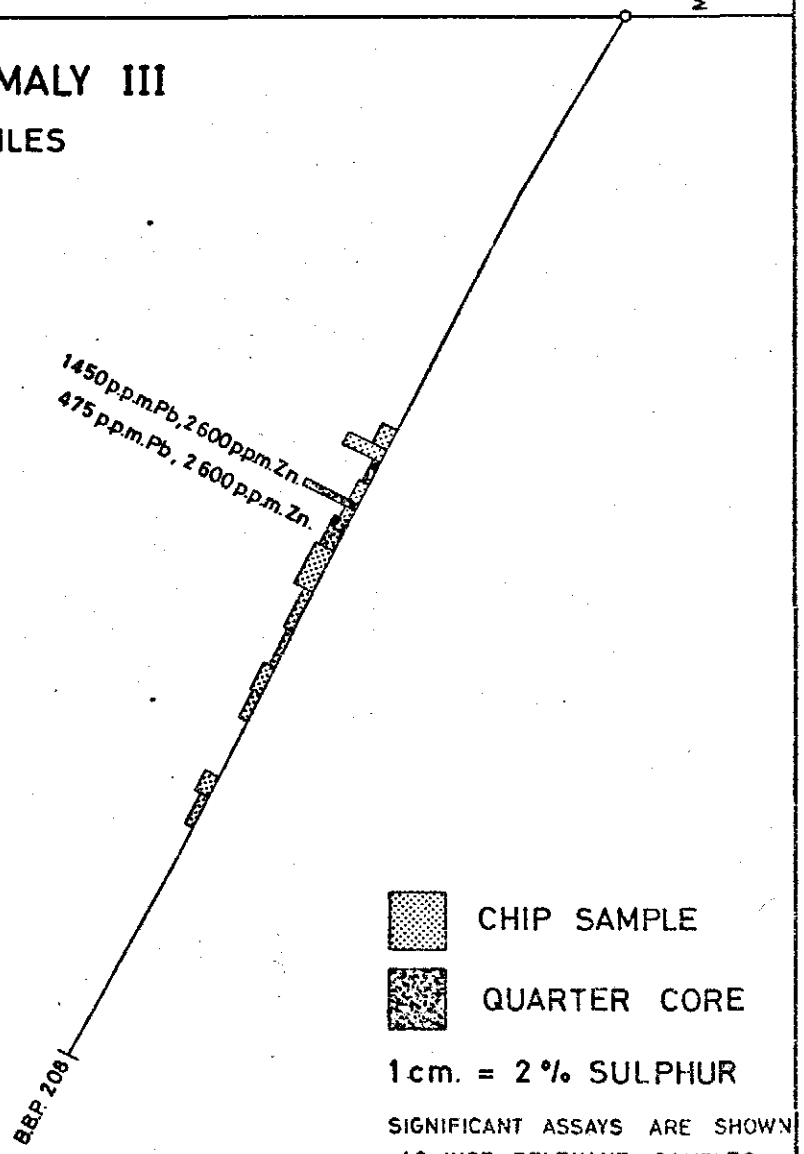
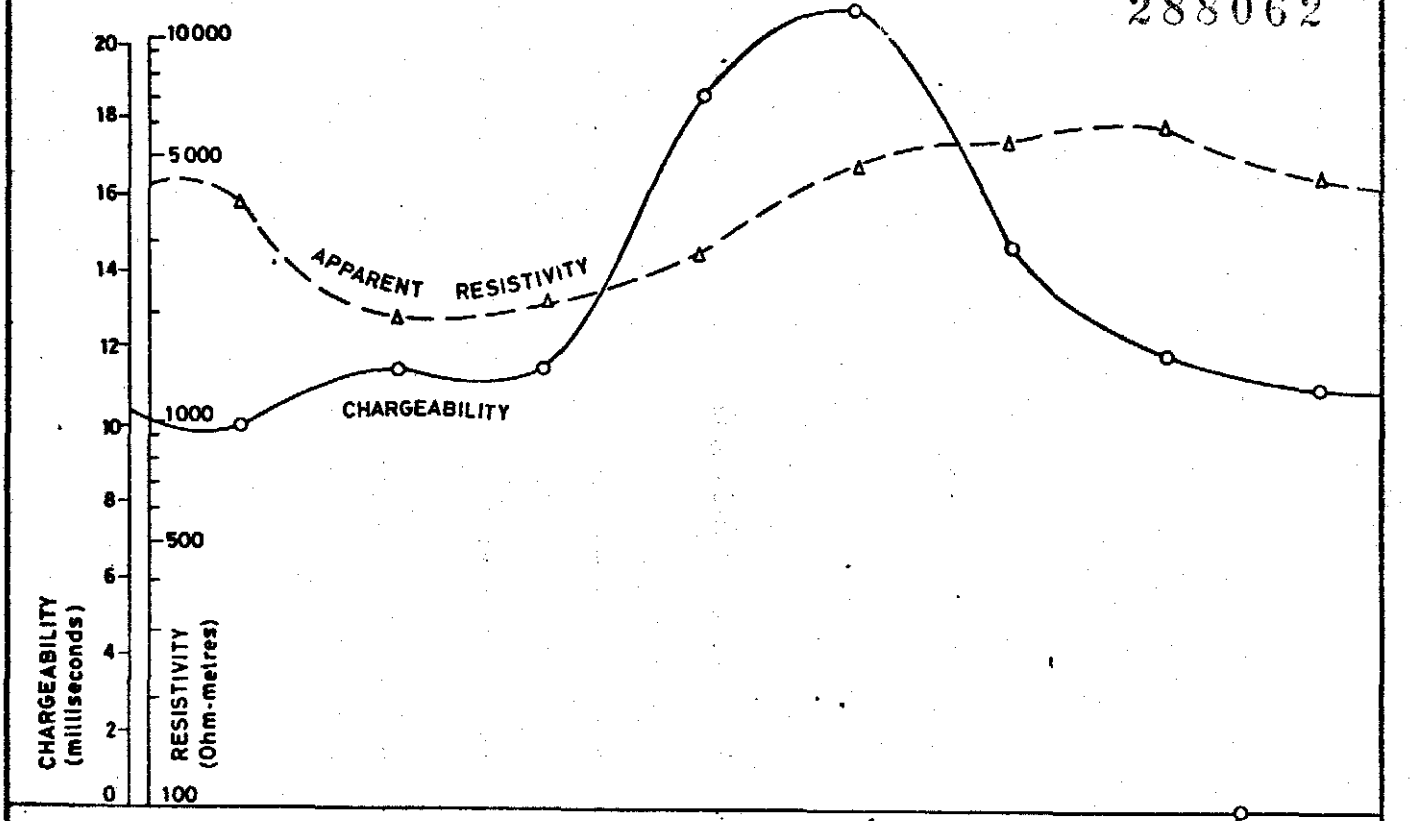




FIGURE 7.8

288062

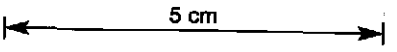


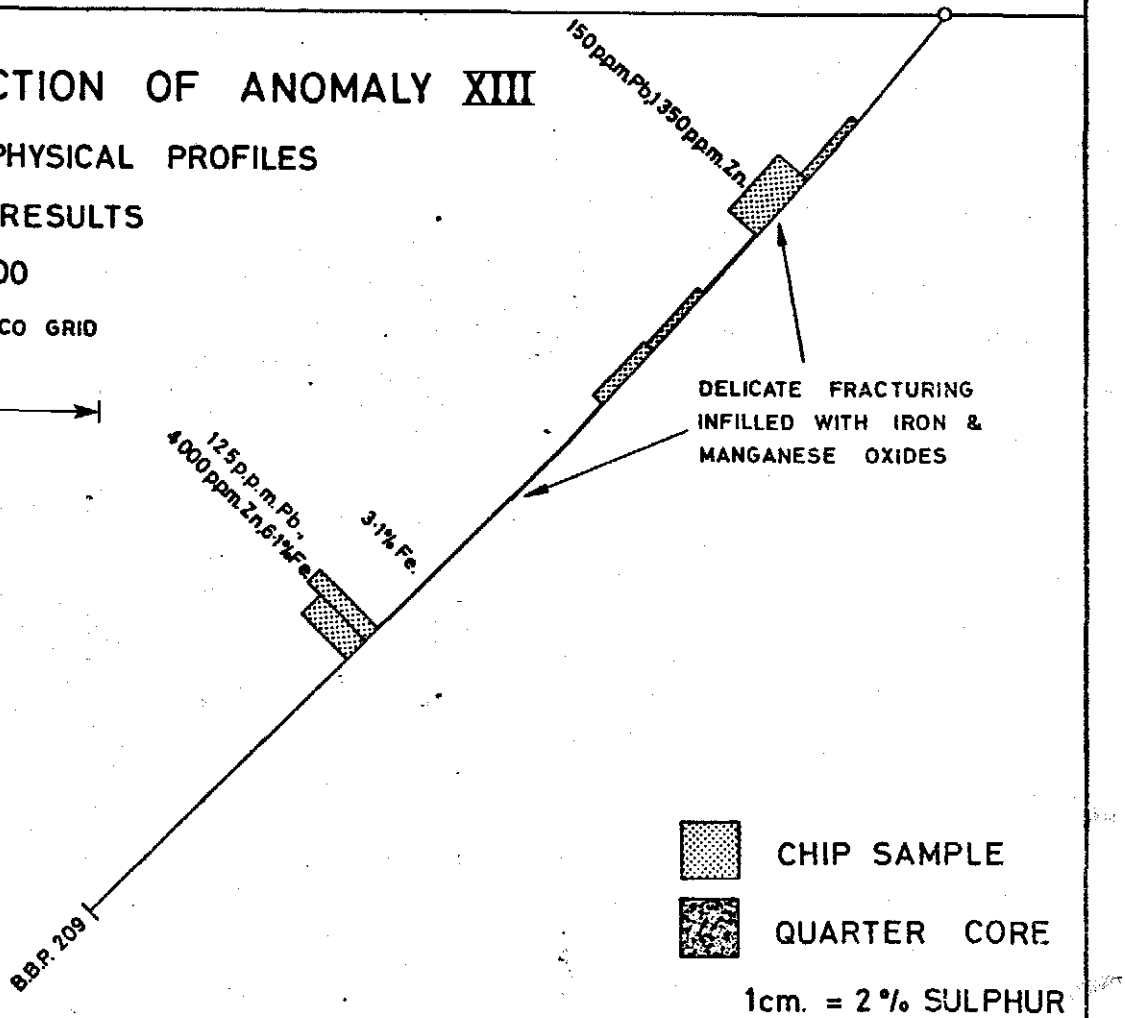
CROSS SECTION OF ANOMALY XIII

SHOWING GEOPHYSICAL PROFILES AND ASSAY RESULTS

SCALE : 1 : 1000

LINE : 13 880 N. BOCO GRID





CHIP SAMPLE

QUARTER CORE

1cm. = 2 % SULPHUR

SIGNIFICANT ASSAYS ARE SHOWN AGAINST RELEVANT INTERVALS

9300E 9350E 9400E 9450E

FIGURE 7.9

288063

Drill hole B.B.P. 209 intersected very minor sulphides (disseminated Py) and the source is inferred to be related to "Gossanous" (iron and manganese oxides) fracture infilling. These are interpreted as weathered sulphides, with the true sulphide source existing at depth and/or along strike. Again minor base metal values were recorded.

The disseminated pyrite (particularly in B.B.P. 207) is believed to have formed contemporanously with the enclosing volcanics. Further, the alteration, quartz veining and associated sulphide mineralization are also believed to be roughly contemporaneous to the volcanics, (i.e. Cambrian) rather than related to a later mineralizing episode (i.e. Devonian Granite intrusion). A pre-diagentic alteration is suggested by the general lack of sharp contacts on the quartz veins and more intense alteration of coarser grained and thus originally more permiable units.

This style of mineralization could be expected in any volcanic sequence without neccessarily implying the existance of a major mineralizing episode. Given that the mineralization is truely contemporaneous, this does however give weight to the belief that mineralizing solutionsdid percolate the volcanic pile in the Boco Area.

Two aspects of the mineralization intersected require further study. The first is the apparant relationship between the intense pink/red alteration (mainly albertisation) and the mineralization, especially that containing the 'higher' base metal values. Possibly this is a reflection of primary alteration. A complicating factor in this relationship is a similar association of albertisation with basic intrusives.

The second feature warranting further study is the origin and significant of fine grained sulphides infilling in a delicate fracture pattern. The typical mode of occurance is a series of fine intricate but sub-parrellel cracks of varying intensity. Usually they occur in fine grained units (sharp contacts suggest that these units may be intrusive). Rapid chilling and associated cracking, followed by the permeation of mineralizing solution is a suggested origin for these features. This style of mineralization form the apparant source of IP anomalies III and XIII.

7.5. Further Work

As already mentioned in section 7.4.1. it is proposed to undertake petrological studies of selected drill core specimens. It is also recommended that specimens of the delicate fracture infill style of mineralization be submitted for mineralogical study at the same time.

No further drilling is proposed on those anomalies already drilled. Further detailed geophysics (such as Dipole - Dipole IP or Gradient Array IP on smaller line spacing) could be justified over these anomalies to establish that the source of each anomaly has in fact been tested by the three drill holes, as it is possible that:-

i) Depth to the source could be greater than initially specified.

ii) Lateral effects (accentuated by the wide line spacing) could displace the anomaly.

iii) Dips (and strike) are not will defined, hence the hole may have been drilled down dip (e.g. B.B.P. 209)

It is recommended that no further drilling be undertaken over the remaining favourable but untested anomalies unless the target zones are better defined. (e.g. by further geophysical or geological parameters.)

APPENDIX A

'DESCRIPTION OF SELECTED

CONDUCTORS' IN EL 12/72

TAKEN FROM

"INTERPRETATION REPORT

AIRBORNE ELECTROMAGNETIC (INPUT) SURVEY"

by GEOTERREX PTY LTD.

G. Butt

J. Hansen

W. Finney

28067

Zone CS-27 — Surficial - Poor

From Line 217 to Line 246A

The shapes of anomalies in this zone generally have surficial appearance, and the conductivity is variable. South of Line 239 the responses have low apparent conductivity, but maintain similar amplitude to those north of the line, where conductivity is significantly higher.

There is a consistent "line-directional effect", thus defining a zone somewhat broader than the width of the individual anomalies. A surficial source at the southern end is almost certain, since the zone here closely follows mapped recent alluvial sediments.

The abrupt change in conductivity at Line 239 indicates either a thickening of, or a change in conductivity of, the source. The zone width also increases at this point, and there are multiple peaked anomalies indicating either varying thicknesses of the conductor, or that more than one conductor is present. Two selections of possible bedrock anomalies have been made from amongst the narrower responses.

The zone cuts across boundaries defined by the iso-magnetic contour map. Basalts are mapped in this northern part of the survey area but the outline of CS-27 does not follow the presently known boundaries of the basalts. Furthermore, from our experience basalts usually exhibit lower conductivities than is observed in this INPUT zone.

CONFIDENTIAL

1 59 1

990

Zone CS-27A — Bedrock - Fair

Line 243W	Fiducial 163.53	Ratio 9/1.0	Altitude 500
243CE	144.83	7/1.4	570

These two anomalies are narrow responses within Zone CS-27. An important characteristic is the coincidence of their peak positions on lines flown in opposite directions and coincidence with a magnetic feature. Both anomalies are reasonably well defined, and have fast decay. Several other anomalies in Zone CS-27 have equally fast decay but lack supporting evidence for bedrock responses.

The zone occurs on the north-eastern limb of a magnetic high, and it is thought to be an ideal location to check if any basalts are associated with either the magnetic activity or the conductivity.

CONFIDENTIAL

28068

Zone CS-27B — Bedrock - Poor

Line 241W Fiducial 206.28 Ratio S/0.8 Altitude 510

This anomaly is similar in shape and conductivity to those in Zone CS-27A, yet it occurs in a different magnetic setting. It lies on the eastern edge of Zone CS-27 and may be a weak edge effect related to the broad flat-lying conductive source of that zone.

Follow-up of both Zones CS-27A and CS-27B should help to establish whether there is a change of conductive source within Zone CS-27 and if so, if it is related to the change in magnetic activity and/or the basalts.

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CONFIDENTIAL

290

Zone CS-28 — Surficial - Fair

Line 239W	Fiducial 240.06	Ratio 3/-	Altitude 380
240E	228.59	3/-	350
241W	205.91	3/0.1	380

This short zone is characterized by low conductivity, poorly shaped anomalies which have been selected because of a possible association with a magnetic inflection. A similar magnetic feature occurs on Line 238W to the south, but there is no associated conductivity.

There is a peak shift with line direction but in the sense opposite to that normally associated with flat lying conductors, so that the peak positions define a non-linear trend. This trend may define either the irregular boundary of a surficial conductor or possibly a folded bedrock conductor.

Followup should aim at clarifying a possible relation between the INPUT responses and the magnetics, and also investigate any connection between Zones CS-27B and CS-28.

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288069

Zone CS-29 — Bedrock - Poor

From Line 239 to Line 246A

This is a broad zone of multiple-peaked anomalies with conductivity, shape and amplitude similar to Zone CS-27. The two zones merge north of Line 245W.

The zone closely coincides with the area of magnetic activity probably associated with the Tertiary basalts mapped in the area. The southern part of the zone consists of small amplitude, low conductivity anomalies and is apparently within the mapped basalts. This leads to the assumption, as for Zones CS-27, CS-30 and CS-31, that there may be an additional conductive layer present, possibly underlying the basalts.

The additional layer could be recent alluvial sediments (quite likely for Zone CS-27) or conductive shales in the underlying Read tuffs (quite possible for Zone CS-30). In both cases it is thought that the basalt sequence is not thick enough, or weathered enough, to produce the type of anomaly we observe here.

It is also thought that the amplitude of the responses in the zones could be indicative of conductive shales at depth, that is, under a basalt cover. Shales at surface should develop larger amplitudes, as displayed in Zone CS-30A.

One selection has been made for followup in Zone CS-29 to check either for the general source material, or for the possibility of an underlying favourable bedrock conductor.

90

Zone CS-29A — Bedrock - Fair

Line 242E	Fiducial	135.89	Ratio 14/2.0	Altitude 350
243W		162.24	5/0.1	470
243CE		146.00	11/1.5	390
244E		140.82	14/1.5	340
244BE		149.27	15/1.2	390
245W		115.30	8/1.0	510

The anomalies listed make up the eastern side of double-peaked responses which extend from Line 242 to Line 245. These anomalies may be related to a magnetic trend which has its maximum amplitude at Fiducial 149.27 on Line 244B, and which has a strike similar to the north end of the EM zone.

The anomalies forming the eastern and western axes of this zone are not well defined with respect to each other, and so will be discussed together. They are of intermediate amplitude, show high conductivity, and together form a rather broad anomaly. The separate peaks are more distinctly defined north of Line 244, but, even here, it is likely that the two anomalies are due to the same conductive material, possibly in separate steeply-dipping layers.

Since the anomaly peaks do not shift with opposite line direction, a bedrock source is probable, and it is unlikely that one shallow dipping conductor is responsible, since both peaks are evident for each flight direction.

Either conductive shale bands or massive sulphides could be responsible for the conductivity. The latter is more likely if the magnetic activity is reflecting pyrrhotite and is not being caused by magnetite in the basalts.

288070

Zone CS-30 Bedrock - Poor

From Line 230 to Line 246A

This long zone consists of generally broad, rounded, surficial - looking anomalies that have a strong directional shift dependent upon line direction. Amplitudes are low to intermediate and there tend to be two, well-separated anomalies especially south of Line 242, the peak on the eastern edge always having larger amplitude.

Amplitudes are particularly low on Lines 243 and 244, and this may indicate a change of conductive source material. North of these lines the zone broadens and coincides with a magnetic influence. Here the conductor is thought to be flat-lying, but south of Line 243 the relative amplitudes and shapes indicate a bedrock conductor dipping to the west.

Geologically the zone coincides with Tertiary basalts as well as with the Read tuff sequence. A selection for followup has been made to check some of the enhanced responses along the eastern side of the zone. Conductive shales are the probable cause, since these have been mapped in this region. The character of the INPUT responses supports this.

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APPENDIX B

TABULATION AND DESCRIPTION OF GEOCHEMICAL DATA

RESULTS OF A "C" HORIZON SOIL GEOCHEMICAL SURVEY UNDERTAKEN OVER THE SOUTHERN PORTION OF THE BOCO GRID IN DECEMBER 1976.

07

2880 E 2

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE

SAMPLE Nº	CO-ORDINATES NORTHING	CO-ORDINATES EASTING	Cu ppm	Pb ppm	Zn ppm	Ag ppm	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14000	13400	10000	10	x	10	x	lht gry			✓	silt clay
14001		10020	x	x	10	x	lht gry			✓	sand clay
02		040	x	x	10	x	"			✓	silt clay
03		068	5	x	5	x	"		✓		grit clay
04		080	x	x	x	x	brn gry			✓	sand clay
05		10100	10	x	x	x	lht gry		✓		grit clay
06		120	5	x	x	x	"		✓		sand silt clay
07		140	x	x	x	x	"		✓		sand clay
08		160	x	x	x	x	"		✓		silt clay
09		180	x	x	5	x	"			✓	sand silt
14010		10200	10	x	5	x	dk gry		✓		grit peat clay
11		220	10	x	5	x	lt gry		✓		silt clay
12		240	5	x	x	x	lht gry			✓	grit silt clay
13		260	5	x	10	x	dk gry	✓			grit clay
14		280	5	x	x	x	lht gry			✓	sand clay
15		10300	x	x	x	x	lht gry			✓	silt clay
16		320	x	x	x	x	"		✓		sand clay
17		340	x	x	10	x	"			✓	silt clay
18		360	x	x	5	x	"		✓		grit silt clay
19		380	x	x	5	x	"			✓	silt clay

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE

SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm	Pb ppm	Zn ppm	Ag ppm	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14020	13400	10400	5	x	10	x	lht gry		✓		silt clay
21		420	x	x	5	x	"			✓	sand clay
22		440	x	x	5	x	"		✓		silt clay
23		460	x	x	5	x	"			✓	sand clay
24		480	x	x	5	x	"			✓	grit silt clay
25		10500	x	x	10	x	lht mott gry			✓	grit
26		520	x	x	10	x	"		✓		grit clay
27		540	x	x	5	x	lht brn gry			✓	silt clay
28		560	x	x	5	x	lht gry			✓	grit silt clay
29		580	x	x	10	x	"			✓	silt
14030		10600	x	x	10	x	gry			✓	sand clay
31	13240	10800	x	x	10	x	"		✓		gravel silt clay
32		780	x	x	10	x	lht gry		✓		gravel silt clay
33		760	x	x	10	x	lht brn gry	✓			silt clay
34		740	x	x	10	x	"		✓		" "
35		720	x	x	10	x	lht gry		✓		" "
36		10700	10	x	10	x	lht bl gry			✓	sand "
37		680	5	x	10	x	brn gry			✓	silt "
38		660	x	x	15	x	lht brn gry			✓	grit silt "
39		640	x	x	10	x	gry		✓		silt "

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE

SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14040	13240	10620	10	10	10	x	lht bf gry		✓		silt clay
41		10600	5	20	15	"	bf brn	✓			" "
42		580	"	10	10	"	dk gry	✓			pebbles twigs clay
43		560	x	10	5	"	lht gry		✓		silt clay
44		540	"	"	"	"	lht mve gy			✓	" "
45		520	"	"	5	"	"		✓		grit silt "
46		10500	5	"	"	"	gry	✓			sand "
47		480	5	x	10	"	lht gry	✓			silt "
48		460	"	"	"	"	"		✓		" "
49		440	"	"	"	"	"			✓	" "
14050		420	"	"	"	x	lht bf		✓		lithic frags, clay
51		10400	"	"	"	"	mve gy		✓		grit silt "
52		380	x	"	10	"	lht bf		✓		lithic frags silt "
53		360	x	10	5	x	gry			✓	silt clay
54		340	"	"	"	"	lht mve gy			✓	grit silt "
55		320	"	"	"	"	lht gry		✓		sand "
56		10300	"	"	"	"	"			✓	silt "
57		280	"	"	"	"	gry		✓		sand "
58		260	"	"	"	"	lht gry		✓		" "
59		240	"	"	"	"	"		✓		" "

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE

SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14060	13240	10220	x	"	"	"	gry			✓	grit silt clay
61		10200	"	"	5	"	lht bf gry		✓		" "
62		180	"	"	"	"	"		✓		grit " "
63		160	"	"	"	"	gry		✓		sand "
64		140	"	"	5	"	lht gry			✓	sand silt "
65		120	"	"	10	"	gry		✓		grit sand "
66		100	"	"	10	"	lht mve gy		✓		lithic frags silt "
67		10080	"	"	5	"	lht gry			✓	silt clay
68		060	"	"	5	"	gry			✓	grit " "
69		040	"	"	10	"	"		✓		" " "
14070		020	"	10	10	"	lht bf			✓	silt "
71		10000	10	10	10	"	lht gry			✓	lithic frags silt "
72		9980	"	"	5	"	"			✓	" " " "
73		960	"	"	5	"	gry			✓	grit silt clay
74		940	5	"	10	"	dk gry	✓			peaty "
75		920	"	10	20	"	lht gry		✓		silt "
76		9900	"	30	110	"	gry			✓	grit " "
77		880	x	10	10	"	bf gry			✓	lithic frags sand "
78		860	"	"	10	"	gry			✓	grit silt clay
79		840	"	"	10	"	lht bf gry			✓	" "

07

288074

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE [illegible]
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm.	Pb ppm	Zn. ppm	Ag ppm.	COLOUR	ORGANIC CONT. H.	M.	L.	DESCRIPTION
14080	13240	9820	x	x	10	x	gry			✓	grit clay
81		9800	x	x	5	x	dk gry		✓		" "
82	12760	9920	5	x	x	x	lht gry		✓		lithic frags silt clay
83		940	5	x	10	x	dk gry	✓			silt loam
84		960	5	x	15	x	"	✓			peat clay
85		980	10	10	15	1·0	"	✓			grit " "
86		10000	5	x	10	x	"	✓			lithic frags silt clay
87		020	x	x	x	x	gry		✓		" " " "
88		040	5	10	10	x	dk gry	✓			" " peat "
89		060	5	15	10	x	gry		✓		" " silt "
14090		080	5	5	10	x	lht gry			✓	" " sand
91		10100	5	10	10	x	mve gry		✓		grit silt clay
92		120	10	30	30	0·5	ochre		✓		lithic frags grit clay
93		140	5	x	5	0·5	lht gry			✓	" " silt "
94		160	x	x	10	x	"			✓	" "
95		180	10	25	40	0·5	brn gry		✓		lithic frags " "
96		10200	20	30	50	x	dk gry	✓			" " grit peat
97		220	10	15	30	x	bf gry			✓	" " " clay
98		240	20	15	40	x	dk brn gry	✓			peat clay wood ash
99		260	10	25	50	0·5	bf brn	✓			lithic frags grit clay

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE [illegible]/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm.	Pb ppm	Zn. ppm	Ag ppm.	COLOUR	ORGANIC CONT. H.	M.	L.	DESCRIPTION
14100	12760	280	15	30	40	x	dk gry brn		✓		peaty clay
101		10300	10	30	45	x	"	✓			" "
02		320	15	40	60	x	"	✓			rock frags peaty clay
03		340	30	135	140	0·5	dk gry	✓			twigs rock frags clay
04		360	20	40	40	x	"	✓			rock frags peat "
05		380	10	25	25	x	lht gr bf			✓	sand silt clay
06		10400	10	15	10	x	brn gry	✓			" peat "
07		420	5	10	10	x	gry		✓		sandy clay
08		440	5	15	20	x	brn ochre		✓		rock frags clay
09		460	5	x	10	x	gry			✓	sand "
14110		480	10	x	10	x	dk gry	✓			grit silt "
11		10500	10	x	10	x	"	✓			rock frags sand "
12		520	10	25	35	x	yel ochre			✓	" " silt "
13		540	10	10	15	x	lk gry	✓			" " peat "
14		560	10	10	15	x	"	✓			" "
15		580	5	x	10	x	gry		✓		grit sand "
16		10600	5	x	10	x	lht gry			✓	" " "
17		620	5	x	5	x	lht mve gry			✓	rock frags sand "
18		640	5	x	5	x	lht gry		✓		" " " "
19		NO SAMPLE									

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BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE 3/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm.	Pb ppm.	Zn. ppm.	Ag ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14120	12760	10660	5	x	5	x	brn gry		✓		rock frags grit silt clay
21		680	10	x	10	x	lht gry		✓		grit silt clay
22		10700	10	5	10	x	"		✓		" "
23		720	10	x	10	x	"			✓	sand "
24		740	10	10	15	x	dk gry	✓			rock frags peat "
25		760	10	5	10	x	lht gry			✓	" " sand "
26		780	10	x	10	x	lht gry			✓	" " silt "
27		10800	10	x	10	x	"	✓			" " clay
28		820	10	x	10	x	lht brn gry			✓	" " "
29	13080	10200	10	x	10	x	dk gry	✓			" " peat clay
14130		780	10	x	10	x	"	✓			grit sand peat
31		760	10	x	10	x	"	✓			" " "
32		740	10	x	10	x	gry		✓		sand clay
33		720	10	x	10	x	gry		✓		grit " "
34		10700	10	x	10	x	dk brn gry		✓		" " "
35		680	10	10	10	x	gry		✓		rock frags silt "
36		660	10	10	20	x	dk brn gry	✓			sand peat
37		640	10	x	10	x	lht gry			✓	rock frags clay
38		620	10	x	10	x	gry brn		✓		silt "
39		10600	15	15	30	x	ochre gry			✓	rock frags "

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE 3/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm.	Pb ppm.	Zn. ppm.	Ag ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14140	13080	10580	15	20	30	0.5	dk gry brn	✓			rock frags grit peat
14141	12600	10240	15	30	45	"	dk gry brn	✓			" " peat clay
14142		10220	15	30	50	2.0	dk. brn	✓			" " " " silt
14143		10200	15	20	50	x	dk brn	✓			" " " clay
14144		10180	15	25	50	"	ochre brn	✓			" " " "
14145		10160	15	50	60	0.5	lht ochre		✓		" " clay
14146		10140	20	80	90	2.0	ochre brn	✓			" " peat clay
14147		10120	15	40	75	x	"	✓			" " " "
14148		10100	15	35	50	x	ochre			✓	" " clay
14149		10080	10	15	20	x	lht mauve gry			✓	" " silt clay
14150		10060	10	x	10	x	lht gry			✓	" " sand clay
14151		10040	5	5	25	x	gry		✓		" " "
14152		10020	10	x	10	x	lht gry			✓	rock frags " "
14153		10000	5	x	10	x	"		✓		" " " "
14154		9980	5	x	10	x	gry		✓		grit " "
14155		9960	5	x	10	x	lht grey			✓	" " "
14156		9940	5	x	10	x	"			✓	rock frags " "
14157		9920	10	x	10	x	gry.			✓	" " " "
14158	12280	9960	10	x	15	x	lht ochre			✓	" " clay
14159		9980	10	5	20	x	" " gry			✓	" " "

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BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE 6/12/76

SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14160	12280	10000	10	10	15	x	dk. brn grey	✓			rock frags peat
14161		10020	5	5	10	x	lht grey			✓	sand clay
14162		10040	5	15	15	x	dk. grey	✓			rock frags peat clay
14163		10060	5	5	10	x	lht grey			✓	" " sand clay
14164		10080	5	5	15	x	brn. grey	✓			peat " "
14165		1000	5	10	30	x	lht oc. grey			✓	rock frags clay
14166		10120	10	15	30	x	ochre			✓	" " "
14167		10140	10	30	50	x	"			✓	" " "
14168		10160	10	20	40	x	" grey			✓	" " "
14169		10180	10	25	45	x	ochre			✓	" " "
14170		10200	5	20	15	x	lht oc. grey			✓	" " "
14171		10220	5	15	15	x	lht. mau. grey			✓	" " "
14172		10240	T	10	15	x	"			✓	" " silt clay
14173		10260	T	10	20	x	lht grey		✓		" " sand "
14174		10280	5	15	20	x	oc. grey			✓	" " " "
14175		10300	5	5	25	x	grey brn		✓		" " silt "
14176		10320	T	5	20	x	lht grey		✓		" " clay
14177	12120	10360	5	10	25	x	lht oc. grey			✓	" " sand clay
14178		10340	5	10	40	x	grey		✓		" " clay
14179		10320	10	25	40	x	oc. grey		✓		" " "

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY
DESCRIBED BY
DATE 6/12/76

SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14180	12120	10300	10	15	30	x	lht green grey		✓		grit silt clay
14181		10280	5	10	30	x	brn. grey			✓	rock frags sand "
14182		10260	NOT	10	ANTE	D.-	lht brn grey			✓	grit " "
14183		10240	5	5	20	x	" " "		✓		rock frags " "
14184		10220	5	5	10	x	cream grey			✓	" " silt "
14185		10200	10	20	30	x	brn.	✓			" " peat "
14186		10180	10	20	15	x	"	✓			" " " "
14187		10160	5	20	40	x	oc. grey			✓	" " silt "
14188		10140.	10	35	55	x	ochre			✓	" " clay
14189		10120	10	30	65	x	dk. brn.	✓			sand peat
14190		10100	5	10	20	x	lht grey			✓	silt clay
14191		10080	5	10	20	x	dk brn	✓			rock frags peat
14192		10060	5	5	20	x	lht grey		✓		" " sand clay
14193		10040	5	5	20	x	lht brn grey		✓		" "
14194.		10020	5	5	15	x	dk. grey			✓	rock frags grit "
14195		10000	5	5	20	x	lht. brn grey			✓	" " silt "
14196		9980	5	10	10	x	grey			✓	" " " "
14197		9960	5	5	15	x	"		✓		grit " "
14198		9940	5	5	10	x	"		✓		rock frags sand "
14199		9920	5	15	15	x	ochre			✓	" " clay

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BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE 2/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14200	13080	10000	10	10	20	x	gry			✓	rock frags silt clay
14201		10020	5	5	10	1.0	lht brn gry			✓	" "
14202		10040	5	15	10	x	mae gry		✓		grit "
14203		10060	5	x	5	x	lht mave gry		✓		" "
14204		10080	5	x	T	x	gry		✓		" "
14205		10100	5	x	10	x	mav gry		✓		" "
14206		10120	T	15	T	x	lht gry		✓		" "
14207		10140	T	5	T	x	gry		✓		" "
14208		10160	5	15	5	x	"			✓	Sand "
14209		10180	5	10	10	x	oc. gry			✓	rock frags "
14210		10200	5	15	5	x	" "			✓	" " sand "
14211		10220	x	10	5	x	mav gry			✓	" " silt "
14212		10240	x	10	5	x	lht mav gry			✓	silt clay
14213		10260	x	5	10	x	dk gry	✓			grit peat clay
14214		10280	5	15	15	1.0	cream gry			✓	rock frags "
14215		10300	T	5	15	x	lht gry			✓	" " sand "
14216		10320	x	5	30	x	och. gry			✓	" " clay
14217		10340	x	5	25	x	dk mav gry	✓			" " peat clay
14218		10360	5	x	20	x	" " "	✓			" " " "
14219		10380	x	x	25	x	gry		✓		" " clay

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE 13/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14220	13080	10400	5	15	20	x	mave. gry		✓		rock frags silt clay
14221		10420	x	x	30	x	lk " "	✓			" " peat "
14222		10440	T	x	20	x	gry		✓		" " sand "
14223		10460	5	x	20	x	lht mav gry		✓		" "
14224		10480	5	5	25	x	dk brn gry	✓			rock frags peat grit
14225		10500	5	5	20	x	dk gry		✓		" " grit clay
14226		10520	5	10	30	x	gry			✓	" " sand "
14227		10540	10	10	30	x	dk brn gry	✓			" " peat "
14228		10560	5	15	30	x	lht oc. gry			✓	" " sand "
14229	12600	11000	5	5	20	x	lht gry			✓	silt clay
14230		10980	5	15	10	x	" "			✓	" "
14231		10960	T	10	20	x	lht. mav gry			✓	" "
14232		10940	x	20	25	x	grey		✓		Sand "
14233		10920	x	10	20	x	lht. gry		✓		" "
14234		10900	5	25	35	x	ochre			✓	rock frags clay
14235		10880	5	5	25	0.5	lht cream gry		✓		" " "
14236		10860	T	10	30	x	" " "			✓	" " silt clay
14237		10840	T	20	20	x	" mave "			✓	" "
14238		10820	5	15	20	x	" " "			✓	" "
14239		10800	T	5	20	x	" " "			✓	rock frags " "

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BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY N.H.M. DATE 6/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14240	12600	10780	5	T	15	x	lht gry			✓	grit silt clay
14241		10760	x	15	10	x	"			✓	" " "
14242		10740	5	5	20	x	gry		✓		" " "
14243		10720	5	5	20	x	lt gry			✓	" "
14244		10700	5	25	30	x	" "			✓	rock frags " "
14245		10680	5	15	25	x	lht brn gry		✓		" " sand "
14246		10660	5	25	25	x	dk gry	✓			" " peat "
14247		10640	5	5	25	x	lht mav gry			✓	silt clay
14248		10620	5	15	30	x	ochre			✓	rock frags silt clay
14249		10600	10	40	35	x	grey	✓			sand peat
14250		10580	5	20	40	x	brn gry		✓		rock frags sand peat
14251		10560	10	10	40	x	dk " "	✓			" " " "
14252		10540	10	20	55	x	lht ochre			✓	" " clay
14253		10520	10	25	50	x	gry "			✓	" " silt clay
14254		10500	10	40	45	x	black	✓			" " peat
14255		10480	10	25	35	x	gry och			✓	" " grit clay
14256		10460	10	25	35	x	dk brn	✓			" " peat "
14257		10440	5	20	25	x	" gry	✓			" " " "
19258		10420	5	20	30	x	" "	✓			" " " "
14259.		10400.	5	10	25	x	dk brn gry	✓			" " sand peat

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY N.H.M. DATE 6/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14260	12600	10380	5	15	35	x	dk brn gry	✓			grit peat
14261	"	10360	5	5	20	x	mav gry			✓	rock frags sand clay
14262	"	10340	5	15	25	x	buff gry			✓	silt clay
14263	"	10320	10	10	30	x	lht " "			✓	sand "
14264	"	10300	10	15	60	x	dk brn	✓			rock frags peat
14265	"	10280	15	15	55	x	" "	✓			" " "
14266	"	10260	25	85	130	x	brn gry		✓		" " sand clay
14267	12280	10400	225	3200	1050	22.0	brn gry		✓		" " silt "
14268		10420	30	265	155	1.0	dk brn	✓			" " peat
14269		10440	15	45	65	x	mve gry		✓		" " silt clay
14270		10460.	T	15	45	x	lht mve gy			✓	" "
14271		10480	5	25	35	x	dk brn	✓			rock frags peat
14272		10500	T	5	20	x	lht mve gry			✓	" " silt clay
14273		10520	x	5	30	x	mve gry	✓			" " " peat
14274		10540	5	5	25	x	dk gry	✓			" " sand "
14275		10560	T	5	10	x	gry			✓	silt clay
14276		10580	x	5	20	x	"		✓		sand "
14277		10600	x	5	20	0.5	brn gry			✓	silt "
14278		10620	x	5	25	x	"	✓			sand peat
14279		10640	5	15	25	x	dk gry	✓			rock frags " "

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BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH					SAMPLED BY K.B. & S.H. DESCRIBED BY N.H.H. DATE 6/12/76			
SAMPLE No.	CO ORDINATES NORTHING	EASTING	Cu ppm.	Pb ppm.	Zn. ppm.	Ag ppm.	COLOUR	ORGANIC CONT. H.	M.	L.	DESCRIPTION
14280	12280	10660	T	5	15	x	lht gry		✓		grit sand clay
281		680	T	5	10	x	"			✓	" silt "
282		10700	x	5	10	x	"			✓	" " "
283		720	x	5	15	x	lt mue gry			✓	rock frags silt clay
284		740	T	5	10	x	"			✓	grit " "
285		760	T	T	15	x	"			✓	" " "
286		780	T	5	10	x	"			✓	" " "
287		10800	T	T	15	x	"			✓	" "
288		820	5	T	10	x	"			✓	grit " "
289		840	5	x	15	x	mue gry		✓		rock frags " " "
14290		860	T	T	10	x	lht bf gry			✓	" "
291		880	x	T	10	x	lht mue gry			✓	" "
292		10900	5	x	15	x	"			✓	" "
293		920	5	T	15	x	dk brn gry	✓			grit sand peat
294		940	T	T	20	x	mue gry			✓	" silt clay
295		960	5	5	15	x	lht gry			✓	" " "
296		980	T	10	15	x	gry		✓		" " "
297	12280	10000	T	10	20	x	lht mue gry			✓	grit sand clay
298		020	5	5	20	x	gry			✓	rock frags "
299		040	T	5	15	x	"			✓	silt "

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH					SAMPLED BY R.B. & S.H. DESCRIBED BY N.H.H. DATE 6/12/76			
SAMPLE No.	CO ORDINATES NORTHING	EASTING	Cu ppm.	Pb ppm.	Zn. ppm.	Ag ppm.	COLOUR	ORGANIC CONT. H.	M.	L.	DESCRIPTION
14300	12230	10060	5	10	15	x	bf gry			✓	sand clay
01		080	5	5	15	x	gry			✓	silt "
02		11100	5	5	25	x	bf gry			✓	sand "
03		120	5	15	30	x	gry		✓		" "
04		140	5	10	25	x	lht mue gry			✓	grit silt "
05	12120	11200	10	5	25	x	brn gry			✓	sand "
06		180	5	10	15	x	"		✓		" "
07		160	5	15	20	x	dk brn gry	✓			" "
08		140	5	x	15	x	lht mue gry			✓	" "
09		120	5	5	10	x	lht bf gry		✓		" "
14310		11100	5	10	10	x	"			✓	rock frags silt clay
11		080	5	15	20	x	lht coffee gry			✓	" " " "
12		060	5	10	15	x	cream gry			✓	" " " "
13		040	5	10	10	x	brn gry		✓		" "
14		020	5	10	10	x	mue gry			✓	" "
15		11000	5	5	10	x	"	✓			grit peat clay
16		980	5	15	10	x	dk gry		✓		sand "
17		960	5	10	10	x	mue gry			✓	grit "
18		940	5	5	10	x	lht "			✓	rock frags silt "
19		920	5	10	15	x	gry	✓			" " sand "

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH								SAMPLED BY RB.&SR DESCRIBED BY N.H.H. DATE 9/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14320	12120	11900	5	5	10	x	lht bf gry			✓	silt clay
321		880	x	15	20	x	lht mve gry			✓	" "
22		860	x	5	20	x	lht bf gry			✓	rock frags grit silt clay
23		840	x	5	20	x	lht brn gry			✓	" " peat clay
24		820	x	5	20	x	"			✓	" " silt "
25		11800	5	10	45	x	brn gry		✓		" " " "
26		780	T	15	40	x	"			✓	" " sand "
27		760	x	15	30	x	"			✓	" " " "
28		740	5	20	60	x	brn		✓		" " silt "
29		720	x	10	30	x	lht crm gry			✓	" " clay
14330		11700	5	10	30	x	gry		✓		sand clay
31		680	x	5	20	x	lht gry			✓	" "
32		660	T	15	25	x	dk gry	✓			rock frags " "
33		640	T	5	35	x	gry			✓	" " " "
34		620	5	35	35	x	dk gry	✓			" " peat "
35		11600	5	15	35	x	lht mve gry		✓		" " clay
36		580	5	25	35	x	mve gry		✓		" " sand clay
37		560	5	15	35	x	"		✓		" " " "
38		540	5	20	30	x	dk brn gry	✓			" " " peat
39		520	10	10	30	x	brn	✓			" " peat

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH								SAMPLED BY RB.&SR DESCRIBED BY N.H.H. DATE 9/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm.	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14340	12120	11500	5	10	25	x	gry	✓			rock frags sand peat
41		480	5	15	35	x	brn gry			✓	" " clay
42		460	5	15	40	x	mve gry			✓	grit silt "
43		440	T	15	40	x	lht "		✓		rock frags silt clay
44		420	5	15	35	x	brn gry			✓	grit " "
45		11400	10	25	50	x	"	✓			" peat "
46		380	10	15	45	x	"		✓		rock frags grit "
47	11640	10560	435	7500	2950	73.0	lht gry			✓	" " silt "
48		580	25	300	230	x	brn gry		✓		grit "
49		10600	20	115	165	x	brn	✓			rock frags sand peat
14350		620	10	35	45	x	lht bf gry			✓	silt clay
51		640	5	20	25	x	"			✓	" "
52		660	5	35	20	x	lht crm gry			✓	" "
53		9880	5	20	20	x	lht gry			✓	sand "
54	11960	9900	5	10	20	x	lht gry			✓	" "
55		920	5	5	20	x	mve gry			✓	grit silt "
56		940	10	45	40	x	ochre			✓	rock frags clay
57		960	40	50	70	x	brn gry		✓		" " "
58		980	5	15	20	x	lht gry			✓	silt "
59		10000	5	15	20	x	gry		✓		rock frags " "

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288081

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE [illegible]
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm	Pb ppm	Zn ppm	Ag ppm	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14360	11960	10020	5	20	25	x	lht bf gry		✓		silt clay
61		40	5	10	10	x	"		✓		rock frags " "
62		60	5	10	10	x	"			✓	" " " "
63		80	10	15	30	x	dk brn	✓			grit peat
64		10100	10	x	15	x	"	✓			sand "
65		20	x	x	x	x	lht gry			✓	grit silt clay
66		40	10	15	30	x	dk brn	✓			grit peat
67		60	5	x	10	x	lht bf gry			✓	" silty clay
68		80	x	x	x	x	"			✓	rock frags " "
69		10200	NO	SAMPLE							
14370		20	x	x	x	x	dk gry	✓			grit sand clay
71		40	x	x	x	x	lht gry			✓	silt "
72		60	10	10	10	x	brn gry	✓			grit sand "
73		80	5	x	x	x	dk brn gry	✓			" peat
74		10300	5	x	x	x	lht mve gry		✓		" clay
75		20	5	x	x	x	lht bf gry		✓		silt "
76		40	x	x	x	x	lht crm gry			✓	grit " "
77		60	5	x	x	x	lht bf gry			✓	rock frags " "
78		80	x	x	5	x	mve gry		✓		sand "
79		10400	10	30	20	x	dk brn gry	✓			rock frags peat

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON - 80 MESH								SAMPLED BY [illegible] DESCRIBED BY [illegible] DATE 9/12/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm	Pb ppm	Zn ppm	Ag ppm	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14380	11960	10420	20	40	30	x	dk brn gry	✓			grit peat
81		40	10	x	5	x	crm gry		✓		rock frags sand clay
82		60	10	25	20	x	dk brn	✓			" " peat
83		80	x	x	x	1·0	lht mve gry			✓	grit silt clay
84		10500	5	15	5	x	"		✓		rock frags " "
85	11640	480	10	15	30	1·0	brn gry		✓		" " sand "
86		460	10	10	10	x	lht gry			✓	silt "
87		440	15	10	35	x	dk brn gry	✓			rock frags grit peat
88		420	10	15	15	x	mve gry	✓			" " sand clay
89		10300	x	x	x	x	lht bf gry			✓	silt "
14390		380	x	x	x	x	lht crm gry			✓	rock frags " "
91		360	x	x	x	x	"			✓	" "
92		340	5	x	x	x	"			✓	rock frags " "
93		320	5	10	5	x	"			✓	" "
94		10200	10	x	5	x	dk brn	✓			rock frags peat
95		280	x	10	10	x	brn gry		✓		" " sand clay
96		260	10	25	15	x	"	✓			" " " peat
97		240	5	20	10	x	dk gry	✓			grit "
98		220	5	20	5	x	brn gry		✓		rock frags sand clay
99		10100	x	15	10	x	lht gry			✓	" " grit "

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BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY . KB & SH
DESCRIBED BY . N.H.H.
DATE 13/12/76

SAMPLE No.	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14400	11640	10180	x	20	5	x	gry			✓	sand clay
01		160	x	15	x	x	"		✓		grit peat
02		140	10	x	10	x	"			✓	rock frags sand clay
03	11960	10520	45	310	150	4·0	dk brn	✓			" " grit "
04		540	10	35	30	x	brn gry		✓		Silt "
05		560	10	15	20	x	lht brn			✓	rock frags grit "
06		10580	5	10	15	x	lht gry			✓	Silt "
07		600	x	15	10	x	lht brn gry			✓	rock frags " "
08		620	x	20	10	x	brn gry			✓	" "
09		640	x	30	15	x	dk gry		✓		grit "
14410		660	x	x	40	x	"		✓		rock frags Silt "
11		680	5	20	20	x	brn gry		✓		" " " "
12		10700	5	15	20	x	lht brn gry		✓		" " clay
13		720	x	x	10	x	lht mve gry			✓	" " grit clay
14		740	x	10	10	x	dk gry	✓			" peat
15		760	x	25	10	x	mve gry			✓	rock frags silt clay
16		780	x	15	5	x	brn gry		✓		Sand "
17		10800	x	10	10	x	"	✓			peat Silt "
18		820	x	x	x	x	lht gry			✓	rock frags " "
19		840	x	10	x	x	brn gry		✓		Sand "

BULGOBAC JOINT VENTURE
BOCO GRID

SOIL GEOCHEMISTRY
"C" HORIZON - 80 MESH

SAMPLED BY . KB & SH
DESCRIBED BY . N.H.H.
DATE 13/12/76

SAMPLE No.	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu.ppm.	Pb.ppm.	Zn.ppm	Ag.ppm.	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14420	11960	10860	5	15	15	x	brn	✓			grit peat
21		880	x	x	x	x	lht gry		✓		Silt clay
22		10900	NO	SAMPLE							
23		920	20	40	35	1·5	dk brn	✓			rock frags peat
24		940	5	20	15	0·5	dk gry	✓			grit silt "
25		960	10	25	10	0·5					
26		980	x	15	10	x	brn gry			✓	rock frags silt clay
27		11000	x	20	10	x	lt gry			✓	grit " "
28		020	x	x	10	x	lht mve gry			✓	rock frags " "
29		040	x	x	10	x	"		✓		grit " "
14430		060	x	x	10	x	gry		✓		" " "
31		080	ABSENT								
32		11100	x	x	10	x	dk gry		✓		grit silt clay
33		120	x	x	10	x	"	✓			" "
34		140	x	x	40	x	"	✓			grit " "
35		160	x	x	10	x	"	✓			" "
36		180	x	x	10	x	"	✓			grit " "
37		11200	x	x	10	x	mve gry	✓			" "
38		220	x	x	15	x	"		✓		grit "
39		240	10	x	20	x	ochre			✓	rock frags "

BULGOBAC JOINT VENTURE BOCO GRID			SOIL GEOCHEMISTRY "C" HORIZON -80 MESH								SAMPLED BY R.F. [illegible] DESCRIBED BY [illegible] DATE 13/[illegible]/76
SAMPLE Nº	CO ORDINATES NORTHING	CO ORDINATES EASTING	Cu ppm	Pb ppm	Zn ppm	Ag ppm	COLOUR	ORGANIC CONT. H.	ORGANIC CONT. M.	ORGANIC CONT. L.	DESCRIPTION
14440	11960	11260	10	x	15	x	mve gry		✓		rock frags silt clay
41		280	5	x	10	x	lht mve gry		✓		grit sand "
42		11300	5	x	10	x	lht brn gry			✓	rock frags silt "
43		320	x	x	10	x	brn gry		✓		" " " "
44		340	x	x	10	x	mve gry		✓		" " " "
45		360	x	x	10	x	"		✓		" " " "
46		380	x	x	10	x	brn gry			✓	" " sand "
47		11400	x	x	10	x	gry			✓	" " silt "
48		420	x	x	x	x	lht gry			✓	" "
49		440	x	x	5	x	brn gry		✓		" "
14450		460	x	x	10	x	"			✓	rock frags " "

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APPENDIX C

EXTRACTS FROM A SHORT REPORT ON REGIONAL MAPPING COVERING THE BULGOBAC AREA.

BY W.D. BATT.

288085

1. INTRODUCTION

The following notes and conclusions are derived from observations made during my 3 week stint (1-19th December, 1976) in Rosebery. Because of the lack of coverage and attendant difficulties in integrating data, the notes are on four separate areas or traverses. They hopefully provide a basis for the approach required in elucidating geology of the Mt. Read Volcanics. The terrain is considered a challenging prime exploration target area and it is recommended that detailed geological studies are made to establish sound geological search parameters.

The notes are accompanied by:

(1) incomplete geological fact map (1:10,000) (Plates 5 & 3 in this Report)

(2) stereo net plots of structural data (figure C.1)

(3) tentative stratigraphic columns (figure C.2)

(4) cross section through the Pinnacles area, and (figure C.3)

(5) sketch of inferred distribution of erruptive centres. (Reproduced in the body of the Report as Fig. 4.3).

(2. Section 2 which cover the H.E.C. road and Pieman River areas, has been omitted from this Report. - N.H.H.)

3. CHESTER MINE AREA

Mapping in the Chester Mine area indicates that the bedded pyritic sulphides lie in the core of a syncline plunging moderately NNE. The sulphides are underlain by a thin unit of bedded tuffs and volcanogenic sediments. Ash flow tuffs (extensively altered by siliceous and sericitic hydrothermal alteration) appear to predominate below the bedded unit.

Relationship of rocks northwest of the mine is uncertain, although structural trends conform with the synclinal interpretation. The geometry of the alteration pattern beneath the sulphides suggests that the northerly plunging sulphide horizon may terminate against a NE striking fault.

Mesoscopic structures indicate at least two phases of fold deformation: one trending 020° and moderately northward plunging, the other trending 150°.

4. PINNACLES ROAD

4.1 Lithology

Outcrop along the road into the Pinnacles area is conveniently broken by a stretch of no outcrop blanketed by glacial deposits. East of this there are 4 major rock units.

Unit 9: massive porphyritic feldspar "rhyolite" - limited outcrop on track south of start of traverse.

Unit 10: feldspar "dacite" porphyry-massive grey aphanitic rock with 10-20% sericitised/carbonated feldspar phenocrysts appears to be shallow intrusive/extrusive rather than tuff, but not categorically ascertained - may be massive vitric crystal tuff. Minimum thickness is 200 m.

Unit 11: thin laminar bedded black and grey shales with intercalated graded pumiceous lithic tuffs/tuffaceous sediment beds with minor "white rhyolite" clast content and fine grained pumiceous tuffs. Volcanogenic component increases higher in the sequence. Minimum thickness traversed is in the order of 350 m.

Unit 12: argillised medium to coarse quartz-feldspar porphyry. This unit is not directly comparable with unit 8 on the H.E.C. Road. It is definitely intrusive into the shales and along the shales/"dacite" porphyry contact and appears to form tabular lenses parallel to the strike of the sediments and volcanic rocks. Contact metamorphism of sediments to pelitic biotite hornfels is locally observed. The intrusive is weakly foiated parallel the regional cleavage.

4.2 Structure

Bedding (S_0) dips moderately NW. Cleavage (S_1) has an average attitude of $035^0/86^0$ NW. The two define a regional fold axis (B) plunging $20^0/034^0$. There are similarly orientated mesoscopic folds in the shales. There is a second weak lineation (L_2) plunging 78^0 to 271^0 produced by the intersection of a second, very weak E-W orientated foliation (S_2) with S_0. The orientation of S_2 has not been accurately determined.

5. PINNACLES AREA

5.1 Lithology

Extensive quartz-sericite hydrothermal alteration and complex fold/fault structures hinder resolution of the geology in this area. There is a strong 020-045 trending fault system that extends across the area. For convenience rocks are arbitrarily divided into 2 groups - those west of and those within and east of the fault system.

The apparent sequence to the west of the fault is in ascending order.

Unit 13: Lower sedimentary unit: laminated grey shales, black shales, tuffaceous sandstone, bedded pumiceous tuffs, and dirty green ?laharic tuff deposits (with disseminated base metal mineralisation). The volcanogenic component appears to increase up the sequence and lithogically the unit appears to be a correlative of unit 11, (although first-glance structural assessment indicates correlation with unit 15). Thickness of the unit is difficult to determine because of the intensity of deformation, but minimum possible thickness is 100 m.

Unit 14: quartz-bearing pumiceous tuffs, lapilli tuffs, volcanic conglomerates/agglomerates, ?rhyolite and minor shale. The sequence within this unit is not clearly understood. However, the volcanic rhyolite porphyry clasts to 30 cm diam. scattered in kaolinised tuffaceous matrix. The clasts tend to have a rounded aspect and generally form less than 20% of the rock. The unit is possibly 600 m thick.

Unit 15: Upper sedimentary unit. Grey and black shales and arkosic sandstones. The volcanogenic component is greatly decreased. Relationship to the underlying rocks is uncertain. Its minimum thickness is 250m.

East of and within the fault system the rocks are probably largely lateral equivalents of unit 14; intensity of deformation and alteration prevent elucidation without more work. However, two broad units are differentiated:

Unit 16: "rhyolites" and "rhyolite" breccias to the north, comparable to lithic tuffs and minor flow banded rhyolite and rhyolite breccia to the south. The two units are at least in part laterally equivalent.

The alteration of unit 17 is similar to that in the Chester Mine area; rocks are altered to pale green to grey quartz-sericite ± carbonate assemblages. The greenish tinge is probably a hangover from the earlier chloritic assemblages common to nearly all rock types in the region. Surficially the rock commonly have a porous grey siliceous aspect due to leaching of carbonate/sericite Zones of greatest silicification commonly coincide with more intense development of foliation. However, silicification does not appear to be as extensive as in the Rosebery footwall.

5.2 Structure

Crude schistosity or shear foliation is well developed within the altered rocks. Cleavage is poorly developed in rocks west of the fault system. However, units 13-15 are folded about or lie on the western limb of a syncline plunging gently to moderately north to NNE. Plots of structural data from costeans through the shales also suggest a second fold phase trending 170 to 180° ?superimposed on the predominantly NNE trend. Within the fault system repetitive folding appears to have occurred, with the development of a series of sheared-out synclines and anticlines. The overall structure is probably anticlinal.

Steeply plunging folds, intense boudinage, and sub horizontal to gently pitching slickensides indicate movement on the major NE trending fault zone has a large dextral strike slip component. This is also suggested by the local development of foliation and kink folds in kaolinised/silicivied tuffs adjacent to the silicified shear zone extending north of the quartz-sulphide mineralisation in the Pinnacles Trench.

Many of the faults appear to have associated local intense argillic to silicic alteration. This relationship is well displayed adjacent the fault trending 035° through chloritic lapilli tuff and breccia in the creek bed immediately west of the moraine blanket on the access road.

6. DISCUSSION

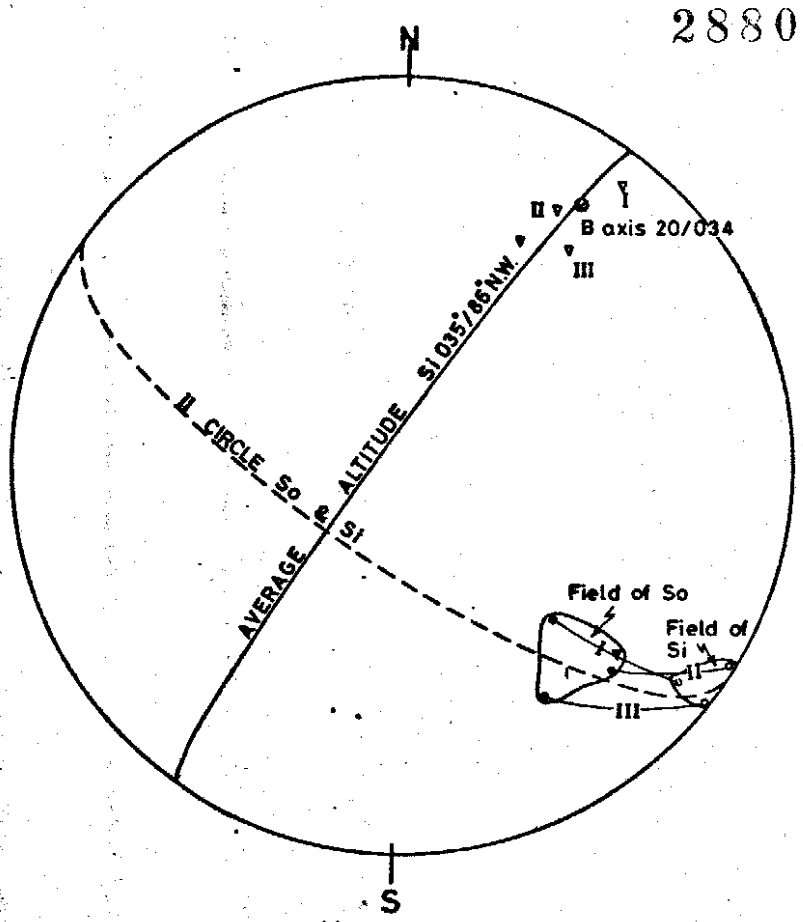
Data is still insufficient for detailed stratigraphic analysis and reconstruction of physical tectono-volcanic models. However, one suspects that the current stratigraphic scheme for the Mt. Read Volcanics is grossly simplified and fails to account for expected rapid lateral facies variation about eruptive centres. Structure is cetainly more complex than understood from the literature. Fold/fault patterns are likely to be complex. The heterogeneous nature of volcanic terrains can be expected to result in disharmonic structures after deformation, especially on a local scale. Furthermore, there are several possible phases of alteration including early regional diagenetic (quartz-albite-chlorite assemblages), local ?volcanic hydrothermal (quartz-sericite) alteration, argillic alteration associated with faults and quartz-feldspar porphyry intrusives, and restricted contact zones with various other intrusives.

The H.E.C. Road traverse appears to cross the northern flank of a rhyolitic eruptive centre. Unfolding would quite probably result in a facies transition from sub volcanic and flow "rhyolites" to interbedded volcanoclastics and flows in the west. That is, the lavas don't simply over lie the volcanoclastics.

In the Pinnacles area there is another rhyolitic volcanic centre, its relation to the mineralised pelitic sequence (unit 13) to the west is not certain. This is where determination of fault movements and fold patterns is critical. Major faults could well represent zones of primary crustal weakness that influenced volcanicity and depositional basins, and differing through coeval stratigraphy could occur across them. The transition from sediments to relatively well-bedded pumiceous volcanics and volcanogenic sediments above "dacitic" and "rhyolitic" volcanics on the Pinnacles Road supports although does not confirm the idea that the lower sedimentary unit in the Pinnacles area is marginal to or above the Pinnacles "rhyolites" rather than below.

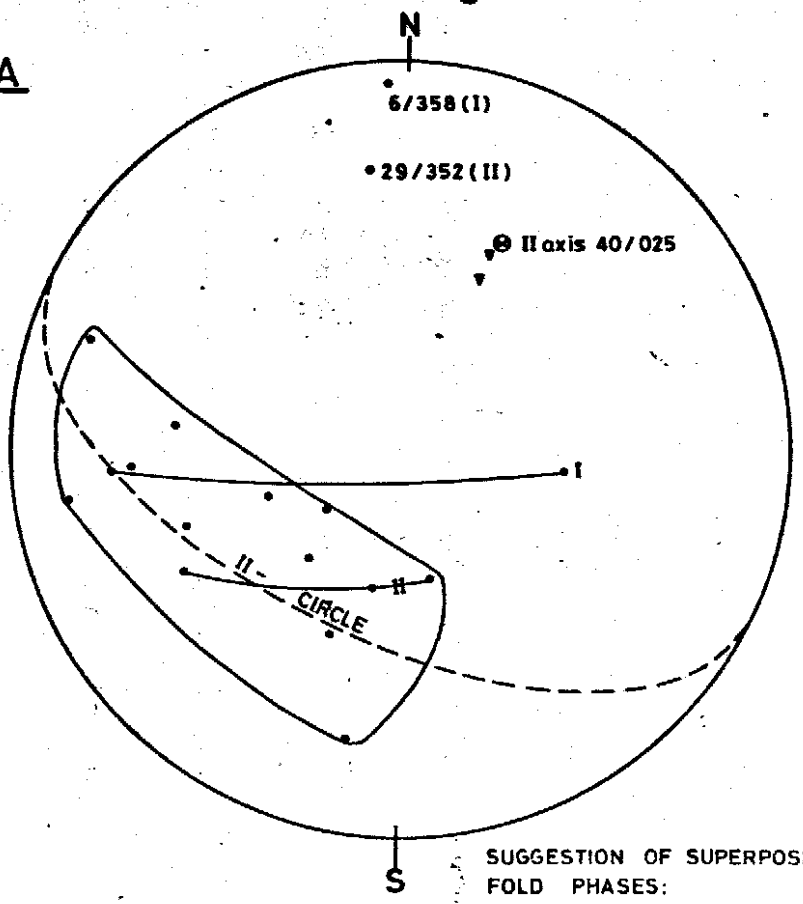
288089

PINNACLES ROAD



- ● So
- ○ Si
- ▽ β Si/So
- —I— TIE LINE So/Si
- ▼ MINOR FIELD AXIS

PINNACLES AREA
COSTEAN 2



- ● So
- ▽ MINOR FIELD AXIS
- ⊙ β AXIS

SUGGESTION OF SUPERPOSITION OF 2 FOLD PHASES:

(1) TRENDING N.N.E.

(2) TRENDING N.→N. by W.

5 cm

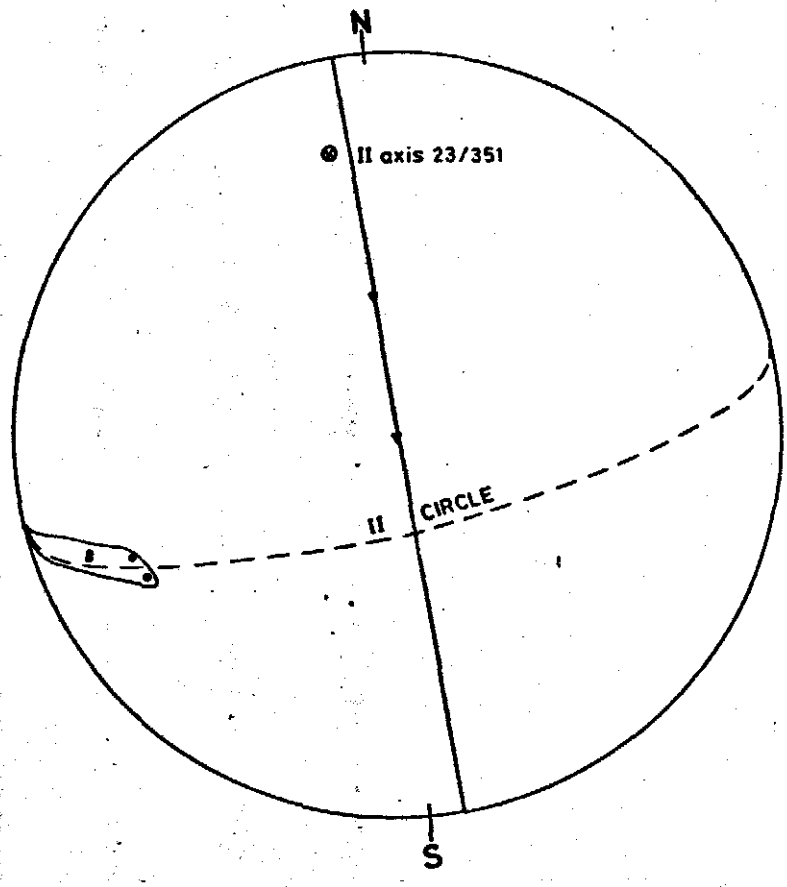
STEREO NET PLOTS OF STRUCTURAL DATA

FIGURE C-1.1

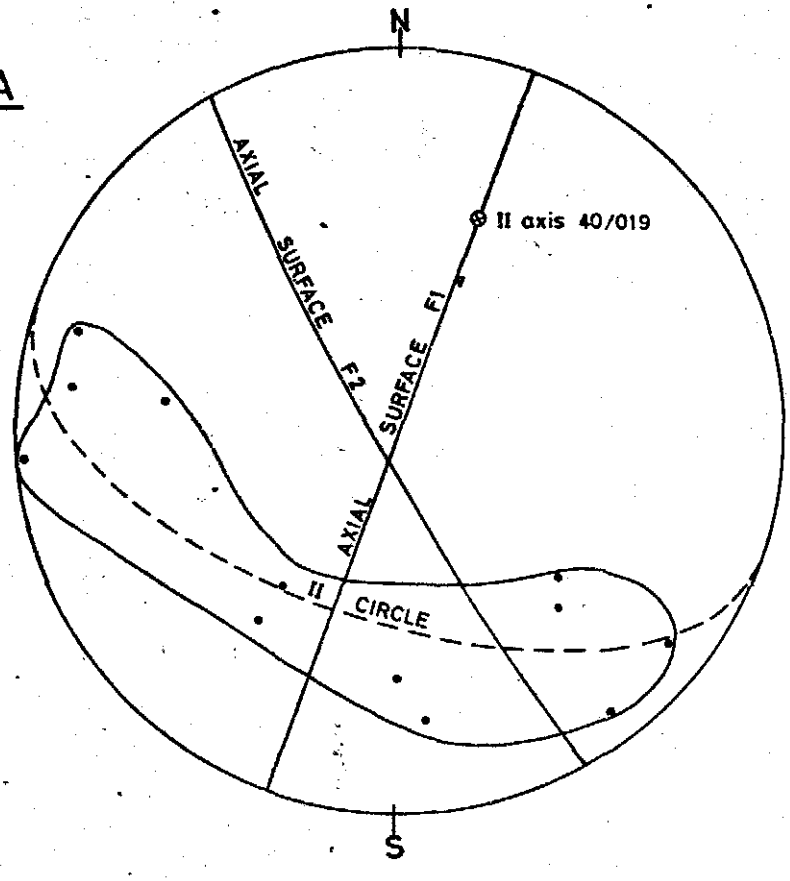
288090

PINNACLES AREA

COSTEANS



CHESTER MINE AREA



▽ F1 FOLD AXIS

▼ F2 FOLD AXIS

● So

5 cm

STEREO NET PLOTS
OF STRUCTURAL DATA

FIGURE C-1.2

030

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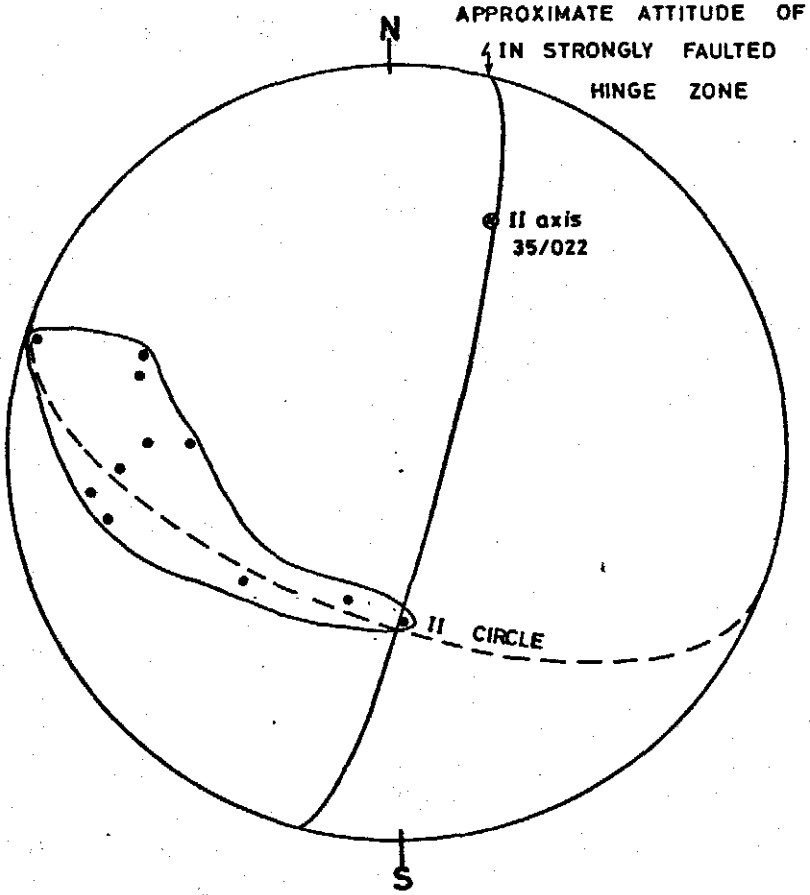
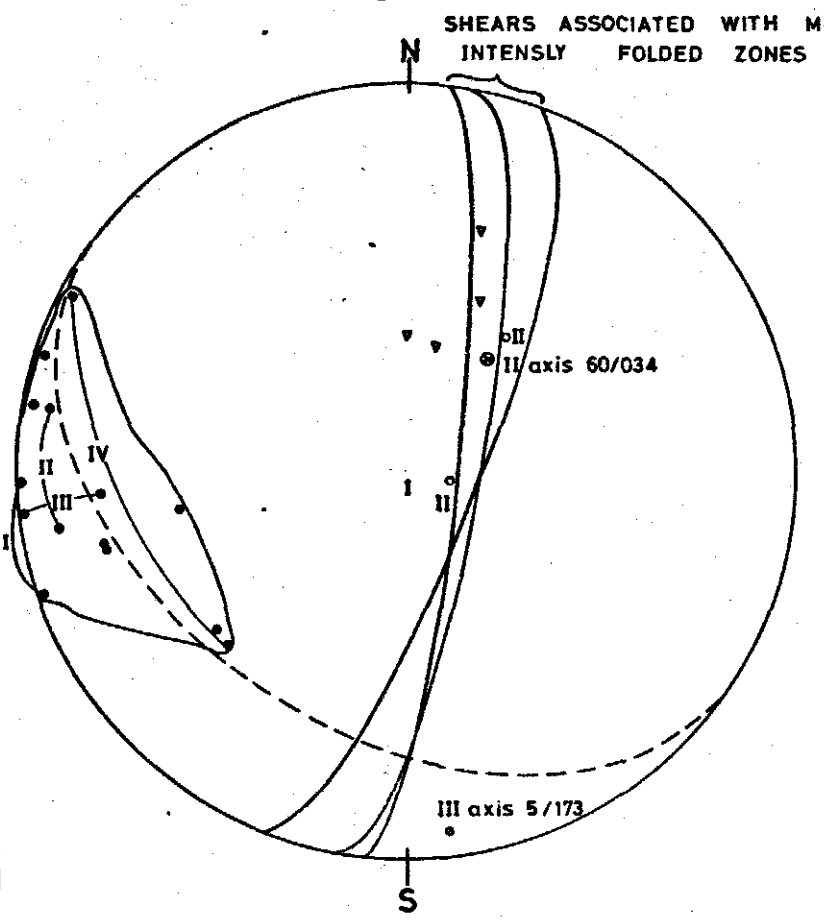
PINNACLES AREA
COSTEAN 3



PINNACLES AREA
COSTEAN 4



STEREO NET PLOTS OF STRUCTURAL DATA

FIGURE C-1.3

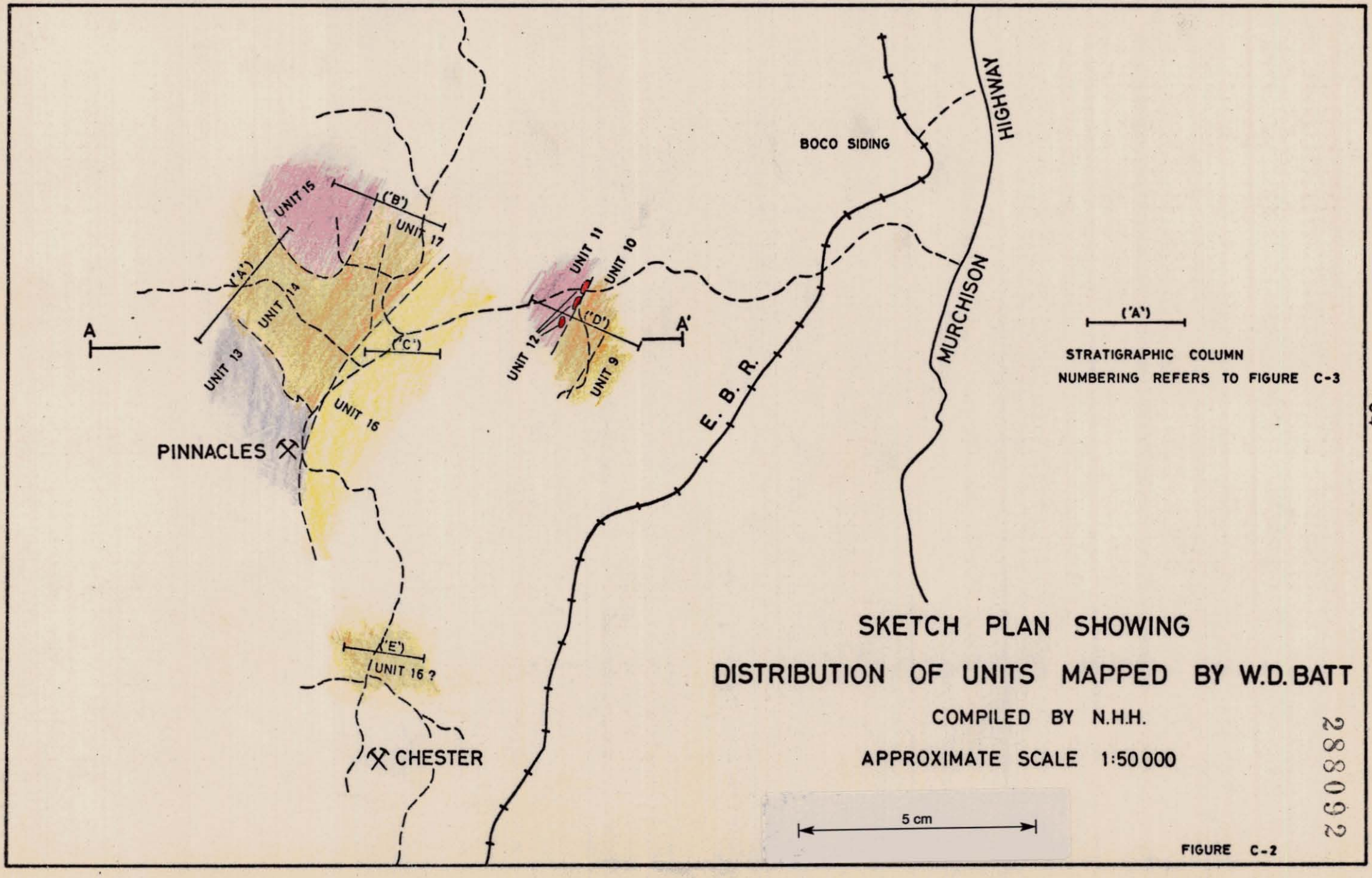
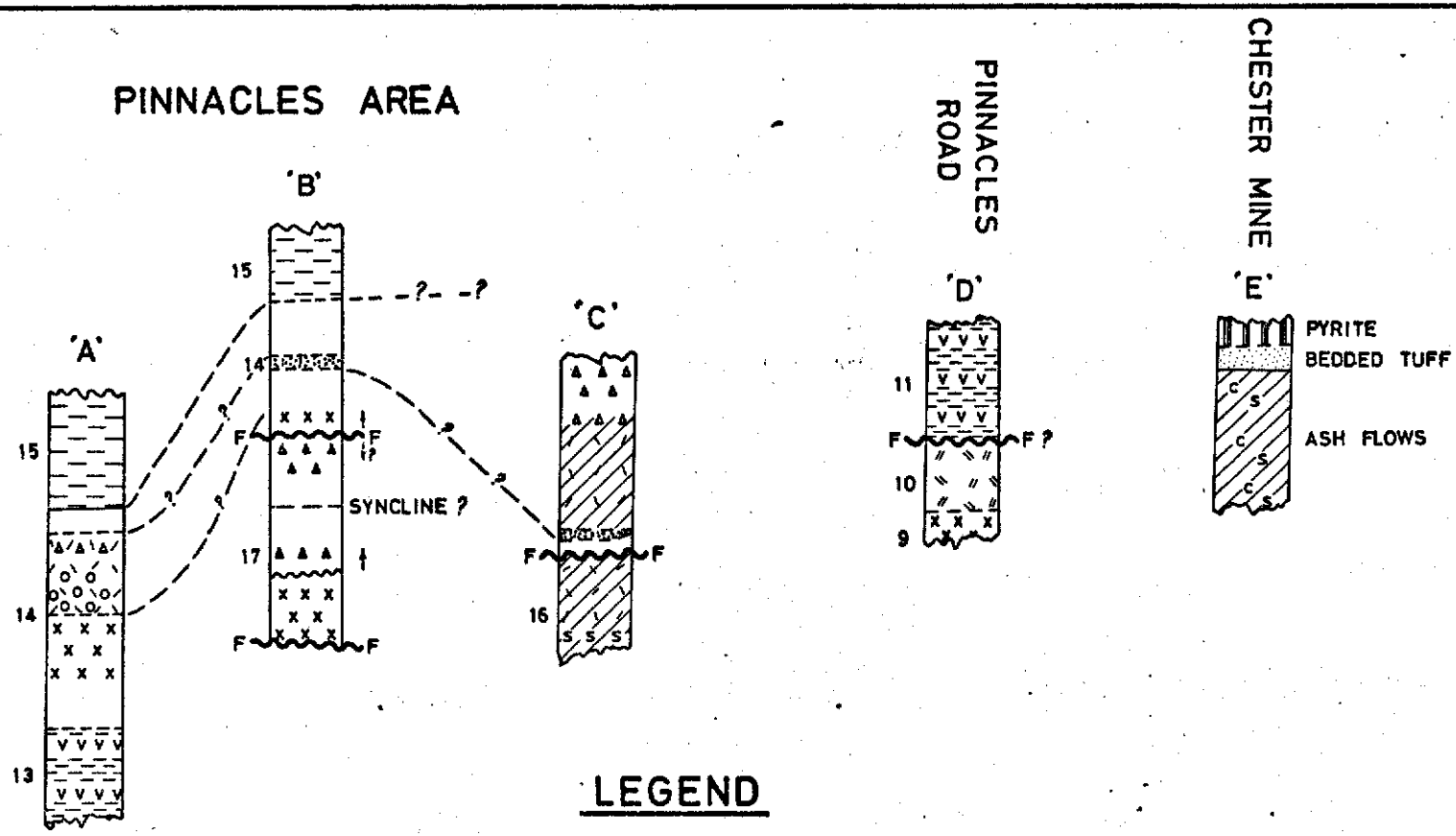


FIGURE C-2

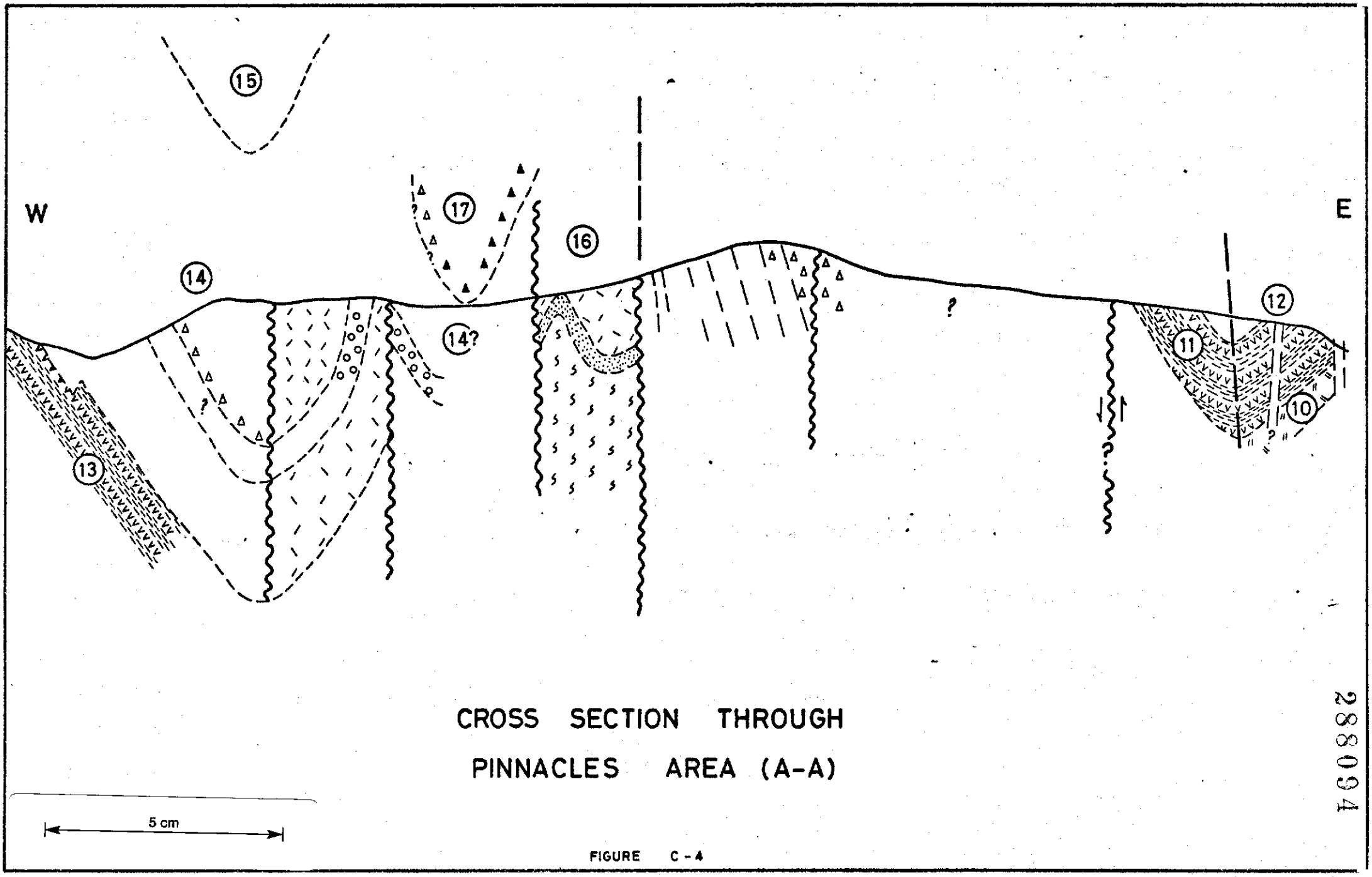
288092



STRATIGRAPHIC COLUMNS
TENTATIVE CORRELATIONS

FIGURE C-3

288093



CROSS SECTION THROUGH PINNACLES AREA (A-A)

FIGURE C - 4

288094

APPENDIX D

DRILL CORE LOGS FOR

BBP 207

BBP 208

& BBP 209

---oOo---

035

288096

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 207

LOCATION	BIG CRAG EL 12/72 – BOCO AREA
OBJECTIVE	TO TEST THE SOURCE OF IP ANOMALY XVI
RESULT	

Footage	Direction	Dip.
0	288°	-60°
64.5m	285°	-60°
120m	271°	-52°
159m	289°	-54°

Footage	Direction	Dip.

COLLAR DIP.	-60°
DIRECTION	288°**
R.L.	350m
COORDINATES	13880 N
(BOCO GRID)	10 150 E

TOTAL DEPTH	159.50m
HOLE SIZE	HQ/NQ/BQ
COMMENCED	9/11/76
COMPLETED	17/1/77
LOGGED BY	M.M.H.

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
0	22m	Rubble and fragments of glacial	0-48m No appreciable
		boulders	sulphides
	22m	Fine sands and varved clays	
		(Fluvioglacials)	
23.4	44.2m	Minor rubble (Glacial)	48-51.5m development
44.2	48m	Clay probably deeply weathered rock	of Py in silicified fractures
			; Locally patches of
48	51.5m	fg grey very siliceous rock (?Tuffaceous)	Diss. fg Py in rock
		with numerous silicified veins (showing	(2-5%Py)
		noticable silicification around veins)	
51.5	58m	Sheared grey/green fg to lapilli	51.5 - 74.2 Py throughout
		size; highly siliceous tuff (fragmental)	Generally associated with
		with patchy zones of sericite.	Fractures; some diss. Py
58	61.2m	As above; slightly less sericite	at 60.5 - 62m (< 1% Py)
		and with albertized patches, giving	
		the rock a blotchy pink appearance.	
		Numerous quartz veins	
61.2	71.9m	Grey/ green fg siliceous (tuff)	CORE ANGLES
		locally highly sheared &/or cg;	48.5 m (cleavage) 65°
		patchy development of sericite	50.2 m (cleavage) 40°
		in most sheared sections. Locally	50.5 m veining 30°
		quartz veined.	54 m shearing 60°
			57.4 m shearing 65°
		FOOTAGE CORE SIZE	65.6 m shearing 70°
		0-13 m HQ	68.8 m shearing 60°
		13-51.7 m : 49-51 m NQ	
		51.7-91.2 m : 159.5 m BQ	

SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA ppm Pb	Zn	Cu	Ag	As	Fe%	S%	CORE REC'D RUN	SHORT
	CHIP SAMPLES										0.0	5
											6.0	0.5
11172	48	51.5	3.5	75	125	T	X		2.0	1.9	7.0	5.5
											13.0	6.8
11140	59.3	65.3	6.0	100	275	25			1.8	1.22	20.3	2.0
11141	65.3	71.3	6.0	50	325	25	2.5		5.2	2.6	23.3	5.9
11142	71.3	77.6	5.2	75	525	50			2.6	2.17	29.3	14.9
11143	77.6	83.3	5.8	350	2550	125			4.1	2.69	44.3	3.2
11144	83.3	89.3	6.0	50	175	25			1.8	0.98	48.0	-
11145	89.3	95.3	4.8	125	325	25		7	1.9	1.37	49.6	-
											51.15	-
11149	108.6	115.3	6.7	200	950	75	2.5	9.5	2.1	1.66	51.7	-
											53.3	-
11152	124.6	131.3	6.7	100	275	25		9	2.5	1.99	56.3	-
11153	131.3	137.3	6.0	3500	1.55%	1700		160	7.0	7.57	59.0	-
11154	137.3	144.5	7.2	225	600	25		11	2.6	2.68	62.1	-
11175	137.3	144.5	7.2	250	800	T	X		2.1	2.0	65.2	-
11176	144.5	152.3	7.8	150	350	25	X		2.9	2.0	66.3	-
											71.3	0.5
											72.8	-
											74.3	0.2
											75.2	-
											77.7	-
				T = Trace							79.2	-
				X = Below detection limit							82.2	-
											85.2	-
											88.3	0.2
											91.2	

** BOCO GRID BEARING

097

288097

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 207

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%			CORE REC'D RUN	CORE REC'D SHORT
49	52m	Grey fg very siliceous rock (? Tuffaceous) with numerous quartz veins and fractures showing noticeable silicification and alteration around veins.	49 – 52 m Py infilling fractures and minor diss. Py (2-5% Py) 52 – 92.3 m minor Py associated with fraturing. (<1% Py).													49.0	0.3
																51.0	–
																53.3	–
																56.3	–
																59.3	–
52	56.7m	Sheared fg grey/green siliceous sericitic (Tuff) patchy zones of intense sericite; some quartz veins and silicification.														62.3	–
																65.3	–
			CORE ANGLES													68.3	–
			51.0 m Qtz. Veining 55°													71.3	–
			53.5 m Shearing 45°													74.3	–
56.7	60.5m	(Interbedded) sheared grey/green siliceous sericitic tuff and (Pinkish) albertized fg tuff; locally crystal rich; Numerous quartz veins and associated silicification.	54.8 m Shearing 55°													77.3	–
			58.8 m Apparent Contact 20°													80.3	–
			(Sheared fg tuff/Alb. xt Tuff)													83.3	–
			60.5m Shearing 55°													89.3	–
			64.0 m Shearing 60°													92.3	–
			67.2 m Shearing 60°													95.3	–
			70.5 m Shearing 50°													98.3	–
60.5	69m	Sheared fg grey/green highly siliceous sericitic tuff; patchy development of intense sericite.	73.6 m Shearing 45°													101.3	–
			75.0 m Shearing 55°													104.3	–
			78.2 m Shearing 50°													107.3	–
			83.0 m Shearing 45°													110.3	–
			93.5 m Shearing 50°													113.3	–
69	74.2m	Sheared grey/green siliceous sericitic fragmental (lithic tuff) with fragments up to 6 cm; patchy development of sericite (particullarly in fg sections).	98.3 m Shearing 45°													116.3	–
			104.2 m Shearing 50°													119.3	–
			112.3 m Shearing 55°													122.3	–
																125.3	–
																128.3	–
																131.3	–
																134.3	–
																137.3	–
																140.3	–
																141.3	–

036

288098

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 207

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
71.9	72.4m	Deeply leached and fractured rock	74.2 – 81m only minor Py
		(sericitic siliceous tuff)	associated with fractures (<1%)
72.4	74.2m	Grey fg very siliceous (tuff)	
		locally highly fractured.	81 – 91.2m local concentration
74.2	91.2m	Sheared patchy green – grey to	of Py in stringer
		buff – grey fg to lapilli size, tuff	type mineralization.
		with coarse fragments (up to 5cm)	(Locally:- 2 – 5%;
		at 76 to 77m and 88.5 to 90.3m;	throughout: – <1% Py).
		patchily sericitic throughout;	
		locally chloritic:	
		Quartz veining throughout.	CORE ANGLES
			71.5 m shearing 55°
			76.6 m shearing 50°
			79.5 m shearing 65°
			82.5 m shearing 50°
			88.2 m Quartz Vein 45°
			89 m Shearing 60°
	91.2m	Hole abandoned at 91.20m	
		due to problems with fine	
		sand. Hole was cemented and	
		restarted at 49m.	

SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%			CORE REC'D RUN	SHORT

90

288099

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 207

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA ppm Pb	Zn	Cu	Ag	AS	Fe%	S%	CORE REC'D RUN	CORE REC'D SHORT
74.2	94.6m	Sheared fg grey/green	92.3 – 141m Locally intense												141.3	–
		highly siliceous sericitic fg	stringer infilling with												144.3	0.5
		to lapilli size tuff (Generally	sulphides (mainly Py minor												149.9	0.4
		fg throughout; short section	Sp and Ga) minor diss. Py												152.3	0.3
		of cg 77 – 77.6m and 90 – 91.5m)													155.2	1.8
		Patchy development of sericite	92.3 – 96m minor diss. Py												158.0	0.6
		associated with shearing.	some Py in fractures (1–2% Py)												159.5	
94.6	124.5m	Sheared dark grey to grey	96 – 100.4m patches and veins													
		green fg to lapilli size	of Py associated with													
		(crystal – lithic) tuff; locally	fractures (2– 5% Py)													
		very siliceous and/or albertized	100.4 – 105.1m minor diss. Py,													
		(or pinkish stain of matrix and	some pyrite in fractures													
		feldspars) Generally showing a	(1 – 2% Py)													
		blotchy texture throughout	105.1 – 108.6m intense gash													
		probably due to shearing and	and fracture infill by													
		alteration; occassionally what	Py (5 – 10% Py)													
		appears to be very large	108.6 – 115.3m minor diss. Py	11150	116.0	121.0	4.7	100	425	T	X	5	2.8	3.09		
		fragments (I.E. 20 – 30cm)	and fracture infill (2 – 5% Py)	11151	121.0	129.6	4.6	100	275	50	2.5	8	2.9	2.95		
			115.3 – 124.5m intense Py													
		108.6 – 115.3m basic intrusive	min. Associated with													
			fracturing and qtz. veins;													
124.5	129.6m	Green/grey highly siliceous	minor Sp and Ga (10 – 15% Py)													
		fg/mg tuff; some small sections	124.6 – 129.6 m minor diss. Py													
		of 'albertized' crystal tuff at	some fracture infilling (1–2% Py)													
		125.2 and 126.4; obvious silicification	129.6 – 130.9m diss. Py and													
		along fractures.	fracture infill (2–5% Py)													
129.6	130.9m	Dark green (chloritic) basic intrusive	130.9 – 133.5m minor diss.													
		with numerous blotches of a soft, apple green mineral (probably secondary)	Py and some gash min. minor Sp/Ga (Py 5–10%).	11174	131.3	137.3	6.0	125	575	T	X		2.4	2.3		
		numerous thin quartz veins.														

039

288100

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 207

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%			CORE REC'D RUN	CORE REC'D SHORT
130.9	151.0m	Sheared grey to grey/green fg to lapilli size (lithic crystal) tuff with some patchy 'Albertized' sections. Patchy silicification in most sheared sections.	133.5 – 141.0m diss. Py and fracture infill (Py 2-5%) 141.0 – 159.5m only minor Py (usually in fractures) (< 1% Py).														
151.0	157.3m	Grey highly siliceous – sericitic (sheared) fg tuff with some crystal tuff sections ; also obvious silicification along joints.	CORE ANGLES 129.6m contact 65° 134.0m shearing 45° 146.0m shearing 50° 147.8m shearing 65°														
157.3	157.5m	Pug zone (probably a fault zone)															
157.5	159.5m	Green/grey highly siliceous sericitic rock (probably highly sheared) somewhat cherty in appearance.															
	159.5m	End of Hole.															

288101

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 208

LOCATION BILLOBAC EL 12/72 – BOCO AREA

OBJECTIVE TO TEST THE SOURCE OF IP ANOMALY III

RESULT

Footage	Direction	Dip.
0	265°	-60°
54.5M	(277°)*	-63°
122M	(247°)*	-62°
154M	(359°)*	-60°

Footage	Direction	Dip.

COLLAR DIP. -60°
DIRECTION 265°**
R.L. 332M
COORDINATES 13,720 N
(BOCO GRID) 11,240 E

TOTAL DEPTH 154m
HOLE SIZE HQ/HQ/BQ
COMMENCED 19/01/77
COMPLETED 28/01/77
LOGGED BY N.H.H.

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION
0	9 M	Rock Fragments and Glacial Rubble	0-26.90M No Obvious Sulphides.
9	26.9 M	Ash Flow Tuff Locally	
		Agglomeritic, Containing Fiamme	
		and Lithic Fragments up to 10cm.	
26.9	67 M	mg Feldspar Porphry Generally	26.9 - 67M Minor Diss.
		Grey in Colour; Locally Showing	Py (< 1% Py) Associated
		Pinkish Alteration (at 39.5 - 41.3M,	With Fracturing; Locally
		44.8 - 56.7 & 63 - 63.8M)	More intense at
		Associated with Basic Intrusives	32.2M to 37.2M (1-2%Py)
		(at 48.3 - 49.3M, 56.7 - 57.3M,	
		57.6 - 62.2M & 63.8 - 65.2M)	
		Units Show Sharp Contacts	
		CORE ANGLES	
		26.9M Contact 55°	
		56.6M Contact 55°	
		67. M Contact 50°	
		CORE SIZES	
		0 - 11 M HQ	
		11 - 44.8M NQ	
		44.8- 154 M BQ	

SAMPLE NO.	FROM	TO	CORE REC'D
	CHIP SAMPLES		
11160	32.3	37.2	4.9
11161	62.2	65.3	3.1
11162	65.3	67	1.7
11163	70	77.2	7.2
11164	80.7	86.2	5.5
11165	86.2	92.3	6.1
11166	92.3	96.9	4.6
11167	96.9	101	4.1
11168	101	105	4.6
11169	106	113.7	7.7
11170	113.7	116.1	2.4
11171	116.1	122	5.9

ASSAY DATA (ppm)

Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%	S%
100	125	X	X		1.2	0.3
100	225	25	X		1.5	0.4
225	300	50	X		3.3	1.1
150	275	25	X		2.3	0.3
150	225	X	X		3.0	0.5
100	350	X	X		1.8	0.2
75	125	75	X		3.3	0.1
50	125	T	X		3.7	0.2
50	125	T	X		1.6	0.2
50	75	X	2.5		1.9	0.02
75	175	T	X		1.3	0.3
100	175	T	X		3.8	0.1

T = Trace
X = Below detection limit

CORE REC'D RUN	CORE REC'D SHORT
CM	3.1
5.3	2.1
8.0	3.8
14.3	0.6
15.2	-
16.0	-
17.0	-
17.6	0.2
18.4	-
20.1	-
21.3	-
23.0	-
24.5	-
25.25	-
27.6	-
28.2	0.20
29.0	-
30.3	-
32.3	-
35.3	-
36.3	-
38.3	-
41.3	-
44.3	-
44.8	-
50.8	-
53.3	-
55.7	-

* AS READ (READING BELIEVED TO BE IN ERROR). ** GRID DIRECTION.

288102

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. RBP 208

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA (ppm) Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%	S%	CORE REC'D RUN	CORE REC'D SHORT
67	92.4M	Interbedded fg Siliceous	67-92.4 M Minor Diss. Py												55.7	0.4
		Tuffaceous Sediments (Showing well	Throughout fg Units Locally	11155	67	68.5	1.5	175	575	.50	2.5		1.6	0.2	62.0	–
		Developed Bedding) Coarse Ash	More Intense and Associated	11156	68.5	70	1.5	75	625	25	2.5		1.7	0.2	65.3	–
		(Reworked) Tuff Locally Showing	With Fractures 1-2% Sulphides												68.3	–
		Possible Graded Bedding (Younging													71.3	–
		Up Hole); Also Locally Showing	69M Possible Sphaleritic (4%)												77.3	–
		Intricate Fracture Pattern Infilled	& Py Associated with Bedding.												80.0	–
		by Py: Some Areas Show													83.1	–
		Contortion (Intraformational Movement	73.2 – 74M Infilling of												86.2	–
		rather than Primary ash Flowage)	Delicate Fracture Pattern	11157	73.2	74	0.8	1450	2600	100	5.0		5.4	1.5	89.3	–
			by Py (10-15%)	11173	74	77.2	3.2	75	125	100	X		2.1	0.3	92.3	–
		CORE ANGLES		11158	77.2	80.7	3.5	475	2600	50	2.5		2.5	0.4	93.8	–
		72.7 M Bedding 50°	77.2 – 80.7 M Diss. Py &												94.2	–
		80.6 M Graded Bedding 45° ↑	Fracture Infilling (5-10%Py)												94.7	–
		87.5 M Bedding 45°													96.1	–
		92.4 M Contact 60°													97.4	–
			92.4 – 95.5 M No Obvious Sulphide												98.4	–
92.4	95.5M	Vesicular Basic (Intrusive)													99.2	–
			95.5 – 116.5 Minor PY Assoc.												100.5	–
95.5	116.5M	As for 67M to 92.4M	With fg Units (4%) Locally	11159	105	106	1.0	100	175	T	X		1.3	0.05	101.0	–
			Py Mineralization of Delecate												102.2	0.4
		CORE ANGLES	Fracture Patern.												103.1	–
		101.7 M Bedding 45°	105.2 – 105.8M (2-5%Py)												104.3	–
		105 M Bedding 35°													107.3	–
		110.5 M Bedding 45°	103.7 Fragments of												110.0	–
			Sulphides Mainly Py (Sp?)												113.7	–
		113.6 – 114.4 M Minor Basic Intrusive													114.2	–
			114.4 – 116.5 Diss. Py (1-2%)												116.1	–
116.5	121.5M	fg Basic Intrusive Showing Small													117.0	–
		Vesicular Structures Close to the													119.3	–
		Contacts.													122	–
															124.9	–

288103

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 208

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ASSAY DATA Pb%	Zn%	Cu%	Ag - oz	Au - dwts	Fe%			CORE REC'D RUN	CORE REC'D SHORT
121.5	149.6M	mg to cg Ash Flow Tuff	116.5 - 154 M No Obvious													124.9	0.2
		(Crystal Lithic) Showing Well	Sulphides													126.0	-
		Developed Flow Structures														131.3	-
		& Fiamme														134.3	-
																137.3	-
149.6	154M	mg Intermediate Intrusive or														140.3	-
		Flow (?Andesite) 40% Corroded														143.3	-
		Feldspar Crystals 5-10 mm &														146.3	-
		Minor Blotchy Dark Green														149.3	-
		Pyroxene in fg Grey Matrix.														152.3	-
																154.0	
	154M	End of Hole.															

95

288104

ELECTROLYTIC ZINC CO. OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 209

LOCATION BULLOBAC EL 12/72 – BOCO AREA

OBJECTIVE TO TEST THE SOURCE OF IP ANOMALY XIII

RESULT NO SIGNIFICANT MINERALIZATION WAS INTERSECTED

Footage	Direction	Dip.
0	270°	-50°
50	(184°)*	-48°
150	(199°)*	-44°

Footage	Direction	Dip.

COLLAR DIP. -50°
DIRECTION 270°**
R.L. 411m
COORDINATES 13,720 N
(BOCO GRID) 9,440 E

TOTAL DEPTH 162m
HOLE SIZE HQ, NQ, BQ
COMMENCED 11/03/77
COMPLETED 28/03/77
LOGGED BY N.H.H.

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ppm Pb	ppm Zn	ppm Cu	ppm Ag		ASSAY DATA Fe%	ASSAY DATA S%		CORE REC'D RUN	CORE REC'D SHORT
0	17 M	Rubble & Rock Fragments (Glacials)	CORE ANGLES	CHIP	SAMPLES												
			22.4 Jointing 52°	11104	17	27	6.5	175	225	X			1.33	0.24			
17M	34.2M	Highly Leached mg. Crystal (Lithic)	25.8 Jointing 55°	11105	27	37	9.8	150	1350	T			1.89	1.06			
		Tuff (Showing very Crystal Rich	46.8 Jointing 40°	11106	37	47	6.2	150	200	T			1.4	0.05			
		Beds) Some Swirly (Flowage)	59.0 Quartz Vein 55°	11107	47	57	10.0	125	175	X			1.9	0.21			
		Textures Evident (31-34M);	73.2 Cleavage 60°	11108	57	67	9.8	200	550	25			1.6	0.36			
		Locally Blotchy Development	78.8 Cleavage 70°	11109	67	77	10.0	200	225	T			1.0	0.02			
		of Limonite and Manganese in		11110	77	81.6	4.6	150	200	X			0.67	0.02			
		Major Joints.															
			17 - 34.2M No Obvious	11111	86.4	97	10.0	225	375	T			1.8	0.04			
34.2	63.4M	Coarsely Interbedded cg-mg	Sulphide Mineralization	11112	97	107	10.0	200	425	25			3.1	0.05			
		Fragmental (Lithic) (Tuff) -	Limonite /(Manganese) on	11113	107	114.3	7.3	175	425	25			1.8	0.11			
		Brecciated Feldspar Porphry	Major Joints	11114	114.3	119.3	5.0	125	4000	25			6.1	0.22			
		- Numerous sections rich in															
		Chloritic Feldspar Porphry	CORE ANGLES	11115	125.6	135	9.4	175	475	25			1.1	X			
		(Fragments) (? Auto-Brecciated	92.7 Intrusive Contact 65°	11116	135	145	10.0	75	150	X			2.3	X			
		Lava) Blotchy Pink Albertization	93.5 Jointing 60°														
		Throughout.	109.3 Intrusive Contact 60°														
			122.1 Shearing/Qtz. vn 55°														
63.4	114.3M	Weakly Sheared fg/(mg) Crystal Tuff	124.0 Shearing/Qtz 60°														
		Blotchy Albertization Throughout															
		81.6 - 86.4m. Intricatly Fractured	81.6 - 86.4 Fractures Infilled	11100	81.6	83.5	1.9	200	225	75	25		0.76	0.13			
		fg Rock - Albertized	With Limonite & Manganese	11101	83.5	86.4	2.9	350	450	T	X		0.11	1.48			
		Footage Hole Size															
		0 - 3M HQ															
		3 - 30M NQ															
		30 - 162M BQ															

288105

ELECTROLYTIC ZINC CO OF A'ASIA LTD
ROSEBERY – TASMANIA

DIAMOND DRILL CORE RECORD

HOLE No. BBP 209

FOOTAGE FROM	FOOTAGE TO	ROCK DESCRIPTION	MINERALISATION	SAMPLE NO.	FROM	TO	CORE REC'D	ppm Pt	ppm Zn	ppm Cu	ppm Ag	ppm	Fe%	S%		CORE REC'D RUN	CORE REC'D SHORT
63.4	114.3M	fg Crystal Tuff (cont.)	CORE ANGLES														
		92.7 – 93M fg Basic Intrusive	147.3 Jointing 65°														
		(Dark Green)	159 Jointing 60°														
		100.15 – 105M fg Basic Intrusive															
		109.3 – 110M fg Basic Intrusive															
114.3	119.3	fg Basic Intrusive (Dark Green)	116.2 – 119.3 Development														
		Highly Fractured Core 116.2 – 119.3M	of A Pinkish Mauve and														
			Yellow Secondary Mineral														
			on Fracture Surfaces Also														
			Minor Hematite.														
119.3	147.8M	Highly Sheared and Altered															
		fg to mg (Vitric) Crystal Tuff,	119.3 – 125.6 Minor Diss.	11102	119.3	122.2	2.9	300	500	25	X		2.13	0.50			
		Blotchy Albertization Throughout	Py (1-2%) Associated with	11103	122.2	125.6	3.4	250	675	50	X		1.66	0.57			
		But Particularly Intense at	Quartz Veining.														
		119.3 – 125.6 & 136.0 – 139.4M															
147.8	162M	fg to mg (Dark Green) Crystal															
		Tuff Containing Bands of															
		Large Porphry Fragments at															
		150 – 152.6M and 155.2 – 156.1M;															
		Minor Albertization.															
	162M	End of hole															

288106

APPENDIX E

ELECTROLYTIC ZINC COMPANY OF

AUSTRALASIA LIMITED

WEST COAST MINES

GEOLOGICAL LEGEND FOR

EXPLORATION MAPPING

REVISED 1977.

288107

OPERATION OF LEGEND

DESCRIBING ROCK UNITS

1. CAPITAL LETTER - Indicates Primary Classification eg S - Sedimentary Rocks, A - Acid Igneous Rocks

2. LOWER CASE LETTERS - Indicates The Following:

2a AS PREFIXES In Progressive Order

(a) COLOURS eg (i) grn.M = Green Mafic Igneous Rock

(ii) pk/grn A = Pink Fragments or Phenocrysts in an Acid Igneous Rock with a Green Matrix

(b) STRUCTURAL OR TEXTURAL FEATURES

eg (i) x.t.A. = Crystal Tuff of Acid Composition

(ii) x b d.S. = Cross Bedded Sedimentary Rock

2a AS SUFFIXES In Progressive Order

(a) CATEGORISED: e.g. (i) Ar = Rhyolite, (ii) Sh = Shale,

(b) MINERALOGY: e.g. (i) pAr.f. = Rhyolite with Felspar Phenocrysts.
(ii) Aq.s. = Quartz Sericite Rock of Acid Igneous Origin
(iii) Ar.ab. = Albitised Rhyolite

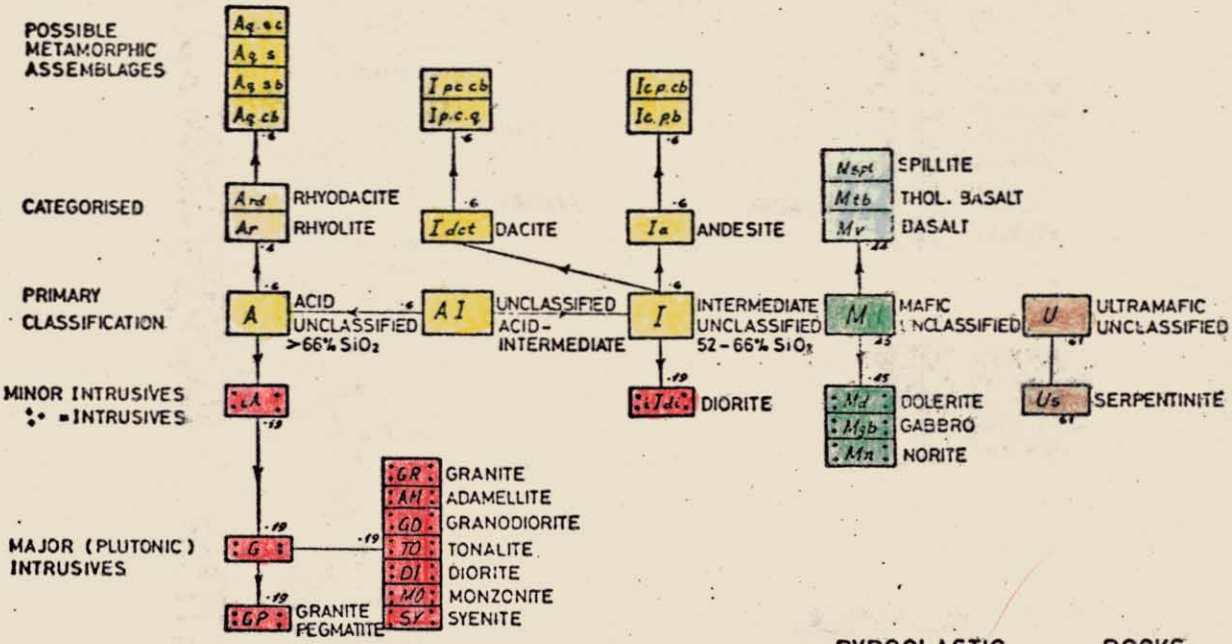
EXAMPLE - pk/grn. clvd. x.v.t. A.rd. ab. c'd -

pk/grn (Colours) - Pink Crystals in a Green Matrix; clvd (Structural Feature) - cleaved, x.v.t. (Texture) - crystal vitric tuff, A (Primary Subdivision) - acid igneous rock, rd. (Categorised) - rhyodacite, ab. (Primary Mineralogy) - albite phenocrysts, c'd. (Alteration Mineralogy) - chloritised.

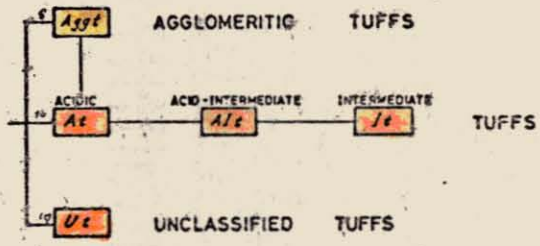
·10· Colour of CUMBERLAND "DERWENT" N° 19 Pencil

288108

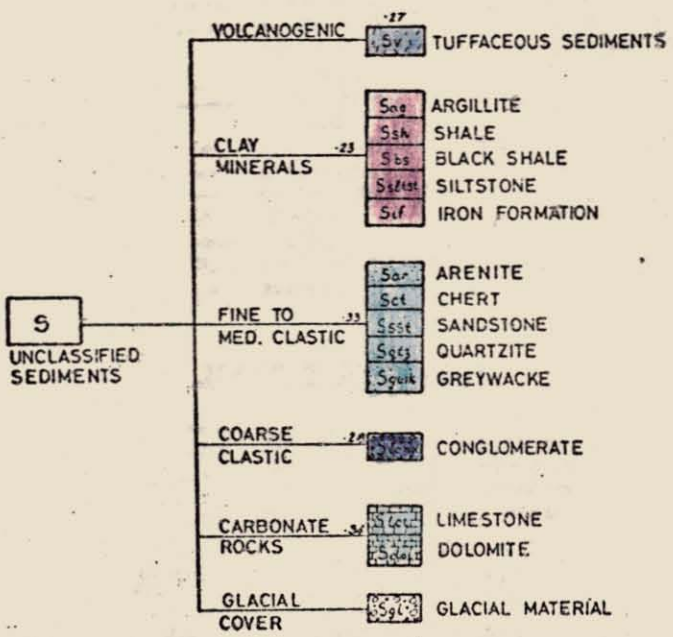
IGNEOUS ROCKS



PYROCLASTIC ROCKS



SEDIMENTARY ROCKS



STRUCTURAL & TEXTURAL SYMBOLS

- t — UNDIFERENTIATED TUFF
- lt — LITHIC TUFF
- xt — CRYSTAL TUFF
- vt — VITRIC TUFF
- lpt — LAPILLI TUFF 4 - 32mm.
- b — BRECCIA >32mm.
- ag — AGGLOMERATE >32mm.
- bm — BOMBS
- fl (3) FIAMME (LENGTH IN cms.)
- pm — PUMICE
- af — ASH FLOW
- qz aug — QUARTZ EYES/AUGEN TEXTURE
- pil — PILLOWS
- fb — FLOW BANDING
- fa — FLOW BRECCIA
- — LAVA
- a — AMYGDALOIDAL
- s — SPHERULITIC
- p — PORPHYRITIC
- cl — CLOTS
- ac — ACICULAR
- oph — OPHITIC
- — CHILLED MARGIN
- peg — PEGMATIC
- vns — VEINS
- m — MASSIVE
- clvd — CLEAVED
- sch — SCHIST
- ox — OXIDISED
- — LATERITE
- bd — BEDDED
- x bd — CROSS BEDDED
- THbd — THICK BEDDED
- thbd — THIN BEDDED
- lam — LAMINATED
- gd — GRADED OR DIRECTION OF DECREASING GRAIN SIZE
- — LODE CAST
- sf — SCOUR & FILL

STRUCTURAL SYMBOLS

- FAULT
- DEFINITE CONTACT OR OUTCROP LIMIT
- APPROXIMATE CONTACT OR RUBBLE BOUNDARY
- INTERPRETED CONTACT OR FLOAT BOUNDARY
- SCHISTOSE ZONE
- UNCONFORMITY
- BEDDING
- OVERTURNED BEDDING
- CLEAVAGE
- PRIMARY FOLIATION
- JOINTING
- PLUNGE
- FOLD AXIS PLUNGE
- FACING

IGNEOUS GRAIN SIZE

- vcg — VERY COURSE GRAINED >5 cm
- cg — COARSE GRAINED 5cm-5mm
- mg — MEDIUM GRAINED 5mm-1mm
- fg — FINE GRAINED <1mm

PYROCLASTIC GRAIN SIZE

- agg — AGGLOMERITIC > 32 m.m.
- lp — LAPILLI 32 - 4 m.m.
- ca — COARSE ASH 4 - 0·5m.m.
- fa — FINE ASH < 0·5 m.m.

SILICATE MINERALOGY

- q — QUARTZ
- k — K-FELSPAR
- ab — ALBITE
- p — PLAGIOCLASE
- a — AMPHIBOLE
- px — PYROXENE
- b — BIOTITE
- c — CHLORITE
- cb — CARBONATE
- s — SERICITE
- e — EPIDOTE
- t — TALC
- STIEFEL 104-10 ba — BARITE
- f — FELSPAR

- ab — ALBITISED
- cb — CARBONATED
- chl — CHLORITISED
- ser — SERICITISED
- si — SILICIFIED

SULPHIDE MINERALOGY

- box — BOXWORK
- sul — SULPHIDES
- AGG 3/16 gos — GOSSAN
- py — PENTLANDITE
- hm — HEMATITE
- cc — CHALCOCITE
- cv — COVELLITE
- bn — BORNITE
- cp — CHALCOPYRITE
- sp — SPHALERITE
- gn — GALENA
- po — PYRRHOTITE
- py — PYRITE
- il — ILMENITE
- lc — LEUCOXENE
- mag — MAGNETITE

MINERALISATION

- STEELPEGGER 104-1 diss — 10% DISSEMINATED
- diss — 10-20% "
- diss — ~25% "
- str — STRINGER
- mas — MASSIVE

COLOURS

- pl — PALE
- dk — DARK
- pk — PINK
- rd — RED
- org — ORANGE
- yel — YELLOW
- ol — OLIVE
- grn — GREEN
- bl — BLUE
- gry — GREY
- blk — BLACK

LIST OF PLATES

288110

Plate No.	Title	
1.	1:63,360 scale general locality plan	
	Geological Plans	
2.	1:10,000 scale geology	Northern Area
3.	1:10,000 scale geology	Southern Area
4.	1: 5,000 scale fact mapping	Boco North Sheet
5.	1: 5,000 scale fact mapping	Boco South Sheet
	Geophysical Plans	
6.	1:10,000 Barrenger Input	Northern Area
7.	1:10,000 Barrenger Input	Southern Area
8.	1: 5,000 Chargeability	Boco North Sheet
9.	1: 5,000 Chargeability	Boco South Sheet
10.	1: 5,000 Resistivity	Boco North Sheet
11.	1: 5,000 Resistivity	Boco South Sheet
12.	1: 5,000 Ground Magnetics	Boco North Sheet
13.	1: 5,000 Ground Magnetics	Boco South Sheet
14.	1: 5,000 Physical Properties	Boco North Sheet
15.	1: 5,000 Physical Properties	Boco South Sheet
	Geochemical Plans	
16.	1: 5,000 Pb Values	Boco South Sheet
17.	1: 5,000 Zn Values	Boco South Sheet
18.	1: 5,000 Cu Values	Boco South Sheet

370 000 m E
350 000 y E
380 000 m E
390 000 m E
380 000 y E
890 000 y N
5 400 000 m N
E.L 12/72
NORTHERN AREA
MURCHISON HIGHWAY
EMU BAY RAILWAY
QUE RIVER
SOCK CREEK
E.L. 12/72
WESTERN AREA
BULGOBAC
SILVER FALLS
5 390 000 m N
BOCO
SOUTHERN AREA
E.L.12/72
EMU BAY RAILWAY
MURCHISON HIGHWAY
PINNACLES
CHESTER
TULLAH
5 380 000 m N
860 000 y N

TRUE NORTH
MAGNETIC NORTH (12°22')
BOCO GRID NORTH (45°)

LEGEND

- LEASE BOUNDARY
- MAIN HIGHWAY
- VEHICULAR TRACKS
- RAILWAY LINE
- ABANDONED RAILWAY LINE
- PROPOSED TRANSMISSION LINE
- PROPOSED TRANSMISSION LINE TURNING POINTS

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: BULGOBAC E.L.12/72 | TAS.

GENERAL LOCALITY PLAN

5 cm

288111

SCALE: 1:63 360 (1" = 1mile)

REFERENCE:

DATE 30/1/76 | DRAWN: R.A.H | GEOLOGY.

PLATE 1

285

E.L. 12/72

E.L. 12/72

E.L. 12/72

5 391 000N
5 390 000N
5 389 000N
5 388 000N
5 387 000N
5 386 000N
5 385 000N
5 384 000N
5 383 000N

376 000 E
377 000 E
378 000 E
379 000 E
380 000 E
381 000 E
382 000 E
383 000 E
384 000 E
385 000 E
386 000 E

E.L. 12/72
NORTHERN AREA
E.L. 12/72
SOUTHERN AREA

SPECIAL PLANS

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: BULGOBAC E.L.12/72 | TAS.

SPECIAL 1:10 000 SCALE PLAN

SHOWING GEOLOGY

5 cm

SCALE: 1:10 000 | REF. NO.

REFERENCE: | PLATE 2

DATE: 4/10/77 | DRAWN: | GEOLOGY N.H.H.

285

288112

77-1237 Vol II copy!

286

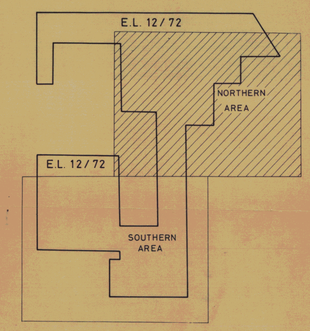
5 399 000 N
5 398 000 N
5 397 000 N
5 396 000 N
5 395 000 N
5 394 000 N
5 393 000 N
5 392 000 N
5 391 000 N

381 000 E
382 000 E
383 000 E
384 000 E
385 000E
386 000 E
387 000 E
388 000 E
389 000E
390 000 E
391 000 E

E.L. 12/72

E.L. 12/72

EMTS



SPECIAL PLANS

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: BULGOBAC E.L.12/72 | TAS.

SPECIAL 1:10 000 SCALE PLAN

SHOWING GEOLOGY

5 cm

288113

SCALE: 1:10 000 | REF. NO.

REFERENCE: | PLATE 3

DATE: 4/10/77 | DRAWN: | GEOLOGY: N.H.H.

286

77-1231 Vol II copy!

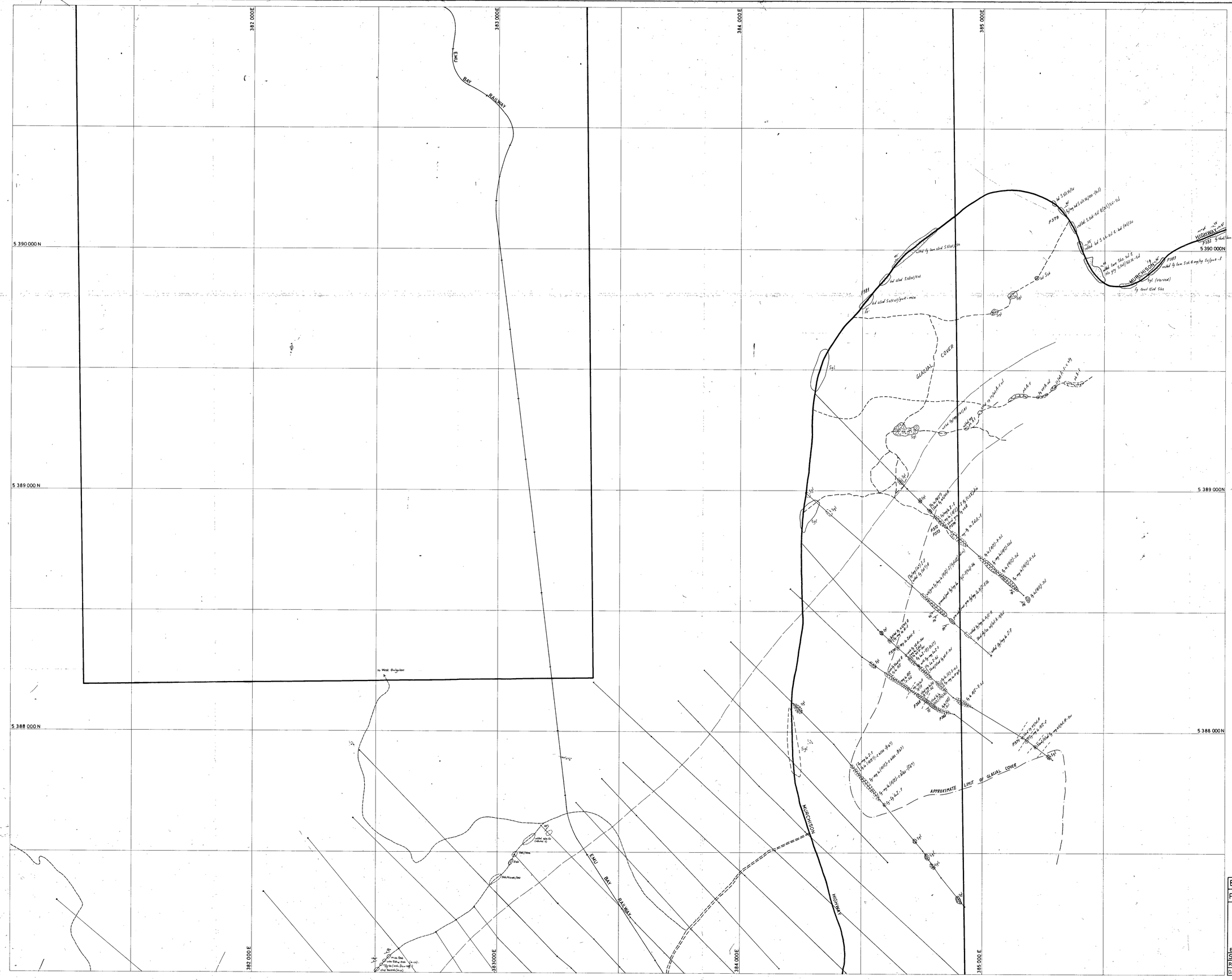
382 000E
383 000E
384 000E
385 000E
5 386 000N
5 385 000N
5 384 000N
GLACIAL COVER
Approx Limits of GLACIAL COVER
EMU BAY RAILWAY
MURCHISON HIGHWAY

E.L.12/72
E.L.12/72

PLATE 4

288114

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.	
PROJECT: BULGOBAC EL12/72	TAS.
BOCO SIDING	
GEOLOGY	5 cm
BOCO SOUTH SHEET	77-1237
SCALE: 1 : 5 000	REF. NO.
REFERENCE	
DATE: 8/9/76 DRAWN: R.A.H. GEOLOGY: N.H.H.	AO 521-0017



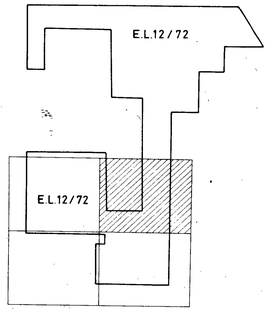


PLATE 5

288115

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.	
PROJECT: BULGOBAC E.L.12/72	TAS.
BOCO SIDING GEOLOGY	5 cm
BOCO NORTH SHEET	77-1237
SCALE: 1: 5 000	REF. NO.
REFERENCE	A0 521-0016
DATE 8/9/76 DRAWN R A H GEOLOGY N.H.H.	

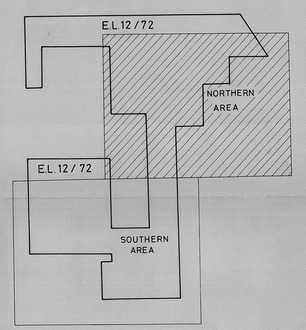
L-249E
L-248W
L-247E
L-247AW
L-246AW
L-246E
L-245W
L-244BE
L-244E
L-243CE
L-243W
L-242E
L-242AW
L-241W
L-240E
L-240
L-239W
L-238W
L-237W
L-236E
L-235W
L-234AW
L-234E
L-233E
L-232W
L-231E
CS-30
CS-29A
CS-29
CS-27A
CS-27B
CS-27
CS-28
MURCHISON HIGHWAY
EMU BAY RAILWAY

INPUT LEGEND

- 6 CHANNEL ANOMALY
- 5 " "
- 4 " "
- 3 " "
- 2 " "
- 1 " "
- PEAK POSITION
- 1ST and 4TH CHANNEL AMPLITUDES
- ALTITUDE (FEET)
- COINCIDENT MAGNETIC ANOMALY (gammas)
- OFFSET MAGNETIC ANOMALY
- 50 Hz with NORMAL ANOMALY
- 50 Hz " ABNORMAL "

INTERPRETATION LEGEND

- CONDUCTOR OUTLINE
- IDENTIFICATION NUMBER (CS-3)
- SELECTED CONDUCTOR (C)
- CULTURAL ANOMALY



SPECIAL PLANS

5 cm

ELECTROLYTIC ZINC CO. OF A'SIA. LTD.

PROJECT: BULGOBAC E.L. 12/72 | TAS.

BARRINGER "INPUT" AIRBORNE ELECTRO-MAGNETIC SURVEY - APRIL 1975

GEOTERREX PROJECT Nº 83-184

SCALE: 1:10 000 Nominal | REF. NO.

FLIGHT ALTITUDE = 400 M.T.C. | PLATE 6

DATE: 11/7/77

288116 289

77-1237 Vol II copy

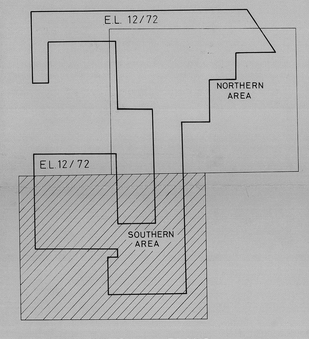
L-230W
L-229E
L-228W
L-227AE
L-226W
L-225E
L-224W
L-223E
L-221E
L-220W
L-219E
L-218W
L-217E
L-216W
L-215E
L-214W
L-228W
L-228AW
L-216AE
L-215AE
CS-27
EMU BAY RAILWAY
MURCHISON HIGHWAY

INPUT LEGEND

6 CHANNEL ANOMALY
5 " "
4 " "
3 " "
2 " "
1 " "
PEAK POSITION
1ST and 4TH CHANNEL AMPLITUDES
ALTITUDE (FEET)
COINCIDENT MAGNETIC ANOMALY (gammas)
OFFSET MAGNETIC ANOMALY
50 Hz with NORMAL ANOMALY
50 Hz " ABNORMAL "

INTERPRETATION LEGEND

CONDUCTOR OUTLINE
IDENTIFICATION NUMBER
SELECTED CONDUCTOR
CULTURAL ANOMALY



SPECIAL PLANS

5 cm

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.

PROJECT: BULGOBAC E.L.12/72 | TAS.

BARRINGER "INPUT" AIRBORNE ELECTRO
— MAGNETIC SURVEY - APRIL 1975

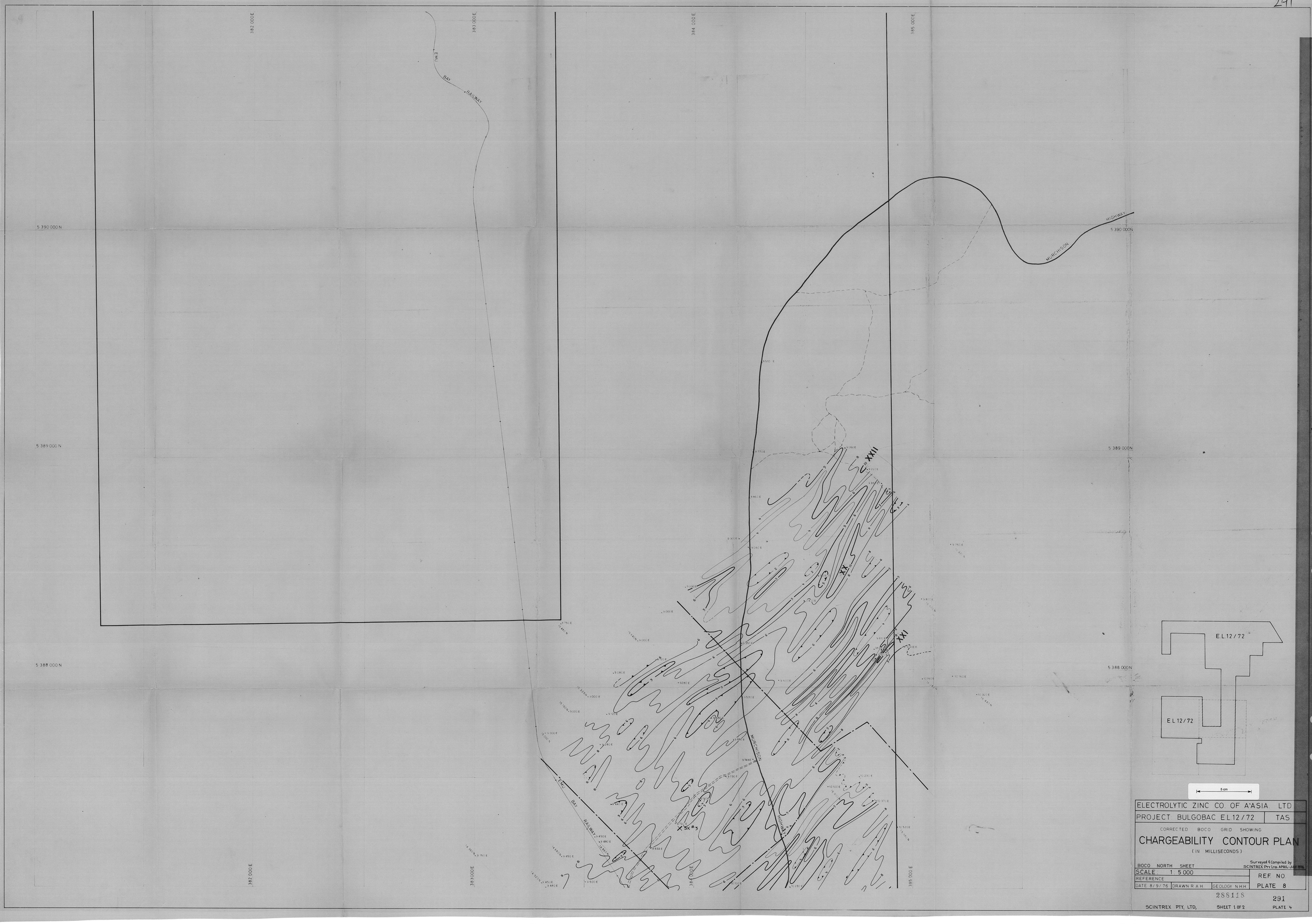
GEOTERREX PROJECT No. 83-184

SCALE: 1:10000 Nominal | REF. NO.
FLIGHT ALTITUDE = 400 M.T.C. | PLATE 7
DATE: 11/7/77

288117

290

77-1237 copy 1 Vol 2



ELECTROLYTIC ZINC CO. OF A'ASIA. LTD

PROJECT BULGOBAC E.L.12/72 | TAS

CORRECTED BOCO GRID SHOWING

CHARGEABILITY CONTOUR PLAN

(IN MILLISECONDS)

BOCO NORTH SHEET

Surveyed & Compiled by SCINTREX Pty Ltd. APRIL-JULY 1976

SCALE: 1:5 000

REFERENCE

DATE 8/9/76 | DRAWN R.A.H. | GEOLOGY N.H.H.

REF. NO.

PLATE 8

288118

291

SCINTREX PTY, LTD, SHEET 1 OF 2 PLATE 4

77-1231 Vol 2 Copy 1



ELECTROLYTIC ZINC CO OF A'ASIA LTD		
PROJECT: BULGOBAC EL12/72		TAS
CORRECTED BOCO GRID SHOWING		
CHARGEABILITY CONTOUR PLAN		
(IN MILLISECONDS)		
BOCO SOUTH SHEET 288119	Surveyed & Compiled by SCINTREX Pty Ltd APRIL-JULY 1976	
SCALE 1 : 5 000		REF. NO.
REFERENCE		PLATE 9
DATE 8/9/76 DRAWN R.A.H.	GEOLOGY N.H.H.	

292

SCINTREX PTY. LTD. SHEET 2 OF 2 PLATE 4

77-1237 Vol 2 copy 1

382 000E
383 000E
384 000E
385 000E
5 390 000 N
5 389 000 N
5 388 000 N
EMU BAY RAILWAY
MURCHISON HIGHWAY
MURCHISON
EMU BAY RAILWAY
HIGHWAY
SX #3
E.L.12/72
E.L.12/72
5 cm

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD

PROJECT: BULGOBAC E.L.12/72 | TAS

CORRECTED BOCO GRID SHOWING

RESISTIVITY CONTOUR PLAN

(IN OHM METRES)

Surveyed & Compiled by SCINTREX Pty Ltd. APRIL-JULY 1976

BOCO NORTH SHEET 288120

SCALE 1:5 000

REFERENCE

DATE 8/9/76 | DRAWN R.A.H | GEOLOGY N.H.H

REF NO. PLATE 10

293

SCINTREX PTY. LTD. SHEET 1 OF 2 PLATE 3

77-1237 copy 1 Vol 2.

294

382 000 E
383 000 E
384 000 E
385 000 E
5 386 000 N
5 385 000 N
5 384 000 N
RAILWAY
EMU BAY
MURCHISON HIGHWAY
Sx #1
Sx #2
E.L 12/72
E.L 12/72
5 cm

ELECTROLYTIC ZINC CO OF A'ASIA LTD

PROJECT. BULGOBAC EL12/72 TAS

CORRECTED BOCO GRID SHOWING

RESISTIVITY CONTOUR PLAN

(IN OHM METRES)

BOCO SOUTH SHEET 288121 Surveyed & Compiled by SCINTREX Pty Ltd. APRIL-JULY 1976

SCALE 1 : 5 000 REF. NO.

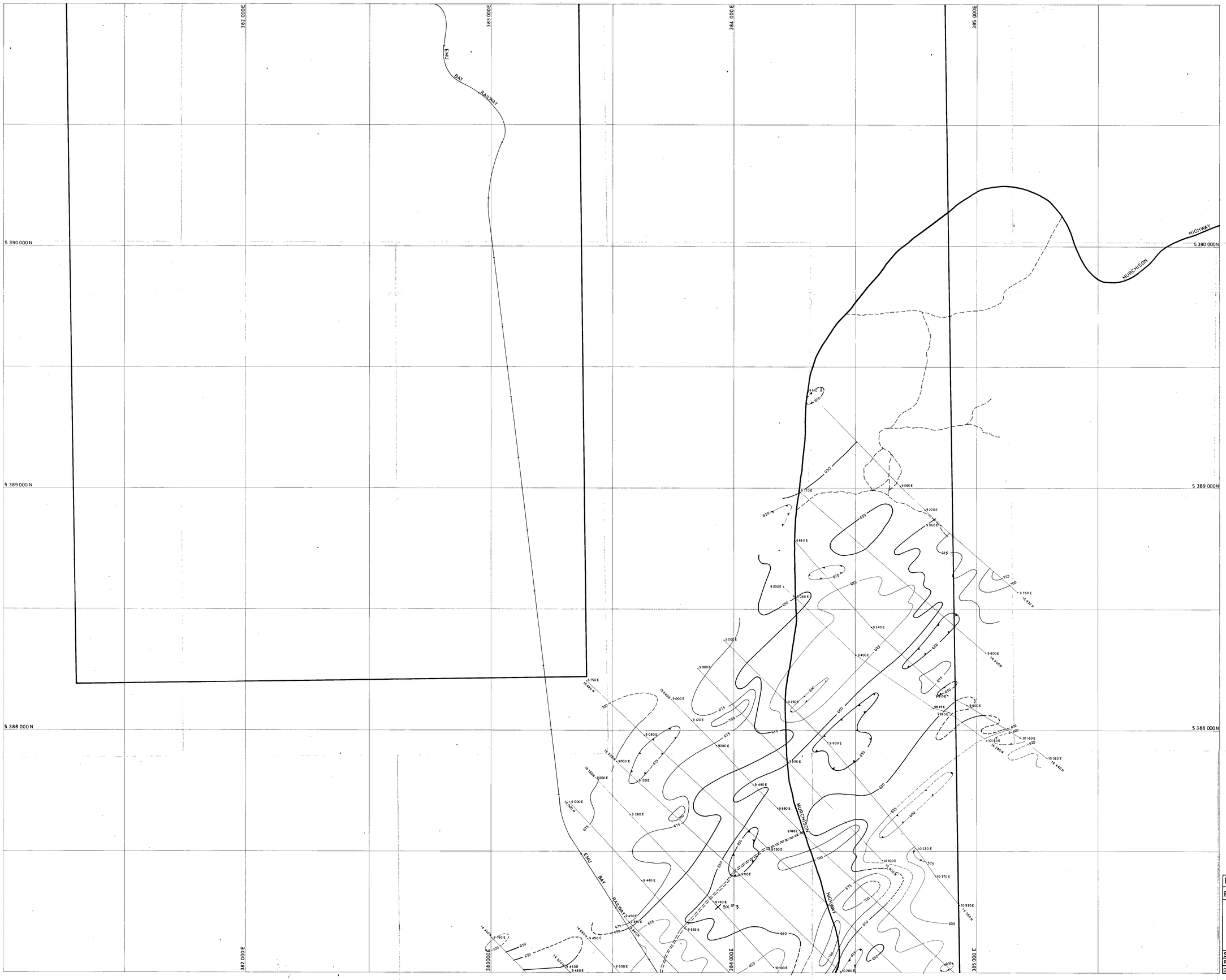
REFERENCE

DATE 8/9/76 DRAWN R.A.H GEOLOGY N.H.H PLATE 11

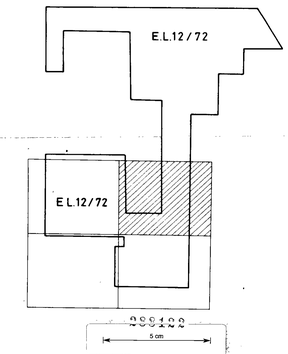
294

SCINTREX PTY. LTD. SHEET 2 OF 2 PLATE 3

77-1237 Vol 2 copy 1

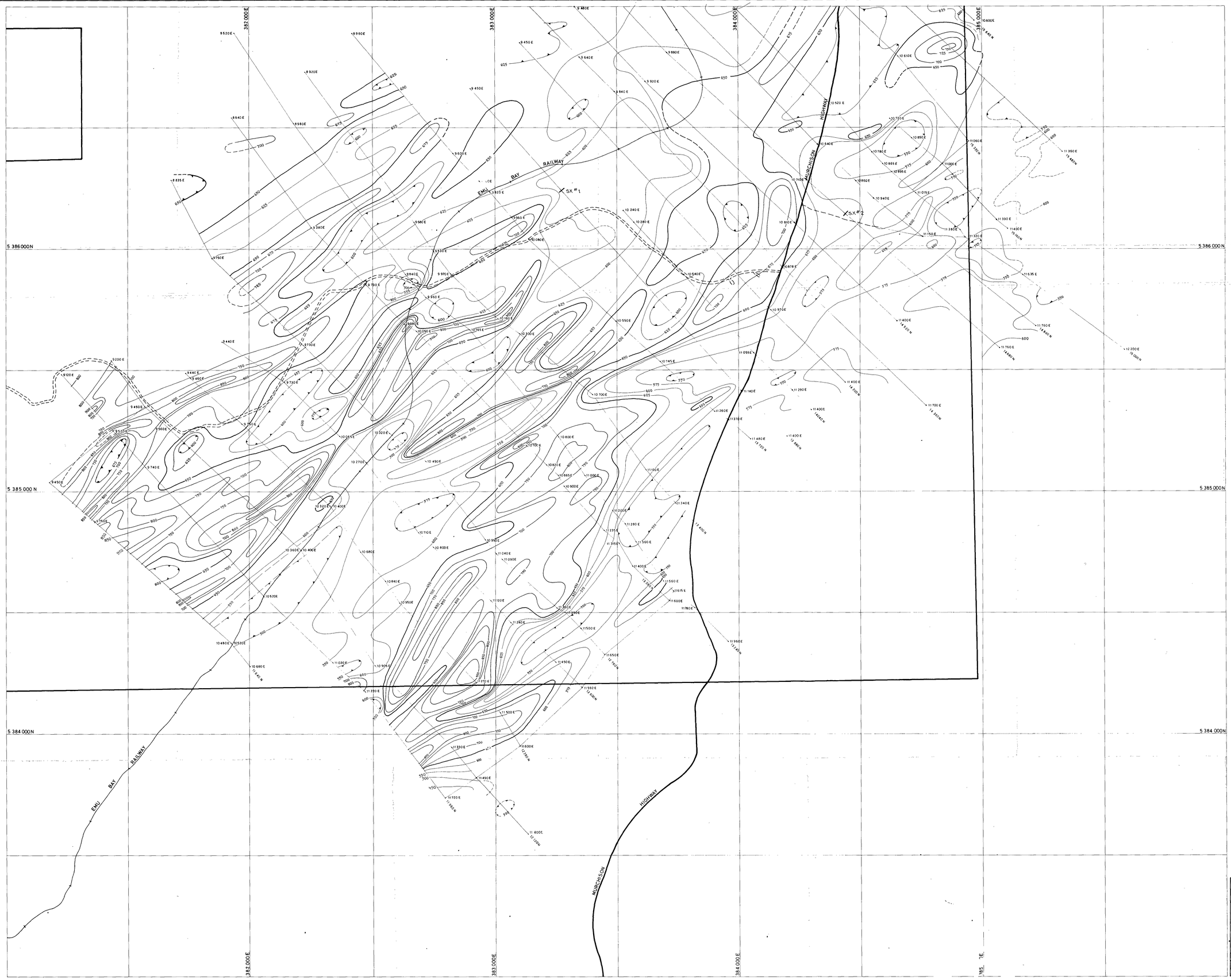


Add 62,000 to all values.

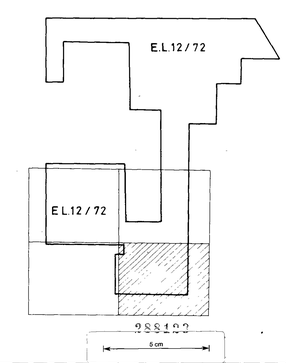


ELECTROLYTIC ZINC CO. OF A'ASIA. LTD			
PROJECT: BULGOBAC E.L.12/72			TAS.
CORRECTED BOCO GRID SHOWING TOTAL MAGNETIC FIELD CONTOUR PLAN (IN GAMMAS)			
BOCO NORTH SHEET			Compiled by SCINTREX Pty Ltd SEPT-OCT 1976
SCALE: 1: 5 000			REF. NO.
REFERENCE			
DATE 8/9/76	DRAWN R A H	GEOLOGY N.H.H	PLATE 12

77-1237 Vol 2 copy!



Add 62,000 to all values.



ELECTROLYTIC ZINC CO. OF A'ASIA. LTD.	
PROJECT: BULGOBAC E.L.12/72	TAS

CORRECTED BOCO GRID SHOWING

TOTAL MAGNETIC FIELD CONTOUR PLAN

(IN GAMMAS)

BOCO SOUTH SHEET

Compiled by SCINTREX Pty Ltd SEPT-OCT 1976

SCALE: 1 : 5 000			REF. NO.
REFERENCE			
DATE 8/9/76	DRAWN R.A.H.	GEOLOGY N.H.H.	PLATE 13

297

382 000E
383 000E
384 000E
385 000E

5 390 000 N
5 389 000 N
5 388 000 N

EMU BAY RAILWAY

MURCHISON HIGHWAY

XXII
XX
XXI

E.L.12/72

E.L.12/72

5 cm

288124

FOR LEGEND SEE SHEET 2

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT: BULGOBAC E.L.12/72 TAS

CORRECTED BOCO GRID SHOWING

PHYSICAL PROPERTY - - INTERPRETATION PLAN

Compiled by SCINTREX Pty Ltd. SEPT-OCT 76

BOCO NORTH SHEET

SCALE 1:5 000

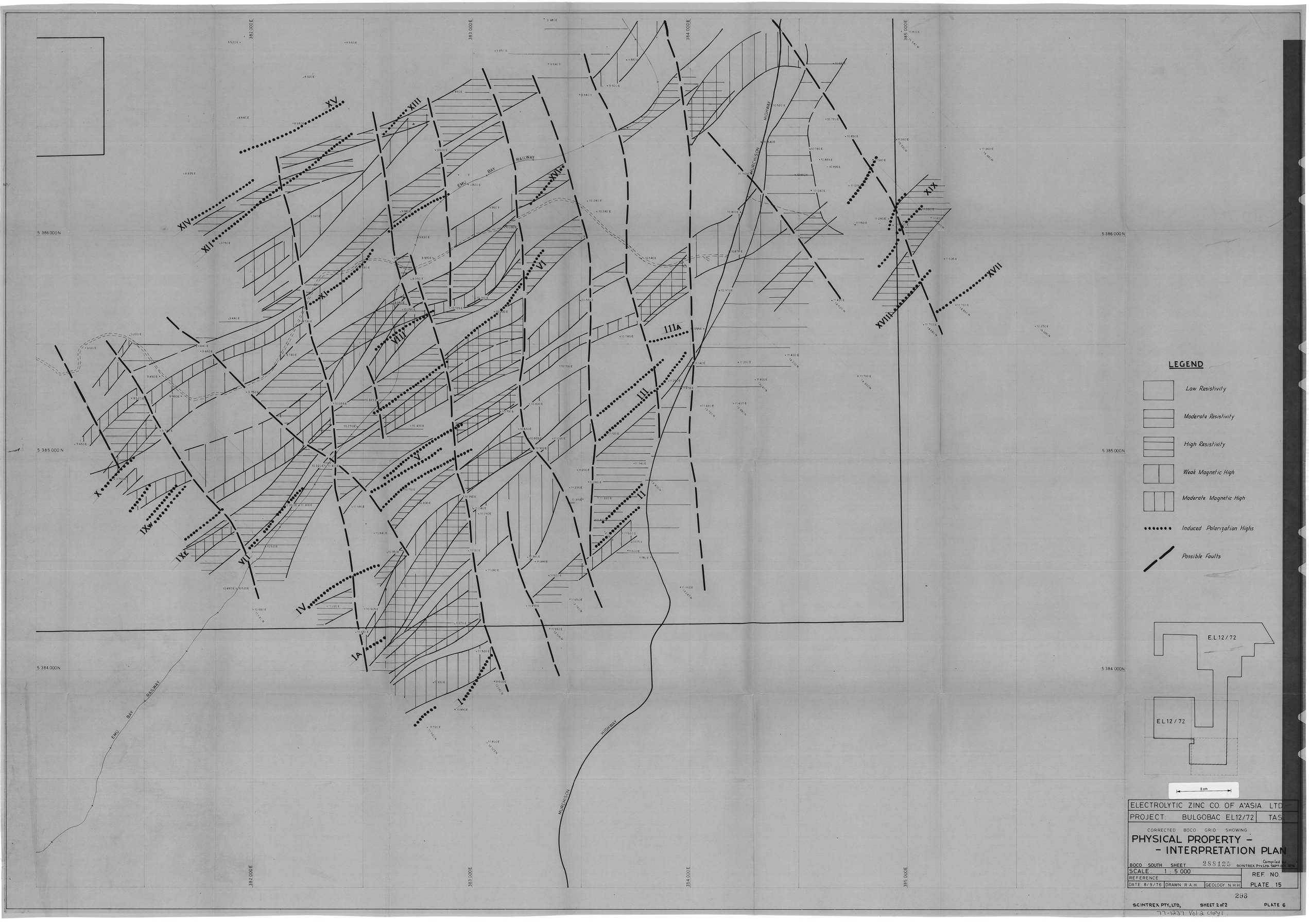
REFERENCE

DATE 8/9/76 DRAWN R.A.H. GEOLOGY N.H.H.

REF NO. PLATE 14

297 77-1237 Vol 2 cont'd

SCINTREX PTY. LTD. SHEET 1 of 2 PLATE 6



ELECTROLYTIC ZINC CO. OF A'ASIA. LTD

PROJECT: BULGOBAC EL12/72 | TAS

CORRECTED BOCO GRID SHOWING

PHYSICAL PROPERTY – – INTERPRETATION PLAN

BOCO SOUTH SHEET 288125 Compiled by SCINTREX Pty Ltd. SEPT-OCT 1976

SCALE: 1 : 5 000

REFERENCE

DATE 8/9/76 | DRAWN R.A.H. | GEOLOGY N.H.H.

REF. NO. PLATE 15

298

SCINTREX PTY, LTD, SHEET 2 of 2 PLATE 6

77-1237 Vol 2 copy 1.

382 000E
383 000E
384 000E
385 000E

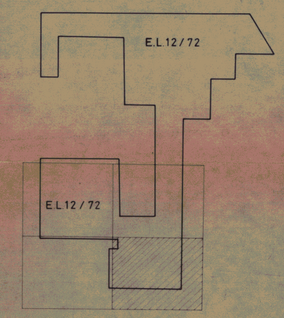
5 386 000N
5 385 000N
5 384 000N

EMU BAY RAILWAY

MURCHISON HIGHWAY

KEY

LEAD
- > 80 p.p.m.
- 51 - 80 p.p.m.
- 36 - 50 p.p.m.
- 8 - 35 p.p.m.
- (WHITE) 0 - 7 p.p.m.



ELECTROLYTIC ZINC CO. OF A'ASIA. LTD

PROJECT: BULGOBAC EL12/72 TAS

CORRECTED BOCO GRID SHOWING
BOCO SOUTH SHEET
SOIL GEOCHEMISTRY
Ag , Pb VALUES

SCALE: 1 : 5 000 REF. NO.
REFERENCE
DATE: 8/9/76 DRAWN: R.A.H. GEOLOGY N.H.H. PLATE 16

77-1257 Vol 2 copy1

300

382 000E
383 000E
384 000E
385 000E

5 386 000N
5 385 000N
5 384 000N

EMU BAY RAILWAY

MURCHISON HIGHWAY

KEY

COPPER		ZINC	
	50ppm.		135ppm.
	31 - 50ppm.		81 - 135ppm.
	8 - 30ppm.		41 - 80ppm.
(WHITE)	0 - 7 ppm.		11 - 40ppm.
		(WHITE)	0 - 10ppm.

E.L 12/72

E.L 12/72

5 cm

ELECTROLYTIC ZINC CO. OF A'ASIA LTD.

PROJECT BULGOBAC EL12/72 TAS.

CORRECTED BOCO GRID SHOWING
BOCO SOUTH SHEET

SOIL GEOCHEMISTRY

Zn, Cu VALUES

SCALE 1 : 5 000

REFERENCE

DATE 8/9/76 DRAWN R.A.H. GEOLOGY N.H.H.

REF NO PLATE 17

288127 300

77-1231 & Vol 2 copy!

382 000E
383 000E
384 000E
385 000E
5 386 000N
5 385 000N
5 384 000N
EMU BAY RAILWAY
MURCHISON HIGHWAY

KEY

COPPER		ZINC	
	50p.p.m.		135p.p.m.
	31 - 50p.p.m.		81 - 135p.p.m.
	8 - 30p.p.m.		41 - 80p.p.m.
(WHITE)	0 - 7 p.p.m.		11 - 40p.p.m.
		(WHITE)	0 - 10p.p.m.

E.L.12/72

E.L.12/72

5 cm

ELECTROLYTIC ZINC CO. OF A'ASIA. LTD

PROJECT: BULGOBAC EL12/72 TAS

CORRECTED BOCO GRID SHOWING
BOCO SOUTH SHEET
SOIL GEOCHEMISTRY
Zn, Cu VALUES

SCALE 1 : 5 000 REF. NO.
REFERENCE
DATE 8/9/76 DRAWN R.A.H GEOLOGY N.H.H PLATE 18

288128 301

77-1237 Vol 2 copy 1