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DEPT. OF MINES				
PEP. No. 186/83				

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LIMITED

West Coast Mines

EXPLORATION LICENCE NO. 12/72 BULGOBAC

Progress Report on Exploration Activity

25th August, 1982 to 20th November, 1982.

OPEN FILE

Geology Dept.  
Report No. 159MD

R.A. Sainty,  
December, 1982

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LIST OF PLANS

A2-521-0021	1:50,000	Work Completed 25.8. - 20.11.'82
A0-521-0093	1:5,000	Geology Boco North
A0-521-0094	1:5,000	Geology Boco South

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FIGURE 3.	60m dipole-dipole I.P. pseudo-section 14,680N (from TAS 094, 5.82) with geological cross-section.

1. INTRODUCTION

This report covers work on Exploration Licence No. 12/72 by Electrolytic Zinc Company of Australasia Limited between 25th August, and 20th November, 1982.

The work was carried out on behalf of a Joint Venture between E.Z. and Getty Oil Development Co. Ltd., which was initiated in April, 1976. A description of the Licence can be found in E.Z. Report No. 128 - "Exploration Undertaken in E.L. 12/72 during 1976-77".

2. PREVIOUS EXPLORATION

Details of all previous work on E.L. 12/72 have been reported in E.Z. Geology Department Reports No's 128 (1977), 129 (1978), 130 (1979), 132 (1980), 137 (1981), 145 (1982), 149 (1982) and 153 (1982).

3. ABBREVIATIONS

Standard symbols and terminology used on geological plans and sections are detailed on Plate 1 of E.Z. Report No. 137 - "E.L. 12/72 Progress Report on Activity July, 1980 to June, 1981".

4. EXPLORATION UNDERTAKEN 25TH AUGUST TO 20TH NOVEMBER, 1982

All work in this period was carried out in the Boco Area.

4.1. Work Completed (Refer to 1:50,000 scale 'Work Completed' plan A2-521-0021)

Geological Line Mapping:

Three 1976 grid lines in the area of outcrop west of the E.B.R. (12,760N, 12,600N and 12,280N) were relocated and remapped.

#### Test Percussion Drilling Programme

A preliminary test programme of percussion drilling was undertaken to:

- i) assess the ability of percussion drilling to effectively return a bedrock sample;
- ii) provide initial geological and geochemical control and perhaps define limits of the non-outcropping quartz-sericite-pyrite alteration zone.

#### 4.2. Results Received (Refer to 1:5,000 scale geology plans AO-521-0093 and AO-521-0094)

##### Geological Line Mapping

Remapping of lines 12,760N, 12,600N and 12,280N on the western slope of the Boco Creek ravine was undertaken in the belief that this area of outcrop is along strike from the quartz-sericite-pyrite alteration. (Results of the later test percussion drilling programme suggest that this may not be so.)

The rocks mapped comprise dominantly brown and green feldspar-phyric rhyodacitic lavas and lesser flowbanded ash-flow tuffs. At 10,220E on 12,600N siliceous fine-grained pelitic ash containing abundant fine disseminated pyrite occurred as boulder scree on the steep slope.

Near the ridge crest on both 12,760N (at 10,160E) and 12,280N (at 10,180E), outcrops of oxidised basaltic rock were found. Doleritic intrusive occurs to the NE (along strike?) on 12,920N (at 10,070E). These observations suggest the presence of either a narrow doleritic intrusive or flow trending NE and having a strike length of at least 550m or separate intrusions along a common plane of weakness.

A 63,000+nT ground magnetic anomaly on 12,280N west of the E.B.R. (refer 1:5,000 scale sheet AO-521-0091 in E.Z. Geol. Dept. Report 153, August, 1982) is therefore now directly attributed to this basaltic rock, rather than inferred to be due to ferruginous fine lithic sandstone which was mapped from float in 1976. (op cit. p. 10) (Quartzitic Owen glacial scree was found in abundance during the current

mapping in the vicinity of the weathering basaltic rock.) However there is no continuity (above 62,700nT) between the intense 63,200+ and 63,000+nT magnetic highs on 12,920N and 12,280N (although basaltic outcrop is present on 12,760N). Therefore the ground magnetic response may not be able to provide information on the extent of the source at depth.

No significant structures were observed within the volcanics on the three lines.

#### Test Percussion Drilling Programme

##### i) Assessment of drilling technique:

After protracted discussions involving six drilling contractors Overland Drilling, Devonport, was chosen to initiate the preliminary test programme of bedrock sampling. This decision was made when it became clear that at present only Overland Drilling are able to provide a drill rig and compressor that have the ability to move freely over swampy peat and buttongrass surface and perform both percussion and diamond drilling. Some other companies with larger and heavier truck-mounted rigs with larger compressors probably have a greater ability to penetrate the fluvioglacial and glacial rubble overburden. In particular, A.D.D. in Zeehan were confident of their imported "casing advancer" technique, whereby casing is pulled down behind the hammer and hammer and bits are changed and interchanged by way of the overshot. Both A.D.D. and H. Stacpoole of Launceston had warned that their experience in drilling through water-saturated dolerite scree for coal exploration companies had shown that high air pressure is necessary for effective penetration of that material, (both use 750 cfm 250 psi compressors) and both were considering obtaining even larger compressors - 300 and 350 psi - to do so more effectively. H. Stacpoole had also indicated his intention of purchasing a large-tyred six-wheel drive Volvo all-terrain vehicle in the immediate future if he secured the full-scale, Stage II, percussion programme.

Overland's equipment comprised a Warman "Investigator" Mark V top drive drill rig and Sullair H300 compressor (300 cfm, 150 psi) mounted on two Bombardier "Carrier" tracked vehicles.

Drilling commenced on Friday 5th November, 1982 but Overland were unable to continue beyond Friday 19th November. Commitments elsewhere will prevent them from returning until February, 1983. Five out of seven holes were successfully completed during the thirteen days at the rate of approximately 1-1½ days per hole.

The major problem encountered is the inability of the percussion hammer to penetrate thick layers of cobbles and boulders with the consequent need to diamond drill approximately half to two-thirds the overburden depth, although much of this is through sand and clay. Hammering is extremely tedious with much of the volcanics and siliceous conglomerate material being pushed aside into the wall only to return and jam the hammer's piston when the bit has passed. The up-hole return of air and chips is also blocked. In addition, repetitive runs are required to properly advance the hole as the hole partially collapses when the hammer is pulled back in the first attempts. HQ casing is then slowly reamed down the hole, followed by redrilling by NQ bit and barrel to and into bedrock, which was usually found beneath a fluvioglacial clay layer. A hammer which could fit inside an NQ rod would perhaps be advantageous, but was not available.

On average only about half the overburden depth was penetrated by percussion hammering.

Hole Specifications are as follows:

Hole	Location	Hammer Depth	Bedrock Depth	Final Depth
1.	9,950E on 13,880N	22.5m	30.5m	35.3m
2.	9,900E on 13,880N	13m	23.5m	29.2m
3.	10,025E on 13,880N	10m	16.5m	20.0m
4.	10,200E on track approx 100mN of 13,880N	13m	36.0m	44.0m
5.	9,750E on 14,680N	9m	37.5m	42.5m
6.	9,700E on 14,680N	12m	Not reached see note (iv)	12.5m
7.	9,800E on 14,680N	12m	Not reached see note (v)	42.5m
TOTAL DRILLING			=	226.0m

Notes

- i) Position of Holes 1 - 4 with reference to DDH BBP 207 (10,150E on 13,880N).
- ii) Hole 1 was initially abandoned and cemented but was completed after Hole 2 by casing the hole.
- iii) Both Holes 5 and 6 encountered the additional difficulty of a greater proportion of cobbles/boulders. Hole 5 was initially abandoned and cemented; then was redrilled and completed after Hole 6.
- iv) Hole 6 was abandoned and cemented with our intention to redrill after the completion of Hole 5. Result of Hole 5 prompted next hole to be located 50m east (not west) of Hole 5.
- v) Hole 7 was almost successful, however the drill bit disintegrated whilst in clay at 42.5m, probably just above bedrock. Bit and tube were lost down hole when rods were pulled. The hole had collapsed to 20m depth when re-entry was attempted and no time was available to redrill the hole.
- vi) Time was lost in a breakdown (Bombardier drive shaft broke), in shifting between the 2 main sites, and on occasions when Gyp-Seal was used in an attempt to improve drilling.

The approximate cost of drilling (invoices have not yet been received) was as follows:-

Mobilisation/demobilisation	1,500
Drilling at \$100/hr (125 hours)	<u>12,500</u>
	<u>\$ 14,000</u>

This total cost represents \$62/m for the 226m drilled, but this figure reduces to \$55/m if the fixed mobilisation cost is disregarded (because the programme was so limited). The stated drilling time also included approximately 1 day (10 hours) shifting between the southern and northern traverse lines and in a full pattern-drilling programme such excess movement between successive drill sites would be minimised. Thus this drilling cost might be considered on par with that of diamond drilling in competent rock.

ii) Initial Geological and Geochemical Data

(Refer also to Fig. 1 (1:5,000 sketch plan) and Fig. 2 & 3  
(I.P. pseudo-sections 13,880N and 14,680N))

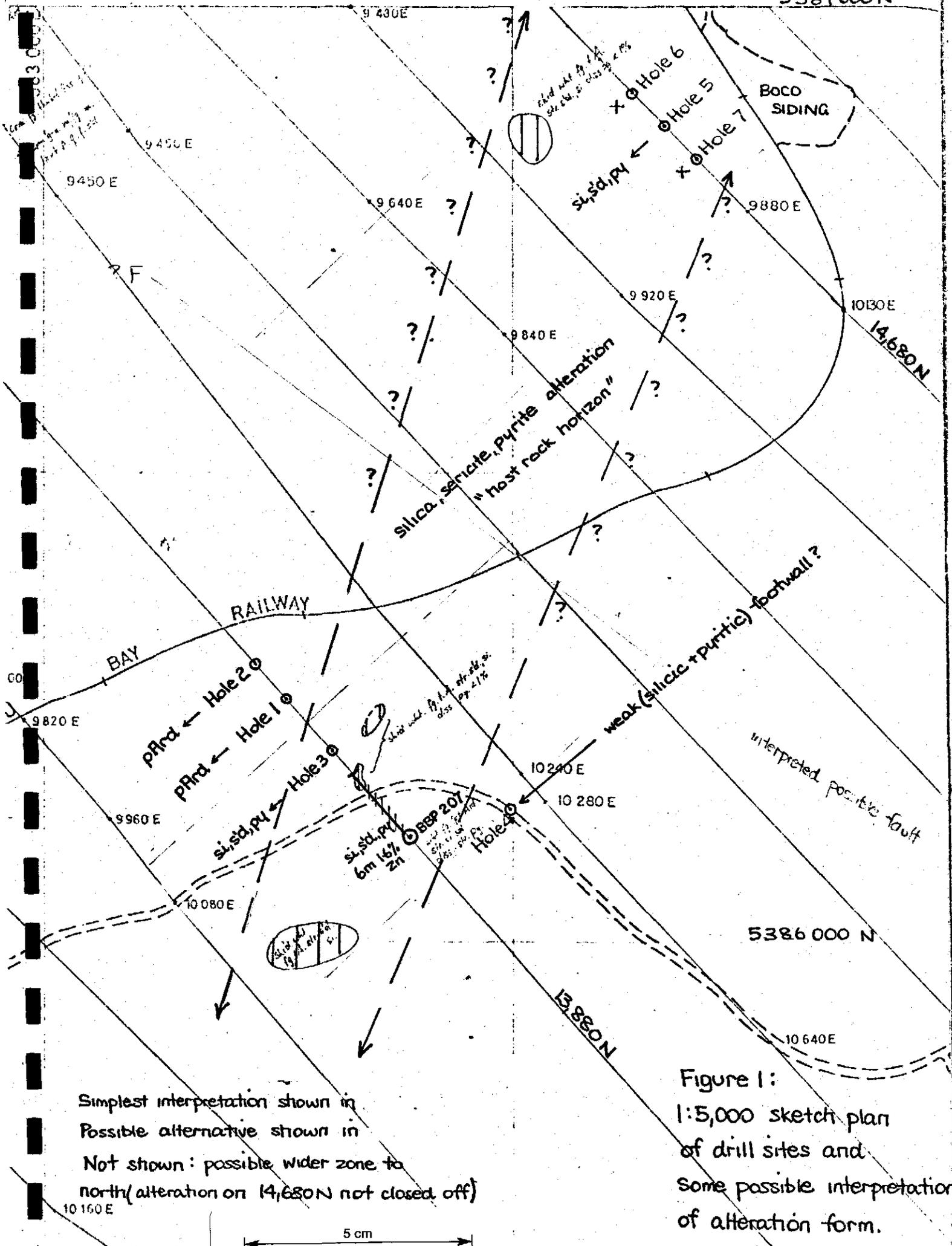
Summary geological results are as follows:

<u>Hole</u>	<u>Location</u>	<u>Bedrock</u>
1.	9,950E on 13,880N	Brown rhyodacitic lava.
2.	9,900E on 13,880N	Brown rhyodacitic lava.
3.	10,025E on 13,880N	Silica-sericite-pyrite altered volcanic ( <i>'host rock'</i> ).
4.	10,200E on track approx. 100mN of 13,880N	Deeply weathered lava. Patchy FeOx staining, remnant py, qtz in rock may indicate this rock is footwall alteration to <i>'host rock'</i> .
5.	9,750 on 14,680N	Silica-sericite-pyrite altered volcanic. ( <i>'host rock'</i> )

Line 13,880N (the first, southern line) provided the only effective traverse of the quartz-sericite-pyrite alteration zone. The data indicates the zone has a width of 150-250m on this line (although the significance of the rock in Hole 4 is uncertain).

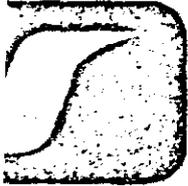
The weak trouser-leg I.P. response on line 13,880N (1978 50m dipole-dipole I.P. follow-up of 88P 207) is probably due to the presence of outcrop and suboutcrop of the altered volcanic rock about 10,060E-10,080E. This response is therefore unique in that nowhere else has an I.P. survey traversed outcrop of the altered volcanic.

Line 14,680N (the second, northern line) was incomplete (with only one hole completed successfully). Hole 5 was sited above the 18mV/V n=6 reading on the 1982 60m dipole-dipole I.P. survey (refer to fig. 3 pseudo-section 14,680N) and intersected quartz-sericite-pyrite rock. Unsuccessful Hole 7 was located above the other n=6 14mV/V chargeability high at 9,800E. It cannot yet be concluded as to whether this small n=6 higher chargeability zone was in response to a higher bedrock level (38-745m) than close by elsewhere or to relatively pyritic rock (or both). A. Howland-Rose (pers. comm.) has suggested that this n=6 zone probably represents a greater anomalous bedrock source than the 14 and 18mV/V chargeability values would normally



Simplest interpretation shown in  
 Possible alternative shown in  
 Not shown: possible wider zone to  
 north (alteration on 14,680N not closed off)

Figure 1:  
 1:5,000 sketch plan  
 of drill sites and  
 some possible interpretation  
 of alteration form.



# SCINTREX PTY. LTD.

INDUCED POLARIZATION AND RESISTIVITY SURVEY  
DIPOLE - DIPOLE ARRAY

DATE 17 FEB 1978

LINE No. 15880N XV

PLOTTED BY A.H.R.

PULSE 2 SEC.

Rx. 340127

PROSPECT BULGOBAC  
BOCO-GRID

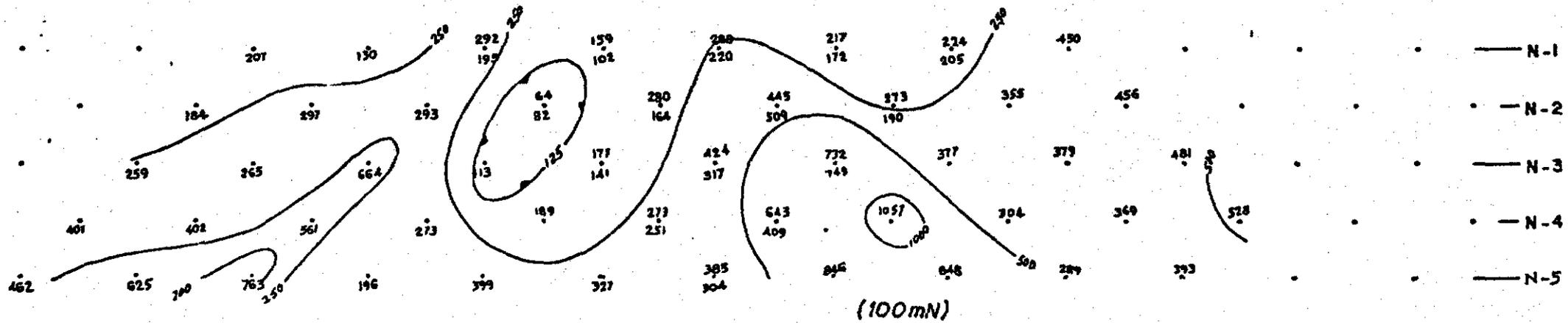
62501

DIPOLE SPACING 50 M

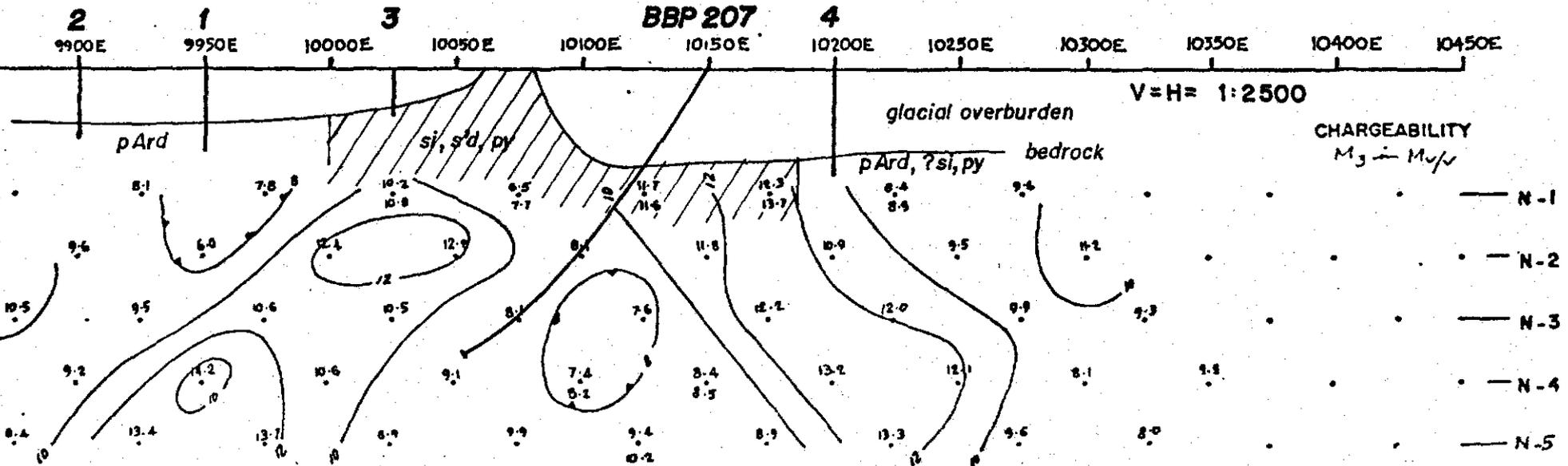
JOB No. TAS-051 (RPT)

9800E 9850E 9900E 9950E 10000E 10050E 10100E 10150E 10200E 10250E 10300E 10350E 10400E 10450E

RESISTIVITY  $\Omega$ m.



9800E 9850E 9900E 9950E 10000E 10050E 10100E 10150E 10200E 10250E 10300E 10350E 10400E 10450E



CHARGEABILITY  
 $M_3$  in  $M_3/\mu$

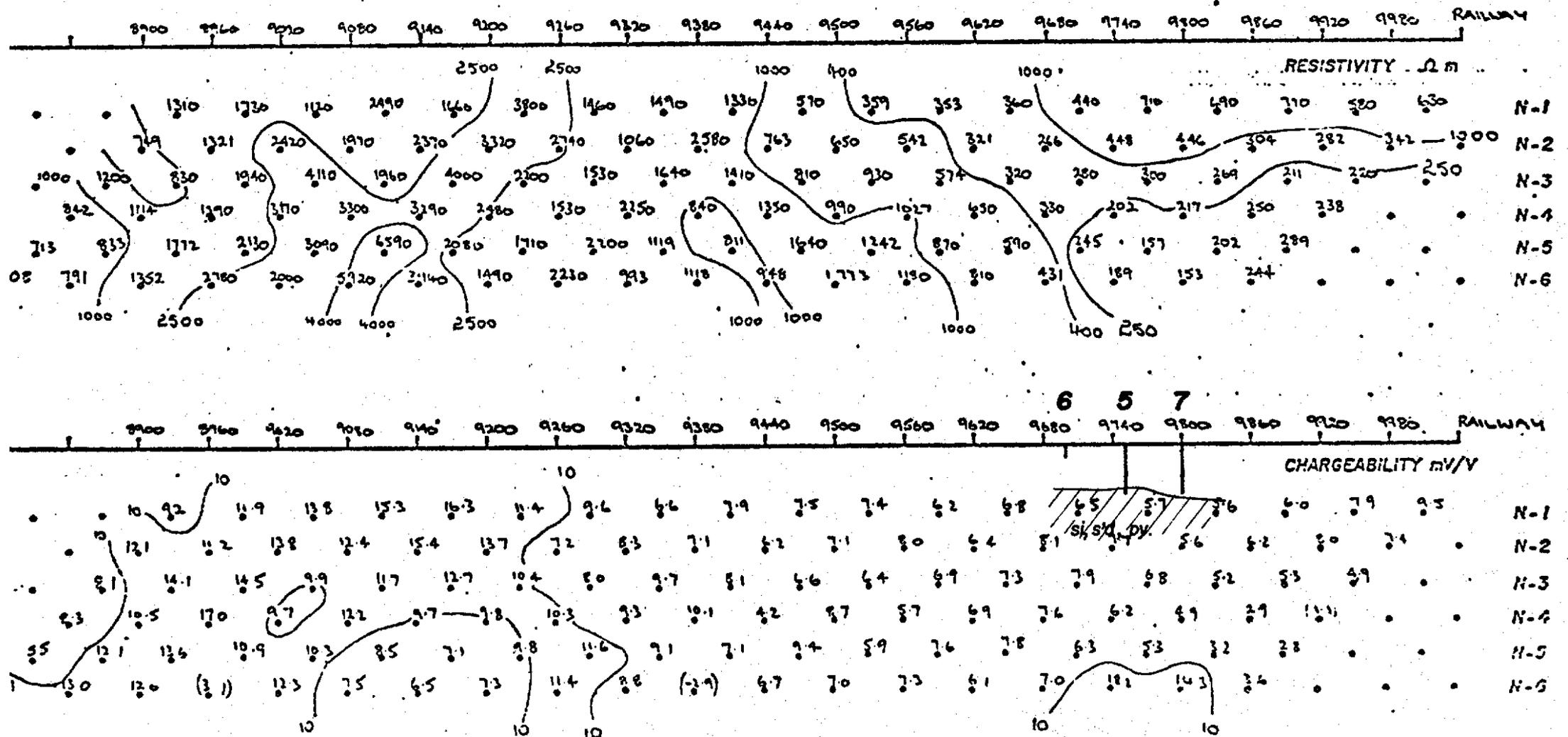
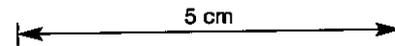
N-1  
N-2  
N-3  
N-4  
N-5

# INDUCED POLARIZATION AND RESISTIVITY SURVEY

SURVEY BY : SCINTREX P/L	PROSPECT : BOCO	DATE : (10-12) - 2 - 82
NOTED BY : J DICKINSON	LINE NO : 14680N	RECEIVER : IPR-11 3011102
FIELD LEADER : J DICKINSON	REF NO : TAS 094	PULSE : 2 second

DIPOLE - DIPOLE SPACING = 60 METRES

SCALE = 1:5000



625011

imply, and that the zone should have undergone an apparent lateral shift in position (towards the receiving electrodes of about 200m) because of the nature and depth of the overburden. If this is correct, then the n=6 chargeability high on 14,680N has not been tested (and the 60m dipole-dipole I.P. has not responded to the pyritic rock at 38m depth as found in Hole 5).

Geochemical assay results on split core bedrock samples are as follows (in ppm):-

<u>Sample</u>	<u>Hole</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>	<u>Ag</u>	<u>Fe</u>	<u>Mn</u>
46379	1	5	5	85	X	3.05%	335
46380	2	5	10	150	X	2.05%	210
46378	*3(18.5m)	15	115	1600	0.5	8.60%	1450
46377	*3(19.8m)	5	65	180	X	1.70%	50
46376	4	10	15	50	X	1.60%	140
48901	*5	10	15	45	0.5	0.96%	60

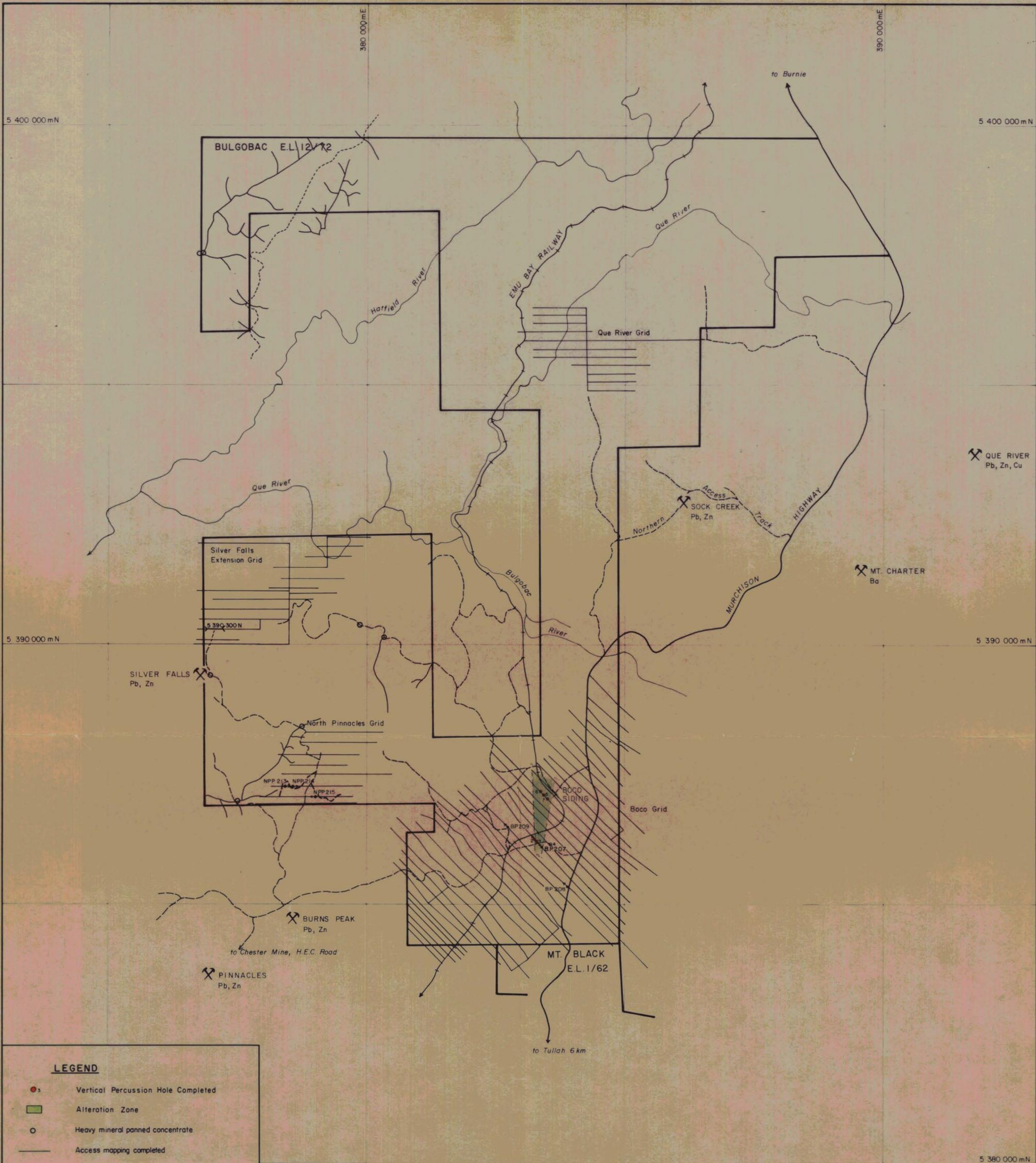
\* Quartz-sericite-pyrite altered volcanic ('host rock')

The above results provide an insufficient sample base from which to draw conclusions, although the elevated values of 1600 ppm Zn, 115 ppm Pb, 15 ppm Cu and 8.60% Fe from the altered volcanic 46378 in Hole 3 is of note. Chip sampling of 1977 DDH BBP 207 returned the following highest assays:

131.3 - 137.3    6.0m    at    1.55% Zn, 3500 ppm Pb, 1700 ppm Cu, 7.0% Fe  
 77.6 - 83.3    5.8m    at    2550 ppm Zn, 350 ppm Pb, 25 ppm Cu, 1.8% Fe

Both samples of altered volcanic rock from Hole 3 have base metal contents that fall within the ranges returned from BBP 207 (refer to E.Z. Geol. Dept. Report 128, October, 1977) but the values from Hole 5 are abnormally low - lower than those of the unaltered (hangingwall) massive lavas.

The base metal contents in samples from Holes 1, 2 and 4 also appear low with respect to those from barren volcanics in BBP 208 and BBP 209 (op. cit. p 93ff). The effect of (?subglacial/?pre-glacial subaerial) leaching from 'surface' rocks may be significant. If so, then the above assay results do not bear comparison with the 1977 DDH results.



**LEGEND**

- Vertical Percussion Hole Completed
- Alteration Zone
- Heavy mineral panned concentrate
- Access mapping completed
- Costean constructed, sampled & geologically mapped
- Line I.P. gradient array
- Line Cut
- Line Pegged
- Line Soil Sampled
- Line Geology Mapped
- Line I.P. Dipole - dipole
- Vehicle track constructed
- Streams geologically mapped and sampled
- Existing Vehicle Track
- Road
- Railway
- River
- Existing Grid Line
- ⚒ Mine, Prospect

625013

5 cm

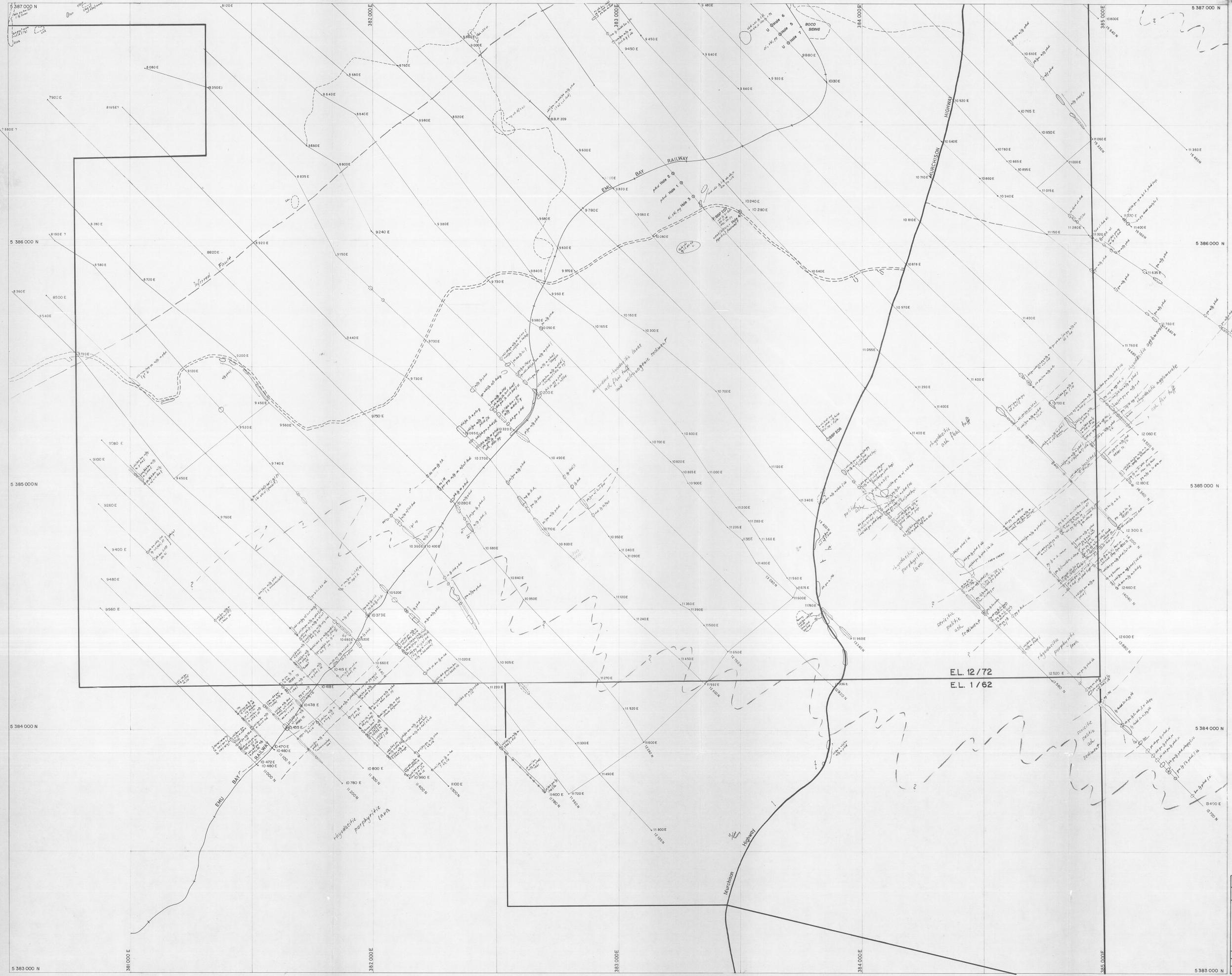
ELECTROLYTIC ZINC CO. OF A'ASIA LTD.  
 PROJECT: BULGOBAC E.L. 12/72 TAS.

**WORK COMPLETED**

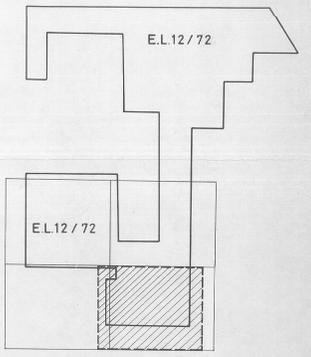
**25/08/1982 - 20/11/1982**

83-1921

SCALE: 1:50,000	Survey:	Revised:
Reference:	Date: 26.5.80	REF. No.
Drawn: R.P.T.	Checked:	A2 - 521 - 0021



NOTE:  
 This map presents 1982 mapping with revised "probable rocktypes"  
 re-interpreted by R.A.S. after NIHL on 1976-77 grid lines.



BOCO SOUTH SHEET (SPECIAL)  
 COMPILED FROM SHEETS AO-521-0002/0004

ELECTROLYTIC ZINC CO. OF ASIA, LTD.  
 PROJECT: BULGOBAC EL12/72 TAS.

CORRECTED BOCO GRID SHOWING

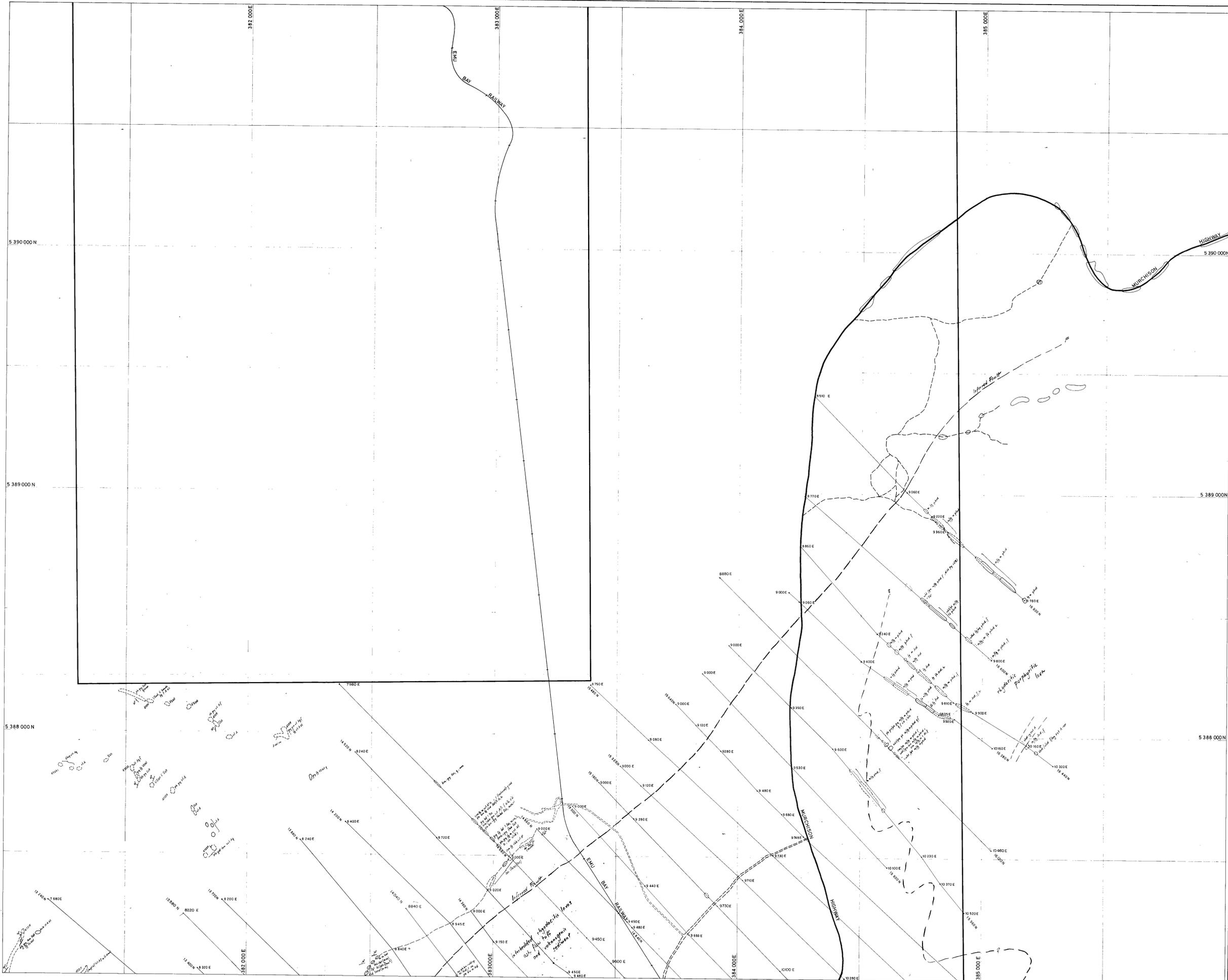
**GEOLOGY**  
 625014

SCALE: 1 : 5 000

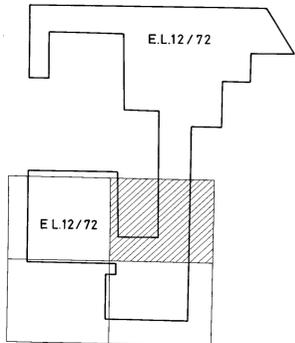
DATE: 24.8.1982 DRAWN BY: NIK SURVEY BY: R.S.

REF. NO. AO-521-0093





**NOTE:**  
 This map presents 1982 mapping with revised "probable rocktypes" re-interpreted by R.A.S. after NMH on 1976-78 grid lines



BOCO NORTH SHEET

ELECTROLYTIC ZINC CO. OF ASIA. LTD.	
PROJECT: BULGOBAC E.L.12/72	TAS.
CORRECTED BOCO GRID SHOWING	
<b>GEOLOGY</b>	
625015	
SCALE: 1:5 000	83-1924
REFERENCE	REF. NO.
DATE 24.8.882 DRAWN N.K.	GEOLOGY R.S. <b>AO-521-0094</b>

