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Received	22 FEB 1984			E & IL
Answered				
DEPT. OF MINES				
REF. No. 1805/84				

MICROFILMED

THE SHELL COMPANY OF AUSTRALIA LIMITED

METALS DIVISION

E.L. 22/74 - MARIONOAK

Report on Exploration, July 1983 to February, 1984

Author : W.D. Smyth

Report No : 08.2260

Date : 14/2/84

Copy No : 1

Distribution :

1. Mines Department
2. Aberfoyle Exploration
3. BXHE/AHO
4. BXH/Devonport

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FIGURE 1 : Location E.L. 22/74 (Not available on Microfiche)
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SUMMARY

Work consisted entirely of one UTEM survey in the opposite direction to the previous survey. A conductor was intersected over 1200m of strike length, apparently displaced from the location of the previous conductor due to loop positioning. A deep diamond drill hole is recommended to test the conductor.

003

1.0 INTRODUCTION

This report covers all investigations undertaken on the licence in the period July, 1983 to February, 1984.

E.L. 22/74 is located 5 km north of Rosebery with the main area of interest, the Bastyan Dam Grid, straddling the HEC Stringers Creek Road, approximately one kilometer west of the Bastyan Dam site offices.

2.0 INVESTIGATIONS COMPLETED

Work for the period has consisted entirely of an additional UTEM survey and its subsequent interpretation.

In the initial UTEM survey the loop was to the west of the grid and a conductor was located at approximately 50m E. For the second survey the loop was placed to the east of the grid and a conductor, subparallel to the initial one, was located at approximately 300m W. The change in position of the conductor is explained by the location of the loops. The initial loop was located almost on top of the conductor which resulted in an offset to the east of the conductor.

The conductor is thought to be at approximately 200m below 300m W on Line 00 N.

It was located on all lines of the extended grid giving it a minimum strike length of 1200m. Geophysical interpretations are given in Appendix 1.

3.0 CONCLUSIONS & RECOMMENDATIONS

A major geophysical target has been located at Bastyan Dam Grid. It may be related to carbonaceous shales previously

intersected in DDH SBD 1. However, conductivities measured on selected pieces of core did not appear high enough to account for the conductor located.

A diamond drill hole of approximately 500m is recommended to test the UTEM conductor.

005

461006

APPENDIX 1

Geophysical Interpretations

MEMORANDUM

TO: BXH/Devonport
FROM: BXN:NH:AJD
DATE: 14 December, 1983
SUBJECT: BASTYAN DAM UTEM ANOMALY

Discussions about this anomaly were held recently with Dr Jim McNae who is very experienced in the interpretation of UTEM data, and in 1984 will be the UTEM representative in Australia.

The major problem with the interpretation of the UTEM data is the apparent different position of the Z-component cross-over using different loop positions (Fig. 1).

McNae is of the opinion that the responses are due to a thick (200-400 m), relatively conductive (5 S) unit which lies under the leading edge of loop 1.

Consideration of the primary and secondary fields suggests that the response to such a conductor due to loop 1 would be to offset the cross-over some distance to the east. This distance would depend on the conductor's thickness, depth, dip, and location beneath loop 1. In this case with an easterly dip, the top depth is the order of 200-300 metres deep.

For the same 'thick dyke' conductor, the response due to loop 2 (which is about 600 m from the respective Z cross-over) is such that the cross-over is expected to lie over the centre of the conductor.

Hence the anomaly appears to be due to a deep (200-300 metres), thick (200-400 metres), fairly conductive unit coincident with the indicated position of the UTEM conductor (loop 2). It has a strike length in excess of 1200 metres and is probably related to the IP anomaly previously delineated (the IP anomaly may mark one side of the conductor).

If this interpretation of the UTEM anomaly is correct, one might expect that DDH SBD-1 should have tested the source or at least it's near surface expression (Fig. 2) (vertical depth = 175m). SBD-1 did in fact intersect a sequence of sandstones and siltstones occasionally carbonaceous with minor sulphides. However 4 measurements on core did not indicate that it was conductive (all >500 ohm-m). (Unfortunately logging could not be carried out due to hole collapse). It therefore appears that this particular unit may simply become more carbonaceous (and sulphidic?) with depth. The strike length in excess of 1200 metres tends to confirm that the conductor is due to a lithologic unit.

The Lead-Isotope work (on core from SBD-1?) gives somewhat ambiguous results since the few samples measured indicate a radiogenic spread across the

007

'type-signatures' of Que River and Rosebery; ie: some samples are dated earlier which would fit with the older age of the sediments at Bastyan Dam. Thus although the CSIRO interpretation is that the Pb-Zn is due to vein-type mineralisation, there does remain some doubt about this, especially since the expected target is sediment-hosted stratiform mineralisation rather than the usual Tasmanian volcanogenic style.

In summary, therefore, the most likely explanation for the UTEM anomaly is that it is caused by a by a thick and extensive carbonaceous unit with minor sulphides. A large Pb-Zn stratiform body is not impossible however and Aberfoyle should be encouraged to fund drilling of the anomaly (a 500 to 600 metre hole will probably be required), since Shell will have obvious budget difficulties in 1984.

N. Hungerford

461009

MEMORANDUM

DATE : 18 January, 1984

FROM : BXN:NH:AJD

TO : BXH/Devonport

BASTYAN DAM, UTEM ANOMALY

Following further discussions with Aberfoyle's geophysicist, Tom Eadie, I have concluded that a target exists to be tested on Line ON with a drill hole to 500 metres depth.

The UTEM responses from the two opposite loops are shown on Fig. 1. Loop 1 indicates a conductor approximately 200-300 metres below 25E. (GEC/Lamontagne interpretation) with a moderate conductivity x thickness of about 15-20 Siemens. Loop 2 did not detect a conductor at the same location as Loop 1 but some 300 metres west at about the same depth and with greater conductivity x thickness. Note that Loop 1 did not detect the Loop 2 conductor at 300 W since the edge of the transmitter loop was almost on top.

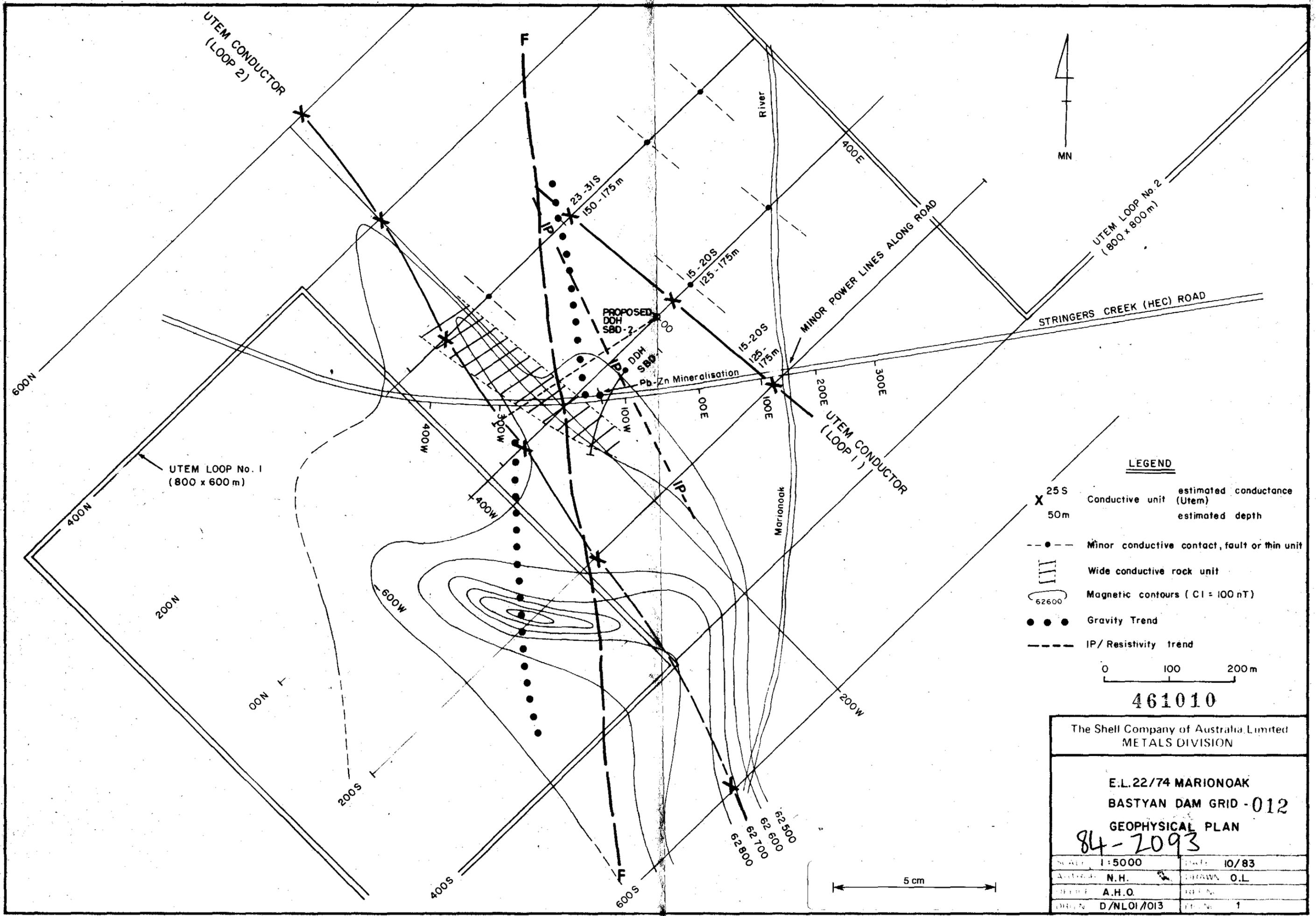
The initial interpretation I made in my memo of 14/12/83 was that a broad conductive unit (composed of pyritic and carbonaceous shales and sandstones such as those intersected in DDH SBD-1) may have explained the UTEM anomalies, the two apparent conductors being contact effects with more resistive units to the west and east. However, as mentioned also in that memo, measurements made on core from SBD-1 did not show that it was conductive and therefore did not verify that the drill hole had in fact explained the UTEM anomalies.

A possible explanation is that the UTEM anomalies are caused by opposite limbs of an overturned anticline as shown on a simplistic structural diagram, Fig. 2 (the western limb being thicker and/or more conductive than the eastern). Such a feature would imply that the present DDH SBD-1 drilled over the crest of the anticline. In order to test this concept therefore a drill hole is proposed, collared at 00E on line 00N, inclination -50°, to a depth of 500 metres (down hole). The previous drill hole was drilled at a collar azimuth of 225°MR, but deviated to the south. It may therefore be advisable to drill the proposed hole with a collar azimuth of 235°MN which is more perpendicular to the strike of the western UTEM anomaly (see Fig. 3).

Allowance should be made when costing the hole for PVC casing to be emplaced, so that subsequent geophysical logging can be carried out if required.

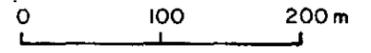
NH

N HUNGERFORD



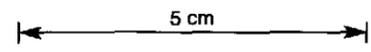
LEGEND

- X 25S Conductive unit (Utem)
- X 50m estimated depth
- Minor conductive contact, fault or thin unit
- |||| Wide conductive rock unit
- (62600) Magnetic contours (CI = 100 nT)
- Gravity Trend
- IP/Resistivity trend

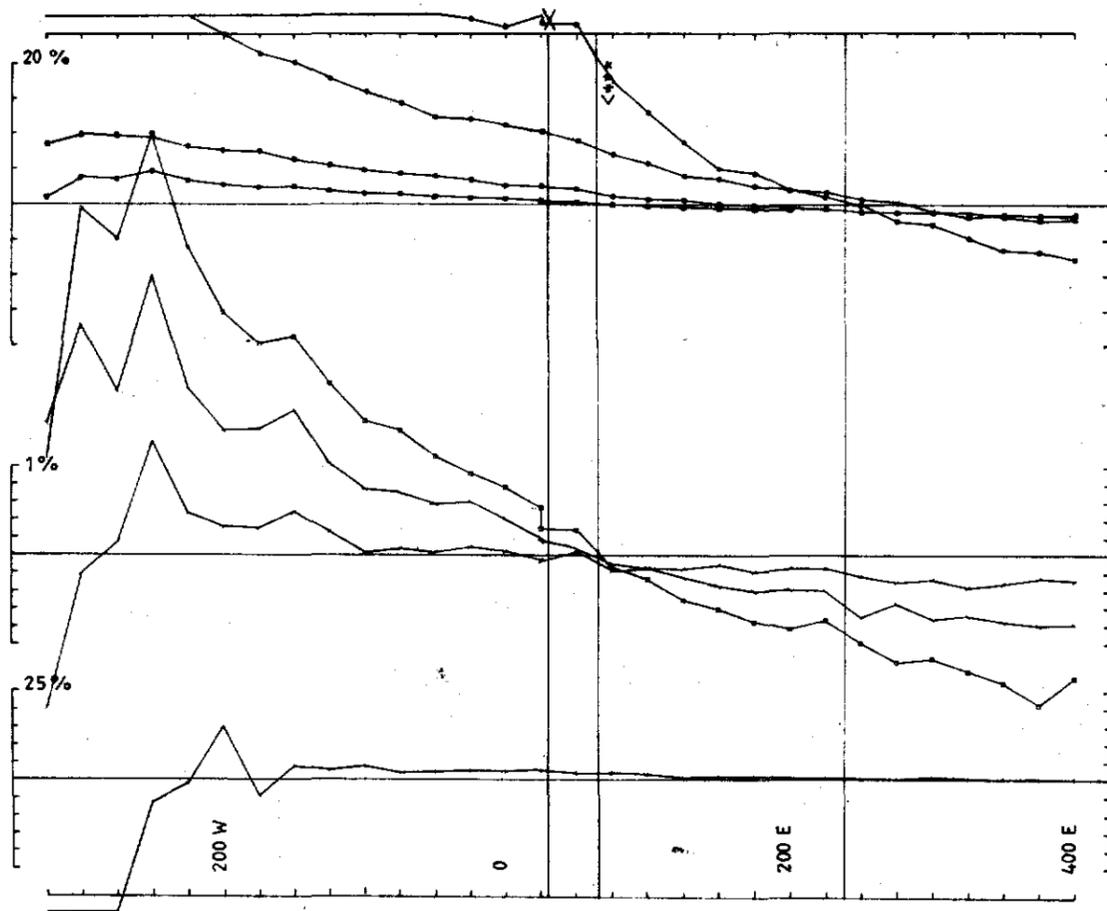


461010

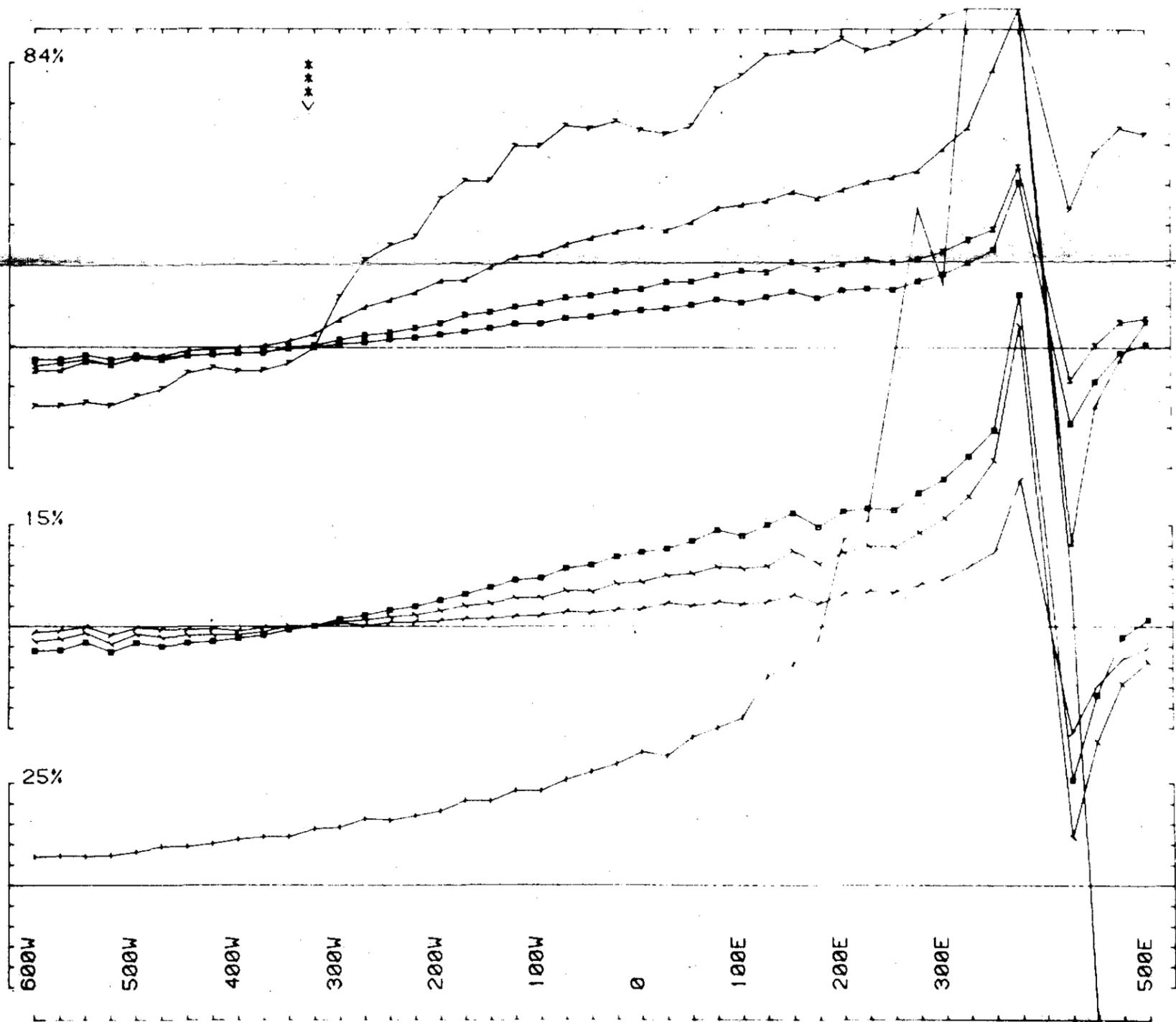
The Shell Company of Australia Limited METALS DIVISION	
E.L.22/74 MARIONOAK BASTYAN DAM GRID - 012 GEOPHYSICAL PLAN	
84-2093	
SCALE 1:5000	DATE 10/83
APPROVED N.H.	DRAWN O.L.
PREPARED A.H.O.	REVISION
DRWN D/NLOI/013	PLN No 1



LOOP1 (800 x 600 m)

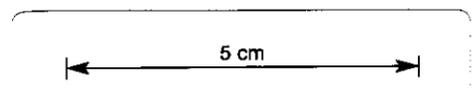


LOOP 1



LOOP 2

LOOP 2 (800x800m)



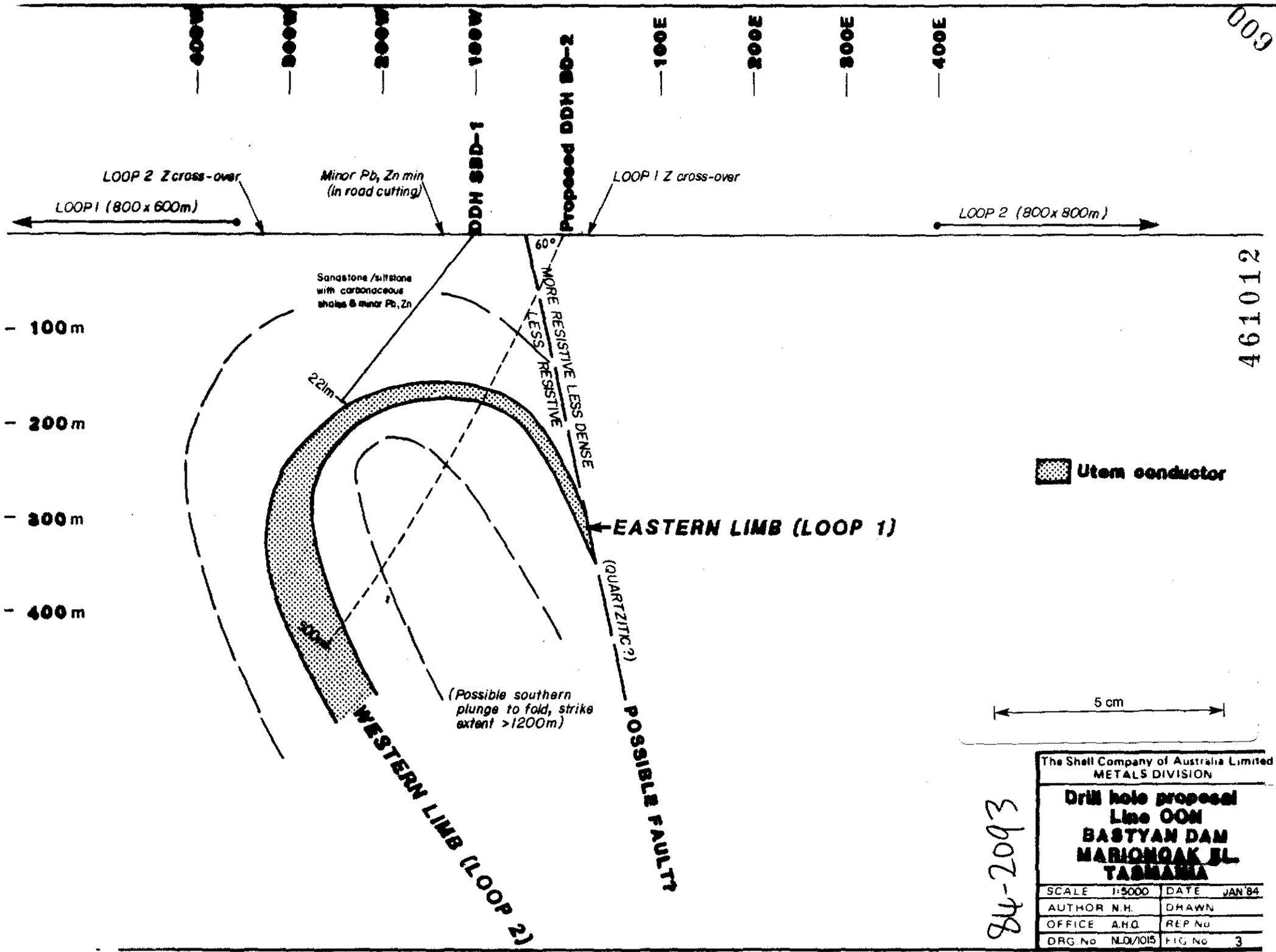
UTEM H* NORMALISED COMPONENT PLOTTED

84-2093

The Shell Company of Australia Limited	
METALS DIVISION	
TASMANIA	
MARIONOAK E.L.	
BASTYAN DAM	
LINE ON	
UTEM RESPONSES	
1:5000	JAN. 1984
N.H.	V.C.
AHO	
NLO1/1014	2

461011 011

009



461012

Utem conductor

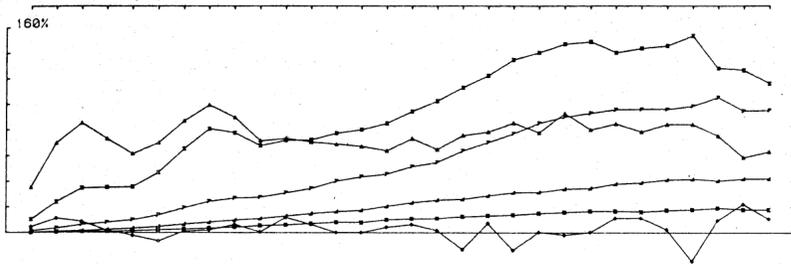
5 cm

The Shell Company of Australia Limited
METALS DIVISION

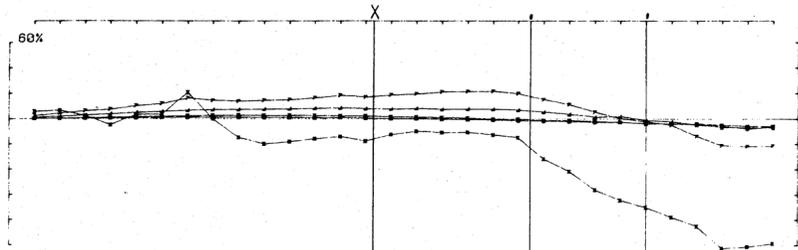
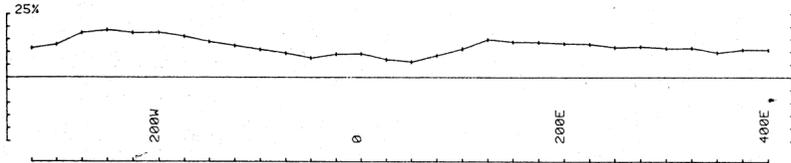
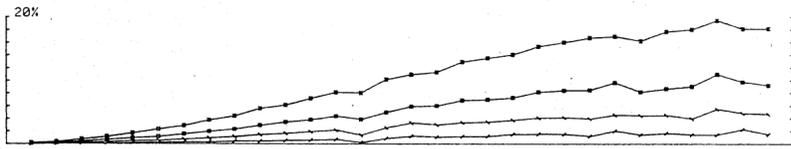
**Drill hole proposal
Line 008
BASTYAN DAM
MARIONOAK BL.
TASMANIA**

SCALE	1:5000	DATE	JAN '84
AUTHOR	N.H.	DRAWN	
OFFICE	A.H.Q.	REP No	
DRG No	NLO/1015	FIG No	3

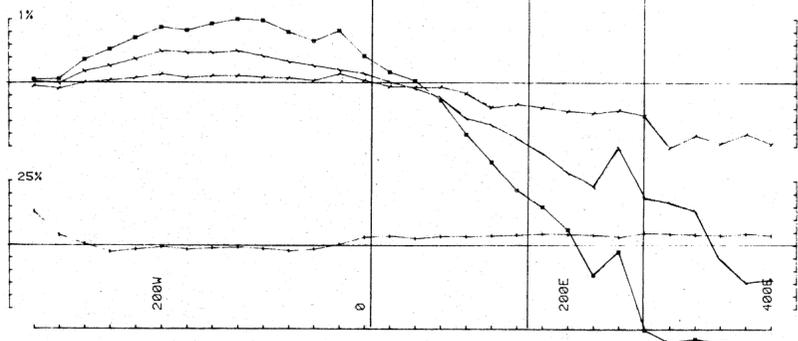
84-2093



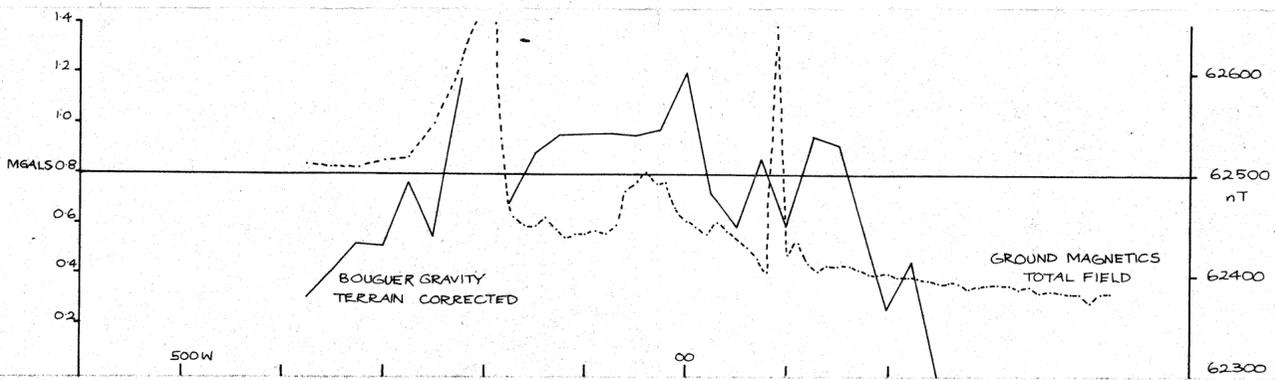
UTEM Hx component
(Continuous normalisation)



UTEM Hz component
(Tx freq = 26.23 Hz)

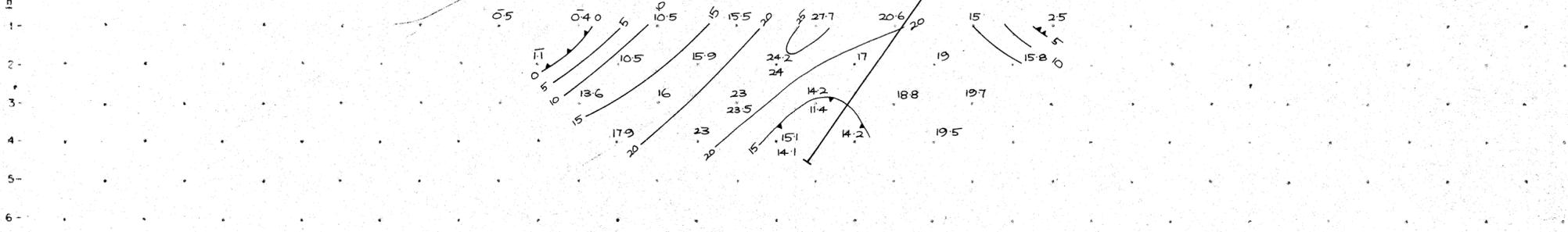


AIRBORNE GEOPHYSICS
(EM, MAG, etc)

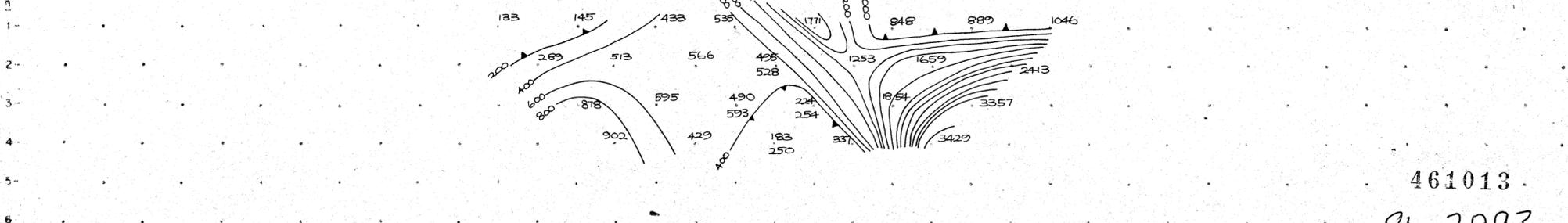


GEOLOGY
& TOPOGRAPHY

APPARENT CHARGEABILITY



APPARENT RESISTIVITY



Contractor SCINTREX PTY. LTD.
Date 11-05-82
Timing 2 SECS
Transmitter IPTA 2 SEC. PULSE
Receiver IPR -8
Integration time 650 - 1170 m.s.
Array DIPOLE - DIPOLE
Dipole length 100m

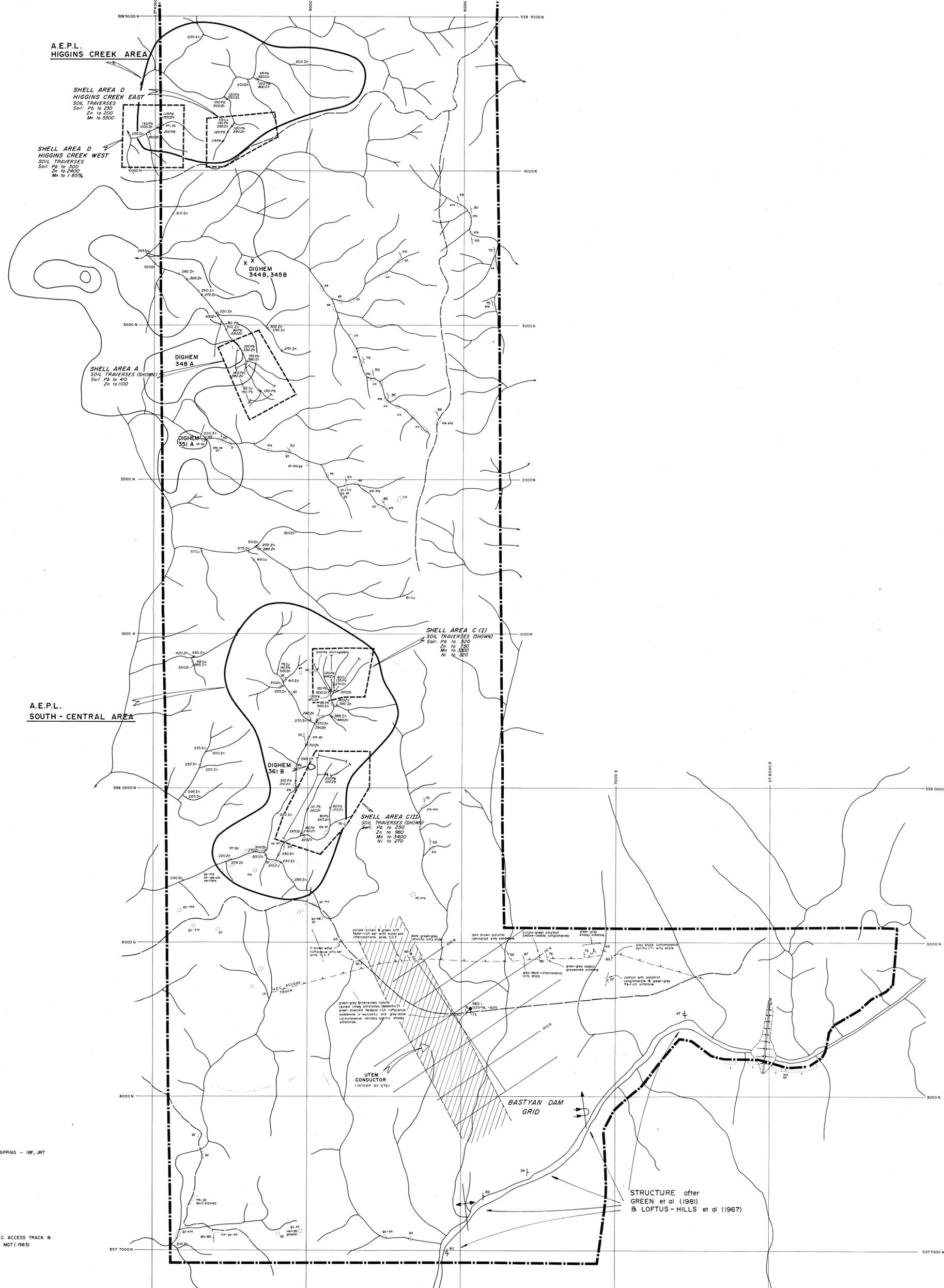
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84-2093

IP/RESISTIVITY SURVEY
E.L. 22/74 MARIONOAK
LINE 200N
BASTYAN DAM 013

1:5000
N.H.
A.H.Q.
NL 01/1013

5 cm



A.E.P.L.
HIGGINS CREEK AREA

SHELL AREA D
HIGGINS CREEK EAST
SOIL TRAVERSES
Soil: Pb to 230
Zn to 200
Mn to 5300

SHELL AREA D
HIGGINS CREEK WEST
SOIL TRAVERSES
Soil: Pb to 300
Zn to 2400
Mn to 1-85%

SHELL AREA A
SOIL TRAVERSES (SHOWN)
Soil: Pb to 410
Zn to 1100

X X
DIGHEM
344 B, 345 B

DIGHEM
348 A

DIGHEM
351 A

A.E.P.L.
SOUTH-CENTRAL AREA

SHELL AREA C (I)
SOIL TRAVERSES (SHOWN)
Soil: Pb to 320
Zn to 750
Mn to 3300
Ni to 350

SHELL AREA C (II)
SOIL TRAVERSES (SHOWN)
Soil: Pb to 250
Zn to 980
Mn to 3400
Ni to 270

UTEM
CONDUCTOR
(INTERP. BY ETE)

BASTYAN DAM
GRID

STRUCTURE after
GREEN et al (1981)
& LOFTUS-HILLS et al (1967)

ABBREVIATIONS A.E.P.L. MAPPING - IBF, JRT

- D Dacite
- co Conglomerate
- ss Sandstone
- gy Greywacke
- sls Siltstone
- ms Mudstone
- sh Shale
- t Tuff

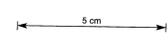
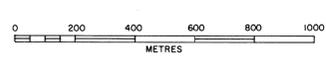
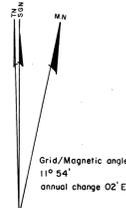
ADDITIONAL GEOLOGY H.E.C. ACCESS TRACK &
PIEMAN RIVER ROAD - MGT (1983)

ABERFOYLE

- 265 Stream sediment sample, anomalous value, metal as indicated.
- Costean

SHELL

- 230 Anomalous stream sediment sample, metal as indicated, from confirmation programme.
- Soil sample traverse



461014

Aberfoyle Exploration Pty Ltd		
Geology: IBF, JRT, MGT	NORTH WEST TASMANIA DUNDAS TROUGH MARIONOAK E.L. 22/74	Location code: K55/3
Drawn: OS Obove	010	Date: March 1984
Traced: JB	Scale: 1:10,000	Plate No
Checked: P.C.T.	SUMMARY PLAN	MOC 18 B
Revised by: Date:		94-2093