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EXPLORATION LICENCE 22/74

MARIONOAK

TASMANIA

REPORT ON EXPLORATION,

MARCH TO DECEMBER 1984

OPEN FILE

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3/4

JANUARY, 1985

ABERFOYLE, BURNIE

4/4

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1. SUMMARY

Exploration Licence 22/74 (Marionoak) of 37 square kilometres is situated near Rosebery in Western Tasmania. The licence is explored under the terms of the Marionoak Joint Venture between Billiton Australia and Aberfoyle Exploration Pty Ltd. During 1984, management was transferred to Aberfoyle, together with the right to return to 50% equity through the funding of the next phase of exploration.

The 1984 exploration programme involved modelling of UTEM data, a review of previous work on the property and target selection, leading to the drilling of a 454.1 metre diamond hole on the Bastyan Dam grid. A total of \$45,757 was expended during the year ended November 12, 1984. No significant base metal sulphides were intersected, and subsequent down-hole SIROTEM failed to reveal any major off-hole conductors. The cause of the UTEM response is not immediately apparent.

During 1985, the proposed programme will include detailed core logging and geochemistry, lead isotope analyses of minor mineralised veins, and completion of the SIROTEM interpretation. This work is estimated to cost \$13,000 in the six months to June, 1985.

Current equities in the Marionoak Joint Venture are Billiton Australia 53.86%, Aberfoyle Exploration (Manager) 46.14%.

2. INTRODUCTION

This report describes exploration activities on EL 22/74 - Marionoak during the period March to December, 1984. The Statement of Expenditure pertains to the Aberfoyle budget year ended November 12, 1984.

The Exploration Licence of 37 square kilometres is situated approximately 5 kilometres north-west of Rosebery in Western Tasmania (Figure 1). Currently, the main area of activity is the Bastyan Dam grid, which straddles the sealed Lower Pieman Dam road, in the south of the licence (Plate MOC 18B).

The licence is current until February 26, 1985 and may be renewed annually until the final expiry date of February 26, 1988. No reduction in area is required during this period. The annual expenditure commitment is \$18,500.

The licence is explored under the terms of the Marionoak Joint Venture between Billiton Australia (formerly The Shell Company of Australia Limited - Metals Division) and Aberfoyle Exploration Pty Ltd. The equities at the time of the last report (Smyth, 1984) were Billiton 65.841%, Aberfoyle 34.159%.

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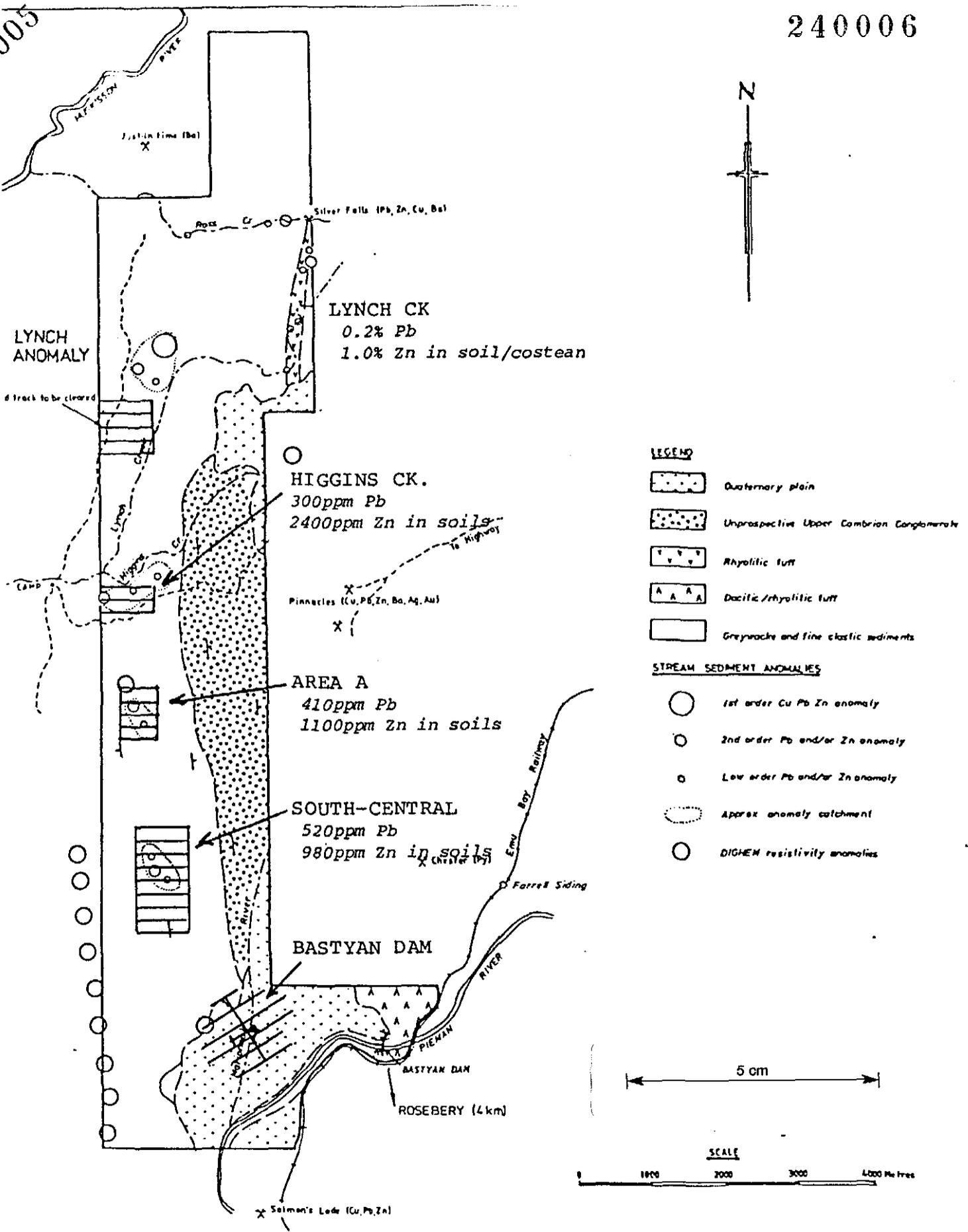


FIGURE 1.

ABERFOYLE EXPLORATION PTY. LTD			
DRAWN	EBF.	NORTH WEST TASMANIA EL.22 74 - MARIONOAK RIVER EXPLORATION SUMMARY MAP	LOCATION CODE
TRACED	RXY		SCALE 1:50,000
CHECKED.			DATE OCT 1976
REVISED ON	DATE 17-6-81		PLATE NO

3. TRANSFER OF MANAGEMENT

At a joint venture meeting held on April 4, 1984, both parties agreed that Aberfoyle should assume management of the Marionoak Joint Venture, together with the right to return to 50% equity through the funding of the next phase of exploration. Management beyond that point would be resolved at a later date.

4. PROJECT REVIEW

The most recent report on exploration (Smyth, 1984) describes the positioning of a second UTEM loop on the Bastyan Dam grid designed to more precisely locate a deep and complex response detected during the initial UTEM survey (Smyth, 1983). A diamond drill hole of approximately 500 metres was recommended to test the UTEM feature.

On assuming management, Aberfoyle determined that three matters should be clarified prior to committing funds to diamond drilling. These were firstly an analysis of the UTEM data to determine the target parameters, secondly a review of exploration on the property to establish whether the Bastyan Dam grid response was the best target and should be drilled immediately prior to extending surface exploration, and finally that the tenure situation was secure in view of other conflicting land usages.

i) UTEM

Modelling of the UTEM data was undertaken by Aberfoyle's geophysicist, who has gained wide experience with the system since its development.

Results were reviewed with Billiton. The anomaly was interpreted as a broad, flat lying deep conductive feature with a possible shallowly south plunging anticlinal attitude. The response is horizontally so broad, from 500W to 200W (Figure 2), that it should be a simple target to test by drilling. It was recommended that the target be intersected on line 00N at 300W, at a vertical depth of 275 metres.

ii) TARGET DEFINITION

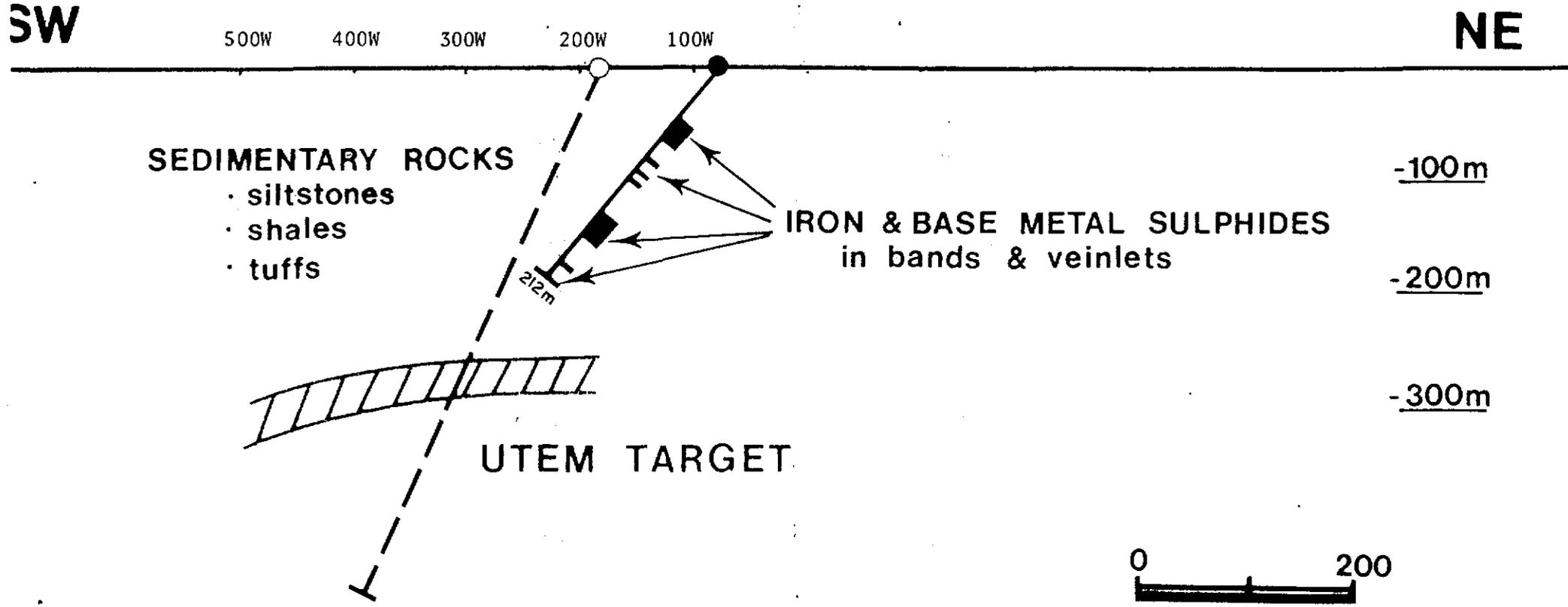
A compilation and review of all geology, geochemistry and geophysics conducted on the Marionoak Licence since its inception was completed by a geologist with a sedimentological background. This work included examination of core from hole SBD 1 to determine precise geological structure to assist preferred drill hole positioning. The full report with maps is appended (Appendix I). The study concluded that the UTEM conductor should be tested by diamond drilling and that other stream and soil geochemical anomalies on the licence warrant follow up with EM to define drill targets. The DIGHEM data, collected in 1980 (Smyth, 1982), should be re-examined.

Logging of graded (and cross-bedded) features in SBD 1 support the interpretation of a local anticlinal fold closure. This is consistent with the regionally tight, and locally overturned isoclinal folding observed in the Pieman River section near Bastyan Dam.

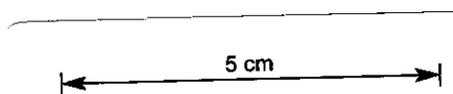
Marionoak Licence, Tasmania

BASTYAN DAM PROSPECT

Cross Section



LINE 00N



- ——— 1983 SHELL DDH
- - - - 1984 ABERFOYLE PROPOSED DDH

FIGURE 2.

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iii) TENURE

The Bastyan Dam grid is wholly within land vested in the Hydro-Electricity Commission (HEC) for State power development. This situation created some doubts concerning mineral rights.

Enquiries through the Department of Mines and the HEC established that the area was available to mining activities subject to the safeguarding of HEC installations and recognition of the Electrolytic Zinc Company's proposal for a residue dam.

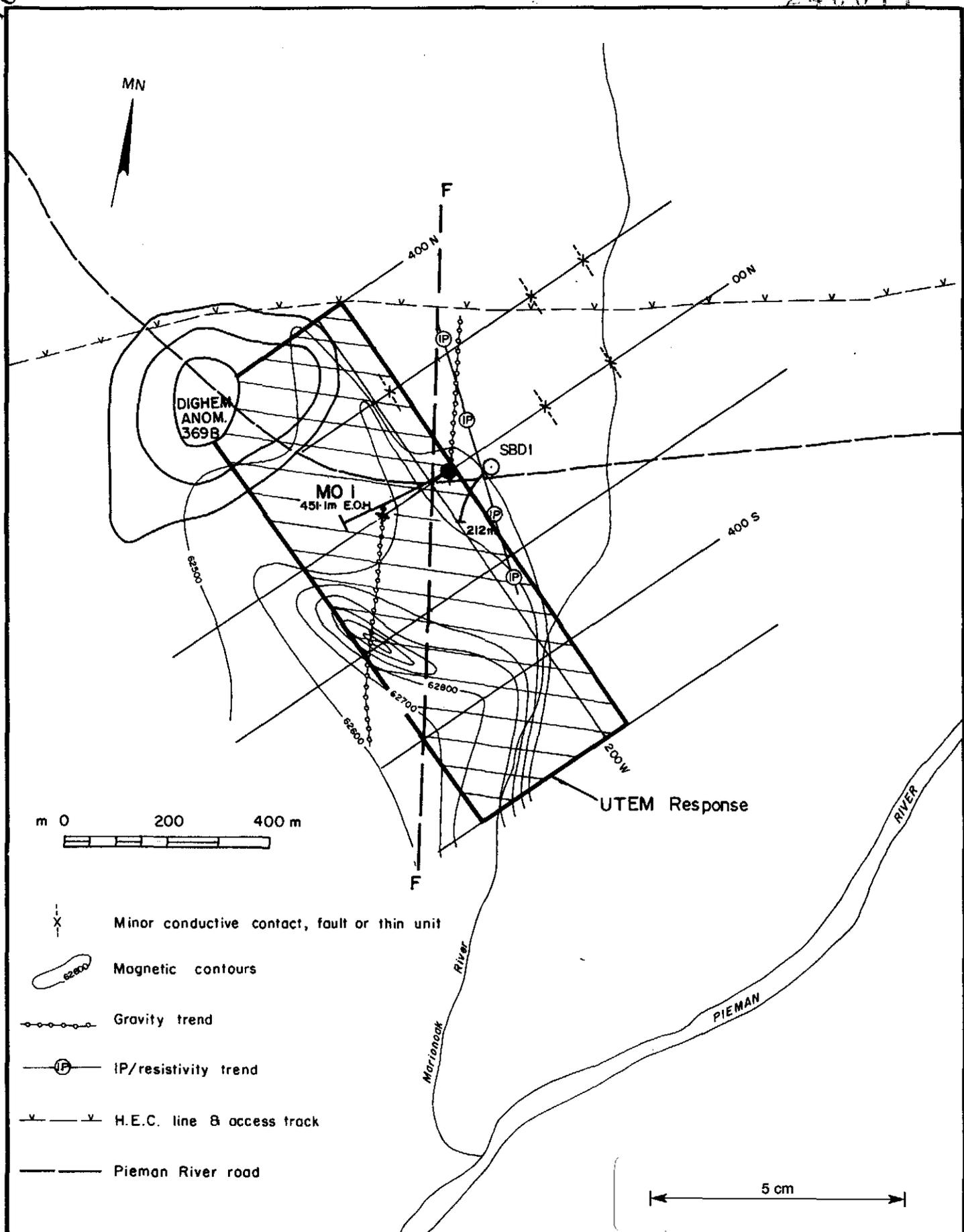
The HEC at Tullah were informed of the location and timing of the drilling programme prior to commencement.

5. DIAMOND DRILLING

Diamond drill hole MO 1 (Plate MOC 19), designed to test the deep and complex UTEM feature on the Bastyan Dam grid, was commenced on September 16, 1984 and completed in limestone at 454.1 metres on October 10. The hole intersected a fairly monotonous sequence of laminated and interlayered greywacke, argillite and shale. Minor carbonate veining with pyrite and very trace base metals was intersected throughout the hole. A gabbroic intrusive with well defined chill margins and trace pyrrhotite was encountered between 251.6 and 271.5 metres. The hole was cased with PVC for down-hole SIROTEM to help resolve the geophysics. Core orientation was performed in an effort to resolve structural problems.

A preliminary log is appended (Appendix II) whilst more thorough logging, petrology and sampling is in progress.

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Aberfoyle Exploration Pty Ltd

Drawn: JB (after Shell)
 Traced:
 Checked: MGT
 Revised by: JRS Date: 18-10-84

NORTH WEST TASMANIA
 DUNDAS TROUGH
 MARIONOAK E.L. 22/74
OVERLAY-BASTYAN DAM GRID

Location code: K 55/3
 Date: March 1984
 Scale: 1:10,000
 Plate No MOC 19

011

6. GEOPHYSICS

DDH MO1 was logged by Billiton using their SIROTEM system. Two loop arrays were placed to test for off-hole responses. Results are still being interpreted, but indications are that no significant conductors exist.

7. PROPOSED PROGRAMME

During 1985 the programme proposed for the Marionoak Licence will include detailed logging of DDH MO 1 core, core grind and split geochemistry, lead isotope analyses of base metal-bearing carbonate veins, and completion of the SIROTEM interpretation. This work is estimated to cost \$13,000 in the six months to June. Expenditure during 1984 (refer following Statement) amounted to \$45,757, considerably in excess of the \$18,500 commitment required. Current equities in the Marionoak Joint Venture are Billiton 53.86%, Aberfoyle Exploration (Manager) 46.14%

8. CONCLUSIONS

A complex UTEM response on the Bastyan Dam grid was tested with a 454.1 metre diamond drill hole, which was subsequently logged by down-hole SIROTEM. The hole successfully intersected the target zone but no significant sulphides were recorded. The cause of the UTEM response is not immediately apparent. Further analysis of the drill core and down-hole geophysical data is necessary.

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9. EXPENDITURE STATEMENT

PAGE 7

GLREP PERIOD: 12 COST REPORT YEAR ENDED 13 NOVEMBER 1984
 ABERFOYLE EXPLORATION PTY LTD - CAMBERWELL

ACCOUNT	PAYMENTS YTD
MARIONOAK J.V. (SHELL)	

GEOLOGY	

... SALARIES	3663.10
... CONTRACTORS	943.10
... HIRING COSTS	113.45
... DISTRICT ACCOMMODATION	50.00
... FREIGHT	21.16
... VEHICLE COSTS	306.25

GEOLOGY	5097.06
GEOPHYSICS	

... SALARIES	585.00
... WAGES	374.00
... CONTRACTORS	1500.00
... TRAVELLING	59.33
... DISTRICT ACCOMMODATION	7.43

GEOPHYSICS	2525.76
DIAMOND DRILLING	

... SALARIES	1196.00
... CONTRACTORS	26118.93
... MATERIALS	2817.78
... HIRING COSTS	315.00

DIAMOND DRILLING	30447.71
ACCESS	

... CONTRACTORS	1880.00

ACCESS	1880.00
TENURE	

... SALARIES	228.00

TENURE	228.00

013

GLREP PERIOD: 12 COST REPORT YEAR ENDED 13 NOVEMBER 1984
ABERFOYLE EXPLORATION PTY LTD - CAMBERWELL

ACCOUNT	PAYMENTS YTD
LEGAL/JV COSTS	
... SALARIES	145.00
LEGAL/JV COSTS	145.00
OTHER SERVICES	
... COMMUNICATIONS	908.46
OTHER SERVICES	908.46
... IRECT COSTS	41231.99
INDIRECT COSTS	
... ADMINISTRATION	4525.19
INDIRECT COSTS	4525.19
... OTAL PROJECT COSTS	45757.18

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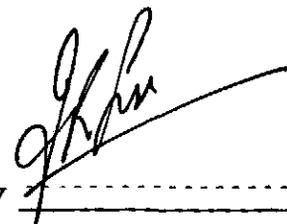
10. REFERENCES

Smyth, W.D. (1982) E.L. 22/74 - Marionoak. Progress Report on Exploration during the period April, 1980 to June, 1982.

Smyth, W.D. (1983) E.L. 22/72 - Marionoak. Annual Report on Exploration, June 1982 - June 1983.

Smyth, W.D. (1984) E.L. 22/74 - Marionoak. Report on Exploration, July 1983 to February, 1984.

Compiled and Issued by



J R Sise

Assistant Manager

APPENDIX I

REPORT ON THE STATUS OF EXPLORATION
LICENCE 22/74 - MARIONOAK, TASMANIA

BY

MARK G. TEAKLE - GEOLOGIST

ABERFOYLE EXPLORATION PTY. LTD.

Report on the Status of
EXPLORATION LICENCE 22/74

MARIONOAK

Tasmania

Adelaide
19 March 1984

Report by: Mark G. Teakle
Geologist

1.

1. Exploration by Cominco-Aberfoyle, 1975-1980

Exploration Licence 22/74 was granted to Cominco on February 26, 1975. The licence area had previously been held by Asarco as part of E.L. 5/73, and Comstaff as part of E.L. 5/63. C.R.A. had covered this area with regional surveys in the 1950's.

Previous explorers concentrated their activities on the eastern volcanic succession, although the Marionoak licence area would have been covered by stream sediment sampling programmes by Asarco, Comstaff, C.R.A. and probably E.Z. as part of the latter company's evaluation of the Rosebery area. I do not have the actual geochemical results of these programmes, but they can be compiled from Open File reports at the Tasmanian Mines Department in Hobart.

Cominco acquired the licence area to evaluate mineralization at Silver Falls and the Lynch Creek Prospect, reported by Mackintosh-Reid in 1918, and ground along strike from the Salmon's Claim prospect, considered to be similar to the zoned stratiform massive sulphides at Rosebery and Que River (see attachment). It was further considered that the (believed) more prospective eastern volcanic succession might be present in the licence area as fault slices and wedges.

Work Done

Stream sediment sampling was carried out over the licence area excluding approximately 4 sq.kms around the Marionoak-Pieman Rivers confluence. The -80# fraction was assayed using AAS-perchloric leach for Cu Pb and Zn.

Five main anomalous areas were delineated (Figure 1) viz:-

- (1) Silver Falls
- (2) Lynch Creek
- (3) Higgins Creek
- (4) South Central, and
- (5) Rosebery Damsite

A helicopter-borne H-400 EM and Geometrics 804 magnetics survey was flown. It was reported that no airborne anomalies warranting ground follow-up were defined.

1.1 Silver Falls

A narrow linear zone of Pb mineralization was inferred from the stream sediment anomalies. The area was subsequently gridded and soil sampled and mapped at 1:2,500 scale. 50 m dipole-dipole IP on the 9 grid lines (200 m apart) outlined only a contact phenomenon (?) on the northern portion of the grid (S.Webster interpretation).

2.

Soil metal contents up to 7600 ppm Pb, 355 ppm Cu, 1850 ppm Zn, were obtained, almost exclusively within the volcanic succession. The undifferentiated sediments on the west side of the grid are reported to include massive to laminated, fine grained to saccharoidal, siliceous and micaceous quartzites. Sandstones, siltstones, shales, homogenous fine grained conglomerates and pisolitic siltstones constitute minor lithologies.

The volcanics are dacitic to rhyolitic lithic, vitric crystal ignimbritic tuffs, variably hydrothermally altered with interbedded well laminated siltstones and minor quartzites. Dips, where recorded, are steep to moderate towards the east. The sediments have undergone at least one deformation.

Mineralization at Silver Falls is manifested as shear-controlled vein disseminations and aggregates of galena, sphalerite, chalcopyrite and pyrite in an incipiently altered volcanic unit.

1.2 Lynch Creek

Stream sediment anomalies were located along 3 kms of drainage north of the confluence with Higgins Creek. Several Pb anomalies of 1st and 2nd order occur in drainage interposed between two significant Pb Zn Cu anomalies about 1 km apart (Figure 1).

1.2.1 Northern Lynch Anomalous Area

Resampling around the original anomaly gave 78-130 ppm Cu, 380-1530 ppm Pb, and 430-1030 ppm Zn, in stream sediments.

A grid was established and soil sampled at 10 m intervals. The contour shown diagrammatically on Figure 1 of Pb >200 ppm, defined a main zone at the centre of the grid up to 150 m wide and >200 m long. Peak values up to 900 ppm Pb defined a N-S trend with good Zn and Cu correlation.

Two costeans were cut, channel sampled and mapped at 1:250 scale. Assays of the channel samples were of a similar order to those from the auger soil samples but in places were up to 2 orders higher. Peak values of 200 ppm Cu, 2000 ppm Pb and 850 ppm Zn were obtained.

Mapping of the costeans and the surrounding grid showed the underlying rocks to be predominantly siltstones with subordinate greywackes and carbonaceous pyritic shales. The effect of Mn scavenging was not established. Petrological examinations reported brecciated siltstone with traces of oxidised fine grained pyrite and possibly chalcopyrite.

It was concluded that elevated base metal contents were related to a sedimentary formational source, probably pyritic black shales, and that dispersion may have been controlled by an abundance of Mn oxides.

1.2.2. Southern Lynch Anomalous Area

Most anomalous tributaries were inspected and parts of the surrounding catchments were traversed. It was concluded that base metal anomalies in the stream sediments have a close association with black shales and siltstones cut by veins and pods of quartz. The quartz with vugs contains small patches of carbonate, ?barite and occasionally pyrite. The host shales are usually intensely black, pyritic and carbonaceous.

Mineralization was evident at (Figure 1)

Locality 1 : brecciated black shale flooded with quartz contains patches of coarse crystalline sphalerite (895 ppm Pb, 4.6% Zn). Quartz carbonate vein? material assayed 34 ppm Ag.

Locality 2 : a 10 cm gossan at the margin of a quartz vein assayed 1570 ppm Cu, 2300 ppm Pb, 5500 ppm Zn, 370 ppm Ni. Quartz carbonate vein? material assayed 55 ppm Ag. A gossanous siltstone nearby returned 390 ppm Cu, >10,000 ppm Pb, 4250 ppm Zn, 4000 ppm Mn. Elevated Pb values (180-420 ppm Pb) are evident in black shales unaffected by silica.

South Central, Higgins Creek and Rosebery Damsite anomalous areas were not followed up.

2. Exploration by the Shell Company of Australia, 1980-1984

The E.Z. Company declined a joint venture proposal on the Marionoak licence. Shell entered into a J.V. as managers following a Dighem survey over E.L. 22/74 in 1980. Shell recorded a number of Dighem anomalies (Figure 1):

2.1 DIGHEM

Anomaly 353A-376A

The zone of serpentinite west of E.L. 22/74 licence boundary.

Anomaly 334B

The anomaly is located in an area of glacial overburden. Its surficial nature plus a zone of low resistivity indicates that it is probably due to glacials.

Anomalies 344B, 345B

These are located in the centre of the region, just south of Higgins Creek road. They are thought to be surficial. There is no coincident anomalous stream sediment geochemistry.

Anomaly 348A

This is a broad resistivity low located mostly outside the western licence boundary. Part of the low is associated with elevated stream sediment geochemistry.

Anomaly 351A

This is a surficial(?) conductor located approximately 1.8 kms south of the Higgins Creek road. No anomalous stream sediment geochemistry is reported.

Anomaly 361B

This is a surficial (?) conductor located approximately 800 m north of the Pieman Dam Road and associated with anomalous stream sediment geochemistry.

Anomaly 369B

This is a surficial(?) conductor located 250 m south of the Pieman Dam Road, and with a resistivity low may be due to glacials.

The accuracy of these interpretations by Shell is not known.

2.2 STREAM SEDIMENT SURVEY

A stream sediment survey was carried out by Shell, mostly in the southern half of the licence on low order anomalous areas not followed up by Aberfoyle. Panned concentrates and -80# fractions were assayed for Cu Pb Zn Ni Bi Fe Mn Cr Sn and W. The survey agreed well with the previous survey by Aberfoyle, and four areas were thought to be anomalous in Pb and Zn.

Area C(I)

Soil sampling traverses showed an approximately 150 metre wide zone slightly anomalous in Pb Zn and Ni. High values in soils were associated with high Mn (1000-4500 ppm Mn), and the anomalies were thought to be possibly due to lithological change. No outcrop is reported in the area.

Area C(II)

Soil sample traverses showed irregular results. Two rock chip samples with 28 ppm Pb, 750 ppm Zn, and 250 ppm Pb, 250 ppm Zn, were described petrologically as very weathered tuffs with an abundant limonitic matrix. High base metal values were thought possibly due to Fe-Mn development.

Area A

Soil samples gave elevated Pb and Zn over the whole area covered. One rock chip sample assayed 430 ppm Pb, 1150 ppm Zn, and was described petrologically as a weathered labile pelite with possible phlogopite and disseminated pyrrhotite.

Area D

A low order Pb soil anomaly appeared to join the two drainages. Both Zn and Ni were low in soils, Mn high. One rock chip sample (Pb 280 ppm, Zn 220 ppm) was described as a weathered greywacke with a ferruginized indeterminate matrix.

None of these areas was followed up systematically, although numerous rock chip samples were taken. Lithological descriptions of these rock chip samples are not available. Shell focused most of its attention on the Bastyan Dam area.

2.3 BASTYAN DAM GRID (Figure 1)

A grid was established to investigate a known occurrence of base metal sulphides in a cutting of the Pieman Dam Road (outcropping mineralization now covered by the bitumen) and was extended to cover DIGHEM anomaly 369B. Soil sampling over the grid returned uniformly low results as the area is mostly covered by sandy glacial boulder beds.

Grid ground magnetics outlined a broad semi-circular 100 nT high in the western half of the grid with several localized 500 nT anomalies superimposed.

Three lines of $n=4$, 100 m spaced IP were surveyed on 00N, 200N, and 200S. Shell recorded a chargeability anomaly located at 100W 00N, suggesting a broad shallow body possibly dipping east. Other poorer anomalies occur at 200N 00W and 200S 200W, suggesting strike slightly east of grid north.

Gravity has been read on 200N, 00N, 200S and along the road. Shell interprets two anomalies on line 00N at 350W and 150W as a broad high, possibly formational.

A follow up line of 50 m dipole-dipole IP was run along line 00N to better define a drilling target but apparently did not reach target depth outlined by the 100m dipole IP.

A UTEM survey was carried out on lines 200N, 00N and 200S, one loop being only half laid on the rest of the grid. A follow-up UTEM loop on the east of the grid located a conductor at approximately 300 m W striking approximately grid north with a minimum strike length of 1200 metres.

A diamond core hole, SBD-1, was drilled to investigate the depth extent of the outcropping mineralization in the road cutting, the gravity and the IP targets. The hole intersected an interbedded sequence of carbonaceous and tuffaceous, in parts calcareous and pyritic, siltstones, shales and fine sandstones.

Significant intersections include:

		Pb	Zn	Ag
61.8 - 63.55 m	1.75 m @	4800 ppm	3.0%	3 ppm
182.35 - 182.45 m	0.10 m @	1.7%	12.0%	11 ppm
184.35 - 184.40 m	0.05 m @	5.2%	11.0%	33 ppm
189.05 - 189.15 m	0.10 m @	1.1%	12.0%	10 ppm

all recorded by Shell as quartz-sphalerite-galena + ankerite + chalcopyrite + calcite vein-type mineralization. This may not be the case (see Discussion below). Lead isotope work on various samples from SBD-1 indicated that the mineralization is not of the Rosebery style but due to derivation of the metals from the host rocks by metamorphism or Devonian granite intrusion.

It is considered that SBD-1 did not adequately test the combined IP/gravity target (ETEadie, pers.comm.).

3. DISCUSSION

The UTEM data has been interpreted by E.T. Eadie as indicating a conductor, probably in an anticlinal structure at a depth of 200 m below surface at 200N and plunging to the (grid) south to be 300 m below surface at 200S (Figures 1,2).

Geology

West of the faulted contact with the central belt Mt. Read volcanic sequence, the western sedimentary sequence in a regional sense is folded about north-south trending fold axes with easterly vergence (Corbett, 1981).

The sequence known as the Rosebery Group and its correlates generally dips and faces west. However, in the Pieman River Gorge, approximately 1.5 kms south of the Bastyan Grid UTEM conductor, the succession is very tightly folded with axial surfaces inclined to the east (Loftus-Hills et al, 1967; Corbett, 1981). The anticlinal structure shown on the confluence of the Pieman and Marionoak Rivers is inferred from generally west-dipping, west-facing Crimson Creek Formation mudstones exposed at this locality.

Thus, an anticlinal structure in the area of the UTEM response is consistent with the mapped regional geology and is further supported on a local scale by west dipping Crimson Creek Formation rocks on the Pieman Road west of the UTEM response and vertical to steeply east dipping (overturned?) rocks with a strike parallel to the UTEM response exposed on the HEC access track observed by the author (see Figure 1). Facings in SBD-1 core obtained by the author suggest some form of folding is present in the rocks intersected (Figure 3).

The complicating effect of faulting in the Bastyan Grid area is not known. Shell have inferred a north-south trending fault in this area from gravity and magnetic trends (overlay, Figure 1) and Green maps an inferred faulted contact trending north-south between the Rosebery Group and the Crimson Creek Formation. Brown (1980) reports this as an apparently conformable contact. Prominent north-south trending lineaments are evident in this area on Landsat images of western Tasmania.

The UTEM response would appear to be at, or very near to, the contact between the Rosebery Group and the overlying Crimson Creek Formation.

The Rosebery Group comprises, in ascending order: the Chamberlain Shale (black shale and volcanoclastic sandstone), Stitt Quartzite (quartz sandstone and black shale), Natone Volcanics (thin quartz-feldspar phyric vitric-crystal tuff), Salisbury Conglomerate (greywacke conglomerate with clasts of carbonate, tuff and fuchsite), Williamsford Volcanics (local tuff lens), Westcott Argillite (purple argillite, greywacke, dolomitic siltstone), and Munro Creek Formation (shale and quartz sandstone), Corbett (1981).

This succession may have formed in a similar environment to rocks of the Success Creek Group, which underlies the Crimson Creek Formation in other areas, but is not necessarily a correlate of this Group, as the lithologies and provenance of the two successions are different (Brown, 1980).

The Rosebery Group is succeeded in the Bastyan Dam-Pieman Road area by the Crimson Creek Formation correlates, a monotonously interbedded, turbiditic sequence of laminated siltstone-mudstone and volcanoclastic lithic wacke with minor well compacted lithic crystal tuff horizons and tholeiitic lava flows. In places, the succession has been intruded by gabbroic dykes (ibid).

Shell's magnetic anomaly on the Bastyan Grid may be due to one of these aforementioned basic units in the Crimson Creek Formation.

The author considers that the UTEM conductor most likely occurs in the upper Rosebery Group, in Westcott Argillite or Munro Creek Formation, due to the presence of carbonate unit(s) exposed in the road cutting and mapped by Green, and present in SBD-1, and the occurrence of a substantial thickness of polymict conglomerate approximately 800 m east along the H.E.C. access track (Salisbury Conglomerate correlate?) apparently much lower in the succession if overturning is assumed.

The rocks intersected in SBD-1 are considered to be highly prospective and consist of an interbedded sequence of siltstone, shale and subordinate fine grained sandstone with minor altered tuff to fine grained agglomerate towards the top of the hole. The rocks are, in places, notably calcareous (towards the top of the hole) dolomitic (?) and commonly tuffaceous. Black carbonaceous and pyritic shales and siltstones are present in significant quantities.

02A

Calcite and quartz veining is generally common, and local syndeositional deformation is occasionally present. Base metal mineralization is associated with extremely pyritic (up to 30%) disrupted bedding (see accompanying photographs).

4. RECOMMENDATIONS

The Rosebery Group-Crimson Creek Formation sequence is considered prospective for sediment-hosted stratiform Pb-Zn mineralization.

Positive metallotects include:

- (1) carbonaceous and pyritic, dolomitic, fine clastic sediments of turbiditic affinity in a tectonically active trough paleo-environment;
- (2) exhalation manifested by syngenetic pyrite, base metal mineralization(?)
- (3) strong tuffaceous component to the stratigraphy;
- (4) synsedimentary deformation textures associated with mineralization (e.g. present at McArthur River, Mt. Isa, Irish-types, Sullivan);
- (5) meridional and crossfaulting(?) may have provided sub-basin environments within the Durdas Trough.

It is recommended that a proposal be presented for a diamond drill hole to test the Bastyan Dam UTEM conductor.

A number of other areas anomalous in base metals (e.g. Lynch Creek, Shell Areas C(I), C(II)) should be followed up with EM to define drilling targets.

The former programme would entail drill-site preparation and minor line cutting on the Bastyan Dam Grid and an approximately 500 m long diamond drill hole with down-hole EM. Estimated cost approx. \$60-70,000.

The latter programme would require more 'grass-roots' type exploration to cut and re-establish grids for UTEM surveys, and more systematic soil sampling follow up in areas defined by stream sediment anomalies. It is recommended that the data from Shell's Dighem survey be reviewed.

Report by: M.G. Teakle
M.G. Teakle
Geologist

025

Report on Salmon's Claim
by I.B. Freytag, after Mackintosh-Reid (1918)

Salmon's Claim was discovered in 1917, and contained two separate parallel ore bodies approximately 85 metres apart, striking at 340° and dipping east at 65°.

Western Lode (structurally lower in the sequence)

Pyrite plus chalcopyrite in "altered porphyroid" - a schistose rock with elongated dark green spherules, traversed by carbonate veins and bunches, and quartz veins.

Lode width: 3.7 metres
Strike length: "several chains" plus other outcrop to the south.

Mineralized rock is enclosed with dark blue slates.

Eastern Lode

"Essentially zinc-blende and galena contained in calcitic schist"

Lode width: 1.5 metres (plus)

Covered by alluvium of the Bobadil plain to the north.

Sphalerite varies from light yellow through resinous brown and reddish brown to black and is the dominant sulphide, occurring as "crystallizing bands" parallel to the foliation of the schist.

Galena is subordinate, usually as blebs and disseminations through calcitic schist. Pyrite and chalcopyrite occur in minor quantities.

A sample assayed (1918) Zn 22.7%, Pb 2.2%, Ag 30 g/t.

The greater part of the lode is hosted in greyish-yellow schist which is overlain conformably by black argillaceous schistose rock.

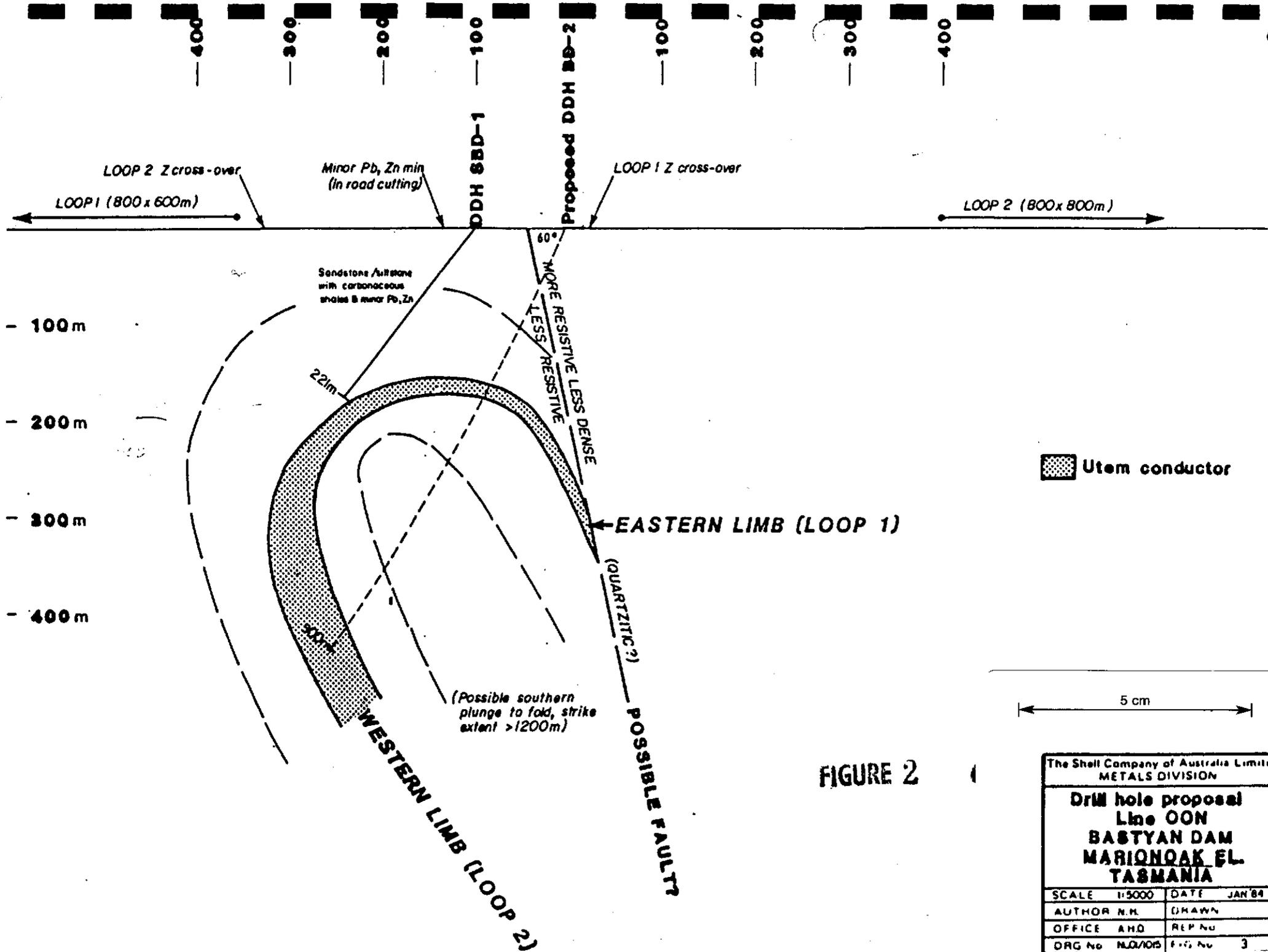


FIGURE 2

The Shell Company of Australia Limited METALS DIVISION	
Drill hole proposal Line OON BASTYAN DAM MARIONDAK EL. TASMANIA	
SCALE 1:5000	DATE JAN '84
AUTHOR N.M.	DHAWN
OFFICE AND	REP No
ORG No. N.O./O.S	Fig. No 3

240028

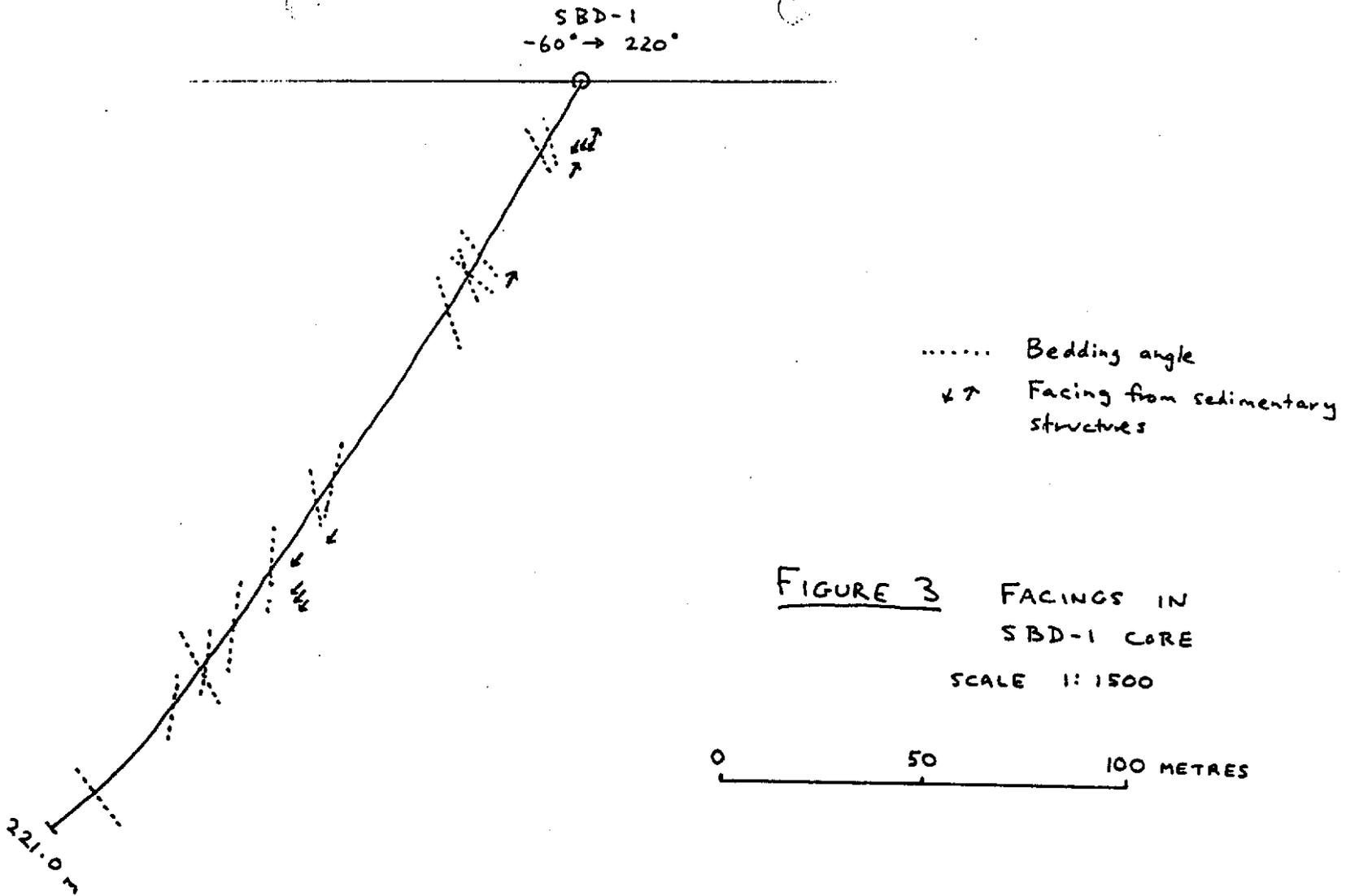
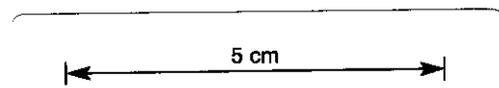
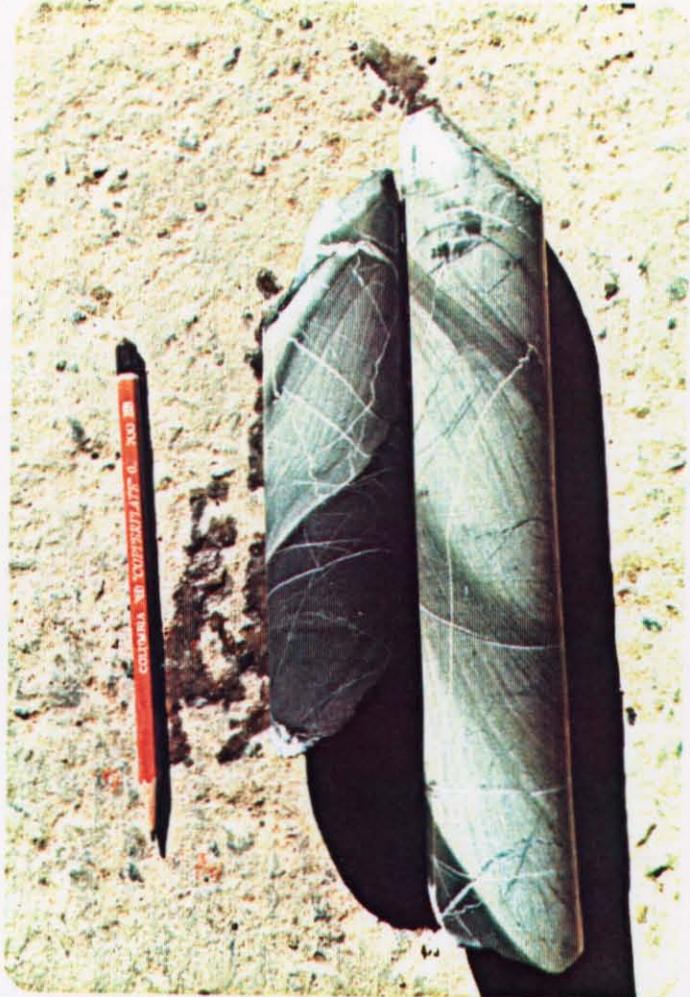


FIGURE 3 FACINGS IN
SBD-1 CORE
SCALE 1:1500

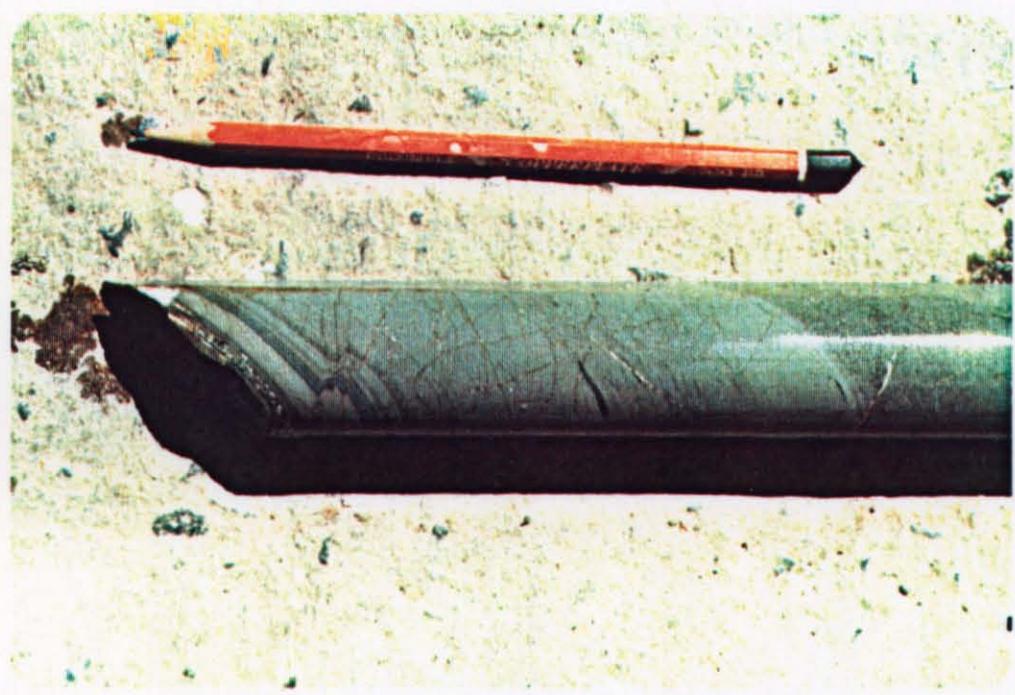


029

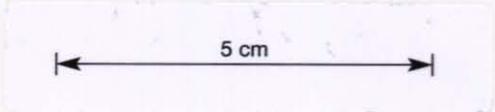
240030



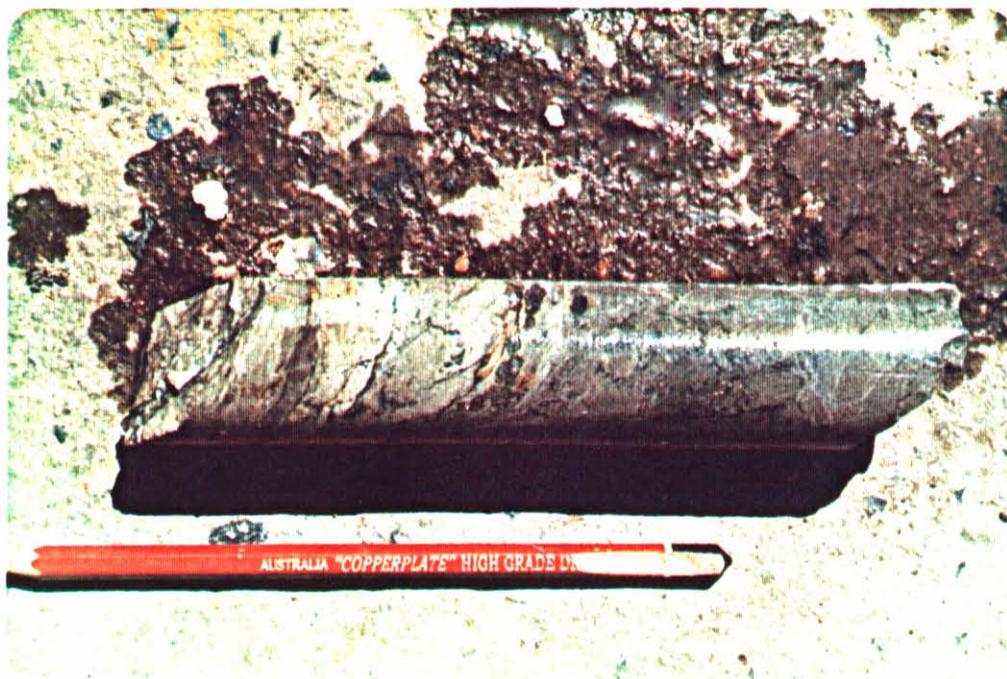
BD5 Left 12.8 metres. Finely laminated and cross-bedded tuffaceous siltstone and intercalated black calcareous mudstone. Calcite microveinlets.
Right 13.4 metres Cross-bedding in tuffaceous siltstone.



BD6 25.5 metres. Graded bedding and microfaulting in light green intercalated tuffaceous(?) siltstone-shale.



5 cm



ED7 45.2 metres. Medium grained syngenetic pyrite disseminations in disturbed bedding in silty sandstone unit.

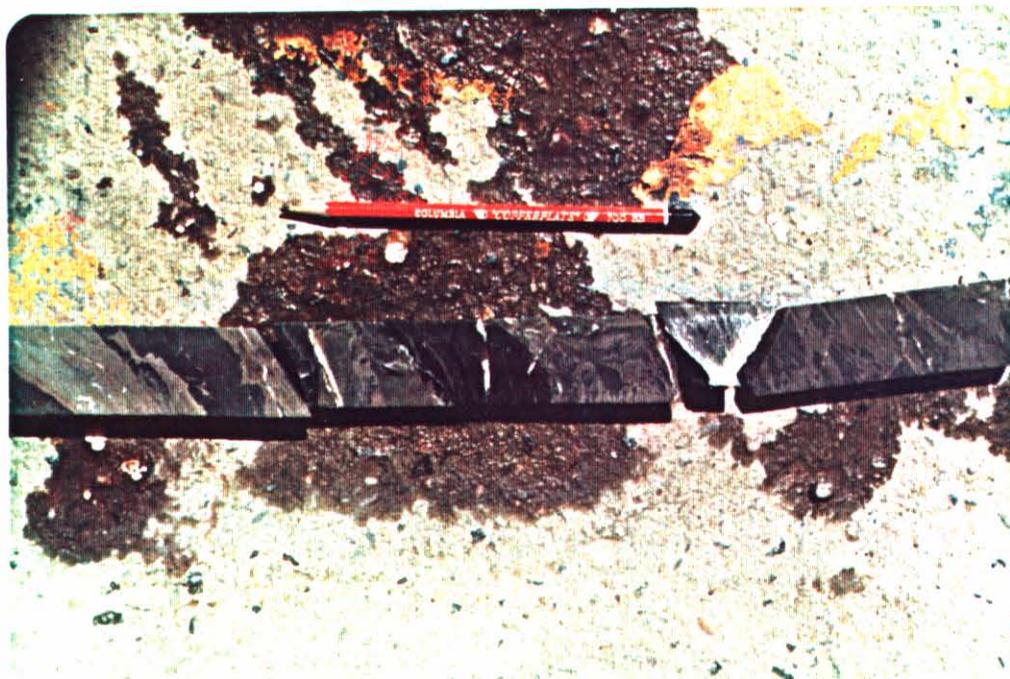


ED8 Selected from 61.8 to 63.5 metres. Base metal mineralization. Coarse grained sphalerite as veinlets and disseminations in a muddy pyritic matrix. Extremely disturbed bedding and extensive calcite-quartz veining. The brown colour to the core on the left is probably due to finely disseminated hematite in the mudstone matrix. The mineralization is possibly syngenetic. This interval assayed 2 ppm Ag, 100 Cu, 4800 Pb, 3.0% Zn.



BD9 93.4 metres. Fine grained chalcopyrite in quartz-calcite filled microfractures in a laminated carbonaceous siltstone-shale unit.

5 cm



BD10 183.0 metres Synsedimentary deformation in variably carbonaceous and extremely pyritic shales. This unit underlies sphalerite-galena-pyrite vein(?) mineralization at 184.4 metres.

032

240033

5 cm



BD11 201.8 metres. Black carbonaceous shale with intercalated silty tuffaceous beds and syngenetic pyrite. Calcite-quartz microveinlets.

- pyrite appears to occur in silty beds
is this consistent to syngenetic origin?

033

240034

APPENDIX II

BASTYAN DAM GRID - DIAMOND

DRILLING SUMMARY

BASTYAN DAM GRID - DIAMOND DRILLING SUMMARY

034

Marionoak E.L.22/74

Hole No.	Co-ordinates		Elevation	Angle	Azimuth	Commence	Complete	Depth (m)	Cumulative Depth (m)	GEOLOGY/MINERALIZATION	Intersection
	North	East									
M01	OON	115W	170.0	-60W	273.5	16.9.84	9.10.84	454.1 EOH	454.1	0-3m triconed 3-5.4 red brown mudstone interbedded siltstone 5.4-11.2m grey-green fine to med gr. greywacke 11.2-35.8m L grey to black (carbonaceous) siltstone and mudstone. Minor lcm vein Gn-Sph (25.0m) 35.8-90.0m grey-green med gr. greywacke 90.0-100.1m grey-black (carbon- aceous) mudstone 100.1-156.8m grey-green med to c gr greywacke 156.8-158.5m khaki & grey inter- banded mudstone, minor greywacke minor carb. mudstone. 158.5-191.1m grey carb. argillite 191.1-198.3m grey med to f gr greywacke interbedded grey carb argillite locally tr Py. 198.3-205.3m pyritic carb. argillite 205.3-207.6m grey massive to banded argillite, locally calcite veined 207.6-220.6m grey f gr massive greywacke 220.6-227.6m grey massive and laminated argillite, and calc argillite with minor f gr greywacke interbeds. Pyritic mesh veins throughout.	

240035

BASTYAN DAM GRID - DIAMOND DRILLING SUMMARY

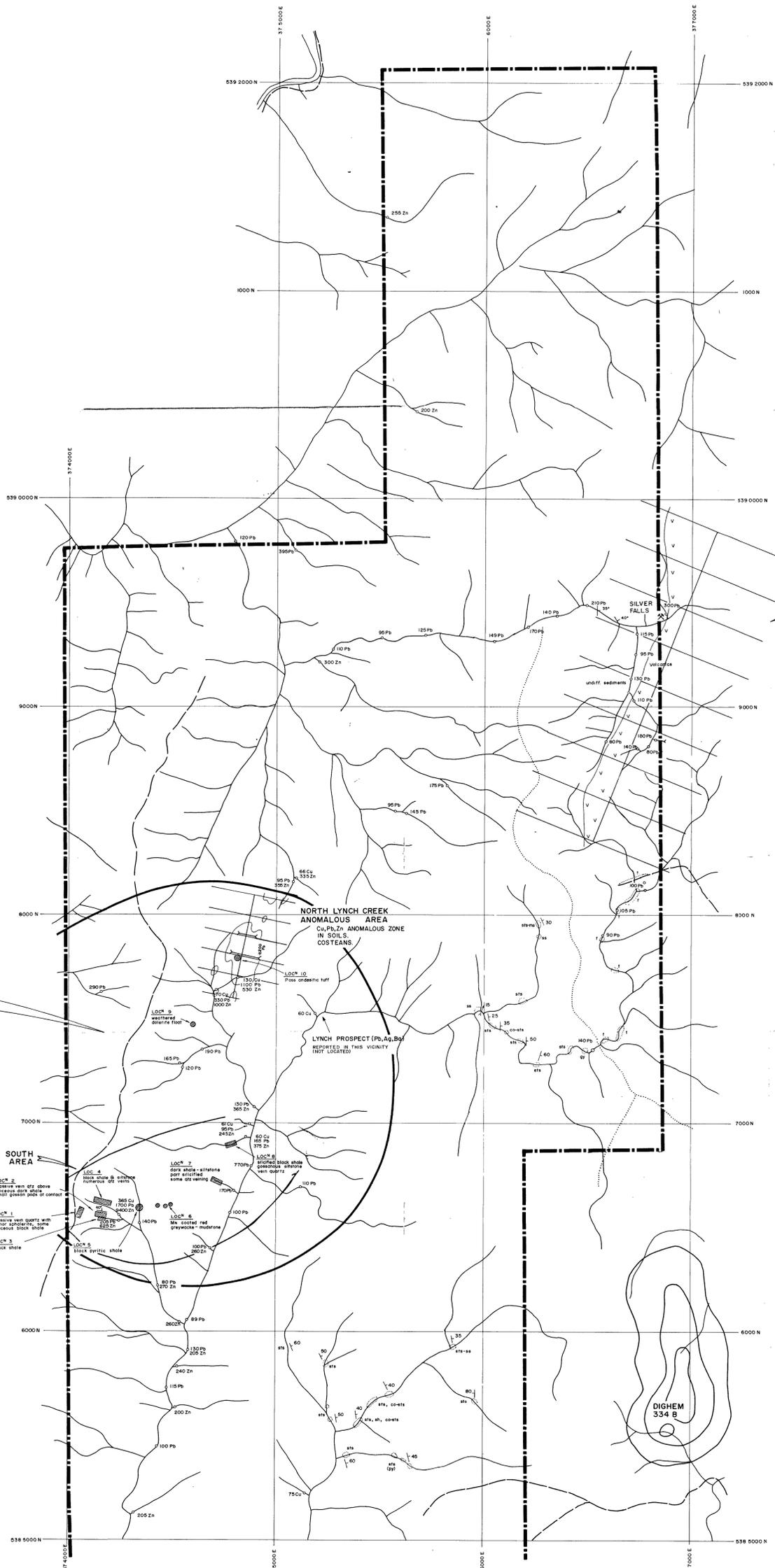
Marionoak E.L.22/74

Hole No.	Co-ordinates		Elevation	Angle	Hammer Dia.	Commence	Complete	Depth (m)	Cumulative Depth (m)	GEOLOGY/MINERALIZATION	Intersection
	North	East									
										227.6-251.6m grey-green med gr massive grewacke with minor grey to black argillite interbeds towards top. 251.6-271.5m gabbroic intrusive with well defined chill margins. Pyrrhotite veins. 257.6-257.8m 271.5-276.7m grey & l.brown finely laminated tuff & fine greywacke 276.7-284.6m grey green to l.green massive f.gr. greywacke, weakly carbonate-silica veined with minor Py-Cpy. 284.6-300.1m grey to l.green argillite with weak carbonate veining. 300.1-304.5m l.green massive greywacke with interbedded green argillite. Weak carbonate veining with rare Po. 304.5-339.0m finely banded l.green to grey argillite. Weak carbonate veining with trace dis. Py, Cpy. Interbedded with red-brown argillite. 339.0-345.0m black-khaki well banded carb. argillite. Some microfaulting & slumping. Fine grained syngenetic pyrite, weak carbonate veins 345.0-355.4m l.green finely banded argillite with bands of l.gr. greywacke. Weak carbonate veining.	

BASTYAN DAM GRID - DIAMOND DRILLING SUMMARY

Marionoak E.L.22/74

Hole No.	Co-ordinates		Elev- ation	Angle	Hammer Dia.	Commence	Complete	Depth (m)	Cumulative Depth (m)	GEOLOGY/MINERALIZATION	Intersection
	North	East									
										<p>355.4-363.0m black-khaki well banded carb. argillite trace Py. 363.0-377.3m slump zone of black carb. shale and greywacke Py assoc with mod intense carbonate veining. Minor colloform Py. 377.3-405.5m l.grey massive greywacke . Local banding due to mix of finer carb. sediment. Weak carbonate veining. 405.5-410.3m as above with cherty section at the lower contact. 410.3-454.1m ECH Grey carbonate veined <u>Limestone</u> coarse and f. gr. types, some cherty sections. Hole cased with PVC for down-hole SIROTEM. Logged by EVD/AMH</p>	



A.E.P.L. SILVER FALLS AREA

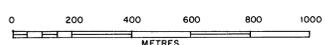
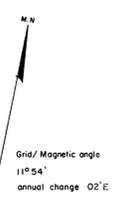
Gridding, soil sampling, mapping (1:2,500)
9 x 50m dipole-dipole I.P. lines

A.E.P.L. LYNCH CREEK AREA

Gridding, soil sampling, costeaming

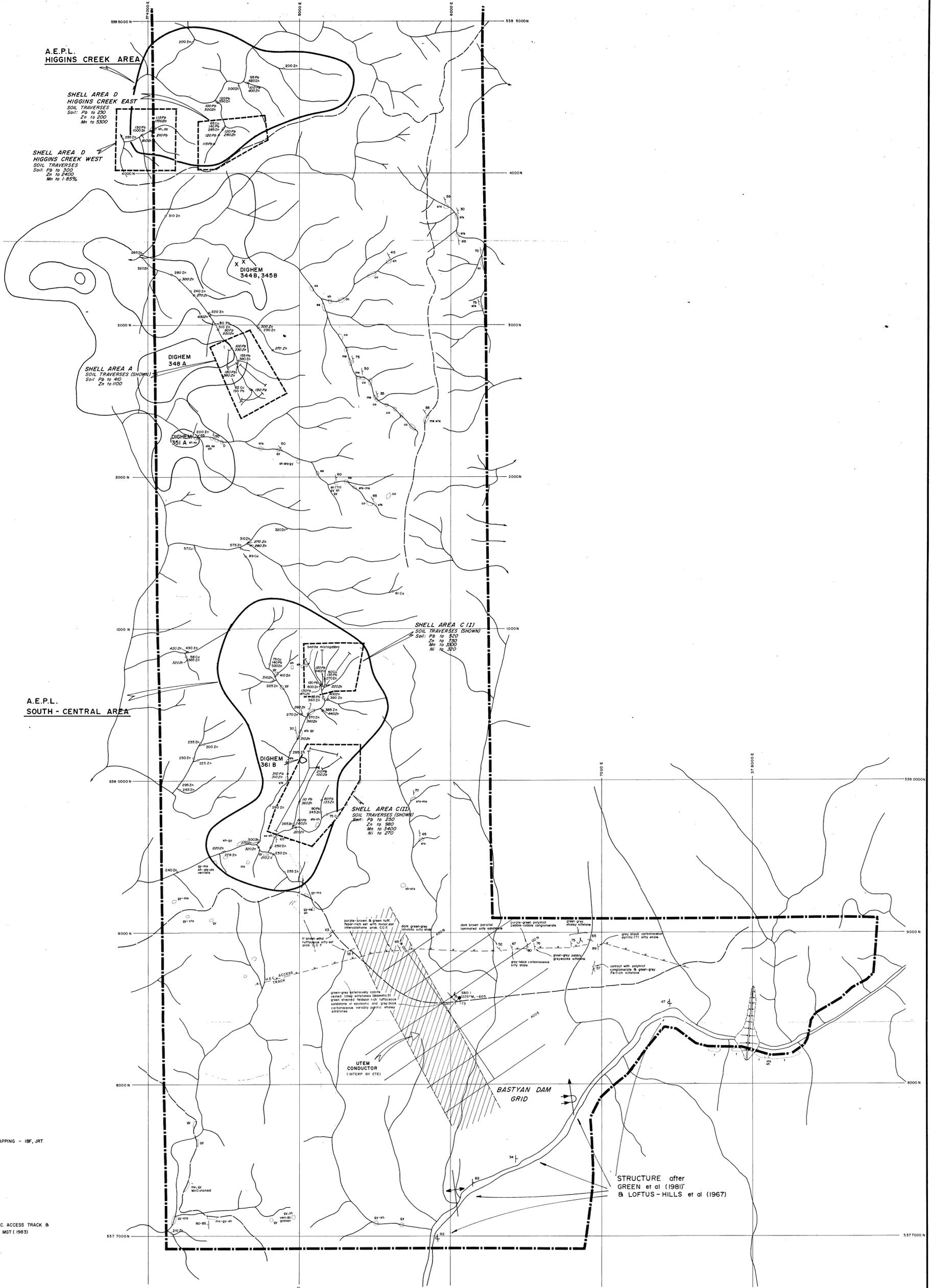
LYNCH CREEK SOUTH ANOMALOUS AREA

- LOCK 1 massive vein dtz above siliceous dark shale, some siliceous black shale
- LOCK 2 massive vein dtz above siliceous dark shale, small gossan pipe at contact
- LOCK 3 black shale
- LOCK 4 dark shale, siliceous, some siliceous black shale, some siliceous black shale
- LOCK 5 black syritic shale
- LOCK 6 dark shale, siliceous, some siliceous black shale, some siliceous black shale
- LOCK 7 dark shale, siliceous, some siliceous black shale, some siliceous black shale
- LOCK 8 dark shale, siliceous, some siliceous black shale, some siliceous black shale
- LOCK 9 weathered siliceous shale
- LOCK 10 fine quartzitic turf



240038

A Aberfoyle Exploration Pty Ltd		
Geology: I.B.F. J.R.T.	NORTH WEST TASMANIA DUNDAS TROUGH MARIONOAK E.L. 22/74	Location code: K55/3
Drawn: J.B.	SUMMARY PLAN	Date: March 1984
Checked: A.G.T.	037	Scale: 1:10,000
Revised by: _____	85-2326	Plate No. MOC 18 A



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 1-82%

X X
DIGHEM
344 B, 345 B

DIGHEM
348 A

SHELL AREA A
SOIL TRAVERSES (SHOWN)
Soil: Pb to 400
Zn to 1100

DIGHEM
351 A

SHELL AREA C (I)
SOIL TRAVERSES (SHOWN)
Soil: Pb to 520
Zn to 750
Mn to 1850
Ni to 350

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

DIGHEM
361 B

SHELL AREA C (II)
SOIL TRAVERSES (SHOWN)
Soil: Pb to 230
Zn to 580
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 - MST (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



240039

Aberfoyle Exploration Pty Ltd		
Geology: IBF, JRT, MGT	NORTH WEST TASMANIA DUNDAS TROUGH MARIONOAK E.L. 22/74 038	Location code: K55/3
Drawn: as above		Date: March 1984
Traced: JB		Scale: 1:10,000
Checked: PACT	SUMMARY PLAN	Plate No
Revised by: Date:	85-2025	MOC 18 B