

**DE BEERS**  
A DIAMOND IS FOREVER

**De Beers Australia Exploration Limited**

**ALJAWARRA PROJECT**

**EL22995 ANNUAL REPORT  
FOR THE PERIOD  
13 FEBRUARY 2003 – 12 FEBRUARY 2004**



**DE BEERS AUSTRALIA EXPLORATION LIMITED**

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# DE BEERS

A DIAMOND IS FOREVER

**PROJECT:** ALJAWARRA PROJECT  
**TITLE:** EL22995 ANNUAL REPORT  
FOR THE PERIOD  
13 FEB 03 – 12 FEB 04

**AUTHOR/S:** K J Pittard  
**DATE:** March 2004

**EDITED:** BMA  
**APPROVED:** MSM  
**PLACE:** Perth

1:250,000 Sheet Name/s & No/s: SANDOVER RIVER (SF53-08)  
AVON DOWNS (SF53-04)

Text Pages No: 6 Table Nos: 6 Maps: 4 Appendices 0 Figures: 4

**KEYWORDS:** NT, Georgina Basin, stream sediment sampling, aerial magnetic surveying, diamond.

## ABSTRACT:

Diamond exploration in EL22995 during the annual reporting period included infill aeromagnetics, detailed airborne follow up of anomalies and drilling. The NTGS Eromanga aeromagnetic survey was infilled within tenement boundaries from 400 m to 200 m line spacing in a north south direction; these data covered 67% of the tenement. The remaining portion of the tenement is covered by the north east section of the NTGS Georgina survey. All data were interpreted and two priority anomalies were chosen from the infill survey.

An Exploration Deed with the Central Land Council was signed on the 21<sup>st</sup> of May 2003 allowing ground access from then on subject to clearance surveys. Full permission to access the ground was not given until late June; the ground was therefore only available for the second half of the field season, as opposed to the full granted 12 month period.

The two priority anomalies chosen from the infill survey were followed up with loam samples, and both anomalies were drill tested in July 2003. One loam sample 100 m to the west of anomaly ALF006 contained a single chromite grain, however this grain is not thought to be of kimberlitic origin. No kimberlitic material was recovered from the drill holes, and the anomalies were explained by magnetic material within alluvial sediments.

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## SUMMARY

Exploration Licence:	22995
Application Date:	31 January 2001
Date Granted:	13 February 2003
Total Area:	499 Blocks (1,566 km <sup>2</sup> )
Commitment:	\$60,000
Managing and Registered Co.:	De Beers Australia Exploration Limited
Commodities Sought:	Diamonds

### Exploration:

The NTGS Eromanga aeromagnetic survey was infilled within tenement boundaries from 400 m to 200 m line spacing in a north south direction; these data covered 67% of the tenement. The remaining portion of the tenement is covered by the north east section of the NTGS Georgina survey. All data were interpreted and two priority anomalies were chosen from the infill survey. These two priority anomalies were followed up with loam samples, and both anomalies were drill tested in July 2003. One loam sample 100 m to the west of anomaly ALF006 contained a single chromite grain, however this grain is not thought to be of kimberlitic origin. No kimberlitic material was recovered from the drill holes, and the anomalies were explained by magnetic material within alluvial sediments.



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## **CONTENTS**

1. INTRODUCTION
2. TENURE
3. DESCRIPTION OF PROJECT AREA
  - 3.1 Infrastructure
  - 3.2 Physiography
  - 3.3 Geology
4. EXPLORATION PROGRAMME
  - 4.1 Geophysics
  - 4.2 Sampling
  - 4.3 Drilling
5. RESULTS
6. CONCLUSION
7. PROPOSED FORWARD WORK PROGRAMME
8. EXPENDITURE
9. REFERENCES

## **LIST OF FIGURES**

- FIGURE 1: MODEL RESULTS FOR ANOMALY ALF006  
FIGURE 2: MODEL RESULTS FOR ANOMALY ALF008  
FIGURE 3: DRILL LOG FOR ALF006  
FIGURE 4: DRILL LOG FOR ALF008

## **LIST OF MAPS**

- MAP 1: ALJAWARRA PROJECT LOCATION  
MAP 2: INDEX MAP  
MAP 3: ANOMALIES, SAMPLES AND DRILL HOLE LOCATIONS  
MAP 4: TMI – ALJAWARRA INFILL SURVEY EL22995

## **LIST OF TABLES**

- TABLE 1: TENURE DETAILS  
TABLE 2: MAGNETIC ANOMALY LOCATIONS  
TABLE 3: SAMPLE LOCATIONS  
TABLE 4: DRILL HOLE LOCATION  
TABLE 5: MODEL RESULTS  
TABLE 6: EXPENDITURE DETAILS

## **LIST OF APPENDICES**

- APPENDIX A: DRILL HOLE SAMPLE NUMBERS

## **1. INTRODUCTION**

Exploration licence 22995 lies within the Aljawarra project in the Northern Territory. The licence is located on the Sandover River 1:250K map sheet, within the Georgina Basin. Access to EL22995 is via the Sandover Highway.

Exploration over EL22995 has included geophysical interpretation and acquisition, and drill testing of magnetic anomalies. In May 2002 the NTGS Eromanga aeromagnetic survey was infilled within tenement boundaries from 400 m to 200 m line spacing in a north south direction. A total of 26,173 line kms were flown within the Aljawarra project, including 2,896 line kms flown within EL22995 (covering 1040 km<sup>2</sup> or 67% of the 1566 km<sup>2</sup> tenement). When interpreted, these data yielded 2 priority anomalies, and 13 non-priority magnetic anomalies recommended for no further work. Data from the NTGS Georgina Survey, released in 2003, were also interpreted. Part of this survey covers the remaining 33% of EL22995. No magnetic anomalies were chosen from these data.

The two priority magnetic anomalies chosen from the infill data were followed up with loam samples, and both anomalies were drill tested in July 2003. No kimberlitic material was recovered from the drill holes, and the anomalies were explained by magnetic material within alluvial sediments.

## **2. TENURE**

Table 1 below contains tenure details for all tenements within the Aljawarra Project.

**Table 1: Tenure Details**

<b>Tenement</b>	<b>Application Date</b>	<b>Date Granted</b>	<b>Expiry Date</b>	<b>Area (km<sup>2</sup>)</b>	<b>Blocks</b>	<b>Commit't</b>
EL22505	18/04/00	03/07/03	2/07/09	1150	360	\$50,000
EL22506	18/04/00	23/05/02	22/05/08	1562	488	\$33,768
EL22507	18/04/00	23/05/02	22/05/08	77	24	\$20,000
<b>EL22995</b>	<b>31/01/01</b>	<b>13/02/03</b>	<b>12/02/09</b>	<b>1566</b>	<b>499</b>	<b>\$60,000</b>
EL23415	10/10/01	19/12/02	18/12/08	1381	432	\$60,000
EL23416	10/10/01	19/12/02	18/12/08	1151	360	\$45,000
EL22509	18/04/00	02/04/02	1/04/08	1424	455	\$55,000

An Exploration Deed with the Central Land Council was signed on the 21<sup>st</sup> of May 2003 allowing ground access from then on subject to clearance surveys. Full permission to access the ground was not given until late June; the ground was therefore only available for the second half of the field season (approximately half of the 12 month tenure eriod).

### **3. DESCRIPTION OF PROJECT AREA**

#### **3.1 Infrastructure**

The Aljawarra Project covers an area of 8,310 km<sup>2</sup> and is situated approximately 420 km north-east of Alice Springs and 250 km west-southwest of Mt Isa in the Northern Territory. Vehicle access is restricted to the main Sandover Highway and local station tracks. Stations covered by the project area include Lake Nash, Argadargada, Ooratippra, Annitowa and Derry Downs.

#### **3.2 Physiography**

The area consists of hill country and red semidesert in the west and south, and grey soil plains in the north and east. An east-west striking divide separates the area into two drainage basins. The northern river system drains most of the area, and consists of the Sandover and Woodroffe Rivers and their tributaries, which lead north-east and east into the Georgina River. The southern river system consists of the Imbordjudu and Bloodwood Creeks. The creeks and smaller streams are parallel; some flow south-eastwards and others flood out to level sandy country. Generally the drainage system is poorly developed and not conducive to effective heavy mineral stream

#### **3.3 Geology**

The Aljawarra Block forms part of the North Australian Craton, with an assumed basement age, based on tectonic models and zircon inheritance, to be 3+Ga (Archaean). The block is covered by Cambrian and Ordovician sediments of the southeastern section of the Georgina Basin. The basement is considered to consist of a composite terrain of amalgamated continental blocks possibly accreted at least 1800Mya; the Aljawarra craton is believed to be an older nucleus of Palaeoproterozoic or Archaean age. Skippy teleseismic data suggests an anomalously thick lithosphere – some 200 km. The basement is also characterised by relatively low heat flow and low crustal temperatures consistent with the presence of thick cratonic style lithosphere.

**4. EXPLORATION PROGRAMME**

**4.1 Geophysics**

In June 2002 DBAE contracted UTS Geophysics to infill the NTGS 2001 Eromanga survey, in areas which were magnetically quiet and within DBAE tenements, from 400 m to 200 m line spacing in a north-south direction. A total of 26,173 line kms were flown within the Aljawarra project and 2,896 line kms were flown within EL22995 (covering 67% of the tenement). When interpreted, the data yielded 13 non-priority anomalies, recommended for no further work, and 2 intrusive-type priority magnetic anomalies. UTS Geophysics were again contracted to follow up these priority anomalies with a 1 km x 1 km blocks of detailed airborne magnetics (50 m line spacing, 25 m terrain clearance) in October 2002. The detailed data were forward modelled using Encom’s Model Vision software for a final priority, and for a depth estimate and drill collar position. Table 2 below contains coordinates of all magnetic anomalies chosen from the data.

The CD at the back of this report contains located and gridded magnetic data acquired by DBAE over tenement 22995. The magnetic data is provided as an “alone” data set (400 m line spaced newly acquired) or as a “merged” dataset (merged with the Eromanga survey to produce a line spacing of 200 m). The DTM data is only provided as a 400 m dataset – these data were never merged with the Eromanga survey data. Located and gridded data are also provided for the two DAF (detailed airborne follow up) magnetic blocks.

**Table 2: Magnetic Anomaly Locations**

<b>Anomaly</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Datum</b>	<b>Geophysical Priority</b>
<b>ALF006</b>	<b>137.821557</b>	<b>-21.304926</b>	<b>GDA94</b>	<b>P3</b>
<b>ALF008</b>	<b>137.791249</b>	<b>-21.333361</b>	<b>GDA94</b>	<b>P3</b>
ALF001	137.863894	-21.108914	GDA94	NP
ALF002	137.784071	-21.156081	GDA94	NP
ALF003	137.754508	-21.221043	GDA94	NP
ALF004	137.915238	-21.263100	GDA94	NP
ALF005	137.875447	-21.302167	GDA94	NP
ALF007	137.809985	-21.305813	GDA94	NP
ALF009	137.797304	-21.336128	GDA94	NP
ALF010	137.876005	-21.332302	GDA94	NP
ALF011	137.979047	-21.471801	GDA94	NP
ALF012	137.978339	-21.084840	GDA94	NP
ALF013	137.828758	-21.009623	GDA94	NP
ALF014	137.865891	-21.343283	GDA94	NP
ALF015	137.986839	-21.413126	GDA94	NP

The north east portion of the NTGS Georgina Survey (released in 2003) covers the remaining 33% of tenement 22995. These data were interpreted, however no magnetic anomalies were chosen.

#### **4.2 Sampling**

Priority magnetic anomalies identified by the geophysical infill survey were ground truthed and sampled. Field operations were mobilised from Perth. No visible magnetic source rocks were identified at surface. Five deflation loam samples were taken over each anomaly: one sample at the anomaly coordinates, and one sample 100 m north, south, east and west of these coordinates. Each sample consisted of 50 L of surficial material hand sieved to -2 mm. The samples were freighted back to DBAE's Perth primary treatment facility for sizing and concentrating. Acidised concentrates were forwarded to the De Beers Melbourne Laboratory for secondary concentration and preparation prior to being examined. The sample numbers and locations are contained in Table 2 below.

**Table 3: Sample Details**

<b>Sample</b>	<b>Longitude</b>	<b>Latitude</b>	<b>Datum</b>	<b>Sample Type</b>	<b>Anomaly</b>	<b>Result</b>
BV7001	137.79125	-21.33430	GDA94	LOAM	ALF008	Negative
BV7002	137.79124	-21.33362	GDA94	LOAM	ALF008	Negative
BV7003	137.79197	-21.33429	GDA94	LOAM	ALF008	Negative
BV7004	137.79126	-21.33497	GDA94	LOAM	ALF008	Negative
BV7005	137.79052	-21.33431	GDA94	LOAM	ALF008	Negative
BV7007	137.82173	-21.30503	GDA94	LOAM	ALF006	Negative
BV7008	137.82174	-21.30436	GDA94	LOAM	ALF006	Negative
BV7009	137.82247	-21.30502	GDA94	LOAM	ALF006	Negative
BV7010	137.82176	-21.30571	GDA94	LOAM	ALF006	Negative
BV7011	137.82103	-21.30505	GDA94	LOAM	ALF006	1 Chromite

#### **4.3 Drilling**

In July 2003 Wallis Drilling were contracted to mobilise from Perth and drill magnetic anomalies ALF006 and ALF008. Two single holes were drilled to depths of 93 m and 54 m respectively; both holes were vertical. Drill collar coordinates are given in Table 4.

**Table 4: Drill Hole Location**

<b>Drill hole</b>	<b>Easting</b>	<b>Northing</b>	<b>Datum and Projection</b>	<b>Depth</b>
ALF006_01	792754	7641479	GDA94 MGA53	93 m
ALB008_01	789524	7638285	GDA94 MGA53	40 m

Drill samples were taken at 2 m intervals down drill holes – 35 samples were taken down DH03/ALF006\_01 and 27 samples were taken down DH03/ALF008\_01. These samples are currently being processed at the Perth Treatment Plant. Appendix A lists all sample numbers.



## 5. RESULTS

Two dipolar magnetic anomalies, thought indicative of intrusive bodies, were identified during interpretation of infill flying conducted by DBAE in June 2002. Detailed (50 m line spaced) data were modelled to produce a final priority for testing, drill collar coordinates, depth and magnetic susceptibility estimates. The final models for anomalies ALF006 and ALF008 are summarised in Table 5 below, and also in Figures 1 and 2.

**Table 5: Model Results**

Anomaly	Side 1 (m)	Side 2 (m)	Depth (m)	Mag Sus (SI)	Size (ha)	Depth Extent
ALF006	468	100	74	$10 \times 10^{-3}$	4.7	150
ALF008	234	180	51	$8 \times 10^{-3}$	4.2	146

Five loam samples were taken over each anomaly: one at the anomaly centre, and four samples 100 m north, east, west and south from the anomaly coordinates. The sample 100 m west of ALF006 (BV7011) contained a single chromite grain, thought not of kimberlitic origin. The other nine samples were negative.

Drill testing of anomalies ALF006 and ALF008 to depths of 93 m and 54 m in July 2003 unfortunately recovered no kimberlitic material. Anomaly ALF006 was explained by magnetic sediments between depths of 22 m and 32 m, with susceptibilities of up to  $17 \times 10^{-3}$  SI. Anomaly ALF008 was explained by magnetic sediments between depths of 12 and 24 m, with susceptibilities of up to  $14 \times 10^{-3}$  SI. In both cases, the fact that the depth of intersection was less than the modelled depth can be explained by the higher than expected magnetic susceptibilities. Drill logs are contained as Figures 3 and 4.

## 6. CONCLUSION

The NTGS Eromanga aeromagnetic survey was infilled within tenement boundaries from 400 m to 200 m line spacing in a north south direction; these data covered 67% of the tenement. The remaining portion of the tenement is covered by the north east section of the NTGS Georgina survey. All data were interpreted and 2 priority anomalies were chosen from the Eromanga survey when merged with DBAE infill data. The two priority magnetic anomalies were followed up with loam samples, and both anomalies were drill tested in July 2003. One loam sample 100 m to the west of anomaly ALF006 contained a single chromite grain, however this grain is not thought to be of kimberlitic origin. No kimberlitic material was recovered from the drill holes, and the anomalies were explained by magnetic material within alluvial sediments.

## **7. PROPOSED FORWARD WORK PROGRAMME**

A forward work programme will involve vehicle assisted reconnaissance heavy mineral stream and deflation loam sampling. Stream samples will be collected from heavy mineral trapsites at 3 km intervals along available drainages, and will consist of 100 lt of gravels hand sieved to -2 mm. Deflation loam samples will be taken in poorly drained interfluvial areas. Loam samples will consist of 20 to 50 lt deflation scrapes screened to -2.0mm. Samples will be freighted back to DBAE's Perth primary treatment facility for sizing and concentrating. Acidised concentrates will be forwarded to the De Beers Melbourne Laboratory for secondary concentration and examination.

See Table 5 for proposed expenditures for the second year of tenure.

## **8. EXPENDITURE**

Total costs for the period ending 12 February 2004, being the first year of tenure, were \$111,350; covenants were therefore met. See Table 5 for an expenditure breakdown.

**Table 6: Expenditure Details**

<b>ITEM</b>	<b>2003/4 ACTUAL EXPENDITURE</b>	<b>2004/5 PROPOSED EXPENDITURE</b>
Aboriginal liaison	\$3,754	\$3,000
Field expenses	\$5,986	\$5,000
Melbourne laboratory	\$5,604	\$24,000
Tenement management	\$213	\$1,000
Perth treatment	\$836	\$2,000
Transport and travel	\$11,771	\$10,000
Salaries & wages	\$20,538	\$15,000
Geophysical contractors	\$23,500	
Drilling contractors	\$29,148	
Specialist Services		\$1,000
<b>TOTAL</b>	<b>\$101,350</b>	<b>\$61,000</b>

## **9. REFERENCES**

Nichols, R.A.H., 1966, **Explanatory Notes Sandover River, N.T., Sheet SF/53-8 International Index.**

**Karen Pittard**  
**Geologist**

Figure 1: Total Magnetic Intensity ALF006

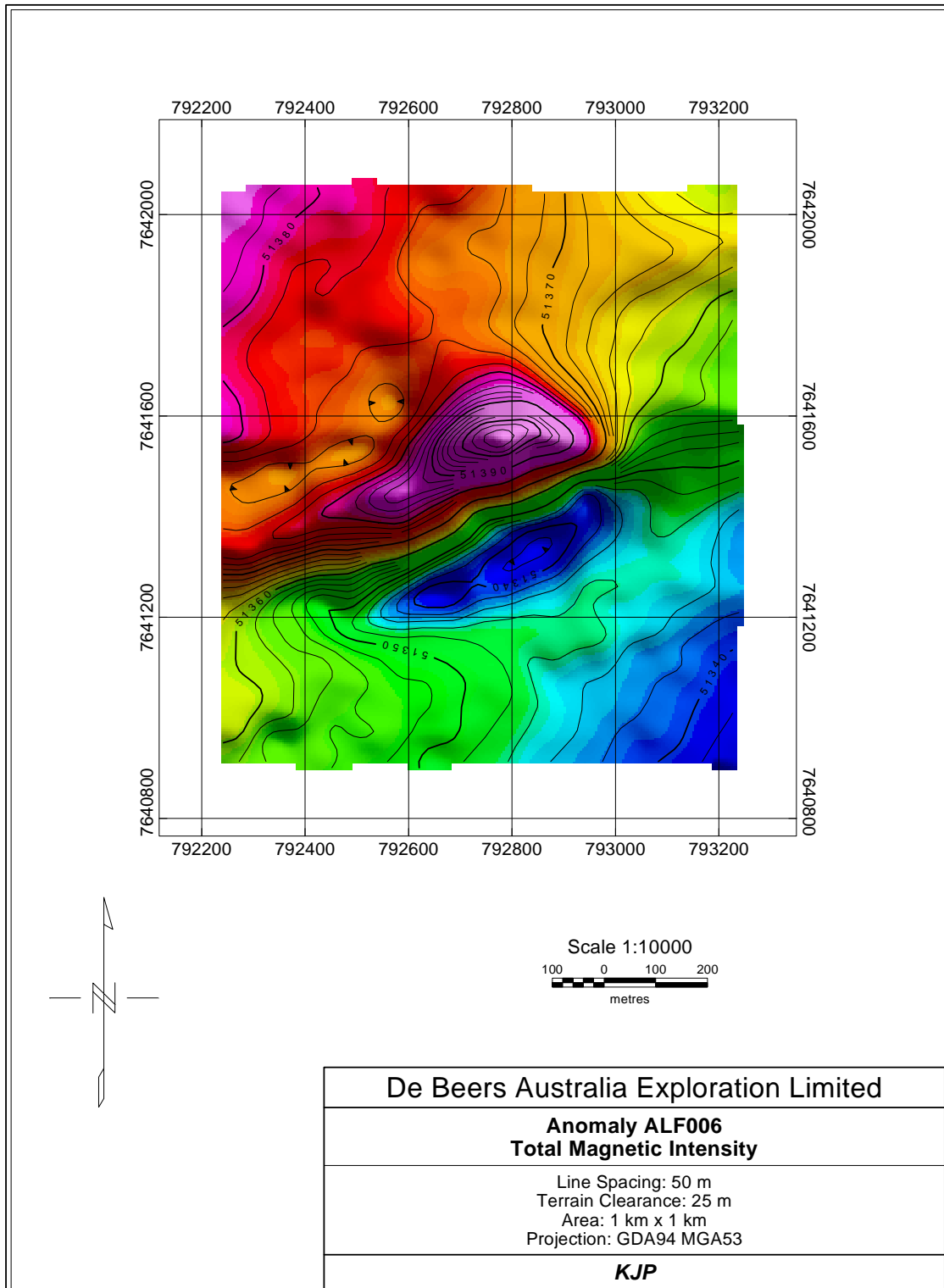


Figure 2: Total Magnetic Intensity ALF008

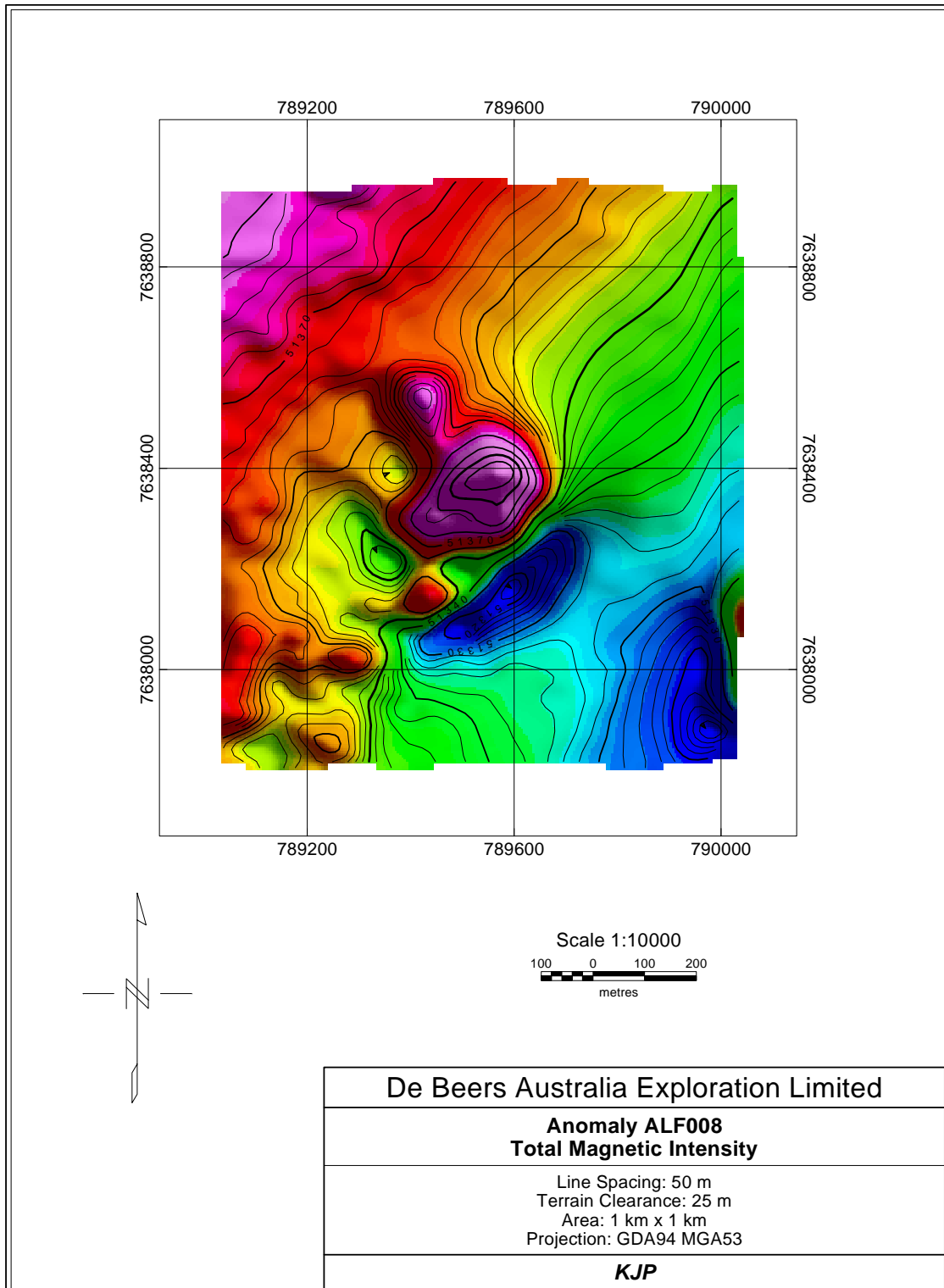
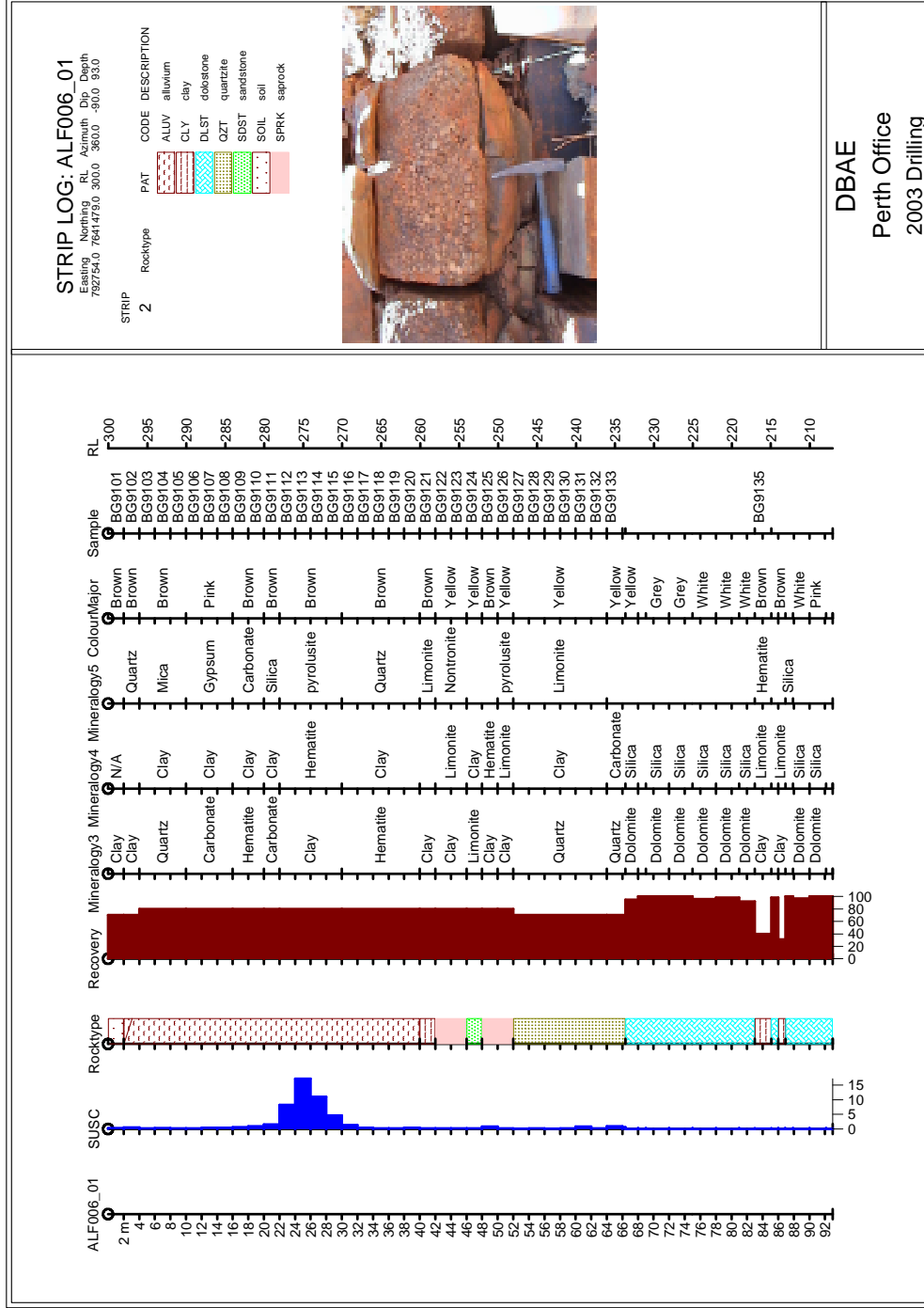
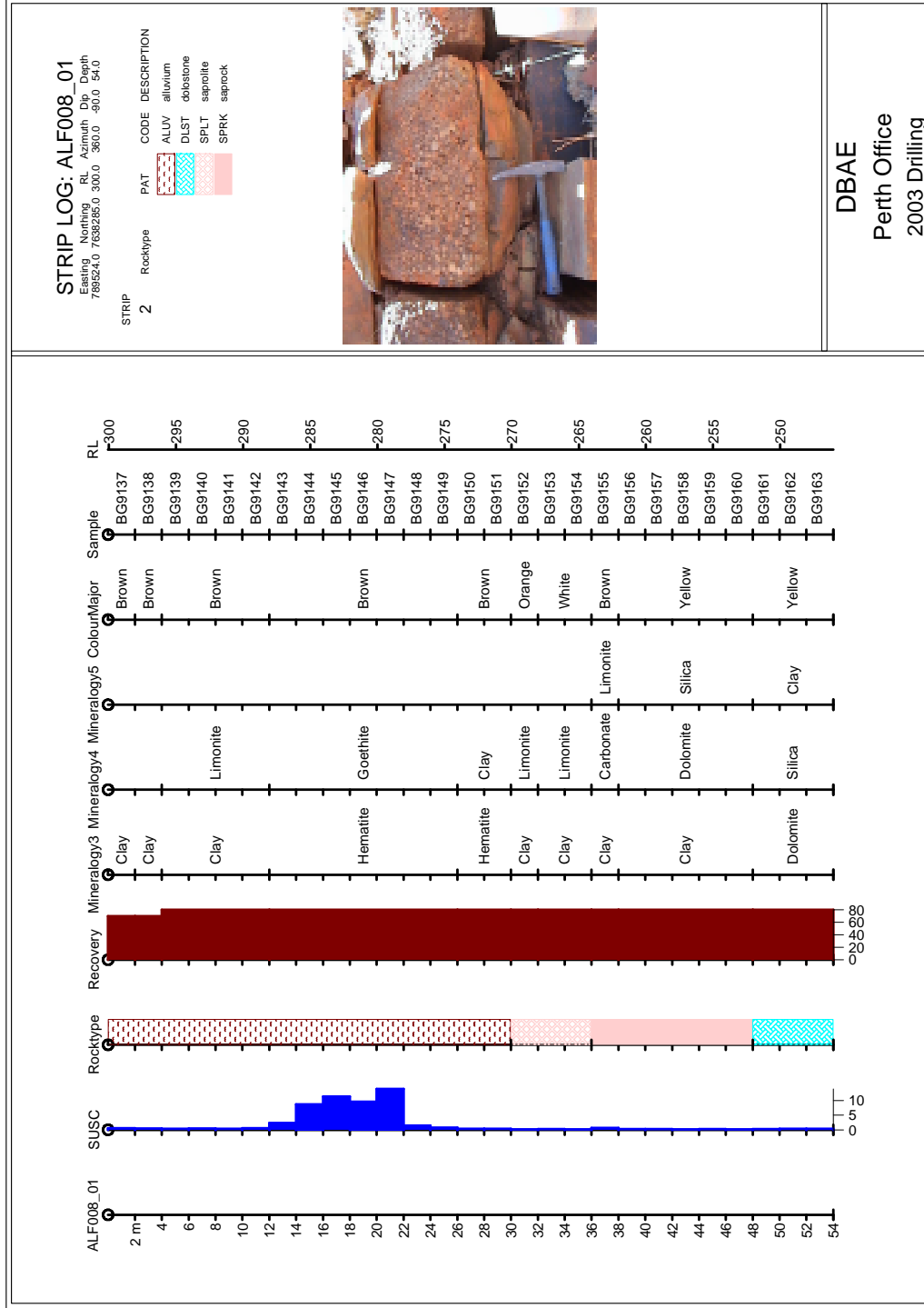


Figure 3: Drill log for DH00/ALF006

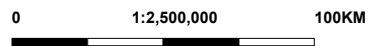
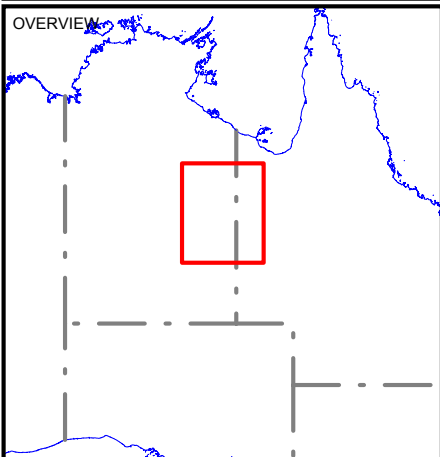
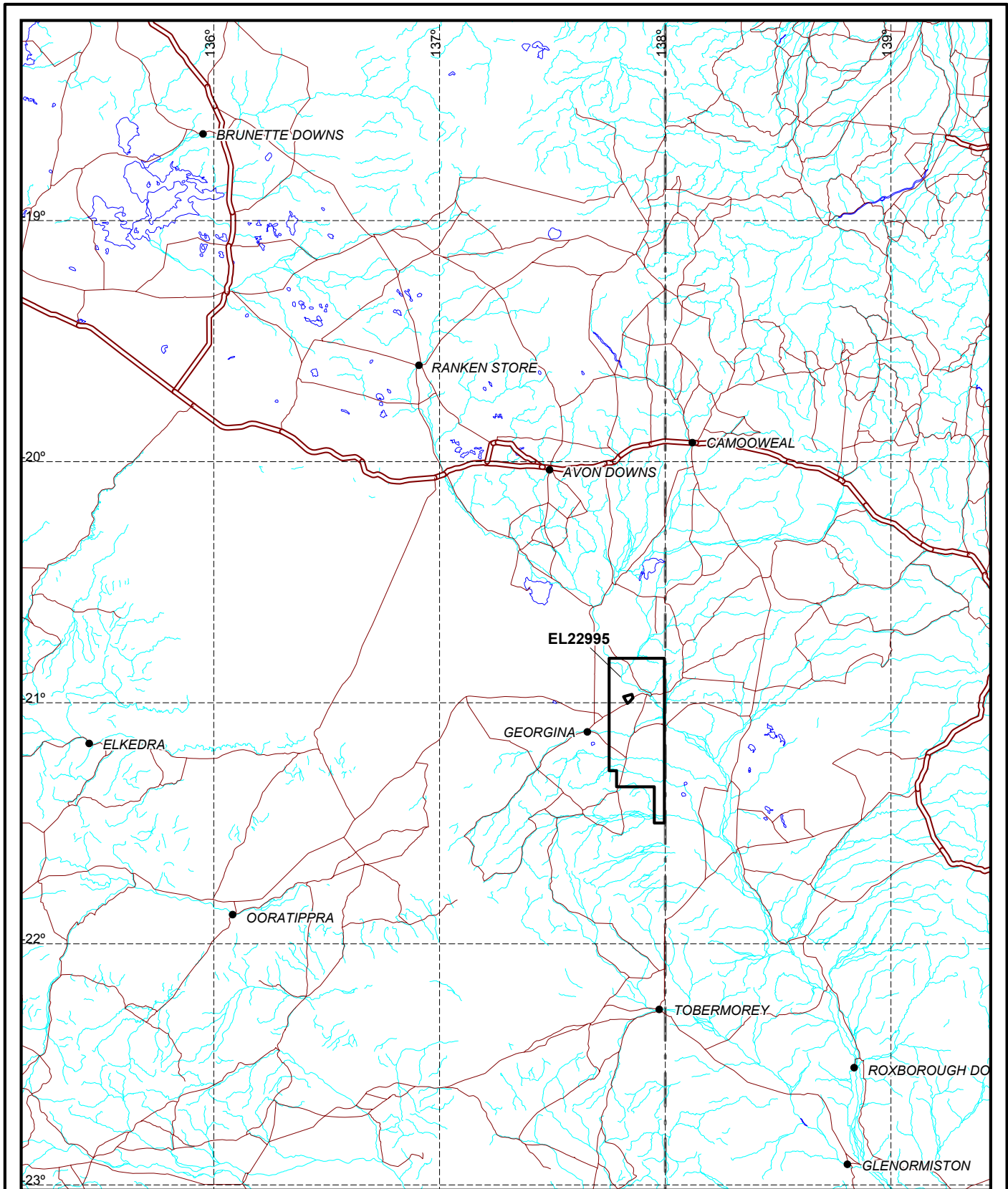


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2003 Drilling

Figure 4: Drill log for DH01/ALF008\_01

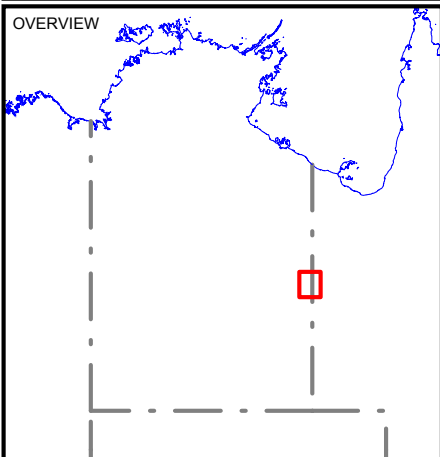
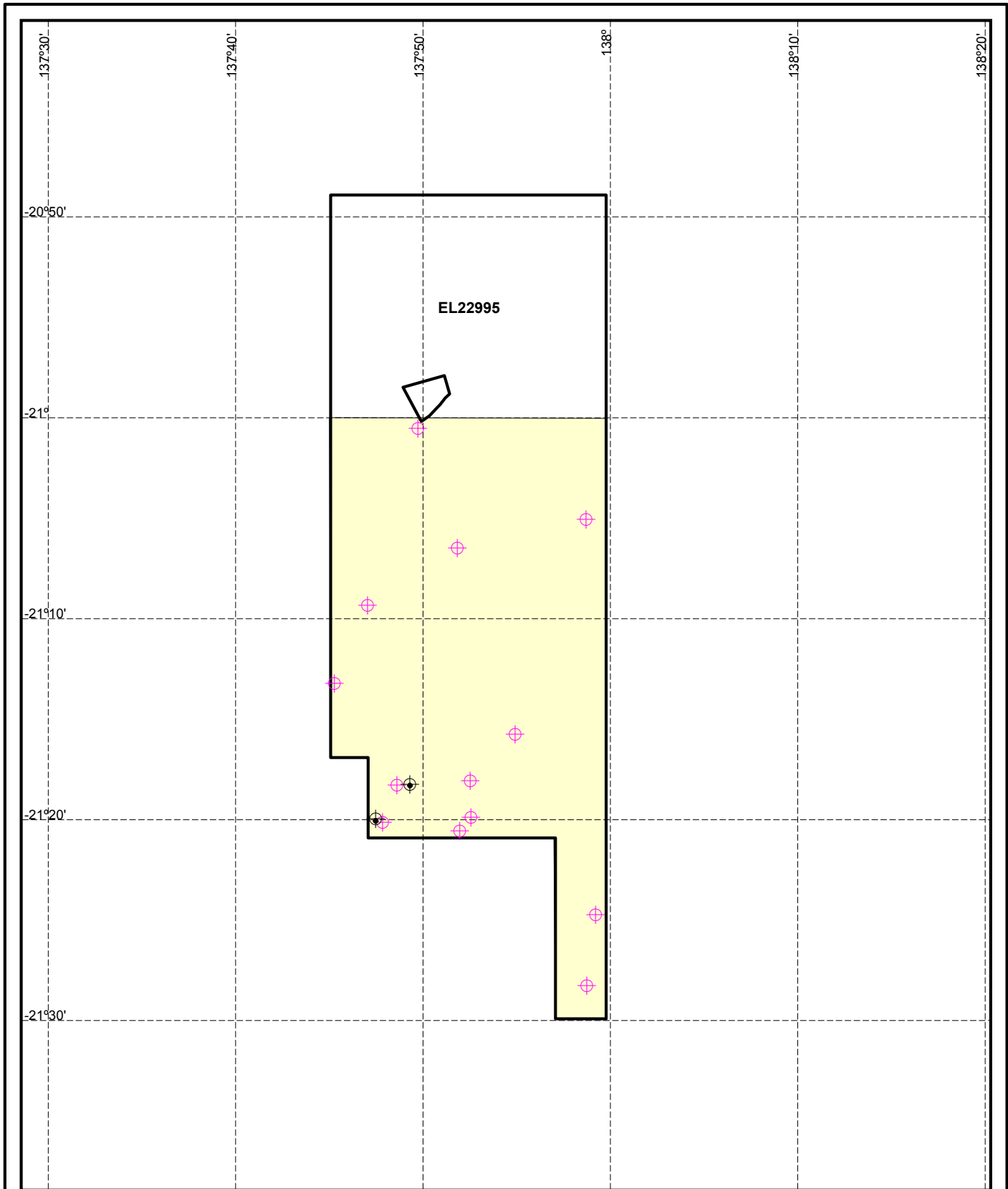






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Perth Office  
2003 Drilling



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<b>ANNUAL REPORT</b>		
<b>EL22995</b>		
<b>LOCATION MAP</b>		
Date: 9 Mar 04	Author: GGM	Map No: 1
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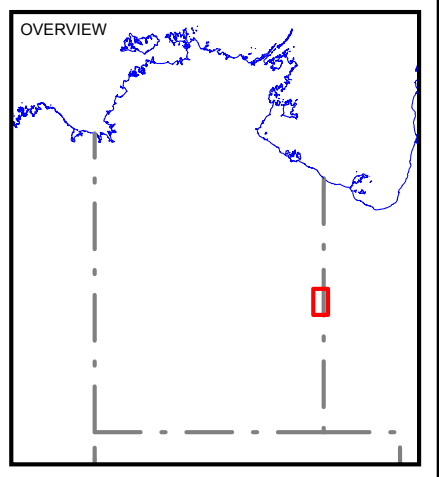
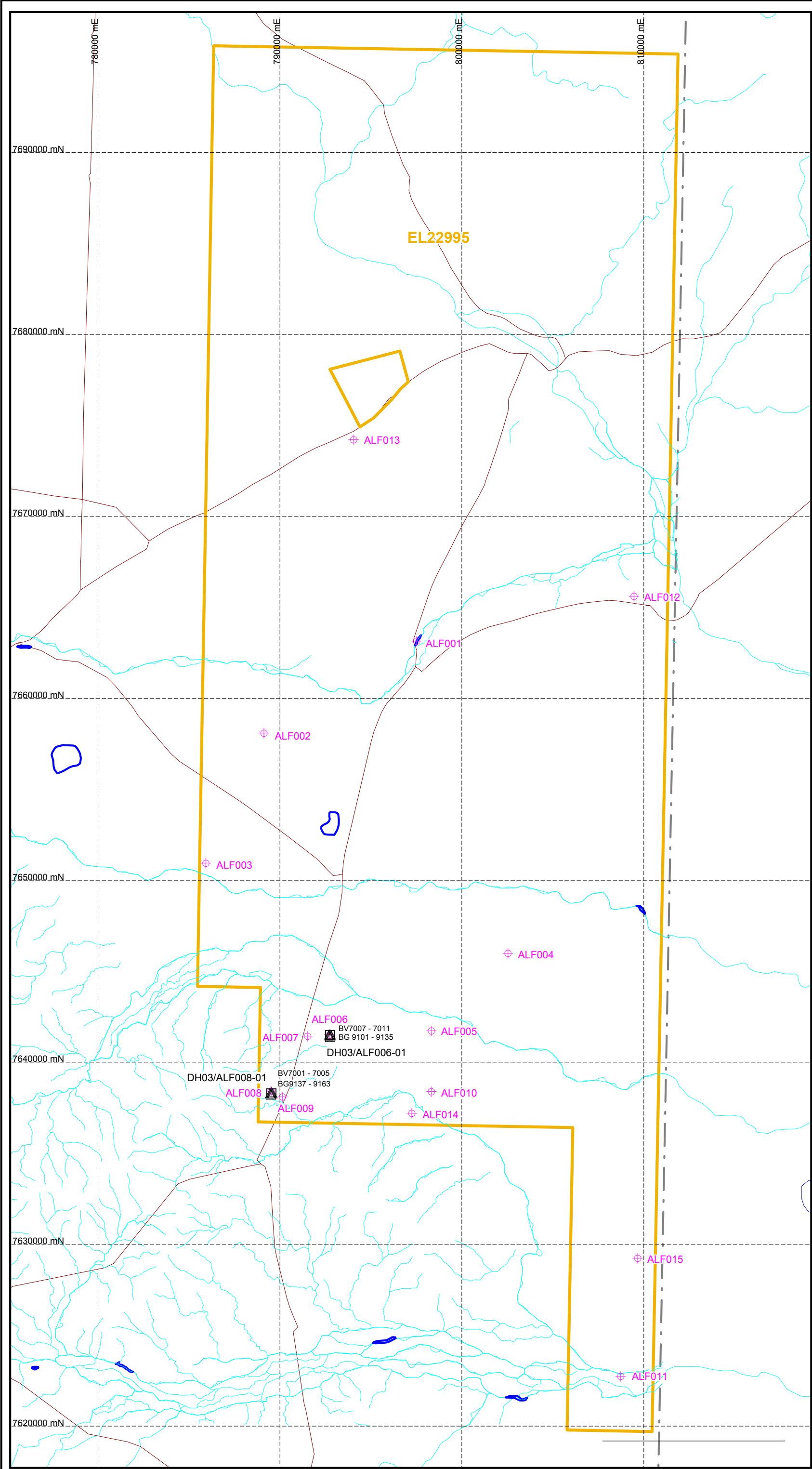
-  Area of Airborne Magnetic Survey
-  Heavy Mineral Sample
-  Magnetic Anomaly (Airborne Magnetics)
-  Magnetic Anomaly (Detailed Airmag Followup)



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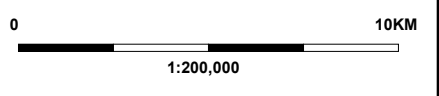
**ANNUAL REPORT**  
**EL22995**  
**EXPLORATION INDEX MAP**

Date: 9 Mar 04	Author: GGM	Map No: 2
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- SAMPLE LEGEND**
- Stream
  - △ Loam
  - ◇ Rock
  - Drill
  - ▽ Bulk
  - ⊕ Geophysics Anomaly

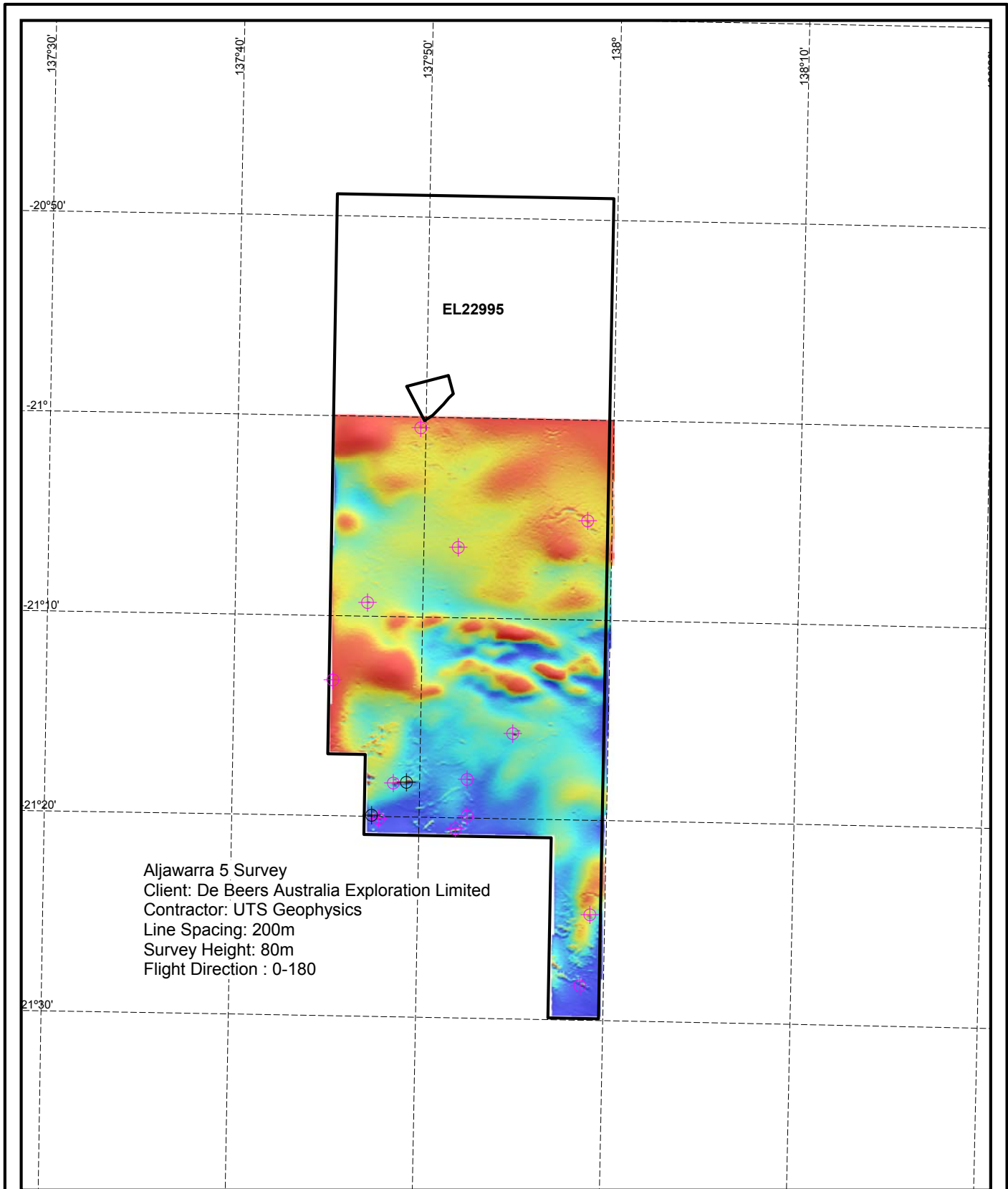
Samples
<b>DRILL</b>
BG9101-9135
BG9137-9163
Total 62
<b>LOAM</b>
BV7001-7005
BV7007-7011
Total 10



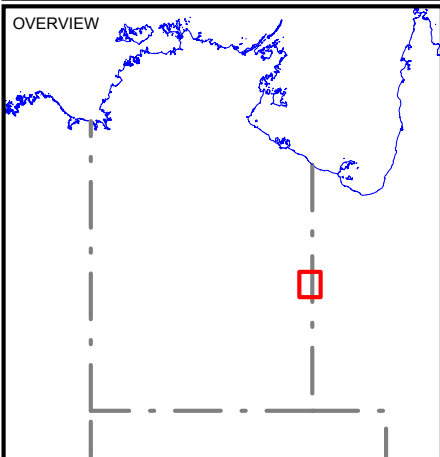
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**ANNUAL REPORT**  
**EL22995**  
**EXPLORATION INDEX MAP**

Date: 9 Mar 04    Author: GGM    Map No: 3  
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Aljawarra 5 Survey  
 Client: De Beers Australia Exploration Limited  
 Contractor: UTS Geophysics  
 Line Spacing: 200m  
 Survey Height: 80m  
 Flight Direction : 0-180



- Magnetic Anomaly (Airborne Magnetics)
- Magnetic Anomaly (Detailed Airmag Followup)

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**GEOPHYSICS TMI MAP**

Date: 9 Mar 04    Author: GGM    Map No: 4

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**Appendix A: Sample numbers down drill holes**

**1. DH03/ALF006\_01**

Sample ID	Depth From	Depth To
BG9101	0	2
BG9102	2	4
BG9103	4	6
BG9104	6	8
BG9105	8	10
BG9106	10	12
BG9107	12	14
BG9108	14	16
BG9109	16	18
BG9110	18	20
BG9111	20	22
BG9112	22	24
BG9113	24	26
BG9114	26	28
BG9115	28	30
BG9116	30	32
BG9117	32	34
BG9118	34	36
BG9119	36	38
BG9120	38	40
BG9121	40	42
BG9122	42	44
BG9123	44	46
BG9124	46	48
BG9125	48	50
BG9126	50	52
BG9127	52	54
BG9128	54	56
BG9129	56	58
BG9130	58	60
BG9131	60	62
BG9132	62	64
BG9133	64	66
BG9134	66	66.4
BG9135	83	85

**2. DH03/ALF008\_01**

<b>Sample ID</b>	<b>Depth From</b>	<b>Depth To</b>
BG9137	0	2
BG9138	2	4
BG9139	4	6
BG9140	6	8
BG9141	8	10
BG9142	10	12
BG9143	12	14
BG9144	14	16
BG9145	16	18
BG9146	18	20
BG9147	20	22
BG9148	22	24
BG9149	24	26
BG9150	26	28
BG9151	28	30
BG9152	30	32
BG9153	32	34
BG9154	34	36
BG9155	36	38
BG9156	38	40
BG9157	40	42
BG9158	42	44
BG9159	44	46
BG9160	46	48
BG9161	48	50
BG9162	50	52
BG9163	52	54