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Shaw Excavations Pty Ltd

EL 6/99 – Golden Ridge

Year 1 Annual Report

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8 June 2000

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SUMMARY

Previous exploration drilling around the Golden Ridge-Brilliant workings has identified a steeply plunging envelope of low grade gold mineralisation containing approximately 25,000 ounces @ 1.6 – 1.9 g/t (depending on the model parameters) from surface to 300 metres vertical depth. The mineralisation has been modelled to a confidence level sufficient for an Inferred Resource estimate but the overall grade is too low on such a small resource. Mineralisation is open at depth and to the northeast and the distribution of higher grade intersections inside the envelope suggests there is reasonable potential, via infill and extensional drilling, to double the resource and delineate a higher grade deep zone beneath a low grade surficial oxide zone deposit.

Preliminary investigations into the potential for discovering a "black granite" dimension stone resource within the Hogans Road Diorite identified one facies – a coarse grained hornblendite – which exhibits the colour, texture and polishing properties sufficient to justify an exploration program.

Magnetic susceptibility measurements on cut boulders show the hornblendite to be consistently more magnetic than other rock types within the Hogans Road Diorite.

A ground magnetic survey and core drilling program will be the Year 2 exploration priority.

TENEMENT INFORMATION

EL 6/99 is a 30 km^2 licence in the Golden Ridge area, NE Tasmania (Figure 1).

The licence was issued to Shaw Excavations Pty Ltd on 27 July 1999 for a 5 year period, with the Year 1 anniversary due on 9 July 2000. Shaw Excavations hold 100% equity in the licence.

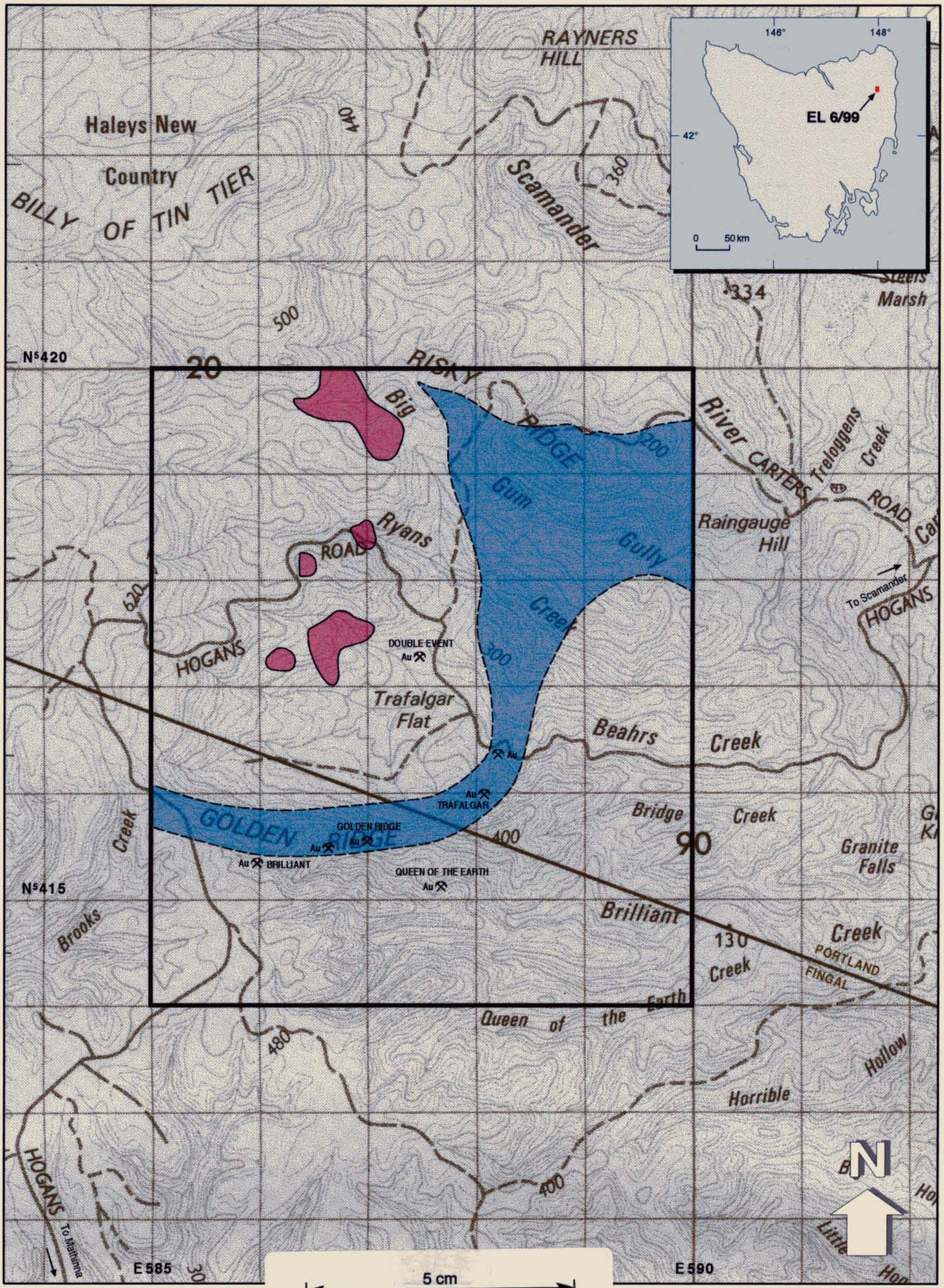
Access is via the all weather gravel forestry roads, Hogans Road and Granite Knob Road, which link the South Esk Valley to the east coast towns of St Helens and Scamander. An extensive network of forestry roads and vehicular tracks connect to Hogans Road within the EL boundary.

Land Tenure is entirely State Forest (multiple use), with wood production and plantation establishment currently active over much of the licence area.

This report documents all exploration completed up to 9 June 2000.

EXPLORATION PHILOSOPHY

The ground is considered prospective for both gold and black granite dimension stone and two separate exploration programs are in progress.



Scale 1: 50 000 (1 grid space =1km)

Devonian Diorite Intrusions

Contact Metamorphic Aureole in Mathinna Beds

(Geology from St Helens 1: 50000 sheet)

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Figure 1

SHAW EXCAVATIONS PTY LTD
EL 6/99 Golden Ridge
Location Map

Compiled: K.C.Morrison	Drawn: R.Carroll	Date: June 2000

Gold

The principal aim is to thoroughly explore the ridges of contact metamorphosed Mathinna Beds, from Golden Ridge to Risky Ridge, for resources of low grade (1-3 g/t), non refractory gold mineralisation at shallow depth and high grade narrow vein reefs with underground mining potential.

On the basis of the results achieved by previous companies exploring Golden Ridge, a target in the order of 30,000 to 60,000 oz gold in ground is realistic, and will be necessary to achieve viability. It is likely that the target tonnage will be contained in at least two separate ore bodies.

Previous work by the Billiton Joint Venture and by MPI, together with earlier Geological Survey mapping on the 1:50,000 St Helens sheet, demonstrates that the old gold workings are located within a narrow (1000 to 1300 m wide) thermal aureole around the margin of the Poimena Pluton. The aureole is expressed as a hornfels and cordierite/andalusite spotting facies in Mathinna Group sandstones. Magnetics and gravity signatures of the granite underlying the mineralised part of the aureole suggest a composition distinct from both the Poimena adamellite and the Pyengana granodiorite but a genetic link between granite and gold has not been demonstrated (Davidson and Roach, 1990).

Two distinct styles of gold mineralisation exist at Golden Ridge (Dugdale, 1998).

1. discrete quartz veins, 0.5 – 1 metre wide, hosted either in granite or in Mathinna Beds *outside* the hornfels aureole. Gold is associated with abundant sulphide, and geochemically anomalous arsenic and antimony zonation are characteristic. Mineralisation is confined to the veins (Trafalgar, Double Event, Queen of the Earth).

2. en echelon, steeply dipping narrow vein sets and cross cutting mineralised fractures, hosted in folded, interbedded sandstones and siltstones, *within* the hornfels aureole. Gold occurs in quartz veinlets, on limonitic fractures and in a diffuse form through siltstone beds. This style is low in sulphides and is best defined by gold geochemistry (Golden Ridge, Brilliant, New Carthage).

Significant near surface mineralisation was intersected around the Brilliant Prospect, in costeans and percussion drill holes by the Billiton JV (Randall, 1991, 1992a and b) and in diamond drill holes by MPI (Dugdale, 1995, 1998; Frances, 1996; Masur, 1997). These results, particularly the southeasterly extent of mineralisation intersected by GRD-2 and –6, suggest potential for infill drilling in several fences to outline a resource over a strike length of some 150 metres and a mining width of 20-50 metres. The target therefore is in part analogous to the Fosterville deposits in central Victoria, which are currently worked as an open cut heap leach operation (Arne et. al., 1998).

The Brilliant prospect is contained within a 10 ppb BLEG soil contour. Similar anomalies were identified by Billiton in the hornfels aureole at New Carthage, and by MPI at Risky Ridge.

Initial RC drilling on the New Carthage prospect was azimuthed east-west and did not hit significant mineralisation. The distribution of old diggings and the impressive 20 metres at 17 g/t surface rock chip result achieved by the Billiton JV (Randall, 1992b) suggest that an east-west strike to the mineralistion is plausible and remains untested.

Further north in the hornfels aureole, at least two ridges with similar morphology to Golden Ridge remain essentially unexplored; the ridge east of Double Event (conceptual target based on a Trafalgar-New Carthage analogue – no exploration to date) and at Risky Ridge (32 ppb BLEG soil anomaly with no follow up to date). Reconnaissance rock chip and stream sediment sampling will evaluate both areas.

Clearly Brilliant is the most advanced prospect in the tenement and the proposed project hinges on its viability. Its potential is enhanced if a central mill can be established at Mathinna, fed by several satellite mines in the district.

A second program is aimed at testing the Devonian diorites in the EL for their potential in the high value "black granite" end of the dimension stone industry. A resource of high quality dimension stone would have export potential and the initial exploration will determine if any portion of the Hogans Road Diorite is of sufficient quality and in a location suitable for low cost quarrying. A means of discriminating between the various rock types within the diorite bodies is necessary to enable drill site targetting. If the initial investigations into the dimension stone geology are positive then this program has the potential to become the exploration priority of EL 6/99.

PREVIOUS EXPLORATION AND MINING

Small scale open pit and underground gold mining occurred at the now abandoned workings marked on Figure 1, between the late 1890s and the mid 1930s. Several unpublished reports by W. H. Twelvetrees and Q. J. Henderson, archived in the MRT library, describe these workings, most of which only produced small parcels of ore grade vein quartz for testing. The Brilliant workings were by far the largest, with ferruginous sandstone as well as vein quartz mined from a small pit and limited shallow underground stopes. Evidence of a mill and eroded tailings are still visible down slope from the Brilliant and Golden Ridge workings, extending to Brilliant Creek.

Randall (1991) briefly reviews the regional stream sediment surveys and limited soil and rock chip sampling conducted over large tracts of NE Tasmania, including the Golden Ridge area, by Texins Development Pty Ltd and Union Corporation (Aust) Pty Ltd between 1980-1982. The Golden Ridge workings were also held under exploration licence and mining leases by Oceana Tasmania, from 1982 to 1992 but little exploration work appears to have been done.

The only significant modern gold exploration in the Golden Ridge area consists of two programs conducted between 1989 and 1998.

1989-1992 Billiton Australia and Joint Venture partners; Aureole NL, American Horizon Resources Inc; Federation Resources NL EL 58/88

- Rock chip, stream sediment sampling, reconnaissance mapping and sampling of workings.
- Grid based mapping, BLEG soil survey, costeans, further stream sediment sampling. Consultants studies on structural, geochemical and contact metamorphic controls on mineralisation.
- Support for two Honours projects. 7 RC percussion drill holes (574 m) tested the Brilliant and Trafalgar-New Carthage prospects.

Billiton withdrew from the JV late in 1992 because they considered that the potential was too small for their objectives and no further work was done by the licencee group.

1993-1998 MPI Gold Pty Ltd EL 12/93

- Extension of the Billiton stream sediment survey.
- Re-establishment and survey control of grid.
- Mapping, soil, rock chip survey.
- 10 cored diamond drill holes (2125 m) under the Brilliant-Golden Ridge workings.
- Petrography, geological interpretation of Brilliant-Golden Ridge mineralisation.

MPI relinquished the EL in 1998, due to a perceived lack of size potential and continuity of mineralisation.

Shaw Excavations Pty Ltd submitted a successful bid for ETA 495 in February 1999 and EL 6/99 was subsequently granted in July 1999.

YEAR 1 EXPLORATION RESULTS

Mining Geolgist David Garrard, SVEDA Pty Ltd, was engaged to construct a Surpac model of the gold mineralisation intersected in drill holes and costeans in the Golden Ridge-Brilliant area, by the Billiton JV and MPI. MPI kindly provided, free of charge, digital files from their Perth database and their assistance and its consequent saving of cost and time is gratefully acknowledged.

David Garrard hired the Surpac facility at Coffey Geosciences Pty Ltd, Hobart, and produced the report shown in Appendix 1.

Two block models were created, based on projected axial distances determined from semi variograms. Both models use 10 metre strike dimension (strike = Grid North = 060 AMG) and 10 metre vertical dimensions, with the difference being the two being 5 metre versus 2 metre horizontal widths normal to strike (see Appendix 1).

Both models show approximately 25,000 ounces at a cut off of 1 g/t gold but the model with the tighter width dimension resulted in less dilution for the same contained gold. The average grade is 1.56 g/t for the 5 metre wide blocks and 1.87 g/t for the 2 metre wide blocks.

The distribution of grade in the vertical dimension, as indicated by both models, shows a relatively lower grade zone down to 150 metres below surface, then an abrupt change in trend to higher grade mineralisation, with peak grades at about 200 metres.

If the shape of the mineralisation envelope is roughly symmetrical, then extensional sectional drilling to grid north has the potential to double the size of the envelope. It is also likely that the average grade within the existing Inferred Resource would increase if the same models were run on 20 metre sections, if infill drilling data were available.

Both outcomes will be necessary to generate a viable resource.

Black Granite

Consulting Geologist Russel Fulton reviewed the geology of the Hogans Road Diorite (Appendix 2) and produced cut hand specimens of various rock types encountered. Preliminary indications were that the lithology with most potential, on colour and texture grounds, is a very coarse, olivine, pyroxene ± plagioclase hornblende amphibolite.

Reconnaissance field investigations over the five "diorite" bodies revealed a diversity of textures and mineralogy, with the best potential for discovering a resource of coarse hornblendite in a location suitable for low cost, low impact quarrying, being in the northern, and largest, diorite occurrence (Figure 1).

Seven subcrop boulders in the 0.25 – 1 tonne range, covering the range of rock types which were identified visually, were collected from a 200 metre radius centered at 586,900 E, 5,419,600 N. The boulders were cut and polished by Dunn Monumental Masons Pty Ltd, Launceston. One rock type stood out in terms of its texture, colour and lustre under polish – the coarse grained hornblende amphibolite. The other grey, black and green coloured facies within the rock unit are considered to have only marginal potential as dimension stone (John Dunn, pers comm).

Magnitic susceptibility measurements on the cut and polished faces of the seven boulders show that the amphibolite has significantly higher magnetic susceptibility than the other rocks (Table 1) and therefore ground magnetics is potentially an effective mapping tool to generate drill targets.

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Table 1

Hogans Road Diorite
Magnetic Susceptibility Readings (10^{-5} SI) – 2 March 2000
(all readings on cut and polished face of boulders approx. 0.25 – 1.00 tonne)

Boulder 1 **Coarse Amphibolite (Black Granite)**
Range 1.73 – 2.46
Mean 2.21
n = 10

Boulder 2 **Coarse Porphyritic Tonalite (Green Granite)**
Range 1.18 – 1.52
Mean 1.34
n = 10

Boulder 3 **Medium Diorite (Grey Granite)**
Range 1.03 – 1.99
Mean 1.42
n = 11

Boulder 4 **Coarse Porphyritic Tonalite (Green Granite)**
Range 1.05 – 1.56
Mean 1.20
n = 10

Boulder 5 **Coarse Porphyritic Tonalite (Green Granite)**
Range 1.00 – 1.29
Mean 1.17
n = 13

Boulder 6 **Medium Diorite (Grey Granite)**
Range 1.20 – 1.83
Mean 1.49
n = 10

Boulder 7 **Coarse Porphyritic Tonalite (Green Granite)**
Range 1.56 – 1.86
Mean 1.71
n = 13

Expenditure

For the 8 month period, 1 August 1999 to 31 March 2000, a total of $25,932 was spent on gold and black granite exploration within EL 6/99

YEAR 2 WORK PROGRAM AND BUDGET

The Company aims to spend $125,000 on black granite and gold exploration in year 2. Funding depends on a cash flow from the Kimbolton Coal Mine and if sufficient funds are not available to achieve the Golden Ridge budget, then Shaw Excavations undertake to partially relinquish EL 6/99 before the Year 2 anniversary, to reach a position that can be adequately funded. If such a partial relinquishment becomes necessary it would most probably be based on a separation of the gold and black granite projects.

The following Year 2 work program is itemised in order of priority.

• Ground Magnetics Survey – Hogans Road Diorite northern body	$5,000.00
• Core drilling program on magnetic highs	$30,000.00
• Rock chip and stream sediment survey – Risky Ridge area	$10,000.00
• Test Pit – Hogans Road Diorite northern body	$30,000.00
• Accreditation, polishing tests	$10,000.00
• Percussion drilling program – Trafalgar-New Carthage	$30,000.00
• Compilation, drafting, reporting	$10,000.00
	$125,000.00

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Randall, J.P., 1992a, EL 58/88 Golden Ridge Joint Venture: Annual Exploration Report for the period 7/4/91 to 7/4/92.

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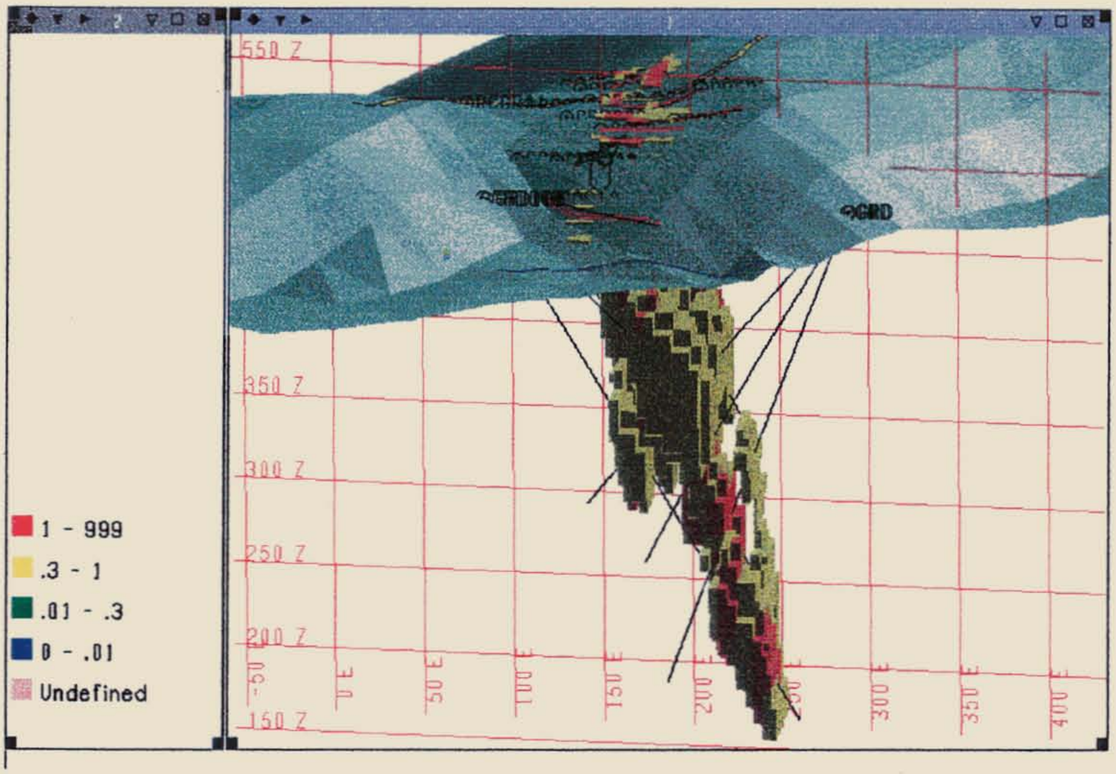
APPENDIX 1

Resource Modelling Report

Resource Modelling Report
Exploration License EL 6/99

Brilliant – Golden Ridge Prospect
Northeast Tasmania



Tenement Holder: Shaw Excavations Pty Ltd.
Author: Dave Garrard
Date: 27 January 2000

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SUMMARY

This report details resource modelling activities undertaken on behalf of Shaw Excavations Pty Ltd. on the Brilliant – Golden Ridge Prospect within EL 6/99, in a 3 week period during January 2000.

An Inferred Mineral Resource of between 400,000 and 500,000 tonnes at a grade of between 1.6 and 1.9 g/t of gold is estimated to exist at the prospect as currently defined by the data.

The author of this report is a member of the Australian Institute of Geoscientists and is considered a "Competent Person" under the JORC code for the purpose of estimating Mineral Resources in narrow vein type gold mineralisation.

1. Introduction:

This report details resource modelling work done on behalf of Shaw Excavations Pty Ltd. (Shaw) on gold mineralisation at the Brilliant – Golden Ridge Prospect within EL 6/99. The tenement is currently in license year 1.

The work was carried out using information gained entirely from the Billiton Australia joint venture (Billiton) and MPI Gold Pty Ltd. (MPI), both who held and explored the ground between April 1989 and October 1998. Billiton undertook stream sediment sampling, soil sampling, mapping and rock chip sampling, as well as digging 6 costeans and drilling 4 RC holes over the prospect. MPI continued from November 1993 with more detailed mapping and drilled 10 diamond drill holes on transform sections approximately 40m apart.

Both companies intersected significant gold mineralisation (>1g/t) associated with quartz veinlets and ferruginous fractures in a folded and hornfelsed silt-sandstone sequence. The envelope of gold mineralisation appears to be striking ENE and dipping steeply East and is intersected by late stage brittle faulting striking NNE (all bearings on AMG). This is interpreted to give rise to an en-echelon arrangement of mineralised pods within the envelope, increasing with depth to the SE.

2. Scope of Work:

No new information has been gathered since the work done by Billiton and MPI and this exercise was aimed purely at collation and 3 dimensional resource modelling. It was hoped this would shed some light on the nature of the gold mineralisation, its extent as currently defined and targets for further exploration.

As such only assay data relating to in-situ mineralisation was used i.e. from the costeans and drilling. An attempt was made to link anomalous gold values to broad-scale geology but this proved futile from the reports and is likely to require re-mapping and re-logging by a single geologist. Finally, no attempt was made to model other trace element data as this information is incomplete and exists only for the 10 diamond drill holes.

3. Data:

The data utilised was obtained from the annual Billiton and MPI reports held at the Mineral Resources of Tasmania library – see references for a complete list.
Digital data was also obtained from MPI to prevent re-entering, although this was not entirely complete and still required some input and validation from the text.

Of greatest interest was the gold assay data for the 6 costeans (Cos. 1 ;2 ;2A ;3 ;4 ;5 and 10), the 4 RC holes (RCGR 1 to 4) and 10 diamond drill holes (GRD 1 to 10). The costeans were sampled at mainly 2m intervals and analysed for gold by fire assay. The RC and diamond drill holes were also completely sampled at regular 1m intervals (with the exception of GRD 1 and GRD 10 where certain sections were not sampled) and analysed for gold by fire assay. For consistency, only the initial assay of each sample was used in the modelling.

Topographic data was obtained in digital format from MPI as were the surface positions of major features such as the access road, Brilliant Creek, costeans and historical workings. Collar positions, downhole surveys and geological logs for the drilling were also obtained and validated against the text.

4. Modelling:

All 3D modelling was carried out using Surpac 2000 software in conjunction with Excel for editing the data.

A database was constructed in Surpac in which all the gold assay and geological logs were stored from the drilling. Extensions to GRD 2 and 3 (viz. GRD 2A and 3A) were added to the original logs instead of being treated separately and the costeans were treated as horizontal drillholes for the purpose of modelling.

For the most effective construction of a model, the data was then transformed from AMG co-ordinates to a grid orthogonal to the majority of the data and indeed the most obvious strike of the mineralisation. This involved rotating +60° from AMG North and making the origin of the new grid correspond to AMG 5415600N and 585700E.

E-W Cross sections were then created from the transformed database at 20m intervals (+/- 10m) from the baseline at 0mN on the new grid. An attempt was then made to define continuous zones of gold mineralisation between the assays on section and between sections, using cutoffs of 0.3g/t and 1g/t respectively. This proved extremely difficult on all but section 80mN, which has the greatest amount of data (6 diamond drill holes).

The interpretation on section 80mN seems to indicate 7 to 8 discrete zones of >1g/t gold mineralisation. These are up to 5m in true width and lie within zones of >0.3g/t material which are up to 20m in true width. These zones dip steeply Eastwards (-85°) and seem continuous for 50 to 100 metres down dip. They also seem to lie in a staggered (en-echelon) arrangement, which deepens to the East. See figure 3.

A lack of consistency between the geological logs did not allow a firmer interpretation than this although a vertical projection of the shear zones from surface mapping would seem to contain the mineralised pods to some extent. Relating such discontinuous pods between the sections 40m either side however proved futile due to a lack of information and instead an envelope was created which contained all the significant intersections along strike and with depth. This coincides roughly with the 0.3g/t Au cutoff but does contain lower grade material due to the en-echelon nature of the mineralisation. Note that this also excludes a small amount of higher grade material where this did not seem consistent with the main style of mineralisation. The most obvious example of this is that intersected by GRD 5 and 9 on the section at 40mN, which seems to have a very limited vertical extent as shown by the low grades in drilling immediately above and below.

To gain some idea of a reasonable distance for projection of this envelope beyond the data, omnidirectional variograms were constructed from all the assay data. Only the variogram at -90° showed any reasonable structure and gave a range of ~40m. This was taken as the maximum distance the data could reasonably be projected down dip and the envelope was constructed accordingly. A distance of 20m was used to extend the envelope either side of the northern and southernmost sections where data existed (viz. 40mN and 200mN respectively). This resulted in an envelope 200m along strike from 20mN to 220mN, ~60m across strike and over 300m below surface.

The final step involved creating a block model to aid the interpretation of grade distribution within the envelope and to gain some idea of the contained metal above various grade cutoffs. Two models were created for comparison, the first (Model 1) using blocks of the dimensions 10m along strike (N-S), 10m vertically and 5m across strike (E-W). Smaller blocks than this would not be realistic along strike and with depth due to the scarcity of information but Model 2 used 2m wide blocks across strike in an attempt to reflect the thin nature of the higher grade mineralisation.

The assay data was then composited at 1m intervals to ensure consistent sample size and zones of no sampling were given a background value of 0.001g/t Au. The composited data was then used to fill the models using both an inverse distance squared (ID2) algorithm and Ordinary Kriging, both with an anisotropic search ellipse having the dimensions 40m downdip (-85°/150°); 20m along strike (0°/000°) and 10m across strike (0°/090°). The interpolation was constrained to blocks within the envelope but allowed data from outside to be used in the allocation of grade.

Results of this are shown visually in figures 4 to 9 and numerically by tables 1 to 3.

The following assumptions were made during modelling:

- A specific gravity of 2.5 was used throughout, based on no measurements but considered reasonable for the host rocks.
- No top or bottom cuts were applied to the data.
- No assumptions were made regarding possible mining methods.
- Metallurgical amenability was not taken into account.

5. Results:

Table 1 shows that both models give a very similar result in terms of contained gold above a cutoff of 1.0 g/t (approximately 25,000 ounces).

The difference is that the 2m wide blocks of Model 2 allow a tighter constraint of this style of mineralisation which results in less dilution, giving higher grades at lower tonnes for a similar amount of contained metal. This is more realistic given individual assays in some zones but a final model should ensure that the block width is no less than the minimum stoping width to reflect the achievable grade.

Tables 2 and 3 report the material above 0.3 g/t and 1.0 g/t cutoffs for both models to demonstrate the currently defined extent of significant mineralisation.

Table 2 shows that 80% of the contained ounces occur within the first 100m of strike length (sections 20mN to 120mN). This is due to a lack of information further north as there is no drilling deeper than 75m below surface between 120mN and 220mN.

Table 3 shows that the contained ounces are more evenly spread with depth although the grade jumps significantly at around 200m below surface. Closer inspection of the raw data on sections 40mN to 120mN shows seven assays in excess of 10 g/t Au at this depth and only one assay of 10 g/t close to surface.

6. Conclusions and Recommendations:

Significant gold mineralisation exists at the Brilliant Prospect and it remains open along strike and with depth. From the currently available information however, an estimate of 25,000 ounces can be assumed to exist above a cutoff grade of 1.0 g/t Au.

Depending on the method of extraction, this is likely to come from an Inferred Resource of between 400,000 and 500,000 tonnes at a grade of between 1.6 and 1.9 g/t Au. An Inferred category was chosen as it is defined by the Joint Ore Reserves Committee (JORC) code to apply to situations where "the data is insufficient to allow the geological and/or grade continuity to be confidently interpreted".

Note that this estimate should not be taken as achievable as no mining or economic constraints have been applied, nor should they be until enough data has been gathered to allow classification into an Indicated or Measured category. In order to do this the following programme of work is recommended to be carried out:

- Re-logging of available core with an emphasis on identifying structural features between sections and surface mapping.
- Exploration diamond drilling at 40m spacings along strike beginning on section 160mN. Figure 7 shows a proposed layout of 5 holes between 200 and 300m each and is also applicable for other sections where such holes do not already exist. The holes should be drilled in the order shown with the final design and decision to drill each hole being decided on the results and path of the previous one.
- Infill diamond drilling at 20m sections with a similar layout to that shown in figure 7. This should enable more confident interpretation of geology and grade continuity along strike.

Dave Garrard
Geological Consultant

8. References:

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Australasian Code for the Reporting of Mineral Resources and Ore Reserves (JORC Code – 1999 edition)

653022

Table 1: **Material Contained in Mineralised Envelope at Various Grade Cutoffs:**

a. **10m x 10m x 5m blocks filled by ID2**

Grade Range g/t Au	Volume m3	Tonnes sg = 2.5	Ave. Grade g/t Au	Contained ounces Au
0.0-0.01	1,623,500	4,058,750	0.00	0
0.01-0.3	934,250	2,335,625	0.13	9,762
0.3-1.0	690,625	1,726,563	0.57	31,807
1.0-2.0	175,563	438,906	1.33	18,782
2.0-5.0	25,125	62,813	2.74	5,529
5.0-10.0	2,500	6,250	5.69	1,143
>10.0	0	0	0.00	0
Grand Total	**3,451,563**	**8,628,906**	**0.24**	**67,024**

Blocks > 1.0 g/t Au

Tonnes sg = 2.5	Ave. Grade g/t Au	Contained ounces Au
507,969	1.56	25,454

b. **10m x 10m x 2m blocks filled by Ordinary Kriging**

Grade Range g/t Au	Volume m3	Tonnes sg = 2.5	Ave. Grade g/t Au	Contained ounces Au
0.0-0.01	1,993,400	4,983,500	0.00	0
0.01-0.3	817,400	2,043,500	0.13	8,541
0.3-1.0	488,800	1,222,000	0.55	21,726
1.0-2.0	126,200	315,500	1.34	13,562
2.0-5.0	33,800	84,500	2.82	7,650
5.0-10.0	4,600	11,500	6.59	2,437
>10.0	1,000	2,500	15.64	1,257
Grand Total	**3,465,200**	**8,663,000**	**0.20**	**55,173**

Blocks > 1.0 g/t Au

Tonnes sg = 2.5	Ave. Grade g/t Au	Contained ounces Au
414,000	1.87	24,906

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Table 2: **Material Contained in Mineralised Envelope at Various Northings:**

Northing	Grade Range	*10m x 10m x 5m blocks filled by ID2*				*10m x 10m x 2m blocks filled by Kriging*			
		Tonnes	Ave. Grade	Contained	Cumulative	Tonnes	Ave. Grade	Contained	Cumulative
y	*g/t Au*	*sg = 2.5*	*g/t Au*	*ounces Au*	*%*	*sg = 2.5*	*g/t Au*	*ounces Au*	*%*
20 - 40	0.3-1.0	249,063	0.62	4,957		145,500	0.56	2,615	
	> 1.0	42,500	1.53	2,091		23,500	2.09	1,581	
	Sub Total	**291,563**	**0.75**	**7,049**	**12%**	**169,000**	**0.77**	**4,195**	**9%**
40 - 60	0.3-1.0	299,063	0.61	5,817		217,500	0.55	3,839	
	> 1.0	53,750	1.71	2,952		49,500	1.91	3,040	
	Sub Total	**352,813**	**0.77**	**8,768**	**28%**	**267,000**	**0.80**	**6,885**	**24%**
60 - 80	0.3-1.0	307,500	0.53	5,260		226,500	0.54	3,903	
	> 1.0	90,313	2.09	6,060		87,000	2.46	6,881	
	Sub Total	**397,813**	**0.89**	**11,319**	**47%**	**313,500**	**1.07**	**10,785**	**47%**
80 - 100	0.3-1.0	290,625	0.56	5,270		228,500	0.57	4,158	
	> 1.0	89,219	1.53	4,389		83,500	1.92	5,141	
	Sub Total	**379,844**	**0.79**	**9,660**	**64%**	**312,000**	**0.93**	**9,299**	**67%**
100 - 120	0.3-1.0	183,438	0.54	3,202		136,000	0.60	2,610	
	> 1.0	104,531	1.28	4,295		76,000	1.47	3,585	
	Sub Total	**287,969**	**0.81**	**7,499**	**77%**	**212,000**	**0.91**	**6,196**	**80%**
120 - 140	0.3-1.0	152,031	0.54	2,644		106,500	0.61	2,075	
	> 1.0	46,250	1.16	1,723		26,000	1.38	1,152	
	Sub Total	**198,281**	**0.69**	**4,367**	**85%**	**132,500**	**0.76**	**3,229**	**87%**
140 - 160	0.3-1.0	24,844	0.49	389		24,500	0.51	401	
	> 1.0	26,250	1.74	1,470		21,000	1.90	1,282	
	Sub Total	**51,094**	**1.13**	**1,860**	**88%**	**45,500**	**1.15**	**1,684**	**91%**
160 - 180	0.3-1.0	35,313	0.48	543		26,500	0.53	452	
	> 1.0	15,625	1.54	771		11,500	1.76	651	
	Sub Total	**50,938**	**0.80**	**1,313**	**91%**	**38,000**	**0.90**	**1,103**	**93%**
180 - 200	0.3-1.0	106,094	0.59	2,009		70,000	0.49	1,103	
	> 1.0	26,250	1.28	1,083		24,500	1.39	1,097	
	Sub Total	**132,344**	**0.73**	**3,089**	**96%**	**94,500**	**0.72**	**2,200**	**98%**
200 - 220	0.3-1.0	78,594	0.67	1,693		40,500	0.43	555	
	> 1.0	13,281	1.46	621		11,500	1.34	495	
	Sub Total	**91,875**	**0.78**	**2,313**	**100%**	**52,000**	**0.63**	**1,050**	**100%**
	Grand Total	**2,234,531**	**0.80**	**57,258**		**1,636,000**	**0.89**	**46,602**	

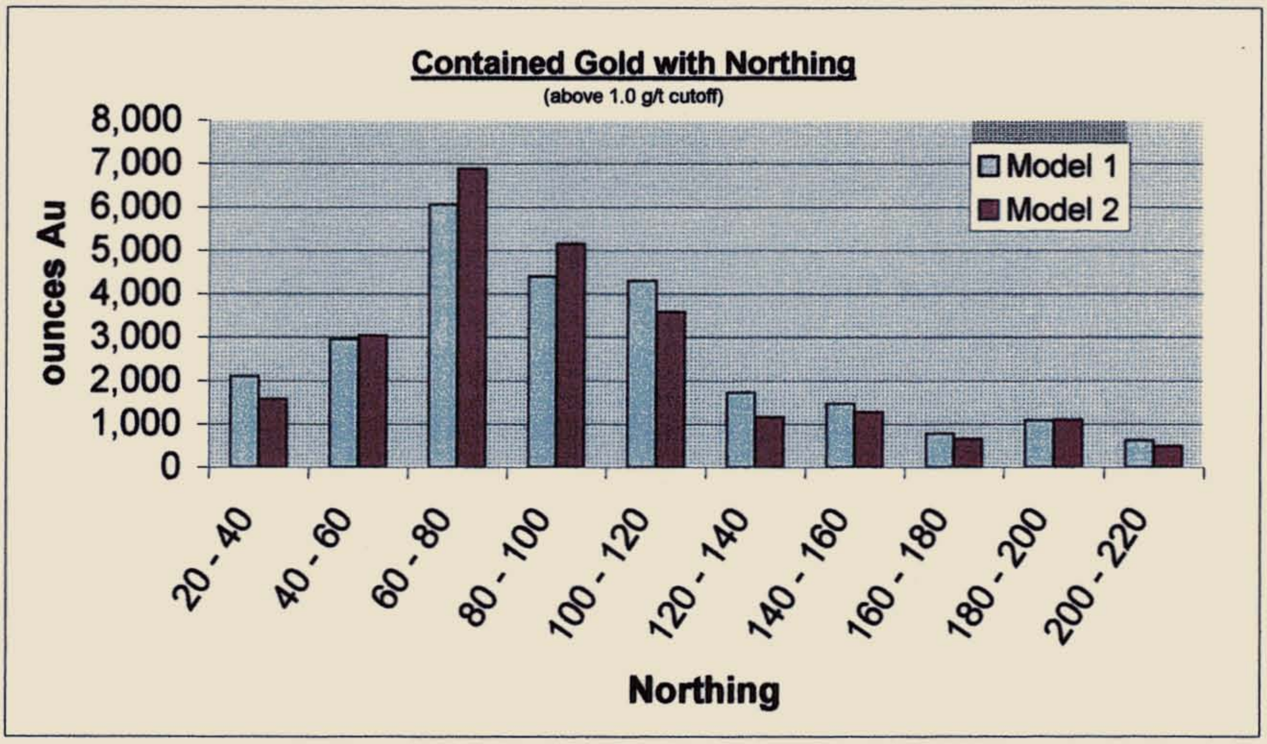
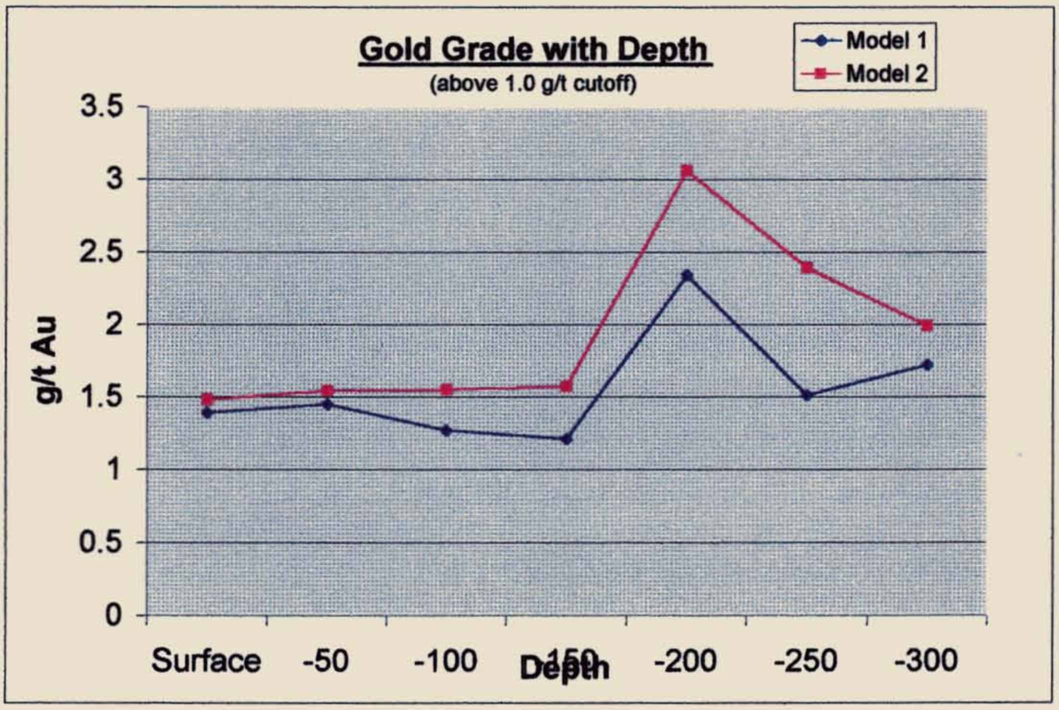
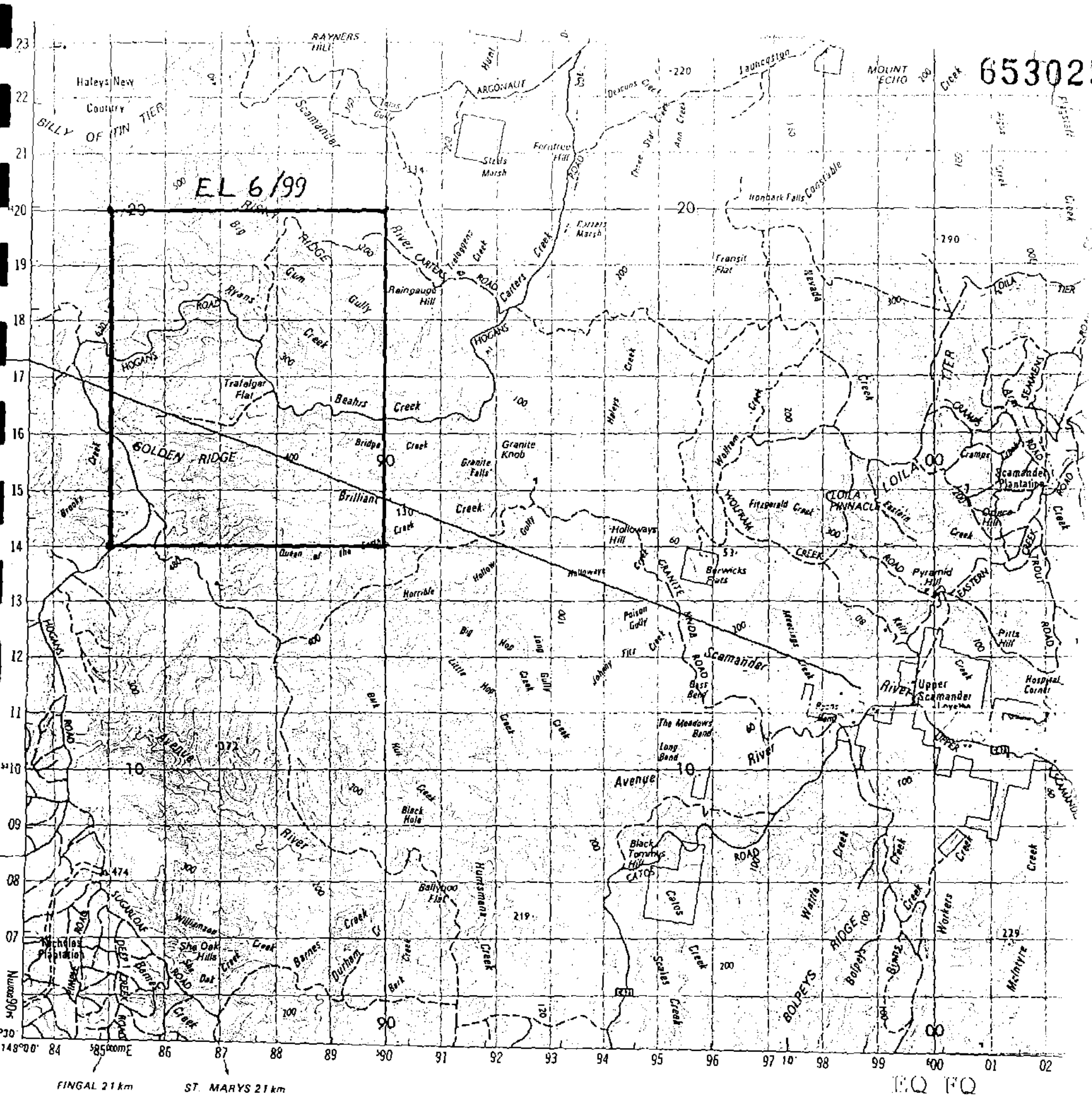


Table 3: **Material Contained in Mineralised Envelope at Various Depths:**

Depth	Grade Range	*10m x 10m x 5m blocks filled by ID2* Tonnes	Ave. Grade	Contained	Cumulative	*10m x 10m x 2m blocks filled by Kriging* Tonnes	Ave. Grade	Contained	Cumulative
z	*g/t Au*	*sg = 2.5*	*g/t Au*	*ounces Au*	*%*	*sg = 2.5*	*g/t Au*	*ounces Au*	*%*
Surface to 500mRL	0.3-1.0	179,688	0.56	3,241		160,000	0.60	3,066	
	> 1.0	98,906	1.39	4,420		90,500	1.48	4,318	
	Sub Total	**278,594**	**0.86**	**7,667**	**13%**	**250,500**	**0.92**	**7,385**	**16%**
500 - 450	0.3-1.0	301,563	0.57	5,488		210,000	0.54	3,646	
	> 1.0	73,125	1.45	3,402		67,000	1.54	3,322	
	Sub Total	**374,688**	**0.74**	**8,890**	**29%**	**277,000**	**0.78**	**6,964**	**31%**
450 - 400	0.3-1.0	484,375	0.59	9,204		330,000	0.54	5,708	
	> 1.0	81,250	1.27	3,307		73,500	1.55	3,670	
	Sub Total	**565,625**	**0.69**	**12,511**	**51%**	**403,500**	**0.72**	**9,379**	**51%**
400 - 350	0.3-1.0	421,250	0.57	7,706		296,000	0.56	5,339	
	> 1.0	72,500	1.21	2,823		57,000	1.57	2,872	
	Sub Total	**493,750**	**0.66**	**10,541**	**69%**	**353,000**	**0.72**	**8,217**	**69%**
350 - 300	0.3-1.0	111,875	0.56	2,018		90,000	0.55	1,591	
	> 1.0	90,625	2.34	6,818		65,000	3.06	6,393	
	Sub Total	**202,500**	**1.36**	**8,835**	**85%**	**155,000**	**1.60**	**7,983**	**86%**
300 - 250	0.3-1.0	145,625	0.51	2,397		93,500	0.52	1,551	
	> 1.0	55,938	1.51	2,721		33,000	2.39	2,538	
	Sub Total	**201,563**	**0.79**	**5,120**	**94%**	**126,500**	**1.01**	**4,087**	**94%**
250 - 200	0.3-1.0	82,188	0.65	1,725		42,500	0.59	810	
	> 1.0	35,625	1.72	1,967		28,000	1.99	1,795	
	Sub Total	**117,813**	**0.98**	**3,693**	**100%**	**70,500**	**1.15**	**2,604**	**100%**
	Grand Total	**2,234,531**	**0.80**	**57,258**		**1,636,000**	**0.89**	**46,602**	



653025



PRODUCED by the Mapping Division, Lands Department, Hobart, 1983
NOMENCLATURE: Topographic names on this map have been approved by the Nomenclature Board of Tasmania.
MAP ACCURACY: The average accuracy of this map is ± 25 metres in the horizontal position of well defined detail and ± 5 metres in elevation.
MAP RELIABILITY: Topographic information subjected to limited update June 1983.
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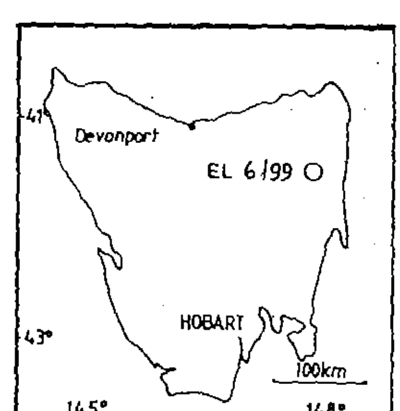
UNIVERSAL GRID REFERENCE
BEFORE GIVING A GRID REFERENCE, CIVILIAN USERS SHOULD STATE THE NUMBER AND NAME OF THIS MAP:
8515 : GEORGES BAY

GRID ZONE DESIGNATION: 55G	TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 100 METRES	
100 000 METRE SQUARE IDENTIFICATION	SAMPLE POINT: 14 △ THE GARDENS	
EQ FQ (100)	1 Read letters identifying 100 000 metre square in which the point lies.	FQ
	2 Locate first VERTICAL grid line to LEFT of point and read LARGE figures labelling the line in either the top or bottom margin, or on the line itself:	07
	3 Estimate tenths from grid line to point:	4
	4 Locate first HORIZONTAL grid line BELOW point and read LARGE figures labelling the line in either the left or right margin, or on the line itself:	42
IGNORE the SMALLER figures of any grid number; these are for finding the full co-ordinates. Use ONLY the LARGER figures of the grid number; example: 385000	5 Estimate tenths from grid line to point:	1
	SAMPLE REFERENCE:	FQ074421
	If reporting beyond 18° in any direction, prefix with Grid Zone Designation, ie: 55GFQ074421	

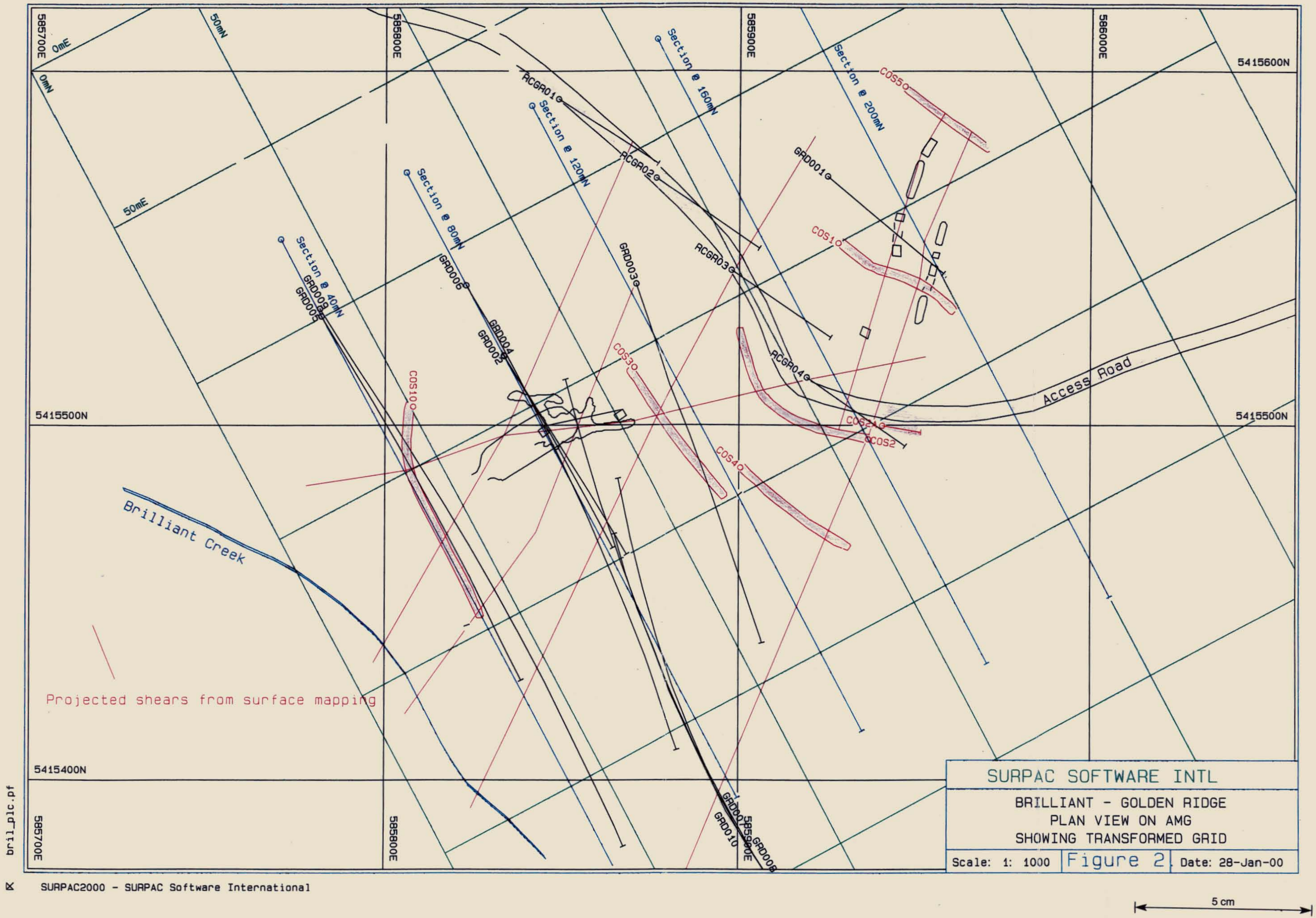


BRILLIANT - GOLDEN RIDGE

Location of EL 6/99

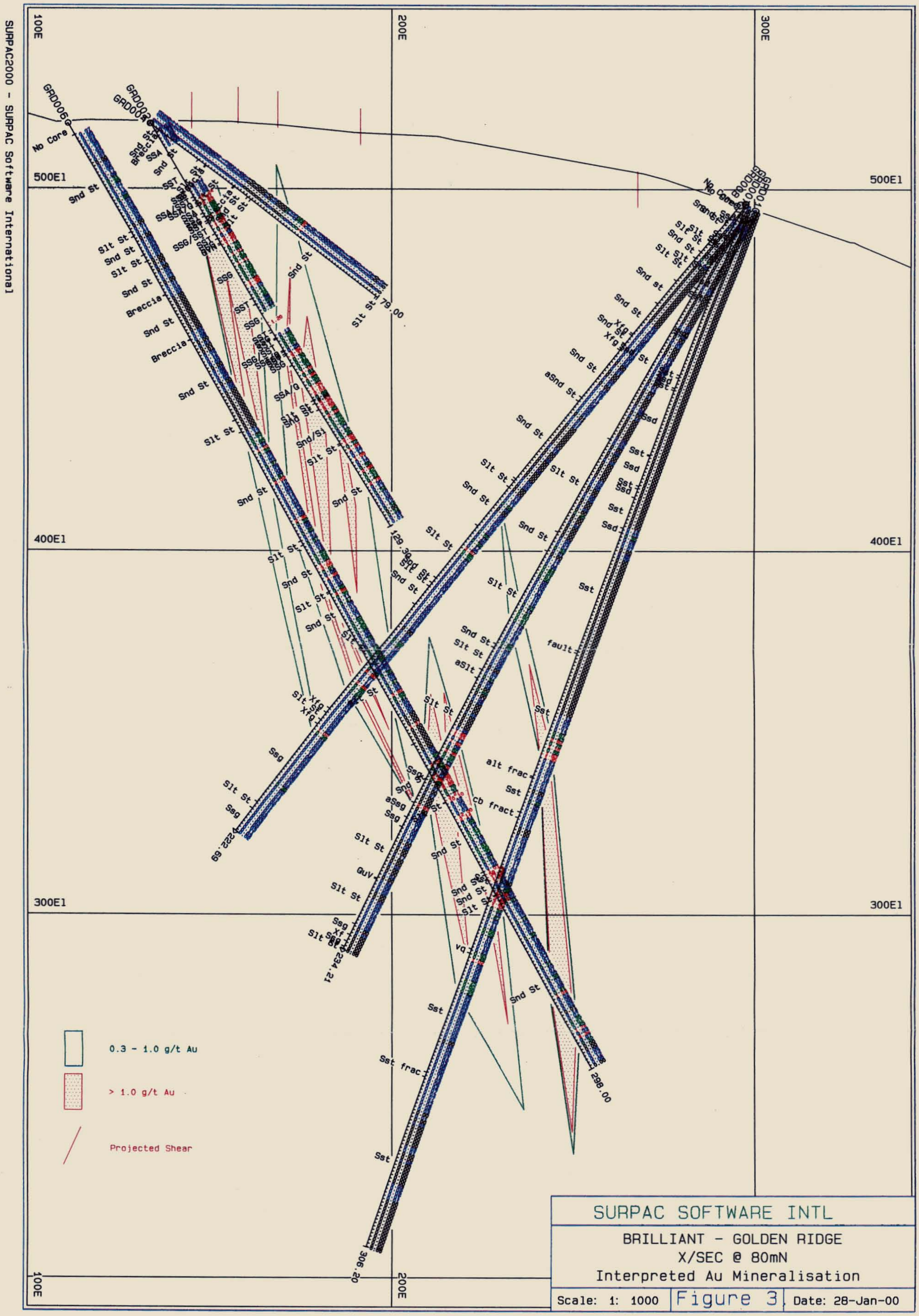
Figure 1. Date: 28 January 2000

653026



5415600N
5415500N
5415400N
585700E
585800E
585900E
586000E
0mE
50mE
0mN
50mN
Section @ 40mN
Section @ 80mN
Section @ 120mN
Section @ 160mN
Section @ 200mN
RCGR01
RCGR02
RCGR03
RCGR04
GRD001
GRD002
GRD003
GRD004
GRD005
GRD006
GRD008
GRD009
GRD010
COS1
COS2
COS3
COS4
COS5
COS10
COS21
Access Road
Brilliant Creek
Projected shears from surface mapping
SURPAC SOFTWARE INTL
BRILLIANT - GOLDEN RIDGE
PLAN VIEW ON AMG
SHOWING TRANSFORMED GRID
Scale: 1: 1000
Figure 2
Date: 28-Jan-00
bril_plc.pf
SURPAC2000 - SURPAC Software International
5 cm

bril_dac.pf

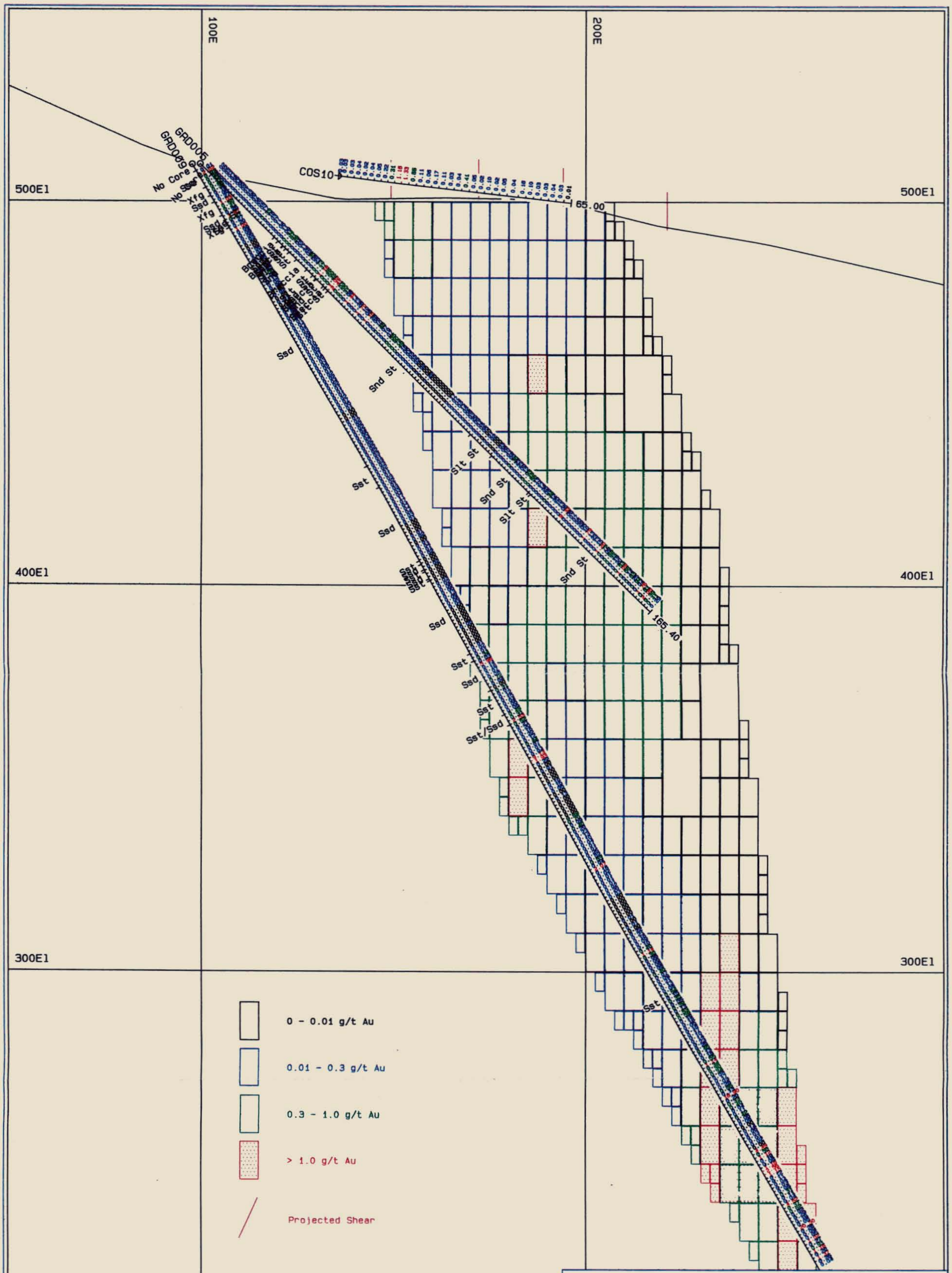


5 cm

653027

bril_dhp.pf

SURPAC2000 - SURPAC Software International



SURPAC SOFTWARE INTL

BRILLIANT - GOLDEN RIDGE
X/Sec @ 40mN on trans. grid
10x10x5m blocks filled by ID2

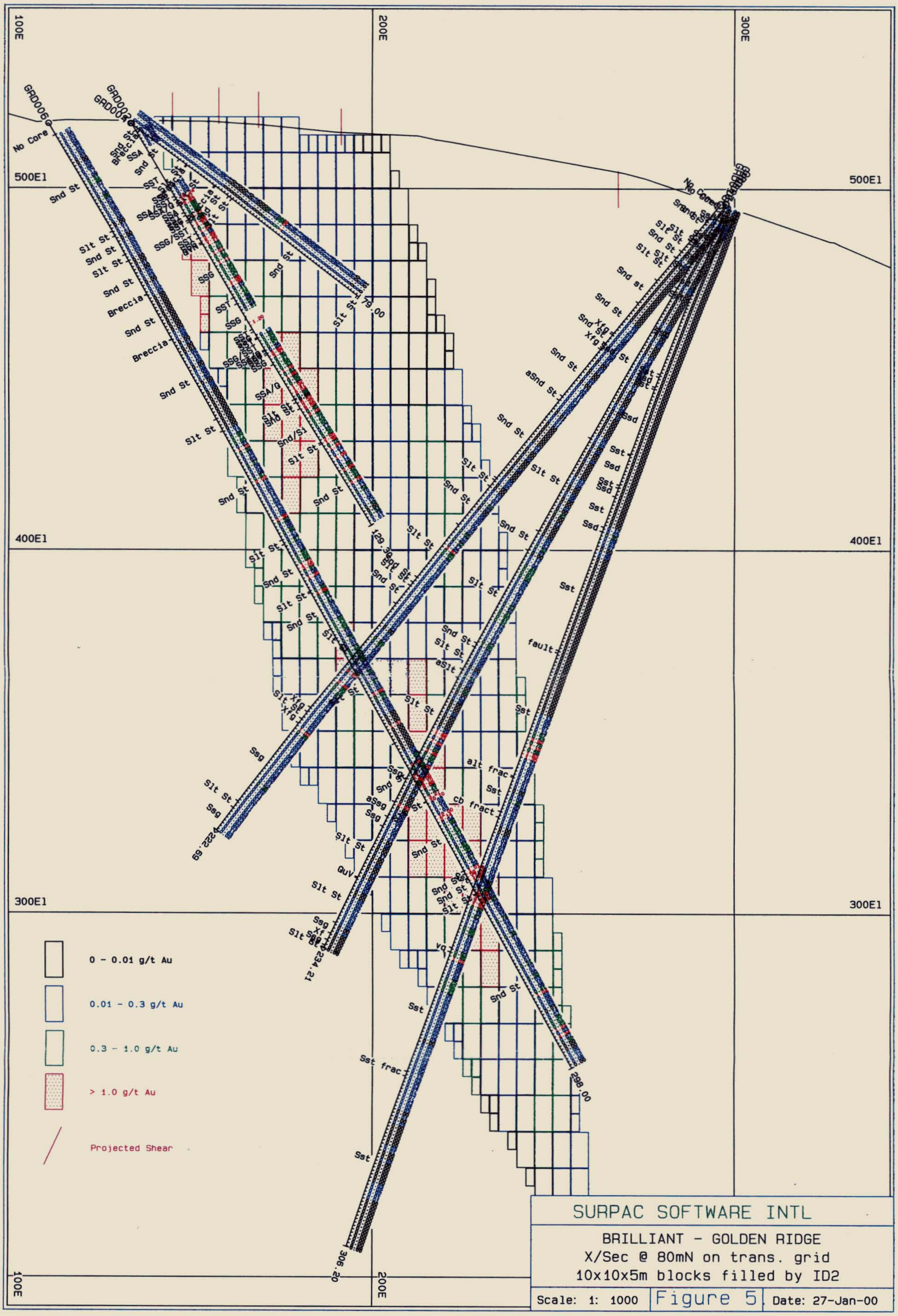
Scale: 1: 1000	Figure 4	Date: 28-Jan-00

5 cm

653028

bril_dhn.pf

SURPAC2000 - SURPAC Software International

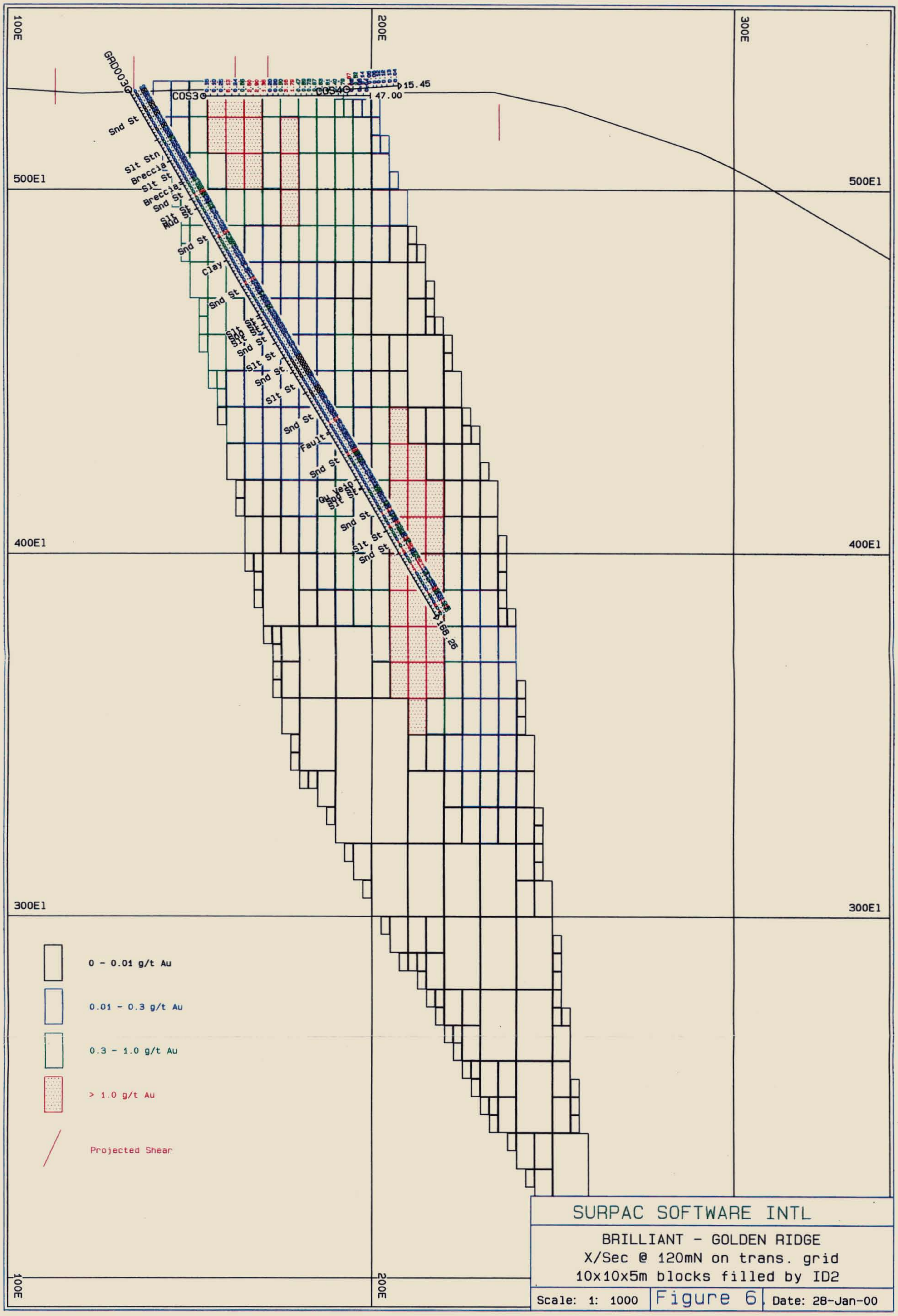


653029

5 cm

bril_dhq.pf

SURPAC2000 - SURPAC Software International



SURPAC SOFTWARE INTL

BRILLIANT - GOLDEN RIDGE
X/Sec @ 120mN on trans. grid
10x10x5m blocks filled by ID2

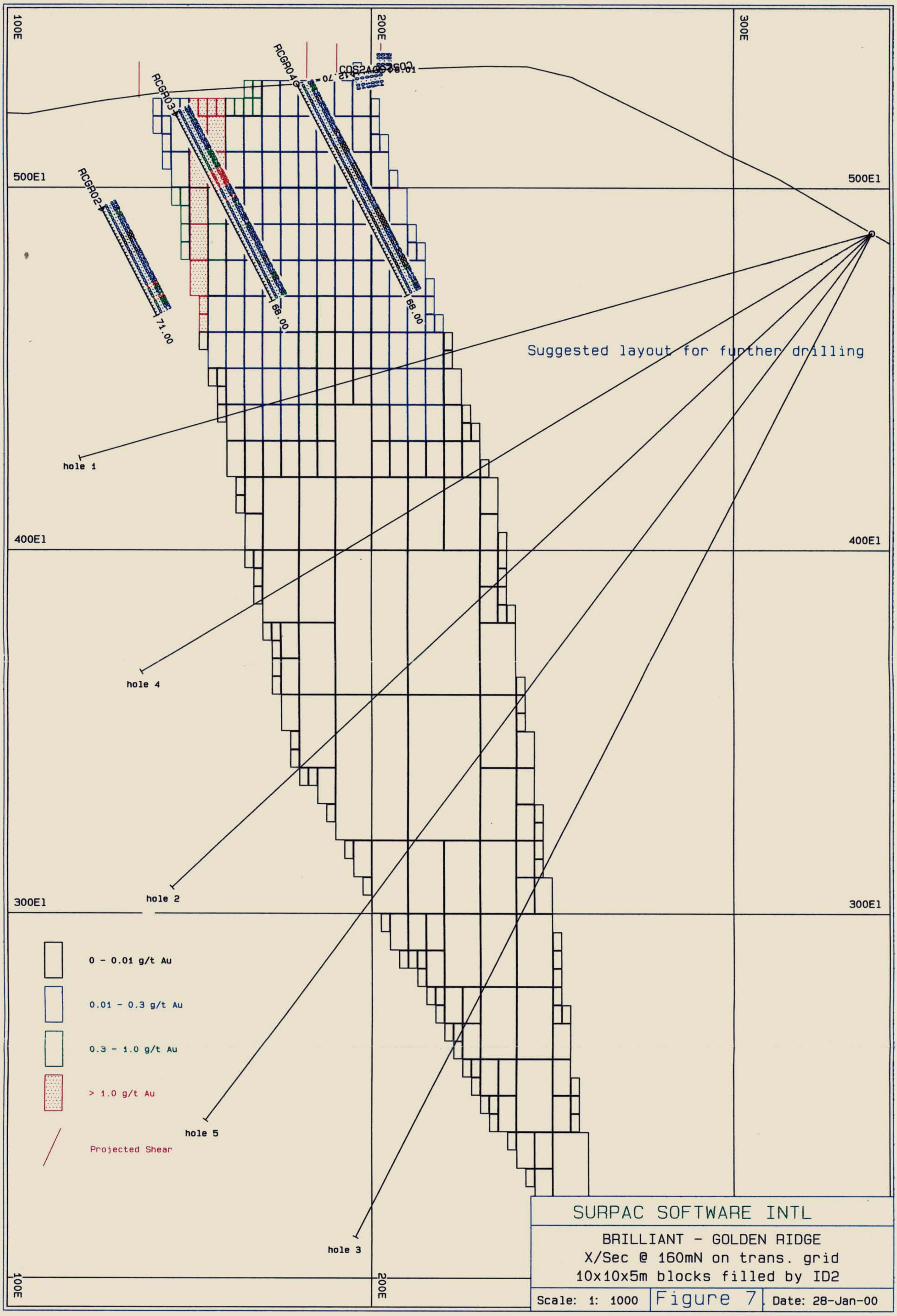
Scale: 1: 1000 | Figure 6 | Date: 28-Jan-00

653030

5 cm

bril_dhu.pf

SURPAC2000 - SURPAC Software International

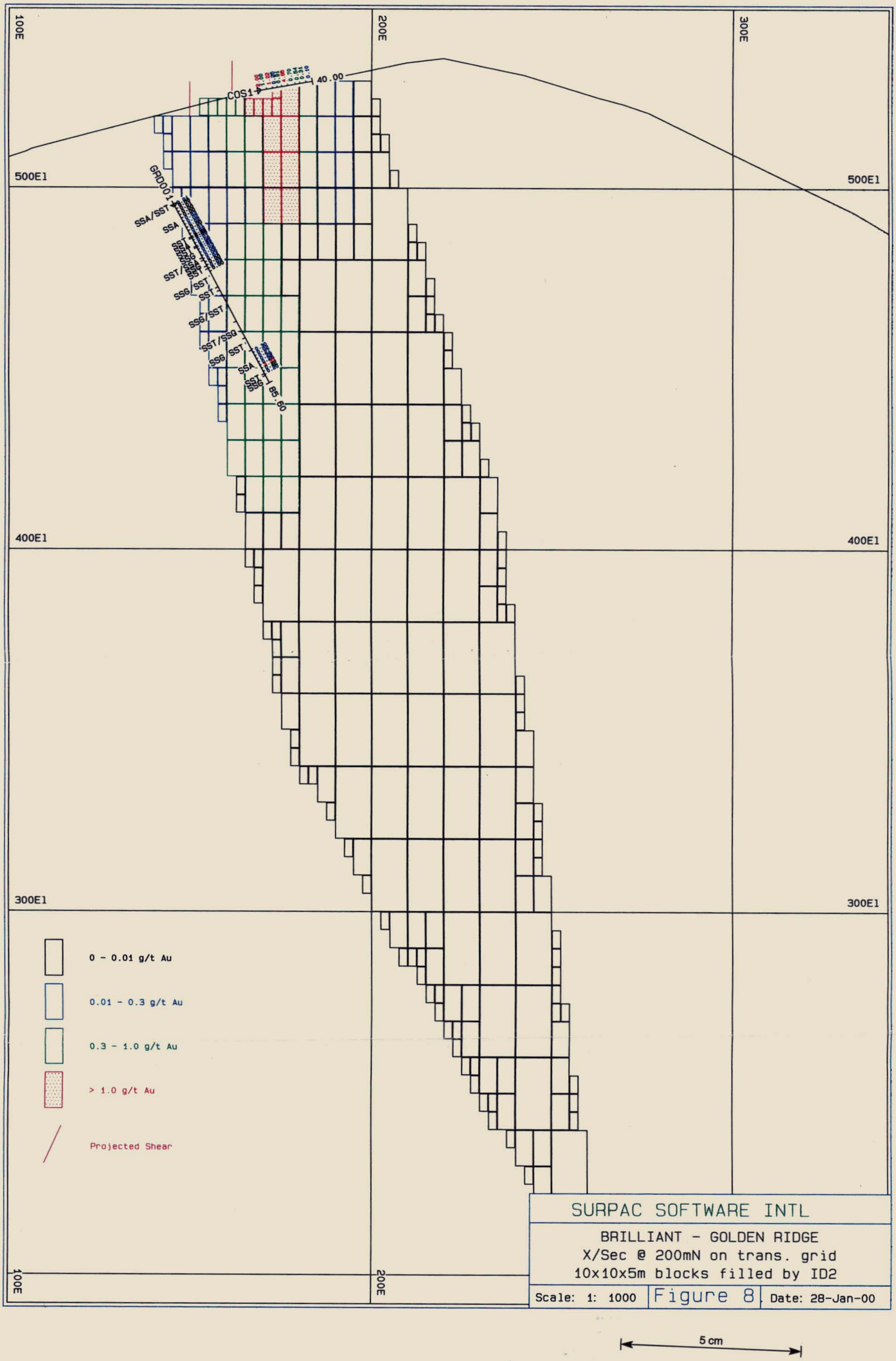


5 cm

653031

bril_dhv.pf

SURPAC2000 - SURPAC Software International



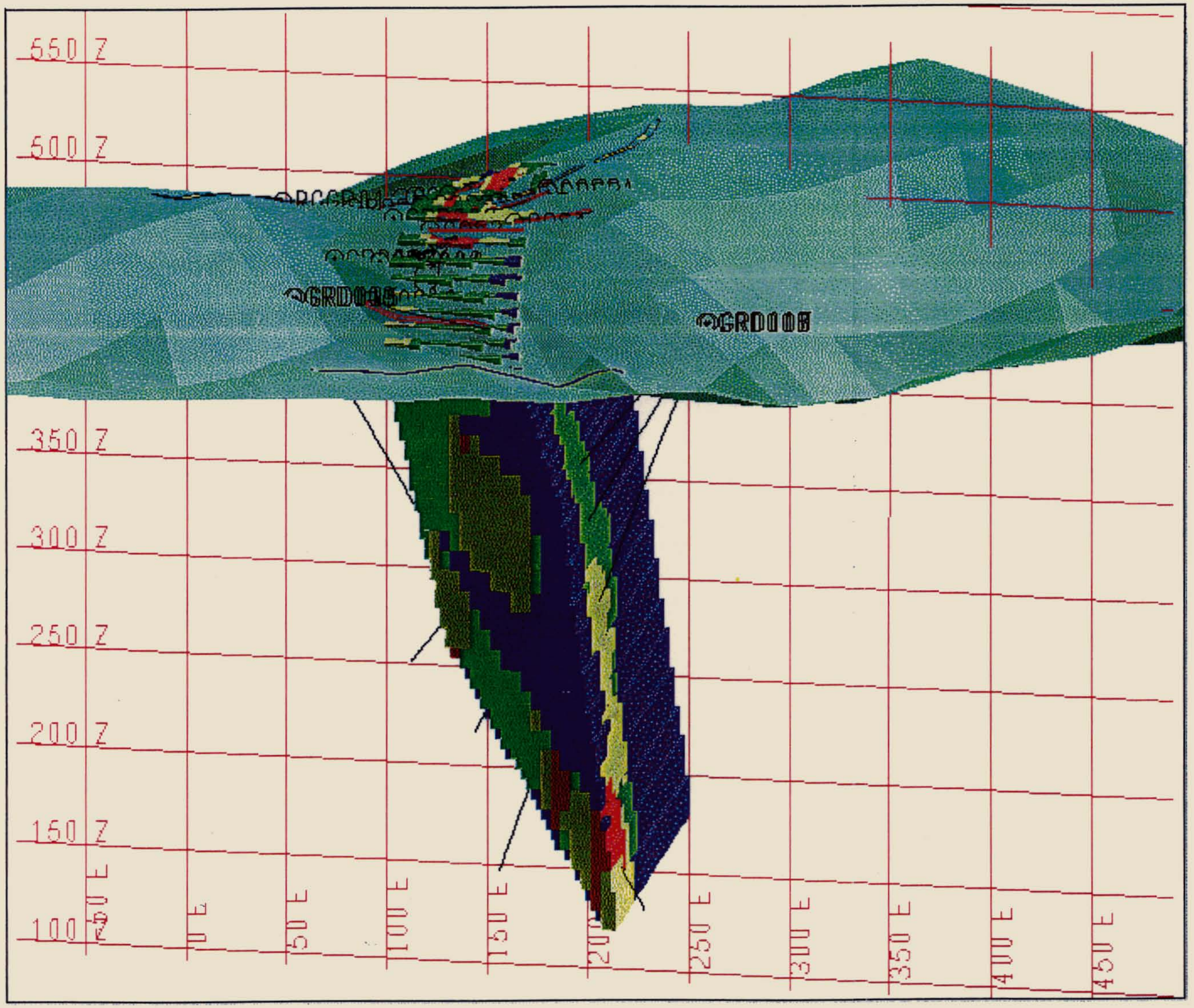
SURPAC SOFTWARE INTL

BRILLIANT - GOLDEN RIDGE
X/Sec @ 200mN on trans. grid
10x10x5m blocks filled by ID2

Scale: 1: 1000 | Figure 8 | Date: 28-Jan-00

653032

653033



Block Colour Key:

0.0 - 0.01 g/t Au	
0.01 - 0.3 g/t Au	
0.3 - 1.0 g/t Au	
> 1.0 g/t Au	

BRILLIANT - GOLDEN RIDGE
Oblique View of Terrain and Block Model
Blocks coloured by gold grade

Figure 9. Date: 28 January 2000

APPENDIX 2

The Dimension Stone Potential of the Hogans Road Diorite

THE DIMENSION STONE POTENTIAL OF

THE HOGANS ROAD DIORITE

Russell Fulton Pty. Ltd.
PO Box 81
BRIDPORT 7262

653036

INTRODUCTION

The Hogans Road diorite (HRD) is a suite of igneous rocks with very diverse compositions, which include very unusual types such as olivine-pyroxene hornblendite and biotite hornblendite, as well as more common types such as diorite, quartz diorite, and tonalite.

Of these types, the hornblendites contain a very large proportion of the hard black mineral hornblende and this gives the rock a dark green-black colour which on a polished surface is potentially quite attractive. In terms of the dimension stone industry, the HRD would be classified and marketed as a "black granite". Within the dimension stone industry, the term black granite includes many types of igneous and metamorphic rock types, the vast majority of which are not granites in the strict geological sense.

Black granites fetch prices far in excess of those obtained for typical red grey and red granites, such as the Cole Bay red granite or the grey granites obtained from the Scottsdale Batholith in north-east Tasmania. Blocks of typical Australian granites fetch prices of $400 to $1200 per m^3 landed in Melbourne. Of the exotic black granites however, Blue Pearl and Emerald Pearl, both from Norway, bring $4000 m^3, and Impala Black and Black Absolute, both from South Africa, bring $3800 and $3500 m^3 respectively, landed in Melbourne. The hornblendites of the Hogans Road suite, if found to be suitable for extraction, would potentially be marketable in this premium end of the market, competing against imported material.

At the global level, turnover in the world dimension stone industry is substantial, having been estimated at around US$12-13 billion in 1995, on production of around 40 million tonnes. Production has grown at 5-6% per annum over the long term. Australia has traditionally been a very small producer of dimension stone, with production of about 132,000 tonnes or 0.3% of world production in 1995/96.

In 1994/95, Australia exported 18,434 tonnes of stone, valued at about $7.9 million. This was made up of crude stone exports totalling 7,993 tonnes, valued at $3.254 million, and manufactured stone exports totalling 10,441 tonnes, valued at $4.687 million. During the same period, Australia imported stone to the value of $54.956 million which was comprised of crude stone valued at $7.129 million and manufactured stone valued at $47.827 million.

Granite imports totalled $22.774 million or about 41% of the total value of stone imports, and of this total, non-manufactured articles totalled about $9 million. Non-manufactured articles include crude or roughly trimmed granite, granite cut into blocks or slabs, or cut or sawn granite. In contrast, non manufactured granite represented 96% of the $4.237 million value of granite exports for that period.

The importance of granite within the world dimension stone industry has grown substantially over the past few decades, from 19% of world production in 1976 to about 40% in 1995.

Much of the above has been summarised from "Dimension stone in Victoria", Geological Survey of Victoria Report 112 (1997) by R.L. King and K.S. Weston. This is an excellent general reference book on the dimension stone industry in Victoria and Australia and contains many colour plates of quarry operations, etc., and would be well worth obtaining.

This report is available from:

Information Victoria,

356 Collins Street,

Melbourne, Victoria 3000

or

Business Centre

Minerals and Petroleum Division

Department of Natural Resources and Environment

Ground Floor, 115 Victoria Parade

Fitzroy, Victoria 3065

LOCATION AND ACCESS

The HRD is located approximately twenty kilometres west-north-west of Scamander. Access to the area is very good with Hogans Road, an all weather gravel road, traversing through the middle of the outcrop area. Recent logging activities and road construction by Forestry Tasmania have created excellent access to virtually all known exposures of the HRD.

GEOLOGY

This section is based on work undertaken in 1992, before most of the recent logging and roading activities had taken place, and the area was covered in thick vegetation in parts, which combined with poor outcrop, made field relations difficult to establish. It is likely, therefore, that further work will alter the picture drawn at that time.
During 1992, I identified at least fifteen separate bodies of diorite ranging from twenty metres across up to one kilometre across. The small bodies appear to have a pipe-like form, and the large, irregularly-shaped one kilometre wide body may be composite. A feature of the HRD is the range in compositions, which include olivine-pyroxene hornblendites, biotite hornblendites, diorites, quartz diorites, and tonalites. The local geology and location of hand specimen samples are presented in Figure 1. Those parts of the HRD where the rocks of greatest dimension stone potential (the hornblendites) have been identified in the field are highlighted in Figure 1. Figure 2 shows the location of all samples for which geochemical analyses are presented in Table 1.

The HRD occurs as several discrete bodies within an area of approximately four to five square kilometres, spatially associated with a septum of strongly hornfelsed Mathinna Group sediments which lies one to two kilometres inside the eastern margin of the Haleys New Country Pluton, a biotite (± hornblende) granite. The Haleys New Country Pluton lies at the centre of the southern end of the large exposed part of the Blue Tier Batholith. The HRD is mostly contained within the Mathinna Group septum but some bodies occur entirely within the granite. An isolated outcrop of similar diorite also occurs approximately six or seven kilometres to the north, intruding Mathinna Group sediments.

McClenaghan proposed that the HRD intruded the Mathinna Group rocks before intrusion of the biotite granite, which has been dated at 396 million years, and the Mathinna Group rocks and diorite were subsequently transported by the intruding biotite granite as rafts to their present location. However, a date of 364 million years from hornblende separates from the diorite indicates that the HRD was intruded much later. This date is similar to the intrusion age of the tin granites of north-east Tasmania and recent work on neodymium isotopes has shown that the HRD appears to have a source more like that of the tin granites than the other granitic rocks of north-east Tasmania.

PETROLOGY

Chemistry

The HRD exhibits an extreme range in chemical composition and analyses of a range of samples carried out at the University of Tasmania are presented in Table 1 and sample locations are shown in Figure 1. In terms of silica content, the composition ranges from ~47% SiO_2 through to ~65% SiO_2, or from a gabbro-like composition through to a granodioritic composition. Rocks with SiO_2 contents greater than 58% have high Al_2O_3 and low MgO contents, with MgO and FeO decreasing with increasing silica content. Rocks with contents lower than 58% tend to have either high MgO (>10%) and low Al_2O_3 (< 10%) or low MgO (<10%) with high Al_2O_3 (>15%). One sample fell between the two groups. Modelling of the whole rock geochemical data does not indicate fractionation as a likely mechanism for generation of the great range in compositions, the bimodal distribution of MgO and Al_2O_3 at lower silica contents more likely to be the result of mixing between two separate magma types. Evidence or mixing is also apparent in from textures observed in both hand specimen and thin section. The presence of mixing is important as it means that large volumes of homogenous material are less likely to be found, however textures produced by mixing may give the rock an attractive look.

Texture

The HRD is not a texturally homogenous body. Based on observations made in 1992, the diorites, quartz diorites and tonalites, or the intermediate to more felsic (lighter) compositions, appear to be medium to coarse-grained in the main, and the more mafic (darker) compositions, the hornblendites, are coarse to very coarse-grained. In some samples, predominantly medium-grained rocks contain bands, blobs or swirls of coarser grained material similar in composition. In some outcrops, there appears to be a crude igneous layering on a ten or so centimetre scale with contrasting darker and lighter bands. Both these textural features may impart an attractive look to the stone on a polished surface, however these features may also provide planes of weaknesses along which failure may occur in a cut slab.

653040

Mineralogy

The great range in chemical composition is reflected in the mineralogy of the Hogans Road diorite. Generally, as the silica content increases, the amphibole content decreases, being replaced by biotite at more felsic compositions. The most mafic samples have no quartz and very little plagioclase, and may contain olivine, orthopyroxene and clinopyroxene. The plagioclase and quartz contents also increase with increasing silica, giving the rock a lighter appearance. Electron microprobe analyses shows that the amphibole is predominantly hornblende with a few analyses of actinolite in some samples. The composition of plagioclase is variable with some samples exhibiting a strong zonation from anorthitic cores to more sodic rims. Generally, as silica content increases, the plagioclase becomes less calcic. Minor amounts of K-feldspar is present as microcline in some samples

An important factor in assessing rock for dimension stone potential is the presence of pyrite and other metallic sulphides. Pyrrhotite and pyrite are present in small amounts in some samples, but are not oxidising in the samples examined. A polished section of the most mafic material made in 1992 shows no staining or deterioration. Olivine my also cause problems through breakdown, however the olivine present in the HRD hornblendites is generally fresh, with minor alteration to serpentine. A brief description of the hand samples for which thin sections are available is presented below.

653041

HR1

This sample is a very coarse-grained **olivine-pyroxene hornblendite**, with large interlocking crystals of hornblende enclosing all other minerals.

hornblende 65-70%
- very large anhedral oikocrysts enclosing all other minerals except phlogopite.

olivine 8-10%
- occur as mostly anhedral (some subhedral) fragments in loose clots or strings up to 10 mm long. Fragments contain spinel and have cracks filled with opaques (magnetite), serpentine?

orthopyroxene 5-8%
- blocky, anhedral to subhedral, with inclusions of spinel and globules of olivine.

clinopyroxene 5%
- anhedral to subhedral

phlogopite 3-5%
- ragged, elongate, occurring between large amphibole phenocrysts

plagioclase 1-2%
- anhedral to subhedral, albite twinned

accessory minerals 2-4%
apatite - sooty coloured anhedral lumps
pyrrhotite-ilmenite - intergrowths
magnetite - in cracks in olivine
spinel
very minor chalocopyrite

Paragenetic sequence:

olivine, orthopyroxene >> clinopyroxene >> plagioclase >> hornblende, phlogopite

653042

HR63

This sample is a coarse-grained **plagioclase-bearing hornblendite.**

hornblende 85-90%

- seriate textured, subhedral to euhedral, equant to prismatic, 0.2 to 8 mm; the cores of some larger hornblendes have phlogopite growing along cleavage cracks forming a "spider web"; the cores of some hornblendes are actinolitic, probably after olivine or clinopyroxene.

plagioclase 5%

- subhedral to euhedral prisms; minor to moderate sericitisation of cores; mainly occurs in gaps between hornblende phenocrysts but some early strongly sericitised plagioclase intergrown with hornblende; andesine compositions (An 42-46)

quartz 3-4%

- anhedral; occurs between hornblende phenocrysts

phlogopite 1-2%

- occurs along cleavage cracks in large hornblendes, as described above, or as optically continuous intergrowths in the cores of hornblendes

microcline 1%

- minor anhedral oikocrysts enclosing small euhedral hornblendes

clinopyroxene 1%

- small anhedral phenocrysts in the cores of hornblendes

accessory minerals 1%

pyrite - in biotite
pyrrhotite
apatite
allanite - euhedral crystals
sphene - anhedral to subhedral

Paragenetic sequence:

clinopyroxene >> early hornblende >> plagioclase >> late hornblende >> microcline, quartz

HR50

This sample is a medium-grained **biotite-hornblende tonalite.**

hornblende 30-40%

- early small subhedral to euhedral phenocrysts occur as inclusions within the corroded cores of plagioclase, but mostly occurs as 2 to 3 mm anhedral to subhedral phenocrysts (some euhedral and twinned) in loose clots or strings (glomerocrysts) with inclusions of biotite, apatite and pyrite. Large phenocrysts intergrown with plagioclase cores

plagioclase 25-30%

- occurs as 3 to 4 mm long prismatic phenocrysts with micrographic textures; *cores* are prismatic or square; corroded or rounded; strongly sericitised; anorthitic (An 90-93); intergrown with large hornblendes
rims are clear or albite twinned with andesine compositions (An 42-47)

quartz 15-20%

- anhedral, intergranular

biotite 5-10%

- generally skeletal and ragged, some elongate and tabular up to 3 mm long, some occurs within plagioclase cores associated with hornblende glomerocrysts; some included in plagioclase cores; minor to moderate alteration to phrenite.

accessory minerals 1%

apatite - abundant sooty, rounded prisms
pyrite
ilmenite
zircon
sphene

Paragenetic sequence:

biotite, hornblende >> plagioclase cores >> biotite, plagioclase rims >> hornblende >> quartz

653044

HR25

This sample is a medium-grained **hornblende-biotite tonalite**.

plagioclase 40-50%

- prismatic phenocrysts up to 10 mm long.

cores are rounded or corroded; some are strongly zoned; moderately to strongly sericitised; biotite inclusions; variable compositions (An 50-83)

rims are generally clear; An 43-51

some < 0.1 mm lathes associated with biotite and apatite.

quartz 20-30%

- mainly interstitial; some 2-3 mm diameter ocelli with rims containing inclusions of plagioclase lathes, biotite, and apatite needles

biotite 10-20%

- occurs as ragged growths and glomerocrysts; as inclusions in plagioclase cores; intergrown with hornblende

hornblende 10-20%

- occurs as anhedral phenocrysts in irregular clumps; intergrown with biotite; patchy sub-solidus alteration.

accessory minerals 1%

magnetite

zircon - euhedral

apatite - needle-like

Paragenetic sequence:

biotite, plagioclase >> lathe-like plagioclase >> biotite, hornblende >> quartz

HR7

This sample is a medium grained hornblende-biotite tonalite. No thin section has been cut for this sample.

ASSESSMENT AND EXPLORATION

There are two main areas of the mafic hornblendites, although remapping the deforested areas may reveal more. Of these, the northernmost area is the largest and probably would be the best site for any initial assessment work. In terms of useful characteristics which may be of help in exploration, the hornblendites of the HRD are much denser than the surrounding rocks and are also much more strongly magnetic than the surrounding rock. An interpretation of airborne magnetics undertaken by Mike Roach for his Ph.D. thesis on the geophysical setting of gold mineralisation in north-east Tasmania shows a relatively strong magnetic anomaly in the vicinity of the HRD. Measurement of the magnetic susceptibility of hand specimens from a range of compositions may reveal sufficient variation to enable mapping by ground magnetometer survey. It may therefore be possible to identify the largest occurrences of the hornblendites and eliminate smaller areas which are unlikely to be of economic importance. Alternatively, the denser mass of the hornblendites could also be delineated by conducting a detailed gravity survey.

An important limiting factor in any rock proposed for dimension stone is the nature of jointing. Joint spacing is critical in determining the size of blocks which can be extracted and the minimization of wastage. Close-spaced jointing may increase wastage and costs or at worst render a deposit unsuitable. In Victoria, the Harcourt Granite quarries have been able to remain profitable on extraction rates of 500-600 m^3 per year mainly because of favourable joint patterns, whereas typical extraction rates at other quarries are in the 1500-2000 m^3 per year range. Because of the poor exposure, it is not possible to comment on the joint spacing in the HRD hornblendites. A high degree of fine fracturing may also make a stone unsuitable and while some hand specimen samples appear to be free of fine fractures it remains to assess this on a larger scale.

It may be possible to assess some of these characteristics by trenching through the hornblendites and cutting samples in-situ. I have been involved with extensive trenching programs as part of gold exploration in very hard, hornfelsed rocks in the north-east over the last year and have found that a small ~7-tonne excavator equipped with a ripper tooth and a quick release mechanism is very effective in digging trenches into relatively fresh rock. Eventually, some drilling would be required to assess the depth extent and characteristics of the hornblendites.

FURTHER READING

Longman, M.J. 1961. *An occurrence of hornblende picrite in north-eastern Tasmania.* Tech. Rep. Dept. Mine. Tas. 5, 209-210.

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McClenaghan, M.P. and Higgins, N.C. 1993. *The age and intrusive relationships of granitoids of the Blue Tier Batholith, north-east Tasmania.* Mineral Resources Tasmania,Unpublished Report, 1993/33.

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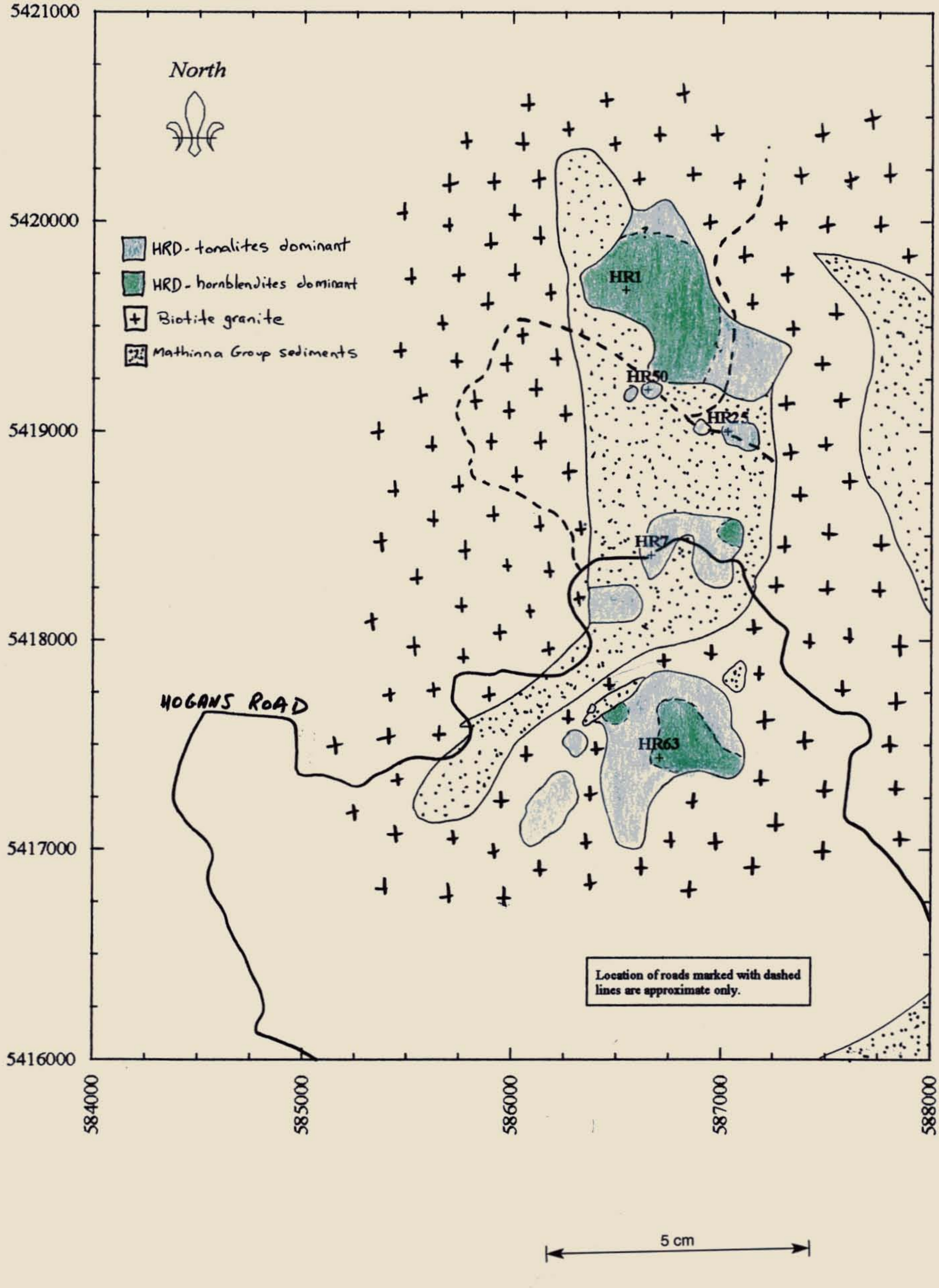
Table 1. Grid co-ordinates and chemical composition of Hogans Road diorite.
Bold type indicates samples for which polished slabs are supplied.

Sample	Easting	Northing	SiO2	TiO2	Al2O3	Fe2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	L.O.I.	Total
HR1	***586535***	***5419675***	***45.90***	***0.42***	***6.05***	***1.86***	***9.28***	***0.19***	***23.08***	***7.87***	***0.77***	***0.61***	***0.13***	***1.78***	***97.94***
HR47	586750	5417640	47.71	0.35	6.39	1.45	7.24	0.16	21.97	9.84	0.80	0.82	0.16	2.26	99.15
HR28	586730	5419300	47.77	0.18	20.27	1.24	6.20	0.16	9.22	10.53	1.35	0.85	0.04	2.37	100.18
HR57	586740	5417490	48.90	0.36	7.13	1.39	6.97	0.15	19.86	9.12	0.89	1.07	0.18	3.27	99.29
HR21	586840	5419350	49.71	0.56	9.79	1.44	7.18	0.16	16.63	8.40	1.37	1.37	0.13	2.45	99.18
HR46	586605	5419275	51.05	0.50	9.62	1.55	7.77	0.22	16.02	8.05	0.84	1.38	0.13	2.17	99.31
HR43	586670	5418420	51.12	0.93	15.33	1.45	7.26	0.17	7.92	8.68	1.65	1.84	0.27	2.21	98.83
HR50	***586640***	***5419200***	***51.44***	***0.95***	***14.98***	***1.58***	***7.92***	***0.15***	***6.57***	***9.37***	***1.61***	***1.66***	***0.39***	***1.72***	***98.34***
HR53	586690	5417340	52.08	0.44	12.33	1.36	6.79	0.15	10.13	12.50	1.13	0.98	0.08	1.74	99.71
HR63	***586700***	***5417440***	***52.29***	***0.40***	***7.45***	***1.27***	***6.34***	***0.15***	***15.58***	***10.96***	***1.03***	***1.00***	***0.19***	***2.09***	***98.74***
HR7	***586660***	***5418410***	***52.61***	***1.09***	***17.37***	***1.53***	***7.67***	***0.17***	***4.63***	***8.51***	***1.72***	***2.23***	***0.23***	***1.47***	***99.24***
HR60	586700	5417430	57.50	0.36	6.08	1.08	5.38	0.15	12.45	12.48	1.22	1.45	0.06	1.57	99.77
HR44	586680	5418435	59.00	0.85	16.33	1.17	5.86	0.15	3.58	6.69	2.12	2.11	0.14	1.27	99.28
HR51	586835	5419030	60.02	0.71	16.50	1.08	5.41	0.13	3.42	6.46	1.75	2.04	0.14	1.53	99.19
HR25	***587105***	***5418970***	***61.35***	***0.93***	***15.93***	***1.02***	***5.12***	***0.14***	***3.38***	***6.26***	***1.67***	***1.81***	***0.18***	***1.53***	***99.33***
HR17	586960	5418555	63.24	0.63	16.05	0.81	4.06	0.10	3.34	5.41	2.28	2.25	0.15	1.17	99.50
HR66	586260	5417520	63.91	0.71	15.21	0.96	4.82	0.13	2.98	5.10	1.74	2.74	0.16	1.53	99.99
HR45	586200	5417280	64.07	0.90	15.31	0.98	4.91	0.10	2.03	5.04	1.83	2.28	0.18	1.50	99.13
HR12	586695	5418515	64.89	0.81	15.00	0.92	4.60	0.11	2.38	5.25	1.64	2.23	0.16	1.15	99.14

653051

Figure 1. Hogans Road diorite. Location of samples for which polished slabs are supplied. Scale 1:25,000



653052

Figure 2. Hogans Road diorite. Locations of samples for which major element chemistry is presented in Table 1. Scale 1:25,000