

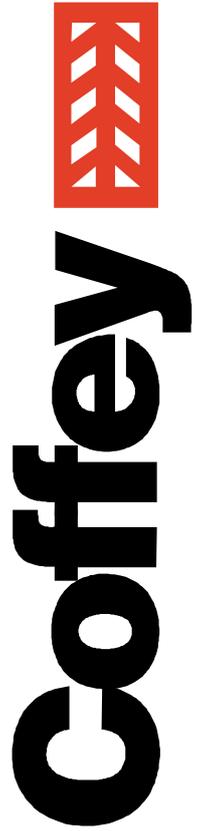
CALA RESOURCES PTY LTD

**Mathinna Underground Mine Scoping Study**

Tasmania

Z13230/01AB

August 04



Z13230\_01AB  
August 04

Cala Resources Pty Ltd  
1<sup>st</sup> Floor, 47a Brisbane Street  
Launceston Tasmania 7250

Attention: Mr Rod Holden

Dear Sir,

**RE: Mathinna Underground Mine Scoping Study**

Coffey are pleased to present the attached Mathinna Underground Mine Scoping Study. The study has considered the potential for the existing identified resources on Sophies, Dylan's and Main Reef's to provide a return based on a both high and low cost mining approaches. In addition the potential profitability of a high cost mining option has been estimated based on a hypothetical 100,000 ounce resource associated with the Sophies –Dylan's –Main reef complex.

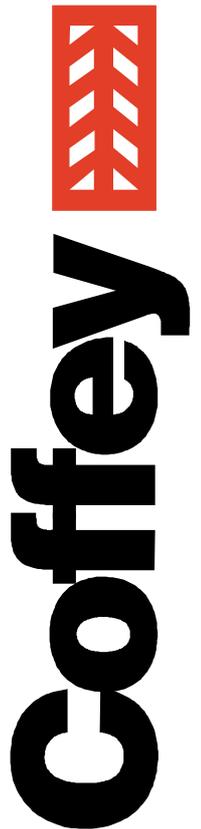
Coffey trusts this document meets your current requirements. Please do not hesitate to contact the undersigned should you require additional advice regarding this study.

**For and on behalf of**

**COFFEY GEOSCIENCES PTY LTD**

**IAN REEVES**

**ASSOCIATE**



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**Important information about your Coffey report (2pages)**

**APPENDICES:**

Appendix A -Physical Parameters – Hypothetical 100,000 oz Reserve

Appendix B -OPTION 1 Barmingo Reserve & OPTION 2 Hypothetical 100,000 oz Reserve

Appendix C -Sensitivity Barmingo Reserve

Appendix D -Sensitivity Hypothetical Reserve

Appendix E -Sensitivity Hypothetical Reserve

Appendix F –Shaft Access

## 1. EXECUTIVE SUMMARY

This scoping study of the Mathinna resources associated with the Sophies, Dylan's and Main Reefs indicates establishment of a profitable mine may be achieved based on the resource as estimated by Defiance Mining NL (Defiance). A mining cost, including capital in the order of **A\$400 per ounce** is estimated based on the mining of the combined Defiance Indicated and Inferred resource of 25,500oz.

The Defiance resource estimate has been reviewed by Coffey. The review of the resource documentation found no cause to doubt the validity of the Defiance resource statement.

Coffey optimised earlier work by mining contractor Barmenco Pty Ltd (Barmenco) to establish a more realistic, but still conservative mining case. This assumed mechanised contractor mining with access via a new decline driven from surface, waste footwall drives, hand held stoping, ore processing on site and a conservative resource of nominally 14,000 ounces (interpreted from the Barmenco reserve outlines).

It was established that to achieve a break even position based on the conservative mining case described the following was required:

- Additional resources beyond the conservative (Barmenco scoping study based) estimate of **14,000 Oz**.
- If resources are required beyond the area of resource accessed by the proposed decline (fig 7.1) then an additional 9,000 ounces are required to break even (total **23,000 Oz**).
- If resources can be found inside the proposed decline accessed envelope and additional 5400 ounces are required to break even (total **19,400 Oz**).

Critically, with respect to these requirements, **within the decline-accessed envelope** the Defiance indicated resource is **18600 ounces** with an inferred resource of **6,900 ounces** for a total of **25,500 ounces**.

The work therefore indicates that a conservative approach to mining can potentially realize a profit from the current indicated and inferred Defiance resource. Coffey estimate this profit may be in the region of **\$1.3M** at an estimated capital and operating cost of \$450 per ounce.

However, the conservative mining model discussed to date is considered an unrealistic approach to mining the Mathinna resource. Coffey re-analysed the data assuming a contemporary up-hole benching system utilizing mechanised "longhole" production drilling with the resource accessed by a haulage decline. Coffey's analysis indicates **a profit of \$2.47M may be achievable based on the 25,500 ounce Defiance resource estimate**.

A number of additional resources associated with the Cala leases are considered highly prospective. These include low and high-grade mining prospects low-grade tailings and waste dumps. These have potential to significantly improve revenue streams from the project.

Coffey have estimated, based on the conservative mining model discussed, a profit in the order of \$17M (capital and operating cost \$325/Oz) may be achieved if high grade resources in the Sophies-Dylan-Main Reef complex can be increased to 100,000 ounces.

An arbitrary target of 100,000oz as a criteria to determine prospectivity of this project may be overly conservative. A more flexible approach may be warranted given the historical information and availability of potential mill feed in the form of near surface low grade sources, potential satellite deposits, low grade dumps and tailings from historical mining activity on the leases.

## 2. INTRODUCTION

Rod Holden, Managing Director of Cala Resources Pty Ltd (Cala) requested Coffey Geosciences Pty Ltd (Coffey) conduct a scoping study on Cala's Mathinna project.

The work was required to be completed over a two-week period and was to include resource estimation work, definition of mining and processing costs and a broad cash flow statement based on this data. An exhaustive review of the options was not possible due to the short time frame available.

Throughout this report references to "present reserve" or "existing reserve" are references to the Sophies, Main and Dylan reef ore blocks shown on the longitudinal sections presented by Cala. It is acknowledged that these blocks do not currently meet JORC requirements for formal classification as reserves.

The estimates presented in this report are of a "Scoping Study" nature, which implies a lesser level of accuracy than "Pre-feasibility Study" or "Feasibility Study". The nominal accuracy of the estimates should be considered in the +/- 30% range.

### 2.1 Basic Parameters

Table 2.1 Parameters Used in the Scoping Study

ITEM	UNITS	FACTOR
Ore and Waste Density	t/m <sup>3</sup>	2.70
Exchange Rate	\$/US\$	0.70
Gold Price	\$/Oz	380
Gold Price	\$/Oz	543
Mill Recovery	%	92

The gold price / exchange rate are current at the time of this report, and the mill recovery is that used by Barmenco. There is no certainty that these rates will be achieved, but we believe they form reasonable estimates for the purpose of this report.

## 3. PROJECT UNDERSTANDING

The main focus of the scoping study is the Dylans, Sophies, Main and Upper Western reef style mineralisation. The principal objectives of the scoping study are to:

- Provide an independent audit of existing ore estimates
- Estimate realistic mining and processing parameters and costs for mining the existing reserves
- Analyse the potential and expenditure required to increase resources to 100,000 oz
- Estimate the potential profitability of mining and processing existing reserves
- Estimate the potential profitability of mining and processing a hypothetical 100,000 oz resource

#### 4. RESERVES

Inspection of data provided by Cala on longitudinal sections indicates that existing reserves, estimated by Barmenco are based on blocks bounded midway between economic and uneconomic drill-hole intersections. Typically each block is represented by a single drill-hole intersection. The grade and width assigned to each block is generally the same as the grade and thickness of the drill-hole intersection within the block, with no averaging of width or grades having been done between adjacent drill-holes. This simplistic methodology has likely resulted in overestimation of both block widths and block grades.

##### 4.1 Identified Resources at Mathinna

Quantified resources at Mathinna are based on a drilling program of more than 60 holes on mining lease 43M/89 by the public company Defiance Mining NL in 1998-2000. Defiance were operating a joint venture with the Barmenco subsidiary, Connemarra Gold Mines Pty Ltd (Connemarra), and the work followed on from promising drill intersections in several holes drilled by Resolute Samantha Limited (Resolute) during the two years prior to the Defiance work. The holes were drilled by the RC percussion method and 12 had diamond-cored tails. They drilled a pattern of 20 metre spaced holes in 20 metre spaced fences (see Figure 4.1).

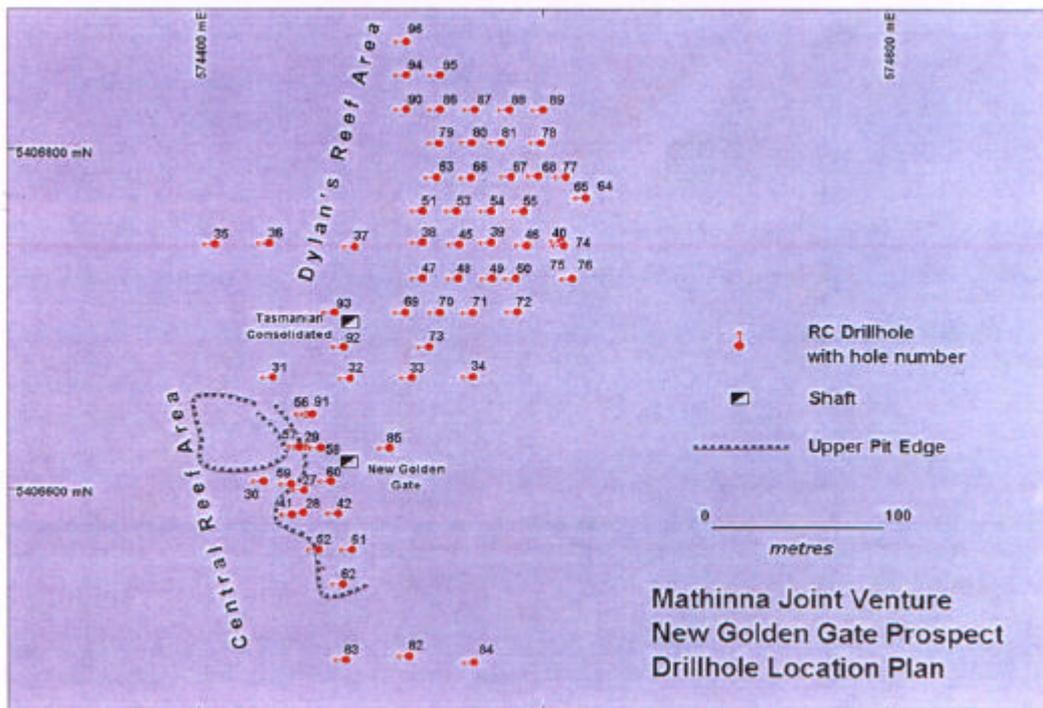


Figure 4.1 Mathinna Joint Venture Drilling (Defiance Mining NL 1999 Annual Report)

As far as can be ascertained by reviewing their data, the drilling and subsequent resource estimations were professionally done to expected industry standards. All statutory reporting to Mineral Resources Tasmania, the Australian Stock Exchange and Company Annual Reports presents the methods and results clearly and objectively. By chance, an associate of Coffey was on-site on two occasions during the drilling and had the

opportunity to be shown core and cuttings by the supervising geologist and to discuss drilling and sample recovery issues with the driller. Everything observed on-site was consistent with the standard of their reporting.

Ore grade mineralisation was discovered in sub vertical shoots within four separate quartz veins or reefs close to the abandoned Mathinna gold field shaft workings at New Golden Gate and Tasmanian Consols (see the Historic Isometric: Figure 4.2). Resources to Indicated + Inferred levels of confidence were estimated for Sophie's, Dylan's and the deeper Upper Western (north shoot) reefs combined, and for the shallow Upper Western (south shoot) and Central reefs combined. The Dylan's/Sophie's/Upper Western resource of 60,000t @ 13.4 g/t Au for 25,500oz at a 3 g/t cut-off forms the basis for the current Cala high grade underground mine scoping study. In contrast, the Upper Western/ Central mineralisation is mostly less than 75 metres from surface and Defiance determined a low grade resource of 150,000t @ 2.5 g/t Au for 12,400oz at a 0.5 g/t cut-off open cut resource. In their 2000 Annual Report, Defiance presented an alternative scenario for the Upper Western/Central resource by delineating a higher grade portion of 36,000t @ 6.9 g/t Au for 7,900oz at a 3 g/t cut-off. For the current scoping study, this resource is too small and the grade is too low for it to be considered as a separate underground mine, although it could be incorporated into any new resource discoveries accessed from a rehabilitated shaft or surface decline.

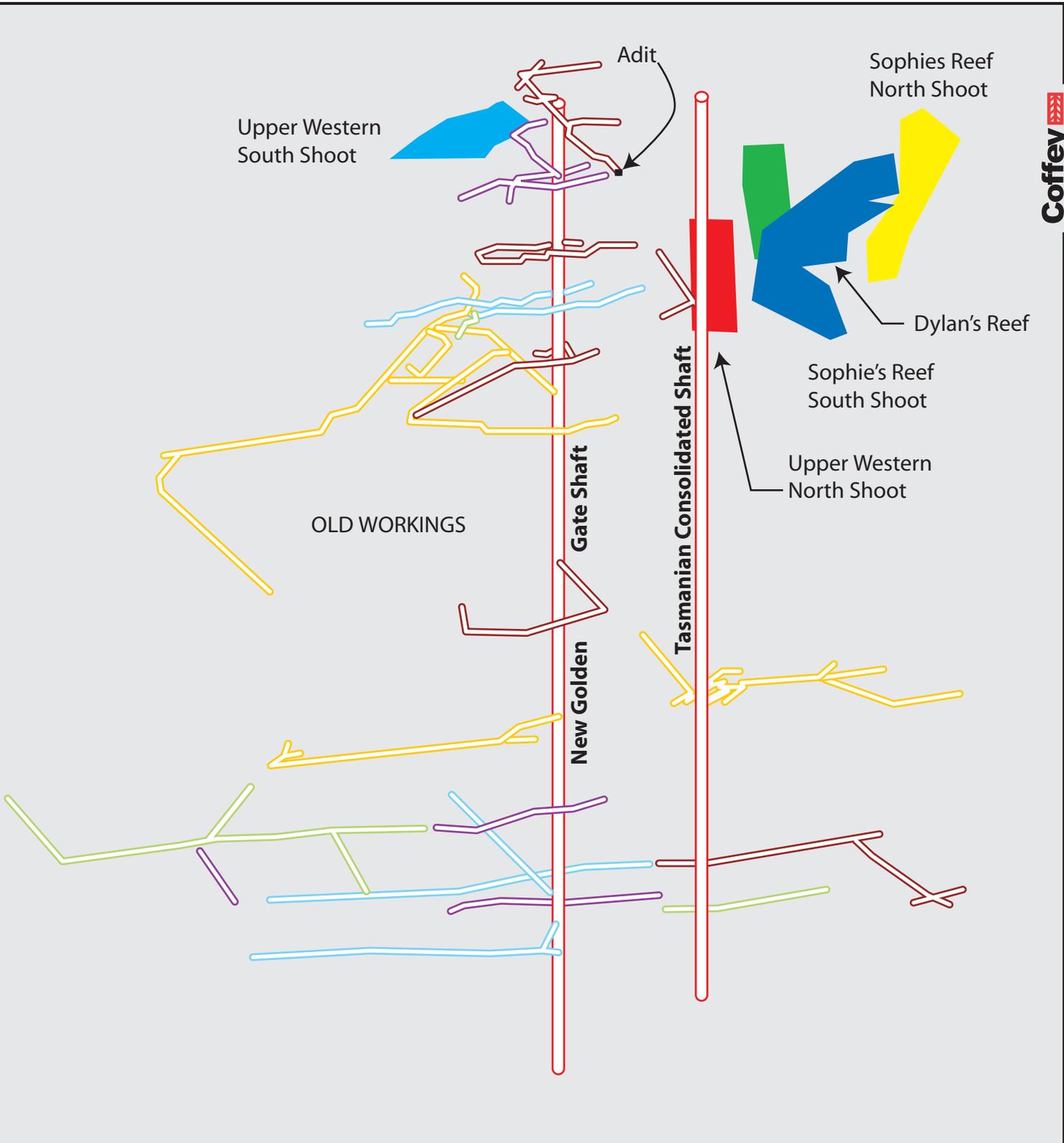
Resources were calculated from polygons along the 20 metre sections with grade boundaries half way between drill intersections. Repeat assays were averaged and low grade cuts of 6 metre gram and 1 metre gram were applied to the high grade and low grade resources respectively. No cuts were applied to high grade intercepts. Bulk density was assumed at 2.7 t/m<sup>3</sup>

Within the low-grade resource there are high-grade intersections close to the New Golden Gate shaft so it is possible that a fraction of the resource could be high graded and included in the underground mine plan. However, because 92% of this low-grade resource is in the Indicated category, it may be more realistic to incorporate a small pit in the mining plan and utilise the additional ounces to fund the establishment of the overall operation.

**On this basis the total resource of 38,000 oz identified by Defiance at Mathinna seems valid and reasonable (Table 4.1).**

Table 4.1 Defiance Mining Mathinna Resource Statement

Reef	Cut-off	Status	Tonnes	Grade g/t	Ounces
<b>Central/Upper Western</b>	0.5 g/t	Indicated	140,000	2.5	11,400
		Inferred	13,000	2.5	1,000
		<b>Total</b>	<b>153,000</b>	<b>2.5</b>	<b>12,400</b>
<b>Dylan's/Sophie's</b>	3.0 g/t	Indicated	44,000	13.1	18,600
		Inferred	15,000	14.3	6,900
		<b>Total</b>	<b>59,000</b>	<b>13.4</b>	<b>25,500</b>



No.	Description	Drawn	Approved	Date	Coffey Geosciences Pty Ltd		ACN 056 335 516 Geotechnical   Resources   Environmental   Technical   Project Management						
					Drawn	Approved	Date	Scale					
0	Issued for Tender	SB	D O'T	17/8/04	SB	A	AUG' 2004	NTS	CALA RESOURCES DRIVES AND SHAFTS 3-D MODEL - MATHINNA Drawing No. : FIG. 4.2 Job No. : Z13230/01				

## 4.2 Potential to increase resources to 100,000oz's

### 4.2.1 Potential Extensions to Identified Resources at Mathinna

Defiance drilling indicates that Sophie's Reef may weaken both to the north and south of current drill coverage, and to the south it appears to join the mined out portion of Main Reef (Figure 4.3). RC percussion drilling by Cala Resources in 2004 encountered no significant gold mineralisation however drilling identified the reef structure 120m NNW and along strike of known drilling intersections and the known extent of historic workings. Cala Resources point out that the drilling did not achieve target depths and as such had not fully tested this area. Nevertheless, the available evidence points to low potential for significantly extending resource along strike in either direction, and the same conclusion applies to the Upper Western Reef which returned negative results from Defiance drilling along strike. There is better potential at depth, down plunge from known ore shoots. At the northern end of the resource, high-grade mineralisation was encountered on section 5406805N, which remains open at depth. Five 200 metre diamond drill holes would test this extension and at the same time test for the existence of the northeast dipping low angle fault encountered by Defiance at approximately 100 metres below surface, on sections 5406725N and 5406745N. This fault has displaced Dylan's and Sophie's Reefs in the central part of the resource but the extent of the displacement or the strike extent of the fault are not known. If further drilling can relocate the two reefs, with only minor displacement, and if grade and widths continue at depth as they are, then a doubling of the existing 25,000oz resource in this area is a realistic goal by drilling out an additional 100 vertical metres below the fault.

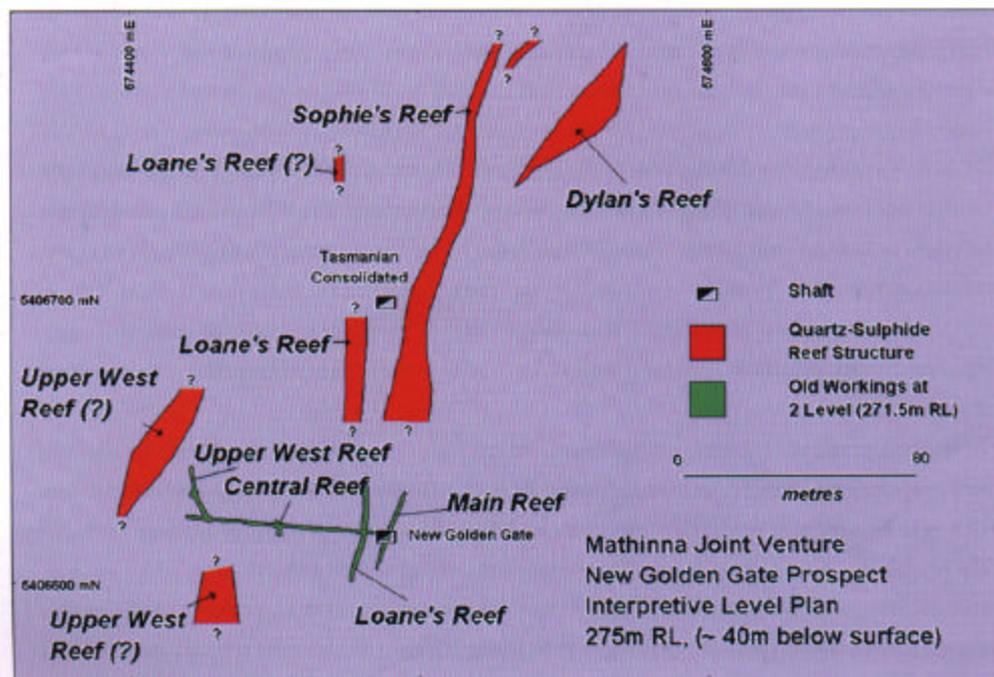


Figure 4.3 275m RL level plan (Defiance Mining NL 1999 Annual Report)

Compilation of Defiance drilling results by Cala Resources suggests that the deeper north shoot of the Upper Western Reef is probably closed at depth, about 220 metres below surface, but has potential for additional resource up plunge and along strike. Five 200 metre diamond drill holes should test that potential.

Potential for a substantial resource increase exists near the New Golden Gate shaft, beneath the old Western Reef and Central Reef workings, down to about 250 metres below surface (Figure 4.4). There is space for at least 25,000oz in this area, assuming shoot thickness and grade are similar to the identified resource.

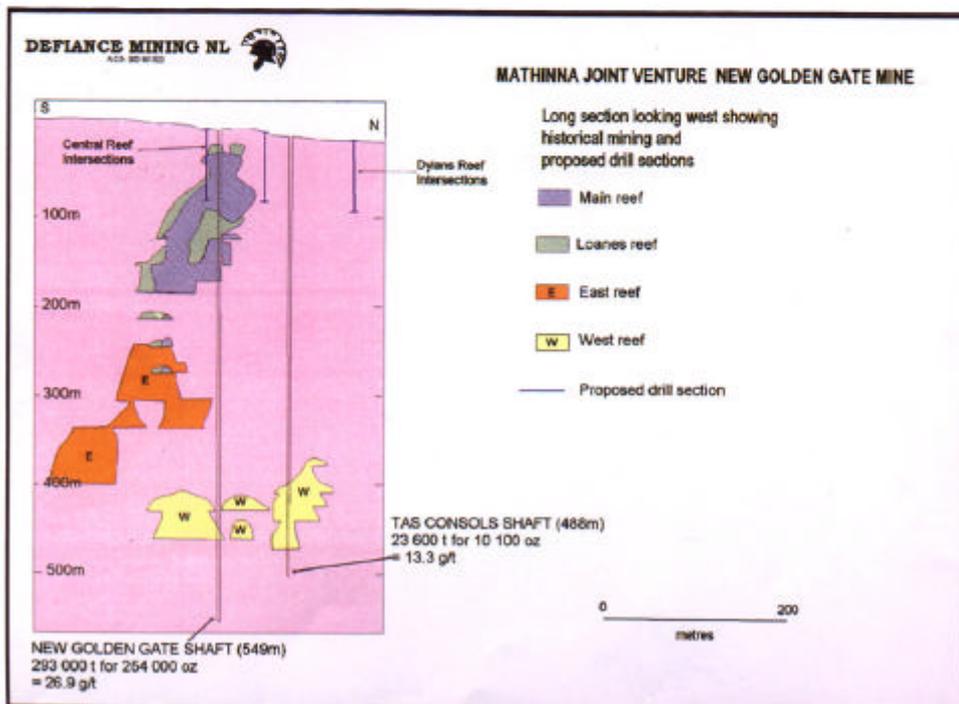
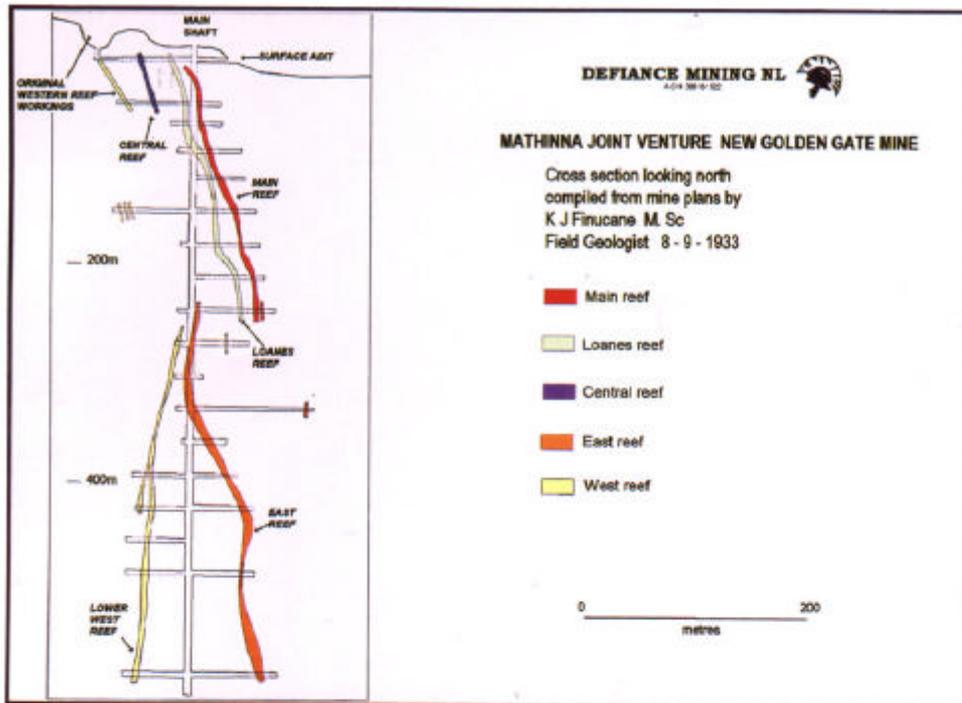


Figure 4.4 New Golden Gate Mine long-section and cross-section (Defiance Mining NL 1999 Annual Report)

The prospect could be drill tested from underground if geotechnical investigations, including at least one drill hole, conclude that rehabilitation of the shaft is viable otherwise drilling could be undertaken from decline development. Ten 100 metre diamond drill holes from a cuddy approximately 100 metres below surface should test that potential. The surface drilling alternative would require a similar number of holes of nominally 250m length. The upper-most holes in this proposed drill program would also firm up the open cut versus underground optimisation on the Upper Western (south shoot)/Central resource.

#### 4.2.2 Implications of Golden Ridge deep high grade intersections

The Golden Ridge prospect is located approximately 25 km by road northeast of Mathinna and is currently held by Cala Resources within EL 14/2003 (Figure 4.5). Geological setting and mineralisation style correlate closely with Mathinna and so mining and milling methods and costs should be similar and comparable for the purpose of the current scoping study.

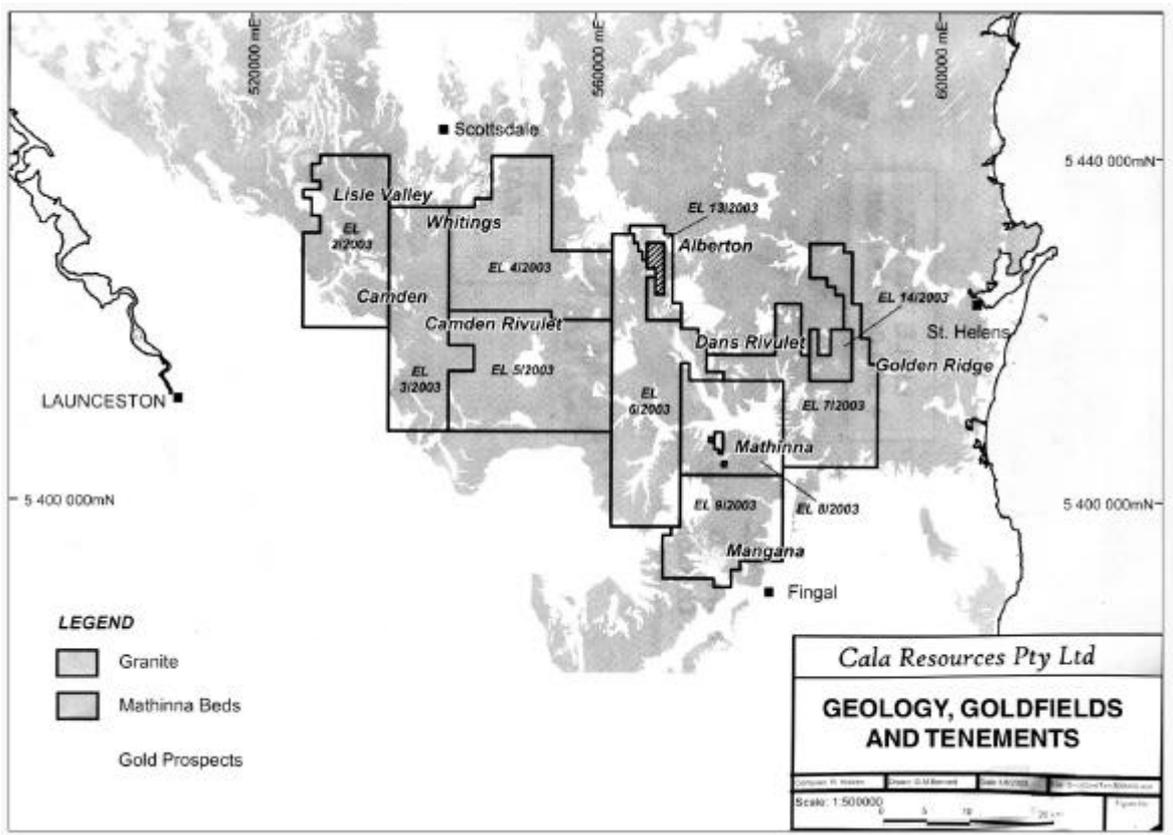


Figure 4.5 Cala Resources Tenements

Exploration mapping, costeaning and drilling by Billiton Australia (Billiton) and MPI Pty Ltd (MPI) between 1990 and 1998 identified a steeply plunging envelope of gold mineralisation down to 300 metres below surface, which remains open at depth and along strike to the northeast. The deposit is defined by a drill spacing of approximately 40 metres. An Inferred Resource was estimated in 2000 by mine geologist Dave Garrard, who has a strong background in narrow vein high-grade gold deposits in South Africa and Fiji, and who qualifies as a Competent Person for the purpose of JORC conformability. The estimate was derived from

a Surpac block model and with an intentional bias to maximising ounces, produced a contained resource of approximately 25,000 ounces at grades ranging from 1.6 to 1.9 g/t Au, depending on the model parameters used. The drill results and resource model clearly show a gradation from near-surface lower grade oxide style mineralisation, to higher grade narrow vein style (Mathinna style) mineralisation at depth (Figure 4.6).

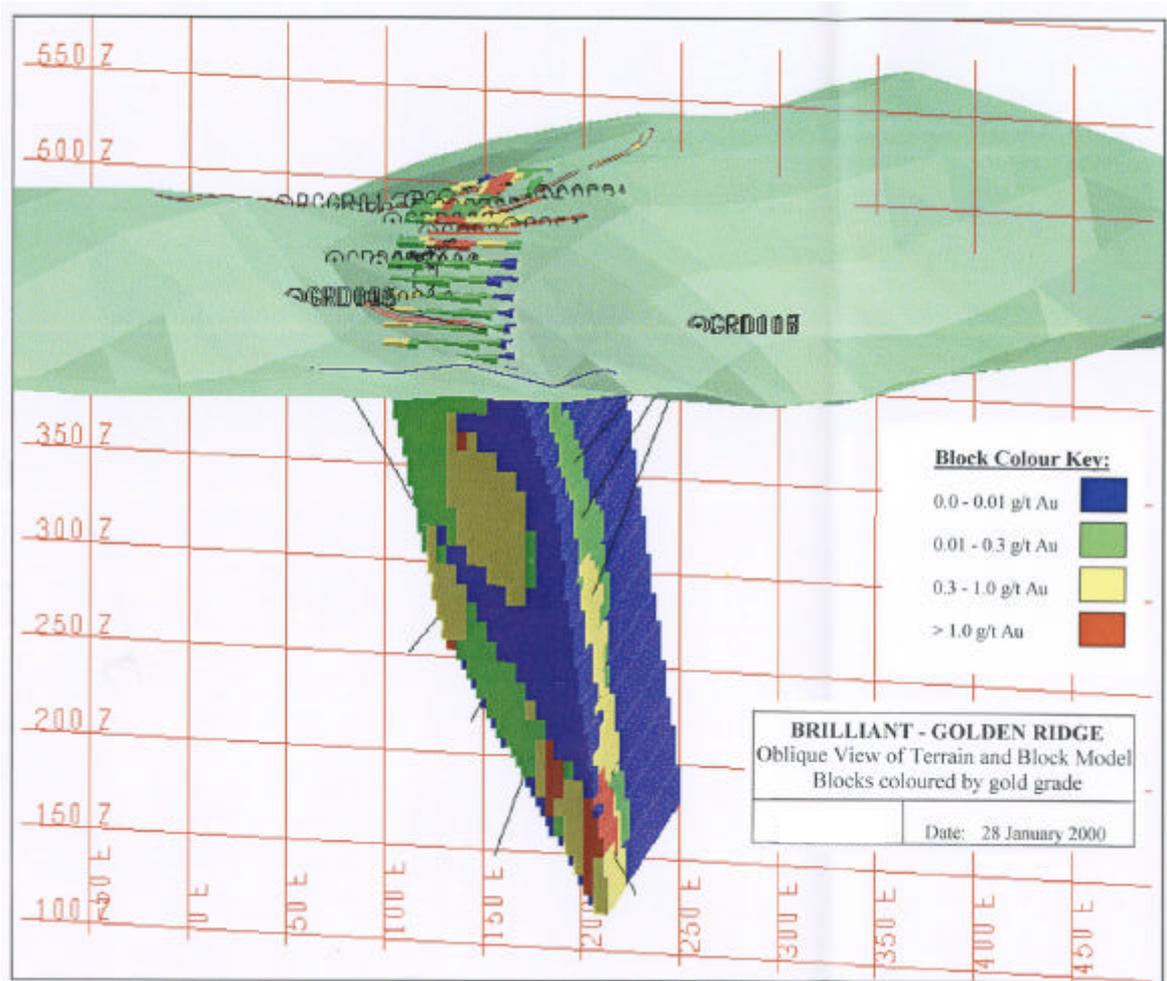


Figure 4.6 Golden Ridge block model

A model comprising 10m x 10m x 2m blocks filled by Ordinary Kriging produced 3,700oz at an average grade of 9.7 g/t, within a total resource of 25,000oz @ 1.9 g/t, at a cut-off of 1 g/t Au. Although the high grade portion of the resource discovered to date is too small to be considered for mining, it's value centres on the fact that seven out of eight 1 metre drill intercepts grading >10 g/t Au occur at about 200 metres below surface. Excellent potential therefore exists to drill out and extend this deeper zone with a realistic goal of defining a >20,000oz resource in the 10-15 g/t range. If such a resource can be identified, it could be accessed from Trafalgar Flat, some 1.5 km northeast of the deposit. The topography of the site is such that Trafalgar flat lies at approximately the same reduced level as the high-grade intersections at Golden Ridge. Access to the high grade Golden Ridge intersection could reasonably be achieved by driving an Adit from Trafalgar flat.

A preliminary drilling program of 8 x 250 (average) metre diamond drill holes is recommended to test the idea of a high-grade resource below about 200 metres from surface. The holes would comprise 3 infill holes around existing high grade intercepts and a fence of 5 holes 40 metres north of and parallel to existing drill holes. The holes should have 20 metre spacing at the pierce points to conform with existing resource drilling at Mathinna. This drill density will be sufficient to extend the Inferred Resource and if successful, a further program will be needed to drill out the resource at 20 metre spacing. The program should be designed so that if early holes give negative results, then the option is available to down grade the target and re-allocate the drilling to targets at Mathinna.

The Golden Ridge prospect and several other small gold occurrences sit within the hornfels metamorphic aureole of an eroded granodiorite pluton, which is anomalous as a magnetic high and a topographic depression. This geological setting is prospective for intrusion-related gold system (IRGS) style mineralisation and to date no work has been done on this concept.

### 4.3 Drilling costs to increase resources to 100,000oz's

It is recommended that future exploration drilling to expand the resource base be entirely done by HQ3, to maximise reef intersection recovery and detail, provide structural and geotechnical data for mine design and reserve definition drilling and provide accurate assays for ore widths and wall rock dilution factors. Drilling contractor rates in Tasmania have increased recently and although Mathinna is by Tasmanian standard near the lower end of the cost range in regards to site preparation, ground drilling conditions and crew accommodation costs, an all-up cost of \$220 per metre is realistic to cover drilling, analytical work and reporting. This cost could be reduced utilising RC collars with diamond drilled tails.

Narrow vein high-grade gold resources are notoriously difficult to drill out from the surface to achieve JORC-conformable Measured Resource status. Quartz reefs such as those at Mathinna typically show a grade distribution coefficient of variation (standard deviation/mean) of around 2 and therefore the sample spacing needed to accurately represent the ore body cannot realistically be achieved by surface exploration drilling alone. The cost of such high density drilling would be prohibitive. A realistic strategy at Mathinna is to drill out to Indicated/Inferred levels of confidence then expose parts of the deposit from either underground or pit workings then supplement and reconcile the surface drilling results with face mapping and sampling and close spaced drilling over short distances in ore.

With a view to establishing an Indicated + Inferred Resource base of >100,000 oz Au in high grade reefs at Mathinna and Golden Ridge in the next round of drilling, the following program is recommended.

Table 4.2 Proposed Drilling Program

<b>Deposit</b>	<b>Drill Holes</b>	<b>Metres</b>	<b>Cost</b>
Dylan's/Sophie's Deep Zone	5 x 200 m	1,000	\$220,000
Western Reef Deep Extension	5 x 200 m	1,000	\$220,000
New Golden Gate Shaft Zone (assumed drilled from underground)	10 x 100 m	1,000	\$220,000
Shaft Geotechnical/ investigation Holes	2 x 200 m	400	\$88,000
Golden Ridge	8 x 250 m	2,000	\$440,000
<b>Total</b>	<b>30 Holes</b>	<b>5,400</b>	<b>\$1.2 million</b>

Flexibility in prioritising targets is important on a project like this and in the event that a target yields negative results early in a drilling program, then it is reasonable to re-schedule the drilling budget to a higher-ranking target.

## **5. MINING PLANS AND COST ESTIMATES**

A conceptual design for mining the reserve blocks has been previously prepared by Barmenco. Certain elements and details of this design are not presently available for review; however the general layout and the concomitant quantities and prices quoted by Barmenco appear to be reasonable.

The prices quoted by Barmenco are based on the assumption that the mining will be carried out under a schedule of rates contract by Barmenco, utilising large scale development and rock handling equipment that they currently have available for use within Tasmania. For the purpose of this study it has been assumed that smaller equipment is available at a commensurate pricing structure. If such equipment is not readily available presumably a premium would be added to the price to cover the contractor's costs for acquisition of such equipment or alternatively the owner could source the necessary skills and equipment.

### **5.1 Owner Mining Capital**

The decision to use contractors is often based on the owner's capacity to raise capital. Contractor mining is generally more attractive in situations where access to capital is limited, or where the project life is too short to justify purchase of capital equipment by the project owner. Similarly the decision to buy or lease mining equipment is also often based on the owner's capacity to raise capital.

It is unlikely that use of owner-supplied plant; or that owner mining, as opposed to contractor mining, will deliver any significant cost savings over the life of the project. In our experience the saving is likely to be less than 5% of the total project cost.

### **5.2 Processing Costs**

The processing costs of \$15 per tonne included in the Barmenco study appear reasonable given the apparent metallurgical characteristics of the ore. There is mention in the body of the Barmenco report of an allowance for processing plant capital of \$3,000,000 (however this amount does not seem to appear in the tabulated cost estimates presented by Barmenco). For this study we have used a figure of \$1,000,000 based on advice from Cala and the lower mining rate compared to Barmenco's original study.

An alternative to processing on site may be to toll process at Beaconsfield. This would involve significant road freight, in excess of 200 km one way, but would avoid capital costs for on-site processing. At this stage Beaconsfield mine have not been approached for comment.

## 6. SITE INFRASTRUCTURE AND SET-UP CAPITAL

Contractor based mining is assumed, and the cost of establishing their site facilities is included in a provision of \$400,000 for mobilisation/establishment. Other more general site set-up costs such as power, water, road works, first aid facilities etc are assumed to be \$200,000.

In addition to the capital costs mentioned above there would be a significant requirement for expenditure on decline access development prior to production. The set-up capital costs for the Mathinna Project are tabulated below.

Table 6.1 Capital Establishment Costs

ITEM	COST	Comments
Mining Contractor Establishment	\$400,000	Includes, offices, workshop, change room, mobilisation and surface fan.
Site Establishment	\$200,000	Power and water reticulation, first aid, minor road works
Mill Capital	\$1,000,000	Gravity circuits only, 20 tph plant
Box-cut and Portal	\$202,000	Barmenco estimate
Decline to 190 RL	\$1,472,000	Including stockpiles
<b>TOTAL</b>	<b>\$3,274,000</b>	

Depending on project timing there may be minor additional set-up capital associated with the establishment of primary ventilation and or the second means of egress to the mine.

## 7. ESTIMATE DETAILS

### 7.1 SCHEDULE

The study has only assessed gross quantities and costs. No detailed estimates of development rates, production rates or cash flows have been carried out. However an indicative timeline for the project is shown in Appendix G. No allowance has been made for the possible impact of higher or lower rates on capital costs or tonnage variable costs.

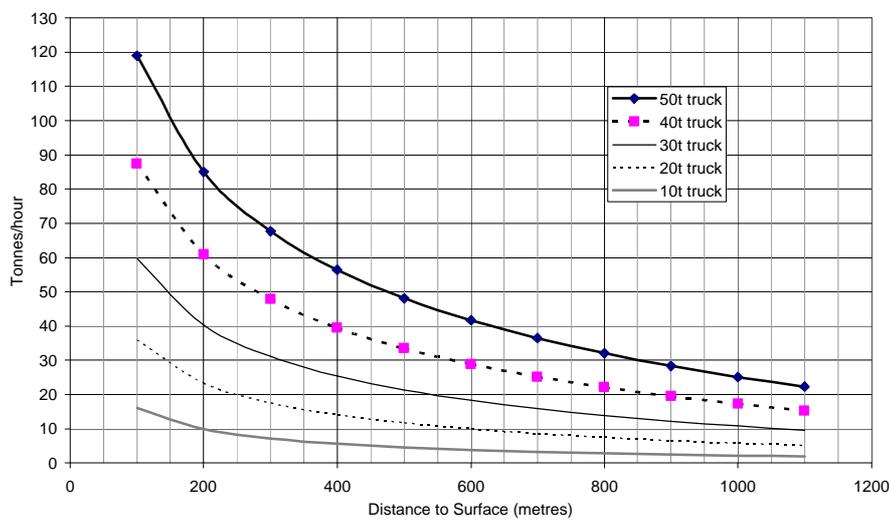
The Barmenco study shows extremely aggressive development and stoping rates. Whilst this serves to minimise their overhead costs, it also demands larger scale mining and processing equipment. Less ambitious development and processing rates should be assumed for any future study to properly reflect likely performance and to allow equipment sizes to be minimised. A reduction in development sizes lowers the fixed costs associated with the primary access development.

## 7.2 MINING

### 7.2.1 Equipment

Development will be driven with a single small profile two-boom electro hydraulic jumbo. Development muck and ore will be handled by low profile 3 cubic metre front-end loaders and low profile 15 to 25 tonne dump trucks. Based on a milling rate of 20 tonnes per hour, one or two 15 tonne capacity trucks will be sufficient to handle a proposed production rate of 400-500 tonnes per day and the sustaining waste development.

**Truck Productivity (after McCarthy & Livingstone 1998)**



A comparison of underground haulage trucks is shown graphically above. The small trucks proposed in this study have about one quarter the productivity of the 50 tonne trucks proposed by Barmingo. The production rates expected from a small truck are tabulated below.

Table 7.2 Truck Productivity for 15 Tonne Trucks

ITEM	Typical Small Truck
EFFECTIVE LOAD CAPACITY	15 tonnes
UTILISATION	55%
LOADING TIME	10 min
DISCHARGE TIME	3 min
UPHILL HAUL SPEED	12 kph
DOWN HILL SPEED	15 kph
ONE-WAY HAULAGE DISTANCE	1.2 km
CYCLE TIME	23.8 min
<b>Production Rate (tonnes per hour)</b>	<b>38</b>
<b>Production Rate (tonnes per day)</b>	<b>499</b>

In conclusion one or two small trucks can comfortably handle the proposed production and development rates. Decline and drive sizes can be substantially reduced with concomitant savings in development and ground support costs.

Scrapers and hand held drills will be used within the ore-body for stoping in the base case.

### 7.2.2 Access

Proposed access is via a 3.2 metre square profile decline driven at 1 in 7 from a surface box cut excavated to the base of surface weathering. It is assumed that the decline can be designed to avoid the tailings dump and any old underground workings.

Allowance has been included for 15-metre truck loading stockpiles at regular intervals along the decline for stockpiling of ore and waste.

The ore shoots will be accessed via 3.0 metre square profile crosscuts driven from the decline on horizons spaced 20 metres apart vertically. 3.0 metre square profile drives will be driven in waste along the strike extent of the ore shoots on each horizon to facilitate extraction of ore from the stopes.

### 7.2.3 Stoping

Ore will be extracted by hand held rill stoping, followed by scraping to the access cross cuts or strike drives. Stopes voids will be filled with development waste delivered via the strike drives by front-end loaders and spread by scraper. Ore will be loaded into trucks from the access cross cuts and strike drives by front-end loaders.

Rises will be driven between levels within the ore to provide access and egress, and to confirm ore continuity.

Stoping will proceed from the lowest level upwards.

This stoping arrangement precludes the need for either rib or crown pillars. 100% extraction of the ore blocks has been assumed.

Allowance has been made for 20% dilution from wall rock and fill, at an average grade of 1.0 gram per tonne. The average grade of 1 g/t was calculated by assuming a dilution grade equal to the "mineralised" material for ore blocks narrower than the mineralised width, or a dilution grade of zero for those blocks where the "mineralised" material had the same width as the "ore block".

## 7.3 Reserves

Two options have been evaluated based on the conservative mining approach described at 7.2.2 & 7.2.3:

**Option 1** Existing reserve blocks based on the Barmingo long-sections.

The blocks have a total strike extent of about 100 metres, an average thickness of 2 metres, and are distributed from RL 280 to 190. These blocks comprise an undiluted resource of 34,400 tonnes at 12.8 grams per tonne.

**Option 2** A hypothetical reserve designed to contain 100,000 oz

The hypothetical physical parameters are given in Appendix A

A notional block has been assumed for a thickness and in-situ grade the same as Option 1, distributed from 280 down to 100 RL, the total strike length will be about 225 metres. These blocks comprise a diluted quantity of 290,687 tonnes at 10.87 gram per tonne.

The most prospective areas to expand the resource to 100,000oz are considered to be down dip of existing identified resources in the Dylan's, Sophies and Main shoots as discussed in Section 4.2.1. Potential to a lesser extent exist along strike as illustrated by Cala's drilling 120m NNW of previous drilling and the historic workings that intersected poorly mineralised reef structure. For the purposes of the scoping study Coffey have assumed a notional block that assumes additional ore grade shoots along strike as well as down dip extensions of existing shoots. Profit estimated on the 100,000 ounce hypothetical resource assumes that the decline and other development activity is bound by this block. The conservative nature of the mining approach used to estimate profit on the hypothetical 100,000ounce resource means the estimated profit of \$17M is reasonably valid, within the constraints of this study, for along strike or down dip extensions of the resource.

The hypothetical reserve is based on criteria indicated by banking institutions to Cala as being the minimum requisite reserve criteria for bank finance to be made available.

The calculations herein based on the hypothetical 100,000 oz "reserve" were conducted purely as an exercise to forecast cash flows. There is no implication that the 100,000oz reserve exists. The final Reserves for the Mathinna prospects may be greater or less than 100,000 oz.

*Additional estimates are made based on the Defiance 25,500ounce indicated + inferred resource estimate and a more realistic mining approach in Section 8. Coffey consider estimates based on the Defiance resource and less conservative mining approach to be a better representation of the projects potential.*

### **7.3.1 Development Quantities and Costs**

Development quantity estimates for Options 1 and 2 are summarised in Table 7.3. The conceptual mining layout is shown in Figure 7.1.

Detailed development and ground support costs for Option 1 and 2 are presented in Appendix B and Appendix C respectively with unit costs based on Contractor mining rates for small profile development.

	OPTION 1	OPTION 2	Notes
DECLINE TOP	292 m RL	292 m RL	From bottom of box-cut
DECLINE BOTTOM	186 m RL	100 m RL	
DECLINE VERTICAL HEIGHT (m)	106	192	
DECLINE LENGTH (m) at 1:7	742	1,344	Includes the 20m portal
DECLINE STOCKPILES (m)	123	238	At 16% of decline length
ORE STRIKE LENGTH (m)	100	225 (nom)	
LEVEL INTERVAL (m)	20	20	
NUMBER of LEVELS	6	11	
CROSS CUTS (m)	210 (6 x 35)	385 (11 x 35)	
STRIKE DRIVES	600 (6 x 100)	2,475 (11 x 225)	Waste
VENT DRIVES (m)	50	100	
SECOND EGRESS (m)	20	40	
STRIPPING	75	150	
RISING (m)	415	830	

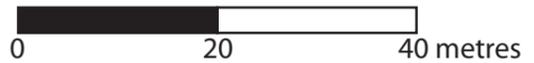
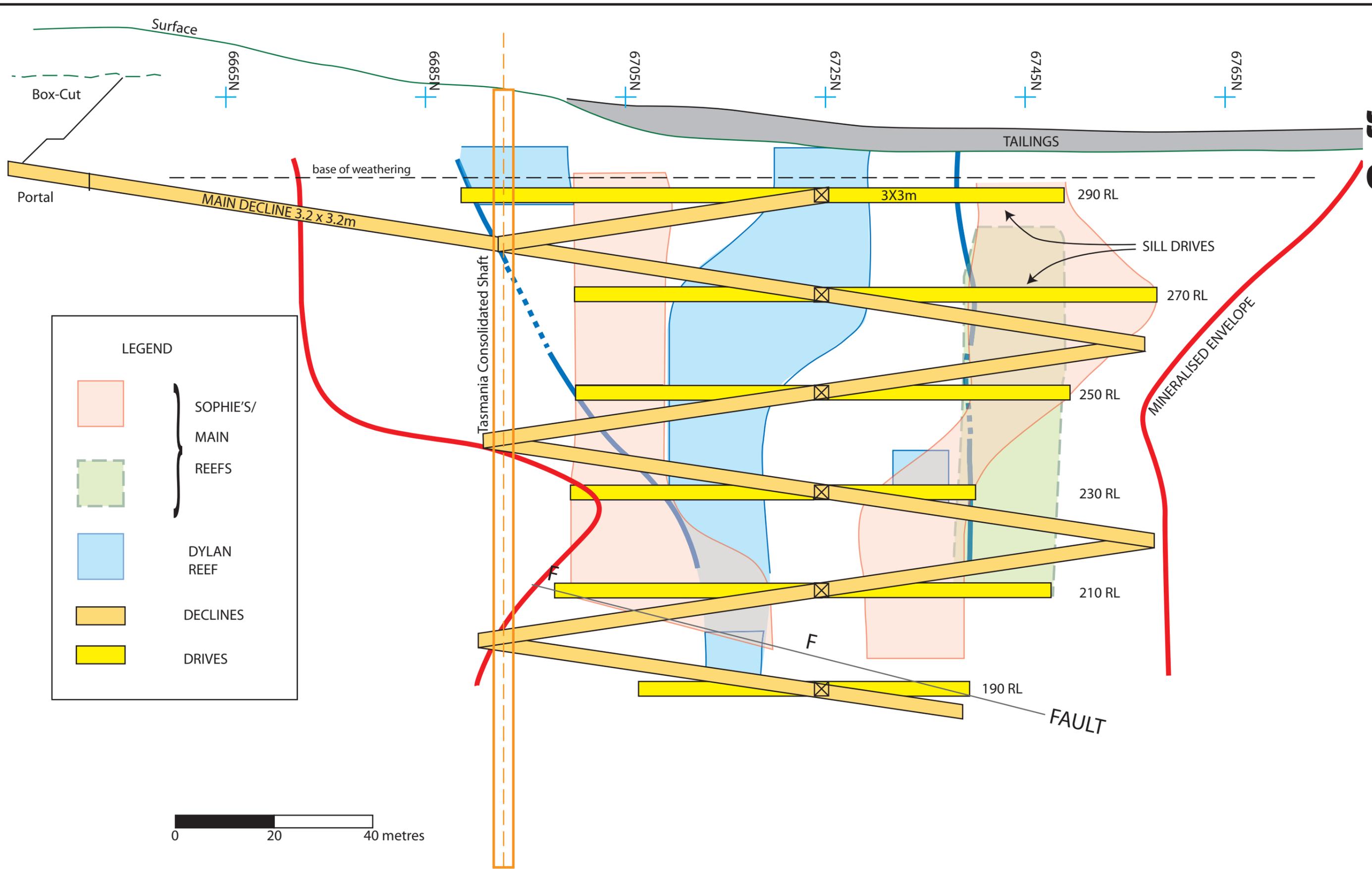
### 7.3.2 Total Project Costs, Revenue and Profit

Estimates of total project costs, revenue and profit for Options 1 and 2 are presented in Tables 7.4. and Table 7.5 respectively.

Option 1 shows a net loss of \$1.1M, and a break-even grade at reserve tonnage of 12.5 gram per tonne.

Option 2 shows a net profit of \$17.6M, and a break-even grade at reserve tonnage of 7.1 gram per tonne.

*Estimates made based on the Defiance 25,500ounce indicated + inferred resource and a more realistic mining approach in Section 8 indicate a project profit in the region of \$2.4M. Coffey consider estimates based on the Defiance resource and less conservative mining approach to be a better representation of the projects potential.*



No	Description	Drawn	Approved	Date
0		SB	I M R	17/8/04

**Coffey Geosciences Pty Ltd** ACN 056 335 516 Geotechnical | Resources | Environmental | Technical | Project Management

Drawn: SB, Approved: I M R, Date: AUG' 2004, Scale: DO NOT SCALE

CALA RESOURCES  
SOPHIE'S, DYLAN'S AND MAIN REEF BARMINCO "RESERVE"  
CONCEPTUAL MINING LAYOUT

Drawing No. : FIG. 7.1  
Job No. : Z13230

Table 7.4 OPTION 1 Base Case – Barminco Reserve

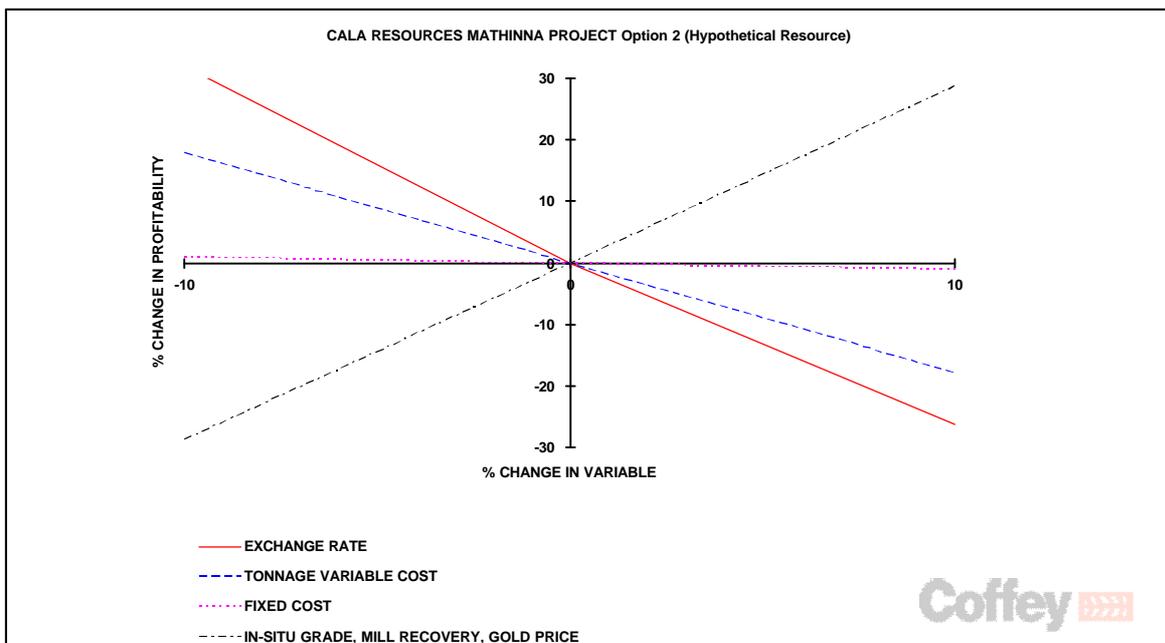
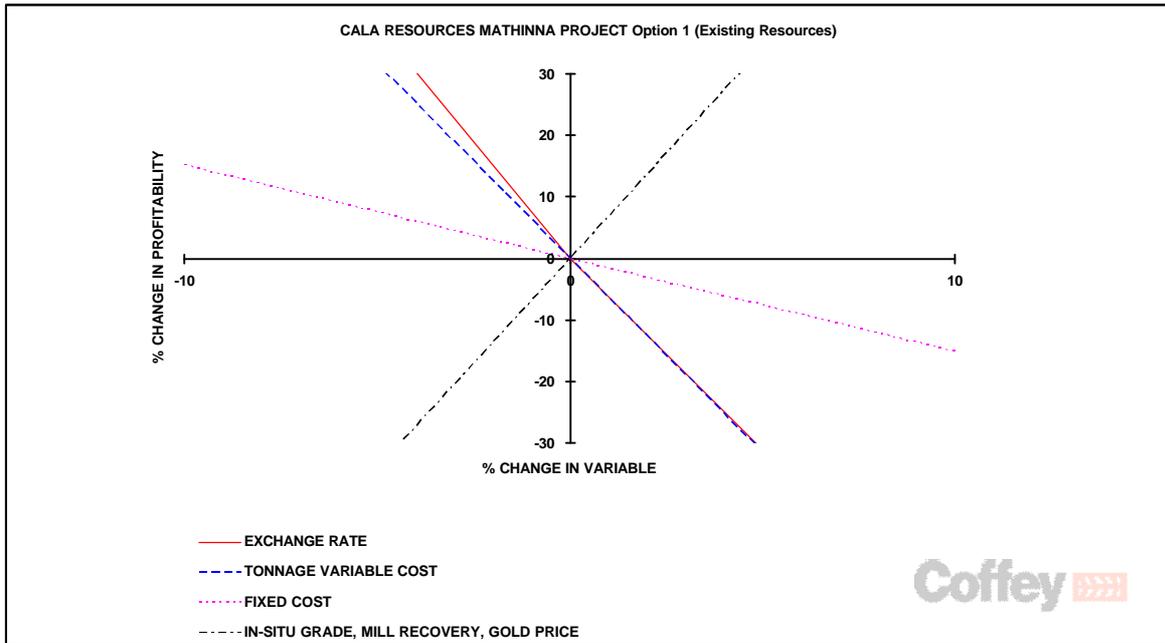
ITEM		UNIT	QUANTITY	UNIT COST	TOTAL COST
ESTABLISHMENT	F	LUMP SUM			400,000
DEVELOPMENT	TV	LUMP SUM			2,592,950
BOLTS	TV	LUMP SUM			360,532
MESH	TV	LUMP SUM			98,352
WASTE HAULAGE	TV	TONNE	161,251	2.50	403,126
STOPING	TV	TONNE	34,413	50.00	1,720,650
ORE BOGGING	TV	TONNE	41,296	2.00	82,591
ORE HAULAGE	TV	TONNE	41,296	2.50	103,239
ADMINISTRATION	TV	TONNE	41,296	8.00	330,365
POWER	TV	TONNE	41,296	4.50	185,830
GEOLOGY	TV	TONNE	41,296	4.00	165,182
MILL OPERATING	TV	TONNE	41,296	15.00	619,434
SITE ESTABLISHMENT	F	LUMP SUM			200,000
MILL CAPITAL	F	LUMP SUM			1,000,000
<b>TOTAL</b>					<b>\$8,262,252</b>
TONNAGE VARIABLE	TV				\$6,662,252
FIXED	F				\$1,600,000
<b>REVENUE</b>					
MILL THROUGHPUT		TONNE	41,296		
		G/T	10.87		
CONTAINED GOLD		G	448,837		
		OZ	14,430		
RECOVERED GOLD		OZ	13,276		
REVENUE					\$7,206,975
PROFIT					\$-1,055,277
<b>BREAK-EVEN IN-SITU GRADE</b>		<b>g/t</b>	<b>12.46</b>		<b>AT RESERVE TONNAGE</b>

Table 7.5 OPTION 2 – Hypothetical Reserve

ITEM		UNIT	QUANTITY	UNIT COST	TOTAL COST
ESTABLISHMENT	F	LUMP SUM			400,000
DEVELOPMENT	TV	LUMP SUM			6,259,400
BOLTS	TV	LUMP SUM			837,727
MESH	TV	LUMP SUM			213,967
WASTE HAULAGE	TV	TONNE	236,550	2.50	591,376
STOPING	TV	TONNE	242,239	50.00	12,111,946
ORE BOGGING	TV	TONNE	290,687	2.00	581,373
ORE HAULAGE	TV	TONNE	290,687	2.50	726,717
ADMINISTRATION	TV	TONNE	290,687	8.00	2,325,494
POWER	TV	TONNE	290,687	8.00	2,325,494
GEOLOGY	TV	TONNE	290,687	4.00	1,162,747
MILL OPERATING	TV	TONNE	290,687	15.00	4,360,301
SITE ESTABLISHMENT	F	LUMP SUM			200,000
MILL CAPITAL	F	LUMP SUM			1,000,000
TOTAL					33,096,541
TONNAGE VARIABLE	TV	\$			31,496,541
FIXED	F	\$			1,600,000
REVENUE					
MILL THROUGHPUT		TONNE	290,687		
		G/T	10.87		
CONTAINED GOLD		G	3,158,795		
		OZ	101,558		
RECOVERED GOLD		OZ	93,433		
REVENUE		\$			50,720,783
PROFIT		\$			17,624,242
<b>BREAK-EVEN IN-SITU GRADE</b>		<b>g/t</b>	<b>7.09</b>		<b>AT RESERVE TONNAGE</b>

### 7.3.3 Sensitivity

Project sensitivities for Option 1 and 2 are presented in Appendix C and Appendix D respectively and are shown graphically in the two charts below.



The project is most, and equally, sensitive to exchange rate, in-situ grade, mill recovery, and gold price: and less sensitive to tonnage variable unit costs. Sensitivity to initial set-up capital is mild, indicating that there is little benefit to be derived from trimming capital costs such as infrastructure and processing plant.

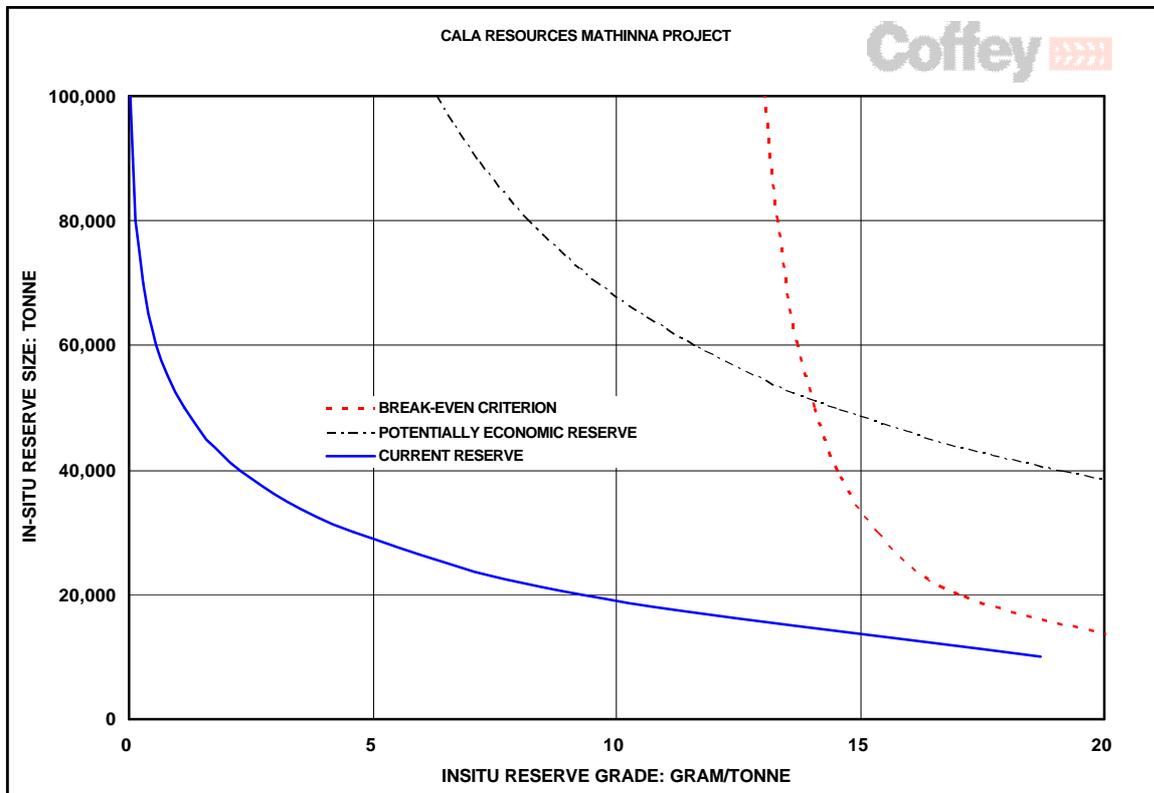
### 7.3.4 Breakeven Reserve

Preliminary cost comparisons have been made for various reserve sizes, based on the existing reserve fixed and tonnage variable cost estimates. The requisite breakeven grade for each reserve tonnage has then been calculated to derive a break-even grade tonnage relationship. These calculations are presented in Table 7.6

Table 7.6 Break Even

		TOTAL COST	BREAK-EVEN GRADE	RESERVE ACTUAL GRADE	POTENTIALLY ECONOMIC RESERVE GRADE
	TONNE	\$	g/t	g/t	g/t
BREAK-EVEN BASE CASE	41,296	8,262,252	12.46		
	10,000	3,535,969	22.02	18.70	166.81
	20,000	5,471,939	17.04	9.29	49.21
	30,000	7,407,908	15.38	4.61	27.90
	40,000	9,343,878	14.55	2.29	19.20
	50,000	11,279,847	14.05	1.14	14.52
	60,000	13,215,817	13.72	0.56	11.62
	70,000	15,151,786	13.48	0.28	9.65
	80,000	17,087,756	13.30	0.14	8.23
	90,000	19,023,725	13.16	0.07	7.16
	100,000	20,959,695	13.05	0.03	6.33
BASED ON: 543 \$/OZ GOLD PRICE; 92 % MILL RECOVERY					
INTERSECTION POINT	48,253	10,941,633	14.12	1.29	15.17
CONTAINED GOLD OZ					23,538

This is then compared to a reserve grade tonnage relationship (based on the Barmenco Reserve blocks) as shown in Appendix E. The comparative curves are shown graphically in the chart below.



For any project to have economic viability these curves must cross at some break-even point. In the case of the existing reserve it is obvious that an increase in reserve is required to make the project economic.

A further hypothetical grade tonnage relationship (labeled as "potentially economic reserve") is presented. This has been concocted to intersect the break-even criterion. It is apparent that such a reserve would become economic above grades of 14 grams per tonne, at which point a total reserve of 23,000 oz is indicated.

## 8. OPTIONS FOR ENHANCING THE PROJECT

### 8.1 Tailings Treatment

An analysis of the likely benefit to be derived from re-treating the Mathinna tailings dumps is presented in Table 8.1. It is important to note it is assumed treatment of tailings will not bear the full cost of operating the mill. The assumption is that re-treatment bears only direct operating costs, and that administration and mill capital costs are not back charged to the tailings.

Based on these assumptions there is potential for a significant profit on a marginal cost basis.

Table 8.1 Tailings Re-treatment

ITEM	UNIT	QTY	\$
TONNAGE	Tonne	350,000	
MINING COST	\$/t	1.00	350,000
MILLING COST	\$/t	5.00	1,750,000
TOTAL COST			2,100,000
GRADE	g/t	1.00	
MILL RECOVERY	%	50	
RECOVERED GOLD	Oz	5,626	
REVENUE	\$		3,054,321
<b>PROFIT</b>	<b>\$</b>		<b>954,321</b>

## 8.2 Shaft Access

A number of old shafts, including Golden Gate, Consolidated and New Golden Gate lie in close proximity to the existing reserves. The collars of the shafts are generally collapsed and the condition of the shaft below the collars is unknown. The shafts originally extended to depths significantly deeper than the mining planned by Cala (for example New Golden Gate being sunk to 459 metres below the surface).

Refurbishment of a shaft may offer the following benefits:

- Cheaper access to existing reserves

- Access to deep drill sites to test possible extensions of present reef reserves below the fault

An assessment of ground conditions in the vicinity of the shaft would enable a better estimate to be made of the actual condition of the shaft and the likely cost of refurbishment. All existing resource drilling has been carried out from surface using percussion equipment with diamond drill tails. Only very limited core is available for geotechnical assessment.

Cored diamond drilling undertaken from surface to RL 150, would provide the following information:

- Location and offset of the fault

- Geotechnical conditions with respect to shaft refurbishment

- Down dip extensions of existing reserves (although this would not be the aim of the drilling)

In addition to the cored drilling, probe drilling down the shaft centreline is recommended to determine the location and nature of shaft blockages (if any).

### 8.2.1 Shaft Mining Costs

As an alternative to decline access, quantities and prices have been estimated for refurbishment of one of the historic shafts to access and mine the existing reserve. The actual condition of the shafts are very much unknown, and the cost estimates presented may be beyond +/- 30% accuracy. Nevertheless, for the figures presented, potential savings over the base case of \$500,000 are indicated although a loss is still projected based on a conservative mining approach. Note that \$750,000 has been included in Site Establishment to cover the cost of a suitable winder and headframe. This cost estimate is based on the acquisition of a mix of new and used equipment. Details are presented in Appendix F.

Table 8.2 Shaft Access Costs

ITEM		UNIT	QUANTITY	UNIT COST	TOTAL COST
ESTABLISHMENT	F	LUMP SUM			400,000
DEVELOPMENT	TV	LUMP SUM			1,992,500
BOLTS	TV	LUMP SUM			79,071
MESH	TV	LUMP SUM			32,354
WASTE HAULAGE	TV	TONNE	22,252	2.50	55,631
STOPING	TV	TONNE	34,413	50.00	1,720,650
ORE BOGGING	TV	TONNE	41,296	2.00	82,591
ORE HAULAGE	TV	TONNE	41,296	2.50	103,239
ADMINISTRATION	TV	TONNE	41,296	8.00	330,365
POWER	TV	TONNE	41,296	4.50	185,830
GEOLOGY	TV	TONNE	41,296	4.00	165,182
MILL OPERATING	TV	TONNE	41,296	15.00	619,434
SITE ESTABLISHMENT	F	LUMP SUM			950,000
MILL CAPITAL	F	LUMP SUM			1,000,000
TOTAL					7,716,847
TONNAGE VARIABLE	TV	\$			5,366,847
FIXED	F	\$			2,350,000
SAVING COMPARED TO DECLINE	\$			545,404	
REVENUE					
MILL THROUGHPUT		TONNE	41,296		
		g/t	10.87		
CONTAINED GOLD		G	448,837		
		OZ	14,430		
RECOVERED GOLD		OZ	13,276		
REVENUE		\$			7,206,975
PROFIT		\$			-509,872
<b>BREAK-EVEN IN-SITU GRADE</b>		<b>g/t</b>	<b>11.64</b>	<b>AT RESERVE TONNAGE</b>	

### 8.3 Alternative Mining Methods

In the time frame available it was only possible to cost out one mining scenario in detail. Scope exists to reduce the stoping cost considerably if some form of mechanised mining can be used rather than handheld stoping. A top down benching method like that used successfully at Kundana Mine site in WA and others would:

- Reduce waste driving as all strike development is on reef.
- Allow earlier production as the method is top down and reduce capital expenditure prior to production.
- Reduce the stoping cost from \$50/tonne to around \$35/tonne.
- Save on filling costs.

It may be desirable to reduce the sub-level interval from the 20 metres assumed in this report.

### 8.4 Resource Extensions

The potentially minable resource identified by Barmingo on their sections and as detailed in Table 4.1 of this Report, is significantly smaller than the Indicated Resource for Dylan/Sophie identified by Defiance. The comparative difference is highlighted below.

<b>Barmingo</b>	34,400 tonnes	12.8 g/t	14,200 Oz
<b>Defiance Indicated</b>	44,000 tonnes	13.1 g/t	18,600 Oz

Given the high quality of the Defiance resource estimate, it is reasonable to assume that the Defiance resource can be accessed with similar amounts of incremental development to the Barmingo study (and less cost as the main access decline would already be in place).

### 8.5 Open Pit Potential

Defiance identified an Indicated Resource of 140,000 tonnes at 2.5 g/t as for potential open pit mining from the Central Reef. This resource would be attractive once a processing plant was in place. A preliminary pit design has not been undertaken hence it is difficult to make a definitive prediction of the potential profit, but the Table below indicates a potential \$500,000 profit, even with the full milling cost included.

ITEM	UNIT	QTY	\$	Notes
RESOURCE	Tonne	140,000		
MINING COST	\$/bcm	4.00	2,280,000	At nominal 10:1 stripping ratio
MILLING COST	\$/t	15.00	2,100,000	
<b>TOTAL COST</b>			<b>4,380,000</b>	
GRADE	Gt	2.5		
MILL RECOVERY	%	80		Lower to allow for oxidised material
RECOVERED GOLD	OZ	9,003		
<b>REVENUE</b>	<b>\$</b>		<b>4,889,000</b>	<b>Potentially Profitable</b>

## 8.6 Potential Effects of Alternatives on Project

The matrix below shows project profit resulting from the production increases associated with the Defiance Resource and associated with the mining method alternatives discussed above.

<b>Stoping Method</b>	<b>Barminco Resource</b>	<b>Defiance Indicated</b>	<b>Defiance Indicated &amp; Inferred</b>
Base Case (Hand held)	<b>\$ -1,060,000</b>	<b>\$ -160,000</b>	<b>\$1,300,000</b>
Mechanised	<b>\$ -400,000</b>	<b>\$720,000</b>	<b>\$2,470,000</b>
Shaft	<b>\$ -510,000</b>	<b>\$390,000</b>	<b>\$1,850,000</b>

Re-treatment of tailings and or open cut mining of the Central Reef may **add additional** positive cash flows to all of the above.

## 8.7 Exploration Potential Close to Mathinna

Several exploration prospects in the Mathinna-Mangana area are recognised from work by Resolute and the Defiance-Connemarra JV. Prospectivity rating is based on a combination of the records of early mining archived in the MRT library at Rosny Park showing the geology of high-grade ore shoots, and the results of modern exploration highlighting potential for new discoveries. These targets are all within trucking distance of a central mill site at Mathinna, as are similar ranking prospects around old workings to the north, between Mathinna and Dans River. At present, apart from Golden Ridge as discussed above, none of these prospects is sufficiently advanced to be considered in terms of yielding an identified resource after one round of drilling, but they do warrant sensibly staged exploration programs and have real potential to in time contribute satellite mines to the Mathinna project. Some of the better prospects are summarised below.

- The Volunteer Consolidated mine, west of Mathinna, produced from high-grade shoots in four reefs up to 2.5 metres thick. The mine was developed down to 140 metres and some plans are available at MRT. No modern work has been done.
- The Jubilee Soil Anomaly is a coherent 1 km long, northwest trending soil anomaly south of the main Mathinna workings. The anomaly was generated by Resolute in 1996 and sits over a major anticlinal axis. Two unsuccessful RC holes were drilled by Defiance at the southern end of the trend but the prospect requires a comprehensive program of modelling and drilling.
- The Chinamen's Hill soil anomaly, north of Mathinna, was also discovered by Resolute. It extends for 600 metres and has been tested by only two shallow costeans, which returned rock chip samples carrying up to 20 g/t Au.

The region is also prospective for new target generation by greenfields exploration. Excellent regional scale data sets representing several hundred of thousands of dollars worth of investment in geoscience information are available, essentially free. The region is covered in total by airborne magnetics, radiometrics and air photography and in part by ground-based soil and stream sediment geochemical surveys. Geological Survey 1 : 25,000 geology and MIRLOCH data base records for all known historic workings are complete for the region and mine plans for many of the old workings are archived at MRT.

These data are a valuable resource for generating new prospects by recognising structural trends and chemical anomalies associated with mineralisation and by tracking possible plunge and strike extensions of previously mined reefs and ore shoots.

**For and on behalf of**  
**COFFEY GEOSCIENCES PTY LTD**

**IAN REEVES**  
**ASSOCIATE**

# Information

Important information about your **Coffey** Report

*As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.*

## **Your report is based on project specific criteria**

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

## **Subsurface conditions can change**

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of the subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

## **Interpretation of factual data**

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by

earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

## **Your report will only give preliminary recommendations**

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

## **Your report is prepared for specific purposes and persons**

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.



## Important information about your **Coffey** Report

### **Interpretation by other design professionals**

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they have incorporated the report findings.

### **Data should not be separated from the report\***

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Logs, figures, drawings etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

### **Geoenvironmental concerns are not at issue**

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

### **Rely on Coffey for additional assistance**

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design toward construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

### **Responsibility**

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

*\* For further information on this aspect reference should be made to "Guidelines for the Provision of Geotechnical Information in Construction Contracts" published by the Institution of Engineers Australia, National Headquarters, Canberra, 1987.*

Z13230\_01AB  
August 04

**APPENDIX A**

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**Physical Parameters – Hypothetical 100,000 oz Reserve**



Z13230\_01AB

August 04



SILL RL	Thickness Height Length			tonne	g/t	OZ
	m	m	m			
280	2.00	20	224	24,224	12.84	10,000
260	2.00	20	224	24,224	12.84	10,000
240	2.00	20	224	24,224	12.84	10,000
220	2.00	20	224	24,224	12.84	10,000
200	2.00	20	224	24,224	12.84	10,000
180	2.00	20	224	24,224	12.84	10,000
160	2.00	20	224	24,224	12.84	10,000
140	2.00	20	224	24,224	12.84	10,000
120	2.00	20	224	24,224	12.84	10,000
100	2.00	20	224	24,224	12.84	10,000
TOTAL INSITU				242,239	12.84	100,000
DILUTION		20%		48,448	1.00	1,558
RESERVE (MILL FEED)				290,687	10.87	101,558
TONNE PER VERTICAL METRE				1,453		

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**APPENDIX B**

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**OPTION 1 Barmenco Reserve & OPTION 2 Hypothetical 100,000 oz Reserve**

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OPTION 1 Barmingo Reserve

ITEM	DEVELOPMENT							BOLTS				MESH				COST \$
	L m	H m	W m	QTY m <sup>3</sup>	COST t	COST \$/UNIT	COST \$	AREA m <sup>2</sup>	QTY %	NO	\$EA	COST \$	QTY %	m <sup>2</sup>	\$EA	
BOX CUT	140	20	15	42,000	113,400	3.60	151,200	2,800	10	200	58	11,600	5	140	26	3,640
PORTAL	20	3.2	3.2	205	553	1,450	29,000	128	100	91	58	5,303	50	64	26	1,664
DECLINE (1 IN 7)	721	3.2	3.2	7,383	19,934	1,450	1,045,450	4,614	100	3,296	58	191,168	50	2,307	26	59,987
STOCKPILES	123	3.0	3.0	1,107	2,989	1,100	135,300	738	100	527	58	30,574	50	369	26	9,594
CROSS CUTS	210	3.0	3.0	1,890	5,103	1,100	231,000	1,260	50	450	58	26,100	15	189	26	4,914
VENT DRIVES	50	3.0	3.0	450	1,215	1,100	55,000	300	50	107	58	6,214	15	45	26	1,170
STRIKE DRIVES	600	3.0	3.0	5,400	14,580	1,100	660,000	3,600	50	1,286	58	74,571	15	540	26	14,040
SECOND EGRESS	20	3.0	3.0	180	486	1,100	22,000	120	50	43	58	2,486	15	18	26	468
STRIPPING	75	2.0	3.4	510	1,377	200	15,000	405	50	145	58	8,389	15	61	26	1,580
RISING	415	1.2	1.2	598	1,614	600	249,000	996	10	71	58	4,126	5	50	26	1,295
TOTAL				59,722	161,251		2,592,950					360,532				98,352

AREA = ALL OF BACKS, 50% OF WALLS  
 QTY = PROPORTION OF DRIVE SUPPORTED

OPTION 2 Hypothetical 100,000 oz Reserve

ITEM	DEVELOPMENT							BOLTS				MESH				COST \$
	L m	H m	W m	QTY m <sup>3</sup>	COST tonne	COST \$/UNIT	COST \$	AREA m <sup>2</sup>	QTY %	NO	\$EA	COST \$	QTY %	m <sup>2</sup>	\$EA	
BOX CUT	140	20	15	42,000	113,400	3.60	151,200	2,800	10	200	58	11,600	5	140	26	3,640
PORTAL	20	3.2	3.2	205	553	1,450	29,000	128	100	91	58	5,303	50	64	26	1,664
DECLINE (1 IN 7)	1,372	3.2	3.2	14,049	37,933	1,450	1,989,400	8,781	100	6,272	58	363,776	50	4,390	26	114,150
STOCKPILES	238	3.0	3.0	2,142	5,783	1,100	261,800	1,428	100	1,020	58	59,160	50	714	26	18,564
CROSS CUTS	385	3.0	3.0	3,465	9,356	1,100	423,500	2,310	50	825	58	47,850	15	347	26	9,009
VENT DRIVES	100	3.0	3.0	900	2,430	1,100	110,000	600	50	214	58	12,429	15	90	26	2,340
STRIKE DRIVES	2,475	3.0	3.0	22,275	60,143	1,100	2,722,500	14,850	50	5,304	58	307,607	15	2,228	26	57,915
SECOND EGRESS	40	3.0	3.0	360	972	1,100	44,000	240	50	86	58	4,971	15	36	26	936
STRIPPING	150	2.0	3.4	1,020	2,754	200	30,000	810	50	289	58	16,779	15	122	26	3,159
RISING	830	1.2	1.2	1,195	3,227	600	498,000	1,992	10	142	58	8,253	5	100	26	2,590
TOTAL				87,611	236,550		6,259,400					837,727				213,967

AREA = ALL OF BACKS, 50% OF WALLS  
 QTY = PROPORTION OF DRIVE SUPPORTED

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**APPENDIX C**

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Sensitivity Barmingo Reserve



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**APPENDIX D**

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**Sensitivity Hypothetical Reserve**

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		TONNAGE VARIABLE COST	FIXED COST	IN-SITU GRADE, MILL RECOVERY, GOLD PRICE	EXCHANGE RATE
% CHANGE IN PROFIT					
+10% CHANGE IN VARIABLE	-10	17.87	0.91	-28.78	31.98
BASE CASE	0	0.00	0.00	0.00	0.00
-10% CHANGE IN VARIABLE	10	-17.87	-0.91	28.78	-26.16
BASE CASE	TONNAGE VARIABLE COST	\$ 31,496,541			
	FIXED COST	\$ 1,600,000			
	TONNAGE	T 290,687			
	IN SITU GRADE	G/T 10.87			
	MILL RECOVERY	% 92			
	EXCHANGE	\$/A/\$US 0.70			
	GOLD PRICE	\$/US/OZ 380			
	REVENUE	\$ 50,720,783			
	PROFIT	\$ 17,624,242			

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**APPENDIX E**

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**Reserve grade tonnage relationship (based on the Barmingo Reserve blocks)**

LODE	SHOOT	WIDTH	SILL RL	BLOCK	Tonnes	g/t	OZ
MAIN	SOUTH	2.00	270	MT047	2,367	3.78	288
MAIN	SOUTH	2.00	230	MT049	1,371	10.60	467
MAIN	SOUTH	2.00	210	MT050	1,962	34.34	2,166
MAIN	SOUTH	1.65	200	MT040	1,109	10.54	376
MAIN	NORTH	1.00	255	MT086	907	6.55	191
MAIN	NORTH	1.00	255	MT079	1,271	8.30	339
SOPHIE	NORTH	1.00	255	MT079E	1,236	4.80	191
MAIN	NORTH	2.00	240	MT080	1,869	15.20	913
SOPHIE	NORTH	2.00	240	MT080E	1,749	2.43	137
MAIN	NORTH	1.00	210	MT068	1,092	27.80	976
SOPHIE	NORTH	3.00	215	MT078E	2,544	9.62	787
MAIN	NORTH	1.10	210	MT077	937	3.25	98
DYLAN	WEST	2.00	290	MT070	1,464	7.32	345
DYLAN	EAST	2.00	290	MT053E	1,065	2.59	89
DYLAN	EAST	2.00	270	MT054E	2,003	15.90	1,024
DYLAN	WEST	1.00	250	MT055	951	10.70	327
DYLAN	WEST	3.00	255	MT055E	2,857	23.05	2,117
DYLAN	WEST	4.00	255	MT039E	2,570	15.37	1,270
DYLAN	WEST	1.00	255	MT039	1,019	5.60	183
DYLAN	EAST	1.00	230	MT046E	1,282	6.75	278
DYLAN	WEST	2.00	230	MT046	1,238	26.80	1,067
DYLAN	WEST	1.00	230	MT068	777	12.60	315
DYLAN	WEST	1.50	190	MT074	773	10.70	266
SOPHIE					5,529	6.27	1,114
MAIN					12,885	14.04	5,814
DYLAN					15,999	14.15	7,281
TOTAL INSITU		2.01			34,413	12.84	14,209
DILUTION		20 %			6,883	1.00	221
RESERVE (MILL FEED)					41,296	10.87	14,430
TONNE PER VERTICAL METRE					413		
				RESOURCE	GRADE	SMOOTH	
				TONNE	g/t	g/t	
				31,599	3.00	4.12	
				28,295	4.00	5.20	
				27,059	5.00	5.67	
				26,040	6.00	6.08	
				23,851	7.00	7.09	
				22,387	8.00	7.86	
				21,116	9.00	8.59	
				18,572	10.00	10.26	
				14,368	11.00	13.77	
				14,368	12.00	13.77	
				13,591	14.00	14.54	
				13,591	15.00	14.54	
				7,149	23.00	22.83	
				4,292	26.00	27.88	
				3,054	27.00	30.41	
				1,962	34.00	32.82	

$y = 37.657e-7E-05x$   
R2 = 0.9784

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**APPENDIX F**

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Shaft Access

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SHAFT ACCESS



ITEM	DEVELOPMENT					BOLTS						MESH				
	L	H	W	QTY		COST	COST	AREA	QTY			COST	QTY		COST	
	m	m	m	m <sup>3</sup>	tonne	\$/UNIT	\$	m <sup>2</sup>	%	No	\$EA	\$	%	m <sup>2</sup>	\$EA	\$
COLLAR RECOVERY	15	10	10	1,500	4,050	20.00	30,000	150	50	54	58	3,107	50	75	26	1,950
COLLAR CONCRETE	15	4	4	240	648	500	120,000									
RE-TIMBERING	200					2,000	400,000									
PLAT REFURBISHMENT	60	3.0	3.0			1,100	66,000	360	100	257	58	14,914	50	180	26	4,680
STOCKPILES	120	2.4	2.4	691	1,866	1,100	132,000	576	50	206	58	11,931	50	288	26	7,488
CROSS CUTS	220	2.4	2.4	1,267	3,421	1,100	242,000	1,056	25	189	58	10,937	15	158	26	4,118
VENT DRIVES	50	2.4	2.4	288	778	1,100	55,000	240	25	43	58	2,486	15	36	26	936
STRIKE DRIVES	615	2.4	2.4	3,542	9,564	1,100	676,500	2,952	25	527	58	30,574	15	443	26	11,513
SECOND EGRESS	20	2.4	2.4	115	311	1,100	22,000	96	25	17	58	994	15	14	26	374
RISING	415	1.2	1.2	598	1,614	600	249,000	996	10	71	58	4,126	5	50	26	1,295
TOTAL				8,242	22,252		1,992,500					79,071				32,354

AREA = ALL OF BACKS, 50% OF WALLS

QTY = PROPORTION OF DRIVE SUPPORTED

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**APPENDIX G**

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Project timeline

