



ABN 97 009 377 619

Fimiston Operations **Extension**

Project Definition Document



Greening the Golden Mile

Prepared by: KCGM
Date: April 2005

Distribution:	KCGM Internal
	Project Approvals Co-ordination Unit
	Department of Environment
	Department of Industry and Resources
	KCGM Website – www.superpit.com.au
	KCGM External Stakeholders

29 April 2005

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YOUR FEEDBACK IS INVITED

In the near future, KCGM will be seeking approval to extend the Fimiston operations to enable mining to continue for an additional five years until 2017. This will include the expansion of the Fimiston Open Pit, Waste Rock Dumps and Tailings Storage Facilities.

A Project Definition Document (PDD) has been prepared which describes this project, examines the social, economic and environmental considerations and proposed management to ensure that any potential impacts of this expansion on the nearby community or environment are effectively managed.

We encourage the community to take an interest in this vital project, which will play an important part in the economic future of Kalgoorlie-Boulder and as always, your comments are encouraged and welcomed.

How Can I See the Project Definition Document?

Copies of the PDD plan are available for review at the:

- KCGM website - www.superpit.com.au
- Super Pit Shop at 2 Burt Street, Boulder

A printed or CD version is also available upon request from the Super Pit Shop at 2 Burt Street, Boulder or contact us via the Public Inquiry Line on 9022 1100.

Why Provide Feedback?

Feedback is an important way for you to provide information, express your opinions and put forward any suggestions for an alternative course of action. It is an opportunity for you to indicate any suggestions you may have to improve the proposed project. All feedback received by KCGM will be acknowledged and any feedback may be quoted in full or in part in reports.

What Should be Included in Feedback?

You may agree or disagree with, or comment on the general issues discussed in the PDD. It helps if you give reasons for your conclusions. Your feedback may make an important contribution by suggesting a better way to implement the project.

Please remember to include:

- your name,
- address,
- date; and
- contact number.

Public Inquiry Line	Accounts	Employee Relations	Open Pits	Fimiston Mill	Gidji Roaster	Supply
T 9022 1100	T 9022 1162	T 9022 1184	T 9022 1800	T 9022 1484	T 9022 1602	T 9022 1358
F 9022 1190	F 9022 1119	F 9022 1189	F 9022 1855	F 9022 1411	F 9022 1610	F 9022 1378

How Can I Provide Feedback?

There are a number of avenues for you to respond, and we encourage you to participate in the way you would feel most comfortable.

Public Inquiry Line and Email

The KCGM Public Inquiry Line is available 7 days a week, 24 hours a day. Your query will be responded to personally by a KCGM representative. Please phone 9022 1100 or email pil@kalgold.com.au

Super Pit Website

The Super Pit website is a great information resource, and it is also another way to pass your comments back to KCGM. Visit us at www.superpit.com.au

Super Pit Shop

Come in and visit our public relations team. You will be provided with the most up to date information, and if our PR team can't answer your specific questions, they can arrange for you to speak to the most appropriate KCGM people for your query.

2 Burt Street, Boulder WA 6433
Phone: 9093 3488
Fax: 9093 2488

Letter

KCGM Approvals Coordinator
Private Mail Bag 27
Kalgoorlie WA 6433

Community Reference Group

You may feel more comfortable talking with one of our Community Reference Group Members, who can get in touch with KCGM on your behalf (anonymously if you prefer). Contact details of the KCGM CRG members are below (they're expecting your call!).

Guy Brownlee 9021 3888
Murray Joyce 9021 4262
Peter Lilly 9088 6001
James Murphy 9021 8128
Kylie Sharp 0418 930 434
Kathleen Bentley 0418 947 679

Ashley Johns 0419 941 068
Brian Kane 9080 5836
Amanda Lovitt 0403 284 013
Anne Petz 0407 990 019
Kevin Smallhorn 9021 2420

Please feel free to contact us at any stage to discuss any queries you may have about this PDD or any other aspect our operations at the Super Pit Shop at 2 Burt Street, Boulder or via the Public Inquiry Line on 9022 1100.

Yours Sincerely
Kalgoorlie Consolidated Gold Mines Pty Ltd

A handwritten signature in black ink, appearing to read "CJ33".

**COBB JOHNSTONE
GENERAL MANAGER**

KCGM Fimiston Operations Extension Project Definition Document

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Purpose of Document

This document has been developed as part of our consultation and approval process to provide information to key stakeholders regarding the potential extension of the Kalgoorlie Consolidated Gold Mines (KCGM) Fimiston operations as identified in the Life of Mine (LOM) plan to ensure the future of the operation. This project will include the expansion of the Fimiston Open Pit, Waste Rock Dumps (WRD) and Tailings Storage Facilities (TSF).

This document includes project details, social, economic and environmental considerations and their significance, proposed studies and KCGM management actions to ensure that any potential impacts of this expansion on the nearby community or environment are effectively managed. This document outlines KCGM's consultation plans and provides information for key stakeholders to determine the appropriate approvals process.

1 Proposal Information

1.1 Proponent Details

The Proponent for the project is:
Kalgoorlie Consolidated Gold Mines Ltd (KCGM)
ABN: 97 009 377 619

KCGM is the manager of a joint venture between Newmont Australia (50% ownership) and Barrick Gold of Australia (50% ownership).

The KCGM office address is:
Black St.
Kalgoorlie, Western Australia 6430

The postal address is:
Private Mail Bag 27
Kalgoorlie, WA, 6433

The Proponent contact for the Project is:
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Senior Environmental Officer
Phone: 08 90221338
Fax: 08 90221331
Email: mbirch@kalgold.com.au

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1.2 Description of the Project

1.2.1 Fimiston Open Pit

The Fimiston Open Pit operations were outlined within the *Consultative Environmental Review Mine and Waste Dumps – Fimiston August 1990*, and this project was approved by the Minister for Environment in October 1991. The Fimiston Open Pit operations have been managed in accordance with the requirements of Ministerial Statement 188 and Department of Industry and Resources (DoIR) tenement conditions since that time.

The approved Fimiston Open Pit surface footprint will currently allow open pit mining until 2012 (Figure 1). The open pit is essentially cone-shaped and gets progressively smaller as it gets deeper. In order for the Fimiston Open Pit to be mined to its full potential (both wider and deeper) it is necessary for the surface footprint to be extended.



Figure 1 – Fimiston Open Pit Outline in 2012

Golden Pike Cutback

KCGM will be seeking approval for a westerly extension of the Fimiston Open Pit to allow for the continued operation of the mine. The western extension, called the “Golden Pike Cutback” will allow for both widening and deepening of the pit to a depth of around 670 metres (Figure 2), thereby extending the life of the Fimiston Open Pit by five years to 2017.



Figure 2 – Proposed Fimiston Open Pit 2017

A five year extension to the KCGM operation has benefits at a Local, State and National level. A review of the economic contribution in 2004, indicated that KCGM accounted for more than 17% of gold sales in Western Australia, generating export revenue of \$482 million, royalties of \$12.1 million (other taxes of \$4.6 million) and contributed around \$255 million dollars in local salaries and to locally-based suppliers.

The extension is proposed for the western wall of the Fimiston Open Pit and not the eastern wall due to the geometry and geology of the “Golden Mile” ore bodies. The eastern wall of the Fimiston Open Pit roughly corresponds to the eastern orebody boundary, and the ore dips away under the western wall. The Fimiston Open Pit surface footprint has reached the maximum economic limits on the eastern side. The proposed western boundary marks the maximum economic limits of the Fimiston Open Pit based on the expected future gold price. It is anticipated that any further mining will be through underground mining methods.

To ensure the continued economic viability of the operation it is important that mining of the Golden Pike Cutback commences no later than 2007. This will allow timely removal of the waste material to enable access to the ore (gold bearing material) at a time when ore production at depth is reduced.

The surface extent of the Golden Pike Cutback is approximately 30 hectares (Figure 3) entirely contained within a perimeter fence constructed by KCGM at the completion of the Bypass Road re-alignment in 2003. The Golden Pike Cutback will not require any additional infrastructure relocation. The land is historically disturbed with some trees and scrub planted by KCGM as part of the “Greening the Golden Mile” environmental program.



Figure 3 – Surface Extent of the Golden Pike Cutback

Environmental Noise Bund Realignment

As part of the noise management for the Golden Pike Cutback, the environmental noise bund will be realigned along the western perimeter of the cutback (Figure 4). Material for construction of this noise bund will be sourced from the existing noise bund and surface waste from the Golden Pike Cutback. Sourcing the bulk of construction material from other operational areas is likely to be uneconomical due to the transportation distances involved.

The realigned environmental noise bund will cover approximately 25 hectares of historically disturbed land that has been revegetated with trees and scrub as part of the “Greening the Golden Mile” environmental program.



Figure 4 – Realigned Environmental Noise Bund

Loopline Tourist Railway

The new Loopline Rail Reserve runs along the western boundary of the proposed realigned environmental noise bund (Figure 5). KCGM has been investigating an opportunity to enable the Loopline Railway to travel along the top of a portion of the new environmental noise bund which will include a relocated Super Pit Lookout.

The Super Pit Tourist Lookout has become a major tourist attraction for the Goldfields with approximately 10,000 visitors per month. It provides visitors with information on KCGM and increases awareness of the KCGM operation and the mining industry as a whole. KCGM has been publicly acknowledged for its commitment to tourism, and was the grateful recipient of the Kalgoorlie-Boulder's Chamber of Commerce & Industry's Tourism Award in 2004.

As a priority, KCGM has been working with the Loopline Society and government authorities to ensure that the realigned noise bund and the concept for the Loopline Railway to run along the top of the bund is given timely approval. This is important to enable the noise bund to be constructed sooner to meet the Loopline Railway construction schedules and prevent further delays.

If it proves feasible to construct the Loopline Railway along the top of the noise bund then this would provide patrons with expansive views of the City of Kalgoorlie-Boulder and the KCGM operations and access to the relocated Super Pit Lookout. This tourism combination will enhance the experience of visitors and become a tourist legacy for the City of Kalgoorlie-Boulder. KCGM will shortly be making available more detailed plans on how the Loopline could climb the noise bund and offer more scenic views for tourists.

KCGM enjoys a close relationship with the Loopline project, donating \$1 million towards realignment costs when part of the original track was removed to allow the Fimiston Open Pit to develop southwards. KCGM continues to work with the Loopline Society to re-establish the Loopline Railway.



Figure 5 – New Loopline Railway Reserve

Safety Exclusion Zone (SEZ)

The Fimiston Open Pit operates with a Safety Exclusion Zone (SEZ) to protect residential properties. In 1991, the Department of Minerals and Energy (now DoIR) determined a 400m wide SEZ which was primarily based on the risk of flyrock from blasting. It also took into account long term pit wall stability although a lesser distance would have been adequate to provide protection from possible subsidence.

The DoIR indicated that the SEZ was to be applied from the outermost row of primary blast holes at any section of the Fimiston Open Pit. Therefore the location of the 400m zone is dependent on the position of blast holes and varies accordingly. However, to enable the SEZ to be incorporated into the Town Planning Scheme (TPS), a standard 400m SEZ was defined from the approved pit outline.

In essence, the TPS ensured that no new residential development was permitted in the SEZ. Since 1992, KCGM has undertaken a programme of passive property acquisition and now owns all residential properties within 400m from the pit outline of the proposed Golden Pike development. In August 2002, the TPS was modified to allow commercial development within the SEZ (requires written support of KCGM or tenement holder).

In 1991, it was foreseen that a westward extension of the pit would eventually require a realignment of the Eastern Bypass Road (which was undertaken in 2003) and that a western cutback would extend the SEZ. However, according to the former State Mining Engineer (and Chairman of the Committee which developed the concept and parameters of the SEZ) it was recognized that the extent of the SEZ could be reviewed based on experience, research and changing mining techniques.

On the basis of more than ten years of experience, the conservative standoff distance of 400m has shown to provide a more than adequate margin of safety for blasting in the Fimiston Open Pit.

KCGM is currently undertaking an investigation into blasting design and modelling of flyrock to generate discussion with key stakeholders on the dimensions and flexibility of a future SEZ. Results of preliminary investigations indicate that a 200m SEZ from primary blast holes would provide adequate protection from flyrock generated from blasting in the Golden Pike Cutback.

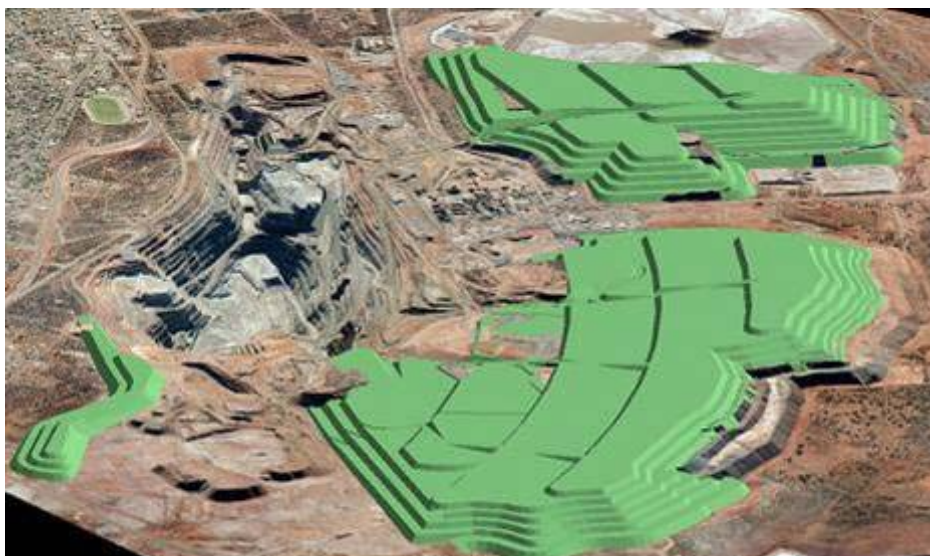
The maximum extent of a potential 200m SEZ would be situated within land currently controlled by KCGM and therefore an amendment to the Town Planning Scheme to extend the SEZ boundary may not be required. It is important to note that the location of the SEZ varies relative to the position of primary blast holes and will move closer to the open pit as mining and blasting get deeper.

For other environmental aspects (such as dust and noise) KCGM has a good track record in the management of environmental risks associated with mining operations adjacent to sensitive land uses. The proximity of the operation to the City of Kalgoorlie-Boulder drives KCGM towards improved transparency and continuous improvement in its environmental management.

KCGM believes that the performance of its operation and management programmes show that a mining operation of this nature can operate in close proximity to a community without adverse impact or the need for a large buffer zone.

1.2.2 Waste Rock Dumps

The Fimiston Waste Rock Dumps (WRDs) were outlined within the *Consultative Environmental Review Mine and Waste Dumps – Fimiston August 1990*, and this project was approved by the Minister for Environment in October 1991. Since that time, there have been modifications to the WRD footprint via the DoIR Notice of Intent process. More recent modifications, in closer proximity to the community, have been approved by the DoIR and the Minister for Environment under Section 45C of the *Environmental Protection Act 1986*. Approved WRD areas are shown in Figure 6. The WRD operations are managed in accordance with the requirements of Ministerial Statement 188 and DoIR tenement conditions.



**Figure 6 – Approved Waste Rock Dumps
(Including Southern Environmental Noise Bund Extension)**

KCGM is currently in the process of seeking approval to extend the WRD southwards behind the recent environmental noise bund extension (Figure 7). A draft Project Plan has been developed and was released for a 6 week stakeholder review period (closed 10 December 2004). A final Project Plan was submitted in January 2005 to both the DoIR and the Minister for Environment for approval under Section 45C of the *Environmental Protection Act 1986*. Approval was received from the DoE/EPA in February 2005. KCGM is currently working with the DoIR to clarify rehabilitation requirements prior to final approval.

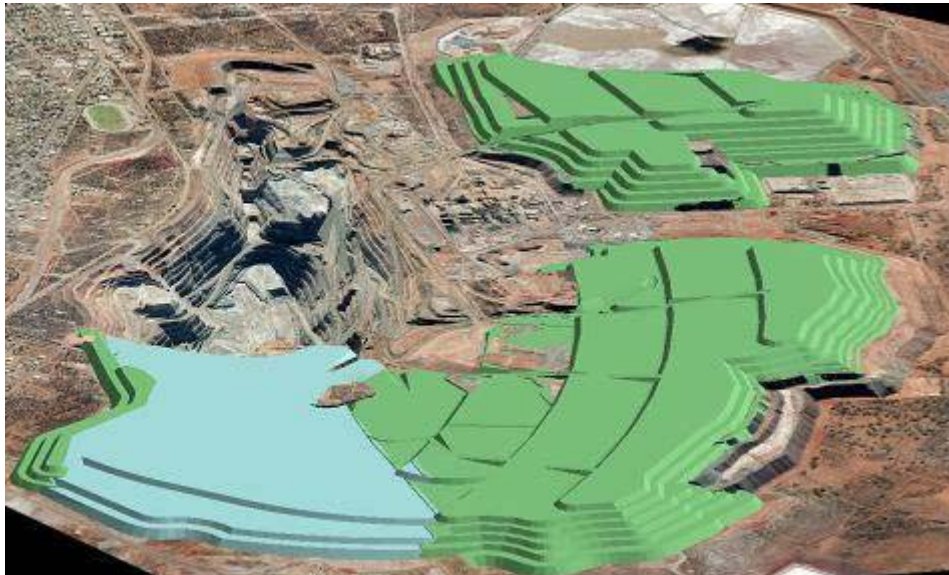
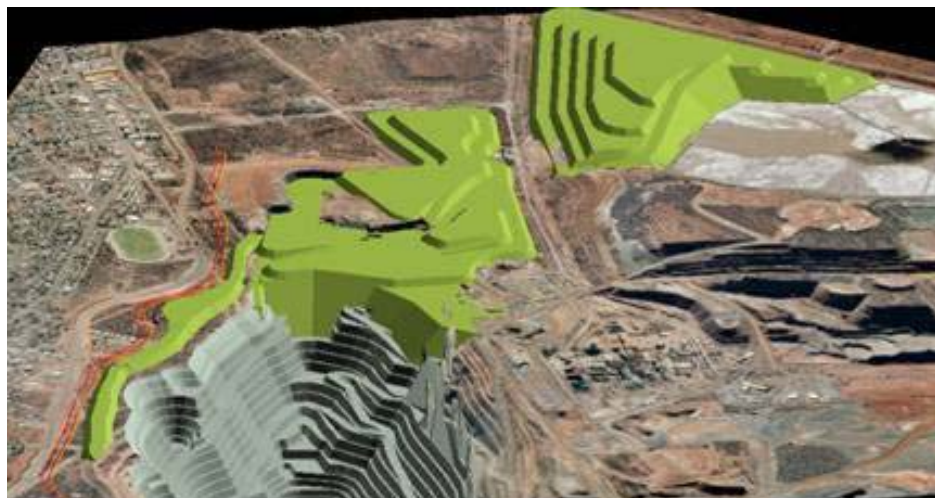


Figure 7 – Southern Central Waste Rock Dump Extension

The total waste movement for KCGM has been calculated at 908 million tonnes. This material will be relocated into WRDs surrounding the eastern, northern and southern sides of the pit as well as internally within parts of the final pit void. To meet the LOM waste dumping requirements additional WRD areas require approval. Additional dumping areas have been identified to the north of the KCGM operation (Figure 8).



**Figure 8 – Northern Waste Rock Dumps Requiring Approval
(Including Realigned Environmental Noise Bund)**

The Northern WRD will cover approximately 114 hectares on historically degraded areas previously rehabilitated by KCGM. Prior to dumping, the topsoil will be recovered and stockpiled to aid in final rehabilitation of the WRDs. It is proposed that construction of the Northern WRDs would occur predominantly with the commencement of the Golden Pike Cutback in 2007. In addition to the WRDs, a significant proportion of the total waste will be dumped into the final open pit.

The waste dump construction and rehabilitation is proposed to occur concurrently with mining. The final dumping configuration is still subject to economic analysis however the maximum WRD footprint will cover a total of 1,627 hectares (Figure 9).

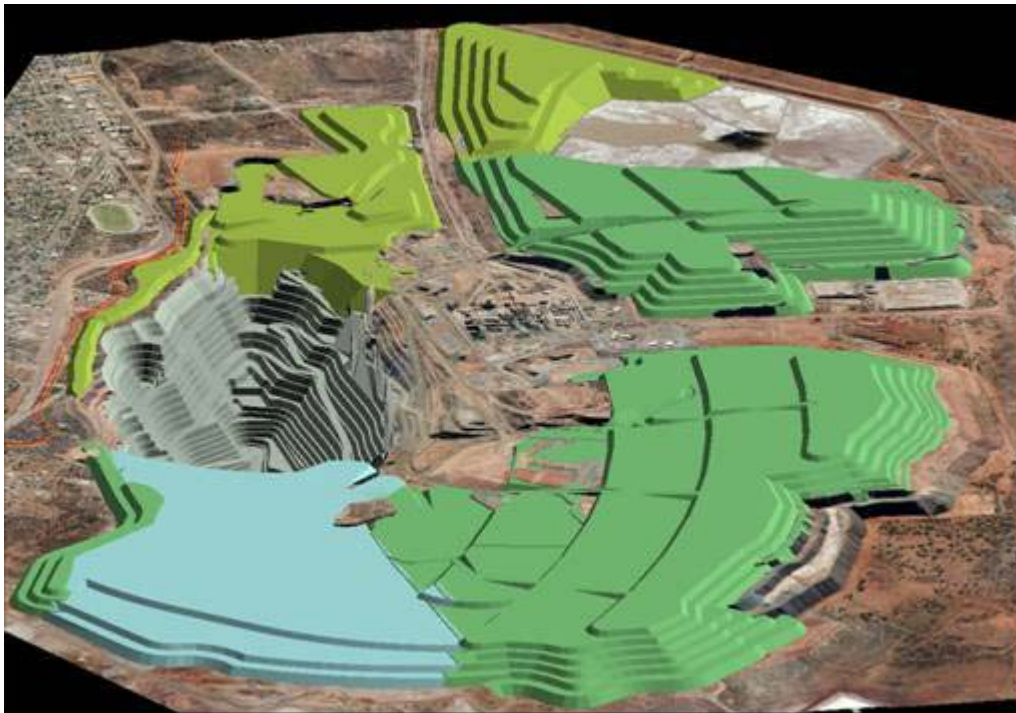


Figure 9 – Proposed Final Waste Dump and Open Pit Landform

1.2.3 Tailings Storage Facilities

KCGM also requires additional tailings storage capacity at Fimiston to meet processing requirements for the current 2012 mine life and the projected 2017 mine life requirements. KCGM currently operates two tailings storage facilities (TSFs) for the Fimiston operation called Fimiston I and Fimiston II. The TSFs store all of the tailings generated from crushing, grinding and leaching of about 14 million tonnes of ore per year to recover some 850 000 ounces of gold. Fimiston I TSF takes about 20% of the tailings with the majority going to Fimiston II.

The Fimiston I TSF is approximately 110 hectares and the Fimiston II TSF is approximately 350 hectares, both are currently approved to a height of 30 metres. Notices of Intent (NOI) for the Fimiston I TSF were submitted in 1987 and 1993; and NOI for the Fimiston II TSF were submitted in 1991 and 1994. All NOI were subsequently approved by the DoIR and DoE and since that time the TSFs have been managed in accordance with the *Environmental Protection Act 1986* Licence conditions for the Fimiston Plant and Tailings Disposal and DoIR tenement conditions.

In July 2003, KCGM submitted an application to the DoE and DoIR to increase the height of the Fimiston I TSF to 40m. This 10m rise will increase the life of the facility by approximately 7 years. In October 2004, an independent review of this height increase was undertaken by Thompson and Brett Consulting Engineers. In November 2004, KCGM prepared a submission regarding this review and have completed all studies recommended by the reviewers.

In January 2005 the Minister for Environment dismissed all appeals against the EPA level of assessment for the Fimiston I TSF height increase stating that the impacts were not considered significant enough to warrant a formal level of assessment and could be managed under Part V of the Environmental Protection Act.

Based on the Minister's decision, the Fimiston I TSF increase will be implemented in a staged manner and KCGM will be required to submit works approval applications for each 2.5m increase. A works approval application for the first stage was submitted in March 2005. In addition the DoE licence conditions will also be modified to require the development and implementation of a Seepage and Groundwater Management Plan. It was also recommended that the DoIR tenement conditions be modified. Formal approval from the DoIR has yet to be received.

If the increase in height for Fimiston I TSF is approved in a timely manner, it has been calculated that the Fimiston II TSF will reach the current approved capacity in about 5 years (end of 2009). Without the Fimiston I TSF height increase, all tailings will be discharged to Fimiston II TSF and it would reach the current approved capacity in about 3 years (end of 2007). Therefore, an increase in the height (to 44m) of Fimiston II TSF is required to meet the tailings disposal requirements of the 2012 mine life. KCGM plans to submit an application for this Fimiston II TSF height increase in the near future.

To meet tailings storage requirements for the proposed 2017 mine life, further tailings storage capacity will be required (in addition to the 10m height increase of Fimiston I and II TSFs). Studies are underway to identify possible options. KCGM has already identified an opportunity to recommission the existing Kaltails TSF. The use of Kaltails TSF would avoid the need for a new TSF to be built on undisturbed land and hence reduce the impact on the natural environment. Additionally, the infrastructure (roads, decant ponds) associated with a TSF are already present at Kaltails further minimising impacts. The recommissioning of Kaltails with a height increase to 40m would be sufficient to accommodate the additional tailings discharge.

A review of the Kaltails option is currently being undertaken, however if it is found to be unfeasible KCGM would be required to construct an additional TSF. A Fimiston III TSF would be approximately 150 hectares in size. Other options such as in pit tailings disposal have been investigated however there are no nearby open pits of sufficient size to store all of the additional tailings. Figure 10 shows the location of the Fimiston I, Fimiston II and Kaltails TSF and the conceptual Fimiston III TSF.



**Figure 10 – Tailings Storage
Facility Locations**

1.3 Timing and Stages of the Project

The Project will be separated into three stages with each stage being a major component of the Fimiston Project. The staged approval process will assist KCGM to meet current and future operational requirements in a structured a timely approach.

Stage of the Project	Approval Process	Approval Timing
Stage 1 Environmental Noise Bund and Loophline Realignment	DoIR Notice of Intent EP Act Section 45c Variation Possible Town Planning Scheme (TPS) Amendment Railway Reserve	October 2005
Stage 2 Fimiston II TSF Height Increase	DoIR Notice of Intent DoE Works Approval DoE Licence	December 2005
Stage 3 Golden Pike Cutback Northern Waste Dumps Fimiston III or Kaltails TSF	DoIR Notice of Intent EP Act Section 38 or 46 Variation Possible TPS Amendment Safety Exclusion Zone (SEZ) DoE Work Approval DoE Licence	September 2006

1.4 Site and Locality Plans

To assist in understanding the proposal and its setting in relation to the surrounding environment, plans of the existing environment and proposed development are provided in Appendix 1.

These plans include:

- Existing infrastructure;
- Main roads;
- Urban Centres;
- Cultural heritage sites;
- Hydrological features;
- Land contours;
- Extent of potential native vegetation clearing; and
- Extent of the proposed development.

2 Proponent Consultation

KCGM has undertaken extensive consultation with key stakeholders and has also developed a comprehensive communication plan in line with current DoE guidelines.

In December 2004, KCGM developed and launched the “KCGM Concept Plan” which essentially outlined the process and vision for achieving what we believe could be the final pit outline in 2017. Earlier in the year, KCGM undertook a comprehensive Social Impact Assessment in 2004, the results of which are available on the super pit website: www.superpit.com.au.

KCGM utilises a number of ongoing mechanisms that facilitate consultation, and effectively capture community feedback.

TOOLS	DESCRIPTION
Public Interaction Line	KCGM has a 24 hour, 7 day a week Public Interaction Line (PIL) which is available to record stakeholders queries and track responses.
Community Reference Group	A self-selected group of local community members and invited guests from the DoE and DoIR. Meets monthly to discuss current KCGM planning and feedback from the community.
Super Pit Website	KCGM publishes all project plans and reports on the Super Pit website which also has a feedback mechanism direct to the PR Coordinator. Web, phone and personal feedback is incorporated into PIL reporting.
The Dirt (Internal Newsletter)	A bi-monthly employee/contractor newsletter which is also posted on the Super Pit website. Major issues are captured and reported both internally and externally.
News & Views	Public Quarterly publication distributed to all KB households (13,000 copies)
KCGM Concept Plan	Essentially an embodiment of the KCGM vision for the future, this continually evolving document offered a "first take" of approval plans required.
Presentations	"What's Down the Track" graphically illustrates the current vision for KCGM's future, including the proposed final pit shell. This presentation has been also updated for targeted audience issues.
Direct Letter Drops	KCGM has a round of near neighbour routes for blast notification, which can also be utilised for direct communications. This is in addition to identified target stakeholder groups ie. SEZ
Super Pit Shop Front	The KCGM Super Pit Shop operates as a public shopfront for queries on future approvals (open 9am-5pm Monday to Friday).
Information Sessions	With the opening of a public shopfront, KCGM has the opportunity to conduct information sessions as needed on issues as, and if, they arise.
Surveys	KCGM sponsored a poll telephone survey of the local community to discover any environmental concerns with the operation. Web based surveys will also be utilised to get opinion from employees and key stakeholder groups on an as needs basis. Door to door or postal surveys will be conducted on an as needs basis. Surveys at displays or open days may be conducted.

To date KCGM has completed the following direct consultation regarding approvals:

- Social Impact Assessment (May 04)
- Presentations on KCGM's Future and Approvals to key groups including Mine Expo, Rotary, AusIMM, City and Regional Development (Oct 04 – ongoing)
- Meeting with key State Government representatives (Oct 04 – ongoing)
- Release of the KCGM Concept Plan (Dec 04)
- Attitudinal Phone Survey on KCGM (Dec 04)
- "News & Views" Newsletter to all Kalgoorlie-Boulder households
- Presentation to City of Kalgoorlie-Boulder All Purposes Committee
- Meeting with Local Government (DIA & DoE representatives)
- Meeting with City of Kalgoorlie-Boulder CEO & Mayor
- Key stakeholder interviews with SEZ near neighbours (Mar/Apr 05)
- Mail out to identified SEZ neighbours (approx 400 – Mar 05)
- Ongoing Community Reference Group meetings (monthly)

Media Reporting

- **22 October 04 "KCGM looks to go under Super Pit"** Kalgoorlie Miner.
- **23 December 04 6KG Radio Interview;** Jess Ciantar (PR Officer) Concept Plans available at Super Pit Shop.
- **4 January 05 "Super Pit Plans to 2017"** Kalgoorlie Miner.
- **14 January 05 "KCGM Releases Concept Plan"** Golden Mail.
- **13 January 05 6KG Radio Interview;** Danielle van Kampen (PR Coordinator) Concept Plans available at Super Pit Shop.

Indigenous Stakeholders

KCGM has a good working relationship with the Ninga Mia community, and has also offered to present to the Goldfields Land & Sea Council on future plans. The KCGM Community Reference Group also has representation from the Indigenous Coordination Centre (ICC). The DoIR is also represented on the CRG through their Goldfields Liaison Officer for Land Access, Tenure & Native Title.

Key Issues Raised

For the most part, KCGM is simply operating "business as usual" however the company aims for continuous improvement in all aspects of its operations. KCGM will continue to consult with stakeholders regarding this project and to review plans or management practices based on feedback. KCGM has current management procedures (recently revised) that address the main issues in regard to the operations.

Issue Raised	Response
Noise and Vibration	KCGM has a comprehensive Noise and Vibration Monitoring and Management Plan (revised 2004) that is publicly available at www.superpit.com.au or by request.
Dust	KCGM has a comprehensive Dust Monitoring and Management Plan (revised 2004) that is publicly available at www.superpit.com.au or by request.

As KCGM progresses public consultation, there could come to light additional issues that will be addressed as part of ongoing consultation (of which this document forms a part), and will be reported in the final approval documentation.

3 Land Details

3.1 Site Description

Details regarding location of the project areas are provided in the table below:

Project Area	Centroid Co-ordinates (MGA51 - Easting, Northing)	Land Parcel Identification Numbers
Golden Pike Cutback	356,148; 6,594,318	691,287; 691,077; 691,112; 691,012; 691,013; 11,292,106; 11,292,112
Environmental Noise Bund / Loopline	355,911; 6,594,639	11,292,092; 691,287; 11,292,101; 11,292,119; 21,292,106; 11,292,112
Northern Waste Dumps	356,389; 6,597,631 356,049; 6,596,327	11,215,027; 691,341; 691,363; 691,365; 691,366
Fimiston II TSF	360,712; 6,597,137	693,037; 693,042; 693,035; 693,025; 693,030
Fimiston III TSF	362,348; 6,596,167	1,164,516; 693,037; 693,042; 693,035
Kaltails TSF	362,572; 6,591,885	692,893; 1,186,898

3.2 Ownership

The project areas are located on land owned by the State of Western Australia in crown reserves or vacant crown land. Tenements are held by KCGM Joint Venture Owners, Barrick Gold of Australia Ltd (50%) and Newmont Australia Ltd (50%) with the exception of Kaltails. Specific details regarding ownership and tenure are provided in Section 3.3.

Tenure over the Kaltails TSF was granted via the *Tailings Treatment (Kalgoorlie) Agreement Act 1988* which provided for the establishment of two General Purpose Leases, G 1 SA and G 2 SA. These leases are held in joint venture by Newmont Kaltails Pty Ltd (90%) and the Western Australian Mint (10%). The DoIR have recently advised that the Agreement would need to be determined prior to DoIR allowing the leases (G 1 SA and G 2 SA) to be transferred.

3.3 Tenure

Details regarding land tenure and mining tenements the project area are provided in the table below:

Project Area	Land Type / Mining Tenement	Ownership / Lessee
Golden Pike Cutback	Vacant Crown Land M26/316 M26/359 M26/388 M26/405	State of WA Barrick Gold of Australia Ltd (BGAL)/Kalgoorlie Lake View(KLV) BGAL/North Kalgurli Mines Pty Ltd (NKMPL) BGAL / KLV BGAL / KLV
Environmental Noise Bund / Loopline	Vacant Crown Land Freehold (minor amount) M26/316 M26/359 M26/388 M26/405	State of WA KCGM BGAL/ KLV BGAL/ NKMPL BGAL / KLV BGAL / KLV

Project Area	Land Type / Mining Tenement	Ownership / Lessee
Northern Waste Dumps	Crown Reserve / Vacant Crown Land M26/46 M26/131 M26/359 M26/383	State of WA BGAL / Newmont GRPL BGAL / KLV BGAL / NKMPL BGAL / NKMPL
Fimiston II TSF	Crown Reserve / Vacant Crown Land M26/308 M26/451 G26/44-68 G26/71,73-86	State of WA BGAL / KLV BGAL / NKMPL BGAL / NKMPL BGAL / NKMPL
Fimiston III TSF	Crown Reserve / Crown Lease M26/451 M26/308	State of WA BGAL / NKMPL BGAL / KLV
Kaltails TSF	Crown Reserve / Vacant Crown Land G 1 SA and G 2 SA	State of WA Newmont Kaltails (90%) / WA Mint (10%)

KCGM is the management company of the Kalgoorlie operations for the Joint Venture Owners, Barrick Gold of Australia Ltd (50%) and Newmont Australia Ltd (50%). The following tenement owners (shown above) are subsidiaries of Newmont Australia Ltd:

- Kalgoorlie Lake View (KLV);
- North Kalgurli Mines Pty Ltd (NKMPL);
- Newmont GRPL; and
- Newmont Kaltails.

3.4 Zoning

The City of Kalgoorlie-Boulder Town Planning Scheme No 1 designates the tailings storage facilities and waste dumping areas as rural areas. The environmental noise bund and Golden Pike Cutback are located in the area designated as safety exclusion zone, with some general industrial and residential zoning within the noise bund footprint (properties owned by KCGM).

The Fimiston Open Pit operates with a Safety Exclusion Zone (SEZ) to protect residential properties. In 1991, the Department of Minerals and Energy (now DoIR) determined a 400m wide SEZ which was primarily based on the risk of flyrock from blasting. It also took into account long term pit wall stability although a lesser distance would have been adequate to provide protection from possible subsidence.

The DoIR indicated that the SEZ was to be applied from the outermost row of primary blast holes at any section of the Fimiston Open Pit. Therefore the location of the 400m zone is dependent on the position of blast holes and varies accordingly. However, to enable the SEZ to be incorporated into the Town Planning Scheme (TPS), a standard 400m SEZ was defined from the approved pit outline. The SEZ was gazetted in April 1997 in the City of Kalgoorlie-Boulder Town Planning Scheme No 1 (Figure 11).

In essence, the TPS ensured that no new residential development was permitted in the SEZ. Since 1992, KCGM has undertaken a programme of passive property acquisition and now owns all residential properties within 400m from the pit outline of the proposed Golden Pike development. In August 2002, the TPS was modified to allow commercial development within the SEZ (requires written support of KCGM or tenement holder).



**Figure 11 – Town Planning Scheme
Fimiston Open Pit Safety Exclusion Zone**

In 1991, it was foreseen that a westward extension of the pit would eventually require a realignment of the Eastern Bypass Road (which was undertaken in 2003) and that a western cutback would extend the SEZ. However it was recognized that the extent of the SEZ could be reviewed based on experience, research and changing mining techniques.

On the basis of more than ten years experience, the conservative standoff distance of 400m has shown to provide a more than adequate margin of safety for blasting in the Fimiston Open Pit.

KCGM is currently undertaking an investigation into blasting design and modelling of flyrock to generate discussion with key stakeholders on the dimensions and flexibility of the SEZ going forward. Results of preliminary investigations indicate that a 200m SEZ from primary blast holes would provide adequate protection from flyrock generated from blasting in the Golden Pike Cutback.

The maximum extent of a potential 200m SEZ would be situated within land currently controlled by KCGM and therefore an amendment to the Town Planning Scheme to extend the SEZ boundary may not be required (Figure 12). The potential 200m SEZ will provide an adequate buffer for geotechnical stability of the open pit walls, abandonment bunding and mining activity near occupied premises. It is important to note that the SEZ for flyrock varies according to the position of primary blast holes and will move closer to the open pit as mining and blasting get deeper.



Figure 12 – Maximum 200m SEZ

The new Loopline Rail Reserve runs along the western boundary of the proposed realigned environmental noise bund. KCGM is currently investigating an opportunity to enable the Loopline Railway to travel along the top of a portion of the new environmental noise bund which will include a relocated Super Pit Lookout. This may require a minor adjustment to the Rail Reserve to reflect the final location of the Loopline

3.5 Land Use

The vast majority of land upon which the projects are proposed is Crown Land (designated as Vacant Crown Land), owned by the State of WA. Land use over the past 100 years has primarily been for mining and many areas have previously been rehabilitated by KCGM to reduce dust and improve visual amenity. A small amount of land has Freehold title, which is owned by KCGM. Mining and residential areas have always been in close proximity in the City of Kalgoorlie-Boulder and it is not feasible to move either the ore body or all of the closer residences.

KCGM has successfully undertaken its operations with a buffer framework since development of the project in 1989, and is very aware of its profile as the largest open pit gold mine in Australia bordering the City of Kalgoorlie Boulder. The company is conscious of the additional social responsibility this position imposes with regards to mitigating potential impacts of its operation on the community.

KCGM has a good track record in the management of environmental risks associated with mining operations adjacent to sensitive land uses. Detailed dust, noise and vibration monitoring and management plans have been implemented and recently reviewed and approved by the EPA.

The proximity of the operation to the City of Kalgoorlie-Boulder drives KCGM towards improved transparency and continuous improvement in its environmental management. KCGM will continue to consult with stakeholders regarding this project and to review plans or management practices based on feedback.

KCGM believes that the performance of its operation and management programmes show that a mining operation of this nature can operate in close proximity to a community without adverse impact or the need for a large buffer zone.

4 Potential Impacts and How They Will Be Addressed

ISSUE	POTENTIAL IMPACTS	HOW POTENTIAL IMPACTS WILL BE ADDRESSED
4.1 Flora and Vegetation	No rare flora, site historically degraded and revegetated. Temporary loss of rehabilitated vegetation. If Fimiston III TSF is required, an area of approximately 150 hectares would require clearing. The area is typical of vegetation in the Goldfields Region and the vegetation is represented in areas outside the proposed footprint.	Minimise clearing where possible. Re-establishment of vegetation through the progressive rehabilitation programme.
4.2 Fauna	No rare fauna, site historically degraded. Limited fauna habitats in revegetated area. Temporary loss of habitat areas.	Minimise clearing where possible. Re-establishment of fauna habitats through progressive rehabilitation programme.
4.3 Broader Environmental Impacts	No impact on values, ecology, environmental corridors or fire in the Goldfields region.	Minimise clearing where possible. Re-establishment of flora and fauna habitats through progressive rehabilitation programme.
4.4 Environmentally Sensitive Areas	Impact on vegetation in a CALM reserve near the Kaltails TSF.	Current groundwater monitoring and seepage management practices will be reviewed as part of the development of a long-term Seepage and Groundwater Management Plan. This plan will be modified to incorporate the Kaltails or alternative Fimiston III TSF.
4.5 Marine and Coastal	Not Applicable.	Not Applicable.
4.6 Water	Long term water consumption.	Efficiency strategies are in practice with a focus on continuous improvement. Water from TSFs are captured and re-used to the maximum extent possible.

ISSUE	POTENTIAL IMPACTS	HOW POTENTIAL IMPACTS WILL BE ADDRESSED
	Deterioration of water quality and a rise in groundwater levels from TSF seepage.	Current groundwater monitoring and seepage management practices will be reviewed as part of the development of a long-term Seepage and Groundwater Management Plan.
4.7 Emissions	<p>No significant increase in Greenhouse Gas emissions but will occur over a longer period.</p> <p>Noise and vibration from blasting, haulage of ore and waste, use of mining equipment and construction of environmental noise bund.</p> <p>Dust from blasting, haulage of ore and waste, use of mining equipment and construction of environmental noise bund</p> <p>Flyrock from blasting.</p>	<p>Strategies for reduction of emissions included during planning e.g. short haul of waste rock.</p> <p>Offsets through re-establishment of vegetation through progressive rehabilitation programme.</p> <p>Environmental noise and blasting acoustic assessments are being undertaken by external consultants.</p> <p>Managed through the existing <i>Revised Noise and Vibration Monitoring and Management Programme, June 2004</i>.</p> <p>Managed through the existing <i>Revised Dust Monitoring and Management Programme June 2004</i>.</p> <p>Modelling of blasting flyrock and risk assessment being undertaken by external consultants.</p>
4.8 Waste Storage or Disposal	No change in impacts. All waste will be disposed offsite by a licensed contractor.	Managed under existing site waste management programme and DoE Licence and Regulation requirements.
4.9 Soils	Exposure of potentially acid generating material (This comprises less than 5% of total waste rock removed).	Potentially acid generating material is strategically placed within the waste rock dump and intermixed with dolerite waste which has a neutralising effect on any acid that may be generated.
4.10 Geotechnical	<p>Long-term stability of open pit wall.</p> <p>Long-term stability of waste rock dumps.</p>	<p>Slope stability assessment of the Golden Pike Cutback has been undertaken. Detailed investigations are being undertaken internally.</p> <p>Geotechnical review of abandonment bunding being undertaken by external consultants.</p> <p>Pit wall monitoring through autoprism 24 hour monitoring system.</p> <p>Waste dumps are created and shaped to final designs by adhering to DoIR specifications to reduce erosion of the dump that may affect its long-term stability and integrity.</p>

ISSUE	POTENTIAL IMPACTS	HOW POTENTIAL IMPACTS WILL BE ADDRESSED
	Long-term stability of tailings storage facilities.	Annual independent geotechnical reviews of the Fimiston TSFs are undertaken and reports provided to the DoIR. Any recommendations are addressed as appropriate. Annual review would extend to the Kaltails or alternative Fimiston III TSF.
4.11 Safety	No change in impacts through the transportation, handling and storage of dangerous goods or hazardous substances.	KCGM has a number of existing approvals under the <i>Explosives and Dangerous Goods Act 1961</i> . These licences are maintained and updated in accordance with the requirements of the Act.
4.12 Heritage	No ethnographic or archaeological sites will be disturbed.	Ensure heritage is considered at all stages of planning and during operational activities.
4.13 Social Surrounds	May be an impact on public access to the Super Pit Lookout during decommissioning and construction. Long-term increase in recreational use expected with proposed Loopline Railway and Tourist Lookout on top of a section of the environmental noise bund.	KCGM will be investigating construction options to minimise the time when a Lookout may be unavailable. Comprehensive geotechnical, safety and risk analysis for the construction of the noise bund and associated facilities will be undertaken.
4.14 Transport	Increase in traffic flow along Johnston Street East to access relocated Tourist Lookout. No other changes in public access and mine haulage confined to current operational areas.	KCGM will work with the City of Kalgoorlie-Boulder and Main Roads WA regarding this modification to ensure all design requirements are met.
4.15 Closure Planning/ Decommissioning	No formal public closure plan has been developed.	Re-establishment of vegetation occurs through the progressive rehabilitation programme. Community consultation will be a key part of the development of a closure plan.

4.1 Flora and Vegetation

The project area lies within the Coolgardie Botanical District's Coolgardie Vegetation System, in the southwest interzone, the vegetation of which has been mapped at a scale of 1:250,000 (Beard 1972). On this map, Beard shows the pre-disturbance natural vegetation as sclerophyll woodland, although the area has long been cleared. Extensive timber cutting occurred in the Kalgoorlie region at the turn of the century for mineshaft supports and for firewood.

A specific ground search was undertaken in 1994 (Muir Environmental) for Gazetted Rare Flora and Fauna. *Eucalyptus brachyphylla* and *Eucalyptus kruseana* have been recorded in surveys of the region, however these species are characteristic of granite complexes which are not represented in the vicinity of the project area. No other species of note were identified from these investigations. The proposed project sites are on previously rehabilitated areas.

There are numerous exotic weed species in the Goldfields area. These are likely to have been introduced and colonised areas degraded by historical mining, pastoral and urbanisation activities. The progressive establishment of native vegetation in many historically disturbed areas is assisting to control the spread and reduce quantities of exotic weeds.

Approximately 169 hectares of previously rehabilitated areas will require clearing for the realignment of the environmental noise bund, waste rock dumps and the Golden Pike cutback. No additional clearing will be required for the increase in height of the Fimiston II TSF and recommissioning on the Kaltails TSF.

If it is determined that a Fimiston III TSF is required, an area of approximately 150 hectares would require clearing. A recent flora study has shown that the area selected as most suitable for a third TSF is typical of vegetation in the Goldfields Region and the vegetation is adequately represented in areas outside the proposed footprint area.

4.2 Fauna

A specific ground search was undertaken in 1994 (Muir Environmental) for Gazetted Rare Flora and Fauna. In the region, Gazetted Rare Bird species include the Peregrine Falcon (*Falco peregrinus*), Grey Falcon (*Falco hypoleucos*), Pink (or Major Mitchell's) Cockatoo (*Cacatua leadbeadbeateri*), Naretha Blue Bonnet (Parrot) (*Northiella haemotogaster narethae*) and the Crested Shrike-tit (*Falcunculus frontatus*). Two gazetted pythons have also been considered to possibly occur in the Kalgoorlie region. These are the Woma or Ramsays Python (*Aspidites ramsayi*) and the Carpet Python (*Morelia spilota imbicata*).

The area under the control of and surrounding the KCGM operations has been degraded by historical mining, pastoral and urbanisation activities. The degradation has included disturbance and alteration of the ground surface, erosion by water and wind, revegetation programs and recreational activities. These activities have resulted in the disruption or removal of fauna habitats from KCGM operations and the City of Kalgoorlie-Boulder.

Records of the Western Australian Museum indicate that most mammals occurring in the vicinity of the KCGM operations are both common and widespread. In addition, there have not been any reports of collections or sightings of rare species in or around Kalgoorlie for many decades.

4.3 Broader Environmental Impacts

This proposal will not impact on the broader biodiversity values, ecology or environmental corridors in the Goldfields Region. The proposed footprint areas for the open pit and waste rock dumps are historically disturbed mining areas which have been previously rehabilitated by KCGM using typical vegetation in the Goldfields Region.

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The proposal to increase the height of the Fimiston I and II TSFs and the recommissioning of the Kaltails facility will not require any additional disturbance. If the construction of an additional TSF is required then additional clearing will be necessary. A recent flora study has shown that the area selected as most suitable for a third TSF is typical of vegetation in the Goldfields Region and the vegetation is adequately represented in areas outside the proposed footprint area.

There will be no increased potential for fire as a result of this proposed project.

4.4 Environmentally Sensitive Areas

There will be no impacts on any environmentally sensitive areas of regional or global significance. Locally, the Kaltails TSF is located near the Lakeside Miscellaneous Conservation Reserve (No 19214). This reserve, which was declared in 1957, is managed by the Department of Conservation and Land Management (CALM) for the preservation of sandalwood (*Santalum spicatum*). The state distribution of sandalwood is wide; at least seven other reserves in the Kalgoorlie region have similar vesting and designation. The sandalwood in the Lakeside Reserve is not considered to be of exceptional quality, but the reserve is the closest to Kalgoorlie.

A key aspect of the KCGM groundwater management programme is the protection of vegetation from rising groundwater levels. KCGM has a comprehensive monitoring program incorporating a network of groundwater production bores to monitor and control groundwater quality and levels influenced by seepage from Fimiston I and Fimiston II TSFs. KCGM will be working with the DoE to review groundwater monitoring requirements and develop and implement a Seepage and Groundwater Management Plan, which would initially apply to the Fimiston I and II TSFs and extended to cover the Kaltails TSF or alternative Fimiston III TSF if approved.

This proposal will not require referral to the Commonwealth under the *Environmental Protection and Biodiversity Conservation Act 1999*. This project will not impact on any areas of world or national heritage, wetlands, threatened or migratory species, marine environment or nuclear activities.

4.5 Marine and Coastal

Not Applicable.

4.6 Water

This project is unlikely to change the existing water supply or consumption for KCGM operations. On average, KCGM uses 12,175 megalitres of water each year consisting of saline and potable water.

Potable water use equates to approximately 12% and is obtained from the Kalgoorlie water supply system. The remaining 88% is saline water that is sourced from groundwater bores and water recycled and recovered from aspects of the operation. Groundwater abstraction is undertaken in accordance with existing Groundwater Well Licences for the operation.

KCGM have focused on strategies to improve water efficiency throughout the operation. Approximately 50% of saline water is recycled from the TSFs and the underground operation and re-used within the processing plant. By maintaining and improving the capacity for water re-use, KCGM will reduce its reliance on borefield abstraction and use of potable water from the Kalgoorlie water supply scheme. The additional five years of operation is not expected to increase the pressure on water resources within the region.

4.6.1 Fimiston Open Pit

Dewatering of the Golden Pike Cutback and the larger Fimiston Open Pit will be undertaken as per current practices and procedures. Water levels in the pit are maintained at lowest possible levels to assist pit wall stability and to enable mining of the pit floor. All water abstracted through dewatering will be supplemented to the process water supply or utilised for dust suppression throughout the operation.

4.6.2 Waste Rock Dumps

The location of Waste Rock Dumps will not obstruct or interfere with any watercourse or drainage area. To minimise erosion on outer faces and water runoff a number of water management strategies will be implemented.

- Faces will be battered to a slope of about 14°. This slope-angle will minimise erosion effects particularly after a vegetative cover has been established;
- The upper lift will be battered to 20° to mimic the topography of greenstone hills that are found in the region;
- A berm will be installed between each lift with a windrow placed on the outer edge. To control horizontal water flow a series of bunds will be installed perpendicular to the contour to form compartments along the berm;
- A toe drain will be installed at the base of the dump to capture runoff and minimise sheet water flows;
- All ripping on site will be undertaken to a nominal depth of 1m. Winged ripping tyres will further enhance soil mounding, to control runoff and maintain moisture along the contour.
- The establishment of vegetation will assist to stabilise the dump surface and reduce impacts from long term erosion.

4.6.3 Tailings Storage Facilities

A raise in the height of Fimiston I, Fimiston II and Kaltails TSFs or an alternative Fimiston III TSF is not anticipated to increase impacts on water levels and quality surrounding the TSFs. KCGM believes that current groundwater quality in the region shows the "Beneficial Use" of the groundwater is being protected. The DoE has acknowledged this through its commendations of groundwater management controls.

KCGM has a comprehensive monitoring program incorporating a network of groundwater production bores to monitor and control groundwater quality and levels influenced by seepage from Fimiston I and Fimiston II TSFs.

KCGM conducts a monitoring and reporting program in accordance with the operating strategy and DoE licence for these facilities. As part of this operating strategy, additional production bores are installed in the borefield where monitoring indicates further drawdown of the water table is required. This operating strategy will continue to be implemented.

In January 2005 the Minister for Environment dismissed all appeals against the EPA level of assessment for the Fimiston I TSF height increase stating that the impacts were not considered significant enough to warrant a formal level of assessment and could be managed under Part V of the Environmental Protection Act.

Based on the Ministers decision KCGM will be working with the DoE to review groundwater monitoring requirements and develop and implement a Seepage and Groundwater Management Plan, which would initially apply to the Fimiston I and II TSFs and extended to cover the Kaltails TSF or alternative Fimiston III TSF if approved.

4.7 Emissions

4.7.1 Gaseous

Newmont Pty Ltd, one of the joint owners of the KCGM operation is signatory to the "Global Greenhouse Challenge" and KCGM routinely reports greenhouse emissions to Newmont. Greenhouse gas emissions are monitored and reported through the National Pollutant Inventory (NPI) process on an annual basis from all aspects of the operation.

The extension of mine life for an additional five years will consequently extend the period of greenhouse gas emissions. There will be no significant annual increase in plant throughput, power consumption or blasting, which are all primary factors that influence KCGM's rate of greenhouse gas emissions.

Strategic planning of the project has enabled waste haulage distances to be reduced thereby reducing greenhouse gases generated by diesel consumption. Waste dumps will be located close to the Fimiston Open Pit with a portion being backfilled into the northern end of the pit.

KCGM has also converted to the use of gas power rather than coal which has reduced annual greenhouse gas emissions. KCGM has a progressive rehabilitation program that provides important offsets for emissions from the re-establishment of native vegetation.

4.7.2 Noise and Vibration

Noise and vibration emissions are primarily generated from blasting activities, haulage of ore and waste, the use of mobile equipment such as drills and excavators, and ore crushing processes. They have the potential to impact on the residences in close proximity to the KCGM operation.

Emissions from these sources are controlled and managed through the *Revised Noise and Vibration Monitoring and Management Programme June 2004*. Through implementation of this programme, KCGM commits to undertake all reasonable, practicable and safe measures to minimise noise and vibration emissions from its operations.

Noise and vibration management practices have been developed using site specific modeling and actual data from KCGM to predict, assess and map emission levels. KCGM is currently undertaking additional modeling of noise and blast emissions for the Golden Pike Cutback, realignment of the environmental noise bund and construction of the WRDs and will modify management practices where appropriate.

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With the close proximity of neighbours to the mining operations in the Chaffers cutback, special blasting techniques and tools were employed by KCGM to minimise the potential impacts from surface blasting, such as vibration, noise and flyrock.

Techniques utilised included the introduction of electronic detonators and modified timing regimes and firing directions. These were used in conjunction with vibration modelling software that enabled KCGM to simulate vibration levels prior to blasting.

As a result KCGM blasting engineers now have more control and flexibility to limit the undesirable side effects from surface blasting. The lessons learnt during the Chaffers cutback will form the foundations for blast management in the Golden Pike cutback.

Based on previous noise modeling and assessment work, KCGM has the following strategies to minimise noise emissions from its mining and mineral processing activities in Kalgoorlie-Boulder.

- Ensuring the quietest equipment available is used;
- Endeavouring to fit all mobile equipment with “smart alarms”. Smart alarms adjust the noise level of the alarm depending on the background noise level i.e. the quieter the environment, the quieter the alarm;
- Restrict the use of equipment for the environmental noise bund construction to the hours of 7am to 7pm Monday to Saturday and not on Sunday or public holidays;
- All contractors and staff involved with the project will undertake a site-specific induction to raise awareness including the importance of noise and vibration control;
- Noise monitoring; and
- Ongoing consultation with stakeholders to determine the success of the noise and vibration management practices.

Noise levels associated with this proposal will aim to comply with the *Environmental Protection (Noise) Regulations 1997* and Ministerial standards specific to KCGM operations. The effectiveness of the Noise and Vibration Management and Monitoring Programme is continually gauged by monitoring and feedback received through the 24hr Public Interaction Line at KCGM.

4.7.3 Dust

Dust generated from blasting of the Golden Pike Cutback, construction of the noise bund and waste dumps will be managed and controlled under the existing *Revised Dust Monitoring and Management Programme June 2004*. The important thing to note is activities described in this project are for the most part “business as usual”, however where appropriate management strategies will be reviewed and updated as required.

Through implementation of this programme, KCGM commits to undertake all reasonable, practicable and safe measures to minimise dust emissions from its operations.

KCGM owns and operates a network of high volume dust monitors. Three are located in close proximity to the Fimiston Open Pit which monitor potential blasting dust. These dust monitors are operated every day when blasting from 9:00am to 6:00pm as blasting is only carried out between 9:00am to 5:30pm. Dust monitors are calibrated every six weeks in accordance with manufacturers' requirements. The need for additional dust monitors for this project is currently being evaluated.

Dust management for mining the Golden Pike Cutback, realignment of the environmental noise bund, construction of waste dumps and general operations will incorporate the following practices:

- Progressive rehabilitation to minimise exposed areas;
- Monitoring of current and forecast wind conditions using daily forecasts and real time wind speed and direction information;
- Use of water trucks and water cannons in areas that could produce dust. Fresh water will be used on areas to be rehabilitated;
- Visual inspections for dust formation on a regular basis;
- Use of additional dust control measures (i.e. a dust binding agent);
- Suspending work as deemed necessary from inspections, public feedback or prevailing wind conditions;
- All contractors and staff involved with the project will undertake a site-specific induction to raise awareness including the importance of dust control;
- Dust monitoring; and
- Ongoing consultation with stakeholders to determine the success of the dust management practices.

Dust management for the construction and rehabilitation of the environmental noise bund is of primary importance due to the close proximity of near neighbours and the nature of the material used. Management strategies to ensure effective dust control are currently being utilised for the construction of the southern noise bund extension (commenced in August 2004) and have been successful to date.

As part of the continuous improvement programme at KCGM, an opportunity to improve water truck efficiency was recently identified and actioned. The water trucks make regular trips into the open pit to reduce dust from haul roads, working mine faces and blasted shots. On average it took 22 minutes to refill one of the water trucks with a capacity of 150,000 litres from the holding tank. An idea to increase the diameter of the discharge pipe has been actioned and trials show it now takes only 3 minutes to fill the largest water truck (Figure 12). This improvement provides the opportunity to increase overall water truck productivity (increase in available watering time).



**Figure 12 - Continuous Improvement
Faster Filling of the Water Trucks**

4.7.4 Sensitive Premises

The Fimiston Open Pit operates with a Safety Exclusion Zone (SEZ) to protect properties in close proximity to the Fimiston Open Pit. In 1991, the Department of Minerals and Energy (now DoIR) determined a 400m wide SEZ which was primarily based on the risk of flyrock from blasting. It also took into account long term pit wall stability although a lesser distance would have been adequate to provide protection from possible subsidence.

Properties within this SEZ include light industrial and residential properties, with KCGM owning all residential properties within 400m of the proposed Golden Pike development.

Modelling of blasting and a risk assessment are being undertaken to determine the risk of flyrock impacting on nearby residences. Initial indications from this study are that a 200m SEZ will provide adequate protection for the community from flyrock. If this can be demonstrated a reduction of the SEZ will be sought.

Dust, noise and vibration management is undertaken to reduce impacts on nearby residences and the City of Kalgoorlie-Boulder. The effectiveness of KCGM's management can be demonstrated by our performance that is continually gauged by monitoring and feedback received through the 24hr Public Interaction Line at KCGM.

The proximity of the operation to the City of Kalgoorlie-Boulder drives KCGM towards improved transparency and continuous improvement in its environmental management. KCGM will continue to consult with stakeholders regarding this project and to review plans or management practices based on feedback.

4.8 Waste Storage or Disposal

Approval is being sought for additional storage for waste rock and tailings material, both of which are the main waste products generated through mining and mineral processing. As such, specific impacts and how they will be addressed are discussed in detail under relevant areas within this section (4 - Potential Impacts and How They Will Be Addressed).

Other waste materials generated by KCGM are removed by a licenced waste management contractor and disposed in accordance with appropriate regulations and guidelines. No significant variation in waste materials (other than tailings and waste rock) is expected for this project.

4.9 Soils

Soils of the region are typically neutral red earths in the plain areas, calcareous loams and brown calcareous earths in the more hilly portions, with saline/sodic soils dominating in and around the salt lakes.

Soils within the project area are degraded as a result of historical mining operations and land clearing, however many areas have been revegetated as part of the KCGM progressive rehabilitation programme.

The Fimiston Open Pit expansion will be predominantly hosted by Golden Mile Dolerite (GMD) with a small percentage to the west hosted by Williamstown Dolerite (WD) and the Black Flag Beds (BFB) sedimentary sequence (see Figure 13).

Any exposed mineralisation within the dolerite will contain sulphide minerals in conjunction with carbonates, the presence of both these minerals results in a neutralising effect with no proven acid generation potential. Non mineralised material will not contain significant amounts of sulphide minerals and therefore has little to no acid generation potential.

The Black Flag Beds contain bands of pyritic shale which have an acid generation potential. This material is strategically placed within the waste rock dump and intermixed with the dolerite and basalt waste which has a neutralising effect on any acid that may be generated. It should be noted that, of the total volume of waste material removed from the Fimiston Open Pit and placed in waste rock dumps, less than 5% is shale, the remainder is 85% dolerite and 10% basalt.



Figure 13 - View of KCGM infrastructure (photograph) and host stratigraphy

4.10 Geotechnical

4.10.1 Fimiston Open Pit

Geology

The Kalgoorlie succession in the vicinity of the Fimiston deposit consists of a basal ultramafic unit called the Hannans Lake Serpentinite, overlain successively by the Devons Consol Basalt, Kapai Slate, Paringa Basalt and Black Flag Beds. Mafic to ultramafic sills have then intruded the sequence. One of these sills, the Golden Mile Dolerite, is the host for most of the gold mineralisation in the Golden Mile.

The structure of the Fimiston area is dominated by the large Kalgoorlie Anticline and Kalgoorlie Syncline, the major Golden Mile Fault which strikes sub-parallel to formation boundaries, and numerous cross-cutting faults (Golden Pike etc). It was recognised that 3 major deformation events were responsible for these structures, occurring over a period of 60 million years beginning 2670 million years ago.

The rock mass in pit region consists of Paringa Basalt (PB), Golden Mile Dolerite (GMD), shales and porphyry dykes. Except shales, each of these units has a high intact rock strength, with an average Uniaxial Compressive Strength (UCS) of greater than 85MPa.

The Paringa Basalt and the Golden Mile Dolerite are considered as the two main rock masses forming the final pit walls. The oxidation depth varies from 0 to 70m and averages 40m.

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Hydrogeology

The Golden Mile is a south-plunging ridge of mostly ultramafic rocks forming part of the Kalgoorlie-Kambalda Greenstone Belt. The main rock units are the Golden Mile Dolerite and the Paringa Basalt. These formations have a very low primary permeability and will not store or transmit large quantities of ground water except through major secondary structures. The hydrogeology of the greenstones is poorly understood as they do not form major aquifers and have not been studied in detail. The permeability of these rocks is likely to have a large variation.

The Greenstones along the Golden Mile are overlain by Tertiary and younger sedimentary deposits to the west, south and east. Groundwater often occurs in these deposits at shallow depths. Some exchange of groundwater must occur between Tertiary sedimentary deposits and the older greenstones which form the Golden Mile and other bed rock formations in the Kalgoorlie area.

The historical underground workings below the Fimiston Open Pit have provided a conduit for groundwater and surface run-off. De-watering from the 25 level in Chaffers Shaft (810m below surface) has been ongoing since 1989 and this has maintained groundwater levels well below current mining operations.

The total dissolved solids concentration of the naturally occurring saline water ranges from about 20,000 to 200,000 milligrams per litre (sea water has about 35,000 to 40,000 milligrams per litre of total dissolved solids).

KCGM maintains a comprehensive water management system to monitor groundwater levels, water quality, and pumping rates. The monitoring work is performed by the Safety and Environment Department with periodic reviews conducted by external consultants.

Pit Wall Stability

The rock mass being mined and forming the walls of the Fimiston Open Pit is made up of inherently strong to very strong igneous rocks, however extensive underground mining has caused disturbance and weakening in localised lode areas. From a safety and economic perspective, slope stability and the presence of old underground workings present the greatest challenges. Groundwater and seismicity are also taken into account in determining how to mine the orebody safely.

It appears that simple combinations of rock structure do not impact significantly on the long-term open pit wall stability. The focus now is on developing an improved understanding of the mechanisms involving the various combinations of rock structure and deformation of the zone of the old workings that will form the basal section of final pit slopes.

The current 300 m high pit walls provide a 'scale model' of the likely problems associated with such a zone. Overall stability has not been a significant issue. Ground conditions locally in the vicinity of the stopes is less than desirable but have been manageable. Increased stress levels associated with the higher final wall are expected to exacerbate the deterioration of ground conditions around stopes. Key strategies for maintaining stability involve establishing non-alignment of significant stopes and pit slopes, careful excavation (eg; controlled blasting) and localised ground support.

The Golden Pike Cutback is in close proximity to the Bypass Road, the proposed Loopline Railway route and other public infrastructure. As such, understanding the long term slope stability of the west wall is of high importance. Slope stability of the Golden Pike Cutback has been assessed by external consultants and confirms that the cutback design, when combined with experience at KCGM, is conservative and has low risk of instability. It was also noted that the stability of the oxide wall is not compromised by the presence of the environmental noise bund. Long term pit wall stability will be studied throughout the operation of the Fimiston Open Pit.

Initial feedback from an external geotechnical review using the DoIR mine abandonment guidelines, indicates that the Golden Pike cutback would require an abandonment bund 86 m from the pit crest to accommodate any potential long term slope deterioration. Further external investigation of abandonment bunding requirements will be undertaken.

The pit walls have been and will continually be monitored by KCGM's newly installed auto-prism 24 hour Automatic Slope Monitoring System.

Seismicity

KCGM has experienced both mining-induced and natural seismic events. The effect of seismic loads on pit slope stability can be addressed using pseudo-static loading or by examining dynamic stability. There are few examples of pit slope failures in hard rock that can be attributed solely to the effects of seismicity. Most seismically induced failures occur in highly to extremely weathered materials, or silts. Natural seismic events have very long wave lengths, much greater than the size of the pit wall. Hence experience has confirmed that such events have little impact on hard rock slopes.

The Fimiston Open Pit has been equipped with a microseismic recording system since 1997. Any seismic events above a certain magnitude are registered. There is no current evidence to suggest that seismicity causes pit wall damage, however, the potential impact of seismicity upon long term pit wall stability will be studied throughout the operation of the Fimiston Open Pit.

4.10.2 Waste Rock Dumps

Construction Materials

Waste Rock Dumps will be constructed using waste rock generated from mining of the Fimiston Open Pit. The nature of the material ranges from oxide to transitional and primary rock and changes as the pit deepens. KCGM stockpiles oxide material which is used to cover the surface of primary rock waste dumps to assist in the revegetation of the rock face.

Foundation

The DoIR *Guidelines for Waste Dump Design and Rehabilitation* are incorporated into KCGM operating procedures for waste dump construction. Waste dumps are created and shaped to final designs by adhering to specifications to reduce erosion of the dump that may affect its long-term stability and integrity.

4.10.3 Tailings Storage Facilities

Hydrogeology

The area around the Fimiston I and Fimiston II TSF's is underlain by sedimentary deposits and variably weathered bedrock. The sedimentary deposits are widespread, and correlate with similar deposits around Hannans Lake and elsewhere in the Eastern Goldfields. These deposits pinch out to the east and west towards bedrock ridges along the flanks of the catchment.

The maximum thickness of the sedimentary deposits to the east of the Fimiston I TSF is about 30 m. These deposits typically consist of red-brown clays and gravels, and blue-grey clays and clayey gravels which are partly lateritised. The weathered bedrock beneath the central floodway is mainly pallid or mottled clay. Relatively fresh bedrock occurs at shallow depths beneath the western half of the Fimiston I TSF.

The most transmissive parts of the shallow stratigraphic sequence near the TSFs are gravels between about 5 m and 15 m below the surface, and ferricrete horizons within lateritised blue-grey clays between about 10 m to 25 m beneath the surface. The underlying weathered bedrock generally has a very low transmissivity and is not an aquifer.

The shallow groundwater system is recharged naturally after significant rainfall events that cause surface water to accumulate and flow down the floodway.

Natural groundwater in the catchment around the Fimiston TSFs is saline, with salinities (total dissolved salts) concentrations in the range of 20,000 mg/L to 50,000 mg/L. This groundwater is very acidic, with pH generally between 2 and 4.

Paleochannel sands underlie the Kaltails TSF at depths of around 20 m. A shallow, discontinuous ferricrete aquifer overlies the impermeable clay layer above these palaeochannel sands and covers much of the TSF and former plant area.

Groundwater near the Kaltails TSF is saline to hypersaline with salinities ranging from 40,000 mg/L to 100,000 mg/L. The groundwater is acidic with pH values in sections as low as 2-3, although in the broader region most of the groundwater is marginally acidic, with pH in the range of 5-7.

Foundation

The Fimiston I and II and Kaltails TSFs are examples of "upstream construction" where the tailings themselves are used to construct the facility. This involves excavating dried tailings from the inside edge of the storage and using this material to construct an embankment around the perimeter. The upstream construction method relies on the properties of the tailings material itself for stability.

Annual independent geotechnical reviews of the Fimiston I and II TSFs are undertaken and reports provided to the DoIR. No significant geotechnical issues have been identified for these facilities.

A complete review of the Kaltails TSF including a geotechnical assessment is currently being undertaken. It is envisaged that this review will assist KCGM to understand the Kaltails TSF and to undertake appropriate management for its use.

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As evidenced by the management of Fimiston I and Fimiston II TSFs, KCGM is committed to managing TSFs to minimise impacts on the environment.

Seepage

KCGM has a comprehensive monitoring program incorporating a network of groundwater production bores to monitor and control groundwater quality and levels influenced by seepage from Fimiston I and Fimiston II TSFs.

KCGM conducts a monitoring and reporting program in accordance with the operating strategy and DoE licence for these facilities. As part of this operating strategy, additional production bores are installed in the borefield where monitoring indicates further drawdown of the water table is required. This operating strategy will continue to be implemented.

In January 2005 the Minister for Environment dismissed all appeals against the EPA level of assessment for the Fimiston I TSF height increase stating that the impacts were not considered significant enough to warrant a formal level of assessment and could be managed under Part V of the Environmental Protection Act.

Based on the Minister's decision KCGM will be working with the DoE to review groundwater monitoring requirements and develop and implement a Seepage and Groundwater Management Plan, which would initially apply to the Fimiston I and II TSFs and extend to cover the Kaltails TSF or alternative Fimiston III TSF if approved.

4.11 Safety

KCGM has a number of existing approvals under the *Explosives and Dangerous Goods Act 1961*. This includes five licences to store dangerous goods and two licences to store explosives / magazine. These licences are maintained and updated in accordance with the requirements of the Act.

It is envisaged that there will be no variation in the transportation, storage or handling of dangerous goods or hazardous substances. Any variation will be managed via the existing processes.

4.12 Heritage

Native Title

There are a number of Native Title Claims that have been made incorporating but not specific to KCGM leases. Claimant groups include the Maduwongga people (WC99/9), Central East and Central West Goldfields People (WC/99/29, WC99/30), Widji People (WC98/27), and the Gubrun (WC95/27). Three of these claims are currently in mediation. The Gubrun claim has been de-registered. Native Title has not been granted over any of the KCGM leases. The Goldfields Land and Sea Council (GLSC) is the Native Title Representative body for the Goldfields region. Mining operations on the site predate Native Title.

Ethnographic

An ethnographic survey was undertaken in 1989 in conjunction with the Aboriginal Site Survey undertaken by O'Connor and Quartermaine (1989) for the original CER for the KCGM operation. Additional surveys have been conducted by O'Connor in 2000 and 2001. The survey areas covered by these studies encompass the expansion area proposed by this Project.

Aboriginal people from Coolgardie, Kalgoorlie, and Coonana, who have long term associations with the region were consulted, and local elders who have detailed knowledge of the region's totemic geography visited the survey area.

Eight sites of ethnographic significance have been identified during surveys as follows:

- Muruntjarta
- Nanny Goat Hill
- Mt Charlotte
- Microwave Hill
- Aboriginal Reserve
- Ninga Mia
- Karlkurla
- Rockhole

The coordinates of these sites are mapped and the information is utilised during planning and development for new and existing projects.

The Murantjara site is the closest to the project area and is adjacent to the waste dump footprint. KCGM will ensure that that this site is managed in accordance with the provisions of the *Aboriginal Heritage Act 1972*.

Archaeological

An archaeological survey was undertaken by O'Connor and Quartermaine in 1989 to locate and record archaeological sites within the survey area and to research historically recorded Aboriginal sites. Additional surveys have been conducted by Quartermaine in 2000 and McGann in 2001. The survey areas covered by these studies encompass the expansion area proposed by this Project.

No archaeological sites were located within the survey area, however seven isolated finds were recorded. The coordinates of these sites are mapped and the information is utilised during planning and development for new and existing projects.

The paucity of archaeological materials is considered to be attributed to the small size of the survey area and the apparent lack of water on it, as well as the disturbance from mining activity dating back to the end of the 19th century.

Two finds including glass scatter and scarred tree are located between 500-800m from the Fimiston II TSF. KCGM will ensure that that these sites are managed in accordance with the provisions of the *Aboriginal Heritage Act 1972*.

4.13 Social Surroundings

Public Access and Use

There may be some impact on public access and use of a Super Pit Lookout during the decommissioning of the old Lookout and construction of the new Lookout. KCGM will be investigating construction options which minimise the time when a Tourist Lookout is unavailable. There will be no other change to public access to the KCGM operation.

It is likely that public access and use of the Super Pit Lookout may increase with the proposed Loopline Tourist Railway travelling atop of part of the environmental noise bund. The new Super Pit Lookout may include a café and other facilities for the public and to promote tourism.

Sites of Public Interest

An important asset that has been provided to the Kalgoorlie-Boulder Community is the Super Pit Lookout. It is now acknowledged that this feature has become the number one tourist destination in the goldfields area. The Super Pit Lookout has always existed as part of the Super Pit development, although it has undergone a number of location shifts, the last being the move from Outram Street, to its present location off the Bypass Road. The final Lookout location will provide a tourism legacy for the City of Kalgoorlie-Boulder.

KCGM is committed both financially and through representation on a number of committees, to major community and tourist focussed events. For example; St Barbara's Festival, RIO Festival; Golden Quest Trail, Paddy Hannan Week and Kalgoorlie Goldfields Tourism. KCGM management strongly supports the preservation of items of historical interest. This has been demonstrated previously through the relocation of the Chaffers Headframe, and the moving of the Crossley engine when the Fimiston Pit was expanded southwards in 2003.

KCGM has participated in all Chamber of Minerals and Energy and Australian Gold Council Open Day initiatives. These have regularly attracted in excess of 1,000 participants and are staffed by enthusiastic KCGM volunteers.

In an independent analysis of our 2003 Media Mentions, Goldfields Tourism was the second biggest issue to feature on KCGM.

"KCGM's involvement with tourism in the Kalgoorlie region was the second most prominent issue for the company in 2003. The print media provided the most coverage of this issue with 64 items (68 per cent), with electronic media generating 30 items (32 per cent). KCGM featured in tourism stories that discussed the attractions of the Super Pit and its lookout, regional branding and tourism awards and the relocation of the head frame, the Queen of the Golden Mile" REHAME 2004.

KCGM has been publicly acknowledged for its commitment to tourism, and was the grateful recipient of the Kalgoorlie-Boulder's Chamber of Commerce & Industry's Tourism Award in 2004.

The Loopline Society has already been the recipient of a \$1M donation from KCGM towards its relocation. KCGM is committed to realising the re-establishment of the Loopline Railway to ensure ongoing tourism development, and the continuation of an important part of Kalgoorlie-Boulder heritage.

Currently, KCGM is looking to enhance the amenity of the surrounding area of the Loopline railway route through the rehabilitation of Mt Gleddon (Nanny Goat Hill), a site of indigenous heritage significance on KCGM leases. A partnership project with the Kalgoorlie-Boulder Urban Landcare Group, Conservation Volunteers Australia, and the Department of Indigenous Affairs is in development with the support of the local indigenous community, business and council.

The project will result in the beautification of a significant landmark, and the preservation of indigenous heritage.

Demographics

According to the Australian Bureau of Statistics most recent census, the City of Kalgoorlie-Boulder comprises of around 28,818 people, of which 6.45% are Indigenous.

The demographic profile of Kalgoorlie-Boulder points to a relatively stable, family orientated community. The gender mix is fairly balanced at a ratio of 1:1.2 females to males. Sixty percent (60%) of those over 15 years have been married, with 75% of these still married. The family structure of the City reflects young families with 41% having children under the age of 15 years. There is a slight overrepresentation of young people in the region (around 25% are under the age of 15 years and the towns median age is 30 compared to the State median of 34). This is likely to be a reflection of the positive education and employment opportunities. Community development or employment opportunities for young people are likely to assist in maintaining community cohesion.

The residents of the City of Kalgoorlie-Boulder are predominately of Australian and English ancestry with the majority speaking English only. However the City of Kalgoorlie-Boulder has higher ethnic diversity than other regions within rural Western Australia.

There are 11,400 dwellings in the City of Kalgoorlie-Boulder and 54 accommodation providers including hotels, motels, B&Bs, caravan parks, lodges etc. In 2002, there were 12 establishments with 15 or more rooms in the City.

In terms of land tenure, the primary land use around the Super Pit is residential and commercial leases. The close proximity of residents to the mine is a historical anomaly created from a time when individuals walked to work and residences were built around the original variety of mines within the area.

Kalgoorlie has a well developed regional airport, rail and bus services connecting to Perth. There are a total of 10 primarily schools, 6 secondary schools and a university campus in addition to a large number of child care and pre-primary schools.

KCGM has a workforce of about 700 people including contractors and is an important part of the economic and social fabric of the City of Kalgoorlie-Boulder. In 2004 alone more than \$255 million was contributed into the local economy through wages and Kalgoorlie-Boulder based suppliers. KCGM operations are also important to the Local, State and National economy; in 2004 more than \$12 million was paid in royalties and \$4.6 million in other taxes. This project proposal aims to extend the estimated mine life by around 5 years and therefore extending the economic and social inputs into the City of Kalgoorlie-Boulder and State of Western Australia.

4.14 Transport

Relocation of the Super Pit Tourist Lookout will require a change in the location of the access road to this facility. At this stage traffic access to the new lookout will be via Johnston Street East, changing traffic volumes on this road. KCGM will work with the City of Kalgoorlie-Boulder and Main Roads WA regarding this modification to ensure all design requirements are met.

No additional transportation along other public access roads is expected for this project. Haul trucks and other mining equipment will be confined to operate on existing or new internal roadways within the mining operation.

4.15 Closure Planning / Decommissioning

Although a formal public closure plan is still to be finalised, KCGM has developed the following objectives to define its commitment to decommissioning and closure planning.

Objective 1

To ensure a management plan is in place for any potential long-term pollution of soils, surface waters or groundwaters.

Objective 2

To create safe and stable landforms conducive to revegetation.

Objective 3

To rehabilitate the site to a self-sustaining ecosystem such that the site blends in with the surrounding landscape as far as this is practicable.

Objective 4

To consult the community and interested stakeholders regarding the closure of KCGM's operations when closure is imminent or its timing is determined.

Objective 5

To retain features of heritage value where practicable, consistent with the mining history of the Kalgoorlie area.

Objective 6

To monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the specified closure criteria have been met.

Final land uses of KCGM's tenements have not yet been decided. However, on completion of closure and rehabilitation, the designated land uses for KCGM's sites are likely to be a combination of:

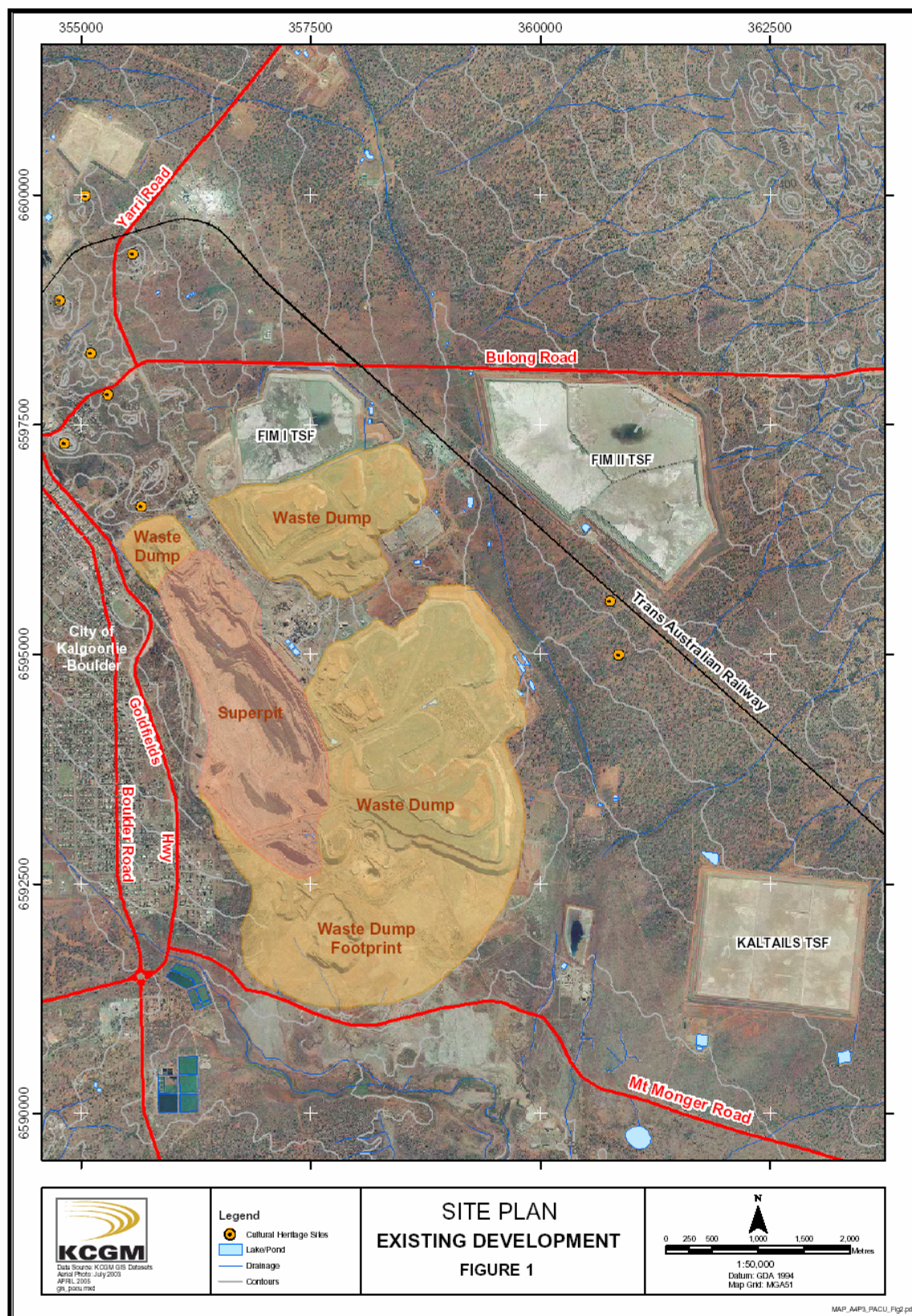
- Rehabilitated landforms for conservation, recreation or pastoral purposes;
- Tourist attractions consistent with the mining heritage of the Kalgoorlie-Boulder region; and
- Zones with restricted access for safety reasons (e.g. final voids).

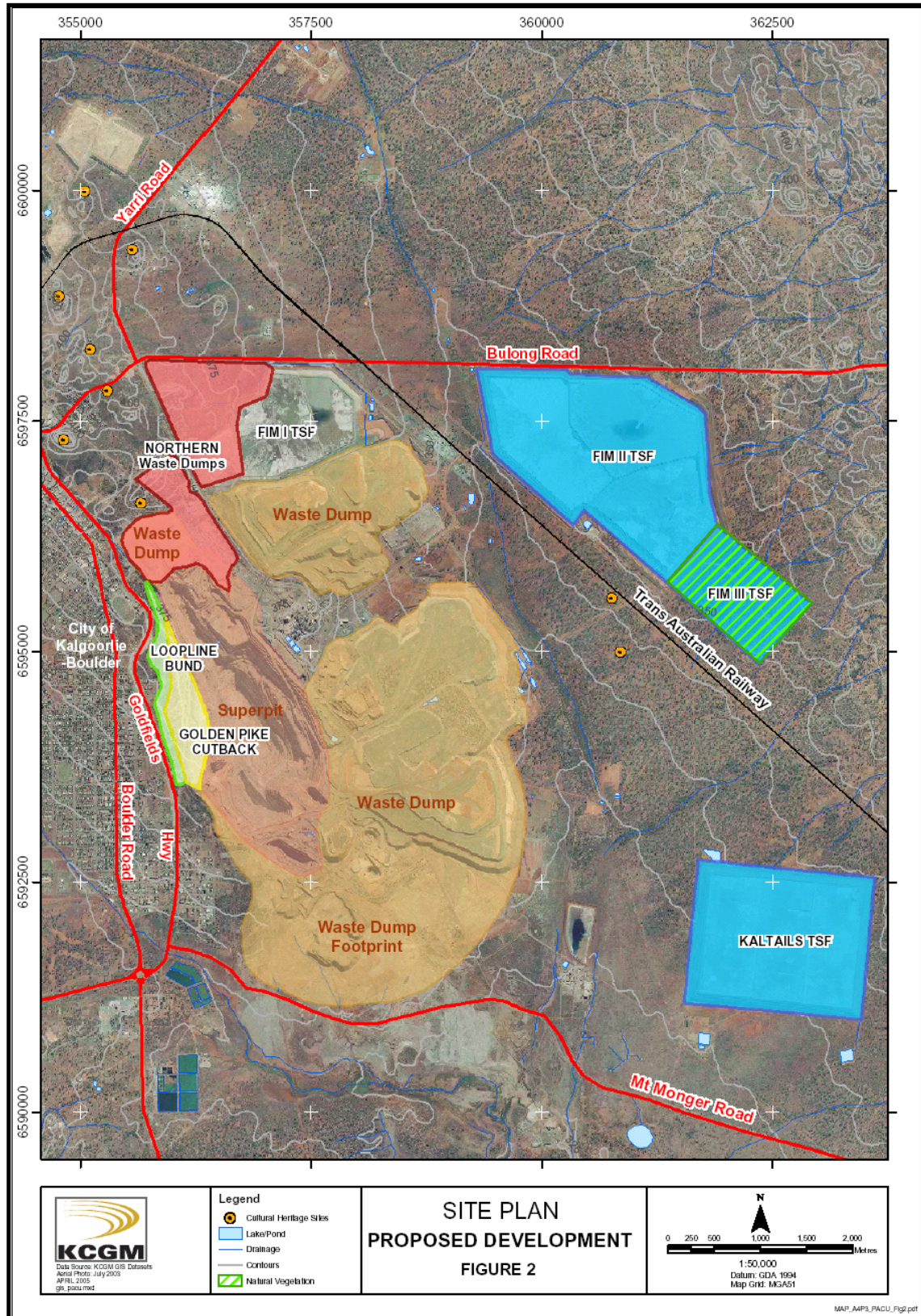
Retention of some infrastructure and utility corridors will be necessary during the site rehabilitation and monitoring phases. Security and limited access to some sites will be maintained even after completion of mine closure and rehabilitation.

As part of ongoing operation, KCGM progressively works towards closure through rehabilitation of waste dumps and disturbed areas. Rehabilitation primarily focuses on establishing vegetation on disturbed areas and on final waste dump slopes however, a recent rehabilitation program has aimed at addressing long term safety concerns of access to mine shafts.

KCGM recognises that considerable community consultation will be required prior to the development of a closure strategy. KCGM will continue to work towards refining and developing a decommissioning and closure plan.

5 Appendix 1 - Project Plans





6 Appendix 2 - Project Definition Document Checklist

		Office Use - Adequate for Agency scoping?
SECTION 1: PROPOSAL INFORMATION		
1.1 Proponent details		
1.2 Description of project		
1.3 Locality and site plans		
SECTION 2: PROPONENT CONSULTATION SUMMARY		
SECTION 3: LAND DETAILS		
3.1 Site details		
3.2 Ownership		
3.3 Tenure		
3.4 Zoning and/or subdivision		
3.5 Land use (site and adjacent land)		
SECTION 4: POTENTIAL IMPACTS		
Issue (Element for consideration)	Relevant to proposal?(Y/N)	
4.1 Flora and vegetation		
• Vegetation condition (including presence of weeds) has been assessed	Yes	
• The proposal requires clearing of native vegetation	No	
• Declared rare or priority flora or threatened ecological communities are present on the proposal site	No	
4.2 Fauna		
• The proposal is likely to affect native fauna or fauna habitat	No	
• Specially Protected (Threatened) or Priority Listed fauna occur on the site or are potentially impacted by the proposal	No	
• Migratory species or breeding/nesting activity of migratory species occur on the site or are potentially impacted by the proposal.	No	
• Subterranean fauna(s) or a Groundwater Dependent Ecosystem(s) (GDE) are present on the proposal site or are potentially impacted by the proposal	No	

Issue (Element for consideration)	Relevant to proposal?(Y/N)	Office Use - Adequate for Agency scoping?
4.3 Broader Environmental Impacts		
<ul style="list-style-type: none"> Impacts on broader biodiversity values as opposed to specific, critical biodiversity values; impacts at a landscape scale rather than site specific impacts 	No	
<ul style="list-style-type: none"> Impacts on local and/or regional environmental corridors 	No	
<ul style="list-style-type: none"> Impacts at a landscape scale rather than site specific impacts. 	No	
<ul style="list-style-type: none"> Representation of vegetation/habitat type outside of proposal area 	Yes	
4.4 Environmentally Sensitive Areas		
<ul style="list-style-type: none"> Lands vested in the Conservation Commission 	No	
<ul style="list-style-type: none"> Proposed additions to the public conservation estate, including 2015 pastoral lease acquisitions 	No	
<ul style="list-style-type: none"> Lands vested in the Executive Director of CALM 	Yes	
<ul style="list-style-type: none"> Private property with a conservation covenant upon it 	No	
<ul style="list-style-type: none"> Bush Forever sites. 	No	
<ul style="list-style-type: none"> EPA recommended conservation area (Red Book). 	No	
<ul style="list-style-type: none"> World Heritage Areas. 	No	
<ul style="list-style-type: none"> Regional Parks. 	No	
<ul style="list-style-type: none"> Biosphere Reserves. 	No	
<ul style="list-style-type: none"> Any known significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development. 	No	
4.5 Marine and coastal		
<ul style="list-style-type: none"> The development will occur within 300m of a coastal area 	No	
<ul style="list-style-type: none"> All or part of the proposal is within or will impact on marine environments 	No	
4.6 Water		
<ul style="list-style-type: none"> The proposal is likely to impact upon surface water features (rivers, creeks, wetlands, salt lakes or estuaries) 	No	
<ul style="list-style-type: none"> The proposal is likely to impact upon groundwater 	Yes	
<ul style="list-style-type: none"> The proposal will require a water supply (either surface or ground water) 	Yes	

Issue (Element for consideration)	Relevant to proposal?(Y/N)	Office Use - Adequate for Agency scoping?
4.7 Emissions		
<ul style="list-style-type: none"> The proposal is a prescribed premise, under the Environmental Protection Regulations 	Yes	
<ul style="list-style-type: none"> The proposal is likely to discharge significant gaseous emissions, odour or particulates to the atmosphere 	Yes	
<ul style="list-style-type: none"> The proposal is likely to discharge liquid effluent to the surrounding area or on site 	No	
<ul style="list-style-type: none"> The proposal is likely to generate significant off-site noise emissions, vibration or electro magnetic radiation 	Yes	
4.8 Waste Storage or Disposal		
<ul style="list-style-type: none"> The proposal is likely to generate solid wastes for disposal on or off site 	Yes	
<ul style="list-style-type: none"> The proposal is likely to generate liquid wastes for disposal on or off site 	No	
4.9 Soils		
<ul style="list-style-type: none"> Acid forming rock or acid soils are present on the site 	No	
<ul style="list-style-type: none"> The proposal is likely to impact upon soil quality on or off site 	No	
<ul style="list-style-type: none"> The proposal is likely to create impacts as a result of soil borne disease (dieback) 	No	
<ul style="list-style-type: none"> Previous use of the site may have caused contamination of the soil 	No	
4.10 Geotechnical		
<ul style="list-style-type: none"> There are geotechnical issues relevant to environment protection or safety 	Yes	
4.11 Safety		
<ul style="list-style-type: none"> The proposal requires the storage, transportation or handling of dangerous goods or hazardous substances 	No	
<ul style="list-style-type: none"> The proposal is likely to be a major hazard facility* regulated under the Explosives and Dangerous Goods Act 1961 	No	
<ul style="list-style-type: none"> The proposal is located near a major hazard facility or high-pressure gas pipeline 	No	
4.12 Heritage		
<ul style="list-style-type: none"> The proposal may impact on an Aboriginal heritage site within the meaning of the Aboriginal Heritage Act 1972. 	No	
<ul style="list-style-type: none"> The proposal is likely to impact upon Commonwealth or State listed heritage other than Aboriginal heritage 	No	

Issue (Element for consideration)	Relevant to proposal?(Y/N)	Office Use - Adequate for Agency scoping?
4.13 Social surroundings (community)		
<ul style="list-style-type: none"> The proposal is likely to impact on places of public interest 	Yes	
<ul style="list-style-type: none"> The proposal may change or alter the current demographics of the region or town 	Yes	
<ul style="list-style-type: none"> The proposal may change or alter the existing character and amenity of the surrounding locality 	No	
<ul style="list-style-type: none"> The proposal may impact on sensitive cultural heritage areas, including aboriginal sites. 	No	
<ul style="list-style-type: none"> The proposal may require additional human infrastructure to be provided to meet the demands of the proposal and that of the existing community. 	No	
4.14 Transport		
<ul style="list-style-type: none"> The proposal is likely to require substantial transport of goods or materials which may affect the amenity of the local area 	No	
4.15 Closure Planning/Decommissioning		
<ul style="list-style-type: none"> Final land use and land form following completion of the proposed activity 	Yes	
<ul style="list-style-type: none"> Responsibility for the closure or decommissioning of the project 	Yes	
<ul style="list-style-type: none"> Proposed timing and scope of rehabilitation works, i.e. capacity for staged rehabilitation over the life of the operation. 	Yes	