



Licence Number L6420/1988/14

Licence Holder Kalgoorlie Consolidated Gold Mines Pty Ltd

ACN 009 377 619

File Number: DER2015/002506

Premises Fimiston Plant and Tailings Storage Facilities

Mining Tenements G26/15, G26/44-68, G26/70-71, G26/73-78, G26/82-86, G26/99-107, G26/138-145, G26/149, G26/159, G26/160, G26/165, G26/166, L26/267, M26/46, M26/78, M26/86, M26/95, M26/267-268, M26/294, M26/308, M26/326, M26/359, M26/377, M26/383, M26/405, M26/448, M26/451 and M26/715

KALGOORLIE WA 6430

Date of Amendment 15 December 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 15 December 2017

Tim Gentle

Manager Licensing (Resource Industries)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info-der@dwer.wa.gov.au
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DER	The former Department of Environment Regulation
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Fim I TSF	Fimiston I Tailings Storage Facility

Fim II TSF	Fimiston II Tailings Storage Facility
FSGMP	Fimiston Seepage and Groundwater Management Plan
KSGMP	Kaltails Seepage and Groundwater Management Plan
Licence Holder	Kalgoorlie Consolidated Gold Mines Pty Ltd
Licensee	Has the same meaning as Licence Holder
m ³	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
MOL	Maximum operating level
MS	Ministerial Statement
Mtpa	million tonnes per annum
NEPM	National Environmental Protection Measure
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
UDR	<i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)</i>
TSF	Tailings Storage Facility

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for Category 5. No changes to the aspects of the existing Licence relating to Categories 54 or 63 have been requested by the Licence Holder.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

Kalgoorlie Consolidated Gold Mines Pty Ltd submitted an application to amend their Licence I6420/1988/14 to authorise:

- Construction and operation of the Fimiston I TSF from 40m to 60 m in height;
- Increase to the category 5 capacity as listed in Table 2 below; and
- Amend the Prescribed Premises boundary to include the CSI crushing facility within the boundary.

Table 2 below outlines the proposed category changes to the Licence.

Table 2: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
5	13 350 000 tonnes per annum	14 500 000 tonnes per annum	Increase in throughput capacity of Fimiston Processing Plant. Associated increase in tailings deposition to Fimiston I, Fimiston II and Kaltails TSFs.

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

Legislation	Number	Approval
<i>The Mining Act 1978</i>	Mining Proposal Registration ID: 67695	Approval to construct progressive embankment raises and operate the Fimiston I TSF to a final height of 60m.

Amendment history

Table 4 provides the amendment history for L6420/1988/14.

Table 4: Licence amendments

Instrument	Issued	Amendment
L6420/1988/14	17/09/2015	Licence amendment to include category 54.
L6420/1988/14	05/04/2016	Licence amendment to authorise progressive embankment raises to Fimiston II TSF and addition of category 63 to construct and operate a Class 1 inert landfill within the Fimiston Waste Rock Dump.
L6420/1988/14	25/11/2016	Licence amendment to remove vegetation monitoring requirements following Licensee submission. Authorisation to dispose of hydrocarbon contaminated waste to Paringa TSF. Administrative changes requested by the Licensee and additional administrative changes made by DER.
L6420/1988/14	15/12/2017	Licence amendment to authorise progressive embankment raises to Fimiston I TSF to a final height of 60m.

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
City of Kalgoorlie- Boulder	Located at western edge of Fimiston open pit; approximately 3km west from the Fimiston I TSF

Risk assessment

Tables 8 and 9 (following) describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

The risk rating for these risk events has been determined in accordance with the risk rating matrix set out in Table 6 below.

Table 6: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

The assessment of the consequence and likelihood of the Risk Event was made in accordance with the criteria in Table 7 below.

Table 7: Risk criteria table

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		The following criteria has been used to determine the consequences of a Risk Event occurring:		
		Environment	Public health* and amenity (such as air and water quality, noise, and odour)	
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> onsite impacts: catastrophic offsite impacts local scale: high level or above offsite impacts wider scale: mid-level or above Mid to long-term or permanent impact to an area of high conservation value or special significance^ Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> onsite impacts: high level offsite impacts local scale: mid-level offsite impacts wider scale: low level Short-term impact to an area of high conservation value or special significance^ Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> (i) onsite impacts: mid-level (ii) offsite impacts local scale: low level (iii) offsite impacts wider scale: minimal (iv) Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> (v) Adverse health effects: low level or occasional medical treatment (vi) Specific Consequence Criteria (for public health) are at risk of not being met (vii) Local scale impacts: mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> (viii) onsite impacts: low level (ix) offsite impacts local scale: minimal (x) offsite impacts wider scale: not detectable (xi) Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> (xii) Specific Consequence Criteria (for public health) are likely to be met (xiii) Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> onsite impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity (xiv) Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting*.

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines*.

Table 8: Risk assessment for proposed amendments during construction

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Category 5 Processing or beneficiation of metallic or non-metallic ore	Construction of embankment raises	Dust: associated with construction activities	City of Kalgoorlie-Boulder to the west of the pit (Fimiston I TSF is located to the north east of the Processing plant and east of the pit)	Air	Health and amenity impacts	Minor	Unlikely	Medium	Water trucks in use during construction; supported by an extensive fugitive dust monitoring system with proactive and reactive controls to mitigate impacts on the city (conditioned under the MS782). The TSF is located away from Kalgoorlie-Boulder.

Table 9: Risk assessment for proposed amendments during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
Category 5 Processing or beneficiation of metallic or non-metallic ore	Tailings deposition to Fimiston I TSF	Tailings seepage	Surrounding native vegetation	Acidic and hypersaline groundwater mounding in vicinity of the TSF inundating rootzones of vegetation surrounding the TSF	Poor vegetation health	Moderate (no conservation significant vegetation species); potentially affected vegetation communities widespread regionally)	Rare	Medium	Comprehensive seepage recovery system, with network of recovery bores and seepage trenches, supporting by comprehensive groundwater monitoring system to ensure early response to trends indicating increasing groundwater levels. Documented in the Fimiston Seepage and Groundwater Management Plan (FSGMP), which sets targets for standing water levels. FSGMP is audited annually by external hydrogeologist. Local

									groundwater limits and groundwater monitoring requirements are conditioned in the Licence (condition 3.3.1). Vegetation monitoring over a 15 year period indicated no impact to adjacent vegetation, such that the previous licence condition requiring vegetation monitoring was removed in November 2016.
		Tailings release	Native vegetation Soils ¹	Overtopping of supernatant pond or tailings release during extreme rainfall event	Tailings inundation of adjacent vegetation and soil contamination ¹	Major	Rare	Medium	There is capacity to contain a 12 hour PMP rainfall event as part of the design of Fimiston I TSF even at the end of life of each cell (i.e. when the tailings cell is full prior to next embankment raise) (Golder 2017a). Maximum operating level (MOL) of the pond allows for 12 hour PMP event and this MOL is set by the TSF Operating Manual.
	Ore processing throughput increase to 14.5 Mtpa; associated increase in tailings deposition to 14 Mtpa (from current 13Mtpa)	Tailings seepage	Native vegetation	Increased groundwater mounding in vicinity of TSFs	Poor vegetation health	NA	NA	NA	No change in seepage rates from existing assessed risk providing solids concentration stays at 55%, FSGMP, KSGMP and 15% sized supernatant pond maintained. Commitment made by KCGM to maintain the solids rate of 55%. FGSMP and KSGMP required to be implemented by condition 1.3.5 of the Licence. It is noted that the rate of seepage is controlled by deeper consolidated tailings and underlying

									geology and is expected to be unchanged from the current rate despite the increased height (Golder 2017b).
--	--	--	--	--	--	--	--	--	--

Note 1: It is also noted that significant third party infrastructure (the railway corridor) is located to the east of the Fimiston I TSF and may be impacted by a tailings release. This third party business interruption and safety risk has not been assessed here. Outside the scope of the *Environmental Protection Act 1986*.

Decision

The application is approved. Licence Holder controls for the construction of the tailings embankment raise works are conditioned on the Licence as conditions 1.3.13, 1.3.14 and 1.3.15 to ensure that the progressive embankment raises are completed in accordance with the TSF Operating Manual and the design document.

Conditions 1.3.4, 1.3.5, 1.3.6, 3.3.1, 3.3.2, and 3.3.3 currently on the Licence ensure that seepage will be managed from the Fimiston I TSF, in a similar manner to that for Fimiston II TSF and Kaltails TSF. Condition 4.2.3 has been updated to include the requirement to submit construction compliance documents at the completion of each stage of the Fimiston I TSF embankment raise works.

The capacity under category 5 of the Licence is authorised to increase to 14.5 Mtpa. The Prescribed Premises boundary has been updated to account for the contractor crushing plant, as identified at the most recent compliance inspection.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 11 December 2017. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. The Prescribed premises category table on page 1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
5	Processing or beneficiation of metallic or non-metallic ore	50 000 tonnes or more per year	43 350 000 <u>14 500 000</u> tonnes per year
54	Sewage facility	100m ³ or more per day	110m ³ per day
63	Class 1 inert landfill site	500 tonnes or more per year	15 000 tonnes per year

2. Condition 1.1.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

'CEO' means Chief Executive Officer of the Department of Water and Environmental Regulation;

'CEO' for the purpose of correspondence means;

~~Chief Executive Officer~~ Director General
Department ~~Div.3 Pt V EP Act~~ Administering the *Environmental Protection Act 1986*
Locked Bag 33 CLOISTERS SQUARE
Perth WA 6850
~~info@der.wa.gov.au~~ info-der@dwer.wa.gov.au

3. The Licence is amended by the insertion of the following Condition 1.3.13:

1.3.13 The Licensee is authorised to construct embankment raises and operate the Fimiston I TSF until the end of Stage 2 to the heights as listed in Table 1.3.7 below:

Table 1.3.7: Fimiston I TSF Construction & Operating Heights

Stages	Construction Height (m)	Operating Height (m)
Stage 1	43	43
Stage 2	46	46
Stage 3	49	Not permitted at this time.
Stage 4	52	
Stage 5	55	
Stage 6	58	
Stage 7	60	

4. The Licence is amended by the insertion of the following Condition 1.3.14 :

1.3.14 The Licensee shall ensure that the embankment raises' infrastructure and associated pipeline infrastructure specified in column 1 of Table 1.3.8 is constructed in accordance with the requirements specified in column 2 of Table 1.3.8.

Table 1.3.8: Construction of Fimiston I TSF Embankment Raises

Column 1 Infrastructure	Column 2 Requirements
Fimiston I TSF perimeter tailings delivery and water return pipelines	<ul style="list-style-type: none"> Installation of new tailings delivery pipeline along Fimiston I TSF perimeter embankment wall; and Reinstatement of the water return pipeline from the Fimiston I TSF decant system to existing Decant 3 pond, indicative location as shown in Figure 2 of this Amendment Notice 1.
Fimiston I TSF tailings delivery pipeline	Install a new delivery pipeline from the existing tailings transfer station to Fimiston I TSF; potential locations as indicated by Figure 2 of this Amendment Notice 1.
Upstream perimeter embankment raise	<ul style="list-style-type: none"> In accordance with the Fimiston Mill Tailings Operating Manual (Golder 2013, and subsequent revisions). Construction to be supervised by an engineering or geotechnical specialist.
Decant tower and access causeway	Relocate the decant tower and causeway.
Areas subject to construction activities	Control dust by using water carts to wet down work areas.

5. The Licence is amended by the insertion of the following Condition 1.3.15:

1.3.15 The Licensee must not depart from the requirements specified in Table 1.3.8 except:

- (i) where such departures are minor in nature and do not materially change or affect the infrastructure; or
- (ii) where such departures improve the functionality of the infrastructure and do not increase the risks to public health, public amenity or the environment.

If (ii) applies, then the Licensee must provide the CEO with a list of departures and demonstrate that these have not increased the risk to public health, public amenity or the environment.

6. Condition 4.2.3 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:
 - 4.2.3 The Licensee shall submit a construction compliance document to the CEO within 90 days following of completion of each stage of the works as listed in Table 1.3.3 and Table 1.3.7.
7. The Premises Map in Schedule 1 of the Licence is replaced by the map below:

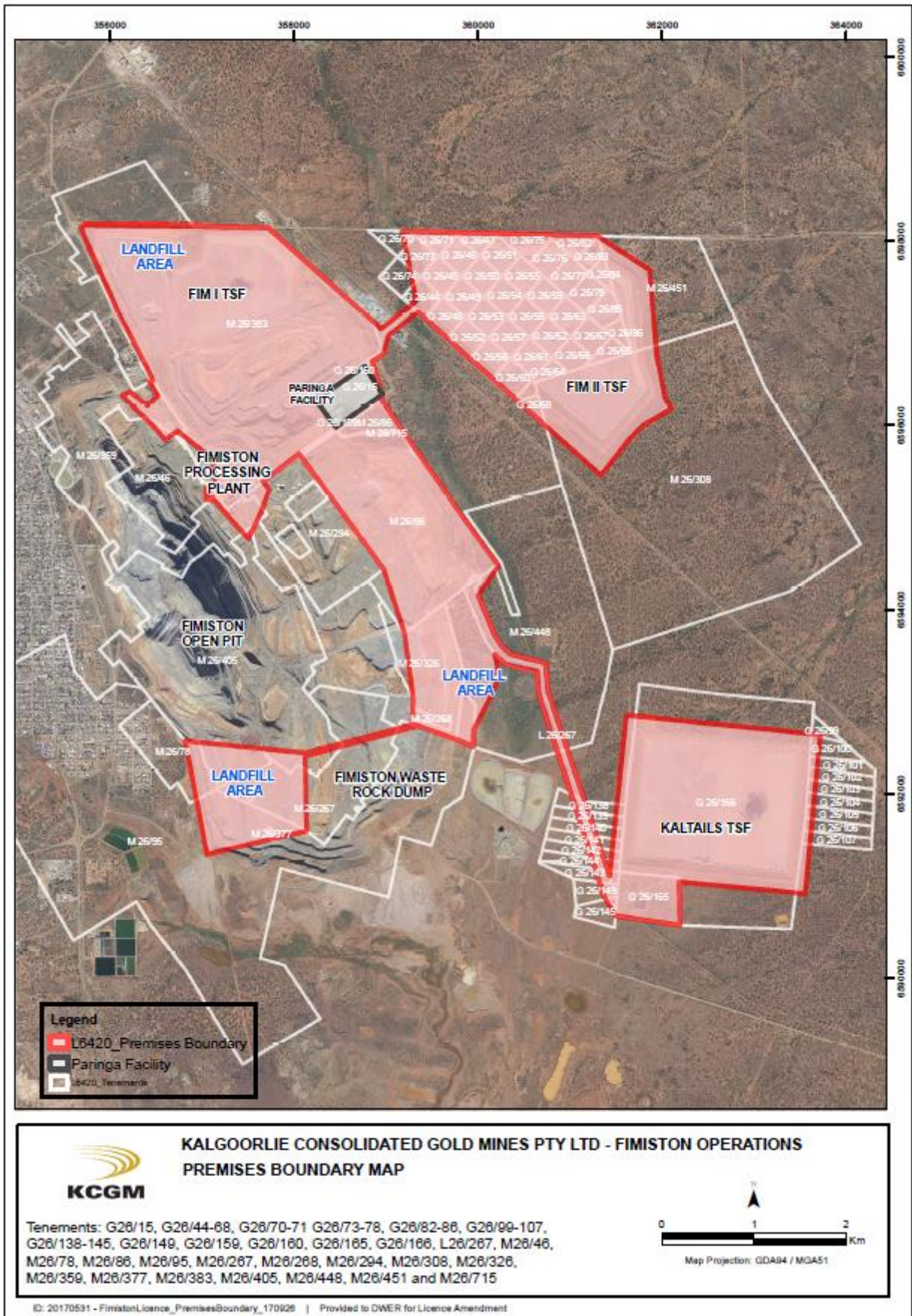


Figure 1: Fimiston Prescribed Premises Map

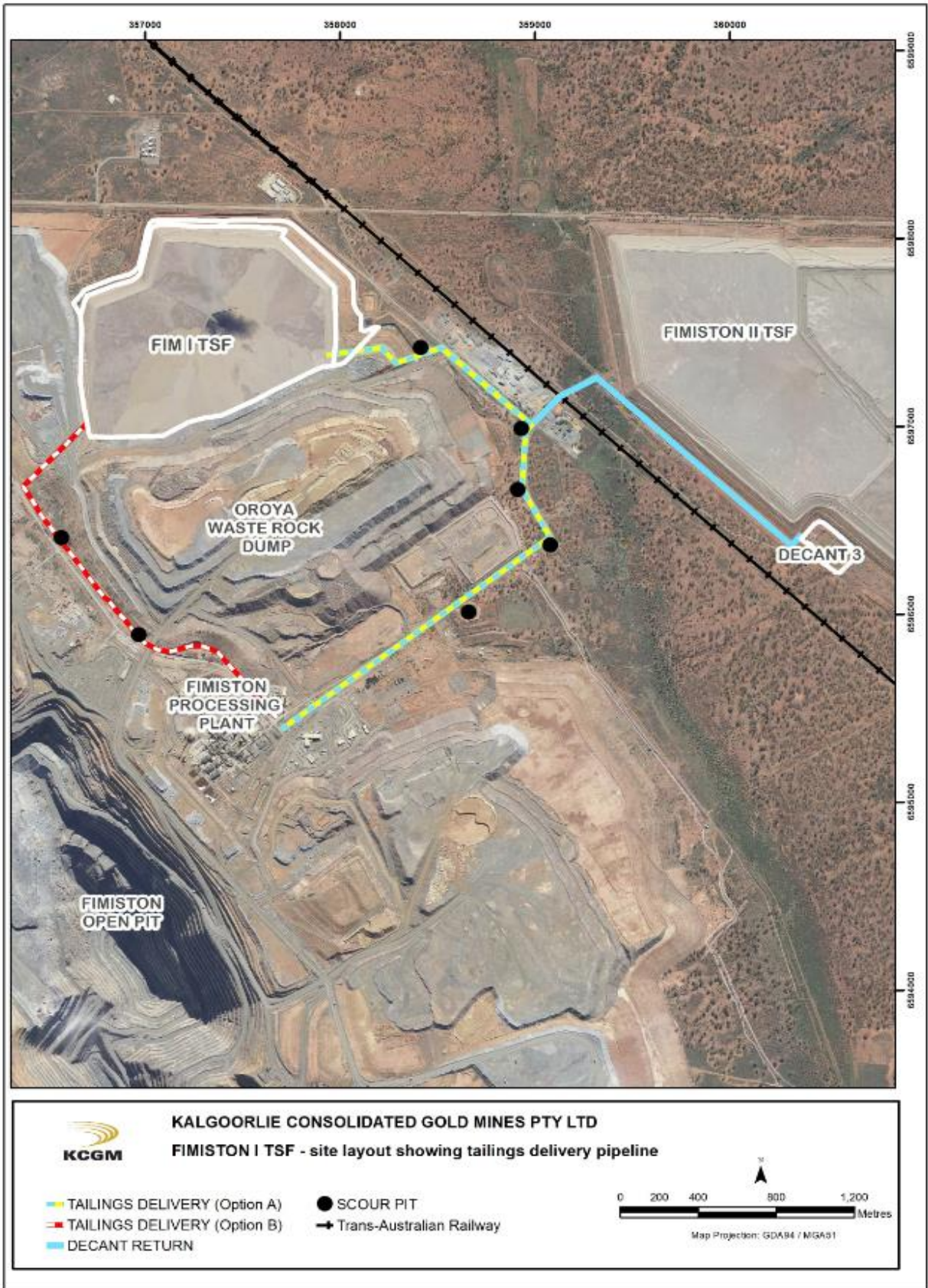


Figure 2: Site layout indicating the potential locations of the new tailings delivery pipeline to Fimiston I TSF (dashed line) and scour pits (dots). Decant return line in blue.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Big Dog Hydrogeology (2016) <i>KCGM 2016 Annual Audit Fimiston I and Fimiston II Tailings Storage Facilities Seepage and Groundwater Management Plan</i> , December 2016	BDH 2016	DWER records (A1535758)
2	DER (2015) <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth, July 2015.	DER 2015a	accessed at www.dwer.wa.gov.au
3	DER (2015) <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth, October 2015.	DER 2015b	
4	DER (2016) <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth, August 2016.	DER 2016a	
5	DER (2017). <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth, February 2017.	DER 2017	
6	DER (2016) <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth November 2016.	DER 2016b	
7	Golder Associates Pty Ltd (2013) <i>Fimiston Mill Tailings Operating Manual</i> . Document reference 117645019-0001-R-Rev1, May 2013	Golder 2013	
8	Golder Associates Pty Ltd (2017a) <i>Fimiston I Tailings Storage Facility. Design Report to Support Application for Height Increase to 60m</i> , February 2017	Golder 2017a	DWER records (A1535752)
9	Golder Associates Pty Ltd (2017b) <i>Assessment of the Impacts of the Increased production throughput on the Fimiston and Kaltails Tailings Storage Facilities</i> , Memo Reference No. 1772850-011-L-Rev1, dated 4 October 2017	Golder 2017b	DWER records (A1535759)
10	Licence L6420/1988/14 – Fimiston Plant and Tailings Storage Facilities	L6420/1988 /14	accessed at www.dwer.wa.gov.au
11	Ministerial Statement 782	MS 782	accessed at www.epa.wa.gov.au
12	Ramboll Environ (2017) <i>Fimiston I Tailings Storage Facility; Increase in Maximum Embankment Height (to 60m)</i> , May 2017	Ramboll Environ 2017	DWER records (A1535752)

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 11 December 2017 for review and comment. The Licence Holder responded on 14 December 2017 waiving the remaining comment period providing the following edits were made to the Amendment Notice.

Condition	Summary of Licence Holder comment	DWER response
N/A	Replace references to Town to City of Kalgoorlie - Boulder	Done
Condition 1.3.14	Remove the words 'design and' as design is already completed.	Done
Table 1.3.8, Condition 1.3.14 & Figure 2	Include an alternative tailings delivery pipeline route; replace Figure 2 accordingly.	Done
Table 1.3.8, Condition 1.3.14	Allow for subsequent revisions of the TSF Operating Manual	Done
Table 1.3.8, Condition 1.3.14 & Figure 3	Allow for flexibility of location of the decant causeway (to be determined by geotechnical review); remove Figure 3	Done
Condition 4.2.3	Allow for 90 days to submit construction compliance document	Permitted