Government of Western Australia
Department of Water and Environmental Regulation

Amendment Notice 2

Licence Number	L7851/2002/6
Licence Holder	BHP Billiton Iron Ore Pty Ltd
ACN	008 700 981
File Number	DER2013/000925
Premises	Mining Area C Mining Tenement ML281SA and ML249SA NEWMAN WA 6753
Date of Amendment	**16/10/2018**

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.

Alana Kidd

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Date: 2018.10.15 13:25:38 +08'00'

Alana Kidd

Manager, 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
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 *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
GL/a	gigalitre per annum
ha	hectare
kL/year	kilolitres per year
km	kilometre

Licence Holder Licensee	BHP Billiton Iron Ore Pty Ltd
LV	Light vehicle
m^3	cubic metres
MAC	Mining Area C
MAR	Managed Aquifer Recharge
ML/day	Megalitres per day
MS	Ministerial Statement
mtpa	million tonnes per annum
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
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 *Guidance Statement: Risk Assessment*
TRH	Total Recoverable Hydrocarbons
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
$\mu g/m^3$	micrograms per cubic metre
µS/cm	micro Siemens per centimetre
WWTP	Waste Water Treatment Plant

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, 6, 12, 54, 63, 73 and 89.

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 Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

An amendment application was received on 31 January 2018 and updated information for the same application received from BHP on 13 February, 2 March 2018, 20 March 2018 and 19 July 2018. The amendments are:

- Update to the Premises legal description to include new (approved) tenure.
- Expansion of the approved L7851/2002/6 prescribed premises boundary to include the area subject to the future South Flank development.
- Installation of a second screening plant to increase the capacity of the existing relocatable (ore) crushers.
- An increase to Category 5 processing rate of 6Mtpa (from 65 Mtpa to 71 Mtpa).
- Inclusion of the Juna Downs Managed Aquifer Recharge bores on the relevant Figure (Map) and updates to bore names.
- Addition of two new discharge locations to the Central Sediment Basin D, to allow for the western infiltration zone of the Central Sediment Basin to dry out so that construction works can commence on the MAC rail loop duplication.
- Addition of two new discharge locations the Western Sediment Basin, and increase the volume of mine dewater discharged to the Western Sediment Basin from 2,081,000 tpa to 10,950,000 tpa.
- Addition of a new Premises Category (12) to allow for the operation of two 1 million tonne per annum capacity mobile crushing screening units to undertake South Flank early works. Operation of these plants is anticipated to commence in November 2018 and operate for a period between 18 months and three years, as required for the South Flank construction works.
- A separate crushing and screening plant will also be operated under Category 12 to produce up to 130,000 tonnes per annum of stemming material used for blasting activities. A maximum of 2 Mtpa of material will be processed by the three mobile plants under Category 12.
- Increase Category 63 inert waste disposal volume by 5,000tpa (from 9,000 tonnes to 14,000 tonnes) to account for an increase in inert waste resulting from the construction

of the Southern Flank mining hub.

- Increase in Category 73 fuel storage volume by 2,500m^3 (3,500 m^3 to 6,000 m^3) to allow for the installation of additional 15 fuel bullets within the revised Premise boundary.
- Construction and operation of a new Category 89 putrescible landfill, and increase Category 89 putrescible waste volume by 2,000tpa (from 3,000 tpa to 5,000 tpa) to account for an increase in putrescible waste resulting from the expansion of Mulla Mulla Village.

A subsequent new licence amendment application was received on 2 May 2018 to add the following scope to the licence amendment assessment:

- Incorporate construction requirements for the Mulla Mulla Village WWTP (W6092/2017/1) into L7851/2002/6.
- Increase Category 54 approved throughput from 480 m^3/day to 1,110 m^3/day (increase of 630 m^3/day) to include the throughput associated with the expanded Mulla Mulla Village WWTP throughput.
- Addition of new effluent emission (reference points) for the two spray field locations associated with the Mulla Mulla Village WWTP.
- Updates to Figures 1 and 3 for the inclusion of the Mulla Mulla Village WWTP location and effluent emission location (reference points).

On 18 September 2018, BHP submitted compliance documentation for construction of the Mulla Mulla Village WWTP and irrigation areas, as required under Works Approval W6092/2017/1. According to the information provided, compliance with the construction requirements has been achieved. Noting that the Mulla Mulla Village WWTP and irrigation fields have been constructed, construction requirements are not required to be addressed under the Licence. However, conditions relating to the commissioning of the plant and operation at the cessation of commissioning will be included.

Table 2 outlines the proposed changes to the Licence.

Table 2: Proposed design or throughput capacity changes requested in amendment

Category	Current Design Capacity	Proposed Design Capacity	Description of proposed amendment
5	65,000,000 tonnes per annual period	71,000,000 tonnes per annual period	Increase in ore processing
6	34,931,000 tonnes per annual period	-	Maximum permissible discharge to Western Sediment Basin increased, however there is no change to the current overall design capacity.
12	-	2,000,000 tonnes per annum	New category added to allow for the operation of two mobile crushing screening units for South Flank construction and one mobile plant for the production of stemming material.
54	480 m^3/day	1,110 m^3/day	Increase of +630 m^3/day throughout to allow for the operation of the Mulla Mulla Village WWTP under this licence
63	9,000 tonnes per annual period	14,000 tonnes per annual period	To account for an increase in inert waste resulting from the construction of the Southern Flank mining hub
73	3,500 cubic metres in aggregate	6,000 cubic metres in aggregate	To allow for the installation of an additional 15 fuel bullets within the revised Premise boundary
89	3,000 tonnes per annual period	5,000 tonnes per annual period	To account for an increase in putrescible waste resulting from the expansion of Mulla Mulla Village

Other approvals

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

Table 3: Relevant approvals

Legislation	Approval and Reference Number	Aspects
Iron Ore (Mount Goldsworthy) Agreement Act 1964	ML281SA and ML249SA	Tenure (State Agreement)
	State Agreement Project Proposals - in preparation at the time of this assessment.	Detailed Proposals describing the proposed infrastructure and mining operations.
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	Strategic Environmental Assessment Approval Notice dated 19 June 2017	Matters of National Significance: • Northern Quoll (*Dasyrurus hallucatus*); • Greater Bilby (*Macrotis lagotis*); • Pilbara Leaf-nosed Bat (*Rhinoicteris aurantia*); • Pilbara Olive Python (*Liasis olivaceus barroni*); and • Ghost Bat (*Macroderma gigas*).
Part IV of the EP Act (WA)	Ministerial Statement - MS1072 dated 20 February 2018	Approval to implement revised proposal to mine the Mining Area C Northern Flank and Southern Flank orebodies. Replaces former MS 491 which was for 'Multiple Iron Ore Mine Development, Mining Area C – Northern Flank, 100 km north-west of Newman (Note: '*Water usage and dewatering requirements'* was removed as a Part IV Key Characteristic in March 2014 as *'conservation values are managed under the Life of Mine Environmental Management Plan; dewatering and discharge can be managed under other legislation'*).'
Rights in Water and Irrigation Act 1914 (RIWI Act)	Groundwater Licence (GWL) 110044(10)	Mining Area C- Up to 15,330,000 kilolitres per annum (kL/a) from Pilbara, Hamersley Fractured Rock aquifer
	GWL178477(2)	Juna Downs Borefield allocation of 750,000kL/a from Wittenoom Aquifer
	GWL174613(1)	Mulla Mulla Camp Borefield 50,000kL/a from Pilbara, Hamersley Fractured Rock aquifer
	GWL166477(5)	Up to 1,500,000 kL/a from Pilbara, Hamersley Fractured Rock aquifer
	GWL166389(1)	Up to 1,500,000 kL/a from the Pilbara, Wittenoon – Wittenoom aquifer
Dangerous Goods Safety Act 2004	Dangerous Goods Licence DGS017237	Facilities added to the manifest as required.
Health Act 1914	Permit to install apparatus for the treatment of sewage to be submitted, in preparation as determined by schedule/site requirements.	To construct a waste water treatment plant (WWTP).
	Permit to install apparatus for the treatment of sewage – Mulla Mulla Village WWTP – under assessment submitted 12 February 2018	
	Permit to operate apparatus for the treatment of sewage – submission following construction, as required.	To operate a WWTP.

Amendment history

Table 4 provides the amendment history for L7851/2002/6.

Table 4: Licence amendments

Instrument	Issued	Amendment
L7851/2002/6	17/11/2014	Licence reissue and amendment to new format template
L7851/2002/6	22/01/2014	Minor amendment
L7851/2002/6	7/04/2016	Licence amendment to update to template version 2.9
L7851/2002/6	29/09/2016	Licence amendment initiated by Licensee to increase Category 6 production capacity, approve construction of the Packsaddle Infiltration Ponds and MAC WTP, include Category 85B and include the Western and Central Sediment Basins as emission points to land
L7851/2002/6	5/10/2017	Amendment Notice 1 Licence amendment initiated by Licensee to increase Category 6 and Category 63 production capacity, approve construction of the Juna Downs MAR Scheme, approve construction and operation of a new WWTP spray field for the Mulla Mulla Camp and include associated monitoring conditions, include the light vehicle washdown bay as emission point to land along with associated monitoring conditions and expand the premises boundary
L7851/2002/6	16/10/2018	Amendment Notice 2 (this notice) Licence amendment initiated by Licensee to update to the Premises legal description to include new (approved) tenure, expand the approved L7851/2002/6 boundary, install a second screening plant to increase the capacity of the existing relocatable (ore) crushers, increase to Category 5 processing rate of 6Mtpa, amend reinjection bore nomenclature and amend associated figures, add four new dewatering discharge locations, add a new Premises Category (12) to allow for the operation of two 1 million tonne capacity mobile crushing screening units, increase Category 54 throughput from 480 m^3/day to 1,110 m^3/day (increase of +630 m^3/day) in line with the Mulla Mulla Village WWTP throughput, incorporate construction requirements for the Mulla Mulla Village WWTP (W6092/2017/1) into L7851/2002/6, add new effluent emission (reference) points for the two spray field locations associated with the Mulla Mulla Village WWTP, increase Category 63 inert waste disposal volume by 5,000tpa to account for an increase in inert waste resulting from the construction of the Southern Flank mining hub, increase Category 73 fuel storage volume by 2,500m^3 to allow for the installation of an additional 15 fuel bullets within the revised Premise boundary, increase Category 89 putrescible waste volume by 2,000tpa to account for an increase in putrescible waste resulting from the expansion of Mulla Mulla Village, approve the construction and operation of a new putrescible landfill, assess the increased discharge of mine dewater to the western sediment basin and increased the maximum discharge volume accordingly.

Location and receptors

The Premise boundary of MAC (including the Southern Flank area) is located approximately 100 kilometres (km) north-west of the town of Newman in the Pilbara region of Western Australia.

Tables 5 and 6 list the relevant sensitive land uses and specified ecosystems/environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment. This is in accordance with DWER's Guidance Statement: *Environmental Siting*.

Table 5: Receptors and distance from prescribed premises

Sensitive Land Uses	Approximate distance from the prescribed premises boundary	Approximate distance from the nearest Category 5, Category 12, Category 54, Category 73 or Category 89 activities
Great Northern Highway	100 m	5.5. km
Rio Tinto Iron Ore's Hope Downs One Mining Operation and village	1.5 km	6.5 km
Juna Downs Pastoral Station Homestead	28 km	42 km
Marillana Pastoral Station	44 km	53 km
Town of Newman	100km	85 km

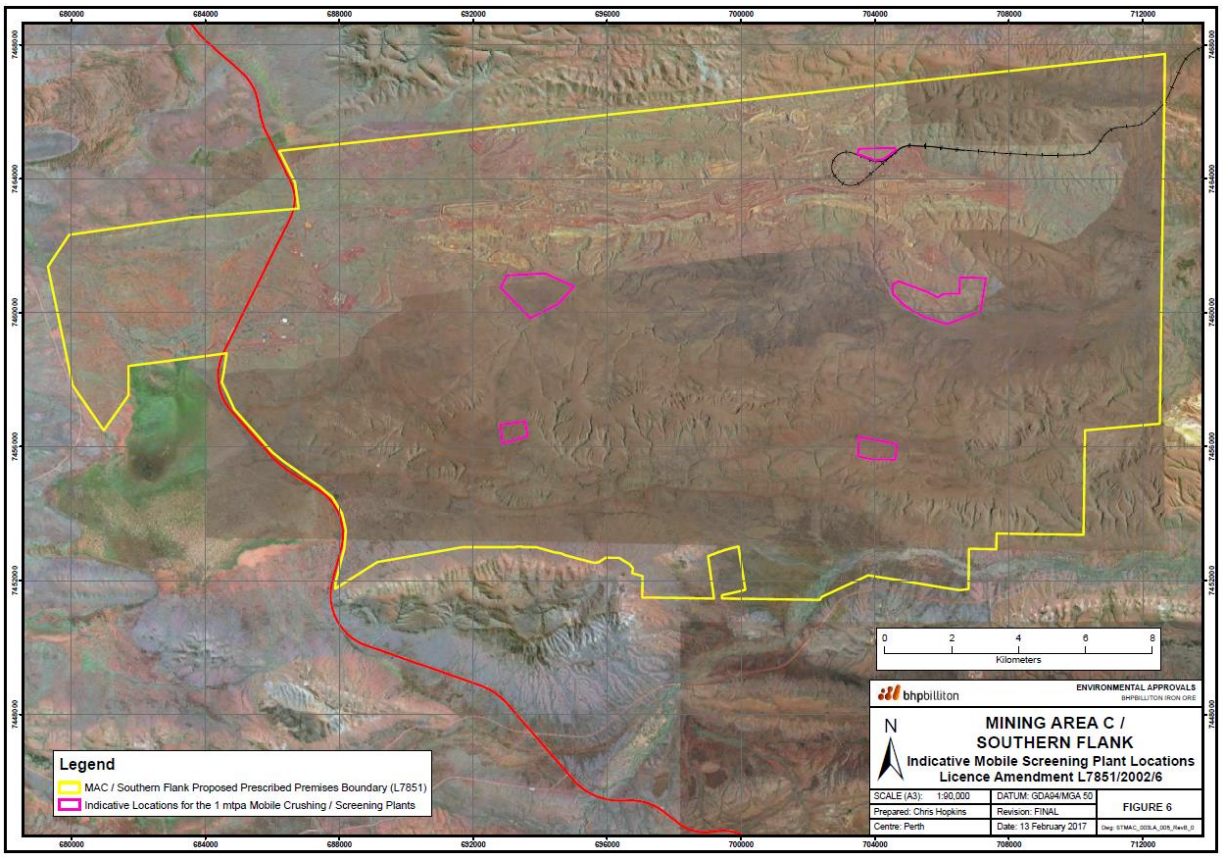


Figure 1: Indicative Category 12 mobile screening plant operating locations.

Table 6: Specified ecosystems

Specified ecosystems	Distance from the proposed Premises boundary	Approximate distance from the closest proposed Category 5, Category 12, Category 54, Category 73 or Category 89 activities
PEC - Priority 3: Coondewanna Flats ((Coondewanna Flats and Wanna Munna Flats)* - Priority 3(i))	200 m	5.5 km
PEC - Priority 1: Weeli Wolli Spring Community	9 km	19 km
PEC – Priority 1: West Angelas Cracking-Clays	11 km	17 km
Threatened flora	No species listed under the EPBC Act or the *Wildlife Conservation Act 1950* are within the prescribed premises. Twelve flora species listed as priority flora by the Department of Biodiversity, Conservation and Attractions occur within the premises boundary: • *Acacia bromilowiana* (Priority 4) • *Aristida jerichoensis supsp. spinulifera* (Priority 3). • *Aristida lazaridis* (Priority 2). • *Eremophila magnifica subsp. magnifica* (Priority 4). • *Goodenia nuda*: Priority 4. • *Grevillea saxicola* (Priority 3). • *Nicotiana umbratica* (Priority 3). • *Rhagodia sp. Hamersley* (M. Trudgen 17794) (Priority 3). • *Rostellularia adscendens var. latifolia* (Priority 3). • *Sida sp. Barlee Range* (S. van Leeuwen 1642) (Priority 3). • *Themeda sp. Hamersley Station* (M.E. Trudgen 11431): Priority 3. • *Triodia sp. Mt Ella* (M.E. Trudgen 12739) (Priority 3).	
Threatened fauna	The development envelope contains large areas of suitable habitat for four species listed as vulnerable or endangered under both the *Wildlife Conservation Act 1950* and the EPBC Act. These species are the *Dasyurus hallucatus* (Northern quoll), the *Liasis olivaceus barroni* (Pilbara olive python), the *Rhinonicterus aurantia* (Pilbara leafnosed bat), and the *Macroderma gigas* (Ghost Bat). The following significant fauna species have also been identified within the proposed prescribed premises boundary: • *Anilios ganei*, (Pilbara Flat-headed Blind-snake): DPaW Priority 1; • *Apus pacificus* (Fork-tailed Swift):EPBC Act Migratory, WC Act Schedule 5; • *Falco hypoleucos* (Grey Falcon): Schedule 3; • *Falco peregrinus* (Peregrine Falcon): WC Act Schedule 7; • *Merops ornatus* (Rainbow Bee-eater): EPBC Act Migratory, WC Act Schedule 5; • *Pseudomys chapmani* (Western Pebble-mound Mouse): DPaW Priority 4; and • *Underwoodisaurus seorsus* (Pilbara Barking Gecko): DPaW Priority 2. Nine major fauna habitats occur within the proposed prescribed premises. In addition to the major fauna habitats, significant habitat features, such as caves and waterholes have been recorded.	
Parks and Wildlife (now Department of Biodiversity, Conservation and Attractions) tenure	The Juna Downs MAR scheme is located on Unallocated Crown Land (excluded from the Juna Downs Pastoral Lease in July 2015) and proposed to be added to the conservation reserve system, due to the occurrence of the Coondewanna Flats (Priority 3(i)) and Lake Robinson (Priority 1) Priority Ecological Communities (PEC) (Parks and Wildlife, 2017).	
Other values		
The majority of vegetation within the premises is considered to be good or better condition. Vegetation in areas		

of higher relief with restricted access to stock ranged from Excellent to Pristine. Vegetation on drainage lines and flood plains and areas where exploration activities have occurred or impacted by stock declines to very good to good.

Risk assessment

Tables 7 and 8 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 7: Risk assessment for proposed amendments during construction and commissioning

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 **Category 12- Screening, etc. of material**	Construction, mobilization and positioning of additional screening plant for relocatable crusher; and three mobile crushing and screening plants	Dust	Hope Downs Ore Mining Operation and village	Air/wind dispersion	Health and Amenity impacts	Slight	Unlikely	Low	The nearest potential receptor is Hope Downs Village (mining camp), located approximately 6.5 km from the Category 5 and 12 prescribed activities. The Licence Holder has committed to the watering of roads and cleared areas during site preparation works for the installation of the crushers, to minimize dust. Dust equipment will be maintained in efficient operating condition, routine maintenance and housekeeping will be undertaken to avoid accumulation of waste materials that could lead to dust generation and employees and contractors will continue to be inducted regarding importance of minimizing dust levels. The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient and adequate controls will be implemented to minimize dust emissions during construction.
		Noise				Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient, the risk of noise impacts is low.

Category 54-Sewage facility	Construction, mobilization and positioning of the Mulla Mulla WWTP and construction of irrigation sprayfields for disposal of treated wastewater	Dust	Hope Downs Ore Mining Operation and village 6.5 km from premises	Air/wind dispersion	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient. Construction timeframes will be relatively short and any emissions localized to the surrounding area. The risk of noise and dust impacts is low.
		Noise				Slight	Rare	Low	
	Commissioning of WWTP; untreated sewage transferred via pipeline from Camp to WWTP for treatment. Treated waste discharged to irrigation area.	Overtopping of tanks discharging untreated sewage (nutrient rich effluent) to land during commissioning	Soil and native vegetation	Soil, direct discharge and overland flows	Nutrient load and impacts to native vegetation health, reduction is soil quality resulting in plants death	Slight	Unlikely	Low	Prior to commissioning, the WWTP and delivery pipework will receive running raw water to detect leaks. An earthern bund will be constructed around the plant to contain any potential discharges during commissioning. Pipelines outside of WWTP will run aboveground. Overflow piping will be installed on tanks, and connected to a common overflow drain pipe, which is directed to the overflow pond. A tank high level alarm will be installed and tested for activation efficiency during commissioning. These controls are adequate to manage the risks associated with overtopping tanks discharging untreated sewage to ground, impacting soil and vegetation.
		Human exposure to contaminants	Hope Downs Ore Mining Operation and village 6.5 km from premises	Wind/air dispersion Physical contact with exposed wastewater	Impact to human health	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent impacts, the risk has been determined as low.
		Treated sewage (nutrient rich	Soil and native vegetation	Soil, direct discharge and overland flows	Nutrient load and impacts to native	Slight	Unlikely	Low	The WWTP is designed and will be operated to ensure plant achieves expected treatment quality. Monitoring and recording of system

		effluent) to land (irrigation areas) during commissioning			vegetation health, reduction in soil quality resulting in plants death				flow rates using an automatic flow meter. Monthly water samples to confirm water quality. Pipelines from the WWTP to the irrigation area will run above ground to detect leaks/blockages and Mag/flow meter will be used to measure volumes discharged to each irrigation area.
		Odour	Hope Downs Ore Mining Operation and village 6.5 km from premises	Wind/air dispersion Physical contact with exposed wastewater	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent odour impacts occurring.
Category 73- Bulk storage of chemicals, etc	Construction, mobilization and positioning of 15 fuel bullets with combined storage capacity of 2,500m^3	Dust	Hope Downs Ore Mining Operation and village 6.5 km from premises	Air/wind dispersion	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent dust impacts occurring.
Category 89- Putrescible landfill site	Construction of a new 5,000 tpa putrescible landfill to replace existing facility	Dust	Hope Downs Ore Mining Operation and village 6.5 km from premises	Air/wind dispersion	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent dust impacts occurring. Clearing will be minimized and water carts will be used to minimize dust as appropriate.

Table 8: 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 **Category 12- Screening, etc. of material**	Operation of additional screening plant for relocatable crusher; and three mobile crushing and screening plants	Dust, predominantly particulates PM_{10} and TSP associated with additional ore handling	Hope Downs Ore Mining Operation and village 6.5 km Great Northern Highway road users	Air/wind dispersion	Amenity and health impacts	Slight	Unlikely	Low	Category 5 premises production capacity increased to 71 Mtpa and the new Category 12 premises production capacity of 2 Mtpa – dust emissions from the premises may increase. The Delegated Officer notes the Department's *Guidance Statement, Risk Assessments* (DWER, 2016a) stipulates that in identifying potential receptors, the Department will exclude employees, visitors, or contractors of the Licence Holder, as protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other State legislation. The Delegated Officer has identified Hope Downs Village and the Great Northern Highway road users as sensitive receptors most at risk of being impacted by operational dust emissions from the ore processing (Category 5) and crushing and screening (Category 12). The proposed Category 12 screening plants will operate from within five indicative locations (Figure 1) on the Premises, although if operated outside of these areas will remain at least 1 km of the premises boundary at all times. Figure 1 indicates there is approximately 5.5 km between the closest screening plant location and the Great Northern Highway. The separation distance between the Category 5 and 12 activities and Hope Downs Village is approximately 6.5 km. On 13 July 2018 Works Approval

									W6142/2018/1 for the Mining Area C – Southern Flank project was approved by DWER. Construction of Southern Flank will increase the Category 5 production capacity at MAC to 150 Mtpa. As part of the application for Southern Flank and increase to 150 Mtpa, BHP Billiton commissioned Pacific Environment Limited (PEL) to conduct air quality modelling to determine potential impacts to Hope Downs village and users of the Great Northern Highway from dust at the increased rate of production. The study included the assessment of dust particles as particulate matter smaller than 10 microns (µm) in diameter (PM_{10}) and Total Suspended Particles (TSP). The modelling was conducted for a number of scenarios to assess the ground-level impact of the emissions from existing MAC operations and South Flank. The modelled scenarios utilized the year of mining with the highest movement of tonnes of ore and waste in the closest proximity to the sensitive receptors, as a worst case scenario. The model predicted (PEL, 2016) that a 15 km section of the Great Northern Highway is at high risk of reduced visibility (visibility up to 1 km) for up to 12 % of the time. Vehicle closing speeds are 220 km per hour. With respect to Hope Downs village, the model predicted a highest PM_{10} (24-hour) concentration at Hope Downs village of 77 $\mu g/m^3$, with two exceedances over 50 $\mu g/m^3$ for the year. The standard and goal for particles as PM_{10} as outlined in Schedule 1 of the National Environment Protection (Ambient

									Air Quality) Measure (NEPM) is 50 µg/m^3 averaged over 1 day, with no exceedances. The Delegated Officer notes that NEPM provides a national framework for all Australian jurisdictions to monitor and publicly report on common ambient air pollutants. The NEPM guidance publications including the Explanatory Statement clearly outline the application of the NEPM and identify that the imposition of NEPM ambient air quality standards as boundary or compliance limits is not consistent with the aims and intent of the NEPM. The NEPM sets national air quality standards and goals for six common ambient air pollutants, including PM_{10}. They are based on health evidence of the impacts of air pollutants available at the time the standards are set; and are designed to provide protection to people from the pollutants' adverse human health effects. The standards are also designed to be realistically achievable in the different Australian jurisdictions with a focus on large urban areas, where the majority of Australia's population resides. The NEPM aims to guide policy formulation that allows for the adequate protection of human health and wellbeing. It does not compel or direct pollution control measures, or set penalties for non-compliance. (Department of Environment and Energy, 2018). DWER supports the implementation of the NEPM in Western Australia by maintaining an air quality monitoring network and providing air quality data and reporting. Where appropriate, DWER uses NEPM

									goals to assess risks to public health and set emission limits. The NEPM requires participating jurisdictions to undertake nationally consistent monitoring and reporting activities that support the formulation of air quality management policies. NEPM monitoring protocols provide guidance to jurisdictions on monitoring population exposure to air pollution. NEPM standards are health based. The standards in the NEPM are not intended to be applied as an environmental standard by jurisdictional environmental regulators without consideration of regulatory impacts. Section 7 of the *National Environment Protection Council Act 1994* allow jurisdictions to implement the NEPM by such laws and other arrangements as are necessary. The implementation of the NEPM does not preclude jurisdictions from adopting tighter or complementary standards or goals for their own policy or regulatory purposes. In doing this, jurisdictions may utilise a risk-based approach in determining environmental standards appropriate for their own circumstances or conditions, along with improvement strategies for regulated and non-regulated sources and exposure reduction strategies. The NEPM provides for DWER; the responsibility to manage, and where appropriate to regulate, air quality to achieve protection of human health. It does not obligate DWER to ensure that PM_{10} emissions do not at any time or in any location, exceed the criteria intended to protect population health. NEPM implementation guidance is

									understood and implemented by experts in air quality management within DWER. This guidance provides for regulation of individual premises in order to meet the measure in populated areas but specifically states that the measure is not suitable for use as a boundary or compliance limit in regard to those individual premises. The Delegated Officer notes that the dust modelling for South Flank has predicted an exceedance of the NEPM for PM_{10}. It is acknowledged however, that the dust modelling for South Flank was undertaken for a significantly higher production rate (150 mtpa) than what is being assessed via this Licence amendment (6 Mtpa increase). The Delegated Officer considers that the increase in production from 65 Mtpa to 71 Mtpa, and the addition of the two 1 Mtpa mobile crushing and screening plants approved under this Licence amendment, is unlikely to result in a significant increase in dust experienced at Hope Downs Village, or result in a reduction of visibility for the users of the Great Northern Highway. The Licence Holder will also be implementing dust controls to minimize emissions. Licence Holder controls on the relocatable crusher include the use of water sprays on the feed hopper, conveyor transfers and stackers; and use of water sprays at stockpile reclamation and train load out operations. Dust equipment will be maintained in efficient operating condition, routine maintenance and housekeeping will be undertaken to avoid accumulation of waste

									materials that could lead to dust generation and employees and contractors will be inducted regarding importance of minimizing dust levels. The two mobile category 12 crushing plants will be fitted with spray nozzles to control dust emissions and water carts will be used to control dust from mobile plant movements and stockpile handling. The separation distances of the Category 5 and 12 activities from the sensitive receptors, in addition to the proposed controls are deemed sufficient to manage the risk from dust. <u>Consequence:</u> There will be minimal impacts to amenity at a local scale and minimal on-site environmental impact. The consequence of dust has been determined to be slight. <u>Likelihood:</u> The risk will probably not occur in most circumstances. The likelihood of the consequence has been determined as unlikely. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement, Risk Assessments 2017) determines the overall rating of risk of health and amenity impacts to be **low**.
		Noise				Slight	Unlikely	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent noise impacts occurring. The Licence Holder will install silenced crushing equipment and power packs,

									where possible and maintain exhaust silencers on stationary and mobile equipment. The separation discharge, in addition to the proposed controls are deemed sufficient to manage the risk from noise. <u>Consequence:</u> Given the distance to the nearest sensitive receptor, there will be minimal impacts to amenity. The consequence has been determined as slight. <u>Likelihood:</u> The risk will probably not occur in most circumstances. The likelihood of the consequence has been determined as unlikely. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (*Guidance Statement, Risk Assessments 2017*) determines the overall rating of risk of health and amenity impacts to be **low**.
Category 6- Mine dewatering	Increase in mine dewater discharge to the Western Sediment Basin and operation of two additional discharge points to the same. Two additional mine dewater discharge points to the Central Sediment Basin D.	Direct discharge of mine dewater via designated emission points	Native vegetation	Direct discharge of mine dewater	Inundation of vegetation, impacts to plant health	Slight	Unlikely	Low	**Western Sediment Basin** Trials carried out indicate that discharged water is infiltrating through the surface sediments downstream of the F Deposit Discharge Point, and within a few days, making its way to the water table approximately 60 mbgl. These trials also demonstrated that the wetting footprint will not extend beyond the Western Sediment Basin, thereby minimizing impacts to vegetation in the area. Based on the outcome of these trials, detrimental impacts to vegetation are unlikely to be observed. **Central Sediment Basin** Areas within the discharge locations have been cleared, and new discharge points

									will be within an existing drainage line/sediment basin. The volume of water discharged to the area will not increase. It is unlikely that the discharge of mine dewater to these locations will impact on vegetation health. In the case of the Western Sediment Basin, the wetting footprint will be maintained within the basin area. The Central Sediment Basin area has been cleared, and discharge will occur within an existing drainage line. <u>Consequence:</u> Onsite impacts to native vegetation at a local scale will be minimal, therefore the consequence has been determined as slight. <u>Likelihood:</u> The risk of vegetation being effected by dewatering discharge, particularly by increasing discharge to the Western Sediment Basin, could occur at some time. The likelihood has been determined as **possible**. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement, Risk Assessments 2017) determines the overall rating of risk of environmental impacts to be **low**.
			Groundwater	Infiltration into groundwater	Alteration of groundwater quality and groundwater levels, potentially impacting vegetation	Minor	Possible	Medium	As described above, the trials for increased discharge to the Western Sediment Basin indicate that discharge water rapidly infiltrates, reaching groundwater within a few days. It is conducted away from the discharge area within the regional aquifer system. Groundwater quality is reasonable, with total dissolved solids concentration of 500-1,000mg/L. Mine

									dewater will be infiltrating back into the regional aquifer system from which it was sourced and contamination of mine dewater following abstraction is unlikely. The Licence Holder will monitor groundwater levels in the area, and have alternative mine dewater disposal options (reinjection, infiltration ponds etc) which can be used if required. Based on the anticipated water quality and mine dewater management at MAC, risks to groundwater from increased discharge to the Western Sediment Basin can be sufficiently managed. <u>Consequence:</u> Low level onsite impacts to groundwater are expected as a result of the increase of mine dewater discharge to the Western Sediment Basin, and additional discharge points to the Central Sediment Basin. The consequence is determined to be **minor.** <u>Likelihood:</u> The risk of groundwater being effected by dewatering discharge, particularly by increasing discharge to the Western Sediment Basin, could occur at some time. The likelihood has been determined as **possible**. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement, Risk Assessments 2017) determines the overall rating of risk of environmental impacts to be **medium**.
		Pipeline failure	Native vegetation	Direct discharge of mine dewater	Inundation of vegetation, impacts to plant health depending	Slight	Possible	Low	Leaks are detected by reconciling mass balance between input and outputs. Flowmeters are located on input and output locations and used to identify potential losses from the system. The

					on quality of water and volume discharged.				Delegated Officer notes the pipelines will be conveying excess mine dewater with an anticipated total dissolved solid concentration of 500-1,000 mg/L. Based on the anticipated water quality and operator controls, the risks from unplanned discharges are sufficiently managed. <u>Consequence:</u> Minimal onsite impacts to vegetation could occur. The consequence is therefore determined to be **slight.** <u>Likelihood:</u> The risk of vegetation being effected by an unplanned release of mine dewater will probably not occur in most circumstances. The likelihood has been determined as **unlikely**. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement, Risk Assessments 2017) determines the overall rating of risk of environmental impacts to be **low**.
Category 54-Sewage facility	Discharge to land: treated sewage applied to native vegetation using reticulated sprinklers	Treated sewage (nutrient rich effluent) to land	Soil and native vegetation	Direct discharge to land and overland flows	Nutrient load and impacts on native vegetation health, reduction in soil quality resulting in plant death	Slight	Possible	Low	The WWTP is designed and will be operated to ensure plant achieves expected treatment quality. Monitoring and recording of system flow rates using an automatic flow meter. Monthly water samples to confirm water quality. Pipelines from the WWTP to the irrigation area will run above ground to detect leaks/blockages and Mag/flow meter will be used to measure volumes discharged to each irrigation area. <u>Consequence:</u> Minimal onsite impacts to vegetation are likely to occur. The consequence is determined to be **slight.**

									Likelihood: Vegetation and soil health effects could occur at some time. The likelihood has been determined as **possible**. Overall risk rating: Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement, Risk Assessments 2017) determines the overall rating of risk of environmental impacts to be **low**.
		Odour	Hope Downs Ore Mining Operation and village 6.5 km	Air/wind dispersion	Amenity	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent odour impacts occurring.
	Infrastructure and influent pipework: WWTP (containing untreated influent) tanks overtopping/overflow from tanks and rupture or failure on pipeline route	Nutrient rich influent	Soil and native vegetation	Direct discharge to land	Contamination of soil and impact on vegetation health and growth resulting in plant death.	Slight	Unlikely	Low	The WWTP tanks are equipped with Top of Water and Below Water Levels transducers and sensors, alarms and forward pumps to transfer water from one tank to another should there be a risk of overflow. Also, the proposed new WWTP will be installed on an earthen pad and will be surrounded by an earthen bund to contain potential overflows from the WWTP tanks. Consequence: Minimal onsite impacts to soil and native vegetation would occur as a result of an unplanned release of effluent. The consequence is determined to be **slight.** Likelihood: The risk is considered that it will not occur in most circumstances. The likelihood has been determined as **unlikely** Overall risk rating: Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (Guidance Statement,

									Risk Assessments 2017) determines the overall rating of risk of environmental impacts to be **low**.
	Chemical storage: chlorine, phosphorus precipitant agent and polymers	Chemicals discharged to land	Soil and native vegetation	Direct discharge to land	Contamination of soil and soil microbes and impact on vegetation health and growth resulting in plant death	Slight	Rare	Low	Chemicals used for treatment are in small volumes and will be stored in fully enclosed internally bunded steel enclosures with restricted access and lockable doors, located within the WWTP compound. General provisions of the Act and *Environmental Protection (Unauthorised Discharges) Regulations 2004* are applicable. <u>Consequence:</u> Minimal onsite impacts would occur as a result of a chemical spill at the WWTP due to small volumes stored and containment. The consequence is determined to be **slight.** <u>Likelihood:</u> The risk is considered that it would only occur in exceptional circumstances. The likelihood has been determined as **rare**. <u>Overall risk rating:</u> Comparison of the consequence and likelihood ratings described above with the Risk Rating Matrix (*Guidance Statement, Risk Assessments 2017*) determines the overall rating of risk of environmental impacts to be **low**.

Category 63- Class I inert landfill site	Vehicle movements on unsealed roads	Dust	Hope Downs Ore Mining Operation and village 6.5 km	Air/wind dispersion	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent dust impacts occurring. Intermittent use of the landfill reduces the likelihood of dust emissions impacting receptor.
	Increase in inert waste disposal	Windblown waste entering the environment	Terrestrial environment, including fauna habitat	Direct discharge to land	Visual amenity, impacts to flora and fauna	Slight	Rare	Low	Existing licence condition required wind-blown waste to be contained within the boundary of the premises, and for wind-blown waste to be returned to the tipping area on at least a monthly basis.
Category 73- Bulk storage of chemicals, etc	Operation of 12 new fuel bullets, increasing total combined premises storage capacity to 6,000m^3	Contaminated stormwater runoff	Soil and minor watercourses	Direct discharge to land	Contamination of soil and surface water drainage with hydrocarbons	Slight	Possible	Low	The Licence Holder is required to store hydrocarbons in accordance with Australian Standard 1940-2004 The storage and handling of flammable and combustible liquids. The Licence Holder is responsible for ensuring compliance with the abovementioned standard, which includes provisions for ensuring spills are attended to immediately. The provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply.
		Hydrocarbon spills to ground				Slight	Possible	Low	
Category 89- Putrescible landfill site	Operation of putrescible landfill with an increased design capacity of 5,000tpa	Leachate	Soil and groundwater	Infiltration of leachate through soil profile and into groundwater	Contamination of soil and groundwater from elevated nutrients and other contaminants.	Slight	Rare	Low	Depth to groundwater at the proposed landfill site is approximately 40m and the nearest drainage line is approximately 250 m away. Depth to groundwater and distance to surface water drainage is adequate to prevent impacts to ground water and surface water. Licence L7851/2002/6 requires at least 2m between the base of landfill and the highest groundwater level, and for putrescible waste to be covered as soon as practicable, but not longer than a week after waste is deposited. These licence

									controls are considered adequate to prevent impacts to groundwater and surface water.
		Odour	Hope Downs Ore Mining Operation and village 6.5 km	Air/wind dispersion	Amenity impacts	Slight	Rare	Low	The Delegated Officer considers that the separation distance between the source and potential receptor is sufficient to prevent odour impacts occurring.

Decision

Condition 1.2.2 has been amended to increase the waste acceptance quantity limits for inert waste, putrescible waste and sewage.

Condition 1.2.10, which specifies the premises production or design capacity limits, and the prescribed premises category table (page 1 of Licence) have been amended as follows:

- The approved premises production capacity for Category 5 has been increased from 65 Mtpa to 71 Mtpa to allow for the operation of the additional screen on the existing 6 Mtpa crusher, once installed.
- Category 12 has been included as a prescribed activity with a design capacity of 2 Mtpa to allow for the operation of three mobile crushing and screening units to produce coarse aggregate during site upgrade works and stemming material for blasting activities.
- The approved premises design capacity for Category 54 has been increased from 480 m^3/day to 1,110 m^3/day (increase of 630 m^3/day) to include the throughput associated with the Mulla Mulla Village WWTP, once constructed.
- The approved premises design capacity for Category 63 inert waste disposal volume from 9,000 tpa to 14,000 tpa to account for an increase in inert waste resulting from the construction of the Southern Flank mining hub.
- The approved premises design capacity for Category 73 has been increased from 3,500 m^3 to 6,000 m^3 to allow for the operation of fifteen additional fuel bullets across the site, once installed.
- The approved premises design capacity for Category 89 has been increased from 3,000 tpa to 5,000 tpa to allow for the operation of the new putrescible landfill once constructed, which will receive increased waste from the operation of the expanded Mulla Mulla camp.

Condition 1.2.13 has been amended to include infrastructure specification requirements for the new Metso TS5.2 screen on the existing 6 Mtpa crusher, two new relocatable crushing and screening plants, the new putrescible landfill, the four additional mine dewater discharge points (Central and Western Sediment Basins), and to update the Juna Downs reinjection bore names.

Conditions 1.2.17, 1.2.18, 1.2.19. 1.2.20 and 1.2.21 have been included in the Licence to allow for the operation of the new screening plant, the new discharge points to the Central and Western Sediment Basins, putrescible landfill and three mobile crushing and screening plants, following the submission of compliance documentation required under Condition 4.3.1.

Condition 1.2.22 and 1.2.23 have been included in the Licence to require a three month commissioning period for the Mulla Mulla Camp WWTP and specify the process monitoring requirements during the commissioning period.

Conditions 2.2.1, 2.2.2, 2.2.3 and 3.2.1 have been amended to reflect changes to the Juna Downs MAR reinjection bore names.

Condition 2.3.1 has been amended to include the additional discharge points to the Central and Western Sediment Basin, and to make updates to emission points L4 and L5 to allow for discharge of treated wastewater from overflow of evaporation ponds, outside of extreme rainfall events.

Condition 3.3.1 has been amended to include the Central and Western Sediment Basin

emission points as monitoring locations under this condition.

Condition 4.2.1 has been amended to require the reporting of monitoring results from the Central and Western Sediment Basins in the Annual Environmental Report.

Condition 4.2.3 has been amended to require the submission of the commissioning report for the Mulla Mulla Camp WWTP. Consistent with the requirements of Works Approval W6092/2017/1, the commissioning report shall be submitted within 30 days of the completion of commissioning. Requirements for the commissioning report have been included in amended Table 4.3.2 of the Licence.

Condition 4.3.1 has been amended to require the submission of a compliance document for each of the proposed new works (screening plant, three mobile crushing and screening plants, mine dewater discharge points and putrescible landfill).

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 21 September 2018. 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 bold 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: premises on which – (a) Metallic or non-metallic ore is crushed, ground, milled or otherwise processed; (b) Tailings from metallic or non-metallic ore are reprocessed; or Tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	50,000 tonnes or more per year	~~65,000,000~~ **71,000,000** tonnes per Annual Period
6	Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore.	50,000 tonnes or more per year	34,931,000 tonnes per Annual Period
12	**Screening, etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated**	**50,000 tonnes or more per year**	**2,000,000 tonnes per Annual Period**
54	Sewage facility: premises – (a) on which sewage is treated (excluding septic tanks); or (b) From which treated sewage is discharged onto land or into waters.	100 m^3 or more per day	~~480~~ **1,110** m^3 per day
63	Class I inert landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial.	500 tonnes or more per year	~~9,000~~ **14,000** tonnes per Annual Period
73	Bulk storage of chemicals etc.: premises on which acids, alkalis or chemicals that –	1 000 m^3 in aggregate	~~3 500~~ **6,000** m^3 in aggregate

	(a) contain at least one carbon to carbon bond; and (b) Are liquid at STP (standard temperature and pressure), are stored.		
85B	Water desalinisation plant: premises at which salt is extracted from water if waste water is discharged onto land or into waters (other than marine waters)	0.50 gigalitres or more per year	0.9125 gigalitres per Annual Period
89	Putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer, as amended from time to time) is accepted for burial.	More than 20 but less than 5 000 tonnes per year	~~3 000~~ **5,000** tonnes per Annual Period

2. Condition 1.2.2 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall only accept waste onto the inert landfill, putrescible landfills, Rubber/Tyre Dump and sewage treatment plants, shown on the maps in Schedule 1, if:

(a) it is of a type listed in Table 1.2.1;
(b) the quantity accepted is below any quantity limit listed in Table 1.2.1; and
(c) it meets any specification listed in Table 1.2.1.

Table 1.2.1: Waste acceptance		
Waste type	**Quantity limit**	**Specification** [1]
Inert Waste Type 1	~~9 000~~ **14,000** tonnes/year	None specified
Inert Waste Type 2		Tyres, rubber and plastic only
Putrescible Waste	~~3 000~~ **5,000** tonnes/year	None specified
Clean Fill		None specified
Sewage	~~480~~ **1,110** m^3/day	Accepted through sewer inflow(s) only. Packsaddle WWTP Pond System, flow recorded as inflow All Biomax WWTPs, flow recorded at outflow

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004.*

3. Condition 1.2.10 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall ensure the limits specified in Table 1.2.4 are not exceeded.

Table 1.2.4 Production or design capacity limits		
Category[1]	**Category description[1]**	**Premises production or design capacity limit**
5	Processing or beneficiation of metallic or non-metallic ore	~~65,000,000~~ **71,000,000** tonnes of ore per annual period
6	Mine dewatering	34,931,000 tonnes per Annual Period total, being: • 5,840,000 tonnes per Annual Period reinjection – Deposit A

		• ~~2,081,000~~ **10,950,000** tonnes per Annual Period (discharged to the Western Sediment Basin) • 8,760,000 tonnes per Annual Period (discharged to the Central Sediment Basin) • 10,950,000 tonnes per Annual Period (discharged to the Packsaddle Infiltration Ponds) • 7,300,000 tonnes per Annual Period (reinjection – Juna Downs)
12	**Screening, etc. of material**	**2,000,000 tonnes per Annual Period**
73	Bulk storage of chemicals, etc	~~3,500~~ **6,000** cubic metres in aggregate
85B	Water desalinisation plant	0.9125 gigalitres per Annual Period

Note 1: *Environmental Protection Regulations 1987*, Schedule 1.

4. Condition 1.2.13 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee must not depart from the specifications in Column 1 and 2 for the infrastructure in each row of Table 1.2.7 except:

a) where such departure is minor in nature and does not materially change or affect the infrastructure; or

b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment; and is in accordance with all other conditions of this Licence.

Table 1.2.7: Infrastructure to be constructed	
Infrastructure	**Specifications (design and construction)**
Packsaddle Infiltration Ponds	
1) Pond construction	• Three infiltration ponds, 80 metres wide, 500 metres long, 0.5 metres in depth, each pond comprising of four basins • High level alarms installed on each pond • Stock proof fencing erected around perimeter of each pond
2) Water conveyance	Polyethylene pipeline approximately 7 kilometres in length from the E Deposit Turkey's Nest to convey excess mine dewater to the infiltration ponds, using diesel pumps
3) Groundwater monitoring	Installation of groundwater monitoring bore MB1
Mining Area C Water Treatment Plant	
1) Water treatment plant	Installation of a nano-filtration water treatment plant, in two stages: • Stage1: Construction of a 0.584 gigalitre per annum water treatment plant; and • Stage 2: Expansion of the Stage 1 facility to a 0.9125 gigalitre per annum water treatment plant. Water treatment plant to comprise of: • Two raw water tanks, Tank A and Tank B; • Two Waste tanks, TK1000A and TK10000B; • Two chlorination buildings;

	• Five nano-filtration trains; • Multimedia filters; • Building to contain sulphuric acid, antiscalant, sodium metasulphate, ferric chloride and sodium hydroxide; • One chlorine contact tank, CCT100000; • Two product water tanks, TK10005A and TK10005B; • Control room and laboratory.
2) Irrigation area	• Construction of a 7.4 hectare irrigation area, comprising of Wobbler xcel 4.76 millimetres sprays. • Stock proof fencing erected around perimeter of irrigation area
Juna Downs MAR scheme	
Reinjection bores	• Construction of injection bores with flow meters installed; HGSL0005, HGSL0006, HGSL0014 and HGSL0015 as per location on Attachment 1 of ~~this~~ Amendment Notice **1**; • Construction of two additional bores named HGSL0016 and HGSL0017 (including flowmeters) located within the green area demarcated 'Indicative Area for New Bore' as per Attachment 1 of ~~this~~ Amendment Notice **1**
Water conveyance	Approximately 22 km of polyethylene pipe
Mulla Mulla Camp WWTP sprayfield	
	Spray irrigation heads: 24 sprinklers at ~34m spacing
	Perimeter fencing for an area of 3.047ha
	110dia HDPE, PE100 PN12.5 pipework, protected and buried in a trench with sand bedding with a depth of cover of 900mm in areas subject to vehicular traffic and 750mm in areas not subject to vehicular traffic.
New screening plant to expand the 6 million tonne per annum relocatable crusher	
	Installation of one additional Metso TS5.2 screen at the 6 million tonnes per annum crusher to increase its capacity to 12 million tonnes per annum, with the following dust control infrastructure to be installed and maintained: • **Dust hoods on bins;** • **Sprays on all transfer points and conveyors; and** • **Sprinkler system on plant infrastructure.**
Central Sediment Basin New discharge points	**Construction of two new discharge points (L16 & L17) for the Central Sediment Basin**
Western Sediment Basin New discharge points	**Construction of two new discharge points (L15 & L19) for the Western Sediment Basin**
Putrescible landfill	• **Construction of four (4) landfill trenches measuring 200 metres in length, 25 metres in width and 2.5 metres in depth;** • **Windrows constructed along the southern and eastern boundary of the landfill facility to direct stormwater away from the trenches; and** • **Perimeter fencing erected and maintained around active landfill trenches.**
Two mobile crushing and screening plants for South Flank construction	• **Construction, mobilization and installation of two, one million tonne per annum capacity mobile crushing and screening plants;** • **Fitted with spray nozzles to minimize dust emissions at the head drum, discharge point of the main conveyor and at the feed point;** • **Stormwater infrastructure (earthen bunds) constructed as required to prevent stormwater ingress into the mobile crushing and screening plants operational areas;** • **Located at least 50 metres from drainage lines.**

One mobile crushing and screening plant for stemming material production	• **Construction, mobilization and installation of one mobile crushing and screening plant with a maximum annual throughput of 130,000 tonnes;** • **Fitted with dust sprays and dust covers at the head drum and discharge point of the main conveyor and at the feed point;** • **Stormwater infrastructure (earthen bunds) constructed as required to prevent stormwater ingress into the mobile crushing and screening plants operational areas; and** • **Located at least 50 metres from drainage lines.**

5. The Licence is amended by the insertion of the following Condition 1.2.17:

The Licensee shall operate the new screening plant and associated relocatable crusher at the new 12 million tonne per annum capacity in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1.

6. The Licence is amended by the insertion of the following Condition 1.2.18:

The Licensee shall operate the two new discharge points (L16 and L17) for the Central Sediment Basin in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1.

7. The Licence is amended by the insertion of the following Condition 1.2.19:

The Licensee shall operate the two new discharge points (L15 and L19) for the Western Sediment Basin in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1.

8. The Licence is amended by the insertion of the following Condition 1.2.20:

The Licensee shall operate the new putrescible landfill in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1.

9. The Licence is amended by the insertion of the following Condition 1.2.21:

The Licensee shall operate the three new mobile crushing and screening plants no closer than one (1) kilometer to the edge of the prescribed premises boundary as shown in the figure showing the prescribed premises in Schedule 2 of this Licence, in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1.

10. The Licence is amended by the insertion of the following Condition 1.2.22:

The Licensee shall commission the Mulla Mulla Camp WWTP for a period of three months but not exceed a period of 12 months.

11. The Licence is amended by the insertion of the following Condition 1.2.23:

The Licensee must undertake process monitoring during Commissioning of the Mulla Mulla Camp WWTP to the following requirements:
(a) at the locations specified in Column 1;

(b) for the parameters specified in Column 2;
(c) at the frequency specified in Column 4;
(d) meet the limits specified in Column 5; and
(e) using the methods specified in Column 7.

Table 1.2.23						
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**	**Column 6**	**Column 7**
Emission point reference	Parameter	Units	Frequency	Limit	Averaging period	Method
Irrigation areas L13 and L14	Volume	kL/day	Continuous	<630	Cumulative daily	Mag-flow meter
Final effluent tank sampling tap prior to discharge to irrigation areas L13 and L14	Biochemical Oxygen Demand	mg/L	Weekly	<20	Spot sample	AS/NZS 5667:10
	Total Suspended Solids	mg/L	Weekly	<30		
	Total Thermo-tolerant Coliforms	Cfu/100mL	Weekly	<10		
	Total Nitrogen	mg/L	Weekly	<15		
	Total Phosphorus	mg/L	Weekly	<8		
	pH*	pH units	Weekly	>6.5 and <8.5		

*insitu sampling and recording permitted

12. Condition 2.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall ensure that where waste is emitted to groundwater from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission points to groundwater		
Emission point reference and location on Map of emission points	**Description**	**Source including abatement**
HGA0001P HGA0002P HGA0040P HGA0041P	Direct injection below ground	Water from dewatering associated with the Managed Aquifer Recharge Trial
HGSL0005 HGSL0006 HGSL0014 HGSL0015 **HGSL0031** **HGSL0032** ~~Bores HGSL0016 and HGSL0017~~[1]	Direct injection below ground	Water from surplus mine dewatering

13. Condition 2.2.2 of the Licence is amended by the deletion of the text shown in

strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall not cause or allow point source emissions to exceed the limits listed in Table 2.2.2.

Table 2.2.2: Point source emission limits to groundwater			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
HGA0001P HGA0002P HGA0040P HGA0041P	Depth to groundwater	Not less than 10m below ground surface	Spot sample
HGSL0005 HGSL0006 HGSL0014 HGSL0015 **HGSL0031** **HGSL0032** ~~Bores HGSL0016 and HGSL0017~~[1]		Not less than 7m below ground surface	

14. Condition 2.2.3 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall take the specified management action in the case of an event in Table 2.2.3.

Table 2.2.3: Management actions			
Emission point reference	**Event/ action reference**	**Event**	**Management action**
HGA0001P HGA0002P HGA0040P HGA0041P HGSL0005 HGSL0006 HGSL0014 HGSL0015 **HGSL0031** **HGSL0032** ~~Bores HGSL0016 and HGSL0017~~[1]	EA1	Any time the monitoring data indicates an exceedance of the limit specified in condition 2.2.2	The Licensee shall cease direct injection at the emission point listed in Table 2.2.1 where the limit exceedance occurred

15. Condition 2.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall ensure that where waste is emitted to land from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.3.1: Emissions to land		
Emission point reference	**Description**	**Source including abatement**
L1	Discharge of treated wastewater from Packsaddle Village C150K WWTP to designated unlined evaporation/infiltration pond	Treated wastewater from Packsaddle Village C150K WWTP
L2	Discharge of treated wastewater from Packsaddle Village WWTP to unlined evaporation/infiltration pond	Treated wastewater from Packsaddle Village WWTP ponds
L3	Discharge of treated wastewater from Mulla Mulla Camp C300K WWTP to designated irrigation area	Treated wastewater pipeline from Mulla Mulla Camp C300K WWTP
L4	Discharge of treated wastewater from overflow of evaporation ponds ~~during extreme rainfall events~~	Treated wastewater from heavy vehicle washdown bays, workshop oily water separators and untreated wastewater from the light vehicle washdown bay
L5		
L6	Discharge of treated wastewater to undertake scheduled maintenance of ponds	
L7	Discharge of reject water from the Mining Area C Water Treatment Plant to designated irrigation area	Reject water from the Mining Area C Water Treatment Plant
L8	Discharge of excess mine dewater to the Packsaddle Infiltration ponds	Mine dewater
L9		
L10		
L11	Discharge of excess mine dewater to the Western Sediment Basin	Mine dewater
L12	Discharge of excess mine dewater to the Central Sediment Basin	Mine dewater
L13	**Discharge of treated wastewater from the Mulla Mulla Camp WWTP to designated irrigation area**	**Treated wastewater pipeline from Mulla Mulla Camp WWTP**
L14		
L15	**Discharge of excess mine dewater to the Western Sediment Basin**	**Mine dewater**
L16	**Discharge of excess mine dewater to the Central Sediment Basin**	**Mine dewater**
L17		
L18		**Mine dewater**
L19	**Discharge of excess mine dewater to the Western Sediment Basin**	**Mine dewater**

16. Condition 3.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of point source emissions to groundwater				
Emission point reference[1]	**Parameter**	**Units**	**Averaging period**	**Frequency**
HGA0001P HGA0002P HGA0040P HGA0041P HGSL0005 HGSL0006 HGSL0014 HGSL0015 **HGSL0031** **HGSL0032** ~~Bores HGSL0016 and HGSL0017[3]~~	Cumulative Volume	m^3/day	Spot Sample	Monthly
	Electrical Conductivity[2]	µS/cm		
	pH[2]	pH Units		
	Groundwater level	mbgl		
	Aluminium	mg/L	Spot sample	Quarterly
	Arsenic			
	Barium			
	Boron			
	Calcium Carbonate			
	Cadmium			
	Calcium			
	Chloride			
	Chromium			
	Copper			
	Fluoride			
	Iron			
	Lead			
	Magnesium			
	Manganese			
	Mercury			
	Molybdenum			
	Nickel			
	Nitrate			
	Potassium			
	Selenium			
	Sodium			
	Sulfate			
	Total Dissolved Solids			
	Zinc			

Note 1: pH, electrical conductivity and hydrochemistry samples are only required to be taken from one emission point during each quarterly monitoring event and only emission points that are active in the monitoring period are required to be sampled.

Note 2: In-field non-NATA accredited analysis permitted.

17. Condition 3.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of emissions to land					
Emission point reference	**Monitoring point location**	**Parameter**	**Units**	**Averaging Period**	**Frequency**
L1 – L3, **L13 and L14**	Flow meter to irrigation area or evaporation / infiltration pond	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
	Final storage tank - prior	pH[1]	pH units	Spot	Quarterly

	to discharge to emission points	5-Day Biochemical Oxygen Demand	mg/L	sample	
		Total Suspended Solids			
		Total Nitrogen			
		Total Phosphorus			
		E.coli	cfu/100 mL		
L4	Discharge overflow point from evaporation pond	Total Recoverable Hydrocarbons	mg/L	Spot sample	Quarterly
L5	HV washdown discharge overflow point				Quarterly
L6	Secondary HV washdown discharge overflow point				
L7	Flow meter to irrigation area	Volumetric flow rate (cumulative)	m^3/day	Quarterly	Continuous
	Final storage tank – prior to discharge emission point	Total Dissolved Solids	mg/L	Spot sample	Quarterly
~~L8 to L12~~ **L8** **L9** **L10** **L11** **L12** **L15** **L16** **L17** **L18** **L19**	At the trunk line prior to the infiltration/sediment basin	Volumetric flow rate (cumulative)	m^3/day	Quarterly	Continuous
		pH[1]		Spot sample	Quarterly
		Electrical Conductivity[1]	µS/cm		
		Aluminium	mg/L		
		Arsenic	mg/L		
		Barium	mg/L		
		Boron	mg/L		
		Calcium Carbonate	mg/L		
		Cadmium	mg/L		
		Calcium	mg/L		
		Chloride	mg/L		
		Chromium	mg/L		
		Copper	mg/L		
		Fluoride	mg/L		
		Iron	mg/L		
		Lead	mg/L		
		Magnesium	mg/L		
		Manganese	mg/L		
		Mercury	mg/L		
		Molybdenum	mg/L		
		Nickel	mg/L		
		Nitrate	mg/L		
		Potassium	mg/L		
		Selenium	mg/L		
		Sodium	mg/L		
		Sulfate	mg/L		
		Total Dissolved Solids	mg/L		
		Zinc	mg/L		

Note 1: In-field non-NATA accredited analysis permitted.

18. Condition 4.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall submit to the CEO an Annual Environmental Report by the 1 October each year. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	**Parameter**	**Format or form[1]**
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
-	Summary of design capacity and throughputs for each prescribed activity on the premises	None specified
Tables 3.5.2	Groundwater level exceedances	None specified
Tables 1.2.1, 1.2.4, 2.2.2, 2.3.2, 3.5.1	Limit exceedances	None specified
3.2.1	Cumulative volume, standing water level, pH, electrical conductivity, physicochemical parameters as listed in Table 3.2.1 and a comparison of results against established trigger values. Details of investigations conducted, including outcomes, environmental impacts and remedial actions, in relation to trigger exceedances and a discussion of any trends identified	None specified
3.3.1	L1-L3, **L13 and L14** – Monitoring results and comparison against the National Water Quality Management Strategy *Australian Guidelines for Sewerage Systems – Effluent Management* (Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council, 1997)	None specified
	L4-L7 – Monitoring results	
	L8-L12 and **L15-L19** – Monitoring results and comparison of results against established trigger values and previous monitoring results. Details of investigations conducted, including outcomes, environmental impacts and remedial actions, in relation to trigger exceedances and a discussion of any trends identified.	
3.4.1	Inputs and outputs of waste on the premises	None specified
3.5.2	Ambient groundwater monitoring results and a comparison of results against established trigger values. Details of investigations conducted, including outcomes, environmental impacts and remedial actions, in relation to trigger exceedances and a discussion of any trends identified	None specified
4.1.2	Compliance	None specified
4.1.3	Complaints summary	None specified

Note 1: Forms are in Schedule 2

19. Condition 4.2.3 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	**Parameter**	**Reporting period**	**Reporting date (after end of the reporting period)**	**Format or form**
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties
1.2.12	Commissioning report for the Mining Area C Water Treatment Plant	Not applicable	Within one month of the completion of commissioning	The report shall include: (a) a summary of monitoring results; (b) a list of any original monitoring reports submitted to the Licensee from third parties for the commissioning period; (c) a summary of the environmental performance of the Mining Area C Water Treatment Plant as installed, against the design specification set out in the application; and (d) where they have not been met, measures proposed to meet the design specification and/or Licence conditions, together with timescales for implementing the proposed measures.
1.2.21	**Commissioning report for the Mulla Mulla Camp WWTP**	**Not applicable**	**Within one month of the completion of commissioning**	**The report shall include:** **(a) a summary of monitoring results recorded under Condition 7;** **(b) a list of any original monitoring reports submitted to the Works Approval Holder from third parties for the Commissioning Period;** **(c) a summary of the environmental performance of the WWTP as installed, against the design specification set out in Table 1.2.7;** **(d) a review of performance against the Works Approval Conditions; and** (e) **where they have not**

				<u>been meet, proposed measures to meet the design specification and/or Works Approval Conditions, together with timescales for implementing the proposed measures.</u>
3.5.3	Monitoring results following groundwater level exceedance, including a discussion of results, environmental impacts and remedial actions	Not Applicable	Within one month of the completion of the vegetation monitoring specified in Table 3.5.3	None specified

20. Condition 4.3.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:

The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	**Parameter**	**Notification requirement[1]**	**Format or form[2]**
1.2.12	The Licensee shall, prior to commencing commissioning of the Mining Area C Water Treatment Plant, submit a commissioning plan to the CEO. The commissioning plan shall include details relating to: (a) the commissioning stages and expected timescales for commissioning; (b) expected emissions and discharges during commissioning and the environmental implications of the emissions; (c) how emissions and discharges will be managed during commissioning; (d) the monitoring that will be undertaken during the commissioning period; (e) how accidents or malfunctions will be managed; (f) start up and shut down procedures; and (g) reporting proposals including accidents, malfunctions and reporting against the commissioning plan. Commissioning shall be carried out in accordance with the commissioning plan.	Four weeks prior to the commencement of commissioning.	None specified

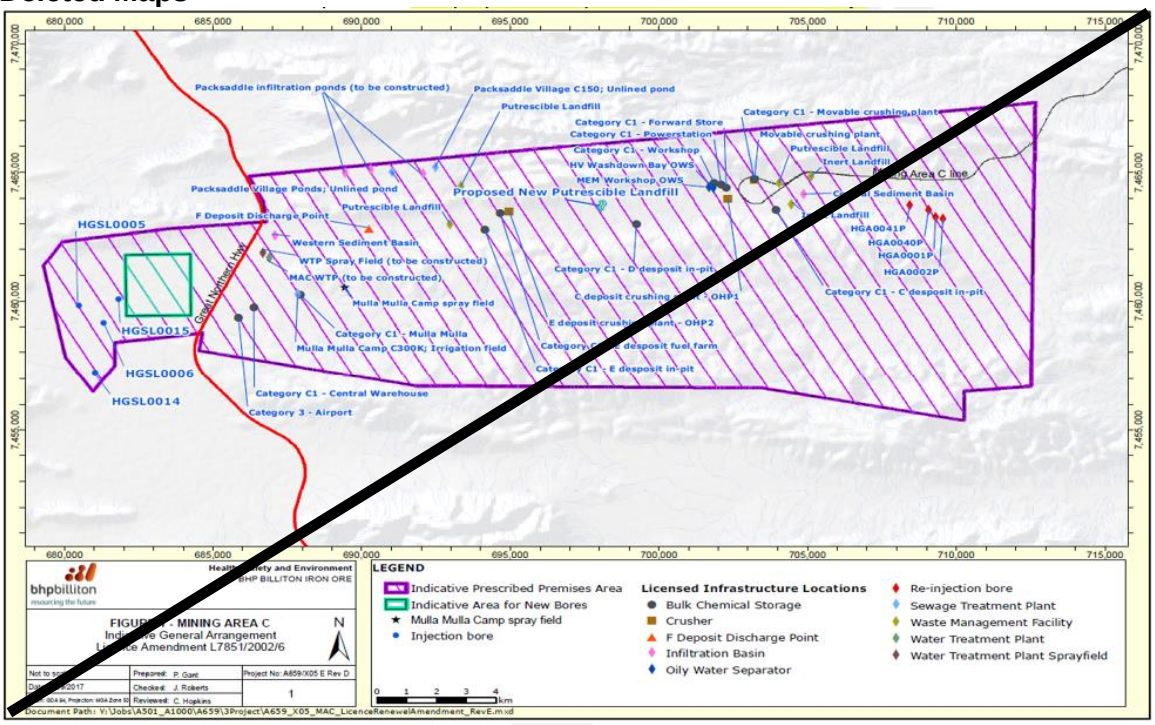
1.2.12 1.2.13 1.2.14 1.2.16 **1.2.17** **1.2.18** **1.2.19** **1.2.20**	The Licensee shall submit a compliance document to the CEO, following construction of each of the Packsaddle Infiltration Ponds, Mining Area C Water Treatment Plant and the Juna Downs MAR scheme, **additional screening plant for the relocatable crusher, two new Central Sediment Basin discharge points, two new Western Sediment Basin discharge points, new putrescible landfill and three mobile crushing and screening plants,** and prior to commissioning of the same. The Licensee must ensure compliance documentation: a) is certified by a suitably qualified professional engineer or builder stating that each item of infrastructure specified in Table 1.2.7 has been constructed in accordance with the conditions of the Licence with no material defects; and b) be signed by a person authorised to represent the Licensee and contain the printed name and position of that person within the company	Within 7 days of the completion of construction	None specified
1.2.12 1.2.13 1.2.16	The Licensee shall submit to the CEO, as part of the compliance document for the 2 new Juna Downs MAR scheme bores HGSL0016 and HGSL0017: a) written GPS locations of the 2 bores confirming the bores are within the area specified in Attachment 1.	Within 7 days of the completion of construction	None specified
1.2.13	If condition 1.2.13 applies, then the Licensee must provide the CEO with a list of departures which are certified as complying with condition 1.2.12	Within 7 days of the completion of construction	None specified
Tables 1.2.1, 1.2.4, 2.2.2, 2.3.2, 3.5.1	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
3.5.2	Depth to groundwater level exceedance		
3.1.4	Calibration report	As soon as practicable.	None specified

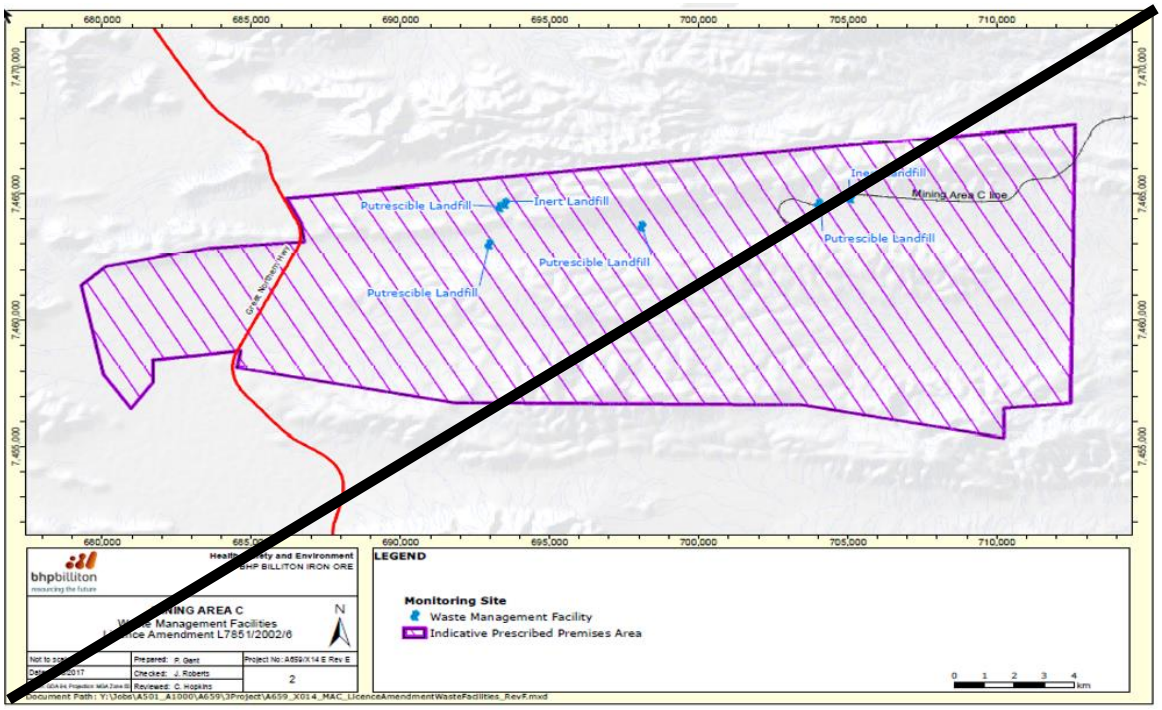
Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

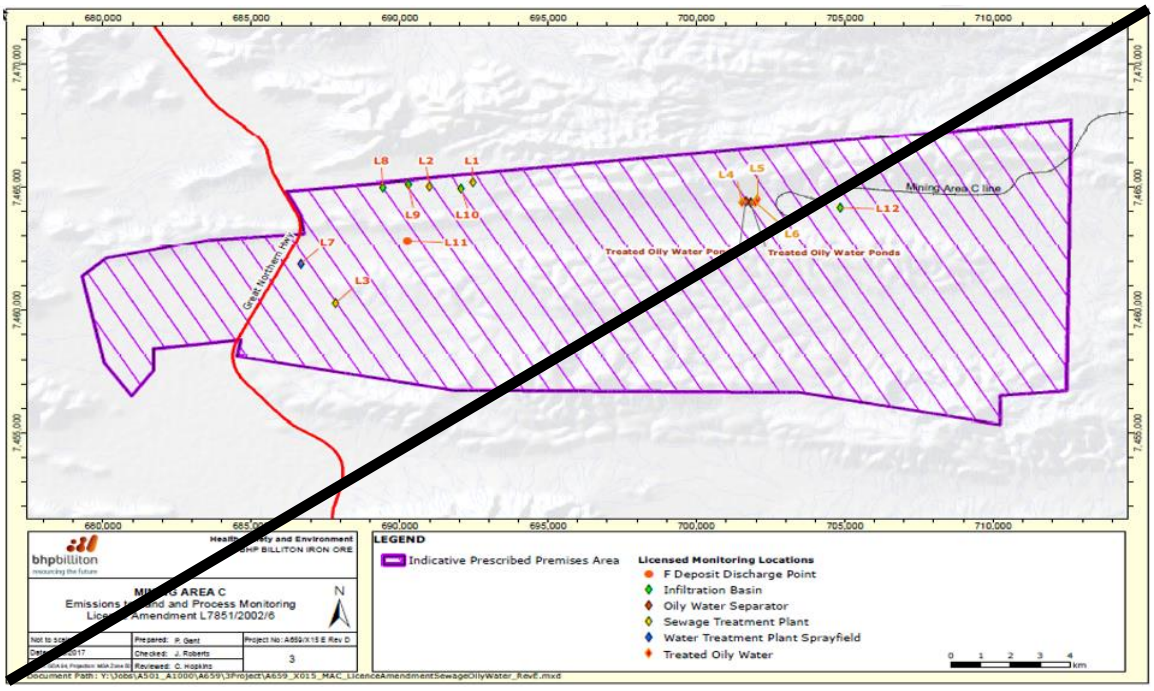
Note 2: Forms are in Schedule 2

21. The Licence is amended by the deletion of the maps indicated below from Schedule 1 Maps of the Licence.

Deleted Maps

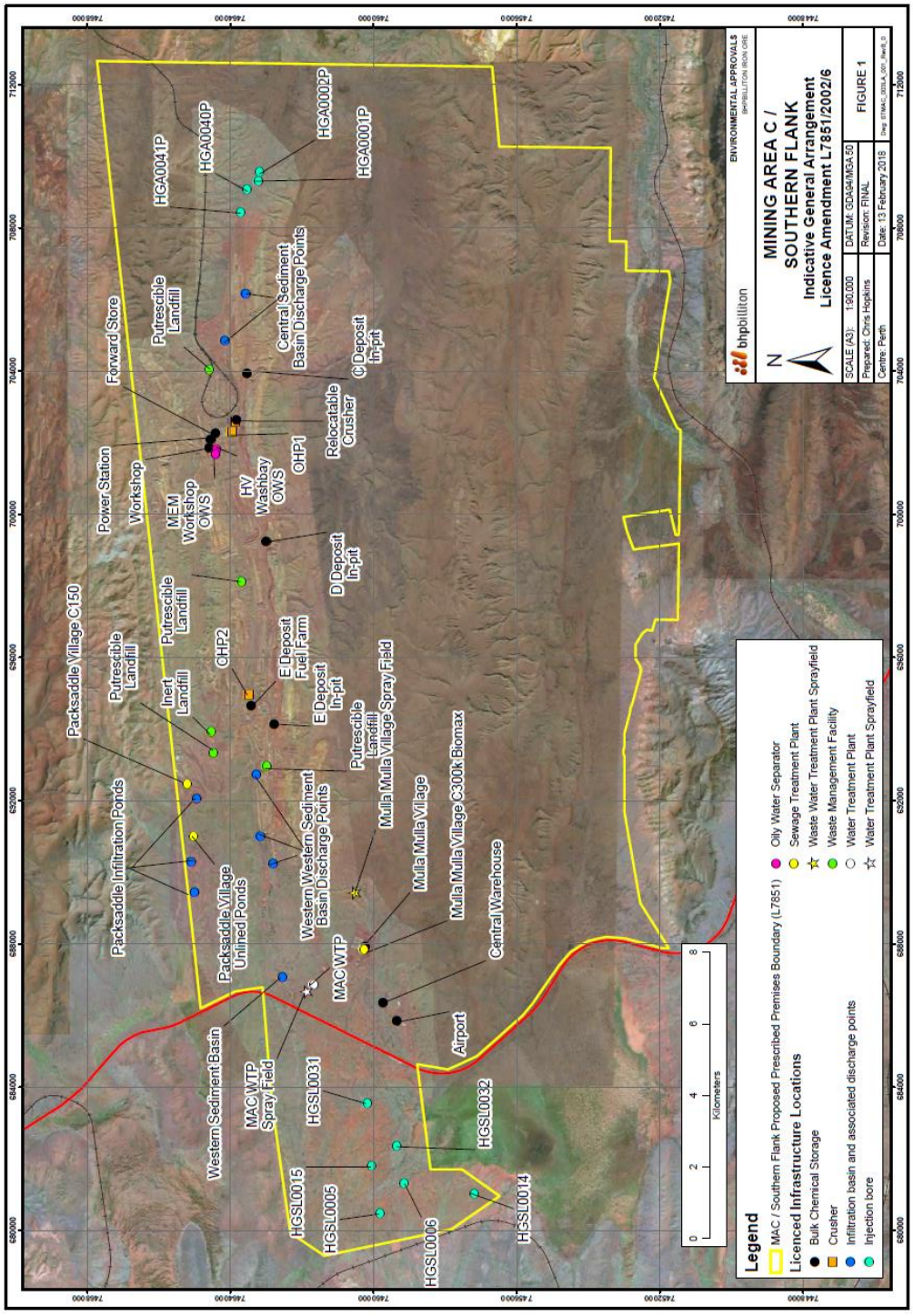


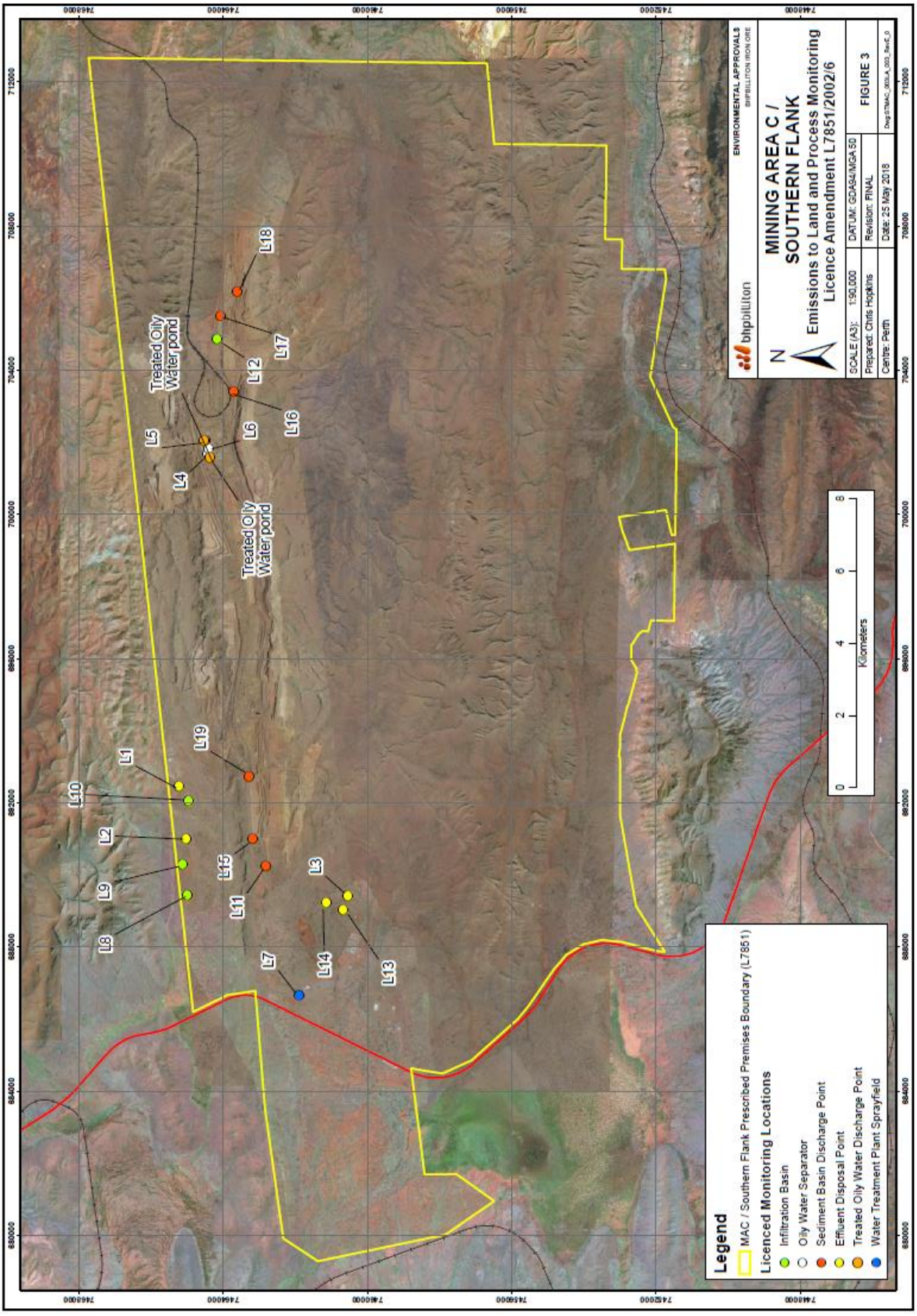


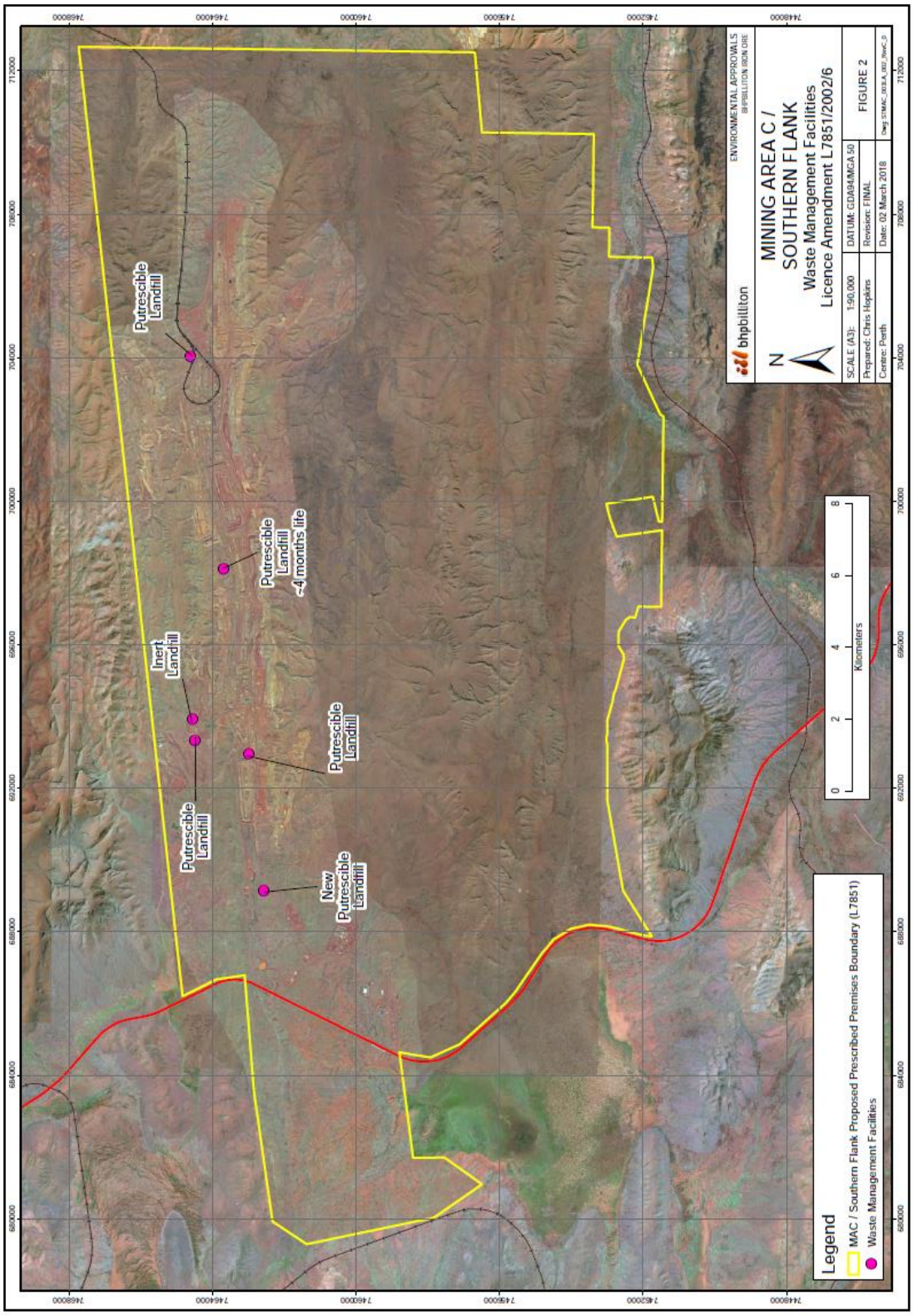

680,000
685,000
690,000
695,000
700,000
705,000
710,000
7,470,000
7,465,000
L8
L2
L1
L9
L10
L11
L7
L3
L4
L5
L6
L12
Mining Area C line
Great Northern Hwy
Treated Oily Water Ponds
bhpbilliton
MINING AREA C
Emissions to Land and Process Monitoring
Licence Amendment L7851/2002/6
N
Prepared: P. Gent
Checked: J. Roberts
Reviewed: C. Hopkins
Project No: A659/X15 E Rev D
3
LEGEND
Indicative Prescribed Premises Area
Licensed Monitoring Locations
F Deposit Discharge Point
Infiltration Basin
Oily Water Separator
Sewage Treatment Plant
Water Treatment Plant Sprayfield
Treated Oily Water
0 1 2 3 4
km

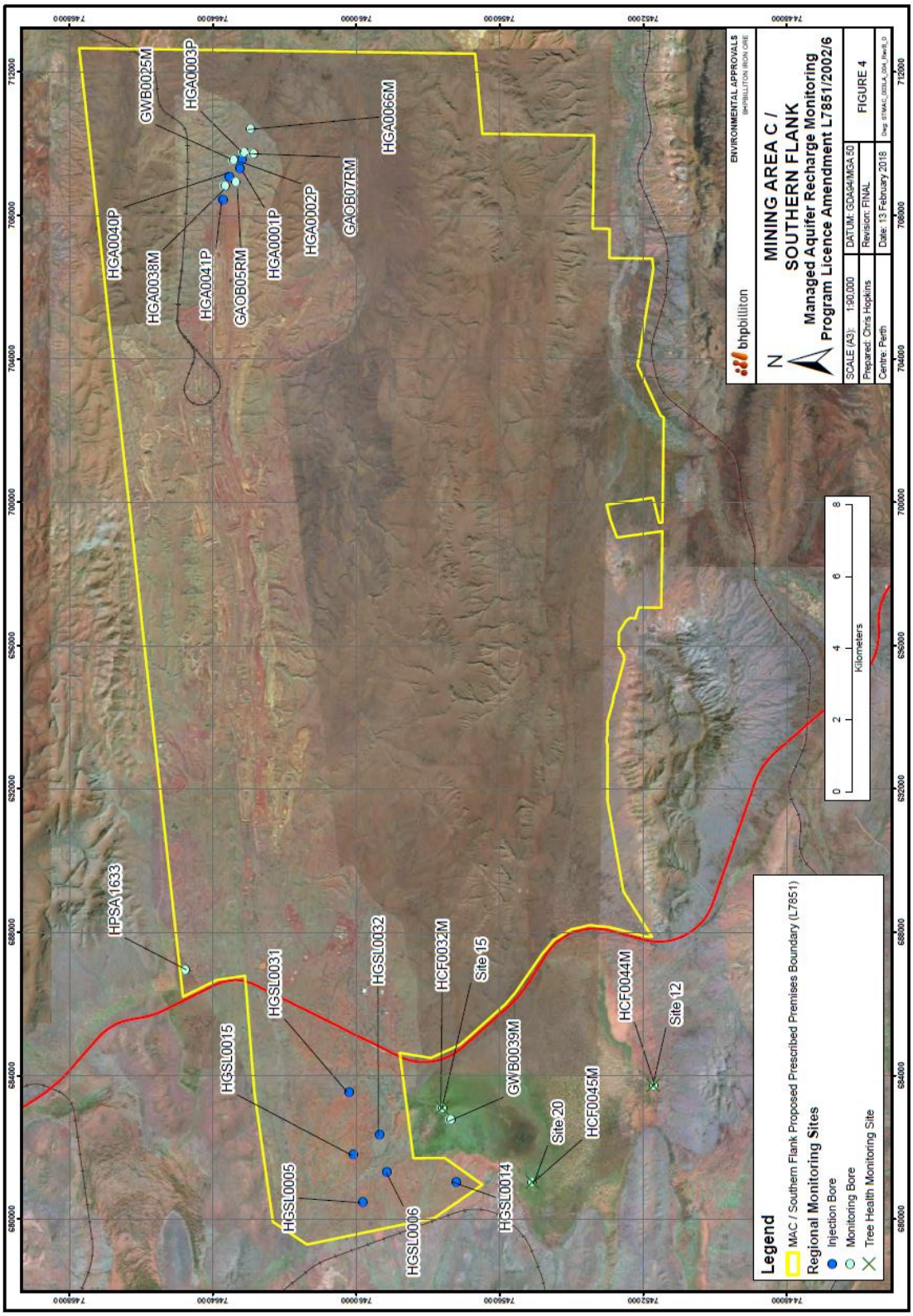
22. The Licence is amended by the insertion of the maps and figures below into Schedule 1 Maps of the Licence.

Prescribed premises boundary, emission points to land and monitoring locations
Maps showing prescribed premises boundary, indicative general arrangement, Category 12 indicative operating locations, waste disposal locations defined in Table 1.2.2, location of containment infrastructure defined in Table 1.2.5, emission points defined in Tables 2.2.1 (emissions to groundwater), 2.3.1 (emissions to land) and the monitoring points defined in Tables 2.3.1 (groundwater monitoring), 3.3.1 (monitoring of emissions to land) 3.5.1 (ambient groundwater limits), 3.5.2 (ambient groundwater quality) and 3.5.3 (following groundwater level exceedance) are shown in the maps below.

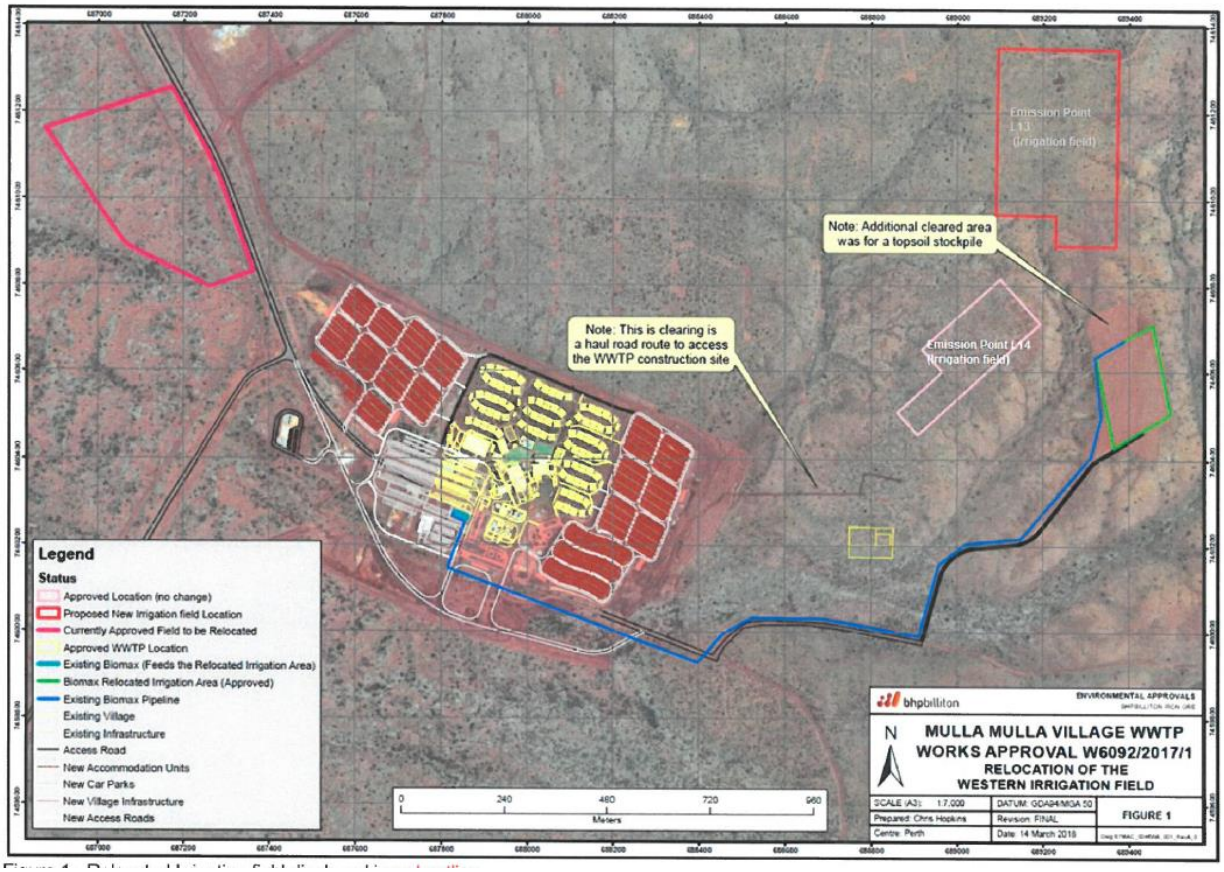



Legend
MAC / Southern Flank Prescribed Premises Boundary (L7851)
Licenced Monitoring Locations
Infiltration Basin
Oily Water Separator
Sediment Basin Discharge Point
Effluent Disposal Point
Treated Oily Water Discharge Point
Water Treatment Plant Sprayfield
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
L16
L17
L18
L19
Treated Oily Water pond
Treated Oily Water pond
0 2 4 6 8
Kilometers
ENVIRONMENTAL APPROVALS
BHPBILLITON IRON ORE
bhpbilliton
MINING AREA C / SOUTHERN FLANK
Emissions to Land and Process Monitoring
Licence Amendment L7851/2002/6
N
SCALE (A3): 1:90,000
DATUM: GDA94/MGA 50
Prepared: Chris Hopkins
Revision: FINAL
Centre: Perth
Date: 25 May 2018
FIGURE 3

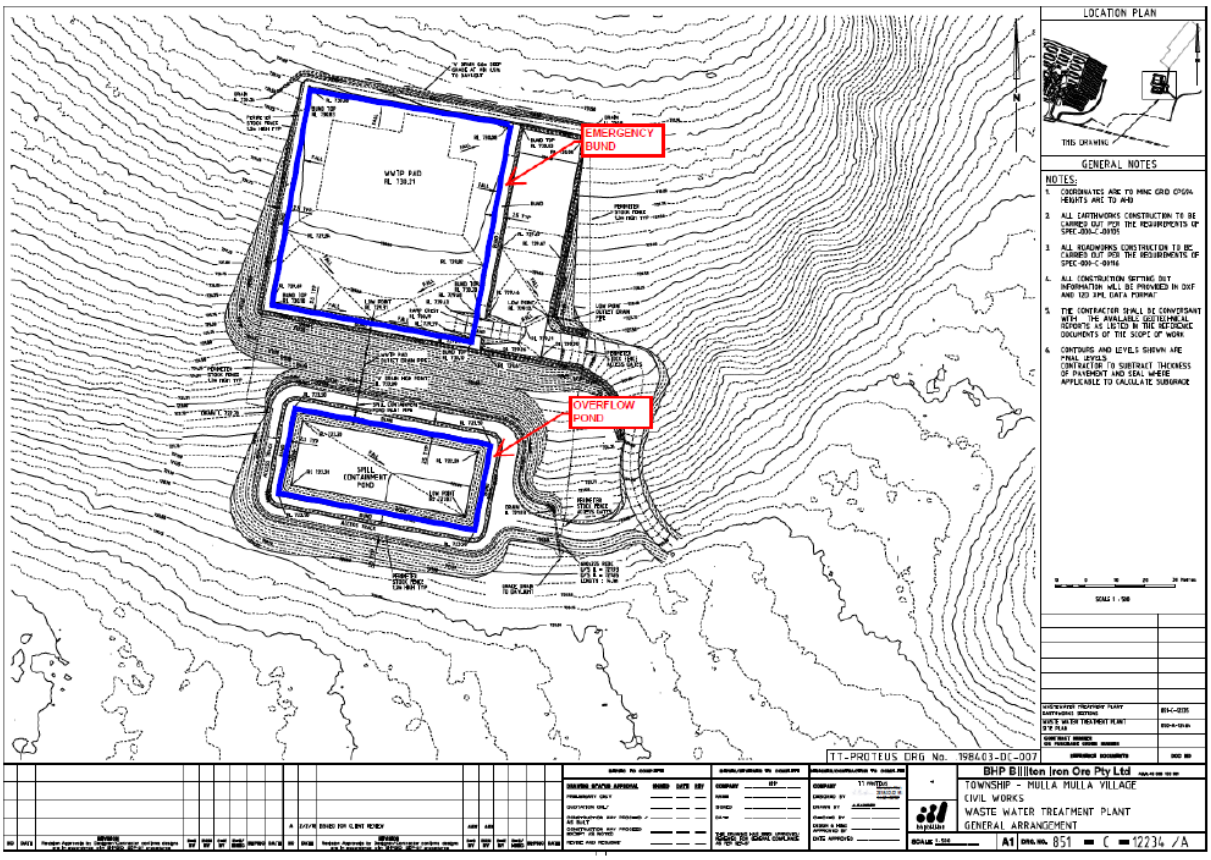

MINING AREA C / SOUTHERN FLANK
Waste Management Facilities
Licence Amendment L7851/2002/6
FIGURE 2
ENVIRONMENTAL APPROVALS
bhpbilliton
Putrescible Landfill
Putrescible Landfill -4 months life
Inert Landfill
Putrescible Landfill
Putrescible Landfill
New Putrescible Landfill
Kilometers
Legend
MAC / Southern Flank Proposed Prescribed Premises Boundary (L7851)
Waste Management Facilities


MINING AREA C / SOUTHERN FLANK
Managed Aquifer Recharge Monitoring Program Licence Amendment L7851/2002/6
FIGURE 4
bhpbilliton
ENVIRONMENTAL APPROVALS
SCALE (A3): 1:90,000
DATUM: GDA94/MGA 50
Prepared: Chris Hopkins
Revision: FINAL
Centre: Perth
Date: 13 February 2018
N
0 2 4 6 8
Kilometers
Legend
MAC / Southern Flank Proposed Prescribed Premises Boundary (L7851)
Regional Monitoring Sites
Injection Bore
Monitoring Bore
Tree Health Monitoring Site
HPSA1633
HGSL0031
HGSL0032
HGSL0015
HGSL0005
HGSL0006
HGSL0014
HCF0032M
Site 15
GWB0039M
Site 20
HCF0045M
HCF0044M
Site 12
HGA0040P
HGA0038M
HGA0041P
GAOB05RM
HGA0001P
HGA0002P
GAOB07RM
HGA0066M
GWB0025M
HGA0003P

Location of Mulla Mulla Camp WWTP and Emission Points (Irrigation fields)



Mulla Mulla Camp WWTP general arrangement



Appendix 1: Key documents

	Document title	In text ref	Availability
1	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DWER, 2015a	accessed at http://www.der.wa.gov.au
2	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DWER, 2015b	
3	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DWER, 2016a	
4	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DWER, 2016b	
5	Landfill Waste Classification and Waste Definitions 1996 (As amended December 2009), Department of Environment and Conservation	Landfill Waste Classification and Waste Definitions 1996	accessed at http://www.der.wa.gov.au
6	Licence L7851/2002/6 – Mining Area C Project	L7851/2002/6	accessed at http://www.der.wa.gov.au
7	Priority Ecological Communities for Western Australia Version 24, Species and Communities Branch, Department of Parks and Wildlife, 24 June 2016	Parks and Wildlife, 2016	accessed at http://www.dpaw.wa.gov.au
8	Pacific Environment Limited, 22 August 2016. Memorandum – Updated Air Quality Modelling for South Flank Proposal	PEL, 2016	DER records (A1655778)
9	Understanding-salinity – Salinity status classifications, by total salt concentration table, Department of Water	DoW, Salinity status classification	accessed at http://www.water.wa.gov.au/water-topics/water-quality/managing-water-quality/understanding-salinity
10	Works Approval W6142/2018/1 – Mining Area C – South Flank	W6142/2018/1	accessed at http://www.der.wa.gov.au

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 21 September 2018 and 12 October 2018 for review and comment. The Licence Holder responded on 1 October 2018 and 15 October 2018, respectively. The following comments were received on the draft Amendment Notice.

Condition	Summary of Licence Holder comment	DWER response
Comments received 1 October 2018		
-	Confirmation that the Category 12 crushing plants would commence operation in November 2018.	Noted.
-	Advised that two new Groundwater Licences had been issued.	Noted, and Table 3 updated with details of issued groundwater licences.
-	Dust control during landfill construction – standard dust control will be utilised, includes minimising clearing and the use of water carts as appropriate.	Risk Assessment Table updated with relevant information.
Page 1 of Licence – prescribed premises category table	Category 12 is missing from the prescribed premises category table.	The prescribed premises category table (Page 1 of the Licence) has been updated to include Category 12.
Condition 1.2.13 and Risk Assessment Table of Amendment Notice	Advised of dust control and stormwater management for mobile screening plants – water sprays and dust covers will be fitted to mobile crushing and screening plants to control dust. The exact locations will depend on the models used, however generally sprays are located at the head drum and discharge point of the main conveyor and at the feed point. Additional dust control may be installed as required. Mobile crushers will be situated to prevent storm water run-off from the crusher location (e.g. within an internally draining borrow pit). Where necessary earthen bunds will also be used.	Risk Assessment Table updated with relevant information.
Condition 1.2.21	This condition requires mobile screening plants to only be used in the indicative locations. This will be quite restrictive. BHP would prefer this is updated to: *"The Licensee shall operate the two new mobile crushing and screening plants and new stemming*	Condition 1.2.21 has been updated to allow the two mobile crushing and screening plants to operate no closer than 1 km to the edge of the prescribed premises boundary. DWER has not updated the condition to refer to the stemming

Condition	Summary of Licence Holder comment	DWER response
Comments received 1 October 2018		
	plant no closer than 1 km to the edge of the prescribed premises boundary as shown in the relevant figure in Schedule 2 of this Licence. These mobile crushing facilities will be operated in accordance with the conditions of this Licence, following submission of the compliance document required under Condition 4.3.1."	plant as this will need to be subject to a separate Licence amendment application.
Schedule 1 - Maps	The Mulla Mulla Village WWTP and emission points map in Schedule 2 needs to be replaced with the updated figure showing the revised location of the irrigation area.	Map updated.
Comments received 15 October 2018		
Table 6	The species of priority flora are listed as points under the fauna section.	Table 6 updated.