



Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L9263/2020/1
Licence Holder	Pilbara Iron Pty Ltd
ACN	107 216 535
File Number	DER2020/000289
Premises	Gudai-Darri Railway Project Legal description – Part of Miscellaneous Licence for Railway 7 (L7SA) TOM PRICE WA 6751
Date of Report	29 April 2024
Proposed Decision	Revised licence granted

**MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

*Officer delegated under section 20
of the Environmental Protection Act 1986*

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1. Decision summary

Licence L9263/2020/1 is held by Pilbara Iron Pty Ltd (Licence Holder) for the Gudai-Darri Railway Project (the Premises), located within a Miscellaneous Licence for Railway 7 (L7SA) TOM PRICE WA 6751.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during operation of the Premises. As a result of this assessment, Revised Licence L9263/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents>.

2.2 Application summary

On 17 November 2023, the Licence Holder submitted an application to the department to amend Licence L9263/2020/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- To add Category 13 and 61A to the Licence.
- To remove Category 54 from the Licence (infrastructure/equipment has been removed and decommissioned).
- Reduction of premises boundary, as the State Agreement conditions requires the Licence Holder to surrender part of L7SA.
- To change premises name to Gudai-Darri Railway Project.

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed design/throughput capacity changes

Category	Current design/throughput capacity	Proposed design/throughput capacity	Description of proposed amendment
12	3,504,000 tonnes per annual period	NA	NA
13	NA	1,200,000 tonnes per year	The Licence Holder is proposing to re-purpose / recycle railway ballast
54	148 cubic metres per day	To be removed	The Licence Holder confirmed that the wastewater treatment plant (WWTP) and associated spray field were decommissioned in quarter 1, 2022. The department will remove category 54 from the licence accordingly.
61A	NA	425,000 tonnes	The Licence Holder requires to store recovered ballast/rail civil material in 195km

Category	Current design/throughput capacity	Proposed design/throughput capacity	Description of proposed amendment
		per year	borrow pit before these are re-purposed / recycled.

The Premises is part of the “Integrated Rail Network” (IRN), which comprises 1,980 kilometres of heavy freight railway network for iron transport. The IRN requires ballast recycling/renewal therefore related prescribed activities will need to be incorporated into the Gudai-Darri Railway Project to allow the Licence Holder to maintain safe operations and extend the IRN life.

The Licence Holder proposed that ballast retrieved from the IRN will ultimately be treated as a ‘product’, not as a ‘waste’, and that suitable material will be repurposed for civil applications. Material that does not meet reuse criteria (e.g. poses an unacceptable environmental risk) will be considered ‘waste’ and will be temporally stockpiled within premises boundary and then disposed to an appropriately licenced facility.

Additionally, other rail civil material such as concrete sleepers and sub-ballast capping (SBC) material will also be stockpiled onsite.

2.3 Assessing whether a material is waste

The primary consideration in what regulatory requirements would apply for the reuse of rail ballast material is whether the material is considered ‘waste’ for the purposes of the EP Act and *Waste Avoidance and Resource Recovery Act 2007* (WARR Act).

There are a number of relevant factors that should be considered in an assessment of whether material is waste as identified in the [Fact Sheet: Assessing whether material is waste](#) (DWER, undated). In accordance with this factsheet, burial and/or reuse waste may trigger prescribed premises categories as detailed in Schedule 1 of the *Environmental Protection Regulations 1987*.

The department recommends that if producers and end-users of certain materials are unsure of whether the material, they hold is waste or whether certain provisions in the legislation apply they should seek their own legal advice i.e. the department does not currently provide a determination on when a material ceases to be waste.

The department is currently developing a legislative framework for waste-derived materials (timeframe for release is not known). The reforms aim to provide greater certainty about when materials derived from waste, and applied to land in large quantities, will cease to trigger licensing and levy obligations – for further information on this, please refer to the [Waste not, want not Discussion Paper](#).

Advice to this effect has previously been given to the applicant. The assessment of this licence amendment application is limited to assessing related emissions and discharges from processing and recycling activities. It does not provide endorsement on the proposed approach to assessing whether the recycled ballast material is a ‘waste’ or a ‘product’.

2.4 Ballast characterisation and processing

The Licence Holder analysed samples of degraded ballast for contaminants of potential concern (COPC) associated with ‘railway yards and transport corridors’ according to Appendix B of the *Guideline: Assessment and management of contaminated sites* (DWER, 2021) (RTIO, 2024). The results of ballast testing are provided in Appendix 2: Ballast analysis results, a summary is

provided below:

Total Concentrations

- None of the samples showed asbestos concentrations above the laboratory Limit of Reporting (LOR), and visual inspections during sampling did not reveal any signs of asbestos.
- The concentrations of total Polycyclic Aromatic Hydrocarbons (PAHs) were below the uncontaminated fill guidelines^[1] in all samples.
- Volatile TRH (>C6-C10) and BTEX-N compounds were below the uncontaminated fill guidelines^[1] in all samples.
- Five samples recorded concentrations of TRH (>C16-C34) exceeding the uncontaminated fill guideline^[1] of 300 mg/kg. The upper confidence limit (UCL95) of 141.6 mg/kg remained below the uncontaminated fill guideline. Note: the statistics were skewed by a single anomalous result, which was not representative of the dataset.
- Total concentrations of selected metals (copper, manganese and nickel) exceeded the corresponding maximum concentration (mg/kg) dry weight, outlined in the uncontaminated fill guidelines^[1].

Leachate Concentrations

- Leachable concentrations of selected metals (chromium, cobalt, copper, lead, manganese, selenium, thallium and zinc) exceeded the ASLP deionised water (DI) leach uncontaminated fill guideline^[1] concentrations.
- Leachable concentrations of the pesticides aldrin and dieldrin exceeded the ASLP leach guideline concentrations, with selected results also exceeding the Australian Drinking Water Guidelines (ADWG)^[2], by a factor of 10 and therefore equating to the NPUG^[3].
- The leachable concentrations of selected metals exceeded the ADWG and the Freshwater Guideline (FWG)^[4] [...]

[...] The outcome of this analytical testing is [further] screened against guidelines such as:

- Guideline: Assessment and management of contaminated sites (DWER, 2021);
- ^[1] Landfill Waste Classification and Waste Definitions 1996 (As Amended 2019) (DWER, 2019);
- Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, Department of Health, 2021 (DoH,2021);
- ^[4] National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) (NEPM,2013);
- CRC Care, Technical Report No.10, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (CRC Care);
- ^[3] Contaminated site ground and surface water chemical screening guidelines, Department of Health, 2014 (DoH, 2014); and
- ^[2] Australian Drinking Water Guidelines 6, National Water Quality Management Strategy, 2011 (updated 2022) (ADWG,2011)." (RTIO, 2024).

The ballast recycling process will be regulated under Category 13 for crushing and screening of 'building material', including ballast and other railway civil material (e.g. concrete sleepers). Ballasts will be crushed/screened and temporarily stockpiled (Category 61A) on an operational pit located at the 195 km mark on the Gudai-Darri Mainline (GDML). The process of ballast recycling is provided on Figure 1:

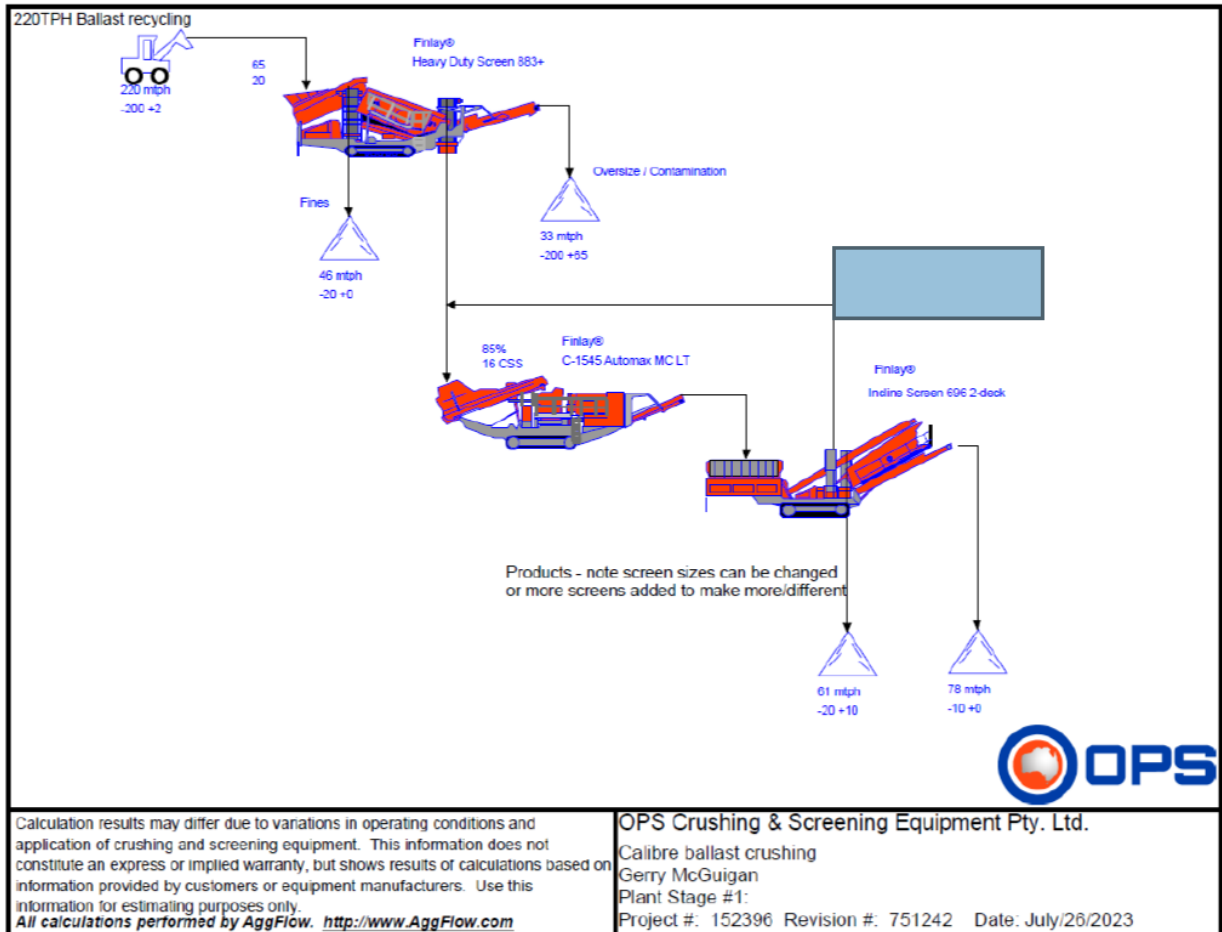


Figure 1: Ballast recycling process.

Additionally, the Licence Holder has proposed to crush and screen (Category 12) new ballast material from pit to pit within the premises with a mobile crushing and screening plant.

The dust suppression activities will use water sources from the adjacent RTIO Licensed groundwater bore WB18KRP0013 (GWL 202549), located at approximately 197km mark GDML and approximately 1.4km east of the 195km operational borrow pit/proposed crush and screen area.

2.5 Part IV of the EP Act

The proposal was assessed by the EPA and a valid ministerial statement is in place – refer to Ministerial Statement 999 (MS999).

“Relevant to Part V of the EP Act, EPA Report 1533 determined that the impacts could be adequately managed and the EPA issued MS 999 with conditions to ensure that:

- (a) The proposal is implemented in a manner that maintains the Pilbara Leaf-nosed Bat colony which resides within the K75W adit / cave system;
- (b) Troglifauna are protected by excluding mining and infrastructure placement within a portion of troglifauna habitat;

- (c) Mine construction and operational activities are carried out in a manner that minimizes impacts to the Northern Quoll;
- (d) Mining and infrastructure is sited in a manner that avoids the Declared Rare Flora, *Hamersley Lepidium*;
- (e) The proposal is implemented so that it does not affect the viability of the Priority 1, *Sauropus sp. Koodaideri detritals*; and
- (f) Mining activities do not impact the hydrological regime or water quality of the Koodaideri Spring Gorge” (Rio Tinto 2023).

“As required under MS 999 Condition 12, the Gudai-Darri Iron Ore Mine and Infrastructure Project Asbestos Environmental Management Plan was developed to manage potential impacts of railway construction” (Rio Tinto 2023).

2.6 EPBC Act (Commonwealth)

Gudai-Darri Railway Project was assessed under the EPBC Act. “DSEWPaC determined that the proposal was a ‘controlled action’ and subject to a bilateral assessment coordinated by the Government of Western Australia. The proposal was approved under the EPBC Act on 9 May 2015 through instrument reference EPBC2012/6422” (Rio Tinto 2023).

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 below. **Table 2** also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Category 12: crushing and screening of material and Category 13: Crushing of building material			
Dust	Crushing of material, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc.	Air/windborne pathway	Dust suppression on trafficable areas including water sprays, water trucks, control of vehicle movements / restricted speeds. Use of angle-adjustable stockpiling conveyors to minimise drop heights. The crushing & screening plant is fitted with a hose and water sprays for dust suppression, including dust covers should they be required.

Emission	Sources	Potential pathways	Proposed controls
Category 12: crushing and screening of material and Category 13: Crushing of building material			
			<p>Progressive rehabilitation of disturbed areas no longer needed for operational purposes.</p> <p>Crushing and screening under Cat 13 is only being undertaken at the 195km borrow pit and is outside of the Wittenoom Asbestos Management Area (WAMA) and Wittenoom Asbestos Contaminated Area (WACA).</p> <p>Crushing and screening will not occur within 50m of a creekline or waterway.</p>
<p>Potentially contaminated stormwater from the operation of the plant and overland runoff (including asbestos)</p>	<p>Operation of crushing/screening plant</p>	<p>Overland runoff</p>	<p>In situ rail civil material sampling and analytical analysis completion prior to ballast cleaning/removal works commencing to determine if rail civil material is suitable for stockpiling or is to be disposed of at an approved disposal location as removed from track.</p> <p>Plant will be located at least 50m from any significant ephemeral creek and Public Drinking Water Source Area.</p> <p>Potentially contaminated waters retained onsite via bunds, sumps and surface diversion bund.</p> <p>Diversion of clean surface water around the work area.</p> <p>Groundwater table reported between 40 and 60 mBGL, based on sampling of an adjacent bore.</p> <p>Diversion of clean surface water around the work area.</p> <p>Stormwater will be collected and held within the borrow pit footprint during crushing and screening operations, with an earthen sump installed if required.</p> <p>Earthen bunds in the stockpile area.</p> <p>Existing diversion bund will prevent ingress of clean surface water from into the 195km borrow pit from outside and any egress out.</p> <p>Stormwater will be collected and held within the borrow pit footprint during crushing and screening operations, with an earthen sump installed if required.</p> <p>Borrow pit boundary does not include Millstream Public Drinking Water Source Area to avoid potential groundwater contamination risk.</p> <p>Earthen sump to collect stockpile runoff following large rain events.</p>

Emission	Sources	Potential pathways	Proposed controls
Category 12: crushing and screening of material and Category 13: Crushing of building material			
Discharge of hydrocarbons from vehicles and plant spills, and during refuelling operations	Refuelling operations	Discharge to land	<p>Crushing and screening plant will be required to be well maintained and leak free prior to and during operations on a RTIO site. Regular servicing and daily inspections are required to identify any potential wear and tear defects pre-failure.</p> <p>The refuelling service trucks are bunded. Fitted with dry brake coupler, which do not allow fuel flow until it is locked in place, pressure valve regulators, over fill protection, 25000L max fuel level.</p> <p>Spill kit and drip pads used during infield refuelling.</p> <p>Some track machines/vehicles fitted with fuel tank protection plates, double skinned or thickened steel fuel tanks.</p> <p>Visual inspection of plant daily for leaks.</p> <p>Provision for spill response equipment during any refuelling of mobile plant and equipment on site.</p> <p>Weekly inspections of mobile equipment or generator or refuelling truck tank integrity and any potential leaks/damage to hydrocarbon related infrastructure/equipment.</p> <p>Field-based machinery refuelling from mobile fuel trucks, drip tray used at the transfer point.</p>
Asbestos (Category 13)	Recycling of ballasts	Air/windborne pathway	<p>Premises intersects the Wittenoom Asbestos Management Area (WAMA) and Wittenoom Asbestos Contaminated Area (WACA). The Licence Holder mentions that the proposed activity location is not within either the WAMA or WACA.</p> <p>Licence Holder will test material for asbestos prior to removal from the rail network.</p>
Category 61A: Solid waste facility			
Dust	Ongoing stockpiling/unloading of offsite degraded rail civil material	Air/windborne pathway	<p>Degraded rail civil material stockpiles will be inspected regularly to ensure no dust emission concerns or environmental impacts resulting from dust lift.</p> <p>Dust suppression on trafficable areas including water trucks, control of vehicle movements / restricted speeds.</p> <p>During unloading of rail civil material dust emissions will be managed by water trucks.</p> <p>Stockpiling is only being undertaken at the 195km borrow pit and is outside of the WACA and WAMA.</p> <p>No stockpiling will occur within 50m of a creekline or waterway.</p> <p>Material is tested for asbestos and other pollutants prior to removal from the rail network.</p>
Potentially contaminated stormwater from the stockpiling		Overland runoff	In situ rail civil material sampling and analytical analysis completion prior to ballast cleaning/removal works commencing to determine if rail civil material is suitable for stockpiling or is to be disposed of at an approved

Emission	Sources	Potential pathways	Proposed controls
Category 12: crushing and screening of material and Category 13: Crushing of building material			
area (including asbestos)			<p>disposal location as removed from track.</p> <p>Stockpiling to a height of ≤14m high, at a 3:1 ratio or 180°.</p> <p>Existing diversion bund will prevent ingress of clean surface water from into the 195km borrow pit from outside and any egress out.</p> <p>Earthen bunds will be constructed for the stockpile area.</p> <p>Earthen sump will be constructed to collect stockpile runoff following large rain events.</p> <p>Material is tested for asbestos and other pollutants prior to removal from the rail network.</p>
Asbestos		Air/windborne pathway	<p>In situ rail civil material sampling and analytical analysis completion prior to ballast cleaning/removal works commencing to determine if rail civil material is suitable for stockpiling or is to be disposed of at an approved disposal location as removed from track.</p> <p>Degraded rail civil material stockpiles will be inspected regularly to ensure no dust emission concerns or environmental impacts resulting from dust lift.</p> <p>All stockpiled material for crush and screening is subject to material tracking (source, quantity, test work, disposal/reuse location).</p>

3.2 Risk Assessment

3.2.1 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Coolawanyah Pastoral Station	Within premises boundary
Environmental receptors	Distance from prescribed activity
Surface water (features are likely to be ephemeral)	<p>Minor creek – 50m from the north facing boundary of the 195km borrow pit.</p> <p>Unnamed drainage line approximately 1.2km east of the 195km borrow pit</p>

Public Drinking Water Source Area Millstream Reserve (P2)	1.2km west.
Aboriginal Heritage sites * Yindjibarndi People	-KOD13-21 Artefact Scatter – 180 m west from premises boundary
DBCA Legislated Land Karijini National Park	South of the premises limit
Groundwater	Groundwater depth varies from 13m to 65m with an average of 40m below ground level (mBGL). Groundwater separation distance is sufficient; therefore seepage risk will be not assessed further.

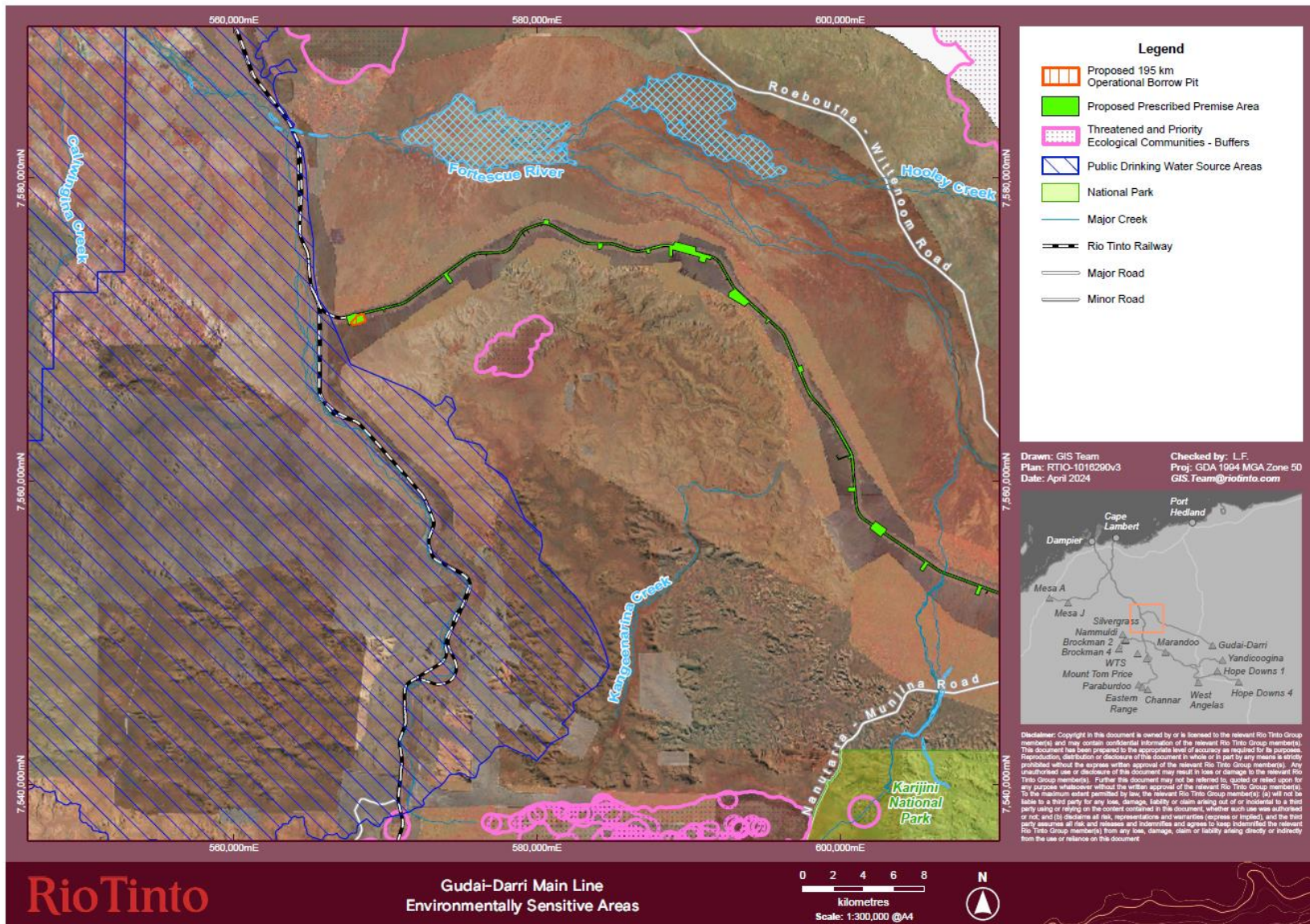


Figure 2: Distance to sensitive receptors

3.3 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L9263/2020/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. crushing and screening activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operation crushing/screening plants (Category 12: crushing and screening of material and Category 13: Crushing of building material)								
Screening, crushing, unloading, loading and storage of material Vehicle movements	Dust	Air/windborne pathway causing impacts to health, environment and/or amenity	Surface water including minor creek and water reserve Land/soils Coolawanyah Pastoral Station	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	Condition 1 – Infrastructure and equipment requirements Condition 2 – Material acceptance specifications	Condition 2, to regulate materials accepted at the premises.
	Noise	Air/windborne pathway causing impacts to health and amenity	Coolawanyah Pastoral Station	Refer to Section 3.1	C = Slight L = Possible Low Risk	Y	NA	NA
	Light	Air/windborne pathway causing impacts to fauna and/or cattle	Coolawanyah Pastoral Station	Refer to Section 3.1	C = Slight L = Rare Low Risk	Y	NA	NA
	Potentially contaminated stormwater from the operation of the plant and overland runoff	Overland runoff, polluting surface waters	Minor creek, 50m from the north facing boundary of the 195km borrow pit Land/soils	Refer to Section 3.1	C = Slight L = Possible Low Risk	Y	Condition 1 – Infrastructure and equipment requirements Condition 2 – Material acceptance specifications	Condition 2, to regulate materials accepted at the premises.
	Discharge of hydrocarbons from vehicles and plant spills, and during	Discharge to land	Minor creek, 50m from the north facing boundary of the 195km borrow pit	Refer to Section 3.1	C = Slight L = Possible Low Risk	Y	NA	NA

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Risk Event					Risk rating ¹	Licence Holder's controls sufficient?	Conditions ² licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood			
	refueling operations		Land/soils					
	Asbestos fibre	Air/windborne pathway causing impacts to health, environment and/or amenity	Minor creek, 50m from the north facing boundary of the 195km borrow pit Coolawanyah Pastoral Station Land/soils (contamination)	Refer to Section 3.1	C = Severe L = Rare High Risk	Y	Condition 2 – Material acceptance specifications Condition 3 – asbestos concentration limit Condition 4 – Monitoring of inputs and outputs from ballast recycling operations	In order to reduce asbestos contamination risk additional controls were added to the licence: Condition 2, to regulate materials accepted at the premises. Condition 3, to limit maximum asbestos concentration of any recycled output. Condition 4, to monitoring the inputs and outputs of materials from premises
Category 61A: Solid waste facility								
Ongoing stockpiling/unloading of offsite degraded rail civil material	Dust	Air/windborne pathway causing impacts to health, environment and/or amenity	Superficial water including minor creek and water reserve Land/soils	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	NA	NA
	Potentially contaminated stormwater from the stockpiling area	Overland runoff	Minor creek, 50m from the north facing boundary of the 195km borrow pit	Refer to Section 3.1	C = Slight L = Possible Low Risk	Y	NA	NA

Risk Event					Risk rating ¹	Licence Holder's controls sufficient?	Conditions ² licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood			
	Asbestos fibre	Air/windborne pathway causing impacts to health, environment and/or amenity	Minor creek, 50m from the north facing boundary of the 195km borrow pit Coolawanyah Pastoral Station Land/soils (contamination)	Refer to Section 3.1	C = Severe L = Rare High Risk	Y	Condition 2 – Material acceptance specifications Condition 3 – asbestos concentration limit Condition 4 – Monitoring of inputs and outputs from ballast recycling operations	In order to reduce asbestos contamination risk additional controls were added to the licence: Condition 2, to regulate materials accepted in premises. Condition 3, to limit maximum asbestos concentration of any recycled output. Condition 4, to monitoring the inputs and outputs of materials from premises

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 21 March 2024	The Licence Holder provided requested information to the department on 19 April 2024. No additional comments were provided.	The updated information was incorporated into the Decision Report and final revised licence.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
Front page	Premises name change from Koodaideri Railway Project to Gudai-Darri Railway Project. Category 13 and 61A added. Category 54 removed.
1 -Table 1	WWTP and sprayfield infrastructure removed. Category 12, 13 and 61A infrastructure and equipment added
2	Authorised discharge of wastewater removed.
New condition 2	Material acceptance specifications
3	Emissions and discharge monitoring conditions regarding the irrigation tank removed.
New condition 3	Maximum concentration asbestos added.
New condition 4	Monitoring of inputs and outputs from ballast recycling operations
New condition 5	Auditable records regarding asbestos product testing (condition 3)
8	Frequency of reporting dates updated. Recycled ballast output sampling and testing added. Material inputs and outputs; quarterly and annual totals added Table 3 – reporting conditions regarding WWTP and irrigation field removed.
9c	Monitoring program regarding WWTP removed.

Condition no.	Proposed amendments
Definitions (Table 3)	Definitions for “approved form”, “asbestos”, “DWER Asbestos Guideline” and “condition” added. Definitions for “WWTP”, “kL” and “cfu/100mL” removed.
Schedule 1, Figure 3	WWTP and sprayfield map removed. Map of area for crushing/screening for Category 13 and 61A added.
Schedule 2	Premises boundary coordinates updated

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Rio Tinto 2023, *Koodaideri Railway Project – L9263/2020/1 – Licence Amendment Application* (REF: A2225027)
5. Rio Tinto 2024, *RTIO response to RFI Feb 2024* (REF: A2255587)

Appendix 2: Ballast analysis results

Table 7: Ballast analysis results – total concentrations

Analyte	Min Conc. (mg/kg)	Max Conc. (mg/kg)	Mean + 1 Std Dev (mg/kg)	UCL95 (mg/kg)
Asbestos (FA/AF)	<0.001 %w/w	<0.001 %w/w	NA	NA
Antimony	<5	18	3.46	2.81
Arsenic	2.3	36	8.32	4.69
Barium	20	1370	203.80	108.41
Beryllium	<1	1.7	0.80	0.59
Cadmium	<0.1	1.5	0.51	0.22
Chromium	6.2	690	186.61	92.10
Cobalt	2	73	16.41	10.09
Copper	<1.0	167	43.10	25.52
Lead	<5	93	14.95	8.90
Manganese	180	2350	1082.27	830.38
Mercury	<0.1	0.43	0.06	0.05
Molybdenum	<1.0	17	1.89	1.09
Nickel	3	230	57.96	28.14
Silver	<1.0	1	1.04	0.82
Tin	<1.0	7.2	3.46	2.81
Vanadium	2.2	140	44.99	28.58
Zinc	<5	253	36.09	22.52
Selenium	<0.20	0.5	0.57	0.41
Thallium	<0.1	1.1	0.20	0.11
Uranium	0.1	1.4	0.70	0.55
Trivalent Chromium	6.1	708	192.75	96.34
Hexavalent Chromium	<0.5	13	0.73	0.35
Aldrin	<0.05	<0.10	NA	NA
Dieldrin	<0.05	14	1.195	0.267
Aldrin + Dieldrin	<0.05	14	1.43	0.35
Sum of BTEX	<0.2	<0.2	NA	NA
Total PAHs	<0.025	31.9	1.81	0.37
TRH >C16 – C34**	50	35,200	1,202	141.6

** TRH was detected above the laboratory LOR in 14 samples, of which 5 samples recorded concentrations above the uncontaminated fill guidelines

Table 8: Ballast analysis results – Australian Standard Leaching Procedure (Leachate) concentrations

Analyte	Min Conc. (µg/L)	Max Conc. (µg/L)	Mean + 1 Std Dev (µg/L)	UCL95 (µg/L)
Trivalent Chromium	<0.0010	1.66	0.1718	0.0499
Hexavalent Chromium	<0.0010	0.05	0.0248	0.0090
Antimony	<0.0010	0.0031	0.0006	0.0004
Arsenic	<0.0002	0.0055	0.0014	0.0008
Cadmium	<0.00005	0.0016	0.00014	0.00006
Cobalt	<0.0001	0.0549	0.0113	0.0052
Copper	<0.0005	0.14	0.0278	0.0133
Lead	<0.0001	0.0869	0.0147	0.0065
Manganese	<0.0005	1.78	0.6656	0.3366
Mercury	<0.000050	0.0002	0.000029	0.000022
Molybdenum	<0.0001	0.0233	0.0019	0.0008
Nickel	<0.0005	0.56	0.0575	0.0189
Selenium	<0.0002	0.0015	0.0004	0.0002
Silver	<0.00001	0.00014	0.00009	0.00005
Thallium	<0.00002	0.00065	0.00014	0.00007
Uranium	<0.00005	0.00204	0.00068	0.00038
Zinc	<0.001	0.487	0.0553	0.0221
Aldrin	0.0005	0.024	0.0018	0.0007
Dieldrin	<0.001	20.9	2.231	0.554
Aldrin + Dieldrin	<0.002	20.9	2.23	0.557
Aldrin	0.0005	0.024	0.0018	0.0007