Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

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

Works Approval Number	W6978/2024/1
Applicant	Pilbara Iron Company (Services) Pty Ltd
ACN	107 210 248
File number	DER2024/000446
Premises	Brockman Syncline 1 Main Development Miscellaneous Licence L47/880 and L47/141 and Mineral Lease ML4SA (Sections 102, 103, 104, 244, 279, 292 and 295) ROCKLEA WA 6751 As defined by the premises map attached to the issued works approval
Date of report	28 May 2025 **(FINAL)**
Decision	Works approval granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6978/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary and overview of premises

Pilbara Iron Company (Services) Pty Ltd (the applicant) are proposing to develop the Brockman Syncline Proposal (BSP) which includes the extension and development of new above and below water table deposits and associated activities to extend the life of the existing operations at Brockman Syncline 2 (BS2), Brockman Syncline 4 (BS4) and Nammuldi-Silvergrass.

Brockman Syncline 1 (BS1) forms part of the BSP and is required to sustain current production levels at BS4. The BS1 Main Development (the Premises) is located approximately 60 km north-west of the town of Tom Price in the Shire of Ashburton.

On 19 August 2024, the applicant submitted an application (Rio Tinto 2024) for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application seeks to construct and operate the following:

- Category 5: Ore processing facilities - refer to section 2.2.1;
- Category 6: Dewatering discharge point - refer to section 2.2.2;
- Category 12: Mobile crushing and screening plants - refer to section 2.2.3;
- Category 64: Class II putrescible landfill - refer to section 2.2.4;
- Category 73: Bulk fuel storage facilities - refer to section 2.2.5; and
- Category 85: Sewage treatment facilities (STFs) - refer to section 2.2.6.

The Premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6978/2024/1.

The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6978/2024/1.

2.2.1 Category 5 – Ore processing facilities

Ore mined from the BS1 deposits will be crushed and then transported via an overland conveyor to the existing BS4 processing infrastructure for dry processing and train load-out.

The proposed BS1 deposits are approximately 9 km north of the existing BS4 operations.

The BS1 processing facilities will include as shown in Figure 1:

- A primary crushing facility;
- A discharge conveyor;
- An overland conveyor (OLC); and
- A surge bin facility.

A tie-in to the existing facilities at BS4 is required and includes an upgrade of the BS4 overland conveyor module, BCV2012, with the addition of a single apron feeder.

The processing facilities at BS1 will include a centralised Run of Mine (ROM) pad. The ROM will include a single tipping point to a fixed primary crushing.

The primary crushing facility will feed onto a discharge conveyor transfer station and then onto the proposed BS1-BS4 OLC. The OLC will transport ore from the discharge conveyor transfer station to a surge bin facility tying into the existing BS4 conveyor network. The OLC is approximately 8 km in length from the transfer station to the surge bin at BS4. The proposed surge bin facility has a capacity of up to 425 m^3, providing a level of buffering for both upstream and downstream delays. The buffering capacity of the surge bin will allow the existing BS4 conveyor network tie-in (BCV210) to receive primary crushed ore from both the existing BS4 primary crushing facility and the new BS1 primary crushing facility.

The existing BS4 processing facilities has a design capacity to process up to 44,000,000 tonnes of ore per annual period (approved under existing Licence L8232/2008/2). No changes to the existing/approved Category 5 design capacity are proposed, however, construction and commissioning of additional processing facilities are to be assessed under this works approval to sustain production from the BS1 development at 25,000,000 tonnes per annum (tpa).

Refer to section 3 for the risk assessment for the ore processing facilities.

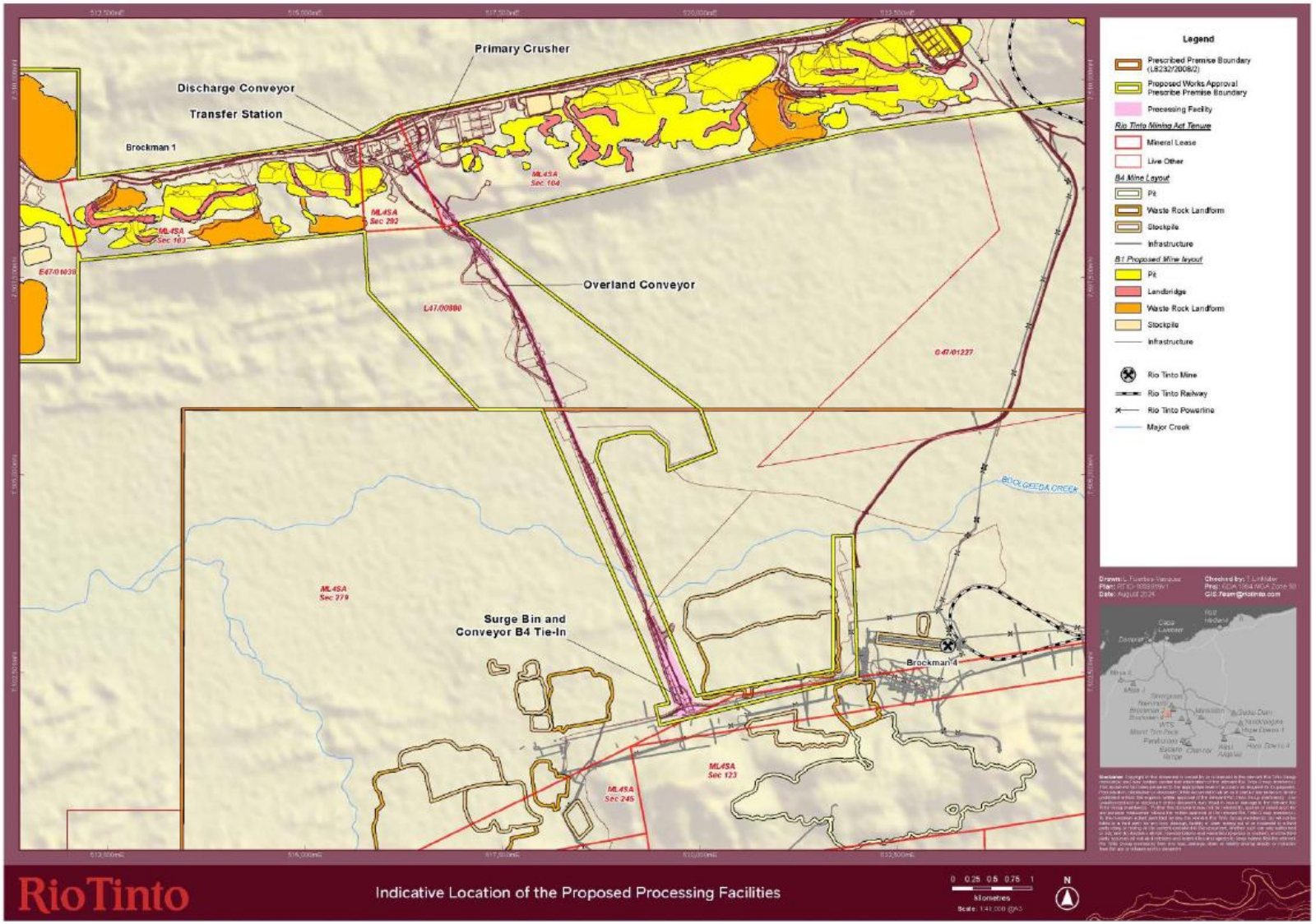

Figure 1: Indicative location of ore processing facilities

2.2.2 Category 6 - Dewatering discharge point

The BS1 ore bodies extend below the water table, dewatering will be required to mine.

The dewatering infrastructure consists of an in-pit and ex-pit dewatering bore network. Water extracted from the dewatering bores will be used to meet processing, fire and dust suppression water requirements.

Dewatering volumes exceeding operational requirements will be delivered, via approximately 22 km of pipeline, from the BS1 dewatering bores to the new gabion discharge point at Boolgeeda Creek at the location shown in Figure 2. The discharge outlet will be constructed adjacent to the existing discharge point (authorised under existing Licence L8232/2008/2) replicating the existing design.

The transfer system will be capable of transferring the full peak pit dewatering rate of 36.4 megalitres (ML) per day. Allowing pit dewatering to continue at the maximum rate during periods where BS1 dust suppression and process water usage is minimal due to rainfall or plant shutdowns.

Based on numerical groundwater modelling and water balance calculations it is estimated that a maximum total of approximately 6.4 gigalitres (GL) per year or 17.5 ML/day (during periods of no natural flow) is expected to be discharged to Boolgeeda Creek. The rate of discharge will be dependent on water use on-site however, when required, a combined daily maximum volume of up to 30 ML/day of surplus water may be discharged from both outlets to Boolgeeda Creek.

Combined discharge volumes to Boolgeeda Creek will not exceed 6.4 GL/year, which is the category 6 authorised discharge capacity under existing Licence L8232/2008/2.

Controlled discharge to the environment via Boolgeeda Creek with a wetting front not exceeding 37 km, under no-flow conditions is managed by Ministerial Statement (MS) 1246 and the BSP EMP – refer to section 2.4.

Refer to section 3 for the risk assessment for the dewatering discharge point.

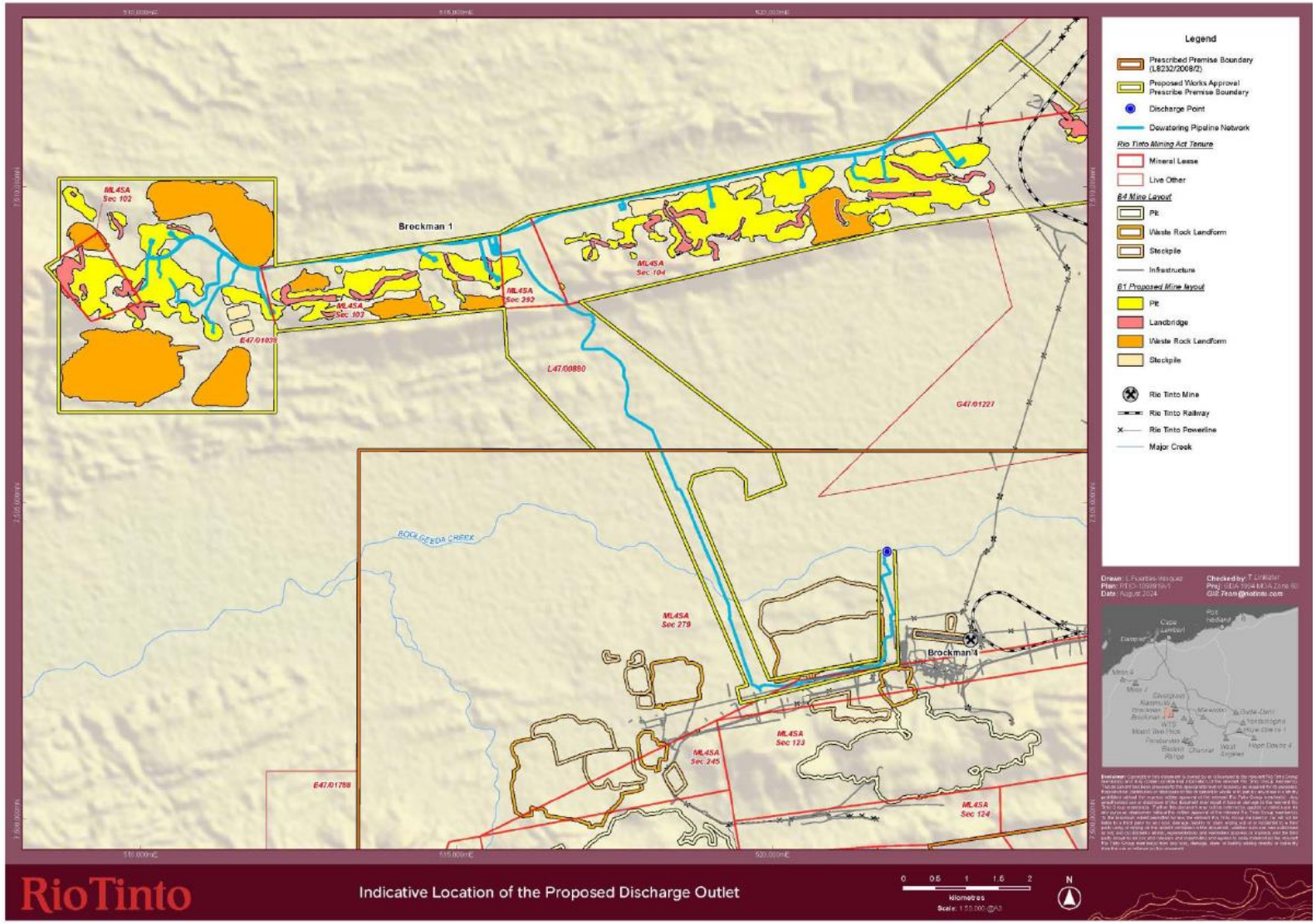

Figure 2: Indicative location of discharge point and dewatering pipeline network

2.2.3 Category 12 – Mobile crushing and screening plants

Mobile crushing and screening plants are required to support construction activities for the BS1 development. The combined design capacity of the mobile crushing and screening plants will not exceed 10 million tpa. The mobile crushing and screening plants will operate within the prescribed premises boundary of this works approval.

Mobile crushing and screening plants are expected to include the following:

- Primary Jaw Crusher (300 cubic metres (m^3) per hour (m^3/hr) capacity);
- Secondary Cone Crusher (175 m^3/hr capacity); and
- Heavy Duty Screen or similar.

Borrow material will be loaded into a jaw crusher via a hopper. The processed material will be delivered to the screens to ensure material meets size specification before being used during construction.

Refer to section 3 for the risk assessment for the mobile crushing and screening plants.

2.2.4 Category 64 - Class II putrescible landfill

There is an existing putrescible landfill at BS4 operated under existing Licence L8232/2008/2.

The applicant is proposing to construct a replacement landfill, which will have a design capacity of 6,000 tpa. The new landfill is proposed to be located directly north and abutting the existing facility.

The following waste streams will be accepted at the landfill as defined in the *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)* (DWER 2019):

- Clean Fill;
- Uncontaminated Fill;
- Inert Waste Type 1;
- Special Waste Type 1; and
- Putrescible Waste.

The landfill will be an open trench construction. Each trench will be constructed as the previous trench reaches capacity. The trench length will vary from 50-300 m long, 11 m in width with a maximum depth of 6 m. There will be four cells within each trench. Waste will be disposed progressively from one end to another.

Refer to section 3 for the risk assessment for the landfill.

2.2.5 Category 73 – Bulk fuel storage facilities

Permanent refuelling facilities and lubrication facilities are required to support the mining fleet for the BS1 development. The following infrastructure will be located within the Non-Process Infrastructure (NPI) hub:

<u>Road Train / Tanker Unloading</u>

A road train / tanker unloading facility will supply fuel to the Heavy Vehicle (HV) Refuelling Facility (HVRF). The road train / tanker unloading facility will also include a light vehicle (LV) refuelling station.

Diesel fuel will be stored at the refuelling facility in four 200 kilolitre (kL) self-bunded fuel storage tanks.

HV Refuelling Bays

The HVRF will include a single refuelling bay designed to support the HV fleet.

Bulk Lubrication Storage

The bulk lubrication storage facility will include storage tanks within a concrete bunded area for fleet maintenance lubricants, oils and waste oils.

Bulk lubrication storage tanks include:

- 1x 55 kL oil storage tank;
- 4x 30 kL oil storage tanks;
- 1x 85 kL waste oil storage tank; and
- 6x 1 kL oil storage tanks.

Oily Water Collection and Treatment

Road tanker unloading pads, HV refuelling bay and pump station bunded area, lubrication storage containment bund and wash down pads will all be graded such that water will be directed into a drive-in collection sump. Sumps will be designed to be drive-in to allow removal of sediments that settle in the collection sump. A drying pad adjacent to the collection sump will allow hydrocarbon contaminated solids to be removed from the sump to dry before being disposed of. Water from the collection sump will overflow into a pump pit. The oily water from the pump pit will be transferred to the Oily Water Separator (OWS).

Coalescing tube OWS will separate oil and water using gravity. Oily water will then be pumped into the separator where solids sink, and oil rises to the top across tubes resulting in two flows out of the system; treated water and separated hydrocarbons.

The OWS is designed to treat oily water so that effluent has a Total Recoverable Hydrocarbons (TRH) concentration is below 15 mg/L. Treated oily water will be used for dust suppression.

Temporary Refuelling Facilities

Additional temporary refuelling facilities are proposed to support the construction and early mining fleet for the BS1 development. The following refuelling locations and fuel storage volumes are proposed:

- Temporary NPI – 2x 200 kL storage tanks;
- East EPCM – 3x 110 kL storage tanks;
- East Bulk Earthworks – 3x 110 kL storage tanks;
- OLC Bulk Earthworks – 1x 110 kL storage tanks; and
- West Bulk Earthworks – 3x 110 kL storage tanks.

The proposed permanent and temporary fuel storage capacity is 1,066 m^3 and 1,500 m^3 in aggregate respectively.

Refer to section 3 for the risk assessment for the bulk fuel storage facilities.

2.2.6 Category 85 - STFs

Permanent STFs are required to support the BS1 development. Biomax units will be located within the NPI hub. These will include the following units and design capacities (total combined design capacity is 31.1 kL/day):

1) HVRF – 1.5 kL/day;
2) Tyre change – 1.5 kL/day;
3) HME Workshop – 7.4 kL/day; and
4) Administration – 20.7 kL/day.

The units operate on a five-stage treatment flow:

1) Anaerobic chamber – anaerobic treatment;
2) Aerobic chamber – aerobic treatment;
3) Clarification chamber – sludge settlement and removal;
4) Disinfection chamber – contact time with chlorine; and
5) Pump out chamber – discharge to disposal.

The units have been designed to treat effluent to the following performance targets:

- Biochemical Oxygen Demand: ≤20 mg/L;
- Total Suspended Solids: ≤30 mg/L;
- Faecal Coliforms: ≤10 cfu/100 mL;
- Residual Free Chlorine: >0.5 mg/L;
- pH: 6.5 – 8.5 pH units;
- Total Nitrogen: <30 mg/L; and
- Total Phosphorous: <8 mg/L.

The treated wastewater will be piped to a combined sprayfield area of 8 hectares (ha) approximately 450 m south of the BS1 NPI hub. A 16 ha sprayfield footprint area, comprising two designated 8 ha sprayfield cells, has been allocated. Only one 8 ha area will be constructed and operated.

Rio Tinto 2024 states the that the 8 ha sprayfield satisfies the principles of treating wastewater to a Soil Risk Category D as per the *Water Quality Protection Notes 22: Irrigation with nutrient-rich wastewater (DoW 2008)*.

Expected nutrient loading rates are shown in Table 1.

Table 1: Nutrient application criteria

Maximum Treated Effluent Throughput	Expected performance	Application rate for Category D soil[1]	Expected annual nutrient loading rate	Recommended Minimum Sprayfield sizing
31.1 m^3/day	30 mg/L Total Nitrogen	480 kg/ha/year	42.6 kg/ha/year	0.71 ha
	8 mg/L Total Phosphorus	120 kg/ha/year	11.4 kg/ha/year	0.76 ha

Note 1: WQPN 22 – Table 2: Nutrient application criteria to control eutrophication risk

Refer to section 3 for the risk assessment for the STFs.

2.3 *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

The BSP was referred for assessment in July 2019 under the EPBC Act through the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

EPBC Act referral decision and designated proponent – controlled action decision on assessment approach for the Extension to Brockman Syncline Iron Ore Mining Operations (EPBC 2019/8518) made under section 75 and section 87 of the EPBC Act includes the following:

- Decision on proposed action: The proposed action is a controlled action. The project will require assessment and approval under the EPBC Act before it can proceed.
- Relevant controlling provisions: Listed threatened species and communities (sections 18 & 18A).
- Assessment approach: The project will be assessed by accredited assessment under the EP Act (WA).

The department referred the application to DCCEEW on 15 November 2024. DCCEEW responded on 06 December 2024 stating that their assessment of the proposed activities shows that the activities would be occurring within the development envelope for Iron ore mine expansion, Extension to Brockman Syncline Iron Ore Operations, Pilbara, WA (2019/8518 and as varied by variation request dated 28 September 2022) currently under assessment under the EPBC Act, as such they provided the following comment:

Under section 74AA of the EPBC Act, Rio Tinto are not able to take the action (including clearing, mining, blasting or dewatering) while the proposal is being assessed by the Commonwealth. To avoid breaching section 74AA and only if the proponent could demonstrate that there would be no impact to MNES as a result of the proposed action, the proponent could excise the area they want to clear or dewater from the development envelope. They could resubmit the preliminary works approval for just the excised areas. The referral footprint would need updating as well, with these areas excised, which would require a variation to the action currently proposed under the EPBC Act (2019/8518).

The applicant has stated (Rio Tinto 2025b) that DCCEEW completed its assessment of the proposed action and published Decision Notice 2019/8518, approving the BSP on 05 March 2025.

2.4 Part IV of the EP Act

2.4.1 BSP

The Environmental Protection Authority (EPA) considered a proposal by Hamersley Iron Pty Limited for a significant amendment to support development of new above and below water table mining areas to sustain mining at three existing operations. The proposal included a proposed consolidation and modernisation of the Ministerial Statements for the three existing operations including:

- BS2 – authorised under MS 131 and MS 867
- BS4 – authorised under MS 1000
- Nammuldi-Silvergrass – authorised under MS 925.

The EPA assessed the proposal at Public Environmental Review. The Environmental Review Document was subject to an 8-week public review period. The EPA considered the key environmental factors to be flora and vegetation, subterranean fauna, terrestrial fauna, inland waters, greenhouse gas emissions and social surroundings.

EPA Report 1774 was published on 27 November 2024. After the appeal process was determined, MS 1246 was published on 3 February 2025.

2.4.2 MS 1246

The BSP is a significant amendment to support the development of new above and below water table mining areas in order to sustain mining at three existing operations, Nammuldi-Silvergrass, BS2 and BS4, which were agreed to be implemented under MS 131, MS 867, MS 925 and MS 1000.

MS 131, MS 867, MS 925 and MS 1000 are superseded by MS 1246 under section 40AA (6) (b) of the EP Act.

MS 1246 conditions and procedures relevant to this assessment include:

A1 Limitations and Extent of Proposal

- A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitations or maximum extents / capacities / ranges are not exceeded:

Proposal element	Location	Maximum extent
Operational elements		
Dewatering and water supply	N/A	Dewatering and abstraction of up to 50 GL/a.
Management of surplus water	N/A	Options include: • use on site • discharge to disused pits • irrigated agriculture at Nammuldi • infiltration/injection to the aquifer • provision to other users • controlled discharge to the environment via Duck Creek and Boolgeeda Creek with a wetting front not exceeding 67 and 37 km respectively from point of discharge, under natural no-flow conditions.

B1 Flora and Vegetation

- B1-1 (5) disturb no more than the following within the local area:

(a) 30% of *Hibiscus* sp. Mt Brockman (E. Thoma ET 1354) (P1);

(b) 30% of *Pentalepis trichodesmoides* subsp. *hispida* (P2);

(c) 30% of *Eremophila magnifica* subsp. *velutina* (P3);

(d) 30% of *Grevillea saxicola* (P3);

(e) 30% of *Ipomoea racemigera* (P3);

(f) 30% of *Rostellularia adscendens* var. *latifolia* (P3);

(g) 30% of *Sida* sp. Hamersley Range (K. Newbey 10692) (P3);

(h) 30% of *Acacia bromilowiana* (P4);

(i) 30% of *Sida* sp. Barlee Range (S. van Leeuwen 1642) (P4);

(j) 30% of *Hibiscus* aff. sp. Gurinbiddy Range (M.E. Trugden MET 15708) (potential new species);

(k) 129 **ha** for **riparian vegetation**; and

(l) 5.1 **ha** for **GDV** (**vegetation unit C3 (DkCk)**).

- B1-4 The proponent shall implement appropriate management measures to achieve the following environmental objectives for the significant amendment:

    (1) avoid and minimise disturbances, to flora and vegetation including but not limited to impacts from, altered hydrological regimes, bushfire, dust, fragmentation and environmental weeds; and

    (2) minimise disturbances on remaining extents of significant vegetation and priority flora.

B2 Terrestrial Fauna

- B2-1 The proponent must ensure the implementation of the proposal achieves the following environmental outcomes for the significant amendment:

    (2) no impacts to the structural integrity or microclimate that would reduce the capacity to support ghost bats (*Macroderma gigas*) of caves listed in Mining Exclusion Zone 1[1];

    (4) no disturbance to ghost bat (*Macroderma gigas*) and Pilbara leaf-nosed bat (*Rhinonicteris aurantia*) roosts within the Mining Exclusion Zone 1 attributable to the proposal;

    (5) no disturbance to the ghost bat (*Macroderma gigas*) and Pilbara leaf-nosed bat (*Rhinonictens aurantia*) population within the Mining Exclusion Zone 1 from vibration attributable to the significant amendment;

    (6) no disturbance to the ghost bat (*Macroderma gigas*) and Pilbara leaf-nosed bat (*Rhinonictens aurantia*) population within the Mining Exclusion Zone 1 from noise attributable to the significant amendment; and

    (7) avoid indirect impacts that would disturb the local population of northern quoll (*Dasyurus hallucatus*) and Pilbara olive python (*Liasis olivaceus barroni*) attributable to the proposal.

- B2-3 The proponent must implement the proposal to achieve the following environmental objectives:

    (1) Maintain the viability of the ghost bat population within the development envelope during operations and post-mining operations.

- Conditions B2-4 to B2-8 relating to the ghost bat and including:
    - a Noise and Vibration Management Approach Report;
    - a Ghost Bat Monitoring Performance Report; and
    - a Ghost Bat Management Plan.

- B2-9 The proponent shall ensure that all artificial lighting required for the significant amendment uses directional and/or shielded lighting and uses the minimum number and intensity of lights required, to avoid disturbances to nocturnal fauna.

B3 Subterranean Fauna

- B3-1 (1) and (2) relating to stygofauna and troglofauna habitats.

[1] Comprises critical caves for ghost bats.

B4 Inland Waters

- B4-1 The proponent must ensure the implementation of the proposal achieves the following environmental outcomes for the significant amendment:
    - (5) ensure groundwater mounding above pre-mining groundwater levels within mine pits does not occur; and
    - (7) ensure that the discharge of surplus water does not cause irreversible impacts on the environmental and conservation values of Boolgeeda Creek and Duck Creek.
- B4-3 The proponent shall manage the discharge of surplus mine dewater from BS4 to minimise impacts to the riparian vegetation along Boolgeeda Creek.
- Conditions B4-4 and B4-5 relating to an Environmental Management Plan which demonstrates how inland waters environmental outcomes will be achieved.

B5 Aboriginal Heritage

- Conditions B5-1 to B5-5 relating to avoiding impacts to Aboriginal heritage; and undertaking reasonable consultation with the relevant Traditional Owners.

B6 Greenhouse Gas Emissions

- Conditions B6-1 to B6-3.

B8 Rehabilitation and Closure

- Conditions B8-1 to B8-8.

Part C – Environmental Management Plans and Monitoring including but not limited to:

- C1-1 The proponent must:
    - (2) within twelve (12) months of the date of this Statement, or otherwise agreed to by the CEO, revise and submit the Environmental Management Plan required by condition B4-4.
- C4-1 The environmental management plans required under B2-6, B4-4, B8-6, B10-5 and B11-2 must contain provisions which enable the substantiation of whether the relevant outcomes of those conditions are met, and must include:
    - (1) threshold criteria that provide a limit beyond which the environmental outcomes are not achieved;
    - (2) trigger criteria that will provide an early warning that the environmental outcomes are not likely to be met;
    - (3) monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure threshold criteria and trigger criteria. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future;
    - (4) baseline data;
    - (5) data collection and analysis methodologies;
    - (6) adaptive management methodology;
    - (7) contingency measures which will be implemented if threshold criteria or trigger criteria are not met; and
    - (8) reporting requirements.
- C4-4 The environmental management plan required under condition B4-4 shall include:

(1) identification of potential vegetation impact monitoring and control sites between the discharge points and the confluence of Duck Creek and Boolgeeda Creek.

Requirements of MS 1246 are not re-assessed in this decision report and are not duplicated as conditions in the works approval (W6978/2024/1) or existing Licence L8232/2008/2.

EPA Report 1774 states *Noting that the surplus water to be discharged would not increase from what has already been assessed under MS 1000*.

2.4.3 BSP EMP

The applicant has stated the following (Rio Tinto 2025a):

- The current version of the BSP EMP provides management for environment values with the potential to be impacted by the BSP. The EMP fulfils the then anticipated requirements of MS 1246 which incorporates and supersedes Condition 6 of MS 1000.
- The BSP EMP consolidates and supersedes the BS4 Revised Proposal Monitoring and Management Plan (BS4 MMP). The BS4 MMP included the monitoring and management of dewatering discharge from the BS4 Revised Proposal, focusing on the surface discharge of surplus water to Boolgeeda Creek.
- Vegetation health monitoring along Boolgeeda Creek is included in the BSP EMP (section 2.1.1).
- Water quality monitoring will likely be proposed for Boolgeeda Creek to meet the requirements of MS 1246 Condition B4-1 (7).
- As per MS 1246 Condition C1-1 (2), the updated EMP will be submitted within 12 months, the target submission date is January 2026.
- Surplus water discharged to Boolgeeda Creek will continue to be managed as per the requirements of the current EMP.

The department notes that surface water quality of Boolgeeda Creek is not yet regulated under MS 1246 or the BSP EMP.

2.5 *Rights in Water and Irrigation Act 1914* (RiWI Act)

The application was referred to the department's North West Region, who advised that the proposal occurs within the proclaimed Pilbara groundwater area and surface water area and is therefore subject to licensing requirements under the RiWI Act.

It was also stated that due to the geological strata in the Brockman Syncline area, drawdown at BS4 is not predicted to propagate and impact riparian vegetation at Boolgeeda Creek. Hydrographs provided for monitoring bores in the Boolgeeda Valley show groundwater levels and rainfall, and that groundwater levels have been relatively steady, supporting the applicant's conclusion that drawdown has not extended to the Boolgeeda Valley from existing operations.

BS4 has an existing Groundwater Licence (GWL) 164398 which allows for the abstraction of 13,000,000 kilolitres (kL) or 13 gigalitres (GL) per annum (GL/a).

An application for a new GWL is being progressed to support the BS1 development, with a proposed abstraction of 10,000,000 kL or 10 GL/a.

MS 1246 allows for a maximum take of 50 GL/a.

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 construction and operation which have been considered in this decision report are detailed in Table 2 below.

Table 2 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Works associated with the construction and establishment / mobilisation of the following infrastructure: • Ore processing facilities • Mobile crushing and screening plants • Landfill cells / trenches • Bulk fuel storage facilities • STFs Vehicle movement	Air / windborne	Clearing will be managed to ensure that areas are only cleared as required and rehabilitation of cleared areas is implemented progressively. Dust suppression will be implemented (including use of water trucks, control of vehicle movements / restricted speeds, approved dust suppression products e.g. DustMag).
Noise		Air / windborne Vibration	*Operated in accordance with the Environmental Protection (Noise) Regulations 1997.*
Hydrocarbon and chemical spills	Operation of heavy machinery associated with construction activities	Discharges to land	Hydrocarbons used during construction will be managed via relevant legislation (including *Australian Standard 1940-2004 (AS 1940-2004) The storage and handling of flammable and combustible liquids.* Vehicle refuelling will occur over concrete hardstand or compacted, lined earthen pad (with the exception of field-based refuelling where a drip tray will be used).

Emission	Sources	Potential pathways	Proposed controls
			Field based refuelling will not be carried out within 30 m of the Australian Hydrological Geospatial Fabric (AHGF) centreline of Boolgeeda Creek.
Category 5 – Commissioning and Operation			
Dust	Commissioning and operation of the ore processing facility	Air / windborne	A dry baghouse dust extraction installed at the primary crushing facility to extract dust from the apron feeder head end/ROM bin, vibrating grizzly feeder dust cover, vibrating grizzly feeder undersize chute and conveyor 2113-CNV-0130 skirts. The baghouse is located above the conveyor 2113-CNV-0130 allowing the collected dust to be returned directly onto conveyor 2113-CNV-0130 without the use of an agglomerating device. Three dust suppression sprays installed at the discharge points to prevent dust blowing off the top of the conveyor ore burden. Dust suppression sprays installed just after the OLC loading modules prior to the dust covers on the OLC. OLC dust covers installed along the length of the conveyors to protect against waster addition during heavy rain and dust generation. OLC dust covers installed downstream of the tail end loading modules up to the skirted section at the transfer point at the top of the surge bin. An insertable dust collector installed at the top of the surge bin facility to capture dust generated by the falling ore stream from the OLC within the surge bin. The dust collector includes a dust collection system and extraction fan. Collected dust is returned to the surge bin and will mix in with the ore in the bin. A dust suppression spray is located downstream of the load point where the apron feeder discharges onto conveyor BCV210. Regular inspection and maintenance.
Noise		Air / windborne	*Environmental Protection (Noise) Regulations 1997*. Standard operating procedures.

Emission	Sources	Potential pathways	Proposed controls
Light		Light spill	Lighting design to comply with Australian Standards for safe work. Lighting design in areas that require permanent night lighting to ensure light is directed to works areas and minimal light spill occurs (including use of directional lighting and covered lenses).
Sediment laden / hydrocarbon contaminated stormwater	Rainfall ingress	Overland runoff	Local surface water management structures installed at the ROM pad, primary crushing facility, transfer stations and surge bin facility to manage surface water flows beneath the processing facilities. Surface water management structures will enable the retention of potentially sediment laden surface water, directing it to drive-in collection sumps and sedimentation ponds. Primary crusher, transfer station and surge bin located on concrete hardstand. Concrete hardstand graded such that surface water run-off is directed into a drive-in collection sump to allow removal of sediments. Water from collection sump allowed to evaporate or pumped to sedimentation ponds. The collection sump to include oily water detectors and an alarm which will register in the plants SCADA system and stop sump water from being pumped to sedimentation ponds. OLC conveyor has an earthen foundation, and culverts have been designed to maintain surface water flows across the OLC foundation.
Category 6 – Operation only			
Mine dewater	Mine dewatering discharge from Boolgeeda Creek discharge point	Direct discharge and path of flow Erosion / scouring of creek / creek bed	Discharge point located immediately downstream of the current licensed discharge point. Outlet design includes non-woven geotextile membrane covered by approximately 500 mm high gabion structures. Rip rap apron at the outlet, in addition to rip rap protection extending approximately 75 m into Boolgeeda Creek. Discharge point includes gabion style baffling extending into the creek to slow the discharge of water prior to entering the creek flow. A flow meter to be installed at the discharge point to record discharge volumes. Water quality monitored as per the *BSP EMP*,

Emission	Sources	Potential pathways	Proposed controls
			in accordance with the Australian & New Zealand Guidelines for Fresh & Marine Water Quality (ANZG 2018).
	Transportation of mine dewater by pipelines	Discharge to land from rupture or leaks of pipelines	Pipeline constructed of high-density polyethylene (HDPE), varying in size up to DN710. The pipeline includes short sections of steel pipe at valves and pump stations. Pipeline primarily above ground with sections buried for access, safety in design or to maintain cultural values. Pipeline to follow existing tracks and contours to minimise earthworks. Concrete pads at pump station areas. Fitted with telemetry downstream of each pump system and includes automatic cut-outs to remotely control flow conditions.
Category 12 – Operation only			
Dust	Operation of mobile crushing and screening plants Storage and handling of crusher feed material and screened material	Air / windborne	Dust suppression on work areas, access roads and stockpiles to minimise dust during storage and handling of crusher feed material and screened material as required. Hydraulically angle-adjustable stockpiling conveyors (if fitted) utilised to minimise drop heights and reduce dust generation. Dust suppression sprays at primary sources of dust i.e. at the hopper and jaw crusher, on the main conveyor and discharge conveyor.
Sediment laden / hydrocarbon contaminated stormwater		Discharges to land	Diversion of uncontaminated stormwater around the cleared construction laydown area. Plants located at least 50 m from permanent water bodies.
Hydrocarbons and chemicals	Leaks and spills from mobile crushing and screening plants	Discharges to land	Vehicle refuelling to occur over concrete hardstand or compacted, lined earthen pad (with the exception of field-based refuelling where a drip tray will be used).
Category 64: Operation only			
Dust	Disposal and burial of waste	Air / windborne	Trench locations to be opened in stages as required. Each trench constructed as previous trench reaches capacity.
Windblown waste		Air / windborne	Tipping area not greater than 30 m in length and at least 2 m above ground level height. Landfill surrounded by a 1.8 m cyclone fence

Emission	Sources	Potential pathways	Proposed controls
			with access via a locked gate. Signage installed near the access gate to communicate the accepted waste streams. Trenches placed according to the prevailing wind direction to prevent windblown rubbish from occurring. Waste is to be covered at least weekly with a minimum of 200 mm of cover material so that no waste is left exposed. Covering is to be with soil or another inert approved material.
Leachate		Infiltration	Tipping area at least 2 m above ground level height. Landfill located so that the vertical distance between the waste and the highest seasonal and expected post mining groundwater level is no less than 3 m.
Contaminated stormwater		Overland runoff	Windrows established approximately 400 mm high around the perimeter of each trench to divert stormwater away from the active landfill area, prevent storm water from coming into contact with waste and provide a safety barrier. A sump or bunding constructed to collect any surface water that has come into contact with waste. Ramping to the open trench features a 200 mm high roll over bund to prevent stormwater entering the trench. A 500 mm windrow constructed along the fence line to ensure waste is not washed or blown beyond the facility boundary and to ensure all stormwater is retained onsite. Landfill to be located more than 100 m from any permanent or perennial watercourse.
Category 73: Commissioning and Operation			
Hydrocarbons	Bulk fuel storage facilities including refuelling	Discharges to land	<u>Permanent facilities</u> Concrete hardstands installed under all areas where there is potential for hydrocarbon spills to direct water to the oily water collection and treatment system, including at the refuelling facility, lubrication facility and vehicle washdowns within the NPI hub. Road tanker unloading pads, HV refuelling bay and pump station bunded area, lubrication storage containment bund and wash down pads all graded such that water is directed into

Emission	Sources	Potential pathways	Proposed controls
			a drive-in collection sump. Sumps are designed to be drive-in to allow removal of sediments that settle in the collection sump. A drying pad adjacent to the collection sump will allow hydrocarbon contaminated solids to be removed from the sump to dry before being disposed of. Water from the collection sump will overflow into a pump pit. The oily water from the pump pit will be transferred to the Oily Water Separator (OWS). Waste oil to be collected and transported offsite and disposed of at an appropriately facility by a licensed contractor. Spill response provided. Diesel fuel stored at the refuelling locations in self-bunded fuel storage tanks. The diesel fuel storage tanks designed and constructed in accordance with *AS 1940-2004 The storage and handling of flammable and combustible liquids.* All fuel storage and transfer points above ground, self-bunded or with bunded areas / secondarily contained. <u>Temporary facilities</u> HDPE lined earthen spill containment bunds to be installed under each location where there is potential hydrocarbon spillage during loading or unloading. In the event of spillage within containment bunds, contaminated soil will be removed and replaced as required. Contaminated soil to be treated and disposed of in line with regulations.
Category 85 – Commissioning and Operation			
Sewage, partially treated sewage and/or nutrient rich treated effluent	Overtopping of sewage holding tanks	Discharges to land	Units consist of one or more semi buried concrete chambers. A high-water level alarm is fitted to the pump-out chamber. Units contain inbuilt emergency storage of approximately two days of normal flow in case of system fault. Surface water management structures (including perimeter bund and sumps) to ensure any spills are contained.
	Rupture of pipes	Discharges to	Surface water management structures

Emission	Sources	Potential pathways	Proposed controls
		land	(including windrow to separate the pipeline from the light vehicle access track). Inspection and maintenance undertaken.
Nutrient rich treated effluent	Irrigation to spray field	Discharges to land	Sprayfield surface topography minimises potential for run off and pooling. Sprayfield avoids natural water courses and flood prone areas. Effluent to be dispersed onto the sprayfield through low height and low mist sprinklers to minimise misting beyond the perimeter. Sprayfield surrounded by a containment bund windrow, stock fence and an access track. Access to the sprayfield is restricted and warning signs are located around the perimeter indicating the area is designated for treated wastewater disposal.
OWS treated water disposal – Operation only			
OWS treated water	Used for dust suppression within Premises	Discharges to land via dust suppression	OWS incorporates a spill recovery system to separate fuel in the case of larger spills to a maximum size. Larger incidents cause the system to shut down, preventing the OWS operating outside acceptable parameters. OWS designed to treat oily water so that effluent has a TRH concentration below 15 mg/L. Treated water will not be used for dust suppression within environmentally sensitive areas.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors 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 and Figure 3, Figure 4, Figure 5 and Figure 6 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**
Residential premises: Tom Price	Approximately 60 km south-east of the Premises. **Ruled out due to distance.**
Eliwana Mine Camp operated by Fortescue Ltd	Approximately 5.6 km to the north-west of the Premises boundary. **Ruled out due to distance.**
Rocklea homestead	Approximately 41 km to the south-east of the Premises boundary. **Ruled out due to distance.**
Environmental receptors	**Distance from prescribed activity**
Rocklea Pastoral Station (N050372) and Cheela Plains Pastoral Station (N050545) Both primarily used for pastoral purposes (running livestock)	Overlies the Premises.
<u>Flora</u> *Rio Tinto 2024* states Priority flora species recognised under the *Wildlife Conservation Act 1950* include: • *Hibiscus sp.* Mt Brockman ET 1354 (Priority 1) • *Hibiscus sp.* Gurinbiddy Range (M.E. Trudgen MET 15708) (Priority 2) • *Pentalepis trichodesmoides subsp. hispida* (Priority 2) • *Ipomoea racemigera* (Priority 3) • *Indigofera rivularis* (Priority 3) (within the proposed footprint of the dewatering infrastructure) • *Eremophila magnifica subsp. velutina* (Priority 3) • *Rhynchosia bungarensis* (Priority 4)	Located within the Premises boundary. *Indigofera rivularis* is within the proposed footprint of the dewatering infrastructure. **Managed under MS 1246 – refer to section 2.4.**
<u>Fauna</u> Matters of National Environmental Significant (MNES) fauna include (Rio Tinto 2024): • Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) • Ghost Bat (*Macroderma gigas*) • Pilbara Olive Python (*Liasis olivaceus barroni*) • Northern Quoll (*Dasyurus hallucatus*)	Identified within 5 km of the Premises. Ghost Bat nearest nocturnal roosts are 1.5 km from the proposed processing facilities. **Managed under MS 1246 – refer to section 2.4.**
• Western Pebble-mound Mouse (*Pseudomys*	Both species recorded along the northern

chapmani) - Priority 4 • Lined soil-crevice skink (*Notoscincus butleri*) - Priority 4	margin of the Premises.
Groundwater Based on pre-mining groundwater level information gathered from monitoring bores, water supply bores and vibrating wire piezometers at BS1 between 2015 to 2020, the groundwater levels range between 543 to 548 mRL in the east and 469 to 497 mRL in the west. Regional groundwater flow is generally from northeast to southwest. Groundwater is recharged periodically by high intensity rainfall events and flooding within the valley floor. Groundwater quality in the Brockman Syncline is typically classified as fresh, with electrical conductivities varying between 500 and 1,500 µS/cm and pH values ranging between 7.2 and 8.4. Chloride concentrations ranged from 6 to 3,320 mg/L, with a regional average of 194 mg/L. Sulfate concentrations were observed to vary between 1.0 – 2,600 mg/L in monitoring bores across the Brockman Syncline.	Groundwater level is at: • Approximately 10 m below ground level (mbgl) for the ore processing facilities. • Approximately 19 mbgl for the Biomax units and sprayfield. • Approximately 30 mbgl (prior to trenches being dug) for the landfill. • Approximately 20 mbgl for the fuel storage and refuelling facilities.
Surface water Boolgeeda Creek is an ephemeral creekline in the central valley of the Brockman Syncline between the BS1 development and existing BS4 operations and is a major tributary of Duck Creek. Boolgeeda Creek drains in a westerly to south-westerly direction to its point of confluence with Duck Creek.	Boolgeeda Creek is: • Approximately 4 km from the ore processing facilities. • Approximately 4 km from the Biomax units and sprayfield. • Approximately 1 km from the landfill. • Approximately 950 m from the fuel storage and refuelling facilities. Surplus water from the existing BS4 operations discharged to Boolgeeda Creek must remain within the authorised maximum wetting front of 37 km from the discharge point during natural no-flow conditions (**as defined by MS 1246**)
Riparian vegetation of Boolgeeda Creek	**Managed under MS 1246 – refer to section 2.4**
RiWI Act	Premises is located within the Proclaimed Pilbara Groundwater and Surface Water Areas
Cultural receptors	**Distance from prescribed activity**
The Premises are within the traditional lands of the Puutu Kunti Kurruma and Pinikura (PKKP) People and Muntulgura Gurama People under their	Registered sites within the proposed premises boundary include:

respective Native Title Claim. *Rio Tinto 2024* states Rio Tinto and the PKKP People together have developed a Social Cultural Heritage Management Plan (SCHMP) as part of the EPA Part IV requirements. The SCHMP provides protocols and procedures for the management of social, cultural and heritage values. The heritage values of the BS1 location are well understood (through extensive surveys, due diligence and consultation). These surveys have identified cultural heritage sites including artefact scatters, stone and quarries, waterholes and rockshelters. The applicant is committed to avoiding sites of ethnographic and / or archaeological significance to Traditional Owners wherever possible at its Pilbara operations. Approval under section 18 of the *Aboriginal Heritage Act 1972* will be sought where disturbance to sites cannot be avoided. Cultural material contained within those sites which cannot be avoided will be managed in accordance with the approval conditions set by the Minister of Aboriginal Affairs and in consultation with the Traditional Owners.	• Pulykita (river) - Artefacts / Scatter; Camp; Ritual / Ceremonial; Creation / Dreaming Narrative; Grinding areas / Grooves; Rock Shelter; Water Source. • PKKP B4 06-06 - Artefacts / Scatter; Rock Shelter. • PKKP B4 06-08 - Rock Shelter. • PKKP B4 06-09 - Artefacts / Scatter. • PKKP B4 06-17 - Sub surface cultural material; Artefacts / Scatter; Rock Shelter Artefacts / Scatter. MS 1246 has conditions relating to Aboriginal Heritage – refer to section 2.4.2

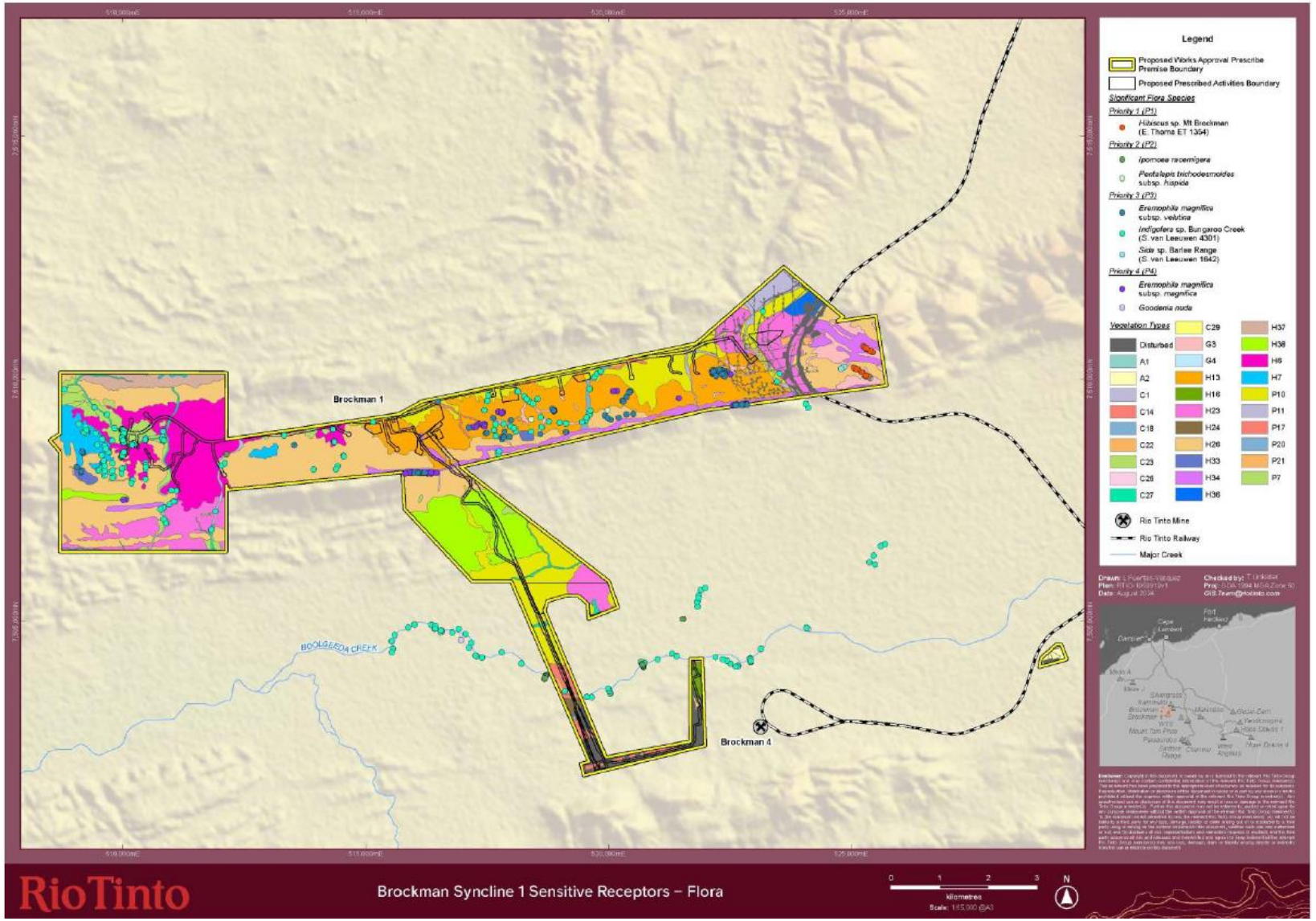

Figure 3: Sensitive receptors – Flora

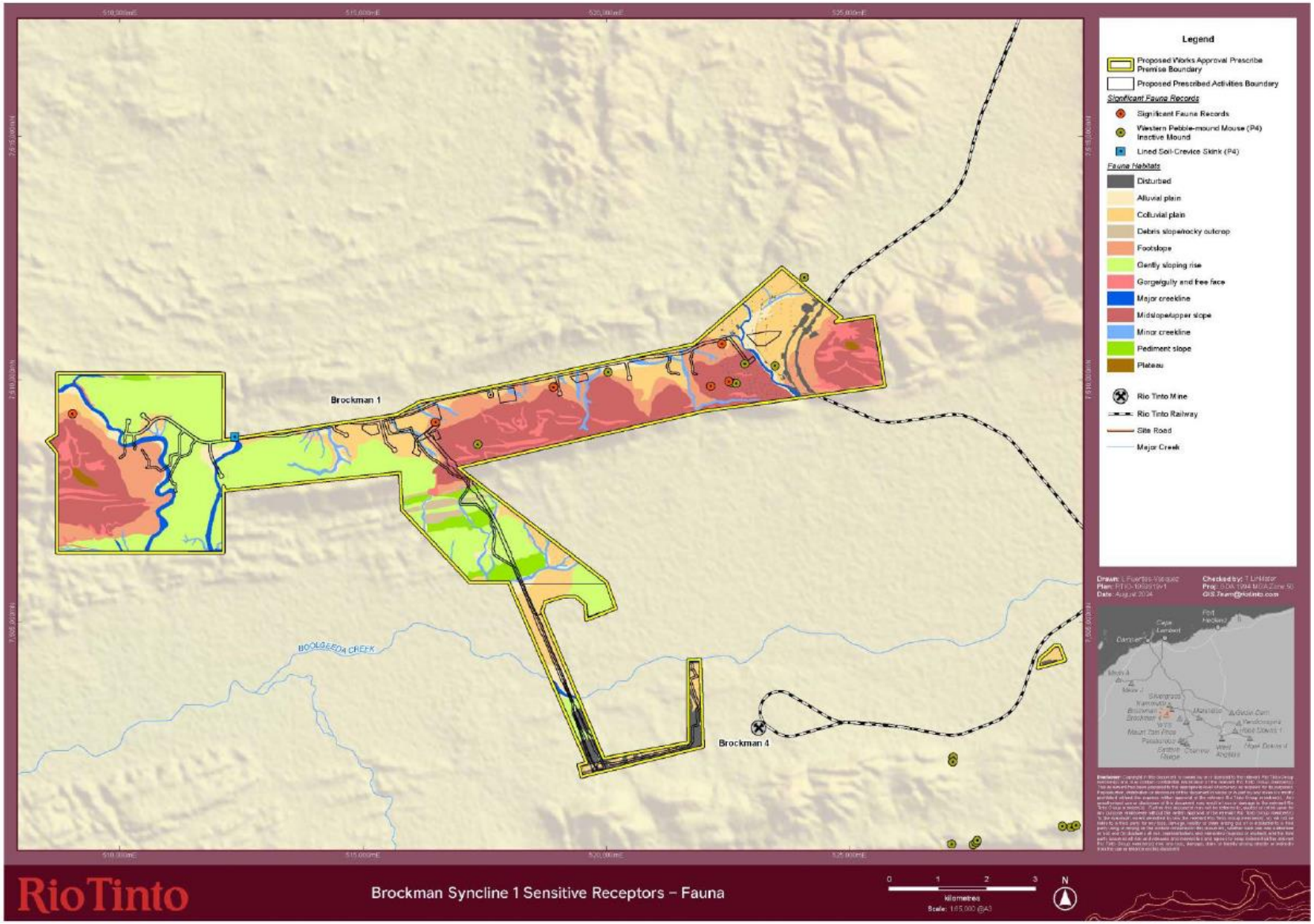

Figure 4: Sensitive receptors - Fauna

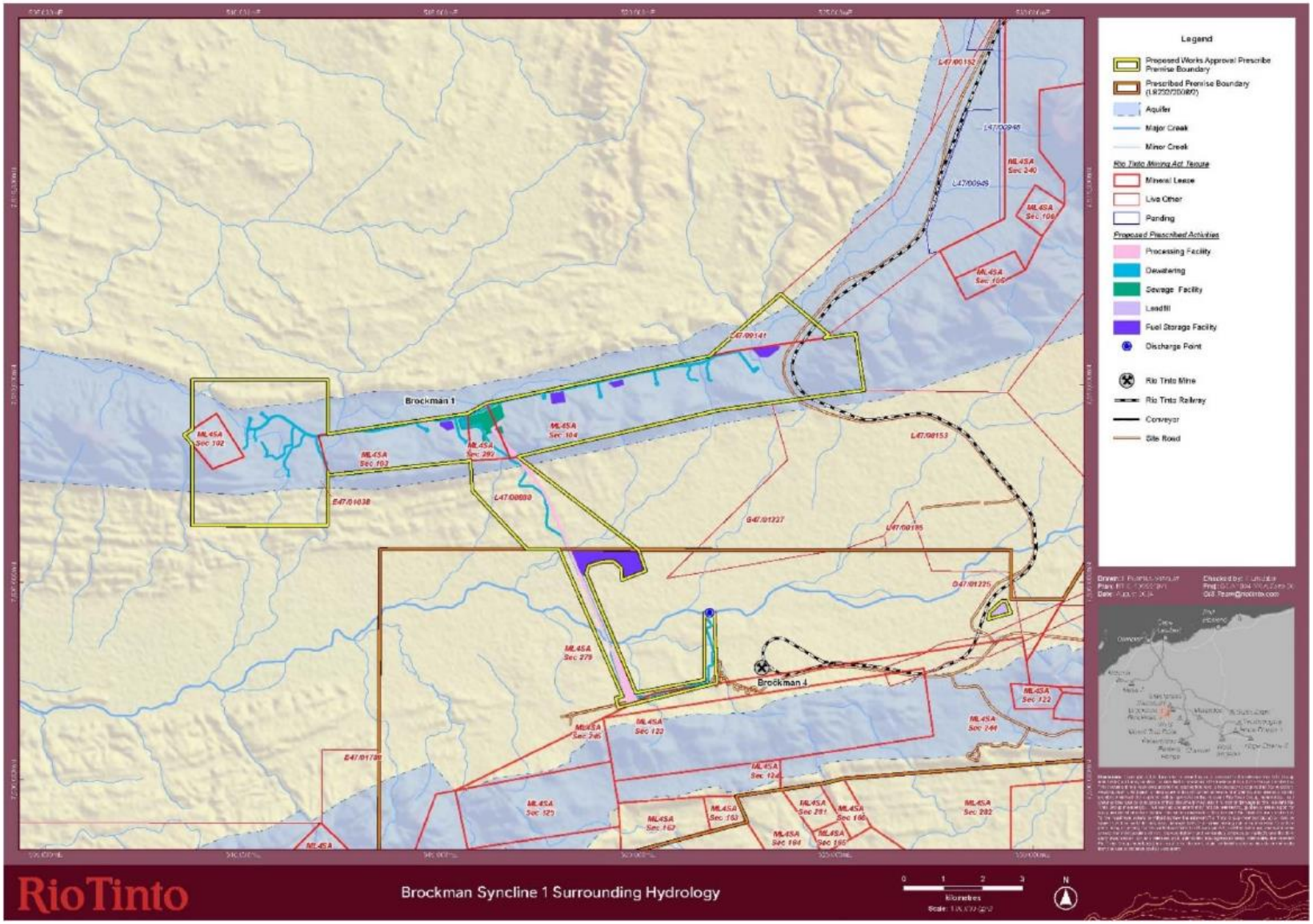

Figure 5: Surrounding hydrology

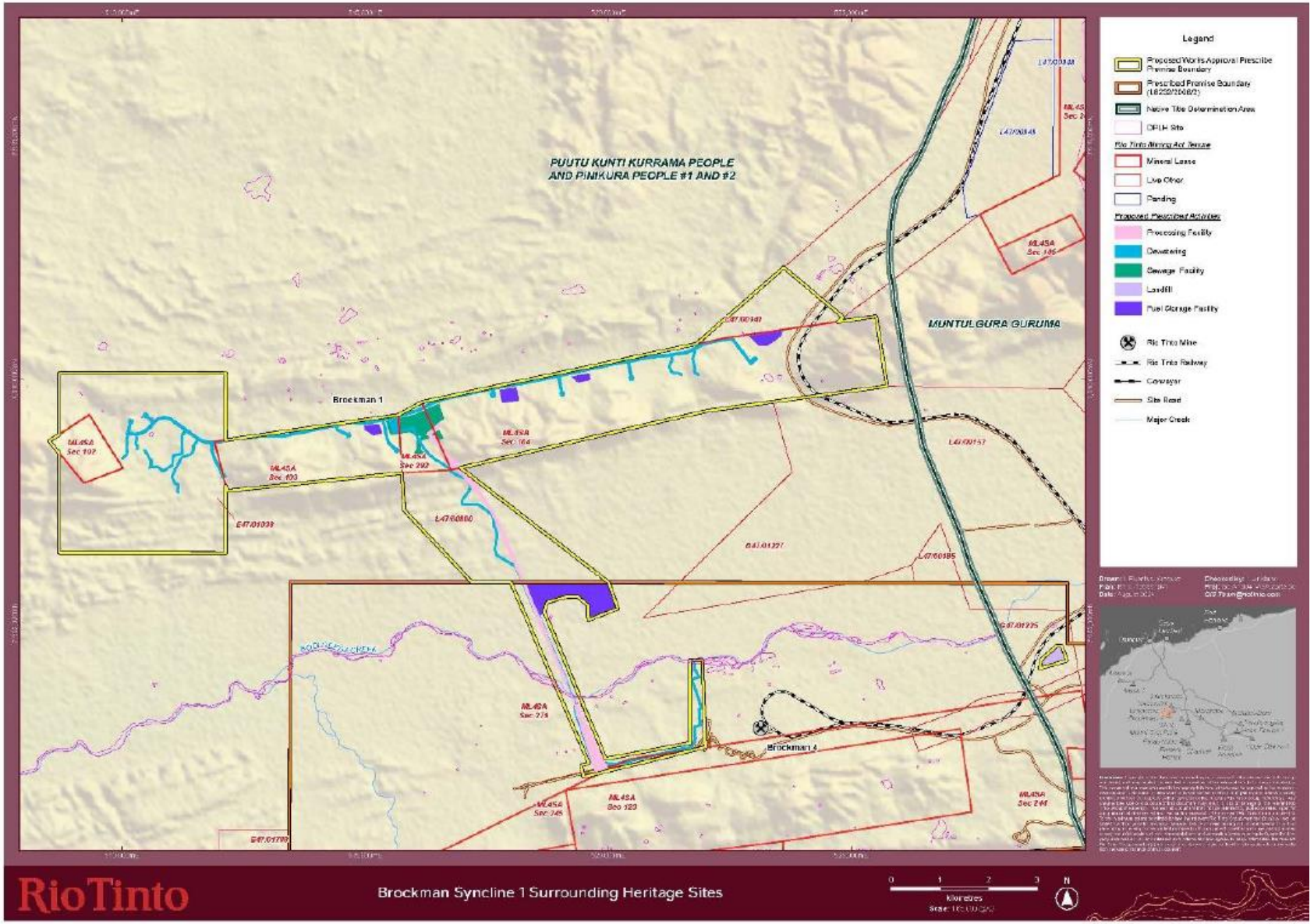

Figure 6: Heritage Sites

Works approval: W6978/2024/1

3.2 Risk ratings

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

Where the applicant 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 applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

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

Works approval W6978/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

An amendment to licence L8232/2008/2 is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the operation of the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Works associated with the construction and establishment / mobilisation of the following infrastructure: • Ore processing facilities • Mobile crushing and screening plants • Landfill cells / trenches • Bulk fuel storage facilities • Sewage treatment facilities Vehicle movements	Dust	Air / windborne pathway causing impacts to amenity Smothering vegetation impacting photosynthesis	Vegetation Aboriginal Sites and Heritage Places	Refer to Section 3.1	C = Slight L = Possible **Low Risk**	Y	N/A	The general provisions of the EP Act with respect to the causing of pollution and environmental harm applies
	Noise	Air / windborne / vibration pathway resulting in impacts on fauna habitats and foraging behaviour disturbances	Native fauna	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	*Environmental Protection (Noise) Regulation 1997* applies Pilbara Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python and Northern Quoll managed under MS 1246 – refer to section 2.4.2
Operation of heavy machinery associated with construction activities	Hydrocarbons and chemical	Discharges to land from leaks and spills contaminating soil and vegetation in the vicinity of spill inhibiting vegetation growth and survival Contamination of surface water bodies	Soil and vegetation adjacent to area of spill or breach Surface water bodies	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	N/A	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies Existing Licence L8232/2008/2 has conditions relating to waste management from ancillary operations

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Commissioning (if applicable) and Operation (including time limited operations)								
Category 5 – Commissioning and Operation								
Commissioning and operation of the ore processing facilities	Dust	Air / windborne pathway causing impacts to amenity Smothering vegetation impacting photosynthesis	Vegetation	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 6 – Commissioning requirements Condition 15 – Time limited operations requirements	MS 1246 relating to Flora and Vegetation – refer to section 2.4.2
	Noise	Noise and vibration impact on fauna habitats	Native fauna	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	*Environmental Protection (Noise) Regulation 1997* apply Pilbara Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python and Northern Quoll managed under MS 1246 – refer to section 2.4.2
	Light	Light spill	Nocturnal native fauna	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	N/A	Managed under MS 1246 – refer to section 2.4.2
Rainfall ingress	Sediment laden / hydrocarbon contaminated stormwater	Overland runoff causing contamination of soils and vegetation due to the presence of hydrocarbons and chemicals in the stormwater	Soils Vegetation	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies Existing Licence L8232/2008/2 has a condition relating to stormwater management

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Category 6 – Operation only								
Mine dewatering discharge from Boolgeeda Creek discharge point	Mine dewater	Direct discharge to Boolgeeda Creek impacting the hydrological regime Direct discharge and path of flow causing a decline of vegetation and disruption of normal ecosystem function	Boolgeeda Creek Surface water quality Riparian vegetation	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 15 – Time limited operations requirements Condition 16 – Authorised discharge points Condition 18 – Monitoring of volumetric flow rate	Managed under MS 1246 and BSP EMP – refer to sections 2.4 Existing Licence L8232/2008/2 authorises the discharge of dewatering discharge flow through the gabion outlet at Boolgeeda Creek dewatering discharge point Existing Licence L8232/2008/2 requires volumetric flow rate to be monitored at the dewatering discharge point
		Erosion of creek bed / scouring, sedimentation, altered flow and decline and change of vegetation	Boolgeeda Creek Surface water quality Riparian vegetation	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y		
Transportation of mine dewater by pipelines	Spills of mine dewater from rupture or leaks of pipelines	Direct discharge and path of flow causing reduced viability of vegetation from inundation Erosion / washout to land and impacts to nearby creeklines / surface water depending on size of the spill	Nearby native vegetation Soils Surface water Nearby creek lines Nearby fauna habitat	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 15 – Time limited operations requirements	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Category 12 – Operation only								
Operation of mobile crushing and screening plants Storage and handling of crusher feed material and screened material	Dust	Air / windborne pathway causing impacts to amenity Smothering vegetation impacting photosynthesis Impacts to habitat of native fauna	Vegetation Native fauna	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 15 – Time limited operations requirements	The general provisions of the EP Act with respect to the causing of pollution and environmental harm applies Existing Licence L8232/2008/2 has a condition relating to crushing and screening
	Sediment laden stormwater	Overland runoff causing contamination of soils and vegetation due to the presence of hydrocarbons and chemicals in the stormwater Increased sedimentation of drainage channels	Soil and vegetation along flow path of the contaminated stormwater	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 15 – Time limited operations requirements	N/A
Leaks and spills from mobile crushing and screening plants	Hydrocarbons and chemicals	Discharges to land from leaks and spills contaminating soil and vegetation in the vicinity of spill inhibiting vegetation growth and survival Contamination of surface water bodies and localised groundwater	Soil and vegetation Surface water bodies Groundwater	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	N/A	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies
Category 64: Operation only								
Disposal and burial of waste	Dust	Air / windborne pathway causing impacts to amenity Smothering vegetation impacting photosynthesis	Vegetation	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 1 – Design and construction requirements Condition 15 – Time limited operations	Existing Licence L8232/2008/2 has conditions relating to the management of putrescible landfill
	Windblown	Air / windborne pathway	Native fauna	Refer to	C = Slight	Y		

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
	waste	causing impacts to health and amenity Increase in feral fauna (scavengers) resulting in predation and replacement of native fauna		Section 3.1	L = Possible **Low Risk**		requirements	
	Leachate	Infiltration through base of the landfill	Terrestrial ecosystems Groundwater	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y		
	Contaminated stormwater	Direct discharges to land from rainfall ingress to landfill area	Soils Vegetation Surface water bodies	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y		
Category 73: Commissioning and Operation								
Bulk fuel storage facilities including refuelling	Hydrocarbon spill or discharge	Direct discharge and path of flow causing contamination of soils and vegetation	Soil and vegetation at site of spill Groundwater	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 6 – Commissioning requirements Condition 15 – Time limited operations requirements	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies Existing Licence L8232/2008/2 has conditions relating to waste management from ancillary operations

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Category 85 – Commissioning and Operation								
STFs	Sewage, partially treated sewage and/or nutrient rich treated effluent	Sewage spill resulting in soil contamination	Soil and vegetation adjacent to area of spill	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 6 – Commissioning requirements Condition 15 – Time limited operations requirements	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies
		Rupture of pipes resulting in sewage discharge Soil contamination inhibiting vegetation growth and survival	Soil and vegetation at area of rupture	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y		
	Nutrient rich treated effluent	Direct planned discharges to sprayfield Elevated nutrient levels in soil Impacts to native vegetation / ingress or spread of weeds	Soil and native vegetation	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements Condition 6 – Commissioning requirements Conditions 7 and 16 – Authorised discharge points Conditions 8 and 18 – Monitoring requirements Condition 15 – Time limited operations requirements	Existing Licence L8232/2008/2 has STF monitoring conditions

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification / additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
OWS treated water disposal								
Water treated through the OWS used for dust suppression onsite	Treated wastewater Potentially untreated wastewater	Discharges to land via dust suppression Untreated hydrocarbon wastewater and runoff impacting vegetation, soils and surface water Uncontrolled discharge	Vegetation Soils Surface water	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Y	Condition 1 – Design and construction requirements for oily water collection and treatment Condition 16 – Authorised discharge point Condition 17 – TRH discharge limit Condition 18 – OWS monitoring requirement	*Environmental Protection (Unauthorised Discharges) Regulations 2004* applies

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

Note 2: Proposed applicant 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
Application advertised on the department's website on 15 November 2024	No comments were received.	N/A.
Department of Mines, Industry Regulation and Safety (DEMIRS) advised of proposal on 15 November 2024	No comments were received.	N/A.
DCCEEW advised of proposal on 15 November 2024	DCCEEW replied on 6 December 2024 – refer to section 2.3.	Noted.
Department of Health (DoH) advised of proposal on 15 November 2024	DoH responded on 03 December 2024 with the following comments: 1.Chemical Hazards Due to the possibility for asbestiform material to be encountered in conjunction with iron ore deposits in this area of Western Australia, the proponent should demonstrate that this is not the case based on extensive sampling of the ore body. Even if this can be done, it should also develop and implement an asbestiform minerals management plan to address any unexpected findings of these materials. The following DoH document may be of assistance in this regard: https://www.health.wa.gov.au/-/media/Files/Corporate/general-documents/Asbestos/PDF/GNote-Public-Health-Risk-Mgt-Asbestos-associated-with-Mining-Activities.pdf 2.Water Supply and Wastewater Disposal The DoH has approved the Application to Construct / Install an Apparatus for the Treatment of Sewage Brockman Syncline 1 Mine in accordance with the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations*	The department notes DoH comments. The applicant has stated (Rio Tinto 2025b) that they have *well established management strategies to manage potentially hazardous materials at its Pilbara operations. Whilst the likelihood of encountering fibrous materials within the Brockman Syncline 1 area is low, if encountered, fibrous materials will be managed via existing management strategies specified in the Rio Tinto Iron Ore (WA) Fibrous Minerals Management Plan. Management of fibrous materials is also detailed in the Brockman Syncline 4 Mine*

Consultation method	Comments received	Department response
	1974 (approval number: 193.24). The approval includes the Wastewater Treatment Plant with capacity of 390KL SBR and 97500m^2 irrigation area for the Brockman Syncline 1 Mine, Corella Construction Village.	*Closure Plan and the Brockman Operation Mine Closure Plan.*
Department of Planning, Lands and Heritage (DPLH) advised of proposal on 15 November 2024	DPLH responded on 19 December 2024. DPLH provided the department with a list of Registered Aboriginal sites and Lodged Aboriginal heritage places within the premises boundary. DPLH provided the following comments: Based on the information held by DPLH, approvals under the *Aboriginal Heritage Act 1972* (AHA) are required if any impact or damage will occur to an Aboriginal site and there is no existing approval in place. Two Historic Aboriginal heritage places were identified. Historic Aboriginal heritage places are places that have been assessed as not meeting the criteria of Section 5 of the AHA and includes places that no longer exist as a result of land use activities with existing approvals. Please also note that Registered Aboriginal sites PKKP B4 06-18 (ID 24813) and PUU20-015 (ID 38678), as mentioned in your letter, do not intersect with the works approval application area, as per the provided spatial data. It is noted that the Proponent has previously been granted two Section 18 consents within portions of the Application area for existing operations. However, these Section 18 consents do not cover all the areas where the Aboriginal sites and Aboriginal heritage places are located. Under section 2.8.3, Aboriginal Heritage, of the Works Approval Supporting Documentation document, it states that approval under Section 18 of the AHA will be sought where disturbance of sites cannot be avoided. Cultural material contained within those sites which cannot be avoided will be managed in accordance with the approval conditions set by the Minister of Aboriginal Affairs and in consultation with the Traditional Owners. The works approval application area lies within the Puutu Kunti Kurruma and Pinikura (PKKP) People Native Title Determination. It is understood that the Proponent has a Claim Wide Participation Agreement (CWPA) with the PKKP People, executed in March 2011. The CWPA commits the Proponent and the PKKP People to work together on country to manage and maintain the areas in	The department notes DPLH comments. The applicant has stated (Rio Tinto 2025b) that they acknowledge the comments and recommendations by DPLH. *The proposed works do not impact PKKP B4 06-18 (ID24813) and PUU20-015 (ID 38678). Appropriate prior regulatory approvals and consent of Traditional Owners will be obtained prior to disturbing any Aboriginal site that cannot be avoided.*

Consultation method	Comments received	Department response
	which the Proponent operates. Rio Tinto and the PKKP People together have developed a Social Cultural Heritage Management Plan (SCHMP) as part of the EPA Part IV requirements. The SCHMP provides protocols and procedures for the management of social, cultural and heritage values. It is noted that extensive surveys have been undertaken over the area. These surveys have identified cultural heritage sites including artefact scatters, stone and quarries, waterholes and rockshelters. Section 15 of the AHA requires any person, who has knowledge of the existence of anything that may relate to the Act, to report it to the Registrar of Aboriginal Sites (Registrar). Should any heritage survey reports identify any new or updated information on Aboriginal heritage, this information should be submitted to DPLH via the ACHknowledge Portal for inclusion to the Register of Places and Objects and the Aboriginal Heritage Database - Home - ACHknowledge Portal (dplh.wa.gov.au)	
Department of Jobs, Tourism, Science and Innovation (JTSI) advised of proposal on 15 November 2024	JTSI responded on 26 November 2024 stating that they have no comment in respect to this application.	Noted.
Fortescue Ltd advised of proposal on 15 November 2024	No comments were received.	N/A.
Kunti Kurruma and Pinikura Aboriginal Corporation (PKKP) advised of proposal on 21 November 2024	No comments were received.	N/A.
Shire of Ashburton (the Shire) advised of proposal on 15 November 2024	The Shire provided the following comments on 22 November 2024: • The Shire acknowledges that the existing Brockman Syncline 4, as well as the proposed Brockman Syncline 1 are contained within existing Mining tenements and subject to State Agreement and are therefore exempt from Development Approval as per section 120 of the Mining Act. • The Shire acknowledges that the supporting documentation for this application details the scope of existing development that is already	The department notes the Shire comments. The applicant noted and acknowledged the Shire comments (Rio Tinto 2025b).

Consultation method	Comments received	Department response
	approved and details a scope of proposed development that's consistent with the existing land use. • The Shire stresses that the proposed works are proximal to several registered Aboriginal Sites, thus DWER should ensure that referral and consultation with the appropriate authorities takes place to ensure that no adverse impacts occur. • The Shire requests that the applicant notifies the Shire of any potential impact to road assets as a result of the Brockman 1 project. • No contaminated water may be released from the discharge point.	
Wintawari Guruma Aboriginal Corporation (WGAC) advised of proposal on 15 November 2024	No comments were received.	N/A.
Applicant was provided with draft documents on 08 May 2025	On 22 May 2025, the applicant provided (Rio Tinto 2025b) - • Responses to the department's request for further information within the draft package; and • Comments on the draft package – Refer to Appendix 1.	Documents updated accordingly to incorporate the applicant's responses. Refer to Appendix 1.

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Australian & New Zealand Guidelines for Fresh and Marine Water Quality (ANZG) 2018, available at https://www.waterquality.gov.au/anz-guidelines.
2. Brockman Syncline Proposal (BSP) Environmental Management Plan (EMP) (RTIO-1013962), Rio Tinto, May 2024 available at https://www.epa.wa.gov.au/sites/default/files/Proponent_response_to_submissions/RTIO-1013962_BSP_Assement%202219_Environmental_Management_Plan_RevB_2024_0.pdf.
3. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Department of Water (DoW) 2008, *Water Quality Protection Note 22 (WQPN) Irrigation with nutrient-rich wastewater*, Perth, Western Australia.
5. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. DWER 2019, *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)*, Joondalup, Western Australia.
8. EPA Report 1774 Brockman Syncline Proposal, November 2024 available at https://www.epa.wa.gov.au/epa-assessment-reports.
9. Licence L8232/2008/2 available at https://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences.
10. Ministerial Statement 1246 Brockman Syncline Proposal available at https://www.epa.wa.gov.au/all-ministerial-statements.
11. Rio Tinto 2024, *Works Approval Supporting Documentation Brockman Syncline 4 Mine Licence Iron Ore Mine (L8232/2008), Brockman Syncline 1 Main Development* (RTIO-1061883), 19 August 2024.
12. Rio Tinto 2025a, *W6978/2024/1 – BS1 Main Development Part V WAA* – EMP, email dated 02 April 2025.
13. Rio Tinto 2025b, *RE: [External] APP-0026112 Application for a Works Approval W6978/2024/1 – Draft Instrument and Decision Report*, email dated 22 May 2025.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
1, Table 1 Item 8 – STFs 8, Table 4	The applicant has stated that the effluent quality values listed for the Biomax units are performance targets. These values reflect design specifications under optimal conditions, influent variability during commissioning may affect actual results. As with most Pilbara site systems there is not enough usage to ensure the Biomax system operates to the design specifications. In addition, the biomass of the bacteria and other microorganisms which are responsible for removing organic content (specifically nitrogen) and reducing biochemical oxygen demand in wastewater will develop naturally during commissioning. As such, water quality during commissioning is expected to be highly variable and is not expected to consistently meet specified water quality criteria. Fortnightly monitoring of the water quality of the effluent will be undertaken during commissioning to ensure that the water quality is trending towards the manufacturer's specifications for expected treated wastewater (effluent) quality during this period of stabilisation. Once commissioning is completed, quarterly monitoring of the water quality of the effluent will be undertaken (as per the requirements of Licence L8232/2008). The results of quarterly water quality monitoring will be compared against the targets in the National Water Quality Management Strategy (NWQMS), Australian Guidelines for Sewerage Systems – Effluent Management (1997) and previous monitoring results. The applicant has requested that a note be included confirming that these parameters are performance indicators only.	The department has updated condition 1, Table 1 for item 8 to specify "Biomax units designed to treat effluent to the following performance targets". The department has also updated: • Condition 12(c) for commissioning reporting to state a comparison against the 'performance targets' specified in condition 1; and • Condition 23(d) for time limited operations reporting to state a comparison against the 'performance targets' specified in condition 1.

Condition	Summary of applicant's comment	Department's response
13 and 14	The applicant seeks to amend Conditions 13 and 14 to allow flexibility in the commencement of Time Limited Operations (TLO). As currently drafted, the conditions assume TLO begins immediately upon submission of the Environmental Commissioning Report. We propose amendments to decouple the submission from the start of the TLO period, allowing commencement at a time aligning with the Project requirements (within the overall Works Approval timeframe), and to trigger the 180-day limit from the actual start date of TLO.	The department has not made any changes to condition 13. The requirement to submit an Environmental Compliance Report and/or Environmental Commissioning Report prior to the commencement of TLO remains unchanged. The department has updated condition 14 to read (where **bold** is the new text) – The works approval holder may ~~conduct~~ **commence** time limited operations for an item of infrastructure specified in condition 15 (as applicable): **(a)** **at any time, dependent on meeting the requirements of condition 13;** **(b)** ~~(a)~~ for a period not exceeding 180 calendar days from the day **on which time limited operations commenced** ~~the works approval holder meets the requirements of condition 13~~ for that item of infrastructure; or **(c)** ~~(b)~~ until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 14(~~a~~**b**).
16	The applicant requests optionality to discharge surplus mine dewater from both the proposed discharge point and the existing discharge point authorised under Licence L8232/2008/2. The cumulative discharge volumes will remain within existing approved limits, ensuring compliance with Ministerial Statement 1246 and L8232/2008/2.	Condition 16, Table 6 for surplus mine dewater emissions has been updated to reflect the two (existing and proposed) discharge points to Boolgeeda Creek. Since the existing discharge point is already licenced under L8232/2008/2, it is not a requirement for this discharge point to be captured under the works approval. The department has made the update based on the applicant's request. The department has not re-

Condition	Summary of applicant's comment	Department's response
		assessed or undertaken a risk assessment of the existing discharge point. Figure 4 has been updated which defines the existing discharge point and the proposed discharge point.
Figures	Updated figures provided to replace Figures 1, 4 and 9.	Figures replaced.