



Application for Works Approval

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

Works Approval Number W6421/2020/1

Applicant Pilbara Iron Company (Services) Pty Ltd

ACN 107 210 248

File Number DER2020/000296

Premises Paraburdoo Iron Ore Mine and Eastern Range Project
AML70/246, AG70/4 and AG70/14
ROCKLEA WA 6751

As defined by the Premises map attached to the issued works approval

Date of Report 25/02/2021

Decision Works approval granted

Alana Kidd

MANAGER, RESOURCE INDUSTRIES

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

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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 W6421/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department 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

On 8 July 2020, the applicant submitted an application (Rio Tinto 2020a) for a works approval for the Paraburdoo Iron Ore Mine and Eastern Range Project, to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application relates to the following:

- Removal and replacement of two groundwater monitoring bores at Tailings Storage Facility (TSF) 1;
- Construction and operation of an upstream wall raise of TSF1 Northern Cell;
- Construction and operation of the 4EE waste dump landfill (shown in Figures 1 and 2 as 'Proposed Landfill Area'); and
- Construction and operation of additional landfill cells (inert and putrescible) within the prescribed premises.

The application relates to category 5 and 64 activities under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations). This application will not result in any changes to the assessed design capacity of category 5 (30,000,000 tonnes per annual period) and 64 (5,000 tonnes per annual period) on the existing licence L5275/1972/12.

The infrastructure and equipment relating to the Premises categories and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6421/2020/1.

2.2.1 Removal and replacement of two listed monitoring bores

The existing licence L5275/1972/12 has ambient groundwater monitoring requirements for TSF1. Existing monitoring bores PTD02D and PTD03 have been identified during consecutive monitoring as being dry and two new bores have since been drilled to replace these, MB18TSF0001 and MB18TSF0002. The location of the removed and replaced monitoring bores are shown in Table 1 and Figure 1.

Table 1: Indicative coordinates of the removed and replaced monitoring bores

Removed Bore	Replacement Bore	Easting (MGA 94 Zone 50)	Northing (MGA 94 Zone 50)
PTD02D	MB18TSF0001	562,909	7,428,439
PTD03	MB18TSF0002	562,806.2	7,428,240.3

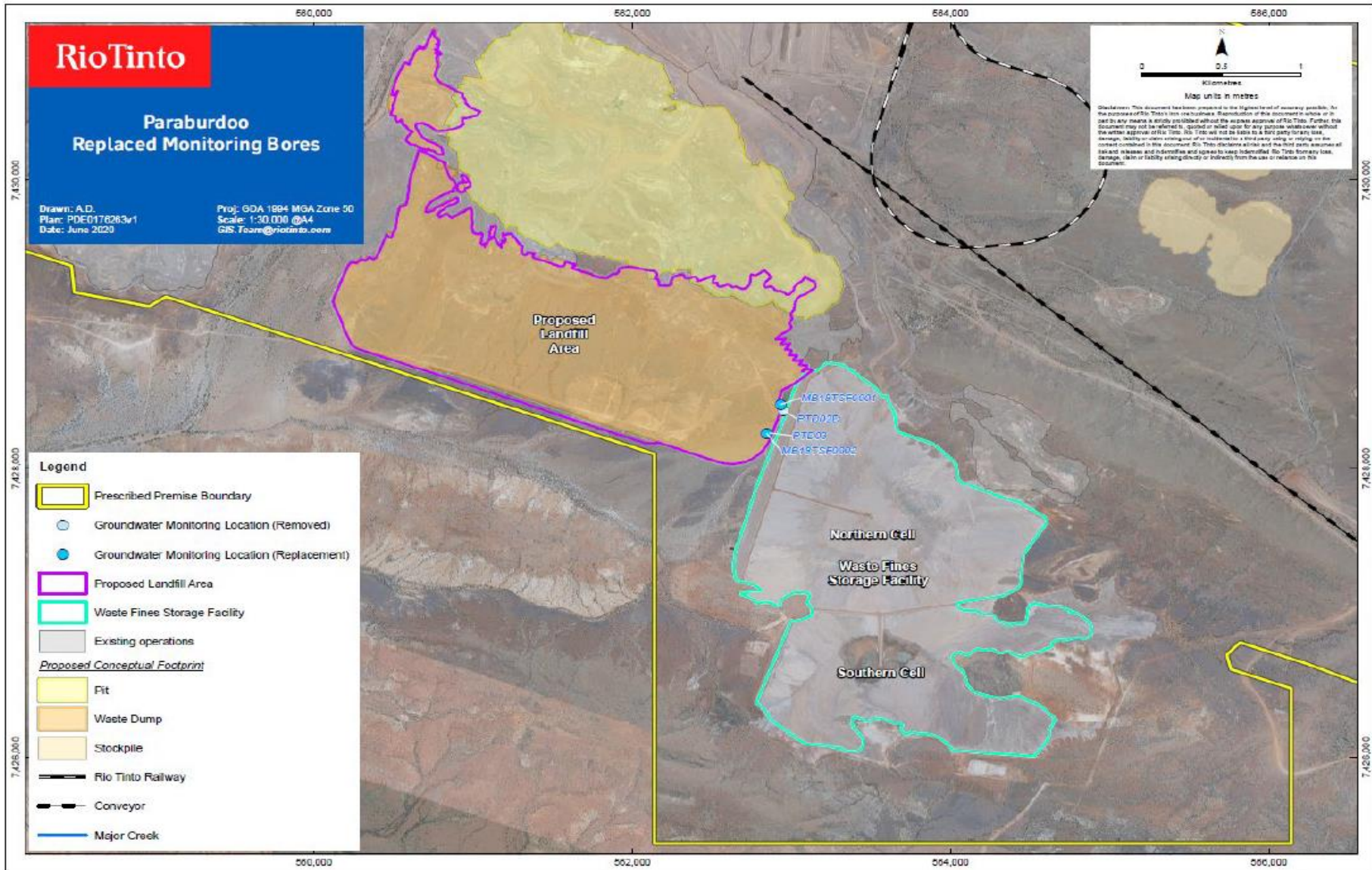


Figure 1: Location of removed and replaced TSF1 monitoring bores

2.2.2 TSF1 Northern Cell raise

The existing processing plant processes ore from the applicant's Paraburdoo, Eastern Range and Channar mines with waste fines deposited as tailings into TSF1. TSF1 is an above ground cross-valley storage facility. Deposition of fines into the original TSF1 area (now known as the Northern Cell) commenced in 1995, with construction of the main embankment undertaken in 2000 to divide TSF1 into the Northern Cell and Southern Cell. Tailings in the Northern Cell are contained by the western main embankment and tailings in the Southern Cell are contained by the western and south-eastern saddle embankments (Figure 2).

TSF1 Southern Cell is currently the active cell and is expected to reach capacity in mid-2021. It is therefore proposed that an upstream wall raise of the TSF1 Northern Cell embankment is completed to increase storage capacity up to 2024 and provide an additional storage of 4.7 million cubic metres.

The TSF1 Northern Cell lift will involve the following (Figure 3):

- Raise of the confining embankments by 2 m from RL 371 m Australian Height Datum (AHD) to RL 373 m AHD by upstream construction method.

NOTE: The applicant states (Rio Tinto 2020a) that the current facility (TSF1) has been approved by the Department of Mines, Industry Regulation and Safety (DMIRS) under Mining Proposal Reg ID 5930 and Reg ID 60720.

The Northern Cell (Reg ID 5930, *Coffey 2007*) was approved to a maximum height of RL 393 m in 2007 and the Southern Cell (Reg ID 60720, *Rio Tinto 2016*) to RL 371 m in 2016.

- Upgrade of the decant system, comprising of the replacement of the siphon decant system with a skid/trailer mounting pump system.
- Ramp construction from the decant access way to the tailings surface to position a decant pump.
- Relocation of the existing access road around the eastern perimeter along the natural topography or raised in its current location.

Tailings will be delivered to TSF1 Northern Cell using the existing tailings deposition pipeline from the processing plant to the TSF1 facility. This pipeline is currently operational and will continue to operate to supply both the TSF1 Northern and Southern Cells.

Within the TSF1 Northern Cell a new perimeter pipeline will be installed downstream of the existing tailings deposition pipeline to allow tailings deposition along the embankment walls. This deposition will be in a coordinated manner to manage the decant pond around the central decant structure.

The decant system will feed water into the return water sump. From this sump, decant water will be pumped using the existing return water transfer pipeline to the process water tank prior to use in the processing circuit.

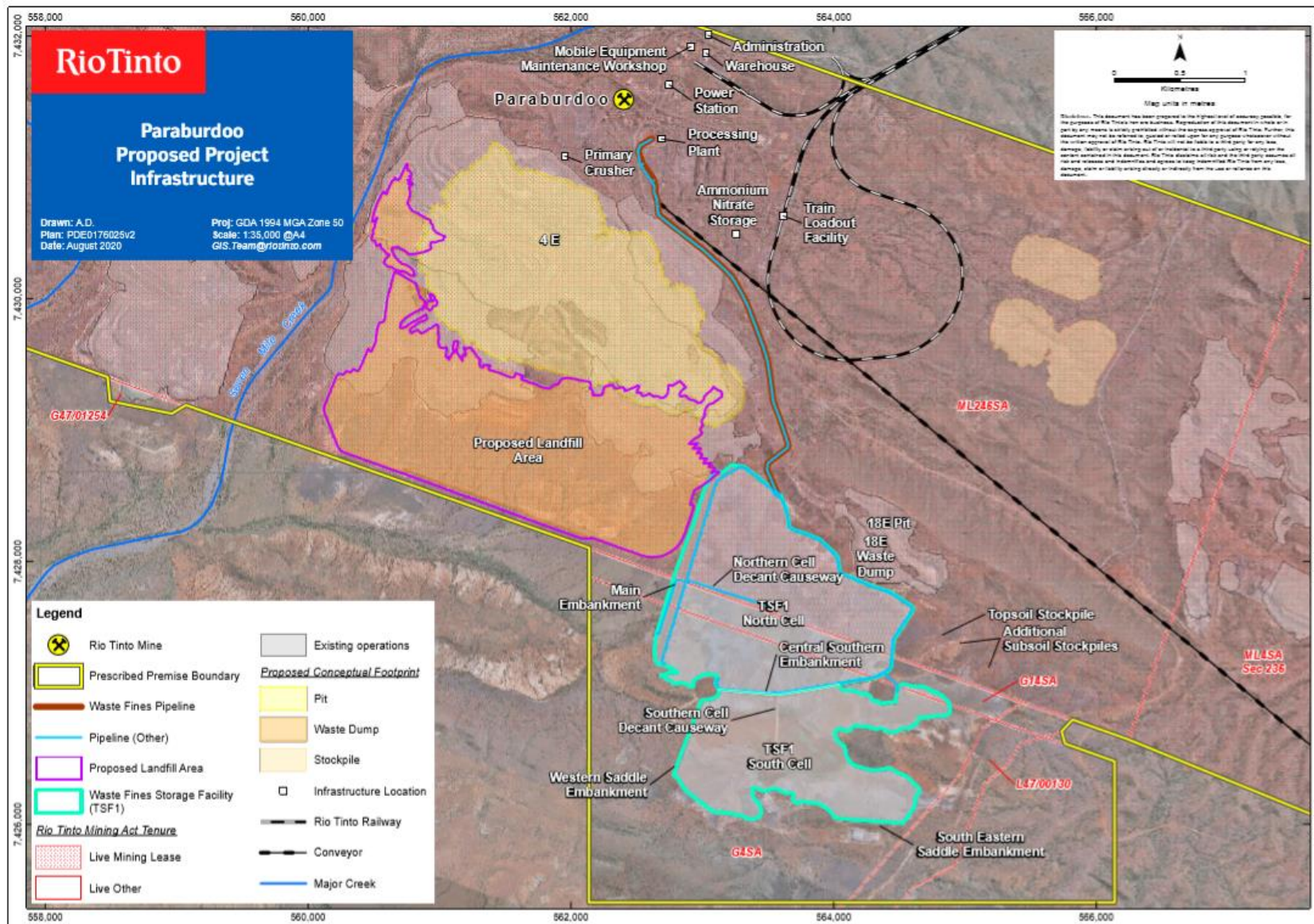


Figure 2: Location of existing and proposed infrastructure

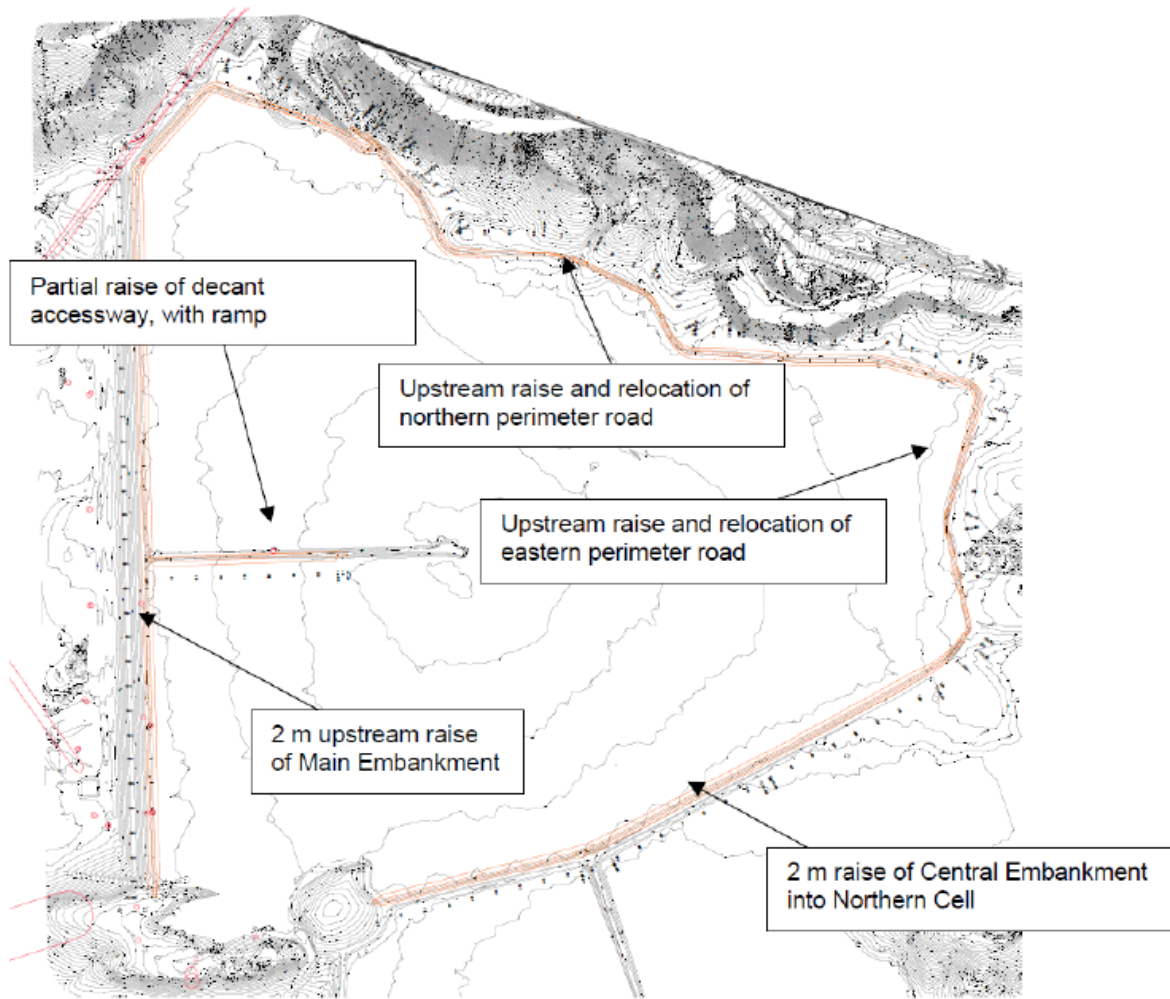


Figure 3: TSF1 Northern Cell raise arrangement

Tailings characterisations

Tailings characterisation was conducted by Knight Piésold in 2017 and comprised sampling of tailings from the processing plant and collection of supernatant liquor samples from the decant system. The applicant has stated that this sampling and test work was from the same ore body that is to be deposited in TSF1 Northern Cell and was taken from the tailings discharge of an operating spigot so is representative of current operations (Rio Tinto 2021).

The results of the 2017 testing are shown below:

- Tailings slurry comprised 37% solids w/w.
- Solids particle density of 3.93 t/m³.
- Supernatant density of 1.0 t/m³.
- Supernatant pH of 8.38.
- Liquid Limit of 33%.
- Plastic Limit of 21%.
- Plasticity Index of 12%.
- Linear Shrinkage of 7%.
- 1% sand, 69% silt and 30% clay, indicating material is Low Plasticity Silty Clay (CL).

- Dry density of 1.28.
- Void ratio of 2.08 following deposition.
- Dry density (following air drying) of 1.74 t/m³.
- Compression index (C_c) of 1.401.
- Coefficient of consolidation (C_v) of 2.9 m²/y.
- Tailings permeability ranges from 4 x 10⁻⁷ to 4 x 10⁻⁸ m/s.

One tailings slurry sample was obtained from TSF1 in 2017 and sent for geochemical analysis.

The testing classified the tailings as Non-Acid Forming (NAF) with a Net Acid Producing Potential (NAPP) of -4 kg H₂SO₄/t indicating an excess neutralising capacity.

Multi-element analysis for the tailings were screened against the *Guideline: Assessment and management of contaminated sites* (DER 2014) as shown in Table 2. The screening identified exceedance for the Ecological Investigation Levels for Chromium, Manganese and Phosphorus, which *GHD 2020* states is “*typical of iron ore tailings*”.

Table 2: Multi-element analysis for tailing (GHD 2020)

Analyte	Unit	Ecological Investigation Levels	Health Investigation Levels				Tailings Solids
			A ⁽¹⁾	D	E	F	
Aluminium	mg/kg						34157
Antimony	mg/kg		31 ⁽¹²⁾			410 ⁽¹²⁾	1.8
Arsenic	mg/kg	20 ⁽⁸⁾	100 ⁽⁸⁾	400 ⁽⁸⁾	200 ⁽⁸⁾	500 ⁽⁸⁾	17
Barium	mg/kg	300 ⁽⁸⁾	15000 ⁽⁸⁾	-	-	190000 ⁽⁸⁾	117
Beryllium	mg/kg	-	-	-	-	-	2.8
Bismuth	mg/kg	-	-	-	-	-	0.18
Boron	mg/kg	-	3000 ⁽⁸⁾	12000 ⁽⁸⁾	6000 ⁽⁸⁾	15000 ⁽⁸⁾	50
Cadmium	mg/kg	3 ⁽⁸⁾	20 ⁽⁸⁾	80 ⁽⁸⁾	40 ⁽⁸⁾	100 ⁽⁸⁾	0.1
Calcium	mg/kg	-	-	-	-	-	568
Chloride	mg/kg	-	-	-	-	-	200
Chromium ⁽²⁾	mg/kg	1 ⁽⁸⁾	100 ⁽⁸⁾	400 ⁽⁸⁾	200 ⁽⁸⁾	500 ⁽⁸⁾	26.5
Cobalt	mg/kg	50 ⁽⁹⁾	100 ⁽⁸⁾	400 ⁽⁸⁾	200 ⁽⁸⁾	500 ⁽⁸⁾	7.3
Copper	mg/kg	100 ⁽⁸⁾	1000 ⁽⁸⁾	4000 ⁽⁸⁾	2000 ⁽⁸⁾	5000 ⁽⁸⁾	26.5
Fluoride	mg/kg	-	-	-	-	-	91
Iron	mg/kg	-	-	-	-	-	445000
Lead	mg/kg	600 ⁽⁸⁾	300 ⁽⁸⁾	1200 ⁽⁸⁾	600 ⁽⁸⁾	1500 ⁽⁸⁾	6
Magnesium	mg/kg	-	-	-	-	-	785
Manganese	mg/kg	500 ⁽⁸⁾	1500 ⁽⁸⁾	6000 ⁽⁸⁾	3000 ⁽⁸⁾	7500 ⁽⁸⁾	1609
Mercury	mg/kg	1 ⁽⁸⁾	15 ⁽⁸⁾	60 ⁽⁸⁾	30 ⁽⁸⁾	75 ⁽⁸⁾	0.05
Molybdenum	mg/kg	40 ⁽⁹⁾	390 ⁽¹²⁾	-	-	5100 ⁽¹²⁾	1.05
Nickel	mg/kg	60 ⁽⁸⁾	600 ⁽⁸⁾	2400 ⁽⁸⁾	600 ⁽⁸⁾	3000 ⁽⁸⁾	19
Phosphorus	mg/kg	2000 ⁽⁸⁾	-	-	-	-	2958
Potassium	mg/kg	-	-	-	-	-	425
Selenium	mg/kg	-	-	-	-	-	0.31
Silver	mg/kg	-	-	-	-	-	0.1
Sodium	mg/kg	-	-	-	-	-	229
Strontium	mg/kg	-	-	-	-	-	58
Sulphate	mg/kg	2000 ⁽⁸⁾	-	-	-	-	100

Analyte	Unit	Ecological Investigation Levels	Health Investigation Levels				Tailings Solids
			A ⁽¹⁾	D	E	F	
Sulphur	mg/kg	600 ⁽⁸⁾	-	-	-	-	150
Thallium	mg/kg	-	-	-	-	-	4.8
Tin	mg/kg	50 ⁽¹⁰⁾	500 ⁽⁸⁾	-	-	610000 ⁽¹²⁾	0.5
Uranium	mg/kg	-	-	-	-	-	2.3
Vanadium	mg/kg	50 ⁽⁸⁾	550 ⁽¹²⁾	-	-	7200 ⁽¹²⁾	36
Zinc	mg/kg	200 ⁽⁸⁾	7000 ⁽⁸⁾	28000 ⁽⁸⁾	14000 ⁽⁸⁾	35000 ⁽⁸⁾	24

Notes:

A. Standard residential with garden/accessible soil (home-grown produce contributing less than 10 per cent of vegetable and fruit intake; no poultry). This category includes children's daycare centres, pre-schools and primary schools.

D. Residential with minimal opportunities for soil access including dwellings with fully or permanently paved yard space such as high-rise apartments and flats.

E. Parks, recreational open space and playing fields, includes secondary schools.

F. Commercial/industrial includes premises such as shops and offices as well as factories and industrial sites.

- no assessment level available

1. Site and contaminant-specific assessment required where there is substantial home-grown vegetable and/or poultry consumption. Exposure estimates may then be compared with relevant Acceptable Daily Intakes (ADIs), Provisional Tolerable Weekly Intake (PTWIs) and Guideline Doses (GDs).

2. Valency state should be established initially from assessment of the site history and likely environmental behaviour. If chromium VI could be present, speciation is required to evaluate the risk.

3. Need to determine form of substance from assessment of site history, analysis and knowledge of environmental behaviour.

4. The nature of cyanides on a site must be assessed. To use the HIL for complexed cyanides, no more than five per cent of free cyanides should be present (and vice versa for free cyanides).

5. For protection of built structures (as presented in NEPC (1999)).

6. Odours and skin irritation may occur at lower concentrations. PVC pipes may be affected at high concentrations with possible adverse effects on the water therein.

7. Victorian EPA (1990) Acceptance Criteria in the Clean-up Notice for the Bayside Site, Port Melbourne.

8. National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 1999).

9. Dutch B (Indicative value for further investigation) from Moen, J.E.T., Cornet, J.P and Evers, C.W.A (1986) Soil protection and remedial actions: criteria for decision-making and standardisation of requirements, in Assink, J.W and van den Brink, W.M (1986) Contaminated Soils, First International TNO Conference on Contaminated Soil 11-15 November 1985.

10. ANZECC B (Environmental Investigation Levels) from ANZECC & NHMRC (1992) Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites.

11. DoH (2009b) refer to section 2.2 in the main text

12. US EPA (2009) Regional Screening Levels (RSLs) http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm accessed 13 August 2009. 13. DEC/DoH screening level

Analysis for supernate liquor were screened against the water quality objectives from *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC ARMCANZ 2000) for Livestock and *Australian Drinking Water Guidelines* (NHMRC NRMCM 2011) as shown in Table 3. The screening identified exceedance for the Total Dissolved Solids (TDS), Chloride and Sodium.

Table 3: Analysis of supernate liquor

Analyte	Unit	Water Quality Objectives		Operational Tailings Sample (Supernatant)
		Livestock Watering ANZECC (2000)	Drinking ADWG (2011)	
pH	pH units	9	8.5	7.7
TDS	mg/L	2000	600	1143
Aluminium	mg/L	5	0.2	0.01
Antimony	mg/L	N/A	0.003	0.0002
Arsenic	mg/L	0.1	0.01	0.001
Barium	mg/L	N/A	2	0.03
Boron	mg/L	5	4	0.37
Cadmium	mg/L	0.01	0.002	0.0005
Calcium	mg/L	1000	N/A	51.9
Chloride	mg/L	N/A	250	322
Chromium (total)	mg/L	1	N/A	0.01
Cobalt	mg/L	1	N/A	0.0002
Copper	mg/L	0.3	1	0.01
Fluoride	mg/L	2	1.5	0.8
Iron	mg/L	2	0.3	0.01
Lead	mg/L	0.1	0.01	0.002
Magnesium	mg/L	2000	N/A	60
Manganese	mg/L	N/A	0.1	0.01
Mercury	mg/L	0.002	0.001	0.0001
Molybdenum	mg/L	0.15	0.05	0.001
Nickel	mg/L	0.5	0.02	0.01
Phosphorus	mg/L	N/A	N/A	0.55
Selenium	mg/L	0.02	0.01	0.01
Silver	mg/L	0.5	0.1	0.0001
Sodium	mg/L	N/A	180	234
Sulphate	mg/L	1000	250	247
Tin	mg/L	N/A	N/A	0.0001
Uranium	mg/L	0.2	0.017	0.0002
Vanadium	mg/L	N/A	N/A	0.01
Zinc	mg/L	0.5	3	0.01

GHD 2020 states “The identified exceedance for the water quality objectives for TDS, Chloride and Sodium is typical of iron ore supernate liquor that is been concentrated due to evaporation and is typical of elevated salinity”.

Water balance

A water balance was carried out using Microsoft Excel to identify the water return infrastructure requirements and indicative stored water over time based on expected tailings throughputs,

tailings properties and climatic data available for Paraburdo. The water balance assessed inflow and outflows of water for identified water inputs (rainfall and water from tailings slurry) and outputs (decanted water, evaporation seepage and water occurring within the tailings fines matrix) for TSF1 during operation.

The following tailings throughputs and properties (including their sources) were used for the water balance:

- Average Annual tailings throughput – 1.88 Mtpa (average annual tailings between 2021 and 2025).
- Slurry density – 34% solids by weight (average of achieved slurry density for January 2019 to March 2020).
- Specific gravity of tailings solids – 3.93 (slurry tailings sampling carried out in May 2017).
- Settled tailings composition – 55% solids by weight, increasing to 65% with consolidation.

Rio Tinto 2020a states that at a decant pump rate of 22.3 L/s (proposed) at 74% pump utilisation, then the decant pond will not exceed the maximum pond area of 30 ha (pond radius of 310 m) for both the average and wet case scenarios.

Seepage analysis

Seepage from TSF1 Northern Cell was estimated using the SEEP/W software from GeoStudio and GHD’s inhouse numerical model of the calculation of seepage due to the consolidation of the tailings associated with loading. Total seepage (Total S) from TSF1 was estimated by calculating the seepage through the embankment (S_w) the seepage through the base of the TSF (S_b) and the seepage due to consolidation of the tailings due to continued deposition and associated loading (S_c). The results are shown below in Table 4.

Table 4: SEEP/W modelling results

	Crest RL (m AHD)	Tailings Thickness (m)	S_w (m ³ /day)	S_b (m ³ /day)	S_c (m ³ /day)	Total S (m ³ /day)
Starter embankment	352	1	0	6	1210	1216
First upstream raise	371	20	11	258	1843	2112
Second upstream raise	373	22	11	272	2028	2311

The seepage calculations indicated that raising the TSF1 Northern Cell by 2 m (from 371 mAHD to 373 mAHD) will result in an increase of 199 m³/day or a 9.4% increase in total seepage.

Groundwater quality

TSF1 ambient groundwater quality data is presented in Tables 5 and 6 (*Rio Tinto 2020c*). *GHD 2020* made the following observations from the annual data (refer also to Figure 4 for the groundwater monitoring bore locations):

- The background groundwater quality of the region is relatively good, with salinities generally below 1,500 mg/L TDS. Groundwater neighbouring TSF1 is characterised by elevated salinity.
- A number of bores at TSF1 with higher salinity (TDS) have elevated sulphate.
- Groundwater in the monitoring bores adjacent to the embankment are enriched with

chloride.

- Groundwater in some TSF1 monitoring bores have nitrogen concentrations over 1,000 mg/L. The majority of the laboratory analysis has been for nitrate nitrogen. Nitrate concentrations at TSF1, and remote from TSF1 exceed the *NIWA 2013* 95% level of species protection for freshwater.
- A range of heavy metals such as Copper, Boron, Chromium and Zinc have been identified as at or above their respective *ANZECC ARMCANZ 2000* 95% level of species protection for freshwater ecosystems, which is demonstrated in Table 6.

Table 5: TSF1 Groundwater monitoring results

Guideline	pH (pH unit)	EC	TDS	Na	K	Ca	Mg	Cl	CO ₃	HCO ₃	SO ₄	NO ₃	
ANZECC ARMCANZ 2000 95% species protection	6 to 9							0.003					
NIWA, 2013 95 % species protection												2.4	
ANZECC ARMCANZ 2000 for Livestock			2,000		30	1,000	2,000				1,000	400	
PTD04D	2019	7.89	16,537	7,880	1,910	32	501	688	2,560	<1	<1	2,280	114
	2018	7.32	11,240	7,740	1,450	16	298	371	2,340	<1	<1	2,460	101
	2017	7.5	10,530	8,160	2,010	30	365	493	2,890	<1	<1	2,460	NS^
	2016	7.63	NR	7,750	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD05D	2019	7.3	24,600	19,600	4,810	53	672	1,160	8,860	<1	<1	3,060	126
	2018	7.36	25,700	17,500	4,260	28	546	932	7,680	<1	<1	3,320	117
	2017	7.41	25,140	20,300	3,970	36	528	977	9,080	<1	<1	3,230	NS^
	2016	7.6	NR	19,100	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD06D	2019	7.95	5,346	2,530	184	5	253	167	547	<1	<1	683	133
	2018	7.25	3,960	2,360	189	4	240	151	499	<1	<1	706	125
	2017	7.32	3,450	2,430	214	5	287	178	527	<1	<1	683	NS^
	2016	7.53	NR	2,340	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD07D	2019	8.17	5,286	2,590	333	6	234	135	516	<1	<1	1,020	94.3
	2018	7.32	3,540	2,390	322	5	208	98	499	<1	<1	1,000	85.9
	2017	7.75	3,560	2,590	509	5	283	130	539	<1	<1	962	NS^

Guideline	pH (pH unit)	EC	TDS	Na	K	Ca	Mg	Cl	CO ₃	HCO ₃	SO ₄	NO ₃	
ANZECC ARMCANZ 2000 95% species protection	6 to 9							0.003					
NIWA, 2013 95 % species protection												2.4	
ANZECC ARMCANZ 2000 for Livestock			2,000		30	1,000	2,000				1,000	400	
PTD08D	2019	7.77	1,782	561	40	8	72	49	62	<1	<1	16	0.22
	2018	7.07	1,253	554	35	7	64	45	52	<1	<1	14	<0.01
	2017	7.38	1,187	593	41	11	97	56	70	<1	<1	23	NS^
	2016	7.46	NR	700	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD09D	2019	8.49	7,690	3,640	822	8	201	117	740	<1	<1	1,370	67.6
	2018	7.38	5,570	3,850	804	9	242	116	746	<1	<1	1,750	104
	2017	7.64	5,460	4,060	1,040	9	303	141	745	<1	<1	1,810	NS^
	2016	7.77	NR	3,940	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD10	2019	7.95	4,929	2,050	243	4	210	118	526	<1	<1	576	7.93
	2018	7.07	3,220	2,070	241	5	232	95	521	<1	<1	668	30.8
	2017	7.33	2,990	2,190	311	3	324	121	531	<1	<1	673	NS^
	2016	7.47	NR	2,340	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD11	2019	7.13	858	654	58	2	72	34	78	<1	<1	45	58.9
	2018	7.41	1,098	653	56	3	81	36	86	<1	<1	52	58.8
	2017	7.35	992	687	67	2	104	47	82	<1	<1	53	58.4^
	2016	7.54	NR	627	NR	NR	NR	NR	NR	NR	NR	NR	NR

Guideline	pH (pH unit)	EC	TDS	Na	K	Ca	Mg	Cl	CO ₃	HCO ₃	SO ₄	NO ₃	
ANZECC ARMCANZ 2000 95% species protection	6 to 9							0.003					
NIWA, 2013 95 % species protection												2.4	
ANZECC ARMCANZ 2000 for Livestock			2,000		30	1,000	2,000				1,000	400	
PTD12	2019	8.08	2,432	930	169	4	54	60	194	<1	<1	80	77.8
	2018	7.11	1,780	970	171	4	62	65	201	<1	<1	92	88.1
	2017	7.47	1,689	956	208	4	77	80	196	<1	<1	88	NS^
	2016	7.62	NR	941	NR	NR	NR	NR	NR	NR	NR	NR	NR
PTD021D	2019	7.41	11,600	8,260	1,740	19	324	384	3,350	<1	<1	1,180	396
	2018	7.05	12,310	8,530	1,650	20	312	377	3,380	<1	<1	1,260	398
	2017	7.61	10,540	7,490	1,960	19	367	446	3,380^	<1	<1	1,100	324^
PTD22D	2017	8.01	898	528	74	8	43	43	144	<1	<1	30	0.13
PTD23D	2019	7.63	2720	1,650	337	9	108	94	571	<1	<1	290	0.44
	2017	7.96	2700	1,520	318	7	101	98	601	<1	<1	273	0.04
PTD24D	2019	7.42	1630	954	166	10	70	71	320	<1	<1	131	0.31
	2017	7.83	1580	916	153	9	63	73	300	<1	<1	77	0.09
PTD26D	2019	7.46	5,740	3,740	785	22	134	171	1,490	<1	<1	296	90.3
	2018	7.26	5,830	3,690	730	23	130	167	1,420	<1	<1	304	88.4
	2017	7.77	5,690	3,490	952	24	170	219	1,410	<1	<1	277	80.4^
MB18TSF0001	2019	7.41	1,980	1,310	183	7	94	88	396	<1	<1	135	124

Guideline	pH (pH unit)	EC	TDS	Na	K	Ca	Mg	Cl	CO ₃	HCO ₃	SO ₄	NO ₃	
ANZECC ARMCANZ 2000 95% species protection	6 to 9							0.003					
NIWA, 2013 95 % species protection												2.4	
ANZECC ARMCANZ 2000 for Livestock			2,000		30	1,000	2,000				1,000	400	
	2018	8.42	2,080	1,800	354	9	34	34	270	13	<1	252	
MB18TSF0002	2019	7.4	5,940	4,200	731	11	218	218	1,350	<1	<1	856	54.9
	2018	8.14	3,130	2,460	471	10	80	81	576	<1	<1	420	
MB18TSF0003	2018	8.71	2,400		121	16.4	73.4	72.1	244	40	<1	449	<0.01
MB18TSF0004	2019	7.48	1,740	1,080	163	9	87	80	350	<1	<1	218	0.03
	2018	8.23	1,360		129	10	54	71.3	203	<1	<1	131	<0.01

Notes: All units are in mg/L unless specified otherwise

NR - New requirement in current amendment of licence, thus no previous results for comparison

NS – No sample taken/reported

^ Results revised following identified omission.

Yellow highlight indicates an exceedance of the ANZECC ARMCANZ 2000 95% level of species protection for freshwater.

Blue highlight indicates an exceedance of the ANZECC ARMCANZ 2000 Livestock.

Green highlight indicates an exceedance of the NIWA 2013 95% level of species protection for freshwater.

Table 6: TSF1 groundwater monitoring results

Guideline	Pb	Cu	Fe	Mn	Mo	Zn	As	Hg	Cd	Cr	Al	B	Ag	Ni	Se	Co	Tl	
<i>ANZECC ARMCANZ 2000 95% species protection</i>	0.0034	0.0014		1.9		0.008	0.013	0.0006	0.0002	0.0004	0.055	0.37	0.00005	0.011	0.011			
<i>ANZECC ARMCANZ 2000 for Livestock</i>	0.1	1	2		0.15	0.5	0.1	0.002	0.01	1	5	5	0.5	0.5	0.02	1		
PTD04D	2019	0.0003	0.0091	0.006	0.0018	0.0072	0.044	0.0013	0.00024	<0.00005	0.0126	<0.005	3.14	<0.0001	0.0276	0.0218	0.0001	0.00004
	2018	<0.0001	0.0108	<0.002	0.0091	0.0082	0.022	0.0015	0.00005	0.00007	0.0092	<0.005	3.66	<0.0001	0.0276	0.021	0.0006	0.00005
	2017	0.0004	0.0087	0.015	0.006	0.0084	0.105	0.0014	0.00009	0.00013	0.0104	<0.005	4.69	0.00002	0.0627	0.0191	0.0002	0.00005
	2016	<0.0001	0.0185	0.003	0.0052	0.0065	0.005	0.0013	0.00027	<0.00005	0.0091	NR	NR	NR	NR	NR	NR	NR
PTD05D	2019	0.0006	0.0131	0.007	0.0013	0.0047	0.039	0.0018	0.00052	<0.00005	0.0107	<0.005	3.18	0.0003	0.009	0.0287	0.0001	0.00011
	2018	<0.0002	0.0022	<0.005	0.0036	0.0065	<0.005	0.0016	0.00019	<0.0002	0.0102	<0.005	5.71	<0.0001	0.0177	0.0234	0.0002	0.00012
	2017	0.0006	0.082	0.013	0.0153	0.0042	0.038	0.0014	0.00018	<0.0002	0.0047	<0.005	5.43	0.0001	0.0224	0.024	0.0009	0.0001
	2016	<0.0001	0.003	<0.002	0.0008	0.0048	0.003	0.002	0.00061	<0.00005	0.0106	NR	NR	NR	NR	NR	NR	NR
PTD06D	2019	0.0001	0.0034	0.002	0.0019	0.0008	0.023	0.0019	0.00314	<0.00005	0.0007	<0.005	0.338	<0.0001	0.0008	0.0082	0.0001	0.00004
	2018	<0.0001	<0.0005	<0.002	<0.0005	0.0008	<0.001	0.002	0.00355	<0.00005	0.0008	<0.005	0.444	<0.0001	0.0006	0.0086	<0.0001	0.00004
	2017	0.0002	0.0011	<0.002	0.0034	0.0008	0.025	0.0018	0.00162	<0.00005	0.0008	<0.005	0.5	<0.00001	0.0014	0.0078	0.0001	0.00004
	2016	<0.0001	0.006	<0.002	0.0011	0.0007	0.002	0.0016	0.0041	<0.00005	0.0008	NR	NR	NR	NR	NR	NR	NR
PTD07D	2019	<0.0001	<0.0005	0.002	0.004	0.0019	0.018	0.0018	<0.00004	<0.00005	0.0019	<0.005	0.826	<0.0001	<0.0005	0.0074	0.0001	0.00003
	2018	0.0001	0.0027	<0.002	0.0018	0.002	0.016	0.0016	<0.00004	<0.00005	0.0018	<0.005	1.06	<0.0001	<0.0005	0.0073	0.0001	0.00003
	2017	0.0002	0.0011	<0.002	0.0012	0.0024	0.025	0.0017	<0.00004	<0.00005	0.0021	<0.005	1.23	<0.0001	<0.0005	0.0097	0.0001	0.00003
PTD08D	2019	<0.0001	<0.0005	2.73	2.39	0.002	0.019	0.0045	<0.00004	<0.00005	<0.0002	<0.005	0.2	<0.0001	0.0006	0.0003	0.0024	<0.00002
	2018	<0.0001	0.0008	6.65	2.64	0.0012	0.003	0.0122	<0.00004	<0.00005	<0.0002	<0.005	0.287	<0.0001	0.002	<0.0002	0.0142	<0.00002
	2017	<0.0001	0.0007	0.916	1.77	0.0006	0.002	0.0045	<0.00004	0.0001	<0.0002	<0.005	0.315	<0.00001	0.0018	0.0003	0.0042	0.00006
	2016	<0.0001	<0.0005	1.16	2.84	0.0009	<0.001	0.0066	<0.00004	<0.00005	0.0004	NR	NR	NR	NR	NR	NR	NR
PTD09D	2019	<0.0001	0.001	0.021	0.0724	0.0021	0.004	0.003	0.00039	<0.00005	0.0013	<0.005	1.14	<0.0001	0.0009	0.0098	0.001	0.00003
	2018	0.0002	0.0024	0.01	0.0079	0.0026	0.022	0.0018	<0.00004	<0.00005	0.0009	<0.005	1.61	<0.0001	0.0006	0.0111	0.0002	<0.00002
	2017	<0.0001	<0.0005	0.008	0.148	0.0024	0.023	0.0021	<0.00004	<0.00005	<0.0002	<0.005	1.58	<0.00001	0.0018	0.0098	0.0011	<0.00002
	2016	0.0002	<0.0005	0.214	0.896	0.0066	0.001	0.0031	0.00029	<0.00005	0.0003	NR	NR	NR	NR	NR	NR	NR
PTD10	2019	0.0001	<0.0005	0.011	0.0904	0.0009	0.04	0.0009	<0.00004	<0.00005	0.0003	<0.005	0.166	<0.0001	0.0012	0.0027	0.0005	0.00003
	2018	<0.0001	0.0008	0.047	0.104	0.001	0.013	0.0011	<0.00004	<0.00005	<0.0002	<0.005	0.195	<0.0001	0.0008	0.0034	0.0009	0.00002
	2017	0.0004	<0.0005	0.004	0.0671	0.0007	0.056	0.0008	<0.00004	<0.00005	<0.0002	<0.005	0.228	<0.00001	0.0011	0.0047	0.0006	0.00002
	2016	0.0002	0.0007	0.024	0.044	0.0008	0.042	0.001	<0.00004	<0.00005	0.0005	NR	NR	NR	NR	NR	NR	NR
PTD11	2019	0.0002	0.0041	0.004	0.0014	0.0002	0.026	0.0012	<0.00004	<0.00005	0.0011	<0.005	0.227	<0.0001	<0.0005	0.0036	<0.0001	<0.00002
	2018	<0.0001	0.0012	0.016	0.0062	0.0002	0.013	0.0012	<0.00004	<0.00005	0.0005	<0.005	0.364	<0.0001	<0.0005	0.0025	0.0001	<0.00002
	2017	0.0001	<0.0005	0.002	0.0008	0.0002	0.02	0.0011	<0.00004	<0.00005	0.0009	<0.005	0.416	<0.00001	<0.0005	0.0045	<0.0001	<0.00002
	2016	<0.0001	<0.0005	0.02	0.0029	0.0003	0.025	0.0011	<0.00004	<0.00005	0.001	NR	NR	NR	NR	NR	NR	NR

Guideline		Pb	Cu	Fe	Mn	Mo	Zn	As	Hg	Cd	Cr	Al	B	Ag	Ni	Se	Co	TI
ANZECC ARMCANZ 2000 95% species protection		0.0034	0.0014		1.9		0.008	0.013	0.0006	0.0002	0.0004	0.055	0.37	0.00005	0.011	0.011		
ANZECC ARMCANZ 2000 for Livestock		0.1	1	2		0.15	0.5	0.1	0.002	0.01	1	5	5	0.5	0.5	0.02	1	
PTD12	2019	<0.0001	<0.0005	0.005	0.0073	0.0009	0.025	0.0016	<0.00004	<0.00005	0.0013	<0.005	0.92	<0.0001	<0.0005	0.008	0.0001	<0.00002
	2018	0.0001	0.0065	<0.002	0.0042	0.0008	0.021	0.0012	<0.00004	<0.00005	0.001	<0.005	1.21	<0.0001	<0.0005	0.008	<0.0001	<0.00002
	2017	0.0004	<0.0005	0.003	0.0069	0.0006	0.034	0.0012	<0.00004	<0.00005	0.0003	<0.005	1.29	<0.00001	<0.0005	0.0082	0.0002	<0.00002
	2016	<0.0001	0.0005	0.021	0.0071	0.001	0.034	0.0015	<0.00004	<0.00005	0.0007	NR	NR	NR	NR	NR	NR	NR
PTD021D	2019	0.0002	0.0028	0.013	0.0053	0.0028	0.037	0.0002	<0.00004	<0.00005	0.0027	<0.005	1.96	0.0002	0.0014	0.0282	0.0001	<0.00002
	2018	0.0009	0.0209	0.007	0.0071	0.0026	0.059	0.0002	<0.00004	0.00006	0.0016	<0.005	2.47	0.0003	0.0012	0.0251	<0.0001	<0.00002
	2017	0.0007	0.157	0.002	0.306	0.0097	0.028	0.001	<0.00004	0.00006	0.0004	<0.005	2.43	0.0002	0.0866	0.0215	0.0029	0.00015
PTD22D	2017	<0.001	<0.001	<0.05	0.116	0.007	<0.005	0.01	<0.0001	<0.0001	<0.001	<0.01	0.32	<0.001	<0.001	<0.01	<0.001	
PTD23D	2019	<0.001	<0.001	1.05	0.63	0.002	0.011	0.002	<0.0001	<0.0001	<0.001	<0.01	1.02	<0.001	0.005	<0.01	<0.001	
	2017	<0.001	<0.001	0.85	0.74	0.002	0.014	0.002	<0.0001	<0.0001	<0.001	<0.01	0.97	<0.001	0.002	<0.01	<0.001	
PTD24D	2019	<0.001	<0.001	0.7	0.55	0.002	0.017	0.024	<0.0001	<0.0001	0.001	<0.01	0.57	<0.001	0.004	<0.01	<0.001	
	2017	<0.001	<0.001	0.89	0.5	0.001	0.008	0.018	<0.0001	<0.0001	<0.001	<0.01	0.5	<0.001	0.002	<0.01	<0.001	
PTD26D	2019	<0.0001	0.0008	0.073	0.172	0.0015	0.033	0.0006	<0.00004	<0.00005	0.0004	<0.005	0.77	<0.0001	0.0018	0.0063	0.0005	0.00004
	2018	0.0003	0.0087	0.02	0.101	0.0016	0.049	0.0005	<0.00004	0.00008	0.0003	<0.005	0.874	<0.0001	0.002	0.0061	0.0005	0.00003
	2017	0.0002	<0.0005	0.171	0.196	0.0016	0.032	0.002	<0.00004	<0.00005	<0.0002	<0.005	0.913	<0.0001	0.0012	0.0049	0.0016	<0.00002
MB18TSF0001	2019	<0.0001	0.0012	<0.002	0.0008	0.0009	0.02	<0.0002	0.00202	<0.00005	0.0042	<0.005	0.367	<0.0001	0.002	0.0017	0.0011	<0.00002
MB18TSF0002	2019	0.0015	0.0067	0.04	0.0532	0.0012	0.097	0.0004	0.00023	0.00012	0.0015	<0.005	1.8	<0.0001	0.0153	0.006	0.0097	0.00009
	2018	0.226	0.091	0.35	1.33	0.006	2.06	0.002	<0.0001	0.001	<0.001	0.17	0.86	<0.001	0.186	<0.01	0.215	
MB18TSF0003	2018	0.12	0.036	1.65	1.96	0.0251	1.23	0.0037	<0.00004	0.00146	0.0004	0.183	0.396	<0.0001	0.0365	0.0034	0.12	
MB18TSF0004	2019	<0.001	0.0007	0.61	0.976	0.001	0.007	0.001	<0.0001	<0.0001	<0.001	<0.01	0.46	<0.001	0.001	<0.01	0.002	
	2018	0.0001	0.0007	<0.002	0.0098	0.0018	0.003	0.0015	<0.00004	<0.00005	<0.0002	0.012	0.366	<0.0001	0.001	<0.0002	0.0004	

Notes: All units are in mg/L unless specified otherwise.

NR - New requirement in current amendment of licence, thus no previous results for comparison.

NS – No sample taken/reported.

Yellow highlight indicates an exceedance of the ANZECC ARMCANZ 2000 95% level of species protection for freshwater.

Blue highlight indicates an exceedance of the ANZECC ARMCANZ 2000 Livestock.

Orange highlight indicates an exceedance of the ANZECC ARMCANZ 2000 95% level of species protection for freshwater and ANZECC ARMCANZ 2000 Livestock.

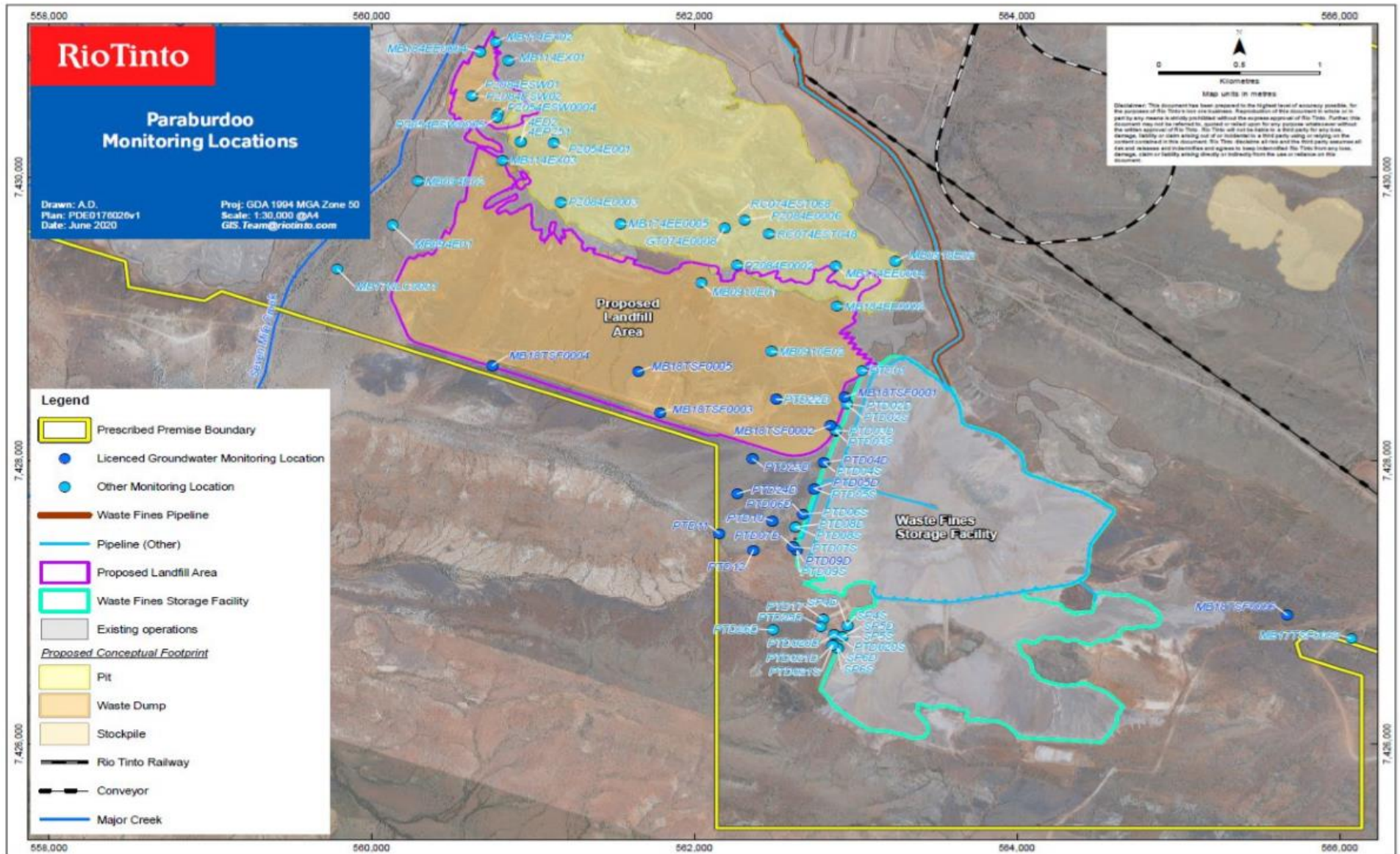


Figure 4: Location of the groundwater monitoring bores for TSF1

2.2.3 Premises landfills

Proposed 4EE Waste Dump Landfill

The applicant currently disposes of general waste to an existing landfill approved under L5275/1972/12. The existing facility is nearing capacity and new landfill cells are required to support ongoing operations. The applicant is proposing to construct a landfill within the existing 4EE waste dump (which is adjacent to the TSF1 Northern Cell embankment) – refer to Figure 2 “Proposed Landfill Area”. This landfill will be sized to accept approximately 3,000 tonnes of waste and will be mainly used for rubber disposal.

Existing licence L5275/1972/12 approves the disposal of the following types of waste within waste dump landfills on the Premises: Inert Waste Type 1, Inert Waste Type 2 and Putrescible Waste (wooden pallets and wooden packaging only) as defined in the *Landfill Waste Classification and Waste Definitions 1996* (DWER 2019).

Subsequent Landfill Facilities

The applicant has also requested under this application the provision to construct and operate landfills (waste dump and putrescible) within the prescribed premises that may be required to support ongoing operations. The landfills will only be constructed and operated as needed and will remain within the approved category 64 design capacity of 5,000 tonnes per annual period.

The existing licence L5275/1972/12 approves the disposal of the following types of waste (as defined in the *Landfill Waste Classification and Waste Definitions 1996* (DWER 2019)) within landfill facilities on the Premises.

Waste Dump Landfills:

- Inert Waste Type 1;
- Inert Waste Type 2; and
- Putrescible Waste (wooden pallets and wooden packaging only).

Putrescible Landfills:

- Clean Fill;
- Inert Waste Type 1;
- Putrescible Waste;
- Special Waste Type 1; and
- Special Waste Type 2.

The provision to construct and operate these subsequent landfills (waste dump landfill and putrescible landfill) has not resulted in a change to the existing approved waste types permitted for disposal.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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, commissioning and time limited operation which have been considered in this Decision Report are detailed in Table 7 below. Table 7 also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 7: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Vehicle movements Clearing and windblown from cleared areas	Air/windborne	<ul style="list-style-type: none"> • Areas cleared only as required. • Rehabilitation of cleared areas will be implemented as construction is completed.
Noise	Earthmoving and vehicle movements	Air/ground	<ul style="list-style-type: none"> • Use of water trucks. • Control of vehicle movements / restricted speeds. <p>Landfill facilities will:</p> <ul style="list-style-type: none"> • Be located within prescribed premises boundary. • Not be located within an Environmentally Sensitive Area.
Commissioning and time limited operation			
TSF1 Northern Cell raise			
Spillage of tailings and decant return water	Tailings deposition pipeline	Direct discharges to land and infiltration to soil	<ul style="list-style-type: none"> • Existing high density polyethylene (HDPE) lined carbon steel pipe which will tie into the TSF perimeter pipelines. • An existing flow meter installed at the processing plant. A second flow meter will be installed at the end of the pipeline to provide leak detection capabilities. • The current system's control has sensors to halt pumping if a sudden pressure drop is detected. Leak detection for this project has been added to the system. • Sumps in low areas along the pipeline route to contain spillages. • Wear assessment of the pipeline undertaken on a regular basis.
	Return water transfer pipeline		<ul style="list-style-type: none"> • DN355 PN10 HDPE pipe for the first 2,660 m before an air and vacuum release valve, where the water flows under gravity for the remaining 3,200 m in a DN250 PN8 HDPE

Emission	Sources	Potential pathways	Proposed controls
			<p>pipe to the process water tank.</p> <ul style="list-style-type: none"> Flow meter installed at the pump station. Pressure transmitters included at the pump station. Sumps in low areas along the pipeline route to contain spillages. Wear assessment of the pipeline undertaken on a regular basis.
Tailings seepage	Tailings discharge	Seepage to soil/ground adjacent to the TSF1 and infiltration to groundwater	<ul style="list-style-type: none"> Decant pond located in the centre of the Northern Cell. Decant pond radius of 300 m (distance to embankment 650 m; distance to exclusion zone 450 m). Decant system comprises of a duty/standby pump arrangement centrally located on a permanent decant causeway. Decant system allows for remote radio operation of the pumps and fuel capacity to allow at a minimum 7 days continued operation of the pumps at full load for storm events. Decant rate of 180,000 m³/month to 222,000 m³/month. Groundwater quality monitoring program as outlined in Section 2.2.2 'Groundwater quality'.
Pond water Tailings material	Overtopping	Direct discharge to land and infiltration to soil	<ul style="list-style-type: none"> Contain inflows from a 1:100 Annual Exceedance Probability, 72 hour flood duration. Maintaining a minimum total freeboard of 500 mm. Decant rate of 180,000 m³/month to 222,000 m³/month. Routine inspections.
Time limited operation			
4EE Waste Dump Landfill			
Windblown waste	Operation of the 4EE waste dump landfill.	Air	<ul style="list-style-type: none"> Drive-in trenches. Trenches 30 m x 50 m x 3 m. Tipping area less than 30 m. Waste covered on an ad-hoc basis when required, to at least 200 mm at final landform design. Signage installed around the facility

Emission	Sources	Potential pathways	Proposed controls
			indicating what waste can be accepted.
Contaminated stormwater		Surface water runoff	<ul style="list-style-type: none"> Earthen bund constructed around the perimeter to divert surface water flows away from the landfill and prevent stormwater from coming into contact with waste. A sump or bunding constructed to collect any surface water that has come into contact with waste.
Subsequent Landfill Facilities			
Dust	Earthmoving	Air	Landfill facilities will: <ul style="list-style-type: none"> Be located within prescribed premises boundary. Not located within an Environmentally Sensitive Area.
Noise		Air/ground	
Odour associated with putrescible landfill	Operation of putrescible and waste dump landfills located within the prescribed premises boundary	Air	<ul style="list-style-type: none"> Putrescible landfill will be fenced to an appropriate height, gated and locked and the fencing will be regularly inspected for damage and cleared of waste. Firebreak at least 3 m in width around the perimeter of the putrescible landfill. Waste in the landfill facilities will be covered: <ul style="list-style-type: none"> Weekly (putrescible landfill) to at least 200 mm so that no waste is left exposed (including at final landform design). On an ad-hoc basis (waste dump landfill) when required, to at least 200 mm at final landform design.
Windblown waste		Air	
Leachate from putrescible landfills		Surface water runoff, seepage to soils and groundwater	Landfill facilities will: <ul style="list-style-type: none"> Only accept approved types of waste as authorised under the existing licence L5275/1972/12 (refer also to Section 2.2.3). Not be located within an Environmentally Sensitive Area. Be located more than 100 m from any permanent or perennial watercourse. Be located so that vertical distance between the waste and the highest seasonal and expected post mining ground water level is no less than 3 m (waste dump landfill) or 10 m (putrescible landfill).

Emission	Sources	Potential pathways	Proposed controls
Contaminated stormwater		Surface water runoff	Landfill facilities will: <ul style="list-style-type: none"> • Be located more than 100 m from any permanent or perennial watercourse. • Include construction of surface water management structures (i.e. bunding) to divert surface water flows away from the landfill.

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

The township of Paraburdoo is not considered a receptor for this application, given it is approximately 6 km north-east of the Premises.

Table 8 and Figures 5 and 6 provide a summary of potential environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guidance Statement: Environmental Siting* (DER 2016)).

Table 8: Environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Seven Mile Creek	Located 3 km west of TSF1 Northern Cell. The northern part of the proposed waste dump landfill is located approximately 110 m east of Seven Mile Creek.
Two ephemeral creeks	Located within TSF1 and both flowing to the west.
Threatened fauna	Common Sandpiper (<i>Actitis hypoleucos</i>), listed under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> and the <i>Wildlife Conservation Act 1950</i> Schedule 5, has been recorded on the TSF1.
Groundwater and Surface Water Areas	The Premises is located within the Proclaimed Pilbara Groundwater and Surface Water Areas.
4E pit (and the 4E Extension) 80% of the orebody (Brockman Iron Formation) is located below the water table. 4E pit is currently active and mining is expected to be completed in 2023. The 4E dewatering bore field commenced operation in 2001 with the 4EE development proposed to commence dewatering in 2027. Post-mining, rainfall, surface water runoff and groundwater will flow back into the 4EE pit creating	Located approximately 2 km north-west of TSF1.

Environmental receptors	Distance from prescribed activity
<p>a pit lake. Aquifer groundwater levels are anticipated to recover to pre-mining water levels in most areas post-closure given significant groundwater level recharge noted to occur from wet season flood events in local creeks.</p> <p>Current studies estimate that 4EE pit lake shows rapid filling to approximately 200 m deep, filling to within 5 m of their final stable water level within 50 years and to maximum elevation in under 100 years (Rio Tinto 2020b).</p>	

NOTE: The applicant states (Rio Tinto 2020a) that there are three Aboriginal and other heritage sites within the Waste Dump boundary, PB08-11, PARA-A-02B and PB03-13 and that “*if required a s18 will be applied for prior to works commencing*”.

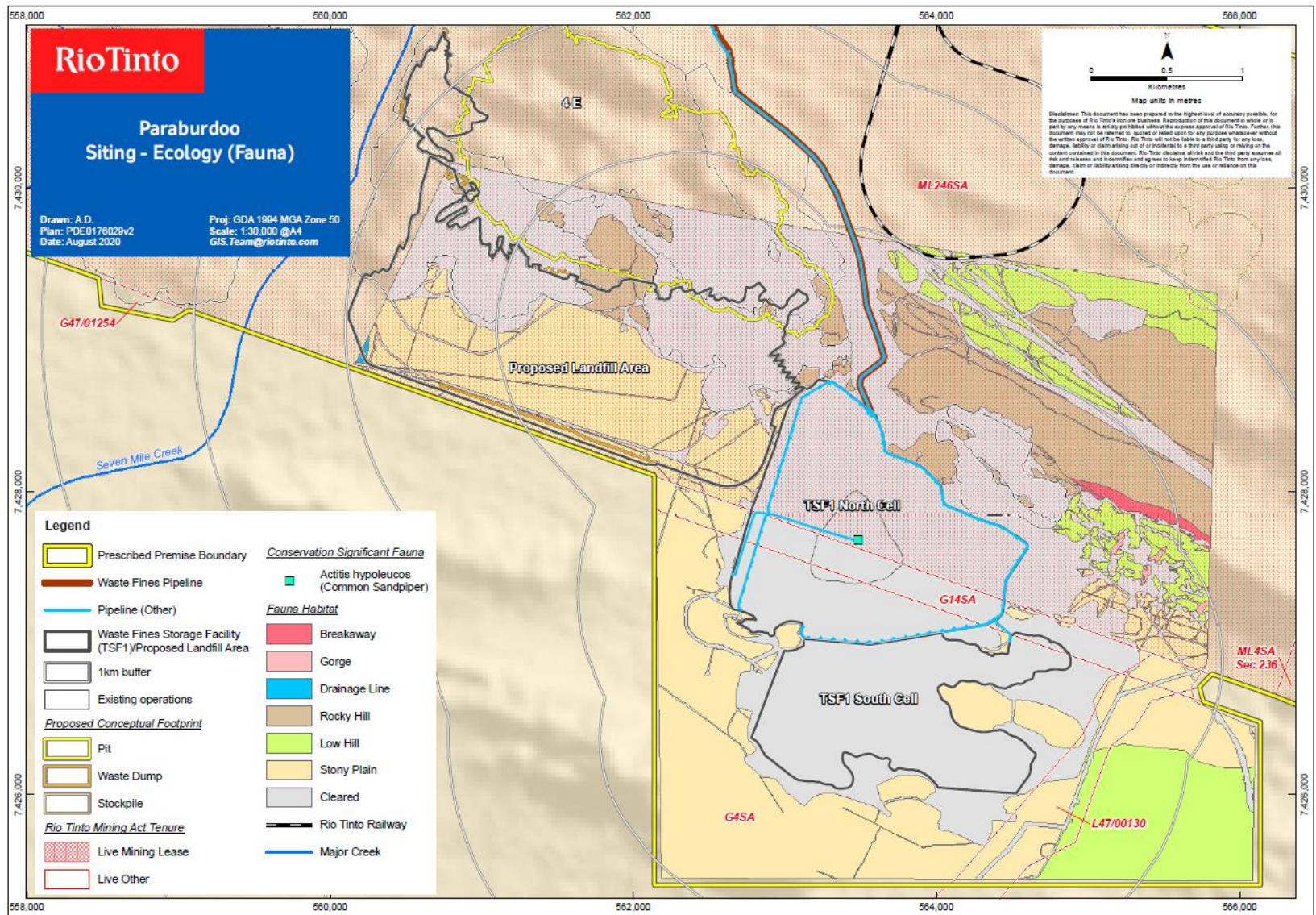


Figure 5: Distance to environmental receptors

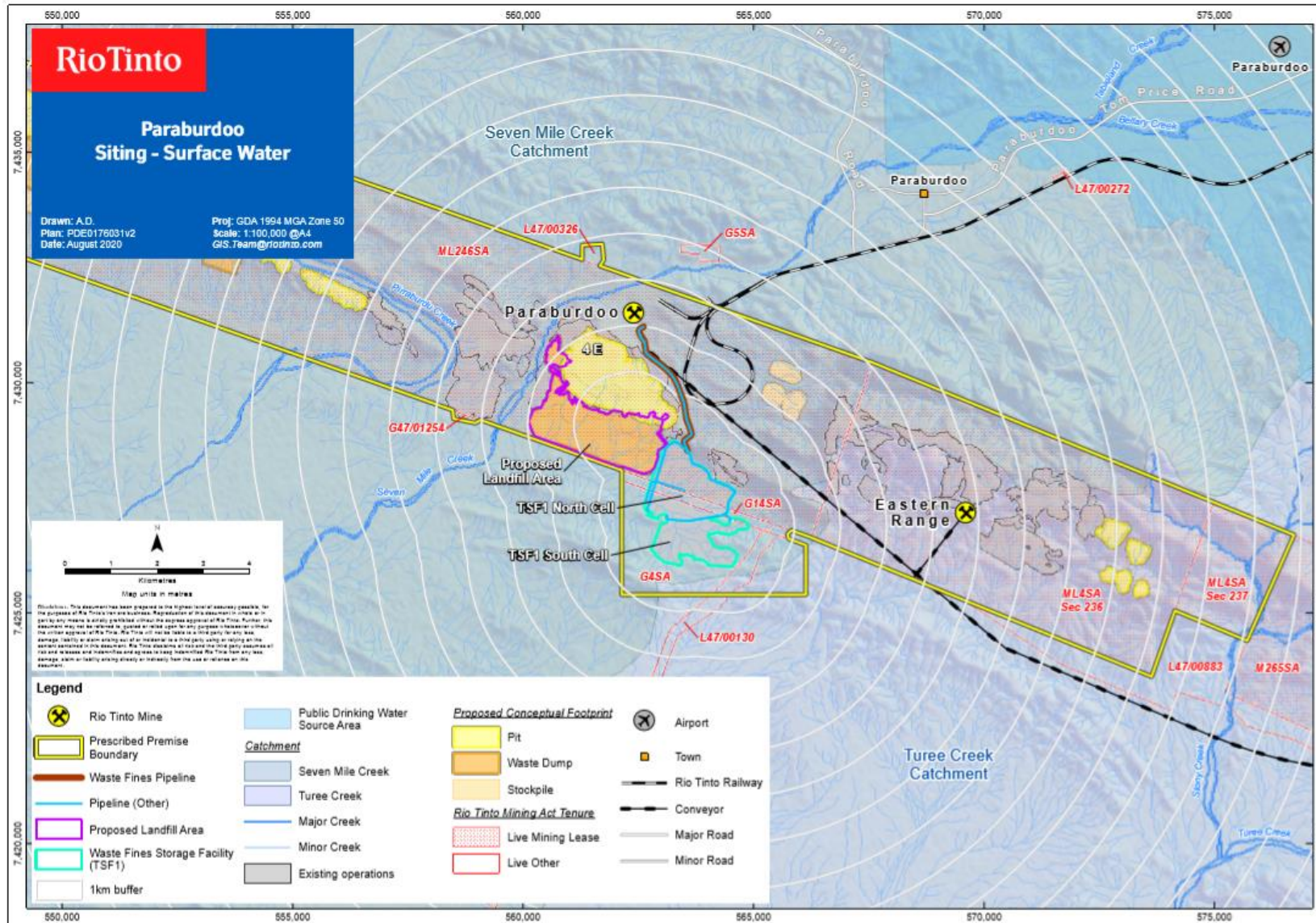


Figure 6: Surface water siting

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) 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 9.

Works Approval W6421/2020/1 that accompanies this Decision Report authorises construction, commissioning of the TSF1 Northern Cell and time-limited operations. The conditions in the issued Works Approval, as outlined in Table 9 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence amendment is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the Premises i.e. tailings deposition activities and landfill facilities. 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 amendment application.

Table 9: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning, time limited operation and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval/licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Vehicle movement, clearing and windblown from cleared areas	Dust	Air/windborne pathway causing impacts to terrestrial ecosystems	Priority flora Threatened fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 1	N/A
	Noise	Air/ground pathway causing impacts to terrestrial ecosystems	Nocturnal native fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 1	N/A
Commissioning, time limited operations and operation of TSF1 Northern Cell								
Tailings deposition and return water transfer pipelines	Spillage of tailings through leaks, pipeline ruptures or failure	Direct discharges to land and infiltration to soil resulting in contamination and vegetation decline	Soil Priority flora	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1 Condition 15 The existing licence will be updated to include pipeline containment and inspection requirements.	N/A
Tailings discharge	Tailings seepage	Seepage from TSF1 potentially contaminating the soil and impacting on the water quality of the groundwater	Groundwater Soil	Refer to Section 3.1	C = Moderate L = Possible Medium Risk	N	Condition 12 Condition 13 Condition 14 The existing licence will be updated for ambient groundwater monitoring and water balance requirements for TSF1.	Refer to Section 3.3
Overtopping	Pond water Tailings material	Direct discharges to land and infiltration to soil resulting in	Soil Priority flora	Refer to Section 3.1	C = Moderate L = Rare	Y	Condition 1 Condition 12	N/A

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval/licence	Justification for additional regulatory controls	
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls					
		contamination and vegetation decline			Medium Risk		Condition 15 The existing licence has a freeboard condition.		
Time limited operations and operation of the landfill facilities									
Operation of putrescible and waste dump landfills located within the prescribed premises boundary	Dust	Air/windborne pathway causing impacts terrestrial ecosystems	Priority flora Threatened fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 1	N/A	
	Noise				C = Slight L = Unlikely Low Risk	Y	Condition 1	N/A	
	Odour associated with putrescible waste	Air/windborne pathway causing an increase in scavengers/vermin	Scavengers and indirect receptors – vegetation and fauna	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Condition 1 Condition 12	N/A	
	Windblown waste					Y	Condition 1 Condition 12	N/A	
	Fire	Air/windborne pathway causing impacts to environmental receptors	Vegetation and fauna	N/A		C = Moderate L = Unlikely Medium Risk	Y	Condition 1	N/A
	Leachate from the putrescible landfills	Seepage to soils and groundwater with potential to impact groundwater and alteration to sensitive surface water ecosystems	Premises located with the Pilbara Groundwater and Surface Water Area. Groundwater Surface water ecosystems	Refer to Section 3.1		C = Moderate L = Unlikely Medium Risk	Y	Condition 1 Condition 12	N/A

Risk Event					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval/licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
			of Seven Mile Creek					
	Contaminated stormwater	Surface water with potential contamination of soils and alteration of surface water ecosystems	Seven Mile Creek and Bellary Creek	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	Condition 1	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

3.3 Additional regulatory controls imposed

Condition 13:

The applicant proposed annual ambient groundwater monitoring at TSF1 consistent with the existing licence.

Grounds: The department will adopt a precautionary approach with respect to seepage from the TSF1 Northern Cell. Groundwater quality data at TSF1 prior to its commissioning is not available (GHD 2020).

Groundwater results extracted from *Rio Tinto 2020c* shows detrimental effects on groundwater quality (refer to Section 2.2.2 – Groundwater quality). Groundwater monitoring has shown that:

- Groundwater neighbouring TSF1 has elevated salinity;
- Groundwater in the monitoring bores adjacent to the embankment are enriched in chloride;
- Nitrate concentrations at TSF1, and remote from TSF1 exceed the *NIWA 2013* 95% level of species protection for freshwater; and
- Heavy metals such as Copper, Boron, Chromium and Zinc as at or above their respective *ANZECC ARMCANZ 2000* 95% level of species protection for freshwater ecosystems.

Quarterly monitoring during time-limited operations is required to ensure that baseline groundwater quality data for **all bores** is collected and that seasonal variation is captured which can then be used as a comparison against the results obtained during operation.

Condition 14:

The applicant will be required to have at least 10 tailings samples analysed to determine the likely behaviour of elements under a range of leaching conditions.

Grounds: The applicant has not had the tailings characterised since 2017. While the applicant has stated (*Rio Tinto 2021*) that the results were assessed against operating data, this information has not been provided to the department for validation.

Conditions 2, 8, 14 and 16:

The following reports are required to be submitted:

- Environmental Compliance Report demonstrating that the infrastructure has been installed as committed to and as per condition 1.
- Environmental Commissioning Report providing a summary of the commissioning activities with timeframes, waste fines deposited and environmental performance.
- Tailings characterisation report.
- Time limited operations report providing timeframes, waste fines density (solid vs water content), TSF1 water balance summary, summary of monitoring results obtained and environmental performance.

Grounds: Reporting requirements are necessary for the administration of the works approval, validating ongoing acceptability of the operations and for validation against design criteria prior to operation.

4. Consultation

Table 10 provides a summary of the consultation undertaken by the department.

Table 10: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (11/08/2020)	None received.	N/A.
Local Government Authority advised of proposal (11/08/2020)	<p>The Shire of Ashburton replied on 17/08/2020 stating <i>"As the pre-eminent environmental decision making body in the State of Western Australia, it is hoped the Environmental Protection Authority will assess the proposal in its entirety with the utmost care and diligence to ensure any potential negative impacts that may arise are suitably managed / mitigated."</i></p> <p><i>The Shire requests the compliance documentation committed to by the Applicant upon completion of each phase mentioned in the Works Approval Supporting Document be followed up by Environmental Protection Authority periodically to ensure regulatory governance."</i></p>	The application was sent to the department's EPA Services for noting. No comments were received.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (17/09/2020)	<p>DMIRS replied on 17/11/2020 stating the following:</p> <ul style="list-style-type: none"> <i>"A geotechnical review of the documentation supplied by the Department of Water and Environmental Regulation (DWER) by the DMIRS Geotechnical Mines Inspector raised no geotechnical concerns regarding the proposed raise of the northern cell of the Paraburdoo TSF embankment."</i> <i>"A discrepancy in the TSF closure design was highlighted, which should be corrected by Rio Tinto. The reports states that "The closure concept is to use a store and release cover to rehabilitate the surface of the tailings. The cover will be designed to match the sloped tailings beach surface at the time of decommissioning as closely as possible such that closure earthworks are reduced. A closure spillway will be required" (See Section 5.10.2 Closure Concept). However, Figure 5-11 Closure Concept indicates a water shredding design concept, instead of a store and release concept mentioned in the text."</i> 	<p>The applicant was advised of the discrepancy found in the TSF closure design.</p> <p>The applicant has confirmed that the closure plant for the TSF1 Northern Cell is a water shredding design concept (Rio Tinto 2021).</p>
Applicant was provided with draft documents on 3/02/2021	<p>The applicant provided comments on the 12/02/2021 and waived the remaining comment period.</p> <p>Refer to Appendix 1.</p>	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 and New Zealand Environment and Conservation Council (ANZECC) and the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, National Water Quality Management Strategy; no. 4.
2. Coffey Mining Pty Ltd (Coffey) 2007, *PN8290 - Mining Proposal Submission 3m Staged Embankment Lifts Tailings Storage Facility 1 Paraburdoo* MH00304AB-AK-3m Embankment Lifts Mining Proposal Submission – Rev 3 – 18 December 2007.
3. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
4. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
5. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
6. DER 2014, *Guideline: Assessment and management of contaminated sites*, Perth, Western Australia.
7. Department of Water and Environmental Regulation (DWER) 2019, *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)*, Joondalup, Western Australia.
8. GHD 2020, *Hamersley Iron Pty Limited - Paraburdoo Tailings Storage Facility Part V Works Approval Application Supporting Documentation (12510535)*, June 2020.
9. National Health and Medical Research Council (NHMRC) Natural Resource Management Ministerial Council (NRMMC) 2011, *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*, Commonwealth of Australia, Canberra.
10. National Institute of Water & Atmospheric Research Ltd (NIWA) 2013, *Updating nitrate toxicity effects on freshwater aquatic species*, Prepared for Ministry of Building, Innovation and Employment: Funded by Envirolink, Hamilton, New Zealand.
11. Rio Tinto 2016, Mining Proposal REG ID 60720, *Paraburdoo Iron Ore Mine Mining Proposal Tailings Storage Facility Southern Cell Expansion – Version 2*, General Purpose Leases 14SA and 4SA (RTIO-HSE-0294773), Perth, Western Australia.
12. Rio Tinto 2020a, *Works Approval Supporting Document, Paraburdoo Iron Ore Mine – L5275/1972/12* (RTIO-HSE-0344902), Perth, Western Australia.
13. Rio Tinto 2020b, *Application for a Works Approval under the Environmental Protection Act 1986 – Response Request for Information 17 August 2020* (RTIO-HSE-0344902), dated 10 September 2020.
14. Rio Tinto 2020c, *2019 Annual Environment Report for L5275 – Paraburdoo Iron Ore Mine and Eastern Range Project* (RTIO-HSE-0339358), 30 April 2020.
15. Rio Tinto 2021, *Paraburdoo Iron Ore Mine and Eastern Range Project – W6421/2020/1 Works Approval Draft Review* (RTIO-HSE-0350068), dated 12 February 2021.

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

Condition	Summary of applicant’s comment	Department’s response
Condition 6 Table 2	The applicant requests that the authorised commissioning duration be changed to 60 days.	The department has changed the authorised commissioning duration from 14 to 60 calendar days.
Condition 12 Table 4	<p>The applicant requests that the department clarify the TSF1 Northern Cell operational requirement to “Maintain a 200m exclusion zone from confining embankment”.</p> <p>It is the applicant’s understanding that the exclusion zone only applies to stormwater under normal operating conditions. Access to the exclusion area will be necessary for daily inspections and monitoring (Rio Tinto 2021).</p>	<p>The department has removed the operational requirement to “Maintain a 200 m exclusion zone from the confining embankment” as there is an operational requirement that states “Decant pond radius of 300 m (distance to embankment 650 m; distance to exclusion zone 450 m).”</p> <p>The applicant should note that the commitment to “Maintain a 200 m exclusion zone from confining embankment under operational” is stipulated within the application supporting documentation - <i>GHD 2020</i> - section 5.6 Operational Philosophy.</p>
Previous Condition 15	<p>The applicant has stated that “<i>it has been demonstrated that the identified saline plume is stable and contracting and no additional management, other than the routine groundwater monitoring is required. Furthermore, the rate of seepage generation from the TSFs has reduced over time as the tailings thickness has increased, the tailings have consolidated, and consequently resulting in reduced permeability of the tails. The reduction in the seepage is supported by the stabilisation of the saline plume and it has been demonstrated that raising the Northern Cell will have a negligible effect on the current seepage rate. There is no technical requirement for seepage management in addition to the existing monitoring.</i></p> <p><i>Historically there has been no need to manage seepage at the TSF and this approval is anticipated to reduce the risk of seepage”</i> (Rio</p>	<p>The requirement to submit a Seepage Management Plan has been removed based on distance (3 km) to Seven Mile Creek.</p> <p><i>GHD 2020</i> states that groundwater contours “<i>demonstrate that groundwater flow is primarily westwards towards Seven Mile Creek until dewatering resulting in a northward flow towards the 4E pit.</i>”</p> <p>The department notes that the applicant has stated “<i>that the identified saline plume is stable and contracting and no additional management, other than the routine groundwater monitoring</i>”. The applicant should note that the department does not consider monitoring to be a control.</p>

Condition	Summary of applicant's comment	Department's response
	Tinto 2021).	<p>The statement by the applicant that “<i>Historically there has been no need to manage seepage at the TSF and this approval is anticipated to reduce the risk of seepage</i>” is not correct. Rio Tinto 2020b states that a recovery bore “<i>was installed in 2001 adjacent to the southern main embankment. The recovery bore was operated from 2001 to 2005 and periodically from 2007 to 2009 when the decant pond was located close to or adjacent to the main embankment.</i>”</p> <p>The department will update the frequency of the TSF ambient groundwater monitoring to capture seasonal variation during the next licence amendment (annual monitoring does not allow this).</p> <p>The Greater Paraburdoo Iron Ore Hub is currently being assessed under Part IV of the EP Act. This assessment will also be considered during the next licence amendment.</p>
Condition 19(d)	The applicant requests that comparison of data from condition 13 be compared against the <i>ANZECC ARMCANZ 2000 Livestock</i> guidelines rather than the <i>ANZECC ARMCANZ 2000</i> 95% level of species protection for freshwater. Stating that this is not practical given the naturally elevated background levels of some analytes.	<p>The department has retained the requirement to compare the groundwater quality data results against the <i>ANZECC ARMCANZ 2000</i> 95% level of species protection for freshwater.</p> <p>The applicant should note that this is a comparison only - it is not a limit. Reasoning for the retention of this guideline also includes:</p> <ul style="list-style-type: none"> • There are no stock bores within the Premises; • Seven Mile Creek is 3 km from TSF1; and • The applicant has not proposed or adopted any site-specific trigger values.
Schedule 2: Monitoring	The applicant has stated that due to the static nature of the saline plume and good spatial coverage of the existing monitoring network it is requested that the number of bores to be monitored should not	The existing licence L5275/1972/12 has annual water quality monitoring for the TSF at the following sites: PTD01, PTD02D, PTD03, PTD04D, PTD05D, PTD06D,

Condition	Summary of applicant's comment	Department's response
	<p>be increased to 20 bores.</p>	<p>PTD07D, PTD08D, PTD09D, PTD10, PTD11, PTD12. PTD02D and PTD03 have been replaced (under this application) with MB18TSF0001 and MB18TSF0002. So, under this application the department has only included the following: PTD021D, PTD22D, PTD23D, PTD24D, PTD26D, MB18TSF0003, MB18TSF0004, MB18TSF0005 and MB18TSF0006. These groundwater monitoring sites were proposed by the applicant within <i>Rio Tinto 2020a</i> (Table 5-2). By undertaking quarterly monitoring under time limited operations for all bores associated with TSF1 this will ensure that background data (including seasonal variation) has been provided to the department.</p>
	<p>The applicant has requested that the frequency be changed from monthly during time limited operations to quarterly based on the following:</p> <ul style="list-style-type: none"> • During the time limited operations period there is no likely transport pathway for water within the TSF to seep to the surrounding groundwater system. • Given the static nature of groundwater, it is also considered unlikely that results would vary significantly monthly. Longer timeframes between samples will still allow for variations in water quality to be captured and reviewed with appropriate scrutiny. 	<p>The department has changed the monitoring frequency under time limited operations to quarterly.</p>

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	8/07/2020 (A1915006)			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Pilbara Iron Company (Services) Pty Ltd			
Premises name	Paraburdoo Iron Ore Mine			
Premises location	Paraburdoo – ML246SA, G70/14 and G70/04			
Local Government Authority	Shire of Ashburton			
Application documents				
HPCM file reference number:	DER2020/000296 and DER2014/000429-1~1			
Key application documents (additional to application form):	<i>GHD – Paraburdoo Tailings Storage Facility (including inferred groundwater model)</i> <i>Historical surface water level around TSF 1 (excel file)</i> <i>Historical TSF 1 groundwater quality (excel file – limited parameters)</i> <i>GW quality extended parameters (excel file)</i> <i>Supporting document WWA</i>			

Scope of application/assessment	
Summary of proposed activities or changes to existing operations.	<p>Construction of TSF 1 North lift (from RL 371 m AHD to 373 m AHD), including</p> <ul style="list-style-type: none"> • Embankment raises. • Upgrade of decant system. • Ramp construction. • Relocation of road access. <p>Construction and operation of a Category 64 Waste Dump Landfill and provision for the construction and operation of subsequent landfills within the prescribed premises boundary.</p>

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or non-metallic ore	No change to the existing approved licensed capacity of 30,000,000 tonnes per annum.	<i>Is there a proposed change to the previously assessed production or design capacity?</i>
Category 64: Class II putrescible landfill site	No change to the existing approved licensed capacity of 5,000 tonnes per annum.	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	The applicant stated that the works proposed under this application are not included in the scope of the Greater Paraburdoo Iron Ore Hub Part IV proposal assessment as they are included under the Statement Agreement and can be suitably assessed under Part V of the EP Act.
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:

Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	State Agreement Mining Lease ML246SA granted pursuant to the <i>Iron Ore (Hamersley Range) Agreement Act 1968</i> and General Purpose Leases G4SA and G14SA, granted under the <i>Mining Act 1978</i> (WA) (Mining Act).
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: 5090 and 4594
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Licence/permit No: GWL109318 Allows for the abstraction of up to 9 GL/a for operational purposes, dust suppression, ore processing, mine dewatering and water supply.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: Pilbara Type: Proclaimed Groundwater Area/Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>Iron Ore (Hamersley Range) Agreement Act 1968</i> .
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A

<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: N/A Date of classification: N/A</p>
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