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	W3013/3035/1
Applicant	AC Minerals Pty Ltd
ACN	139823028
Application number	APP-0026581
Premises	Rebecca Gold Project Legal description Mining tenement M28/400 As defined by the premises map attached to the issued works approval
Date of report	8 September 2025
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 W3013/2025/1 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

On 22 November 2024, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to **phase 1** of the Rebecca Mine Project at the premises. It is a greenfield gold mining and processing project, and the premises is approximately 140 km north-east of Kalgoorlie-Boulder. The project will be managed by Ramelius Resources Ltd (Ramelius – the applicant) personnel operating 24 hours, 7 days per week. AC Minerals Pty Ltd is the occupier of the works approval and is a 100% fully owned subsidiary of Ramelius.

Phase 1 of the project consists of early works to construct the accommodation village, wastewater treatment plant (WWTP) and village landfill.

The premises relates to the categories 85 and 89 and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W3013/2025/1. 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 W3013/2025/1.

On 2 December 2024, the applicant submitted a separate application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to **phase 2** of the Rebecca Mine Project at the premises.

The premises relates to the categories 5, 6, 12, 52, 57 and 89 and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W3013/2015/1. 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 W3013/2025/1.

The Delegated Officer has determined to assess the two applications together in a single assessment and instrument.

2.2.1 Gold Processing Plant and Tailings Storage Facility – Category 5

Processing Plant

A 3 million tonnes per annum (mtpa) gold processing plant is being proposed, along with associated Tailings Storage Facility (TSF) for the discharge of process tailings.

The gold processing will consist of a single stage crushing, semi-autonomous grind (SAG) mill, ball mill and pebble crusher. This is followed by a leaching circuit, which is proposed to include a pre-leach thickener and a hybrid carbon-in-leach (CIL) circuit that consists of two dedicated leach tanks, and six absorption tanks.

The elution and gold recovery commences with up to six tonnes of loaded carbon entering the acid wash column, with carbon washed and soaked with hydrochloric acid, then rinsed with fresh water. After this wash the carbon is moved to a pressurized elution column where sodium cyanide and sodium hydroxide is pressurised and heated to 120°C. The gold pregnant solution from this column will be pumped to one of two pregnant solution tanks and then into one of two electrowinning circuits with the cathodes absorbing the gold concentrate. Gold concentrate is then washed off the cathodes and refined (melted) to further remove impurities and poured into gold bars. The baron carbon from the elution column is sorted via a screen to a carbon regeneration kiln. This kiln is fed at a rate of 750 kg per hour at a temperature of 700°C. After cooling in a quench tank, the regenerated barron carbon is pumped back into Tank 6 of the adsorption circuit.

The carbon regeneration kiln system will have acid wash tanks designed in compliance with AS3789-2008 and pressure vessels will be designed and compliant with application Australian Standards for Division 6.1PG III (Toxic Liquid, Corrosive).

After the leaching circuit, the tailings will arrive in a tailings thickener. Within this, a flocculant is added to assist with settling, and then tailings containing 55-65% solids will report via the underflow to the tailings hoper and then pumped to a tailings storage facility (TSF). Water from the overflow will be recycled via process water circuit.

Tailings Storage Facility

The proposed TSF will be an above ground facility and will comprise of a two-cell paddock storage formed by multi-zoned earthfill embankments. It is designed to store a total of 30 million tonnes of tailings at an average rate of 3 Mtpa, including capacity to contain all supernatant and runoff from rainfall events and storm events. Figure 1 and 2 show the proposed layout of the premises and locations of the processing plant and TSF.

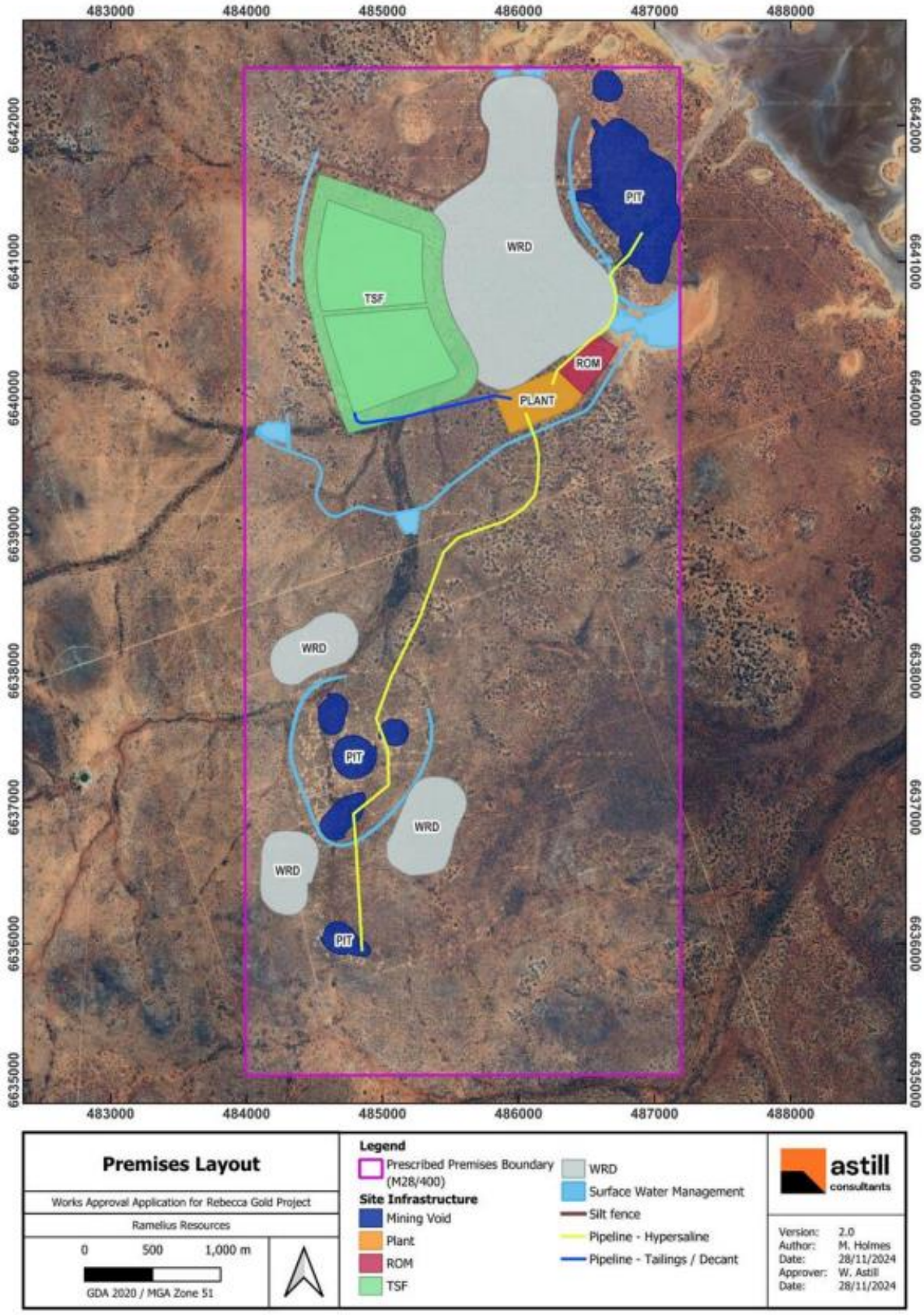

Figure 1: Site Layout

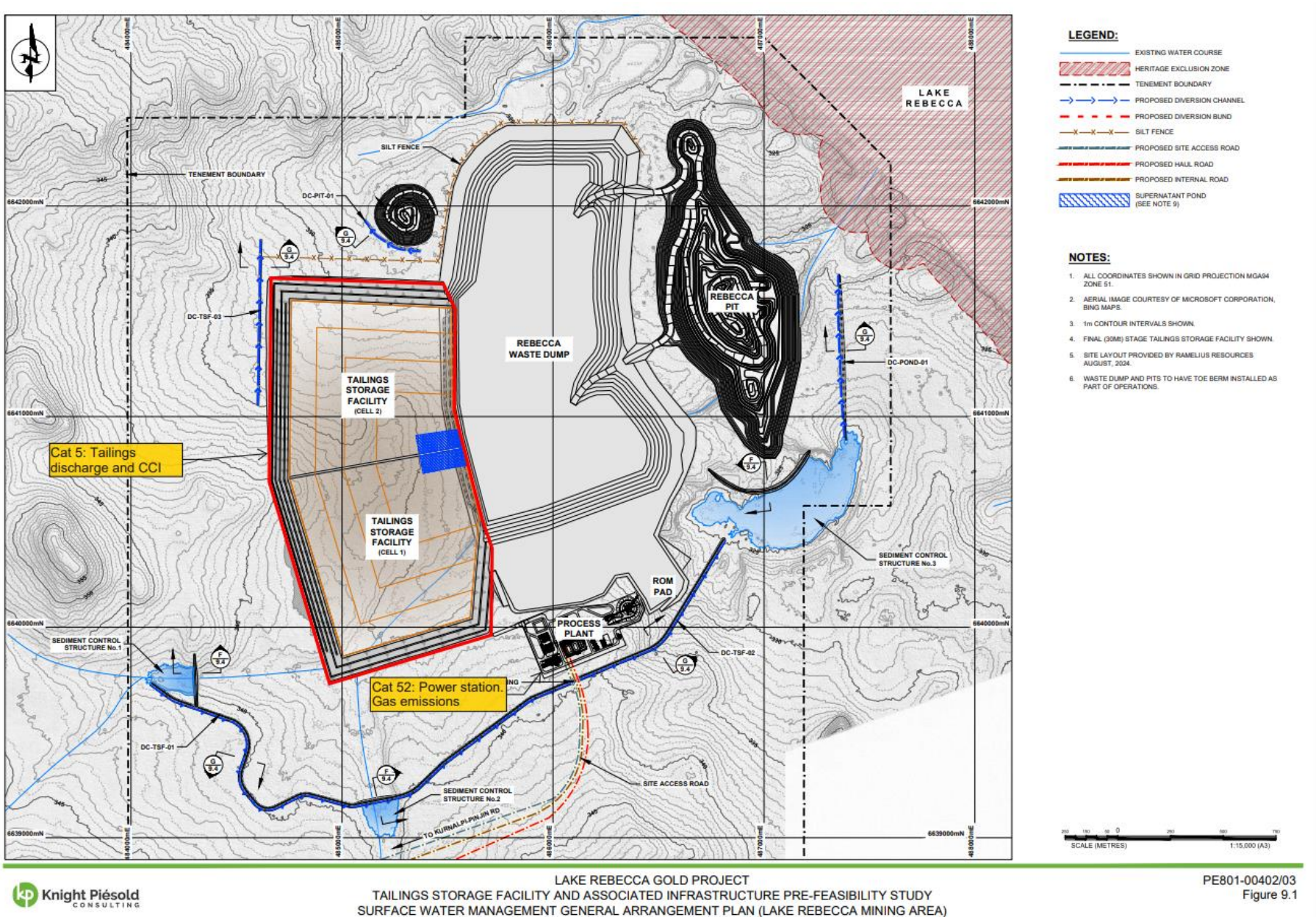

Figure 2: Tailings Storage Facility layout and associated infrastructure

Embankments and raises

The embankment will be constructed in stages, with the core zones being constructed by a specialized earthworks contractor and the structural embankment being progressively constructed by the mining fleet as part of the mine waste operations from the open pits. Downstream raise construction methods will be utilised for all stage 1 TSF embankment raises. The remaining raises will utilise downstream construction methods with the exception of the western embankment which will be raised using upstream construction methods.

Upstream embankments will have a minimum 10 m crest width and an upstream slope of 1V:2H, with a downstream slope of 1V:3H for operation. Each upstream raise will include a 5 m bench on the previous crest. The upstream embankments will require in situ tailings testing every 2 years to confirm that the tailings beach has sufficient strength to ensure embankment stability meets the recommended factors of safety. If strength is not sufficient then buttressing may be required.

TSF basin

The design incorporates a lined basin area (compacted soil liner over the entire basin and partial coverage (25% of area) with a high-density polyethylene liner) and an underdrainage system, to reduce seepage loss and lower the phreatic surface in the embankments. The underdrainage system drains by gravity to a collection sump located at the upstream toe of the embankments. Supernatant water will be decanted from the facility via a decant turret system. Solution recovered from the underdrainage and decant systems will be pumped back to the plant for re-use in the process circuit.

TSF Cells 1 and 2 will be constructed to provide two years of capacity in Stage 1. The cells will have an area of approximately 125 hectares (ha) and provide an initial capacity of 24 months. The embankment will be constructed of zoned earthfill with material sourced from locally available near-surface soils and selected open pit mine waste, to suit storage requirements and the availability of suitable mine waste.

TSF Cell 1 and Cell 2 Stage 1 capacity was designed to store 10 months and 14 months of tailings respectively, to achieve the same elevation across the facility at the end of Stage 1.

The subsequent raises will be constructed throughout the life of the facility on a biennial basis:

Table 1: TSF embankment raises

Stage	Capacity (months)	Stored tonnage per Stage (Mt)	Storage Capacity (Cumulative) (Mt)	Embankment Crest Elevation (RL m)	Max. Embankment Height (m)	Stage Raise Height (m)
1	24	6.0	6.0	343.0	12.0	12.0
2	24	6.0	12.0	345.9	14.9	2.9
3	24	6.0	18.0	349.3	18.3	3.5
4	24	6.0	24.0	352.8	21.8	3.5
5	24	6.0	30.0	356.2	25.2	3.5

The embankment will have a minimum 10 m crest width and an upstream slope of 1V:2H, a downstream slope of 1V:3H for operation and 1V:3H with 5 m benches at every 10 m height interval at closure.

Tailings deposition

Tailings will be discharged into the TSF by sub-aerial deposition methods, using banks of spigots at regular intervals from the embankments. The active tailings beach will be regularly rotated around the facility to maximise tailings density and control the supernatant pond.

Deposition of tailings will be carried out on a cyclic basis with the tailings being deposited over one area of the storage until the required layer of thickness has been built up. Deposition will then be moved to an adjacent part of the storage to allow the deposition layer to dry and consolidate. This will facilitate maximum storage over the whole basin.

The applicant has conducted a series of tests and analysis to determine tailings properties and associated potential seepage properties (refer to section 3.3.1 for more detail). In order to reduce seepage losses in the TSF basin area, increase water return to the plant and increase the settled densities of deposited tailings, a number of seepage control and underdrainage collection features have been integrated into the design. These consist of:

- Cut-off trench;
- Low permeability compacted soil liner (CSL);
- Partial high-density polyethylene (HDPE) – 25% of the basin; installed beneath the supernatant pond and over the CSL in the lower lying areas of the basin;
- Basin underdrainage collection system including main collectors and finger drains (50 m spacing); and
- Underdrainage collection sump.

Groundwater Monitoring

A comprehensive monitoring program will be developed to monitor for any potential problems with seepage, groundwater mounding and/or embankment stability. The monitoring will include:

- Survey pins to check embankment movements.
- Piezometers along TSF surface to measure the phreatic surface within the embankment and used to assess overall stability.
- New monitoring bores to be installed downstream of all embankments to measure groundwater levels and water quality.
- The piezometers and bores will be measured monthly for water levels, EC, pH, temperature and quarterly for water quality.

The applicant has stated they will seek specialized hydrogeological advice to assess any potential problems which may result in changes to the monitoring program. Groundwater monitoring bores will be constructed at least three months prior to commissioning the TSF to accumulate baseline data specific to the storage location. Final locations and construction parameters of these bores are yet to be determined and will be installed in tandem with the construction of this new facility. A TSF groundwater monitoring bore network has been designed by Knight Piesold and it's recommended that the TSF monitoring network comprises a pair of shallow and deep monitoring bores (adjacent to each other) at each bore location.

2.2.2 Mine dewatering – Category 6

The Rebecca mine will consist of three open cut pits (Rebecca, Duke and Duchess) which the applicant plans to develop over a nine-year period. To enable optimal resource recovery, mining will occur below the groundwater level, hence dewatering of the pits is required. The abstracted water will be discharged as dust suppression, with surplus volumes used to supplement the process plant water demand.

A dewatering discharge pipeline will be constructed when dewatering activities are required. The discharge pipeline will link with a turkey's nest to provide an initial sediment setline point and water truck filling station. Prior to the process plant operation it is estimated the combination of dust suppression and soil conditioning for construction will consume all early pit dewatering water. When the process plant is operational and complete open pit voids become available, there will be greater flexibility in managing pit dewatering water and rainfall, even water capture. There will be no discharge of mine dewater to Lake Rebecca. All mine dewatering water will be either used by the processing plant, for dust suppression, or stored in completed pit voids for use by the process plant.

The natural groundwater in the project area is hypersaline, in the range of 150,000 – 250,000 mg/L TDS. There are no known beneficial users in the area.

2.2.3 Screening, etc of material – Category 12

The applicant proposed to establish mobile crushing and screening campaigns to be utilised to generate road base and hardstand material to support development of the project, but also to be used as stemming in drill and blast holes if required. A crushing and screening unit will be mobilized to site and deployed for campaigns as required to process stockpiled materials. All crushed/screened materials are proposed to be used within the prescribed premises boundary. A nominal 200,000 tonnes per year maximum throughput will be crushed and screened, however actual throughput is likely to vary due to the campaign nature of activities.

Stockpiled inert waste rock material will be fed via front end loader into a feeding hopper which will be crushed by a jaw crusher and fed via conveyor to an adjacent screening unit. Crushed material will go through a secondary impact crusher before going through a vibrating screen, separating material into various sizes from approximately 5 mm to 300 mm.

Details of the exact mobile crushing and screening plant to be used are not available, as plant will be sourced and provided by contractors on an as needed basis. Typical crushing and screening plant that is anticipated to be used has an approximate capacity of 475 tonnes per hour, though actual throughput will be dependent on the works approval holder's requirements and available stockpiled volumes of material.

2.2.4 Electric power generation – Category 52

The applicant has proposed a combination gas/diesel/solar/battery configuration to achieve an installed power of 24.2 MW. This is to supply power predominantly to the processing plant but will also feed ancillary operations such as open pit operations, borefield, pumps and camp.

It is intended that the power system will consist of:

- Nine 2.5 MW gas generators (Caterpillar G3520H).
- Two 0.85 MW diesel generators (Cummins KTA50).
- Solar farm with 20.3 MWp PV capacity.
- Battery Energy Storage System (BESS) of 7.6 MW/3.8 MWh.

This arrangement provides power of 20 MW of duty generators and 4.2 MW of standby generators when no power is available from the solar farm or BESS.

2.2.5 Used tyre storage – Category 57

Due to limited heavy vehicle tyre recycling options available in the region, the works approval holder is proposing to bury used tyres on site within a designated area of an active Waste Rock Dump (WRD), or within the landfill site. The application states that no more than 500 used tyres will be stored at any designated location prior to burial.

2.2.6 Sewage facility – Category 85 (Phase 1)

The Rebecca accommodation village will be constructed to support a peak site workforce of 300 persons. The wastewater treatment plant (WWTP) capacity has therefore been based on total usage of 250 L/person/day. This equates to a system capacity of at least 75 kL/day. The peak workforce will only occur for a short period of time. After the construction period, the steady state of operational workforce is anticipated to be between 220 – 250 persons (WWTP capacity circa 60 kL/day).

The applicant is yet to determine the specific WWTP unit as it has not yet gone to tender.

The applicant intends to dispose of treated wastewater to a fenced (sprinkler) irrigation field, approximately 200 m from the accommodation village. The irrigation field will be divided into two stages, each sized at approximately 1 ha. This will allow from one stage to be turned off to dry out and for maintenance while the other field is in use. Each stage is proposed to be alternated on a weekly basis.

The WWTP components are to be prefabricated and brought to site. Depending on the manufacturer, they will likely consist of a series of HDPE or lined steep tanks, a purpose built 'process tank' plus an air-conditioned sea container that houses a combination pump station/chlorine dosing unit/filters and PLC control station. Construction activities essential consist of civil work in an area close to the accommodation village to prepare a level pad, placing all tanks and sea container in position on the pad and then connecting pipework and electrics.

The expected quality of treated wastewater to be discharged has been provided for three options of potential WWTP units.

Commissioning of the WWTP will occur in two stages:

- Wet commissioning – using water only to test for leaks, pump duty, PLC controls are functioning, and safety overflow systems are working.
- Time limited operation – in the early stage of the project, the workforce numbers on site will fluctuate, with the limit being the number of commissioning available rooms. The workforce number will increase as accommodation rooms are progressively completed. Wastewater volumes are likely to fluctuate during this time and be sub-optimal for the WWTP to operate in a sustained 'steady state'. For this reason, a TLO of 180 days is requested to allow the system to reach steady state operation.

Construction for the irrigation field will consist of clearing a 2 ha site and stockpiling vegetation around the perimeter. A perimeter fence will be constructed to prevent stock access. The pipeline network will consist of a main pipeline coming from the WWTP discharge tank with two tee-off valves. Each valve will service a submain and series of lateral lines with sprinkler rises spaced evenly down each line and lines spaced evenly to enable the sprinklers to achieve even coverage over the disposal area. Each submain network will cover approximately 1 ha.

As the irrigation field is an integral part of the functioning of the WWTP, commissioning will also occur in two stages:

- Wet commissioning – using only water to test for leaks and performance of sprinklers to achieve even coverage.
- Time limited operations – The TLO will allow time to determine the optimal changeover cycle time between the two-hectare irrigation areas.

Figure 3 shows the location of the WWTP and irrigation field, in the south-west corner of the prescribed premises.

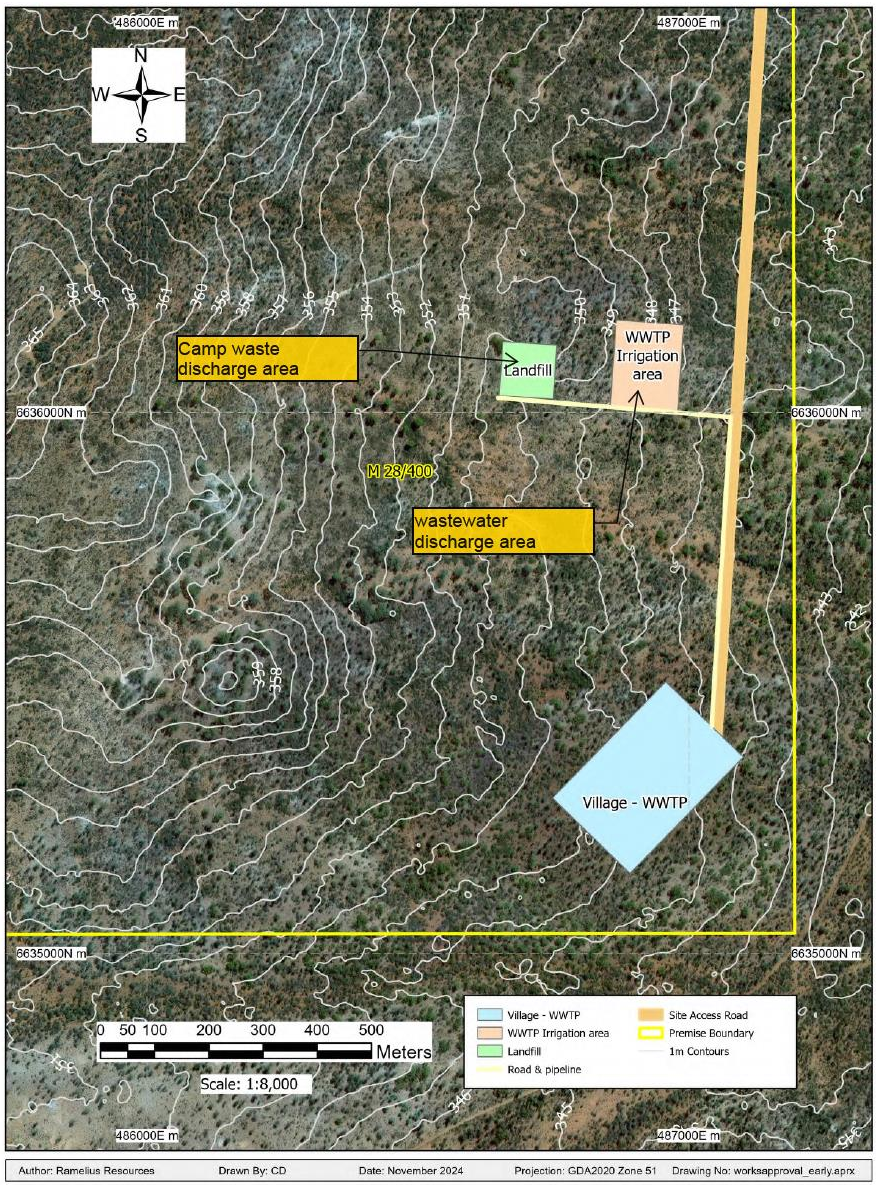

Figure 3: Location of WWTP and irrigation field

2.2.7 Class II putrescible landfills – Category 89 (Stages 1 and 2)

The accommodation village landfill has been located and sized to cater for waste only from the village. The waste type will comprise of mostly food waste, food packaging containers and domestic cleaning product waste. Construction of the Stage 1 landfill will consist of clearing a 1 ha area within 500 m from the village and stockpiling vegetation and topsoil around the perimeter.

An unlined Class II landfill site is proposed to be constructed for the disposal of site generated waste. Waste materials generated at the Rebecca project will be collected, transported, stored and buried at the site landfill. Construction of the Stage 2 landfill will consist of clearing a two-hectare area within 1 km from the process plant and stockpiling vegetation and topsoil around the perimeter.

Both the Stage 1 and Stage 2 landfills will be constructed and operated the same way. A fence will be constructed to prevent stock access. An initial trench will be excavated, approximately 30 m long x 5 m wide and 3 m deep, ramped at one end to allow a front-end loader to enter and push up waste. The trench will have a 0.5 m safety bund around the crest.

Trenches will be dug sequentially, starting at trench number 1. Earth removed from the trench is placed in a windrow over the location of future trench number 7, as shown in Figure 4. A ramp will be constructed on the inside of the trench to allow front end loader access.

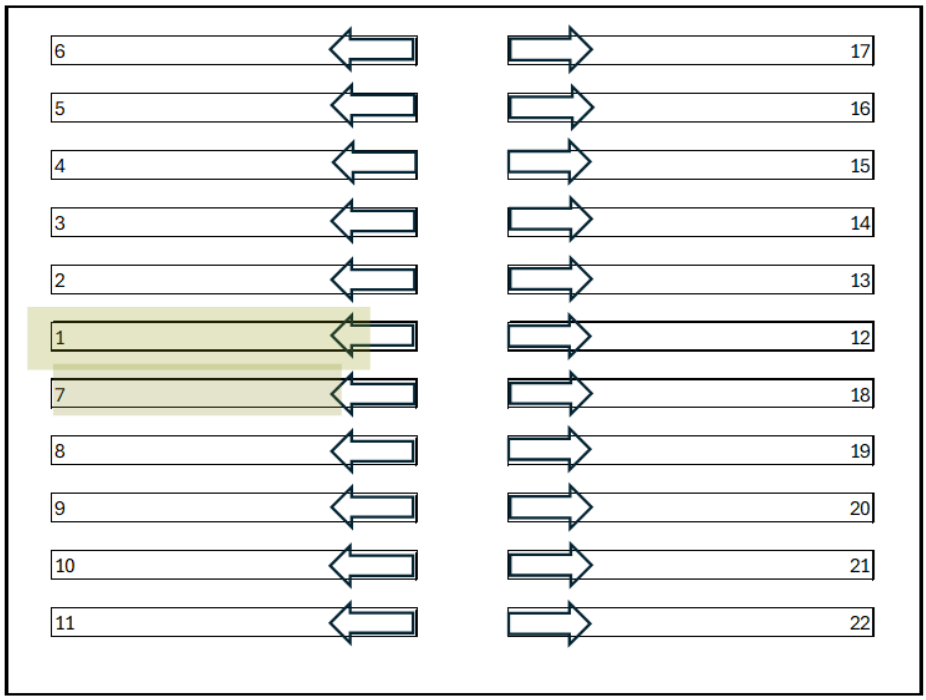

Figure 4: Landfill design

The operational stage will consist of vehicles reversing up to the safety bund to tip waste into the trench. As required a loader will enter the ramp and push/compact waste into the back of the trench to fill the trench to approximately 0.5 m from natural ground level (i.e. 2.5 m deep). Soil excavated from the trench will then be used to place 0.5 m of cover over the pushed rubbish to fill the trench back to natural ground level. This process is repeated, filling the trench back towards the ramp. Once trench 1 is full, trench 2 is dug and excavated earth is placed in a windrow over the backfilled trench 1 and the filling process repeated from trench 2.

As the deposited rubbish displaces the volume of earth originally excavated from the trench, there will be a surplus of excavated soil as successive trenches are dug. This will provide 'final cover' to add over completed trenches so that filled trenches are elevated between 0.5 m and 1.0 m above natural ground level. This will allow from some compaction/subsidence in the buried waste and ensure surface water flow is directed around completed trenches.

2.3 Mining Act 1978

The applicant is required to seek a Mining Proposal from the Department of Mines, Petroleum and Exploration (DMPE – previously Department of Energy, Mines, Industry Regulation and Safety) under the Mining Act 1978. This will include seeking approval for 600 ha of clearing within the mining tenement. At the time of submission of the application to DWER, the Mining Proposal had not yet been applied for as they were awaiting granting of tenure of miscellaneous licence for road access.

The Department is not constrained by third party regulators in assessing an application or granting a works approval under Part V of the *Environmental Protection Act 1986*.

The responsibility is on the applicant to ensure all relevant approvals are sought prior to construction and operation of the mine.

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	Construction of gold processing plant and associated infrastructure including tailings storage facility. Dust associated from clearing activities. Placement of screen and associated equipment including vehicle movements (reversing beepers). Construction of dewatering pipelines and pumps. Installation and construction of power station generators.	Air / windborne pathway	• Regular use of water carts across active work areas during construction. • Regular visual monitoring and implantation of dust controls as required. • No clearing during periods of high wind. • Use defined access roads with speed restrictions. • No residents nearby. • Watercart available for crushing and screening activities with stockpiles watered down before crushing / screening as required.

Emission	Sources	Potential pathways	Proposed controls
Dust	Construction of landfill trenches and associated vehicle movement.		
Operation			
Tailings slurry and supernatant water	TSF	Seepage through TSF base and walls	The following design controls to prevent seepage are as follows: • Cut-off trench. • Low permeability soil compacted TSF floor (1 x 10^{-7} m/s). • Partial high-density polyethylene (HDPE) – 25% of basin; installed beneath the supernatant pond and over the compacted soil liner in the lower lying areas of the basin. • Underdrainage collecting liquid towards decant to encourage consolidation of tailings, reduce seepage, increase geotechnical stability. • Decant pumps to automatically reclaim supernatant water. • Designed to hold tailings plus 1:100-year ARI 72-hour storm event. • Supernatant pond managed on a daily basis to maximise water recovery and maintain a practical operating depth. • Seepage indication bores installed to monitor groundwater level and quality. • Vibrating wire piezometers to monitor phreatic surface and risks of wall failure. • Water balance based on flow meters on discharge and decant recovery (and any future seepage recovery bores). • Hydrogeological assessment shows Rebecca pit will become a hydrogeological sink. • TSF located up gradient of Rebecca Pit forming a hydrogeological barrier for Lake Rebecca. • Annual TSF Report by qualified TSF geotechnical engineers.

Emission	Sources	Potential pathways	Proposed controls
Tailings slurry and supernatant water	TSF	Overtopping	• Designed to hold tailings plus 1:100-year ARI 72-hour storm event. • Minimum 500 mm freeboard maintained. • Visually inspection of freeboard capacity carried out daily.
	Pipelines carrying tailings and decant water	Pipeline failure or rupture	• All HDPE pipelines built to pertinent Australian Standards of manufacturer, design and construction. • All pipelines containing tailings/decant water are situated within bunded corridors. • Close proximity of TSF to processing plant means short distances in heavy trafficked areas. Due to topography, any pipeline failure will report back to processing plant. • Daily routine inspections for pipeline integrity and corridor. • Clean-up response. • Spill containment measures.
Dust	Crushing and screening	Air / windborne pathway	Watercart available at all times with stockpiles watered down before crushing and screening on an as required basis.
Hypersaline water	Mine dewatering – water truck	Direct discharge to land for dust suppression	No proposed controls for hypersaline water used for dust suppression.
	Mine dewatering pipelines	Pipeline rupture or failure	• Pipeline constructed using HDPE materials that meets AS/NZA Standards. • Located within earthen bunded v-drains with scour pits constructed along pipeline route at strategic locations and low points to ensure any leaks or spills are contained within the bunded areas. Secondary containment will be sufficient to contain any spill for a period equal to the time between inspections. • Flow metres fitted to measure discharge volumes. • Isolation valves installed at appropriate intervals. • Daily inspections when pipelines in use to confirm visual integrity of the pipeline, bunding and scour pits during operation. • Shut down the required section of the dewatering network if any spills or leaks from the pumps or pipeline are detected,

Emission	Sources	Potential pathways	Proposed controls
			until leak has been verified and/or repaired.
Tailings slurry and supernatant water	Mine dewater	Direct discharge to multiple unnamed pit voids.	• Minimum freeboard of 2 m in pit lake. • Visual inspection of freeboard capacity carried out daily when operational. • Pit lake standing water level recorded quarterly. • Spot sample monitoring pit water quality carried out quarterly. • Groundwater modelling has shown pit voids will act as groundwater sinks.

Air emissions (Nox, CO, Sox, VOCs, PM)	Processing plant and power generators	Air / windborne pathway	• Fixed plant, primarily the crushing and grinding circuit, selected with energy efficiency in mind. Whilst this is predominantly for the operating cost benefit, it means power station use can be reduced.
			• Gas/Diesel/Solar & Battery power station:
			  ○ The Solar and Battery will reduce greenhouse gas (GHG) emissions as low as reasonably practicable.
			  ○ Gas generators provide efficient (from GHG perspective) thermal power generation.

Smoke and air emissions	Burning of used tyres in the event of a fire.	Air / windborne pathway	• Used tyres stored in flat area minimum 50 m from other fire hazards and surrounded by 3 m trafficable firebreak • Used tyres buried in WRD no less than 5 m from the final outer surface. • Up to 20 tyres placed in a designated WRD burial location. A 10 m horizontal and 5 m vertical buffer zone used between used tyre burial locations.
Contaminated stormwater	Site operations (including landfill)	Overland runoff	• Natural water flow paths that are intercepted by project features (open pits, WRD, TSF) are redirected via diversion structures and drains around mine features and discharge back into natural flow paths downgradient of the mine feature. • Construction of Sediment Control Structures (SCS) in downstream reaches of catchments impacted by site infrastructure. They will divert uncontaminated stormwater around the

Emission	Sources	Potential pathways	Proposed controls
Contaminated stormwater			site infrastructure. Discharge from the SCS will be to the environment downstream of the project site. • The TSF is elevated above ground so no surface flow can come into this facility and embankments prevent any flow out of it. • Diversion of drainage line around Rebecca Pit to a small unnamed salt lake. • Surface water control within processing plant captures spills within processing plant area. • Surface water/sediment control structures downgradient of plant prevents run off and other potentially contaminated water release to the environment. • Windrows constructed to divert water away from landfill trenches.
Discharge of treated wastewater to irrigation area	Treated wastewater	Direct discharge via irrigation	• Irrigation field divided into two irrigation stages, each approximately 1 hectare. • Each stage proposed to be alternated on a weekly basis, to allow one stage to be turned off to dry out and for maintenance.
Leachate	Landfill	Direct seepage	Surface water runoff diverted away from trenches
Inert and putrescible waste	Landfill	Windblown	• Fence constructed around facility. • Weekly inspections/clean-up. • Waste management plan. • Routine covering of waste in accordance with the Environmental Protection (Rural Landfill) Regulations 2002.

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 5 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**
Residents in Kalgoorlie-Boulder is closest human receptors to the premises.	140 km south west of the Premises – **screened out due to distance from site**
Coonana Aboriginal Community (currently closed)	80 km southeast from the Premises – note this was closed in 2013 – **screened out due to distance from site**
Environmental receptors	**Distance from prescribed activity**
Native vegetation	Vegetation is dominated by Mulga woodlands, rich in ephemerals, hummock grasslands, saltbush shrublands and Samphire shrublands
Fauna	Results from the short-range endemic fauna survey included 15 identifiable species including six land snails, three pseudoscorpions, one scorpion, three mygalomorph spiders, one slater and one centipede. No confirmed Priority or Threatened species were identified from the survey. No reptiles of conservation significance have been identified in the area. One opportunist sighting of vulnerable bird species within the prescribed boundary has been recorded within the department's spatial system. It is likely a diverse range of small mammals can be found in the project area. The Priority 4 long-tailed dunnart may be found around breakaways and rocky outcrops, as well as being present in similar habitat in adjacent areas. No other priority or threatened species have been identified within or near the boundary.
Underlying groundwater (non-potable purposes)	Hypersaline aquifer is associated with partly weathered bedrock. Water samples taken at Rebecca Pit in 2024 were measured at 140,000 to 230,000 mg/L TDS. Regional groundwater flow is generally to the east towards palaeodrainage systems, ephemeral lakes and salt pans. No groundwater level data is available within the vicinity of the proposed TSF. Groundwater level was measured in five monitoring bores in the Rebecca Pit area and in one drill hole at Duchess Pit, and one at Duke Pit. From this data, the depth to water at Rebecca Pit ranges from 2.4 to 5.6 mbgl (321.6 to 322.2 mAHD) and around the pits it was approximately 20 mbgl (330 mAHD).

Environmental receptors	Distance from prescribed activity
Lake Rebecca (salt lake)	4.3 km to the east, however the closest point approximately 400 m from northern end of Rebecca Pit. There are a number of surface water flow paths that cross the project footprint and combine upstream of the proposed Rebecca Waste Rock Dump before flowing into the Lake.
Unnamed salt lake	A small unnamed salt lake is located at the southern end of the proposed Rebecca Pit. This does not have a defined outflow drainage channel into Lake Rebecca.
Aboriginal heritage site	Lake Rebecca is the nearest registered site approximately 4 km to the east, however the closest point is approximately 400 m from the norther end of Rebecca Pit.

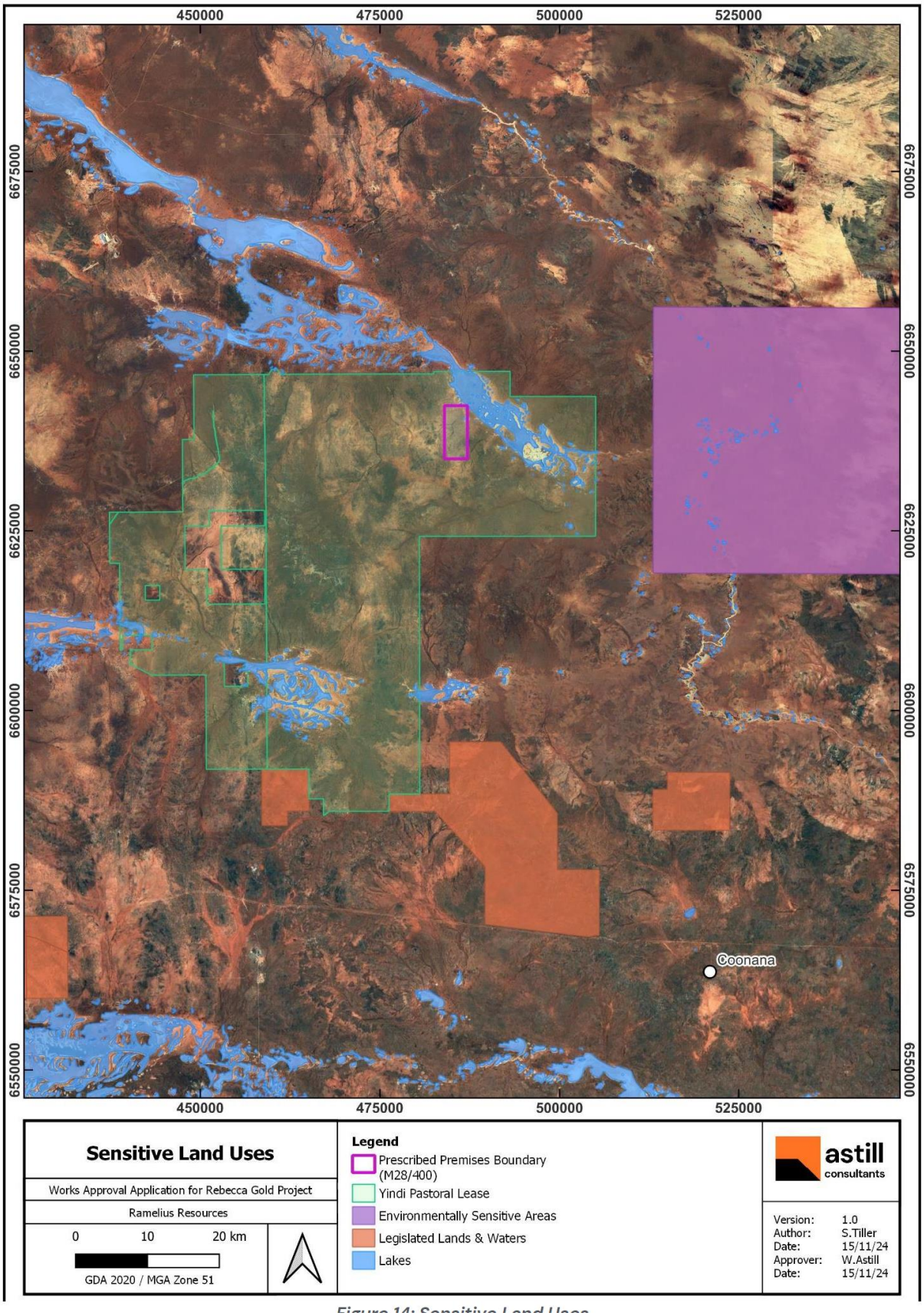

Figure 5: Location of receptors

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 W3013/2025/1 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).

A licence 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 for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
Construction of gold processing plant and associated infrastructure including tailings storage facility. Placement of screen and associated equipment including vehicle movements (reversing beepers). Construction of dewatering pipelines and pumps. Installation and construction of power station generators. Installation of WWTP and construction of irrigation spray field. Construction of landfill trenches and associated vehicle movement.	Dust	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Native surrounding vegetation and fauna	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1 – Infrastructure and equipment (critical containment infrastructure – tailings storage facility) Condition 2 - Infrastructure and equipment requirements non-critical containment infrastructure) Condition 3 – Authorised embankment raises Condition 4 -Construction of groundwater monitoring wells Conditions 5 – 9: Compliance reporting conditions	N/A
Commissioning								
Commissioning of ore processing plant and associated pipelines	Dust	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Native surrounding vegetation and fauna	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 10 and 11 – Environmental Commissioning Requirements	N/A
Commissioning of power station	Emissions to air including Nox, CO, VOCs, CO2 and Exhaust oxygen	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Atmosphere	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Conditions 10 and 11 – Environmental Commissioning Requirements	N/A
Commissioning of WWTP	Treated wastewater	**Pathway:** Direct discharge to irrigation area **Impact:** High nutrient loading may cause contamination of groundwater and affect the health of surrounding native vegetation	Groundwater, native vegetation and nearby surface water	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	N	Conditions 10 and 11 – Environmental Commissioning Requirements Condition 12 – Authorised discharge point **Condition 13 - Monitoring during commissioning** **Conditions 14, 15 and 16 - Compliance and reporting**	The Delegated Officer notes the applicant has not detailed many controls for the WWTP and as such has included standard monitoring for parameters to ensure WWTP performance is as expected. Standard commissioning reporting requirements will be included in the works approval for monitoring results to be presented to the department.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation **(including time-limited-operations operations)**								
Operation of gold processing plant, including carbon regeneration kiln	Spills/leaks of contaminated process water (metalloids, cyanide, processing plant reagents) Contaminated surface water runoff.	**Pathway:** Direct discharge to land **Impact:** death/decline of vegetation. Contamination into surface waters	Surrounding native vegetation and groundwater Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
	Emissions to air – carbon	**Pathway:** Air/windborne pathway **Impact:** Health and amenity Damaging to surrounding native vegetation	No receptors	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	The Delegated Officer acknowledges the point source emission of the carbon regeneration kiln and is listed on works approval as an emission point.
	Dust	**Pathway:** Air/windborne pathway **Impact:** Smothering of native vegetation causing death/decline	Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
Discharge to and storage of tails in tailings dam	Tailings and contaminated water (metalloids and cyanide)	**Pathway:** Seepage through base and embankments to soil and groundwater **Impact:** Vegetation decline/death and groundwater contamination	Groundwater Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Likely **Medium Risk**	N	Condition 19 – TLO requirements **<u>Condition 20 – Monitoring requirements during TLO</u>** Conditions 23 and 24 – TLO compliance reporting	Refer to section 3.3
		Pathway: Rupture in tailings delivery or return pipeline **Impact:** Vegetation death/decline. Contamination into surface waters	Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
		Pathway: Overtopping of TSF **Impact:** Vegetation death/decline. Contamination into surface waters	Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Operation of dewatering pipelines	Hypersaline water	**Pathway:** Rupture of pipeline **Impact:** Vegetation decline/death and surface water contamination	Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
Water discharged as dust suppression	Hypersaline water	**Pathway**: Runoff into native vegetation and surface waters **Impact:** Vegetation decline/death and groundwater contamination	Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	N	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	The Delegated Officer has included conditions to ensure when water is applied for dust suppression, damage to native vegetation is avoided.
Water discharged to multiple pit voids	Hypersaline water	**Pathway:** Seepage through base and embankments to soil and groundwater **Impact:** Vegetation decline/death and groundwater contamination	Groundwater	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	N	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	The Delegated Officer has included monitoring conditions for TLO once discharge to the pits is required.
Screening, crushing, unloading, loading and storage of material Vehicle movements	Dust	**Pathway:** Air/windborne pathway **Impact:** Smothering of native vegetation	Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting Condition 21 – TLO monitoring	N/A
	Contaminated stormwater	**Pathway:** Overland runoff **Impact:** Contamination of surface waters	Groundwater Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
Operations of power generators	Emissions to air including Nox, CO, VOCs, CO2 and Exhaust oxygen	**Pathway:** Air/windborne pathway **Impact**: Health and amenity	Atmosphere	Refer to Section 3.1	C = Slight L = Rare **Low Risk**	Y	N/A	The Delegated Officer notes there is no credible pathway for air emissions to impact receptors.
	Contaminated Stormwater	**Pathway:** Overland runoff **Impact:** Contamination of surface waters	Groundwater Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
Operation of wastewater treatment plant	Spills/leaks of raw or partially treated sewage / wastewater	**Pathway:** Overland runoff and infiltration through soil profile **Impact:** Ecosystem disturbance and impact to surface water quality	Surrounding native vegetation Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	N	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	The Delegated Officer notes the applicant has not detailed many controls for the WWTP and as such has included infrastructure requirements for the WWTP.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Irrigation of treated wastewater to irrigation field	Treated effluent discharge to land via irrigation field	**Pathway:** Infiltration through soil profile **Impact:** Groundwater disturbance and impact to surface water quality	Surrounding native vegetation Lake Rebecca Unnamed salt lake Groundwater	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	N	Condition 19 – TLO requirements **Condition 20 – monitoring during TLO** Conditions 23 and 24 – TLO compliance reporting	The Delegated Officer notes that the applicant has used WQPN 22 to calculate the irrigation field size. WQPN 22 is currently under review. However, given there are no highly sensitive receptors in the vicinity, and based on the risk assessment, the Delegated Officer is satisfied that the irrigation field has been sized appropriately. The Delegated Officer notes the applicant has not detailed many controls for the irrigation spray field. As such operational requirements for management of the spray field, as well as monitoring of discharge parameters have been added.
Operation of putrescible landfill	Dust	**Pathway:** Air/windborne pathway **Impact:** Smothering of native vegetation	Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
	Windblown waste	**Pathway:** Air/windborne pathway **Impact:** Contamination of surface waters	Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
	Leachate	**Pathway:** Seepage through base of landfill **Impact:** Contamination of groundwater and vegetation death/decline	Groundwater Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
	Contaminated surface water	**Pathway:** Surface runoff **Impact:** Contamination of surface waters and vegetation decline/death	Lake Rebecca Unnamed salt lake Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
Storage of tyres prior to burial in landfill	Dust	**Pathway:** Air/windborne pathway **Impact:** Smothering of native vegetation	Surrounding native vegetation	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A
	Contaminated surface water	**Pathway:** Surface runoff **Impact:** Contaminated surface waters	Lake Rebecca Unnamed salt lake	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 19 – TLO requirements Conditions 23 and 24 – TLO compliance reporting	N/A

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Storage of tyres prior to burial in landfill	Pooled water within tyre storage	**Pathway:** pooling of rainwater in stored tyres **Impact:** Mosquito breeding environment	N/A	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 2 Condition 19 – TLO requirements	Whilst no human receptors identified, the Delegated Officer has included a requirement to ensure tyres are stored in a manner which minimises pooling water in order to help prevent mosquito breeding.

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.

3.3 Detailed risk assessment for tailings storage facility

3.3.1 Tailings characterisation

Geochemical analysis of the tailings were completed by RPM Global in 2023. The testing indicated that tailings had a low level of enrichments with only strontium and sulfur significantly enriched. The tailings solids have a high total sulfur content (predominantly sulfide), with very low acid neutralizing capacity, and therefore will be potentially acid forming (PAF). It is likely that there will be a short lag due to low acid ANC and pyrrhotite which can be highly reactive.

The supernatant was found to be highly saline with moderate sulfate, but low in metals.

An additional leachate quality assessment was undertaken using the Australian Standard Leach Procedure (ASLP) to better replicate in situ conditions. This indicated that tailings leachate:

- Will have similar composition to local groundwater, within similar high salinity and major ion concentrations with some minor differences due to reagents used in the metallurgical process (lime and sodium cyanide).
- Neutral pH 7.2, lower than groundwater, and process water at 8.6. This is attributed to the oxidation of sulfide minerals in tailings that neutralize the alkaline process water (from lime additions).
- Dissolved iron is substantially lower, at 0.8 mg/L in tailings leachate that in the original groundwater / process water at 17.1 mg/L and is attributed to the aeration of tailings during the extraction process. Notwithstanding this indicates the leachate will be rich in oxygen.
- Will exceed Non-Potable Use Guidelines (Department of Health 2024) for aluminum (0.9 mg/L compared to 0.2 mg/L) and iron (0.8 mg/L compared to 0.3 mg/L). These parameters are also elevated in natural groundwater; and
- The only metal predicted to mobilise upon tailings oxidation and potentially report to groundwater above background levels is copper. It is likely that copper will be a good indicator parameter in future groundwater sampling.

3.3.2 Seepage emissions

Seepage modelling undertaken by AQ2 (2024) found that some minor seepage will occur through TSF foundations and eventually make its way down to the water table. Predicted maximum seepage loss during the TSF deposition has not yet been estimated. A seepage model was developed by the applicant to predict likely maximum water table mounding for the TSF using an analytical model based on the Hantush (1967) equation for calculating a groundwater mound under a rectangular recharge area.

DWER internal hydrogeologists questioned this method of seepage model and requested an updated model be provided using the more reliable SWEEP/W model.

The initial modeling for seepage, and consequent management controls, were considered by DWER to underestimate the level of evaporation from the facility and therefore underestimate volume of water seeping from the facility. The internal hydrogeological advice regarding potential for seepage and the management controls proposed by the applicant found that:

i. The pan factors for the active beach and dry beach areas on the facility are 0.9 and 0.3 times the local pan evaporation rate respectively. These are evaporation rates that would be expected from a TSF containing fresh water.

ii. Hypersaline water has a much lower evaporation rate than the rate of evaporation from a freshwater body.

A revised SEEP/W model was provided to DWER on 29 May 2025. The revised SWEEP/W model provided gives a much more reliable estimate of the degree of groundwater mounding than the previous Hantush analytical solution initially submitted. However, the SEEP/W does not adequately consider the rate of evaporation loss of water in the TSF, therefore estimates of seepage losses from the facility are likely to be unreliable.

3.3.3 Pathway

The main seepage mechanisms and pathways away from the base of the TSF are:

- Infiltration through the unsaturated zone – seepage will initially move vertically under the influence of gravity until it reaches the water table (in the main aquifer – transported cover/saprolite). There may be some minor shedding of seepage along the top of saprolite (base of cover material) and any such flow will follow the topography of this surface. However, specific shallow seepage interception and recovery features incorporated into the design of the TSF should minimize any impact. Some minor seepages may make its way vertically to the water table.
- Flow within the main aquifer – once seepage reaches the water table in the main aquifer, the water table will rise forming a “mound”. Seepage will mix with groundwater and then flow down hydraulic gradient. Initially flow will be radial (or semi-radial) away from the mound at rates determined by the hydraulic gradient and aquifer permeability. However, at some distance from the TSF the regional hydraulic gradients will be the dominant influence, and flow will be to the east northeast towards the local surface water drainage systems and towards the Rebecca Pit.

3.3.4 Proposed seepage management and monitoring

Seepage control and underdrainage collection systems proposed, consists of:

- Cut-off trench.
- Low permeability compacted soil liner (CSL).
- Partial High-density polyethylene (HDPE) – 25% of basin; installed beneath the supernatant pond and over the CSL in the lower lying areas of the basin.
- Basin underdrainage collection system including main collectors and fingers drains (50 m spacing).
- Underdrainage collection sump.

The applicant states that a comprehensive monitoring program will be developed to monitor for any potential seepage, groundwater mounding and/or embankment stability.

3.3.5 DWER assessment and regulatory controls

Due to the absence of accurate pan evaporation rates, DWER considers the SEEP/W model to be limited in its ability to estimate seepage rates for the TSF. The current model is useful for determining the extent to which mounding of the phreatic surface will take place, and the extent to which groundwater mounding would take place near the facility.

However, DWER considers that a more reliable estimate of how the seepage rate would change over time would be to track all water inputs (dewatering discharges, rain, make-up water) and water outputs from the facility (decant recovery, evaporation). Estimates of evaporation rates in such an analysis should consider the salinity of water within the TSF.

Such an analysis could be run on an ongoing basis. The seepage rate from the facility could be determined from the difference of the sum of inputs minus outputs (under steady state conditions, water storage in the tailings could be ignored). Significant increases in the estimated seepage rate could indicate that the water recovery system is not working effectively, and that

a management intervention would be required.

In addition to standard groundwater bore monitoring, conditions will be placed on the works approval during time limited operations for a detailed water balance to be undertaken monthly. Upon submission and review of all compliance monitoring reports, and during the assessment of the operating licence application, DWER will determine if further operational management controls are required.

Groundwater monitoring for a range of parameters to ensure traces of any contaminants seeping into the groundwater is identified. Parameters for on-going monitoring, post time limited operations will be reviewed again at the time of the licence application.

The applicant proposed construction specifications to prevent seepage have also been placed on the works approval as regulatory controls for each stage.

The first three stages of TSF have been included in the works approval, which includes the starter embankment and two raises. All further lifts will require separate approvals.

The duration of the works approval will be five years.

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 10 February 2025 for Stage 2 and on 17 April 2025 for Stage 1.	None received	N/A
Tradition Owners advised of proposed on 17 February 2025 for Stage 2 and on 6 May 2025 for Stage 1.	None received	N/A
The City of Kalgoorlie-Boulder was advised of proposal on 17 February 2025 for Stage 2 and on 6 May 2025 for Stage 1	The City of Kalgoorlie- Boulder provided the following comments: 1. Mosquito breeding in tyres There are some concerns about potential for mosquito breeding in stored tyres. Although we don't have regular rainfall, if tyres are improperly stored or left exposed to the rain, they could create breeding grounds for mosquitoes, which could adversely affect workers at the mine and remote communities especially with concern about mosquito borne diseases. 2. Pollution The dust generated from crushing operations may contribute to air quality degradation, with the potential to impact both the local environment and public health. The dust could also have implications for vegetation and wildlife in the area. Ensure control measures won't cause other pollution to the surrounding areas or decline in air quality over long distances.	The Delegated Officer has considered the comments from City of Kalgoorlie-Boulder (CKB) and provides the following responses: 1. Mosquito breeding in tyres The department undertakes a risk-based approach to environment assessment. Potential risks are assessed on emission-pathway-receptor basis. As the closest human receptors for the site are approximately 80 km away, mosquito born viruses are not considered in the risk assessment. On-site personnel/employees are not included as receptors under Part V of the *Environmental Protection Act* (EP Act) *1986* and instead, are covered under work health and safety laws. However, the Delegated Officer has considered the concern from CKB and has included a condition on appropriate tyre storage, which will minimise pooling of water, are included in the works approval.

	Mine dewatering for dust suppression and the impact of run-off water carrying contaminants such as metals or chemicals. Appropriate odour mitigation measures should be implemented to prevent potential impacts on health and amenity of onsite workers. 3. Diesel Emissions and Air Quality The use of diesel-powered equipment for power generation and mining operations may lead to increased air pollution. This is particularly concerning in a remote area, where air quality is generally higher. We request appropriate emission controls, and maintenance of equipment, will be in place. 4. Proper Disposal of Used Batteries and Hazardous Materials The handling and disposal of used batteries and other potentially hazardous materials to ensure they comply with strict environmental standards to prevent contamination of surrounding areas and that disposal protocols are well-defined, that storage areas are secured and regularly monitored to avoid spillage or leakage. 5. Tailings Dam and Structural Failure Risk A critical concern is the potential risk of structural failure in tailing dams. In the event of a failure, toxic materials could be released into the environment, causing significant harm. We urge that the design and maintenance of tailing dams be rigorously assessed to minimise the risk of failure, and plans should be in place in case of emergency 6. Water Reuse and Public Health Reuse or discharge or treated wastewater should be carefully managed to prevent health risks to workforce accommodation areas. Effluent quality should comply with relevant Department of Health guidelines. Approval by Department of Health and suggested request comments from the Department as well.	2. Pollution The department's risk assessment covers dust emissions with appropriate controls being placed on the works approval to ensure receptors are not impacted from dust. See sections 3.1 and 3.2. Whilst odour may be an emission, there is no human receptor in close vicinity to be impacted. On-site personnel/employees are not included as receptors under Part V of the *EP Act 1986* and instead, are covered under work health and safety laws. 3. Diesel Emissions and Air Quality Assessment of air emissions from the processing plant and power station have been included in the works approval risk assessment. See sections 3.1 and 3.2. 4. Proper Disposal of Used Batteries and Hazardous Materials Handling and disposal of used batteries and other hazardous materials is covered under *Dangerous Goods Safety Act 2004* and Regulations. The applicant has specified that Dangerous Goods and Poison Permits will be sought from applicable regulatory authorities. 5. Tailings Dam and Structural Failure Risk The structural integrity of tailings storage facilities is regulated under the *Mining Act 1978* with the authorised department being Department of Mines, Petroleum and Exploration (DMPE). 6. Water Reuse and Public Health Discharge of treated wastewater has been risk assessed as part of the works approval with appropriate conditions applied. Refer to section 3.2. Receptors identified do not include on-site personnel/employees as they are not covered under Part V of the *EP Act 1986* and instead, are covered

	7. Landfill Vector Control and Leachate Landfill facilities to include adequate controls for vermin, birds and insect vectors to avoid public and environmental health. The design must ensure that leachate is adequately contained and does not pose a risk to Lake Rebecca or local groundwater resources. 8. Proximity to Lake Rebecca Consideration should be given to potential flood risks and soil permeability to prevent leachate or effluent from contamination surrounding soil and water systems during extreme weather events. 9. Transport and Spill Management Measures should be in place to manage transport-related risks, including spill prevention and response procedures. In addition to the specific concerns listed above, we request that that environmental data be made available to the Local Government upon request in case of any impact on remote communities. This will ensure transparency and allow us to address any environmental issues that may arise or the investigation of a notification of RRV of workers related to such environment.	under work health and safety laws. Department of Health were provided the opportunity to provide comment on the proposal and have done so. See row below. 7. Landfill Vector Control The landfills have been risk assessed with environmental receptors identified. Appropriate conditions have been applied, including cover requirement and distance to groundwater. See section 3.2. No human receptors identified, as on-site personnel/employees are not covered under Part V of the *EP Act 1986* and instead, are covered under work health and safety laws. 8. Proximity to Lake Rebecca The department undertakes a risk-based approach to environment assessment. Potential risks are assessed on emission-pathway-receptor basis. Lake Rebecca has been identified as a potential receptor and included in the risk assessment table. See section 3.2. 9. Transport and Spill Management The works approval assesses point source emissions through the emission-pathway-receptor model. Transport is not specifically assessed, however controls to manage spills of hydrocarbons or other reagents across the site have been included as works approval conditions.
Department of Mines, Environment, Industry Regulation and Safety (DEMIRS) advised of proposal via email on 3 April 2025	DEMIRS replied on 3 April 2025 stating that to-date no mining proposal had been received, only a Programme of Works.	DWER reached out to the applicant to ask when they plan on submitting a Mining Proposal. They advised it would likely be submitted mid-2025 as they are awaiting granting of miscellaneous licence that will provide tenure for the access road to site. DWER will continue with their assessment and are not constrained by third party regulators in assessing an

		application or granting a works approval under Part V of the *Environmental Protection Act 1986*. The Delegated Officer notes that the onus is on the applicant to ensure all relevant approvals are sought prior to construction and operation of the mine.
Department of Health was advised on the proposal on 22 April 2025	Comments received on 19 May 2025: Department of Health (DoH) stated they have no objection to the proposal subject to ensuring the wastewater treatment plant complies with the Department's legislation requirements, the (Health Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations, 1974 and policy objectives including the Government Sewerage Policy, 2019 (GSP). In addition, the proponent will need to provide: 1. Engineering Certification of the wastewater treatment system for structural integrity of the system for minimum 15 years, sizing for the proposed volumes peak and non-peak performances and to meet the minimum water quality criteria as proposed. 2. The proposed development is in proximity to a major river system. Therefore, a site-specific, Site and Soil Evaluation (SSE) needs to be undertaken by a qualified consultant during the wettest seasonal time for the year as per AS/NZS 1547:2012 to ensure the land application area is located and sized appropriately. 3. Details of sludge management for the wastewater treatment system. 4. Detailed plans showing the proposed building envelopes, proposed and existing onsite wastewater systems, all trafficable areas, parking bays and land application area/s including setback distances, exclusion/riparian zones with all measurements prior to building stage. 5. The proposed mine site is in proximity to a sewerage sensitive location. The DoH requires a minimum of 30 metres from areas including lakes, rives and seasonal	The Delegated Officer has considered the comments from DoH and provides the following responses: The Delegated Officer notes the requirements for DoH approval. The Delegated Officer highlights that the onus is on the applicant to ensure all relevant approvals are sought prior to construction and operation of the mine. The department undertakes a risk-based approach to environment assessment. Potential risks are assessed on emission-pathway-receptor basis. Emissions associated with the construction, commissioning and operation of the wastewater treatment plant can be reviewed in section 3.2. In response to point 5, the irrigation field is located approximately 5 km from Lake Rebecca and 200 m from the accommodation village.

	creeks. It is undetermined if this has been met. The Government Sewerage Policy, 2019 requires a minimum of 100 metres setback that DWER may wish to implement of relocate the proposed system. The proponent is required to submit a formal application for each onsite wastewater treatment system, upgrade and or relocation of a system to the Local Government for assessment who will forward onto the DoH for assessment. If the proposal will utilise recycled water or brine water for beneficial purposes, sewage intended to be reused or recycled for landscaping, garden bed irrigation, toilet flushing, industrial or mining reuse or other purposes, will require prior approval from the DoH. All drinking water provided on site must meet the health-related requirements of the Australian Drinking Water Quality Guidelines 2011.	
Applicant was provided with draft documents on 21 July 2025	Refer to Appendix 1	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. AQ2 2024, Rebecca gold Project – *Preliminary (High Level) TSF Groundwater Impact Assessment*, Perth, Western Australia.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Health 2024, *Guidelines for the non-potable uses of recycled water in Western Australia*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
6. Hantush, 1967, *Growth and decay of groundwater mounds in response to uniform percolation*.
7. Knight Piesold Consulting 2024, Pre-feasibility Study of Tailings Management, Surface Water Management, Airstrip and Access Road, East Perth, Western Australia.
8. Ramelius Resources Lt 2024*, Rebecca Mine Project Phase 1: Works Approval Supporting Information. Attachment 8,* Western Australia.
9. Ramelius Resources Lt 2024*, Rebecca Mine Project Phase 2: Works Approval Supporting Information. Attachment 8,* Western Australia.

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

Condition	Summary of applicant's comment	Department's response
Duration of works approval	The Applicant nominates a five year term for the Works Approval.	Noted and accepted. Works approval will be issued for five years.
Revised Figures	Revised figures have been provided for Figures 1 – 9 due to a series of revisions and design changes.	Updated figures have replaced old figures.
Condition 1, Table 1, Row 1.	Total footprint of the TSF starter embankment was listed as 125 hectares (ha) within Table 1, as per the applicant supporting document. However, the applicant has identified that during the pre-feasibility study 3 optional TSF's were considered, with option 2 being selected. The embankment footprint for option 2 was 156.3 ha. However, this area has since been increased to 185 ha. This area size has remained consistent though the PFS and DFS design phases.	Change accepted. The Delegated Officer notes that the supporting documentation states 125 ha in error and is satisfied that the Knight Piesold design reports are based on the correct footprint of 185 ha.
Condition 2, Table 2, Row 2.	The applicant was asked to confirm details of the process water pond as well as the location. The applicant has confirmed that both the process water pond and raw water pond will be designed and constructed to include a HDPE liner and have capacity for 3,000 m3 storage plus a 1:100 year 72 hour ARI rainfall event.	Noted and accepted.
Condition 2, Table 2, Row 3 and Decision Report Section 2.2.2	Mine dewatering – the applicant was asked to confirm whether they anticipate using mine voids for water storage. The applicant has reiterated that no pits currently exist as it is a greenfields site. All pits will intersect the water table. The process plant, when in steady state of operation, will require 3 GL/year. A GWL has been granted for 0.9 GL/year of water extraction. The project has a net water deficit that requires an additional external borefield to provide the balance of makeup water. All mine dewatering water will be pumped to the process plant and used. However, there will be events (e.g. timing of plant construction, plant shutdowns, high rainfall events) where water is preferentially extracted off the TSF. Water abstracted from active pits may not be immediately used	The works approval will include the open pits proposed by the applicant as dewatering discharge options. The risk assessment has been updated to incorporate this.

Condition	Summary of applicant's comment	Department's response
	by the process plant or site dust suppression and needs to be stored in completed mine voids. Also, the mine schedule of pit development can be subject to change. From a planning perspective, the applicant request that the works approval show the open pit depicted in Figure 8 as having potential to act as dewatering storage points.	
Condition 2, Table 2, Row 6	The applicant has requested the specifications relating to the configuration of power generation infrastructure be removed and replaced with stating the maximum capacity of 24.2 MW. At the time of submitting the application, the applicant was still in the pre-feasibility stage phase. It has not yet gone to tender to select a power provided with a defined generation combination. Whilst it is the applicant's preference to install a gas/solar/battery combination, with some emergency diesel capacity, each tenderer is free to propose a combination of their choosing. The composition of the power station has not yet been finalised.	The Delegated Officer agrees to remove the configuration and specifics of infrastructure within Table 2 regarding the power generation infrastructure, however, the applicant may be requested to provide further information regarding the power generation infrastructure upon completion of construction during the compliance assessment prior to TLO.
Condition 3, Table 3	TSF embankment raises – The applicant has requested Table 3 be amended to be consistent with the Definitive Feasibility Study (DFS) design. Changes between the Pre-Feasibility Study (PFS) and the DFS designs are: • Reducing 9 stages to 5 stages. • Increasing each lift height from 2.5 m in the PSF design to 4.0 m in the DFS design. The result of this design change increases the storage capacity at lift 3 from 12 Mt to 18 Mt.	The Delegated Officer notes that a design change to embankment raises has occurred. As such, the works approval has been updated to reflect the correct heights for the approved raises. This does not alter the risk assessment for the TSF.