Application for Works Approval

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

Works Approval Number	W2937/2024/1
Applicant	Karora (Higginsville) Pty Ltd
ACN	108 547 217
File number	APP-0026308
Premises	Higginsville Gold Project. Legal description Mining tenements G15/19, L15/347, M15/348, M15/506, M15/507, M15/580, M15/597, M15/1873 As defined by the premises maps attached to the issued works approval
Date of report	8 July 2025
Decision	Works approval granted

Lauren Edmands
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SENIOR MANAGER, RESOURCE INDUSTRIES

STATEWIDE DELIVERY (ENVIRONMENTAL REGULATION)

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 W2937/2024/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary

On 2 December 2024, Karora (Higginsville) Pty Ltd (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 construction of Hidden Secret in-pit tailings storage facility (TSF), tailing discharge pipeline and spigots, and decant water return pipeline at the premises. The premises is approximately 40 km southeast of Widgiemooltha in the Shire of Coolgardie.

The premises relates to the category and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W2937/2024/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W2937/2024/1.

2.3 Overview of the premises

The applicant operates Higginsville Gold Operations (HGO) located approximately 110 km south-southeast of Kalgoorlie. The HGO mining area consists of:

- Higginsville (processing plant, paste plant, TSF1-4, Aphrodite in-pit tailings storage facility (IPTSF), Vine IPTSF, Fairplay North IPTSF, Trident underground, Aquarius and Two Boys box cuts, Poseidon, Swagman, Fairplay, and Graveyard Pits).
- Palaeochannel (Challenger Pit and Mitchell Pit - historical).
- Lake Cowan (Napoleon, Joesphine, Atreides, Louisa and Bridgette Pits).
- Baloo-Eundynie (Hidden Secret and Mousehollow).

Baloo-Eundynie is a satellite mining operation that supplied gold ore to the HGO processing plant, located approximately 10 km northeast, during mining activities from 2019 to 2024. Mining occurred from the Baloo open pit, located on Lake Cowan, and the Hidden Secret and Mousehollow open pits (Eundynie) located approximately 3 km west of Baloo.

The applicant currently holds Licence L9155/2018/1 under Part V of the EP Act for the HGO prescribed premises which includes the Baloo-Eundynie Project area.

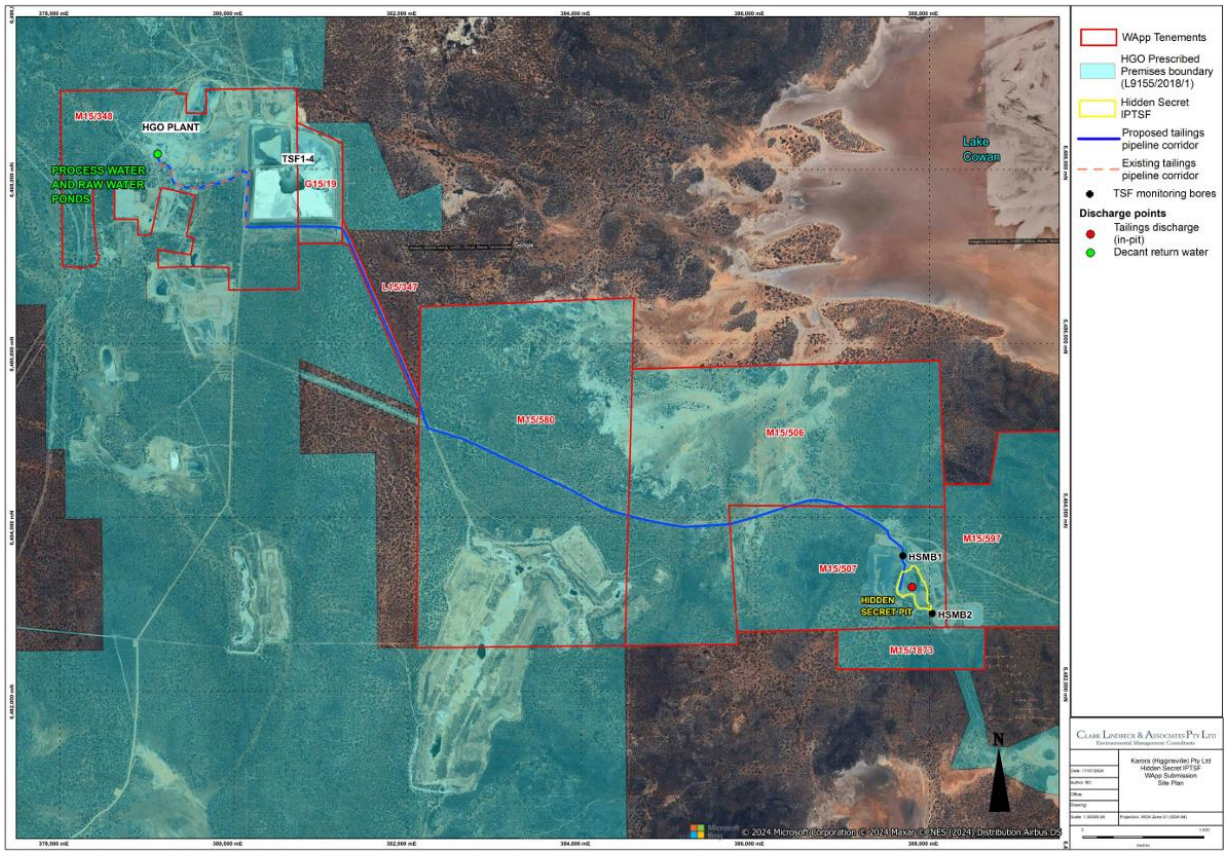

Figure 1: Prescribed premises boundary and site layout

2.4 Proposed activity

Tailings storage at HGO comprises four above-ground, paddock-type facilities, TSF1, TSF2, TSF3 and TSF4, and three in-pit tailings storage facilities (IPTSF), Aphrodite, Fairplay and Vine.

Tailings deposition at HGO is currently into TSF2-4SC (super cell). This is expected to reach capacity in late 2025, when another lift will be required. Before constructing the lift, it is proposed that Higginsville utilise the Hidden Secret open pit as an IPTSF.

The Hidden Secret open pit is located approximately 10 km southeast of the HGO Processing Plant.

Mining of this pit was completed in January 2022 to a maximum depth of 79 m and has the capacity to store approximately 1.77 Mm^3 of tailings. This will provide an equivalent total storage capacity of approximately 2.57 Mt, corresponding to approximately 21 months storage based on an advised design production tonnage of 1.5 Mtpa and a tailings dry density of 1.45 t/m^3.

There is currently 75,000 m^3 of water in the Hidden Secret pit and mine dewatering of the pit will occur prior to tailings deposition. This mine dewater will be transferred, via the tailings return water pipeline, to the HGO plant for use. Part V licence L9155/2018/1 includes Category 6: Mine dewatering of 5.15 Mtpa. The dewatering of Hidden Secret pit will be carried out within existing licence capacity.

2.5 Design of Hidden Secret in-pit TSF

The applicant's design parameters and tailings engineering properties for the Hidden Secret IPTSF design are summarised below in Table 1. The parameters and properties were chosen based on geotechnical testing conducted by Coffey (2024).

Table 1: Summary of design parameters for Hidden Secret IPTSF

Hidden Secret in-pit TSF properties	Parameters
Width Length Orientation	270 m 525 m North-south
Minimum pit rim Maximum pit rim	RL 300.5 m (S) RL 312.0 m (W)
Pit surface area	10.3 ha
Approximate maximum tailings depth	79 m
Indicative tailings storage volume	1.77 Mm^3
Indicative tailings storage capacity	2.57 Mm^3
Indicative life of operations	21 months (1.75 years)

2.5.1 Tailing deposition infrastructure

Tailings deposition into the IPTSF will be from three single-point discharges positioned along the eastern rim of the pit. Deposition will be performed in two stages for direction of the supernatant pond along the pit access ramp to support decant operations.

Tailings will be transported from the processing plant to the proposed IPTSF via a large diameter HDPE pipe. The tailings distribution pipeline will be bunded with the return water pipeline.

Water recovered by the decant pump will be pumped back to the processing plant for re-use.

The initial Stage 1 deposition points (Position 1 from the southern extent, and Position 2 from the eastern perimeter north of the platform as labelled in Figure 3) have been considered by the applicant to optimise the storage capacity of the pit void, whilst enabling the use of the existing access ramp for positioning of a pontoon-mounted decant pump for supernatant water recovery.

Stage 2 deposition will gradually displace the supernatant pond towards the western perimeter and further to the southwest extent of the main pit, to follow the pit ramp and support water recovery operations. The two-stage deposition is considered to increase tailings density and maximise the filling volume of the pit.

2.5.2 Decant system

Supernatant water from the tailings slurry will be recovered using a pontoon-mounted pump or similar deployed along the existing access ramp within the pit. Supernatant (decant) water recovered from the facility will be pumped back to the processing plant for re-use.

Tailings deposition has been designed by the applicant to position the supernatant water pond adjacent to the pit access ramp, and at the opposite side of the pit from the discharge points. As the tailings and water levels rise within the pit, the supernatant water pond will move up the pit access ramp, with the pump to be moved up the ramp. The ramp will provide access to the pump for operational and maintenance purposes.

No underdrainage system is proposed for the IPTSF, due to the relatively short operational life, good settling characteristics of the tailings allowing reclaim of supernatant water, and the low potential for environmental damage as the groundwater in the area/region is hypersaline.

Freeboard

Flood and freeboard requirements for the Hidden Secret IPTSF have been designed in accordance with Department of Energy, Mines and Industry Regulation and Safety (DEMIRS) (DMP, 2015) guidelines as follows (Figure 2).

DEMIRS freeboard criteria are:

- 1:100-year Annual Exceedance Probability (AEP), 72-hour storm event - 0.15 m.
- Pit wall freeboard (minimum) - 0.5 m.
- Equivalent storm water depth - 1.5 m.
- Equivalent total freeboard (minimum) - 2.0 m.

Provision is made for a minimum pit wall freeboard of 0.5 m (vertical height between the stormwater and minimum pit rim levels). It has been calculated that the volume of water produced from a 1:100-year, 72-hour storm event will be 17,025 m^3 with the designed water storage allowance being 326,380 m^3.

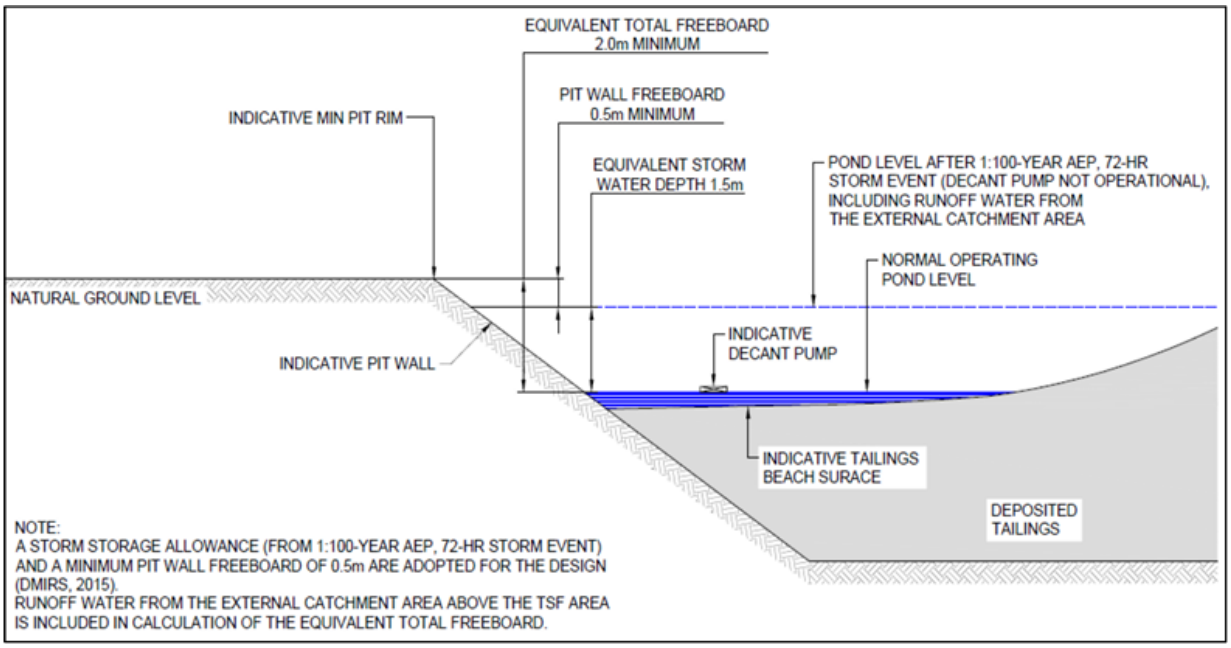

Figure 2: Hidden Secret in-pit TSF freeboard requirements

2.5.3 Tailings physical and chemical properties

Testing on tailings was carried out as part of the Hidden Secret IPTSF design and involved sampling at the HGO Mill from the hopper from where tailings are pumped to the TSF. Assessment of the geochemical properties of ex-mill process tailings was performed by Graeme Campbell & Associates (GCA, 2024). The GCA (2024) assessment identified the following:

- The tailings were classified as non-acid forming (NAF).
- Tailings were variably enriched with arsenic (As), and sulphur (S) with S levels ranging from 0.46 to 0.76%.
- The tailings slurry water sample was alkaline (pH 8-9) and hyper-saline (TDS of 220,000 mg/L) with most of the weak acid dissociable cyanide (CNWAD) forms corresponding to free cyanide (CNFREE).

- The chief cyanide-complexing metals in solution were iron (Fe) and copper (Cu) with subordinate cobalt (Co) and nickel (Ni).

The applicant believes that following discharge from spigots into the TSF, a range of physical and biochemical processes will degrade cyanide forms and CNWAD concentration to below the existing licence threshold of 50 mg/L. This is seen in the monitoring bores at Aphrodite, Fairplay East and Vine, with total cyanide, which has a concentration of about 180 mg/L in the tailings yet is only weakly and occasionally anomalous in the monitoring data.

Rockwater (2024) suggests that this reflects increases in pressure within confined zones of sediment or fractured bedrock, and that minimal transfer of water is occurring, except perhaps for narrow zones around the pits.

GCA (2024) identified that apart from managing hyper-salinity at TSF decommissioning and rehabilitation stages, there are no geochemical implications for continued tailings management at HGO or geochemical demands for the design of the Hidden Secret IPTSF.

The physical characteristics of the tailings are summaries below in Table 2.

Table 2: Tailings physical characteristics

Tailing properties	Parameters
Tailings production rate	1.5 Mtpa
Slurry density ex-plant	45%
Tailings (dry) density	1.45 t/m^3
Particle Size Distribution (PSD)	100% passing 2 mm 73% passing 75 µm
Retained moisture content (MC)	Average MC = 35.5%
Hydraulic conductivity / vertical permeability	1 x 10^{-7} to 1.5 x 10^{-8} m/s
Consolidation coefficient (C_v)	32.4 to 54.5 (m^2/year)
Tailings beach slope	0.67 to 1%

2.5.4 Monitoring bore network

Two monitoring bores will be drilled along strike from the Hidden Secret pit (Figure 3) to measure any changes in water level and water quality that occur when the pit is filled with tailings.

The installation of further monitoring bores around the IPTSF will be considered during operations if required.

Sampling of new bores HSMB1 and HSMB2 will be integrated into the existing monitoring program to enable assessment of the IPTSF performance. Water samples will be collected at least once each month and analysed for the parameters recorded in Part V licence L9155/2018/1.

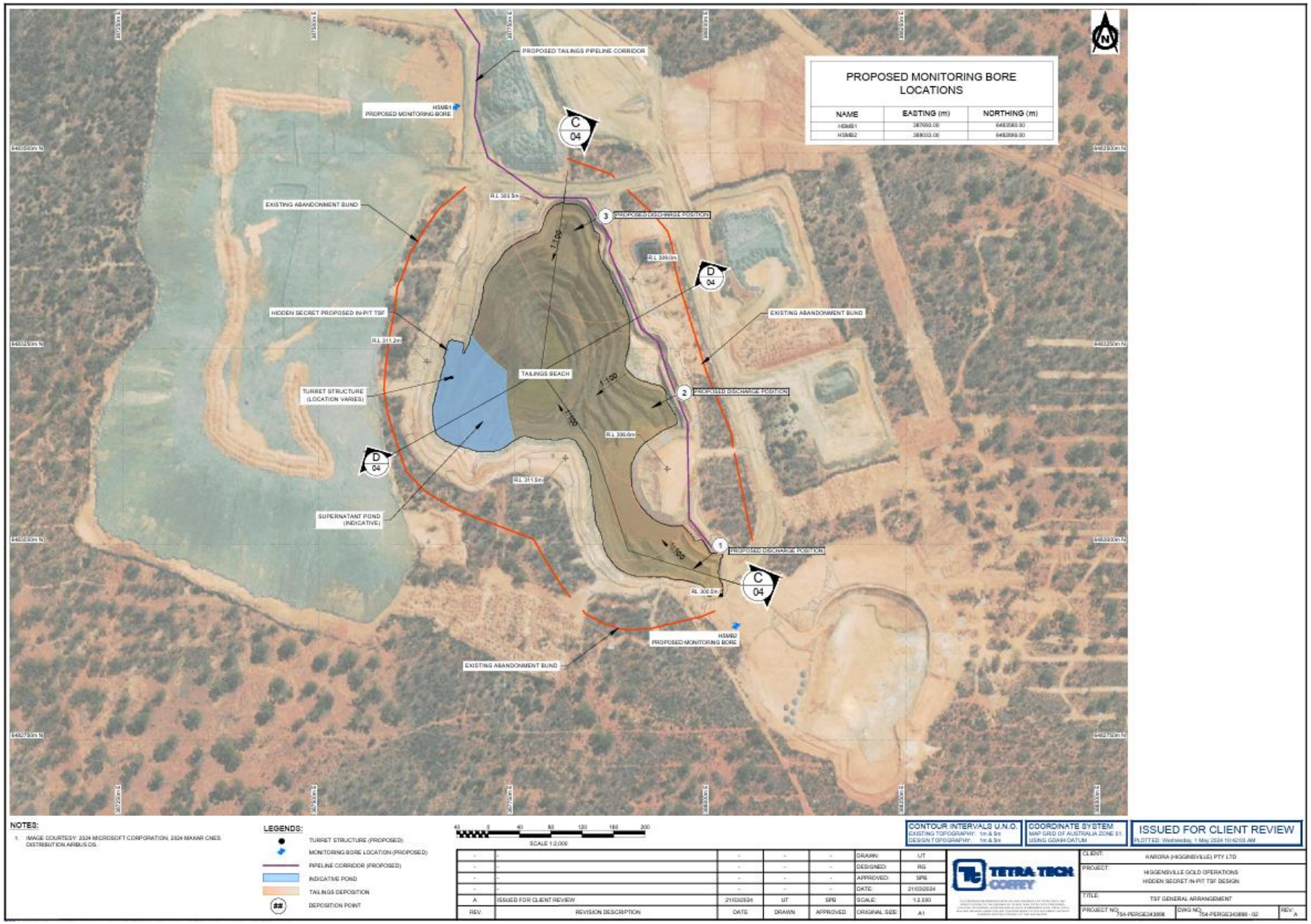

Figure 3: Hidden Secret in-pit TSF proposed infrastructure

2.6 Engineering commissioning phase

Commissioning of the IPTSF will commence immediately with post development and installation of the pontoon-mounted pump, pipelines and spigots and the submission of the works approval compliance report.

The first stage will involve progressive testing and commissioning of all systems, and this will be undertaken as part of mine dewatering of the 75,000 m^3 of water contained in the Hidden Secret pit.

Commissioning activities required for the Hidden Secret IPTSF will be undertaken in two stages:

- Decant water line commissioning – used initially for mine dewatering activities.
    - Initial testing of decant pump and pipeline under expected pressure and flow rates.
    - Full commissioning to ensure pump, pipeline and telemetry are operational.
    - Ongoing mine dewatering to HGO plant.
- Tailings line commissioning.
    - Initial testing of booster pump and pipeline under expected pressure and flow rates.
    - Full commissioning to ensure pump, pipeline and telemetry are operational.

The final stage of commissioning will see the introduction of tailings to the discharge pipeline and ultimately to the TSF. Commissioning will be completed within eight weeks of installing the proposed IPTSF infrastructure.

3. Groundwater monitoring and seepage modelling

Rockwater (2024) completed a seepage assessment for the Hidden Secret IPTSF. Previous seepage assessments have been completed by Rockwater at the HGO and consistent with the previous studies, Rockwater (2024) used a groundwater model to predict the extent of groundwater mounding that will occur when the Hidden Secret IPTSF is filled with tailings to 300m AHD.

According to Rockwater (2024) the bedrock at Hidden Secret is fairly massive and impermeable. Minor seepage zones, possibly associated with shears, can be identified in an aerial photograph of Hidden Secret taken shortly after the completion of mining. The pre-mining water level in the vicinity of Hidden Secret was about 270 mAHD, which equates to a water table depth of 40 - 55 m below ground level (mbgl) depending on location.

The pre-mining water level coincides approximately with the top of fresh bedrock, so that the oxidised and transitional zones were unsaturated and did not contribute to groundwater inflow during mining.

Hidden Secret will be the fourth pit that has been used to dispose of tailings at Higginsville. Previous occasions were the Aphrodite West and Central pits (in late 2016 to late 2018), Fairplay East Pit (in early to late 2019) and Vine Pit (in late 2019 to late 2020). Groundwater mounds were produced around all the pits when they were filled with tailings. However, the mounds are steep-sided and narrow, and in the case of Fairplay East, which like Hidden Secret was excavated into fresh bedrock, have dissipated since tailings deposition.

The results of a simple one-layer groundwater model indicate that a steep-sided groundwater mound, with a maximum radius of about 300 m, will be produced when Hidden Secret Pit is filled with tailings (Figure 4).

Figure 4: Modelled groundwater mounding – figure supplied by applicant

3.1 Ambient groundwater analysis

Based on water balance records (Coffey 2024), since 2023, the water level in the Hidden Secret Pit has stabilised at 245 mAHD indicating steady-state conditions have been reached between net effective evaporation and pit inflow. Based on the surface area of the pit and estimate of the average net effective evaporation from the pit lake the steady-state inflow rate to the pit is approximately 0.85 L/s.

Groundwater from the Baloo deposit and surrounding area is hypersaline, with salinity ranging from 310,000 to 330,000 mg/L TDS. The groundwater quality has not been sampled directly from Hidden Secret however, by analogy to the existing pits at Higginsville, is hypersaline (60,000 mg/L to 200,000 mg/L).

There are no other groundwater users in the local area.

4. Hydrology and surface water quality

The Hidden Secret IPTSF occurs in hilly, rocky terrain in the central part of the peninsula, where the land-surface elevation is approximately 315 mAHD (50 m higher than the western shore of Lake Cowan).

The surrounding terrain slopes away from the Hidden Secret in-pit TSF site and there are no nearby drainage lines that could cause flooding of the project area.

The Hidden Secret pit is located at a higher elevation than the surrounding water drainage lines and catchment areas. The applicant does not believe that there are external upstream catchments that could impact the IPTSF, though an abandonment bund wall has been constructed around the Hidden Secret open pit and could be considered as a “flood control” bund, though this is not required.

4.1 Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)

The proposed Hidden Secret IPTSF was assessed by the then Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) as part of Mining Proposal (MP) 129918 for the wider Baloo - Eundynie Mining Project (Proposal V6.1). MP 129918 was approved on 19 March 2025.

The applicant provided a hazard rating / consequence analysis to support their application and utilised it to establish various criteria for design and assess the risk of Hidden Secret in-pit TSF failure to a level appropriate to the consequences of such a failure.

Based on classification criteria outlined in DEMIRS (2013), ‘*Code of practice: Tailings storage facilities in Western Australia*’, the proposed in-pit TSF has been assigned a hazard rating and classification of ‘Low - Category 3’.

DWER referred this application to DEMIRS for comment in January 2025. DEMIRS provided a comment on 7 March 2025 advising that they had performed an internal geotechnical review and confirmed that there were no significant concerns regarding the proposed IPTSF. More details on the consultation for this application are included in Table 6.

5. 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.

5.1 Source-pathways and receptors

5.1.1 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 3 below. Table 3 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary. Existing licence (L9155/2018/1) conditions for the prescribed premises will also apply where relevant.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of tailings pipeline, installation of machinery and equipment, and general earthworks.	Air / windborne pathway	• Construction will be short term, which limits the duration of any dust being generated. • Water trucks will be utilised on roads and during construction activities to control dust as required.
Noise			• Construction will be short term, limiting the duration of noise emissions being generated. • The applicant has committed to ensuring that operations will comply with the *Environmental Protection (Noise) Regulations 1997* (EP Noise Regulations).

Hydrocarbon discharge		Overland discharge/runoff, infiltration through soils to groundwater	• Hydrocarbon spills will be removed by absorbent material and/or excavation.
			• Contaminated soils will be removed and treated at the site's bioremediation facility
			  ○ Bioremediation facility will be approximately 20m x 20m, located on a pre disturbed hardstand area, with bunds to divert surface water.
			  ○ Small quantities (<2 tonnes per year) of hydrocarbon contaminated soil may be generated from incidental fuel and oil spills from mobile equipment or gensets.
			  ○ The soil will be tilled and bioremediation agent added, prior to validation sampling and if soil results post bioremediation meet relevant National Environmental Protection Measure guidance it will be reused onsite for road base or windrows.
			• Contaminated waste materials from spill clean ups (filters, rags, hydrocarbon absorbent materials) will be collected in appropriately labelled waste containers and will be removed from site by a licensed contractor for recycling/disposal at an appropriate facility.

Emission	Sources	Potential pathways	Proposed controls
Commissioning			
Tailings and contaminated water	Pipeline failure / breach of tailings delivery and return water pipelines and sumps	Overland discharge/runoff, infiltration through soils to groundwater	• The tailings line and return water line are to be located inside a 0.6 m high containment bund. • Scour pits will be constructed at low points along the pipeline (based on survey). These pits are designed to contain any potential spills or leaks from the pipeline (outside of the containment bunding) before the automatic cut-off system activates. • Continuous process control monitoring of flow meters at either end of the delivery lines with automatic shut off triggers. • Visual inspection of the pipeline corridor at least once per shift. • In the event of a leak being identified, pumping will cease immediately to allow repair of the leak and clean-up of any associated spillage. • Select personnel shall be trained in spill response procedures.
Operation			
Dust	Deposition of tailings into Hidden Secret IPTSF	Air/windborne pathway	• Tailings will be kept at a slurry density of ~55% solids. • On completion of discharge, exposed tailings will be covered with waste rock when the materials become trafficable. *Based on the low likelihood of dust emissions from the in-pit TSF and the separation distance the Delegated Officer does not believe that a pathway exists to nearest sensitive receptor.*
Tailings and contaminated water.		Seepage through base of pit and embankments, infiltration through soils to groundwater	• Daily inspections (at least once per shift) of the facility during operations. • Maintenance of decant pond away from the pit walls. Regulating the size of surface water pond to reduce seepage and evaporation from the TSF. • The size of the decant water pond will be minimised by maximising the volume of water returned to the plant. • Ongoing monitoring of groundwater bores surrounding the IPTSF in accordance with DWER licence L9155/2018/1. • A limit of 4 mbgl currently applies to groundwater levels in the monitoring bores around all the HGO TSF's. If this is triggered monitoring will increase in frequency till the

Emission	Sources	Potential pathways	Proposed controls
			cause is identified and recovery bores will be installed if required.
		Direct discharge to land from overtopping of TSF, infiltration through soils to groundwater	• Provision is made for a minimum pit wall freeboard of 0.5 m (vertical height between the stormwater and minimum pit rim levels). • Provision is made for containment of rainfall-runoff water from a 1:100-year AEP, 72-hour storm event. • The size of surface water (decant) pond will be kept to a minimum size that optimises water recovery and tailings density. • Daily inspections (at least once per shift) of the facility during operations. • Hidden Secret IPTSF is surrounded by an abandonment bund which would contain any overtopping.
Tailings and contaminated water.	Pipeline failure / breach of tailings delivery and return water pipelines and sumps	Overland discharge/runoff, infiltration through soils to groundwater	• The tailings line and return water line are to be located inside a 0.6 m high containment bund. • Scour pits will be constructed at low points along the pipeline (based on survey). These pits are designed to contain any potential spills or leaks from the pipeline (outside of the containment bunding) before the automatic cut-off system activates. • Continuous process control monitoring of flowmeters at either end of the delivery lines with automatic shut off triggers. • Visual inspection of the pipeline corridor at least once per shift. • In the event of a leak being identified, pumping will cease immediately to allow repair of the leak and clean-up of any associated spillage. • Select personnel shall be trained in spill response procedures.

5.1.2 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. There are no identified human receptors within 40km of the proposed IPTSF, therefore impacts to these receptors have not been assessed.

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

Table 4: Sensitive environmental receptors and distance from prescribed activity

Environmental receptors	Distance from prescribed activity
Native vegetation	No threatened flora recorded at the premises. Priority flora recorded include: • *Calandrinia lefroyensis* (P1) and • *Allocasuarina eriochlamys* subsp. *grossa* (P3). These species are known not to occur in the tailings pipeline corridor.
Fauna	No threatened fauna recorded at the premises.
Underlying groundwater (non-potable purposes)	The pre-mining water table elevation at Hidden Secret was 270 m AHD and approximately 20 m below ground level. Since late 2023, the water level in the Hidden Secret Pit has stabilised at 245 mAHD. Groundwater from the Baloo deposit and surrounding area is hypersaline, with salinity ranging from 310,000 to 330,000 mg/L TDS. The groundwater quality has not been sampled directly from Hidden Secret however, by analogy to the existing pits at Higginsville, is hypersaline (60,000 mg/L to 200,000 mg/L). There are no other groundwater users in the local area that could be impacted.
Surface water	No drainage lines that could cause flooding of the area. Hidden Secret pit is located 1.8 km from the shoreline of Lake Cowan (salt flat) *Lake Cowan is not recognised regionally, nationally or internationally as a wetland of conservation significance.*
PDWSA / Ramsar wetlands	Premises is located within the Goldfields Groundwater Management Area. Premises is not located within a Proclaimed Surface Water Management Area.
Threatened Ecological Communities (TECs) / Priority Ecological Communities (PECs)	The Project area intersect the buffer zone of the Fraser Range Vegetation complex (a P1 PEC) but is not representative of this community
Aboriginal heritage site	Mouse Hallow Quarry ACH-00000166 1.3 km north of in-pit TSF.

5.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and considers potential source-pathway and receptor linkages as identified in Section 5.1. 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 5.1), 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 .

Works approval W2937/2024/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

An amendment to licence L9155/2018/1 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. discharge of tailings to the IPTSF. 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 5: 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 works approval controls**
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Construction								
In-pit TSF construction Installation of new tailings deposition and decant infrastructure including pipelines and decant system	Dust	**Pathway**: Air / windborne pathway **Impact:** Health and amenity	Local fauna Flora and vegetation	Refer to Section 5.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The emissions during construction activities are short term and not expected to result in any impact above what is currently occurring on site.
	Noise				C = Slight L = Unlikely **Low Risk**	Y		

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for works approval controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
In-pit TSF construction Installation of new tailings deposition and decant infrastructure including pipelines and decant system	Hydrocarbon discharge	**Pathway:** Direct discharge to land, and infiltration to soil and groundwater, expressing in surface waters **Impact:** Soil and water contamination inhibiting vegetation growth and survival, and health impacts to fauna.	Flora and vegetation. Lake Cowan is located 1.8 km from IPTSF.	Refer to Section 5.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	The emissions during construction activities are short term and not expected to result in any impact above what is currently occurring on site.
Commissioning								
Pipeline commissioning	Spills or leaks of saline water or tailings from pipeline	**Pathway:** Direct discharge to land, and infiltration to soil and groundwater, expressing in surface waters **Impact:** Soil and water contamination inhibiting vegetation growth and survival, and health impacts to fauna.	Soil and vegetation adjacent to the pipelines. Lake Cowan is located 1.8 km from IPTSF.	Refer to Section 5.1	C = Minor L = Unlikely **Medium Risk**	Y	Conditions 1, **2**, 3, 4, 5, 6, 7, 8, 9, and 10.	**Standard conditions for design and construction of infrastructure as constructed prior to commissioning:** **Condition 1:** infrastructure table specifying design and installation requirements. **Condition 2:** Groundwater monitoring wells. Specifies the standards and reporting levels required for the monitoring bores to ensure the bores are capable of providing accurate results during the proposed groundwater monitoring program. **Reporting conditions 3 and 4:** compliance reporting on the construction of infrastructure. **Standard conditions for commissioning of Infrastructure:** **Condition 5:** infrastructure that may be commissioned. **Condition 6:** requires the commissioning of the pipelines to ensure the emission control infrastructure is functioning as designed.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for works approval controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								Conditions 7 and 8: Groundwater monitoring program as proposed by the applicant, is to allow for a baseline of measurements for comparison with future monitoring that will be required under licence conditions. **Conditions 9 and 10:** Commissioning reporting requirements
Operation (including time-limited-operations operations)								
Overtopping due to insufficient freeboard capacity.	Tailings / water potentially containing elements of environmental significance	**Pathway:** Direct discharge to land and infiltration to soil and groundwater, expressing in surface waters **Impact:** Soil and water contamination inhibiting vegetation growth and survival, and health impacts to fauna.	Soil and vegetation surrounding the IPTSF. Lake Cowan is located 1.8 km from IPTSF.	Refer to Section 5.1	C = Moderate L = Rare **Medium Risk**	Y	Conditions 11, 12, 13 and 14	**Standard conditions for time limited operations:** **Condition 13:** Infrastructure table: Specifies controls and monitoring requirements for authorised infrastructure during time limed operations **Condition 14:** Authorised discharge point. The short period of time the infrastructure may be operated under the works approval makes it improbable that the pit could overflow.
Tailings / water pipelines (leaks of rupture)	Tailings / water potentially containing elements of environmental significance	**Pathway**: Direct discharge to land and infiltration to soil and groundwater, expressing in surface waters **Impact:** Ecosystem disturbance or impact to surface water quality	Soil and vegetation are adjacent to the pipelines. Lake Cowan is located 1.8 km from IPTSF.	Refer to Section 5.1	C = Minor L = Unlikely **Medium Risk**	Y		
Seepage through base of pit and embankments	Tailings / decant water potentially containing elements of environmental significance.	**Pathway**: Seepage through soil to groundwater, expressing in surface waters **Impact:** Underlying groundwater	Soil and vegetation surrounding the IPTSF. *IPTSF is largely surrounded by cleared mine infrastructure areas.*	Refer to Section 5.1	C = Minor L = Possible **Medium Risk**	Y	Conditions 13, 14, 15, 16, 17 and 18.	**Condition 13:** Infrastructure table: Specifies controls and monitoring requirements for authorised infrastructure during time limed operations **Condition 14:** Authorised discharge point.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of works approval	Justification for works approval controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
			Lake Cowan is located 1.8 km from IPTSF.					**Conditions 15 and 16:** specifies ambient groundwater monitoring and recording requirements and includes standing water level limit of 4 mbgl and weak acid dissociable cyanide limit of 50 mg/L to ensure potential seepage impacts are detected / actioned as required to mitigate impacts to receptors. **Condition 17:** Monthly water balance requirements from the TSF to monitor water levels in the TSF, estimate seepage losses and inform water management for the TSF.

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.

6. Consultation

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

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 27 January 2025	None received	N/A
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), now Department of Mines, Petroleum and Exploration, advised of proposal 20 January 2025	DEMIRS replied on 7 March 2025 advising that they had received the geotechnical review and can confirm that there were no significant concerns regarding the proposed in-pit TSF. Some minor points were raised in review, but these primarily relate to the proponent ensuring they continue to conduct adequate monitoring of safety bunds and pit walls.	Noted
Applicant was provided with draft documents on 26 May 2025.	The applicant responded on 26 June 2025. Some information on the site's bioremediation facility was provided but no changes to the draft package were proposed. The applicant requested that the final instrument be issued.	N/A

7. 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. Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) (DMP, 2013), *Code of practice: Tailings storage facilities in Western Australia*, East Perth, Western Australia.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Graeme Campbell & Associates Pty Ltd (GCA) 2024, *Higginsville Gold Mine: Geochemical Characterisation of Ex-Mill-Tailings-Slurry Sample, Implications for Tailings Management*, Bridgetown, Western Australia
6. Rockwater Pty Ltd 2024, *Higginsville Gold Operations Hidden Secret In-pit TSF Seepage Assessment*, Jolimont, Western Australia
7. Tetra Tech Coffey (Coffey) 2024, *Higginsville Gold Operations Hidden Secret In-Pit TSF Design*, Perth, Western Australia
8. Westgold Resources Pty Ltd 2024, *Hidden Secret IPTSF Project Wapp Supporting Document,* Perth, Western Australia