Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Application for Licence Amendment

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

Licence Number	L8345/2009/3
Licence Holder	Greenstone Resources (WA) Pty Ltd
ACN	100 341 599
File Number	APP-0026632
Premises	King of the Hills Gold Mine LEONORA WA 6438 Legal description – Part of mining tenements M37/67, M37/76, M37/90, M37/201, M37/222, M37/248, M37/330, M37/410, M37/429, M37/449, M37/451, M37/457, M37/547, M37/548, M37/572, M37/573, M37/574 and M37/1105 As defined by the Premises maps attached to the Revised Licence
Date of Report	28 April 2025
Proposed Decision	Revised licence granted

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1. Decision summary

Licence L8345/2009/3 is held by Greenstone Resources (WA) Pty Ltd (Licence Holder) for the King of the Hills Gold Mine (the Premises), located at Leonora WA 6438, part of mining tenements M37/67, M37/76, M37/90, M37/201, M37/222, M37/248, M37/330, M37/410, M37/429, M37/449, M37/451, M37/457, M37/547, M37/548, M37/572, M37/573, M37/574, M37/1105.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8345/2009/3 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary

On 4 December 2024, the Licence Holder submitted an application to the department to amend Licence L8345/2009/3 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought to upgrade the primary crushing circuit and processing infrastructure to reach optimal productivity at the approved throughput. The upgrades will consist of two stages, stage 1 refers to this amendment and stage 2 constructions will be proposed in a later amendment.

This amendment is limited only to changes to Category 5 activities from the Licence. No changes to the aspects of the existing Licence relating to Category 6, 52, 54, and 89 have been requested by the Licence Holder. No changes to design/throughput capacities are proposed. The method of processing will not be altered and therefore emissions are likely to remain the same. Along with the upgrades to infrastructure, improvements in dust controls, and altered stormwater, tailings and processing water emission controls are proposed.

Stage 1 upgrades to the processing infrastructure include:

- Replacement of the primary crusher circuit (similar and adjacent to the existing crusher, replacing rather than supplementing it) to feed onto exiting Coarse Ore Stockpile (COSP) conveyor (Figure 2). This scope also includes installation of a 5T davit crane installed on the SAG Mill Feed deck and a fire suppression system installed in the COSP tunnel
- Upgrade of existing lime silo feed arrangement (Figure 2)
- Installation of four additional adsorption tanks and ancillary equipment (Figure 1). This scope also includes the extension of the existing bunded area and the overhead crane to accommodate the additional tanks.
- Installation of one additional electrowinning cell (Figure 1)
- Installation of a new kiln in a new location and the removal of the existing unit (Figure 1)
- Relocation of stormwater pond associated with the crushing and screening plant to accommodate the replacement of the primary crusher circuit (Figure 2). The existing site run off water pond will be relocated to the west of the existing pond. Site run off drains will be redirected to the new pond and the stormwater retention capacity will remain the

same.

- Upgrade of tailings pumps and discharge pipework involving upgrading the existing tailings disposal pumps and sections of the tailings disposal pipework (Figure 3). All existing bunding, telemetry/shut off values will be retained; and
- Upgrade of the existing Reverse Osmosis (RO) Plant (an associated activity with category 5 although not directly covered under this licence)

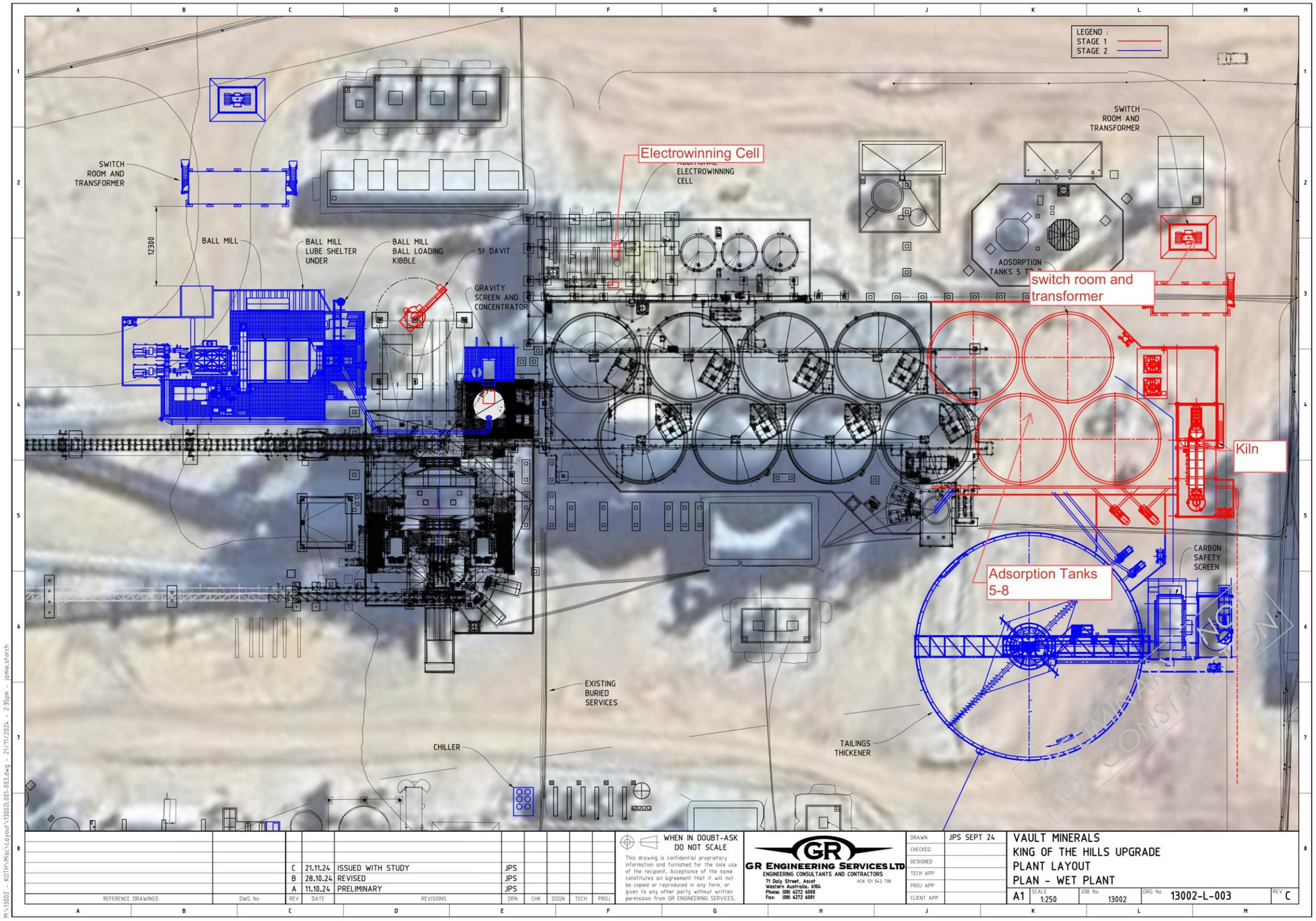

Figure 1: Wet plant upgrade (stage 1 in red, stage 2 in blue)

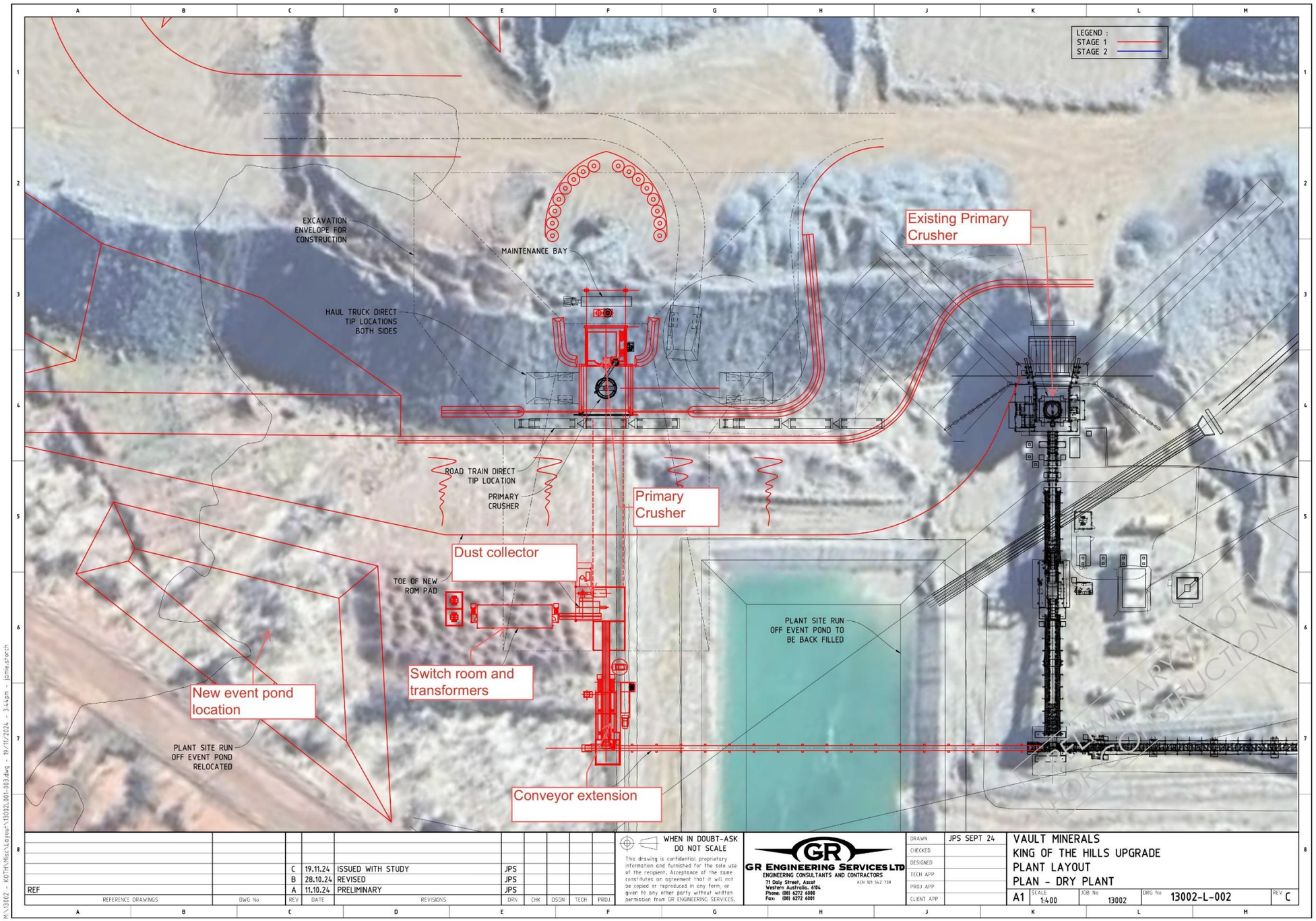

Figure 2: Stormwater and crusher relocation

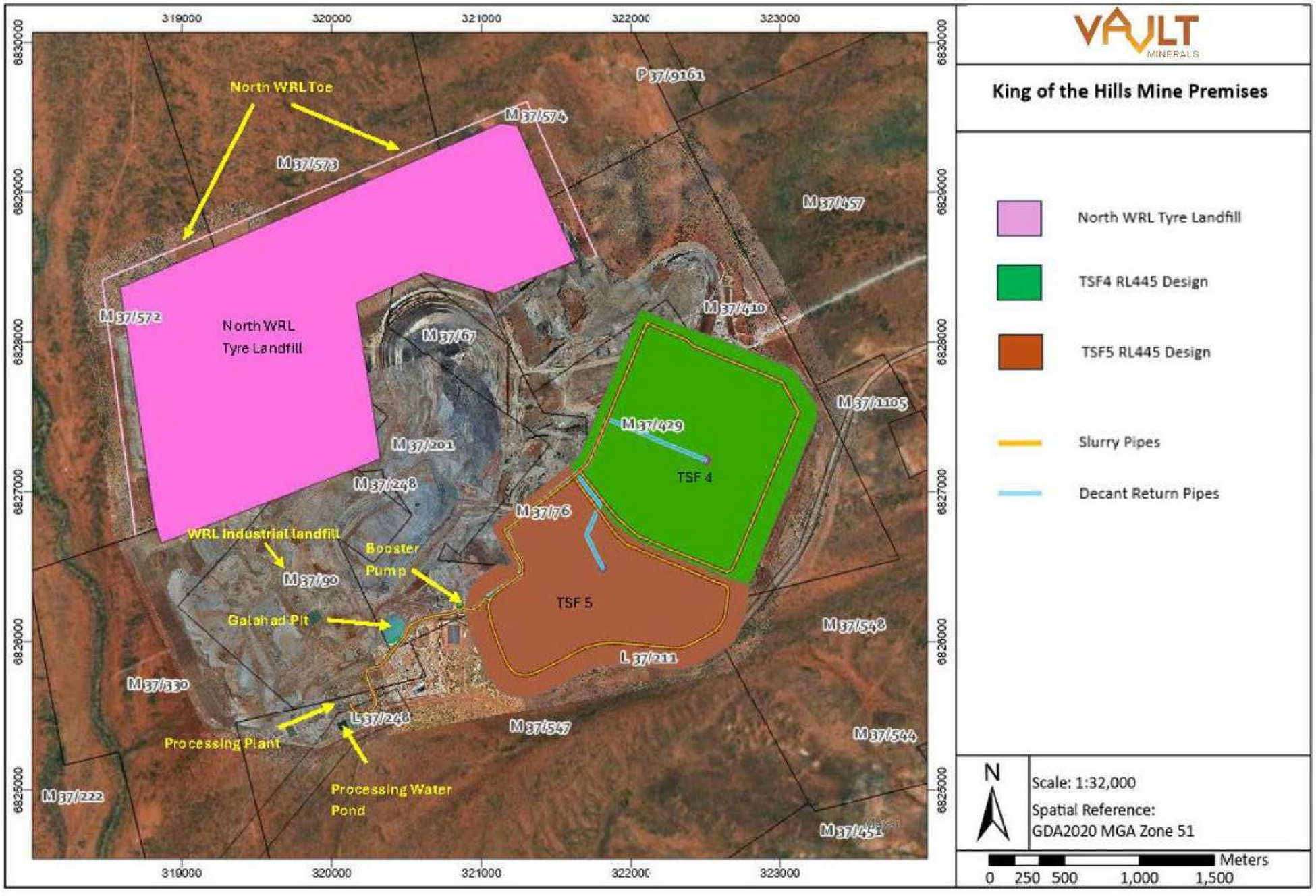

Figure 3: Site layout displaying tailings and return pipeline locations

3. Legislative context and other approvals

The Licence Holder has a Mining Proposal Reg ID 121453 regarding the proposed activities that the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) approved on 10 January 2024.

4. 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.

4.1 Source-pathways and receptors

4.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 1 below.

Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Construction of infrastructure and earthwork activities. Wind erosion from topsoil stripped surfaces Mobile vehicles	Air/windborne pathway	• Vehicle speed limits • Water unsealed roads with water cart or fixed sprays.
Noise	Construction of infrastructure and earthwork activities Mobile vehicles and reversing alarms	Air/windborne pathway	• Vehicles and equipment maintained so there is no undue noise
Operation			
Dust	Material crushing activities, use of lime silo feed arrangement Mobile vehicles and reversing alarms	Air/windborne pathway	Construction controls (proposed): • New crusher equipped with: - dust collector with extraction points at the apron feeder head chute, discharge conveyor head

Emission	Sources	Potential pathways	Proposed controls
			chute and top of crusher discharge pocket - Collected dust will be conditioned to produce a cake and milled. • Water sprays will control dust at the crusher dump pocket Maintenance controls (proposed): • Maintain new crusher with dust collector where collected dust will be conditioned to produce a cake and milled. • Vehicle speed limits • Use of water on unsealed roads with water cart or fixed sprays.
Processing water (saline, contaminated) Solution leaks / spills	Operation of processing plant machinery: • Spills and leaks from 4 additional adsorption tanks and increased bunding area • Kiln operation area • additional electrowinning cell;	Direct discharge and seepage	Construction controls (proposed): • Concrete bund to be extended to include all adsorption tank area Maintenance controls (proposed): • Reagents are stored on concrete bunds • Brine from the RO will be captured in the process water system • all inadvertent/accidental spills will be immediately cleaned up
Contaminated stormwater/ fire water	Stormwater pond	Direct discharge and seepage	Construction controls (proposed): • the existing stormwater pond under the new conveyor location will be backfilled and replaced with a new pond of the same holding volume, constructed as per the original ponds with a permeability of less than 5x10-9 m/sec, to ensure all storm/firewater is captured • diversion bunds are constructed to separate clean water from potentially contaminated water Existing maintenance conditions: • Diversion bunds maintained to divert surface water flows around processing plant area • Stormwater to be managed so contaminated, or potentially contaminated, stormwater is captured in separate sediment control ponds • Contents of potentially contaminated

Emission	Sources	Potential pathways	Proposed controls
			stormwater to either be recovered and re-used in processing or treated as required • Both sediment drainage ponds to be maintained to withhold a 1% AEP 72hr rain event.
Tailings and return water	Tailings and return water pipelines, pumps, spills, rupture	Direct discharge	Construction controls (proposed): • Pipelines to be constructed within bunded areas, equipped with isolation valves and flow and leak detection sensors. • scour pits will be constructed along the above ground pipeline corridors to ensure leaks or spillages are contained within bunded areas; and Existing maintenance conditions • Condition 1 - pipelines to be constructed within bunded areas, equipped with isolation valves and flow and leak detection sensors. • Condition 4 - Visual integrity inspection twice daily

4.1.2 Receptors

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

Table 2 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 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Pastoral residence: Tarmoola Homestead WA holder has noted that the premises occurs on the Tarmoola Pastoral Lease (N049945/63) and are in the process of ownership transfer toGreenstone Resources (WA) Pty Ltd.	pastoralist residence located approximately 2.5 km south of the proposed works
Environmental receptors	**Distance from prescribed activity**
Native vegetation Including riparian vegetation along the Sullivan creek and tributary 300 m south	Directly adjacent to the processing area

<table>
<tr><td>of the TSF5.</td><td></td></tr>
<tr><td>Native wildlife in particular birds / bats</td><td>Within and surrounding the premises.</td></tr>
<tr><td>Underlying groundwater (non-potable purposes)</td><td>Groundwater levels near TSF 4 are approximately 8 – 9 mbgl.
Historical groundwater levels were approximately 47 mbgl.
Current groundwater (June 2024) ranges from 12 – 43 mbgl as measured under licence requirements L8345</td></tr>
<tr><td>Surface water:
Surface water flows in Sullivan Creek to the west of the site after heavy rains and a small tributary to the south of the Process Plant and drains surface water from the surrounding catchment during heavy rain events.</td><td>Sullivan Creek is located approximately 1.2km to the west of the plant and tributaries are located 250m to the east and south of the Prescribed Premise boundary.</td></tr>
<tr><td>Cultural Receptors</td><td>Distance from prescribed activity</td></tr>
<tr><td>Aboriginal heritage sites:
<table>
<tr><th>ach_identifier</th><th>name</th><th>place_type</th></tr>
<tr><td>ACH-00038313</td><td>Sullivan Creek Scatter</td><td>Artefacts / Scatter</td></tr>
<tr><td>ACH-00015779</td><td>SULLIVAN CREEK 02</td><td>Artefacts / Scatter</td></tr>
<tr><td>ACH-00038798</td><td>Ngunnga Thunni Tjarra</td><td>Ritual / Ceremonial; Meeting Place; Landscape / Seascape Feature (restricted place)</td></tr>
<tr><td>ACH-00015266</td><td>SULLIVAN CREEK 01</td><td>Artefacts / Scatter</td></tr>
<tr><td>ACH-00001741</td><td>LAKE RAESIDE/SULLIVAN CREEK</td><td>Creation / Dreaming Narrative (culturally sensitive and restricted)</td></tr>
</table></td><td>5 sites located within the prescribed premises, only ACH-00001741 LAKE RAESIDE/SULLIVAN CREEK is within 1 km distance of the processing site.</td></tr>
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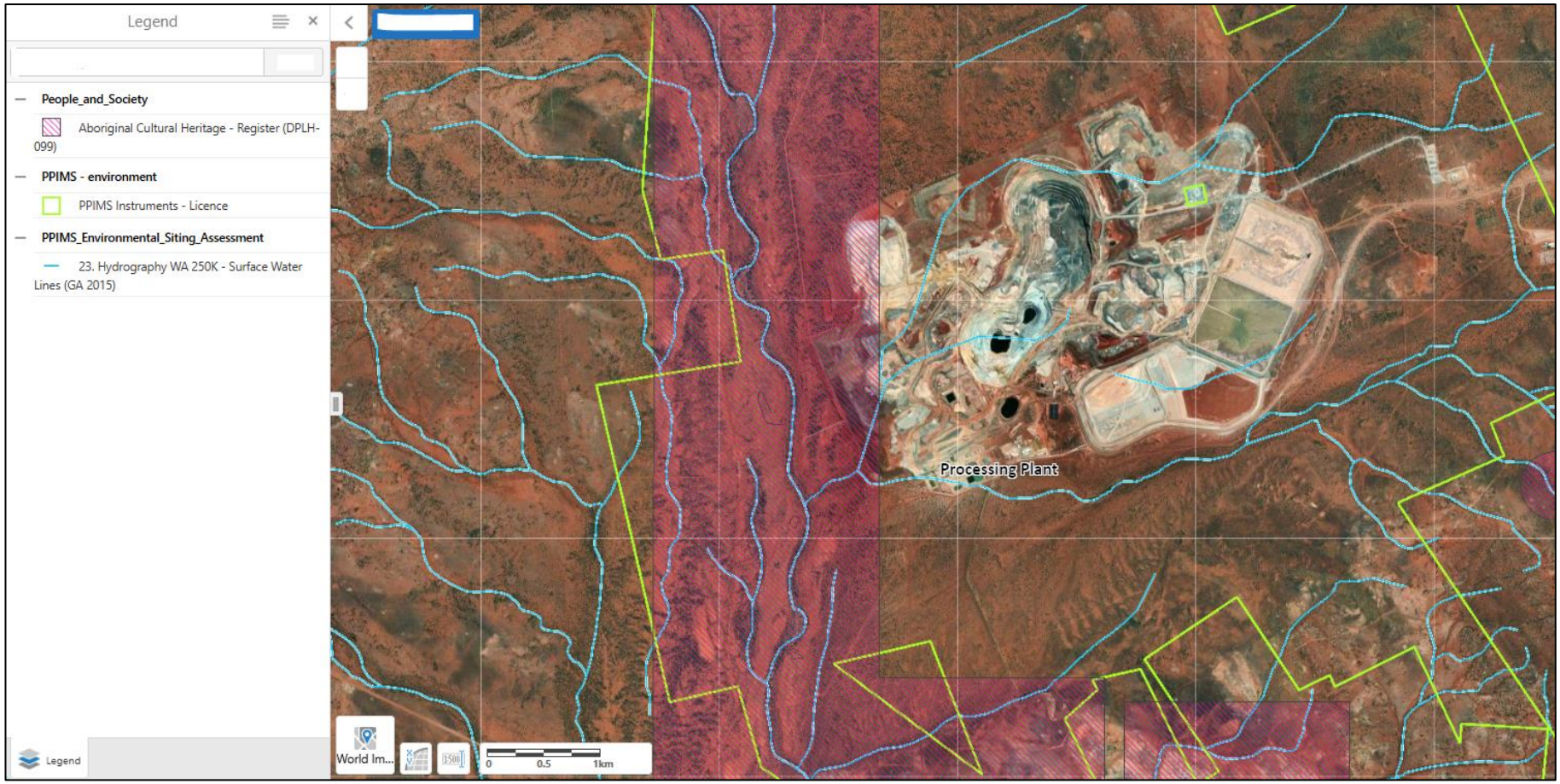

Figure 4: Distance to sensitive receptors

4.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 4.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 4.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

The Revised Licence L8345/2009/3 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises. The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Removal/replacement/ upgrade/construction of new process infrastructure.	Dust	**Pathway:** Air/windborne pathway **Impact**: Health and amenity	Native vegetation Pastoral station	Refer to Section 4.1	C = Minor L = Unlikely **Low Risk**	Y	Condition 2 – new infrastructure requirements	N/A
	Noise			Refer to Section 4.1	C = Minor L = Unlikely **Low Risk**	Y	Condition 2 – new infrastructure requirements	N/A
Operation								
Ore crushing grinding and screening, transfer of processed ore and the feed ore stockpile. Lime silo feed arrangement	Dust	**Pathway:** Air/windborne pathway **Impact:** Health and amenity	Native vegetation Pastoral Station	Refer to Section 4.1	C = Minor L = Unlikely **Low Risk**	Y	Condition 2 – new infrastructure requirements	N/A
Operation of processing plant machinery: • Spills and leaks from 4 additional adsorption tanks and increased bunding area • Kiln operation area • additional electrowinning cell	Processing water (saline, contaminated) Solution leaks / spills	**Pathway:** Direct discharge and seepage **Impact:** contamination of groundwater and surface disturbance	Native vegetation Surface water Groundwater	Refer to Section 4.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 2 – new infrastructure requirements	N/A
Stormwater pond	Contaminated stormwater/fire	**Pathway:** Direct discharge and	Native vegetation	Refer to Section	C = Moderate	Y	Condition 2 – new infrastructure	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
	water	seepage **Impact:** Contamination of groundwater and surface disturbance	Surface water Groundwater	4.1	L = Unlikely **Medium Risk**		requirements	
Tailings and return water pipelines, pumps, spills, rupture	Tailings and return water	**Pathway:** direct discharge **Impact:** contamination and surface disturbance	Native vegetation Surface water	Refer to Section 4.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 2 – new infrastructure requirements	N/A

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

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

5. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Table 4: Consultation

Consultation method	Comments received	Department response
Department of Planning Lands and Heritage (DPLH) advised of proposal on	None received.	N/A
Licence Holder was provided with draft amendment on 28/03/2025.	Comments received on the 01/04/2025 and 04/04/2025 providing outstanding information to complete the report and licence amendment. Error indicated in Table 1 of the Licence.	Incorporated outstanding information and fixed error.

6. Conclusion

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

6.1 Summary of amendments

Table 5 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 5: Summary of licence amendments

Condition no.	Proposed amendments
General formatting	Licence history updated with this amendment Altered condition numbering and table numbering
Condition 2	Added condition to construct items of infrastructure and their construction requirements.
Condition 3	Added condition for where departing from infrastructure
Condition 4	Added compliance audit requirement for items of infrastructure constructed
Condition 5	Added condition for report requirements
Figure 1	Updated premises figure to display current locations of infrastructure
Figure 12	Added figure displaying the wet plant upgrade
Figure 13	Added figure displaying stormwater pond relocation

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.