



## Application for Works Approval Amendment

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

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<b>Works Approval Number</b>	W6051/2017/1
<b>Works Approval Holder</b>	Pilgangoora Operations Pty Ltd
<b>ACN</b>	616 560 395
<b>File Number</b>	DER2017/000317
<b>Premises</b>	Pilgangoora Lithium-Tantalum Project Mining Tenement M45/1256 and L45/417 MARBLE BAR WA 6760  As defined by the Premises maps attached to the Revised Works Approval
<b>Date of Report</b>	22 August 2024 (FINAL)
<b>Decision</b>	Revised works approval granted

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## 1. Decision summary

Works Approval W6051/2017/1 (W6051) is held by Pilgangoora Operations Pty Ltd (Works Approval Holder), a subsidiary of Pilbara Minerals Limited, for the Pilgangoora Lithium-Tantalum Project (the Premises), located at Mining Tenement M45/1256 and L45/147, MARBLE BAR WA 6760 (see Figure 5 below).

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 construction and operation of the Premises. As a result of this assessment, Revised Works Approval W6051 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 3 May 2024, the Works Approval Holder applied to amend W6051 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act).

This amendment to the existing Works Approval is limited only to include Category 12 activities, increase the design capacity for Category 54 activities and extend TLO at the Stage 2 Temporary WWTP. No changes to the aspects of the existing Works Approval relating to Category 31, 52, 64, 70 and 73 have been requested by the Works Approval Holder.

Table 1 below outlines the proposed changes to the existing Works Approval. Following the table, a summary of the proposed changes is provided.

**Table 1: Proposed design or throughput capacity changes**

Category	Current design or throughput capacity	Proposed design or throughput capacity	Description of proposed amendment
12	New category	525,000 tonnes per annum	Installation of a mobile crushing and screening facility with a capacity of 525,000 tonnes per year to produce construction materials for use at the Premises.
54	275 m <sup>3</sup> /day	325 m <sup>3</sup> /day	Installation and construction of a stand-alone 50 m <sup>3</sup> per day waste water treatment plant (WWTP) and an accompanying 1.8 ha spray field.

#### 2.2.1 Pilgan Processing Plant Wastewater Treatment Plant

The Works Approval Holder proposes to construct and operate a 50 m<sup>3</sup> per day waste water treatment plant (WWTP) and an accompanying 1.8 hectare (ha) spray field. The proposed

WWTP will be built to service an expansion of office and warehouse space at the existing processing plant. The WWTP will not receive sewage waste generated at the accommodation facility or reject water from the reverse osmosis plant. These wastes are treated through a separate 275 m<sup>3</sup>/day waste water treatment plant also approved under W6051.

The WWTP consists of a modular Sequencing Batch Reactor and will be located on a bunded concrete hard stand to capture any leaks or spills (see Figure 1 below). The WWTP is designed to treat wastewater from up to 1,000 equivalent persons at a rate of 50 litres per person per day. The WWTP has been designed with the following criteria shown in Table 2 below.

**Table 2: WWTP Design Criteria**

DESIGN ASPECT	DESIGN CRITERIA
Office personnel	1000 EP
Generation Rate	50 L/EP/day
Influent Flow	50 m <sup>3</sup> /day
Influent BOD	250 mg/L
Effluent BOD	20 mg/L
Influent Total N	220 mg/L
Effluent Total N	30 mg/L
Influent P	30 mg/L
Effluent P	8 mg/L

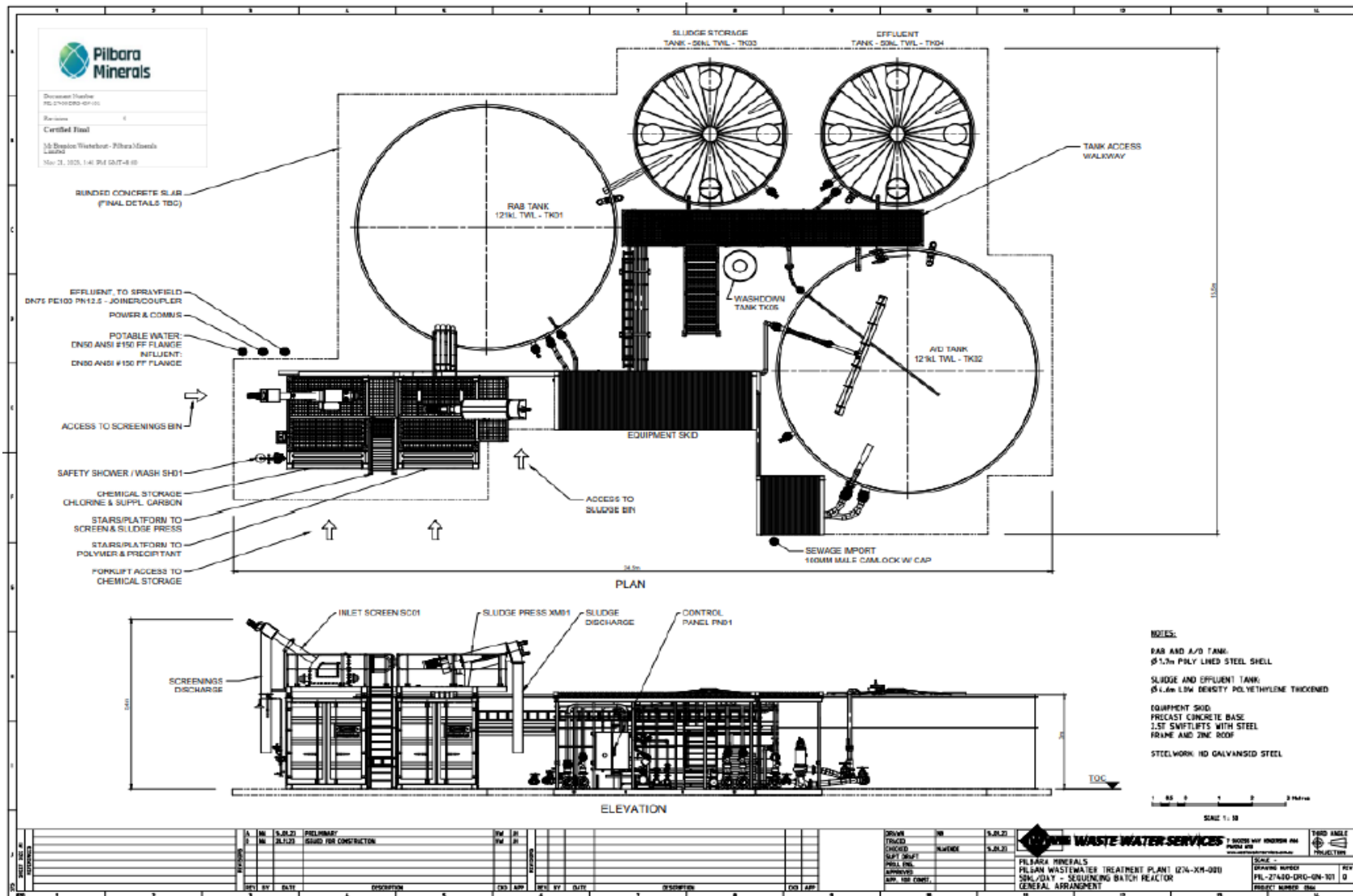


Figure 1: Pilgan Processing Plant WWTP General Arrangement

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Treated effluent produced at the WWTP will be discharged to a cleared 1.8 ha fenced area through a series of sprinklers set up on three separate lines (9 sprinklers in total). The Works Approval Holder referenced the use of the department’s Water Quality Protection Note 22 (Irrigation with nutrient-rich wastewater, July 2008) to determine the size of the irrigation area required to receive treated wastewater from the WWTP.

The Works Approval Holders calculations are presented in Figure 2 below. A eutrophication risk category ‘D’ was applied in the calculation based upon soil types which was supported by soil sampling undertaken by the Works Approval Holder in April 2024 (soil sampling results were provided to the department). The calculation indicates the proposed 1.8 ha irrigation area exceeds the minimum area required to receive treated effluent from the WWTP.

PILGAN PROCESSING PLANT			
NUTRIENT LOADING CALCULATOR			
Enter data into YELLOW or BLUE cells only			
	CATEGORY:	<b>d</b>	
<b>Max. nutrient allowable:</b>	<b>P</b>		<b>N</b>
Allowable load rate	120	kg/ha per year	480
Daily hydraulic load (kL)	50	kL/day	50
Hectares under irrigation	1.76	ha	1.76
Max. conc. Allowed in effluent	<b>11.6</b>	mg/L	<b>46.3</b>
Hydraulic application rate	2.8	mm/day	2.8
<b>Minimum area required:</b>			
Allowable load rate	120	kg/ha per year	480
Daily hydraulic load	50	kL/day	50
Concentration in effluent	11	mg/L	45
Required area	<b>1.7</b>	ha	<b>1.7</b>
Hydraulic application rate	3.0	mm/day	2.9
<b>NUTRIENT LOADING ALLOWANCES:</b>			
10	A	140	
20	B	180	
50	C	300	
120	D	480	

**Figure 2: WWTP Irrigation area nutrient load calculation**

Sewage sludge waste produced at the WWTP will be removed periodically by a licensed waste disposal tanker. The Works Approval Holder expects the 50 m3 sludge tank will require emptying quarterly.

The spray field area will incorporate a cleared firebreak which will contain a windrow of soil on the inside portion to approximately 300 mm high to prevent surface water flows (i.e. contaminated stormwater) discharging outside of the spray field location. The Works Approval Holder proposes to alternate sprinkler discharge across the irrigation area to reduce surface water ponding and will monitor flow continuously to ensure daily maximum discharge rates are not exceeded.

The Works Approval Holder proposes to undertake commissioning of the WWTP in accordance with the schedule shown in Figure 3 below. Figure 3 also shows the type of monitoring that will be undertaken during the commissioning period.

PHASE COMMISSIONING AND TIMEFRAMES	DESCRIPTION OF ACTIVITIES	OF	INPUTS/ OUTPUTS	EXPECTED EMISSIONS AND DISCHARGES	MONITORED EMISSIONS				
					Parameter	Frequency	Averaging Period	Unit	Method
Phase 1 - Dry Testing Q1CY-2025	Dry testing of installation including testing of electricals, solenoids, structure integrity.		Nil	Nil	Nil				
Phase 2 - Wet Testing Q1CY-2025	Wet testing of installation, utilising raw water or potable water for leak checking, pressure testing, valve operation, flow meters, flow rates, level control switches, tank levels, aerator operation, floating take-off air vent operation, isolators, alarms.		Raw water/ potable water	Raw water	Parameter	Frequency	Averaging Period	Unit	Method
					Volume	Continuous	Annual	m <sup>3</sup>	Flow metering device
Phase 3 - Balanced Operation Q1CY-Q2CY 2025	Ramp up of treatment plant to achieve balanced system operation.		Wastewater, influent, effluent	Treated effluent	Parameter	Frequency	Averaging Period	Unit	Method
					Volume	Continuous	Annual	m <sup>3</sup>	Flow metering device
					Biological Oxygen Demand	Monthly	Spot sample	mg/L	AS 5667.10 AS/NZS 5667.1
					Total Suspended Solids	Monthly	Spot sample	mg/L	AS 5667.10 AS/NZS 5667.1
					Total Nitrogen	Monthly	Spot sample	mg/L	AS 5667.10 AS/NZS 5667.1
					Total Phosphorus	Monthly	Spot sample	mg/L	AS 5667.10 AS/NZS 5667.1
					Chlorine Residue	Monthly	Spot sample	mg/L	AS 5667.10 AS/NZS 5667.1
					pH	Monthly	Spot sample	pH units	AS 5667.10 AS/NZS 5667.1
E. coli	Monthly	Spot sample	cfu/100mL	AS 5667.10 AS/NZS 5667.1					

**Figure 3: WWTP commissioning activities**

The Works Approval Holder proposes Time Limited Operations of the WWTP for up to 180 days following commissioning or until the Premises Licence L9056/2017/1 is amended.

Monitoring of effluent discharged to the irrigation area will reflect the current monitoring requirements under W6051 for the discharge of effluent generated at the Temporary Construction WWTP. The monitoring will consist of quarterly sampling to determine the total suspended solids, total nitrogen, total phosphorus, chlorine residual levels, biochemical oxygen demand, and pH. The Works Approval Holder also proposes to continuously monitor the volumes discharged.

### 2.2.2 Mobile crushing and screening plant

The Works Approval Holder proposes to recommission an existing mobile crushing and screening facility located at the Premises. The facility will be relocated to a cleared laydown area south of the tailings storage dam. The facility will be used to crush and screen 525,000 tonnes per year of waste rock to create road base materials for use at the Premises.

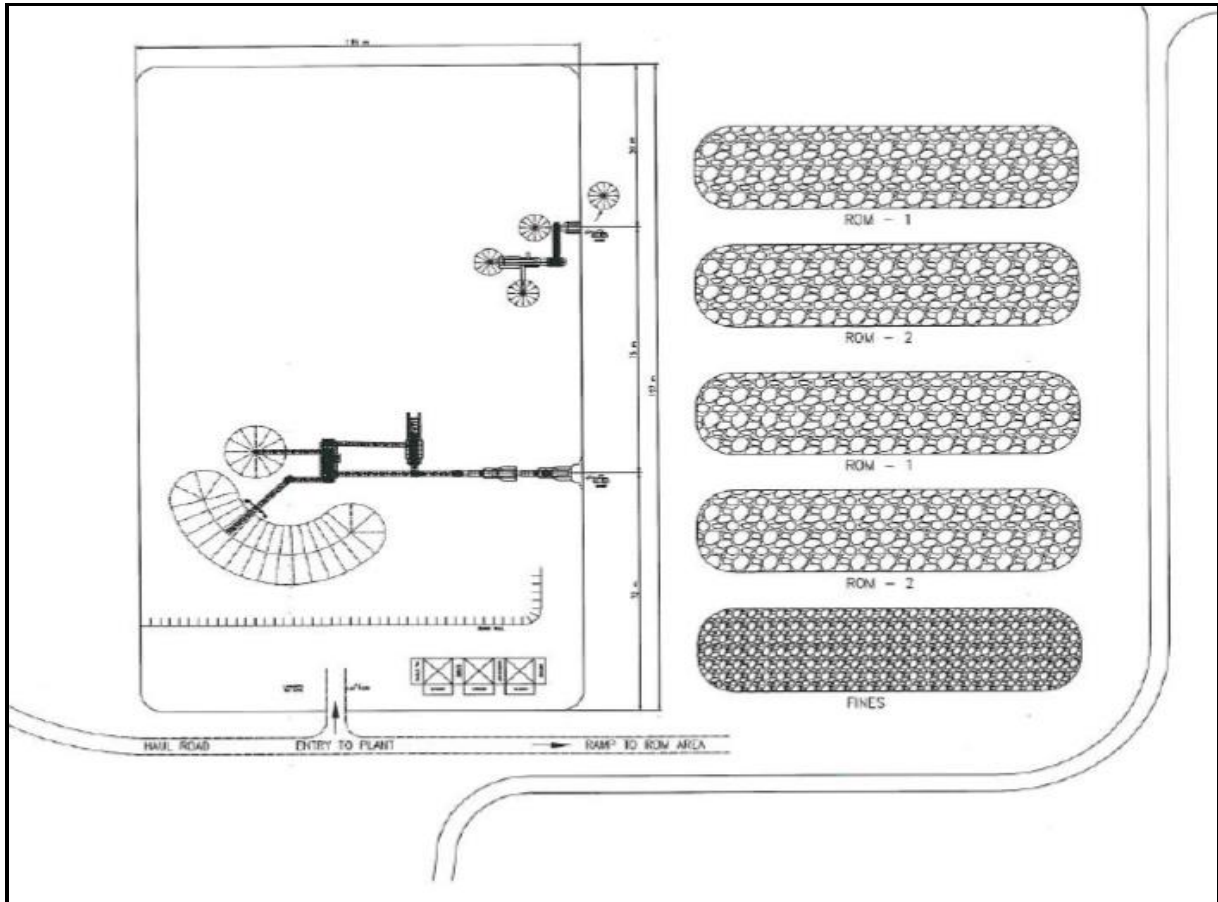
The Works Approval Holder had proposed construction and time limited operations of the facility through an amendment to category 5 of W6051. The department however considers this type of activity meets the description of a category 12 prescribed premises in accordance with the *Environmental Protection Regulations 1987*. Therefore, the department will include a new prescribed premises category 12 to W6051.

The facility will be located within a predominantly 9 ha cleared area that will be levelled and then compacted before installation of the infrastructure. Earthen bunding will be installed around the facility and will be designed to direct all internal stormwater to a sump located at a topographic low point. The collected stormwater will be filtered and then directed to a sediment pond located outside the hardstand area.

The crushing and screening facility will be fitted with dust suppression water sprayers to manage dust emissions. Dust emissions from feed stock and product stockpiles will be managed through

the use of water carts. A total of five stockpiles of crushed material with a maximum height of 6 m will be established (see Figure 4). The product will be stacked with the use of a radial stacker. Commissioning of the facility is not required.

Fuel storage and diesel generators located within the crushing and screening area will be double bunded and self-contained. Spill kits will be positioned at strategic locations (i.e. refuelling area).



**Figure 4: Mobile crushing and screening layout**

### 2.2.3 Stage 2 Temporary WWTP Time Limited Operations extension – Addendum to application

On 29 July 2024 the Works Approval Holder submitted an addendum to the application seeking to extend the time allowed to operate a Stage 2 Temporary WWTP built under W6051.

The Works Approval Holder completed commissioning of the Stage 2 Temporary WWTP and submitted a Commissioning Report on 27 February 2024 as required by condition 8 of W6051. The Works Approval Holder then commenced Time Limited Operations of the Stage 2 Temporary WWTP as authorised under condition 10 of W6051. Condition 11 of W6051 allows Time Limited Operations for a period of up to 180 calendar days following the submission of the Commissioning Report. Therefore, the Works Approval Holder is authorised to operate the Stage 2 Temporary WWTP until the 25 August 2024 (27 February 2024 + 180 calendar days).

The Works Approval Holder has stated that an application seeking to transfer operation of infrastructure built under W6051 to existing EP Act licence L9056/2017/1 (L9056) is expected to be submitted to the department by 2 August 2024. The Works Approval Holder anticipates, based upon the departments estimated assessment time frames and advertising periods, an amended L9056 to allow continual operation of the Stage 2 Temporary WWTP is not expected to be approved until late 2024. Therefore, with Time Limited Operations under W6051 only authorised until the 25 August 2024, the Works Approval proposes to extend the time period



allowed for Time Limited Operations. The Works Approval Holder has stated monitoring during Time Limited Operations will continue in accordance with the requirements of W6051.

### 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, commissioning and time limited operations which have been considered in this Amendment Report are detailed in Table 3 below. Table 3 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

**Table 3: Works Approval Holder controls**

Emission	Sources	Potential pathways	Proposed controls
<b>Construction</b>			
Dust	Vehicle movements, lift-off from cleared areas, construction activities, earthworks etc.	Air/windborne pathway	Onsite speed limited to 40 km/hr. Wetting down of roads and cleared areas as required.
Noise	Construction type activities, vehicle movement etc.	Air/windborne pathway	Construction activities during daylight hours only.
Hydrocarbon and/or sediment contaminated stormwater	Run-off from cleared and construction areas.	Overland run-off	Divert surface water away from infrastructure using earthen bunding.
Spills and leaks of hydrocarbons	Plant and equipment failure, ruptured/leaking storage tanks and containers, spills during refueling.	Direct discharge Overland runoff Seepage	Fuel tanks or diesel generators deployed at the initial laydown area will be double bunded and self-contained. Spill kits will be set up at the laydown area where required.
<b>Commissioning – WWTP only</b>			
Irrigation of effluent with elevated nutrient loads	Commissioning of wastewater treatment plant and irrigation spray field	Overland runoff	The spray field area will incorporate a cleared firebreak, which will contain a windrow of soil on the inside portion to approximately 300 mm high to prevent surface water flows outside of the spray

Emission	Sources	Potential pathways	Proposed controls
			<p>field location.</p> <p>Alternating sprinkler discharge across the irrigation area to reduce surface water ponding.</p> <p>Continuous flow monitoring to ensure daily maximum discharge rates are not exceeded.</p>
		Seepage	<p>Monitoring to ensure nutrient loading remains below set parameters.</p> <p>Continuous flow monitoring to ensure maximum daily discharge rates are not exceeded.</p>
<p>Untreated effluent</p> <p>Treatment chemicals</p>	Ruptured/leaking tanks, containers and pipelines	<p>Overland runoff</p> <p>Seepage</p>	<p>WWTP infrastructure installed/constructed within a bunded concrete hardstand area.</p> <p>Initial wet testing of infrastructure with raw or potable water to check for leaks, flow rates, isolators and valve operations, pressure testing, and alarm systems.</p> <p>Chemicals stored in self-bunded Intermediate Bulk Containers (IBC's).</p> <p>Dosing lines contained within a sealed outer hose.</p> <p>Infrastructure fitted with tank level alarms, switches and shut-off valves.</p>
<b>Time Limited Operations – crushing and screening plant</b>			
Sediment laden stormwater	ROM pad, product stockpiles, crushing and screening hardstand area and access roads	Overland runoff	Earthen bunding will be built around the crushing and screening facility, with all internal stormwater directed to a sump located at a topographic low point within the laydown area. Stormwater collected in the sump will be filtered and then directed to a sediment pond located outside the facility.
Spills and leaks of hydrocarbons	Plant and equipment failure, ruptured/leaking storage tanks and containers, spills during refueling.	<p>Direct discharge</p> <p>Overland runoff</p> <p>Seepage</p>	<p>All hydrocarbon contaminated stormwater directed to an internal sump for collection.</p> <p>Fuel tanks double bunded and self-contained.</p> <p>Spill kits will be set up at the laydown area where required and in vehicles.</p>
Dust	Vehicle movements, loading and unloading of materials, crushing and screening activities, lift-off from	Air/windborne pathway	<p>Crushing and screening facility equipped with dust suppression systems (water sprays).</p> <p>Stockpiles limited to 6m height.</p>

Emission	Sources	Potential pathways	Proposed controls
	feedstock and product stockpiles.		Water cart/s used to wet down stockpiles and cleared areas.
Noise	Screening, crushing, unloading and loading activities at the mobile crushing and screening plant.  Vehicle movements  Mobile diesel generators	Air/windborne pathway	Operations will only occur during daylight hours.
<b>Time Limited Operations – WWTP and Irrigation spray field</b>			
Discharge of effluent to land	Treated sewage from the WWTP	Overland runoff	The spray field area will incorporate a cleared firebreak, which will contain a windrow of soil on the inside portion to approximately 300 mm high to prevent surface water flows outside of the spray field location.  Alternating sprinkler discharge across the irrigation area to reduce surface water ponding.  Continuous flow monitoring to ensure daily maximum discharge rates are not exceeded.
		Seepage	Monitoring to ensure nutrient loading remains below set parameters.  Continuous flow monitoring to ensure maximum daily discharge rates are not exceeded.
Untreated effluent  Treatment chemicals	Ruptured/leaking tanks, containers and pipelines	Overland runoff  Seepage	WWTP infrastructure installed/constructed within a bunded concrete hardstand area.  Initial wet testing of infrastructure with raw or potable water to check for leaks, flow rates, isolators and valve operations, pressure testing, and alarm systems.  Chemicals stored in self-bunded Intermediate Bulk Containers (IBC's).  Dosing lines contained within a sealed outer hose.  Infrastructure fitted with tank level alarms, switches and shut-off valves.

### 3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Works Approval 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 4 below provides a summary of potential 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 4: Sensitive environmental receptors and distance from prescribed activity**

Environmental receptors	Distance from prescribed activity
Threatened/Priority Flora	<p>No threatened or priority flora has been identified using the GIS datasets (2km buffer).</p> <p>There are no Declared Rare Flora has been identified using the GIS datasets (2km buffer).</p> <p><b>Screened out. Distance is considered too great to be considered a receptor for this amendment.</b></p>
Threatened/Priority Fauna	<p>Conservation significant species have been recorded in the area. These include the Rainbow Bee-eater listed under the EPBC Act, the Pilbara Leaf-nosed bat listed under the EPBC Act and the Western Pebble-mouse listed under the Wildlife Conservation Act 1950 (WA) (360 Environmental, 2016).</p>
Threatened Ecological Communities and Priority Ecological Communities	<p>There are no Threatened Ecological Communities or Priority Ecological Communities within or in a 30 km radius of the Premises.</p> <p><b>Screened out. Distance is considered too great to be considered a receptor for this amendment.</b></p>
Surface water	<p>Two seasonal creeks dissect the Premises, Houston Creek flowing from east to west through the northern portion of M45/1256 and Pilgangoora Creek flowing from east to west near the southern boundary of M45/1256. The creeks only carry runoff following significant rainfall events which report to Chinnamon Creek approximately 11km away.</p> <p>The WWTP batch plant and also the spray field are each located approximately 100m at their closest point to the Houston Creek.</p> <p>The mobile crushing facility is located approximately 400m at the closest point to the Pilgangoora Creek.</p>
Groundwater	<p>Depth to groundwater at the Premises is approximately 9.5 meters below ground level (mBGL).</p> <p>Groundwater is considered fresh to slightly brackish (600 – 3,700 mg/L TDS) and has beneficial use for stockwatering purposes.</p> <p>There are no known operational stockwatering bores within 5 km of the Premises.</p>
Heritage sites	<p>The closest heritage surveyed sites are approximately 500 m from the mobile crushing and screening facility and 800 m from the WWTP.</p>

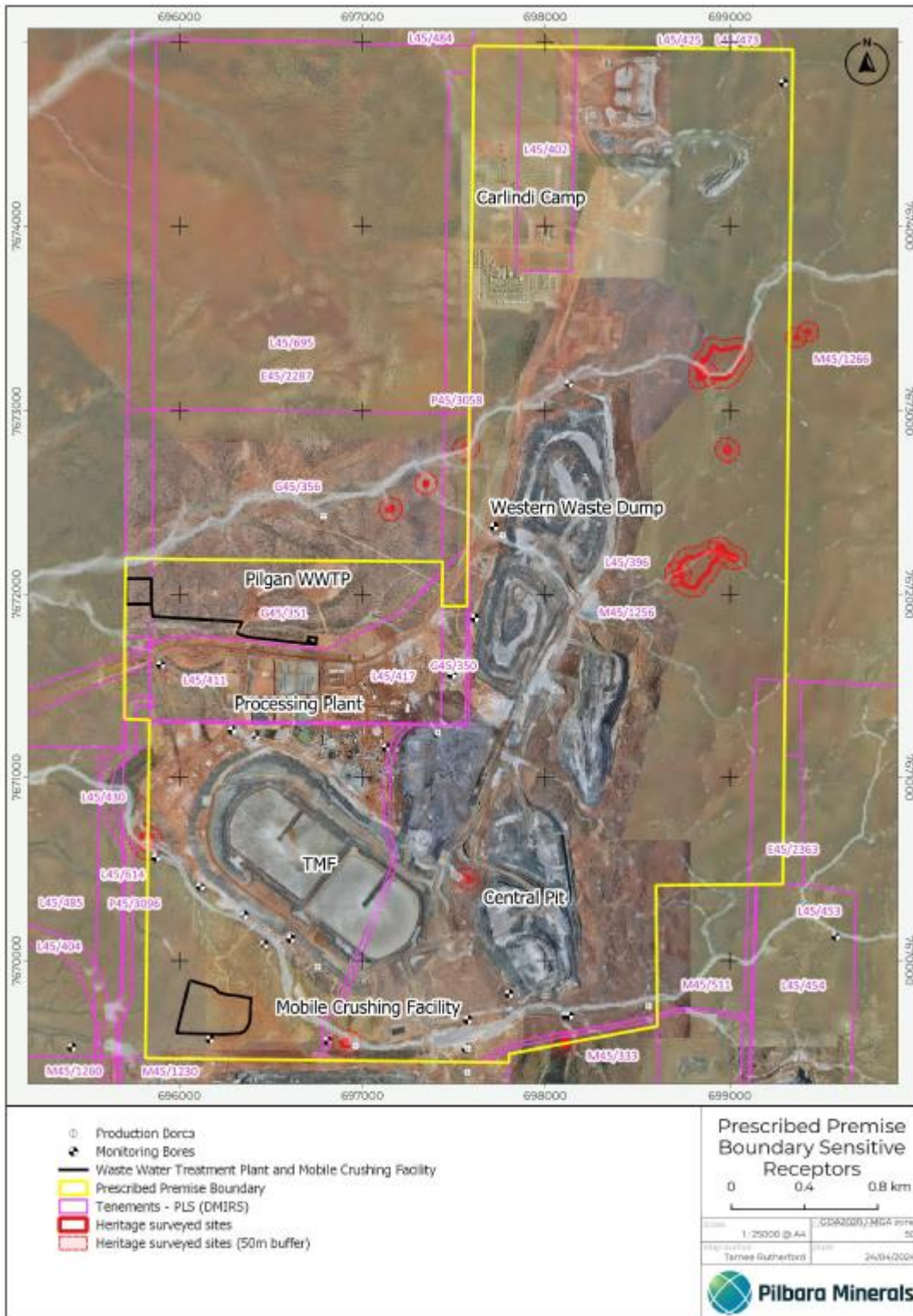


Figure 5: Prescribed Premises boundary and infrastructure location

## 3.2 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 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the Works Approval Holder 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 Works Approval Holder'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 Works Approval Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The Revised Works Approval W6051 that accompanies this Amendment Report authorises construction and time-limited operations. The conditions in the Revised Works Approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

An amendment to licence L9056/2017/1 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. category 12 and 54 activities. A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence amendment application.

**Table 5. Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation**

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
<b>Construction</b>								
Placement of mobile crushing and screening equipment including vehicle movements  Construction of stormwater diversion bunding and collection sump  Construction of WWTP and irrigation area	Spills and leaks of hydrocarbons from construction and earth moving equipment	Seepage through underlying soils causing contamination of groundwater	Depth to groundwater 9.5 mBGL	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	<b>Condition 1, Table 7 and 8 – Design and construction/installation requirements including infrastructure location</b>  Conditions 2 and 3 – compliance reporting  Condition 18 – recording and reporting of received complaints  Condition 19 and 20 – requirement to maintain accurate and auditable books  Condition 22 – Notification requirements for non-compliance with conditions	Applicant proposed design and location of infrastructure is included as regulatory controls.
	Contaminated/high sediment laden stormwater	Overland flow causing contamination of nearby creeklines	Seasonal creek within 100m of WWTP and irrigation field and 400m from crushing and screening plant		C = Minor L = Possible <b>Medium Risk</b>	Y		
<b>Commissioning - WWTP and Irrigation spray field</b>								
Commissioning of wastewater treatment plant and irrigation spray field	Irrigation of effluent with elevated nutrient loads	Overland flow from irrigation area causing eutrophication of surface water in nearby creeklines.	Seasonal creek within 100m of WWTP and spray field	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 4 – commencement of commissioning activities  <b>Condition 5 – commissioning requirements including</b>	Applicant proposed commissioning controls, including duration, included as

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
		Seepage causing impacts to groundwater quality	Groundwater 9.5 mBGL		C = Slight L = Unlikely <b>Low Risk</b>		<p><b>duration</b></p> <p><b>Conditions 6 and 7 – monitoring and recording requirements during commissioning</b></p> <p>Conditions 8 and 9 – reporting requirements following commissioning</p> <p>Condition 18 – recording and reporting of received complaints</p> <p>Condition 19 and 20 – requirement to maintain accurate and auditable books</p> <p>Condition 22 – Notification requirements for non-compliance with conditions</p>	<p>standard operational conditions.</p> <p>Applicant proposed monitoring during commissioning included as monitoring requirements</p>
	Direct discharge of untreated effluent to land from ruptured/leaking tanks and pipelines	Overland runoff causing eutrophication of surface water in nearby creeklines	Seasonal creek within 100m of WWTP and spray field	Refer to Section 3.1	C = Minor L = Unlikely <b>Medium Risk</b>	Y	<p>Condition 4 – commencement of commissioning activities following submission of Environmental Commissioning Report</p> <p><b>Condition 5 – requirements during commissioning including duration of commissioning</b></p> <p>Conditions 8 and 9 – reporting requirements following commissioning</p> <p>Condition 18 – recording and reporting of received</p>	<p>Applicant proposed design of infrastructure including location is included as a regulatory control.</p> <p>Applicant proposed controls for spill and leak containment, including flow monitoring and alarm systems, are included as regulatory controls. Applicant proposed commissioning controls including duration included as</p>
		Seepage causing impacts to groundwater quality	Groundwater 9.5 mBGL		C = Slight L = Rare <b>Low Risk</b>			



Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
							complaints Condition 19 and 20 – requirement to maintain accurate and auditable books Condition 22 – Notification requirements for non-compliance with conditions	standard operational conditions.
<b>Time limited operations</b>								
Screening, crushing, unloading and loading activities at the mobile crushing and screening plant.	Noise	Air/windborne pathway causing impacts to amenity	Fauna	Refer to Section 3.1	C = Slight L = Unlikely <b>Low Risk</b>	Y	N/A	N/A
	Sediment laden stormwater from operational areas, stockpiles and access roads	Surface run-off causing detrimental impacts on the surrounding ephemeral creeks due to poor water quality	Seasonal creek within 400m of crushing and screening plant area	Refer to Section 3.1	C = Minor L = Possible <b>Medium Risk</b>	Y	Condition 10 – commencement of time limited operations following submission of Environmental Construction Report Condition 11 – duration for Time Limited Operations <b>Condition 12 – operational and maintenance requirements during time limited operations</b> Conditions 16 and 17 – time limited operations compliance reporting Condition 18 – recording and reporting of received complaints Condition 19 and 20 – requirement to maintain	Applicant proposed controls included as operational and maintenance requirements

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Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
							accurate and auditable books Condition 22 – Notification requirements for non-compliance with conditions	
	Spills and leaks of hydrocarbons from plant and equipment	Overland runoff impacting surface water quality	Seasonal creek within 400m of crushing and screening plant area	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	Condition 10 – commencement of time limited operations following submission of Environmental Construction Report Condition 11 – duration for Time Limited Operations <b>Condition 12 – operational and maintenance requirements during time limited operations</b> Conditions 16 and 17 – time limited operations compliance reporting Condition 18 – recording and reporting of received complaints Condition 19 and 20 – requirement to maintain accurate and auditable books Condition 22 – Notification requirements for non-compliance with conditions	Applicant proposed controls included as operational and maintenance requirements
		Seepage causing impacts on groundwater quality	Groundwater 9.5 mbgl		C = Moderate L = Unlikely <b>Medium Risk</b>			
Treatment of sewage at the wastewater treatment plant	Discharge of treated effluent to the irrigation	Overland runoff causing eutrophication of surface water in	Seasonal creek within 100m of WWTP spray field	Refer to Section 3.1	C = Moderate L = Unlikely	Y	Condition 10 – commencement of time limited operations following submission of	Applicant proposed controls included as operational and maintenance requirements during

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
	field	nearby creekline			<b>Medium Risk</b>		Environmental Commissioning Report Condition 11 – duration for Time Limited Operations <b>Condition 12 – operational and maintenance requirements during time limited operations</b> <b>Condition 14 – monitoring requirements during time limited operations</b> Condition 15 – recording of monitoring results during time limited operations Conditions 16 and 17 – time limited operations compliance reporting Condition 18 – recording and reporting of received complaints Condition 19 and 20 – requirement to maintain accurate and auditable books Condition 22 – Notification requirements for non-compliance with conditions	time limited operations Applicant proposed monitoring during time limited operations included as monitoring requirements
		Seepage causing impacts on groundwater quality	Groundwater 9.5 mbgl		C = Moderate L = Unlikely <b>Medium Risk</b>			
	Discharge of untreated sewage to land due to tank and/or pipeline	Overland runoff impacting surface water quality	Seasonal creek within 100m of WWTP	Refer to Section 3.1	C = Moderate L = Possible <b>Medium Risk</b>	Y	<b>Condition 12 – operational and maintenance requirements during time limited operations</b>	Applicant proposed controls included as operational and maintenance requirements during

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Works Approval Holder's controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls				
	failure	Seepage causing impacts on groundwater quality	Groundwater 9.5 mbgl		C = Minor L = Unlikely <b>Medium Risk</b>		Conditions 16 and 17 – time limited operations compliance reporting Condition 18 – recording and reporting of received complaints Condition 19 and 20 – requirement to maintain accurate and auditable books Condition 22 – Notification requirements for non-compliance with conditions	time limited operations

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

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

## 4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

**Table 6: Consultation**

Consultation method	Comments received	Department response
Shire of East Pilbara advised of proposal 02/07/2024	The Shire of East Pilbara did not provide a comment.	N/A
Department of Energy, Mines, Industry Regulation and Safety (DMIRS) advised of proposal 02/07/2024	DEMIRS replied on 12/07/2024 stating: <i>On review of the works approval amendment application, the proposed works appear to be consistent with the activities proposed under Mining Proposal Registration ID 126586.</i>	Noted
DPLH advised of proposal 02/07/2024	Response provided 23/07/2024. Advice provided: <ul style="list-style-type: none"> <li>• <i>The granting of the works approval amendment does not impact the Aboriginal heritage of the area.</i></li> <li>• <i>Given that the approval of the works approval amendment will facilitate development in the area, the proponent (Pilgangoora Operations Pty Ltd) is required to come to the Aboriginal Heritage Conservation Team for their own advice prior to the commencement of works.</i></li> <li>• <i>It should be emphasised to the proponents that the granting of the works approval amendment does not count as approval for works under the AHA.</i></li> </ul>	Noted
Nyamal Aboriginal Corporation (TO) advised of proposal 02/07/2024	No response provided. Note: response has been provided by DPLH as discussed above. Additionally, the Works Approval Holder advised consultation has been held with the TO's on 2 separate occasions regarding proposed works at the Premises.	N/A
Works Approval Holder was provided with draft amendment on 9 August 2024	Comments received 13/08/2024 Refer to Appendix 1	Refer to Appendix 1

## 5. Conclusion

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

### 5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Works Approval as part of the amendment process.

**Table 7: Summary of works approval amendments**

Condition no.	Proposed amendments
1, Table 7 (Schedule 2)	Removal of reference to 'Stage 1: 50,000 m <sup>3</sup> Mobile Crushing and Screening Plant'. The mobile plant will be relocated to near the TMF and recommissioned to produce up to 525,000 tonnes per annum of road base material.  Design and construction requirements for the mobile crushing and screening plant and the Pilgan Processing Plant wastewater treatment plant and irrigation field have been added to Table 7.
1, Table 8 (Schedule 2)	Table 8 updated to include the infrastructure location for the mobile crushing and screening plant, Pilgan Processing Plant Waste Water Treatment Plant and irrigation field.
5, Table 1	Table 1 updated to: <ul style="list-style-type: none"> <li>- include the authorised commissioning duration for the wastewater treatment plant and irrigation field; and</li> <li>- remove 'Stage 2 Temporary Construction WWTP'. Commissioning has been completed and the commissioning report submitted on 27/02/2024.</li> </ul>
6, Table 2	Table 2 updated to: <ul style="list-style-type: none"> <li>- remove reference to the monitoring discharge point at the Temporary Construction WWTP Spray Irrigation Area. Environmental Commissioning has now been completed and no further monitoring is required; and</li> <li>- include works approval holder proposed environmental commissioning monitoring requirements for the Pilgan Processing Plant WWTP spray field.</li> </ul>
11	Update to condition 11(a) to allow the Works Approval Holder to conduct time limited operations (TLO) of the crushing and screening plant, Stage 2 Temporary Construction WWTP and Stage 2 Temporary Construction WWTP Spray Irrigation Area for up to 270 calendar days. An additional 90 days was added to the standard 180 days for TLO's to allow the Works Approval Holder to continue operations while they seek an amendment to their operational Licence L9056. The Works Approval holder had experienced delays and has applied for additional time for TLO's.
12, Table 3	Table 3 updated to include time limited operation requirements for the Pilgan Processing Plant WWTP and spray irrigation field, and mobile crushing and screening plant.
14, Table 5	Table 5 updated to include works approval holder proposed discharge monitoring during time limited operations at the Pilgan Processing Plant WWTP.
Figure 3	Figure 3 replaced with an updated figure to show the location of additional key infrastructure at the Premises.
Figure 10	Figure 10 replaced with an updated figure to show the layout of the construction purposes mobile crushing and screening plant.

Figure 17	New figure to show the layout of the Pilgan Processing Plant WWTP and spray field.
Figure 18	New figure to show the general arrangement of the Pilgan Processing Plant WWTP.

## 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.
4. Pilgangoora Operations Pty Ltd, Works Approval Amendment Application W6051/2017/1 - Pilbara Minerals 12/05/2023, West Perth, Western Australia.
5. Pilbara Minerals, *Works Approval W6051/2017/1 Amendment Application Supporting Document, Waste Water Treatment Plant and Mobile Crushing and Screening Facility*, May 2024.
6. Pilbara Minerals, *Addendum to Works Approval W6051/2017/1 – Request for Extension to Time Limited Operations Period*, 29 July 2024

## Appendix 1: Summary of Works Approval Holder's comments on risk assessment and draft conditions

Condition	Summary of Works Approval Holder's comment	Department's response
Licence category description, & 1(b), Table 7	The correct tonnage to equate crushing 350,000 m3 of waste rock material would be 525,000 tonnes.	Noted. Relevant sections of Works Approval updated.
1(c)	No changes required, however Pilbara Minerals wish to note that under the Works Approval, Schedule 1: Figure 3 and Figure 10 remain the correct initial location of the mobile crushing and screening plant. Under a future Licence Amendment, this facility may move from the initial location due to mining operational requirements.	Noted.
11 (a)	Pilbara Minerals requested the TLO be increased for the item of infrastructure for category 12: Screening etc. of material – mobile crushing and screening plant, to allow adequate time to apply for a Licence Amendment.	Supported. An additional 90 calendars days added to the standard 180 days for TLO's. This increase aligns with the additional time frames granted for the Stage 2 Temporary Construction WWTP and Stage 2 Temporary Construction WWTP Spray Irrigation Area.