



Application for Works Approval

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

Works Approval Number	W3002/2025/1
Applicant	Platinum Blasting Services Pty Ltd
ACN	600 020 488
DWER file number	APP-0027814
Premises	Project Terra Oakajee Strategic Industrial Area OAKAJEE WA 6532
Date of report	20/10/2025
Status of report	Works approval granted

Table of Contents

1.	Decision summary	2
2.	Scope of assessment	2
2.1	Regulatory framework	2
2.2	Application summary	2
2.3	Overview of premises	2
2.3.1	Process overview	2
2.3.2	Site Infrastructure	3
2.3.3	Commissioning	4
3.	Emission modelling	4
3.1	Air emissions	4
	Applicant air quality modelling overview	4
3.1.2	Applicant air quality modelling results	5
3.1.3	DWER technical review of air quality modelling results	5
3.2	Noise emissions	5
3.2.1	Noise impact assessment	5
3.2.2	Construction noise	5
3.2.3	Operational noise	5
3.2.4	DWER technical review of noise modelling results	5
4.	Consultation	6
5.	Risk assessment	6
5.1	Receptors	6
5.1.1	Aboriginal cultural heritage site	6
5.1.2	Previously occupied dwelling	7
5.2	Emissions and controls	1
5.2.2	Stormwater controls	2
5.3	Risk ratings	2
6.	Decision	5
6.1.1	Works approval and licence	5
6.1.2	Applicant comments on draft decision	5
7.	Conclusion	5
	References	5
	Appendix 1: Summary of applicant's comments on risk assessment and draft conditions	7
	Appendix 2: Air quality modelling results	8

1. Decision summary

This 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 W3002/2025/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this 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 March 2025, Platinum Blasting Pty Ltd (the applicant) submitted a works approval application to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application relates to the construction and time limited operations of an ammonium nitrate facility (ANF) within the Oakajee Strategic Industrial Area, about 9 km north of Geraldton.

The application relates to category 33: chemical blending or mixing, with a design capacity under Schedule 1 of the Environmental Protection Regulations 1987 (EP Regulations) which are defined in works approval W3002. 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 W3002.

2.3 Overview of premises

2.3.1 Process overview

The premises consists of an Ammonium Nitrate Emulsion (ANE) production facility with an annual production capacity of 40,000 tonnes ANE, alongside an Ammonium Nitrate (AN) storage facility with a 13,500 tonne capacity.

The ANE production process involves the creation of a stable emulsion of AN, water and oil. The ANE is produced from two subsidiary phases, Ammonium Nitrate Solution (ANSOL) and the fuel phase solution. ANSOL is produced through the combination of AN and water heated by steam produced within melt tanks attached to steam boilers. The fuel phase is a mixture of Diesel and an emulsifier.

These two phases are then combined within a mix and stir pot. The produced ANE passes through a heat exchanger and cooling tower prior to entering storage. All stages of this production occur within an enclosed system with inputs being transferred from external storage through enclosed pipes or an input hopper in the case of AN which is stored as a solid under dome shelters.

The AN storage facility consists of two storage mechanisms, bulk bag storage under dome shelters and AN container storage. Bulk bags containing AN in pellet form are directly unloaded from trucks into the dome shelter where they are stored within the bags under the shelter. The AN container storage involves AN being emptied by cutting bulk bags over a hopper connected through an enclosed pipe to AN storage containers.

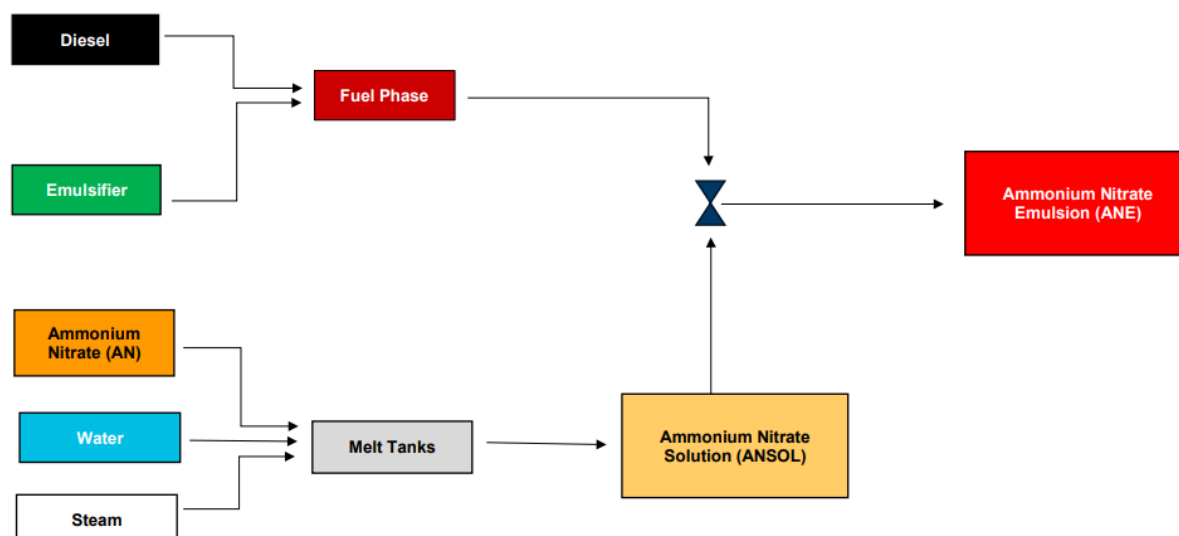


Figure 1: Process flow diagram for ANE production

2.3.2 Site Infrastructure

Table 1: Key site infrastructure

Infrastructure/ equipment	Specifications
ANE manufacturing plant	
AN solution (ANSOL) meltdown and process area	• 2 x 6,000 litre insulated and cladded meltdown tanks • 1 x 20,000 litres insulated and cladded meltdown tank • Meltdown feed auger • 1 x 1.2 tonne AN hopper • Associated water and steam input controls, pipework, pump and valves • Flow meter for ANSOL temperature and flow rate monitoring • Present on bunded hardstand • Within enclosed shed
Fuel phase area	• 2 x bunded 6,000 litre skid mounted tank with mixer • 2 x 1,200 litres IBC tanks for emulsifier • Associated transfer pump and load cells • Present on bunded hardstand • Within enclosed shed
Process area	• Mix and stir pot • Transfer pump • Air compressor • Associated Fuel and ANSOL transfer pipework • Emulsion Cooling system and associated pipework, valve and controls • Present on bunded hardstand • Within enclosed shed
Emulsion storage	• 6 x 46,000 litre (60 tonne) ANE storage tanks • Associated loading pump, pipework and controls • Present within bunded area
Boiler container	• 3 x 500 kW diesel fired steam boilers • Stack 8 metres above ground level • Associated pipework, valves and controls • Present on bunded hardstand

Diesel Generator	1 x 400 kVA diesel generator - Stack 4 metres above ground level - Present on bunded hardstand
Emulsifier and Diesel Storage area	2 x 70,000 litre self-bunded emulsifier storage tank 1 x 70,000 litre self-bunded diesel bulk storage tank 3 x 25,000 litres ANSOL ISO tanks - Present on bunded hardstand
Water Storage	4x 30,000 water tanks
AN storage Area	2 x 6,000 tonne capacity AN bulk bag dome storage area 78 x 20 tonne AN storage container - Present within bunded hardstand
Surface water management infrastructure	
Hydrocarbon capture unit	1 x 12,400 litre SPEL purceptor (or equivalent hydrocarbon interceptor) - Fitted with containment overflow alarm
Water quality basin	1 x 1076 m³ capacity - Impermeable geosynthetic clay liner - Pit silt trap outflow - Valve controlled outlet
Detention basin	1x 1979 m³ capacity basin

2.3.3 Commissioning

The applicant has stated that commissioning will be undertaken however it will solely involve dry commissioning with no product in the system. Under this assumption no risk assessment for this stage will be performed and subsequently no controls regarding commissioning activities will be implemented.

3. Emission modelling

3.1 Air emissions

Air emissions from the ANF are expected to include CO, NO₂, SO₂, PM₁₀, PM_{2.5} and volatile organic compounds (VOC). The storage and transport of AN including truck movements to and from the site alongside boiler and diesel generator stacks are expected to generate particulate emissions (PM₁₀, PM_{2.5}). Gaseous emissions (CO, NO₂, SO₂ & VOC) are expected to be emitted from the facility boilers stack and diesel generator stack.

3.1.1 Applicant air quality modelling overview

Air dispersion modelling was conducted for the proposed ANF with the scope to develop a meteorological data file for the ANF and undertake dispersion modelling with an assessment of pollutants outlined above. Air modelling meteorological data was produced using monitoring data from the Geraldton Airport station located 22 km southeast.

Cumulative emissions were only considered for particulates due to the lack of available background monitoring data for all other pollutants. The boiler manufacturer was only able to supply NO_x, SO_s and CO emission data, as such no particulate matter or VOC emissions were modelled for the boiler stack. Within modelling a 100% conversion of NO_x to NO₂ was assumed as per the US EPA Guideline on air quality models (US EPA, 2000). Emission data and technical data provided to GHD from the applicant Platinum Blasting Services did not indicate any potential scenarios with upset conditions and as such only normal operating conditions were used within the modelling scenario.

Air emission modelling data was assessed using *Draft Guideline: Air emissions* (DWER, 2019) and *Draft Guideline: Dust emissions* (DWER, 2021) with modelled emissions being compared against the *National Environmental Protection Council* standards (NEPC, 2016). AERMOD software was used to model a one scenario representing standard operating conditions.

3.1.2 Applicant air quality modelling results

The applicant's air quality modelling produced results demonstrating that incremental ground level concentrations of all pollutants was below assessment criteria. The cumulative ground level concentration results for PM₁₀ fell below assessment criteria. Modelling for PM_{2.5} predicted cumulative annual ground level concentrations at sensitive receptors 114% of assessment criteria. The exceedance of assessment criteria for cumulative PM_{2.5} emissions can be attributed to the background meteorological concentrations used for the model which already represent 114% of assessment criteria. The proposed activities of the project contribute 0.01% of the total PM_{2.5} concentration. The full tabulated results of the modelling provided by the applicant is present within Appendix 2: Air quality modelling results.

3.1.3 DWER technical review of air quality modelling results

The department accepts the applicant's modelling as relevant to the activities proposed and conclusions drawn to be accurate and reflect expected results. It is noted the applicant did not assess the cumulative impacts of CO, NO₂, SO₂ & VOCs, however the low modelled maximum concentrations (0.05-29% of guideline values) indicate that even if cumulative impacts were assessed, the overall impact from the premise would likely be minimal.

3.2 Noise emissions

Noise emissions are expected to be produced by facility equipment such as emulsion manufacturing plant, pumps, heating and cooling systems, diesel generator and vehicle movement.

3.2.1 Noise impact assessment

The applicant engaged GHD to undertake a noise impact assessment for the proposed ANF. Equipment noise emission levels were based on plant layout and sound power levels derived from manufacturer specification and measurements from similar facilities operated by Platinum Blasting. The Noise impact assessment consists of 3D acoustic modelling of typical plant operations based on the SoundPLAN 9.0 software package and a desktop assessment to characterise background environmental noise from existing information produced for the Oakajee SIA (Herring Storer, 2010).

3.2.2 Construction noise

Construction noise was not modelled within the noise impact assessment. The applicant has stated this is because construction noise associated with the ANF will be of limited duration and only occur during daytime hours.

3.2.3 Operational noise

Within operational noise modelling only plant components with a sound power level over 85 dB were considered. The modelling assumes worst-case scenario with all ANF components operating simultaneously and truck deliveries occurring. The modelled results indicate that noise levels received at nearby noise sensitive premises will be up to 24 dB(A). Adding a 5 dB adjustment for potential tonality has noise levels still lower than assigned noise levels for noise sensitive receptors at any time of the day.

3.2.4 DWER technical review of noise modelling results

The department considers the applicant provided modelling and results are reliable and agrees that the proposed ANE production plant operation will be able to comply with

Environmental Protection (Noise) Regulations 1997.

4. Consultation

The application was referred to relevant public authorities and advertised for public comment on the department's website during July 2025. The Shire of Chapman Valley did not provide a response, nor were any public submissions received.

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 Receptors

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

Table 1 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

Human receptors	Distance from prescribed activity
Closest residential receptor	1 kilometre northeast
Northwest Coastal Hwy	1 kilometre east
Environmental receptors	Distance from prescribed activity
Acid sulphate soils (ASS)	ASS risk is extremely low, nearest risk area 1 kilometre east
Buller River	1 kilometre east
Threatened and Priority Fauna	No recordings within 3 kilometres
Threatened and Priority Flora	Nearest 1.5 kilometres southeast
Threatened Ecological Community (TEC)	Nearest TEC 1 kilometre southwest
Underlying groundwater (non-potable purposes)	15-65m below ground level
Cultural receptors	Distance from prescribed activity
Listed aboriginal cultural heritage historic site ACH-00016114	Present upon the western boundary of premises

5.1.1 Aboriginal cultural heritage site

The Aboriginal Cultural Heritage (ACH) site present upon the western boundary of the premises consists of a historic site for artefacts/scatter. The applicant consulted the Department of Planning, Land and Heritage (DPLH) about the presence of the ACH. The DPLH concluded that no approvals under the Aboriginal Heritage Act 1972 (AHA) are required for the premises.

5.1.2 Previously occupied dwelling

An occupied dwelling 220 metres southeast of the proposed ANF development area was present at time of initial application. The Regional Development Assessment Panel overseeing the Oakajee SIA requires the demolition of this dwelling prior to the commencement of any development. An agreement has been signed between the applicant and the tenant of the dwelling for this lot to be vacated prior to the commencement of construction activities. Given the lot will be vacated prior to ANF construction it has not been considered a receptor within the risk assessment for the facility.

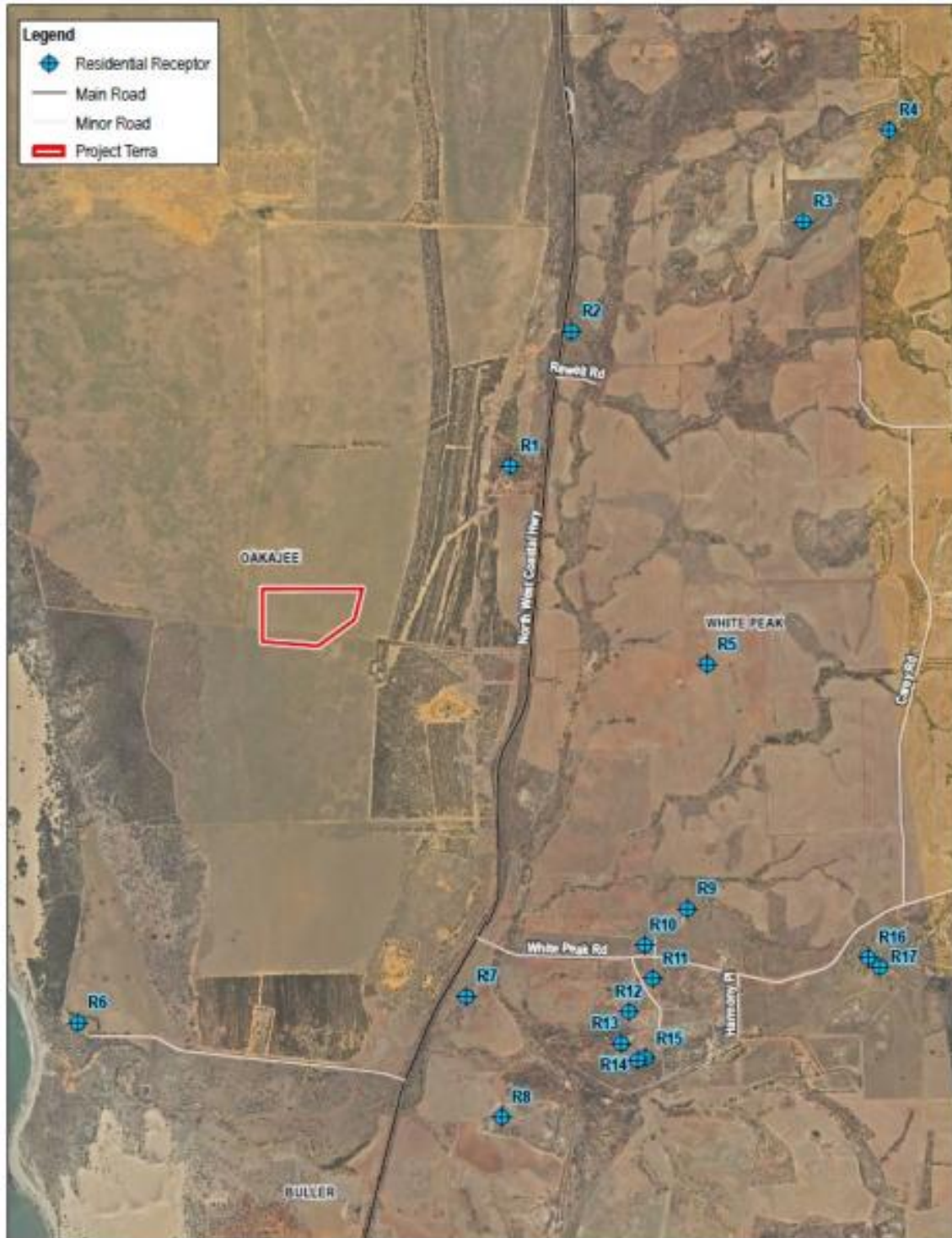


Figure 2: Distance to residential receptors

5.2 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and time limited operations 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.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc.	Air / windborne pathway	None proposed
Noise	Construction activities	Air / windborne pathway	None proposed
Operation			
Air Emissions (CO, NO ₂ & SO ₄)	Diesel fired boiler and diesel generator	Air / windborne pathway	i. Diesel boiler stack height of 8 metres ii. Diesel generator stack height of 4 metres
Dust	Vehicle movements, Ammonium Nitrate (AN) storage and production activities	Air / windborne pathway	(A) AN transported to and stored at the premises will be within prilled form i. AN will be stored within fully enclosed containment ii. AN input into system by piercing bulk bags over input hopper within a semi-enclosed area iii. AN transference to trucks or containers is to be performed using enclosed auger with an attached discharge sock iv. AN spills will be immediately collected and stored for disposal
Noise	Vehicle movements and plant components	Air / windborne pathway	None proposed
Odour	Ammonium Nitrate Emulsion (ANE) production and transport	Air / windborne pathway	i. Production facility is a fully enclosed system excluding input and output ii. AN is stored within enclosed and semi-enclosed shelters
Contaminated Stormwater	Stormwater runoff	Overland runoff and direct infiltration causing groundwater contamination	Refer to section 0

5.2.2 Stormwater controls

The AN emulsion plant, container stocks, dome areas, diesel tanks, emulsifier tanks and emulsion tanks will be present on a hardstand bunded areas compliant to AS1940. The bunded areas collect and drain stormwater into a Water Quality (WQ) basin. Potentially hydrocarbon contaminated stormwater from the diesel tank, emulsion tanks and generator bunded areas will first pass through a hydrocarbon interceptor system fitted with a hydrocarbon detector and automatic shut-off function. If Hydrocarbons are detected the shut-off function will stop outflow and hydrocarbons within the interceptor unit will then be removed.

Following rainfall events, the water quality basin will undergo testing to standards derived from ANZECC 2000 outlined within W3002/2025/1. If the trigger values are exceeded, the contents of the WQ basin will be removed by a qualified contractor. If the contents of the WQ basin are below the outlined limits a valve is opened transferring the contents into a detention basin. Water collected from open drains and roads in areas not bunded will flow directly into the detention basin. The detention basin will include a biofiltration system to manage nutrient accumulation within the discharge area.

5.3 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 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 5.2), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

Works approval W3002 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. ANE production plant. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Construction of chemical mixing plant including installation of tanks, equipment and stormwater infrastructure alongside vehicle movement	Dust	Air / windborne pathway causing impacts to health and amenity	Residence 1km northeast	None proposed	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Noise			None proposed	C = Slight L = Possible Low Risk	Y	N/A	N/A
Operation								
Operation of chemical mixing plant	Air Emissions (CO, NO2 & SO4)	Air / windborne pathway causing impacts to health and amenity	Residence 1km northeast	Refer to section 5.2 Table 3	C = Slight L = Possible Low Risk	Y	Condition 1	The delegated officer considers the separation distance to receptors alongside modelling results demonstrates the proposed controls integrated into condition 1 are sufficient to manage risk. No further regulatory controls are deemed necessary.
	Fugitive dust emissions	Air / windborne pathway causing impacts to health and amenity	Residence 1km northeast	Refer to section 5.2 Table 3	C = Slight L = Unlikely Low Risk	Y	Condition 1 & 6	The delegated officer considers controls proposed by the applicant regarding the storage of AN and expected operational procedures of the plant alongside the distance to sensitive receptors are sufficient to manage risks posed. No further regulatory controls are deemed necessary.
	Noise	Air / windborne pathway causing impacts to health and amenity	Residence 1km northeast	None proposed	C = Slight L = Unlikely Low Risk	Y	N/A	The delegated officer considers the separation distance to receptors alongside modelling results are sufficient to manage risk. No further regulatory controls are deemed necessary.
	Sediment laden stormwater	Direct discharge to land causing contamination of soil and groundwater	Soils within the premise Groundwater 15-65m	Refer to section 0	C = Minor L = Possible Moderate Risk	Y	Conditions 1, 6, 7 & 8	The applicant's proposed controls outlined in section 0 have been integrated into the works approval. The delegated officer has determined to condition the outlet of the water quality basin as an authorised discharge point. Discharge of wastewater from this point will be allowed only

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
								after applicant proposed water quality testing.
Storage of diesel and chemicals on site	Spills, ruptures and loss of containment	Direct discharge to land causing contamination of soil and groundwater	Soils within the premise Groundwater 15-65m	Refer to section 0	C = Slight L = Unlikely Low Risk	Y	Conditions 1, 6, 7 & 8	The applicant's proposed controls outlined in section 0 have been integrated into the works approval. No additional regulatory controls are deemed necessary.

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. Decision

The delegated officer has determined the proposal to construct and operate an AN emulsion plant within the Oakajee Strategic Industrial Area, with an assessed design capacity of 40,000 tonnes per annum, does not pose an unacceptable risk of impacts to on- and off-site receptors. This determination is based on:

- the facility being located at least 1 km away from sensitive receptors, this separation mitigates the risk of significant harm occurring from facility emissions; and
- emissions and discharges from normal operations are expected to be within NEPC standards, providing the infrastructure is operated and maintained in accordance with manufacturer specifications; and
- the applicant's controls are considered sufficient to ensure there is an acceptable level of risk to identified receptors from premise construction and time limited operations.

The above controls proposed by the applicant are considered critical for maintaining an acceptable level of risk of environmental impacts and will be conditioned within the works approval.

The delegated officer has determined to apply regulatory controls in the works approval to reduce the risk of soil and groundwater contamination. An authorised wastewater discharge point and operational requirements for conditional discharge based upon the applicant's proposed controls have been integrated into the works approval.

6.1.1 Works approval and licence

Works Approval W3002/2025/1 that accompanies this report authorises construction of infrastructure outlined within Table 1. The conditions in the issued works approval, as outlined in the above risk table have been determined in accordance with the *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required to authorise emissions associated with the ongoing operation of the premises, i.e. chemical blending or mixing activities. A risk assessment for the operational phase has been included in this report, however licence conditions will not be finalised until the department assesses the licence application. Conditions will be imposed to ensure day-to-day operations do not pose an unacceptable risk of impacts to on- and off-site receptors.

6.1.2 Applicant comments on draft decision

The applicant was provided with drafts of the works approval and this report on 12 August 2025. A summary of applicant comments and the department's response can be found within Appendix 1: Summary of applicant's comments on risk assessment and draft conditions.

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. ANZECC & ARMCANZ 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Volume 1*, Artarmon, New South Wales.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2019, *Draft guideline: Air emissions*, Perth, Western Australia.

4. DWER 2020a, *Guideline: Environmental Siting*, Perth, Western Australia.
5. DWER 2020b, *Guideline: Risk Assessments*, Perth, Western Australia.
6. DWER 2021, *Draft guideline: Dust emissions*, Perth, Western Australia.
7. Herring Storer Acoustics 2010, *Landcorp Oakajee industrial estate background noise monitoring*, Perth, Western Australia.

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

Condition	Summary of applicant's comment	Department's response
Cover Page	The applicant requests the approval possess a duration of two years.	The department typically grants works approvals for a length of 3 years to provide sufficient time to undertake all works and reporting requirements. The department will follow the established norm and grant the works approval for a period of three years. In the event that all requirements are completed sooner the works approval holder may apply for a surrender.
Condition 1, Table 1	The addition of a further 20kL meltdown tank within the ANSOL meltdown and process area, facility throughput will remain unaffected.	Amended to reflect proposed change
Condition 1 – Table 1, Item 4	The addition of a second 6kL mixing tank within the Fuel Phase area, facility throughput will remain unaffected.	Amended to reflect proposed change
Condition 1 – Table 1, Item 6	The removal of a 2.5kL diesel tank which is no longer required	Amended to reflect proposed change
Condition 1 – Table 1, Item 9	The addition of a third steam boiler, applicant commits that only two will be operated at any one time	A third steam boiler is added within condition 1 alongside the addition of an operational requirement within condition 6 stipulating that only 2 boilers are to be operated at any one time.
Condition 1 – Table 1, Item 13	Correction of a typo referring to the capacity of ANSOL tanks from 2.5kL to 25kL.	Amended to correct error
Condition 5	The extension of the time limited operations period from 180 days to 250 days.	Amended to allow for the facility to be constructed and operated in stages under the same approval without need for amendment.

Appendix 2: Air quality modelling results

Incremental model predicted results for all pollutants

Receptor	Ground level concentrations (ug/m ³)													
	Compound	NO ₂		SO ₂			CO		PM ₁₀		PM _{2.5}		Total VOCs (as Benzene)	
	Averaging period	1-hour	Annual	1-hour	24-hour	Annual	1-hour	8-hour	24-hour	Annual	24-hour	Annual	1 hour	Annual
R1		3.7	2.40 x 10 ⁻²	0.3	1.46 x 10 ⁻²	1.98 x 10 ⁻³	1.0	0.1	1.20 x 10 ⁻²	1.53 x 10 ⁻³	1.20 x 10 ⁻²	1.53 x 10 ⁻³	0.3	1.75 x 10 ⁻³
R2		9.7	2.94 x 10 ⁻²	0.9	4.69 x 10 ⁻²	2.43 x 10 ⁻³	2.8	0.5	3.45 x 10 ⁻²	1.87 x 10 ⁻³	3.45 x 10 ⁻²	1.87 x 10 ⁻³	0.7	2.14 x 10 ⁻³
R3		10.0	4.13 x 10 ⁻²	0.9	5.42 x 10 ⁻²	3.40 x 10 ⁻³	2.9	0.5	4.46 x 10 ⁻²	2.63 x 10 ⁻³	4.46 x 10 ⁻²	2.63 x 10 ⁻³	0.7	3.00 x 10 ⁻³
R4		7.9	2.55 x 10 ⁻²	0.7	5.00 x 10 ⁻²	2.08 x 10 ⁻³	2.2	0.5	3.74 x 10 ⁻²	1.62 x 10 ⁻³	3.74 x 10 ⁻²	1.62 x 10 ⁻³	0.6	1.85 x 10 ⁻³
R5		18.7	4.11 x 10 ⁻²	1.7	9.51 x 10 ⁻²	3.37 x 10 ⁻³	5.4	0.9	6.86 x 10 ⁻²	2.62 x 10 ⁻³	6.86 x 10 ⁻²	2.62 x 10 ⁻³	1.4	2.99 x 10 ⁻³
R6		7.0	2.37 x 10 ⁻²	0.6	4.22 x 10 ⁻²	1.92 x 10 ⁻³	2.0	0.4	3.37 x 10 ⁻²	1.51 x 10 ⁻³	3.37 x 10 ⁻²	1.51 x 10 ⁻³	0.5	1.73 x 10 ⁻³
R7		6.4	1.36 x 10 ⁻²	0.5	2.69 x 10 ⁻²	1.11 x 10 ⁻³	1.8	0.3	2.01 x 10 ⁻²	8.64 x 10 ⁻⁴	2.01 x 10 ⁻²	8.64 x 10 ⁻⁴	0.5	9.88 x 10 ⁻⁴
R8		12.2	3.94 x 10 ⁻²	1.0	8.25 x 10 ⁻²	3.22 x 10 ⁻³	3.5	0.8	6.51 x 10 ⁻²	2.51 x 10 ⁻³	6.51 x 10 ⁻²	2.51 x 10 ⁻³	0.9	2.87 x 10 ⁻³
R9		44.3	0.5	4.7	0.6	3.90 x 10 ⁻²	12.6	4.9	0.4	3.16 x 10 ⁻²	0.4	3.16 x 10 ⁻²	3.2	3.61 x 10 ⁻²
R10		18.3	0.1	1.6	0.2	1.06 x 10 ⁻²	5.1	1.3	0.1	8.55 x 10 ⁻³	0.1	8.55 x 10 ⁻³	1.3	9.77 x 10 ⁻³
R11		18.5	5.62 x 10 ⁻²	1.6	0.1	4.64 x 10 ⁻³	5.2	1.5	0.1	3.58 x 10 ⁻³	0.2	3.58 x 10 ⁻³	1.4	4.09 x 10 ⁻³
R12		6.4	2.02 x 10 ⁻²	0.6	3.37 x 10 ⁻²	1.66 x 10 ⁻³	1.9	0.2	2.56 x 10 ⁻²	1.29 x 10 ⁻³	2.56 x 10 ⁻²	1.29 x 10 ⁻³	0.5	1.47 x 10 ⁻³
R13		30.1	0.2	2.8	0.2	1.53 x 10 ⁻²	8.7	2.1	0.2	1.22 x 10 ⁻²	0.2	1.22 x 10 ⁻²	2.2	1.39 x 10 ⁻²
R14		15.5	3.30 x 10 ⁻²	1.2	5.90 x 10 ⁻²	2.66 x 10 ⁻³	4.3	0.6	4.84 x 10 ⁻²	2.10 x 10 ⁻³	4.84 x 10 ⁻²	2.10 x 10 ⁻³	1.1	2.40 x 10 ⁻³
R15		21.5	7.74 x 10 ⁻²	1.9	8.40 x 10 ⁻²	6.30 x 10 ⁻³	6.2	0.8	6.01 x 10 ⁻²	4.93 x 10 ⁻³	6.01 x 10 ⁻²	4.93 x 10 ⁻³	1.6	5.63 x 10 ⁻³
Criteria		151	28	262	52	52	30000	10000	46	23	23	7	29	9.6

Cumulative model predicted results for PM₁₀ & PM_{2.5}

Receptor	Ground level concentrations (ug/m ³)				
	Compound	PM ₁₀		PM _{2.5}	
	Averaging period	24-hour	Annual	24-hour	Annual
R1		23.2	22.3	7.9	8.0
R2		23.2	22.3	7.9	8.0
R3		23.2	22.3	7.9	8.0
R4		23.2	22.3	7.9	8.0
R5		23.3	22.3	8.0	8.0
R6		23.2	22.3	7.9	8.0
R7		23.2	22.3	7.9	8.0
R8		23.3	22.3	8.0	8.0
R9		23.6	22.3	8.3	8.0
R10		23.3	22.3	8.0	8.0
R11		23.3	22.3	8.0	8.0
R12		23.2	22.3	7.9	8.0
R13		23.4	22.3	8.1	8.0
R14		23.2	22.3	8.0	8.0
R15		23.3	22.3	8.0	8.0
Criteria		46	23	23	7