



## Application for Works Approval

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

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<b>Works Approval Number</b>	W6871/2023/1
<b>Applicant</b>	C-Wise Holdings Pty Ltd
<b>ACN</b>	619 927 605
<b>File number</b>	DER2023/000745
<b>Premises</b>	C-Wise Carbon Recycling Facility 320 Gull Road KERALUP WA 6182  Legal description Part of Lot 9500 on Deposited Plan 414516 Certificate of Title Volume 2991 Folio 741 As defined by the premises map attached to the issued works approval
<b>Date of report</b>	12/07/2024
<b>Decision</b>	Works approval granted

**A/MANAGER WASTE INDUSTRIES  
REGULATORY SERVICES**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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## 1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6871/2023/1 has been granted.

## 2. Scope of assessment

### 2.1 Regulatory framework

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

In this assessment the delegated officer has also considered the approach set out in the *Guideline: Better practice organics recycling*.

### 2.2 Application summary and overview of premises

On 16 November 2023, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works and time limited operations relating to a Carbon Recycling Facility for the acceptance and processing of solid and liquid organic wastes to produce compost at the premises.

The premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6871/2023/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6871/2023/1.

The applicant is proposing to progressively move all operations of their existing composting premises at 230 Gull Road Nambeelup (licence L8410/2009/2) to the new premises, eventually ceasing operation of the existing composting premises.

The applicant is proposing to initially accept approximately 100,000 tonnes per annum of solid organic materials for processing, increasing to a total of 200,000 tonnes per annum as the Stage 2 development is delivered. In addition to this, 30,000 tonnes per annum of liquid wastes will be accepted initially, increasing to 60,000 tonnes per annum once the Stage 2 development has been completed. This represents the generation of approximately 70,000 tonnes per annum of composted products in the initial stage, and 140,000 tonnes once the Stage 2 development is complete.

#### 2.2.1 Staging of Development

The proposal will be delivered across two stages to provide the applicant with an opportunity to progressively relocate all existing operations to the new premises. The Stage 1 development will be used to process primarily FOGO materials, whilst the Stage 2 development represents the shift from the applicant's existing premises to the new premises. Following completion of the Stage 2 development and the complete move of operations to the Carbon Recycling Facility, the existing premises will be decommissioned.

The key composting infrastructure included in the Stage 2 development is the same as the Stage 1 development. Most of the ancillary Site infrastructure will be constructed during the Stage 1 development with the exception of one additional surface water pond and two additional leachate management ponds.

The key infrastructure to be constructed for each stage includes:

**Stage 1:**

- Access Road;
- Weighbridge;
- Administration Office;
- Composting Infrastructure:
  - Carbon storage area;
  - Liquid waste receival area and tanks;
  - Receival building;
  - Process Area, comprising:
    - Cocoons;
    - MAF area; and
    - Final maturation area (under cover)
  - Screening and dispatch area;
- Two leachate ponds;
- Stormwater pond;
- Wetland fencing and firebreaks;
- Fuel store and service areas; and
- Workshop, crib room and office.

**Stage 2:**

- Composting Infrastructure:
  - Carbon storage area;
  - Liquid waste tanks;
  - Receival building;
  - Process Area, comprising:
    - Cocoons;
    - MAF area; and
    - Final maturation area
  - Screening and dispatch area;
- Two leachate ponds; and
- Stormwater pond.

## 2.3 Development approval

The planning approval application (application reference DAP/23/02622) was considered by the Metro Outer DAP at its meeting held on 6 June 2024, where in accordance with the provisions of the Shire of Murray Local Planning Scheme No.4, it was resolved to approve the application with a notice of determination provided on 17 June 2024.

## 2.4 Clearing

The applicant requested a Purpose Permit under section 51E(1) of the *Environmental Protection Act 1986* to clear 6.55 hectares of native vegetation within a 45.5 hectare footprint, within Lot 9500 on Plan 414516, Keralup, for the purpose of construction of the proposed facility. The department received the application on 19 October 2023 and assigned the reference CPS 10386/1. On 26 June 2024, the department determined that a clearing permit be granted under section 51E(5) of the EP Act, authorising the permit holder to clear native vegetation, subject to the terms, conditions, and restrictions specified.

## 2.5 Compliance

The department has received intermittent complaints about odour in the Mandurah area since 2014. In 2015 and early 2016 complaints steadily increased, with a number of industrial prescribed premises and natural sources of odour identified as potentially having a role in contributing to odour impacts in the area. A Mandurah Odour Investigation was undertaken by the department to ascertain which odour sources were the major contributors to odour impacts in the Mandurah area and if possible, to determine the odour impact extent of those sources.

Odour field surveys were performed using odour assessors positioned at various locations and times in the vicinity of each of the identified potential odour sources.

Premises located at the Nambeelup Farm precinct were identified as likely contributors to odour impacts in the area following this investigation.

Licence L8410/2009/2 for the existing C-Wise premises was amended on 16 August 2018, giving effect to the findings of the investigation.

The department received a significant increase in odour complaints from the Secret Harbour and Mandurah areas, including Singleton, Lakelands and surrounding suburbs again during the 2023/24 summer period.

Field odour surveys were conducted by officers from the department as part of its investigations. During the surveys on 15 and 16 February 2024, officers from the department identified the activities of several companies in Nambeelup which have the potential to cause or contribute to odour emissions. The existing C-Wise premises, occupied by the applicant, is located within Nambeelup. Subsequent departmental visits to the remises undertaken identified odour emission sources, predominately liquid waste storage and treatment ponds on the premises, to be contributing to odours impacts outside the boundary of the Premises.

On 22 February 2024, Environmental Protection Notices (EPNs) were issued to two companies in Nambeelup including WA Composts Pty Ltd trading as C-Wise (EPN 202401).

The EPN was issued on reasonable grounds that there was likely to be an emission from the premises that is likely to cause pollution. The nature of the suspected pollution being the emission of odour into the environment at levels likely to result in the alteration of the environment to its detriment or degradation, or the detriment of an environmental value.

C-Wise was directed to:

- take immediate action to reduce the risk of odour emissions from the liquid waste storage and treatment ponds;
- conduct investigations into liquid waste storage and treatment ponds at the premises to ensure effective control of odour emissions from the ponds;
- engage an odour expert to conduct an odour analysis considering all waste types received at the premises; and
- provide a report on investigations undertaken to the department including details of any improvements that can be made to operations on the premises to reduce unreasonable odour emissions.

Once the department and its engaged odour expert have completed investigations, the department will review the outcomes and information provided by the companies as part of the EPNs to determine what further regulatory actions may be required. At the time of issue of this works approval, matters relating to the EPN are ongoing.

In accordance with Guideline: Risk Assessments (DWER 2020), The department has considered the operational history of the previous premises in determining likelihood of risk events in this decision report.

### **3. Risk assessment**

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

#### **3.1 Source-pathways and receptors**

##### **3.1.1 Emissions and controls**

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

**Table 1: Proposed applicant controls**

Emission or environmental aspect	Sources	Potential pathways	Applicant proposed controls
<b>Construction</b>			
Dust	Earthworks and construction of infrastructure Vehicle and equipment movements	Air / windborne pathway	- Mobile water carts will be used as required during construction to suppress potential dust emissions.
Noise	Earthworks and construction of infrastructure Vehicle and equipment movements	Air / windborne pathway	- <i>Environmental Protection (Noise) Regulations 1997</i> will apply.
<b>Operation</b>			
Feedstock/ waste derived impacts: contribution to bioaerosols, odour, leachate, vectors, fire and impacts to product quality	Types of feedstock/ waste accepted and processes used to manage the feedstocks. Includes physical, chemical and biological contaminants.	Contribute to emissions from the premises and/ or via use of outputs/ products in the receiving environment	<ul style="list-style-type: none"> <li>- An initial visual inspection of solid waste loads brought to the Site will be undertaken to ensure the material does not contain unreasonable levels of contamination.</li> <li>- Solid waste materials will then be fed via a hopper into a further sorting process to remove excess contamination.</li> <li>- Liquid wastes, upon acceptance at the Site, will be released into an in-ground pit that contains a pump and filter to separate any solids, which will assist in removing physical contaminants.</li> <li>- Fertiliser washwaters and glycols will be accepted from suitable sources to ensure that potential contamination is minimised and that only high-quality feedstocks are used in the composting process.</li> </ul>
Dust, including bioaerosols	Waste acceptance Composting activities Vehicle movements Storage of feedstock/waste	Air / windborne pathway	<ul style="list-style-type: none"> <li>- All waste and final product loads will be covered during transport to and from the Site.</li> <li>- Mobile water carts will be used as required during operation to suppress potential dust emissions.</li> <li>- Hardstand or sealed roads throughout the Site, which will significantly reduce dust generation.</li> <li>- Speed limit controls will be adopted across the Site, which will be signposted at appropriate locations including the entrance.</li> <li>- A complaints register will be maintained to record and respond to any complaints regarding dust generated at the Site.</li> </ul>

Emission or environmental aspect	Sources	Potential pathways	Applicant proposed controls
Noise	Waste acceptance Composting activities Vehicle movements	Air / windborne pathway	<ul style="list-style-type: none"> <li>- The key operational areas where composting will take place are roofed, which will minimise potential for noise impacts to nearby receptors.</li> <li>- All C-Wise operated trucks and mobile equipment to be fitted with broadband noise reversing alarms to minimise the impact from vehicle reversing alarms.</li> <li>- Speed limit controls will be adopted across the Site which will be signposted at appropriate locations including the entrance.</li> <li>- Noise-generating activities outside enclosed areas will be periodic and generally limited to daylight hours, including movement of material around the Facility by front-end loader, traffic movement in and out of the Facility, and screening of product in the Screening and Dispatch area.</li> <li>- All equipment and plant will be maintained in good working condition.</li> </ul>
Contaminated or potentially contaminated stormwater	Waste acceptance Composting activities Vehicle movements Storage of feedstock/waste	Overland runoff	<ul style="list-style-type: none"> <li>- Roofed and asphalted areas graded away from leachate-generating areas to minimise leachate generation.</li> <li>- A surface water pond lined with HDPE, sized for a 1-in-20-year, 24-hour storm event.</li> <li>- An overflow channel to allow the safe overtopping of surface water during events larger than a 1-in-20-year, 24-hour storm event.</li> <li>- A SWLMP has been prepared for the Site, and will be implemented during construction and operation.</li> </ul>
Odour	Waste acceptance Composting activities Anaerobic materials, including feedstocks and wastewater Leachate ponds	Air / windborne pathway	<ul style="list-style-type: none"> <li>- Highly putrescible organic materials such as FOGO, which will generate the most odour emissions, will be processed in an enclosed composting system; Less putrescible organic materials that produce fewer odour emissions, such as greenwaste, will be stored in the carbon storage area.</li> <li>- Organic materials will be delivered to the receival building for initial inspection, which is enclosed and roofed to minimise potential odour releases; The receival building will include doors that will be kept closed at all times when waste is not being delivered. The receival building will also operate with a 'clean floor' policy, with all received wastes removed by the end of each working day.</li> <li>- The initial composting stage will occur in the cocoons, which will be fully enclosed. Odorous air will be extracted from the cocoon process and used in the MAF processing area which will provide a biofilter effect.</li> <li>- Each composting cocoon is independent of all others, self-operating through automated parameterised settings, and comprises an air duct system, sub-floor blowers, process/leachate water collection and leachate recycling/addition systems and process control features for temperature, pressure, oxygen levels and moisture.</li> <li>- The use of the MAF system during the pasteurisation phase will reduce odour emissions through the continuous operation of windrows.</li> </ul>



Emission or environmental aspect	Sources	Potential pathways	Applicant proposed controls
			<ul style="list-style-type: none"> <li>- The MAF and final maturation areas will be roofed to provide optimal processing conditions to mitigate the potential for odour emissions arising from poor maturation.</li> <li>- Liquid waste accepted at the Site will be stored in enclosed tanks, which will minimise potential odour emissions.</li> <li>- Vehicles transporting waste materials to the Site and compost products away from the Site will be required to be covered at all times.</li> <li>- A complaints register will be maintained and in the event that a complaint is received, C-Wise will investigate the source and implement appropriate management controls.</li> </ul>
Waste and leachate	<p>Waste acceptance and composting</p> <p>Storage of leachate in leachate ponds</p>	Discharge to surface water or infiltration to groundwater	<ul style="list-style-type: none"> <li>- A fully enclosed building is proposed for the receival building, with an internal concrete floor sloped to a leachate collection pit.</li> <li>- The composting process areas are all roofed or fully enclosed within cocoons, with sidewalls to minimise rainfall intrusion and concrete hardstands falling toward leachate collection pits.</li> <li>- All sealed surfaces within the processing areas, the receival buildings, and the hardstands in-between the two, will direct any leachate generated to a series of leachate collection pits. These pits will capture the leachate, which will then be pumped to a designated above-ground tank farm for each stage.</li> <li>- The tanks arranged in banks of three and bunded to a capacity of 110% that of the volume of a single bank within the bund, in accordance with AS1940.</li> <li>- Leachate generated in the carbon storage area hardstands (i.e green waste and natural fibrous organics) will drain via HDPE-lined channels to leachate ponds.</li> <li>- The leachate ponds will be limited to the containment of carbon storage area leachate, rather than composting process leachate (which will be stored in the liquid waste tanks).</li> <li>- The leachate ponds are sized for five consecutive 90th percentile rainfall years and a 1-in-100-year rainfall event, higher than the benchmark control within the Organics Recycling Guideline.</li> <li>- Leachate ponds will be lined with HDPE and GCL to minimise the likelihood of leaks.</li> <li>- A controlled groundwater level has been developed for the Site to minimise the impact of fluctuating groundwater on the pond lining system, and to maintain a minimum groundwater separation.</li> <li>- Regular inspections and a groundwater monitoring regime will be undertaken to identify any damage to the leachate management system.</li> <li>- Roofed areas will drain to a HDPE-lined surface water pond, sized for a 1-in-20-year, 24-hour storm event in accordance with the Organics Recycling Guideline.</li> <li>- The external perimeter of all buildings and roof areas will slope away from any doors to prevent stormwater ingress.</li> </ul>

Emission or environmental aspect	Sources	Potential pathways	Applicant proposed controls
			<ul style="list-style-type: none"> <li>- A Surface water and leachate management plan (SWLMP) has been prepared for the Site and will be implemented during construction and operation.</li> <li>- During extreme rainfall events, the leachate ponds are designed to overtop into the surface water pond.</li> <li>- The Facility has been sited and designed to ensure a minimum 50 m separation distance between infrastructure and the mapped Conservation Category Wetlands. There will be a fence installed at the 50m buffer for all wetlands surrounding the Development Footprint. This buffer is consistent with the Shire's Local Biodiversity Strategy.</li> <li>- Due to the presence of Conservation Category Wetlands within the Site, the project may be classified as a high risk development under the Shire's Local Planning Policy: Water Sensitive Urban Design. The Project has therefore been developed in accordance with the principles and strategies outlined within the Policy to ensure that the associated risks are managed appropriately.</li> </ul>
Litter and debris	<p>Contaminants and management of these within feedstocks/ waste and during operations.</p> <p>Debris accumulating within drains.</p>	Air / windborne pathway	<ul style="list-style-type: none"> <li>- Waste materials will be received in the receival building, which is enclosed and roofed.</li> <li>- Waste loads will be inspected in the receival building to ensure that there is minimal to no contamination present.</li> <li>- Regular washdown of operational areas to reduce unintended build-up of litter.</li> <li>- A fence between the development footprint and surrounding wetlands will be established and maintained.</li> <li>- Any litter generated around and immediately outside the site will be collected on a regular basis.</li> </ul>
Vermin	<p>Waste acceptance</p> <p>Composting activities</p>	<p>Air / windborne pathway</p> <p>Direct contact</p>	<ul style="list-style-type: none"> <li>- All waste and final product loads will be covered during transport to and from the Site, reducing the potential for organic materials to be scattered across the Site which may attract vermin and feral animals.</li> <li>- The receival building will operate with a clean floor policy, with all waste materials removed by the end of each day.</li> <li>- Receival, treatment and initial processing of putrescible FOGO waste to occur within the enclosed Receival Building, in undercover or sealed areas.</li> <li>- Regular washdown of the compost processing areas to reduce unintended build-up of organic wastes.</li> <li>- A fence between the Development Footprint and surrounding wetlands will be established and maintained, limiting the potential for large vermin and feral animals to enter the Site.</li> <li>- Any suspect and/or known shelters or breeding grounds for vermin will be managed appropriately.</li> <li>- In the event that a population of vermin or feral animals becomes problematic, C-Wise will engage a qualified pest control contractor to implement appropriate management measures.</li> </ul>

Emission or environmental aspect	Sources	Potential pathways	Applicant proposed controls
Particulates, noxious gases, smoke and ash	Fire event	Air / windborne pathway	<ul style="list-style-type: none"> <li>- Smoke detectors will be installed in buildings in accordance with relevant standards.</li> <li>- Fire extinguishers will be located in appropriate locations around the Facility.</li> <li>- Fire hose reels will be located at all buildings and accessible at all times.</li> <li>- All prevention/mitigation equipment will be kept in good working order, clearly signed and tested in accordance with the manufacturer's specifications.</li> <li>- Staff will be adequately inducted and trained to respond to fire and smoke.</li> <li>- A Site emergency response procedure and evacuation procedure will be developed.</li> </ul>
Firewater	Fire event	Discharge to surface water or infiltration to groundwater	<ul style="list-style-type: none"> <li>- Concrete, asphalt and crushed limestone hardstands have been implemented in all processing areas at the Facility to minimise any fire wash waters from entering the soils at the Site.</li> <li>- Hardstands and processing areas feature minimum 1:100 falls towards leachate collection pits and leachate ponds around the Facility for low-risk leachate areas and 1:80 falls for high-risk leachate areas, which will capture any runoff generated by fire wash waters.</li> <li>- Drains at the Site are connected to appropriate drainage infrastructure, such as the leachate pond or surface water pond, minimising the likelihood of fire wash waters entering the environment without detention.</li> <li>- The highest risk area for fires, the receival building wherein FOGO will be initially received, is fully enclosed to further mitigate the risk of any fire wash waters contaminating other areas of the Facility.</li> </ul>
Product quality derived impacts: release of physical, chemical and biological contaminants that can result in pollution or environmental harm	<p>Application of products in the environment:</p> <ul style="list-style-type: none"> <li>- with inadequate treatment of contaminants and/or feedstocks during processing;</li> <li>- with residual contaminants within products</li> </ul>	Direct contact and leachate/ migration into the receiving environment	<ul style="list-style-type: none"> <li>- Controls as specified in the 'Waste and leachate' emission apply.</li> <li>- The final product will be tested and classified in accordance with <i>Guideline: Better practice organics recycling</i> to ensure that it is fit-for-purpose and of a sufficient quality. At this stage, it is unknown if the outputs from the Facility will be classified as either Category A or Category B products.</li> </ul>

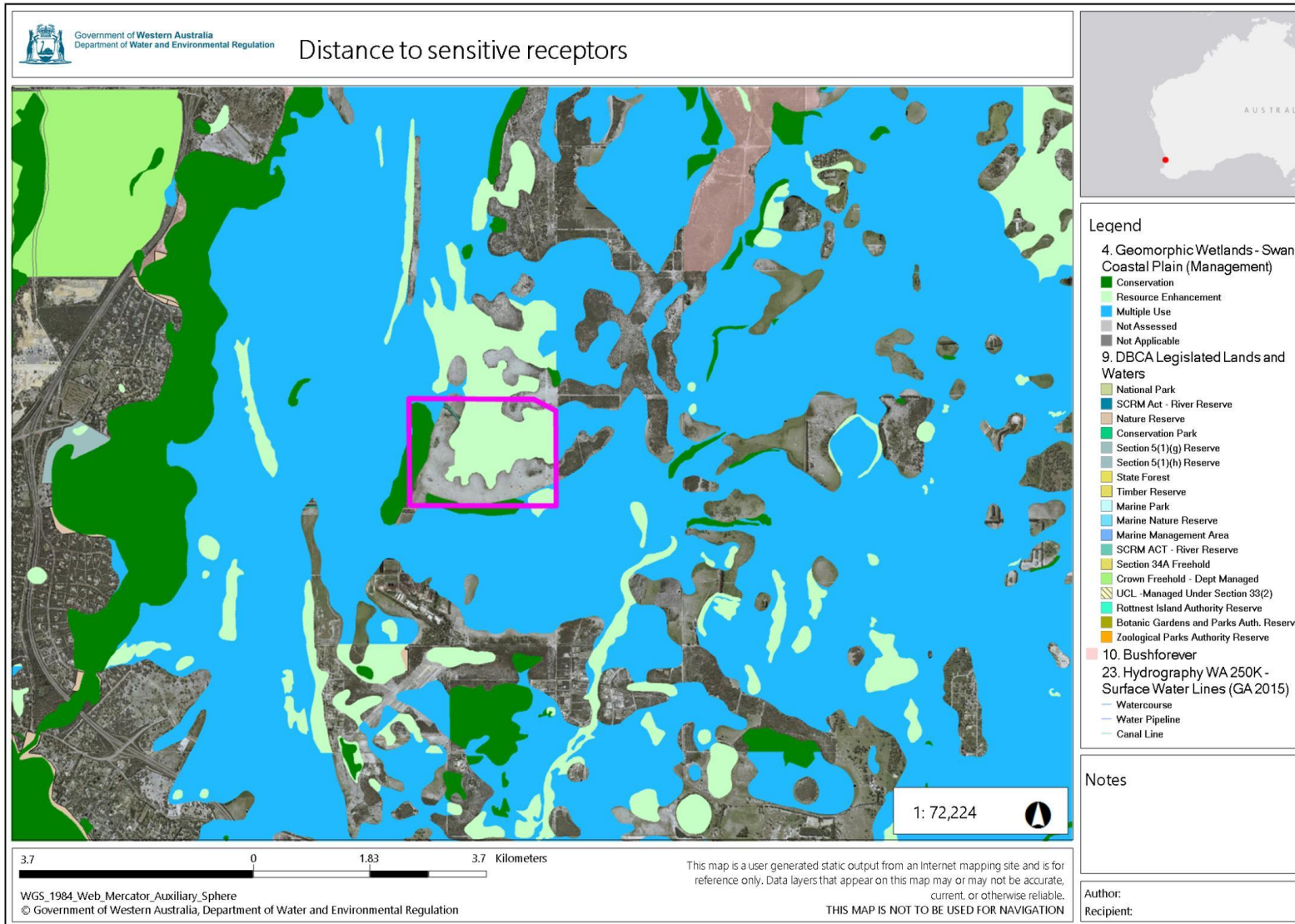
### 3.1.2 Receptors

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

Table 2, and Figures 1 and 2 below provide 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
Residential Premises	Approximately 2.56km to the southeast.
Industrial Premises	Approximately 1.3 km to the south.
Environmental receptors	Distance from prescribed activity
Conservation Category, Resource Enhancement and Multiple Use Wetlands	Within the premises and adjacent to the west and south of the premises.
Threatened Ecological Communities - Banksia Woodlands of the Swan Coastal Plain/Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region.	Mapped as occurring over the site but not identified during flora surveys.
Threatened and/or priority fauna – Priority 4 species	300m west and 2km south-southwest
Threatened and/or priority fauna – Six conservation significant species	Identified during site survey
Aboriginal and other heritage sites - Artefacts/scatter registered site (4110)	2.1km south-southwest
Serpentine River	3km west
Gull Road Drain	125m south
Underlying groundwater	The Average Annual Maximum Groundwater Level ranges from RL 9mAHD at the northwestern Site boundary to RL 19mAHD at the eastern boundary.



**Figure 1: Distance to sensitive receptors**

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IR-T13 Decision report template (short) v3.0 (May 2021)

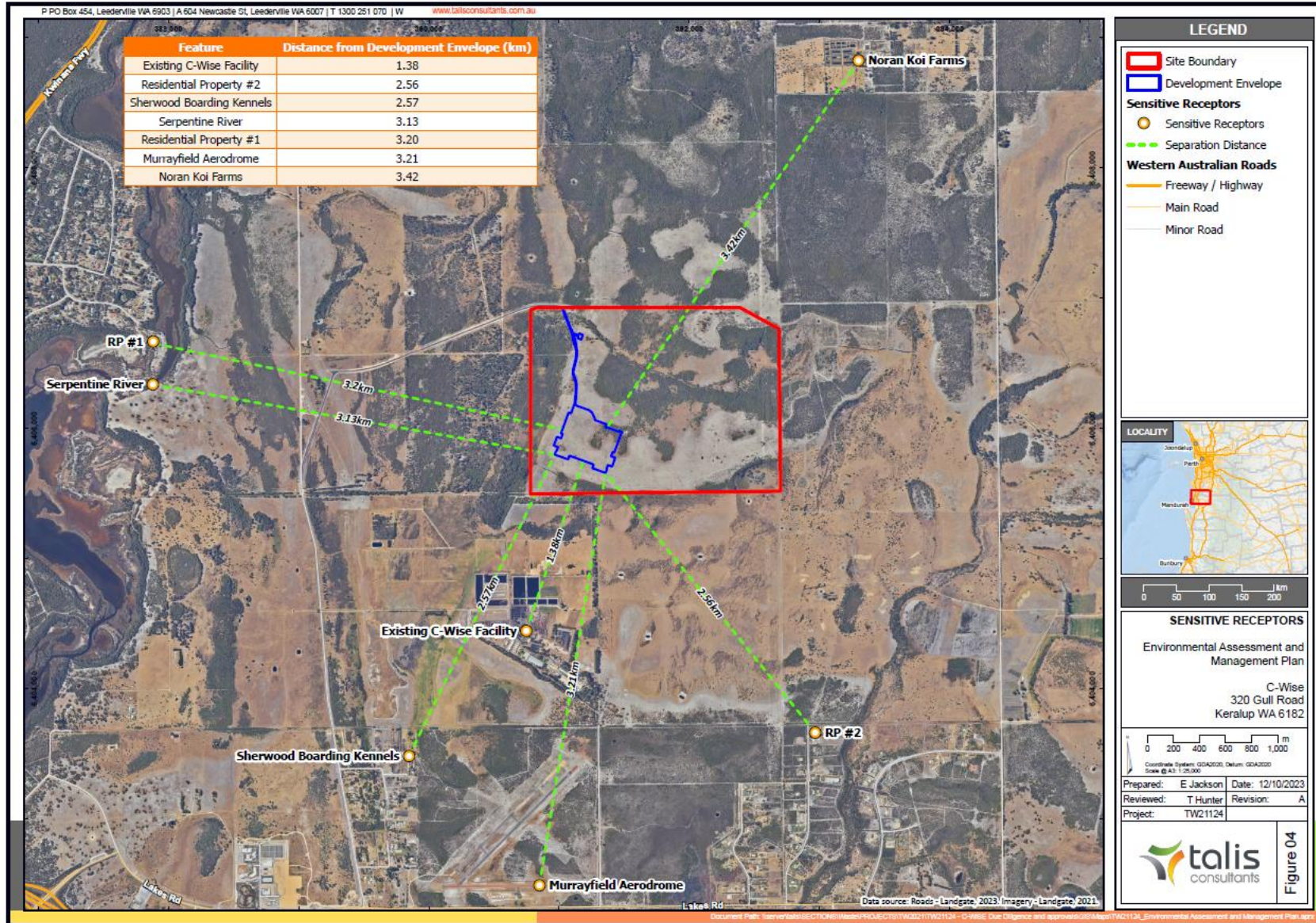


Figure 2: Distance to sensitive receptors

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IR-T13 Decision report template (short) v3.0 (May 2021)

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

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

Works approval W6871/2023/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 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. Category 67A and 61 activities. 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 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation**

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
<b>Construction</b>								
Earthworks and construction of infrastructure Vehicle and equipment movements	Dust	Air / windborne pathway causing impacts to health and amenity	Residents approximately 2.56 km to the southeast	Refer to Section 3.1	C = Slight L = Unlikely <b>Low risk</b>	Y	N/A	The delegated officer considers dust emissions are effectively regulated by the general provisions of the EP Act and the applicant's controls
	Noise		Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium risk</b>	Y	N/A	The environmental siting of the premises is considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors. The delegated officer considers noise emissions are effectively regulated by the general provisions of the EP Act, <i>Environmental Protection (Noise) Regulations 1997</i> .
<b>Operation (including time-limited-operations operations)</b>								
Waste acceptance Composting activities Vehicle movements Storage of feedstock/waste	Dust	Air/windborne pathway causing impacts to health and amenity	Residents approximately 2.56 km to the southeast Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Slight L = Unlikely <b>Low risk</b>	Y	<b>Condition 25</b>	The delegated officer considers dust emissions are effectively regulated by the general provisions of the EP Act and the applicant's controls.
Waste acceptance Composting activities Vehicle movements	Noise	Air/windborne pathway causing impacts to health and amenity	Residents approximately 2.56 km to the southeast Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium risk</b>	Y	N/A	The environmental siting of the premises is considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors. The delegated officer considers noise emissions are effectively regulated

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Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
			m to the south					by the general provisions of the EP Act, <i>Environmental Protection (Noise) Regulations 1997</i> .
Waste acceptance Composting activities Vehicle movements Storage of feedstock/waste	Contaminated or potentially contaminated stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Gull Road Drain 125m south Groundwater approximately 2 mbgl Threatened Ecological Communities within premises	Refer to Section 3.1	C = Moderate L = Possible <b>Medium risk</b>	Y	Conditions 1,2, 12 and 18 <b><u>Condition 3, 4, 7, 8, 2,7 32 and 34</u></b>	The submission of an Environmental Compliance Report and Critical Containment Infrastructure Report under conditions 3 and 7 will allow the department to verify the effectiveness of infrastructure controls relating to stormwater management.
Waste acceptance Composting activities Leachate ponds	Odour	Air/windborne pathway causing impacts to health and amenity	Residents approximately 2.56 km to the southeast Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Moderate L = Likely <b>High risk</b>	N	Conditions 1 2, 12 and 18 <b><u>Conditions 3, 4, 5, 7, 8, 26, 32, 41, 42 and 45</u></b>	Refer to Section 3.3.
Waste acceptance and composting Storage of leachate in leachate ponds	Leachate	Discharge to surface water or infiltration to groundwater causing degradation of water quality and potential impacts to down-gradient ecosystems	Gull Road Drain 125m south Groundwater approximately 2 mbgl Threatened Ecological Communities within premises	Refer to Section 3.1	C = Moderate L = Possible <b>Medium risk</b>	Y	Conditions 1,2, 12 and 18 <b><u>Condition 3, 4, 7 8, 22, 32, 34, 38, 39 and 40</u></b>	Refer to Section 3.4.
Contaminants and management of these within feedstocks/wastes	Litter and debris	Air/ windborne and overland impacting human amenity and health and/ or the environment,	Residents approximately 2.56 km to the southeast Industrial	Refer to Section 3.1	C = Minor L = Rare <b>Low risk</b>	Y	<b><u>Conditions 16 and 17</u></b>	The potential for litter and debris is limited by the types of feedstocks/wastes being accepted. Where litter and debris occur in feedstocks the contaminants should be managed in

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Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
		including adjacent threatened ecological communities	premises approximately 1.3 m to the south					accordance with conditions 16 and 17 to ensure the risk of these materials impacting the environment is effectively controlled.
Waste acceptance Composting activities	Vermin	Attraction and harbouring of pests which may act as vectors for pathogens, potentially causing health and amenity impacts	Residents approximately 2.56 km to the southeast Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Major L = Unlikely <b>Medium risk</b>	Y	Condition 18	The delegated officer considers impacts from vectors are effectively regulated by the general provisions of the EP Act. In making this decision, the delegated officer has considered the effective application of the applicant's controls at the premises.
Fire event	Particulates, noxious gases, smoke and ash	Air/windborne pathway causing impacts to health and amenity	Residents approximately 2.56 km to the southeast Industrial premises approximately 1.3 m to the south	Refer to Section 3.1	C = Major L = Rare <b>Medium risk</b>	Y	<b>Conditions 6, 23 and 24</b>	The delegated officer has considered that the premises is mapped within a bushfire prone area according to mapping published by the Office of Bushfire Risk Management.  A suite of documents were prepared by the applicant to address bushfire risks and emergency procedures, including a Bushfire Management Plan, Bushfire Emergency Plan and Bushfire Risk Management Plan. These documents were provided to the Shire of Murray and the Department of Fire and Emergency Services (DFES) as part of the planning approval process.
Fire event	Firewater	Discharge to surface water or infiltration to groundwater causing degradation of water quality and potential impacts to down-gradient ecosystems	Gull Road Drain 125m south Groundwater approximately 2 mbgl Threatened Ecological Communities within premises	Refer to Section 3.1	C = Major L = Rare <b>Medium risk</b>	Y		The delegated officer considers the risks from fire events are effectively regulated by the applicant's controls, including infrastructure and equipment and the implementation of a fire and emergency management plan prepared under condition 6.

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions <sup>2</sup> of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Sale of final compost product to public	Pathogens Contamination or not 'fit for purpose' compost product	Direct contact causing impacts to human health	Private and commercial compost users becoming exposed to contaminants in products.	Refer to Section 3.1	C = Major L = Possible <b>High risk</b>	Y	<b><u>Conditions 28, 29 and 36</u></b>	The delegated officer considers the risks from contamination through not 'fit for purpose' compost product are effectively regulated through the regulatory controls within the works approval. These include the monitoring of product quality and concentration limits for product quality.

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

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

### 3.3 Detailed risk assessment for odour

Given the potential for odour emissions, the application and accompanying *Odour Impact Assessment of Proposed Carbon Recycling Facility* (EAQ Consulting, November 2023) was referred to the department's Air Quality Sciences Branch (AQS), Science and Planning, for technical advice.

A summary of the advice is provided below:

- Odour controls for the proposed new composting operations appear to be improved compared to existing operations, particularly for the liquid waste management and the unloading and first composting stages. It is expected that this will reduce emissions from the composting component of existing (i.e., non-FOGO) C-Wise operations once Stage 2 of commissioning is completed.
- It is unclear whether the upgraded odour controls used for Stage 2 operations (existing feedstock processing) will be sufficient to avoid odour impact at sensitive receptors, or to offset the additional odour emissions from the new FOGO feedstock processing (Stage 1) operations.
- DWER's ICMS complaints system suggests that impacts from the three industries presently co-located at the existing Nambeelup site may still be occurring at distances of up to 8km from the site. Moving C-Wise operations to the new location approximately 1km to the north-west is likely to reduce the intensity of odour plumes originating from these operations (Keralup and Nambeelup sites) but may broaden the area of impact.
- Moving the composting operations to Keralup may improve the ability to undertake wind-direction based source attribution for odour detected in areas to the west of the piggery, mushroom compost production farm and composting industries.
- The modelling does not meet the requirements of the *Guideline: Odour emissions* (DWER, 2019). Dispersion modelling had been used to estimate odour footprints of components of the existing C-Wise composting operations; however the relevance of the updated modelling report to the proposed Keralup operations was not clear. Odour "footprint" (or criterion modelling) is not accepted by DWER to inform the department regarding odour impact risk owing to the large associated uncertainties. Consequently, it is not possible to draw any conclusions regarding odour impact extents of the proposed site from the dispersion modelling reports for the existing site.
- It is recommended that the proponent develops an odour management plan that proactively monitors and manages odour emissions on site.

#### Key Findings:

1. The preparation of an odour management plan may aid understanding and management of the on-site odour emission sources from the premises. The plan will include regular site inspections to identify and potentially rectify problematic sources of odour, with regular field inspections to measure recognisable plume extent under worst-case dispersion conditions (including during easterly winds) also considered.
2. In addition to the applicant's proposed controls, further regulatory controls have been specified within the works approval to align with the technical advice. Odour field assessments (OFA) during the time limited operations phase of both stages 1 and 2 have been included within the works approval, and may form an ongoing OFA requirement in the event that a licence is determined for

the premises.

3. The applicant has proposed the use of a biofilter in the event that capture of the cocoon air will be under the covers will be inadequate for re-use as recycled aeration air for other cocoons. The department agrees that a biofilter is not recommended for the first stage cocoon composting unless the proposed recycling of aeration air proves to be ineffective. However, further evaluation will occur following the outcomes of the OFA's and associated report required by the works approval. In the case that additional controls are required, this will be discussed with the applicant as part of the licence assessment process.
4. Due to the inherent uncertainties in predictive odour impact assessments, it is not possible to predict with certainty if the proposed controls will be sufficient to mitigate the risk of impacts to acceptable levels at the nearest receptors. However, these uncertainties can be validated through regulatory controls within the Works Approval, through the monitoring and reporting of complaints data, requirements for the operator to carry-out odour field assessments under the time-limited operations phase and via DWER site investigations and/or compliance inspections. As such, additional odour mitigation measures may be implemented in the subsequent licence following assessment of information obtained through time-limited operations in the Works Approval.

Subsequent to the initial application, the EAQ Odour Impact Assessment was revised (8 May 2024) following a request from the Shire of Murray. This revision included additional information on the existing and proposed odour emitting activities and expanded odour dispersion modelling to estimate the odour footprint under varying odour emitting scenarios, in particular scenarios that included odour emitting sources adjacent to the C-Wise activities.

The revised Odour Impact Assessment also included the proposed installation of a biofilter able to treat approximately 48,000 m<sup>3</sup>/hour of odorous process air from the Receivals Mixing Area and the Cocoon headspaces.

The applicant notes that the final biofilter design is still to be decided, but that the initial design is suitably sized for the treatment of 2 air changes per hour from the Receivals Mixing Area and the Cocoon headspaces combined, and also includes an additional volume of air from the Cocoons to account for any re-used MAF air losses and/or evolved headspace odours.

Given the large footprint available for a biofilter, the final concept design will include an option to expand the biofilter should the need arise for further odour extraction.

#### **Key Findings:**

5. The installation of the biofilter(s) will provide further mitigation of odour emissions, and have been included within the design and construction / installation requirements of condition 1.
6. Further design detail of the biofilter(s) will be addressed through the submission of the Odour management plan required by condition 5 of the works approval. This plan is required prior to the commencement of time-limited operations.

### 3.4 Detailed risk assessment for leachate

As submitted in *Study: Proposed East Keralup Facility (WSP, May 2023)*, the Average Annual Maximum Groundwater Level (AAMGL) with a 50% Annual Exceedance Probability (AEP) across the premises is estimated to range between:

- Stage 1: RL 13.0 m AHD to RL 14.5 m AHD
- Stage 2: RL 14.5 m AHD to RL 16.0 m AHD.

The 50 Year groundwater level with a 2% AEP across the plant site is estimated to range between:

- Stage 1: RL 13.9 m AHD to RL 15.2 m AHD
- Stage 2 (future development): RL 15.1 m AHD to RL 16.5 m AHD

To ensure a minimum separation distance of 1.5m is maintained between the base of each pond and the estimated 50 Year Design Groundwater Level at the premises, a controlled groundwater level drainage system has been proposed.

Stage 1 will initially comprise an open swale along its eastern and southern site edges, which will control groundwater levels beneath the three ponds to no higher than 14 mAHD. At the development of Stage 2, the eastern swale between Stage 1 and Stage 2 will be converted into a sub-soil drain pipe, and Stage 2 will have its own swale installed along the Stage 2 eastern and southern boundaries to control the groundwater level beneath the Stage 2 ponds to no more than 15 mAHD.

The investigation found that the groundwater designs for the Facility are able to control groundwater to the required depth underneath all leachate and surface water ponds. The controls within Stage 1 are designed to only remove the seasonal peak groundwater level, with any flows and associated discharge only likely to occur during the wet winter months.

Given the potential for groundwater emissions, the application and accompanying *Surface Water and Leachate Management Plan* (Talis Consultants, November 2023) was referred to the department's Contaminated Sites Branch, Science and Planning, for technical advice.

Of particular importance was the proposed separation distance of 1.5 metres between the base of solid and liquid waste containment structures and groundwater, given that the *Guideline: Better practice organics recycling* (DWER, 2022) specifies that the highest seasonal water table beneath the site should not be less than 2 metres.

The advice specified that the rate at which dissolved contaminants in compost leachate are attenuated in the vadose zone also depends on other factors besides water table depth, including:

- The rate at which compost-production leachate is able to seep through the base of containment structures into groundwater; and
- The concentration of dissolved organic carbon compounds in the leachate.

Thus, water-table depth is not the only factor that controls the risk of groundwater contamination taking place at these facilities, and there are other measures that can be implemented to ameliorate these risks if the water-table depth is less than two metres.

Consequently, the department does not consider a water table depth of only 1.5 metres to be a limiting factor in the siting of the premises. In the absence of a two-metre minimum groundwater depth, it is considered that additional management measures could be implemented to reduce the risk of groundwater contamination taking place near wastewater, including setting maximum allowable concentrations for specific chemical that can be stored in wastewater ponds, and requiring that the ponds are subjected to periodic seepage tests to ensure that the rate of seepage from these facilities does not increase over time.

Based on the known hydraulic properties of Bassendean Sand sediments and the behaviour of drains in these sediments elsewhere in the region, it is considered that the proposed drainage infrastructure would probably be suitable for maintaining a 1.5 metres water table depth beneath wastewater ponds at the proposed site.

### 3.4.1 Coffee rock saturation

The department considers that drainage from the site should be further reduced if a review of lithological logs at the site indicates that this would be necessary to keep coffee rock horizons in the soil profile saturated to reduce the export of acidity, nitrogen compounds and metals in drainage water. This would be supported even if this requires the depth to the water table below the proposed leachate control ponds to be reduced from a minimum separation distance of 1.5 metres to a distance of 1.0 metres.

Research jointly carried out by the department and the University of WA has shown that Bassendean Sand sediments in the region are potential acid sulfate soil materials (see *Prakongkep, N., Gilkes, R.J., Singh, B. and Wong, S., 2012. Pyrite and other sulphur minerals in giant aquic spodosols, Western Australia. Geoderma, 181-182, 78-90*). This is because these sediments contain significant amounts of pyrite and elemental sulfur below the water table, which can release acidity if the water table is lowered excessively.

As most of the acid-producing minerals are present in coffee rock (i.e., the E-horizon in spodosol/podzol soil profiles in the area), it would be important that the water table is maintained within or above this material wherever possible to minimise the export of acidity, nitrogen compounds and dissolved metals to the environment in drainage water, as this is considered a significant environmental hazard at the proposed facility.

Due to the issue above, FSG Geotechnics and Foundations (FSG) undertook additional site investigations that have provided further information on the extent of the coffee rock layer and groundwater levels at the premises, providing an addendum to the original Groundwater Level Management Study (FSG. Ref. 11375RAL010, 7 December 2023).

The data from the investigation indicated that the coffee rock layer at the site generally follows the groundwater level gradient, though is currently lower than the seasonal low groundwater levels and several metres lower than the post-construction-controlled groundwater levels. This indicates that the proposed controlled groundwater level drainage system with a minimum separation distance of 1.5m should not directly impact or desaturate the coffee rock layer. It was noted by FSG, however, that the controlled groundwater level drainage system would create a new lower steady-state groundwater level over the Stage 2 development. This may impact the seasonal low groundwater levels, which may get closer to or reach the top of the coffee rock layer.

Considering this, FSG agreed that a minimum separation distance of 1m, rather than 1.5m, would minimise the risk of environmental impacts relating to desaturation of the coffee rock layer and the release of acidity, nitrogen compounds and metals. Therefore, the applicant proposed to reduce the drainage at the premises and amend the design of the controlled groundwater level drainage system such that a 1 m minimum separation distance between the base of the leachate ponds and groundwater is maintained across both Stage 1 and Stage 2 of the development.

Minimum groundwater separation distances depend on site-specific geological factors and on how a pond has been constructed, and in practice, smaller distances can be tolerated. This is provided that the rate of seepage through the basal liner of the pond is very low and does not cause significant groundwater mounding, and provided that the seasonal variation of the elevation of the water table is known with a high degree of certainty.

Due to the shallow saturated soil profiles in the area having the potential to contain small amounts of pyrite which could release acidity on oxidation, it is important to minimise the degree to which these soils are drained and exposed to oxygen to minimise the risk of acidity,

metals and nutrients being discharged to groundwater by soil disturbance.

For this reason, the department supports the proposed reduction of the separation distance between the base of the wastewater ponds to the water table from 1.5 m to 1.0 m, and considers that the proposed change will not significantly alter the level of environmental risk that would be associated with the management of wastewater ponds on the premises.

**Key Findings:**

7. To ensure that the rate of seepage from the pond infrastructure does not increase over time, they will be subject to a seepage test during time-limit operations and proposed periodic seepage tests may be conditioned in the future licence.
8. The locations and number of monitoring bores for the premises that were proposed in the submission are supported by the department.
9. Groundwater monitoring events have been included in the works approval to manage the risk of groundwater contamination from the pond infrastructure.
10. In addition to these bores, it is recommended that one or more passive siphon samplers are installed in a drainage swale near the premises. Such samplers could then determine the acidity, nitrogen and metals content of “first flush” water that drains from these swales after a prolonged dry period. This monitoring would help determine whether additional management measures would need to be implemented at the site to limit the export of acidity, nitrogen compounds and metals in drainage water from the site to the environment.
11. Spills of feedstocks and waste will be regulated by the general provisions of the EP Act and the *Environmental Protection (Unauthorised Discharge) Regulations 2004*.

### 3.5 Detailed risk assessment for product quality

#### 3.5.1 Feedstock quality

All feedstocks are to be beneficial to the organics recycling process. Feedstocks that provide a beneficial outcome for product quality may improve the quality of the finished product and/or improve the efficiency or effectiveness of the processing method. Disposal of waste via absorption and dilution of contaminants is not a beneficial outcome.

To ensure that potential contaminants can be processed, the likely composition of contaminants needs to be understood and processes implemented to ensure the contaminants can be effectively managed and removed or treated during the process.

**Key Findings:**

12. The following feedstocks are considered ‘high-risk feedstocks’ as they may contain chemical or biological contaminants which require treatment or management during the organics recycling process:
  - a) nitrogenous manures and mortalities;
  - b) food organics and garden organics; and
  - c) all liquid wastes.



13. Some of the high-risk feedstocks proposed in the application are not widely used in the organics recycling industry and based on the limited information in the application there is a high level of uncertainty about how these feedstocks will affect product quality. These non-standard feedstocks are listed in Table 4 with a summary of the key risks and uncertainties associated with each.

**Table 4: Risks and uncertainties associated with certain feedstocks**

Solid/liquid	Feedstock type	Risks and uncertainties
Liquid	Fertiliser washwaters	Not described in sufficient detail to provide assurance about the composition of feedstocks.
	Glycols	High potential for variability in the composition of feedstocks from different sources and over time. Not supported by characterisation analysis to indicate potential contaminants and concentrations.

### 3.5.2 Process water

Water sources are required to effectively support the organics recycling process (pasteurisation). All water will be sourced from imported wastewater, being liquid waste of the types described in Table 5 of the works approval, and residual wastewater present within the leachate storage tanks.

Liquid waste and wastewater can contain biological, chemical and physical contaminants. The pasteurisation process is to effectively treat organic materials so that the numbers of biological contaminants (pathogens and plant propagules) are significantly reduced. Where higher risk feedstocks are used (e.g. FOGO wastes, animal waste and manures), Australian Standard AS 4454 sets out the required pasteurisation process.

#### Key Findings:

14. The application did not indicate how liquid waste and wastewater will be used in producing Category A or Category B compost products (i.e. the stages of the composting process when liquid waste and wastewater will be used).

### 3.5.3 Product quality assurance

Fit-for-purpose products provide beneficial qualities to the receiving environment when used and do not contain contaminants at levels that cause pollution or environmental harm. The range and concentration of contaminants in products is highly dependent on the type, quality and quantity of feedstocks used in the organics recycling process, and the effectiveness of the organics recycling method. Products derived from higher risk feedstocks can have higher concentrations and variability in contaminant levels and require additional controls to ensure products can be demonstrated as fit-for-purpose.

**Key Findings:**

15. The applicant proposes that the final product will be tested and classified in accordance with the *Guideline: Better practice organics recycling* to ensure that it is fit-for-purpose and of a sufficient quality. At this stage, it is unknown if the outputs from the premises will be classified as either Category A or Category B products, as this is dependent on the feedstocks used to create the products. The quality and type of feedstocks used to create compost at the premises will be confirmed during operations through appropriate and regular testing.
16. The applicant is proposing to accept non-standard feedstocks that may contain contaminants not considered in Australian Standard AS 4454, and has not established how the acceptability of these potential contaminants would be assessed in the product quality assurance stage.
17. Due to the uncertainties in feedstock, and subsequently product quality, the delegated officer considers the preparation and implementation of a Feedstock and waste management plan for the purpose of pre-waste acceptance quality verification to be appropriate, as specified in condition 13.
18. The Feedstock and waste management plan is to be prepared in accordance with the benchmark controls specified in section 8.1 of the *Guideline: Better practice organics recycling*, which include:
  - a. identification of the source and process that produced the waste stream;
  - b. determination of contaminant concentration ranges in the waste stream by laboratory analysis of contaminants known or reasonably expected to be present in the waste;
  - c. consideration of the expected degree of variability in composition of the waste stream between loads and over;
  - d. estimation of the maximum proportion of the feedstock in the organics recycling process (by weight); and
  - e. assessment of how and to what extent the feedstock contributes to the organics recycling process and product quality.
19. As the applicant has indicated that it is unknown if the outputs from the premises will be classified as either Category A or Category B products, with the quality and type of feedstocks used to create compost at the premises will be confirmed during operations, it is not possible to predict with certainty if the proposed controls will be sufficient to mitigate the risks associated with product quality. However, these uncertainties will be validated through regulatory controls within the Works Approval, including the implementation of the Feedstock and waste management plan and reporting of monitoring requirements through the time-limited operations report. As such, additional control measures may be implemented in the subsequent licence following assessment of information obtained through time-limited operations in the Works Approval.

## 4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

**Table 5: Consultation**

Consultation method	Comments received	Department response
Application advertised on the department's	None received	N/A

<p>website</p>		
<p>Department of Biodiversity, Conservation and Attractions advised of proposal on 9 February 2024</p>	<p>The Geomorphic Wetlands of the Swan Coastal Plain (GWSCP) dataset shows a Conservation Category wetland (CCW) (UFI 158856) located immediately to the west of the proposed facility with the CCW (UFI 15857) located immediately to the south of the facility. The proposed facility's boundaries overlap a portion of Resource Enhancement wetland (REW) (UFI 15853).</p> <p>DBCA and Department of Water and Environment Regulation (DWER) staff attended meetings on 26 April 2023 and 12 October 2023 with the applicant, which discussed the proposal prior to the submission of the works approval. Following the meetings the proposal was amended to include the following wetland protection measures.</p> <p>A fenced 50-metre wetland separation buffer was provided to the CCW's adjoining the development footprint (UFI 15856 and UFI 15857). Fire protection buffers, which contain stormwater and leachate ponds, comprising an additional 50 metres were provided in addition to the wetland buffers, resulting in a separation of up to 100 metres between the wetlands and the proposed facility.</p> <p>It is DBCA's expectation that DWER will consider the risk of potential impacts to the adjacent CCW and REWs resulting from changes to groundwater and surface water hydrology (quality and quantity) during the construction and ongoing operation of the facility. This includes consideration of the adequacy of the proposed wetland buffer width and other management measures, which could be required to mitigate impacts.</p>	<p>The wetlands specified by DBCA have been recognised as sensitive receptors, with surface water and groundwater controls included within the works approval commensurate to the risk posed necessary to mitigate potential impacts.</p>
<p>City of Mandurah advised of proposal on 9 February 2024</p>	<p>An Environmental Protection Notice was issued under Section 65 of the <i>Environmental Protection Act 1986</i> on WA Composts Pty Ltd (known as C-Wise) to take certain action to investigate and reduce unreasonable odour emissions from their premises. It is also noted, an EPN requiring similar action was also issued to</p>	<p>As specified in the <i>Guideline: Risk Assessments</i> (DWER 2020), to establish the context of risk, the department will identify site and operator history under Part V of the EP Act for existing prescribed premises. To determine the likelihood criteria, the department</p>

	<p>Derby Industries Pty Ltd (known as CM Farms).</p> <p>It is understood that C-Wise receives liquid waste from CM Farms. It is important that the processes of these premises which are interrelated are identified and any risks of unreasonable odour emissions being increased or unable to be practicably controlled should be considered as part of this application.</p> <p>It is recommended that DWER is satisfied that the current non-compliances present on the premises will be addressed prior to any works approval being granted.</p> <p>The City requests prior to the development of Stage 2 of the facility suitable monitoring programs be incorporated to demonstrate that the increased volume being taken by the existing facility and Stage 1 has not lead to a net increase in odour. An ongoing program of monitoring odour should form part of an approvals issued.</p> <p>It is also critically important that the application is not assessed in isolation of neighbouring licenced premises and any potential of increased odour emission from these premises as a result of the proposed development of the C-Wise premises should be considered.</p>	<p>may also consider the applicant's compliance and operational history.</p> <p>As such, the historical and current compliance issues at the applicant's current premises have been considered in the risk ratings associated with those emissions concerned.</p> <p>The works approval will require multiple field odour assessments during both stage 1 and stage 2 to measure recognisable plume extent under worst-case dispersion conditions to aid understanding and management of the on-site odour emission sources.</p> <p>Moving C-Wise operations to the new location approximately 1km to the north-west is likely to reduce the intensity of odour plumes originating from the Nambeelup industry site, compared to the existing situation where the 3 industries are co-located. However, it is possible for the area of impact to broaden owing to the fact that the proposed C-Wise operations will be closer to some receptors to the west.</p> <p>Moving the composting operations is likely to improve the ability to undertake wind-direction based source attribution for odour detected in areas broadly to the west of the piggery, mushroom compost production farm and composting activities.</p> <p>The department is not aware of any proposed changes to the existing neighbouring licenced premises in Nambeelup.</p>
<p>Shire of Murray advised of proposal on 9 February 2024</p>	<p>The Shire of Murray makes the following comments, which ought to be satisfactorily addressed before approval is contemplated.</p> <p>Odour</p> <p>1. The proposal will increase the C-Wise production by more than double and add FOGO inputs. This has the potential to significantly increase odour impacts, unless the premises are effectively designed and managed. This is particularly so for the leachate ponds and handling of feedstocks such as FOGO.</p>	<p>1. The department considers the regulatory controls implemented within the works approval to be sufficient to mitigate odour emissions.</p> <p>2. The proposed infrastructure is consistent with the benchmark controls provided in <i>Guideline: Better practice organics recycling</i> (DWER, 2022).</p> <p>3. The requirements for the preparation and implementation of an Odour Management Plan has</p>

	<p>2. The premises should be designed, operated and managed in line with best possible practices, with the application clearly demonstrating odour issues can be effectively contained and managed so they do not result in offsite impacts.</p> <p>3. A comprehensive management plan should also be provided to ensure operations are effectively managed in a way that minimises odour production. The management plan should also include a monitoring and contingency plan which includes suitable complaint management and reporting processes.</p> <p>4. Whilst previous odour complaints associated with the existing Nambeelup licenced premises demonstrate the large urban and rural residential area that could potentially be impacted by odours, the proposal must also consider the developing Nambeelup Industrial Area that is located to the immediate south of Lot 9500 which extends southwards to Nambeelup Brook. This area is strategically important to the economic future of the Peel region. The area will have an emphasis on food production businesses which, unlike many other industrial areas will likely be more sensitive to odour emissions. It is critical that this industrial area is not adversely impacted by odours.</p> <p>5. The premises will be located within approximately 200m of the northern boundary of zoned, yet currently undeveloped industrial land at Lot 89 Gull Road. This land, which contains the existing composting, piggery and mushroom facilities, will in time be redeveloped for general industrial purposes. The proposal must consider any buffers necessary for the proposed C-Wise facility, which should not adversely impact existing land uses or the development potential of industrial lands in the vicinity of the proposal.</p> <p>6. The reported significant odour impacts from the existing operations of C-Wise in the recent months of November, December and January affecting residents in Murray, Mandurah and Rockingham have resulted in significant community</p>	<p>been included within the works approval.</p> <p>4. The department has considered current sensitive receptors to the premises. The <i>Guideline: Industry Regulation Guide to Licensing</i> (DWER, 2019) provides guidance on land use planning, noting that an instrument granted by the department only provides a defence for the occupier for offences under Part V, Division 3 of the EP Act, and not for any offences under planning legislation.</p> <p>5. The department considers the regulatory controls implemented within the works approval to be sufficient to mitigate emissions to those existing receptors.</p> <p>6. On 22 February 2024, Environmental Protection Notices were issued to two companies in Nambeelup including WA Composts Pty Ltd trading as C-Wise (EPN 202401) and Derby Industries Pty Ltd trading as Craig Mostyn Farms Pty Ltd (CM Farms) (EPN 202402).</p> <p>The department is continuing to undertake intensive investigations and field odour surveys within the Nambeelup, Secret Harbour, Singleton and Mandurah areas impacted by these odours. The department is continuing to actively investigate these issues and is seeking a resolution as quickly as possible.</p> <p>The department considers the regulatory controls implemented within the works approval to be sufficient to mitigate odour emissions from the proposed premises, noting that restrictions apply within the conditions of the works approval relating to operational periods and waste volumes.</p> <p>7. The department notes the enclosed cocoon composting process.</p> <p>8. The leachate ponds will be limited to the containment of carbon storage area leachate, rather than composting process leachate (which will be stored in liquid waste</p>
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	<p>concerns of odour from current and future operations. This underlies the importance of ensuring adequate design and management of these new premises to ensure offsite impacts do not eventuate. In particular, the request for a 'time limited operations' approval for up to 180 days may result in the operator increasing capacity prematurely before new infrastructure is in place which may escalate odour problems.</p> <p>7. The Shire welcomes the proposal for enclosing and cocooning the early stages of compost preparation to reduce odour impacts;</p> <p>8. The application does not contain detailed odour management measures for the leachate ponds, including for H<sub>2</sub>S and mercaptan odours, and the Shire is highly concerned about the potential odour impacts from the leachate ponds.</p> <p>9. The odour report ignores peak maximum odour levels, instead the modelled odour projections show average levels (2023 reports), rather than maximum cumulative projections. Also, the 2023 odour model maps do not show contours down to 2 ou.m<sup>3</sup>, instead only showing 7 ou.m<sup>3</sup>. We believe contours of 2ou.m<sup>3</sup> would trigger odour complaints from residents in localities such as Lakelands. Extrapolating the models we believe would show average cumulative odour impacts affecting Lakelands and Meadow Springs, and maximum impacts affecting residents in the City of Rockingham and City of Mandurah as was recently experienced.</p> <p>10. The November 2023 report should project the odour footprint for the proposal, rather than showing the existing odour footprint, as this would give a better indication of the impacts of the operations described in the work application. Although the odour report states there 'will be a vast improvement, and a subsequent decrease in the existing odour footprint from C-Wise's carbon recycling activities', a future model map would have provided a better guide for considering future odour impacts on affected residents.</p>	<p>tanks). The ponds must be maintained in an aerobic state with monitoring of Biochemical oxygen demand, Oxidation/ reduction potential and Dissolved oxygen to be undertaken to ensure the effective operation of the ponds.</p> <p>9. The modelling does not meet the requirements of the <i>Guideline: Odour emissions</i> (DWER, 2019). Consequently, it is not possible to draw any conclusions regarding odour impact extents of the proposed site from the dispersion modelling reports for the existing site. However, odour controls for the proposed new composting operations appear to be improved compared to existing operations, particularly for the liquid waste management and the unloading and first composting stages. It is anticipated that the development and implementation of an odour management plan that proactively monitors and manages odour emissions on site, together with odour field assessments will provide further clarity on the extent of potential odour emissions.</p> <p>The Delegated Officer acknowledges that further upgrades or improvements may be required following the conclusion of time-limited operations and prior to the issue of a licence; however, this will be considered alongside the outcomes of the OFA's and associated report required by the works approval. In the case that additional controls are required, this will be discussed with C-Wise as to the appropriate regulatory pathway to facilitate improvements and site upgrades. This can include a department-initiated amendment or a Licence Holder driven amendment process (depending on the scope of works).</p> <p>10. As discussed in point 9 above.</p> <p>11. Native vegetation clearing is managed under permit application CPS 10386/1.</p> <p>12. See point 11 above.</p> <p>13. The locations and number of monitoring bores for the premises</p>
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	<p>Clearing</p> <p>11. Clearing associated with the works and permit should be offset with appropriate native planting on site;</p> <p>12. Vegetation clearing should be to the minimum extent necessary and appropriate in the specific site circumstances i.e. environmental values (CCW, TEC, etc) and bushfire risk should be considered in assessing the proposal.</p> <p>Groundwater protection</p> <p>13. Groundwater monitoring is required up and down the hydrological gradient from the operation, as per the current licence;</p> <p>14. It is suggested that a contingency plan is required in case of a failure or a degradation of liners and leachate protections that would potentially affect any of the wetlands integrity;</p> <p>Conservation wetland</p> <p>15. The proposal is close to and has potential impacts on conservation wetlands (CCW).</p> <p>16. Potential nutrient impacts from operations of proposed land use is a concern, particularly given there are noted high nutrient levels in existing monitoring bores;</p> <p>17. Contingency and operation monitoring should include wetland condition monitoring for CCWs and for the REW directly impacted by the clearing and site location;</p> <p>Mosquitoes</p> <p>18. The proposal is within a high risk mosquito breeding area for both saltwater and freshwater mosquitoes. Given the number of ponds and drains, and particularly given the proposal is for vegetated groundwater control drains, it is requested that measures are in place to prevent mosquito breeding on site, to protect nearby residents.</p>	<p>that were proposed are supported by the department.</p> <p>14. The leachate ponds will be subject to a "Pond drop leakage test" in accordance with IPENZ (2017), or similar periodically in the event that a licence is granted for the premises.</p> <p>15. See response to DBCA comments above.</p> <p>16. See response to DBCA comments above.</p> <p>17. See response to DBCA comments above.</p> <p>18. It is recommended that the applicant prepares a Mosquito Management Plan in consultation with the Department of Health and the Shire of Murray.</p>
<p>Applicant was provided with draft documents on 7 May 2024.</p>	<p>Refer to Appendix 1</p>	<p>Refer to Appendix 1</p>

## 5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

## References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2022, *Guideline: Better practice organics recycling*, Perth, Western Australia.
3. DWER 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, 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
1, Table 1	<p>The project is currently in the conceptual design stage, with detailed designs to be delivered through a Design and Construct style Contract. As such, minor changes to the design of the facility may occur to ensure that the facility can be operated as intended. C-Wise is requesting changes to Table 1: Design and Construction/Installation Requirements to allow for additional flexibility in the final design of the facility, while still achieving the environmental outcomes sought by the DWER.</p>	<p>Minor changes to design and construction requirements have been made. Key requirements have been retained, with the minor design amendments not impacting the risk assessment.</p>