



## Application for Works Approval

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

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**Works Approval Number** W6844/2023/1

**Applicant** Ausvision Rural Services Pty Ltd

**ACN** 106 075 763

**File number** DER2023/000638

**Premises** Hillside Meat Processors

148 Boxsell Road  
NARROGIN WA 6312

Legal description -  
Lot 50 on Diagram 80743 & Lot 6 on Plan 233183

**Date of report** 23 April 2024

**Proposed Decision** Works approval granted

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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 W6844/2023/1 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>.

### 2.2 Application summary and overview of premises

Ausvision Rural Services Pty Ltd (the applicant) currently holds licence L8613/2011/3 for Hillside Meat Processors, located at 148 Boxsell Road, Narrogin WA 6312 (the premises). The premises is licenced for category 15 (abattoir) and category 83 (fellmongering) under Part V of the *Environmental Protection Act 1986* (EP Act) and relates to the assessed production capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6844/2023/1.

On 28 September 2023, the applicant submitted an application for a works approval to the department under section 54 of the EP Act. The application is for:

- the use of an existing outdoor lairage yard (for the holding of sheep and goats prior to their slaughter), requiring some works;
- the construction of a new evaporation pond and associated infrastructure for wastewater management from the proposed outdoor lairage yard; and
- the construction of an additional carcass burial pit.

The scope of the assessment includes:

- the design of the proposed works; and
- a risk-based assessment of the emissions and discharges associated with the construction and operation of the new infrastructure.

The infrastructure and equipment relating to the premises categories and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6844/2023/1.

#### 2.2.1 Outdoor lairage yard

The existing licence L8613/2011/3 authorises the premises to hold a maximum of 1800 animals (sheep and goats) at any one time. The licence only authorises the use of the covered lairage and outdoor (uncovered) lairage yards 1-6. The authorised lairage can only hold a maximum of 1100 animals. Therefore, the applicant is seeking approval for the use of an additional outdoor lairage yard (yard 13) to hold a maximum of 700 animals at any one time.

Design aspects of the outdoor lairage yard are provided below (from the application):

- The outdoor lairage yard is located in yard 13 (see Figure 2 of the works approval) and is 329 m<sup>2</sup>, designed for 700 heads using a stocking rate of 0.47 m<sup>2</sup>/head in accordance with the *Model Code of Practice for the Welfare of Animals: Animals at Saleyards and the Construction and Equipment Guidelines for Export Meat*. Specifications of the

structure are shown in Figure 1.

- The outdoor lairage yard will be lined with in-situ clay soils to achieve a permeability of at least  $1 \times 10^{-9}$  m/s.

## 2.2.2 Evaporation pond and associated infrastructure

Stormwater runoff from the outdoor lairage yards is likely to overload the existing wastewater treatment ponds overtime. Therefore, a dedicated retention basin (evaporation pond) servicing the outdoor holding yard 13 required.

Proposed design aspects of the proposed evaporation pond are provided below:

- The proposed evaporation pond is to be 16.25 m long and 8 m wide with a capacity of 127 m<sup>3</sup> not including freeboard. The size of the evaporation pond has been justified in the application using a month-by-month water balance over an average year, and a 1:20 average recurrence interval (ARI) 48-hour storm event (see Appendix 1: Water balance from application). The water balance demonstrates that the design is sufficient to manage wastewater from the proposed outdoor lairage yard and rainfall from the catchment without discharge to land. Specifications of the evaporation pond are shown in Figure 1.
- A drain directing runoff from lairage yard 13 to the evaporation pond is proposed to carry the peak flow rates resulting from a design storm event with an ARI of 20 years at critical duration, as required by the *National Guidelines for Beef Cattle Feedlots in Australia*. Specifications of the drain are shown in Figure 1.
- Before being directed into the pond, runoff from the drain will be channelled through a concrete sump designed for solid collection. Solids will be collected from the sump daily, semi-dried on the existing paunch and manure storage area (PMSA) concrete pad (subject to conditions on existing licence L8613/2011/3), and then disposed offsite monthly.
- Uncontaminated stormwater will be diverted away from the lairage yard and evaporation pond via 200 mm high bunding.
- The drain and evaporation pond will be lined using existing in-situ clay soils conditioned to achieve a permeability of at least  $1 \times 10^{-9}$  m/s.

## 2.2.3 Burial pit

Currently, the existing carcass burial pit is at approximately 80% capacity. To ensure proper disposal of deceased animals and paunch once the current pit is fully utilised, an additional burial pit is required.

Proposed design aspects of the proposed carcass burial pit are provided below:

- The burial pit will be located 10 m west of the existing burial pit (see Figure 2 of the works approval) and be 30 m in length and 3 m in width.
- The burial pit will be lined using existing in-situ clay soils conditioned to achieve a permeability of at least  $1 \times 10^{-9}$  m/s.

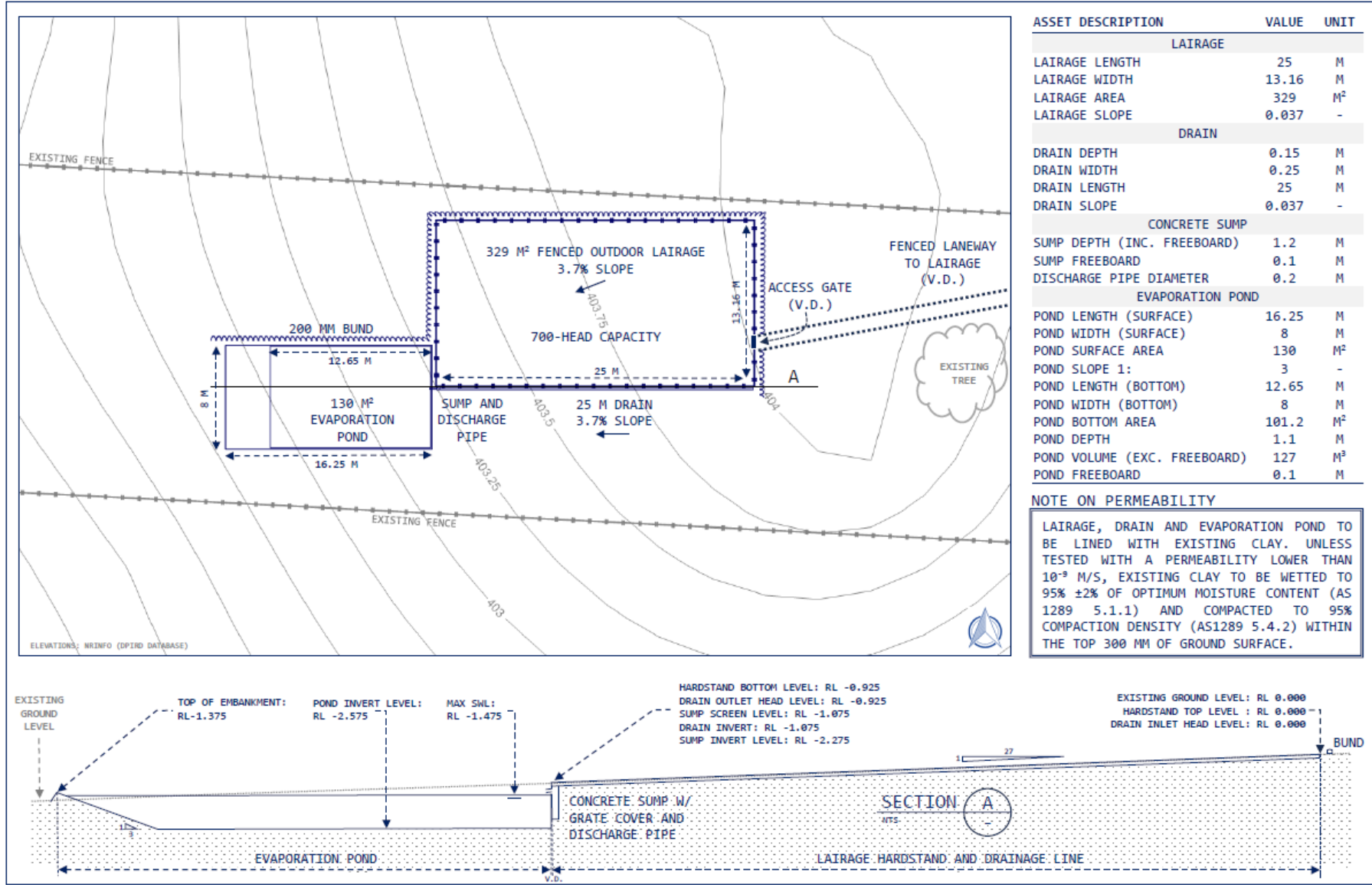


Figure 1: Drainage layout plan and details

### 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 (from application)**

Emission	Sources	Potential pathways	Proposed controls
<b>Construction</b>			
Dust	Excavation, compaction and construction works of lairage yard, evaporation pond and burial pit	Air / windborne pathway	Sufficient distance to sensitive receptors.
Noise			
<b>Operation</b>			
Solid waste (sheep manure and sediment) and stormwater high in total dissolved solids (TDS), biological oxygen demand (BOD) and nutrients  Wastewater and contaminated stormwater	Holding (and feeding) of sheep and goats in the outdoor lairage yard	Overland runoff  Seepage/infiltration causing soil and groundwater contamination.	No more than 700 large animals will be kept in the proposed outdoor lairage yard at any one time.  Solid waste (manure) will be collected from the proposed outdoor lairage yard once a month between November and April and taken to the paunch and manure storage area;  Solid waste (manure) will be collected from the proposed outdoor lairage yard once a week between May and September and taken to the paunch and manure storage area.  200 mm bunding will be maintained to divert stormwater away from the proposed outdoor lairage yard and containment infrastructure;  All wastewater and contaminated stormwater generated within the proposed outdoor lairage yard will be directed via a drain to a sump designed for solids separation before being discharged to the proposed evaporation pond;  Sump will have a 0.1 m freeboard;  The drain is designed to carry the peak flow rates resulting from a storm event with an ARI of 20 years at critical duration and will be clay lined with a permeability of at least $10^{-9}$ m/s;

Emission	Sources	Potential pathways	Proposed controls
			Solids will be collected from the sump daily, semi-dried on a concrete pad, and then disposed offsite on a monthly basis.
Dust		Air / windborne pathway	Sufficient distance to sensitive receptors.
Odour	Disposal of carcasses in burial pit		Carcasses and paunch will be covered with lime upon disposal in the proposed burial pit; Waste material will be covered with a minimum of 500 mm of soil monthly.
Leachate			Seepage/infiltration causing soil and groundwater contamination
Wastewater high in TDS, BOD and nutrients	Storage of wastewater in evaporation pond (loss of containment)	Overtopping Failure of raised embankments Seepage	Proposed evaporation pond will be clay lined with a permeability of at least 10 <sup>-9</sup> m/s; Freeboard of 0.1 m

### 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 **Error! Reference source not found.** below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

**Table 2: Sensitive human and environmental receptors and distance from proposed outdoor lairage yard, evaporation pond and burial pit**

Human receptors	Distance from proposed outdoor lairage yard and evaporation pond	Distance from proposed carcass burial pit
Residential Premises/ Homesteads	1.5 km southwest 2.1 km northeast	1.1 km southwest 2.6 km northeast
Environmental receptors	Distance from proposed outdoor lairage yard and evaporation pond	Distance from proposed carcass burial pit
Groundwater (Karri-Unproclaimed)	No mapping available	No mapping available
Surface water body: Murray River System	Within 240 m north	Within 150 m north
Narrogin Brook (Blackwood Tributary)	340 m south	690 m southeast

Threatened Ecological Communities (TECs)/ Priority Ecological Communities (PECs)	Mapped Eucalypt Woodlands within 0 – 35 m west	Mapped Eucalypt Woodlands 20 m north
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### 3.2 Risk ratings

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.

Where the applicant has proposed mitigation measures/controls, 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 W6844/2023/1 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 amendment is required to authorise emissions associated with the ongoing operation of the additional infrastructure at the premises i.e. the outdoor lairage yard, carcass burial pit and evaporation pond and associated infrastructure. 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 and operation (including time limited operations)**

Risk events				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls <sup>2</sup>
Sources / activities	Potential emission	Potential receptors, pathways and impact	Applicant controls					
<b>Construction</b>								
Excavation, compaction and construction works of lairage yard, evaporation pond, drains, sump and burial pit	Dust	Air / windborne pathway causing impacts to health and amenity to residential premises, closest of which are located within 3 km of the premises.	Sufficient distance to sensitive receptors.	<b>Minor:</b> Low level impact to amenity at a local scale.	<b>Rare:</b> Risk event may only occur in exceptional circumstances	<b>Low Risk:</b> Event is acceptable	The delegated officer considers that the separation distance from the proposed location of the works to the closest rural residential dwelling is sufficiently large for there to be no adverse impact from noise or dust emissions from the construction of the lairage yard, evaporation pond, burial pit, and associated infrastructure.	None specified.
<b>Operation (including time limited operations)</b>								
Holding (and feeding) of sheep and goats in the outdoor lairage yard	Dust	Air / windborne pathway causing impacts to health and amenity to residential premises, closest of which are located 1.5 km southwest and 2.1 km northeast of the lairage yard.	Sufficient distance to sensitive receptors.	<b>Minor:</b> Low level impact to amenity at a local scale	<b>Rare:</b> Risk event may only occur in exceptional circumstances	<b>Low risk:</b> Event is acceptable	The nearest residential dwelling is 500 m southwest of the premises. Given this distance and that winds are generally westerly around Narrogin, the delegated officer considers that the risk of dust and odour impacting on the health and amenity of the nearest residents is low. Therefore, under current premises operating conditions, regulatory controls on dust and odour are not warranted in the licence.	None specified.
	Odour			<b>Minor:</b> Low level impact to amenity at a local scale	<b>Rare:</b> Risk event may only occur in exceptional circumstances	<b>Low risk:</b> Event is acceptable		
	Solid waste (manure and urine) and nutrient laden stormwater	Overland runoff causing ecosystem disturbance or impacting quality of the Murray River surface water system (240 m north of proposed lairage yard) and Narrogin Brook (340 m south of proposed lairage yard). Seepage/infiltration causing soil and groundwater contamination. Eutrophication past the root zone can cause degraded soil structure and soil and groundwater contamination. In addition, there is a risk of contaminant transport in groundwater or overland runoff leading to surface water and TEC vegetation (0-35 m west of proposed evaporation pond) degradation.	No more than 700 large animals will be kept in the proposed outdoor lairage yard at any one time; Lairage yard will be clay lined with a permeability of at least 1x10 <sup>-9</sup> m/s; Solid waste (manure) will be collected from the proposed outdoor lairage yard once a month between November and April and taken to the paunch and manure storage area; Solid waste (manure) will be collected from the proposed outdoor lairage yard once a week between May and September and taken to the paunch and manure storage area; All wastewater and contaminated stormwater generated within the proposed outdoor lairage yard will be directed via a drain to a sump designed for solids separation before being discharged to the proposed evaporation pond; Sump will have a 100 mm freeboard; The drain is designed to carry the peak flow rates resulting from a storm event with an ARI of 20 years at critical duration and will be clay lined with a permeability of at least 1x10 <sup>-9</sup> m/s; Solids will be collected from the sump daily, semi-dried on the existing PMSA concrete pad and then disposed offsite on a monthly basis.	<b>Moderate:</b> Mid level onsite and low level offsite (local scale) impacts	<b>Possible:</b> Risk event could occur at some time	<b>Medium risk:</b> Event is acceptable subject to Regulatory Controls	The applicant states that the proposed outdoor lairage yard will be 329 m <sup>2</sup> and will hold a maximum of 700 large animals at any one time. This equates to a stocking density of 0.47 m <sup>2</sup> /head which is in accordance with the <i>Model Code of Practice for the Welfare of Animals: Animals at Saleyards and the Construction and Equipment Guidelines for Export Meat</i> . To maintain an acceptable level of risk to the environment, a limit of 700 large animals at any one time will be placed on the proposed outdoor lairage yard in the time limited operations phase of the works approval as well as the subsequent licence amendment.  Existing licence conditions for outdoor lairage yards at the premises specify the frequency at which solid waste (manure) must be collected and taken to the manure and paunch storage area (MPSA). These requirements will be made to the proposed outdoor lairage yard during time limited operations and on the amended licence in order to maintain an acceptable level of risk of solid waste and nutrient laden stormwater impacting on the environment.  The delegated officer has referred to <i>National procedures and guidelines for intensive sheep and lamb feeding systems</i> (MLA, 2020) (Guideline) in assessing the suitability of the design of the outdoor lairage yard for managing nutrient laden stormwater. The Guideline states that spillage and wastewater from outdoor holding pens should drain directly into a drainage system. A drainage system minimises the risk of groundwater and surface water contamination and promotes the rapid drying of the pens after a rainfall event. "The drainage system should include where appropriate: - diversion banks/drains upslope of outdoor pens; - drains should convey runoff to the wastewater treatment system; - solids separation by gravity; and - holding/storage ponds of sufficient size to contain major storm events and/or extended periods of storage" (Guideline).  The applicant has included the above controls in their design, and the delegated officer considers them appropriate in minimising risk to the environment, and so they have been included (with specifications) in the works approval. In addition, the applicant must submit an Environmental Compliance Report (ECR) demonstrating that the drainage system has been constructed to the specifications of the works approval.	In accordance with Condition 1 the outdoor lairage yard and drainage system is required to meet a minimum permeability coefficient of 1 x 10 <sup>-9</sup> m/s.  Condition 2 and 3 require the Works Approval Holder to provide evidence that the lairage yard complies with construction requirements.  • Construction conditions: - Size and location of lairage yard; - Drainage system requirements, including solids separator/sump; - <b>Compliance reporting (submission of ECR).</b>  • Time limited operations conditions: - Limits on number of animals to be held at any one time; - Solid waste disposal conditions.

Risk events				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls <sup>2</sup>
Sources / activities	Potential emission	Potential receptors, pathways and impact	Applicant controls					
<p>Storage of wastewater in evaporation pond and associated infrastructure:</p> <ul style="list-style-type: none"> <li>Overtopping</li> <li>Failure of raised embankments</li> </ul>	Wastewater high in TDS, BOD and nutrients	Direct discharge to land resulting in infiltration through soil profile and surface water contamination (Murray River surface water system is 240 m north of proposed evaporation pond, and Narrogin Brook is 340 m south of proposed evaporation pond). This may also cause degradation of TEC vegetation (0-35 m west of proposed evaporation pond) and ecosystem health.	<p>Design volume of 127 m<sup>3</sup> which exceeds the minimum required volume, as per the water balance provided with the application;</p> <p>Embankment freeboard of 100 mm;</p> <p>200 mm bunding will be maintained to divert stormwater away from the proposed outdoor lairage yard and containment infrastructure.</p>	<b>Moderate:</b> Mid level onsite and low level offsite (local scale) impacts	<b>Possible:</b> Risk event could occur at some time	<b>Medium risk:</b> Event is acceptable subject to Regulatory Controls	<p>All wastewater containment infrastructure has an inherent risk of failure through overtopping during extreme weather events, or if the site water balance is not managed appropriately. Similarly, raised pond embankments have a risk of failing due to inadequate design and maintenance practices, potentially causing the uncontrolled release of treated wastewater.</p> <p>Overtopping and embankment failure of the proposed evaporation pond, given its close proximity to sensitive receptors, including directly adjacent to TEC vegetation, may cause impacts to vegetation, surface water quality and groundwater quality, if not controlled.</p> <p>The delegated officer considers the applicant's commitment to construct 200 mm high bunding to divert stormwater away from the outdoor lairage yard and evaporation pond necessary in maintaining an acceptable level of risk of overloading the pond and has therefore included it as a control in the works approval.</p> <p>The delegated officer considers the applicant's proposed freeboard of 100 mm to be insufficient in mitigating the risk of the evaporation pond overtopping. Water Quality Protection Note 39 (WQPN 39), <i>Ponds for stabilising organic matter</i> (DoW 2009) recommends a minimum freeboard of 400 mm to contain incidental rainfall, and so this has been included as a requirement in the infrastructure condition of the works approval and will be an operating requirement in the subsequent licence amendment. The pond must also have raised embankments, as suggested by the applicant in the application. During time limited operations, there will be a requirement to inspect the infrastructure daily to confirm integrity i.e. no visible damage to infrastructure or leaks and to confirm no blockages of drain, sump or solids screen. There will also be the operational requirement to clean the solids screen and sump daily in order to mitigate risk of solid wastes accumulating to the point that the critical containment infrastructure is compromised possibly leading to overtopping/ direct discharge of wastewater to land.</p> <p>Following DWER's request for comment on the application, the Department of Primary Industries and Resource Development (DPIRD) advised that the water balance provided with the application demonstrates that the proposed design of the evaporation pond is suitable for managing effluent and runoff. Given that the water balance indicates that a pond with a volume of at least 84 m<sup>3</sup> is required and the actual volume of the evaporation pond is proposed to be 127 m<sup>3</sup>, the delegated officer considers that the risk of overtopping is acceptable should the construction conditions be met, and so they have been specified in the works approval.</p> <p>Upon completion of the construction of the pond, the applicant must submit an ECR demonstrating that it has been constructed to the specifications of the works approval.</p>	<ul style="list-style-type: none"> <li>Construction conditions: <ul style="list-style-type: none"> <li>Specifications on bunding and raised embankments;</li> <li>Size and capacity specification of pond;</li> <li><b>Compliance reporting.</b></li> </ul> </li> <li>Time limited operations conditions: <ul style="list-style-type: none"> <li><b>Freeboard of at least 400 mm must be maintained;</b></li> <li>Stormwater runoff management;</li> <li>Solids screen and sump maintenance requirements.</li> </ul> </li> <li>Specified conditions: <ul style="list-style-type: none"> <li><b>Daily inspections of infrastructure and freeboard marker</b></li> </ul> </li> </ul>
<p>Storage of wastewater in evaporation pond and associated infrastructure:</p> <ul style="list-style-type: none"> <li>Leaks or seepage</li> </ul>								
<p>Storage of wastewater in evaporation pond</p>	Odour	Air / windborne pathway causing impacts to health and amenity to residential premises, closest of which are located 1.1 to 1.5 km southwest and 2.1 to 2.6 km northeast of the evaporation pond and burial pit.	Nil	<b>Minor:</b> Low level impact to amenity at a local scale	<b>Rare:</b> Risk event may only occur in exceptional circumstances	<b>Low risk:</b> Event is acceptable	<p>There is potential for odour from wastewater stored within evaporation ponds to cause off-site amenity impacts to nearby receptors if the wastewater is not sufficiently treated to the point it becomes odorous. The delegated officer considers there are adequate controls on the existing licence (solids separation) that require sufficient treatment of wastewater. It is also noted that a new evaporation pond is recommended to accommodate adequate retention times of wastewater for treatment at the premises. The delegated officer therefore does not reasonably foresee that odour from stored wastewater in the new pond will cause off-site amenity impacts.</p>	<p>Standard works approval construction conditions will apply.</p> <p>No additional regulatory controls will be applied to the regulation of odour.</p>
<p>Disposal of paunch and carcasses in burial pit</p>			<p>Waste material (carcasses and paunch) will be covered with lime upon disposal in the proposed burial pit;</p> <p>Waste material will be covered with a minimum of 500 mm of soil monthly.</p>	<b>Moderate:</b> Mid level onsite and low level offsite (local scale) impacts	<b>Unlikely:</b> Risk event will probably not occur in most circumstances	<b>Medium risk:</b> Event is acceptable subject to Regulatory Controls	<p>The proposed burial pit will be located 10 m west of the existing burial pit that is approved in the existing licence.</p> <p>The delegated officer considers that the separation distance from the location of the proposed burial pit to the closest rural residential dwelling, together with the licence controls for the existing burial pit, is sufficient for there to be low risk of odour impacting on receptors. Therefore, the existing licence controls relating to odour from the burial pit will be included in the works approval for the proposed burial pit. This includes the requirement to cover all waste material with lime upon deposit, and 500 mm of soil at</p>	<ul style="list-style-type: none"> <li>Construction conditions: <ul style="list-style-type: none"> <li>Location and dimensions of burial pit;</li> </ul> </li> <li>Time limited operations conditions: <ul style="list-style-type: none"> <li>Waste disposal conditions i.e Cover waste material with lime upon deposit and with 500 mm</li> </ul> </li> </ul>

Risk events				Consequence rating <sup>1</sup>	Likelihood rating <sup>1</sup>	Risk <sup>1</sup>	Reasoning	Regulatory controls <sup>2</sup>
Sources / activities	Potential emission	Potential receptors, pathways and impact	Applicant controls					
							least monthly.	<p>of soil monthly.</p> <ul style="list-style-type: none"> <li>- All deposited waste material must be fully covered with a layer of soil within 1 hour of disposal and remain fully covered at all times</li> </ul>
	Leachate	<p>Seepage/infiltration through soil profile causing soil and groundwater contamination.</p> <p>Eutrophication past the root zone can cause degraded soil structure and soil and groundwater contamination.</p>	<p>The proposed burial pit will not be excavated to deeper than 1.5 m below ground level;</p> <p>Clay lined with a permeability of at least <math>1 \times 10^{-9}</math> m/s.</p>	<p><b>Moderate:</b> Mid level onsite and low level offsite (local scale) impacts</p>	<p><b>Rare:</b> Risk event may only occur in exceptional circumstances</p>	<p><b>Medium risk:</b> Event is acceptable subject to Regulatory Controls</p>	<p>The applicant has stated that the pit will not be excavated to deeper than 1.5 m below ground level and will be clay lined to meet a minimum permeability of <math>1 \times 10^{-9}</math> m/s. In accordance with the <i>Guideline: Risk Assessment</i> (DWER 2020), as these proposed controls are critical for maintaining an acceptable level of risk of leachate impacting groundwater, they will be imposed on the works approval.</p>	<ul style="list-style-type: none"> <li>• Construction conditions: <ul style="list-style-type: none"> <li>- Maximum excavation depth of 1.5 m;</li> <li>- Burial pit to be clay lined with a permeability of at least <math>1 \times 10^{-9}</math> m/s.</li> </ul> </li> </ul>

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.

## 4. Consultation

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

**Table 4: Consultation**

Consultation method	Comments received	Department response
Shire of Narrogin advised of proposal on 13 October 2023	No response received.	N/A
DPIRD advised of proposal and requested for comment on 13 October 2023	DPIRD replied on 25 October 2023 with the following (in summary): <ul style="list-style-type: none"> <li>For the most part, the application is consistent with DPIRD's expectations for the design and operation of a controlled drainage area. However, DPIRD would expect a Nutrient Management Plan (NMP) be provided.</li> <li>DPIRD acknowledges that the water balance calculations provided with the application show that the design can meet the requirements for managing effluent and runoff.</li> <li>The burial of deceased animals at the premises is acceptable, however it would be worthwhile for the applicant to consider alternative options in the future, such as composting.</li> <li>DPIRD suggests the applicant consider adjustments to the design of the sump to make it easier to clean, as required.</li> </ul>	N/A
Applicant was provided with draft documents on 27 February 2024	Applicant responded on 11 April 2024 advising they do not have any comments on the draft documents. Further correspondence was received on 22 April 2024 from the applicant, providing outstanding information on the draft documents as requested by DWER.	Information has been incorporated in the Works Approval and Decision Report.

## 5. Decision

### Outdoor lairage yard 13

The delegated officer has determined to approve the use of the additional outdoor lairage yard 13 once the evaporation pond and associated drainage infrastructure are installed.

### Evaporation pond and associated drainage infrastructure

The delegated officer has determined, subject to regulatory controls outlined in Table 3, that the construction and operation of the new evaporation pond does not present an unacceptable risk of impacts to human health or the environment.

The evaporation pond will provide storage of treated wastewater from the proposed outdoor lairage yard so that there is reduced risk of overloading existing ponds which may result in inadequate water retention times, reduced treatment quality outcomes and/or overtopping.

The applicant's proposed containment infrastructure (pond) design controls will be conditioned in the works approval to manage the risk associated with a release of wastewater with elevated nutrients, sediment, salt and BOD content to ground. In addition, given the proposed pond's close proximity to TEC vegetation, the delegated officer has included permeability requirements and for a minimum freeboard of 400mm to be maintained. These controls align with guidance in WQPN 39 and 27. Compliance reporting requirements will be conditioned to ensure all new infrastructure is installed or constructed as per the specified design requirements. In addition, general reporting, record keeping and administration requirements will be conditioned to ensure compliance with the works approval.

## Burial pit

The delegated officer has determined to approve the construction of a new burial pit for disposal of paunch and carcasses, subject to regulatory controls outlined in Table 3. This is due to the construction and operation not presenting an unacceptable risk of impacts to human health or the environment. The applicant's proposed design controls will be conditioned in the works approval.

Burial of carcasses and paunch poses an inherent risk to the environment, particularly groundwater and nearby vegetation via leaching of nutrients and BOD through the soil profile if not managed properly. Consequently, as alluded to by DPIRD in response to DWER's request for comment on the proposal, on-site burial is not a viable solution to carcass and paunch disposal for ongoing long-term operations. Given that the premises contains TEC vegetation, which is also 20 m from the existing and proposed burial pits, the delegated officer recommends that the applicant begin to consider alternative options (e.g. composting or off-site disposal) for future operations as further burial pits will not be approved at the premises.

Time limited operations are permitted for a period of 180 days to enable the applicant to bring the infrastructure online. During this period, the applicant may submit a licence amendment application for the continued operation of the lairage yard, evaporation pond and burial pit under licence L8613/2011/3.

## 6. 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.

An amendment to existing licence L8613/2011/3 will be required following the completion of the works to include operation of the new evaporation pond and carcass burial pit beyond the time limited operations phase authorised in the works approval.

## References

1. Ausvision Rural Services, *Works Approval Application: L8613/2011/3 - Outdoor lairage and additional burial pit*, Email received 28/09/2023.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water (DoW), August 2013, *Water Quality Protection Note (WQPN) 27 – Liners for containing pollutants, using engineered soils*, Perth, Western Australia.
4. DoW, February 2009, *WQPN 39 – Ponds for stabilising organic matter*, Perth Western Australia.
5. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. Department of Agriculture and Food (DAF) 2004, *Model Code of Practice for the Welfare of Animals: Animals at Saleyards and the Construction and Equipment Guidelines for Export Meat*, Collingwood, Victoria
8. Meat and Livestock Australia (MLA) 2021, *National Guidelines for Beef Cattle Feedlots in Australia*, North Sydney, New South Wales
9. MLA 2020, *National procedures and guidelines for intensive sheep and lamb feeding systems*, North Sydney, New South Wales

# Appendix 1: Water balance from application

Site Details				Notes												
Catchment Area 1	A <sub>C1</sub>	340	m <sup>2</sup>	Runoff coefficient is calculated using daily SILO data with a cumulative rainfall model, assuming a 13mm runoff threshold and 1 pan evaporation factor from the catchment area. The default settings are only applicable to beef cattle feedlot pads. 50 years of SILO data is additional safety net in the calculator given the reduction in rainfall over the past 20 years. A default 10% pond safety factor is applied to cater for any solids buildup in the pond. Pond volume is calculated on a 2-year cycle starting in May, with the third year showing expected water balance for an average year. For high rainfall areas, the first year uses 85th percentile wet months as rainfall inputs. For low-medium rainfall areas, the first year uses average rainfall inputs and a Catchment inflow from a summer storm event in January of the first year assumes a runoff coefficient of 1. All other catchment inflow to the pond consider the monthly runoff coefficient. Pond depth is does not include the thickness of the liner. Construction should ensure that the liner thickness does impact the design depth of the pond. For irrigation ponds, FAO56 Penman-Monteith Eto irrigation demand (Eto - rain) does not consider crop factor on a daily basis. Instead, crop factors are incorporated on an averaged month scenario.												
Catchment Area 2	A <sub>C2</sub>	0	m <sup>2</sup>													
Catchment Area 3	A <sub>C3</sub>	0	m <sup>2</sup>													
Irrigation Area	A <sub>I</sub>	0	m <sup>2</sup>													
Wastewater Production	Q <sub>D</sub>	0.00	m <sup>3</sup> /day													
Pond Depth Safety Factor	K <sub>PA</sub>	10%	[-]													
Pond Area Safety Factor	K <sub>PO</sub>	10%	[-]													
Dam Evaporation Factor	K <sub>E</sub>	1.00	[-]													
Mean (yearly) Crop Factor	K <sub>C</sub>	0.4	[-]													
Runoff Coefficient (Catchment 1)	K <sub>R1</sub>	0.32	[-]													
Runoff Coefficient (Catchment 2)	K <sub>R2</sub>	0.32	[-]													
Runoff Coefficient (Catchment 3)	K <sub>R3</sub>	0.32	[-]													
Climate Data																
	Symbol	Formula	Units	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Days in Month	D		days	31	30	31	31	30	31	30	31	31	28	31	30	365
Design Precipitation Rate (year 1)	P		mm/month	54	72	82	68	45	29	24	15	152	18	18	28	606
Design Precipitation Rate (year 1)	P		mm/month	54	72	82	68	45	29	24	15	18	18	18	28	606
Mean Pan Evaporation	E <sub>p</sub>		mm/month	66	47	48	61	85	134	183	239	257	209	176	104	1609
Mean Irrigation Rate	E <sub>I</sub>	(E <sub>p</sub> × K <sub>C</sub> ) - P	mm/month	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Winter Precipitation	P <sub>W</sub>		mm/cycle	54	72	82	68	45	29							0
1:20 Winter Precipitation & Summer Storm	P <sub>W,MAX</sub>		mm/cycle	54	72	82	68	45	29			134				0
Pond Balance																
Year 1 of 3 (1:20 ARI Winter Rainfall)																
Precipitation	Q <sub>P</sub>	A <sub>p</sub> × (P/1000)	m <sup>3</sup> /month	4	5	6	5	3	2	2	1	10	1	1	2	
Waste Inflow	Q <sub>M</sub>	Q <sub>D</sub> × D	m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	
Total Catchment Inflow	Q <sub>I</sub>	Σ(A <sub>C</sub> × K <sub>R</sub> × (P/1000))	m <sup>3</sup> /month	6	11	14	7	2	1	1	1	48	2	1	2	
Pond Evaporation	Q <sub>E</sub>	K <sub>E</sub> × (E <sub>p</sub> /1000) × A <sub>p</sub>	m <sup>3</sup> /month	5	3	3	4	6	9	13	17	18	14	12	7	
Irrigation Outflow	Q <sub>O</sub>	E <sub>I</sub> × A <sub>I</sub>	m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	
Total Pond Water	V <sub>P</sub>	Q <sub>P</sub> + Q <sub>M</sub> + Q <sub>I</sub> - Q <sub>E</sub> - Q <sub>O</sub>	m <sup>3</sup>	5	18	34	42	41	35	25	11	51	40	31	27	
Pond Depth	D <sub>POND</sub>	V <sub>P</sub> /A <sub>p</sub>	m	0.07	0.26	0.49	0.60	0.59	0.51	0.36	0.15	0.74	0.58	0.44	0.40	
Year 2 of 3																
Precipitation	Q <sub>P</sub>		m <sup>3</sup> /month	4	5	6	5	3	2	2	1	1	1	1	2	
Waste Inflow	Q <sub>M</sub>		m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	
Total Catchment Inflow	Q <sub>I</sub>		m <sup>3</sup> /month	6	11	14	7	2	1	1	1	2	2	1	2	
Pond Evaporation	Q <sub>E</sub>		m <sup>3</sup> /month	5	3	3	4	6	9	13	17	18	14	12	7	
Irrigation Outflow	Q <sub>O</sub>		m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	
Total Pond Water	V <sub>P</sub>		m <sup>3</sup>	32	45	61	69	68	63	52	38	24	13	3	0	
Pond Depth	D <sub>POND</sub>		m	0.47	0.65	0.88	1.00	0.99	0.91	0.76	0.55	0.35	0.18	0.05	0.00	
Year 3 of 3																
Precipitation	Q <sub>P</sub>		m <sup>3</sup> /month	4	5	6	5	3	2	2	1	1	1	1	2	74
Waste Inflow	Q <sub>M</sub>		m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Catchment Inflow	Q <sub>I</sub>		m <sup>3</sup> /month	6	11	14	7	2	1	1	1	2	2	1	2	148
Pond Evaporation	Q <sub>E</sub>		m <sup>3</sup> /month	5	3	3	4	6	9	13	17	18	14	12	7	222
Irrigation Outflow	Q <sub>O</sub>		m <sup>3</sup> /month	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Pond Water	V <sub>P</sub>		m <sup>3</sup>	5	18	34	42	41	35	25	11	0	0	0	0	0
Pond Depth	D <sub>POND</sub>		m	0.07	0.26	0.49	0.60	0.59	0.51	0.36	0.15	0.00	0.00	0.00	0.00	0.00
Outputs																
Minimum Pond Area (excl. Safety Factor)	A <sub>p</sub>	ΣQ <sub>P</sub> + ΣQ <sub>M</sub> + ΣQ <sub>I</sub> - ΣQ <sub>E</sub> - ΣQ <sub>O</sub> = 0	69	m <sup>2</sup>	Required Pond Area			Area			A <sub>p</sub> × (1+K <sub>PA</sub> )			76	m <sup>2</sup>	
Minimum Pond Depth (excl. Safety Factor and Freeboard)	D <sub>POND,MAX</sub>	Maximum value of D <sub>POND</sub>	1.00	m	Pond Depth Including Freeboard			Depth			D <sub>POND,MAX</sub> × (1+K <sub>PO</sub> ) + Freeboard			1.20	m	
Minimum Pond Volume (excl. Safety Factor & Freeboard)	V <sub>P,MAX</sub>	Maximum value of V <sub>P</sub>	69	m <sup>3</sup>	Required Pond Volume			Volume			Area x Depth			84	m <sup>3</sup>	