



Application for works approval

Division 3, Part V *Environmental Protection Act 1986*

Works approval number	W3222/2026/1
Application number	APP-0034090
Applicant	Glenlevit Piggery Pty Ltd
Premises	Glenlevit Piggery 519 Popanyinning West Road POPANYINNING WA 6309
Date of report	3 June 2026
Status of report	Final

Purpose and scope of assessment

A.W Lyneham & Sons, through their business Glenlevit Piggery Pty Ltd (the applicant), proposes to construct a new piggery in Popanyinning. An application for works approval was submitted under Division 3, Part V of the *Environmental Protection Act 1986* (EP Act) on 2 March 2026.

This report sets out the delegated officer's assessment of potential risk events arising from emissions and discharges during construction and operation of infrastructure relating to the prescribed activity.

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

Application details

Overview

The applicant proposes to construct a new indoor piggery with conventional sheds on their farming property in the rural locality of Popanyinning, about 170 km south-east of Perth.

The new piggery will replace the existing outdoor-bred, raised indoor on straw (deep litter shelters) piggery that has been operating on the premises since the 1950s. The existing operation is certified under the Australian Pork industry's voluntary, industry-sponsored quality assurance program (APIQ), which requires operators to have in place all relevant state and local government approvals.

Table 1 describes the prescribed premises category that the application is subject, as defined in Schedule 1 of the Environmental Protection Regulations 1987.

Table 1: Prescribed premises category

Classification of premises	Assessed design capacity (as per application)
Category 2: Intensive piggery: premises on which pigs are fed, watered and housed in pens.	9,812 pigs (10,400 SPUs equivalent)

Proposal details

The new piggery incorporates modern, industry best practice design housing and will be only the second indoor piggery to be constructed in Western Australia with conventional sheds since the late 1990s (the other being Westpork's Moora piggery in 2022).

The applicant has given due regard to the [National Environmental Guidelines for Indoor Piggeries – Siting and Design](#) (NEGIP-SD), to ensure the piggery is sized, sited and designed in way that protects community amenity, public health and natural resources.

The applicant also proposes to establish a feed mill on the premises with a design capacity of 10,000 tonnes per annum, to produce all feed requirements for the new piggery.

Piggery siting, design and layout

The new piggery is proposed to be constructed on a greenfield site on the same property as the existing operation and will increase pig numbers from the current 550-sow farrow-to-finish to an 800-sow farrow-to-finish operation, or the equivalent of 10,400 standard pig units (SPUs).

Unlike the current operation, the new site will house all pigs indoors; the existing outdoor paddocks will be dismantled and remediated, and the deep litter shelters will be repurposed as machinery and storage sheds.

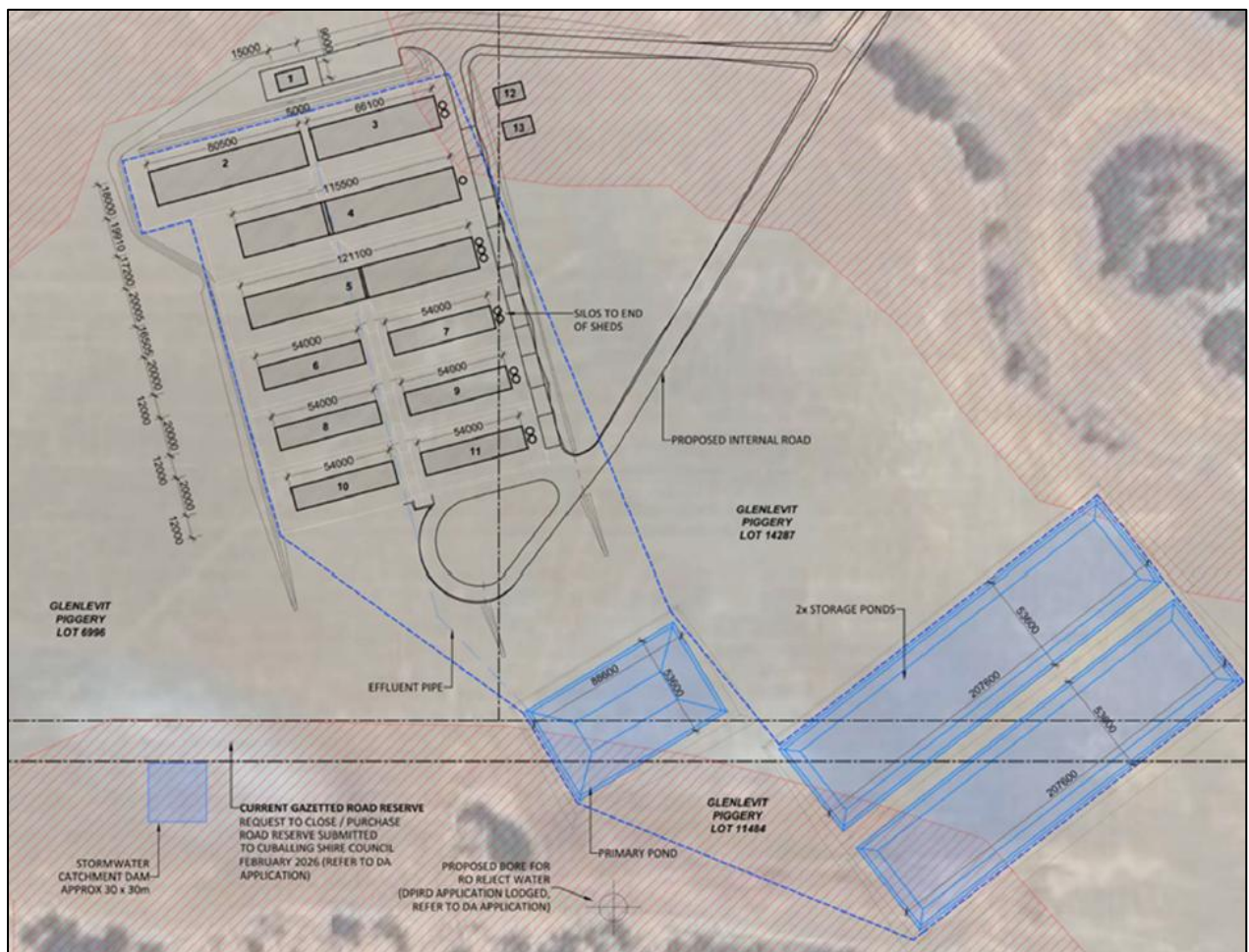
The new piggery will comprise ten conventional sheds with a modern pull-plug effluent system and an associated effluent treatment system that has been sized and designed to manage all effluent via storage and evaporation.

The proposed housing will comprise purpose built, fully enclosed conventional indoor sheds designed to accommodate the breeder, farrowing, nursery and finisher stages of the farrow-to-finish operation, with each production class housed in separate sheds dedicated to each class.

The sheds will be constructed with concrete floors incorporating static under-floor effluent pits, over which slatted flooring will be installed. Manure, waste feed and washdown water will pass through the slatted floors, into the pits, and will be flushed via the pull-plug system as part of routine shed maintenance and conveyed through fully enclosed underground pipework (via gravity) to the effluent pond system.

All sheds will be mechanically ventilated, with integrated cooling and heating systems to provide controlled internal environmental conditions across all stages of production. The farrowing sheds will have five internal rooms with 36 crates per room. The sheds are designed to provide increased floor space allowances, particularly within the breeder and farrowing sheds. Feed and watering infrastructure is designed to support efficient animal management and minimise spillage and waste generation.

The piggery sheds will be sited on a slope with an average of about 4%; due to this, the sheds will be located in pairs in a terraced formation north-south down the slope, and oriented with their long axis along an east-west axis.



Herd size and housing

The breeding component of the piggery will comprise about 800 sows, together with boars, replacement gilts, gestating (dry) sows, farrowing and lactating sows, and sucker pigs (Table 2), and will operate as a 'closed herd', where no new animals are introduced, and replacement breeding animals will be selected from within the herd or from artificial insemination.

Table 2: Proposed piggery – herd size and housing

Pig class	SPU factor	Pig numbers	SPUs	Shed type
Gilts	1.8	151	272	Pull plug / Static pit
Boars	1.6	6	10	Pull plug / Static pit
Gestating sows	1.6	654	1,047	Pull plug / Static pit
Lactating sows	2.5	146	365	Pull plug / Static pit
Suckers (1.4 – 7 kg)	0.1	1,749	178	Pull plug / Static pit
Weaners (7 – 16 kg)	0.32	827	267	Pull plug / Static pit
Porkers (16 – 26 kg)	0.59	823	482	Pull plug / Static pit
Growers (26 – 50 kg)	0.98	1,634	1,608	Pull plug / Static pit
Finisher (50 – 110 kg)	1.62	3,822	6,172	Pull plug / Static pit
Total		9,812	10,400	

Effluent management system

Effluent will be managed using a primary anaerobic treatment pond followed by two secondary storage/evaporation ponds, with the system sized according to the required treatment and storage capacity determined through modelling (PigBal 5 and WatBal) using estimated production and operational management data.

Irrigation of treated effluent was not included in the main modelling, due to the expected high salinity of the treated effluent (caused by the high evaporation to rainfall ratio of the local area) that would render it a limiting factor. The ponds have therefore been designed and sized with evaporation as the sole method of disposal.

The original design and sizing of the ponds were done at a depth of 1 m for the secondary pond, to maximise evaporative losses. However, a minimum depth of 2 m is required to attain adequate compactable clay that will form the base of the ponds; this, in conjunction with siting constraints, necessitated dividing the storage pond into two separate ponds.

Modelling suggests a primary pond with capacity of 12,500 m³ will be required, which allows for an active treatment volume of 7,996 m³ and assumes desludging occurs every 3 years; followed by a total storage capacity of 26,700 m³, which provides active storage of 20,612 m³, allowing a 600 mm freeboard and a spill frequency of once every 20 years.

Table 3: Proposed pond system specifications

Pond	Dimensions	Volume (m ³)	Surface area (m ²)
Primary pond	81.4 x 50.1 x 5.5	12,500	-
Evaporation pond 1	200.1 x 40.4 x 2.0	13,400	8,096
Evaporation pond 2	200.1 x 40.4 x 2.0	13,400	8,096
Total	-	39,300	16,192

Feed mill siting, design and layout

The applicant has acquired the feed mill that was previously operated at the Kojonup piggery. The entire mill and associated infrastructure, e.g., weighbridge, 1,400 tonne of grain and meal storage silos, minerals and vitamins dosing system, mixer, and control room, will be dismantled and rebuilt on the Glenlevit premises. An additional bank of seven silos will be constructed adjacent to the mill.

The mill, which has a design capacity of 10 tonnes per hour (10,000 tpa), will be sited at the intersection of Popanyinning West Rd and Pennys Rd, behind a thin line of roadside vegetation and dense vegetation to the south.

Construction schedule

The applicant anticipates construction will take about 14 months to complete. It is proposed to stock each shed as they are completed.

The breeder shed is expected to take four months to complete, upon which new breeding stock (externally sourced) will be introduced within two months. The remaining sheds will be stocked from existing production, with the first mating expected in January 2027. Stock from the existing piggery will naturally run down, with the last mating to be in January 2027.

The primary pond is expected to commence biological stabilisation from November 2026 and be fully stabilised under normal operating load about 3-4 months after full piggery loading is reached (expected around December 2027 to February 2028).

Operational aspects

The piggery will continue as a farrow-to-finish operation, where the one farm manages the entire lifecycle of a pig, from breeding to gestation (farrowing) to raising them through the nursery and finishing stages to market slaughter weight.

Suckers will typically be weaned at 28 days and moved to the nursery shed where they will stay for 8 weeks from 3 weeks to 11 weeks of age. They will then be moved to the finisher sheds where they will stay for 12 weeks from 11 weeks to 23 weeks of age.

The shed layout is designed to support continuous weekly production and is configured to maintain segregation by class, optimise animal flow, and allow for biosecurity breaks between batches:

- Breeder shed – gilt introduction, mating and early gestation. Configured for group housing with mating areas to optimise conception rates and early pregnancy management;
- Dry sow shed – mid-to-late gestation housing in group pens, designed to maintain condition and pregnancy through to transfer to farrowing;
- Farrowing shed – used for farrowing and lactation. Comprises five rooms, with four rooms in operation and one room kept vacant at all times for cleaning and turnaround. Each room will contain 36 crates (total 180 crates), allowing about 6.2 m²/sow;
- Nursery shed – used for weaner accommodation. Comprises nine rooms, with eight rooms in operation and one room kept vacant for cleaning. Each room will contain 12 pens stocked at 40 pigs per pen; and
- Finisher sheds (6) – grower and finisher accommodation. Each shed will contain 20 pens stocked at 40 pigs per pen. During operations, 5 ½ sheds will be in operation whilst half a shed is kept vacant for cleaning and operational flexibility, whilst maintaining continuous flow aligned with weekly turn-off.

Silos will be commissioned outside the pig sheds to facilitate the distribution of feed. All feed systems will be automatic from the silo to feed points; intake will be controlled for breeders, but growers will be ad-lib at times. Several rations will be prepared, depending on age and dietary requirements. It is proposed that all feed will eventually be grown and milled on-farm.

Potable water will be sourced from a combination of existing on-farm dams and groundwater bores. Due to high salt levels, an on-site reverse-osmosis plant will be installed to treat groundwater for stock drinking and general piggery use. Brine from the RO process will be reinjected into a dry bore on the premises.

Once the animals have grown to the required criteria (80 – 100 kg liveweight), they will be trucked off-site directly to clients for slaughter.

Surface water management

The piggery housing will be sited on a terraced slope of which a long established contour bank is positioned upslope, which will significantly reduce the potential for surface ingress into the piggery area. Runoff from this catchment, along with rainwater from the shed roofs, will be directed into a dedicated stormwater dam (to be constructed) for stock drinking and general piggery use.

Effluent management

Effluent (urine and manure) that falls below the pen floor into the static pits will be recharged with some water to prevent sticking, in addition to daily washing down of the pen floors using high pressure hoses to push the manure through the flooring to maintain a clean environment. The pits will then be released every four weeks via the pull-plugs and flushed to the primary (anaerobic) pond for treatment.

All effluent generated within the sheds will be managed within the effluent management system, with disposal of treated effluent via evaporation only (no on-site disposal).

Mortalities management

Pig mortalities are currently managed via on-site burial, with each layer of pigs covered with soil to minimise vermin attraction and odour. Burial pits are generally located on the higher areas of the farm, away from the pig sheds and other sensitive receptors, and where groundwater has been measured at depth (40-50 mbgl).

Table 4: Current and expected mortality rates

Production stage	Existing operation	Proposed new piggery
Pre-weaning	22.0%	8-12%
Nursery	1.8%	1.5%
Finisher	1.8%	1.5%
Breeder herd	8.0 %	8.0%

Sludge management

Stabilised solids will be removed from the primary pond every three years, to maximise treatment efficiency and minimise impacts on pond operation. About 4,500 m³ of sludge is expected to have accumulated in this timeframe, based on a maximum volatile solids loading rate of 0.313 kg VS/m³/day.

The applicant proposes to directly distribute the sludge thinly and evenly at low application rates over large areas of cropping land on the premises, in order to minimise nutrient build up and associated risks, i.e. no on-site storage, dewatering or drying. The applicant has about 896 ha of cropping land available for reuse.

The applicant recognises the nutrient content of piggery sludge can be highly variable, and that testing of the sludge, in addition to soil testing, will be required to ensure site-specific sustainable application rates can be maintained.

The applicant has used the [APL nutrient balance calculator](#) to provide indicative sustainable reuse areas that would be required for 2,000 m³ of sludge based on different crop types, the average concentration of nutrients in sludge, and phosphorus as the limiting nutrient.

Table 5: Indicative reuse areas required for pond sludge

Crop and yield (DM/t/ha)	Sustainable reuse area*	Potential alternative area**
Winter cereal Hay (7.0)	161 ha (1 mm)	P limited
Barley straw (7.5)	646 ha (1 mm)	P limited
Grain barley (3.5)	1,000 ha (1 mm)*	P – 323 ha
Wheat straw (8.0)	843 ha (1 mm)	P limited
Wheat grain (3.5)	700 ha (1 mm)*	P – 212 ha

*Potassium limited. ** Alternative areas taking into consideration P and N limitations.

Feed mill operations

The mill will initially be run at half capacity as a staged project, at about 100 tonnes per week (5,200 tpa), running 1.5 days per week. During operations, the mill will be fully enclosed to minimise fugitive dust and a baghouse will be installed to capture dust from the process.

Exclusions to this assessment

The following matters are out of the scope of this assessment and have not been considered within the risk assessment detailed in this report:

- other general farming activities being conducted on the premises, outside of the piggery complex and reuse areas;
- vehicle (i.e., livestock truck) movements on private or public roads; and
- land use zoning and compatibility with surrounding land uses.

The works approval is related to category 2 activities only and does not offer the defence to offence provisions in the EP Act (see sections 74, 74A and 74B) relating to emissions or environmental impacts arising from prescribed and non-prescribed activities, including those listed above.

Location and siting

Siting context

The proposed piggery is sited at the southern extent of an 896 ha property on the outskirts of Popanyinning, which comprises 13 individual land parcels (Lot 18835, 9527, 14288, 5126, 5707, 6490, 8693, 12438, 3965, 6997, 6996, 14287 and 11484) and makes up part of a greater 4,000 ha broadacre grazing and cropping operation in the southern Wheatbelt.

Land use and sensitive receptors

Much of the premises and surrounding land have been historically cleared for agricultural purposes, although large stands of remnant native vegetation have been retained on non-productive land associated with crests/ridges of hills and rocky soils and outcrops.

The premises is zoned 'rural' under the local shire town planning scheme, with surrounding land use mainly agricultural in nature, including sheep grazing and cropping activities. A large proportion of the surrounding land is owned by the applicant and is used for grazing and cropping, with the nearest legal dwelling not associated with the applicant 2.9 km to the west and rural residential 5.8 km to the north-east. The Popanyinning townsite is about 6.5 km north-west of the proposed piggery site.

Most of the remnant native vegetation stands on the premises are mapped as the nationally recognised threatened ecological community (TEC) – the Eucalypt Woodlands of the WA Wheatbelt (Eucalypt Woodlands TEC), which is listed as critically endangered under federal environmental protection laws (*Environment Protection and Biodiversity Conservation Act 2016*), including the Dryandra Woodland National Park, which is about 650 m south-east of where the evaporation ponds will be constructed.

Climate

Popanyinning experiences a Mediterranean climate, with warm dry summers and cool wet winters. Long term average rainfall is around 500 mm; however, post-1975, average rainfall has dropped to around 460 mm. Annual evaporation is higher than average rainfall, at an average of about 1,640 mm/year, averaging 220 mm in winter and 1,420 mm in summer.

There has been a shift in rainfall patterns away from lead-in autumn rainfall in April and May, followed by three months of soaking winter rainfall (June-August) with follow up rainfall in September, to a shorter rainy season with an increased chance of more intense rainfall events that result in large volumes of runoff and flooding.

The dominant wind direction at 9 AM is from the south-east to the north-west, whilst at 3 PM it is more scattered westerlies, with the most common gusts towards the east.

Physiography

The topography comprises steep hills towards the centre of the premises at elevations around 400 m AHD, with slopes and undulations towards the lower areas around 330 m AHD.

The piggery will be sited on a slope with an average of 4%, with a terraced configuration from

an elevation of about 365 m AHD, down the hill face to about 345 m AHD. The evaporation ponds will sit at about 340 m AHD, with the slope facilitating effluent management using gravity.

Soils and landscape

Soil landscape mapping (DPIRD 2021) indicates the premises and surrounds lie mostly within the Noombling subsystem (Dryandra) Soil-landscape Zone. This system is described as 'Long gentle and undulating hillslopes and divides. Colluvium/weathered granite, gneiss and some dolerite. Yellow/brown and grey deep sandy duplexes, sandy gravels and shallow duplexes'.

Surface water

The site sits within the Peel Estuary – Murray River catchment in the southern zone of rejuvenated drainage hydrological zone. This zone is typically described as 'erosional surface of gently undulating rises to low hills with continuous stream channels that flow in most years. Colluvial processes are active with soils formed in colluvial or in situ weathered rock'.

No major watercourses are identified within the premises; the closest is the Hotham River about 7 km east of the proposed piggery site. Several minor non-perennial streams dissect the property, most of which terminate in farm dams.

The site is not within a designated public drinking water source area, nor is it mapped within the extent of the 1:100 (1%) AEP flooding zone.

Groundwater

There are no WIN groundwater sites or licensed draw points on, or within proximity to, the premises; however, it lies within the mapped bounds of an ancient river system (also known as a palaeochannel) – it is therefore possible the piggery overlies a palaeodrainage.

Palaeochannels are geologically ancient, buried river valleys which no longer function as active surface water systems, and although surface water no longer flows within these systems, the sediment which has filled the river channels commonly forms aquifer systems that are capable of storing significant quantities of groundwater.

Nine bores are located across the premises that have been drilled to depths greater than 40 mbgl. Due to varying salinities between the bores (2,000 – 9,000 ppm), abstracted water will firstly be treated using a desalination plant (reverse osmosis) and then blended with stormwater for use as drinking water in the piggery. Permeate water from the desalination plant will also be used for cooling sheds and pressure washing.

Separation distances

The applicant has calculated the minimum separation distance from the proposed piggery to nearby sensitive receptors using a readily applied formula (the 's-factor' formula) outlined in the NEGIP-SD.

The s-factor method was originally devised in Queensland and allows for a rapid and simple assessment of potential air quality impacts (mainly odour) that does not require technically specialised and complex air quality modelling.

When considering the proposed design capacity of 10,400 SPUs, the required separation distance to the nearest receptor, being a legal dwelling, is 1.2 km, which is more than double the actual distance of 2.9 km. The required separation distance to a populated area is 2.6 km, which is well within the actual distance of about 6.5 km (to the Popanyinning townsite).

In addition, the closest receptor not associated with the property or the piggery to the feed mill is about 670 m, which exceeds the 500 m separation distance recommended by [EPA Guidance Statement No.3](#) – Separation Distances between Industrial and Sensitive Land Uses (2005).

Industry guidelines

In conjunction with the NEGIP-SD, the [National Environmental Guidelines for Indoor Piggeries – Management](#) (NEGIP-M) provides a national approach for the day-to-day environmental management of indoor piggeries.

The criteria outlined in Appendix F of the NEGIP-M has been used as a baseline for rating the vulnerability of major natural resources from the proposed piggery operation and the risk of environmental impacts from the design and operational features.

Table 6 provides an indication of the risk of the proposed piggery using the NEGIP-M criteria, where 1 is low risk and 4 is high risk (note: this has been used to inform, and does not constitute, the department's risk assessment).

Table 6: Summary of Glenlevit proposal against NEGIP-M criteria

NEGIP aspect	Risk criteria	Risk rating
<i>Amenity and natural resources vulnerability</i>		
Soils of reuse areas	Reuse areas:	
	• are suited to a broad range of broad acre crops and pastures	1
	• have a soil depth of at least 1 m	1
	• are well structured, non-rocky, non-saline and non-sodic	1
	• are sandy loam (10-25% clay)	2
	• are not prone to waterlogging	1
	• flood at a frequency of less than once every ten years	1
	• have slopes that promote infiltration, rather than runoff or erosion	1
Groundwater quality and availability	Depth to groundwater will always at least 20 m below the ground surface or the base of any piggery infrastructure	1
	Groundwater will be used in the piggery that is of a marginal quality to meet requirements, however it will be treated to reduce salt levels and shandied with potable water to meet requirements	1
Surface water quality and availability	The piggery is located at least 100 m from the closest watercourse	2
	The piggery is located at least 800 m from the closest major water supply storage	1
	Reuse areas will comply with the buffer distances specified in the NEGIP	2
	The piggery is located above the 1:100 year flood line	1
	Reuse areas will be located above the 1:10 year flood line	1
	Surface water will be used in the piggery and there is sufficient supply of suitable quality to meet requirements	1
Community amenity	The existing piggery has received no complaints from the public or regulators for at least five years	1
	Levels of odour, dust and noise around the property boundary area will be routinely monitored	1
	Surrounding land is all designated rural and is not designated for future development or rezoning	1
	The piggery will be well concealed from roads and neighbours	1
	Vehicle movements and other noisy activities occur only during the day, except under exceptional circumstances	1

	Mechanical equipment used on-farm is generally fitted with manufacturer specified exhaust devices	2
	Dust from traffic movements, manure handling and reuse and feed milling is not specifically controlled but dust does not seem to cause nuisance	2
	A complaints management procedure is in place, but does not include complaints recording, investigation and corrective action, along with appropriate consultation	2
	Mediation would be used to try to settle disputes with neighbours	1
Protection provided by design and management		
Pig housing	Sheds will be oriented east-west and constructed to maintain temperatures within the required range with minimal mechanical heating or cooling	2
	Shed bases will be concreted	1
	Feeding systems are designed to minimise feed waste	1
	Stocking densities meet the requirements of the <i>Model Code of Practice for the Welfare of Animals: Pigs</i>	1
	Sheds will be regularly cleaned to maintain very clean lanes, pens and handling areas: pigs are generally clean	1
	The inflow or outflow of effluent from the sheds will be prevented by controls	1
Nutrient content of manure	Nutrients in effluent and manure will not be measured or estimated, as on-site re-use is not proposed	N/A
Effluent collection system	Stormwater runoff, including roof runoff will be excluded from entering the effluent collection system	1
	Effluent collection systems (e.g. channels, drains, pipes and sumps) will be impervious	1
	Effluent pits, sumps, pipes and drains will be sized and managed so that they do not spill	1
	Effluent pits and drains will not be self-cleaning, but will be cleaned at least weekly to remove manure solids	2
	There are appropriate contingency measures to prevent spills from the system	1
	Flushing channels will be flushed at least daily and static pits and pull plugs emptied at least weekly, with pits emptied in rotation, to promote uniform loading of the effluent treatment system	1
	Drains, pits and sumps will be inspected after each flush for solids accumulation, leakage and deterioration	1
Effluent pre-treatment system	No effluent pre-treatment system is proposed – all solids will be flushed to the anaerobic pond via gravity	N/A
Effluent treatment system	The effluent treatment system:	
	<ul style="list-style-type: none"> is designed to capture, treat, store and reuse all effluent. It will have no significant isolated sections. Inlets and outlets will be positioned to prevent short-circuiting 	1
	<ul style="list-style-type: none"> is designed and will be managed such that odour emissions are acceptably low 	1
	<ul style="list-style-type: none"> is designed to allow for ease of desludging 	1
	<ul style="list-style-type: none"> has a design permeability of 9×10^{-9} m/s for a depth of at least 300 mm of compacted clay for ponds up to 2 m deep 	2

	<ul style="list-style-type: none"> depth to the water table from the base of the effluent treatment system will always be at least 2 m 	1
	<ul style="list-style-type: none"> is designed for an overtopping frequency not exceeding 1 in 20 years where effluent disposal is by evaporation 	1
Manure storage	Not applicable	N/A
Mortalities management	Dead pigs will always be removed from the sheds within 12 hours of discovery	1
	Mortalities management will always occur within 24 hours of death	1
	Mortalities management is by burial	3
	Mortalities management areas will always provide at least 2 m depth between base level and groundwater	1
	Mortalities will always promptly be covered with at least 300 mm of soil and continuously kept covered	1
	Mortalities management does not occur within a controlled drainage area	4
	In the case of a mass mortalities event, there is a suitable site selected and a detailed plan for managing mass mortalities	1
Reuse areas	Nutrients in pond sludge have been budgeted to ensure it will be applied at rates that are based on nutrient removals by crop or pasture harvest using generic yields	3
	Nutrient export from reuse areas will be minimised through good farming practices	2
	Pond sludge will be spread evenly and at times when active plant growth is expected	1
	Effluent will not be irrigated	N/A

Comparison with the NEGIP-SD

- The proposed piggery is sited on priority agricultural land and is well separated from populated areas. Its location in a climate with high annual moisture deficit (i.e., low rainfall and high evaporation) further reduces the risk of common environmental issues associated with wet conditions, such as managing effluent during the wetter months.
- The design and proposed operation of the piggery sheds and effluent treatment system is consistent with modern day best practice standards and the environmental protection standards under the NEGIP-SD.
- Key piggery infrastructure will be located in proximity to remnant native vegetation that comprises the critically endangered Eucalypt Woodlands TEC. Protection of this vegetation complex from piggery operations will be critical.

Comparison with the NEGIP-M

- The proposed effluent treatment system is consistent with modern day best practice standards and the environmental protection standards under the NEGIP-M. The pond system has been designed to ensure there is sufficient capacity to manage the expected volumes of effluent at the proposed throughput, without the need for on-site disposal (irrigation), which is the department's preferred option for managing piggery effluent.
- Whilst the proposal to manage pond sludge by directly spreading over cropping land on the premises every three years appears to be acceptable using conservative figures in accepted industry nutrient mass balance models, accumulated salts and metals may affect the suitability of the material for spreading.
- Disposal of dead pigs by burial is an accepted, but not preferred, option under the NEGIP-M for managing mortalities.

Other matters

Planning approvals

An application for development approval (DA) for the proposed new piggery is being sought from the Shire of Cuballing (shire) under the land use category of “Animal Husbandry – intensive”.

Closure of gazetted road

On the request of the applicant, the shire has initiated the relevant statutory process under the *Local Government Act 1995* and the *Land Administration Act 1997* to close the undeveloped road reserve that traverses the premises.

Notice of Intent to Drain or Pump Water (NOID)

A notice of intention has been lodged with the Commissioner of Soil and Land Conservation regarding the proposed desalination of groundwater using a reverse osmosis plant for use in the piggery.

Consultation

The application was referred to relevant public authorities and advertised for public comment on the department’s website from 26 March to 16 April 2026.

Public authorities

The shire advised that no significant issues have been identified or have been raised with respect to the pending DA, which is due to be determined at the next council meeting. The shire is also supportive of the request to close the undeveloped road reserve.

The Department of Primary Industries and Regional Development does not object to the proposal, however indicated that burial pits should be situated on low permeability soils; that spreading of pond sludge should be supported by a nutrient management plan that specifies a nutrient application rate and how the nutrients applied will be subsequently removed; and that sludge should be tested for salts and metals to ensure its suitability prior to land application.

Public submissions

No submissions were received during the advertised public comment period.

Risk assessment

Determination of emission, pathway and receptor

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.

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 identified potential source-pathway and receptor linkages. Where linkages are in-complete they have not been considered further in the risk assessment.

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 the below table.

Risk assessment table

The table below describes the risk events associated with the proposal consistent with the *Guideline: Risk Assessments* (DWER 2020). The table identifies whether the risk events are acceptable and tolerated, or unacceptable and not tolerated, and the appropriate treatment and degree of regulatory control, where required.

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Construction works								
Construction of new piggery and infrastructure, including feed mill	Noise and fugitive dust associated with construction civil excavation, earthworks, construction works, etc.	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>2.9 km)	Adequate separation to nearby receptors (>2.9 km)	Minimal impacts to amenity on local scale Slight	Not likely to occur in most circumstances Unlikely	Low Acceptable, not subject to controls	The delegated officer considers there is sufficient separation in place (>2.9 km to nearest rural dwelling, >6.5 km to nearest town) and therefore does not reasonably foresee that noise and dust from construction works will impact on the amenity or health of off-site human receptors.	<u>Works approval controls:</u> None specified.
Time limited operations and full operations								
Category 2: Intensive piggery operation								
Holding, feeding and watering of pigs within conventional sheds	Nutrient-laden effluent (spilt feed, water, urine, faeces), accumulated in pig sheds	Seepage/infiltration, causing contamination of soils, groundwater	Pig sheds to be constructed with slatted flooring over a concrete base with a pull-plug flushing system Conveyance of effluent to the ponds via fully enclosed underground PVC pipes Effluent ponds to be sufficiently sized and lined with compacted clay	Low-level on-site impacts Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory controls	The pig sheds will be constructed with slatted flooring over concrete underfloor pits, which is consistent with the NEGIP-M environmental protection standards. Effluent will be released from beneath the sheds and gravity-fed to the anaerobic pond using a pull-plug system and fully enclosed underground PVC pipes. The effluent ponds will be constructed with a compacted clay liner using either in situ materials or material brought to site and compacted to achieve a permeability of 1×10^{-9} m/s or less. The presence of shallow groundwater at the site has yet to be determined, however groundwater is known to be present at depth (~40 mbgl) and will be abstracted for use in the piggery. It is also unknown whether a paleochannel exists beneath the site. Providing the piggery infrastructure is constructed according to specification and its integrity maintained and managed in accordance with the NEGIP-M, the risk of groundwater impacts from the proposed piggery appears to be acceptable. As the proposed controls are critical for maintaining an acceptable level of risk, they will be imposed on the works approval and required to be maintained through the licence as minimum infrastructure requirements.	<u>Works approval controls:</u> - Infrastructure design and construction requirements specified, including compliance reporting <u>Licence controls:</u> - Infrastructure design and operational requirements - All infrastructure must be maintained to design specifications
	Odour, from pig sheds	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>2.9 km)	Sheds oriented east-west to facilitate natural ventilation Maximum stocking rate of 10,400 SPUs Flushing of underfloor pits every week Sheds to be regularly swept and hosed down Mortalities to be removed daily	Low level impacts to amenity on local scale Minor	Likely to occur only in exceptional circumstances Rare	Low Acceptable, based on applicant controls being implemented	By their very nature, intensive piggeries have an inherent risk of odour causing impacts to off-site receptors. Ensuring there is sufficient separation between piggeries and human receptors is critical for minimising the potential for odour impacts. The department accepts the s-factor formula, as outlined in the NEGIP-SD, to be an appropriate method for determining the minimum separation distances to sensitive receptors. S-factor calculations provided by the applicant, which have been verified by the department and DPIRD as part of this assessment, indicate there is adequate separation to nearby receptors. The delegated officer is therefore satisfied that more complex air quality modelling/odour assessment is not warranted. In order to ensure an acceptable level of risk is maintained during operations, controls will be imposed on the licence to require regular maintenance consistent with the NEGIP-M, such as regular flushing and maintenance of the effluent pits, in addition to specifying maximum stocking numbers.	<u>Works approval controls:</u> None specified. <u>Licence controls:</u> - Maximum stocking numbers specified - Odour controls specified, in accordance with the NEGIP-M
	Noise, from animals, piggery operations and machinery movements		Sufficient separation distance in place to nearby human receptors	Minimal impacts to amenity on local scale Slight	Likely to occur only in exceptional circumstances Rare	Low Acceptable, not subject to controls	Noise levels are not expected to significantly differ from operation of the existing piggery. To the department's knowledge, the existing piggery has operated in this location for decades without significant incident or complaint.	<u>Works approval controls:</u> None specified. <u>Licence controls:</u> None specified.
Effluent treatment and management	Nutrient-laden raw effluent	Rupture of effluent conveyance pipelines, causing contamination of soil	Daily inspections of drainage channels	Low-level on-site impacts Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory	The effluent conveyance system connecting the pig sheds to the primary pond will need to be enclosed in minimum 300 mm uPVC pipes; 'Y' pieces will need to be installed at regular intervals along the length of the pipe for access should blockages occur.	<u>Works approval controls:</u> - Infrastructure design and construction requirements specified, including compliance

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
		and groundwater with raw effluent				controls	It is critical that routine checks and balances are in place to ensure any issues are identified to enable early detection and appropriate action to be taken. As such, these controls will be imposed on the licence as operational controls.	reporting - Ongoing inspections of WTS infrastructure for integrity and other issues with inspections recorded - Identified issues must be rectified <u>Licence controls:</u> As above.
	Nutrient-laden raw effluent (raw, partially treated and treated)	Overtopping of effluent ponds, runoff causing contamination of soil and groundwater with raw effluent	The effluent pond system has been designed for appropriate residence time in primary pond and overflow to storage. System has been designed with sufficient capacity to manage expected volumes generated	Low-level on-site impacts Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory controls	The effluent pond system has been designed to ensure sufficient storage capacity based on an 800-sow operation, in which ~37 m ³ /day of effluent will be generated and takes into account incident rainfall entering the pond system. Water balance calculations show the water level in the evaporation ponds would only marginally encroach on the 600 mm freeboard during a 90 th percentile wet year. The freeboard will allow the ponds to receive 50% of the annual rainfall (460 mm) in a single event without spilling. The combined freeboard capacity provides 12,830 m ³ which is sufficient for over 347 days of effluent production, excluding evaporation losses. The size of the pond system meets the NEGIP-M which requires a spill frequency of not more than once every 20 years for evaporation ponds. To ensure an acceptable level of risk is maintained during ongoing operations, freeboard controls will be imposed on the licence for the evaporation ponds, as per design.	<u>Works approval controls:</u> - Operational freeboard requirements on the storage ponds (600 mm) - Daily inspections for freeboard and integrity issues. <u>Licence controls:</u> As above.
	Odour, from the effluent pond system	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>2.9 km)	Ensuring sufficient residence time to maximise anaerobic treatment Optimising desludging intervals to maximise treatment efficiency Large storage ponds for treated effluent	Low level impacts to amenity on local scale Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory controls	The ponds are only expected to be a source of odour if there are issues with the anaerobic treatment process, where there is a lack of residence time and the effluent is not being treated properly. Providing the primary pond is managed and maintained in accordance with the NEGIP-M, i.e., sufficient treatment capacity is maintained to reduce volatile solids and a desludging program is in place to maintain capacity within the system, the delegated officer considers it unlikely that odour from the ponds will significantly impact on the amenity or health of off-site receptors. To ensure an acceptable level of risk is maintained during ongoing operations, conditions will be imposed on the licence to require maintenance of the pond system in accordance with the NEGIP-M, and desludging frequency specified as per design.	<u>Works approval controls:</u> - Management and maintenance of ponds as per NEGIP-M; - Desludging every 3 years. <u>Licence controls:</u> As above.
Pond solids management	Nutrient-laden pond solids, following desludging	Seepage/infiltration, causing contamination of soils, groundwater	Pond sludge to be directly applied to cropping land at low rate (1 mm)	Low-level on-site impacts Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory controls	The effluent pond system has been designed to be desludged every 3 years, with about 4,500 m ³ of sludge expected to require management. The applicant proposes to spread the sludge thinly and evenly on cropping land on the premises and has provided a basic nutrient budget without specifying an application rate or how nutrients will be removed. It is proposed to use groundwater in flushing the sheds; therefore, salts are likely to accumulate in the pond sludge. The sludge will need to be firstly tested to ensure its suitability for spreading, and if suitable, a NMP will be required to be submitted. Otherwise, the sludge will need to be removed off-site for disposal at a premise that is lawfully able to accept that type of waste, such as a licensed landfill.	<u>Licence controls:</u> - Desludging every 3 years; - Testing of sludge to determine suitability for spreading; - If suitable, NMP needs to be submitted and licence amendment; - If not suitable, material must be disposed off-site at a licensed premises
Mortalities management	Odour, from burial pit	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>2.5 km)	Ensuring sufficient separation to nearby receptors Regular covering with soil	Low level impacts to amenity on local scale Minor	Likely to occur only in exceptional circumstances Rare	Low Acceptable, based on applicant controls being implemented	The delegated officer considers there is sufficient separation in place (>2.5 km) to nearby receptors and therefore does not reasonably foresee that odour from the burial pit will impact on the amenity or health of off-site human receptors, providing the mortalities are placed into the pit daily and immediately covered with 500 mm of sand/clay. As these controls are critical for maintaining an acceptable level of risk, they will be imposed on the licence as operational controls.	<u>Works approval controls:</u> - Deceased animals must be placed into the pit daily and immediately covered <u>Licence controls:</u> As above.
	Nutrient-laden leachate from decomposing animals	Seepage/infiltration, causing contamination of soils, groundwater	Ensuring maximum separation to groundwater	Low-level on-site impacts Minor	Likely to occur only in exceptional circumstances Rare	Low Acceptable, not subject to controls	The burial pits are located with a clay base and are well separated from groundwater (>20 m likely).	<u>Works approval controls:</u> None specified. <u>Licence controls:</u> - Burial pit location specified.

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls
Source/ Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Feed mill operation	Noise and dust from mill operations	Unreasonable interference with the health, welfare, convenience, comfort or amenity of nearby sensitive receptors (>650 m)	Ensuring sufficient separation to receptors Enclosed augers and dust collection Timing of milling activities	Low level impacts to amenity on local scale Minor	Not likely to occur in most circumstances Unlikely	Medium Acceptable, subject to regulatory controls	The delegated officer considers there is sufficient separation in place (~650 m to nearest legal dwelling) and therefore does not reasonably foresee that noise and dust from operation of the feed mill will impact on the amenity or health of off-site human receptors, providing the augers are enclosed, dust is collected, and the mill is operated during normal daytime working hours.	<u>Works approval controls:</u> - Mill must be established with enclosed augers and baghouse on dust exhaust. <u>Licence controls:</u> - Mill must be operated with functional baghouse.

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

Decision

The delegated officer has determined the proposal to construct and operate a new indoor piggery, with an assessed design capacity of 10,400 SPUs, does not pose an unacceptable risk of impacts to on- and off-site receptors.

This determination is based on the proposed piggery being sized, sited and designed consistent with current industry guidelines (NEGIP-SD) that will ensure protection of community amenity, public health and natural resources, and the proposed management being consistent with current industry guidelines (NEGIP-M) that will ensure an environmentally sustainable operation, predominantly by:

- being sited with sufficient separation to nearby (human) sensitive receptors, and in a location that poses a low risk to groundwater and surface water; and
- being constructed to modern day best practice standards, with conventional sheds with impermeable concrete floors and effluent pits, a fully enclosed effluent conveyance system, and a suitably lined effluent pond system that has been sufficiently sized to manage all effluent generated from full operations, such that on-site disposal is not required.

The controls proposed by the applicant are considered critical for maintaining an acceptable level of risk of environmental impacts and will be imposed on the works approval as infrastructure controls.

Key risks from the proposal that require further consideration largely relate to the management of pond sludge and mortalities management:

- due to the potential for salts and metals to accumulate in the pond sludge, testing will firstly be required to determine the suitability of the material for spreading onto cropping land, and if found to be suitable, further details will be required in the form of a nutrient management plan that specifies a nutrient application rate and how the nutrients applied will be subsequently removed; and
- although burial is an accepted, but not preferred, method of mortalities management under the NEGIP-M, in view of the proposed size of the piggery and the number of mortalities per year, the department encourages the applicant to consider composting as a longer-term alternative.

A condition will also be included on the works approval to require destocking and decommissioning of the existing piggery infrastructure, including the farrowing huts and deep litter shelters.

Works approval and licence

Works Approval W3222/2026/1 that accompanies this report authorises construction of the new piggery infrastructure and following the submission of compliance certification reports, the provision for a time-limited operational period. The conditions in the issued works approval, as outlined in the above risk table have been determined in accordance with the *Guidance Statement: Setting Conditions* (DER 2015).

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

Applicant comments on draft decision

The applicant was provided with drafts of the works approval and this report on 4 May 2026 and aside from seeking minor comments and clarification, indicated that testing of available materials for constructing the ponds is falling just below the current required permeability of

1x10⁻⁹ m/s, and that a variation in the requirement may be sought if conforming soils or an alternative cannot be found.

Conclusion

Based on this assessment, it has been determined the issued works approval will be granted for a period of 3 years and 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 Primary Industries and Regional Development (DPIRD) 2022, Soil Landscape Mapping (DPIRD-064). Accessed from www.data.wa.gov.au.
3. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Industry Regulation Guide to Licensing*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Tucker, RW, Price, JP and Tait, S, 2025. *National Environmental Guidelines for Indoor Piggeries – Management – First Edition*, Australian Pork Limited Project 2025/0045 (NEGIP-M).
6. Tucker, RW, Price, JP and Tait, S, 2025. *National Environmental Guidelines for Indoor Piggeries – Siting and Design – Fourth Edition*, APL Project 2023/0033 (NEGIP-SD).