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WORKS APPROVAL APPLICATION

Glenlevit Piggery 2026

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Glenlevit Piggery
Works Approval Application

Property Address: 519, Popanyinning West Rd.
Popanyinning, WA

Client: A.W. Lyneham & Sons

Author: Janine Price
&
Dr Preethi Gopalan

[redacted]

Disclaimer

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
SCE25-23	Draft-1	19/02/26	J.Price & Dr P. Gopalan	J.Price	J.Price
SCE25-23	Draft-1	23/02/26	J.Price & Dr P. Gopalan	J.Price	J.Price
SCE25-23	Final	2/03/26	J.Price & Dr P. Gopalan	J.Price	J.Price

Table of Contents

1 Introduction

Glenlevit Piggery is operated by *A.W Lyneham & Sons.* and is located at 519, Popanyinning West Rd, Popanyinning, WA 6309. The farm spans 896 ha across Lots 18835, 9527, 14288, 5126, 5707, 6490, 8693, 12438, 3965, 6997 6996, 14287 & 11484. Glenlevit Farms (the site/premise) is located 5km south-southwest of Popanyinning in the Shire of Cuballing.

The premises has operated as a grazing and cropping enterprise with a free range outdoor piggery since 1955. The premises continues to operate to this day a grazing and cropping enterprise along with an outdoor-bred, raised indoor on straw (deep litter shelters) farrow-to-finish piggery with associated ancillary supporting infrastructure. The piggery currently has 550 sows i.e. 6605 animals or 6936 SPU.

In order to support the next generation of the family who are interested in continuation of the piggery enterprise, Glenlevit piggery are proposing a new piggery greenfield site with modern, industry best design housing on the same property. This will allow future generations to grow the business, increase productivity, improve pig comfort and animal welfare whilst improving environmental sustainability of the farm. The new piggery will increase the capacity of the current site from the 550-sow farrow to finish to an 800-sow farrow to finish operation. This equates to 9812 animals or 10400 SPU.

The new greenfield site will be composed of 10 conventional modern sheds and associated supporting infrastructure . The new sheds will allow for improved climate-controlled conditions and industry animal welfare spacing requirements for the farrowing sows (40% larger than industry standards). The sheds are also designed with a 20m clearing between (more than the industry standard of 15m requirement) to mitigate biosecurity and bushfire risk. The new sheds will be fitted with a pull-plug system, and an effluent storage and treatment system is also included as part of the proposed expansion.

The proposed greenfield site will house all pigs indoors rather than the current operation which houses all of the sows in outdoor farrowing huts with the remaining weaners and growers raised in deep litter shelters.

The existing farrowing huts will be dismantled and the land will be remediated as cropping/grazing paddocks. The current eco-shelters will be repurposed and utilized as machinery and storage sheds.

The feed operation on-site currently uses crops grown on other properties under the same ownership to produce feed for the piggery through a small mobile feed mill. To support the new piggery, a new feed mill installation is proposed. The feedmill is currently approved and previously operated at Westpork Kojunup. As it is no longer used it will be dismantled and rebuilt on Glenlevit Property. The feed mill production will be staged with a maximum envisaged production capacity of 10,000T per annum. As such, a manufacturing licence (10,000T) is being sought as part of the proposed new piggery plans.

1.1 Application Type- Works Approval

The following report has been prepared to provide the Department of Water, Environment and Regulation (DWER) specific site and operational details to demonstrate that proposed new conventional piggery and associated feedmill will not pose a risk of harm to the environment.

Intensive piggeries are described as a premise on which pigs are fed, watered and housed in pens. Piggeries with more than 1000 animals are classified as a prescribed premise under the *Environmental Protection Regulations 1987* (EP Regulations).

The feed mill is classified as Animal feed manufacturing: being a premises (other than premises within category 15 (Abattoir) or 16 (renderer)) on which 100 tonnes or more per year animal food is manufactured or processed.

As the occupier of the land is establishing a piggery and feed mill which trigger the prescribed premise thresholds, a Works Approval is required.

To operate a prescribed premise with over 1000 animals and to manufacture/process more than 1000T per annum of animal feed the following operating licences will also need to be obtained:

- Category 2: Intensive piggery
- Category 23: Animal feed manufacturing

The licence is generally developed from the information provided in the Works Approval and issued once the works approval is approved, and the works have been completed as per the application.

As part of the works approval process DWER require the submission of "Application form: works approval, licence, renewal. Amendment, or registration (v16, August 2022)". Following consultation with DWER Bunbury Office a separate works approval application can be provided that consolidates of all relevant information required as part of the works approval application assessment.

The following report forms part of the "Application form: works approval, licence, renewal. Amendment, or registration (v16, August 2022)". As such, the information contained herein provides a consolidation of all relevant information required as part of the works approval application assessment. All information relevant to assessing the piggery and associated feed mill site and operation has been provided.

Additional Approvals

A planning permit is concurrently being sort from Cuballing Shire Council under the Land Use category of "Animal husbandry – intensive".

2 Applicant Details

Applicant:
Name: A W Lyneham & Sons
[redacted]

Registered Office Address: Glenlevit Piggery
[redacted]

Occupier Status:
A W Lyneham & Sons
Please see certificate of title and ASIC extract

Authorised Representative
Name: Janine Price
Position: Principal Consultant- Environment & Regulation
Organisation: Scolexia Pty Ltd
Address: 8/19 Norwood Cresent
Moonee Ponds, Victoria, 3039 (based in Canberra)
[redacted]

3 Premise Details

Name: Glenlevit Piggery Pty Ltd & Glenlevit Feedmill Pty Ltd
[redacted]
WA 6309
Plan: Feedmill on Lot 9527
Piggery complex on Lots 6996 & 14287

A map of the premises with outdoor piggery is provided in **Figure 1**

Figure 1 Glenlevit Piggery Premises

3.1 Land use

The site comprising 896 ha currently operates a 550-sow farrow to finish outdoor bred raised indoors on straw (deep litter shelters) piggery along with a cropping enterprise and sheep (Merino) grazing enterprise. There is a derelict, uninhabited house on Lot 18835 (north side of Popanyinning West Road) and one dwelling on Lot 5126, which will be used by farm staff. A new house is currently under construction on Lot 12488, which will be occupied by Jason Lyneham (farm owners' son) and Megan Blake, who will be managing the new property. These are located on the opposite side of the hill to the new piggery. The proposed piggery is surrounded on the northern and southwest sides by thick vegetation. There is no visibility of the piggery from any public access roads. The feed mill is located adjacent to the intersection of Popanyinning West Rd and Pennys Rd to allow for ease of access for delivery and removal of products. It is also well separated from the piggery for biosecurity purposes. The feedmill will be located behind a thin roadside tree belt with thick vegetation to the south.

The surrounding land uses are primarily sheep and cropping activities. A large proportion of the land surrounding the piggery site is owned by by Stelyn Pty Ptd and RL Bielby & SJ Lyneham as a grazing and cropping enterprise.

Due to previous interpretations of the Animal Husbandry-Intensive definition (planning) and prescribed premise regulations (DWER), outdoor piggeries were not captured in planning or licensing requirements. As such the current piggery operation does not have a planning permit or licence.

The proposed new conventional piggery land use is categorised as "Animal Husbandry- Intensive" *-means premises used for keeping, rearing or fattening of alpacas, beef and dairy cattle, goats, pigs, poultry (for either egg or meat production), rabbits (for either meat or fur production), sheep or other livestock in feedlots, sheds or rotational pens but excludes agriculture - extensive.*

Animal Husbandry- Intensive is captured under "Category A" in the Rural zoning table in the Cuballing Town Planning Scheme - the land use is not permitted unless the local government has exercised its discretion by granting development approval after giving notice in accordance with Clause 64 of the deemed provisions of the Shire of Cuballing Town Planning Scheme No. 2 20 May 2005- Updated 24/10/2023. A Development Approval (DA) is concurrently being sort from Cuballing Shire Council.

Table 1 Zoning Table from Cuballing Town Planning Scheme

LAND USE	Rural Townsite	Rural Residential	Rural
Abattoir	X	X	A
Agriculture-extensive	X	X	P
Agriculture-intensive	X	A	D
Ancillary dwelling	P	D	D
Animal establishment	X	A	D
Animal husbandry - intensive	X	X	A
Art gallery	D	A	D

3.2 Planning Controls

The following planning controls are provided as these are taken into consideration when assessing the potential risks posed by the piggery expansion on the surrounding environment and community amenity.

3.2.1 Zones

The subject site is located within the rural zone which has the following objectives:

- To provide for the maintenance or enhancement of specific local rural character.
- To protect broad acre agricultural activities such as cropping and grazing and intensive uses such as horticulture as primary uses, with other rural pursuits and rural industries as secondary uses in circumstances where they demonstrate compatibility with the primary use.
- To maintain and enhance the environmental qualities of the landscape, vegetation, soils and water bodies, to protect sensitive areas especially the natural valley and watercourse systems from damage.
- To provide for the operation and development of existing, future and potential rural land uses by limiting the introduction of sensitive land uses in the Rural zone.
- To provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with surrounding rural uses.

3.2.2 Bushfire Prone Area

The subject land has bushfire prone areas along the boundary of the site (See ***Figure 2***), however it does not trigger the State Planning Policy 3.7 Bushfire November 24 as the requirements are targeted at habitable buildings of which there are none for the proposed feed mill and piggery.

Firefighting equipment is maintained on site at all times (with additional mobile units on site during harvest and bushfire season) and a large, cleared buffer between the bush/vegetation will be maintained to the sheds. The sheds have also been designed to be 20m apart to minimise fire spread and facilitate good access in the event of a fire event.

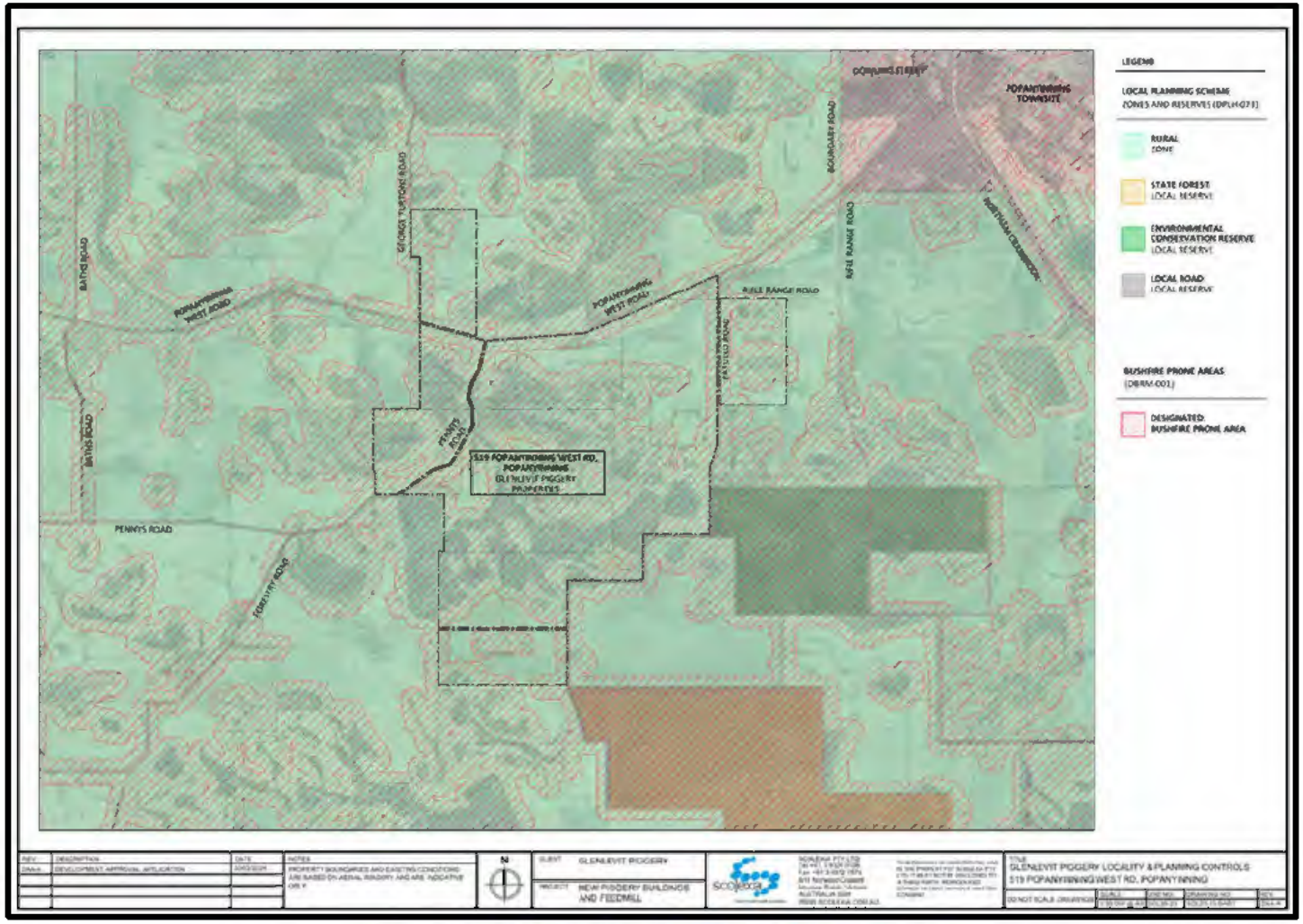

Figure 2 Planning Zones, Reserves and Bushfire prone area

3.3 Natural Resources

3.3.1 Surface waters

The piggery and feed mill are located in 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 insitu weathered rock. (NRInfo WA, 2025).)

There are no waterways identified on the site (See **Figure 3**). The closest waterway is an unnamed major tributary of the Hotham River approximately 3.4Km to the southwest on the other side of significant hill country. The mainstream Hotham River is located 7km to the East. The subject land is not subject to flooding in a 1 in 100-year flood event (no flood overlays). It is also not located within a declared public drinking water source area, being located well south (~32Km) of the Brookton Reservoir catchment area drinking water source.

Figure 3 Major tributary (light blue) and Mainstream Hotham River (Dark Blue) (NRInfo WA, 2026)

3.3.2 Groundwater

Groundwater mapping for the area is not available, likely due to deep aquifers and low risk posed compared to the more coastal high groundwater areas of Western Australia. Nine bores are located across the property, all of which appear to be at depth. Bore logs for 4 bores on site indicate groundwater at depth being drilled to 42,43, 45, and 51m. See **Figure 4**. Bore logs for the site are attached in Appendix 1.

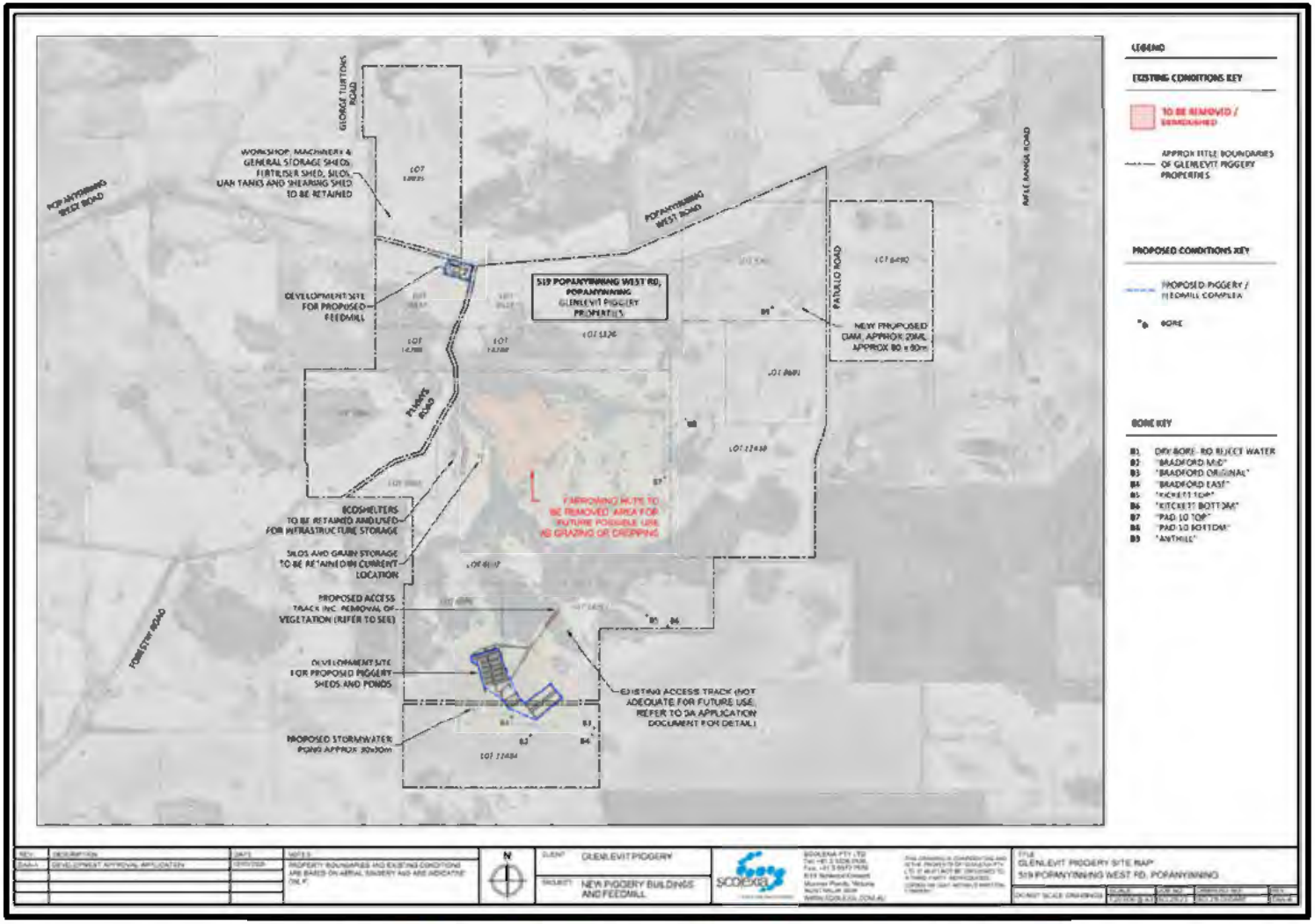

Figure 4 Site map with bore locations in relation to proposed piggery and feedmill

3.3.3 Topography

The property in general has quite steep hills towards the centre of the site with slopes and undulations to the lower areas. (See **Figure 4**). The feedmill is located on a relatively flat area towards the north of the property. The piggery is to be located on a slope of approx. 4% average. The slope means that the design of the piggery incorporates a terraced approach to the siting of the sheds down the hill face. The slope allows for effluent management to utilise gravity into the pond system. The nature of the hills and undulations across the site means that the piggery will not be visible to the public.

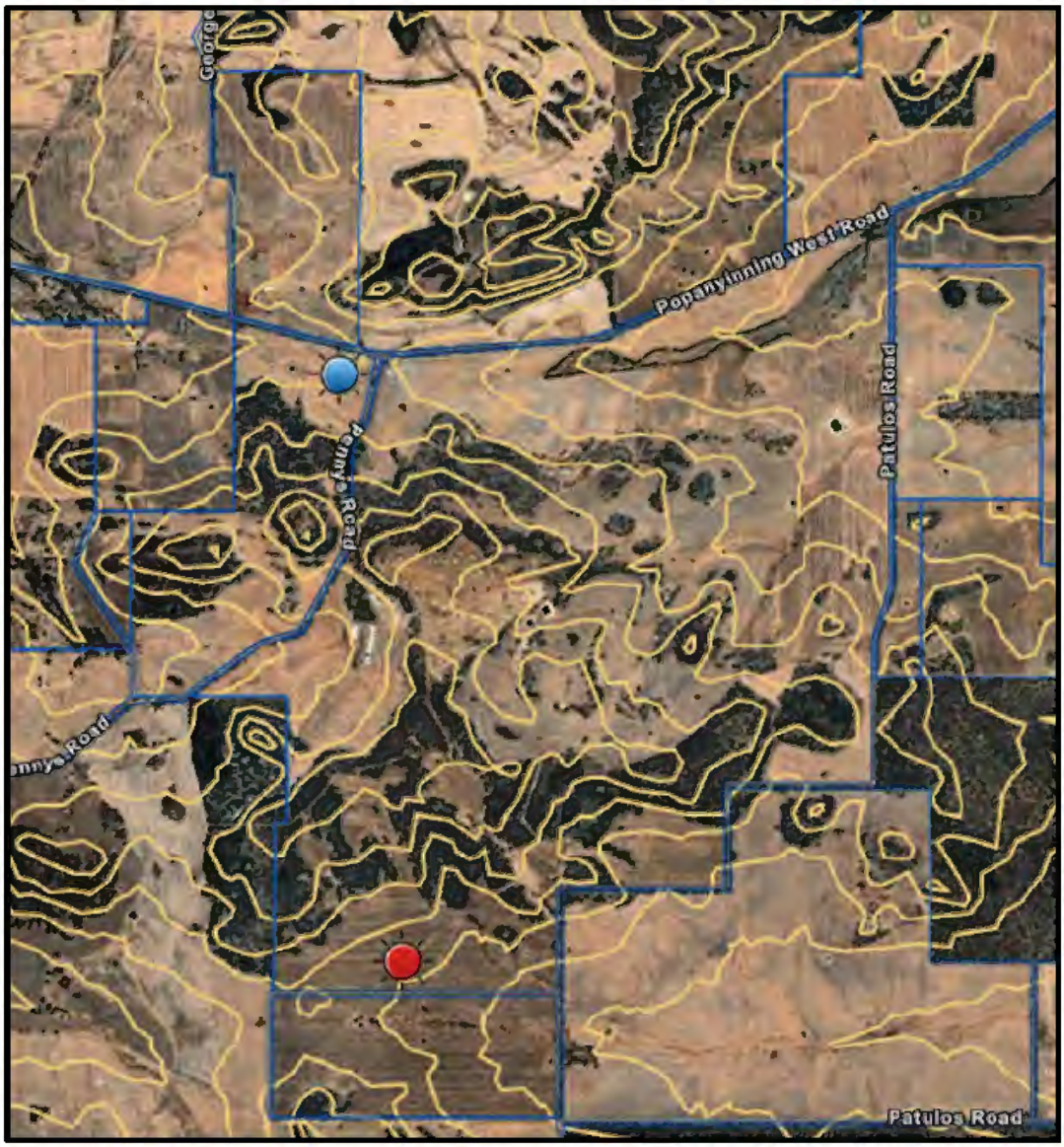

Figure 5 Topography in relation to the feed mill (blue dot) and Piggery (red dot) (light blue) (NRInfo WA, 2026)

3.3.4 Soils

The soils on the property are identified as being part of the Noombling subsystem (Dyandra) in the Murray River Catchment. Four distinct soil mapping units have been identified through mapping) across the property. Descriptions are provided below.

The site of the feedmill and new conventional piggery complex (including effluent system) will be located on 257 DyNB soils which are associated with longer gentle and undulating hillslopes with duplex soils and site-specific clay layers at sub soil depth . (Based on soil sampling).

The current outdoor component of the existing piggery is located on 257 DyNO soils which are mapped as comprising of gravely sand, sand, duplex yellow soils and duricrust. Duricrusts are a hardened layer formed by layered minerals/materials at or near the earth's surface. typically formed in sub-tropical or arid climates through the accumulation of minerals like laterites (most likely on this site), bauxites, quartzites, ron, silica, or calcium via evaporation. The deep litter component of the piggery is currently operating on the 257 DyNB. Note the existing piggery operations will cease to operate in these areas. Storage infrastructure however will remain.

Mapping units 257 DYNBr and DyNBrx (small 22.3ha) are associated with the ridges/crest of hills which have rocky outcrops and are largely covered with open woodland type vegetation. Two bore logs from Hole 9 anthill and D Patullo Rd indicated white clay/sands (0-12m) and brown clay sands (12-21m) to 21 m and granite/fractured granite (21-51m) and sticky clays (0-11m) and Fractured Granite and Quartz (11-42m). respectively. Hole 5 indicates top soil to 2m, then cream brown clay to 25m, weathered granite to 28m and granite to 43m. Hole 6 indicates brown clay to 22m, weathered granite to 28m, fractured granite to 34m, fresh granite to 37m, fractured granite to 40m and fresh granite to 45m. Cropping and grazing operations are conducted across all arable areas of the site.

Table 2 Soil Characteristics on Piggery and Feedmill site

Noombling subsystem (Dryandra)		
Unit	**Relationship to Piggery Operation**	**Description**
257DyNB	New Feed mill New piggery complex incL sheds and effluent system Existing deep litter complex (to cease operation)	Long gentle and undulating hillslopes and divides. Colluvium / weathered granite, gneiss and some dolerite. Yellow/brown and grey deep sandy duplexes, brown deep loamy duplexes, sandy gravels and shallow duplexes. Vegetation includes Marri-Wandoo / Jam-Sheoak
257DyNO	Existing outdoor piggery (to cease operation)	A complex of lateritic residuals and associated pediment; gravely sand, sand, duplex yellow soils and duricrust
257DyNBr rocky phase	Crests of hills/rises	Long gentle and undulating hillslopes and divides with common (15-20%) rock outcrops. Bare rock, stony soils and yellow/brown and grey deep sandy duplexes
257DyNBrx very rock phase	Crests of hills/rises	Long gentle and undulating hillslopes and divides with many (40-50%) rock outcrops. Bare rock, stony soils and sandy and loamy duplex soils

Figure 6 Soil types in relation to the feed mill (blue dot) and Piggery (red dot) (light blue) (NRInfo WA, 2026)

3.3.5 Vegetation

Open woodland vegetation is generally associated with the crests/ridges of the hills and rises across the property which is also associated with more rocky soils and outcrops. There are other scattered isolated trees found across the property. The feed mill and new piggery complex will not need the removal of any native vegetation. A number of trees will be removed (26) for new site access as the current track will not accommodate larger vehicles.

There is significant vegetation between the piggery and any sensitive receptors which will assist in visual amenity, noise mitigation and odour and dust dispersion. The feedmill is screened from the Popanyinning road by a thin roadside planting with significant vegetation to the south of the site.

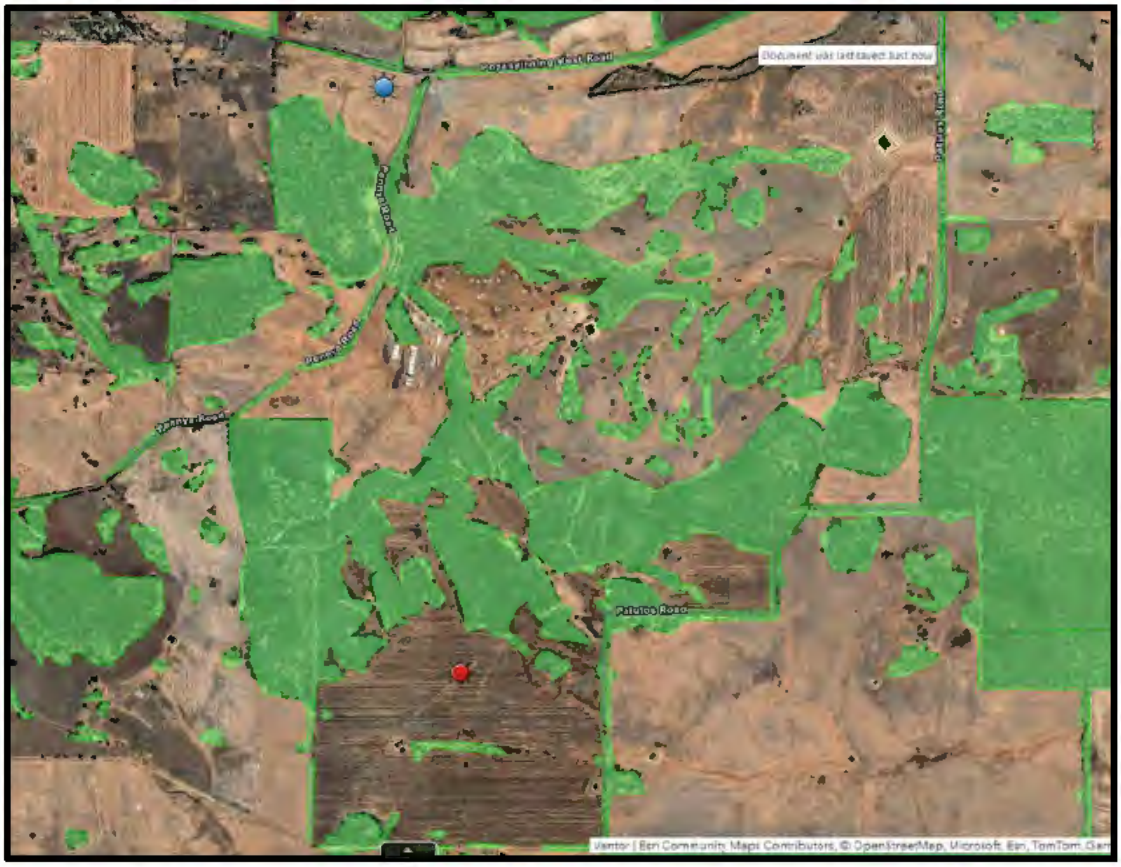

Figure 7 Native vegetation in relation to the feed mill (blue dot) and Piggery (red dot) (light blue) (NRInfo WA, 2026)

3.3.6 Cultural Heritage

A search of the Aboriginal Cultural Heritage inquiry system did not find any registered or lodged culturally significant areas on or near the site. The nearest lodged place (29169) is 3km to the east as the George Rd/Patullo Rd Bush Camping and Hunting ground.

3.3.7 Climate

Data derived from ARM online indicates that the site has low rainfall with a mean of 459mm a year and a mean temperature of 22.8 degrees. (data 1960-2025).

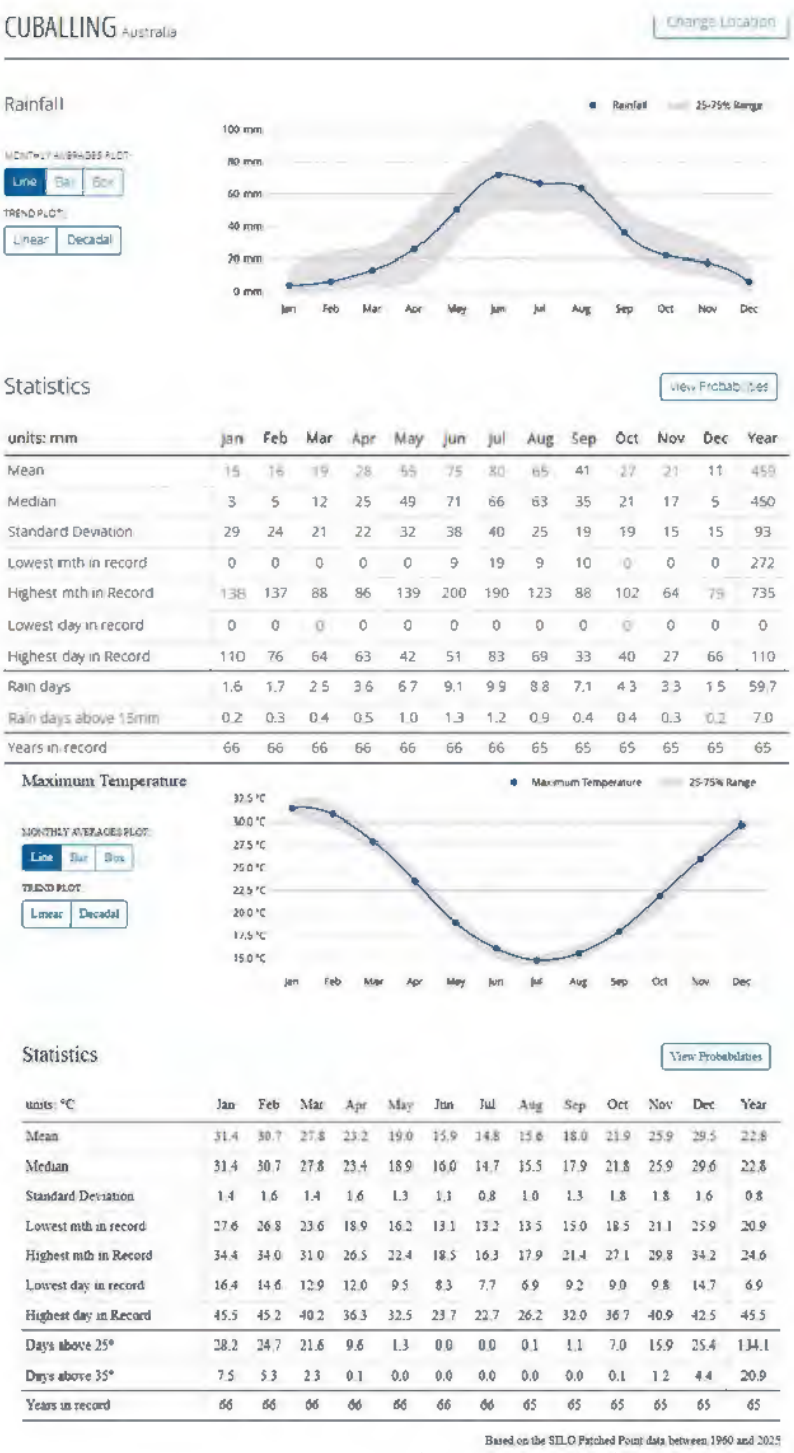

Figure 8 Climate data (arm online, 2025).

Evaporation data was derived from the Bureau of Meteorology website for Narrogin Station (# 010614) which has operated from 1891 to present (See **Table 3**). The following evaporation data has been extrapolated from the mean daily evaporation (mm). The data shows that rainfall only exceeds evaporation from June to August each year.

***Table 3** Mean evaporation for Narrogin, WA (BOM, 2025).*

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean evaporation (mm)	270	218	183	105	71	45	47	59	81	130	177	251
Total annual	**1637mm**											

Pingelly is the closest station (010626) located approx. 22.5km that has monthly climate statistics. The station has been operating from 1891 to present (See **Figure 9**). This station's data sourced from the Bureau of Meteorology website was used for wind direction. The dominant wind direction at 9 AM is from the south-east towards the northwest. The wind direction at 3 PM is more scattered with westerlies, the most common blowing towards the east.

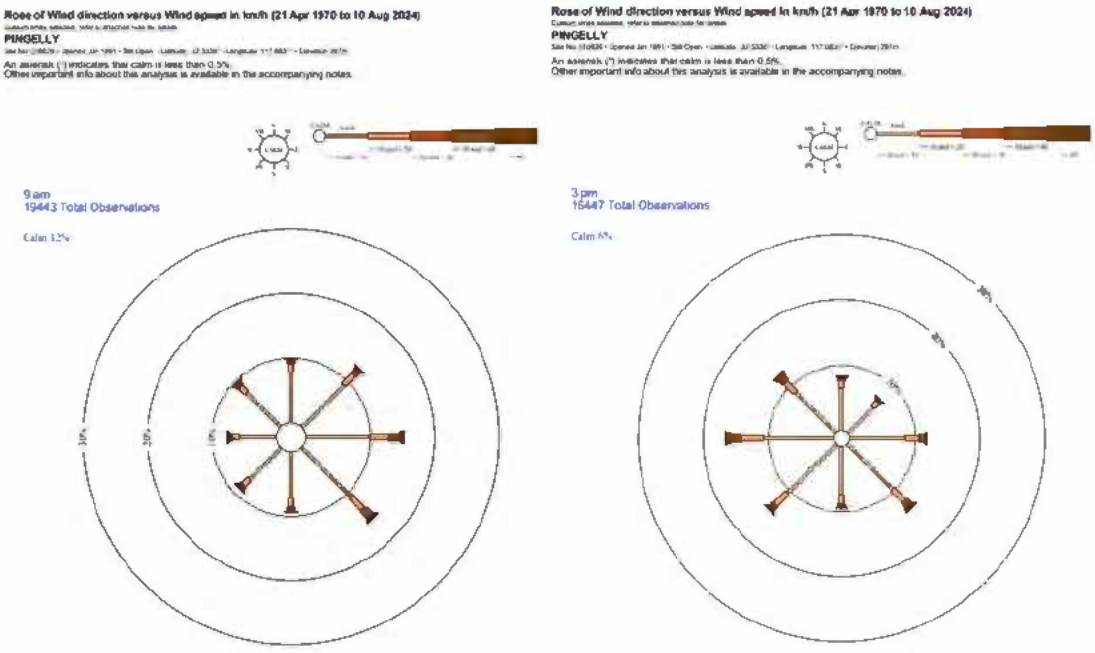

Figure 9 Windroses for Pingelly (BOM, 2025).

4 Existing Activities

4.1 Pig numbers and SPU

Glenlevit piggery currently operates an outdoor bred raised indoors on straw (deep litter) 550-sow farrow to finish operation which equates to approximately 6605 pigs or 6936 Standard Pig Units (SPU). A farrow-to-finish piggery includes the breeder, weaner and grower/finisher stages. The breeding unit of the piggery includes boars, gilts, gestating or dry sows, farrowing sows, lactating sows, and sucker pigs. Sows live and farrow in outdoor paddocks. Piglets are born and raised in the farrowing huts till weaning. Weaned pigs are grown in deep litter shelters on straw until approximately 110kg live weight.

4.2 Current Infrastructure

The farm consists of 90 farrowing huts (**Figure 10**) and 15 deep litter shelters for weaner and grower pigs (**Figure 11**). The shelters are of hooped metal frames covered in waterproof fabric. The bases of the shelters are impermeable concrete flooring overlain with straw, or similar loose material covers the floor, absorbing manure. The breeder herd is run free range with all feed being distributed by hand with sows fed a set amount 2.2 kg/head. The eco-shelters have feeders for ad-lib feeding and feed is distributed directly from the mixall (feed mill towed behind a tractor that both grinds and mixes feed). Water is distributed to all stock both breeder and finisher in water troughs. All breeders have access to a wallow for cooling in summer. Farrow huts are moved every 4 weeks to a fresh piece of ground and restocked with fresh straw to increase the distribution of nutrients and provide a fresh area for the pigs.

The used bedding in eco shelters is removed and replaced when the batch of pigs is removed, or on a regular basis if needed (usually every 8 weeks). Spent bedding is stored behind the shelters until cropping season in February each year. The spent bedding is spread on cropping land owned by the applicant to maximise the nutrients and organic matter such as a fertiliser and soil conditioner. The total available land for spent bedding reuse is approximately 896ha.

Figure 10 Farrowing huts in the current outdoor piggery

Figure 11 Deep litter grower and finisher sheds in the current piggery

The current infrastructure (as seen in **Figure 12**) for feed consists of approximately 16 silos , composition mixing and distribution equipment. Feed (largely consisting of wheat, barley and lupins) is produced on farm using a tractor-driven mixall system and grown on land under the same ownership.

Figure 12 Feeding infrastructure (mobile silos) in current piggery

To the North of the current piggery, on Lot 18835, is a sheep rearing facility, with a herd size of approx. 2000 ewes. The lambs are sold at 34kg liveweight (in October) to feed lotters to bring to market weight. Any feed for sheep is kept strictly separate to the pigs due to the use of animal protein sources. Barley or lupins are fed to the sheep, and these grains are not milled prior to feeding.

The infrastructure consists of:

- workshop and machinery storage
- fertiliser shed
- Silos
- UAN tanks
- shearing shed and sheep yards

This infrastructure is not expected to be impacted by the proposed new feed mill and piggery operations. It is anticipated that these facilities and operations will continue to function as per current practices independent of development of the piggery and feedmill.

5 Proposed Activity/Development

5.1.1 New Feedmill

To support the new piggery, a new feed mill installation is proposed. The feedmill is currently approved and previously operated at Westpork Kojunup. This feed mill is no longer in use due to Westpork having a centralized feed manufacturing operation. The entire feedmill and infrastructure, i.e. silos will be dismantled and rebuilt on Glenlevit Property.

The feed mill will be located at 519 Popanyinning West Rd Lot 9527, on the intersection of Popanyinning West Rd and Pennys Rd. The site of the feedmill is located behind thin roadside vegetation with dense vegetation to the south.

The access/entry road to the feedmill is proposed through Penny's road (local access). This will also ensure reduced impact to the Popanyinning West Road. Delivery trucks making multiple external farm visits are known potential disease vectors. The location of the feed mill ensures external trucks delivering feed and taking products to be separate from the piggery production units.

The feed mill production will be staged with a maximum envisaged production capacity of 10,000T per annum. As such, a manufacturing licence (10,000T) is being sought as part of the proposed new piggery plans.

Initially it is envisaged that the feed mill will produce 100T/week equating to 5200T per annum. This is estimated to take approximately 1.5days to achieve.

The Feedmill will be operational from 5am-5pm (3:30-4pm likely) and a later start time in winter of 7am. During operations the feedmill will be fully enclosed to minimise dust. A dust containment system, i.e. dust baghouse will be implemented internally to capture dust generated from the process.

Figure 13 Proposed Feedmill site (top), Proposed siting of feedmill on Lot 9527 (bottom)

Figure 14 Proposed Feedmill Infrastructure

The proposed feed mill (which was previously installed at Westpork- **Figure 14**) includes:

- Weighbridge and grain intake placed adjacent to shed
- 1,400 tonne of grain and meal storage silos placed adjacent to shed
- A grinder, capacitated at 10 tonne per hour, placed inside the shed
- Minerals and vitamins dosing system placed inside the shed
- A mixer placed inside the shed
- 297 tonne of ready-made feed silos placed adjacent to shed
- A control room

An additional bank of 7 silos will be located adjacent to the feedmill.
Having the feed grown and milled on farm contributes to the circular economy and cleaner production goals of the industry by reducing food miles, transport and associated embedded emissions.

5.1.2 New Piggery

The new piggery will increase the capacity of the current piggery on site from the 550-sow farrow to finish to an 800-sow farrow to finish operation. This equates to 9812 animals or 10400 SPU.

The new greenfield site will be composed of 10 conventional modern sheds and associated supporting infrastructure . The new sheds will allow for improved climate-controlled conditions and industry animal welfare spacing requirements for the farrowing sows (40% larger than industry standards). The sheds are also designed with a 20m clearing between (more than the industry standard of 15m requirement) to mitigate biosecurity and bushfire risk. The new sheds will be fitted with a pull-plug system, and an effluent storage and treatment system is also included as part of the proposed expansion.

The proposed greenfield site will house all pigs indoors rather than the current operation which houses all of the sows in outdoor farrowing huts with the remaining weaners and growers raised in deep litter shelters.

The existing farrowing huts will be dismantled and the land will be remediated as cropping/grazing paddocks. The current eco-shelters will be repurposed and utilized as machinery and storage sheds.

The piggery will be operational from 5am-5pm (3:30-4pm likely) and a later start time in winter of 7am.

5.2 Pig numbers and SPU

The breeding component of the piggery comprises approximately 800 sows, together with boars, replacement gilts, gestating (dry) sows, farrowing and lactating sows, and sucker pigs. Pigs are weaned at 28 days.

Table 4 Proposed Pig Numbers and S PU (Pigbal5)

Pig class	Pigs accommodated in piggery			Shed type (waste management system)	Pig age			Pig live weight			SPU factor	No of SPUs
	Calculated values	Entered values	Adopted values		In	Out	Average	In	Out	Average	Live weight regression	Live weight regression
	(pigs. stage^{-1})	(pigs. stage^{-1})	(pigs. stage^{-1})		(weeks)	(weeks)	(weeks)	(kg. pig^{-1})	(kg. pig^{-1})	(kg. pig^{-1})	(SPU. pig^{-1})	(SPU)
Gilts	151		151	Pull plug / Static pit	17.0	31.0	24.0	83.1	160.0	121.6	1.80	272
Boars	6		6	Pull plug / Static pit	29.0	88.2	59.1	103.0	300.0	201.5	1.60	10
Gestating sows 1	654		654	Pull plug / Static pit				160.0	215.0	187.5	1.60	1,047
Gestating sows 2	0		0	Pull plug / Static pit				0.0	0.0	0.0	1.60	0
Lactating sows	146		146	Pull plug / Static pit				215.0	160.0	187.5	2.50	365
Suckers	1,749		1,749	Pull plug / Static pit	0.0	4.0	2.0	1.4	7.0	4.2	0.10	178
Weaner	827		827	Pull plug / Static pit	4.0	6.0	5.0	7.0	16.0	11.5	0.32	267
Porker	823		823	Pull plug / Static pit	6.0	8.0	7.0	16.0	26.0	21.0	0.59	482
Grower	1,634		1,634	Pull plug / Static pit	8.0	12.0	10.0	26.0	50.0	38.0	0.98	1,608
Finisher	3,822		3,822	Pull plug / Static pit	12.0	21.5	16.8	50.0	110.0	80.0	1.62	6,172
Unallocated	0		0		0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
Unallocated	0		0		0.0	0.0	0.0	0.0	0.0	0.0	0.00	0
Totals:	**9,812**		**9,812**									**10,406**

5.3 Piggery Housing

The proposed piggery housing comprises purpose-built, fully enclosed conventional indoor sheds designed to accommodate the breeder, farrowing, nursery and finisher stages of the farrow-to-finish operation. Each production class is housed in separate dedicated sheds appropriate to the class of pigs managed.

The sheds are constructed with impermeable concrete floors incorporating static under-floor effluent pits, over which slatted flooring is installed. Manure, waste feed and wash-down water pass through the slatted floors into the pits and are removed via a static pull-plug system as part of routine shed management and cleaning activities. Effluent collected from the sheds is conveyed through fully enclosed underground pipework (via gravity where possible) to the effluent management system.

All pig housing sheds are mechanically ventilated, with integrated cooling and heating systems to provide controlled internal environmental conditions across all stages of production. The farrowing sheds will have 5 internal rooms with 36 crates per room. The sheds are designed to provide increased floor space allowances, particularly within the breeder and farrowing accommodation.

Feed and water systems are installed within each shed and are appropriate to the class of pigs housed. Feed delivery and watering infrastructure is designed to support efficient animal management and minimise spillage and waste generation.

The Piggery complex is located on Lots 6996 & 14287 and 11484 (See **Figure 15**). The site is located on a slope with an average of approximately 4%. Due to this the sheds will be located in pairs in a terraced formation north south down the slope The sheds are oriented with their long axis along an east–west axis (See **Figure 16**). This design is used to minimise the heat load on the building by reducing the amount of direct sunlight hitting the long side walls, especially during the hottest parts of the day, thereby keeping the pigs cool and improving productivity (APL,2025). The site is surrounded by hills and undulations along with thick vegetation to the north screening the piggery from public view.

Figure 15 Proposed Piggery siting on Lots 6996 & 14287 and 11484

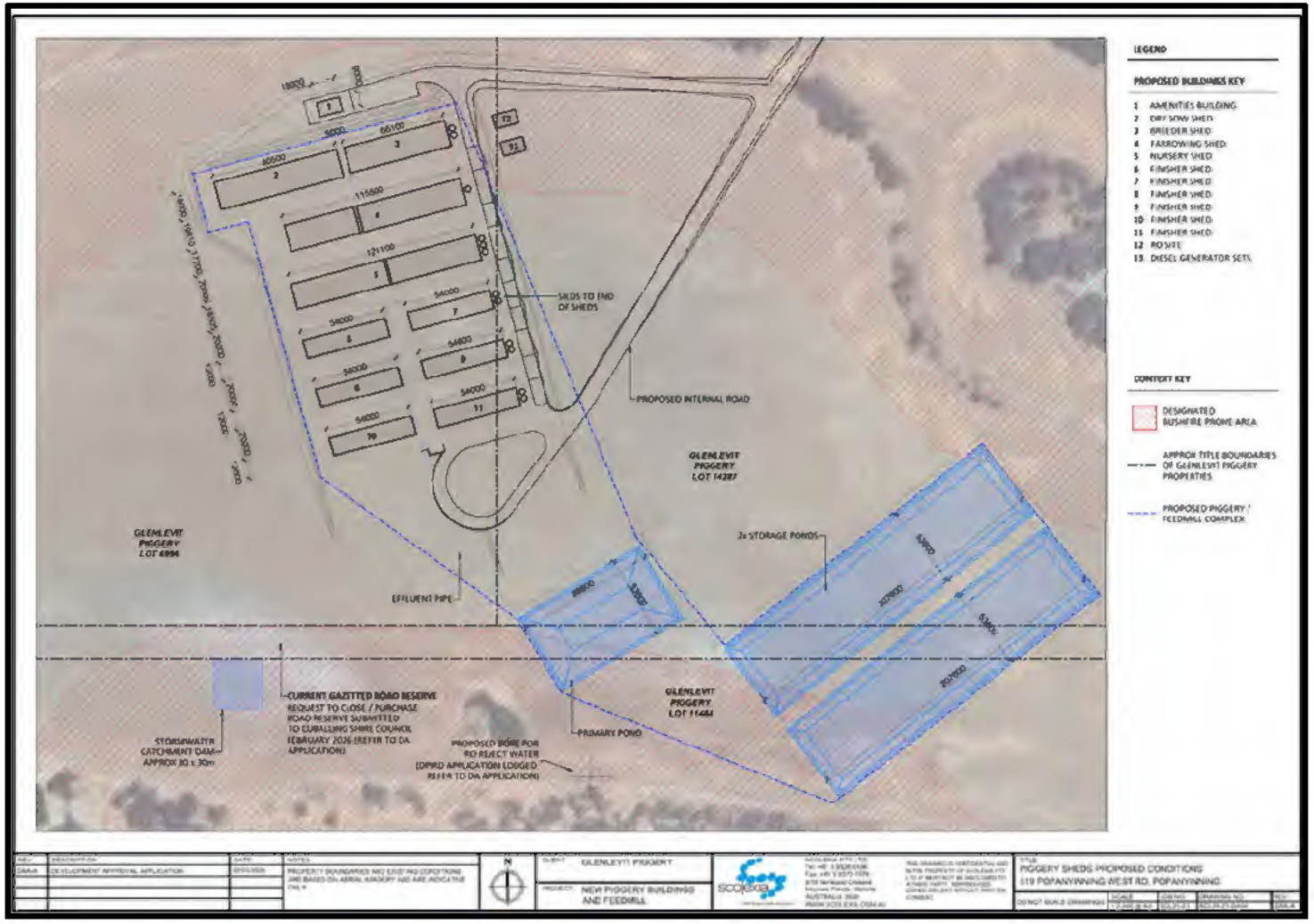

Figure 16 Proposed Piggery Infrastructure siting, including Effluent management system

Feed System at Piggery

All feed systems will be automatic from the silo to feed points. Intake will be controlled with breeders, but growers will be ad-lib at all times. Rations are Gilt Developer, dry sow, lactating sow, creep, weaner, grower, finisher and rations will change in the nursery/finisher according to the pig's age.

Silos (3.8m Dia) are to be commissioned outside the housing sheds at the piggery to facilitate distribution of feed. (As Labelled in **Figure 16**)

- Sheds 2 & 3 - 2 silos
- Shed 4 – 1 silo
- Shed 5 – 3 silos
- Sheds 6 & 7 – 2 silos
- Sheds 8 & 9 – 2 silos
- Sheds 10 & 11 – 2 silos

5.4 Water system and use

Water for the piggery is supplied from a combination of on-farm surface water storage and groundwater sources. Two key dams provide the primary surface water supply, with a combined storage capacity of approximately 30 ML, comprising one existing dam of approximately 10 ML and one new dam of approximately 20 ML. A number of other smaller dams and tanks on the property are also available to supplement the water supply as required.

Groundwater is available from on-site bores and will be utilised following treatment. An on-site reverse osmosis (RO) plant is to be installed to treat brackish bore water. The RO plant will use water from 5 bores

1. Anthill
2. Pad10 Bot
3. Pad10 top
4. Bradford East
5. Bradford Midaa

Two treated water supply streams from the RO plant will be utilised:

- RO permeate supplied directly to the evaporative cooling systems, including the cooling cells
- RO permeate blended with feed water to achieve a target salinity of approximately 2,500 ppm total dissolved salts for stock drinking and general piggery use.

Water is used within the piggery for stock drinking, shed wash-down and cooling purposes. Drinking water is supplied via low-wastage drinker systems appropriate to the class of pigs housed, designed to minimise spillage and reduce unnecessary contributions to the effluent stream. This is accounted for in the water balance.

Cooling within the sheds is provided through mechanical ventilation systems incorporating evaporative cooling. Evaporative cooling air is drawn through cooling cells located at the end of each building, providing effective temperature control while minimising overall water use and limiting excess moisture entering the effluent system.

5.5 Effluent and Manure Management

Currently there is no effluent system on site because the existing outdoor infrastructure consists solely of farrowing huts and deep litter shelters.

In the new system there will be three effluent streams produced on site which include liquid effluent, sludge, and brine from the desalination plant. The generation, management and reuse of these streams is discussed in detail below.

5.5.1 Effluent generation

Effluent generated and pond treatment capacity requirements for the proposed 800 Farrow to Finish conventional Indoor piggery were modelled using PigBal 5 (V1.02) (Skerman, 2018). The model estimates the volume of effluent discharged to the primary anaerobic pond along with the manure total solids (TS) and volatile solids (VS) from the pig sheds.

PigBal 5 is the national industry standard tool for estimating piggery manure production that uses mass balances theory and diet digestibility data in its computations. PigBal 5 (V1.02) uses standard multipliers for the breeding stock and suckers, while using an in-built live weight regression formula to determine the multipliers for weaners, growers and finishers. This method used standard diets representative of typical industry diets. As well as estimating feed intake, diets, wastage and manure production, the model uses cleaning water use estimates based on typical effluent solids concentrations for different effluent management systems, pig drinking water estimates, pig cooling water estimates, and a range of solids separation (pre-treatment) options with typical solids and nutrient removal rates. The model also estimated the mass of nitrogen, phosphorus and potassium in manure and effluent taking into account inputs (feed, pigs, and water) and outputs (pigs, mortalities and emissions of nitrogen to air (10% for conventional sheds).

The total annual water use estimated by the piggery operators is 48ML. PigBal 5 (V1.02) estimates for an SPU 10,400 drinking water will be a total of 21.7 ML/yr. Approximately 26ML is expected to be allocated to the cooling systems in the temperature-controlled sheds. The piggery operator estimates that on an average 1000L/day would be the water use for static pits and hosing and they are periodically released via pull plugs every 4 weeks. With these inputs, PigBal 5 (V1.02) estimates 16.6 ML/yr of effluent generation at the site **Table 5**.

Table 5 Effluent Generation expected at the proposed site

Effluent discharged to primary anaerobic pond	Volume ($ML.yr^{-1}$)	Volume ($L.day^{-1}$)	TS ($kg.day^{-1}$)	VS ($kg.day^{-1}$)	N ($kg.day^{-1}$)	P ($kg.day^{-1}$)	K ($kg.day^{-1}$)
Flushing / hosing water	0.37	1,000	0	0	0	0	0
Manure + waste feed	10.80	29,602	2,958	2,453	224	52	73
Drinker waste water	5.42	14,860	0	0	0	0	0
Total:	**16.59**	**45,462**	**2,958**	**2,453**	**224**	**52**	**73**
			6.51%	5.40%	0.49%	0.11%	0.16%
Composite shed loss factors:			10%	12%	10%	0%	0%

5.5.2 Effluent Management System

In the pig sheds the flooring is composed of slats which allow the urine and manure to fall below the floor into concrete pits which are typically recharged with some water to prevent sticking. The shed flooring is also regularly washed down using high pressure hoses to push the manure through the flooring to maintain a clean environment.

In the proposed new piggery, effluent will be removed from the sheds via a static pull-plug system and conveyed to the piggery's effluent management infrastructure. All effluent generated within the sheds will be managed within the effluent management system.

Stormwater is kept separate from the effluent system via a series or drains around the piggery complex which are directed into a separate stormwater dam. The only stormwater entering the system will be from rainfall on the ponds which has been accounted for in the water balance model.

Required Capacity

Estimated Production and operational management data were collected and used in the PigBal 5 model to estimate the total solids (TS) and volatile solids (VS) generated for the proposed piggery. The resulting TS and VS values were then input into the WatBal model to calculate the required treatment and storage volume for the system. The WatBal model (Skerman and McClymont 2019) performs a daily water balance on piggery effluent treatment and storage systems. It includes provisions for modelling additions to the effluent stream from piggery manure, waste feed, fresh and recycled flushing and hosing water used for shed wash-down, any runoff from shed rooves or outdoor catchments, drinking water wastage, and rainfall falling onto pond surfaces.

Effluent system extractions incorporated in the model include evaporation from pond surfaces, and use of recycled effluent for shed cleaning and application (irrigation) onto land growing crop and/or pasture. The Watbal model system chosen for the Glenlevit farm was an anaerobic treatment pond followed by additional storage/evaporative ponds.

The model uses historical daily climatic data which is downloaded from the SILO climate data website (https://www.longpaddock.qld.gov.au/silo/). The model accommodates analysis periods commencing from 1900 up to the day prior to the analysis. For Glenlevit farms 46 years of weather data from Pingelly WA was incorporated (1980-present). Note: If the assumptions entered into the models are to change in anyway, the pond sizing will need to be revised to reflect the changes.

Due to the warm climate and low rainfall, a large influence on the system is evaporation. The piggery site has a relatively high evaporation to rainfall ratio, and it is expected that management of treated effluent will be achieved by evaporation in the storage ponds, rather than reuse in irrigation. Investigations into the viability of irrigation and consequent impact on pond sizes were also conducted. The evaporative nature of the would render the retained treated effluent with high salinity thus becoming a limiting factor.

Irrigation of treated effluent has thus not been included in the main models. For this reason, all references below to storage ponds imply evaporative ponds rather than conventional storage ponds. As such surface areas were assessed to maximise the evaporation component.

The original design and sizing of the ponds were done at a depth of 1m for the storage pond, to maximise evaporative losses. However, preliminary assessments by third-party earth mover-contractors revealed that a minimum depth of 2m was needed to attain the adequate compactable clay. A Geotech assessment has been conducted to confirm site and material suitability- The soil compactability has been determined to be 9x10-9. The risk profile is low as the ground water depth is likely over 40m and the absence of any surface water nearby. Report in Appendix 3.

This is a requirement for lining the ponds to make them relatively impermeable. Because surface area (for achieving the evaporative losses) was the key consideration, the increase in depth of the storage ponds increased the volume from 14ML to 26.7ML. Siting constraints also necessitated dividing the large storage pond into two separate ponds. The dimensions of the primary anaerobic pond and the two storage ponds are seen in **Table 6**.

The National Environmental Guidelines for Piggeries (2025) sets a maximum overtopping (spill) frequency of once every ten years on average for storage and once every twenty years for evaporation ponds. However, this is dependent on-site sensitivity. For an informed decision-making comparison, scenarios have been modeled for 10-year and 20-year spill frequency. The storage required for the 1:10 and 1:20 was similar, with marginally increased requirements for the 1:20 spill frequency. All dimensions presented below are for the 1:20 spill frequency. All other modelling parameters are presented in **Appendix 2**.

Table 6 Effluent treatment and storage capacities required for the proposed site and Pond System adopted at site (Bottom)

Pond Model Scenario	Volume (ML)	Dimensions (m)	Volume (ML)	Dimensions (m)	Surface Area# (m^2)
Primary Pond and Storage Pond at 1m depth	12.5	85*53.7*5.5	14	204*77.5*1	20360
Primary Pond and Single Storage Pond at 2m depth	12.5	85*53.7*5.5	26.7	204*78.2*2	15953
Primary Pond and Two Storage ponds at 2m depth	12.5	85*53.7*5.5	13.4	204*44*2	8976

Pond surface areas calculated at Embankment dimensions

Pond	Dimensions	Volume (ML)	Surface Area (m^2)*
Primary Pond	81.4 × 50.1 × 5.5	12.5	—
Storage Pond 1	200.4 × 40.4 × 2.0	13.4	8,096
Storage Pond 2	200.4 × 40.4 × 2.0	13.4	8,096
Total	—	—	**16,192**

*Note: Pond surface areas calculated at maximum liquid height inside ponds

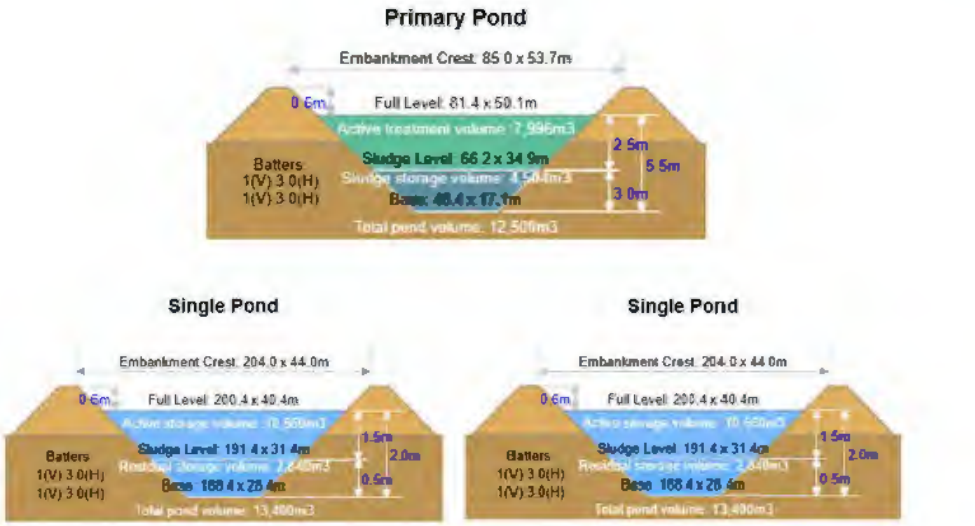

Figure 17 Primary treatment and two storage ponds needed for managing effluent generated at the proposed piggery

Points of Consideration for the Pond Capacity Model (See **Figure 17**):

1. The loading rates for the Primary pond are assumed to be in the range of 0.298-0.4 kgVS/m^3.
2. All ponds are designed with a freeboard capacity of 0.6m, according to the latest Industry standards (APL, 2025).
3. An internal batter slope of 3(H):1(V) was used for both the primary and storage ponds. This is to facilitate accessibility for machinery when commissioning and desludging.
4. Storage ponds have been modelled based on evaporation, i.e. pond surface area. This methodology accounts for loss through evaporation, more suitable to the conditions at this piggery.
5. Desludging is assumed to be done every 3yrs. Taking too much out of the treatment pond per year interferes with the pond operation. A longer desludging period is not recommended as it will likely result in difficulty in removing the sludge material from the pond.

Note: The estimated total pond volume/capacity including the freeboard will need to be confirmed by a pond designer/Civil engineer. The current pond calculations rely on maintaining an evaporative surface area. If the pond dimensions are to change from those outlined in the report, this would need to consider the implication for effluent management via evaporation.

Investigations into the viability of irrigation and consequent impact on pond sizes were also conducted. The evaporative nature of the would render the retained treated effluent with high salinity thus becoming a limiting factor. Irrigation of treated effluent has thus not been included in the main models.

General Pond Design and Management

- A minimum freeboard of 0.6m will be maintained at all times (incorporated into the design) to protect the pond bank stability, and to accommodate wave action and pond overtopping.
- A layer of water or sludge should be maintained in all ponds at all times to minimise drying and cracking of the base and subsequent integrity of the ponds.
- The crest of the embankment will be a minimum width of 5m to allow for vehicle and machinery access during construction and maintenance of pond. The crest width takes into account desludging activities which generally require heavy machinery. A gravel-topped crest will be provided for good traction while machinery is working beside the pond.
- Topsoil will be stripped and removed during construction and put back 0over the tops of the banks if required. Integration of topsoil into the construction or banks results in poor compaction and may result in leakage.
- Ponds must meet the design criteria of 1 x 10^{-9} m/s. The risk profile is low as the ground water depth is likely over 40m and the absence of any surface water nearby. If soils onsite are determined to be unable to meet the required permeability limits, then clay or clay-based products may need to be brought onto the site or alternative lining methods may need to be considered.
- Diversion of stormwater is planned. Drainage from the piggery complex will be redirected into a purpose-built stormwater dam.
- All effluent ponds will be monitored regularly for pond levels, and bank stability. Any structural issues will be rectified as soon as possible.

Effluent System- Siting

The modelling of the effluent system was done originally based on standard dimensions. Concurrent consultations with third party contractors like earth movers and geo-technical consultants resulted in ponds that were modelled and retrofitted to the specific site requirements. **Figure 18** shows the proposed pond dimensions for the primary and storage ponds. The primary pond is expected to match the modelling requirements, including freeboard requirements. The storage ponds are expected to be slightly larger than the modelling requirements. This is done to ensure contingency storage.

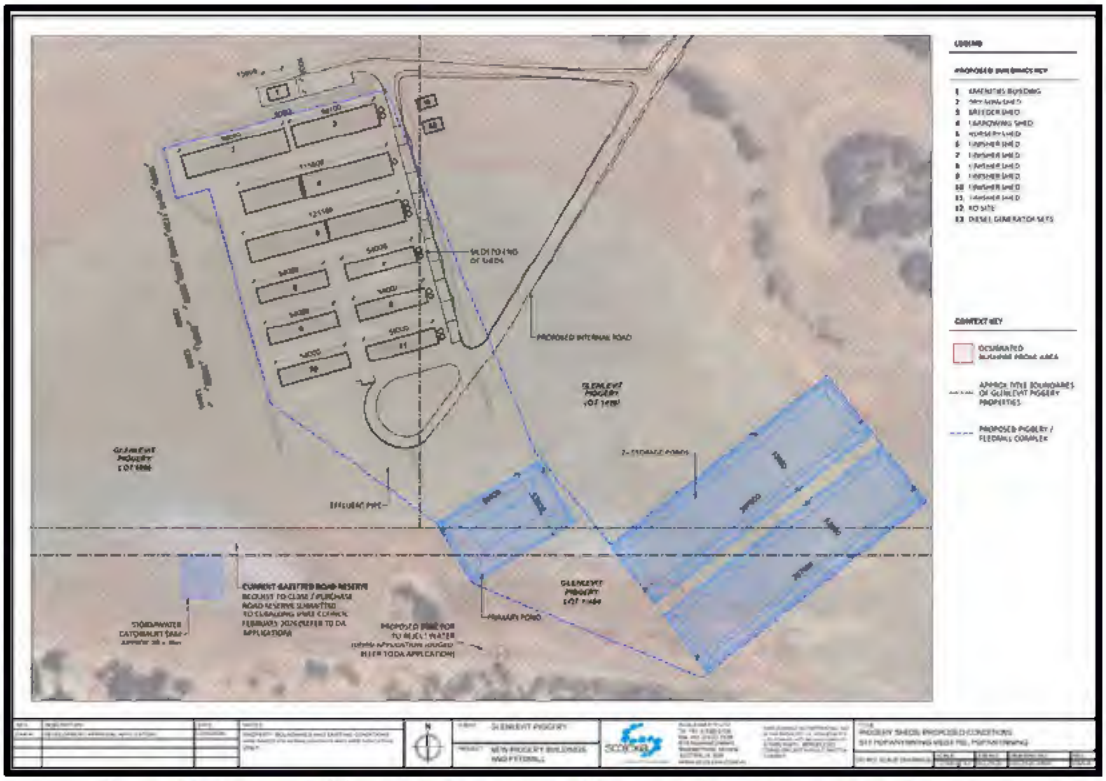

Figure 18 Proposed siting and dimensions of treatment and storage ponds

5.5.3 Sludge reuse

Stabilised solids will be periodically removed as required and managed in accordance with the piggery's nutrient management arrangements. There is a desludging program (as required) which will remove sludge. Distributing sludge thinly and evenly at low application rates over large areas minimises nutrient build up and associated risks. Note sludge is recommended to be removed no more than once every 3 years in the primary pond to minimise impacts on pond operation.

It should be noted that the nutrient content of piggery sludge can be highly variable. The following nutrient balances are indicative only, soil types, climate, microbial activity and variable crop yields all contribute to nutrient retention and uptake. The sludge will be tested periodically, soil tests are undertaken and an agronomist is engaged to interpret results to ensure site-specific sustainable agronomic rates are maintained to maximise soil health, crop yields and losses.If the nutrients and nature of sludge is found unsuitable for land use, it should be sent to a certified waste disposal contractor.

Table 15.2 of the National Environmental Guidelines for Indoor Piggeries – Siting and Design (APL ,2025) provides indicative sludge properties.

- N – 2617mg/L
- P – 1696mg/L
- K – 7000mg/L

Table 15.4 (APL 2025) provides data that estimates crop (typically grown in this region) nutrient removal rates for wheat, barley straw, triticale, lupins.

Recovered effluent solids are reused as a nutrient source and soil conditioner on cropping land controlled by the proponent. Land application is undertaken in accordance with the site nutrient management arrangements, with a total land area of approximately 896 hectares available for nutrient reuse.

Table 7 Typical Crop grown in this region removal rates from APL, 2025

Crop	Crop Yield DM/t/ha	Normal nutrient removal range (kg/ha)		
	Average	N	P	K
Winter cereal Hay	7	140	21	112
Barley straw	7.5	53	2.1	135
Grain barley	3.5	70	6.25	16
Wheat straw	8	60	5	157
Wheat Grain	3.5	70	12	18
Grain triticale	2.25	47	7	11
Lupins	2	64	6	11

To determine the sustainable reuse area per year (one crop) required for 2ML of sludge the APL nutrient balance calculator was used. The inputs included the average nutrients in Sludge. Phosphorus, which settles in the sludge is generally the limiting nutrient determining the reuse area requirements. However, potassium is limiting for a number of crops. Potassium is not an environmental nutrient of concern although excess K can have implications on soil structure and cation imbalances. The calculations assume a total removal of the nutrients generally resulting in deficits in the non limiting nutrients. Having some residual nutrients in the soil is preferable for plant/crop growth. Table 8 shows the sustainable reuse areas based on different crop types. An alternative column is also shown that identifies the estimated area if K is causing limitations. That is the area based on P (primary nutrients of concern if they enter waterways and groundwater). Note there is deep groundwater and no waterways on the piggery site.

Table 8 Sustainable reuse requirements for various crops generated from APL Nutrient Balance Calculator- Conventional and Deep Litter Piggeries (2ML Sludge, 1 crop).

	Sustainable reuse area*	Potential alternative area**
Winter cereal Hay	161ha (1mm)	P limited
Barley straw	646ha (1mm)	P limited
Grain barley	1000ha (1mm) *	P -323ha
Wheat straw	843ha (1mm)	P limited
Wheat Grain	700ha (1mm) *	P -212ha

**Potassium limited. ** Alternative areas taking into consideration the limitations of N and P which have potential environmental impacts if they enter groundwater and/or waterways.*

5.5.4 Brine Form RO

The RO plant will use water from 5 bores to treat brackish water

6. Anthill
7. Pad10 Bot
8. Pad10 top
9. Bradford East
10. Bradford Midaa

The reject or brine from the RO will be reinjected into a dry bore. Details on location and capacit of the RO plant, its source bores and reject reinjection bore are submitted to the Department of Primary Industries and Regional Development in the Notive of Intent to Pump Water (Desalination). (Appendix 4)

5.6 Mortalities Management

5.6.1 Day to Day Mortalities

Pig mortalities are managed via on-site burial in dedicated earthen pits. Each layer of pigs is covered with soil to minimise vermin attraction and odour. Finished pits are covered with additional soils to minimise subsidence. Burial pits are located away from pig housing areas and sensitive receptors/areas to maintain biosecurity and environmental protection. Generally, the pits are located on the higher areas of the farm. Groundwater has been measured at depth on site (~40m- 50m) and there are no waterways on the premise.

5.6.2 Mass Mortalities

In the event of a mass disposal event, the piggeries veterinarian will be the first contact and actions taken as per their advice including notifications. This may involve the chief veterinary officer and relevant state departments such as DPIRD and DWER.

The following Mass Mortality locality plan has been developed to assist the producer and government authorities to identify potential onsite locations in the event of a mass mortality situation. The method and location of disposal will be governed by whether the event is a natural occurrence (fire, flood, heat etc) or an Emergency Animal Disease (EAD) event. Note: Certain notifiable and or EAD diseases may require specific disposal methods. Veterinary and government agencies will advise on the most appropriate course of action in such a situation.

Note some disposal methods may not be suitable for certain notifiable and/or EAD situations. Refer to government advice and AUSVETPLAN.

The mode of disposal in a mass incident depends on the cause of death and site location. A suitable area has been identified that considers:

- Soil types (low permeability to minimise leaching to groundwater. Where no suitable soils exist lining or additives such as bentonite can assist in creating an impermeable base)
- Topography (avoid steep slopes or hilly areas to minimise run-off and erosion and allow machinery access)
- Buffers from watercourses, wetlands and drainage lines to minimise run-off
- Buffers from remnant vegetation or conservation areas.
- Avoidance of flood prone areas

- Distance to groundwater (at least 2m above the highest seasonal watertable)
- Consideration of farm boundaries and distances to local roads (community amenities)
- Consideration of separation distances to sensitive uses such as neighbours, public areas.

Various WA Government mapping information was taken into account to determine the most suitable potential disposal sites. Most of the sites (based on mapping) are located on the least steep areas of the farm, away from drainage lines, and largely on areas of soil type DyNB with subsoil compaction susceptibility (good for compaction potential) and low ease of excavation. The following map identifies the potential mass disposal sites.

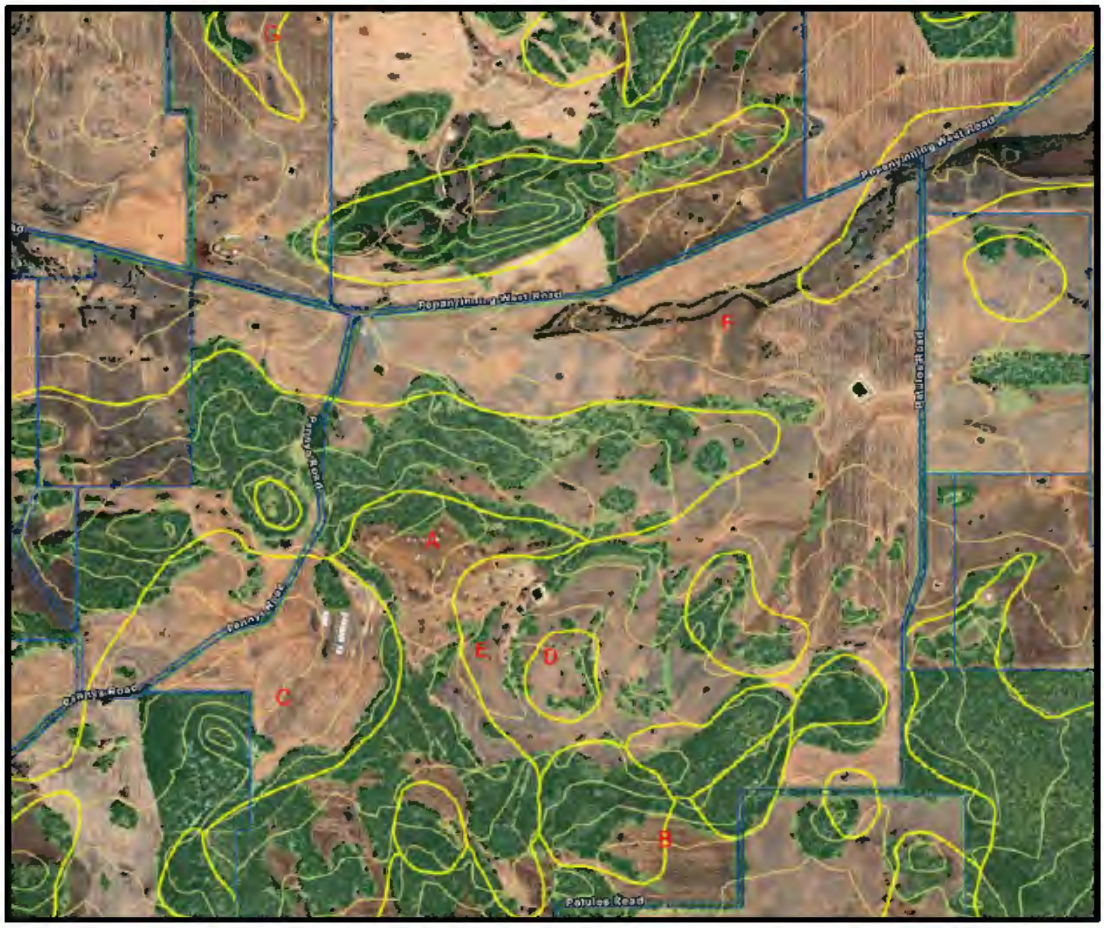

Figure 19 Identified Mass disposal locations in relation to soil types and vegetation

Table 9 Mass disposal site buffer and separation distances.

Site	Waterway (m)	Groundwater Depth* (m)	Road (m)	House (m)	Boundary	Piggery Complex
A	>4000		450	1500	450	1500
B	>4000		1000	2700	270	1100
C	>4000		350	1900	160	1000
D	>4000		1000	1900	1000	1200
E	>4000		800	1850	800	1100
F	>4000		300	1100	300	2700
G	>4000		950	950	200	

**Likely 20+m bgl*

5.7 Stormwater Management

There are low risk of stormwater impacts from the property due to no surface waters being located on the premise. The premise is also located in an area of low rainfall of an average mean of 459mm a year which reduces the risk of stormwater runoff.

5.7.1 Feedmill

Components of the feedmill infrastructure have guttering to capture clean stormwater from the roofs. This stormwater is directed via downpipes to a rainwater tank. Excess stormwater will be dispersed across the land. Regular inspection of infrastructure is planned especially after heavy rainfall events to assess potential erosion around the outlets. If erosion is seen this is to be rectified via vegetative plantings, Geotech or blue metal or the like.

5.7.2 Piggery

The piggery housing and associated infrastructure will be constructed on a terraced slope, enabling stable building platforms and effective surface water management. A long-established contour bank, maintained for more than 30 years, is positioned upslope of the complex and will significantly reduce the potential for rainfall ingress into the piggery area.

A comprehensive stormwater management system has been incorporated into the design. All stormwater falling on shed roofs and adjacent catchment areas will be directed into a dedicated stormwater dam. This system prevents stormwater entering the sheds or the effluent management system and also creates an additional freshwater supply that may be used for washdown or livestock drinking water, subject to quality.

The shed floors are constructed from impermeable concrete, ensuring all effluent, manure and washdown water is contained and preventing any subsurface infiltration. Effluent is conveyed from each shed through impermeable PVC pipework, eliminating the risk of stormwater contamination and preventing extraneous water from entering the ponds.

The effluent ponds will be constructed using a compacted clay liner sourced from suitable on-site materials. Although the measured soil permeability is 9×10^{-9} m/s, the environmental risk is considered low due to the deep groundwater table (likely >40 m below ground level) and the absence of surface water features in the surrounding landscape. Pond embankments will be raised above natural ground level to prevent stormwater ingress.

The pond capacity assessment and design presented in Section 5.5.4 demonstrate that the system achieves a spill frequency of no more than once in 20 years, consistent with industry guidance for effluent storage and environmental protection.

5.8 Chemical Storage and Handling

The site stores and uses potentially hazardous materials such as veterinary chemicals, disinfectants, and rodenticides. Only minimal amounts materials will be stored on site at any one time. All potentially hazardous materials will be stored in a separate designated chemical storage and handling shed located close to the amenities block at the piggery. The shed will have bunded impermeable concrete flooring to contain any spills and allow for ease of cleaning up. Facilities will be locked and only accessible by suitably trained staff.

5.9 Fire Protection

The premises has a generator, pump and firefighting equipment on site at all times. A fire trailer of 2000L is available all year with an additional 4 mobile firefighting units of 1000L each available onsite during harvest season/peak fire periods. Water from these units will be supplied by the various dams and water tanks on site. The additional stormwater dam at the complex will also provide additional water for fire fighting in the event it is needed. The premise also has the local fire brigade's number on hand to expedite any emergency response.

The piggery complex will be located in a previously cleared cropping area with minimal vegetation. There is an approximate minimum 50m wide cleared buffer between the sheds and the vegetation on the crest of the hill above the site with the remainder of the infrastructure well separated from vegetation.

5.10 Roads and Traffic

5.10.1 Feed Mill

The feed mill is located adjacent to the intersection of 519, Popanyinning West Rd, which is at the intersection of Popanyinning West Rd and Pennys Rd to allow for ease of access for delivery and removal of products. Both of these roads as classified as part of a local road network. The access/entry road to the feedmill is proposed through Penny's road, which has a hierarchy of minor road – Cuballing Shire planning scheme 2019 or access road – mains road 2026). This will also ensure reduced impact to the Popanyinning West Road which has a hierarchy as secondary road– Cuballing Shire planning scheme 2019 or local distributor – mains road 2026. There is good visibility for approx. 550m from the east from Popanyinning township and for 700m from the west.

Internal roads are formed gravel that are periodically graded to maintain all weather access. There are significant areas available for onsite parking and multiple turning circles to ensure all vehicles can exit in a forward manner.

The nearest neighbour and associated driveway is approx. 805m from the intersection of Popanyinning Rd and Pennys Rd.

The operational hours of the feedmill are likely to by 5am -5pm (3:30-4pm) in summer and 7am starts in winter. The feed mill will initially be run at half the expected capacity as a staged project. The initial 100T a week (5200T/year) is expected to take place over 1.5 days a week.

5.10.2 Piggery

The piggery will be accessed by through Penny's road (minor road – Cuballing Shire planning scheme 2019 or access road – mains road 2026). There is good visibility in both directions from the front entrance with approx. 240m and 120m from the north and south respectively of straight road prior to any bends in the road.

Internal roads are formed gravel that are periodically graded to maintain all weather access. There are significant areas available for onsite parking and multiple turning circles to ensure all vehicles can exit in a forward manner.

The operational hours of the piggery are likely to by 5am -5pm (or 3:30-4pm) in summer and 7am starts in winter. As the conventional piggery establishes it is likely 7am starts year-round could occur.

5.10.3 Overall traffic movements

Table 10 Expected traffic movements in proposed piggery and feedmill

Vehicle type	Frequency per	Number -Existing operation	Number- New Piggery
Staff Cars	day	5	8
Feed Truck	week	0	10
Stock Truck	week	1	1
Grain at Harvest Truck	year	40	70
Feed Additives Truck	month	2	4

There will be a small increase in the number of staff vehicles per week from 5 to 8 cars due to the increase in staff required to run the new piggery. Stock movements will remain the same with a small increase from 2 to 4 feed additive trucks to support the new feed mill. Consequently, an additional 10 trucks pre week will deliver feed to the new feed mill and an increase in harvest movements from 40 to 70 to supply the new feed mill. All feed generated at this stage will be used on site in the new piggery.

5.11 Other Farm Waste

As per current practices carried out on the farm, all wastes are separated as much as practicable to allow for either disposal or recycling. General Rubbish and recyclables such as cardboard are segregated and taken regularly to the local landfill for disposal and recycling. Scrap metal is stored and collected by scrap metal contractors for reuse

All chemical and veterinary containers are disposed of recycled as per manufacturer's instructions.

6 Separation Distances

The natural resources and amenity of the site and surrounding community are protected by the siting, design and management of the feed mill and piggery along with secondary measures such as separation distances (amenity) and buffers (natural resources).

6.1 Separation Distances- Amenity

6.1.1 Feed Mill

The separation distance is the distances provided between the feed mill and a sensitive receptor is an important secondary measure for reducing the risk of amenity impacts. The requirement of separation of the feed mill have been derived from EPA WA's Guidance for the assessment of environmental factors (in accordance with Environmental Protection Act 1986)- Separation Distances between Industrial and Sensitive Land Uses No.3 June 2025 and the more recently published Department of Water and Environmental Regulation (DWER) Guideline- Odour Emissions, June 2019.

The separation distance recommended for the feed mill to reduce the risk amenity impacts is 500m. There are no sensitive receptors located within the recommended 500m. The nearest receptor not associated with the property or piggery is located approximately 670m from the feedmill. There is undulating terrain and vegetation between the feed mill and receptor.

Category number and description[1]	Screening distance (metres)
23. Animal feed manufacturing (1,000 tonnes or more per year) *Premises (other than premises within category 15 or 16) on which animal food is manufactured or processed.*	500

Industry	Description of industry	DoE licence or Registration category (*)	Key Government agencies for advice or approvals	Code of Practice (CoP) environmental requirements	Impacts					Buffer distance in metres and qualifying notes
					Gaseous	Noise	Dust	Odour	Risk	
Animal feed manufacturing	manufacture of animal feed from grain and other food products	\ (23)	DAWA, local gov't			\	\	\		500

Figure 20 Separation Distances derived from EPA WA and DWER Guidelines

The Separation distances as per DWER Guidelines are derived from method 2 that is measured as the shortest distance from the feed mill to the nearest part of a building associated with the sensitive land use.

6.1.2 Piggery Complex

The separation distance is the distances provided between a piggery complex, and a sensitive receptor is an important secondary measure for reducing the risk of amenity impacts. Odour has been identified as the principal community amenity concern in relation to piggery developments. Separation distances for odour generally provide larger distances than those required for dust and noise and are therefore deemed to provide sufficient protection from dust and noise impacts on sensitive areas.

Department of Water and Environmental Regulation (DWER) Guideline- Odour Emissions, June 2019 refers to the use of for S-factor Level 1 Methodology as outlined in the National Environmental Guidelines for Indoor Piggeries 2018 to identify recommended separation distances. Note this document has been superseded by the National Environmental Guidelines for Indoor Piggeries – Siting and Design, 2025.

Category number and description[1]	Screening distance (metres)
2. Intensive piggery (1,000 animals or more) *Premises on which pigs are fed, watered and housed in pens.*	S-factor equations Refer to **Level 1 only** of the *National Environmental Guidelines for Indoor Piggeries* (Australian Pork Limited 2018)

Figure 21 Separation Distances derived from EPA WA and DWER Guidelines

The Australian pig industry recognises the need to continually improve to meet rising community expectations and has developed a best available methodology for assessing potential odour risk based on industry research. The odour assessment as set out in the National Environmental Guidelines for Indoor Piggeries – Siting and Design, 2025 is used to establish whether odour generated by a piggery will have an unreasonable impact at off-site receptors. Odour nuisance *may* occur when the separation distances between a piggery and a receptor are less than those calculated using the methods set out in the guidelines. The methodology sets out a three-tier assessment process:

- Level 1 uses a standard formula and is suitable for all piggeries. Level 1.5 is a variation incorporating a wind frequency reduction factor. ***(WA accepted)***
- Level 2 involves modelling using the most appropriate computer dispersion model, a meteorological data file representative of the site and adopted 'standard' emission rates.
- Level 3 involves modelling using the most appropriate computer dispersion model, 12 months of meteorological data measured on-site and non-standard odour emission rates or an odour concentration/odour intensity relationship.

A pass at any level is acceptable and means that no further assessment is required.

The simple odour risk assessment methods (Level 1 and Level 1.5) calculate more conservative (larger) separation distances than the level 2 and 3 process that uses site specific inputs.

Separation distances are measured as the shortest distance from the piggery complex to the nearest part of a building associated with the sensitive land use.

The following Figure 22, Figure 23, Figure 24 outline the inputs used in the s-factor calculations.

The calculated recommended separation distance using the S-factor for the proposed new piggery are:

Receptor	Recommended S-factor separation	Estimated actual separation
legal dwelling	1173m	2900m to west
rural residential	1530	5800m to northeast
township	2551m	6500m to northeast

Note: the same surface roughness and terrain factor were used in the calculation due to the piggery being largely surrounded by bushland and significant hills and valleys.

The site meets all of the Level 1 separation distance requirements for the legal dwelling, rural residential and townships (See Figure 25) and thus should be a low risk of potential impact on the surrounding amenity of the area.

Note: there are minimal calm periods (between 12AM and 6AM) expected at the site . Calm periods are more conducive to potential odour complaints as the plume may linger whereas unstable conditions promote odour dispersion. Vegetation and topography also contribute to odour dispersion

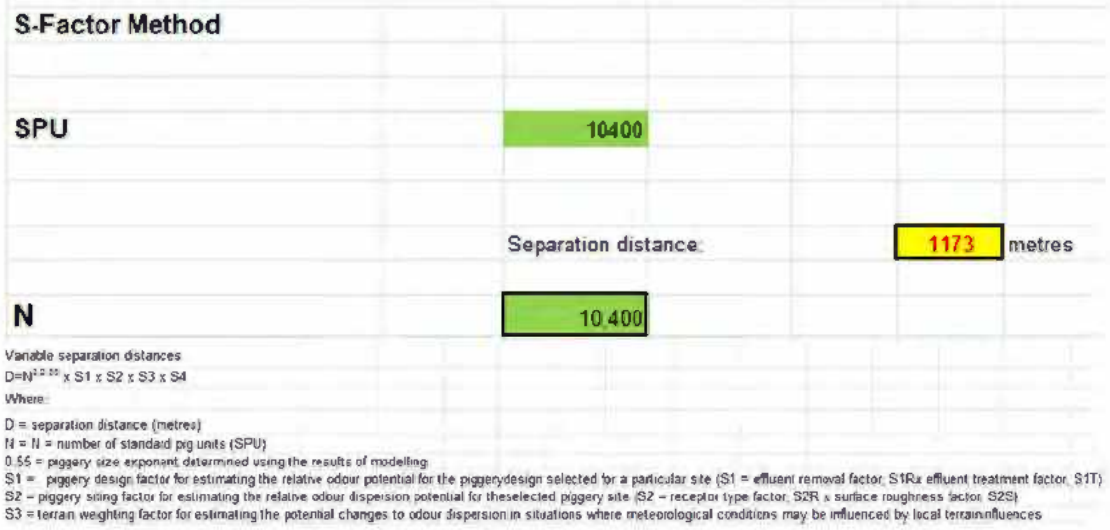

Figure 22 S-Factor separation distance outputs from APL, 2025.

S1 = Piggery Design Factor			
Effluent Removal System			Factor Chosen
Conventional shed – static pit, pull plug or flushing system	1		1
Deep litter system, pigs on single batch of bedding ≤7 weeks	0.63		
Deep litter system, pigs on single batch of bedding > 7 weeks	1		
Effluent Treatment			Factor Chosen
Pond with >40% separation of volatile solids before pond	0.8		1
Pond with 25 – 40% separation of volatile solids before pond	0.9		
Pond with <25% separation of volatile solids before pond	1		
Permeable pond cover	0.63		
Impermeable pond cover	0.5		
Deep litter system – spent bedding stockpiled / composted on-site	0.63		
No manure treatment or storage on-site – effluent / bedding removed from site	0.5		
S1= Effluent Removal System Factor* Effluent Treatment Factor			1

Figure 23 S1 Piggery design factor inputs into S Factor calculations.

S2 = Sensitive use factor			Factor Chosen
Receptor type			11.5
Town	25		
Rural Residential	15		
Legal house	11.5		
Surface Roughness Factor			Factor Chosen
Limited ground cover, grass	1		0.9
Crops	1		
Undulating terrain	0.93		
Open grassland (grass, scattered trees	0.9		
Woodlands (low density forest)	0.7		
Open forest (canopy cover 30-70%)	0.6		
Forest with significant mid and lower st	0.5		
S2 Factor = Receptor Type Factor, S2R x Surface Roughness Features Factor, S2S			10.35

Figure 24 S2 Sensitive use factor inputs into S Factor calculations.

S3 - Terrain Factor			Factor chosen
Terrain description type	Downslope	Upslope	0.7
Narrow valley (>1% slope)	2	0.5	
Gently sloping (1-2% slope	1.2	1	
Flat (0-1% slope)	1	1	
Receptor downslope in different sub-catchment	1		
Sloping (>2% slope)	1.5	0.7	
Significant hills and valleys	0.7	0.7	

Figure 25 S3 Terrain factor inputs into S Factor calculations.

Figure 26 Sensitive Receptors, (Scolexia 2026)

6.2 Separation Buffer- Natural Resources

A buffer distance is the space provided between the piggery complex or reuse areas and sensitive natural resources. (NEGIP, 2025). **Table 11** shows that there are adequate buffers provided to natural resources on site.

Table 11 Buffer Distance to Natural Resources on proposed site

Natural Resource	Recommended Buffer/Siting	Proposed Buffer
Surface water	800m Potable water storage 100m watercourse, wetland lake Reuse areas 25m-100m (see (APL2025 pg. 38)	No waterways on site No waterways on site
Flood Risk	Above 1-100year flood line	Not located in a flood area
Groundwater	2m above highest seasonal water table	Estimated to be >20 (~40-50m) bgl (APL, 2025 indicate depths of >20m low risk)
Native Vegetation	Protection from nutrients etc	>~50m away from sheds and protected. >~40m from scattered vegetation near ponds.

7 Environmental Risk Assessment

An environmental risk assessment was carried out on Glenlevit feedmill and piggery that considers the current risk of the site and the risk posed from the proposed operations. The purpose of the environmental risk assessment is to identify risks that the piggery may pose to the environment and then manage these to minimise the likelihood of harm. It will consider interrelated factors and how to minimise or mitigate all environmental risks through design, management or monitoring. The risk assessment provides opportunities to demonstrate that risk is being minimised, or ways to improve design or operation to further reduce risk.

Australian Pork Limited have recently released a risk assessment framework that considers the likelihood and consequence of an impact occurring from a piggery operation. The risk assessment undertaken for Glenlevit farms takes into account factors such as siting, location, planning controls, climate, soils, topography, groundwater, surface waters, design and management. The following sections outline the process (APL, 2025), key considerations and results of the risk assessment.

7.1 Process Overview

The risk identification process undertaken on Glenlevit piggery (See **Figure 27**) involved:

- identifying hazards
- considering the level of consequence if the hazard were to occur.
- considering the likelihood of occurrence.
- evaluating the risk level.
- identifying practical controls that could be used to reduce risk.
- re-evaluating the risk level with the new controls in place.

Figure 27 Risk assessment process, APL, 2025.

7.2 Hazards

Hazards are the ways in which the piggery may pose a risk to the environment or public health. For example, effluent might pose a hazard if it spills posing a risk of polluting a watercourse.

Common hazard categories could include the potential for risks from:

- effluent
- manure (including spent bedding/compost)
- mortalities
- odour
- dust
- noise
- pathogens
- chemicals

waste (rubbish and sharps).

7.3 Consequences

This involves considering the level of harm that could occur should the hazard eventuate. Each consequence (See **Figure 28**) should be rated as low, minor, moderate, major or severe. When deciding the rating, we considered the existing piggery and proposed expansion i.e., siting, design or management.

Low	No or minimal environmental or public health impact.
Minor	Low environmental impact or potential for public health impacts. Examples include: • effluent spill that does not leave the property boundary or enter a watercourse • nuisance resulting in an isolated community complaint.
Moderate	Medium level of harm to the environment or public health over an extended period of time. Examples include: • contained off-site environmental incident (e.g. effluent spill on road) • nuisance resulting in repeated community complaints from one incident.
Major	Serious harm to the environment or public health. An environmental impact that is severe and likely to impact beyond the immediate site and remain a problem in the medium term. Examples include: • significant effluent spill into a watercourse • nuisance resulting in ongoing community complaints.
Severe	Something that causes permanent or long term serious environmental harm, life threatening or long term-harm to public health. Examples include: • significant volumes of effluent regularly entering a Ramsar wetland or potable water supply • worker death resulting from untrained staff working in a confined space or hitting overhead power lines with machinery.

Possible

Figure 28 Consequence Ratings, APL, 2025.

7.4 Risk Likelihood

This step involves evaluating the likelihood of hazard eventuating. The rating ranges from rarely to certain. (See **Figure 29**).

Likelihood rating	Similarity
Rare	Could happen but probably never will
Unlikely	Not likely to happen in normal circumstances
Possible	May happen at some time
Likely	Expected to happen at some time
Certain	Expected to happen regularly under normal circumstances

Figure 29 Likelihood rating, APL, 2025.

7.5 Risk Evaluation

The risk rating matrix provided in **Figure 30** was used to rate the risk by considering consequence and likelihood together, where consequence X likelihood = risk rating.

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Severe
Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium

Figure 30 Risk Rating Matrix, APL, 2025.

The colour-coded output of the risk rating matrix identifies the overall level of risk. **Figure 31** can be used to guide the actions that follow:

- Low (green) – acceptable. The siting, design and management is acceptable. No corrective or preventative action is needed although further controls may be considered to further reduce risk if this can be done with little cost and effort.
- Medium (yellow) – at this risk level consider additional controls to reduce the risk to low.
- High (orange) – the risk is unacceptable. Risk will need to be mitigated through the implementation of appropriate corrective and / or preventative actions.
- Extreme (red) – the risk is totally unacceptable. Immediate corrective and / or preventative action must be implemented which could include ceasing some site activities.

7.5.1 Risk Interpretation

Risk Level	Action
Extreme	Implement corrective or preventative actions immediately to lower the risk to an acceptable level, which could include ceasing some site activities.
High	Implement controls as a priority to reduce the level of risk.
Medium	Additional controls should be considered and implemented to reduce the level of risk.
Low	No additional controls are needed although controls could be implemented to further minimise risk.

Figure 31 Risk action guide, APL, 2025

Identify Practical Controls

Where a risk needs to be addressed, consider the causes and use these to identify options to minimise the risk to the extent that is reasonably practicable considering effectiveness, feasibility and cost. This could be achieved by eliminating or reducing the hazard and/or consequence and/or the likelihood. Controls could involve changes to siting, design or management. For example, a risk to a watercourse could be reduced by relocating facilities or activities further away. A risk to groundwater from a manure storage area could be mitigated by constructing a bunded, impermeable pad for this activity. Odour nuisance could be mitigated by only irrigating effluent under conditions likely to promote good odour dispersion.

Re-Evaluate the Risk

This step involves reassessing the risks using the risk matrix to determine if the new controls will eliminate or lower the risk to an acceptable level. If not, the process should be repeated.

7.6 Risk assessment Guidance

APL (2025) provides guidance to assist in the identification and assessment of common hazards that could occur at pig farms. It provides guidance on how identify sensitive land uses and natural resources that might be at greater risk from hazards. It provides a way to assess the vulnerability of the:

- Soils of reuse areas.
- Groundwater - quality and availability.
- Surface water - quality and availability.
- Community amenity.

The guidance (APL, 2025) also provides information, to assess the risk mitigation offered by the design and management of:

- Pig housing.
- The nutrient content of manure.
- The effluent collection system
- The manure solids separation system.
- The effluent management system.
- Carcass management.
- Design and management of reuse areas.
- Chemical storage and use.

This guidance has been used to determine the risk rating of a particular hazard on the vulnerability of natural resources and amenity as well as risk mitigation afforded by the design and management of systems/infrastructure at a premise. This process then highlights where/if improvements to siting, design and management may be needed to minimise risks to the environment.

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Feed Mill	Dust generation from milling activities Noise from operation	• Feedmill located >650m from nearest receptors behind a thin roadside tree belt with thick vegetation on the south. Significant buffers provided by land in same ownership between the feedmill and neighbouring properties creating dispersion and screening for any dust and noise. • Feedmill equipment designed to reduce generation of dust- bag house filters. • The feed mill is fully enclosed when operational to minimise noise and dust. • All additives and feed products are stored within fully sealed silos. Feed transported to sheds in fully enclosed vehicles.	Possible	Low/Insignificant	Low
Feed Mill	Feed additive storage facilities leaching wet ingredients into soil and groundwater and surface water	• All additives and feed products are stored within fully sealed silos or IBCs on a compacted earthen base. • All used IBCs are temporarily located on a compacted earthen base prior to removal. • Any spills will be cleaned up as soon as possible. • No waterways on site and groundwater below 20m. • No contaminated wastewater generated.	Unlikely	Minor	Low
Feed Mill	Feed spills attracting pests and vermin	• All products are stored within fully enclosed silos to prevent vermin access and attraction. • Any spills are cleaned up as soon as possible.	Likely	Low/Insignificant	Medium
Indoor conventional Piggery Housing	Odour generation from effluent and manure and spilt feed.	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion of potential odour. • Sheds are periodically hosed down to remove manure and effluent and minimise odour.	Rare	Minor	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
		• Static pits are monitored and emptied regularly to clean sheds. • Regular shed inspections to identify spilt feed and manure build up. Cleaned as soon as practicable. • Piggery complex meets S-factor distances in NEGIP-SD (2025)			
Indoor conventional Piggery Housing	Dust generation from operational activities Noise from pig vocalisation	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion and screening for any dust and noise. • Ad lib feeders in most sheds reduce pig vocalisations as the pigs have access to feed at all times reducing pig noise and excitement at feeding times • Areas of dust deposition including fans and cooling systems are regularly cleaned. • Feed is transported in a fully enclosed truck which deposits feed directly into the into the feed system within the shed to minimise dust • Piggery complex meets S-factor distances in NEGIP-SD (2025)	Rare	Minor	Low
Indoor conventional Piggery Housing	Uncontrolled run-off from sheds entering surface waters and groundwater Sanitisation and veterinary chemical run-off to waterways and groundwater.	• No waterways located on the piggery premise. • Premise is above the 1:100yr flood. No flood overlays • Groundwater depths of more than 20m below the sheds • Sheds are built above the natural ground level to prevent in ingress of stormwater and egress of contaminated stormwater. • All effluent collection systems under the piggery are impermeable concrete preventing groundwater contamination. • Integrity of static pits is monitored regularly.	Unlikely	Minor	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Effluent - collection and conveyance	The effluent could enter the groundwater system. Effluent run-off into surface waters Effluent contamination of soils Effluent conveyance damage and spills Stormwater ingress into collection and conveyance, impacting capacity	• The effluent collection pits beneath the piggery sheds are constructed of impermeable concrete • The sheds are monitored daily for effluent collection volumes and emptied regularly to prevent excessive build up. • Pits are emptied in series on different days to minimise conveyance system overloading and overflow. • Conveyance system to effluent ponds is fully enclosed underground PVC pipes to reduce the risk of traffic damage. • Groundwater below 20m and no waterways on site. • The effluent collection systems (channels, drains, pipes, sumps) have good structural integrity and are regularly inspected for damage. • Uncontaminated stormwater and drainage from piggery sheds and the area around the shed is kept separate from the effluent stream. • Underground effluent pipes regularly have effluent flushed through them to prevent blockages. • New effluent system designed in accordance with the NEGIP-SD (2025) and NEGIP-M (2025)	Unlikely	Minor	Low
Effluent - collection and conveyance	Odour generation from effluent and manure build up	• The sheds are regularly cleaned to maintain clean lanes, pens and handling areas. • Conveyance infrastructure to the ponds is fully enclosed underground. • Effluent is conveyed into ponds within the bank structure and not at height which minimises odour aerosols. • Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion of potential odour.	Likely	Low/Insignificant	Medium

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Effluent treatment and storage	Overland flow/run-off to a watercourse	• No watercourses on site. • New effluent system designed in accordance with the NEGIP-SD (2025) and NEGIP-M (2025) • Bases of all ponds have been constructed of compacted clay. • Ponds banks are raised above natural ground levels preventing excess stormwater from entering and impacting capacity. • All ponds have been designed with overflow piping at 600mm to maintain a freeboard at all times. In accordance with APL 2025 • Pond capacity reports demonstrate sufficient capacity in the system to avoid having an overtopping frequency of more than 1:20yr (industry standard) • Pond levels are monitored weekly • A pump maintenance schedule is in place to regularly service equipment • Stand by pump or spare parts are kept on site to expedite repairs. • Scheduled site inspection and audits for monitoring of pond levels and review weather forecasts for intense rainfall events. • Desludging program maintained to ensure ponds are functioning correctly and maintaining capacity.	Unlikely	Minor	Low
Effluent treatment and storage	Odour generation from poor treatment	• Effluent ponds have been designed in accordance with APL National Environmental Guidelines and have sufficient treatment capacity (capacity report) to reduce volatile solids and produce a stabilised sludge which minimises odour. • Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion of potential odour. • No known odour complaints reported from the existing operation on the same premises	Possible	Low/Insignificant	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Effluent treatment and storage	Leachate generation and vertical infiltration to the groundwater system	• Effluent ponds have been designed in accordance with APL National Environmental Guidelines. Site information indicates that the base of the effluent ponds were constructed with low permeability clay sourced from site and compacted. • Depth to groundwater at the site is more than 20m below ground level. APL (2025) guidance indicates there is a low risk of impacts to the groundwater system at this depth. • Desludging program based on sludge accumulation to maintain capacity within the system. • The impermeable layer is maintained during desludging to prevent leakage to the groundwater system. • New effluent system to be designed in accordance with the NEGIP-SD (2025) and NEGIP-M (2025) to minimise risk • New pond bases will be greater than 2m above the highest seasonal groundwater levels (>20m). • Desludging program maintained to ensure ponds are functioning correctly and maintaining capacity.	Rare	Moderate	Low
Sludge reuse areas	Sludge applied to land resulting in excessive nutrient loading to land.	• Sludge applied to land with controlled application rates (thinly and evenly) • Approximately 896 ha is available for land application within piggery ownership. • Nutrient budget indicates sufficient reuse land availability. • An agronomist reviews soil quality data to manage nutrient levels across the reuse areas. Regular soil sampling in accordance with APL (2018) is undertaken to monitor the load of nutrients in the soil.	Unlikely	Moderate	Medium

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
		• Sludge is spread evenly and at times (Feb) when active plant growth is expected. Evaporation exceeds rainfall. • Periodically test sludge to assist in application rates.			
Sludge reuse areas	Runoff from high nutrient soils could impact surface water and groundwater systems.	• Sludge applied to land with controlled application rates (thinly and evenly) • Buffer distances are maintained from any waterways or drainage lines. • Spreading only occurs when the soil is dry enough to absorb the water and when rain is not expected. (Feb). Evaporation exceeds rainfall. • An agronomist reviews soil quality data annually to manage nutrient levels across the reuse areas. Regular soil sampling in accordance with APL (2018) is undertaken to monitor the load of nutrients in the soil. • Sludge is spread evenly and at times when active plant growth is expected to maximise uptake and minimise losses. Low levels of application to land on site. • Low rainfall area minimises run-off. • Periodically test sludge to assist in application rates.	Unlikely	Moderate	Medium
Farm machinery and equipment	Noise generation from machinery and equipment Dust from operation of machinery and equipment Spills from equipment and from maintenance activities	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion and screening for any dust and noise. • Premise generally operates between 5am and 5pm. • Weather is taken into consideration when undertaking activities which may produce excessive dust. • Regularly inspections and maintenance vehicles and equipment use equipment in accordance with manufacturer's recommendations. • All maintenance work carried out in an area with compacted/impermeable surface.	Possible	Low/Insignificant	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Vehicle movements	Noise from traffic movements Dust from traffic movements Light nuisance	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties creating dispersion and screening for any dust and noise. • Staff and delivery trucks maintain speeds on internal and external unsealed roads to prevent dust generation • Roads are maintained and graded as required to maintain standard and surface for all weather access • The deliveries and transportation generally occur between 5am and 5pm unless extenuating circumstances i.e. animal welfare	Possible	Low/Insignificant	Low
Vermin and pests	Amenity impacts on sensitive receptors	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties. • Clean conditions maintained within and around sheds to avoid odour sources that may attract pests and vermin and feed sources. • Mortalities are buried away from the complex and are immediately covered to prevent vermin attraction. • Regular use of target specific, environmentally safe rodent baits are placed around the exterior walls and doors. • Pest programs (Fly and insect etc) are implemented as required	Unlikely	Minor	Low
Mortalities	Odour from carcasses Dust from burial activities	• Mortalities are collected within 24hrs of discovery and placed in the burial pits. Significant buffer distance to nearest receptor. • Carcasses are immediately covered to prevent odour. • A Mass mortality plan has been developed for the site which identifies a suitable location(s) on the site in the event of a mass disposal incident. Any mass disposal will occur as directed by vet or authorities.	Unlikely	Low/Insignificant	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Mortalities	Pest and vermin attraction	• Mortalities are collected within 24hrs of discovery and placed in burial pits. • Carcasses are immediately covered to prevent vermin attraction. • A Mass mortality plan has been developed for the site which Identifies a suitable location(s) on the site in the event of a mass disposal incident. Any mass disposal will occur as directed by vet or authorities.	Unlikely	Minor	Low
Mortalities	Pathogen transfer	• Mortalities are collected within 24hrs of discovery and placed in burial pits. • Carcasses are immediately covered to prevent pathogens. • A Mass mortality plan has been developed for the site which Identifies a suitable location(s) on the site in the event of a mass disposal incident. Any mass disposal will occur as directed by vet or authorities.	Rare	Major	Medium
Mortalities	Leaching to groundwater Run-off to waterways Soil contamination	• Mortality pits are located with a clay base and are well separated from groundwater. >20m likely. • No watercourses on site	Unlikely	Moderate	Medium
De salination Plant	Noise from operation Wastewater entering groundwater and surface waters Soil contamination	• Piggery complex located >2.9 km from nearest receptors and is surrounded by dense and scattered vegetation. Significant buffers provided by land in same ownership between the piggery sheds and neighbouring properties. • Desalination plant and water tanks are fully enclosed and located towards the back of the property. • Additional by-products from the plant are redirected to permitted bore (DPIRD approved).	Unlikely	Minor	Low

Risk rating for Proposed Expansion at Glenlevit Piggery and associated Feedmill					
Hazard	**Description of risk**	**Proposed controls**	**Likelihood**	**Consequence**	**Risk Rating**
Pathogens	Livestock biosecurity Human health	• Land application of sludge is followed by a 21-day withholding period which allows for UV penetration and wind desiccation. • Restricted Animal Management (RAM) requirements adhered to regarding ruminants- min 21-day withholding. • Minimal hosing in sheds prevents aerosol releases.	Unlikely	Major	Medium
Chemicals	Spills resulting in groundwater and surface water impacts Soil contamination Chemical drift Human health	• Chemicals are stored in impermeable bunded shed. • All Safety data sheets (SDS) for chemicals used on site are maintained in an accessible location. • Located to the rear of the property. • Facilities will be locked and only accessible by suitably trained staff. • Spraying of chemicals takes into consideration weather conditions to avoid spray drift. • Buffers are maintained to drainage lines and other sensitive areas. • Empty chemical/vaccine drums and containers are disposed in accordance with manufacturer's instructions. No hazardous materials disposed of on site.	Unlikely	Minor	Low
General wastes	Land contamination Groundwater and surface water Odour generation Dust generation from disintegration Pest attraction	• General Rubbish and recyclables such as cardboard are segregated and taken regularly to the local landfill for disposal and recycling. • Scrap metal is stored and collected by scrap metal contractors for reuse • All chemical and veterinary containers are disposed of recycled as per manufacturer's instructions.	Unlikely	Low/Insignificant	Low

7.7 Natural Resources and Amenity Risk Assessment Results

7.7.1 Feed Mill

The risk assessment identifies that the majority of potential hazards relating to the feed mill site are rated low or acceptable. That is the proposed siting, design and management of the feed mill is acceptable. No corrective or preventative action is needed although further controls may be considered to further reduce risk if this can be done with little cost and effort.

In the majority of potential risks (Dust, Noise, soil, groundwater and surface water) the siting of the site, large separation distance to nearby neighbour of ~650m, deep groundwater, no watercourses and design and management of the operation resulted in acceptable risk ratings.

There was one potential hazard that rated medium for the feedmill.

- **Feed Mill** -*Feed spills attracting pests and vermin*. There is a likelihood that small amounts of feed may be spilt during the operation of the feed mill. Prior to cleaning up any spills , vermin such as birds may be attracted to the site. However, the consequence of this offsite is low/insignificant.

As a result, of the one medium rated hazard there is no need for practice change or additional controls.

On going monitoring of the risks outlined in the risk assessment will identify the need for further actions if required.

7.7.2 New Piggery

The risk assessment identifies that the majority of potential hazards on site are rated low or acceptable. That is the proposed siting, design and management of the expansion is acceptable. No corrective or preventative action is needed although further controls may be considered to further reduce risk if this can be done with little cost and effort. In the majority of cases the siting of the site, large separation distances, deep groundwater, no watercourses and design and management of the operation resulted in acceptable risk ratings.

There were six hazards that rated medium for the new greenfield piggery. However, most of these generated the medium rating based on the consequence rather than the likelihood of the hazard occurring at the piggery. As a result, none of the medium rated hazards resulted in the need for practice change or additional controls.

- ***Effluent*** *-collection and conveyance Odour generation from effluent and manure build up*- it is likely that there may be odour generation within and in the immediate vicinity of the sheds due to the effluent collection system being located under the flooring, however the consequence is low as there is significant distance to the nearest receptor. No proposed change to siting, design or management required.

- ***Solids reuse areas*** *Sludge applied to land resulting in excessive nutrient loading to land.* It is unlikely that this would occur, however the consequence is moderate if it occurs over an extended period of time. The piggery owner owns significant land around the greenfield site equating to 896ha. This land is cropped or grazed; thus, it is unlikely that sludge would be applied to a small or same area for an extended period of time to generate excessive nutrient loadings. Applying liquid/sludge thinly and evenly across different and large areas. Along with, cropping and agronomic testing will ensure reduced risk. No change to current practices required.

- ***Solids reuse areas*** *Runoff from high nutrient soils could impact surface water and groundwater systems.* As above, it is unlikely that sludge application will occur near drainage lines (no waterways) or that excessive build up will occur to generate leaching (deep groundwater, clay and rock layers at depth) or offsite run-off. Significant vegetation is maintained on site for the majority of the year acting as a vegetative filter strip to drop out nutrients and slow the velocity of surface flows. However, if it did occur there would be moderate impact over an extended period of time. The site, surface roughness (vegetation), low rainfall and spreading practices (as above), mean that there is no change to current practices proposed.

- ***Mortalities –*** *Leaching to groundwater, Run-off to waterways, Soil contamination.* It is unlikely that leaching will occur due to the pits being located on clay-based areas with rocky outcrops, on the crests of the hills with groundwater likely being at depth >20m from the base of the pits. However, the consequence is moderate over an extended period of time. Due to the siting, clay lining and deep groundwater, there is no proposed change to the current practices.

- ***Pathogens*** *Livestock biosecurity Human health*. It is unlikely that pathogens will cause any impacts due to the biosecurity practices implemented on site and the significant distances to sensitive receptors of approximately 2.9km. However the consequence is major, thus resulting in the medium rating. Maintaining biosecurity practices, restricting visitors to the site and the large separation distances do not warrant changes to the siting, design or management of the operation.

7.7.3 Amenity- Odour, Dust, Noise and Visual

All of the hazards identified relating to amenity issues from the feed mill and piggery resulted in a low rating due to the siting, design and management of the piggery. A key influence is that the feed mill and piggery complex are located approximately 670m and 2.9km respectively from sensitive receptors with vegetation between the sites and nearest receptors.

The feedmill has a roadside planting and thicker vegetation to the south. The nearest receptor is surrounded be a vegetative screen and there are scattered trees between the house and the feedmill. The undulating topography between the nearest receptor and feed mill should minimise any direct line of site.

The piggery has significant stands of vegetation between the complex and any receptors aiding in no visual amenity (not visible from public roads), noise mitigation, dispersion of odour and capture of dust. There are also significant buffers provided by land in the same ownership which will be used for cropping and grazing.

7.7.4 Surface waters

The majority of the hazards relating to surface waters were rated low risk. This is due to the siting, design and management of the piggery and feed mill and the fact that there are no watercourses located on the premises. Significant land >896ha is in the same ownership as the piggery allowing for large reuse application areas and significant groundcover is maintained over the property most of the year creating large vegetative filter areas to drop out nutrients and slow the velocity of overland flow. Spreading over a large area (avoiding nutrient overloading) and low rainfall also contribute to low risk of run-off. Buffers are maintained to drainage lines. No contaminated run-off is generated from the feed mill. The two risk rating (spreading sludge and mortalities) related to surface waters that was medium was due to the consequence. Due to the practices mentioned above there is low risk of surface water impacts.

7.7.5 Groundwater

The majority of the hazards relating to ground waters were rated low risk. This is due to the siting, design and management of the piggery and feedmill such as impermeable concrete bases, compacted earthen bases and clay lined ponds and pits. Four bores on site indicate that the groundwater is at 41-52 m. There is likely a clay layer at the piggery complex as indicated by bore logs and preliminary testing, along with duricrusts below the soil offering a level of protection. The two risk rating (sludge reuse and mortalities) related to groundwater that was medium was due to the consequence. Due the practices mentioned above there is low risk of ground water impacts.

7.7.6 Land/soil protection

The majority of the hazards relating to land/soil protection (nutrients) were rated low risk. This is due to the siting, design and management of the feed mill and piggery. The feedmill is constructed on an impermeable concrete base to minimise soil impacts. Where there is a concentration of manures/ effluent the associated infrastructure consists of fully enclosed piped conveyance systems, impermeable bases (concrete or compacted earth) and clay lined ponds and pits. Significant land >896ha is in the same ownership as the piggery allowing for large reuse application areas. Spreading over a large area (avoiding nutrient overloading) and spreading thinly and evenly at low application rates contribute to low risk of nutrient overloading and soil structure issues.

8 Other Approvals

During the course of the application process, a number of additional approvals or exemptions were identified in addition to the council permit and DWER works approval for the feed mill and Piggery.

These approvals are concurrently being sought and include:

- Notice of intent to pump water (Desalination)- Department of Primary Industries and Regional Development.
- Closure of a gazetted Rd – Cuballing Shire. There is a gazetted road reserve located in the middle of an actively farmed paddock on the property near the proposed piggery which is being sought to be closed. The land cleared many decades ago, has been continuously farmed for agricultural purposes in excess of 60 years. The road reserve has not been formed or used for public access and does not serve any practical transport or access function. See Appendix 5 for details.

As the feed mill and new piggery are being constructed on cleared cropping/grazing land there will be no known tree removals with the exception of a new access road. A new road is required due to the steep nature of the current access which will not meet standards for the vehicles needing access to the piggery. The removal of 26 trees falls under the exemption of *Regulation 5, Item 12:* Clearing for vehicular tracks *of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004.*

9 Conclusion

Based on information provided by Glenlevit Farms, a site visit to the proposed feed mill and greenfield piggery site on the 4th February 2026, state-based mapping, and a detailed site-specific risk assessment, the proposed new feed mill and greenfield piggery present minimal risk to the environment, human health, and community amenity. The low-risk profile is attributed to the site's location, and infrastructure design and commitment to operate to industry best-practice management standards. Key factors contributing to this assessment include:

- There are substantial separation distances to the nearest sensitive receptors of over 670m and 2.9km to the feed mill and piggery respectively.
- Siting of the feed mill and piggery exceed the recommended separation distances for the specific land uses.
- The topography and vegetation buffers enhance amenity protection.
- There are no waterways present on the site.
- Groundwater bores indicate depths of 41 to 52 metres, with a likely underlying clay layer and duricrusts providing additional protection from potential leaching.
- All infrastructure handling effluent or manure is constructed on concrete or impermeable bases.
- The effluent system design has been based on suspected conservative water use inputs site using industry approved modelling methodologies and 1:20 spill frequencies for evaporation.
- Extensive land is available (896 ha) for the beneficial reuse of nutrients through land application.
- Nutrient reuse supports soil health and reduces reliance on synthetic fertilisers.
- On-site feed milling, using crops grown with nutrients recycled from the piggery, supports circular economy principles and lowers transportation-related emissions.

10List of Figures

11 List of Tables

12 References

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Appendix 1- Bore Logs

AQUATECH DRILLING
PO Box 9263
Picton WA 6229

Tel: 0400 053 648
Office 0490 282 023
Email: admin@aquatechdrilling.com.au

DRILLING REPORT AND COMPLETION PARTICULARS

Hole 9
Re-drill of hole 1 last year

Client: Steve Lyneham
Location: 582 Popanyinning Rd, Popanyinning
Instrument No: Rig 4
Driller: Luke Garbelini **Driller's Licence No.509**

DEPTH M FROM	DEPTH M TO	DESCRIPTION OF STRATA DRILLED	PUMP CASING
0	12	White Clay/Sands	From (m): To (m):
12	21	Brown Clay/Sands	Diameter (mm):
21	51	Granite/Fractured Granite	Material:
			PRODUCTION CASING
			From (m): 0 To (m): 13
			Diameter (mm)100
			Material: PVC Class
		Drilled to 51m.	SCREENING
		Cased to 47m.	From (m): 47 To (m): 13
			Diameter (mm): 100
			Material : Class
			Slot Width (mm)
			Packer:
			GRAVEL PACKING
			From (m): 0 To (m): 5
			Material: QUARTZ
			Size: 1.6-3.6 mm
Total Depth	51m	Pressure Cement Grouting	From (metres): 0
			To (metres)

PUMP TESTING RESULT: TEST PUMP DURATION

Static from Ground Level	above ground level (Before pump test)	Yield from Ground Level	G.P.H		Draw Down from Ground Level	(End of pump test)
			L.P.S			

DEVELOPMENT HOURS

Compressed Air	2	Bailing		High Pressure Jetting	

T.D.S.	PPM at end of pump test
G.P.S	X. 50H 508826
	Y. 6382930

Date Commenced	5/2/2025
Date Completed	5/2/2025

Recommended Pump Set from Ground Level: 35m @ 2.5L per sec
Additional Information:

AQUATECH DRILLING
PO Box 9263
Picton WA 6229

Tel: 0400 053 648
Office 0490 282 023
Email:admin@aquatechdrilling.com.au

DRILLING REPORT AND COMPLETION PARTICULARS

Hole No.6

Client: Steve Lyneham
Location: 582 Popanyinning West Rd, Popanyinning
Instrument No: Rig 4
Driller: Luke Garbelini **Driller's Licence No.509**

DEPTH M FROM	DEPTH M TO	DESCRIPTION OF STRATA DRILLED	SURFACE CASING
0	22	Brown Clay	From (m): 0 To (m): 22
22	28	Weathered Granite	Diameter (mm): 155
28	34	Fractured Granite	Material:
34	37	Fresh Granite	PRODUCTION CASING
37	40	Fractured Granite	From (m): 0 To (m): 27
40	45	Fresh Granite	Diameter (mm)100
			Material: PVC Class
			SCREENING
			From (m): 45 To (m): 27
		Salt 5450	Diameter (mm): 100
			Material : PVC Class
			Slot Width (mm):
		Fractures	Packer:
		28 – 34m	GRAVEL PACKING
		37 – 40m	From (m): 45 To (m) 5
			Material: QUARTZ
			Size: 1.6-3.6 mm
Total Depth	45m	Cement Grouting	From (metres): 0
			To (metres): 5

PUMP TESTING RESULT: TEST PUMP DURATION 2 HOURS

Static from Ground Level	above ground level 6.4m (Before pump test)	Yield from Ground Level	G.P.H / L.P.S	1.54LPS	23m Draw Down from Ground Level	(End of pump test)

DEVELOPMENT HOURS

Compressed Air		Bailing		High Pressure Jetting	

T.D.S.	PPM at end of pump test
G.P.S	X. 50H 507511
	Y. 638 0572

Date Commenced	30/1/2025
Date Completed	30/1/2025

Recommended Pump Set from Ground Level: 33m @ 1.5L per sec
Additional Information:

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DRILLING REPORT AND COMPLETION PARTICULARS

Client: Steve Lynham
Location: 38 Forrest Street Popanyinning
Instrument No:
Driller: Luke Garbelini **Driller's Licence No. 509**
Trainee Driller : Johnathon Hunter

DEPTH M FROM	DEPTH M TO	DESCRIPTION OF STRATA DRILLED	PUMP CASING
0	11	Sticky Clays	From (m): To (m):
11	42	Fractured Granite with Quartz	Diameter (mm):
			Material:
			PRODUCTION CASING
			From (m): **0.00** To (m): **18.00**
			Diameter (mm) **100**
			Material: **PVC Class 12**
			SCREENING
			From (m): **18.00** To (m): **42.00**
			Diameter (mm):**100**
			Material **PVC Class 9**
			Slot Width **1 (mm)**
			Packer: -
			GRAVEL PACKING
			From (m): **6.00** To (m) **42.00**
			Material: QUARTZ
			Size: 1.6-3.6 mm
Total Depth	**42.00m**	Pressure Cement Grouting	From (metres): **0.00**
			To (metres) **6.00**

PUMP TESTING RESULT: TEST PUMP DURATION: 2 HOURS

Static from ground level	Ground Level (Before pump test)	Yield from Ground Level	G.P.H / L.P.S		Draw Down from Ground Level	13.20m (End of pump test)
			G.P.H			
			L.P.S	**2.00**		

DEVELOPMENT HOURS

Compressed Air		Bailing		High Pressure Jetting	

T.D.S.	PPM at end of pump test
G.P.S	**X 509160**
	Y 6384106

Date Commenced	**21/6/2024**
Date Completed	**21/6/2024**

Recommended Pump Set from Ground Level:**17.50m @ 2.0 LTS per sec**
Additional Information:

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DRILLING REPORT AND COMPLETION PARTICULARS

Client: Steve Lyneham
Location: 582 Popanyinning Rd, Popanyinning West, **Hole No.5 / No.2025E**
Instrument No: Rig 4
Driller: Luke Garbelini **Driller's Licence No.509**

DEPTH M FROM	DEPTH M TO	DESCRIPTION OF STRATA DRILLED	PUMP CASING
0	2	Top Soil	From (m): To (m):
2	25	Clay, Cream/Brown.	Diameter (mm):
25	28	Weathered Granite	Material:
28	43	Granite	PRODUCTION CASING
			From (m): 0 To (m): 25
			Diameter (mm)100
			Material: PVC Class
			SCREENING
		Fractures at:	From (m): 43 To (m): 25
		30m	Diameter (mm): 100
		33m	Material: PVC Class
		37m	Slot Width (mm)
			Packer:
			GRAVEL PACKING
		Salt: 8400PPM	From (m): To (m)
			Material: QUARTZ
			Size: 1.6-3.6 mm
Total Depth	43	Pressure Cement Grouting	From (metres): 43
			To (metres): 20

PUMP TESTING RESULT: TEST PUMP DURATION 2 HOURS

Static from Ground Level	above ground level **0.5m** (Before pump test)	Yield from Ground Level	G.P.H		Draw Down from Ground Level	**5.9m** (End of pump test)
			L.P.S	2.6		

DEVELOPMENT HOURS

Compressed Air		Bailing		High Pressure Jetting	

T.D.S.	PPM at end of pump test		
G.P.S	X. 50H 507864	Date Commenced	24/1/2025
	Y. 6380622	Date Completed	28/1/2025

Recommended Pump Set from Ground Level: 27m @ 2.6L per sec
Additional Information:

Appendix 2- Pond Modelling Parameters

Farm Detailed Outputs

Pig Population	
Pig population	10400 SPU
Drinking water calculations	
Live weight / SPU	40 kg/SPU
Feed ingested	2 kg/SPU/day
Wf	2.5
Tf	1.2
Water intake	5 L/SPU/day
Piggery drinking water intake	49,993 L/day
Drinking water wastage	25 %
Drinking water wastage (total)	12,498 L/day
Drinking water wastage	4,564,962 L/yr
Manure production	
Total solids (TS) from sheds	3,000 kg TS/day
Volatile solids (VS) from sheds	2,500 kg VS/day
Standard NEGP estimate of TS discharged from sheds	3,075 kg TS/day
Standard NEGP estimate of VS discharged from sheds	2,563 kg VS/day
Adopted TS discharged from sheds	3,000 kg TS/day
Adopted VS discharged from sheds	2,500 kg VS/day
Manure (faeces + urine) moisture content	87 %
Estimated total manure production	23,077 kg/day
Total manure density	990 kg/m3
Raw manure volume collected in effluent system	23,310 L/day
Raw manure volume collected in effluent system	8,514 m3/yr
Drinking water wastage	
Estimated water intake	49,993 L/day
Typical drinking water wastage rate	25 %
Estimated drinking water wastage volume	12,498 L/day
Total drinking water supplied per day	62,491 L/day
Total drinking water supplied per year	23 ML/yr
Shed effluent management system	
Flushing shed SPUs	0 SPU
Pull plug shed SPUs	10400 SPU
Static pit shed SPUs	0 SPU
Total SPUs (Total)	10,400 SPU
Flushing interval	0.5 days/flush
Release interval	30 days/release
Release interval	1 days/release
Fresh water flushing vol	0.0 L/flush
Recycled effluent flushing vol	0 L/flush
Fresh water recharge vol	0 L/recharge
Fresh water recharge vol	0 L/recharge
Recycled effluent recharge vol	0 L/recharge

Recycled effluent re-charge vol	0 L/recharge
Total max recycled effluent use per day (flushing sheds) (Flushing)	0 L/day
Total max recycled effluent use per day (pull plug) (Pull Plug)	0 L/day
Total max recycled effluent use per day (static pit sheds) (Static pit)	0 L/day
Total max recycled effluent use per day (total) (Total)	0 L/day
Raw manure volume per flush/release (flushing sheds) (Flushing)	0 L/flush-release
Raw manure volume per flush/release (pull plug sheds) (Pull Plug)	699,301 L/flush-release
Raw manure volume per flush/release (static pit sheds) (Static pit)	0 L/flush-release
Raw manure volume (flushing sheds) (Flushing)	0 L/day
Raw manure volume (pull plug sheds) (Pull Plug)	23,310 L/day
Raw manure volume (static pit sheds) (Static pit)	0 L/day
Raw manure volume (total) (Total)	23,310 L/day
Flush/recharge volume per day (flushing sheds) (Flushing)	0 L/day
Flush/recharge volume per day (pull plug sheds) (Pull Plug)	0 L/day
Flush/recharge volume per day (static pit sheds) (Static pit)	0 L/day
Hosing interval	30 days
Hosing interval	1 days
Hosing interval	1 days
Hosing volume	0 L/hosing
Hosing volume	1,000 L/hosing
Hosing volume	0 L/hosing
Hosing volume per day (flushing sheds) (Flushing)	0 L/day
Hosing volume per day (pull plug sheds) (Pull Plug)	1,000 L/day
Hosing volume per day (static pit sheds) (Static pit)	0 L/day
Hosing volume per day (total) (Total)	1,000 L/day
Drinking water wastage (flushing sheds) (Flushing)	0 L/day
Drinking water wastage (pull plug sheds) (Pull Plug)	12,498 L/day
Drinking water wastage (static pit sheds) (Static pit)	0 L/day
Drinking water wastage (Total)	12,498 L/day
Total shed effluent per day (flushing sheds) (Flushing)	0 L/day
Total shed effluent per day (pull plug sheds) (Pull Plug)	36,808 L/day
Total shed effluent per day (static pit sheds) (Static pit)	0 L/day
Total shed effluent per day (total) (Total)	36,808 L/day
Total shed effluent per year (flushing sheds) (Flushing)	0 m3/yr
Total shed effluent per year (pull plug sheds) (Pull Plug)	13,444 m3/yr
Total shed effluent per year (static pit sheds) (Static pit)	0 m3/yr
Total shed effluent per year (total) (Total)	13,444 L/day
TS concentration (flushing sheds) (Flushing)	NaN %
TS concentration (pull plug sheds) (Pull Plug)	8 %
TS concentration (static pit sheds) (Static pit)	NaN %
TS concentration (total) (Total)	8 %

Runoff into effluent system

Concrete catchment	0 m2
Earth catchment	0 m2
Hard catchment	0 m2
Grass (veg) catchment	0 m2
Roof catchment	0 m2

USDA NCRS runoff model CN - ARC I (Concrete)	98
USDA NCRS runoff model CN - ARC II (Concrete)	98
USDA NCRS runoff model CN - ARC III (Concrete)	98
USDA NCRS runoff model CN - ARC I (Earth)	92
USDA NCRS runoff model CN - ARC II (Earth)	93
USDA NCRS runoff model CN - ARC III (Earth)	95
USDA NCRS runoff model CN - ARC I (Hard)	96
USDA NCRS runoff model CN - ARC II (Hard)	96
USDA NCRS runoff model CN - ARC III (Hard)	96
USDA NCRS runoff model CN - ARC I (Grass)	58
USDA NCRS runoff model CN - ARC II (Grass)	76
USDA NCRS runoff model CN - ARC III (Grass)	89
USDA NCRS runoff model CN - ARC I (Roof)	98
USDA NCRS runoff model CN - ARC II (Roof)	98
USDA NCRS runoff model CN - ARC III (Roof)	98
Av annual runoff (concrete) (Concrete)	0 m3/yr
Av annual runoff (concrete) (Concrete)	0 mm/yr
% rainfall yield from concrete catchment (Concrete)	0 %
Av annual runoff (earth) (Earth)	0 m3/yr
Av annual runoff (earth) (Earth)	0 mm/yr
% rainfall yield from earth catchment (Earth)	0 %
Av annual runoff (hard) (Hard)	0 m3/yr
Av annual runoff (hard) (Hard)	0 mm/yr
% rainfall yield from hard catchment (Hard)	0 %
Av annual runoff (grass) (Grass)	0 m3/yr
Av annual runoff (grass) (Grass)	0 mm/yr
% rainfall yield from grass catchment (Grass)	0 %
Av annual runoff (roof) (Roof)	0 m3/yr
Av annual runoff (roof) (Roof)	0 mm/yr
% rainfall yield from roof catchment (Roof)	0 %

Effluent pre-treatment / solids separation

Solids separation	None
Total Solids (TS) removal	0 %
Volatile Solids (VS) removal	0 %
TS removal (Other)	25 %
VS removal (Other)	25 %

Primary Pond Detailed Outputs

Pond loading

Total Solids (TS) pond loading	3,000 kg TS/day
Volatile Solids (VS) pond loading	2,500 kg VS/day

Anaerobic treatment pond

Anaerobic pond activity ratio, k	0.7857

Suggested max baseline VS loading rate	0.400 kg VS / m3 / day
Suggested adjusted max VS loading rate	0.314 kg VS / m3 / day
Min active treatment vol (VS loading)	7,955 m3
Suggested minimum hydraulic retention time (HRT)	30 days
Effluent volume discharged to pond	37 m3/day
Min active treatment vol (HRT)	1,104 m3
Min active treatment vol (VS and HRT)	7,955 m3

Sludge storage

Sludge accumulation rate	
Desludging interval	3.0 years
Sludge storage volume	4,504 m3
Suggested total pond vol	12,458 m3
Total pond volume	12,500 m3
Active treatment volume	7,996 m3
Min anaerobic pond VS loading rate	0.200 kg VS / m3 / day
Max anaerobic pond VS loading rate	0.313 kg VS / m3 / day
Min hydraulic retention time (HRT)	217 days
Max hydraulic retention time (HRT)	340 days

Pond dimensions

Pond storage depth	5.50 m
Batter - lengthwise	1 (V) : 3 (H)
Batter - breadthwise	1 (V) : 3 (H)
Freeboard	0.60 m
Length (at embankment crest)	85.0 m
Length (at full storage level)	81 m
Breadth (at full storage level)	50 m
Breadth (at embankment crest)	54 m
Length (at base)	48 m
Breadth (at base)	17 m
Sludge Depth Cubic Param A	12
Sludge Depth Cubic Param B	197
Sludge Depth Cubic Param C	829
Sludge Depth Cubic Param D	-4,504
Max sludge depth	3 m
Length (at max sludge depth)	66 m
Breadth (at max sludge depth)	35 m
Min depth to top of sludge - below full storage level	3 m
Cover anchorage allowance	3.0 m
Cover length	91 m
Cover breadth	60 m
Cover area - trenched into bank	5,464 m2
Max baseline VS loading rate before crusting	0.400 kg VS/m3/day
Dam factor (kdam = Pond evap / ETo)	1.05

Average annual primary pond water balance (m3/yr)

Inflow Runoff	0 m3/yr

Inflow Manure	8,514 m3/yr
Inflow Hosing/Flushing	4,930 m3/yr
Rainfall	0 m3/yr
Evaporation	0 m3/yr
Outflows	13,444 m3/yr
Average annual inflow volume	13,444 m3/yr
Max daily outflow volume	37 m3/day
Min daily outflow volume	0 m3/day
Average daily outflow volume	37 m3/day
Average annual outflow volume	13,444 m3/yr

Storage Pond Detailed Outputs

Pond dimensions	
Total storage capacity	26,700 m3
Initial volume	13,350 ML
Total storage depth	2.0 m
Residual storage depth	0.50 m
Batter - lengthwise	1 (V) : 3 (H)
Batter - breadthwise	1 (V) : 3 (H)
Freeboard	0.60 m
Length (at embankment crest)	204 m
Full storage level (Length)	200 m
Full storage level (Breadth)	75 m
Embankment crest (Breadth)	78 m
Base (Length)	188 m
Base (Breadth)	63 m
Top of residual storage (Lenth)	191 m
Top of residual storage (Breadth)	66 m
Active storage volume, Va	20,612 ML
Residual storage volume, Vr	6,088 ML
Dam factor (kdam = Pond evap / ETo)	1

Effluent dilution (shandying)	
Effluent dilution (shandying)	100 %

Pond spills (overflow elements)	
Max daily spill volume	88 m3/day
Min daily spill volume	0 m3/day
Average daily spill volume	29 m3/day
Average annual spill volume	7 m3/yr
Total number of spill days	11 days
Average spill days per year	0 days/yr
No of spill significant events	2 spills
Average spill recurrence interval	23.1 yrs

Average annual storage pond water balance (m3/yr)	
Inflows	13,444 m3/yr

Rainfall	6,605 m3/yr
Evaporation	20,212 m3/yr
Recycling	1 m3/yr
Irrigation	0 m3/yr
Outflows	7 m3/yr

Top Spill Events

Period	Amount (m3)	Length (days)
19 Sep 1993 to 04 Oct 1993	222	16
16 Nov 1993 to 18 Nov 1993	94	3

Appendix 3- FHP Soil Test

WESTERN GEOTECHNICAL & Laboratory Services

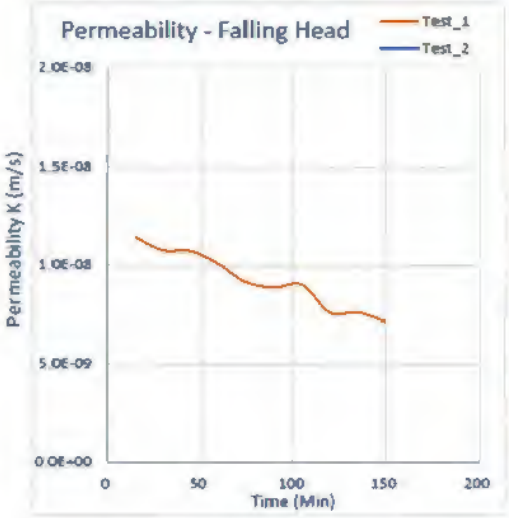
SOIL | AGGREGATE | CONCRETE | CRUSHING

TEST REPORT AS 1289.6.7.2

Client:	A W Lyneham & Son	Ticket No.	S20519
Client Address:	Glenlevit, Popanyinning, Western Australia	Report No.	WG26.2418_1_FHPERM
Project:	Material Assessment	Sample No.	WG26.2418
Location:	Popanyinning	Date Sampled:	5/02/2026
Sample Identification	Site 2	Date Tested:	16/02 - 20/02/26

TEST RESULTS - FALLING HEAD PERMEABILITY

Sampling Method: Sampled by Client, Tested as Received



Compaction Details	
Compaction Method	AS 1289.5.2.1
Hammer Type	Modified
Curing Time (Hours)	>72
% Retained on 19.0mm	0
Maximum Dry Density (t/m^3)	1.89
Optimum Moisture (%)	13.5
Target Dry Density Ratio	95
Target Moisture Ratio	100

Specimen Conditions at Compaction	
Laboratory Density Ratio (%)	95.7
Laboratory Moisture Ratio (%)	103.8
Surcharge (kPa)	3

Coefficient of Permeability (m/s) 9.E-09

Comments:

Approved Signatory: Cody O'Neill

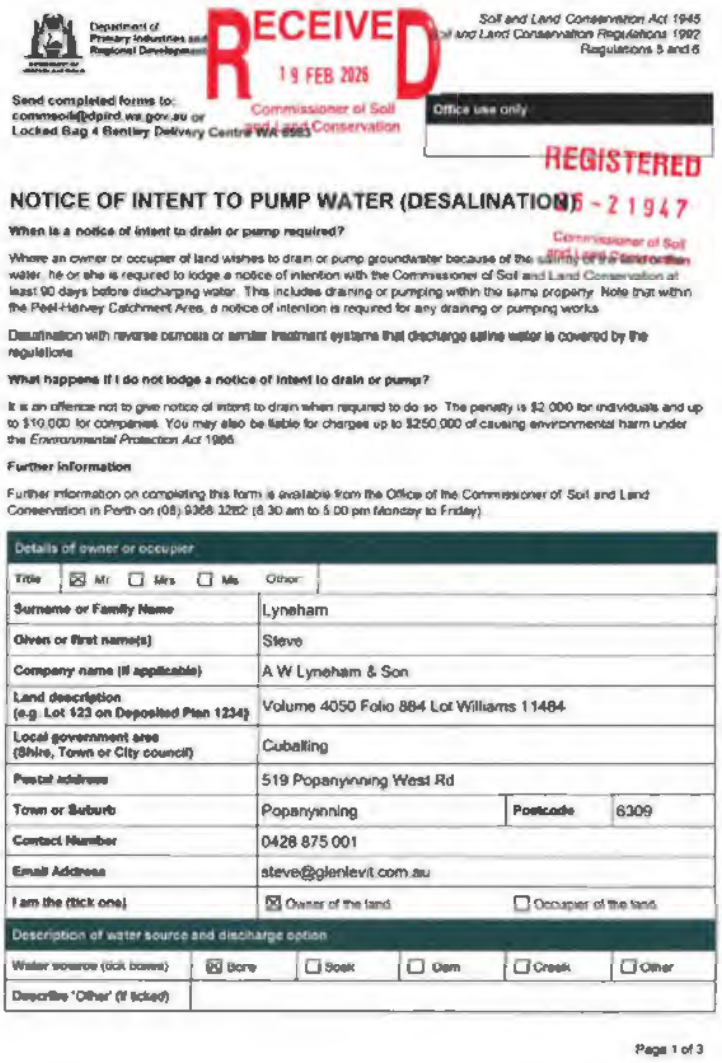
Name: Cody O'Neill

Date: 20/February/2026

NATA Accreditation No. 20599 Accredited for compliance with ISO/IEC 17025 - Testing

235 Bank Street, Welshpool WA 6106 | 08 9472 3465 | www.wgls.com.au

Appendix 4- Notice of Intent to Pump Water (Desalination)



Department of Primary Industries and Regional Development

RECEIVED
19 FEB 2026
Commissioner of Soil and Land Conservation

Soil and Land Conservation Act 1945
Soil and Land Conservation Regulations 1992
Regulations 5 and 6

Send completed forms to:
commsoils@dpird.wa.gov.au or
Locked Bag 4 Bentley Delivery Centre WA 6983

Office use only

REGISTERED
19 - 2 1947
Commissioner of Soil and Land Conservation

NOTICE OF INTENT TO PUMP WATER (DESALINATION)

When is a notice of intent to drain or pump required?

Where an owner or occupier of land wishes to drain or pump groundwater because of the salinity of the water, he or she is required to lodge a notice of intention with the Commissioner of Soil and Land Conservation at least 90 days before discharging water. This includes draining or pumping within the same property. Note that within the Peel-Harvey Catchment Area, a notice of intention is required for any draining or pumping works.

Desalination with reverse osmosis or similar treatment systems that discharge saline water is covered by the regulations.

What happens if I do not lodge a notice of intent to drain or pump?

It is an offence not to give notice of intent to drain when required to do so. The penalty is $2 000 for individuals and up to $10 000 for companies. You may also be liable for charges up to $250 000 of causing environmental harm under the *Environmental Protection Act 1986*.

Further information

Further information on completing this form is available from the Office of the Commissioner of Soil and Land Conservation in Perth on (08) 9368 3282 (8.30 am to 5.00 pm Monday to Friday).

Details of owner or occupier				
Title	☒ Mr ☐ Mrs ☐ Ms Other			
Surname or Family Name	Lyneham			
Given or first name(s)	Steve			
Company name (if applicable)	A W Lyneham & Son			
Land description (e.g. Lot 123 on Deposited Plan 1234)	Volume 4050 Folio 884 Lot Williams 11484			
Local government area (Shire, Town or City council)	Cuballing			
Postal address	519 Popanyinning West Rd			
Town or Suburb	Popanyinning	Postcode	6309	
Contact Number	0428 875 001			
Email Address	steve@glenlevit.com.au			
I am the (tick one)	☒ Owner of the land	☐ Occupier of the land		

Description of water source and discharge option					
Water source (tick boxes)	☒ Bore	☐ Soak	☐ Dam	☐ Creek	☐ Other
Describe 'Other' (if ticked)					

Page 1 of 3

Feedwater to desalination unit		
Daily input of raw water (kL/day)	85	(A = kL/day)
Number of days per year operating	365	(B = days)
Annual input	31,025	(kL/year multiply A x B)
Salinity of source water	6400ppm	(mS/m or mg/L)
Data source	estimate	(Field meter or laboratory results)
Product water (fresh permeate)		
Output rate (kL/day)	70	(A = kL/day)
Number of days per year operating	365	(B = days)
Estimated annual production	25,550	(kL/year multiply A x B)
Salinity of permeate	238ppm	(mS/m or mg/L)
Disposal or reject from desalination		
Output rate (kL/day)	15	(A = kL/day)
Days of planned discharge	365	(B = days)
Annual discharge	5475	(kL/year multiply A x B)
Salinity of reject water	20,000ppm	(mS/m or mg/L)
Data source	estimate	(Field meter or laboratory results)

Discharge of reject water					
Reject disposal (tick boxes)	☒ Bore	☐ Deep drain	☐ Creek or waterway	☐ Evap basin	☐ Other
Describe 'Other' (if ticked)					

Disposal plan (describe how you will manage the amount of reject water and salt as calculated)

Reinject into a dry bore hole

Plan of proposed desalination works

Attach a plan or aerial photograph of the proposed desalination works which clearly shows a north point and the location of:

- the source of water being used for desalination
- place where the rejected water is to be discharged
- existing drains or groundwater pumps on the property
- identify adjacent properties
- all natural watercourses (e.g. creeks, rivers) and wetlands (e.g. lakes, marshes)
- roads, railways and water mains adjacent to the land
- any other Crown land, such as nature reserves, which is adjacent to the land
- scale of plan/photograph: 1:10,000 for single properties

Page 2 of 3

Consultation with downstream neighbours and other affected parties
Provide evidence that you have consulted with the 2 landholders immediately downstream and any other affected landholder or parties (see attached Neighbours Comment Form).
Other approvals
Licence to take groundwater if within proclaimed groundwater area (OVER) https://www.wa.gov.au/service/natural-resources/water-resources/proclaimed-area-maps

Name of owner/occupier	Steve Lyneham		
Signature	[redacted]	**Date**	17/02/2026

If you do not have an electronic signature, please print this document and sign on the printed version.
You can then:

- scan and email the document to commsoil@dpird.wa.gov.au
- or post it to:

Commissioner of Soil and Land Conservation
Department of Primary Industries and Regional Development
Locked Bag 4
BENTLEY DISTRIBUTION CENTRE WA 6983

OFFICIAL

Reject will be injected into dry bore hole (end of red line) near Bradford Mid

Department of Primary Industries and Regional Development

Schedule 3

SOIL AND LAND CONSERVATION REGULATIONS 1992

Neighbours' Comment Form

This form is to be completed by the two landholders immediately downstream from land that is proposed to be drained or pumped and any other adjoining landholder who may be adversely affected by the proposal. The Commissioner of Soil and Land Conservation will take these comments into account and may discuss further with the proponent or neighbours in assessing the proposal.

TO: **The Commissioner of Soil and Land Conservation**
commsc.lc@dpird.wa.gov.au

Dear Commissioner

I/we: (insert full names) Jayson Robert Bradford

am/are the owner(s)/occupier(s) of: (insert location number of your land) Lot 6228 on Plan P121642

located in the local government area of: Cuballing

I/we have been advised by: (name of person proposing to drain) Steve Lynham

that the proposal to drain or pump water from: (location, number(s) of land to be drained) Volume 1655 Folio 886 Lot 6228 on Plan 121642

and discharge water in the manner described in the plan attached to his/her **Notice of Intention to Drain** made under Regulation 5 or 6 of the *Soil and Land Regulations 1992*.

I/we have reviewed the proposed plan (schedule 2) and provide the following response:

☒ I/we have no objection to the proposed plan ☐ I/we object to the proposed plan

Comments

Name(s)	Jayson Bradford		
Address	Hillcroft Farms		
Town	Popanyinning WA	**Postcode**	6309
Phone	[redacted]	**Date**	16/2/26
Signature			

Page 1 of 2

Appendix 5- Closure of Gazetted Road

SHIRE OF CUBALLING

File Ref: A2692
Your Ref:

Mr Steven Lyneham
AW Lyneham & Son
38 Forrest St
Popanyinning WA 6309

Dear Steven

Re: Request for closure of gazetted road – Land ID #3556014

In accordance with your letter to me dated 11 February 2026, I advise that at its Ordinary Meeting held on 18 February 2026, the Council of the Shire of Cuballing considered your request to close the gazetted and undeveloped road reserve traversing your property at 582 Popanyinning West Road, Popanyinning.

Council noted that the road reserve is unconstructed and has never been utilised for public access to this or any neighbouring properties, and that its closure is sought to facilitate your proposed agricultural infrastructure development. Following consideration of the matter, Council resolved to initiate the statutory process for requesting the road closure in accordance with section 3.50 of the *Local Government Act 1995* and sections 58 and 56 of the *Land Administration Act 1997*.

The next steps will involve referral of the proposal to the relevant State authorities and service providers, public advertising of the proposed closure for a minimum 35 days, and consideration of any submissions received during the advertising period. Subject to there being no objections that cannot be resolved, the matter will then be progressed in accordance with the requirements of the Act.

Please note that if required, any costs associated with this road closure process such as surveys or additional advertising may be required to be met by the applicant.

You will be kept informed as the process progresses, and Council officers will contact you should any additional information be needed.

Yours faithfully

[redacted]

CHIEF EXECUTIVE OFFICER

23rd February 2026

All communications to be addressed to: Chief Executive Officer, PO Box 13, CUBALLING WA 6311
OFFICE HOURS: Monday to Friday 8.30am to 4.30pm
Ph: 08 9883 6031, Fax: 08 9883 6174, Email: enquiries@cuballing.wa.gov.au

scolexia

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Victoria Australia 3039

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Victoria Australia 3039

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