Application for Licence

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

Licence Number	L9354/2022/1
Applicant	Bigfoot Australia Pty Ltd
ACN	636 364 700
File number	DER2022/000370
Premises	Bigfoot Meats 1538 Gingin Brook Road, Muckenburra WA 6503 Legal description Lot 71 on deposited plan 26866
Date of report	24/11/2022
Proposed Decision	Licence granted

Table of Contents

1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L9354/2022/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of premises

Bigfoot Australia Pty Ltd (the applicant) occupies an abattoir located at 1538 Gingin Brook Road, Mukenburra (the premises). The premises has not operated since 2021 and is currently in 'care and maintenance'.

The premises previously operated under Licence L9118/2018/1 (the previous licence) granted by DWER under Part V of the *Environmental Protection Act 1986* (EP Act). The previous licence issued to Prime Meat Co Pty Ltd ceased to have effect on 12 May 2022 due to non-payment of fees and an application to surrender the licence having been received on 29 April 2022.

To allow for the reestablishment of the premises, Bigfoot Australia Pty Ltd was advised to apply for a licence. On 19 September 2022, they submitted an application for a licence to the department under section 57 of the EP Act for category 15: Abattoir. The application is to allow the premises to slaughter sheep and goats for meat production with a production capacity of up to 1865 tonnes per annual period (liveweight), operating 9 months of the year excluding the winter months.

Animals will be delivered to the premises and offloaded into holding pens or covered lairage ready for slaughter. Wastewater from the lairage and holding pens will be collected in a settling tank connected to a wastewater treatment system (WWTS) and discharged to evaporative ponds. Manure will be dry-scraped and collected daily and stored in skip bins prior to removal offsite for disposal.

In the abattoir, blood will be collected in dedicated holding tanks and removed offsite daily by a contractor. The skins will be removed offsite and unwanted offal, paunch, fat and bone will be stored in covered bins or hoppers and removed offsite daily for rendering by a contractor. Wastewater from the abattoir will pass through removable sieves located in the floor drains and then through the WWTS to remove gross solids before it is discharged to ponds. The collected solids will be contained in a concrete bunker and transferred to the main abattoir solid waste collection truck for removal offsite.

The premises relates to the category 15: Abattoir and assessed production capacity under Schedule 1 of the EP Regulations which are defined in licence L9354/2022/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in licence L9354/2022/1.

3. Risk assessment

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

Assessments (DWER 2020).

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

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

Table 1: Proposed applicant controls (from application)

Emission	Sources	Potential pathways	Proposed controls
Operation			
Dust from loading/ unloading and holding of livestock	Lairage, and covered holding pens (igloo), including: • Holding and feeding/ watering of sheep and goats awaiting slaughter	Air/windborne pathway causing impacts to health and amenity	All stock will be unloaded from the trucks and directed down the concrete race straight to the covered holding pens (igloo).
Odour from livestock and accumulated manure and urine in holding pens and lairage			Manure from the lairage and covered holding pens (igloo) will be dry-scraped and collected daily and stored in skip bins prior to offsite removal.
Leachate/ runoff from accumulated manure and urine in covered holding pens and lairage		Seepage/ infiltration, causing soil and groundwater contamination and ecosystem disturbance	All covered lairage and holding pens have concrete floors and polyethylene drainage channels. After removal of manure, floors will be hosed. The wastewater will pass through sieves in the floor drains and collected in a sump connected to the WWTS. Screened solids will be contained in a concrete bunker and transferred to main abattoir solid waste collection truck for offsite removal. Skip bins for manure are located on a 10 x 10m concrete pad with a concrete bund around the perimeter (100mm high). The concrete pad has a slight in-floor slope and drainage to capture any leachate/runoff from the skip bins. Wash-down of concrete pad will be as required. The external holding tank will be pumped out by septic tanker as required.
Odour from animal by-products and blood tanks	Abattoir operations, including: • Storage of organic by-products/ waste • Washdown, cleaning and sterilisation of	Air/windborne pathway causing impacts to health and amenity	Blood tanks are fully sealed with contents to be removed offsite daily. Offal, paunch, fat, and bone will be stored in enclosed hoppers and bins and removed offsite as needed.
Nutrient-laden wastewater runoff and solid wastes		Loss of containment leading to	Blood waste will be caught in a primary tank (500L) with a secondary holding tank (5000L) with sufficient capacity. Blood tanks

Emission	Sources	Potential pathways	Proposed controls
	abattoir	seepage/ infiltration, causing soil and groundwater contamination and ecosystem disturbance	are fully sealed and located on a concrete slab with a 200mm bund. Contents to be removed offsite daily. Solid wastes with the potential to generate leachate will be stored in a bunded area (e.g., manure, skins) or within sealed containers (e.g., offal, paunch, WWTS screen solids). Wastewater will pass through removable sieves located in the floor drains and through a WWTS (J screen and tumbler) to remove gross solids before it is discharged to ponds. Screened solids will be contained in a concrete bunker and transferred to main abattoir solid waste collection truck for offsite removal.
Direct discharge to land of solid wastes and nutrient-laden wastewater via loss of containment (e.g., pond/ tank overtopping event, spills or leak from pipework)	WWTS, including: • Abattoir WWTS (2 x solid screens) • 2 x evaporative aerobic ponds		The solids screens (J screen and Tumbler screen) are in a 19.2m^3 concrete bunker (4 x 4m with three 1.2m high walls). The opening is bunded. Any liquid left on the concrete will pass through a sieve to drain directly to pond 1. Screened solids will be contained in a concrete bunker and transferred to main abattoir solid waste collection truck for offsite removal. Once the 2000L wastewater settling tank reaches a level float it will flow to pond 1. Ponds will have sufficient capacity to contain wastewater generated, which is estimated to be 85m^3 per week. Blood and organic solids will be prevented from entering the ponds. Pond embankments will prevent stormwater entering the ponds.
Seepage or leakage of wastewater through pond lining			Ponds are lined with in-situ material and HDPE. Groundwater monitoring program is in place to check for pond leakage.
Odour from ponds		Air/windborne pathway causing impacts to health and amenity	Nil

3.1.2 Receptors

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

Table 2 and Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 2: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Closest residential receptor	750 m north-east of premises boundary
Environmental receptors	**Distance from prescribed activity**
Surface water body: Quinn Brook	850 m from abattoir
Underlying groundwater (non-potable purposes)	12-15 mbgl
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region – Priority 3 TEC	Within premises boundary – within ~50m from eastern side of Pond 3

3.2 Risk ratings

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

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

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

Licence L9354/2022/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e. abattoir activities.

The conditions in the issued licence, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 3: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating [1] C = consequence L = likelihood	Conditions [2] of licence	Reasoning
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**			
Lairage, including: • loading/ unloading, holding and watering of sheep and goats in the lairage and covered holding pens	Dust from loading/ unloading and holding of livestock	Air/windborne pathway causing impacts to health and amenity	Residences 750 m northeast of premises boundary	Refer to Section 3.1	C = Rare L = Unlikely **Low Risk**	N/A	Due to the low throughput of livestock, distance to sensitive receptors, and the fact that the lairage and holding yards are covered, the delegated officer considers that the risk of dust from loading/unloading activities impacting on sensitive receptors is low. Therefore, no regulatory controls have been placed on the licence.
	Odour from livestock and accumulated manure and urine in holding pens and lairage			Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Condition 1: lairage operational requirements • Manure removal and disposal requirements	Given the low throughput of livestock and the fact that the lairage and holding yards are covered, the delegated officer considers that the daily wash-down of lairage hardstand areas to remove animal effluent (manure and urine), in addition to weekly collection of manure in drainage channels for offsite disposal, will keep the risk of significant odours impacting receptors at an acceptable level. Therefore, these applicant proposed controls have been included as operational requirements in the licence.
	Leachate/ runoff from accumulated manure and urine in covered holding pens and lairage	Seepage/ infiltration, causing soil and groundwater contamination and ecosystem disturbance	Depth to groundwater 12-15 mbgl Quinn Brook 850 m from abattoir Banksia Dominated Woodlands of the Swan Coastal Plain (Priority 3 TEC) ~50 m from Pond 3	Refer to Section 3.1	C = Minor L = Possible **Medium Risk**	Condition 1: lairage operational requirements • Requirement for wash water and leachate to be discharged to WWTS	The delegated officer considers the applicant proposed controls, including all lairage and covered holding pens having concrete floors that are cleaned daily, and drainage channels that lead to the WWTS, are sufficient to minimise the risk of leachate and runoff impacting on soil and groundwater. Therefore, these have been included as conditions in the licence. The applicant also proposes that the screened solids from the concrete floors will be contained in skip bins located on a 10 x 10m concrete pad with a concrete bund around the perimeter (100mm high) and transferred to the main abattoir solid waste collection truck for offsite removal. The concrete pad will have in-floor slope and drainage to capture any leachate/runoff from the skip bins. The delegated officer considers this adequate in minimising the risk from accumulated manure and leachate from manure impacting on the environment and has included it as a requirement in the licence.
Abattoir operations, including: • Storage of organic by-products/waste • Washdown, cleaning and sterilisation of abattoir	Odour from animal by-products and blood tank	Air/windborne pathway causing impacts to health and amenity	Residences 750 m northeast of premises boundary	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Condition 1: abattoir operational requirements	Given the low throughput of livestock, the delegated officer considers the applicant proposed controls to be sufficient in minimising the level of risk of odour from abattoir practices impacting on amenity, and so these have been included as licence conditions. In particular, animal wastes and by-products (excluding blood) must be contained in a covered shed with a bunded concrete floor before being disposed offsite within 24 hours. The slaughter room floor drainage system must separate blood and direct it to holding tanks to be disposed offsite daily.
WWTS, including: • 2 x solids screens (J screen and Tumbler screen) • 2 x evaporative aerobic ponds	Direct discharge to land of solid wastes and nutrient-laden wastewater via loss of containment (e.g., pond/ tank overtopping event, spills or leak from pipework)	Loss of containment leading to seepage/ infiltration, causing soil and groundwater contamination and ecosystem disturbance	Depth to groundwater 12-15 mbgl Quinn Brook 850 m from abattoir Banksia Dominated Woodlands of the Swan Coastal Plain (Priority 3 TEC) ~50 m from Pond 3	Refer to Section 3.1	C = Moderate L = Possible **Medium Risk**	Condition 1: WWTS operational requirements • **<u>Ponds 1 and 2 freeboard requirements</u>** • Requirements to ensure integrity of WWTS infrastructure is maintained	Due to its organic nature, loss of containment of wastewater from the premises poses a risk to the environment if not controlled. Therefore, the applicant has proposed that the solids screens (J screen and Tumbler screen) will be in a concrete bunker (4 x 4m with three 1.2m high walls). Any liquid left on the concrete will pass through a sieve to drain directly to pond 1. Screened solids will be contained in a concrete bunker and transferred to main abattoir solid waste collection truck for offsite removal. Blood and organic solids will be prevented from entering the ponds. Washdown water from the lairage and covered holding pens will pass through sieves in the floor to separate any solids before being captured in a 2000L settling tank. Once the tank reaches a level float the wastewater will flow to Pond 1 and then onto Pond 2 as required. The ponds will have sufficient capacity to contain wastewater generated, which is estimated to be 85m^3 per week. Given that organic waste is potentially harmful to environment if not contained, the delegated officer has included these applicant controls in the licence in order to minimise that risk. The delegated officer considers that including the maintenance of a 500mm freeboard is required to keep the risk of a pond overtopping event causing impacts to soil and groundwater to an acceptable level. The maintenance of all other WWTS infrastructure is also included as a requirement on the licence to minimise the risk of uncontrolled spills to the environment. A control is also specified to avoid vegetation growth on pond inner embankments and restrict livestock from entering the pond areas, which could compromise bank integrity.
	Seepage or leakage of wastewater through pond lining			Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Condition 1: WWTS operational requirements • **<u>Ponds 1 and 2 liner permeability requirements</u>** Condition 4: Groundwater monitoring	All wastewater containment infrastructure has an inherent risk of failure, which may cause contamination of groundwater. In order to minimise the risk of wastewater leakage or seepage from ponds, the recommended permeability for pond liners is at least 1 x 10^{-9} m/s as instructed in *WQPN 26 - Liners for containing pollutants using synthetic membranes* (DoW, 2009). Therefore, the delegated officer has included this as a requirement in the licence. The applicant has proposed that a groundwater monitoring program will be in place to detect any contamination of groundwater. The delegated officer considers this an acceptable control in minimising long term risk to groundwater from potentially prolonged exposure to wastewater as a result of pond leakage or spills and has included six-monthly monitoring and reporting of the following parameters in the licence: standing water level, pH, electrical conductivity, total nitrogen, nitrate nitrogen, ammonia nitrogen, total phosphorous and total dissolved solids from existing bores MB5, MB6 and MB7.

Risk events					Risk rating [1] C = consequence L = likelihood	Conditions [2] of licence	Reasoning
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**			
	Odour from ponds	Air/windborne pathway causing impacts to health and amenity	Residences 750 m northeast of premises boundary	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Condition 1: WWTS operational requirements	There is potential for odour from wastewater stored within the ponds to cause off-site amenity impacts to nearby receptors if the wastewater is not sufficiently treated to the point it becomes odorous. The delegated officer considers controls on the licence that require sufficient treatment of wastewater are adequate in maintaining an acceptable level of risk from the pond wastewater odour.

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

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

4. Consultation

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

Table 4: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal 14/10/2022	No response received	N/A
Licence Holder was provided with draft amendment on 21/11/2022	The applicant provided responses to requested information in the draft amendment and decision report and waivered the remaining comment period. Received 22/11/2022.	Information received has been incorporated in the licence and decision report.

5. Decision

The delegated officer has determined that the reestablishment of the abattoir premises, with an assessed production capacity of up to 1865 tonnes per annual period (liveweight) of sheep and goats, does not pose an unacceptable risk of impacts to public health or the environment. This determination is based on the following:

- low throughput of livestock;
- appropriate controlled drainage being in place for the abattoir and covered lairage areas, to contain and control runoff and wash water and minimise impacts to groundwater and surface waters;
- lairage and covered holding pens, solid waste stockpile areas, WWTS screens and evaporation ponds being constructed with an impermeable barrier to limit soil and groundwater impacts;
- evaporation ponds having sufficient storage capacity for wastewater generated at the proposed slaughter throughput; and
- removal of animal by-products including offal, paunch, bone and blood within 24 hours of processing.

In addition, the applicant proposes to conduct groundwater monitoring to provide assurance that any groundwater contamination from potential loss of containment of WWTS infrastructure will be detected and proactively managed.

The delegated officer has also included additional controls on the licence to ensure the risk to the environment remains low. These include:

- minimum operation freeboard of 500mm on the evaporative ponds; and
- minimum pond liner permeability of 1×10^{-9} m/s to be maintained.

The delegated officer is satisfied the above controls and monitoring lower the overall risk profile of the premises and are critical for maintaining an acceptable level of risk of impacts during operations; as such they will be imposed on the licence as infrastructure and operational controls.

6. Conclusion

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

References

1. Bigfoot Australia Pty Ltd 2022, *Application form and supporting documents*, submitted to DWER on 19 September 2022.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
5. Department of Water (DoW) 2009, *Water Quality Protection Note* (*WQPN) 26 - Liners for containing pollutants using synthetic membranes*, Perth, Western Australia.