



Review of Existing Licence

Division 3, Part V *Environmental Protection Act 1986*

Licence number	L9137/2018/1
Licence holder	Semini Enterprises Pty Ltd
ACN	069 792 981
File number	DER2018/000869
Premises	Semini Cattle Feedlot 41 Sands Road TREETON WA 6284 Legal description - Lot 2254 on Plan 203091 and Lot 2 on Diagram 35159
Date of Report	12 October 2021
Status of Report	Final

Executive Summary

This decision report sets out a detailed review of licence L9137/2018/1 for the Semini Cattle Feedlot (the premises), located at Treeton in the Shire of Augusta-Margaret River. The review was initiated by the Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) based on:

- the current infrastructure being built before the current industry standards (National Guidelines for Beef Cattle Feedlots in Australia (MLA 2012a) (National Guidelines) and National Beef Cattle Feedlot Environmental Code of Practice (MLA 2012b) (National Code of Practice) were released;
- there being limited information available on the design and integrity of existing waste containment infrastructure;
- concerns with information submitted in accordance with AER and AACR licence reporting conditions and information that was on record; and
- findings of a site visit undertaken by DWER in September 2018, that confirmed waste containment infrastructure may not meet current industry standards.

DWER acknowledges significant changes are proposed to the existing licence based on the outcomes of this review. The changes have been deemed necessary to address identified risks to public health and the environment based on the premises being in a sensitive environment and to ensure the feedlot is operating in a manner consistent with current industry standards. It is expected the identified changes will occur incrementally, based on negotiated milestones and timeframes to achieve industry infrastructure and operational standards.

The licence holder has expressed a preference to use capital resources to improve the groundwater and surface water protection measures rather than providing more monitoring information (Coterra 2021). DWER supports this position to the extent that should the licence holder choose to fully cover (roof) the waste storage area (WSA) and feedlot pens, the department would review the level of regulatory controls and monitoring requirements on the licence.

The review assessed existing infrastructure and operations at the premises against the National Guidelines and National Code of Practice. The review included a risk assessment of potential impacts to public health and the environment from existing feedlot and manure composting activities. The delegated officer determined the following key findings from the review:

1. There is uncertainty over the integrity and construction details of key feedlot infrastructure, including composting pad, bunding around the compost facility, waste storage area (WSA) and drainage channels in the feedlot;
2. There is uncertainty about the size of the retention basin, its structural integrity and overflow management and its pathway;
3. The feedlot infrastructure is located within a drainage depression where surface water flooding is likely;
4. It is likely that overland flow of nutrient rich wastewater will reach surface water bodies from the feedlot, composting and irrigation operations; and
5. Additional water quality monitoring of the Carburnup River tributary is required due to the locality of the feedlot operation and current irrigation practices.

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1. Purpose and scope of assessment

Under section 59(2) of the EP Act, the CEO may amend a licence at any time, including varying the conditions which apply to a licence, removing redundant conditions or imposing new conditions and requirements where necessary. The department will undertake any licence amendments resulting from a licence review in accordance with s.59(2) of the EP Act.

This report sets out the delegated officer's assessment of risks arising from a review of emissions and discharges generated by the primary activities conducted at the premises, being the Semini Cattle Feedlot, located at 41 Sands Road, Treeton.

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

The other guidance statements and documents which inform this assessment are listed in Appendix 1.

2. Background

The premises has been operating as a cattle feedlot for about 25 years. It is located about 11 km east of Cowaramup on Jindong-Treeton Road, Treeton. The prescribed premises consists of the following two lots:

- Lot 2254 on Plan 203091 – contains key feedlot infrastructure, including the holding pen or drafting yard, feedlot pens, feed mixing shed, waste storage area, wastewater main drain and retention pond and manure compost pad; and
- Lot 2 on Diagram 35159 – receives solid waste application to land (Paddocks 18 and 20). It also receives irrigated wastewater to Paddock 19 and burial of carcasses (see Figure 1 of the licence for location and layout).

The feedlot was constructed without a works approval and was first licenced under the EP Act in 2005 as a cattle feedlot under Category 1, with an approved capacity of up to 2,000 animals being held at any one time.

3. Infrastructure and operational aspects

3.1 Feedlot design and layout

A holding pen (drafting yard) 3,417 m² accepts arrivals and departures of cattle from the premises. The feedlot pens have a combined area of 17,280 m² and according to the licence holder are constructed of in-situ clay soils topped with gravel. The permeability and depth of the clay base of the pens structure is unknown. The pens are sloped towards a main cut-off drain that collects and diverts runoff from the feedlot complex towards a retention basin. Pens 1 to 4 are partially covered with a roof for providing shade for cattle. These roofed shelters are not designed to divert stormwater away from the controlled drainage area. The pens are of varying sizes with the smallest being 1,200 m² and the largest 1,740 m².

A berm along the exterior edge of the feedlot pens diverts clean stormwater away from the pens to an unknown location or structure. The structural integrity of the drainage systems for both clean and contaminated stormwater is unknown. It is unknown if they meet industry standards or to what annual exceedance probability (AEP) rainfall event that the stormwater management systems are capable of operating under.

Manure is temporarily stored in the WSA located within the controlled drainage area.

Grain and minerals for animal feed are stored within a mixing shed.

3.1.1 Recent site improvements

According to Coterra (2021), the licence holder has recently commenced diverting clean stormwater, collected from pen roofs, away from the feedlot complex, and creating improved diversion berms along Sands Road to prevent the ingress of clean stormwater into the controlled drainage area.

Images provided within the Coterra (2021) report indicate the installation of guttering and a single 'lay flat' plastic sleeve from the shelter roofs that appears to direct stormwater via a pipeline from the roofs over the surface of the retention basin to discharge to paddocks that adjoin the Carburnup River tributary.

3.2 Operational aspects

The feedlot is currently approved through the existing licence to hold up to 2,000 animals at any one time within the designated feedlot pens (equivalent to 1,740 Standard Cattle Units (SCU)).

The licence holder receives cattle (arrival on site via trucks) and transfers them into the holding pen for an average of 12 hours before transfer to the feedlot pens where they are fed and watered. Saw dust and fine mulch are added to feedlot pens on each new consignment of cattle entering pens. The saw dust and fine mulch provides a soft floor for animals to stand upon, assists in keeping the animals clean, reduces the risk of slipping in wet pens and assists with cleaning up manure within the pens.

The licence holder advises that cattle are usually held for around 70 days at the premises before being transported off site. The existing licence requires the feedlot pens to be scraped of manure solids at least once every 20 weeks, with solids stockpiled in the WSA to be held for no more than 28 days. It was noted on the site inspection on 19 September 2018 that manure had been stockpiled for 8 months.

In

Table 1 indicates the numbers of cattle that were held on the premises during the period June 2017 – May 2021. The licence holder advises the feedlot pens are typically destocked from June to September.

Table 1 demonstrates the feedlot operates 12 months of the year and numbers drop from July to September, and peak between November to April. Calculations have been estimated based on the cattle figures supplied by the licence holder for actual manure and the maximum manure limits for 2000 cattle weighing 500kg.

Table 1: Number of cattle held at the premises and expected manure rates produced from the feedlot for 2017 - 2021.

Date	Number of cattle held within the pens (from AER/AACR 2017 – 2021 reports)	SCU Based on 500kg weight scaling factor 0.87 ¹	Total Pen Area = 17280m ² SCU stocking density (m ²)	² Manure accumulation per month within feedlot pens in tonnes
Criteria or limits for assessment	2000 head of cattle limit	1740 SCU	³9m²	7.936kg/day/cattle
June 2017	714	621.2	27.8	147.90
July 2017	201	174.87	98.8	43.02
August 2017	132	114.8	150.52	28.24
September 2017	250	217.5	19.45	51.78
October 2017	790	687.3	25.14	169.09

Date	Number of cattle held within the pens (from AER/AACR 2017 – 2021 reports)	SCU Based on 500kg weight scaling factor 0.87 ¹	Total Pen Area = 17280m ² SCU stocking density (m ²)	² Manure accumulation per month within feedlot pens in tonnes
Criteria or limits for assessment	2000 head of cattle limit	1740 SCU	³ 9m ²	7.936kg/day/cattle
November 2017	1381	1201.5	14.38	286.05
December 2017	1962	1706.94	10.12	419.93
January 2018	1907	1659.1	10.4	408.17
February 2018	1861	1619.1	10.67	359.78
March 2018	1495	1300.7	13.29	319.99
April 2018	1730	1505.1	11.48	358.33
May 2018	983	755.21	22.88	185.79
June 2018	556	483.7	35.7	115.16
July 2018	216	189.7	91.1	46.67
August 2018	136	118.3	146	29.10
September 2018	286	248.8	69.5	59.23
October 2018	1015	883.1	19.57	217.26
November 2018	1915	1666.1	10.37	396.67
December 2018	1919	1669.5	1.035	410.72
January 2019	1933	1681.7	10.28	413.73
February 2019	1918	1668.7	10.36	370.80
March 2019	1938	1686.1	10.2	414.81
April 2019	1984	1728.7	10.0	411.57
May 2019	1130	983.1	17.57	241.86
June 2019	3	2.6	6646.15	0.62
July 2019	3	2.6	6646.15	0.64
August 2019	3	2.6	6646.15	0.64
September 2019	342	297.5	58.08	70.83
October 2019	1025	891.7	19.38	219.37
November 2019	1923	1673.0	10.33	398.31
December 2019	1762	1532.9	11.27	377.12
January 2020	1972	1715.6	10.07	422.07
February 2020	1971	1714.7	10.07	394.63
March 2020	1974	1717.3	10.06	422.48
April 2020	1816	1579.9	10.94	376.14
May 2020	909	790.8	21.85	194.55
June 2020	456	397	43.54	94.52
July 2020	16	14	1234.29	3.44
August 2020	0	0	0	0.00
September 2020	487	424	40.75	100.95
October 2020	1005	874	19.77	215.02
November 2020	1999	1739	9.94	414.02
December 2020	1935	1683	10.27	414.04
January 2021	1693	1473	11.73	362.38

Date	Number of cattle held within the pens (from AER/AACR 2017 – 2021 reports)	SCU Based on 500kg weight scaling factor 0.87 ¹	Total Pen Area = 17280m ² SCU stocking density (m ²)	² Manure accumulation per month within feedlot pens in tonnes
Criteria or limits for assessment	2000 head of cattle limit	1740 SCU	³ 9m ²	7.936kg/day/cattle
February 2021	1833	1595	10.83	367.08
March 2021	1859	1617	10.69	397.81
April 2021	1923	1673	10.33	398.31
May 2021	705	613	28.19	150.81

¹ Scaling factor of 0.87 is from the National Code of Practice (MLA 2012b) for average livestock weight of 500kg

² Manure calculations are based on 500kg animal producing 7.93kg/day (REF: Livestock manure production rates and nutrient content, 2002, North Carolina Agricultural Chemicals Manual, Table 10.15 Livestock lot surface scraped manure characteristics).

³ 9m² is based on the recommended stocking rate (Cattle Standards and Guidelines, 2013).

3.3 Solid waste management

Solid wastes generated from the operation of the premises are manure, spent bedding, dried pond sludges, spilt feed, and carcasses. Manure and spilt feed are removed from the pens about every 20 weeks using a front-end loader. It is noted if cattle are held for 70 days, two rotations could occur within 20 weeks. It is proposed that manure is removed from pens after every rotation.

Spilt feed and sawdust used for bedding are removed with the manure during the pen cleaning. The material is stockpiled within the feedlot pens prior to being transported to the WSA (refer to Figure 1 in the licence) which is referred to as a temporary manure stockpile area in the existing licence. Manure from the holding pen is also periodically removed and transferred to the WSA to dry. It is understood that historically, the licence holder would dry the manure at the WSA then transfer the dried material to the compost facility for composting. Composted material was then either applied onto paddocks with a muck spreader, sold or removed from the premises. From **Error! Reference source not found.**, total manure produced over the 2017-18, 2018-19, 2019-20 and 2020-21 periods were 2,778.08, 3,127.57, 2,877.39 and 2,918.38 tonnes, respectively.

It is also understood that sludge removed from the retention basin has historically been treated in the same manner as manure (dried at the WSA and transferred to the compost facility for composting). The licence holder advises the retention basin is cleaned out every 1 – 2 years. The retention basin was last cleaned out in February 2021, the volume of material cleaned out is unknown.

The licence holder advised in September 2021 the compost facility will no longer be used for composting activities and that it proposes to dry manure and sludge at the WSA before either applying it to land as a partial fertiliser replacement, selling it, or removing it from the premises. The existing licence conditions are unclear in relation to application of solid waste to land. The delegated officer considers the intent of the existing licence conditions is that waste organic materials such as manure, spent bedding and sludge are to be fully composted, prior to their application to land.

Deceased animals are currently buried in the northern portion of the site, within Lot 2 (refer to Figure 1 of the licence). The burial pit is assumed to be 1.5m above the seasonal groundwater level and located 100m away from watercourses. Carcasses are covered with earth within 1 hour of disposal.

3.4 Composting

The licence holder currently produces around 600 tonnes per year of compost from waste generated by the feedlot, which is either sold off-site in bulk to farmers, or spread over the premises. Material from the cleaning of pens and dried sludge (spadeable) from the retention basin is used in the composting process. The 2017 - 2021 AER's stated that food waste such as grape marc and vegetable scraps/offcuts are accepted at the premises from third parties and added to the composting process. The existing licence allows for manure, sludge, grape marc, bark, sawdust and vegetable offcuts to the composting area, but does not contain Category 67A Compost manufacturing, on the licence.

To continue to accept high risk organic wastes from outside the premises for the purposes of composting, the licence holder must apply to have Category 67A Compost manufacturing added to the licence, so that this discrete activity can be risk assessed.

Previously, all composting activities took place on the composting pad. As per the previous section, the licence holder advised in September 2021 it intends on ceasing composting activities, and instead manure collected from the pens will be dried on the WSA and applied directly to land. No further details on the proposal to apply dried manure to land were provided, such as a Waste Management Plan, to enable the department to risk assess this activity. Feedlot waste application areas should be demonstrated to be suitably sized and have appropriate soil characteristics which can utilise the organic matter, nutrients and salts in the applied solid waste under appropriate management.

The composting process employed on the premises is a static process. Piles are turned every 5 weeks and temperatures are recorded during each turning (licence holder AER/AACR).

The composting pad does not have a constructed leachate retention basin. A small bund lies around part of the compost pad which acts as leachate containment, further details of the bund or leachate containment infrastructure design or construction are unknown.

The composting area is located at the south-west end of Lot 2254, approximately 650 metres from the feedlot (see Figure 1 of the licence for general location).

The composting area is approximately 12m from the premises boundary and 25m from Jindong-Treeton Road. The Carburnup River runs about 90 metres north-east of the composting area. The slope of the land is 2.8% and runoff is in a north, northeast direction towards the Carburnup River. Any leachate leaving the pad would eventually discharge into the Carburnup River either through surface flows or through sub soil movement.

3.5 Liquid waste management

Liquid wastes are generated from the feedlot complex and composting operations (when undertaken). The retention basin is designed to capture runoff from the feedlot pens and associated feedlot infrastructure. Pens fall to the north, draining to the collection and the disposal system which is made up of a main drain and retention basin. The compost facility does not have a constructed leachate retention basin.

The holding pen (drafting yard) drainage runs onto the adjacent paddock into a soak (basin) on the floodplain and eventually enters the Carburnup River tributary.

The twelve feedlot pens share a common main earth drain that directs runoff to the retention basin. The retention basin captures and stores the runoff prior to its application to land. The retention basin is an irregular feature with varying width, about 240 metres long. The volume of the retention basin is unknown – the licence holder estimates a depth of about 3m. Based on the licence holder's estimated dimensions the basin may have a capacity of 8,862 m³. However, Semini (2004) states that the retention basin holds 675 m³ (kL).

It is unclear from the information available what design and specifications the retention basin has been constructed to and if it is fit for purpose. DWER has no record of improvements or

any record of construction of the retention basin or the standard it was built to. The licence holder does not have any copies of the retention pond design and built details.

An open drainage area is constructed to direct run-off from the pens and the WSA to the retention basin. Contaminated stormwater and leachates from the feedlot pens and WSA are collected in the open drain and directed towards the retention basin and liquid waste is then disposed of via wastewater irrigation onto pasture. The open drainage channels appear to be unlined and have not been constructed to specific standards (e.g., the Code of Practice and National Guideline 2012 and EPA Victoria compost standards).

The retention basin is an open structure and wastewater can either evaporate or be irrigated to paddock 19 within the premises (refer to Figure 2 L1 in licence). The wastewater irrigation area is about 11.6 ha in total area. Wastewater from the retention basin is pumped to a single travelling irrigator. The travelling irrigator at a 40 psi has a spreading width of 30 to 50m with an approximate flowrate of 25, 755 L/hr, 5mm application depth and a maximum travel distance of 400m (from licence holder). The licence holder has not detailed how the irrigator will be moved to each run to ensure wastewater is evenly distributed over the irrigation area. It is assumed that it will require manual relocation after each run is completed.

The wastewater irrigated land is planted with annual ryegrass and clover. The crop is harvested regularly to make silage and during summer cattle graze on the land.

4. Site Visit

On 19 September 2018, DWER officers accompanied by officers from the Department of Primary Industries and Regional Development (DPIRD) carried out a site visit of the premises to inform the risk review of the premises.

Key findings

The delegated officer has reviewed the information gathered from the 2018 site inspection and has found the following aspects not to be in accordance with the National Guidelines (MLA 2012a):

1. *The permeability of hard stand areas, main drain and WSA is unknown. There is an increased risk of leaching of contaminants into Carburnup River tributary (refer to guideline Appendix C - Clay lining of feedlot pens, pads, and drainage system).*
2. *The feedlot pens and infrastructure are adjacent to or lie within the Carburnup River tributary floodplain where any overtopping or leaching will contaminate the immediate water resources (refer to guideline Appendix A - Design of controlled drainage systems)*
3. *The compost facility has no leachate containment or management controls. There is an increased risk of leaching of contaminants into the Carburnup River if the facility is used for composting or storage of organic waste materials (refer to guideline Appendix C - Clay lining of feedlot pens, pads, and drainage system).*

5. Exclusions to the premises

The licence holder advises that about 500 cattle are held on the premises outside of the designated pens. These cattle graze within the premises boundaries in paddocks and are considered by the licence holder to be general farming.

DPIRD (2020) consider sustainable stocking rates for normal grazing practices for Cowaramup to be 1.4 SCU/ha for beef farming. A greater stocking rate can be considered if improved management practices (like rotational grazing) are implemented, and the improved grazing strategies justify the higher stocking rate in paddocks. DWER considers a stocking rate of greater than 1.4 SCU/ha to be a 'feedlot'.

It is also understood that raw manure and/or pond sludges generated from the prescribed

premises are spread to paddocks outside of the premises boundary. This activity has not been assessed or authorised under the existing licence or considered as part of this review.

6. Rights in Water and Irrigation Act 1914

The feedlot is located within south-west proclaimed groundwater area and falls within the Busselton - Capel Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act).

This groundwater area is managed in accordance with the South West Groundwater Areas Allocation Plan (DoW 2009) and any groundwater abstraction in this proclaimed area is subject to licensing by the department, other than supply from the shallow water table (superficial aquifer) for domestic and non-intensive stock watering purposes. DWER's charter includes the protection of the quality and quantity of the water resources for current and future licensed users. As such any nutrient leaching from this proposal can directly impact on the quality of this managed resource and current licensed users.

In terms of water quality and protection of water resources the following management plans are relevant to the area under the RIWI Act:

- *Carbunup River Action Plan 2000* by GeoCatch Soil and Land Conservation Council, Western Australia
- *Vasse Wonnerup Wetlands and Geographe Bay Water Quality Improvement Plan 2010*.
- South West Groundwater Areas Allocation Plan (DoW 2009)

7. Annual Environmental Reports (AER)

A review of AER's for the reporting periods between 2018 – 2021 indicate that wastewater samples have not been taken in accordance with Australian Standards AS/NZS 5667.1, AS5667.10-1998 and AS5667.1-1998. This is based on the licence holder's own admissions within the AERs. The reliability of all water sampling records from the premises is therefore unclear.

The AERs submitted between 2011 to 2021 have identified variable levels of nitrogen, phosphorus, total dissolved solids and total suspended solids at monitoring sites that include the retention basin (irrigation) wastewater and upstream and downstream surface water monitoring sites. This indicates that further sampling is required to determine influencing factors and compliance. The existing licence condition for water sampling from the Carbunup River tributary was taken during the wet season when there was stream flow and when the licence holder conducted irrigation of wastewater. Irrigation of wastewater occurs in June, July, August, and September and in some instances October and November (though not regularly).

A review of the monitoring data from upstream and downstream sampling locations indicated that in most cases there was a trend. Downstream results of total phosphorus and nitrogen consistently showed higher nutrient concentrations than upstream, indicating nutrient inputs. In addition, phosphorus and nitrogen levels were above desired water quality levels for inland waters and rivers (ANZECC 2000 Guidelines).

Wastewater samples from the retention basin for irrigation indicated that concentration values of phosphorus and nitrogen (see Table 7) were consistently high on application. See section 11.2 for more details.

NOTE: nutrient export from cropping has not been reported or considered by the licence holder or DWER. Other nutrient inputs such as manure from grazing cattle or fertiliser applications have also not been considered.

8. Review of licence holder's controls compared to industry standards

Table 2: Licence holder controls compared with current industry standards for containment infrastructure

Site infrastructure / Control	Description	Operation details (Controls from licence holder)	¹ Guideline requirements/performance measures	³ Priority rank
Feedlot pens and drain	<p>In-situ clay/loam and soil.</p> <p>Holding pens with unknown drainage.</p> <p>An unlined drainage bund is in place to capture runoff from pens 1 to 12. Pens are slightly sloping towards the controlled drainage to capture runoff and directed towards the retention basin.</p> <p>Pens 1 to 6 slope toward the long narrow end of the pond and drain directly at this end to Retention Basin and a drain starts roughly from pen 7 to 12 that drains into the wide end of the pond.</p>	<p>Pens are cleaned and scraped of solids every 2-3 months dictated by weather conditions.</p> <p>Regular pen inspections by the operator.</p> <p>Effluent cleaning and removal from the pens.</p> <p>Rotation of cattle between pens.</p> <p>Effluent flushed to a controlled drainage which directs wastewater towards the retention basin.</p>	<p>All pens, drains, WSA, basins and compost facilities must be underlain by a liner able to satisfactorily mitigate the risk of groundwater contamination</p> <p>Lining materials may include suitable soil materials or synthetic liners capable of meeting the standards set out in applicable guidelines, codes and reference materials</p> <p>Diversion banks/drains placed immediately upslope of feedlot complex and this drainage diverts to clean stormwater management facility</p> <p>Catch drains from the feedlot complex are conveyed to holding ponds.</p> <p>Winter dominated sites use covered pens to reduce contamination to stormwater.</p> <p>Downslope of feedlot complex be between 2.5-4% to avoid erosion.</p> <p>No vegetation allowed in main drain.</p> <p>Flow rates of drains designed to carry peak flow rate in and ARI of 20 years and be non-scouring.</p>	2
Waste Storage Area (WSA).	In-situ soils.	Waste from the pens is dried in the WSA.		2
Retention Basin	<p>Retention basin is about 240m long pond. It is wider at the north-eastern side with approximate 30 metres wide and narrow and skinny at the south-western side with an approximate 14 metres width.</p> <p>In-situ clay soils. No evidence provided of a constructed liner. .</p> <p>Single permeability test result of 4×10^{-9} m/s provided</p>	<p>Seepage and overflows are addressed by previously sealing the Retention Basin.</p> <p>Wastewater from the retention basin is irrigated and / or evaporated.</p>	<p>Sedimentation systems are installed to reduce the rapid siltation and loading of organic material to holding ponds.</p> <p>Sedimentation systems designed:</p> <ul style="list-style-type: none"> to cater for a peak flow from a 1 in 20-year ARI storm event; maximum flow velocity within the sedimentation basin is 0.005m/s; flow from sedimentation basin regulated by a control weir; minimum freeboard 0.9m, and clay liners with a permeability of 1×10^{-9} m/s. <p>Holding ponds have sufficient capacity to:</p>	1

Site infrastructure / Control	Description	Operation details (Controls from licence holder)	¹ Guideline requirements/performance measures	³ Priority rank
			<ul style="list-style-type: none"> • spill no more frequently than an average of 1 in 10 years for irrigation ponds; • spill no more frequently than an average of 1 in 20 years for evaporative ponds. • holding pond have a weir and spillway capable of discharging peak flow from a 50-year ARI design storm. • a minimum freeboard of 0.9m provide between the crest of the discharge weir and the crest of the embankment. • clay liners with a permeability of 1×10^{-9} m/s. <p>Irrigation from the basin does not occur in wet season periods.</p> <p>Irrigation from basin is irrigated at a rate meeting plant uptake requirements.</p>	
Composting pad and perimeter bund	Clay and gravel. Two permeability test results of 5×10^{-11} m/s provided.	Composting area is clay and gravel and banded to prevent runoff. Historically manure from pens and sludge was dried at the WSA and then transported to composting area for composting.	<p>Compost requirements are:</p> <p>Maintain C:N ratios between 15:1 and 25:1</p> <p>Compost maintains 5% oxygen (through force, mechanical mixing, machine turned windrows.)</p> <p>Maintain moisture levels to maintain microbiological activity.</p> <p>Manage core compost temperatures to below 60°C and monitor compost moisture levels to manage temperature.</p> <p>Avoid excessive large piles</p> <p>Compost pad drains to a controlled drainage facility.</p> <p>Compost pad and drainage facilities lined with a permeability of 1×10^{-9} m/s.</p>	2

¹Guideline means the National Guidelines and Code of Practice for Beef Cattle Feedlots in Australia, 2012

²AS/NZS 5667.1-1998 means Australian Standard AS/NZS 5667.1-1998 Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples

AS/NZS 5667.6-1998 means Australian Standard AS/NZS 5667.6-1998 Water Quality – Sampling – Guidance on sampling on rivers and streams.

AS/NZS 5667.10-1998 means Australian Standard AS/NZS 5667.10-1998 Water Quality – Sampling – Guidance on sampling wastewaters.

³ DWER priority requirements to meet industry standards.

Note: **Bold highlights** indicate controls not met or unsubstantiated to industry standards.

9. Planning approvals

The premises received planning approval for Lot 2254 on 27 January 2005 from the Shire of Augusta-Margaret River for the existing cattle feedlot which had already been in operation for 19 years at the time. The approval does not specify the number of animals approved to be held, and recommended adherence to the EP Act.

10. Receptors and environmental siting

Tables 3, 4 and 5 below provide a summary of potential human and environmental receptors that may be impacted by activities from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

10.1 Sensitive environmental receptors

Specified ecosystems are areas of high conservation value and special significance that may be impacted because of activities or emissions and discharges from the premises. The distances to specified ecosystems are outlined in Table 3. Table 3 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

Table 3: Sensitive receptors and specified ecosystems

Environmental receptors	Distance from the Premises
Threatened/Priority Fauna	Endangered species and conservation dependant fauna site 1-1.7km west
Parks and Wildlife Managed Lands and Waters	Blackwood State Forest located approximately 15 metres immediately south of the feedlot pens North East Margaret River State Forest adjacent to most south west corner of Premises boundary
Headwaters for Caribunup River	Within premises boundary. Located approximately 90 m from the composting area. The Caribunup River is an important nursery for the Western pygmy perch and home to a large population of Carter's freshwater mussel (currently listed as vulnerable on the 2014 IUCN Redlist of threatened species)
Non-perennial watercourse (Caribunup River Tributary)	Within premises boundary approximately 30m at the closest point from feedlot pen and 50m from retention basin
<i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) proclaimed Geographe Bay Rivers Surface Water Area	The premises is located within the Caribunup subarea of the proclaimed Geographe Bay Rivers Surface Water Catchment Area.
RIWI Act Proclaimed Groundwater Area - Busselton-Capel Groundwater Area	The premises is located within the proclaimed Busselton-Capel groundwater area.
Public drinking water source area (PDWSA) Priority 1 and Priority 3 (Margaret River Catchment Area)	Priority 1: 2.5 km x from southern premises boundary Priority 3: 2.7 km from southern boundary of the premises

10.2 Residential premises

Table 4: Residential premises - distance from activity

Sensitive Land Uses	Distance from Prescribed Activity
Residential Premises	<p>From Composting activity</p> <ul style="list-style-type: none"> • ~590 meters west on Jindong-Treeton Road • ~665 meters west on Jindong-Treeton Road • ~930 meters south on Jindong-Treeton Road <p>From Cattle feedlot operation</p> <ul style="list-style-type: none"> • ~1200 meters west on Jindong-Treeton Road • ~1230 meters west on Jindong-Treeton Road • ~1600 meters south on Jindong-Treeton Road

10.3 Groundwater and water sources

Table 5: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Carbunup River	~200 metres from irrigation field of Semini Feedlot ~90 metres from the compost facility.	Geographe Bay Rivers Surface Water Area
Groundwater	Lies within Busselton-Capel Groundwater Area.	<i>Proclaimed under the 'Rights in Water and Irrigation Act 1914', in which there are three resources:</i> <ul style="list-style-type: none"> • Cowaramup, Perth-Blackwood Surficial aquifer; • Cowaramup, Perth – Leederville aquifer, and the • Cowaramup – Vasse, Perth – Sue Coals Measure aquifer.
Surface water	Falls within the catchment of the Carbunup River that forms part of the Geographe Bay Rivers Surface Water Areas	<i>Proclaimed under the 'Rights in Water and Irrigation Act 1914'</i>
Surface water users	~480m north from the premises boundary	Carbunup Surface Water Area

Key finding: The delegated officer notes there are significant water resources within and around the feedlot area, i.e. Carbunup River that forms part of the Geographe Bay Rivers Surface Water Areas.

10.4 Soil type

DPIRDs Natural Resource Information GIS system was used to assess soil type for the premises. Two soil types were found within the premises.

Compost receiving paddock 20 and the irrigation paddock 19 all lie within the Treeton Hillslopes Phases (214ThTrh). This is described as land with slopes that have gradients generally ranging from 2-15% and gravelly duplex (Forest Grove) and pale grey mottled (mundlte) soils. The licence holder provided bore log details from DWER reference bores. These bores all cluster around the southern tip of the premises (compost facility) where bores CL1A1 / CL1A2 (northern point of the compost area) and CW07A/CW07B (southern point of the compost facility) are 78 metres apart and indicate that clay and laterite compositions vary

over a short distance. Details of soil profile from 0 to 3 meters within the bore logs were generic and not detailed. The soil was of clay origin however the details of laterite within the clay and the top organic layer were not well described.

The compost receiving paddock 18 and the entire feedlot infrastructure (including pens, drainage, WSA and retention basins) all lie within the Treeton-Wet Valley Phase (214ThTrvw). This is a broad U-shaped drainage depression with swampy floors. The soils in these areas are subject to winter flooding and are wet in the winter season. No soil information has been provided for the Treeton Wet Valley Phases where the feedlot and retention basin occur. This soil type would consist of a sandy/silty organic topsoil with both laterite, clay, and silt underneath.

Davidson (1994) has calculated hydraulic conductivity rates (ability of liquid to move through soil) for soil types in Western Australia. There is distinct infiltration barrier with clay soils. The clayey soil layer would have an infiltration ability of up to 0.4 metres per day (at the greatest) and laterite layers up to 50 metres per day. The upper clay layer would become a confining layer and result in low permeability and direct any nutrients via surface water and leaching through the top organic soil layer. Hence, any irrigation on this soil type when the soil is saturated (wet season) or applied above the hydraulic conductivity of the soil would result in wastewater leaching towards the surface water environments due to gravitational drainage and surface runoff.

Soil test pits would need to be dug to understand the soil profile including the composition and thickness of the organic top layer, layering of clay and laterite, indication of any seasonal perched groundwater and understanding of permeability of the soil.

Key findings:

1. The delegated officer notes there is a clay hydraulic gradient on soils beneath the paddocks on which wastewater is irrigated and manure is spread. There is an increased risk of leaching or surface runoff of nutrients into the Carburnup River environment from irrigation of nutrient rich wastewater at the premises, due to the natural gradient and gravity of the site on wet soils of low permeability.
2. The feedlot infrastructure is located within a drainage depression where soils are wet in winter and surface water flooding is likely.

10.5 Meteorology

10.5.1 Regional climatic aspects

The premises is located 19 km from the Margaret River townsite and lies within the Margaret River climate zone in the south-west of Western Australia. The region experiences warm to hot summers and mild to cold winters. The average annual rainfall in the region is approximately 1,130mm and most of it falls between May and September.

10.5.2 Rainfall and temperature

The following Figure 1: Temperature and rainfall for Margaret River region displays average weather conditions experienced in the region.

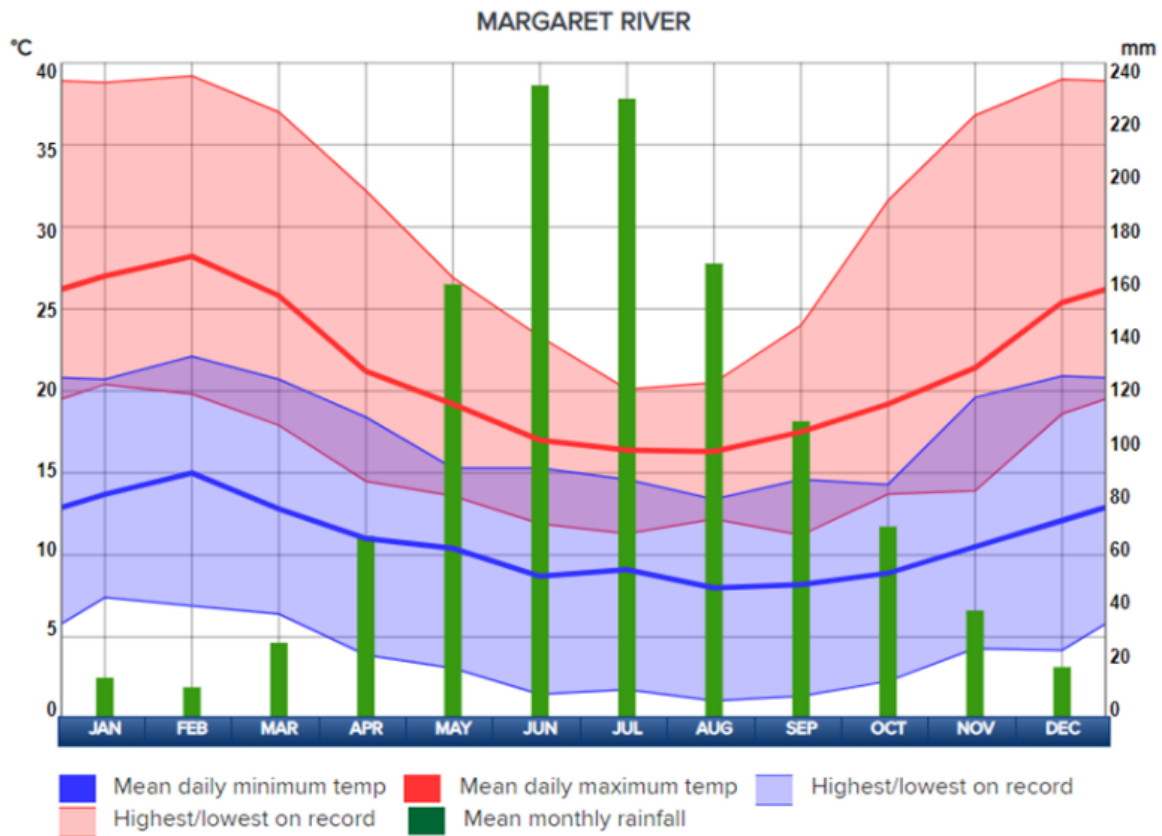


Figure 1: Temperature and rainfall for Margaret River region

Source: *weatherzone.com.au*, accessed 23 October 2018

11. Monitoring data

11.1 Method of sampling

Recent annual environmental reports submitted by the licence holder outline the water sample collection procedure, for the monitoring data requiring sampling under the existing licence (existing licence conditions 3.2 and 3.3). It is stated that water samples are “gathered and compiled to create a single sample for analysis for total phosphorus, potassium, and total nitrogen”. This indicates that all samples taken over a year for these three parameters are mixed with other samples taken from other time periods to produce one combined sample for chemical analysis for each parameter, with samples potentially being stored within a refrigerator between 1 and 6 months before being combined with other samples and submitted to a laboratory for analysis. This sampling procedure is not in accordance with Australian Standard AS/NZS 5667.1, and therefore the reliability of the sampling results provided to date is unclear.

All wastewater samples have been analysed by Vintessential Laboratories, which holds current NATA accreditation for the water quality parameters tested. It is noted the limit of detection for analysis of phosphorus at this laboratory is 0.1 mg/L (see Table 8), which is not sufficient to analyse total phosphorus to appropriate detection levels for stream water quality. If water quality data is compared to ANZECC guidelines, where 0.065 mg/L is the exceedance limit, then sampling needs to be conducted with equipment one order of magnitude lower, i.e., 0.01 mg/L. Otherwise the data sampled for total phosphorus will be assessed at the detection minimum value and will be assessed as exceeding ANZECC guidelines.

11.2 Monitoring of wastewater discharges (irrigation)

The licence holder does not have a nutrient irrigation management plan (NIMP), therefore it is unclear whether the licence holder considers aspects such as water balance and nutrient loading rates in managing wastewater on the premises. Based on the information available, it appears the nutrient irrigation regime at the premises is not scheduled in accordance with weather conditions and is conducted during winter when rainfall is highest in the region.

Through annual reports submitted to DWER, it was observed that on average 3,534 kilolitres (average from the last 7 years, Table 6) of wastewater is irrigated onto 11.6ha of land during June to November, which is the wettest period of the year and typically when rainfall exceeds evaporation. The licence holder reports irrigating 5.7 to 12 hours a day over 9 to 17 days per year during the wettest time of the year, at an irrigation level that exceeds the plants' requirements for nutrients and water for growth. Based on available information, it appears that wastewater is managed to avoid overtopping of water levels within the retention basin.

Table 6 indicates wastewater discharged to the nutrient irrigation area from the retention basin. The following information was extracted from the AERs.

Table 6: Wastewater Irrigation pump run time and volume (licence holder supplied)

Year	Months	days	Total pump run hours	Total volume at 25,755 litres per pumping hour
2009 (2010)	July - September	9 days	52 hours	~ 1339.3kL
2011	July – September	10 days	66.5 hours	~ 1712.7kL
2012	July – September	9 days	60.5 hours	~ 1558.2kL
2013	June - September	17 days	145 hours	~ 3734.5kL
2014	June - September	16 days	133 hours	~ 3425.4kL
2016	June - October	16 days	124 hours	~ 3193.6kL
2017	June - September	14 days	121.5 hours	~ 3129.2kL
2018	June - November	16 days	147.5 hours	~ 3798.9kL
2019	June - October	16 days	147.5 hours	~ 3798.9kL
2020	July - October	14 days	142 hours	~ 3657.2kL

Table 7 outlines the wastewater quality results extracted from AER from the retention basin between 2010 and 2020. Loads have been calculated on the total volumes calculated in Table 6 with the irrigated land size of 11.6ha.

Table 7: Retention Basin water quality and loads for irrigation⁴

Years	Date sampled	BOD mg/L /day	TN mg/L	TN kg / ha / yr	TDS mg/L	TDS Kg / ha / yr	TP mg/L	TP kg / ha / yr	TSS mg/L	TSS kg / ha / yr	Annual Irrigated Wastewater volume kL
Industry standards ¹	Mean		220		4915		71				
⁵ ANZECC		<15	25-125 ^{5a}		<3		0.8-12 ^{5a}		<40		
Risk Category C ²		30	19	300			3.1	50			
2010	2010	147	7.2	³ 0.83	2.8	0.321	26	2.98	126	14.44	1339.3kL
2011	2011	700	160	22.93	1200	171.98	30.38	4.35	400	57.33	1712.7kL
2012	2012	900	53	6.91	3700	482.43	52.787	6.88	130	16.95	1558.2kL
2013	2013	62	31	9.69	1500	468.75	36*	11.25	120	37.5	3734.5kL
2014	2014	NA	NA		NA		NA		NA		3425.4kL
2015	2015	249	70		3900		63		630		
2016	2016	72	4*	11.22	1300	347.41	36	9.62	150	40.09	3193.6kL
2017	25/05/2017	358	18	4.71	5900	1544.93	38	9.95	360	94.26	3129.2kL
	3/11/2017	9	170	44.52	2900	759.38	70	18.33	960	251.38	
2017	Average	183.5	94	24.61	4400	1152.16	54	14.14	660	172.82	
2018	9/1/2019	13	43	13.7	1100	749.7	20	6.4	40	12.7	3798.9kL
2019	16/10/2019	80	21	6.67	1400	349.7	30	9.54	310	98.5	3798.9kL
2020a	25/11/2020	132	95	29.95	1500	472.9	31	9.8	300	94.6	3657.2kL
2020b	25/11/2020	148	140	144.1	2000	630.6	45	14.2	500	157.6	

¹ Meat & Livestock Australia, Cattle Beef Feedlots: Waste Management and Utilisation, 2nd edition, mean level of effluent quality in feedlot holding pond.

² WQPN 22 (DoW 2008) 22 Risk Category C criteria to control eutrophication risk, as stated in current Licence, exceedances are marked as red.

³ Nutrient load calculated as follows $7.2 \times 0.000001 / .001 \times 1330 \text{ kL} / 11.6 \text{ ha} = 16.85 \text{ kg/ha/yr}$

⁴ Water quality data was provided by the licence holder. Data was analysed by Vintessential Laboratories, a NATA registered laboratory for the water quality parameters sampled. The samples were taken by the licence holder and were not sampled in accordance with Australian Standards AS/NZS 5667.1. Grab samples were taken and mixed with other grab samples taken from different time periods and refrigerated for 1 to 6 months.

⁵ For irrigation and general water use ANZECC and ARMCANZ 2000 guidelines are nominated for use for water quality protection and to maintain productivity of agriculture land.

^{5a} ANZECC 2000, requires site specific assessment to determine actual value.

The existing licence requires monitoring of wastewater from the retention basin once per year and stipulates nutrient load limits onto land based on WQPN 22, which outlines loads to reduce eutrophication risk based on soil type and location. Table 7 compares the wastewater sample results to the eutrophication criteria. The soil type for the irrigated area is Treeton Hillslopes Phase, consisting of a duplex with a gravelly upper substrate over a mottled clay. The upper soil layer is the key soil where vegetation root mass exists and where the irrigated water is applied. Clayey soils have reduced permeability in nature and the site is located within 200 metres of surface water. Therefore, the risk of nutrient leaching in the topsoil and runoff is high. It is noted that the existing licence requires the licence holder to harvest the irrigated crop to remove nutrients from the soil. Thus, an unknown amount of nutrients is exported from the irrigation area each year. A NIMP that includes a water balance is required to inform an understanding of the nutrient import and exports and determine loading limits and

hydraulic loading that are specific to the site.

The nutrient loading calculations provided in Table 7 for phosphorus and nitrogen do not exceed existing licence limits. However, the delegated officer notes the existing licence limits, which are based on Risk Category C (WQPN#22) that only consider irrigation outside of winter periods (to protect waterbodies from nutrient leaching and runoff). Therefore, there is concern the existing limits were applied outside of the context of the intent of WQPN#22.

Data provided by the licence holder indicates highly variable results for nitrogen, phosphorus, BOD, TSS and TDS concentrations in the wastewater stream. The 2019 samples were taken in summer when water levels would be low and therefore not representative or comparable to previous years' results. The inconsistent yearly sampling of the retention basin and analysing composite samples reduces the effectiveness of comparing years and depicting trends.

Key findings

The delegated officer has reviewed retention basin monitoring data from the premises and concluded that:

1. *Wastewater sampling is not being conducted in accordance with Australian Standard AS/NZS 5667.1, therefore the reliability of data provided by the licence holder is unclear.*
2. *Wastewater is flood irrigated from the retention basin in wet winter months on an irrigation schedule (5.7-12 hours a day), which increases the risk of sheet and subsurface flows towards the Carburnup River tributary.*
3. *A detailed nutrient and irrigation management plan (NIMP) is required to demonstrate how wastewater management practices at the premises are acceptable and sustainable, including management of wastewater during the wetter months and how all nutrient inputs and exports have been accounted for.*
4. *Current irrigation practices are not consistent with current best management practices that are prescribed within the Carburnup River Action Plan and Vasse-Wonnerup Geographe Bay Water Quality Improvement Plan objectives for water quality improvement in the Carburnup River.*

11.3 Monitoring of surface water

The existing licence requires surface water monitoring of the Carburnup River tributary when seasonally flowing. Sampling is carried out by the licence holder at both upstream and downstream locations of the feedlot infrastructure (Table 8). The comparison of surface water monitoring data over 18 sampling events indicates that downstream water quality is consistently higher in nitrogen, phosphorus and suspended solids. It is noted the analytical procedure used by the laboratory engaged by the licence holder may not be capable of analysing phosphorus to the relevant level of detection for the upstream sites.

Higher concentration values are recorded for TN, TP and TSS in the samples over a nine-year period. High concentration of TSS is particularly concerning because it potentially contains materials such as silt, decaying plant and animal matter which can be harmful to ecosystem health, water quality and aquatic life. No microbial sampling has been undertaken (such as *E. coli*).

The retention basin and compost facility may have been constructed in accordance with industry standards based on limited samples provided (i.e., hydraulic conductivity greater than 1×10^{-9} m/s), including the untested feedlots that are likely to have been constructed with the same clay materials (unverified). It is considered likely that irrigation practices and/or overtopping of the retention basin have contributed to increases in downstream nutrient levels. It is noted that soil testing by the licence holder indicates the phosphorus buffering index is 170 on the irrigation paddock, which has moderate phosphorus retention ability. However, irrigating in winter on wet clay soil significantly increases the risk of leaching nutrients and

overland runoff, as phosphorus will have mobilised before it gets a chance to bind to the soil. The increase in downstream water quality results indicate that winter irrigation may be contributing to eutrophication of the Carburnup River.

Table 8 displays upstream and downstream water monitoring results between 2010 - 2020.

Table 8: Up and downstream surface water monitoring results (licence holder supplied)

Surface water monitoring								
Years	Up stream	Down stream	Up stream	Down stream	Up stream	Down stream	Up stream	Down stream
	TN (mg/L)		TDS (mg/L)		TP (mg/L)		TSS (mg/L)	
Jun-10	6.5	4.28	150	295	<0.05	<0.05	<1	32
Jun-10	2.22	3.07	285	275	<0.05	<0.05	1	6
Aug-11	0.58	1.3	240	250	<0.10	0.14	<1	2
Jul-11	0.25	1.4	260	320	<0.05	0.09	2	7
Jun-12	3.3	5	300	320	0.24	0.64	<1	7
Jul-12	0.17	0.56	240	270	<0.10	<0.10	<1	8
Jun-15	0.44	0.49	460	300	<0.1	0.15	<0.1	4
Jul-15	0.12	0.74	160	180	0.18	0.23	2	6
May-16	6.2	7.2	350	390	<0.10	0.27	4	9
Jun-16	1.1	1.5	250	310	<0.10	<0.10	4	8
May-17	0.26	2.4	180	240	<0.10	0.12	2	8
Jun-17	1.1	2.5	210	290	<0.10	<0.10	7	9
Jun-18	1.2	0.95	240	240	<0.10	<0.10	5	14
Jul-18	1.6	1.6	200	200	0.15	0.15	7	7
Jun-19	1.4	2.2	240	320	<0.10	0.21	3	8
Jul-19	2.2	3.1	210	240	<0.10	0.7	3	8
Jun-20	1.1	3.2	290	300	<0.11	0.54	3	31
Jun-20	0.84	2.2	200	220	<0.10	0.64	6	37
Average	1.7	2.4	248	276	0.03	0.22	2.7	11.7
¹ANZECC Guidelines	1.2				0.065			

¹National Water Quality Management Strategy – Paper No. 4 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 1, October 2000, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC Guidelines) - Freshwater trigger value for slightly – moderately disturbed ecosystems

Note: Red indicates levels above the ANZECC guidelines. Noted that the lab testing phosphorus may not be equipped to analyse total phosphorus to appropriate detection levels. If water quality data is compared to ANZECC guidelines, then detection levels need to be analysed down to a minimum of 0.01mg/L.

The premises is located within the headwaters of the Carburnup River, which flows into Geographe Bay. Within the vicinity of the feedlot and surrounding areas, several perennial and non-perennial streams exist which also feed into the Carburnup River. The river is one of three major waterways that are classified as protection waterways within the Vasse Wonnerup Wetlands and Geographe Bay, Water Quality Improvement Plan (Geographe WQIP) (DoW 2010). DWER's objective for Carburnup River is to maintain or improve water quality. The Geographe Bay water quality plan identified surface water quality as a key management issue in the Geographe catchment. The delegated officer notes a key recommendation is for

improvements to effluent management at dairy sheds and feedlots at the source.

Key findings

The delegated officer has reviewed the surface water monitoring data (Table 8) from the premises and concluded that:

1. *Surface water monitoring results within the Carburnup River tributary indicate that nutrient levels significantly increase downstream of the feedlot facility and irrigation area.*
2. *The licence holder must ensure it engages a NATA accredited laboratory that is capable of analysing phosphorus at detection levels that allow comparison with ANZECC guidelines.*
3. *There is a likelihood that nutrients may leach from irrigation practices and or retention basin seepage or overflow.*

11.4 Monitoring of groundwater

There are no groundwater monitoring bores on the premises to determine the fate of nutrients and their transport from feedlot activities.

DWER's regional hydrogeologist advises there are difficulties in distinguishing between the surficial (Warnbro) and shallow Leederville resource in this subarea, and that much of the surficial licensed abstraction may be from the shallow Leederville aquifer. This is substantiated by other hydrogeological studies of the area that suggest the Leederville is unconfined and that the two resources, surficial and Leederville should be combined.

Furthermore, the clayey layers described in Section 10.4 are discrete layers and not continuous, therefore allowing contaminants to leach into aquifers.

12. Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and considers potential source-pathway and receptor linkages as identified in Tables 4,5 and 6.

Where the applicant has proposed mitigation measures/controls (Table 3), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's 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 9.

Revised Licence L9137/2018/1 that accompanies this decision report authorises emissions associated with the operation of the premises i.e., from the prescribed feedlotting activities. The conditions in the revised licence, as outlined in Table 9 have been determined in accordance with *Guideline: Setting Conditions* (DWER 2020).

Table 9: Risk assessment of potential emissions and discharges from the premises during operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk rating ¹	Existing licence controls sufficient?	Regulatory controls imposed	Justification for additional regulatory controls
Sources/ Activities	Potential emissions	Potential receptors, pathway, and impact	Licence holder controls						
<p>Emissions from containment failure, run-off, leaks, and spills</p> <ul style="list-style-type: none"> • Feedlot pens • Holding pen /drafting yard • Waste storage area (WSA) • Retention basin • Controlled wastewater drainage 	<p>Wastewater and effluent Run-off from feedlot pens, holding pen /drafting yard, WSA, composting, solid waste application to land and irrigation areas</p>	<p>Uncontrolled discharge causing soil contamination, and mobilisation of contaminants through surface water runoff impacting the health of Carunup River (and its tributary). Impacting on associated flora and fauna and wetland ecosystems downstream through increase in nutrient load on the Carunup River</p> <p>Contamination of surface to 0 – 0.5 mbgl seasonal perched groundwater water following seepage through topsoils of contaminated leachate and runoff creating amenity and health impacts to users</p>	<p>Feedlot pens effluent flushed to a controlled drainage which directs wastewater towards the retention basin.</p> <p>Regular pen inspections by the operator.</p> <p>Seepage and overflows are addressed by previously sealing the Retention Basin.</p> <p>A compacted clay layer for the retention basin</p>	<p>Mid-level onsite impacts</p> <p>Low-level off-site impacts</p> <p>Moderate</p>	<p>Will probably occur in most circumstances</p> <p>Likely</p>	<p>High</p> <p>Maybe acceptable, subject to multiple regulatory controls</p>	<p>No</p>	<p>Condition 1</p> <p>Condition 2</p> <p>Condition 3</p> <p>Condition 4</p> <p>Condition 9</p> <p>Condition 10</p>	<p>The delegated officer considers the existing feedlot is located and sited within a high-risk environment (high rainfall area, lack of separation to sensitive environmental receptors, etc.), that requires a commensurate level of design and infrastructure controls and performance measures to minimise the potential for impacts to public health and the environment.</p> <p>To ensure the protection of water resources the National Guidelines (MLA 2012a) require, as a minimum, a controlled drainage area comprised of diversion banks or drains, effluent catch drains, a sedimentation system and a holding pond, that are all designed with sufficient storage capacities. Additionally, all key feedlot infrastructure, including feedlot pens and controlled drainage infrastructure and manure storage area(s), should be underlain by a minimum of 300 mm clay or by a synthetic liner able to provide a design permeability of 1x10⁻⁹ m/s.</p> <p>Based on available information, it appears that key feedlot infrastructure is either not in place or is insufficient when compared to the minimum requirements set out in the National Guidelines (MLA 2012a).</p> <p>Due to the lack of design information and identified deficiencies with key infrastructure and operational aspects, and given the location within a high-risk environment, there is a high risk of on- and off-site impacts from ongoing operation of the feedlot. The delegated officer has therefore determined to require the licence holder to conduct an audit of the existing feedlot against the minimum requirements set out in the National Guidelines (MLA 2012a) and performance measures set out in the National Code of Practice (MLA 2012b). The outcomes of the audit will then be reviewed by the delegated officer, to determine the level and type of improvements required to key feedlot infrastructure and operational aspects, to ensure an acceptable level of risk can be maintained from ongoing operations.</p> <p>In the interim whilst the licence holder conducts the audit, the delegated officer has identified several controls that will be imposed in the revised licence to address immediate concerns, including:</p> <ul style="list-style-type: none"> • A restriction of cattle being held in feedlotting to the assessed design capacity of 2,000 head (1,740 SCUs), to distinguish between cattle being held outside of the feedlot pens on the premises (this aspect has not been risk assessed - DPIRD advise the sustainable stocking rates for normal grazing practices for Cowaramup is 1.4 SCU/ha on unimproved pasture. The licence holder has not provided any information to verify that pasture improvement programs have occurred on the premises to enable a higher stocking rate outside the feedlot pens); • It appears the retention pond lacks sufficient storage capacity to ensure that it spills no more frequently than an average of one in 10 years. The delegated officer has therefore imposed a requirement for the licence holder to engage a certified professional surveyor/engineer to determine the accurate design specifications of the retention basin; • Based on information provided by the licence holder in September 2021 the yard appears to discharge into a soak on the floodplain. No evidence was provided to demonstrate that the receiving soak (basin) is capable of retaining nutrient laden runoff in accordance with the minimum requirements set out in the National Guidelines (MLA 2012a). Controls have been added to require the removal of manure from feedlot yards following each rotation, to prevent manure and sediment being discharged from the yard. The controls are intended to mitigate the risk of nutrients entering the soak; • To immediately address the risk of impacts from overflow from the spillway into receiving environments, the delegated officer has imposed a requirement to maintain a 300 mm freeboard from the base of the spillway in the revised licence. Annual desludging of the retention basin and reporting of the volume of sludge removed will be include within the licence. The licence holder has stated that the basin is cleaned out every 1 to 2 years. This licence holder's control will be added to the licence and reporting required to assist with demonstrating compliance. • The scraping of manure will be revised from every 20-weeks to after each rotation or every 13 weeks, consistent with the National Guidelines (MLA 2012a), whichever comes first. Drying of manure and sludge will be allowed to occur on

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk rating ¹	Existing licence controls sufficient?	Regulatory controls imposed	Justification for additional regulatory controls
Sources/ Activities	Potential emissions	Potential receptors, pathway, and impact	Licence holder controls						
									<p>the WSA given the composting facility will no longer be used, noting that discharge to land of raw manure/sludge has not been subject to risk assessment or authorised through the revised licence;</p> <ul style="list-style-type: none"> Controls have been added to require ongoing maintenance of irrigation pump and water delivery pipes, to prevent the discharge of high nutrient effluent wastewater entering the surface waters of the Caribunup River; A requirement to install a flow meter to record accurate volumes of wastewater discharged onto the irrigation paddock, to ensure accuracy of irrigation volumes, to calculate contaminant loading rates, and to facilitate determination of compliance with nutrient loading rate limits.
	Odour and fugitive dust	Air and wind dispersal to rural residents' receptors located within 1.5 kilometres from the premises boundary creating a public amenity / nuisance	Stocking density 9.93 m ² /SCU (1,740 SCU) Pens are scraped of manure every 20 weeks Sufficient separation distance in place to nearby human receptors	Minimal impacts to amenity on local scale Slight	Will probably not occur in most circumstances Unlikely	Low Acceptable, generally not subject to controls	N/A	No conditions	<p>Due to the nature of intensive animal keeping, there is an inherent risk of odour and dust causing impacts to off-site receptors. An appropriate separation distance needs to be in place to minimise the potential for odour impacts.</p> <p>The delegated officer considers the s-factor formula, as outlined in the National Guidelines (MLA 2012a), to be an appropriate method for determining the minimum separation distances to sensitive receptors. The delegated officer has determined the minimum separation distance to be about 990 m. The nearest receptor is located 1.2 km away, indicating there is adequate separation in place at the current design capacity.</p> <p>The delegated officer therefore considers there to be an acceptable level of risk in terms of odour and dust impacts to nearby receptors, providing that odour generating activities, such as management of manure and effluent, are conducted in accordance with the National Code of Practice (MLA 2012b).</p>
Emissions from containment failure and leaks from burial pit	Leachate from decaying carcasses	Contamination of groundwater with nutrients	Burial pits are located on a hill in deep clay soils with sufficient separation to groundwater and surface water	Minimal impacts to amenity on local scale Slight	Will probably not occur in most circumstances Unlikely	Low Acceptable, generally not subject to controls	Yes	Condition 1	The delegated officer has considered that existing licence controls are sufficient for managing the risk of groundwater and surface water impacts from the burial pit.
	Odour	Air and wind dispersal to rural residents' receptors located within 1.5 kilometres from the premises boundary creating a public amenity / nuisance	Burial pits are to be covered by earth within 1 hour of carcass disposal. Sufficient separation in place to nearby human receptors	Minimal impacts to amenity on local scale Slight	Will probably not occur in most circumstances Unlikely	Low Acceptable, generally not subject to controls	Yes	Condition 1	The delegated officer has considered that existing licence controls are sufficient for managing the risk of odour impacts from the burial pit.
Emissions from containment failure, leaks, and spills • Compost application area • Compost operations • WSA	Runoff from WSA, composting area and compost application areas.	Uncontrolled discharge causing soil contamination, and mobilisation of contaminants through surface water runoff impacting the amenity and health in Caribunup River (and tributary). Impacting on associated flora and fauna and wetland ecosystems downstream through increase in nutrient load on the Caribunup River.	WSA constructed with in-situ soils. Composting pad constructed from clay and gravel. Bund around perimeter (unknown depth). Compost evenly spread at a rate of 17.27m ³ /hectare per year. Compost not spread within 100m of watercourse.	Mid-level onsite impacts Low-level off-site impacts Moderate	Will probably occur in most circumstances Likely	High Maybe acceptable, subject to multiple regulatory controls	No	Condition 1 Condition 2 Condition 6 Condition 10	<p>To ensure the protection of water resources the National Guidelines (MLA 2012a) require, as a minimum, manure storage and composting areas to be located within a controlled drainage area comprised of diversion banks or drains, effluent catch drains, a sedimentation system and a holding pond, that are all designed with sufficient storage capacities, and the pad(s) underlain by a minimum of 300 mm clay or a synthetic liner able to provide a design permeability of 1x10⁻⁹ m/s.</p> <p>The existing composting area does not comply with the minimum requirements of the National Guidelines (MLA 2012a), as it does not comprise an impermeable barrier and is being operated without an appropriate drainage system in place. The delegated officer considers there is a high risk of on- and off-site impacts from ongoing composting operations in this manner, and therefore has imposed a condition on the revised licence to prohibit the ongoing use of the composting area.</p> <p>The licence holder advised in September 2021 that it proposes to cease composting organic feedlot waste on the premises and instead manure and sludge will be dried at the WSA prior to application to land, sale or removal from the premises.</p> <p>The delegated officer considers the application of dried manure/sludge to land as having a different risk profile to spreading properly composted material. In the absence of a suitable waste management plan, that demonstrates how the waste can be managed in a sustainable manner, this activity has not been assessed or authorised on the revised licence. The licence holder should note the discharge of raw animal waste to land on a prescribed premises not in accordance with a licence may constitute an</p>

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk rating ¹	Existing licence controls sufficient?	Regulatory controls imposed	Justification for additional regulatory controls
Sources/ Activities	Potential emissions	Potential receptors, pathway, and impact	Licence holder controls						
									<p>offence.</p> <p>The existing WSA comprises a retention basin, however it appears to lack sufficient storage capacity to ensure that it spills no more frequently than an average of one in 10 years. The delegated officer has therefore imposed a requirement for the licence holder to engage a certified professional surveyor/engineer to determine the accurate design specifications of the retention basin.</p>
<p>Wastewater irrigation</p> <p>Pipes, pumps, and sprinkler</p>	<p>Runoff from nutrient rich wastewater and contamination of soil</p>	<p>Uncontrolled discharge causing soil contamination, and mobilisation of contaminants through surface water runoff impacting the amenity and health in Carbunup River. Impacting on associated flora and fauna and wetland ecosystems downstream through increase in nutrient load on the Carbunup River. Soil erosion from excessive irrigation volumes.</p>	<p>No irrigation generated runoff, spray drift or discharge occurs beyond the boundary of the irrigation area.</p> <p>Wastewater is evenly spread over the irrigation area using sprinklers.</p> <p>No soil erosion occurs.</p> <p>Vegetation cover is maintained over the irrigation area.</p> <p>The irrigation area is mechanically harvested of vegetation, at least once per annual period.</p> <p>Irrigation does not occur on land that is already waterlogged.</p>	<p>Mid-level onsite impacts</p> <p>Low-level off-site impacts</p> <p>Moderate</p>	<p>Will probably occur in most circumstances</p> <p>Likely</p>	<p>High</p> <p>Maybe acceptable, subject to multiple regulatory controls</p>	<p>No</p>	<p><u>Condition 1</u></p> <p><u>Condition 5</u></p> <p><u>Condition 6</u></p> <p><u>Condition 7</u></p> <p><u>Condition 8</u></p> <p>Condition 9</p> <p><u>Condition 9</u></p> <p>Condition 10</p> <p><u>Condition 10</u></p> <p>Condition 11</p> <p><u>Condition 16</u></p> <p><u>Condition 16</u></p>	<p>The National Guidelines (MLA 2012a) require the land application of feedlot wastes to be made at rates consistent with the ability of soils and crops to sustainably utilise the applied nutrients, salts and organic matter, under the climatic conditions prevailing at the site. Feedlot wastes must not be applied to areas when it will cause pollution of surface water, e.g. land directly abutting a watercourse or when a significant storm event is imminent. The rate of effluent application must also be controlled to ensure that runoff does not occur.</p> <p>The feedlot is located in a high-risk sensitive environment, being directly upgradient of a key tributary of the Carbunup River. Based on available information, current wastewater management and irrigation practices do not comply with the minimum requirements of the National Guidelines (MLA 2012a), given that wastewater is irrigated onto paddocks adjacent to the watercourse, and wastewater is irrigated on an ad hoc basis primarily to ensure the retention pond does not overtop. Wastewater is also irrigated year-round due to the lack of sufficient winter storage capacity in the retention pond. The delegated officer considers there is a high risk of on- and off-site impacts from ongoing irrigation of wastewater in this manner, and therefore has imposed a condition on the revised licence to require the preparation and submission of a detailed nutrient irrigation management plan.</p> <p>It is noted the licence holder currently estimates the volumes of wastewater irrigated, due to the lack of an appropriate flow meter. Given the high-risk environment, the delegated officer considers it critical that accurate and reliable information is being obtained for the determination of nutrient loading rates and to demonstrate compliance with licence limits. As such, the requirement to install an appropriate volumetric flow meter on the outflow pipe from the retention basin has been imposed on the revised licence.</p> <p>It is also noted that surface water and wastewater sampling is not being conducted in accordance with relevant Australian Standards. Given the high-risk environment, and that recent water quality data indicates the feedlot may be contributing to increasing trends of contaminant levels within the river, the delegated officer considers it critical that accurate and reliable information is being obtained. The delegated officer also considers the licence holder has been unable to demonstrate capability of conducting sampling in accordance with Australian Standards, and therefore has imposed the requirement that sampling at the premises must be conducted a suitably qualified environmental professional.</p>

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

Note 2: Current licence controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department in the licence review.

Conditions 12, 13, 14, 15 and 16 are standard reporting and administrative controls.

13. Decision

The delegated officer has reviewed the existing licence and has determined that significant changes are required to ensure that ongoing operations at the premises do not pose an unacceptable risk of impacts to public health and the environment. This determination is based on the following:

- the feedlot being located and sited within a high-risk environment (high rainfall area, lack of separation to sensitive environmental receptors, etc.), that requires a commensurate level of design and infrastructure controls and performance measures to minimise the potential for impacts to public health and the environment;
- a review of existing infrastructure indicates key feedlot infrastructure is not in place or is insufficient when compared to the minimum requirements set out in the National Guidelines (MLA 2012a);
- a review of existing operational controls indicates wastewater from the retention pond has historically overtopped, is being managed in a reactionary manner that reflects insufficient storage capabilities on the premises;
- a review of existing irrigation practices indicates that wastewater is being irrigated at rates that are not consistent with the ability of the soils and crops to sustainably utilise the applied nutrients, salts and organic matter, under the climatic conditions prevailing at the site;
- a review of available water quality monitoring data and records for the Carburnup River tributary indicates that feedlot operations are likely to be contributing to increasing nutrient concentrations that may lead to a decrease in river health; and
- a review of the licence holder's procedures for sampling wastewaters indicates that samples are not being collected, handled or preserved in accordance with relevant Australian Standards.

To address the above issues, the delegated officer has determined to require preparation of the following through the revised licence:

- an audit of the feedlot infrastructure and operational controls against the minimum requirements set out in the National Guidelines (MLA 2012a). It is expected this audit will identify all shortcomings with existing infrastructure and operations and the necessary improvements that will be required to ensure the feedlot can operate in a manner that does not pose an unacceptable risk of impacts to public health and the environment; and
- a detailed nutrient and irrigation management plan. It is expected the NIMP will be prepared in accordance with the WQPN#33 and will demonstrate how inputs such as water and nutrients are well matched to the plant growth cycle to ensure irrigation of feedlot effluent can be conducted with minimal environmental impact.

The delegated officer will review the outcomes of the above reports and determine the best implementation strategy in consultation with the licence holder.

In the interim, to minimise the risk of known and likely impacts to environmental receptors, the delegated officer has determined to impose the following controls on the revised licence:

- restriction of feedlotting outside of the feedlot pens;
- operational infrastructure and equipment licence holder and regulatory controls including: time period for holding cattle; freeboard on retention basin; annual desludging of retention basin; 13 week cattle rotation and cleaning of manure from feedlot pens; maintenance of irrigation equipment; cleaning of manure from the holding pen/drafting yard and preventing discharge of manure and sediment, and no storage of organic waste material within the compost pad;
- installation of volumetric flow meter for accurate and reliable measurement of wastewater volumes discharged to land (irrigation); and
- new surface and wastewater monitoring requirements, including sites and sampling

methods.

The delegated officer is satisfied the above controls, once implemented, will lower the overall risk profile of the premises, and ensure the feedlot can operate in a manner that does not pose an unacceptable risk of impacts to public health and the environment.

14. Consultation

The licence holder was provided with the draft decision report and draft amended licence on 11 December 2020 for comment. The department considered the licence holder's submission and additional information provided. DWER significantly revised the draft licence and decision report based on the comments provided and therefore provided drafts to the licence holder for a further 21-day comment period on 19 August 2021 and received a response to the second draft on 15 September 2021

The licence holder's comments are summarised, along with DWER's responses, in Appendix 2.

15. Conclusion

This assessment of the risks of activities on the premises has been undertaken with due consideration of several factors, including the documents and policies specified in this decision report (summarised in Appendix 1).

Based on this assessment, it has been determined that the revised licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Caron Goodbourn

Manager Process Industries

Delegated Officer

under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	AER Semini Enterprises Pty Ltd Annual Environmental and Audit Compliance Report AER 2018-2019	AER 2018-2019	
2.	AER Semini Enterprises Pty Ltd Annual Environmental and Audit Compliance Report AER 2017-2018	AER 2017-2018	
3.	Carbunup River Action Plan, 2000 Geocatch		https://library.dbca.wa.gov.au/static/Ful/TextFiles/019881.pdf
4.	Cattle Standards and Guidelines – Beef Feedlots, Discussion paper, 2013, Cattle Standards and Guidelines Writing Group.	Cattle Standards and Guidelines	http://www.animalwelfarestandards.net.au/files/2011/02/Beef-Cattle-Feedlots-discussion-paper-1.3.13.pdf
5.	Coterra Environmental. 2021, Information report to DWER - Cattle Feedlot Treeton, Perth	Coterra 2021	
6.	Coterra Environmental. September 2021, Information report to DWER - Cattle Feedlot Treeton, Perth	Coterra 2021b	
7.	DWER, 2020. <i>Guideline: Regulatory principles</i> . Department of Water and Environmental, Perth.		accessed at www.dwer.wa.gov.au
8.	DWER, June 2019. <i>Guideline: Decision Making</i> . Department of Water and Environmental Regulation, Perth.		
9.	DWER, 2020. <i>Guideline: Environmental Setting</i> . Department of Water and Environmental Regulation, Perth		
10.	Department of Primary Industries and Regional Development (DPRID) Natural Resource Information GIS system		http://maps.agric.wa.gov.au/nrm-info/
11.	Existing licence - L9137/2018/1, Semini Enterprises Pty Ltd	Existing licence	
12.	Environment Protection Authority, of Victoria, Publication 1588.1, Designing, constructing and operating composting facilities, June 2017		https://www.epa.vic.gov.au/~media/Publications/ATTMX3PQ.pdf
13.	Livestock manual production rates and nutrient content, 2002 North Carolina		http://www.agrienvarchive.ca/bioenergy/download/barker_ncsu_manure_02.p

	Agricultural Chemicals Manual, College of Agriculture and Life Sciences, North Carolina State University		df
14.	National Beef Cattle Feedlot Environmental Code of Practice, 2 nd Edition, 2012, Meat and Livestock Australia Limited	Code of Practice 2012	https://www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?W36biAMZ3le2QHPGlv7Vs+r1vNXZeM Nhx7YmrS/BtbngRFGgAITyQ4yY1Zy1IPGB3EYMKKAfsht7d1Tnt3BqiA==
15.	National Guidelines for Beef Cattle Feedlots in Australia, 3 rd Edition 2012, Meat and Livestock Australia Limited	National Guidelines 2012	https://www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?QcyElgTQngTm70Ea6OZR/MDZg3dm+mO3vWCcz9tYt1wX46/4IEqi/3wVtYwQ+_L1k3EYMKKAfsht7d1Tnt3BqiA==
16.	National Water Quality Management Strategy, Department of Agriculture and Water Resources 2018		http://www.agriculture.gov.au/water/quality/
17.	National Water Quality Management Strategy – Paper No. 4 – Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Volume 1, October 2000, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC Guidelines) - Freshwater trigger value for slightly – moderately disturbed ecosystems	ANZECC Guidelines 2000	https://www.waterquality.gov.au/anz-guidelines/resources/previous-guidelines/anzecc-armcanz-2000
18.	Semini 2004, Semini Enterprises Pty Ltd Beef Cattle Feedlot – Approval Submission, Shire of Augusta Margaret River, Treeton.	Semini 2004	
19.	Vasse - Wonnerup Wetland and Geopraphe Bay Water Quality Improvement Plan 2010, DoW	WQIP	http://www.water.wa.gov.au/water-topics/waterways/managing-our-waterways2/water-quality-improvement-plans-wqips
20.	Water Quality Protection Note 22: Irrigation with nutrient enriched wastewater DoW, 2008	WOPN 22	https://www.water.wa.gov.au/_data/assets/pdf_file/0013/4045/82324.pdf
21.	Water Quality Protection Note 33: Nutrient Irrigation Management Plans DoW, 2010	WQPN 33	https://www.water.wa.gov.au/_data/assets/pdf_file/0019/4078/93694.pdf

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Table 10- 21 Day package review 18 February 2021 and 30 June 2021

	Condition	Summary of Licence Holder comment	DWER response
	Comments on Proposed Licence conditions submitted on 18 February 2021		
1	Front page	Uncertain if Schedule 1 defines the premise or depicts the premises.	DWER notes this and will provide addition wording to clarify "As defined in Schedule 1 of Figure 1, Premises map."
2	Front page -Assessed production/design capacity.	1,740 SCU to be removed and has not been detailed in decision report.	Decision report section 3.2 provides details, 2,000 animals is equivalent to 1,740SCU as defined in the National Code of Practice for Beef Feedlots in Australia, 2012, based on live weight of 500kg. Front page will be updated to include both animals and SCU for clarity
3	Front page - Assessed production/design capacity.	SCU not defined on licence	DWER notes this and will add the SCU definition into the licence. The definition is contained within the decision report.
4	Condition 1	Condition 1 is numbered 2	DWER notes this and will update.
5	Condition 1 Table row 1 clay lined feedlot pens	The pens are created by compacting in-situ soils and by adding a 300mm clay liner. What is the expectation about the pen maintenance?	Pen liner maintained i.e., 300mm compacted clay layer maintained and replaced as required.
6	Condition 1 Table row 1 pens scrapped of manure after each rotation	Decision report does not detail any unacceptable environmental impact with cleaning pens every 20 weeks.	Table 11 outlines grounds for 13-week rotations. Where the National Guidelines outline the minimum requirement for scraping of manure is 13 weeks. The National Guidelines are a standard set by the beef cattle industry. Any deviations from the Industry Standards should be justified as to why by the licence holder.
7	Condition 1 Table row 1, Map 2, Schedule 1	Map 2, Schedule 1 has not been provided.	Map 2 was not provided as the draft decision report was requesting the licence holder to provide an updated layout map.
8	Condition 1 Table row 1, (e)	2, 000 animals are not equivalent to 1,750 SCU and terms may be confusing	DWER will change all references to 1,750 SCU based on 500kg per head (licence holders supplied finishing weight).
9	Condition 1 Table row 1, (f)	The licence is seeking to control a non-prescribed activity of normal farming practices.	Section 5 of the decision report outlines exclusions to the premises including normal farming stocking rates. Table 11 provides further grounds to prevent stock being held in feedlotting conditions outside the feedlot facility.

	Condition	Summary of Licence Holder comment	DWER response
10	Condition 1 Table row 2, WSA	WSA is not listed in the definitions of the proposed licence.	WSA is included in the definitions section, it is the last definition entry.
11	Condition 1 Table 1 Row 3	The licence holder is not aware of the infrastructure feature labelled "main drain".	DWER notes this and will provide a definition within the licence. Main drain is part of the controlled drainage area that receives drainage from the feedlot pens and WSA and conveys runoff to the retention basin.
12	Condition 1 Table 1 row 4 (c)	Licence holder maintains 300mm freeboard and the decision report does not identify maintaining 300mm freeboard is an unacceptable risk.	Section Table 11 provides grounds for 900mm freeboard, which is an Industry Standard in high rainfall areas. If the licence holder defaults from the Industry Standards, then this needs to be justified. Furthermore, the licence holder appears to be excessively pumping (up to 12 hours a day) in winter to control freeboard levels within the retention basin. Excessive irrigation in winter rainfall areas does not meet with Industry Standards. Hence, the current management of a 300mm freeboard does not comply with Industry standards.
13	Condition 1 Table 1 Row 5 (a) and (b)	Licence holder does not consider that operational requirements (a) and (b) are required.	DWER will add justification for the maintenance of the irrigation pump and pipes to the decision report. The condition will remain as a control to prevent the discharge of high nutrient effluent wastewater entering the groundwater or surface waters of the Carburnup River.
14	Condition 1 Table 1 row 6 flow metre (D2)	Current method of determining flow rates have been viable since 2004. The decision report does not detail why the current metering system is unacceptable.	Table 11 provide grounds for a flow meter. Flow meters provide accurate verifiable readings compared to the current pump rate method.
15	Condition 1 Table 1 row 7 (e) healthy	Define healthy so the licence holder understands how to comply.	DWER notes this and will define the word healthy in the licence.
16	Condition1, Table 1 row 7 (h)	The term 'rainfall event greater than 1mm a day' is subjective rather than objective. Licence holder would consider 2mm a day to match evaporation that occurs more suitable.	DWER notes this and will change the rainfall from 1 to 2mm.
17	Condition 1 Table 1 row 7 (i)	The decision report does not establish that nutrient application rates exceed licence conditions nor nutrient requirements for agriculture activities occurring on irrigation area. Remove the condition.	The licence holder has not demonstrated through a NIMP that includes nutrient and water balance to demonstrate that nutrients applied meet growth requirements of the crop on the irrigated area. Section 11.2 within the decision report indicates that nutrient application rates are applied at rates exceeding the growth requirements of crop growth (e.g. 12 hours of pumping in a day). The licence holder is required to demonstrate nutrient and water balance that accounts for crop nutrient uptake rates to justify the removal of the condition.
18	Condition 1 Table 1 row 9 'Groundwater monitoring	The decision report has not established that environmental impacts on groundwater occurs, removal	Groundwater monitoring and bores have been removed from the licence. Sections 10.4 and 11.4 outline soil and groundwater assessments and

	Condition	Summary of Licence Holder comment	DWER response
	bores'	of requirement for groundwater monitoring bores.	Section 15 outlines possible groundwater monitoring requirements in the future.
19	Condition 1 Table 1 row 9 'Condition 5'	The reference in Condition 5 appears incorrect	Condition has been removed.
20	Condition 1 Table 1 row 10 'Map 4'	Map 4 has not been provided.	Map 4 was not provided as the draft decision report was requesting the licence holder to provide an updated layout map.
21	Condition 1 Table 1 row 10 'in-situ clay compost pad/basin'	Map 4 has not been provided therefore the items of infrastructure cannot be commented upon.	Map 4 was not provided as the draft decision report was requesting the licence holder to provide an updated layout map. The department has no details of the compost facility infrastructure and its layout.
22	Condition 1 Table 1 row 10 'no food, waste material outside premises'	Remove condition excluding material for composting not sourced from the premises and add category 67A to the licence. The decision report does not detail unacceptable impacts are likely to occur from accepting listed material on to the site. This is not consistent with DWERs regulatory framework or provision of EP Act.	Section 3.4 and Table 11 outlines composting activity assessment and grounds for the decision. Should the licence holder wish to add a new Category 67A, then the licence holder will need to apply for a works approval or licence amendment.
23	Condition 1 Table 1 row 11 (a) 'spreading of compost to paddocks 18 and 20.'	The reason for this condition is not clear in the decision report. The condition is unclear in that it may prohibit the application of compost, fertilisers and agricultural chemical to land and further definition is needed on this condition.	DWER agrees to clarify the condition. To read: <i>'Composted material may be spread to the designated solid waste disposal areas (Paddock 18 and 20)'</i> . As outlined in the licence holders AER/AACR, paddocks 18 and 20 are reported to have been used for compost spreading. Paddocks 18 and 20 are the only paddocks that can meet 100m separation from a waterway See condition 6 for solids spreading within the premises. No prohibition on the application of agriculture fertilisers/chemicals are implied.
24	Condition 2 Table 2 row 2 'BOD5 <30kg/ha/day'	Remove requirement for loading limit for BOD to irrigated wastewater. BOD is limited for odour control and the premises has not received an odour complaint since 2004.	DWER agrees to remove the BOD limit. WQPN 22 irrigated lands near sensitive waters recommends BOD sampling to monitor irrigated land to ensure plant and soil is not degraded.
25	Condition 3 'Surveyor to undertake site works'.	Decision report has not detailed the reasons why or how engaging a surveyor will reduce environmental risk.	Table 11 provides the grounds for using a surveyor. The licence holder may suggest an alternative qualified professional that has the expertise to accurately undertake the assessment.
26	Condition 3 'Certified Surveyor Professional'	There is no definition of a certified surveyor professional.	Agreed, DWER will provide a definition of the certified surveyor professional within the licence.

	Condition	Summary of Licence Holder comment	DWER response
27	Condition 3 'total volume capacity'	The term total volume capacity is erroneous and should be total volume.	Agreed, term will be changed to total volume.
28	Condition 4, 'flow meter to be installed'.	Current method of determining flow rates have been viable since 2004. The decision report does not detail why the current metering system is unacceptable.	Table 11 provide grounds for a flow meter that is based on DERs <i>Guidance Statement: Setting conditions (2015)</i> . Flow meters provide accurate and verifiable readings compared to the current calculated pump hour method.
29	Condition 5 "certified engineering professional'.	There is no definition of a certified engineering professional.	DWER will provide a definition of the certified engineering professional within the licence.
30	Condition 5, 'design standards'	The design standards are not specified in the licence.	Disagree, Condition 4 (was previously condition 5) states that the design standards are National Guidelines for Beef Feedlots in Australia (2012). Appendix A provides design for controlled drainage systems, Appendix B separation distances, Appendix C clay lining pens, pads and drainage systems, Appendix D manure and carcass composting, and Appendix E effluent and manure utilisation.,
31	Condition 5, (c) 'retention basin and spillway'.	The National Guidelines do not specify a structural integrity standard for a retention pond. The decision report does not identify unacceptable risk to the environment that requires this action.	Table 11 provides grounds for the condition. Section 8, Table 4 of the decision report provides details of controls to meet National Guidelines and design standards.
32	Condition 5 (d) 'details of volumes of the feedlot retention basin'	The decision report page 15 paragraph 2 states the retention basin capacity, condition is unnecessary.	Table 11 provides grounds for the condition. Sections 3.5 and 11.2 provide additional supporting evidence.
33	Condition 5 (e) 'details of spillway and pathway'.	The licence holder considers the condition unreasonable and will provide the requested information.	DWER notes that the requested details of the spillway will be provided. Table 11 provides grounds for the condition. Until information is provided to DWER Condition 4 (e) (previously Condition 5) requirements will remain.
34	Condition 5	<p>Licence holder considers there is conflicting point of view between DWERs regulatory framework and the National Guidelines, that need clarifying. The licence holder would consider an action plan rather than regulatory provision of the EP Act. The licence holder does not have drawings, construction records completed with progressive construction from 2000.</p> <p>The licence holder recognises that it does not meet the national guidelines but has groundwater and surface water protection measures in place. Condition 5 should</p>	<p>The licence holder did not provide details of the points of conflict, nor the 'surface and groundwater protection measures in place.'</p> <p>DWER agrees that an action plan is beneficial however the regulatory provision under the EP Act will remain.</p> <p>Sections 11.3, 11.4 and Table 11 provide grounds for surface and groundwater controls. Although no groundwater monitoring will occur at this time.</p> <p>The licence holder has not provided the 'surface and groundwater protection measures in place'</p>

	Condition	Summary of Licence Holder comment	DWER response
		be removed.	
35	Condition 6 'development of a water balance and NIMP'.	The licence holder provided details of nutrient irrigation amounts of nitrogen and phosphorus, evaporation rates and irrigation volumes. Irrigating 10 hours a day for one day a week from June to September. The licence holder provided harvesting rates for silage crops. The licence holder considered that this information demonstrated that nutrient application rates applied to the irrigation area was not significant and the condition should be removed.	Disagrees that Condition 5 (previously Condition 6) be removed. Sections 11.2 and Table 11 provide grounds for requiring a water balance and NIMP.
36	Conditions 7, 8, 9 and 10 'groundwater'	The decision report has not established evidence that groundwater impact is occurring. Monitoring near the premises have not been assessed to establish impact on groundwater users. DWER groundwater bores and private bore data has not been assessed in the decision report.	DWER notes this information. Groundwater bores and monitoring have been removed from the licence.
37	Conditions 15, Table 5 row 1, 'monthly sample frequency'	The licence holder considers it appropriate to monitor wastewater discharge to the irrigation system during those months that irrigation occurs.	DWER notes this and will revise monthly to 'monthly when irrigation occurs'.
38	Condition 15 Table 5 row 3 'BOD'	A typographical error should be BOD ₅ . As per section 2.2.2 BOD should be removed.	DWER notes this and will update. As per Item 24, DWER will remove the need for a limit for BOD but monitoring BOD remains.
39	Condition 15 Table 5 row 6 'potassium'	Decision report has not justified the basis for potassium sampling.	Table 11 provides grounds for requiring potassium sampling.
40	Condition 15 Table 5 row 8 ' <i>E. coli</i> '.	Licence holder does not consider the measurement of <i>E. coli</i> in wastewater that originates from cattle feedlots valuable information.	Table 11 provides grounds for <i>E. coli</i> sampling.
41	Condition 15 Table 5 row 9 'D2 meter'.	The parameters units of measurement, sample frequency and sampling methods are not detailed correctly.	DWER will make the necessary changes for the purposes of clarity.
42	Condition 16 'groundwater monitoring'	The licence holder considers that groundwater impacts on users has not been identified and the request to monitor bores unreasonable.	Groundwater monitoring has been removed from the licence.

	Condition	Summary of Licence Holder comment	DWER response
43	Condition 17 "surface water monitoring.	The licence holder considers the surface water sampling unreasonable and a financial cost to the business.	Table 11 provides grounds for the additional sampling frequency and parameters and sections 11.3 provides assessment of surface water data. DWER can reduce sampling frequency and cost by reducing sampling frequency to the following, "samples taken on the first week of flow, and once a month in July, September, and monthly their after, till flow ceases.
44	Condition 18 'complaint system'	The licence holder considers that it unreasonable to maintain a complaint system as they have not received any complaints since 2005.	This is a standard condition that is placed on most licences. DWER disagrees that this condition is unreasonable. If no complaints are received, then maintaining a register is simple, as there will be no complaints to record. A simple one liner in the Annual Environmental Report stating that no complaints have been received will suffice within the AACR / AER.
45	Condition 18 and 20	The condition refers to works approval holder.	DWER notes this and will remove the words 'works approval holder'.
46	Condition 23 Table 8 'number references'	Correct and note typographical errors.	DWER notes this and will update condition.
47	Condition 23 Table 8 row 2 'burial of animals'	The request to detail deceased animal numbers buried on site is unnecessary.	The number of animals buried each year provides information on solid waste disposal within the premises. It provides monitoring details to determine the capacity of the burial area, and the yearly inputs of nutrients that may contaminate groundwater resources. Condition retained.
48	Condition 23 Table 8 row 5 'cropping activity'	The request to detail cropping and nutrient exported in crops is unnecessary.	This is needed to understand nutrient imports and exports and to determine loading limits that are specific to the site. Refer to Table 11 and Section 11.2.
49	Condition 24 "comply with departmental request'.	The condition re-writes powers given to an inspector by the provisions of the EP Act. The licence holder does not consider that it is appropriate to re-write provisions of the EP Act in a licence condition.	DWER notes the information and will remove the condition.
50	Definitions	The terms books, discharge, emission, environmental harm, pollution, and prescribed premises are defined in the licence and do not need to be within the licence as they are defined within the EP Act.	Agreed- The terms pollution and environmental harm will be removed from the licence. The remainder are referenced in the licence and will remain.
Other considerations			
51	Adding Category 67A	The licence holder considers that compost activities have been risk assessed and category 67A should be added to the licence.	The compost activities have only been assessed for the composting of feedlot manure and pond sludge. This activity was risk assessed as high with the consequence for surface and groundwater contamination through overflow and leaching as major and the likelihood of occurring as likely. The compost facility has not been risk assessed for the acceptance and composting of waste derived off-site. If the licence holder would like to

	Condition	Summary of Licence Holder comment	DWER response
			expand the composting activity by accepting other off-site generated wastes and having Category 67A added to the licence, then the licence holder will need to apply for a works approval to have this new prescribed Category added to the licence. The composting facility will require infrastructure upgrades which would be assessed as part of the works approval application.
52	Proposed alterations to operation	The licence holder is constructing permanent shade over 2 feedlot pens to improve feedlot environmental performance through reducing the volume of water handled through the retention pond.	DWER notes the information, but it is unclear how installing 'permanent shade' over 2 pens will reduce the volume of water handled through the retention pond
Additional Information supplied by licence holder on 30 June 2021			
1.2	Background information on the feedlot	That the feedlot operates year-round except for the wettest months of June, July, August, and September. Cattle are destocked from March to June.	DWER notes this information and will include this licence holder derived control as a regulatory control in the revised licence.
2.1.1	Decision report section 4.2 Information of the material added to the feedlot pens is provided	Saw dust and fine mulch are added to the feedlot pens on new consignments of cattle. This provides a soft floor, assist in keeping the animals clean, reduces slippage and assists with cleaning of the pens.	DWER notes this information
2.1.2	Decision report section 4.3 Information on the retention pond being cleaned out.	The retention pond was cleaned out in February 2021	DWER notes this information and will include it within the decision report. It is noted that the volume of material cleaned out was not provided.
2.1.3	Decision report section 4.4 Application of manure to land	Compost or manure collected from the pens is dried on the composting pad and applied to land by a muck spreader.	DWER notes this information and will include it within the decision report
2.1.4	Decision report section 4.5 Retention pond details	Retention pond was constructed in 2004. Its design and built details were provided to Shire of Augusta Margaret River and or DoE. The licence holder is unable to locate a copy of this information.	DWER notes this information. The department located a copy of this submission. The details of the construction of the retention pond were vague.

	Condition	Summary of Licence Holder comment	DWER response
2.1.5	Decision report section 4.5 Update map of the facility	An updated layout map of the cattle feedlot depicting the feedlot and associated infrastructure is provided. Drawings showing cross sectional dimensions of the drains and retention pond do not exist.	DWER notes this information. The map will be included within the decision report and licence. The licence holder has not been able to demonstrate that the drains and retention basin are designed or sized to industry standards.
2.1.6	Decision report section 4.5 Update map of the composting facility	An updated map of the composting facility is provided. The composting area does not have drains or leachate basin.	DWER notes this information. The map will be included within the decision report and licence. The licence holder has not been able to demonstrate that the composting facility meets industry standards.
2.2.1	Soil test results	On 12 May 2021 soils tests were taken from the irrigation area, feedlot, retention pond and compost area. These results have been provided. Failing head permeability tests were taken but not provided due to unreliable results.	DWER notes the soil test and permeability information and will update the decision report. The location of the feedlot soil sample was not provided, nor was the permeability test. The high permeability of the compost and retention basin indicates that groundwater monitoring will not be required as surface runoff is the controlling factor for nutrient management. In addition, permeability of the irrigation area was not provided. If low permeability occurs surface water runoff will be a controlling factor for nutrient management.
2.2.2	Drill bore logs	Five bore logs were provided from DWER groundwater reference sites (CL1A1, CL1A2, CL1W, CW07A and CW07B). The bore logs demonstrate that from 0 to 9 metres a clay layer lies beneath the site that forms a barrier and protects the groundwater from feedlotting activities.	DWER notes this information. The bores all cluster around the southern tip of the premises where CL1A1 / CL1A2 and CW07A/CW07B are 78 metres apart and indicate that the soil type varies over a short distance. This soil type is the Treeton Hillslopes. Details of soil profile from 0 to 3 meters within the bore logs were generic and not detailed. Representative samples of both soil type located within the premises have not been demonstrated. No soil information has been provided for the Treeton Valleys where the feedlot and retention basin occur.
2.2.3	Irrigation pump and irrigator	The spray irrigator used us a model called 'Super Duper' is now sold as the Greenback Spider irrigator. The irrigation pump supplies water at 40 psi and distributes 25,755 L/hr of wastewater. A picture of the pump control panel and engine to drive the pump were provided. An update site procedure for using the pump to record the hours of operation and sampling water discharge to the irrigation area and a training record was provided.	DWER notes this information but will still require the installation of a flow meter that can provide accurate and verifiable discharge readings.
2.2.4	Site improvements	Clean stormwater from the rooves of the shade shelters in the feedlot pens have clean stormwater diverted away from the pens to a unknown location. Diversion berms along the outer edge of the feedlot pens	DWER notes this information. Proposed improvements noted, however the licence holder has not provided details regarding the 'clean stormwater basin', its location, sizing etc nor how the clean stormwater from the diversion berms will be conveyed to the basin.

	Condition	Summary of Licence Holder comment	DWER response
		<p>have been created.</p> <p>The licence holder intends to construct shade structures over two pens and the stormwater to be diverted from the roof to a clean stormwater basin.</p>	
3	Proposed alterations	The licence holder indicated that it would prefer to use capital resources to improve the feedlot operations and surface water protection than undertake more monitoring.	DWER supports this position to the extent that should the licence holder consider fully covering (roofing) the feedlot pens, which would be the ultimate water protection measure at this site, then the department could consider removing some of the regulatory controls and reducing monitoring requirements.

Table 11- 21 Day package review September 2021

	Condition	Summary of Licence Holder comment	DWER response
Comments on Proposed Licence conditions submitted on 15 September 2021			
1	Licence first page	<p>Reference to 1,740 SCU based on a live weight of 500 kg should be removed from the assessed production capacity.</p> <p>The reason for including 1,740 SCU to the assessed production capacity and the basis upon which the 1,740 SCU has been derived are not detailed in the decision report. The term 1,740 SCU based on a live weight of 500 kg is confusing as a SCU relates to an animal.</p>	<p>SCU is the industry standard for describing stock numbers. The National Guidelines and Code of Practice 2012 provide scaling factors based on the weight of the animals to determine SCU. A scaling factor of 0.87 for 500 kg animals was applied to determine the number of SCU. 1,740 SCU was removed from the front page of the licence.</p>
2	Licence, Condition 1, Row 1(a), 3(b), 4(d), 5(f)	Remove the requirement to maintain/replace a 300mm clay layer for the feedlot pens, WSA, Main drain and retention basin. The infrastructure has been constructed with in-situ clay therefore does not have a 300 mm liner to maintain and it is unclear when replacement would be required.	DWER has noted that the infrastructure has been constructed from in-situ materials and therefore the controls relating to liners could not be complied with will remove the relevant controls.
3	Licence, Condition 1, Row 1(d),	Reinstate the existing licence pen cleaning frequency requirement of once every 20 weeks as there have been no adverse impacts associated with the current cleaning regime which has been in place for about 20 years	DWER notes that odour is not a significant risk factor at this site, therefore the original condition (20 weeks) has been reinstated.

	Condition	Summary of Licence Holder comment	DWER response
		The requirement to scrape pens of all manure after every cattle rotation or every 13 weeks is based on the National Guidelines which are not intended as a compulsory standards to be strictly adhered to There is high variation in manure removal frequency between feedlots, and this should be considered. The licence holder has received no complaints regarding the current 20-week cleaning rotation.	
4	Licence, Condition 1, Row 5(e),	The licence holder considers that the requirement to not hold cattle from 1 June to 30 September is restrictive and should be removed as the premises is not completely destocked during this period. The decision report did not detail any adverse environmental impacts associated with holding cattle in the feedlot pens during this period.	The specification for destocking was based on information provided by the licence holder and was applied as a control as it reduced the risk of nutrient runoff during the higher rainfall winter period. DWER will remove the cattle restriction based on the licence holder's advice that some animals will remain on the premises in the winter months
5	Licence, Condition Table1, Row 1 (f)	Condition for feedlotting not to occur outside the feedlot pens be removed. DWER has not considered the licence holders pasture improvements and believes the condition to be unfair.	The licence holder has not provided any details of their pasture improvement on the premises to enable a higher stocking rate. DPIRD has advised DWER that normal grazing practices for Cowaramup is 1.4 SCU/ha on unimproved pasture. The condition remains to ensure that cattle are not feedlotted outside of the risk assessed feedlot facility. Should the licence holder wish to operate a feedlot outside of the designated feedlot pens then a licence amendment application should be applied for to enable DWER to risk assess and authorise the activity.
6	Licence Condition 1 Table 1 Row 5 (c)	Remove the requirement for a 900 mm freeboard for the retention basin and maintain the existing licence 300mm freeboard which has been in place for the last 20 years without issue. The 900 mm requirement is from the National Guidelines 2012 which are not compulsory.	The freeboard has been revised to 300 mm freeboard measured from the spillway which is the lowest part of the bank from which discharge can occur. As the existing retention basin capacity is unknown it is unknown if a 900 mm freeboard is achievable. A 900mm freeboard is an Industry Standard for high rainfall areas and would be expected to be implemented for any new or upgraded retention pond.
7	Licence, Condition 1, Row 5(f),	Condition for the clay layer of at least 300mm and a permeability of at least 10^{-9} m/s should be deleted or changed to allow the licence holder to understand what actions they need to comply with, as it stands it is a design criterion and not an operational condition. .	DWER will update the Revised Licence to reflect that the pens comprise of in-situ clay. However, it is expected that testing of the in-situ materials are conducted as part of the audit, to demonstrate compliance with the minimum requirements set out in the National Guidelines (MLA 2012a).
8	Licence, Condition 1,	Remove conditions a and c, the conditions do not provide any criteria or specifications.	The conditions provide operational controls for the operation of the retention basin. DWER will reword the condition so requirements are clear.

	Condition	Summary of Licence Holder comment	DWER response
	Row 5(a and c),		
9	Licence, Condition 1, Row 5(b),	The licence holder uses the capacity and operating hours of the irrigation water pump to calculate wastewater volume discharged to the irrigation area and considers the requirement to replace this method by installing and operating a flow meter should be removed. The decision report does not detail why the flow meter would achieve a better outcome than the current hourly pump calculation method.	A volumetric flow meter is considered to provide greater accuracy and reliability of measuring the volume of wastewater discharged to the irrigation area. Accurate measurement of discharge volumes is necessary to verify volumes discharged, calculate contaminate loads and to facilitate determination of compliance with nutrient load limits.
10	Licence, Condition 1, Row 7(a),	A flow meter would measure kL rather than m ³ /day. Change units to kL or m ³ as appropriate.	DWER will update all flow measurements to kL..
11	Licence, Condition 1, Row 9 (c),	The licensee buries an average of 20 animals per year and believes that the need to report dead animals is unnecessary.	DWERs risk-based condition setting is based on the proportional level of risk (likelihood and consequence) that the buried animals pose to public health and the environment. The reporting of the number of dead animals per year that maybe around 20 per year will assist in the long-term management of the burial pit area to ensure its continued suitability at its current location.
12	Licence, Condition 1, Row 10	The licensee will no longer use the compost facility and will cease the activity. Manure from the pens will be dried on the WSA and applied to the land and excess manure will be sold or moved off site.	<p>DWER will update the decision report and licence to reflect that the compost facility will no longer be used, composting will no longer be undertaken on the premises, and manure will be dried at the WSA.</p> <p>The licence holder's attention is drawn to licence Condition 6 Emissions and discharges which only provides authorisation for discharge of irrigated wastewater and compost on the premises. Dried manure and pond sludge is not considered equivalent to compost as it has not undergone the necessary processes to achieve pasteurisation and reduce phytotoxic compounds therefore presents a potential risk to the environment and public health.</p> <p>Application to land of dried manure and pond sludge has not been risk assessed or authorised through the licence review. Given the feedlot is located in high-risk environment (floodplain, sensitive receiving environment of the Carunup River classified as a protection waterway within the Geographe WQIP (DoW 2010), high rainfall) it is necessary to assess the risk of this activity to determine if it is acceptable before providing authorisation.</p> <p>If the licence holder wishes to seek authorisation for application of dried manure and pond sludge to land on the premises they should submit a licence amendment application with a suitable Waste Management Plan for</p>

	Condition	Summary of Licence Holder comment	DWER response
			<p>the activity which details waste management practices together with the characteristics of the proposed application area which demonstrate its suitability for utilising the organic matter, nutrients and salts in the applied solid waste.</p> <p>Given DWER's concerns regarding the suitability of leachate controls at the compost facility detailed in this decision report a condition has been included preventing the use of the compost pad for organic waste storage and has removed three additional surface water sampling locations SW3, SW4 and SW5 which were intended to monitor for impact associated with use of the compost facility.</p>
13	Condition 2	The condition specifying works to be undertaken at the compost facility requires updating to reflect the ceasing of compost operations.	<p>DWER will update the decision report to reflect that the compost facility will no longer be used. The works conditions relating to drainage controls for the compost facility will be removed. As per the above item, given DWER's concerns regarding the suitability of leachate controls at the compost facility, and the associated risk of nutrient enriched runoff from the facility impacting on surface water receptors, and a condition will be included specifying that the facility is not to be used for waste storage.</p> <p>If the licence holder wishes to seek authorisation to use the compost facility for waste storage or composting in the future they should submit an application to the department supported details of proposed upgrades to suitably manage composting activities and leachate from the facility.</p>
14	Condition 3	The decision report has not detailed the reasons why a surveyor will improve the site's environmental performance or reduce environmental risk. The licensee advised that the retention pond has a capacity of 8,862 m ³ . The condition should be modified to reflect other means particularly DPIRDs assistance.	<p>The decision report will be updated to provide justification for the need for a Certified Surveying Professional to provide surveyed design details of the retention basin and controlled drainage areas.</p> <p>DWERs risk-based condition setting is based on the proportional level of risk (likelihood and consequence) that contaminated wastewater management poses to public health and the environment. The department considers it is necessary for a Certified Surveying Professional to confirm the as constructed details of drainage infrastructure to ensure accurate and verifiable information is provided so that the adequacy of the infrastructure can be determined. DWER has been advised by DPIRD that they can assist in undertaking pond size calculation based on controlled drainage area size and location. This will not provide confirmation of the as built infrastructure characteristics. The requirement is therefore retained.</p>
15	Condition 4	The condition requires an engineer to complete the audit to determine compliance with the National Guideline	DWER will broaden the qualified professional to include environmental and

	Condition	Summary of Licence Holder comment	DWER response
		2012. The requirement for an engineer should be broadened to other professional persons could provide the audit, i.e. environmental scientists etc.	agricultural scientists.
16	Condition 4 (c)	The licence holder considers the requirement for an audit to certify structural integrity of the retention basin and spillway be removed. The National Guidelines 2012 do not specify a structural integrity standard and the decision report does not provide a reason.	DWER applies a risk-based approach to condition setting where the condition is proportionate to the level of risk (likelihood and consequence) that the activity poses to public health and the environment. Considering the risk to the environment and public health because of an unknown retention basin volume and a basin that lies within a river valley that could be subject to inundated by seasonal flooding. The CEO directed control is necessary to prevent, and control pollution or environmental harm. The condition remains. See section 3.1, 3.5 and 8 of the decision report for further information.
17	Condition 4 (d)	The requirement to provide the capacity of the retention basin should be removed as the licence holder advises the capacity is 8,862 m ³ as stated in the decision report.	DWER provided an estimate of the retention pond capacity in this decision report based on dimensions provided by the licence holder (8,862 m ³). A different volume to DWERs estimate is stated in a figure provided by the licence holder to the Shire of Augusta Margaret River for their development approval (675 kL). The volumes differ significantly by a factor of 13. The size and capacity of the retention basin is therefore unconfirmed and requires confirmation in order to determine whether it is suitably sized in accordance with the National Guidelines (2012) requirements.
18	Condition (e)	The licence holder provided details of the spillway and its pathway.	DWER notes this detail will update the licence and decision report. The condition will be modified to reflect discharge via the spillway and understands that the spillway is the highest point within the retention basin and that the freeboard should sit below the spillway.
19	Condition 4	This condition requires an audit to the National Guideline 2012. The National Guideline 2012 is not intended as compulsory standards that must be strictly adhered to comply with the Code of Practice 2012. The Licensee believes there are conflicting points of view between DWER's regulatory framework, the National Guideline and Code of Practice 2012 and this conflict puts confusion into Condition 4- which should be clarified. The National Guideline 2012 provides one means of complying with the Code of Practice 2012 and does not exclude other means by which acceptable environmental outcomes can be achieved. The licensee acknowledges the premises were not constructed in strict adherence to the National Guideline 2012 as it was constructed prior to	The licence holder should provide evidence-based information to demonstrate alternative methods/applications to the National Guidelines (MLA 2012a) are environmentally appropriate. The licence holder has not provided evidence based information demonstrating the premises infrastructure and activities present a low level of environmental risk therefore the condition will be retained.

	Condition	Summary of Licence Holder comment	DWER response
		its development but it has groundwater and surface water protection measures in place it considers are reasonable and is willing to consult with DWER to address concerns prior to setting revised licence conditions.	
20	Condition 5	The licence holder provided partial calculations for nutrient application rates, evaporation rates and silage cropping during winter and summarised that based on the information provided nutrient application rates to the irrigation area is not a significant matter. The licence holder will seek DPIRDs assistance to comply with this condition.	DWER notes the information provided.
21	Condition 6	The licensee wishes to apply dry manure collected from the pens to land rather than compost and would like the condition to be modified accordingly.	<p>DWER notes this information. Dried manure is not considered equivalent to compost as it has not undergone the necessary processes to achieve pasteurisation and reduce phytotoxic compounds therefore presents a potential risk to the environment and public health. Application to land of dried manure has not been risk assessed or authorised through the licence review. Given the premises location in what is considered to be a high environmental risk area (floodplain, sensitive receiving environment of the Carunup River classified as a protection waterway within the Geographe WQIP (DoW 2010), high rainfall) it is necessary to assess the risk of this activity to determine if it is acceptable before providing authorisation. If the licence holder wishes to seek authorisation for application of dried manure to land on the premises they should submit a licence amendment application with a suitable Waste Management Plan for the activity which details waste management practices together with the characteristics of the proposed application area which demonstrate its suitability for utilising the organic matter, nutrients and salts in the applied solid waste</p> <p>Condition 6 Emissions and discharges has been retained which only provides authorisation for discharge of irrigated wastewater and compost on the premises. Compost is defined in the definitions.</p>
22	Condition 9	The licence holder considers the wastewater monitoring of the retention basin is excessive, when phosphorus is the limiting factor. The sampling is an imposition on a feedlot of this size.	<p>Water from the retention basin is irrigated to a paddock on the premises. Monitoring of all reportable contaminants is important to calculate contaminant loads to confirm compliance with nutrient rate limits and have sufficient understanding of other potential contaminants which may impact on the irrigation area or other environmental receptors. See Sections 11, 12 and 14 in the decision report for further justification and details.</p> <p>A laboratory detection limit has been included for phosphorus to ensure to</p>

	Condition	Summary of Licence Holder comment	DWER response
			ensure results are suitable for comparison with the ANZECC (2000) freshwater guidelines.
23	Condition 10	The licence holder considers having an Environmental Scientist take surface water and wastewater samples is excessive and costly. The licence holder advised Mark and Peter Semini have now been trained by an Environmental and Agricultural testing service company to collect and test samples and provided a training record to demonstrate this.	The licence holder has in the past taken samples not in accordance with the specified methods (Australian Standards) and licence conditions despite being advised accordingly. This has been recorded as a non-compliance with the existing licence for the 2019/2020 and 2020/2021 annual reporting periods. DWER acknowledges the training of Peter and Mark Semini and has removed the requirement for wastewater sampling to be undertaken by an Environmental Scientist. The requirement has however been retained for collection of surface water samples as it is of high importance that the samples be taken correctly in order to allow for accurate assessment of the impact of the feedlot operations on the Carburnup River Tributary which is a key concern of DWER as outlined throughout this decision report.
24	Licence holder summary	The licence holder considers that the drafted conditions and decision report have not been prepared with appropriate consideration of: <ul style="list-style-type: none"> • The size of the feedlot; • No complaints received about the feedlot; • No demonstrated environmental impact emanating from the premises, and • The feedlot was constructed prior to the Industry Guidelines and the imposition to retrofit the operation. The licence holder considers the proposed amendment to the licence: <ul style="list-style-type: none"> • Curtails farming practices on area outside the feedlot without identifying unreasonable environmental impacts; • Erroneously refers to design standards that do not exist; • Refers to feedlot feature that do not exist (clean stormwater basin), and • Imposes unreasonable costs for Professionals to undertake work and to collect water samples. The licence holder also advised that they propose to construct permanent shade over two feedlot pens to improve environmental performance, enabling clean	DWER notes the concerns raised and advises that the department undertook a risk based assessment as documented in this decision report to assess risk and apply regulatory controls in proportion to the assessed risk in amending the licence. To establish the context of the risk the department considered the size of the feedlot, licence holder controls, compliance history, monitoring results and environmental siting. The department also considers relevant Environmental Standards in applying regulatory controls. The Meat and Livestock Australia Guidelines and Code of Practice for Beef Cattle Feedlots 2012 are the relevant standards the department refers to. Where the licence holder wishes to deviate from current Industry Standards the licence holder has been invited to provide evidence-based information to demonstrate that proposed alternatives provide an equivalent level of environmental protection. Where premises do not meet current Industry Standards the department considers it reasonable to allow incremental retrofitting, where the licence holder has been invited to contribute to milestones and timeframes to meet Industry Standards. Advice from DPIRD indicates that expectations align with DWER's in regards to retrofitting the achieve Industry Standards. The department advises the licence holder should consider the requirements of the Industry Standards in any proposed changes to the premises. As per section 11.3 monitoring data indicates that nutrient concentrations are consistently higher downstream of the feedlot and exceed ANZECC (2000) water quality guidelines indicating emissions from the feedlot may be impacting the Carburnup River Tributary. A key concern of DWER as

	Condition	Summary of Licence Holder comment	DWER response
		<p>stormwater to be prevented from entering the controlled drainage area. The licence holder has a preference to spend resources on increasing the covered area of the feedlot.</p> <p>The licence holder considers that under S59B(2) should the CEO wish to amend the licence then another written notice should be undertaken.</p>	<p>documented in this decision report is the suitability of the drainage and retention pond infrastructure in accordance with Industry Standards.</p> <p>The department provided the licence holder with a first draft of the revised licence and decision report on the 11 December 2020 and a second draft on 19 August 2021. The department considers obligations under S59B(2) of the EP Act have been met.</p>
25	Additional information provided,	<p>The licence holder provided the following information:</p> <ul style="list-style-type: none"> • Map of feedlot drainage flow directions and spillway location • Map of holding yard drainage flow direction 	<p>The spillway location will be included within the licence. No further details on the spillway other than its location were provided therefore DWER is unable to determine if the spillway meets the National Guideline 2012 requirements. The requirement for an infrastructure audit therefore still applies to this infrastructure.</p> <p>The drainage for the holding pen/drafting yard appears to discharge into a soak on the floodplain. No evidence has been provided to demonstrate that the receiving soak (basin) is lined, adequately sized, clay lined and impermeable to 10^{-9} m/s.</p> <p>The drainage information provided does allow DWER to determine if the premises drainage complies with Industry Standards. Due to the late provision of this information in the licence review process, infrastructure requirements for drainage for the holding yards and clean stormwater for the feedlot pens will be dealt with separately from the Revised Licence.</p>