Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6330/2019/1
Works approval holder	Koojan Downs Pty Ltd
ACN	628 244 628
Registered business address	171 – 173 Mounts Bay Road PERTH WA 6000
Duration	14/08/2020 to 13/08/2030
Date of amendment	12/08/2025
Premises details	'Koojan Downs' Cattle Feedlot 1131 Boundary Road YATHROO WA 6507 Lot 3559 on Plan 206175, Lots 102 & 103 on Plan 76331, Lot 3556 on Plan 206191 As shown in the premises map in Schedule 1

Prescribed premises category description (Schedule 1, Environmental Protection Regulations 1987)	Assessed design capacity
Category 1: Cattle feedlot: premises on which the watering and feeding of cattle occurs, being premises – (a) situated less than 100 m from a watercourse; and (b) on which the number of cattle per hectare exceeds 50.	20,000 animals (18,750 SCU equivalent) at any time (Stage 1) 40,000 animals (37,500 SCU) at any time (Stage 1 & 2 combined)
Category 23: Animal feed manufacturing: premises (other than premises within category 15 or 16) on which animal food is manufactured or processed.	Not more than 320,000 tonnes of feed produced per year

This amendment is granted to the works approval holder, subject to the attached conditions, on 12 August 2025, by:

Daniel Hartnup

Digitally signed by Daniel Hartnup
Date: 2025.08.12 10:25:50 +08'00'

MANAGER, PROCESS INDUSTRIES
STATE-WIDE DELIVERY (ENVIRONMENTAL REGULATION)
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Ref number	Summary of changes
14/08/2020	W6330/2021/1	Works approval granted
06/10/2021	W6330/2021/1	Amendment to allow provision of installing a synthetic liner on key infrastructure
23/11/2021	W6330/2021/1	CEO-initiated amendment to include provision to operate pens 2 weeks in advance of the effluent holding pond being completed, and to correct unintentional errors
12/08/2025	W6330/2021/1	Amendment to extend duration by 5 years to allow construction of Stage 2, delete references to completed Stage 1 infrastructure

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in conditions mean 'including but not limited to', and similar, as appropriate;
(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
(c) where tables are used in a condition, each row in a table constitutes a separate condition;
(d) any reference to an Australian or other standard, guideline or code of practice in this works approval:
  (i) if dated, refers to that particular version; and
  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must construct the infrastructure listed in Table 1:

(a) in accordance with the corresponding design and construction requirements; and
(b) at the corresponding infrastructure location;

as set out in Table 1 .

Table 1: Infrastructure design and construction / installation requirements

	Infrastructure	Design and construction requirements	Infrastructure location
	Stage 2 feedlot infrastructure		
1	Cattle handling facility	• Must construct one (1) area for processing animals at arrival/dispatch, to be located within Controlled Drainage Area 3; • Floor must be constructed with a slope of at least	"Cattle Handling Facility (Stage 2)", as shown in Schedule 1: Map of

	Infrastructure	Design and construction requirements	Infrastructure location
		1.5% and cross fall of at least 0.5%; • Floor must be comprise at least 125 mm thick concrete;	infrastructure
2	Feedlot pens – including cattle alleys and feed delivery roads	• Must only construct six (6) rows: (i) 3 rows with 24 pens (Rows F, G & H) (ii) 2 rows with 20 pens (Rows I & J); and (iii) 1 row with 12 pens (Row K); • Each pen must be constructed with maximum dimensions: 53 m x 54.5 m; • Pen floors, cattle alleys and feed delivery roads must be constructed with a fall of between 2.5 - 4% towards the effluent catch drains; • Pen floors and cattle alleys must be constructed with a lining system that complies with the requirements specified in condition 2.	"Rows F, G, H, I, J & K" and "Cattle alleys", as shown in Schedule 1: Map of infrastructure
3	Effluent catch drains, main drain	• Feedlot rows F – K each must be constructed with an outer effluent catch drain, with minimum dimensions: 3.5 m bed width, 1V:4H batter and 0.5 m depth; • A main drain must be constructed to facilitate drainage of effluent from sedimentation basins 5, 6 & 7 to the proposed effluent holding pond 3; • The main drain must be constructed with minimum dimensions: 3.5 m bed width, 1V:4H batter and 0.5 m depth; • Effluent catch drains and main drain must be constructed with a long fall of at least 1% and connect to the sedimentation basin; • Effluent catch drains and main drain must be constructed with a lining system that complies with the requirements specified in condition 2.	"Cattle handling/ hospital/ cattle lanes/ catch drains/ main drains", as shown in Schedule 1: Map of infrastructure
4	Controlled drainage area 3	• Must comprise all operational areas relating to the Stage 2 feedlot, including pen areas, hard catchment (feed roads, cattle lanes, effluent catch drains, sedimentation basins 5, 6 & 7, effluent holding pond 3) and soft catchment; • Area must be sloped to facilitate drainage of surface water runoff to sedimentation basins 5, 6 & 7;	As per design requirements
5	Sedimentation basin 1	• Must construct a sedimentation basin located immediately downgradient of feedlot row F; • Basin must be constructed with a minimum holding capacity of 2,000 m^3 and maximum operational depth of 1.0 m; • Basin must be constructed with a slatted concrete weir discharge assembly on the discharge point to effluent holding pond 1; • Basin must be constructed with a lining system that complies with the requirements specified in condition 3.	"Sedimentation Basin 1 (Stage 2)", as shown in Schedule 1: Map of infrastructure
6	Sedimentation basins 5, 6 & 7	• Must construct a sedimentation basin located immediately downgradient of:	"Proposed Sedimentation

	Infrastructure	Design and construction requirements	Infrastructure location
		(i) Feedlot row 'G'; (ii) Feedlot row 'H'; and (iii) Feedlot rows 'I', 'J' & 'K'; • Sedimentation basin 5 must be constructed with a minimum holding capacity of 3,500 m^3 and maximum operational depth of 1.0 m; • Sedimentation basin 6 must be constructed with a minimum holding capacity of 2,750 m^3 and maximum operational depth of 1.0 m; • Sedimentation basin 7 must be constructed with a minimum holding capacity of 1,775 m^3 and maximum operational depth of 1.0 m; • Each basin must be constructed with a slatted concrete weir discharge assembly on the discharge point to the main drain; • Each basin must connect to the main drain and divert effluent to the proposed effluent holding pond 3; • Each basin must be constructed with a lining system that complies with the requirements specified in condition 3.	Basin 5 (Stage 2)", Proposed Sedimentation Basin 6 (Stage 2)" and "Proposed Sedimentation Basin 7 (Stage 2)", as shown in Schedule 1: Map of infrastructure
7	Effluent holding pond 3	• Must construct an effluent holding pond downgradient of sedimentation basins 5, 6 & 7, with a holding capacity of at least 54,000 kL (including minimum operational freeboard of 0.9 m); • Pond floor and walls must be constructed with a lining system that complies with the requirements specified in condition 3.	"Effluent Holding Pond 3 (Stage 2)", as shown in Schedule 1: Map of infrastructure
8	Solid waste storage and carcass composting area (Stage 2)	• Must construct a solid waste storage area with a minimum surface area of 30,000 m^2; • Storage area must be constructed with a lining system that complies with the requirements specified in condition 2.	"Solid waste storage and carcass composting area (Stage 2)", as shown in Schedule 1: Map of infrastructure
9	Controlled drainage area 4 (CDA 4)	• Must comprise all operational areas relating to the Stage 2 solid waste stockpile and carcass composting area; • Area must comprise diversion drains or banks to ensure manure and compost leachates and contaminated surface water runoff is contained within Controlled Drainage Area 4; • Area must be constructed with a long fall of at least 0.5% to facilitate drainage of surface water runoff to the proposed effluent holding pond 4;	As per design requirements
10	Sedimentation basin 8	• Must construct a sedimentation basin located immediately downgradient of controlled drainage area 4; • Basin must be constructed with a minimum holding capacity of 1,000 m^3 and maximum operational depth of 1.0 m; • Basin must be constructed with a slatted	"Proposed Sedimentation Basin 8 (Stage 2)", as shown in Schedule 1: Map of infrastructure

	Infrastructure	Design and construction requirements	Infrastructure location
		concrete weir discharge assembly on the discharge point to the proposed effluent holding pond 4; • Basin must be constructed with a lining system that complies with the requirements specified in condition 3.	
11	Effluent holding pond 4	• Must construct an effluent holding pond downgradient of sedimentation basin 8, with a holding capacity of at least 3,000 kL (including minimum operational freeboard of 0.9 m); • Pond floor and walls must be constructed with a lining system that complies with the requirements specified in condition 3.	"Proposed Effluent Holding Pond 4 (Stage 2)", as shown in Schedule 1: Map of infrastructure

2. The works approval holder must ensure that feedlot pens, effluent catch drains, and solid waste storage and carcass composting areas are constructed with a lining system that comprises:

(a) at least 300 mm of clay or other suitable compactable soil constructed in two 150 mm layers following compaction with an in-situ coefficient of permeability of $1x10^{-9}$ m/s or less; or

(b) a dual liner system, including:

(i) at least 150 mm ripped, moisture conditioned and recompacted in-situ subgrade or other suitable fill material, compacted to 98% MDD at ±2% optimum moisture content;

(ii) a primary lower liner comprising a geosynthetic clay liner with a minimum manufacturer specified MARV of 3,700 g/m^2 bentonite at 0% moisture content;

(iii) a sub-surface drainage layer installed above the GCL, spaced no greater than 26.5 m apart and draining to a GCL under catch drain;

(iv) a secondary surcharge layer comprising at least 300 mm of clay or other suitable compactable soil; and

(v) a capping layer comprising at least 150 mm of compacted gravel material with a minimum CBR wet and dry of 20%.

3. The works approval holder must ensure that sedimentation basins and holding ponds are constructed with a lining system that comprises:

(a) at least 450 mm of clay or other suitable compactable soil constructed in three 150 mm layers following compaction with an in-situ coefficient of permeability of $1x10^{-9}$ m/s or less; or

(b) a dual liner system, including:

(i) at least 150 mm ripped, moisture conditioned and recompacted in-situ subgrade or other suitable fill material, compacted to 98% MDD at ±2% optimum moisture content;

(ii) a primary lower liner comprising a geosynthetic clay liner with a minimum manufacturer specified MARV rating of 4,000 g/m^2 bentonite at 0% moisture content;

(iii) a secondary surcharge layer comprising at least 300 mm of clay or other suitable compactable soil; and

(iv) a capping layer comprising compacted gravel material at least 150 mm thick for sedimentation basins, and at least 100 mm thick for holding ponds, each with a minimum CBR wet and dry of 20%.

4. The works approval holder must ensure that:

(a) clay materials used to comply with the requirements of conditions 2(a) and 3(a) are well graded and tested for conformance against the particle size distribution, plasticity index and other characteristics listed in Schedule 2; and

(b) permeability and compaction requirements for clay and gravel materials used to comply with conditions 2(a) and 3(a) are demonstrated by geotechnical testing conducted by a suitably qualified engineer and in accordance with AS 1289.

5. The works approval holder must conduct quality assurance, including visual inspection and materials testing, for all geosynthetic clay liners in accordance with the requirements specified in Table 2.

Table 2: QA requirements – geosynthetic clay liners

Property	Test method	Frequency	Minimum value
Swell index	ASTM D5890	As per manufacturer's testing frequency	≥ 24 cm^3/2g
Fluid loss	ASTM D5981		< 15 mL
Montmorillonite content	X-ray diffraction		70% of bulk sample
Cation exchange capacity of bentonite	NH_4 displacement; Methylene blue; Barium saturation		70 – 110 cmol/kg of bulk sample
Bentonite mass @ 0% moisture content	ASTM D5993	Every 3,600 m^2	≥ 3,700 g/m^2
Mass per unit area of GCL		Every 3,600 m^2	≥ 4,030 g/m^2
Thickness	ASTM D5199	Visual inspection on site for variability	≥ 6 mm
Moisture content (MaxARV)	ASTM D5993	As per manufacturer's testing frequency	≤ 25% at manufacturer
Peel strength (min avg.)	ASTM D6496		≥ 360 N/m
Tensile strength	ASTM D6768		≥ 7 kN/m
CBR strength	AS 3706.4		≥ 1,400 N
CBR elongation (MaxARV)	AS 3706.4		≤ 10%
Hydraulic conductivity, k	ASTM D5887	As per manufacturer's testing frequency for index testing, supplemented by 2 performance tests	Index testing: ≤ 2.5 x 10^{-11} m/s Performance testing: ≤ 1 x 10^{-9} m/s

6. The works approval holder must ensure all laboratory tests required by condition 5 are tested by a laboratory with current NATA accreditation for the parameters being measured.

7. Where a geosynthetic clay liner is installed for an item of infrastructure specified in condition 1, following installation the works approval holder must prepare a Construction Quality Assurance Validation Report (CQAVR).

8. The works approval holder must ensure the report(s) required by condition 7 are written and certified by a qualified professional engineer and includes, but is not limited to:

(a) documentation of the quality of the completed works;

(b) demonstration of whether all requirements of the works specifications and quality assurance provisions in Table 2 have been complied with;

(c) an assessment of test results against the minimum values specified in Table 2;

(d) certification the installed liner is free of default or defect and is fit-for-purpose; and
(e) copies of all surveys and drawings of the 'as installed' liners, inspections, and materials testing results.

9. The works approval holder must design, construct and install groundwater monitoring bores in accordance with the requirements in Table 3.

Table 3: Infrastructure requirements – groundwater monitoring bores

Infrastructure / waste disposal area	Design and construction / installation requirements	Monitoring bore location(s)	Timeframe
Feedlot holding pens including sedimentation basins • At least one groundwater monitoring bore per feedlot holding pen complex Holding ponds • At least two groundwater monitoring bores per holding pond	(a) Designed and constructed in accordance with ASTM D5092/DM5092M016: Standard practice for design and installation of groundwater monitoring bores. (b) Bores must be constructed with a screened interval within the shallow water table. (c) Soil samples must be collected and logged during the installation of the monitoring bores. (d) A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS 1726. (e) Bores construction details must be documented within a bore construction log to demonstrate compliance with ASTM D5092/D5092M-16. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements and the elevations of the ground surface protective installations. (f) All installed monitoring bores must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the bore screen to ensure the hydraulic functioning of the bore. A detailed record should be kept of bore development activities and included in the bore construction log. (g) The vertical (top of casing) and horizontal position of each monitoring bore must be surveyed and subsequently mapped by a suitably qualified surveyor. (h) A bore location map (using aerial	Sited with regard to the Department's *Water Quality Protection Note 30 Groundwater Monitoring Bores* (DoW, 2006) – Recommendations – Siting of monitoring bores; and sited and spaced to enable detection of any potential seepage from specified infrastructure and waste disposal areas	Must be constructed, developed (purged), determined to be operational prior to the commencement of time limited operations

	image overlay) must be prepared and include the location of all monitoring bores in the monitoring network and their respective identification numbers.		

Compliance reporting

10. The works approval holder must, within 30 calendar days of the infrastructure required by condition 1 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 1; and
(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

11. The Environmental Compliance Report required by condition 10, must include as a minimum the following:

(a) certification by a qualified professional engineer, whether the items of infrastructure or components thereof, as specified in condition 1, have been constructed in accordance with the corresponding requirements specified in condition 1;
(b) as constructed plans for each item of infrastructure or component of infrastructure as specified in condition 1;
(c) results of clay materials testing and/or geotechnical testing required by condition 4;
(d) CQAVRs for all installed geosynthetic clay liners required by condition 7;
(e) a groundwater monitoring bore construction report evidencing compliance with the requirements of condition 9; and
(f) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

12. Subject to condition 11(a), where an item of infrastructure or component of infrastructure has been certified as not being constructed, or does not comply with the corresponding requirements, or contains material defects, the works approval holder must:

(a) correct the non-compliant or defective works, prior to re-certifying in accordance with condition 11(a); or
(b) provide to the CEO a description of, and explanation for, any departures from the requirements specified in condition 1 that do not require rectification and do not constitute a material defect along with the Environmental Compliance Report required by condition 10.

Time limited operations phase

Commencement and duration

13. The works approval holder may only commence time limited operations for Stage 2 feedlot rows G, H, I, J and K where:

(a) all effluent catch drains, sedimentation basins, and the effluent holding pond have been constructed within the controlled drainage area for those feedlot rows; and
(b) the Environmental Compliance Report required by condition 10 has been submitted by the works approval holder for that infrastructure.

14. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 1 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 13 for that item of infrastructure; or
(b) until such time as a licence amendment for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*.

Infrastructure and equipment

15. During time limited operations, the works approval holder must ensure the premises infrastructure listed in Table 4 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirements set out in that table.

Table 4: Infrastructure requirements during time limited operations

	Site infrastructure	Operational requirement
1	Stage 2 feedlot rows G, H, I, J and K	• Stocking density must not exceed 19.2 m^2/SCU within the pens after commissioning; • Pens must be cleaned on a planned basis to ensure the depth of dry manure on the pen surface does not exceed 50 mm; • Manure harvested from pen surfaces must only be stockpiled on the solid waste stockpile and carcass composting area (CDA 4); • Must only use machine control-equipped mobile plant for cleaning pen surfaces; • Must ensure a minimum 450 mm thick surcharge layer is maintained above the GCL (±75 mm);
2	Effluent catch drains (Stage 2)	• Must be maintained to ensure all leachate and surface water runoff from the feedlot pens, bunks and cattle alleys can flow freely to the sedimentation basins without scouring; • Must only use machine control-equipped mobile plant for cleaning effluent catch drains; • Must ensure a minimum 450 mm thick surcharge layer is maintained above the GCL (±75 mm);
3	Controlled drainage areas 3 & 4 (Stage 2)	• Must be maintained to ensure all surface water runoff is able to flow freely to the respective sedimentation basins;
4	Sedimentation basins 1, 5, 6 & 7 (Stage 2)	• Must be maintained such that each basin flows freely after rainfall events; • Basins must be cleaned of solids before sludge takes up more than 10% of the design capacity of the basin; • An operational freeboard of at least 0.9 m must be maintained at all times; • Must only use machine control-equipped mobile plant for cleaning sedimentation basins; • Must ensure a minimum 450 mm thick surcharge layer is maintained above the GCL (±75 mm);
5	Effluent holding ponds 3 & 4 (Stage 2)	• An operational freeboard of at least 0.9 m must be maintained at all times.
6	Solid waste storage/ carcass composting area (Stage 2)	• All deceased animals must be composted on the designated solid waste stockpile and carcass composting area (CDA 4), or taken off-site to a disposal facility that is licensed to accept that kind of waste; • Deceased animals must be covered with organic matter at least 1.2 m in the centre and at least 0.5 m on the sides; • Only low risk feedstocks may be brought onto the premises as supplementary organic material for use in the composting process; • Must only use machine control-equipped mobile plant for cleaning solid waste stockpile pads; • Must ensure a minimum 450 mm thick surcharge layer is maintained above the GCL (±75 mm).

Monitoring

General monitoring

16. The works approval holder must ensure that:

(a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
(b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
(c) all soil samples are collected in accordance with DPIRD guidelines for soil sampling;
(d) all soil samples are submitted to and tested by a laboratory with current ASPAC certification (or equivalent); and
(e) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

17. The works approval holder must ensure that quarterly monitoring is undertaken at least 45 days apart.

18. The works approval holder must ensure that all monitoring equipment used on the premises to comply with conditions of this works approval is calibrated in accordance with the manufacturer's specifications.

19. The works approval holder must, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

Groundwater monitoring

20. During time limited operations, the works approval holder must monitor and record the results of ambient groundwater during the construction phase and time limited operations phase for concentrations of the identified parameters in accordance with Table 5.

Table 5: Monitoring of groundwater requirements

Parameter	Monitoring location	Unit	Frequency	Averaging period	Sample method	Analysis method
Standing water level	Wells constructed in accordance with condition 9 for Stage 2 infrastructure	m (AHD) m (BGL)	Quarterly, commencing within 30 days of groundwater bore installation	Spot, in-field measurement	-	-
pH		-				
Electrical conductivity		µS/cm				
Total nitrogen, Ammonia nitrogen		mg/L		Spot sample	AS 5667.1 AS 5667.11	Submitted to and tested by a laboratory with current NATA accreditation for the specified method and parameter being measured
Total phosphorus						
Total dissolved solids						
Biological oxygen demand						
Na, K, Ca, Mg, Cl, SO_4, HCO_3 and As						

21. The works approval holder must monitor and record cattle numbers in accordance with the requirements of Table 6.

Table 6: Monitoring and recording of inputs and outputs

Input / Output	Parameter	Units	Frequency
Animals received and dispatched at the premises	Animals	Number	Aggregated total monthly summary
Deceased animals			Monthly
Compost feedstock brought onto the premises	Feedstock type	Tonnes	Each load of low risk feedstock brought onto the premises, by type

Records and reporting (general)

22. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);
(b) the time and date of the complaint;
(c) the complete details of the complaint and any other concerns or other issues raised; and
(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

23. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with condition 1;
(b) any maintenance of infrastructure that is performed in the course of complying with condition 15;
(c) records of inputs and outputs in accordance with condition 21; and
(d) complaints received under condition 22 of this works approval.

24. The books specified under condition 23 must:

(a) be legible;
(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
(c) be retained by the works approval holder for the duration of the works approval; and
(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 7 have the meanings defined.

Table 7: Definitions

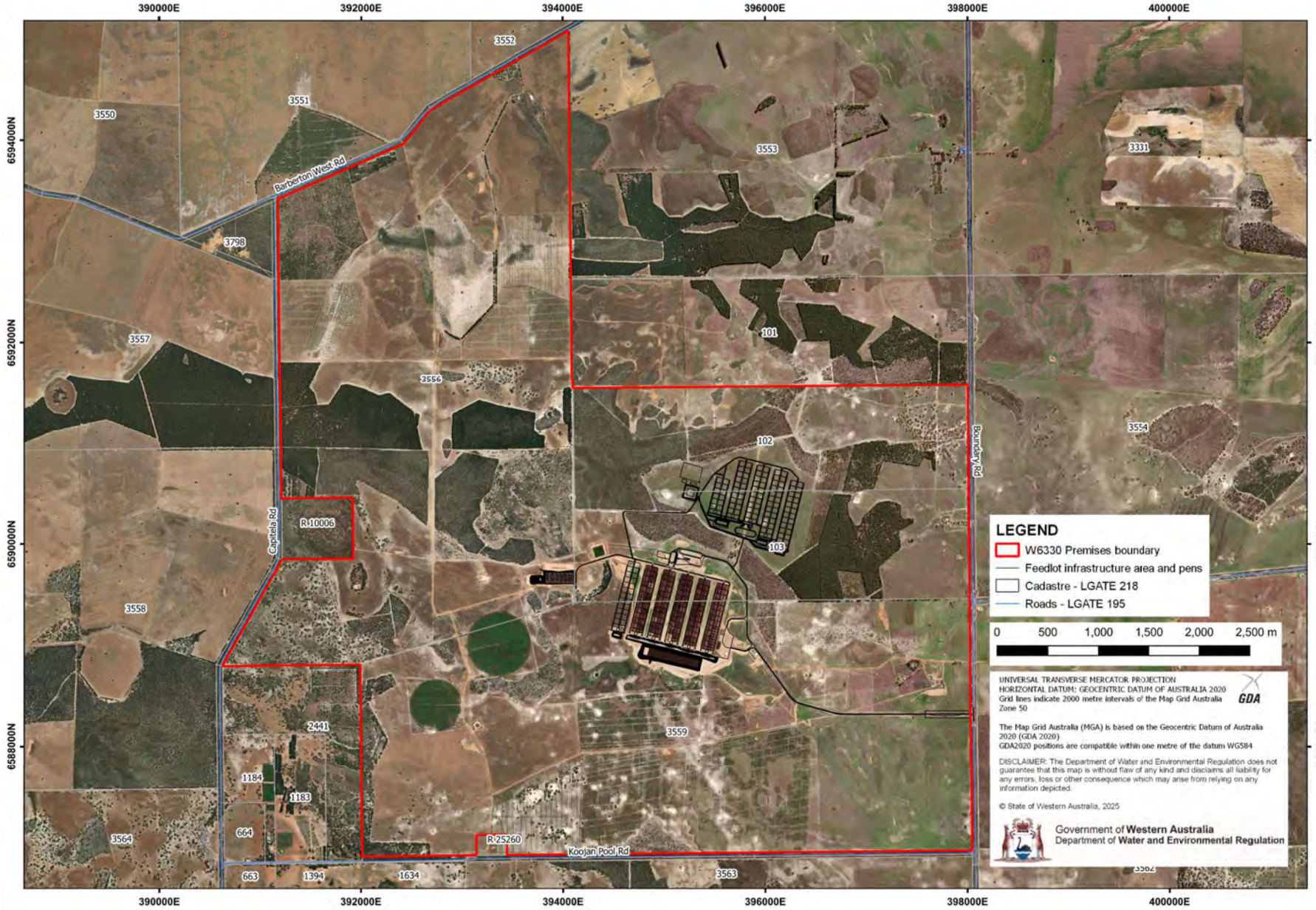
Term	Definition
AHD	means Australian Height Datum
AS 1289	means the most recent version and relevant parts of the Australian Standard AS 1289 *Methods of testing soils for engineering purposes*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 Water quality – sampling – guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples, as amended from time to time
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 Water quality – sampling – guidance on sampling groundwater, as amended from time to time
ASPAC	Australian Soil and Plant Analysis Council
ASPAC certification	means in relation to the analysis of a sample that the laboratory is certified by ASPAC for the specified analysis at the time of the analysis
ASTM D5092/D5092M16	means the ASTM international standard for Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16), as amended from time to time
averaging period	means the time over which a limit or target is measured or a monitoring result is obtained
BGL	means below ground level
bore	has the same meaning as 'well' given in ASTM D5092/D5092M16
CBR	California Bearing Ratio – a penetration test used to evaluate the mechanical strength of subgrade and roadbase materials
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
condition	means a condition to which this works approval is subject under s.62 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act
DPIRD guidelines for soil sampling	means the document entitled "*A guide for fit for purpose soil sampling*" (Fertilizer Australia 2019), available at https://fertilizer.org.au
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval
EP Act	means the *Environmental Protection Act 1986* (WA)
freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point
low risk feedstock	means green waste derived from controlled collections and landscaping sources (e.g. grass, leaves, plants, branches, etc.), untreated timber (e.g. sawdust, wood shavings, timber off-cuts, etc.) and natural fibrous organics

Term	Definition
	(e.g. peat, seed hulls/husks, straw, bagasse and other natural organic fibrous organics)
MARV	Minimum Average Roll Value, being the mean or typical values less 2 standard deviations
mg/L	milligrams per litre
NATA	National Association of Testing Authorities, Australia
NATA accreditation	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis
premises	refers to the premises to which this works approval applies, as specified at the front of this works approval and as shown on the map in Schedule 1 to this works approval
Phosphorus retention index (PRI)	means the ratio of phosphorus adsorbed by soil (micrograms per gram) compared to that remaining in a solution (of initial concentration of 10 mg phosphorus per litre) after 16 hours
qualified professional engineer	means a person who: (a) holds a tertiary academic qualification specialising in geotechnical or civil engineering; and (b) has a minimum of 3 years of experience working in the area of geotechnical or civil engineering; or is otherwise approved by the CEO to act in this capacity
quarterly	means the 4 inclusive periods from 1 January – 31 March, 1 April – 30 June, 1 July – 30 September, and 1 October – 31 December in the same year
spot sample	means a discrete sample representative at the time and place at which the sample is taken
Standard Cattle Unit (SCU)	means a Standard Cattle Unit which is equivalent to an animal with a liveweight of 600 kg and calculated using the method in the *National Beef Cattle Feedlot Environmental Code of Practice*, Meat & Livestock Australia Limited, June 2012
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions
works	refers to the works described in Schedule 2, at the locations shown in Schedule 1 of this works approval to be carried out at the premises, subject to the conditions
works approval	refers to this document, which evidences the grant of the works approval by the CEO under s.54 of the EP Act, subject to the conditions
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval
µS/cm	microSiemens per centimeter

END OF CONDITIONS

Schedule 1: Maps – Premises map

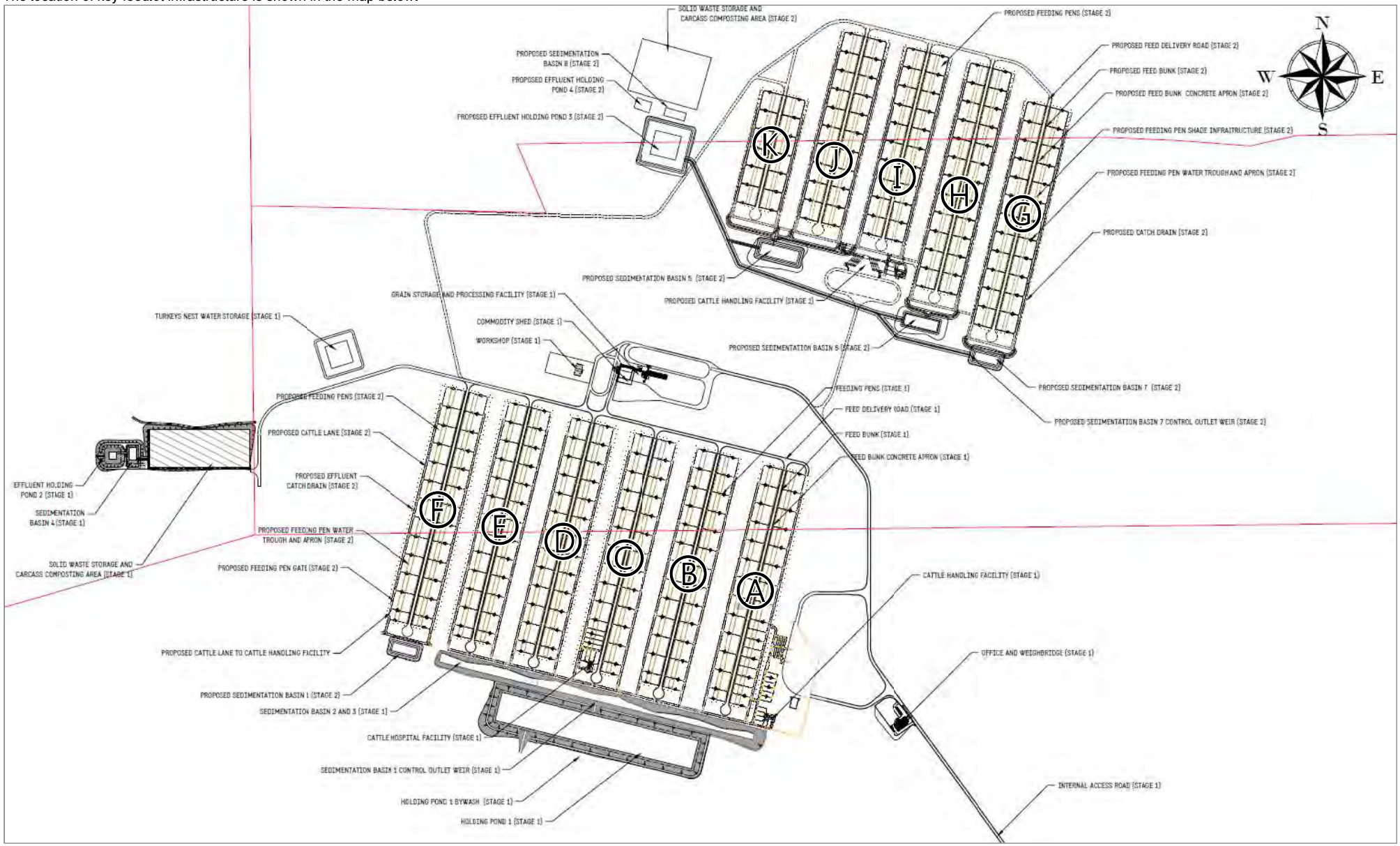
The boundary of the prescribed premises is shown in the map below (red line), in addition to the location of the feedlot infrastructure.



Schedule 1: Maps

Map of infrastructure

The location of key feedlot infrastructure is shown in the map below.



Schedule 2: Clay liner characteristics

Item	Test method	Pre-qualification testing frequency	Frequency of field compliance testing	Acceptance criteria
Particle size distribution (PSD)	AS 1289 3.6.1	3 per material source	3 per pond liner	As provided below
Particles passing 53-mm sieve	AS 1289 3.6.1			100%
Particles passing 19-mm sieve	AS 1289 3.6.1			>90%
Particles passing 2.36-mm sieve	AS 1289 3.6.1			>70%
Particles passing 0.075-mm sieve	AS 1289 3.6.1			>30%
Maximum particle size	AS 1289 3.6.1			40 mm
Atterberg Limits	AS 1289 3.1.2, 3.2.1, 3.3.1, 3.4.1	3 per material source	3 per pond liner	As provided below
Plasticity Index	AS 1289 3.3.1			≥10% and above Casagrande A line
Liquid Limit	AS 1289 3.1.2			30–60%
Permeability (remoulded)	AS 1289 6.7.3	2 tests per material source		≤1 x 10^{-9} m/sec (300-mm thick clay pad liner
Permeability on undisturbed tube samples collected from the completed pad liner	AS 1289 6.7.3		2 tests per constructed pad liner	≤1 x 10^{-9} m/sec (300-mm thick clay pad liner
Emerson Class Number	AS 1289 3.8.1	3 per pad liner	3 per pad liner	>4
Calcium Carbonate content	USEPA	3 per pad liner	3 per pad liner	<15%

Item	Test Method	Pre-qualification testing frequency	Frequency of Field Compliance Testing	Acceptance criteria
Dry Density	AS 1289 5.1.1 or 1289 5.7.1		As provided in Table 8.1 of AS 3798–2007	Minimum dry density ratio of 95% relative to standard or a minimum Hilf density ratio of 95% standard
Moisture Content	AS 1289 5.1.1 or AS 1289 5.7.1		Same as for Dry Density testing	0% to +3% of the Standard Optimum Moisture Content (SOMC) or within a Hilf moisture variation of 0% to +3%