Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works Approval Number	W6114/2017/1
Works Approval Holder	Westpork Pty Ltd
ACN	009 148 789
Registered business address	Unit 1 7 Foundry Road MAYLANDS WA 6051
File Number	DER2017/002172
Duration	17/05/2018 to 16/05/2021
Date of issue	17 May 2018
Prescribed Premises	Category 2: Intensive Piggery
Premises	Westpork Mindarra Farm Piggery 1840 Wannamal Road, BOONANARRING WA 6503 Legal description – Lot 10 on Diagram 80101 As defined by the coordinates in Schedule 1

This Works Approval is granted to the Works Approval Holder, subject to the following conditions, on 17 May 2018, by:

Date signed: 17 May 2018

Paul Byrnes

Manager, Licensing (Process Industries)
Regulatory Services (Environment)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Explanatory notes

These explanatory notes do not form part of this Works Approval.

Defined terms

Definition of terms used in this Works Approval can be found at the start of this Works Approval. Terms which are defined have the first letter of each word capitalised throughout this Works Approval.

Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation (DWER) is 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 *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences and works approvals, takes enforcement action and develops and implements licensing and industry regulation policy.

Works Approval

Section 52 of the EP Act provides that an occupier of any premises commits an offence if any work is undertaken on, or in relation to, the premises which causes the premises to become, or to become capable of being, Prescribed Premises, except in accordance with a works approval.

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered or permitted to be altered from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Works Approval does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to, the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007;*
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Works Approval Holder to ensure that any action or activity referred to in this Works Approval is permitted by, and is carried out in compliance with, statutory requirements.

The Works Approval Holder must comply with the Works Approval. Contravening a Works Approval Condition is an offence under s.55 of the EP Act.

Responsibilities of Works Approval Holder

Separate to the requirements of this Works Approval, general obligations of Works Approval Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Works Approval Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under s.61; and

- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a Works Approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

Reporting of incidents

The Works Approval Holder has a duty to report to the Department all Discharges of Waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

Offences and defences

The EP Act and its regulations set out a number of offences including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA).*
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA).*

Section 53 of the EP Act provides that a Works Approval Holder commits an offence if Emissions are caused, or altered, from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a closure notice or an environmental protection notice.

Defences to certain offences may be available to a Works Approval Holder and these are set out in the EP Act. Section 74A(b)(iii) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Works Approval Holder can prove that an Emission or Discharge occurred in accordance with a Works Approval.

This Works Approval specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of specified Emissions and Discharges, in order for the defence to offence provision to be available.

Authorised Emissions and Discharges

The specified and general Emissions and Discharges from the Works authorised through this Works Approval are authorised to be conducted in accordance with the Conditions of this Works Approval.

Amendment of Works Approval

The Works Approval Holder can apply to amend the Conditions of this Works Approval under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Works Approval at any time on the initiative of the CEO without an application being made.

Duration of Works Approval

The Works Approval will remain in force for the duration set out on the first page of this Works Approval or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

Suspension or revocation

The CEO may suspend or revoke this Works Approval in accordance with s.59A of the EP Act.

Definitions and interpretation

In this Works Approval, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ASTM method D638 - 14	means the Standard Test Method for Tensile Properties of Plastics
ASTM method D1238	means the Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM method D1505	means the Standard Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D5321/D5321M-17	means Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear (ASTM International)
ASTM method D1603	means Standard Test Method for Carbon black content in Olefin Plastics
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the Environmental Protection Act 1986 Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
DWER	Department of Water and Environmental Regulation
EP Act	means the Environmental Protection Act 1986 (WA).
EP Regulations	means the Environmental Protection Regulations 1987 (WA).
HDPE	means High-density polyethylene
kN/m2	means kilonewton per metre square

Interpretation

In this Works Approval:

(a) the words ‘including’, ‘includes’ and ‘include’ will be read as if followed by the words ‘without limitation’;

(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 means the version of the standard, guideline or code of practice in force at the time of granting of this Works Approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Works Approval; and

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

Conditions

Infrastructure and equipment

1. The Works Approval Holder must install and undertake the Works for the infrastructure and equipment:

(a) specified in Column 1;

(b) to the requirements specified in Column 2;

of Table 2 below.

2. The Works Approval Holder must not depart from the requirements specified in Column 2 of Table 2 except:

(a) where such departure does not increase risks to public health, public amenity or the environment; and

(b) all other Conditions in this Works Approval are still satisfied.

3. Subject to Condition 2, within **60** days of the completion of the Works specified in Column 1 of Table 2, the Works Approval Holder must provide to the CEO photographic evidence and confirmation that the works have been completed in accordance with the requirements specified in Column 2 and constructed with no material defects.

4. Where a departure from the requirements specified in Column 2 of Table 2 occurs and is of a type allowed by Condition 2, the Works Approval Holder must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 2(b).

Table 2: Infrastructure and equipment requirements table

Column 1	**Column 2**
Infrastructure/Equipment	**Requirements (design and construction)**
New Evaporation pond	The pond must be designed and constructed to be fit for purpose for receiving effluent from the maximum number of pigs located in the Mindarra 4 complex and of suitable capacity allowing for: (i) Overtopping to not occur on average more than once every 10 years,; (ii) Lined with a HDPE lining material of a minimum of 1.5mm thickness; (iii) The permeability of the HDPE liner designed to achieve a minimum or less than 1 x 10^{-9}m /second and must ensure no detectable leakage from the pond; (iv) The floor of the pond to be a minimum of 2m above the highest level of the groundwater; (v) Minimum 150mm subgrade preparation to provide a sound and stable base. Subgrade preparation must include compaction until no rutting or pumping is observed and the soils must be free from plant roots and reactive, soluble and organic matter; (vi) Liner constructed on a gradient of less than 1 in 3; (vii) Be durable to maintain permeability for the working life of the pond; (viii) The liner fabricated to form the shape of the excavation; (ix) All seams and joins made on site should be continuous;

Column 1	Column 2
Infrastructure/Equipment	**Requirements (design and construction)**
	(x) Panels of the liner should be overlapped by a minimum of 100mm, prior to heat welding or mechanical jointing where the membrane welding materials should be identical with the liner membrane; (xi) The HDPE liner must meet the following specification: (a) Specific gravity of 0.94 or more (ASTM method D1505); (b) Melt index of 0.05g to 0.30g in 10 minutes (ASTM method D1238, condition E 190/2.16); (c) Carbon black content of 2-3% (ASTM method D1603); (d) Minimum tensile strength at yield of 16 kN/m^2; (e) Minimum tensile strength at break of 550 kN/m^2 (ASTM method D638, type IV 2); and (f) Minimum elongation at yield of 10%, and at break 300% (ASTM method D638). (xii) All seams and joins to be tested by an approved method used in the HDPE membrane industry; (xiii) HDPE liner shear resistance to be tested in accordance with ASTM D5321/D5321M-17; (xiv) The preparation and insertion of the HDPE liner must be supervised by a competent and experienced professional; (xv) Embankments designed and constructed to prevent erosion as a result of stormwater runoff including: (a) Appropriate embankment construction material as well as sufficient compaction of soil; and (b) Batter slopes of approximately 18 degrees to maintain embankment stability. (xvi) The inlet pipe for the pond to be positioned beyond the toe of the pond wall and at a depth of less than 0.5m from the embankment crest level (above the maximum surface water level); and (xvii) Embankments to allow access for inspection and clearing debris.

Emissions

5. The Works Approval Holder must not cause any Emissions from the Works authorised through this Works Approval except for specified Emissions and general Emissions described in Column 1 of Table 3, subject to the exclusions, limitations or requirements specified in Column 2, of Table 3.

Table 3: Authorised Emissions table

Column 1	Column 2
General Emissions - (excluding Specified Emissions)	
Emissions which arise from undertaking the Works set out in	Emissions excluded from General Emissions are: • Unreasonable Emissions; or • Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or

Column 1	Column 2
Table 2	• Discharges of Waste in circumstances likely to cause Pollution; or • Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or • Emissions or Discharges which do not comply with an Approved Policy; or • Emissions or Discharges which do not comply with prescribed standard; or • Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or • Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the Environmental P*rotection (Unauthorised Discharges) Regulations 2004*.

Record-keeping

6. The Works Approval Holder must maintain accurate Books including information, reports and data in relation to the Works and the Books must:

(a) be legible;

(b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;

(c) be retained for at least 3 years from the date the Books were made;

(d) be available to be produced to an Inspector or the CEO.

7. The Works Approval Holder must comply with a Department Request within 14 days from the date of the Department Request or such other period as agreed to by the Inspector or the CEO.

Schedule 1: Maps

Premises map

The Premises and the location of the proposed evaporation pond are shown in the map below

Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6114/2017/1
Applicant	Westpork Pty Ltd
Registered business address	Unit 1 7 Foundry Road MAYLANDS WA 6051
ACN	009 148 879
File Number	DER2017/002172
Premises	Mindarra 4 Piggery 1340 Wannamal Road Boonanarring WA Lot 10 on Diagram 80101 As defined by the coordinates in Schedule 1 of the Works Approval
Date of Report	17 May 2018
Status of Report	Final

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LIST OF TABLES

1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
ASTM method D638 - 14	means the Standard Test Method for Tensile Properties of Plastics
ASTM method D1238	means the Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
ASTM method D1505	means the Standard Test Method for Density of Plastics by the Density-Gradient Technique
ASTM method D5321/D5321M-17	Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear (ASTM International)
ASTM method D1603	means Standard Test Method for Carbon black content in Olefin Plastics
BOM	means bureau of Meteorology
CEO	means Chief Executive Officer CEO for the purpose of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 33 Cloisters Square WA 6850 Email: info@dwer.wa.gov.au
Delegated Officer	an Officer delegated under section 20 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.
DWER	Department of Water and Environmental Regulation
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	Licence L5724/1993/11 issued under Part V, Division 3 of the EP Act and in force prior to the commencement of, and during this Review
HDPE	means High-density polyethylene
kN/m2	Means kilonewton/metre square – a unit of pressure – force per area
mAHD	means metres at Australian Height Datum, a geodetic datum for altitude measurement in Australia
NEGP	means the *National Environmental Guidelines for Piggeries* (Australian Pork Limited, 2010)
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Risk Event	as described in *Guidance Statement: Risk Assessment*
SPU	means standard pig units, an animal of standard weight as detailed in NEGP
TDS	means total dissolved solids and is used as a measure of the saline content of water
WQPN #26	means Water Quality Protection Note #26 *Liners for containing pollutants, using synthetic membranes* (DoW August 2013)
WQPN #39	means Water Quality Protection Note #39 *Ponds for stabilising organic matter* (DoW, February 2009)
WWTS	means wastewater treatment system

2. Purpose and scope of assessment

2.1 Application details

Westpork Pty Ltd (Applicant) holds licence L5724/1993/11 for the operation of the Mindarra Farm Piggery. The Premises is divided into four separate areas (Mindarra 1, 2, 3 and 4) with each area or complex being allocated to a different stage of operations.

On 12 December 2017, the Applicant submitted a Works Approval Application to construct an evaporation pond at Mindarra 4. The Applicant's submitted documents have been detailed in Appendix 1.

This Decision Report presents an assessment of potential emissions associated with the construction and operation of the proposed pond. As part of this assessment process, the Department's Guidance Statements (as noted in section 5.1.3) will apply to the existing Licence L5724/1993/11 to ensure that appropriate conditions have been set to address the risk of emissions and discharges from the current activities.

3. Background

The Applicant operates four licensed piggeries in Western Australia:

- Gingin Breeder Farm (L4409/1988/8);
- Westpork Serpentine Piggery (L6373/1989/10);
- Martup Hills Piggery (L7279/1994/9); and
- Mindarra Farm Piggery (L5724/1993/11).

The Applicant has a current Works Approval (W6006/2016/1) to construct a piggery in the Moora area. Following construction, the assessed maximum stockholding capacity of the Moora Piggery will be 68,000 pigs, equivalent to 71,350 SPU at any one time.

3.1 Mindarra Farm Piggery

The Mindarra Farm piggery is located on 310 hectares of land and has a current assessed capacity to hold 65,000 pigs, excluding Mindarra 2 where the pigs are housed in deep litter sheds. The current average, excluding Mindarra 2, is 59,224 animals, equivalent to 63,448 SPU). The piggery has the capacity to house 70,000 pigs at any one time (approximately 76,000 SPU), where this includes Mindarra 2.

Mindarra Farm consists of four separate areas or complexes. Each complex has separate piggery housing and its own WWTS, except Mindarra 2 which only has deep litter sheds: The four piggeries are:

Mindarra 1: A sow breeder unit with a capacity of 950 sows and an average of 3,800 pigs at any one time, including suckers. Once the sows give birth, the suckers are kept with the sows till approximately 3 weeks of age prior removal to another complex. The pigs are housed in four conventional (2 dry sow sheds and 2 wet sow sheds) and four converted deep litter sheds.

The effluent handling for the conventional sheds is a pull-plug system and the pond system is a 2-stage system consisting of an anaerobic pond and an evaporative pond, both clay lined. Treated wastewater from the evaporative pond is used to flush the underfloor drains in the conventional sheds.

Mindarra 2: A grow out facility housing an average of 10,800 animals (weaners and finishers) in 120 deep litter shelters at any one time.

Mindarra 3: A sow multiplier unit, with an average of 6,500 pigs (up to finisher stage and including suckers) at any one time housed in 4 conventional sheds and 3 deep

litter sheds.

The WWTS consists of one anaerobic and 2 evaporative ponds, all clay lined. There is no screening of solids prior discharge to the anaerobic pond.

Mindarra 4: A grow-out facility with an average of 44,000 pigs housed in conventional sheds with a capacity for 55,000 animals when at full capacity. Operational details for Mindarra 4 are included in section 4.1.

Table 3 lists the category and description for the Mindarra Farm Piggery.

Table 2: Prescribed Premises Category in the Existing Licence

Classification of Premises	Description	Approved Premises production or design capacity or throughput
Category 2	Intensive piggery: premises on which pigs are fed, watered and housed in pens.	65,000 pigs at any one time

4. Overview of Premises

4.1 Operational aspects at Mindarra 4 Piggery

The Mindarra 4 complex is a grow-out facility where pigs are introduced at weaner stage (approximately 4 weeks old) from other piggeries. Pigs are housed in conventional sheds and moved between them according to their age. The majority of pigs are consigned for sale at approximately 18 to 24 weeks of age. The infrastructure components for Mindarra 4 are detailed in Appendix 2.

Piggery sheds operate on a flushing system where effluent, containing urine, faeces, spilt feed and spilt water, collects in drains under the pens. Weaner sheds are generally flushed once a week whilst sheds containing fully grown pigs are flushed every second day. A combination of bore water and recycled treated wastewater from the facultative lagoon is used to flush the underfloor drains.

The effluent from the sheds is collected in a concrete mixing tank and pumped to one of two screw presses. The solid portion from the screw press is moved to a concrete pad adjacent to the screw presses where it is allowed to dry prior export off site, usually within two days of collection.

The liquid portion from the screw press (857kL/day; 312.7ML/year) is pumped to the first anaerobic pond. There are three anaerobic ponds connected in parallel. The wastewater flows from the anaerobic ponds to a reactor lagoon, then to the facultative pond and finally to the two evaporation ponds, as detailed in Figure 2. There is no irrigation of treated wastewater on site.

4.2 Proposed Works

On 12 December 2017, the Department received a Works Approval application from the Applicant to construct a third evaporation pond and install an evaporator in the existing Evaporation Pond #1.

Third evaporation pond

The proposed pond is to be located north of the existing evaporation ponds, as shown in Figure 2. The dimensions are to be 250m x 250m x 1.5m (depth) with a design capacity of 88,220m^3 (excluding the 500mm freeboard). The pond is to be lined with 1.5mm HDPE.

The Applicant notes that there has been a build-up of sludge in the WWTS which has affected

the operation and efficiency of the system. The construction of a third evaporation pond and the installation of the evaporator will:

- increase the overall capacity within the system and increase the evaporation rate;
- allow the Applicant more flexibility with the recycling of treated wastewater;
- ensure there is sufficient capacity in the system in the event of a blockage in one of the pipes;
- allow for wave action within the pond system; and
- ensure the freeboard is not breached during an extreme rainfall event.

Evaporator

The Applicant intends to reduce the volume of treated wastewater used for flushing the sheds where water balance calculations provided in the Application note the target is to reduce by approximately 22% (from 540kL/day to 425kL/day). Wastewater levels in the proposed pond at the reduced reuse rate are shown in Figure 1.

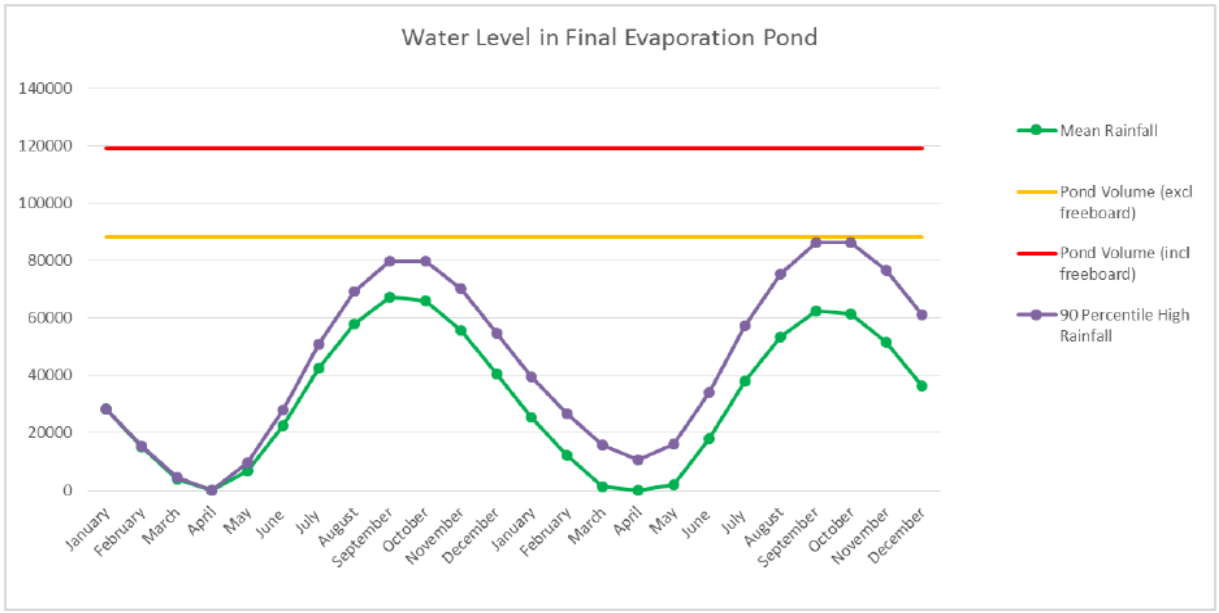

Figure 1: Water volume in proposed evaporation pond, based on a reduced reuse rate of 425kL/day (from Application)

The water volume in the proposed evaporation pond, as detailed in Figure 1, is based on the Applicant's following assumptions:

- Evaporation rates are conservative when compared to the Bureau of Meteorology daily evaporation data for the Gingin area;
- All ponds in the WWTS are assumed to be at 100% full capacity at the commencement of January. However, it is likely that losses during the summer period will have reduced the volume in the ponds; and
- The evaporation losses from the evaporator in Evaporation Pond #1 have been conservatively estimated and actual losses are expected to be higher.

Figure 2: Mindarra 4 WWTS and proposed located of new evaporation pond

5. Legislative context

5.1 Other relevant approvals

5.1.1 Local Government Planning Approval

Mindarra Farm Piggery is located within the Shire of Gingin's Local Planning Scheme No. 9 District Zoning Scheme. The Applicant obtained planning approval from the Shire for the Mindarra 4 piggery complex prior to its development.

The Department contacted the Shire on 8 January 2018 for comment on current proposal. The Shire advised DWER that the Applicant is required to apply for development approval to construct the pond under the Shire's Local Planning Scheme No. 9. The Department was notified on the 16 May 2018 that the Shire had granted development approval on 15 May 2018.

5.1.2 Part V of the EP Act

5.1.3 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- Guidance Statement: Regulatory Principles (July 2015)
- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Decision Making (February 2017)
- Guidance Statement: Risk Assessments (February 2017)

5.1.4 Current Licence

The current *Category 02 – Intensive Piggery* licence L5274/1993/11 was issued on 31 May 2012.

The Licence includes conditions pertaining to:

- Annual reporting;
- wastewater treatment and disposal;
- wastewater treatment ponds;
- wastewater irrigation;
- monitoring requirements including:
    - monthly maximum number of pigs held on-site at each piggery unit;
    - cumulative volume of wastewaters discharged to each irrigation area;
    - volume of treated wastewater recycled for shed flushing; and
    - wastewater quality.
- carcass disposal;
- wastewater pond desludging;
- sludge drying and temporary storage;
- storage of straw-based manure; and
- disposal of solid sludges and straw-based manure.

The Licence was subsequently amended by the Department by an administrative notice to extend the licence expiry date to 12 June 2027.

5.1.5 Works approval and licence history

Table 6 summarises the works approval and licence history for the premises.

Table 3: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
W958/1993/1	16/06/1993	Initial construction of piggery
W2097/1993/1	27/10/1997	Construction of piggery
L5724/1993/1	15/05/2000	New Licence
W3208/2000/1	18/10/2000	Works Approval
L5724/1993/2	15/05/2001	Licence re-issue
L5724/1993/3	14/05/2003	Licence re-issue
W3861/2004/1	19/01/2004	Works Approval
L5724/1993/4	14/05/2004	Licence re-issue
L5724/1993/5	14/05/2004	Licence re-issue
L5724/1993/6	14/06/2004	Licence re-issue
L5724/1993/7	13/06/2005	Licence re-issue
W4209/2006/1	16/05/2006	Construction of Mindarra 4 piggery and associated WWTS
L5724/1993/8	13/06/2006	Licence re-issue
L5724/1993/9	13/06/2007	Licence re-issue
W5087/2011/1	13/02/2012	Construction of two anaerobic ponds with sludge extraction systems at Mindarra 4 complex
L5724/1993/11	13/06/2012	Licence re-issue
L5724/1993/11	26/07/2016	Licence amendment to install an anaerobic digestor and biogas capture for combustion. Application withdrawn 5 July 2017.
W6114/2017/1	17/05/2018	Works Approval application to construct an evaporation pond at Mindarra 4 Complex

5.1.6 Key and recent works approvals for Mindarra Farm Piggery

On 30 February 2014, the Applicant lodged a Works Approval Application to develop a composting facility at the Mindarra 4 complex. The prescribed activities were to include:

- Category 67A: composting manufacturing and soil blending;
- Category 61A: solid waste facility; and
- Category 61: liquid waste facility.

The Works Approval (W5632/20141) was issued on 31 March 2016 and will expire on 3 April 2019. To date, DWER has been informed that construction of the facility has been delayed.

5.1.7 Key and recent licence amendments for Mindarra Farm Piggery

On 14 December 2015, the Applicant lodged a Licence Amendment Application. The amendment was for a composting facility at Mindarra 4 complex which included the construction and operation of an anaerobic digester and biogas plant. Due to delays in the construction of the facility and economic feasibilities, the Applicant withdrew their application on 5 July 2017.

5.1.8 Compliance inspections / compliance history for Mindarra Farm Piggery

There is no history of prosecution or formal statutory compliance/enforcement notices issued to Westpork by the Department under the EP Act.

DWER's Incident and Complaints Management System (ICMS) is the system used to record complaints received and non-compliance requiring investigation. Following a review of ICMS, there have been no recent complaints received from members of the public or surrounding operators relating to the operation of the premises.

5.2 Location and siting

5.2.1 Siting context

The premises are located on Wannamal Road West, Gingin, approximately 10 km east of Brand Highway and 90 km north of Perth. The lot consists of 310 hectares of General Rural Zoned land currently used for the piggery.

The predominant surrounding land use is a State Forest of uncleared native vegetation (north, east and south) and a Shire of Gingin gravel pit on rural land to the west of the premises. There are no dwellings or public or private activity within the immediate area

The premises are predominantly cleared with some areas of residual native vegetation and a block of approximately 45 hectares of pine trees plantation located east of Mindarra 4.

5.3 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 4 and the location of the Rural-residential dwellings #1 and #2 are shown in Figure 4. Due to the scale of the map, the town of Gingin is not shown in Figure 4.

Table 4: Receptors and distance from premises boundary

Sensitive Land Uses	Distance from premises boundary
Rural-residential dwelling #1	2,800 metres east
Rural-residential dwelling #2	3,100 m to the west
Oil/Gas Mining Operation	8,700 m to the west
Town of Gingin	19km to the south-west

5.4 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities or emissions and discharges from the Premises. The distances to specified ecosystems are shown in Table 5 and their location is shown In Figure 5 .

Table 5: Environmental values

Specified ecosystems	Distance from Prescribed Premises
Soak 1 - Resource Enhancement Dampland. (ID: 11203)	Located in the southeast corner of the site and ~ 1km from the proposed evaporation pond Resource enhancement management category
Soak 2 - Conservation Category Dampland. (ID:11202) Lot 2 has a private landowner and the lot contains remnant bush	Adjacent to the eastern boundary and approximately 620m from the proposed evaporation pond Conservation management category
Soak 3 - Multiple Use Sumpland	Less than 2km to the south-west of the piggery Multiple use management category
Carnaby's Black Cockatoo Listed as a threatened species under the *Wildlife Conservation Act 1950* and endangered under the *Environmental Protection and Biodiversity Conservation Act 1999*	Potential foraging and roosting habitat within the pine plantation located on Mindarra Farm Piggery
Threatened Ecological Community (Banksia Woodlands of the Swan Coastal Plain)	May occur in the vicinity of the piggery
Boonanarring Nature Reserve (Crown Reserve 41805). Crown Reserve administered by the Department of Biodiversity, Conservation and Attractions and dedicated to the conservation of flora and fauna under the *Wildlife conservation Act 1950*	Adjacent to southern boundary of Mindara Farm Piggery and on the southern side of Wannamal Road West

5.5 Groundwater and water sources

The premises overlies the Perth Basin, which is a major sedimentary basin that lies west of the Darling Range extending from around Geraldton to the south coast. It contains significant aquifers of fresh groundwater primarily recharged by direct infiltration of rainfall. The premises is located within DWER's proclaimed Gingin Groundwater Area. Five groundwater bores, previously installed on the premises, show depths ranging from 78 to 93.5 metres below ground level (mBGL). Groundwater salinity has been calculated to be approximately 1,990mg/L between 98 and 111mBGL.

A review of the past three Annual Reports for the Mindarra 4 complex (2015, 2016 and 2017 reporting periods) show low levels for Biochemical oxygen Demand (BOD), total nitrogen (TN) and total phosphorus (TP) in the three monitoring bores on site.

Westpork has advised that there are no watercourses on the premises. The premises is located within two hydrological catchments: The closest rivers are the Red Gully Creek, located 5.6km north and Boonanarring Brook, located 7.3km south of the premises.

The distances to groundwater and water sources are shown in Table 6.

Table 6: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental Value
Groundwater is considered brackish (between 1,000 to 1,600mg/L TDS	Groundwater in the area is indicated at depths of at least 60mbgl. A perched water table may be present at 15mbgl. Five groundwater bores are located within the premises boundary, four of which are owned by Westpork (based on available GIS dataset – WIN Groundwater Sites). Westpork is licensed to abstract from three bores on the site with an allocation of 379,850kL of water per annum	Classified as non-potable Abstracted groundwater is used in the piggery operations Within the proclaimed Gingin Groundwater Area

5.6 Other site characteristics

5.6.1 Topography

The topography of the site is predominantly flat with an average Reduced Level (RL) varying from 195.0 to 210.0mAHD. The proposed location for the evaporation pond is at a lower elevation compared to the surrounding area at Mindarra 4 complex, as shown in Figure 3. An elevated hill is located on the mid-west side up to 239.0m AHD. There are no areas of significance other than State Forest which adjoins the premises on the northern and eastern boundary.

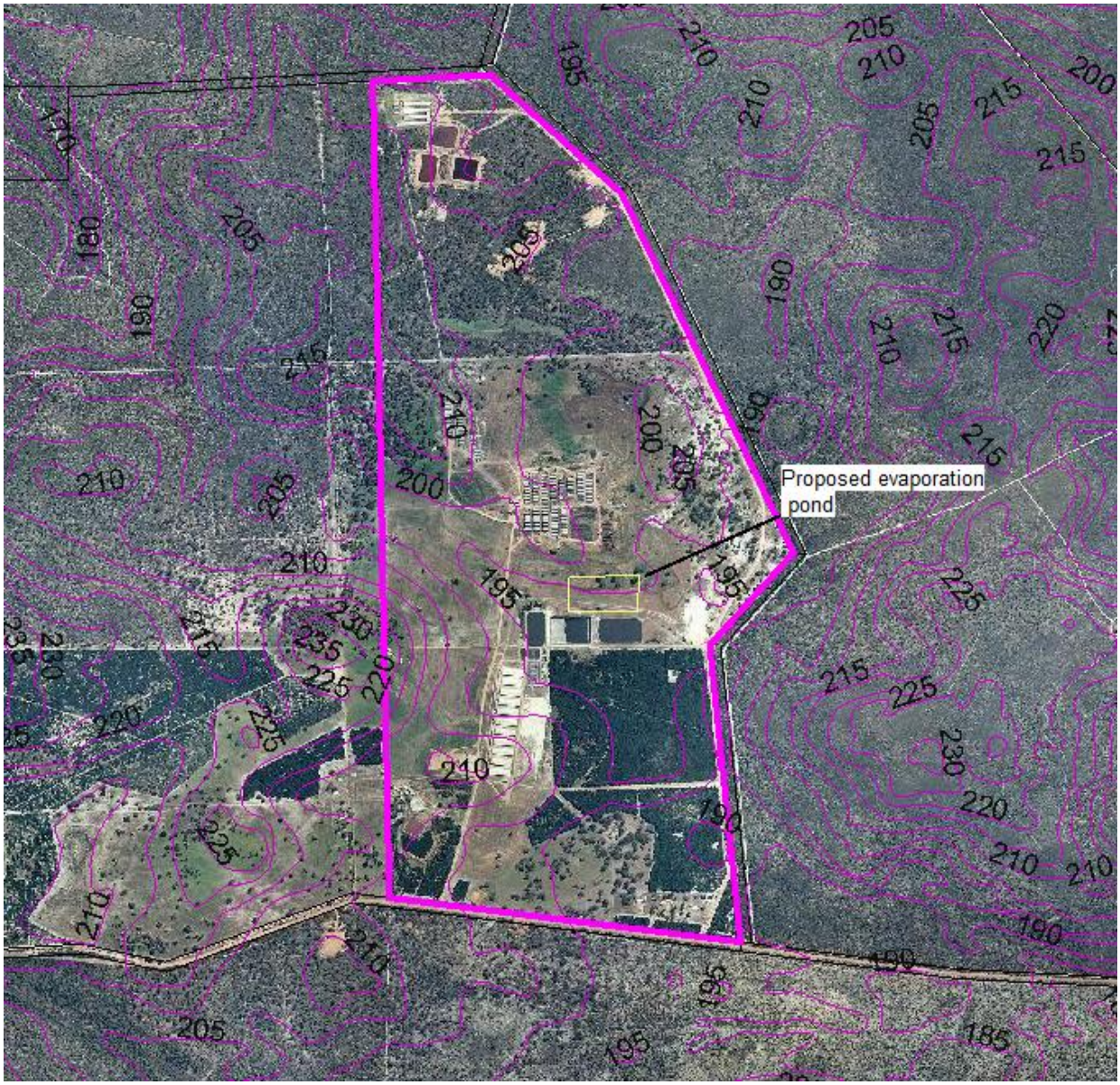

Figure 3: Elevation contours (DWER generated)

5.6.2 Soil type

The site is located on the Dandaragan Plateau and consists of varied soil types. Generally, the lower areas to the east have a Karrakatta Formation yellow sand type, while the elevated soil to the west is lateritic clay and gravel.

Stratigraphic logs from five bores located in the vicinity of the piggery were obtained from

DWER's WIN database. The bores were drilled into the Leederville formation to depths between 128 and 144mBGL and generally show a stratigraphy comprising sand and gravelly sands within the upper few metres, progressing into various sandy clays and clays with siltstones, shales and sandstones at depth.

5.6.3 Rainfall and temperature

The region experiences a Mediterranean climate with hot dry summers and mild wet winters. The nearest Bureau of Meteorology climate station to the project area is at Gingin (approximately 17km south of the site). Mean monthly maximum temperatures at Gingin range from 33.2°C in January to 18.3°C in July and mean minimum temperatures range from 17.1°C in January to 6.2°C in July.

Rain falls mostly in the cooler months, from May through to August. Mean monthly rainfalls vary from 9.5mm in February to 124.9mm in July with an annual mean rainfall of 632.5 (BOM 2018). Annual evaporation is approximately 2,200mm (BOM 2018) and annual evaporation rates exceed rainfall. Summer thunderstorms and remnant tropical cyclones can cause isolated and heavy rain, resulting in local flooding.

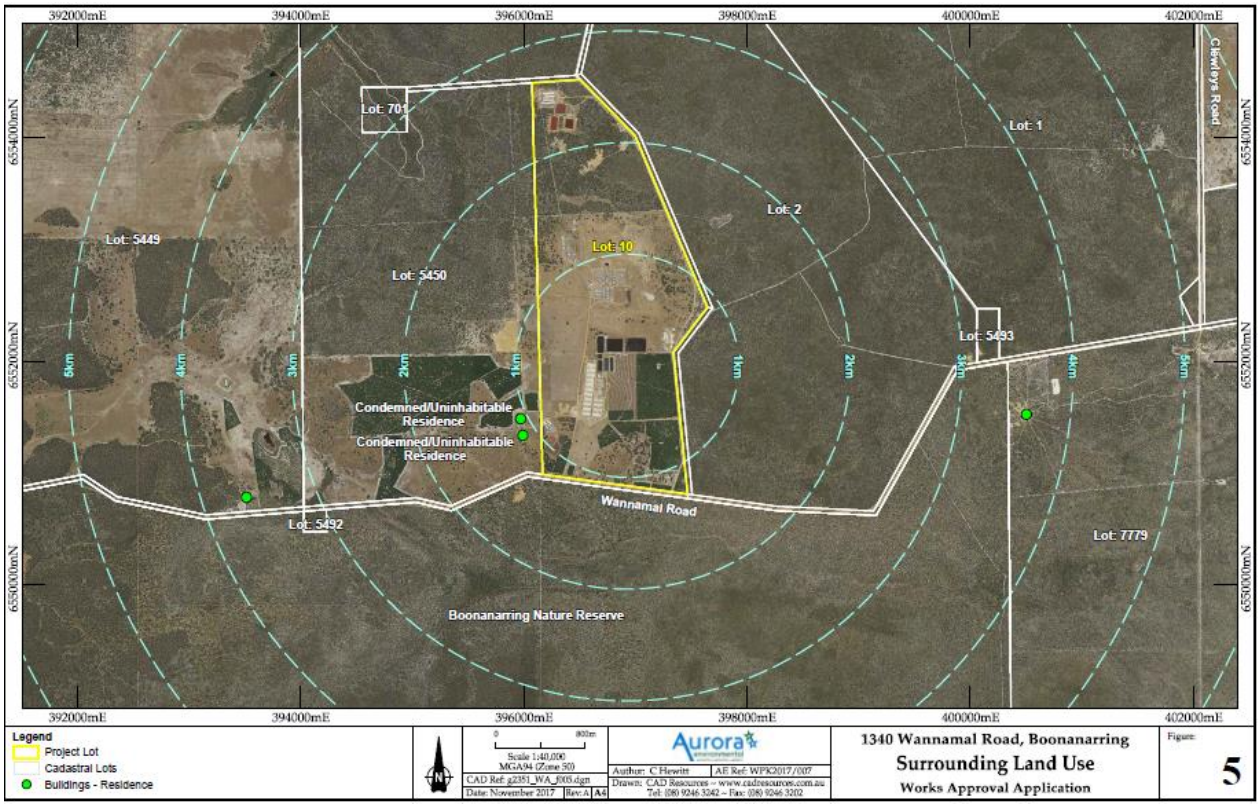

Figure 4: Nearby Residential dwellings (from Application)

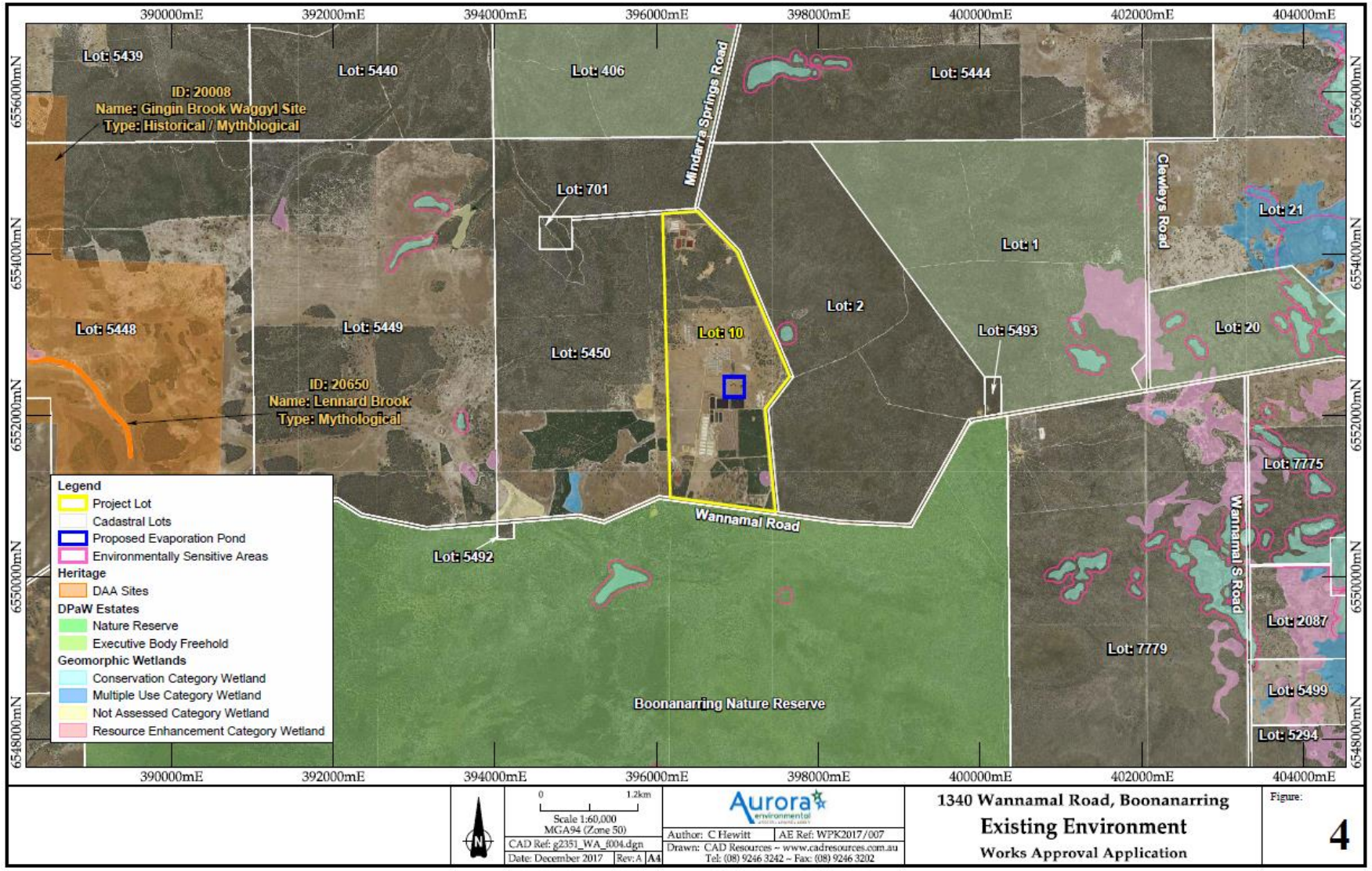

Figure 5: Premises location and surrounding environment (from Application)

6. Risk assessment

6.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER has identified all potential emission pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 7 below.

Table 7: Identification of emissions, pathway and receptors *during construction*

Risk Events					**Continue to risk assess-ment**	**Reasoning**
Sources / Activities	**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
Construction *Construction activities and* **v**ehicle movement	*Dust*	Closest resident is 3.8km east of the location for the proposed pond	Air / wind dispersion	No impacts expected	No	The Delegated Officer considers there is sufficient separation distance between construction activities and the closest rural dwelling. Exposed soil will be wetted down prior to and during construction activities. Construction will be restricted to 0700 and 1700 hours on weekdays and 0700 and 1430 hours on Saturdays. The *Environmental Protection (Noise) Regulations 1997* apply
	Noise					
Operation Conveyance of wastewater	Odour	Closest resident is 3.8km east of the location for the proposed pond	Air / wind dispersion	No impacts expected	No	The Delegated Officer considers that the evaporation pond is not a significant source of odour emissions. The separation distance to the closest rural dwelling is sufficient and DWER has not received any odour complaints for the current operations.
	Seepage of treated wastewater to groundwater	Groundwater	Infiltration	No impact expected	No	The Delegated Officer considers the potential for seepage to impact on the underlying groundwater is minimal as the proposed pond will be lined with a 1.5mm HDPE liner and the groundwater is located 60mBGL.
	Breach of containment leading to surface water runoff	Surface water and groundwater	Direct discharge to land	No impact expected	No	The Delegated officer considers there is sufficient capacity in the WWTS to contain the quantity of wastewater discharged from Mindarra 4 complex. The proposed pond is designed to spill not more than once every 10 years, which is in keeping with NEGP recommendations. The 500mm freeboard is sufficient to allow for extreme rainfall events and wave action on the ponds.

7. Regulatory controls

A summary of regulatory controls determined to be appropriate for the construction of the proposed evaporation pond is set out in Table 8. The conditions of the Works Approval will be set to give effect to the determined regulatory controls. Following completion of all construction activities, DWER may review and update the existing licence to ensure that it reflects current prescribed activities on site.

7.1 Works Approval controls

7.1.1 Construction requirements for the proposed evaporation pond

The Works Approval Holder must locate the Works generally in accordance with the Site Plans in the Works Approval and construct the pond as detailed in the Application. The design and construction requirements for the pond are required to address operational risks including containment failure and seepage.

The Works Approval will include the requirement that, on completion of the Works, the Applicant is to provide to the CEO confirmation and photographic evidence that the works have been carried out in accordance with the requirements, as specified in the tables below:

Table 8: Infrastructure requirements for the proposed evaporation pond

Infrastructure	Requirements (design and construction)
Proposed Evaporation pond	The pond must be designed and constructed to be fit for purpose for receiving effluent from the maximum number of pigs located on Mindarra 4 complex and of suitable capacity allowing for: (i) Overtopping to not occur on average more than once every 10 years, consistent with section 12.1.1 of the NEGP; (ii) Lined with a HDPE lining material of a minimum of 1.5mm thickness; (iii) The permeability of the HDPE liner designed to achieve a minimum or less than 1 x 10^{-9}m /second and must ensure no detectable leakage from the proposed pond; (iv) The floor of the pond to be a minimum of 2m above the highest level of the groundwater; (v) Minimum 150mm subgrade preparation to provide a sound and stable base. Subgrade preparation must include compaction until no rutting or pumping is observed and the soils must be free from plant roots and reactive, soluble and organic matter; (vi) Liner constructed on a gradient of less than 1 in 3; (vii) Be durable to maintain permeability for the working life of the pond; (viii) The liner fabricated to form the shape of the excavation; (ix) All seams and joins made on site should be continuous; (x) Panels of the liner should be overlapped by a minimum of 100mm, prior to heat welding or mechanical jointing where the membrane welding materials should be identical with the liner membrane; (xi) The HDPE liner must meet the following specification: (a) Specific gravity of 0.94 or more (ASTM method D1505); (b) Melt index of 0.05g to 0.30g in 10 minutes (ASTM method D1238, condition E 190/2.16); (c) Carbon black content of 2-3% (ASTM method D1603); (d) Minimum tensile strength at yield of 16 kN/m^2; (e) Minimum tensile strength at break of 550 kN/m^2 (ASTM method D638, type IV 2); and (f) Minimum elongation at yield of 10%, and at break 300% (ASTM method D638). (xii) All seams and joins to be tested by an approved method used in the HDPE membrane industry;

Infrastructure	Requirements (design and construction)
	(xiii) HDPE liner shear resistance to be tested in accordance with ASTM D5321/D5321M-17; (xiv) The preparation and insertion of the HDPE liner must be supervised by a competent and experienced professional; (xv) Embankments designed and constructed to prevent erosion as a result of stormwater runoff including: (a) Appropriate embankment construction material as well as sufficient compaction of soil; and (b) Batter slopes of approximately 18 degrees to maintain embankment stability. (xvi) The inlet pipe for the pond to be positioned beyond the toe of the pond wall and at a depth of less than 0.5m from the embankment crest level (above the maximum surface water level); and (xvii) Embankments to allow access for inspection and clearing debris.

Note: Requirements derived from the Application, CEO requirements and NEGP recommendations.

The requirements specified above for liner construction and testing are consistent with WQPN 26 and 39 which are appropriate reference documents for ponds containing wastewater high in nutrients.

8. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 9 provides a summary of the conditions to be applied to this works approval

Table 9: Summary of conditions to be applied

Condition Reference	Grounds
Environmental Compliance Condition 1	Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act.
Notification of Material Change Conditions 2, 3 and 4	These conditions are valid, risk-based and enable flexibility in operations.
Infrastructure and Equipment Conditions 5 and 6	These conditions are valid, risk-based and contain appropriate controls.
Emissions Condition 5	This condition is valid, risk-based and consistent with the EP Act.
Information and record keeping Condition 6 and 7	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

9. Specified actions and requirements for ongoing operations

DWER notes that it may review the appropriateness and adequacy of controls at any time. On the completion of construction activities and prior to operation of the proposed evaporation pond, the Applicant is required to submit a licence amendment application for L5724/1993/11. The licence will be amended to include conditions for the spill frequency of the proposed pond and maintenance of the pond liner and embankments.

10. Applicant's comments

The *Applicant* was provided with the draft Decision Report and draft issued *Works Approval* on 9 February 2018. Westpork's response has been noted in Appendix 3.

11. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report and summarised in Appendix 2. The Delegated Officer will grant the application, subject to conditions.

Paul Byrnes
Manager, Licensing (Process Industries)
Regulatory Services

An Officer delegated under section 20 of the
Environmental Protection Act 1986 WA

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Works Approval Application for Mindarra 4 Piggery	W6114/2017/1	DWER records (A1578301)
2.	Works Approval Application titled *Mindarra 4 Piggery 1340 Wannamal Road, Boonanarring* (Aurora Environmental, Report Number: AP2017-196 Vs 1, dated 12 December2017	The Application	DWER records (A1578301)
3.	Licence L5724/1993/11 – Westpork Mindarra Farm Piggery	L5724/1993/11	accessed at www.dwer.wa.gov.au
4.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
5.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
6.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
7.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
8.	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DER 2016c	

Appendix 2: Infrastructure Components for Mindarra 4 Complex

#	Component	Description	Capacity excluding freeboard
1.	19 x intensive sheds	Intensive sheds which operate with underfloor drains and flushing is a pull-plug system. There are 17 tunnel ventilated intensive sheds, one controlled environment shed for weaners and one sorting shed	
2.	1 x mixing tank	Concrete tank. Diameter 11m with a capacity of ~136kL	
3.	2 x screw presses	Separates the liquid and solid portions of the effluent stream	
4.	1 x anaerobic pond 1a	102mm (length) x 47m (width) x 7.4m (depth). Lined with 1.5mm HDPE. Freeboard is 0.5m	26,985m^3
5.	1 x anaerobic pond 1b	120m (length) x 45m (width) x 7m (depth). Lined with 1.0mm HDPE. Freeboard is 0.5m	29,122m^3
6	1 x anaerobic pond 1c	120m (length) x 45m (width) x 7m (depth). Lined with 1.0mm HDPE. Freeboard is 0.5m	29,122m^3
7.	1 x Reactor lagoon	41m (length) x 47m (width) x 6.5m (depth). Lined with 1.0mm HDPE which includes a HDPE curtain. Freeboard is 0.5m	5,774m^3
8.	1 x Facultative pond	150m (length) x 66m (width) x 4.5m (depth). Lined with 1.0mm HDPE which includes a HDPE curtain. Freeboard is 0.5m	34,524m^3
9.	1 x Evaporation pond 1	150m (length) x 125m (width) with depth grades from 1.0m to 4.5m. Lined with 1.0mm. Freeboard is 0.5m	32,736m^3
10.	1 x Evaporation pond 2	170m (length) x 120m (width) with depth grades from 1.0m to 4.5m. Lined with 1.0mm. Freeboard is 0.5m	35,766m^3
11	Proposed Evaporation pond	250m (length) x 250m (width) with depth grades from 1.0m to 4.5m. Lined with 1.0mm. Freeboard is 0.5m	88,220m^3
12.	1 x Composting pad	Compacted clay. Dimensions 120m (length) x 70m (width) located near the Mindarra 4 piggery sheds	
13.	1 x bore	Groundwater monitoring bore. Marked as Min top Bore	

Appendix 3: Summary of applicant's comments on risk assessment and draft conditions

Works Approval Conditions	Summary of Licence Holder comment	DWER response
4	Thickness of HDPE liner for proposed evaporation pond confirmed	Works approval updated
Decision Report Section	**Summary of Licence Holder comment**	**DWER response**
3.1	Average animal numbers at Mindarra 1, 2, 3 and 4 including SPU and total capacity for piggery	Decision Report updated
4.1	Age of pigs when consigned for sale updated	
4.1	Flushing system for Mindarra 4 piggery	
4.1	Confirmation that solid wastes from the screw presses are transferred to a concrete pad and allowed to dry prior export off site	
4.1	Confirmation of capacity of proposed evaporation pond and thickness of HDPE liner	

Attachment 1: Issued Works Approval W6114/2017/1