



Licence

Environmental Protection Act 1986, Part V

Licensee: Goodchild Abattoirs Pty Ltd

Licence: L5423/1990/15

Registered office: 30 Wellington Street
BUNBURY WA 6230

ACN: 008 944 492

Premises address: Goodchild Abattoir
189 Rosamel Road
PARKFIELD WA 6233
Being Lot 300 on Plan 37367 as depicted in Schedule 1.

Issue date: Thursday, 24 September 2015

Commencement date: Thursday, 1 October 2015

Expiry date: Wednesday, 30 September 2020

Prescribed premises category

Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
15	Abattoir: premises on which animals are slaughtered.	1 000 tonnes or more per year	30 000 tonnes per annual period
55	Livestock saleyard or holding pen: premises on which live animals are held pending their sale, shipment or slaughter.	10 000 animals or more per year	290 000 animals per annual period

Conditions

This Licence is subject to the conditions set out in the attached pages.

.....
Jonathan Bailes
Manager Licensing (Process Industries)
Officer delegated under section 20
of the *Environmental Protection Act 1986*



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Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role

The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER regulates to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:

<http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.



Licence holders are also reminded of the requirements of section 53 of the Act which places 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.

Licence fees

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions

If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary

Goodchild Abattoirs Pty Ltd (Goodchild) operates a domestic sheep and cattle abattoir at Lot 300, Rosamel Road, Parkfield approximately 15 km northeast of Bunbury in the Shire of Harvey. The abattoir has been in operation at the current site since 1977 and currently operates four days per week. The facility is able to process up to 290 000 animals per year. The premises is situated within the Kemerton Industrial Zone Buffer Area of the Kemerton Industrial Park, a strategic industrial area for heavy industry.

A residential subdivision has been established southwest of the abattoir with the closest residence located 600m from the facility's aerobic wastewater treatment pond. Other sensitive receptors in the surrounding area include Rosamel Wetland, an Environmental Protection Policy (EPP) Wetland 200m west of the premises boundary, a conservation category wetland on the eastern boundary of the premises, and the Leschenault Estuary (conservation category wetland) 1km west of the premises boundary. Surrounding land users include a piggery east of the abattoir and Department of Parks and Wildlife managed land.

The premises covers an area of approximately 25h; 9ha of native vegetation and 16ha of abattoir infrastructure and cleared land. Site infrastructure comprises a slaughterhouse, open and covered livestock holding yards, stock holding paddocks, internal roads, administration buildings, aerobic and facultative wastewater treatment ponds, a reverse osmosis wastewater treatment plant and treated water storage tanks. Abattoir operations comprise receipt and holding of live animals, slaughter of live animals, collection and removal of solid wastes including offal, carcasses, blood, screening waste and paunch material to appropriately licensed offsite disposal facilities, treatment of wastewater and contaminated stormwater, and reuse or offsite disposal of treated wastewater.

All wastewater and contaminated stormwater from the abattoir and livestock holding yards is directed into the site wastewater treatment system (WWTS). The WWTS has been recently upgraded via works approval W5595/2014/1 to include a tertiary treatment stage to improve the quality of treated water. The WWTS comprises a primary and secondary screening system, a HDPE lined aerobic wastewater treatment pond, six clay lined facultative ponds and a reverse osmosis treatment plant. Treated water is transferred to storage tanks for reuse on site as wash down water for the holding yards. Wastewater may also be collected from the final facultative pond for offsite disposal to a licensed facility due to shut down or malfunction of the WWTS. As a result of the WWTS upgrade, Goodchild has been able to decommission the unlined anaerobic pond which was previously the first stage in the wastewater treatment process. A hydrogeological assessment of the site in 2011 identified a plume of elevated nutrient concentration which is attributed to seepage from the unlined anaerobic pond and the previously clay lined aerobic pond.

Key issues associated with operation of the facility include odour emissions, solid waste management and wastewater management. There are numerous odour sources within the abattoir although historically the WWTS has been the primary odour source. Decommissioning of the anaerobic pond has removed the primary odour contributor; however correct management of the WWTS and other odour generating activities is essential to minimise odour emissions as the premises is located within the recommended separation distance for sensitive land uses.



This Licence is the successor to licence L5423/1990/14 and includes conversion to a new format and additional groundwater monitoring to establish baseline groundwater quality and enable detection of groundwater contamination associated with activities on the premises if it occurs.

The licences and works approvals issued for the Premises since 06/03/1992 are:

Instrument log		
Instrument	Issued	Description
L3481	06/03/1992	Licence re-issue
L4056	10/03/1993	Licence re-issue
L5423	05/10/1994	Licence re-issue
W1299	30/10/1995	Works approval for development of a by-product plant
W1299	08/04/1997	Proponent amendment to extend expiry date
L5423/1	21/11/1997	Licence re-issue
L5423/1	29/06/1998	DER initiated amendment to include groundwater monitoring
L5423/2	17/11/1998	Licence re-issue
L5423/3	22/09/1999	Licence re-issue
L5423/4	30/08/2000	Licence re-issue
L5423/4	08/01/2001	DER initiated amendment in response to high nutrient levels
L5423/5	17/09/2001	Licence re-issue
L5423/6	30/08/2002	Licence re-issue
L5423/7	15/09/2003	Licence re-issue
L5423/8	07/09/2004	Licence re-issue
L5423/9	27/07/2005	Licence re-issue
L5423/10	14/09/2006	Licence re-issue
L5423/1990/11	27/09/2007	Licence re-issue
L5423/1990/12	18/09/2008	Licence re-issue
L5423/1990/12	28/04/2011	DER initiated amendment in response to non-compliances
L5423/1990/13	22/09/2011	Licence re-issue
L5423/1990/14	20/09/2012	Licence re-issue
W5595/2014/1	15/05/2014	Works approval to upgrade the wastewater treatment system
L5423/1990/15	24/09/2015	Licence re-issue and update to current template

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION



Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the Environmental Protection Act 1986 apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986*;

'AHD' means the Australian height datum;

'annual period' means the inclusive period from 1 January until 31 December in that year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*;

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*;

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*;

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'hardstand' means a surface with a permeability of 10^{-9} metres/second or less;

'Licence' means this Licence numbered L5423/1990/15 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' 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' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;



'quarterly' means the 4 inclusive periods from 1 April to 30 June, 1 July to 30 September, 1 October to 31 December and in the following year, 1 January to 31 March;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia;

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.1.5 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:

- (a) pollution;
- (b) unreasonable emission;
- (c) discharge of waste in circumstances likely to cause pollution; or
- (d) being contrary to any written law.

1.2 General conditions

1.2.1 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.2 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.3 The Licensee shall:

- (a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the Premises; and
- (b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.¹

Note1: *The Environmental Protection (Unauthorised Discharges) Regulations 2004* make it an offence to discharge certain materials into the environment.

1.3 Premises operation

1.3.1 The Licensee shall ensure that all wastewaters from the abattoir and livestock holding yards including wash down water, by-products wastewater and contaminated run-off are directed to a wastewater treatment system via a solids trap.

1.3.2 The Licensee shall not allow access of stock, or contaminated or treated wastewater within twenty (20) meters of the eastern boundary of the premises where it abuts Lot 20 on Diagram 33500.

1.3.3 The Licensee must ensure that material specified in Table 1.3.1 is only stored and/or treated within vessels or compounds provided with the infrastructure detailed in Table 1.3.1.



Table 1.3.1: Containment infrastructure		
Containment point reference and location on Map of storage and monitoring locations	Material	Infrastructure requirements
Aerobic pond (F1)	Raw wastewater and reject water from the wastewater treatment plant	1.5mm HDPE lined to achieve a permeability of $<1 \times 10^{-9}$ m/s.
Facultative ponds (F2-F7)	Partially treated wastewater	Clay lined
Wastewater storage tanks	Tertiary treated wastewater for reuse	2x 32 000 kL enclosed, impermeable storage tanks
Wastewater treatment plant	Partially treated wastewater received from the facultative ponds	Plant and associated treatment tanks located within a concrete hardstand area
Solid waste storage area	Animal waste, abattoir waste (e.g. offal, carcasses and paunch), screening solids and sludges, and sludges and solids from the WWTS	A concrete bunded hardstand area capable of preventing surface run-off of leachate and with a drainage system that can return leachate to the WWTS OR An impermeable collection vehicle
Blood containment tank	Animal blood	Enclosed, impermeable, elevated storage tank over a concrete bunded hardstand area capable of preventing surface run-off of blood

- 1.3.4 The Licensee shall manage all wastewater treatment ponds such that:
- overtopping of the ponds does not occur;
 - a minimum top of embankment freeboard of 300mm is maintained;
 - the integrity of the containment infrastructure is maintained;
 - trapped overflows are maintained on the outlet of ponds to prevent carry-over of surface floating matter;
 - vegetation and floating debris (emergent or otherwise) is prevented from encroaching onto pond surfaces or inner pond embankments; and
 - stormwater runoff is prevented from entering the wastewater treatment ponds.

2 Monitoring

2.1 General monitoring

- 2.1.1 The licensee shall ensure that:
- all water samples are collected and preserved in accordance with AS/NZS 5667.1;
 - all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
 - all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and
 - all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.
- 2.1.2 The Licensee shall ensure that :
- monthly monitoring is undertaken at least 15 days apart; and
 - quarterly monitoring is undertaken at least 45 days apart.
- 2.1.3 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.



2.1.4 The Licensee shall, 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.

2.2 Monitoring of inputs and outputs

2.2.1 The Licensee shall undertake the monitoring in Table 2.2.1 according to the specifications in that table.

Table 2.2.1: Monitoring of inputs and outputs				
Input/Output	Parameter	Units	Averaging period	Frequency
Animals	Animals processed	Number	Monthly	Each load of animals arriving at the Premises for the purpose of slaughter

2.3 Process monitoring

2.3.1 The Licensee shall undertake the monitoring in Table 2.3.1 according to the specifications in that table.

Table 2.3.1: Process monitoring					
Monitoring point reference and location on Map of storage and monitoring locations	Process description	Parameter	Units	Frequency	Averaging period
PM1	Abattoir wastewater discharged to aerobic pond F1	Volumetric flow rate	m ³ /day	Continuous	Monthly
PM2	Wastewater discharged from the wastewater treatment plant for reuse or disposal	Volumetric flow rate	m ³ /day	Continuous	Monthly
		pH	-		
		Total dissolved solids, total suspended solids, 5-day biochemical oxygen demand, total nitrogen, total kjeldahl nitrogen, nitrite and nitrate nitrogen, ammonium-nitrogen and total phosphorus	mg/L	Monthly	Spot sample

2.4 Ambient environmental quality monitoring

2.4.1 The Licensee shall undertake the monitoring in Table 2.4.1 according to the specifications in that table and record and investigate results that do not meet any limit specified.



Table 2.4.1: Monitoring of ambient groundwater quality				
Monitoring point reference and location and location on Map of storage and monitoring locations	Parameter	Units	Averaging period	Frequency
GQ1 – GQ7	Standing water level	m(AHD)	Spot sample	Quarterly
	pH	-		
	Total dissolved solids, total suspended solids, total nitrogen, total kjeldahl nitrogen, nitrite and nitrate nitrogen, ammonium-nitrogen and total phosphorus	mg/L		

3 Improvements

3.1 Improvement program

3.1.1 The Licensee shall complete the improvements in Table 3.1.1 by the date of completion in Table 3.1.1.

Table 3.1.1: Improvement program		
Improvement reference	Improvement	Date of completion
IR1	The Licensee shall submit a Closure Report following completion of the decommissioning of the anaerobic pond. The report shall include details of the volume of waste removed from the pond, the disposal location for waste removed from the pond, and the rehabilitation methods used to decommission the facility.	31 March 2016

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:

- (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) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
 - (i) off-site environmental effects; or
 - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee shall ensure that:

- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

4.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.



4.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 60 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	Parameter	Format or form ¹
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 2.2.1	Animals processed	None specified
Table 2.3.1	Volumetric flow rate (entering and exiting the WWTS), pH, total dissolved solids, total suspended solids, 5-day biochemical oxygen demand, total nitrogen, total kjeldahl nitrogen, nitrite and nitrate nitrogen, ammonium-nitrogen and total phosphorus	None specified
Table 2.4.1	Standing water level, pH, total dissolved solids, total suspended solids, total nitrogen, total kjeldahl nitrogen, nitrite and nitrate nitrogen, ammonium-nitrogen and total phosphorus	None specified
4.1.3	Compliance	Annual Audit Compliance Report (AACR)
4.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form ¹
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEO's request	As received by the Licensee from third parties

Note 1: Forms are in Schedule 2



4.3 Notification

4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	Parameter	Notification requirement¹	Format or form
2.1.4	Calibration report	As soon as practicable.	None specified
-	Taking a wastewater treatment pond offline for maintenance works and/or removal of sludge from a wastewater treatment pond.	No less than 14 days in advance of works ²	None specified

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

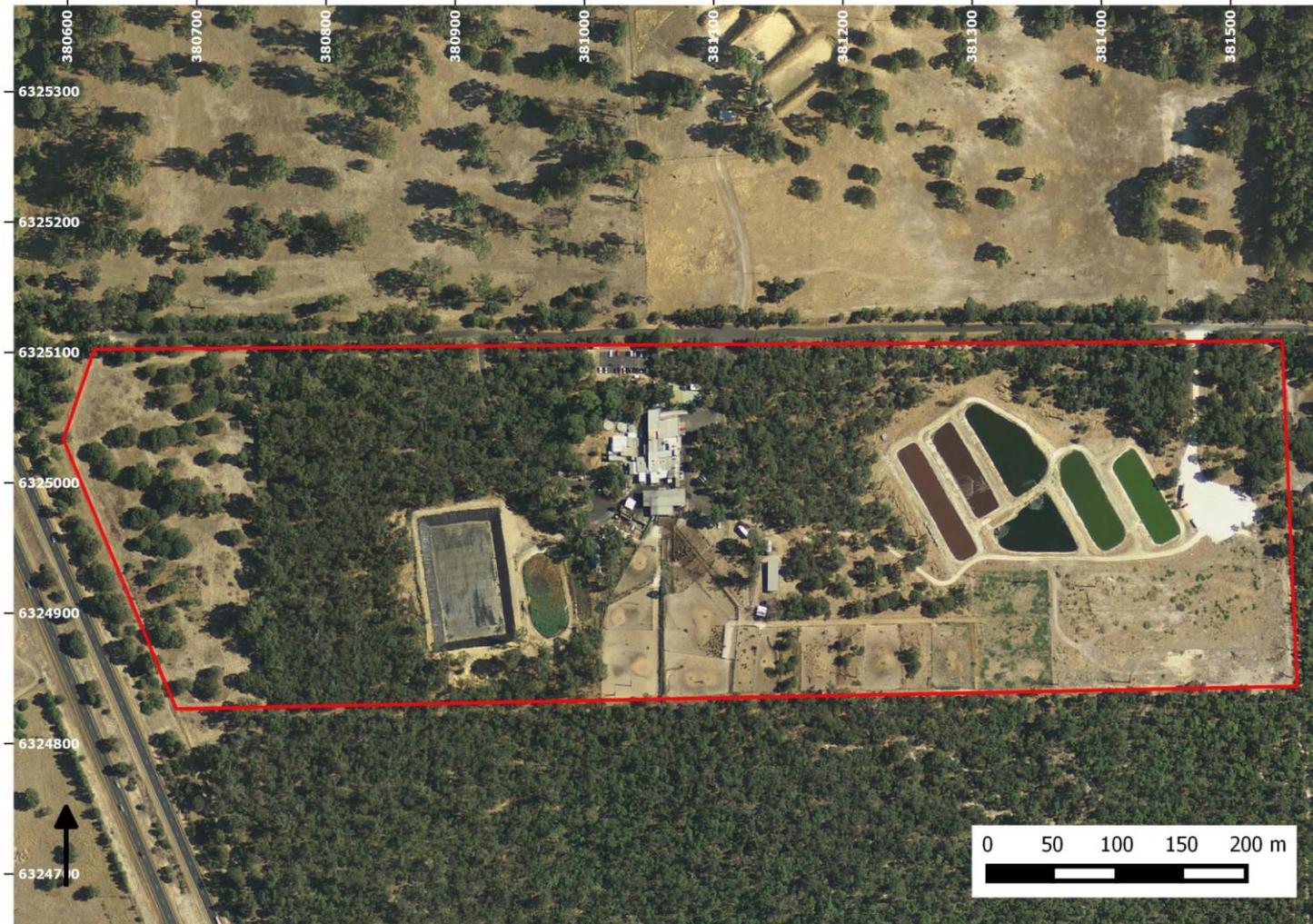
Note 2: The following information shall be included: (i) when desludging is proposed to occur, (ii) the desludging method, (iii) action to mitigate potential odour impacts, and (iv) the method by which the community will be advised of the desludging activities.



Schedule 1: Maps

Premises map

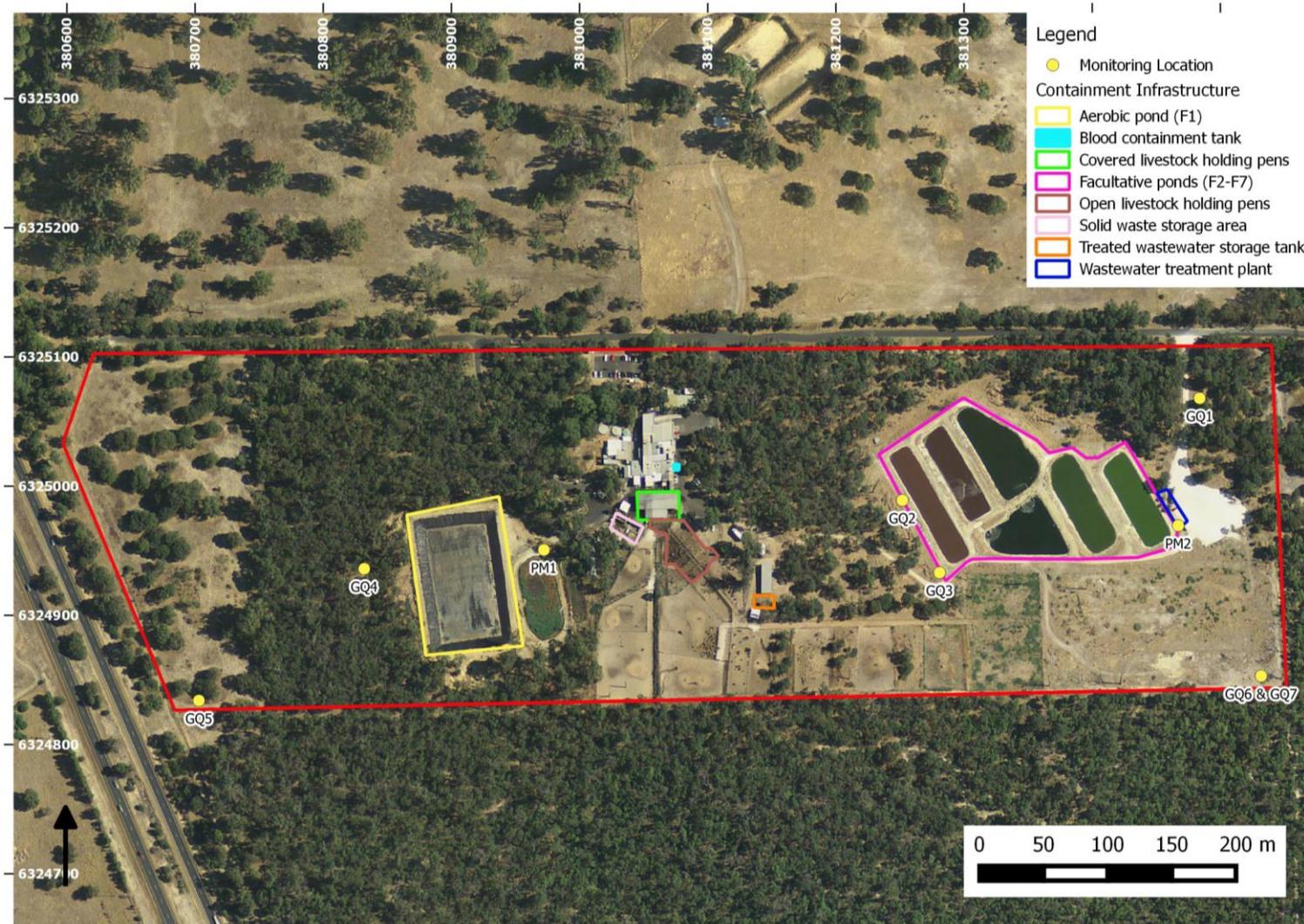
The Premises is shown in the map below. The red line depicts the Premises boundary.





Map of storage and monitoring locations

The locations of the containment infrastructure defined in Table 1.3.1 and monitoring points defined in Tables 2.3.1 and 2.4.1 are shown below.





Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

ANNUAL AUDIT COMPLIANCE REPORT PROFORMA

SECTION A

LICENCE DETAILS

Licence Number:	Licence File Number:
Company Name:	ABN:
Trading as:	
Reporting period: _____ to _____	

STATEMENT OF COMPLIANCE WITH LICENCE CONDITIONS

1. Were all conditions of the Licence complied with within the reporting period? (please tick the appropriate box)

Yes Please proceed to Section C

No Please proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this Annual Audit Compliance Report (AACR).

Initial:



SECTION C

SIGNATURE AND CERTIFICATION

This Annual Audit Compliance Report (AACR) may only be signed by a person(s) with legal authority to sign it. The ways in which the AACR must be signed and certified, and the people who may sign the statement, are set out below.

Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the licence holder is		The Annual Audit Compliance Report must be signed and certified:
An individual	<input type="checkbox"/> <input type="checkbox"/>	by the individual licence holder, or by a person approved in writing by the Chief Executive Officer of the Department of Environment Regulation to sign on the licensee's behalf.
A firm or other unincorporated company	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A corporation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	by affixing the common seal of the licensee in accordance with the <i>Corporations Act 2001</i> ; or by two directors of the licensee; or by a director and a company secretary of the licensee, or if the licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
A public authority (other than a local government)	<input type="checkbox"/> <input type="checkbox"/>	by the principal executive officer of the licensee; or by a person with authority to sign on the licensee's behalf who is approved in writing by the Chief Executive Officer of the Department of Environment Regulation.
a local government	<input type="checkbox"/> <input type="checkbox"/>	by the chief executive officer of the licensee; or by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of \$50,000 for an individual or body corporate.

I/We declare that the information in this annual audit compliance report is correct and not false or misleading in a material particular.

SIGNATURE: _____

SIGNATURE: _____

NAME:
(printed) _____

NAME:
(printed) _____

POSITION: _____

POSITION: _____

DATE: ____/____/____

DATE: ____/____/____

SEAL (if signing under seal)



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1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.



2 Administrative summary

Administrative details							
Application type	Works Approval <input type="checkbox"/> New Licence <input checked="" type="checkbox"/> Licence amendment <input type="checkbox"/> Works Approval amendment <input type="checkbox"/>						
Activities that cause the premises to become prescribed premises	<table border="1"> <thead> <tr> <th>Category number(s)</th> <th>Assessed design capacity</th> </tr> </thead> <tbody> <tr> <td>15: Abattoir</td> <td>30 000 tonnes per year</td> </tr> <tr> <td>55: Livestock saleyard or holding pen</td> <td>290 000 animals per year</td> </tr> </tbody> </table>	Category number(s)	Assessed design capacity	15: Abattoir	30 000 tonnes per year	55: Livestock saleyard or holding pen	290 000 animals per year
	Category number(s)	Assessed design capacity					
	15: Abattoir	30 000 tonnes per year					
55: Livestock saleyard or holding pen	290 000 animals per year						
Application verified	Date: 30 July 2015						
Application fee paid	Date: 10 August 2015						
Works Approval has been complied with	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>						
Compliance Certificate received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>						
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						
Commercial-in-confidence claim outcome	N/A						
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <table border="1"> <tr> <td>Referral decision No:</td> <td></td> </tr> <tr> <td>Managed under Part V</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Assessed under Part IV</td> <td><input type="checkbox"/></td> </tr> </table>	Referral decision No:		Managed under Part V	<input type="checkbox"/>	Assessed under Part IV	<input type="checkbox"/>
Referral decision No:							
Managed under Part V	<input type="checkbox"/>						
Assessed under Part IV	<input type="checkbox"/>						
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <table border="1"> <tr> <td>Ministerial statement No:</td> <td></td> </tr> <tr> <td>EPA Report No:</td> <td></td> </tr> </table>	Ministerial statement No:		EPA Report No:			
Ministerial statement No:							
EPA Report No:							
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						
Is the Premises within an Environmental Protection Policy (EPP) Area	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>						
Environmental Protection (Swan Coastal Plain Lakes) Policy 1992							
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						



3 Executive summary of proposal and assessment

Goodchild Abattoirs Pty Ltd (Goodchild) operates a domestic sheep and cattle abattoir at Lot 300, Rosamel Road, Parkfield approximately 15 km northeast of Bunbury in the Shire of Harvey. The abattoir has been in operation at the current site since 1977 and currently operates four days per week. The facility is able to process up to 290 000 animals per year. The premises is situated within the Kemerton Industrial Zone Buffer Area of the Kemerton Industrial Park, a strategic industrial area for heavy industry.

A residential subdivision has been established southwest of the abattoir with the closest residence located 600m from the facility's aerobic wastewater treatment pond. Other sensitive receptors in the surrounding area include Rosamel Wetland, an Environmental Protection Policy (EPP) Wetland 200m west of the premises boundary, a conservation category wetland on the eastern boundary of the premises, and the Leschenault Estuary (conservation category wetland) 1km west of the premises boundary. Surrounding land users include a piggery east of the abattoir and Department of Parks and Wildlife managed land.

The premises covers an area of approximately 25h; 9ha of native vegetation and 16ha of abattoir infrastructure and cleared land. Site infrastructure comprises a slaughterhouse, open and covered livestock holding yards, stock holding paddocks, internal roads, administration buildings, aerobic and facultative wastewater treatment ponds, a reverse osmosis wastewater treatment plant and treated water storage tanks. Abattoir operations comprise receipt and holding of live animals, slaughter of live animals, collection and removal of solid wastes including offal, carcasses, blood, screening waste and paunch material to appropriately licensed offsite disposal facilities, treatment of wastewater and contaminated stormwater, and reuse or offsite disposal of treated wastewater.

All wastewater and contaminated stormwater from the abattoir and livestock holding yards is directed into the site wastewater treatment system (WWTS). The WWTS has been recently upgraded via works approval W5595/2014/1 to include a tertiary treatment stage to improve the quality of treated water. The WWTS comprises a primary and secondary screening system, a HDPE lined aerobic wastewater treatment pond, six clay lined facultative ponds and a reverse osmosis treatment plant. Treated water is transferred to storage tanks for reuse on site as wash down water for the holding yards. Wastewater may also be collected from the final facultative pond for offsite disposal to a licensed facility due to shut down or malfunction of the WWTS. As a result of the WWTS upgrade, Goodchild has been able to decommission the unlined anaerobic pond which was previously the first stage in the wastewater treatment process. A hydrogeological assessment of the site in 2011 identified a plume of elevated nutrient concentration which is attributed to seepage from the unlined anaerobic pond and the previously clay lined aerobic pond.

Key issues associated with operation of the facility include odour emissions, solid waste management and wastewater management. There are numerous odour sources within the abattoir although historically the WWTS has been the primary odour source. Decommissioning of the anaerobic pond has removed the primary odour contributor; however correct management of the WWTS and other odour generating activities is essential to minimise odour emissions as the premises is located within the recommended separation distance for sensitive land uses.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
General conditions	L1.2.3	<p><i>Emission:</i> Contaminated stormwater runoff from solid waste storage areas, the abattoir facility, and livestock holding yards containing high levels of salinity, sediments and nutrients.</p> <p><i>Impact:</i> Contamination of surrounding land and surface water systems. Potential impacts on the ecology of surface water from the addition of nutrients, sediment and salt and reduced oxygen. There are a number of sensitive surface waters in the vicinity of the premises which could be impacted if they receive contaminated stormwater runoff. These include the Rosamel Wetland (EPP wetland) 500m west of the abattoir infrastructure, the Leschenault Estuary (conservation category wetland) 1km west of the premises boundary and a conservation category wetland on the eastern boundary of the premises which is 500m from the main abattoir building and livestock holding yards.</p> <p><i>Controls:</i> The premises has an established stormwater management system. All stormwater runoff from areas where there are potential contaminants including the abattoir, solid waste storage area, and livestock holding yards is directed into the WWTS via bunding and solids trap/s or sumps. Uncontaminated stormwater is directed to soak wells or surrounding land.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p>	<p>Application supporting documentation</p> <p>L5423/1990/14</p> <p>Hydrogeological Assessment, Goodchild Abattoir, Golder Associates 2011</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><u>Regulatory Controls</u> Condition 1.2.3 has been included on the licence requiring the licensee to prevent contamination of stormwater runoff and treat any contaminated or potentially contaminated stormwater. This condition replaces the requirements of previous licence conditions 4, 5 and 6.</p> <p><u>Residual Risk</u> <i>Consequence</i>: Minor <i>Likelihood</i>: Rare <i>Risk Rating</i>: Low</p>	
Premises operation	L1.3.1 - L1.3.4	<p><i>Emission</i>: Discharge of contaminated wastewater, partially treated wastewater or animal wastes to the surrounding environment from the abattoir, wastewater treatment system (WWTS), waste storage areas or livestock holding yards.</p> <p><i>Impact</i>: Contamination of surrounding land, surface and groundwater systems due to high nutrient and sediment levels in wastewaters and organic wastes from the abattoir. High nutrient levels can result in eutrophication of surface water systems or contamination of groundwater systems which may affect down gradient users. Groundwater levels are at approximately 3-15m below ground level and flow is generally in a westerly direction. There are sensitive receivers down gradient from the premises which may be affected by groundwater contamination. The closest bore down gradient of the premises is an irrigation bore in the subdivision west of the abattoir. There are also a number of sensitive surface water including the Rosamel Wetland (EPP wetland) 500m west of the abattoir infrastructure, the Leschenault Estuary (conservation category wetland) 1km west of the premise boundary and a conservation category wetland on the eastern boundary of the premises which is 500m from the main abattoir building and livestock holding yards.</p> <p><i>Controls</i>: The abattoir and associated livestock holding yards are concrete lined and bunded to prevent runoff and seepage of contaminated water or discharge of animal waste to the environment. All wash down water and animal waste from the abattoir and livestock holding yards is directed via drainage and bunding through screens to the</p>	<p>Application supporting documentation</p> <p>L5423/1990/14</p> <p>Hydrogeological Assessment, Goodchild Abattoir, Golder Associates 2011</p> <p>Works Approval W5595/2014/1 application supporting documentation</p> <p>Works Approval W5595/2014/1</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>wastewater treatment system. All abattoir and screening wastes are collected in impermeable containers and stored in the waste storage area awaiting offsite disposal at licensed facilities. Blood is separated from the wastewater stream and directed into a blood containment tank for storage prior to offsite disposal. There is no on site waste disposal.</p> <p>As part of Works Approval W5595/2014/1 the Licensee committed to establishing the reverse osmosis plant and associated infrastructure and tanks within a bunded area. The plant has been constructed on a concrete hardstand area however there is no secondary containment in place around the infrastructure to contain the wastewater in the event of leakages or failure of one of the storage tanks (the largest tank at the plant holds 32kL of treated wastewater). The licensee has provided a risk assessment that determines that the risk is low and proposes management actions to control the risk, which include:</p> <ul style="list-style-type: none">• Regular inspection of the components of the advanced wastewater treatment system. Early intervention and mitigation if any components appear to be faulty and/or degraded.• All critical control points are fitted with alarms to alert personnel of system failure (e.g. pump failure).• Regular monitoring to detect water levels in wastewater tanks.• Management of valves and/or pumps to isolate a tank or other component of the advanced wastewater treatment system.• Wastewater disposal via carting to a licenced, off-site premise where required.• Use of spill kits and pumps where required to contain and/or return any spilled wastewater to the lined wastewater treatment ponds.• Ongoing monitoring to detect contamination in local groundwater. Early intervention and mitigation if groundwater contamination is detected.	<p>compliance information received by email 25 April 2014.</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><u>Risk Assessment</u> <i>Consequence:</i> Moderate <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p> <p><u>Regulatory Controls</u> Condition 1.3.1 has been included on the licence specifying that all contaminated waters are to be directed through the wastewater treatment system to prevent discharge of contaminated water. This condition replaces the requirements of previous licence conditions 4, 5 and 6. Condition 1.3.2 has been included on the licence to replace the requirements of previous licence condition 9. The condition is designed to protect the conservation category wetland located on the eastern premises boundary from impact by stock or contamination from treated or untreated wastewaters. Condition 1.3.3 has been included on the licence to specify infrastructure where potentially harmful wastes can be stored and/or treated, to ensure only approved containment infrastructure, suitably designed to prevent discharge of contaminated wastes to the environment, is used. Partially treated wastewater can still have sufficiently high nutrient levels to cause an impact if released to the environment. Condition 1.3.4 has therefore been included on the licence to specify management measures necessary to ensure the likelihood of releases occurring from the wastewater ponds is minimised. The condition also replaces the requirements of previous licence condition 10.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Insignificant. <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p>	



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Fugitive emissions	N/A	<p>Licence L5423/1990/14 contained fugitive dust conditions (conditions 2 and 3). The risk of fugitive dust has been reviewed as part of this licence reissue.</p> <p><u>Emission Description</u> <i>Emission:</i> Potential for fugitive dust emissions due to stock movement within livestock holding yards and during animal deliveries or transfers. There is also the potential for dust lift off from truck movements on internal trafficable areas and from open paddocks within the premises that are not specifically used for abattoir or cattle holding purposes. Fugitive dust emissions are more likely to occur during the summer months when there are sustained periods of hot, dry and windy conditions. <i>Impact:</i> Reduced local air quality causing a nuisance. <i>Controls:</i> The area is within Kemerton Industrial Zone Buffer Area of the Kemerton Industrial Park and is therefore surrounded by vacant land (and an adjacent piggery). However there are residences within a residential subdivision approximately 400 m southwest of the premises boundary. Previous licence L5423/1990/14 contained conditions 2 and 3 requiring implementation of reasonable and practicable measures to prevent or minimise the generation of visible dust from crossing the boundary of the premises. The licensee has implemented suitable measures to meet these requirements with livestock holding yards being sealed with concrete and all internal roads being sealed. Paddock areas where stock are channelled toward the livestock holding yards have also been lined with crushed limestone to prevent dust generation. DER has no recent records of dust complaints relating to the premises.</p> <p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p>	<p>Application supporting documentation</p> <p>L5423/1990/14</p> <p><i>Environmental Protection Act 1986</i></p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<u>Regulatory Controls</u> As fugitive dust is assessed to be low risk, the reissued licence will not include specific conditions relating to control of fugitive dust emissions. The licensee is required to comply with the general provisions of the <i>Environmental Protection Act 1986</i> .	
Odour	L3.1.1	<u>Emission Description</u> <i>Emission:</i> Odour emissions may be generated from the WWTS, solid waste storage areas, and general abattoir and livestock holding activities conducted on the premises. <i>Impact:</i> Nuisance impacts on neighbouring residences. The closest residence is approximately 400 m southwest of the premises boundary and 600m south west of the aerobic wastewater treatment pond. Historically DER has received occasional odour complaints potentially regarding the premises although these have not been substantiated due to other odour sources in the area. DER has received a number of odour complaints from residences in the adjacent subdivision in 2015 although the odour source has not been confirmed as either the abattoir or another source. The anaerobic pond has historically been the most significant source of odour on site. <i>Controls:</i> The upgraded WWTS has been designed to improve the quality of treated wastewater resulting in a reduced likelihood of odour emissions associated with wastewater treatment. The upgraded system includes the addition of aerators in the facultative ponds to increase the rate of nutrient breakdown and reverse osmosis treatment to improve the final quality of the treated water. Upgrade of the system has enabled the licensee to decommission the old anaerobic pond which was the primary source of odour for the premises. Since its decommissioning there have not been any odour complaints which have been directly attributed to activities on the premises. Solid wastes are stored on site for minimal amount of time with daily removal to licenced premises for disposal. Previous licence L5423/1990/14 included condition 1 requiring that odour emissions did not impact on persons not on the premises.	Application supporting documentation L5423/1990/14 DER Guidance Statement: Separation Distance, Draft 2015
		<u>Risk Assessment</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate	



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><u>Regulatory Controls</u> Due to location of the premises within the recommended 1000m odour buffer for abattoirs and sensitive land uses, and the premises having a number of areas and processes with the potential to generate odour, it has been assessed as being a moderate risk. The primary controls for odour are through the Licensee's effective management of the WWTS and waste storage, which are subject to regulatory controls through sections 1.3 and 2 of the licence. Condition 4.1.4 requires the licensee to implement a complaints management system. DER will continue to investigate any odour complaints received regarding the premises and if substantiated will review the licence to include any additional controls that may be required.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Minor <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Moderate</p>	
Monitoring general	L2.1.1 - L2.1.4	Ambient environmental quality and process monitoring is included in the licence. Therefore general monitoring conditions relating to collection, preservation and testing of samples (L2.1.1), monitoring intervals (L2.1.2), and monitoring equipment calibration requirements (L2.1.3-2.1.4) have been included.	Application supporting documentation
Monitoring of inputs and outputs	L2.2.1	Licence L5423/1990/14 contained requirements in condition 20 to maintain a record of the number of animals slaughtered at the premises in order to confirm the premises design capacity is not being exceeded. The requirement to measure the number of animals slaughtered has been retained in condition 2.2.1.	Application supporting documentation L5423/1990/14
Process monitoring	L2.3.1	Licence L5423/1990/14 contained requirements in conditions 14 and 15 to maintain a flow meter and record monthly cumulative readings of wastewater discharge from the abattoir to the WWTS. The requirement to measure the abattoir wastewater discharge to the WWTS will be retained in condition 2.3.1. In addition, a requirement to monitor the quality of discharge water from the WWTS has been included in order to confirm the treatment system is operating effectively and that water quality is suitable for reuse as wash down water.	Application supporting documentation L5423/1990/14



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Ambient quality monitoring	L2.4.1	DER's assessment and decision making are detailed in Appendix A.	Application supporting documentation L5423/1990/14 Hydrogeological Assessment, Goodchild Abattoir Kemerton, Golder Associates, December 2011 Goodchild Abattoir, Wastewater Treatment Pond Closure Plan, Strategen 2013 ANZECC Guidelines 2000
Improvements	L3.1.1	As per the details in the Odour and Ambient Quality Monitoring sections, the Licensee has decommissioned the old anaerobic pond on the premises. IR1 is included in the licence requiring submission of a closure report for this infrastructure to confirm that it has been suitably decommissioned and rehabilitated in accordance with the Wastewater Treatment Pond Closure Plan.	Goodchild Abattoir, Wastewater Treatment Pond Closure Plan, Strategen 2013



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Information	L4.1.1 - L4.1.4 L4.2.2 - L4.2.3 L4.3.1	<p>Records Conditions 4.1.1 – 4.1.4 that form part of the licence template are included in this section of the licence relating to record keeping on the premises. Previous licence condition 25 has been replaced with condition 4.1.3.</p> <p>Reporting Annual reporting requirements have been specified in condition 4.2.1 of the licence replacing the requirements of previous licence condition 24. Condition 4.2.2 has also been included to require the licensee to conduct an assessment of monitoring results against previous results in order to detect changes which could indicate that the premises is impacting on the environment and that groundwater is recovering from historic nutrient contamination. As all water samples are required to be sent to a laboratory for analysis, condition 4.2.3 has also been included requiring the submission of original reports on request.</p> <p>Notification Condition 2.1.4 of the licence specifies that notification is required in the event calibration requirements in condition 2.1.3 cannot be met. Condition 4.3.1 is included in the licence specifying the notification requirements for such an event. In addition, condition 4.3.1 includes notification requirements in the event that ponds need to be taken offline for maintenance and/or desludging. This replaces the requirements of previous condition 23 as these activities could result in complaints due to an increased likelihood of odour emissions during such events. The previous licence also contained notification requirements in conditions 21 and 22 in the event of spills or leaks occurring from wastewater infrastructure including ponds and pipelines. These requirements have not been included in the reissued licence as they replicate the requirements of section 72 of the Act.</p>	<p>Application supporting documentation</p> <p>L5423/1990/14</p> <p><i>Environmental Protection Act 1986</i></p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Licence Duration	N/A	The overall environmental risk of these premises is categorised as moderate due to the proximity of sensitive receptors, age of the facilities and compliance history of the licensee. The licence has been issued for a period of five years as this allows a sufficient period of time for monitoring results to indicate if contamination is continuing to occur from wastewater infrastructure or if there is an improvement in groundwater quality due to improvements made to the wastewater treatment system.	N/A



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
31/08/2015	Application advertised in West Australian (or other relevant newspaper)	None received	N/A
18/09/2015	Proponent sent a copy of draft instrument	<p>22/09/2015 Licensee comments received:</p> <p>1) Object to the requirement for an odour management plan based on removal of a key odour source (anaerobic pond), complaints not being directly attributable to the abattoir, current management practices and being required to record all complaints.</p> <p>2) Object to the requirement for secondary containment around the WWTP based on existing management measures and low nutrient levels in the wastewater.</p> <p>3) Object to additional monitoring locations and parameters.</p> <p>4) Request to extend date for the Anaerobic pond closure report as closure and rehabilitation works are not yet complete.</p>	<p>1) The requirement for an odour management plan has been removed on the basis that the primary controls for odour are through the management of the WWTS and waste storage. Odour controls will be reviewed if odour complaints regarding the premises are substantiated.</p> <p>2) The unlikely event of containment overflow and catastrophic failure of the tanks is accepted, along with the fact that the water is of reasonable quality. The management actions specified by the Licensee in their risk assessment can be reviewed as part of DER's compliance activity. The licence will be reviewed if additional controls are required.</p> <p>3) Reduction in additional monitoring locations to 3 additional bores which target background water quality, locations most likely to be affected by contamination and locations where contaminated water is most likely to leave the premises boundary. The purpose of the monitoring is to detect potential future groundwater contamination not monitor existing plumes. As nitrogen has been identified as the key contaminant of concern for the premises the expanded monitoring suite has been retained.</p> <p>4) Closure report due date extended to 31 March 2016.</p>



6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



Appendix A

Ambient quality monitoring

The principle emission of concern for the Goodchild Abattoir is seepage of water with elevated nutrient levels into the underlying aquifer from infrastructure such as solid waste storage areas, livestock holding yards, the abattoir, and wastewater treatment infrastructure. The site has been reported under the requirements of the *Contaminated Sites Act 2003* as 'possibly contaminated – investigation required' due to elevated nutrient levels detected in groundwater monitoring at the premises. The groundwater level typically lies between 3-15m below ground level and flow direction is generally from east to west.

Emission Description

Emission: Seepage of contaminated wastewater (elevated nutrient levels, particularly nitrogen) from infrastructure on site including solid waste storage areas, livestock holding yards, the abattoir and wastewater treatment infrastructure.

Impact: Reduction in local groundwater quality due to elevated nutrient levels with potential impacts on down gradient users or nearby sensitive receptors. Surface water systems could experience eutrophication if affected by groundwater inflow with high nutrient levels.

There are two groundwater bores operated on the premises (GWL62016) to provide drinking water for stock and process water for the abattoir. Monitoring data indicates these bores are likely to have already been affected by elevated nutrient levels, in particular nitrogen. The closest bore down gradient of the premises is an irrigation bore in the subdivision 400m west of the aerobic wastewater pond. There are also a number of nearby sensitive surface water systems which could potentially receive groundwater inflow from the premises. These include the Rosamel Wetland (EPP wetland) 500m west of the abattoir infrastructure, the Leschenault Estuary (conservation category wetland) 1km west of the premises boundary and a conservation category wetland on the eastern boundary of the premises, 500m from the main abattoir building and livestock holding yards.

A hydrogeological investigation was conducted in 2011 to assess whether nutrient contamination is present on the premises. The investigation identified a plume of elevated nutrient concentration directly down hydraulic gradient from the anaerobic and F1 aerobic wastewater treatment ponds between monitoring locations GQ4 and GQ5. The premises has therefore been reported under the requirements of the *Contaminated Sites Act 2003* as 'possibly contaminated – investigation required'.

Controls: Wastewater treatment infrastructure has been identified as the most likely source of contaminated water seepage. The abattoir and livestock holding yards have established waste collection and drainage facilities which direct all waste and contaminated water to suitable storage or treatment areas. Details on this infrastructure are included in the Premises operation section of the above decision table.

An established quarterly ambient groundwater monitoring program is in place at the abattoir which has resulted in the detection of a nutrient contamination plume. In response to the findings of the 2011 hydrogeological investigation the Licensee has amalgamated what was previously six clay lined aerobic ponds west of the abattoir into a single HDPE lined pond to reduce the likelihood of leakage occurring from this facility. In addition, the unlined anaerobic pond has recently been decommissioned and is no longer part of the WWTS. This has removed the two primary contributors to groundwater contamination although contamination could also be occurring from the facultative ponds as their permeability is unknown and monitoring bores GQ2 and GQ3 immediately west of the ponds exhibit elevated nitrogen levels.

The WWTS has also been upgraded to include a tertiary treatment stage (reverse osmosis), resulting in a significant improvement to the quality of treated wastewater. The system is capable of treating water to a standard which meets the Australian Drinking Water Guidelines. Ambient



groundwater monitoring results show a gradual decrease since 2011 in the concentration of total nitrogen and total phosphorous in groundwater at GQ4, the closest down gradient bore to the aerobic and anaerobic ponds.

Risk Assessment

Consequence: Moderate

Likelihood: Unlikely

Risk Rating: Moderate

Regulatory Controls

DER has increased the ambient groundwater monitoring requirements in the reissued licence to assist in detection of any further groundwater contamination issues on site and monitor background water quality for comparison. The new monitoring program includes an additional three monitoring locations and an expanded analysis suite. In line with recommendations of the Goodchild Abattoir Wastewater Treatment Pond Closure Plan, full nitrogen speciation has been included in the analysis suite to assess the level of toxicity of nitrogen in groundwater as ambient groundwater monitoring results indicate that nitrogen is the most significant contaminant .

GQ1-GQ4 are the existing monitoring locations for the premises. GQ1 is in close proximity to the wetland on the eastern boundary of the premises and is appropriately located to detect contamination which could impact the wetland. It is noted that groundwater flow is typically in a westerly direction away from the wetland, which is therefore unlikely to be impacted by groundwater contamination on the premises. GQ2 and GQ3 are located on the western boundary of the facultative wastewater treatment ponds (F2-F7) and are appropriately located to detect leakage from this facility due to the direction of groundwater flow. GQ4 is immediately west of the aerobic pond and monitoring results for this bore have historically shown high levels of nutrients, particularly nitrogen, associated with leakage from the aerobic and anaerobic ponds.

GQ5-GQ7 are new monitoring locations which were established for the hydrological assessment of the premises in 2011. GQ6 and GQ7 were identified through the assessment as the most likely to represent background water quality and are included in the monitoring program for comparison purposes. GQ5 is located in the south west corner of the premises and has been included to monitor for changes in nutrient levels in groundwater at the premises boundary to identify if contamination is occurring and is travelling outside the premises boundary.

Residual Risk

Consequence: Moderate

Likelihood: Unlikely

Risk Rating: Moderate

The licensee has already implemented upgrades to the WWTS to remove the primary sources of contaminated water seepage (anaerobic and aerobic wastewater treatment ponds) to prevent further groundwater contamination on the premises. Inclusion of an ambient groundwater monitoring program in the licence will allow for early detection of any future contamination which could occur and implementation of mitigation measures if required.