



DEVELOPMENT APPLICATION & SUPPORTING INFORMATION REPORT FOR AN ABATTOIR

PREPARED FOR:

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EXECUTIVE SUMMARY

This supporting information report, plans, and completed forms are submitted in support of a Development Application for the development of an abattoir incorporating the former abattoir buildings on Lot 15 & 16 on SP135722.

Site Address: "The Oaks", Cunningham Highway, Goondiwindi QLD 4390

Real Property Description: Lot 15 & 16 on SP135722
Parish of Commoron
County of Marsh
Goondiwindi Regional Council

Site Area: 512.88 ha

Zone: Rural

Existing Use: Abattoir (not currently operational), cropping and grazing

Approvals Sought: Development Permit for Material Change of Use (MCU) for Industrial Activity – Noxious Industry.

Environmental Authority (EA) for Environmentally Relevant Activities:

- 25 - Meat processing (2c) – meat processing, including rendering, >50,000 tonnes of meat or meat products in a year;
- 14 - Electricity generation (2a) – generating electricity by using a fuel, other than gas, at a rated capacity of 10 MW electrical to 150 MW electrical;
- 15 – Fuel burning – using fuel burning equipment that is capable of burning at least 500 kg of fuel in an hour; and
- 53 – Composting and soil conditioner manufacturing – manufacturing, from organic material or organic waste, 200 t or more of compost or soil conditioners in a year

Assessing Authority: MCU: Goondiwindi Regional Council

Level of Assessment: EA: Department of Environment and Heritage Protection
Impact Assessable

Forms Provided: Application Details – IDAS Form 1 (Appendix A)

Material Change of Use – IDAS Form 5 (Appendix A)

Environmentally Relevant Activity – IDAS Form 8, 8a (Appendix A)



Supporting Information: Plans and additional information (this report)

Applicant: Fucheng International Abattoirs Pty Ltd

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Notes:

Version 1 This is a draft report for client comment.
Version 2 This is a final report for submission.

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ENVIRONMENTAL POLICY AND COMMITMENT

Fucheng International Abattoirs Pty Ltd aims to have a productive, environmentally sustainable and economically viable abattoir. In order to achieve this, Fucheng International Abattoirs Pty Ltd is committed to protecting the environment by reducing the present and future environmental risks of operations associated with the proposed development. The commitment to continual development and innovation will allow Fucheng International Abattoirs Pty Ltd to maintain an environmentally sustainable business and satisfy the needs of the final customers. The main environmental objective of the company will be to minimise impacts to community amenity and strive to minimise environmental impacts.

This means that we are committed to:

- **Sustainable development**

Integrate environmental management into our planning and decision-making processes, to ensure sustainability and minimum impact on the environment.

- **Pollution prevention**

Conduct our operations in a manner that prevents pollution, conserves resources, and proactively addresses past environmental contamination (if any).

- **Legal compliance**

Ensure our operations comply with applicable environmental regulations and requirements and licence conditions.

- **Employee involvement**

Foster environmental responsibility among our employees to be responsible environmental stewards through recycling, conserving resources and ultimately eliminating waste and the environmental risks of our business operations.

- **Continual improvement**

Regularly measure our performance, and practice continual improvement.

- **Community consultation**

Have amicable relationships with the potentially affected community. Aim to create a positive, professional impression to our neighbours. Allow for two-way productive communication with our neighbours.

- **Training**

Wattlevilla Pty Ltd will ensure all staff involved in the operation of the abattoir are adequately trained in relevant operational issues and relevant training and education is undertaken.

Signed: _____ (/ /)

Position: _____

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

ENVIRONMENTAL POLICY AND COMMITMENTIV

TABLE OF CONTENTS.....V

LIST OF TABLESXI

LIST OF FIGURES.....XI

1 INTRODUCTION 12

2 SITE, LOCALITY & EXISTING ENVIRONMENT 15

2.1 Site and Locality 15

2.2 Land Zoning and Tenure 15

2.3 Current Land Use..... 15

2.4 Surrounding Land Use 15

2.1 Climate..... 17

2.2 Receptors 17

2.3 Topography, Drainage & Flooding 19

2.4 Groundwater 22

2.5 Matters of State Environmental Significance (MSES) 24

 2.5.1 Regulated Vegetation 24

 2.5.2 Essential Habitat Mapping 25

 2.5.3 Climatic Regions - Stormwater Management Design Objectives..... 28

 2.5.4 Flood Hazard Area..... 28

 2.5.5 Bushfire Hazard Area..... 28

2.6 Threatened Flora..... 29

2.7 Threatened Fauna..... 29

2.8 Environmentally Sensitive Areas..... 33

2.9 Cultural Heritage..... 33

2.10 Wetlands..... 34

2.11 Soil and Geology 36

2.12 Acid Sulphate Soils 36

2.13 Contaminated Land 38

2.14 Unexploded Ordnance..... 38

2.15	Matters of National Environmental Significance (MNES)	38
3	PROPOSED DEVELOPMENT	39
3.1	Benefits and Justification of the Proposal	39
3.2	Overview	39
3.3	Facilities	40
3.4	Abattoir Inputs	40
3.4.1	Cattle	40
3.4.2	Water	40
3.4.3	Energy	40
3.5	Abattoir Outputs	41
3.5.1	Products	41
3.5.2	Wastewater.....	41
3.5.3	Solid Waste	42
3.6	Infrastructure	43
3.6.1	Water Storage & Supply	43
3.6.2	Vehicle Access, Internal Roads & Parking	43
3.6.3	Chemical & Fuel Storage	43
3.6.4	Telecommunications	44
3.7	Operating Hours	44
3.1	Community consultation	44
3.2	Stormwater Management Plan	44
3.3	Erosion and Sediment Control Plan	45
4	WASTEWATER TREATMENT SYSTEM	48
4.1	Wastewater Characteristics	48
4.2	Recycled Wastewater Quality Requirements	49
4.3	Proposed Wastewater Treatment System	50
4.3.1	Primary Treatment	50
4.3.2	Secondary Treatment	50
4.3.3	Wet Weather Storage	51
4.4	Irrigation Management	52
4.4.1	Wastewater Reuse Area	52
4.4.2	Irrigation Equipment and Management	52
4.5	Analysis of Irrigation Sustainability	53
4.5.1	MEDLI Modelling Methodology	53
4.5.2	MEDLI Input Data	54
4.5.3	Modelling Results	56
4.6	Sludge Management	57
5	ORGANISATIONAL STRUCTURE AND RESPONSIBILITY	58

6	ENVIRONMENTAL IMPACTS AND MANAGEMENT	59
6.1	Risk Characterisation	59
6.2	Risk Evaluation	61
7	POTENTIAL ENVIRONMENTAL IMPACTS	70
8	MANAGEMENT OF POTENTIAL ENVIRONMENTAL IMPACTS	72
8.1	Impacts to Surface Water	72
8.1.1	Objectives	72
8.1.2	Management Strategies	72
8.1.3	Relevant Standard Operating Procedures.....	73
8.1.4	Specific Performance Indicators.....	73
8.1.5	Monitoring And Recording Frequency	73
8.2	Impacts to Groundwater	75
8.2.1	Objectives	75
8.2.2	Management Strategies	75
8.2.3	Relevant Standard Operating Procedures.....	75
8.2.4	Specific Performance Indicators.....	76
8.2.5	Monitoring And Recording Frequency	76
8.2.6	Reporting And Review	77
8.2.7	Corrective Actions.....	77
8.3	Impacts to Soils	78
8.3.1	Objectives	78
8.3.2	Management Strategies	78
8.3.3	Relevant Standard Operating Procedures.....	78
8.3.4	Specific Performance Indicators.....	78
8.3.5	Monitoring And Recording Frequency	79
8.3.6	Reporting And Review	80
8.3.7	Corrective Actions.....	80
8.4	Impacts to Community Amenity – Odour	81
8.4.1	Objectives	81
8.4.2	Management Strategies	81
8.4.3	Relevant Standard Operating Procedures.....	82
8.4.4	Specific Performance Indicators.....	82
8.4.5	Monitoring And Recording Frequency	83
8.4.6	Reporting And Review	83
8.4.7	Corrective Actions.....	84
8.5	Impacts to Community Amenity – Dust	85
8.5.1	Objectives	85
8.5.2	Management Strategies	85
8.5.3	Relevant Standard Operating Procedures.....	85
8.5.4	Specific Performance Indicators.....	85
8.5.5	Monitoring And Recording Frequency	86
8.5.6	Reporting And Review	86
8.5.7	Corrective Actions.....	87
8.6	Impacts to Community Amenity – Noise	88

8.6.1	Objectives.....	88
8.6.2	Management Strategies.....	88
8.6.3	Relevant Standard Operating Procedures.....	89
8.6.4	Specific Performance Indicators.....	89
8.6.5	Monitoring And Recording Frequency.....	90
8.6.6	Reporting And Review.....	90
8.6.7	Corrective Actions.....	91
8.7	Impacts to Community Amenity – Visual.....	92
8.7.1	Objectives.....	92
8.7.2	Management Strategies.....	92
8.7.3	Relevant Standard Operating Procedures.....	92
8.7.4	Specific Performance Indicators.....	92
8.7.5	Monitoring and Recording Frequency.....	93
8.7.6	Reporting and Review.....	93
8.7.7	Corrective Actions.....	93
8.8	Impacts to Community Amenity - Pests and Vermin.....	94
8.8.1	Objectives.....	94
8.8.2	Management Strategies.....	94
8.8.3	Relevant Standard Operating Procedures.....	94
8.8.4	Specific Performance Indicators.....	95
8.8.5	Monitoring and Recording Frequency.....	95
8.8.6	Reporting and Review.....	95
8.8.7	Corrective Actions.....	96
8.9	Impacts to Biodiversity.....	97
8.10	Contingency Plans.....	97
8.10.1	Recording of Emergencies and Incidents.....	97
8.10.2	Water Supply Loss.....	98
8.10.3	Equipment Malfunction.....	98
8.10.4	Fire.....	98
8.10.5	Temporary or Permanent Loss of Trained Operators.....	98
8.11	Management of Site Based Management Plan.....	99
8.11.1	SBMP Implementation and Management.....	99
8.11.2	Staff and Contractor Training.....	99
8.11.3	Document Control.....	99
8.11.4	Corrective Action, Communication and Notification.....	100
8.11.5	Review of Environmental Performance and Continuous Improvement.....	100
9	RECORDING REQUIREMENTS.....	101
9.1	Daily.....	101
9.2	Weekly.....	101
9.3	Monthly.....	101
9.4	Quarterly.....	101
9.5	Annually.....	101
9.6	As required.....	102

10	SAMPLE RECORD SHEETS	103
11	PLANNING FRAMEWORK	104
11.1	Environmental Protection Regulation 2008	104
11.2	The Sustainable Planning Act 2009	104
11.3	State Planning Policies	105
11.4	Waggamba Shire Council Planning Scheme (V2, 2013)	107
11.4.1	Introduction	107
11.4.2	Definition of Use	107
11.4.3	Strategic Direction	107
11.5	Zoning & Assessment Status.....	109
11.5.1	Rural Zone Code	109
12	REFERENCES	133
	APPENDIX A - IDAS FORMS.....	134
	APPENDIX B - GROUNDWATER BORE CARDS	135
	APPENDIX C – WATER LICENCES	136
	APPENDIX D - EPBC ACT PROTECTED MATTERS REPORT (MNES).....	137
	APPENDIX E - WILDLIFE ONLINE SPECIES LIST.....	138
	APPENDIX F - PROTECTED PLANTS SEARCH RESPONSE	139
	APPENDIX G - ENVIRONMENTALLY SENSITIVE AREAS	140
	APPENDIX H - DATSIMA SEARCH RESPONSE.....	141
	APPENDIX I - CONTAMINATED LAND REGISTER AND ENVIRONMENTAL MANAGEMENT REGISTER SEARCH RESPONSE.....	142
	APPENDIX J - STATE PLANNING POLICY MAPPING (MSES).....	143
	APPENDIX K – CONCEPT DESIGN REPORT – ABATTOIR, GOONDIWINDI.....	144
	APPENDIX L – ODOUR MODELLING REPORT	145
	APPENDIX M – STANDARD OPERATION PROCEDURES	146



APPENDIX N – SAMPLE RECORD SHEETS.....	168
APPENDIX O- MEDLI DATA.....	178

LIST OF TABLES

Table 1 - Climatic Information – Goondiwindi Airport 53004 (1990 - 2016) (BOM, 2016).....	17
Table 2 - Likelihood of occurrence for threatened fauna species.....	30
Table 3 - Estimate of Proposed Cattle Inputs and Tonnages.....	40
Table 4 – Product Output	41
Table 5 - Estimated Wastewater Characteristics	48
Table 6 - Proposed Pond Dimensions.....	51
Table 7 - Climatic Data Recorded at Goondiwindi (from MEDLI)	55
Table 8 - Pond System Geometry Inputs to MEDLI	55
Table 9 - Pond System Water Balance	56
Table 10 - Irrigation Area Water and Nutrient Balance	57
Table 11 - Risk assessment matrix	61
Table 12 - Assessing the risk to the environment of the Fucheng Abattoir	62
Table 13 - Monitoring Parameters For Wastewater, Used For Irrigation	79
Table 14 - Parameters For Soil Analysis In Irrigation Areas	79
Table 15 – Noise Limits.....	89
Table 16 - State Planning Policy	106
Table 17 - Rural zone Code	111
Table 18 - Discharge final wastewater quality design parameters	154
Table 19 - Parameters for composite soil sample analysis	157

LIST OF FIGURES

Figure 1 – Locality Plan.....	13
Figure 2 – Cadastral Plan	14
Figure 3 – Aerial Plan.....	16
Figure 4 – Sensitive Receptors Plan	18
Figure 5 – Topographic Plan	20
Figure 6 – Drainage and Flooding Map	21
Figure 7 - Groundwater Bore Plan.....	23
Figure 8 – Regulated Vegetation Management Map	26
Figure 9 – Regulated Vegetation Management Supporting Map	27
Figure 10 – Wetlands	35
Figure 11 – Land Resource Area Mapping.....	37
Figure 13 - Proposed Abattoir Organisational Chart.....	59

1 INTRODUCTION

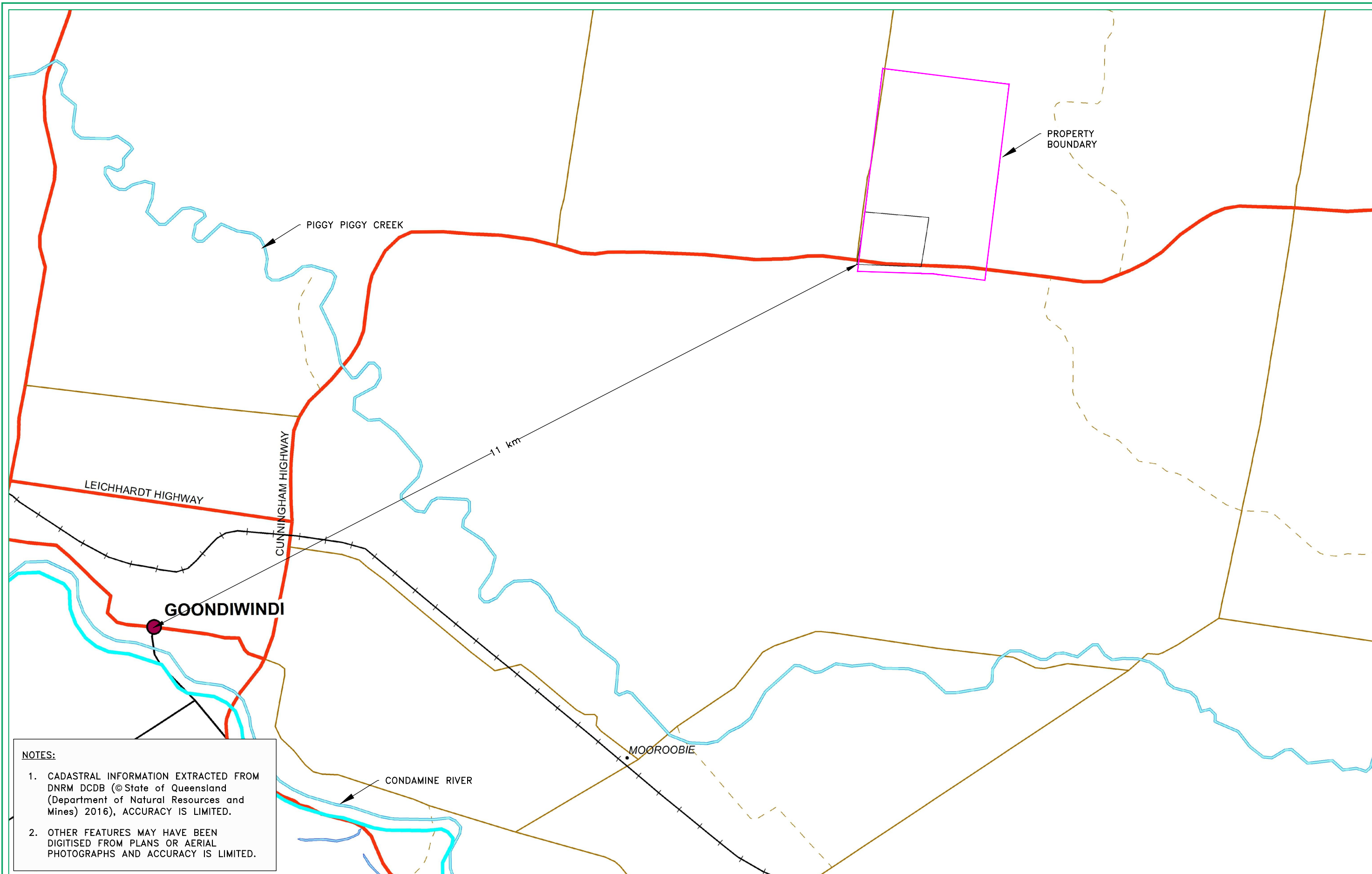
Fucheng International Abattoirs Pty Ltd (Fucheng) wish to redevelop an existing abattoir on a property called “The Oaks” located approximately 12 km to the north east of Goondiwindi (hereafter ‘the site’) on the Cunningham Highway (Figure 1). The site is on Lot 15 and 16 SP135722 in the Goondiwindi Regional Council (GRC).

There is an existing sheep abattoir at the site. It is not operational but anecdotal evidence suggests it had a production capacity of approximately 16,000 tonnes per year. The applicant is seeking to process beef cattle at the site at a rate of approximately 72,000 tonnes per year. To achieve this production rate, Fucheng intend to incorporate the existing facility on Lot 16 SP135722 into a new facility extended to the east. A cadastral plan showing the location of the proposed abattoir and associated infrastructure is provided in Figure 2.

There are no existing approvals on the site and the development will require a Development Approval for an Impact Assessable Material Change of Use from GRC. The development will also require an Environmental Authority from the Department of Environment and Heritage Protection (DEHP) for the following Environmentally Relevant Activities (ERA):

- 25 - Meat processing (2c) – meat processing, including rendering, more than 50,000 tonnes of meat or meat products in a year;
- 14 - Electricity generation (2a) – generating electricity by using a fuel, other than gas, at a rated capacity of 10 MW electrical to 150 MW electrical;
- 15 – Fuel burning – using fuel burning equipment that is capable of burning at least 500 kg of fuel in an hour; and
- 53 – Composting and soil conditioner manufacturing – manufacturing, from organic material or organic waste, 200 t or more of compost or soil conditioners in a year

This report provides supporting information for the Development Application (DA). A Traffic Impact Assessment, Pavement Impact Assessment, detailed Stormwater Management Plan and a Wastewater Management Plan for staff amenities are currently being prepared and will be submitted during the Information Request Period.



NOTES:

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DATE	REVISION	DRAWN
04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG

PROJECT:
 FUCHENG WOODLANDS PTY. LTD.
 LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD
 DRAWING TITLE:
 ABATTOIR EXPANSION FEASIBILITY
 LOCALITY PLAN

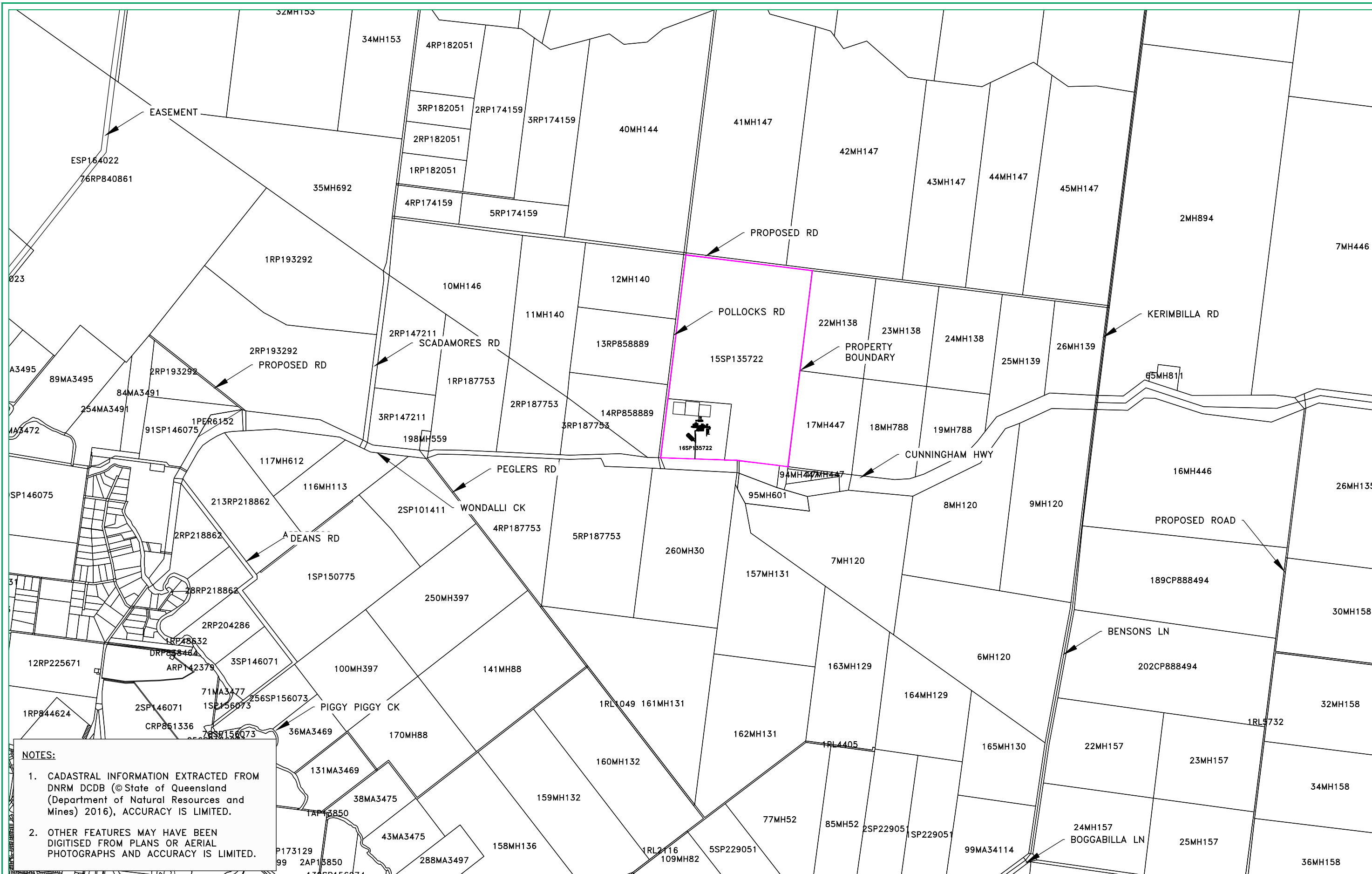
SCALE: 1:50,000
 (A3)
 DRAWN: TCG
 CHECKED:
 DATE: 11/04/16

SCALES :
 0 1250m 2500m

DRAWING NUMBER:
 8495 MASTERPLAN: FIG. LOCALITY


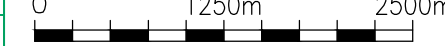

Fig. 1





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	04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG				
				CHECKED: DATE: 11/04/16	DRAWING NUMBER: 8495 MASTERPLAN: FIG. DCDB	Fig. 2	

2 SITE, LOCALITY & EXISTING ENVIRONMENT

2.1 SITE AND LOCALITY

The proposed abattoir development is located on a property comprising of 512.88 ha of rural land with access to the site from the Cunningham Highway. The site is located at Lot 15 & 16 on SP135722 on the Cunningham Highway, approximately 12 km to the north east of Goondiwindi. Figure 1 is a locality plan highlighting the site in relation to Goondiwindi and the Cunningham Highway.

Figure 2 is a cadastral plan showing the site and nearby land parcels.

2.2 LAND ZONING AND TENURE

The site is zoned "Rural" under the Waggamba Shire Council Planning Scheme 2013 (v2) (WSCPS). The proposed abattoir is defined as "Industrial Activity – Noxious Industry" at Part 2 of the WSCPS.

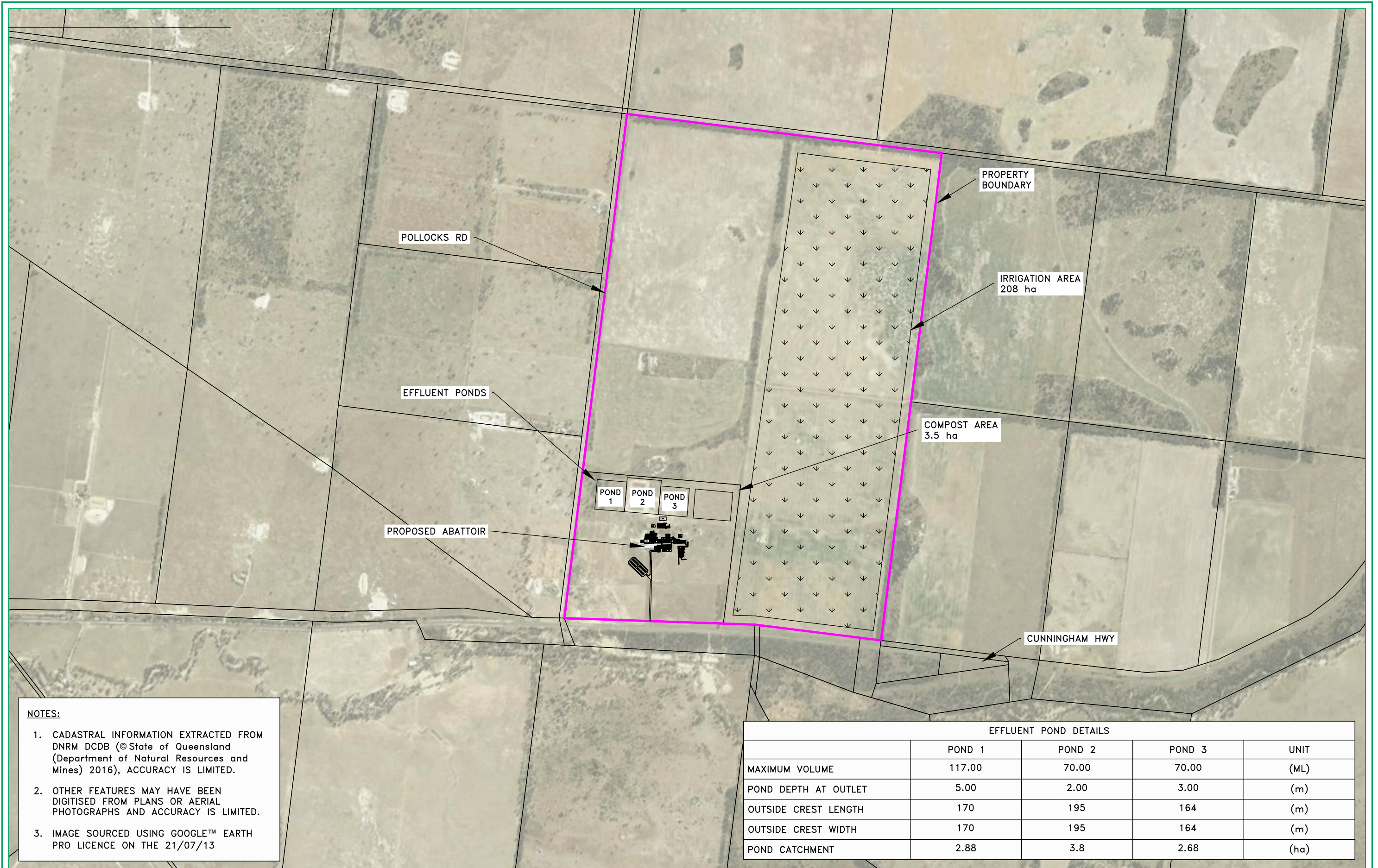
The land is held in freehold title by Fucheng International Abattoirs Pty Ltd.

2.3 CURRENT LAND USE

There is an existing decommissioned sheep abattoir at the site. A Town Planning Consent (546-093-000/2) for the existing abattoir was issued to Wondalli Foods Pty Ltd by the former Waggamba Shire Council on 23 June 1993. The existing abattoir at the site ceased operations in the mid-2000s. Infrastructure at the site includes: processing shed, pens, internal road network, effluent ponds and other ancillary infrastructure. The land adjacent the abattoir is currently used for a mixture of grazing and cropping activities.

2.4 SURROUNDING LAND USE

There is a low density of land development in the area surrounding the site of the proposed abattoir. Principal land uses of the surrounding area include low intensity cropping and grazing (Figure 3).



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3. IMAGE SOURCED USING GOOGLE™ EARTH PRO LICENCE ON THE 21/07/13

EFFLUENT POND DETAILS

	POND 1	POND 2	POND 3	UNIT
MAXIMUM VOLUME	117.00	70.00	70.00	(ML)
POND DEPTH AT OUTLET	5.00	2.00	3.00	(m)
OUTSIDE CREST LENGTH	170	195	164	(m)
OUTSIDE CREST WIDTH	170	195	164	(m)
POND CATCHMENT	2.88	3.8	2.68	(ha)

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2.1 CLIMATE

Rainfall varies with time of year due to the latitude of the region (-28.5⁰) with a highly seasonal weather pattern resulting in higher summer rainfall and lower winter rainfall (Table 1). The nearest climatic data available for the abattoir are recorded at Goondiwindi Airport. The Bureau of Meteorology has collected this data.

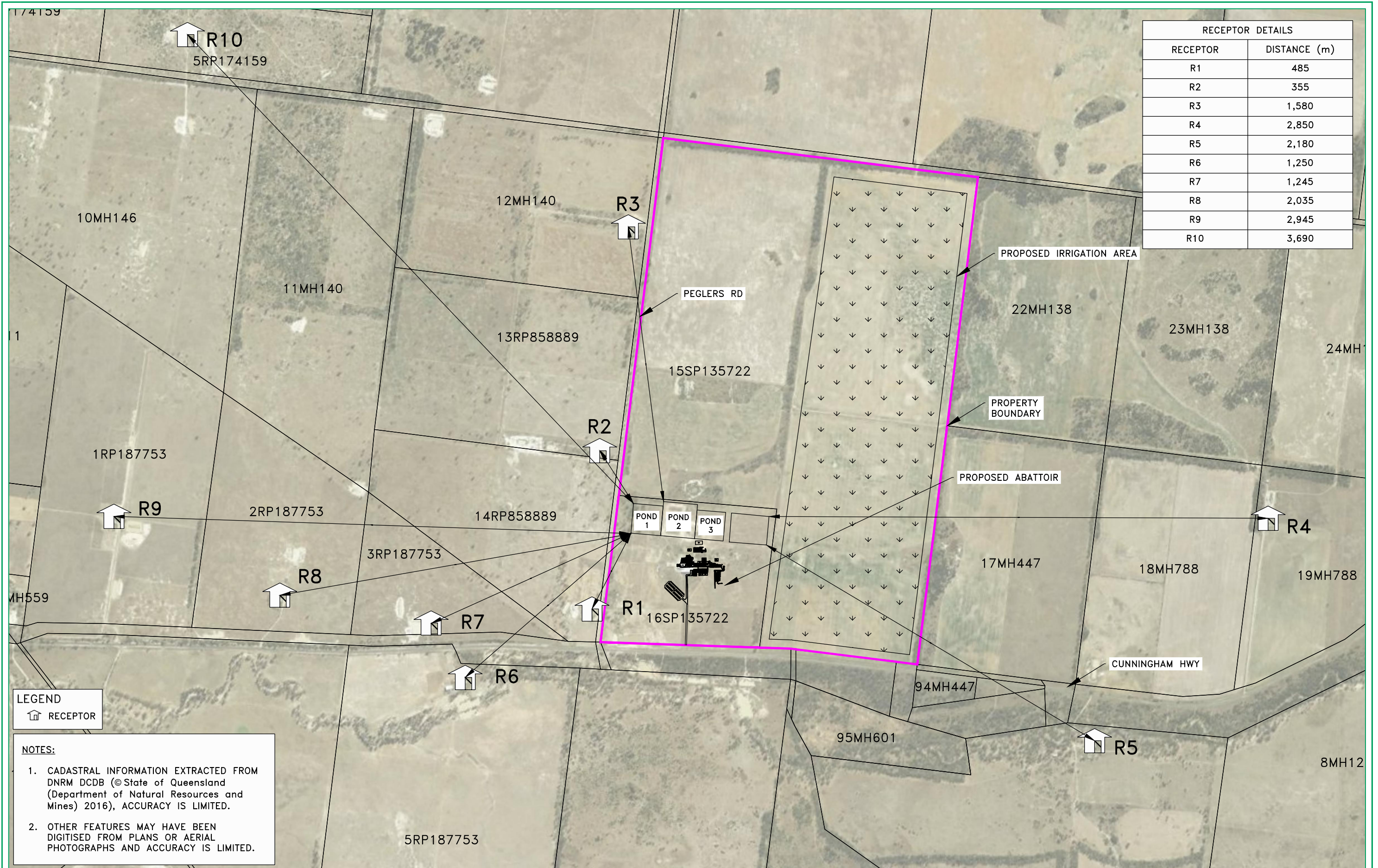
Rainfall statistics show a mean average rainfall at Boggabilla of 619.2 mm per annum with approximately 73% of total rainfall occurring in the spring and summer months. The long-term temperature figures show a mid-summer highest temperature of approximately 34.0⁰C and a mid-winter lowest temperature of approximately 4.6⁰C. Table 1 below shows the climatic information for Goondiwindi Airport for the years 1990 to 2016.

TABLE 1 - CLIMATIC INFORMATION – GOONDIWINDI AIRPORT 53004 (1990 - 2016) (BOM, 2016)

Enterprise Site:	Fucheng Abattoir		-28.49 deg S	150.42 deg E									
Weather Station:	Goondiwindi Airport		-28.52 deg S	150.33 deg E									
Annual Totals	10 th Percentile		50 th Percentile	90 th Percentile									
Rainfall mm/year	396.0		606.0	812.8									
Monthly	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	93.3	72.8	60.0	20.7	37.5	33.2	33.5	29.4	31.7	45.5	64.1	85.2	619.2
Avg Max Temp (DegC)	34.0	32.66	31.0	27.7	23.1	19.8	19.1	21.5	25.5	28.9	31.3	32.3	27.3
Avg Min Temp (DegC)	20.3	19.7	17.2	13.0	8.6	6.0	4.6	5.6	9.4	13.5	17.1	18.8	12.9
Rad (MJ/m ² /Day)	26.4	24.1	21.4	17.4	13.8	11.7	12.7	16.2	20.0	23.2	25.3	26.5	19.9

2.2 RECEPTORS

There are 10 sensitive receptors within 4 km of the proposed abattoir site. Figure 4 shows the closest sensitive receptors to the proposed development. The closest receptor is approximately 355 m to the north-west of the nearest building of the proposed development.



RECEPTOR DETAILS	
RECEPTOR	DISTANCE (m)
R1	485
R2	355
R3	1,580
R4	2,850
R5	2,180
R6	1,250
R7	1,245
R8	2,035
R9	2,945
R10	3,690

LEGEND
 RECEPTOR

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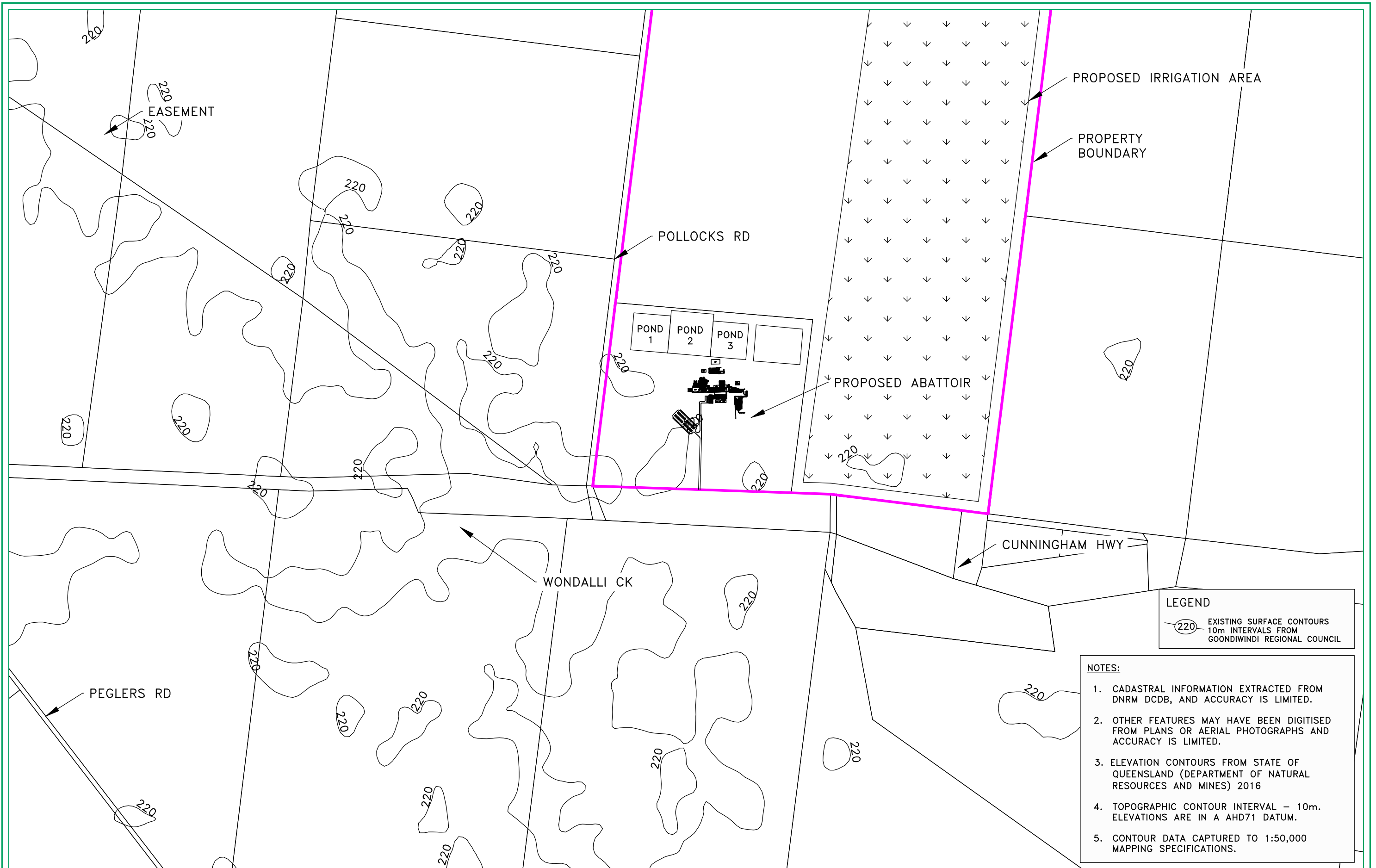
<p>FSA Consulting TOOWOOMBA OFFICE PO BOX 2175 TOOWOOMBA QLD 4350 TELEPHONE (07) 4632 8230 FACSIMILE (07) 4632 8057 www.fsaconsulting.net</p>	DATE	REVISION	DRAWN	PROJECT: FUCHENG WOODLANDS PTY. LTD. LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD DRAWING TITLE: ABATTOIR EXPANSION FEASIBILITY SENSITIVE RECEPTORS PLAN	SCALE: 1:20,000 (A3)	SCALES : DRAWING NUMBER: 8495 MASTERPLAN: FIG. RECEPTORS Fig. 04
	11/04/16	ADD RECEPTOR BUFFER TO R5, RECEPTOR SYMBOLS SHIFTED TO MAKE CENTRE OF SYMBOL MATCH RECEPTOR LOCATION, EXTEND PROPERTY BOUNDARY TO INCLUDE LOT 15 PLAN SP135722	TCG		DRAWN: TCG	
					CHECKED:	
					DATE: 11/04/16	

2.3 TOPOGRAPHY, DRAINAGE & FLOODING

The site is flat and located at an elevation of 220 m Australian Height Datum (AHD). The topographical plan (Figure 5) highlights the location of the proposed feedlot development and topography of the surrounding land.

There are no major rivers, creeks or waterways on the subject property (Figure 6). Wondalli Creek is a second order stream located 160 m to the south of the site. Murri Murri Creek is a tributary of Wondalli Creek and is located 5 km to the north of the site. The site is located in the McIntyre and Weir Rivers catchment. The lot generally drains to the south towards Wondalli Creek.

The southern corner of the site is mapped as a Flood Hazard Area – Level 1 by the Hazards and Safety Overlays under the State Planning Policy (SPP). The proposed abattoir development is unlikely to change the flood characteristics of the area as there will be no physical alteration to any watercourse or floodway and minimal areas (in the context of the size of the catchment) of solid structures associated with the proposed abattoir.



LEGEND
 220 EXISTING SURFACE CONTOURS
 10m INTERVALS FROM
 GOONDIWINDI REGIONAL COUNCIL

- NOTES:**
1. CADASTRAL INFORMATION EXTRACTED FROM DNRM DCDB, AND ACCURACY IS LIMITED.
 2. OTHER FEATURES MAY HAVE BEEN DIGITISED FROM PLANS OR AERIAL PHOTOGRAPHS AND ACCURACY IS LIMITED.
 3. ELEVATION CONTOURS FROM STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES) 2016
 4. TOPOGRAPHIC CONTOUR INTERVAL – 10m. ELEVATIONS ARE IN A AHD71 DATUM.
 5. CONTOUR DATA CAPTURED TO 1:50,000 MAPPING SPECIFICATIONS.

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 TELEPHONE (07) 4632 8230
 FACSIMILE (07) 4632 8057
 www.fsaconsulting.net

DATE	REVISION	DRAWN
04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG

PROJECT:
 FUCHENG WOODLANDS PTY. LTD.
 LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD

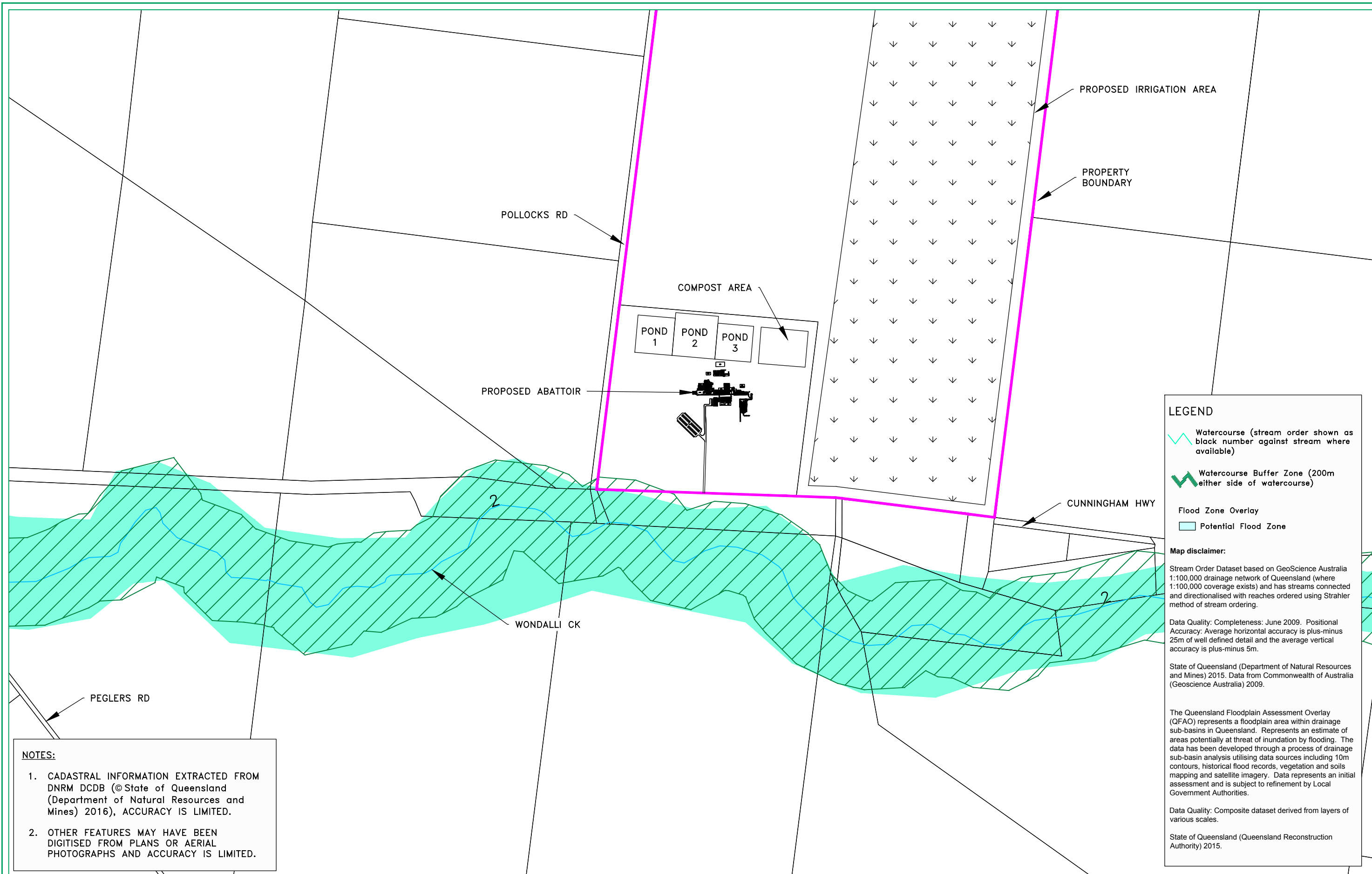
DRAWING TITLE:
 ABATTOIR EXPANSION FEASIBILITY
 TOPOGRAPHIC PLAN

SCALE: 1:50,000
 (A3)
 DRAWN: TCG
 CHECKED:
 DATE: 11/04/16

SCALES :
 0 1250m 2500m

DRAWING NUMBER:
 8495 MASTERPLAN: FIG. TOPO

Fig.



NOTES:

1. CADASTRAL INFORMATION EXTRACTED FROM DNRM DCDB (©State of Queensland (Department of Natural Resources and Mines) 2016), ACCURACY IS LIMITED.
2. OTHER FEATURES MAY HAVE BEEN DIGITISED FROM PLANS OR AERIAL PHOTOGRAPHS AND ACCURACY IS LIMITED.

LEGEND

- Watercourse (stream order shown as black number against stream where available)
- Watercourse Buffer Zone (200m either side of watercourse)
- Flood Zone Overlay
- Potential Flood Zone

Map disclaimer:
Stream Order Dataset based on GeoScience Australia 1:100,000 drainage network of Queensland (where 1:100,000 coverage exists) and has streams connected and directionalised with reaches ordered using Strahler method of stream ordering.

Data Quality: Completeness: June 2009. Positional Accuracy: Average horizontal accuracy is plus-minus 25m of well defined detail and the average vertical accuracy is plus-minus 5m.

State of Queensland (Department of Natural Resources and Mines) 2015. Data from Commonwealth of Australia (Geoscience Australia) 2009.

The Queensland Floodplain Assessment Overlay (QFAO) represents a floodplain area within drainage sub-basins in Queensland. Represents an estimate of areas potentially at threat of inundation by flooding. The data has been developed through a process of drainage sub-basin analysis utilising data sources including 10m contours, historical flood records, vegetation and soils mapping and satellite imagery. Data represents an initial assessment and is subject to refinement by Local Government Authorities.

Data Quality: Composite dataset derived from layers of various scales.

State of Queensland (Queensland Reconstruction Authority) 2015.

2.4 GROUNDWATER

In Queensland, a number of sub-artesian areas have been declared under the *Water Act 2000*. Some have been declared within water resource plans, while most have been declared under the *Water Regulation 2002*, both of which are subordinate legislation to the Act.

A search of the Department of Natural Resources and Mines (DNRM) groundwater database was undertaken to obtain data on the location, casing details, strata logs, aquifer details, water levels (by date) and water analysis (lab and field) for all registered water bores on the subject property. There are two registered groundwater bores at the site (Figure 7). RN77048 is located approximately 315 m north-east of the existing abattoir site and 150 m from the eastern site boundary. RN12549 is located 950 m north-east of the existing abattoir site, generally in the centre of Lot 15 SP135722.

RN77048 is an existing artesian (controlled flow) bore that tapped the sandstone aquifers of the Springbok and Hutton Sandstone formations. Aquifers were intersected at 440 m below ground level (bgl) in the Springbok Sandstone formation and 715 m bgl in the Hutton Sandstone formation. Aquifers were overlain by a sequence of clay, sand, gravel and sandstone layers. The Standing Water Level was 1.49 m bgl indicating sub-artesian conditions. Groundwater is fresh to brackish (electrical conductivity up to 2,980 $\mu\text{s}/\text{cm}$).

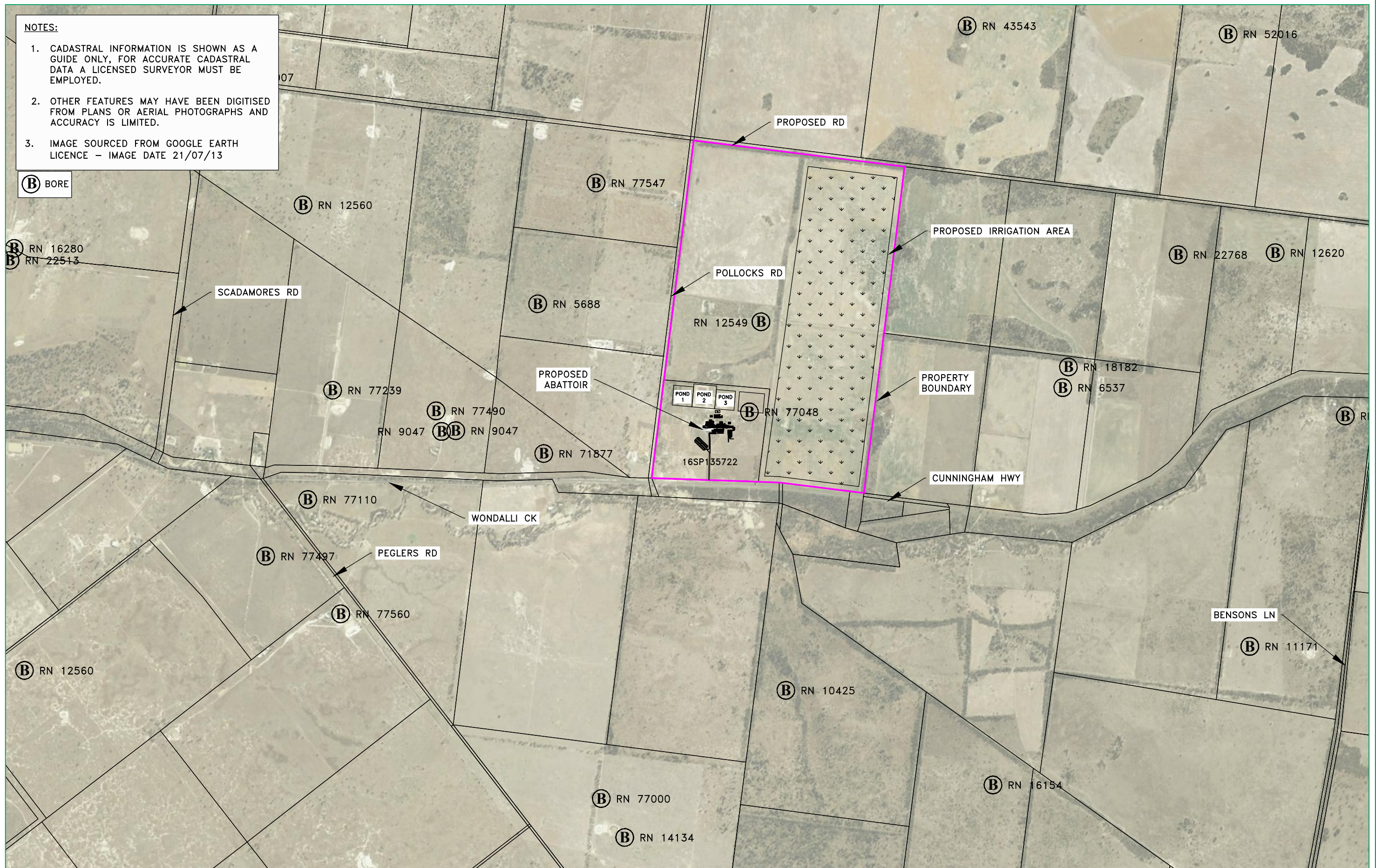
RN77048 is an existing artesian (controlled flow) bore that tapped the sandstone aquifer of the Kumbarilla Beds formation. Aquifers were intercepted at 136 m, 226 m and 270 m bgl. Aquifers were overlain by a sequence of clay, sand, shale, rock and sandstone layers. The Standing Water Level was 1.8 m bgl indicating sub-artesian conditions. Groundwater is reasonably fresh (electrical conductivity up to 1,200 $\mu\text{s}/\text{cm}$).

The relevant borecards are attached in Appendix B.

The water licence for the on-site bore is attached in Appendix C.

NOTES:

1. CADASTRAL INFORMATION IS SHOWN AS A GUIDE ONLY, FOR ACCURATE CADASTRAL DATA A LICENSED SURVEYOR MUST BE EMPLOYED.
2. OTHER FEATURES MAY HAVE BEEN DIGITISED FROM PLANS OR AERIAL PHOTOGRAPHS AND ACCURACY IS LIMITED.
3. IMAGE SOURCED FROM GOOGLE EARTH LICENCE - IMAGE DATE 21/07/13



(B) BORE

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 TOOWOOMBA OFFICE
 PO BOX 2175
 TOOWOOMBA QLD 4350
 TELEPHONE (07) 4632 8230
 FACSIMILE (07) 4632 8057
 www.fsaconsulting.net

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04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG

PROJECT:
 FUCHENG WOODLANDS PTY. LTD.
 LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD
 DRAWING TITLE:
 ABATTOIR EXPANSION FEASIBILITY
 GROUNDWATER BORE PLAN

SCALE: 1:30,000
 (A3)
 DRAWN: TCG
 CHECKED:
 DATE: 11/04/16

SCALES :
 0 750m 1500m

DRAWING NUMBER:
 8495 MASTERPLAN: FIG. BORES

Fig. 07

2.5 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE (MSES)

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The following MSES are located on the site:

- Regulated vegetation;
- Climatic Regions – stormwater management design objectives;
- Flood hazard area - Level 1 - Queensland floodplain assessment overlay; and
- Bushfire Hazard.

The proposed development is not likely to have any effect on any MSES. A copy of the state planning policy map is provided in Appendix J.

2.5.1 REGULATED VEGETATION

The *Vegetation Management Act 1999* (VMA) establishes the vegetation management framework for Queensland, which applies to all vegetation other than state forests, national parks, forest reserves and certain other tenures defined under the *Forestry Act 1959* and the NC Act.

The purpose of the VMA is to regulate the clearing of vegetation in a way that conserves remnant endangered, of concern and least concern regional ecosystems, vegetation in declared areas, ensures clearing does not cause land degradation, prevents the loss of biodiversity, and maintains ecological processes. It uses a series of maps to determine what vegetation is regulated and where clearing may not take place.

Regulated Vegetation Mapping

Simplified vegetation mapping has been introduced to make it easier to identify the regulated vegetation on a subject property. Regulated vegetation management maps are used to determine whether clearing is regulated.

Regulated Vegetation mapping shows vegetation categories used to determine clearing requirements. Areas shown on the map as Category X are not regulated under the VMA and can consist of cleared land or regrowth vegetation (excluding high-value regrowth).

Areas shown on the map as Category A, B, C or R are subject to clearing requirements.

The Regulated Vegetation Management Map provided in Figure 8 shows the subject site as having Category B on the southern boundary of the property and a strip down the centre of Lot 15 SP135722 from the northern boundary.

Vegetation Management Supporting Map

Supporting maps are provided as attachments when you request a copy of the Regulated Vegetation Management map online. They provide information on regional ecosystems, wetlands, watercourses and essential habitat.

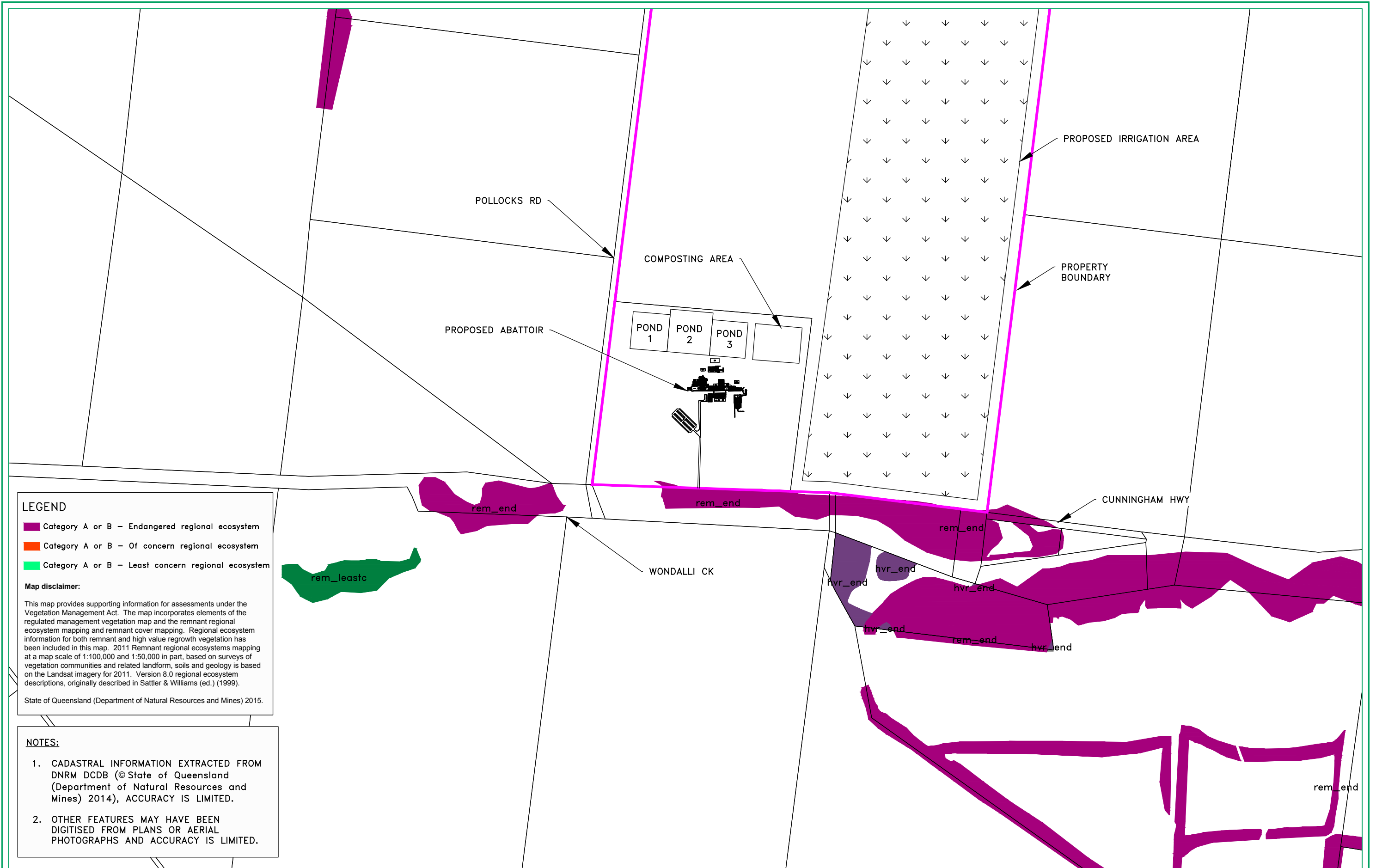
Figure 8 shows the location of regulated vegetation on the property. There is an area of Category B (Remnant Vegetation) containing least concern regional ecosystems along the southern boundary of the property and a strip in the northern section of Lot 15 SP135722. The regulated vegetation comprises of an assortment of Regional Ecosystem 11.4.10 (Endangered - 85%), and 11.3.25 (Least concern - 15%) in places and 11.4.3 (Endangered - 100%) along the northern and southern boundaries of Lot 15 SP135722.

However, as discussed in Section 2.5, the site is largely cleared of woody vegetation, with the exception of patches of vegetation along the eastern and western boundaries and scattered trees between the existing abattoir and the effluent ponds. The REs mapped along the southern boundary of the site are Eucalypt forest and woodland communities. Aerial imagery for the site shows that these vegetation communities do not occur within the southern boundary.

2.5.2 ESSENTIAL HABITAT MAPPING

Essential Habitat is vegetation in which an Endangered, Vulnerable or Near Threatened (EVNT) species have been known to occur, and has been mapped by the Department of Environment and Heritage Protection. Biological and/or non-biological habitat requirements of species are covered by specifying essential habitat factors.

There is no essential habitat mapped on the property.



LEGEND

- Category A or B - Endangered regional ecosystem
- Category A or B - Of concern regional ecosystem
- Category A or B - Least concern regional ecosystem

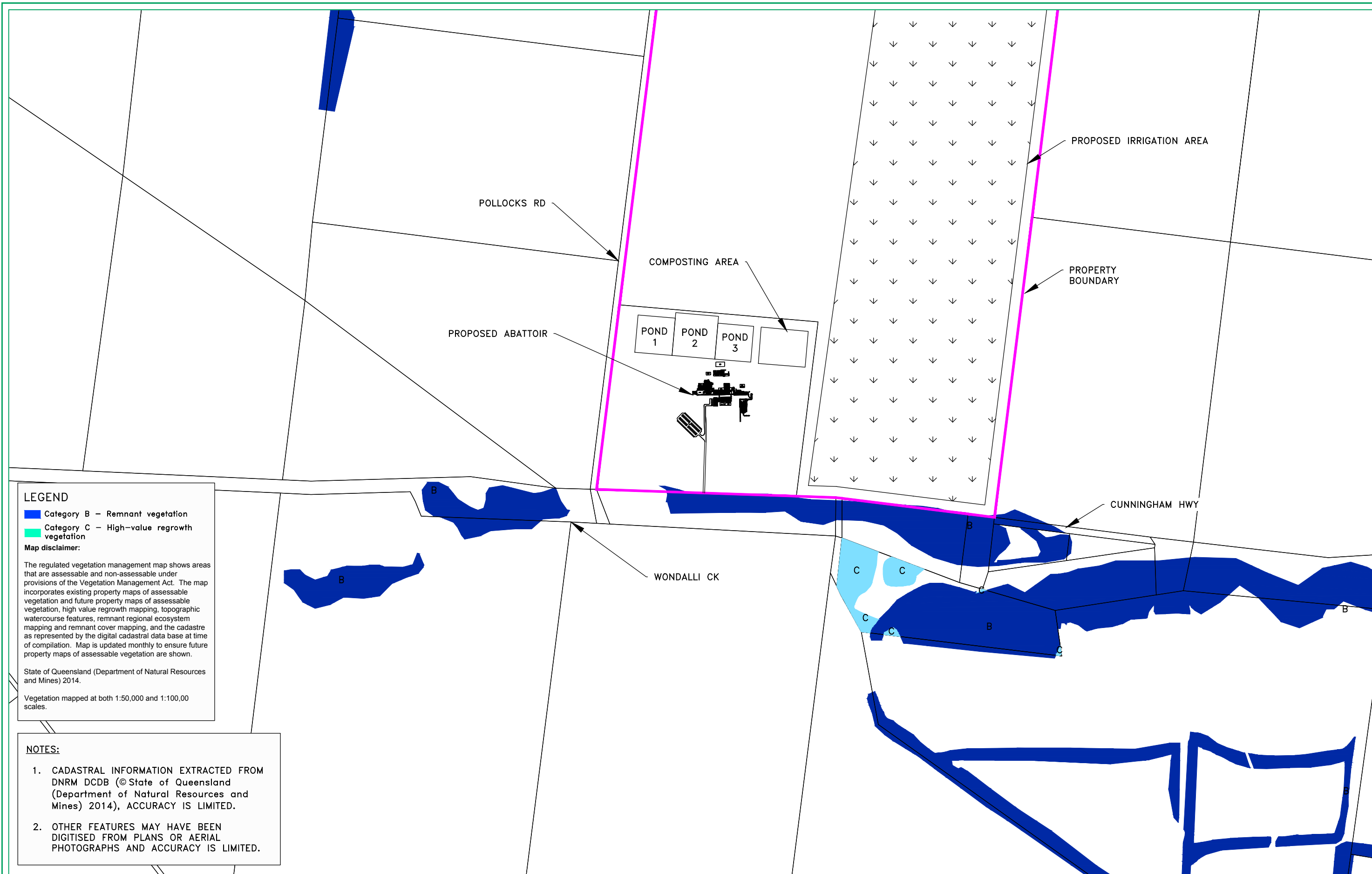
Map disclaimer:

This map provides supporting information for assessments under the Vegetation Management Act. The map incorporates elements of the regulated management vegetation map and the remnant regional ecosystem mapping and remnant cover mapping. Regional ecosystem information for both remnant and high value regrowth vegetation has been included in this map. 2011 Remnant regional ecosystems mapping at a map scale of 1:100,000 and 1:50,000 in part, based on surveys of vegetation communities and related landform, soils and geology is based on the Landsat imagery for 2011. Version 8.0 regional ecosystem descriptions, originally described in Sattler & Williams (ed.) (1999).

State of Queensland (Department of Natural Resources and Mines) 2015.

NOTES:

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- OTHER FEATURES MAY HAVE BEEN DIGITISED FROM PLANS OR AERIAL PHOTOGRAPHS AND ACCURACY IS LIMITED.



LEGEND
 ■ Category B - Remnant vegetation
 ■ Category C - High-value regrowth vegetation
Map disclaimer:

The regulated vegetation management map shows areas that are assessable and non-assessable under provisions of the Vegetation Management Act. The map incorporates existing property maps of assessable vegetation and future property maps of assessable vegetation, high value regrowth mapping, topographic watercourse features, remnant regional ecosystem mapping and remnant cover mapping, and the cadastre as represented by the digital cadastral data base at time of compilation. Map is updated monthly to ensure future property maps of assessable vegetation are shown.

State of Queensland (Department of Natural Resources and Mines) 2014.

Vegetation mapped at both 1:50,000 and 1:100,00 scales.

- NOTES:**
1. CADASTRAL INFORMATION EXTRACTED FROM DNRM DCDB (© State of Queensland (Department of Natural Resources and Mines) 2014), ACCURACY IS LIMITED.
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DATE	REVISION	DRAWN
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PROJECT:
 FUCHENG WOODLANDS PTY. LTD.
 LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD
 DRAWING TITLE:
 ABATTOIR EXPANSION FEASIBILITY
 REGULATED VEGETATION MANAGEMENT SUPPORTING MAP

SCALE: 1:16,000 (A3)
 DRAWN: TCG
 CHECKED:
 DATE: 11/04/16

SCALES :
 0 400m 800m

DRAWING NUMBER:
 8495 MASTERPLAN: FIG. VEG MGMT

Fig. 09

2.5.3 CLIMATIC REGIONS - STORMWATER MANAGEMENT DESIGN OBJECTIVES

Whilst this development is located in a rural zone, the region is still mapped as requiring Stormwater Management Design Objectives in the SPP Mapping (Appendix J). This requires the development to be compliant with Queensland's State Planning Policy. The state interest guideline describes the core concepts that the SPP is designed to address. The core concepts relevant to this development have been addressed in various sections throughout this report.

2.5.4 FLOOD HAZARD AREA

An effective planning system has a critical role to play in avoiding and minimising the potential impacts of hazards brought about by extreme weather events, natural processes and the result of human activities. These hazards, which are often unpredictable in nature, include flooding.

As has been described above in Section 2.3, the southern corner of the site is mapped as a Flood Hazard Area – Level 1 by the Hazards and Safety Overlays under the State Planning Policy (SPP). The proposed abattoir development is unlikely to change the flood characteristics of the area, however, as there will be no physical alteration to any watercourse or floodway and minimal areas (in the context of the size of the catchment) of solid structures associated with the proposed abattoir.

2.5.5 BUSHFIRE HAZARD AREA

A State-wide mapping methodology has been developed to identify Bushfire Prone Areas in support of bushfire hazard provisions of Queensland's State Planning Policy. This methodology was developed to overcome a number of known limitations with the methodology described in Queensland's previous State Planning Policy 1/03: Mitigating the Adverse Impacts of Flooding, Bushfires and Landslides (SPP 1/03). The project produced a full series of mapping products for the state at 25 m resolution.

The State Planning Policy Report (Appendix J) shows a medium potential bushfire hazard area and buffer in the south-east corner of the site. This site is not mapped as a bushfire hazard area by the Land Characteristics Map – Bushfire Hazard Areas of the WSCPS.

2.6 THREATENED FLORA

The Wildlife Online database indicated that no threatened plant species have been previously recorded within a 5 km radius of the site (Appendix E). The site is not mapped in a High Risk Area for protected plants under the *Nature Conservation Act 1992* (Appendix F).

The Protected Matters Database identified that the species *Westringia parvifolia* (Vulnerable) and its habitat is likely to occur within 5 km of the site (Appendix D). The Species Profile and Threats (SPRAT) database describes the habitat requirements for this species. *Westringia parvifolia* grows with Baker's Mallee (*Eucalyptus bakeri*) and Green Mallee (*E. viridis*) and between clumps of Spinifex (*Triodia sp.*) on sandy and stony soils. The site is mostly cleared and the vegetation mapped on the site does not include these species. Therefore, it is unlikely that this species would occur at the site.

2.7 THREATENED FAUNA

The Wildlife Online database indicated that no threatened animal species have been previously recorded within a 5 km radius of the site (Appendix E). The site is not within the jurisdiction of the South East Queensland Koala Conservation State Planning Provisions (SPRP).

The Protected Matters Database identified 12 threatened fauna species and their habitat which may occur within 5 km of the site (Appendix D). A likelihood assessment for these 12 species is provided in Table 2. No threatened fauna species are likely to occur at the site.

The eight listed migratory species identified in the Protected Matters Database report (Appendix D) are unlikely to occur at the site due to an absence of suitable habitat.

TABLE 2 - LIKELIHOOD OF OCCURRENCE FOR THREATENED FAUNA SPECIES

Threatened Fauna Species	NC Act Status	EPBC Act Status	Habitat	Likelihood of Occurrence
Koala (<i>Phascolarctos cinereus</i>)	Vulnerable	Vulnerable	Koala habitat can be broadly defined as any forest or woodland containing species that are known koala food trees, or shrubland with emergent food trees. The distribution of this habitat is largely influenced by land elevation, annual temperature and rainfall patterns, soil types and the resultant soil moisture availability and fertility. Preferred food and shelter trees are naturally abundant on fertile clay soils.	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Squatter pigeon (southern subspecies) (<i>Geophaps scripta</i>)	Vulnerable	Vulnerable	Grassy eucalypt woodlands near water.	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Red goshawk (<i>Erythrotriorchis radiatus</i>)	Endangered	Vulnerable	Inhabits open forests, woodlands especially near rivers, wetlands and rainforest fringes in coastal and sub-coastal north and north east Australia from the Kimberley to the Queensland/New South Wales border (Pizzey and Knight, 2007).	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Painted honeyeater (<i>Grantiella picta</i>)	Vulnerable	-	Habitat includes mistletoes in Eucalyptus forests, Box Ironbark/Yellow Gum woodlands, Paperbarks, Casuarinas, Mulgas/Acacias (Birds Australia, 2010; Pizzey and Knight, 2007). Rare migrant/nomad with range extending across eastern Australia (Pizzey and Knight, 2007).	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Australian Painted Snipe (<i>Rostratula australis</i>)	Vulnerable	Endangered	Inhabits well-vegetated shallows and margins of wetlands, dams, sewage ponds and other water courses; wet pastures, marshy areas, irrigation	Unlikely to occur as the site does not contain the preferred habitat features of

			systems, Lignum, Tea-tree scrub and open timber (Geering et al. 2007; Pizzey and Knight, 2007). Occurs mostly in south eastern Australia but dispersive in response to rainfall (Pizzey and Knight, 2007).	the species.
Murray Cod (<i>Maccullochella peelii</i>)	-	Vulnerable	The Murray Cod is found extensively throughout the Murray Darling Basin in the south eastern region of Australia. The Murray Cod has the ability to live in a diverse range of habitats, including clear rocky streams (such as those found in the upper western slopes of New South Wales), to slow flowing, turbid rivers and billabongs. Within the large range of habitats, the Murray Cod is usually found near complex structural cover such as large rocks, snags, overhanging vegetation and other woody structures.	Unlikely to occur as the site does not contain the preferred habitat features of the species. There are no rivers or creeks located on or adjacent to the property that are likely to be impacted by the development.
Yakka Skink (<i>Egernia rugose</i>)	Vulnerable	Vulnerable	Usually takes refuge under dense vegetation, hollow logs, in cavities in soil-bound root systems of fallen trees and beneath rocks in open dry sclerophyll forest or woodland throughout its range.	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Five-clawed Wormskink (<i>Anomalopus mackayi</i>)	Endangered	Vulnerable	The known distribution is patchy in north eastern New South Wales and south eastern Queensland (Brigalow Belt Reptiles Workshop, 2010; NSW DECCW, 2005ab; Sadlier and Pressey, 1994). In south eastern Queensland, the species' known distribution is on the upper Condamine River Floodplain from Warwick in the south to the Jimbour region in the north and bordered by the western edge of the granite belt. Known to occur in both remnant and non-remnant woodlands and grasslands. In areas modified by agriculture and other human	Site is outside the known geographic range of this species and it does not contain the preferred habitat features of the species.

			activities, the species has been found sheltering under artificial materials, such as discarded railway sleepers, sheet metal and hay bales (Brigalow Belt Reptiles Workshop, 2010; Richardson, 2006).	
Collared Delma (<i>Delma torquata</i>)	Vulnerable	Vulnerable	Under rocks and in soil cracks on heavy, stony and lightly timbered soils near Kenmore, Brookfield and Mt Crosby. Endemic to south east Queensland. Also found in numerous disturbed habitats throughout south east Queensland (Cogger, 2000).	Site is outside the known geographic range of this species and it does not contain the preferred habitat features of the species.
Dunmall's Snake (<i>Furina dunmali</i>)	Vulnerable	Vulnerable	Open forest and woodland, particularly brigalow (<i>Acacia harpophylla</i>) forest and woodland growing on floodplains of deep-cracking black clay and clay loam soils. Occurs in the south eastern interior of Queensland, especially the Darling Downs.	Habitat may occur in vegetation mapped along the southern border of the property.
Large-eared Pied Bat (<i>Chalinolobus dwyeri</i>)	Vulnerable	Vulnerable	Caves and mines in dry sclerophyll forests and woodlands as well as higher altitude moist Eucalyptus forest and edges of rainforest.	Unlikely to occur as the site does not contain the preferred habitat features of the species.
Corben's Long-eared Bat (<i>Nyctophilus corbeni</i>)	Vulnerable	Vulnerable	Has a limited distribution that is restricted around the Murray-Darling Basin in south eastern Australia. Even in this region its distribution is scattered and it is rarely recorded (Turbill and Ellis, 2006). Occurs in a range of inland woodland vegetation types, including Box, Ironbark and Cypress Pine woodlands. Throughout inland Queensland, the species habitat is dominated by various Eucalyptus and Bloodwood species, and various types of tree Mallee.	Unlikely to occur as the site does not contain the preferred habitat features of the species.

2.8 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas (ESAs) refer to locations that have environmental values that contribute to maintaining biological diversity and integrity have intrinsic or attributed scientific, historical or cultural heritage value, or are important in providing amenity, harmony or sense of community.

The site is not mapped as a Protected Area or Biodiversity Planning Assessment Area by the Features Maps under the WSCPS. The site is not within or adjoining a State or Federally protected natural area (e.g. World Heritage Area, State Forest or National Park) (Appendix G).

2.9 CULTURAL HERITAGE

A database search response of sites of aboriginal cultural heritage from the Department of Aboriginal and Torres Strait Islander Partnership database indicates that there is no Aboriginal cultural heritage currently recorded in the specific search area (Lot 15 and 16 SP135722).

Pursuant to the *Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines (DATSIMA 2004), the proposed development is a 'Category 5 activity'. From those guidelines:

- Where an activity is proposed under Category 5, there is generally a high risk that it could harm Aboriginal cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.
- Where an activity is proposed under Category 5, it is necessary to notify the Aboriginal Party and seek:
 - (a) Advice as to whether the feature constitutes Aboriginal cultural heritage; and
 - (b) If it does, agreement as to how best the activity may be managed to avoid or minimise harm to any Aboriginal cultural heritage.

Although the surrounding area has previously been extensively cleared and developed, the applicant is advised to take all reasonable and practical measures to ensure the activity does not harm any Aboriginal cultural heritage.

There is no cultural heritage body recorded in the specific search area. There are no cultural heritage management plans recorded in the specific search area. There are no Designated Landscape Areas (DLA) recorded in the specific search area. There are no Registered Study Cultural Heritage Areas recorded in the specific search area.

The cultural heritage party for the area is:

Bigambul People
Just Us Lawyers
238 Kelvin Grove Road, Kelvin Grove QLD 4059
Phone: (07) 3369 7145

The regional coordinator is

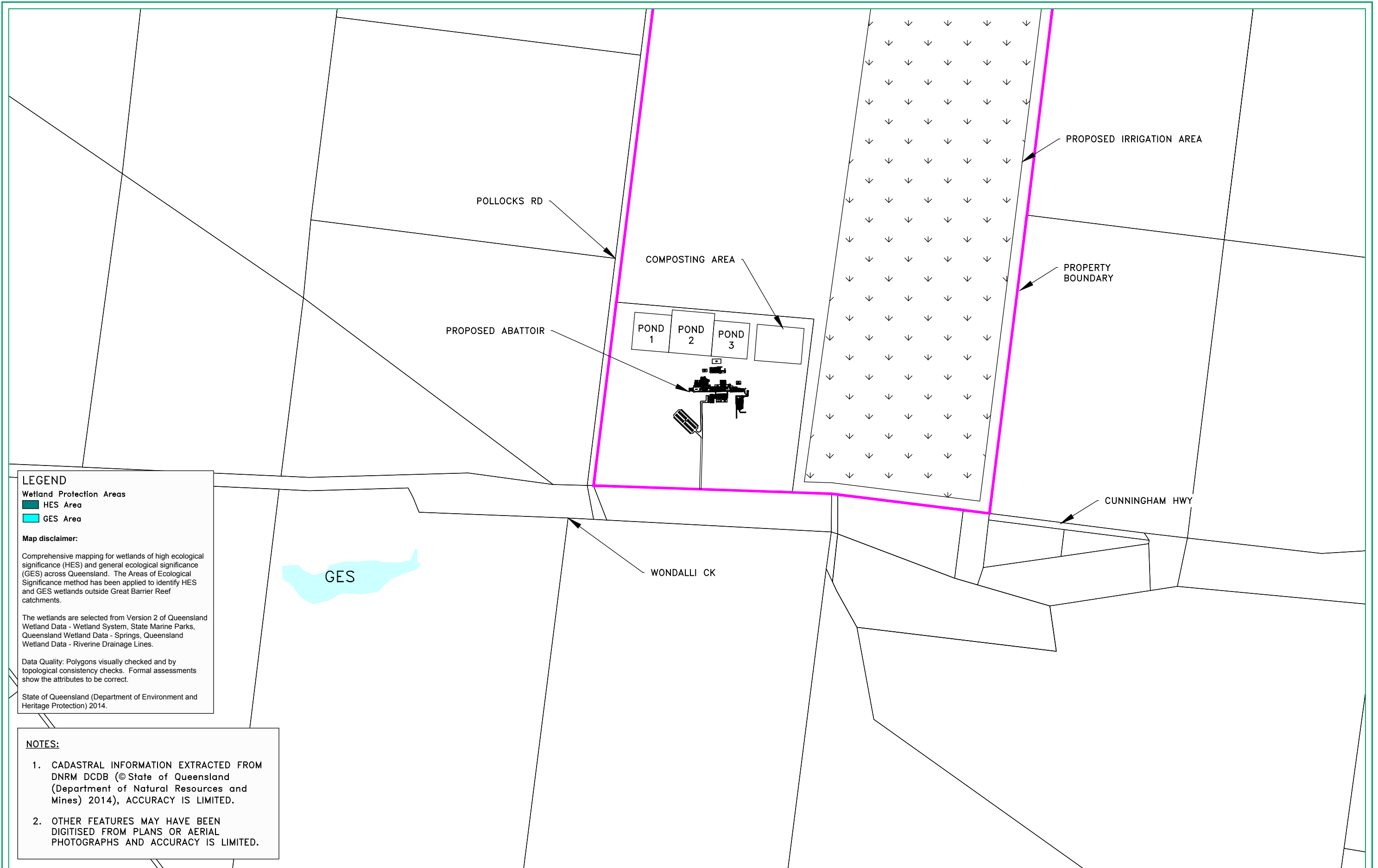
Andrew Rutch
Cultural Heritage Southern Region
07 3247 6220
0459 840 294
Andrew.Rutch@datsip.qld.gov.au

The proposed abattoir area is not recorded in the Queensland Heritage Register.

2.10 WETLANDS

The Queensland Government is directly responsible for the protection, conservation and management of wetlands in Queensland—a responsibility shared with local government and the Australian Government (for some wetlands of international significance). Wetlands are integral to a wide range of landscapes.

There is a series of small irregularly shaped waterbodies located between the existing abattoir and the effluent ponds. There are no Referrable Wetlands mapped at the site (Figure 10). There are no Wetlands of International Importance (Ramsar) within 1,000 km of the site (Appendix D).



LEGEND
 Wetland Protection Areas
 ■ HES Area
 ■ GES Area

Map disclaimer:
 Comprehensive mapping for wetlands of high ecological significance (HES) and general ecological significance (GES) across Queensland. The Areas of Ecological Significance method has been applied to identify HES and GES wetlands outside Great Barrier Reef catchments.


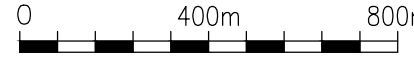

The wetlands are selected from Version 2 of Queensland Wetland Data - Wetland System, State Marine Parks, Queensland Wetland Data - Springs, Queensland Wetland Data - Riverine Drainage Lines.

Data Quality: Polygons visually checked and by topological consistency checks. Formal assessments show the attributes to be correct.

State of Queensland (Department of Environment and Heritage Protection) 2014.

NOTES:

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 FSA Consulting TOOWOOMBA OFFICE PO BOX 2175 TOOWOOMBA QLD 4350 TELEPHONE (07) 4632 8230 FACSIMILE (07) 4632 8057 www.fsaconsulting.net	DATE	REVISION	DRAWN	PROJECT: FUCHENG WOODLANDS PTY. LTD. LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD DRAWING TITLE: ABATTOIR EXPANSION FEASIBILITY WETLANDS	SCALE: 1:16,000 (A3)	SCALES : 0 400m 800m 	
					DRAWN: TCG		
					CHECKED:		
	04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG		DATE: 11/04/16	DRAWING NUMBER: 8495 MASTERPLAN: FIG. WETLANDS	Fig. 10

2.11 SOIL AND GEOLOGY

There are two soil types mapped at the site by Grazing Land Management mapping for the Waggamba Shire Council (Figure 11). Soils across the northern portion of the site are broadly described as self-mulching grey to dark cracking clays (vertisols) with melonholes. These soils are suitable for grazing of native and sown pastures, dryland cropping and forages. Land use limitations include susceptibility to waterlogging and ponding, and difficulties associated with melonholes.

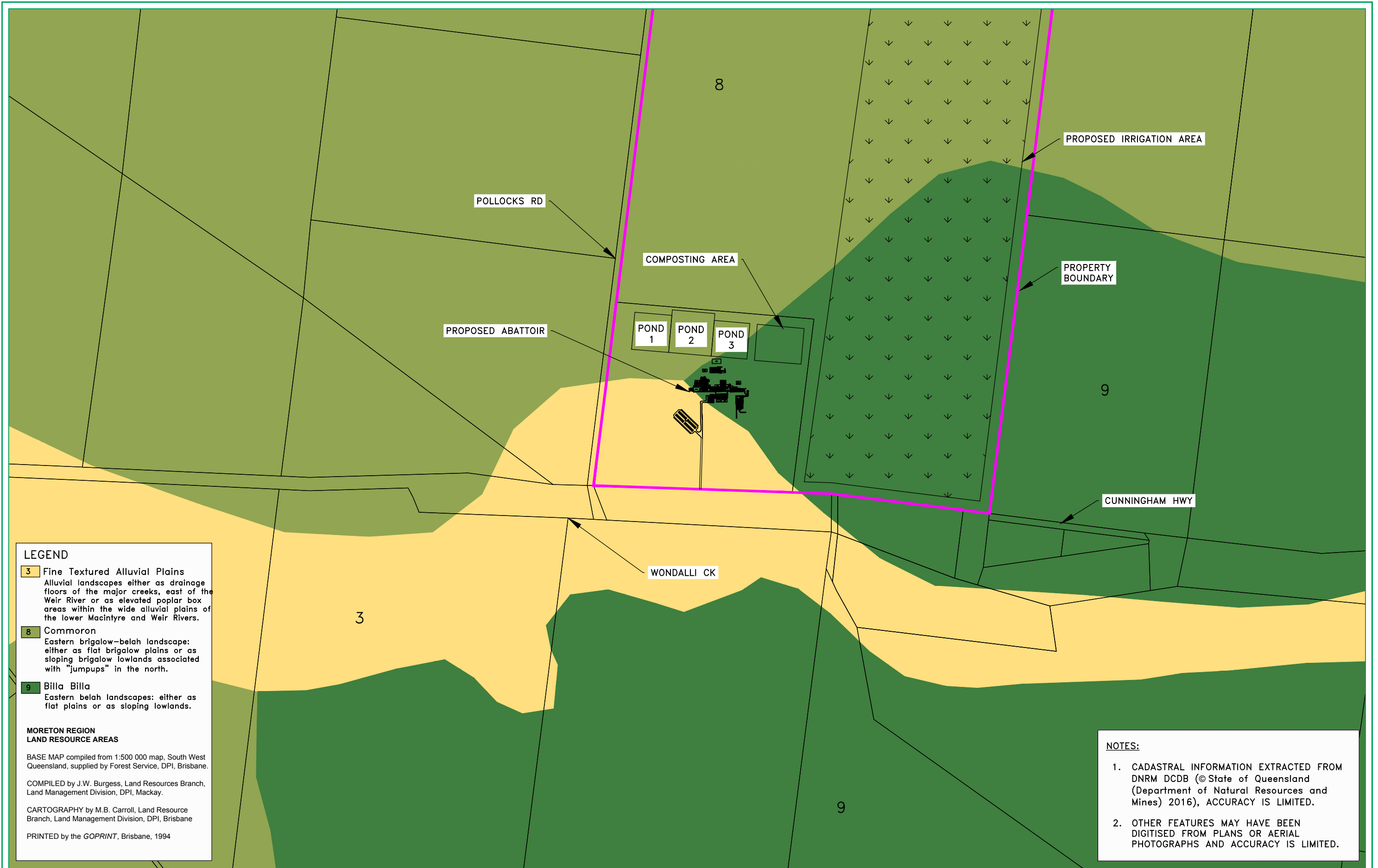
Soils across the southern portion of the site are broadly described as friable, shallow, black or brown texture-contrast soils (sodosols). These soils are suitable for growing and finishing, and dryland cropping with minor limitations. Land use limitations include dispersion and acidity (when subsoils are exposed) and risk of erosion on slopes (Macnish, 1987).


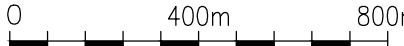

The site is underlain by the Quaternary aged Qs-SQ geological unit. This stratified unit (including miscellaneous unconsolidated sediments) is characterised by flood-out sheets and alluvium comprising sand, red sandy soil, silt and some gravel. Groundwater bore reports for the site indicate that the Qs-SQ geological unit is underlain by the Springbok Sandstone and Hutton Sandstone formations. The Springbok Sandstone formation is a Callovian-Bathonian aged unit characterised by clayey lithic sublabile to very lithic sandstone that is calcareous in part and interbedded with carbonaceous mudstone and siltstone. The Hutton Sandstone formation is a Callovian-Pliensbachian aged unit characterised by poorly sorted coarse to medium-grained feldspathic sublabile sandstone (at base) and fine-grained, well-sorted quartzose sandstone (at top) (Macnish, 1987).

2.12 ACID SULPHATE SOILS

Deposits of Acid Sulphate Soils (ASS) are commonly found less than five meters above sea level, particularly in low-lying coastal areas. Mangroves, salt marshes, floodplains, swamps, wetlands, estuaries, and brackish or tidal lakes are ideal areas for acid sulphate soil formation.

As the property on which piggery development is situated at elevations of 220 m AHD, it is unlikely that ASS are located within or adjoining the property given the mapped soil types and geomorphic setting.



 FSA Consulting TOOWOOMBA OFFICE PO BOX 2175 TOOWOOMBA QLD 4350 TELEPHONE (07) 4632 8230 FACSIMILE (07) 4632 8057 www.fsaconsulting.net	DATE	REVISION	DRAWN	PROJECT: FUCHENG WOODLANDS PTY. LTD. LOT 16, CUNNINGHAM HWY, GOONDIWINDI 4390 QLD DRAWING TITLE: ABATTOIR EXPANSION FEASIBILITY LAND RESOURCE AREA MAPPING	SCALE: 1:16,000 (A3)	SCALES : 0 400m 800m 	
	04/04/2017	(A) DRAFT DEVELOPMENT APPLICATION ISSUE	TCG				
				DATE: 11/04/16 DRAWING NUMBER: 8495 MASTERPLAN: FIG. LRA	Fig. 11		

2.13 CONTAMINATED LAND

In Queensland, the Department of Environment and Heritage Protection (DEHP) administers the *Environmental Protection Act 1994* (EP Act). The EP Act's emphasis is on managing Queensland's environment within the principles of ecologically sustainable development. Chapter 7, Part 8 of the EP Act deals with managing contaminated land. Managing potentially contaminating activities and known contaminated sites in Queensland helps prevent environmental and health risks.

'Contaminated land' refers to land contaminated by hazardous substances that may pose a risk to human health or the environment. Land contamination can occur as a result of poor environmental management and waste disposal practices or spills. In the past, land has been contaminated by activities not known to be dangerous at the time, often involving chemicals that have since been banned or are now subject to much stricter controls.

A search of the DEHP Environmental Management Register (EMR) and the Contaminated Land Register (CLR) was undertaken for the site. The site is not listed on the EMR or CLR (Appendix I).

2.14 UNEXPLODED ORDNANCE

The site is not recorded on the Unexploded Ordnance (UXO) database.

2.15 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

The Protected Matters Database under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) identified four Threatened Ecological Communities (TEC) that may occur within 5 km of the site (Appendix D). Three of these TECs are not likely to occur at the site based on the RE mapping for the local area. However, one Endangered TEC, Brigalow (*Acacia harpophylla* dominant and co-dominant), may potentially occur at the site. The remnant vegetation along the southern boundary of the property is mapped as RE 11.4.10. This RE is a known unit of the Brigalow TEC. Any development in this area will require an EPBC Act referral to the Federal Department of Environment and Energy.

3 PROPOSED DEVELOPMENT

3.1 BENEFITS AND JUSTIFICATION OF THE PROPOSAL

The capital required to construct the abattoir is estimated to be AUD \$84,600,000 – \$105,100,000. The size of this investment is predicted to have significant positive impacts on the Goondiwindi Region. At full operating capacity, the abattoir is expected to generate at least 380 full time equivalent (FTE) jobs. In addition to this, further jobs will be temporarily created during the construction phase of the project. Fucheng are committed to utilising local suppliers as much as possible and are focussed on providing further employment and training for the local indigenous communities.

Based on an average personal income in the Goondiwindi LGA of \$563.00 per week (ABS 2011), and conservatively assuming that this equates to an FTE wage, local employment from the project would generate more than \$11,183,432.00 in household incomes. This would have direct flow on effects including creation of jobs in agriculture, transport, energy, building, financial and business services, repairs and maintenance and indirect flow on effects related to consumption related demands arising from the expenditure of abattoir employees and those in related industries.

The primary industry of employment in the Goondiwindi LGA is Sheep, Beef Cattle, and Grain Farming, with 17.4% of the population working in these areas (ABS 2011). The generation of more than 382 FTE jobs in the region would be an opportunity for those already in the agricultural industry to expand their skills and increase their job security and would also attract skilled abattoir workers to the region.

In addition to the generation of local jobs, the abattoir will also provide a local destination for cattle producers. Primarily, cattle will be sourced from Woodlands Farms, however, there will be capacity to source cattle from the Border Rivers, Maranoa, Warrego and Balonne regions. In turn, this will potentially reduce transport costs for cattle producers and reduce the number of trucks travelling long distances.

3.2 OVERVIEW

The proposed abattoir will process 1,000 head of cattle per day over two 7.6 hour shifts, five days a week, 240 days a year. The plant will be configured to allow future expansion to operate up to six days per week. The slaughter process will typically operate at a rate of 66 cattle per hour.

The plant would be configured to produce the full range of chilled and frozen boxed beef products including red and green offal along with a full range of co-products. These include hides, tallow, meat and bone meal, and dried blood meal.

3.3 FACILITIES

The proposed facility will consist of cattle receival and covered lairage, slaughter and offal processing, carcass chiller freezers, boning room and associated amenities, product storage, rendering plant, wastewater treatment, staff amenities and truck access roads and wash-down bays. Please refer to the *Concept Design Report – Abattoir, Goondiwindi* (Appendix K) completed by Wiley for more details on the abattoir design.

3.4 ABATTOIR INPUTS

3.4.1 CATTLE

The total kill capacity of the abattoir will be 240,000 head/year with a hot standard carcass weight (HSCW) production of 72,000 tonnes/year (Table 3). Cattle will be sourced from the Woodlands Feedlot at Westmar, also owned by Fucheng, with the remainder of cattle being sourced from local feedlots and grazing properties. The proposed feedlot will have a capacity of 20,000 head and the maximum number of cattle produced by this feedlot would be 60,000 head/year. This assumes that cattle are fed for 100 days but may be less depending on the potential markets for the lot fed cattle. This results in a minimum of 180,000 head/year of cattle sourced from local suppliers.

TABLE 3 - ESTIMATE OF PROPOSED CATTLE INPUTS AND TONNAGES

Cattle entering (head/year)	240,000
Average Cattle Live weight (kg)	550
Live Weight Entering (t/yr)	132,000
HSCW Production (t/yr)	72,000

3.4.2 WATER

Potable water will be required for consumption by people and livestock, staff amenities, processing and cleaning, truck wash-down and fire-fighting. The expected potable water consumption is conservatively estimated at 2.5 ML/day or 600 ML/year. As the detailed design of the abattoir has not been undertaken, it is expected that the facility will be much more water efficient. Water use has been conservatively estimated to ensure a conservative sizing of the treatment ponds and irrigation area.

3.4.3 ENERGY

Abattoirs require a large amount of electricity for daily operation as cold storage requires 24-hour operation of freezers. The average electricity requirement will be 4 MW with a peak demand of 5 MW. It is anticipated that the capture of biogas will provide boiler power for the

rendering facility, however initially coal fired power may be utilised. It is estimated that the energy requirement for the rendering facility will be approximately 10 MW.

Each day, approximately 342 GJ of electricity and 580 GJ of steam will be required for the operation of the abattoir. This equates to the burning of approximately 420 kg/hour of biogas fuel or 3 tonnes/hour of coal for the boilers.

Negotiations with Essential Energy are currently underway in regards to the supply of electricity to the site.

3.5 ABATTOIR OUTPUTS

3.5.1 PRODUCTS

An average carcase of 300 kg hot standard carcase weight (HSCW) has been adopted but the plant will be capable of processing 250-400 kg HSCW. This is due to varying market requirements and cattle types.

Hides will be removed following legging, salt cured and packed in containers prior to removal from the site. Edible offal will be processed and chilled or frozen and packaged to suit market requirements. The estimated production of outputs is outlined in Table 4.

TABLE 4 – PRODUCT OUTPUT

Body Component	Percent weight	of live	Weight per Head (kg)	Weight per Day (kg)	Weight per Year (t)
Dressed Carcase		50%	300	300,960	72,230
Hair		7%	42	42,134	10,112
Hide/skin		7%	42	42,134	10,112
Blood		3%	18	18,058	4,334
Edible offal		10%	60	60,192	14,446
Inedible Offal		8%	49.8	49,959	11,990
Head		3%	15	15,048	3,612
Hooves/feet		2%	12	12,038	2,889
Manure (lairage)		1%	6	6,019	1,445
Paunch		9%	54	54,173	13,001

3.5.2 WASTEWATER

The primary source of wastewater will be from the cleaning of abattoir facilities including equipment sterilisation, wash stations, plant wash down, chillers and truck washing. Wastewater will also be produced from slaughter and evisceration, offal and rendering

processes. The estimated production of wastewater for the site is 3.25 ML/day. This includes the recycling of approximately 1 ML/day for lairage cleaning.

Wastewater from the staff amenities will have to be separately treated in septic systems as human effluent and abattoir wastewater cannot be mixed. An appropriately sized commercial STP will be installed to service staff amenities. A wastewater management plan for the staff amenities will be prepared and submitted in the Information Request period. A potential irrigation area has been identified for STP wastewater irrigation (Figure 3).

3.5.3 SOLID WASTE

Solid waste from the abattoir will include manure from lairage, paunch material, sludge and general waste from the disposal of Personal Protective Equipment (PPE) and office and canteen wastes.

Organic waste including manure, paunch and sludge will be transferred off-site by a licensed contractor to an appropriate composting facility. General waste will be collected and removed from site by a licensed contractor.

It is estimated that 30,000 kg/day of organic waste and 2,000 kg/day of general waste will be produced by the abattoir.

Sludge from the effluent pond will be co-composted on-site with solid waste from the abattoir. Sludge production and management is further discussed in Section 4.6.

3.6 INFRASTRUCTURE

3.6.1 WATER STORAGE & SUPPLY

An additional bore will be constructed on the property to allow access to the required volume of water. The current bore on site does not have the capacity to supply the required water. Fucheng have been granted consideration as a project of regional significance to allow for further groundwater allocation. As a result of this process, in addition to the 73 ML/year currently licenced, a further 380 ML has been secured.

This volume will be adequate as the efficiency of the abattoir will be increased to ensure the proposed processing requirements can be met.

3.6.2 VEHICLE ACCESS, INTERNAL ROADS & PARKING

All major internal roads and the area surrounding the abattoir will be bitumen sealed. The existing gravel roads that provide access to the surrounding cropping land will be maintained. The *Concept Design Report – Abattoir, Goondiwindi* (Appendix K) details parking allocations for staff and heavy vehicles.

The existing access via the Cunningham Highway will be the only access used by the abattoir. This access will be appropriately upgraded to ensure suitable access for heavy vehicles.

A Traffic Impact Assessment and Pavement Impact Assessment are currently being prepared and will be submitted in the Information Request Period.

3.6.3 CHEMICAL & FUEL STORAGE

Chemicals will be stored in an appropriate location away from sensitive environmental sites such as workshops, houses, waterways, groundwater bores or dams. The chemical storage will be constructed in a well-ventilated area with a spill containment feature (i.e. concrete bunding) to protect surrounding areas from exposure to chemical.

Access to the storage facility will be controlled to allow access to nominated personnel only and will be locked. Safe working procedures and an emergency plan will be established to allow for safe handling of the situation in case of emergency. Appropriate occupational health and safety signage will be provided on the entrance to the storage facility.

Working procedures will be in place for personnel safety during mixing, loading and application of chemicals. Chemical waste will be minimised where possible and returnable or recyclable containers are preferred. Chemicals will be transported in the back of an open vehicle, away from people, and the container will be secure while in transit.

3.6.4 TELECOMMUNICATIONS

The proposed area has coverage of the Telstra network. There are no further requirements for telecommunications for the proposed abattoir development.

3.7 OPERATING HOURS

Assuming the operation of the abattoir at two shifts per day, most operations will be undertaken between 4 am and 10 pm. Minimal operations may occur on a 24-hour basis.

Heavy vehicle movements will be limited to between the hours of 6 am and 8 pm wherever possible. Staff movements will occur throughout the normal operating hours.

3.1 COMMUNITY CONSULTATION

Amenity issues can arise when the operation of an activity unreasonably interferes with the comfortable enjoyment of life of the surrounding sensitive receptors. An abattoir can disrupt amenity through odour, noise, light and dust generation.

Representatives from Fucheng have undertaken initial consultations with the immediate neighbouring properties who have generally been supportive of the proposal.

Fucheng is committed to having amicable relationships with the surrounding receptors. On-going two-way communication, whether by email, telephone, letter drop or visits, provides a basis to detect and manage any impacts from the abattoir at an early stage and reduce the risk of nuisance from odour, dust, noise and light at neighbouring sensitive receptors.

3.2 STORMWATER MANAGEMENT PLAN

Stormwater from the roof of the proposed abattoir will be collected in rainwater tanks. The abattoir will be covered so there will be no contaminated stormwater runoff from the facility. All stormwater from the holding paddocks and hardstand areas will be directed to the water storage in the south-west corner of the property. Diversion banks will be constructed and maintained around the wastewater treatment systems, which will divert clean stormwater away from the pond systems.

The proposed wastewater treatment system (a series of ponds) will be located above the flood level and is not likely to be impacted by flooding. The proposed development is unlikely to have an adverse impact on the surrounding waterways

Manure from lairage will be removed and co-composted with paunch material.

A detailed stormwater management plan is currently being prepared and will be submitted in the Information Request Period.

3.3 EROSION AND SEDIMENT CONTROL PLAN

This Erosion and Sediment Control Plan (ESCP) will address strategies and management practices to be employed during and after construction of the proposed site to ensure minimisation of detrimental effects on the adjacent streams and watercourses.

The overriding operational objectives for this ESCP are to:

1. Control and minimise erosion activity within the construction site; and
2. Implement preventative measures to minimise sediment movement from the construction site.

This ESCP will ensure:

- The construction and operation of the abattoir does not have a detrimental impact on the surface water quality and quantity; and
- All runoff from the site must undergo sedimentation control prior to entering adjacent watercourses/streams to restrict silt access to the watercourses/streams.

This ESCP applies to all construction activities undertaken on the site, particularly where vegetation is removed or soil is exposed. Particular care will be taken in erosion sensitive areas, such as steep slopes.

Irrespective of the content of this ESCP, it is the responsibility of the Site Foreman or equivalent personnel to ensure that the construction and operation of the works does not have a detrimental impact on the surface water quality and quantity, and that all runoff from the site will undergo sedimentation control prior to entering adjacent watercourses/streams.

The potential impacts on the existing environment of the abattoir construction may include:

- Impacts to the natural soil coverage and distribution; and
- Impacts to surface water quality and quantity.

These impacts may occur due to:

- Soil erosion of disturbed soil during the construction phase;
- The transport of sediment and organic matter from the construction site into adjacent watercourses and streams; and
- Erosion of exposed areas after construction has finished.

In order to minimise soil erosion of disturbed soil from the construction site during and after construction, the following management strategies are required to be implemented:

- Minimise stripping of vegetation to the smallest area required. Stockpile stripped topsoil and grass for revegetation after construction is completed. Store stockpile within the sediment-controlled zone;
- Minimise unnecessary clearance of vegetation;
- Stabilisation of one entry/exit point;

- Program work activities to complete one road section before starting another section to minimise the area of disturbed ground that is exposed to erosion at any one time;
- Large established trees will not be removed (if possible);
- Divert clean runoff around the construction site using diversion channels;
- When construction is completed, revegetation of disturbed areas will be undertaken. Planting of fast growing grass species will be carried out to promote rapid establishment of ground cover. Re-laying of stockpiled topsoil and grass will be undertaken to encourage quick re-establishment of vegetation;
- Erosion control measures will be retained until sufficient ground cover becomes established; and
- Erosion and sediment control will be undertaken in accordance with the International Erosion Control Association (IECA) *Best Practice Sediment and Erosion Control Guidelines* (2008).

Where non-conformity and failure of the erosion control system occurs due to the development, the following corrective action will be enforced:

- The Project Manager and Site Foreman will assess extent of erosion;
- Rainfall amount and duration will be recorded;
- The appropriate form will be completed to record the non-conformity;
- The cause of the non-conformity will be assessed and recorded; and
- The corrective action taken to restore the area and minimise further damage will be recorded.

Corrective action after an erosion event may include:

- Stabilisation of areas that have been disturbed and eroded, via revegetation or erosion control matting;
- Re-stabilisation of the entry/exit point;
- Repair of diversion channels;
- Earthworks to reshape the land to prevent subsequent erosion; and
- Erosion activity will be controlled at the earliest stage possible, and erosion maintenance works will take priority over the construction to prevent erosional effects becoming worse.

To minimise the environmental harm or degradation of adjacent watercourse/stream water quality, the following management strategies will be implemented during pre-construction, construction and post-construction stages:

Pre-Construction Control Measures

- Install sediment fences along the low side of the site and surrounding on-site earthworks.

- Provide devices such as vegetation buffer zones, sediment fences, sandbags and catch drains to reduce flow, reduce scour and minimise sediment in runoff from the works site.
- Erosion and sediment control will be undertaken in accordance with the IECA *Best Practice Sediment and Erosion Control Guidelines* (2008).

During Construction Control Measures

- Divert clean water around the construction site and stabilise any drainage channels.
- Outline temporary drainage control measures that will be implemented during construction.
- Maintain all control measures in good working order.
- Provide devices such as vegetation buffer zones, sediment fences, sandbags and catch drains to reduce flow, reduce scour and minimise sediment in runoff from the works site.
- Soil and stormwater management during construction will be undertaken in accordance with the IECA *Best Practice Sediment and Erosion Control Guidelines* (2008).

Post-Construction Control Measures

- Establish permanent vegetation and stabilisation of the site.
- Ensure permanent drainage systems are in working order and stabilised.
- Soil erosion control and revegetation will be undertaken in accordance with the IECA *Best Practice Sediment and Erosion Control Guidelines* (2008).

Corrective action after a sediment transfer event may include:

- Repair and rehabilitation of sedimentation control devices such as vegetation buffer zones, sediment fences, and sandbags. Remove sediment and dispose away from the natural drainage lines;
- Repair of diversion channels, and remove excess sediment;
- Earthworks to reshape the land to prevent subsequent erosion and removal of accumulated sediment;
- Sedimentation activity will be controlled at the earliest stage possible, and maintenance works will take priority over the construction to prevent sediment transfer effects becoming worse.

4 WASTEWATER TREATMENT SYSTEM

Wastewater from the proposed abattoir will be biologically treated using a series of treatment ponds. The following sections outline the typical wastewater characteristics and wastewater quality requirements, the proposed wastewater treatment system including detailed information on pond sizing. The ponds have been designed with the assumption that the abattoir will be designed with a low water efficiency. Realistically, the abattoir will operate with industry best practice efficiency, which will result in a lower waste output. Hence, the proposed effluent treatment system will be very conservative.

This section also discusses the proposed wastewater management and provides an analysis of irrigation suitability.

4.1 WASTEWATER CHARACTERISTICS

In order to model water and nutrient balances for the proposed abattoir, estimates of wastewater volume, Biological Oxygen Demand (BOD), nitrogen concentration and phosphorus concentration were required. The estimated wastewater generation was discussed in Section 3.5.2.

Table 5 gives estimated quality of wastewater in the anaerobic treatment ponds from the Fucheng Abattoir based on the resource assessment report completed by Wiley & Co. Pty Ltd (Appendix K). The parameters are for wastewater following pre-treatment and screening.

TABLE 5 - ESTIMATED WASTEWATER CHARACTERISTICS

Parameter	Units	Estimated Wastewater Characteristics
Daily Flow Rate	(ML/day)	3.25
Total Dissolved Salts	(mg/L)	1,318.4
Volatile Solids	(mg/L)	972
Total Nitrogen	(mg/l)	202.4
Total Phosphorous	(mg/l)	31.15
BOD	(mg/l)	2,500

4.2 RECYCLED WASTEWATER QUALITY REQUIREMENTS

Depending on the final end use of recycled water, various classes (A+ through to D) of final wastewater may be required. If wastewater were to be used for minimally processed food crops (such as carrots, beetroot, potatoes or onions) high levels of treatment would be required. The *Water quality guidelines for recycled water schemes* (DNRW 2008) provides some minimum water quality criteria for the reuse of recycled water.

The final use for recycled wastewater from the proposed abattoir will be to irrigate cereal crops which will be harvested as required. These crops are not minimally processed. The *National Beef Cattle Feedlot Environmental Code of Practice* (MLA 2012) can be used as a benchmark for determining the appropriate water quality criteria for the intended use of these crops. These guidelines suggest that the land application of wastewater is made at rates consistent with the ability of soils and crops grown in the on-site utilisation areas to sustainably utilise the applied nutrients, salts and organic matter, under the climatic conditions prevailing at the site.

In order to allow for sustainable application of wastewater, the nutrient status of the reuse area will be required. To calculate application rates, the nutrient removal and storage rates through crop harvest, soil phosphorous storage, nitrogen volatilisation and other acceptable losses are required. A balance is needed between nutrient additions (irrigation water) and removals (crop harvest and acceptable losses or soil storage where soils are nutrient deficient). Hence, soil testing is required in order determine sustainable reuse rates.

The balance will be calculated by using physical measurements coupled with known nutrient removal by cropping. In simple terms, an irrigation application system is sustainable if nutrient removal through crop harvest matches the addition of nutrients. Other losses such as expected losses and soil storages should be considered.

A suggested balance equation is:

$$\text{crop uptake} + \text{expected losses} + \text{soil storage} = \text{irrigation applied}$$

All crops will be "cut and carted", to ensure sustainability of the reuse areas.

4.3 PROPOSED WASTEWATER TREATMENT SYSTEM

The proposed wastewater treatment system may comprise of a single anaerobic pond (primary treatment), a facultative aerobic pond (secondary treatment), and a wet-weather storage pond, to provide additional storage capacity during periods of prolonged wet weather. Final disposal of the wastewater will be through evaporation and land irrigation.

4.3.1 PRIMARY TREATMENT

The key purpose of primary treatment is to reduce both the organic and solid loads of the wastewater stream, prior to entry into the secondary treatment process.

The proposed primary treatment system is an anaerobic pond. Anaerobic treatment is a biological process where organic matter is digested in the absence of oxygen. The by-products of the digestion are Carbon Dioxide and Methane gas.

To prevent seepage of wastewater from the pond, the anaerobic pond is to be lined with at least 300 mm of compacted clay with a maximum hydraulic permeability of 1×10^{-9} m/s (0.1 mm/day).

Design parameters for the proposed anaerobic pond are provided in Table 6.

Suspended sediment will settle to the base of the pond. It is anticipated that most of the sludge will settle in this primary treatment pond. The pond design has allowed for 7 years' worth of sludge storage until the primary treatment pond is recommended to be de-sludged.

4.3.2 SECONDARY TREATMENT

The role of secondary treatment is to further reduce organic loading and provide nutrient removal (if required). The selection of a secondary treatment technology depends on the final wastewater parameters with which the wastewater must comply.

A facultative aerobic pond will be used as the secondary treatment process. Facultative ponds reduce BOD by promoting algal growth which in turn generates oxygen required for the microbial reduction of BOD. Typical organic loading in facultative ponds vary between 100-600 kgBOD/ha/day.

To prevent seepage of wastewater from the pond, the base of the pond is to be lined with at least 300 mm of compacted clay with a maximum hydraulic permeability of 1×10^{-9} m/s (0.1 mm/day).

Design parameters for the proposed aerobic pond are provided in Table 6.

4.3.3 WET WEATHER STORAGE

The wet weather storage manages the water flow during prolonged wet periods, allowing additional storage until it can be irrigated onto the mapped wastewater utilisation areas.

Similar to the other ponds, the wet weather storage will be constructed with a 300 mm thick compacted clay liner to prevent wastewater seepage into the underlying soil profile.

Wastewater modelling using the Model for Effluent Disposal and Land Irrigation (MEDLI) was run to determine the required size of the wet weather storage, which has an over topping frequency of less than once every ten years. The design parameters for the proposed wet weather pond are provided in Table 6.

TABLE 6 - PROPOSED POND DIMENSIONS

Parameter	Anaerobic Pond	Aerobic Pond	Wet Weather Pond
Proposed Aerobic Pond Storage Capacity (ML)	117	70	70
Minimum Hydraulic Retention Time (days)	20	20	30
Minimum Allowable Pond Volume (ML)	34	70	57
Pond Depth at Overflow Outlet (m)	5	2	3
Maximum Water Surface Area (m²)	28,142	37,273	26,141
Pond Footprint Length (m)	170	195	164
Pond Footprint Width (m)	170	195	164
Pond Catchment Area (m²)	28,817	38,050	26,792
Average Active Volume (ML)	94.5	69.5	56.75

4.4 IRRIGATION MANAGEMENT

4.4.1 WASTEWATER REUSE AREA

Irrigation will be used to manage the volume of wastewater within wet-weather pond. Treated wastewater will only be applied to designated utilisation areas.

When taking into consideration the required buffers to the property boundary and remnant vegetation, a total irrigation area of 208 ha is available (Figure 3). This is more than the 100 ha of required irrigation area identified in Section 4.5. The location of this irrigation area has been selected to ensure the maximum separation distance between irrigation activities and the nearest sensitive receptors.

All irrigation areas are proposed to be located a minimum of 20 metres from all property boundaries, public road ways and 50 m from remnant vegetation. This buffering of irrigation areas will minimise the potential for spray drift and detection of odour from irrigation at offsite locations. The nomination of irrigation zones across the total areas will minimise the potential for salinity to accumulate within the soil.

4.4.2 IRRIGATION EQUIPMENT AND MANAGEMENT

The irrigation frequency and application rates will be determined by the Abattoir Manager depending on crop demand and water availability. Irrigation will be primarily undertaken using a travelling spray irrigator.

Irrigation procedures have been developed in Appendix M to ensure that the reuse of treated wastewater via land irrigation is managed appropriately, and that irrigation of treated wastewater remains sustainable over time.

Quarterly effluent sampling and annual soil sampling will be undertaken to ensure ongoing irrigation is sustainable. Irrigation of effluent water will only occur on Monday to Saturday, preferably during the middle of the day when evaporation is maximised and odour impacts are minimised.

4.5 ANALYSIS OF IRRIGATION SUSTAINABILITY

4.5.1 MEDLI MODELLING METHODOLOGY

This section gives a summary of the MEDLI model and the various modules contained within the model. The following information is contained within the MEDLI Technical Description published by DNRM.

MEDLI is a Windows based computer model for designing and analysing effluent disposal systems for intensive rural industries, agri-industrial processors (e.g. abattoirs) and sewage treatment plants using land irrigation. It was developed jointly by the CRC for Waste Management and Pollution Control, the Queensland Department of Natural Resources and the Queensland Department of Primary Industries. MEDLI is the model recommended by the Department of Agriculture and Fisheries (DAF) and the Department of Environment and Heritage Protection (EHP) for predicting sustainable effluent reuse systems, including land irrigation of effluent from STP's.

MEDLI requires daily time series climate data for estimating crop water requirements, simulating crop growth and carrying out water balance computations. The data required are rainfall, temperature, Class A pan evaporation and solar radiation. The climatic data used to model the site was supplied by the Bureau of Meteorology (BOM).

The waste estimation component of MEDLI generates, for a given industry, the daily composition and volume of effluent before pre-treatment, storage or irrigation.

The simplest MEDLI waste estimation module uses measured waste stream details. Temporal variation in waste stream characteristics may be assigned monthly or seasonally, or for any other nominated periods, including single days. The user could enter different waste stream details for every day if the data is available. MEDLI assumes these details then applies for every year of the simulation. The model for simulating the effluent re-use system at the at the abattoir used data supplied by the client.

The pond module is a modified version of a design model for treating pig wastes (Casey 1995). The module consists of mass balances for the hydraulic, nitrogen, phosphorus, potassium and total dissolved salts components. It uses a number of empirically derived relationships. The model allows for up to four effluent ponds in series. Nutrients in the incoming mass are partitioned between the sludge and the supernatant, and a transfer coefficient is used to estimate the nitrogen volatilisation from the pond surface. The pond module's function is to predict water levels and nutrient and salt concentrations. A nominated pond can be used for recycling purposes and the last pond may be used for irrigation.

The soil water movement is simulated as a one-dimensional (vertical) water balance, averaged over a field sized area. The water balance component was taken from PERFECT (Littleboy et al. 1989; Littleboy et al. 1992) which was based on the Williams & LaSeur (1976) water balance models as used in CREAMS (Knisel 1980) (Knisel 1980) and similar models.

Soil parameters entered into the MEDLI model are based on the soil physical characteristics identified in relevant publications. The calculation of plant available water holding capacity (PAWC) is determined as the difference between field capacity and the permanent wilting point. The method is an estimate only and is corrected by assessing restrictions such as potential rooting depth, sodicity, salinity and pH. PAWC values are also compared to those reported for similar soils in various publications.

MEDLI simulates the movement of phosphorus through a soil profile by modelling adsorption of phosphorus to soil particles, desorption of phosphorus into soil water, and plant uptake of phosphorus. The phosphorus sorption capacity of the soil was not analysed in the laboratory and used the default values for a Sodosol (the soil type confirmed from field assessment) soil contained within MEDLI.

Soil runoff is predicted using the United States Department of Agriculture's Curve Number technique (USDA-SCS 1972) and is calculated as a function of daily rainfall, soil water deficit and plant total cover. The higher the curve number the higher the runoff. Curves for soils generally range from 60 to 90. Loose sands on flat topography have the lowest runoff rates, while heavy clay soils with slopes greater than 10 degrees have the highest runoff rates. The MEDLI modelling undertaken used a runoff curve of 82, which is representative of the soil type at the site, with pastures and a slope <3%.

The plant growth module in MEDLI predicts the biomass accumulation and the quantities of N and P that are removed from the effluent irrigation site through crop growth and the export of harvested material. Flexibility is gained through the provision of a dynamic pasture growth model and a dynamic crop growth model.

The pasture module is selected if a plant species is grown continuously, allowing regrowth to occur following mowing (rather than removing the crop as occurs for the dynamic crop module). In this model, plant cover increases with thermal time according to a fixed sine-curve algorithm defined by the total thermal time to reach full cover. Nitrogen stress and low biomass production modify cover development to improve the prediction of cover for stressed pastures. Growth is considered to be a function of solar radiation, plant cover and radiation use efficiency. Radiation use efficiency can be lowered by the highest of any stress due to temperature, water regime and low plant nitrogen. Prediction of daily plant growth allows estimation of the removal of N and P by nutrient uptake and storage in the shoot biomass. It is assumed that when a user-defined yield is reached, the crop is harvested and the harvested material exported off site.

MEDLI has a very good daily time step hydrological and crop growth modelling modules that can be used to determine appropriate pond and application area sizing.

4.5.2 MEDLI INPUT DATA

MEDLI modelling has been undertaken to assess the sustainability of wastewater irrigation on the proposed irrigation reuse areas at the proposed abattoir site. A 35-year simulation period was used, based on Goondiwindi climatic data generated for the period from January 1970 until December 2004.

TABLE 7 - CLIMATIC DATA RECORDED AT GOONDIWINDI (FROM MEDLI)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rain (mm)	89.0	76.2	48.1	38.9	46.7	25.2	37.7	32.3	34.4	51.9	64.7	72.6	617.5
Pan (mm)	255.3	203.2	194.1	136.6	91.7	69.0	74.3	102.5	146.0	193.5	224.4	258.1	1948.7
Max Temp (°C)	33.6	32.5	31.0	27.3	22.9	19.4	18.6	20.6	24.4	27.8	30.5	32.8	26.8
Min Temp (°C)	19.9	19.6	17.3	13.2	9.5	5.8	4.6	5.7	9.1	13.1	16.2	18.7	12.7
Rad (MJ/m ² /day)	24.8	23.0	20.9	17.3	13.7	12.3	13.3	16.8	20.6	23.0	24.8	25.6	19.7
Net Evap (mm)	166.3	127.1	146.0	97.7	45.1	43.7	36.6	70.3	111.6	141.6	159.7	185.5	1331.1

A model consisting of three effluent ponds was setup in MEDLI. The ponds included an anaerobic pond and 2 aerobic storage ponds. MEDLI input data for the ponds is outlined in Table 8.

TABLE 8 - POND SYSTEM GEOMETRY INPUTS TO MEDLI

Pond Dimensions	Simulated Pond 1 (anaerobic pond)	Simulated Pond 2 (storage pond)	Simulated Pond 3 (storage pond)
Crest length (m)	169.8	195.1	163.7
Crest width (m)	169.8	195.1	163.7
Pond catchment area (m ²)	28,816.7	38,049.5	26,791.8
Max. pond depth (m)	5.0	2.0	3.0
Internal batter (horiz:vert)	3:1	3:1	3:1
Max. water surface area (m ²)	28,141.7	37,273.3	26,141.1
Max. pond vol. (ML)	117.0	70.0	70.0

The annual wastewater inflow to the ponds is estimated to be 879ML/year. This inflow is based on the number of operating days and the predicted daily input water volumes. These are the values entered into MEDLI for analysis.

The MEDLI model was then calibrated to have nitrogen, phosphorus and salinity concentrations in the first pond to be similar to those in the report prepared by Wiley. A 35-year MEDLI climate file for the area was obtained from the Bureau of Meteorology. The median annual rainfall is 601 mm/year. The soil parameters were calculated from data collected during site visits and physical tests undertaken by FSA Consulting (duplex soil).

A kikuyu pasture has been used in modelling at a daily fixed frequency irrigation schedule. Kikuyu is a grazing or silage pasture well suited to soils located on site, and typically grown in the region. The area prescribed for irrigation on the site is 100 ha. However, significantly more land (208 ha total) is available if required in future operational management strategies.

4.5.3 MODELLING RESULTS

Key results from MEDLI modelling are tabulated below. Table 9 summarises the pond water balance results, while Table 10 shows the water and nutrient balance for the wastewater irrigation area. The nutrient balance has been calculated assuming the entire irrigation area is utilised (100 ha).

TABLE 9 - POND SYSTEM WATER BALANCE

Water Movement (ML/yr)	Pond System
Wastewater inflow	879
Rainwater added to the pond system	41.3
TOTAL IN	920.3
Evaporation	89
Seepage*	2.4
Irrigation	817
Overtopping	Nil
TOTAL OUT	908.4
Increase in water volume	11.9

*seepage estimated at 0.1 mm/d

It should be noted that when parameterising models such as MEDLI, certain assumptions have to be made, usually due to a lack of appropriate data. For this reason, the results presented should be viewed in terms of the *relative* sustainability, rather than any *absolute* differences between them. Monitoring is the only way to ensure that the performance predicted by the modelling is achieved.

Details from the three-pond system show that, under the proposed wastewater reuse system, negligible overtopping is expected to occur. This is due to appropriate wet weather storage sizing and adequate irrigation area. The MEDLI summary output is provided in Appendix O.

TABLE 10 - IRRIGATION AREA WATER AND NUTRIENT BALANCE

Parameter	Abattoir Results
Water balance (mm/yr)	
Rainfall	617
Irrigation	816
Soil evaporation	8.9
Transpiration	1204
Irrigation Runoff	1
Drainage	111
Crop Yield (kg DM/ha/yr)	28,775
Nutrient application and losses (kg/ha/yr)	
N applied as wastewater	619
N applied as seed	0.05
Total N applied	619
N loss via volatilisation	195
N removed by crop	728
N Leached	5.97
P applied as wastewater	27
P removed by crop	34
P leached	0.02
Change in adsorbed P	-7.1
Nutrient concentration in drainage (mg/L)	
Nitrogen	5.37
Phosphorus	0.02

4.6 SLUDGE MANAGEMENT

The operation of the abattoir will generate solid waste or sludge in the ponds. Suspended sediment settle to the base of each pond. It is anticipated that most of the sludge will settle in the anaerobic pond. The anaerobic pond design has allowed for 7 years' worth of sludge storage until desludging is required. Desludging may be undertaken at shorter intervals depending on regular observation of pond treatment volume. This material will need to be removed without damaging the pond lining. The sludge material will contain high levels of nutrients.

The other ponds should be de-sludged if any sludge build-up has reduced their storage beyond the required design capacity or if problems occur with wastewater conveyance from the pond to the wastewater irrigation area.

It is proposed that sludge will be applied to land on areas within the property that are not subject to effluent irrigation. If soil monitoring indicates that nutrient levels in these areas are elevated, sludge will be removed off-site.

5 ORGANISATIONAL STRUCTURE AND RESPONSIBILITY

Livestock processed through the proposed abattoir will include those owned by Fucheng and those owned by clients and processed as service kills.

Mr Gaoqi Li is the managing director of Fucheng International Abattoirs Pty Ltd and will oversee the construction and ongoing operation of the abattoir. Prior to construction and commissioning of the abattoir, Mr Li will employ an Abattoir Manager responsible for the overall construction and operation of the proposed abattoir. Fucheng are committed to operating the abattoir to ensure that it is environmentally sustainable and will focus on achieving continual environmental improvement.

At two shifts a day, five days a week, the abattoir will employ up to 365 full time operational staff. Shift Supervisors will assist the Abattoir Manager in managing the operations within the abattoir.

As per the "Environmental Policy and Commitment Policy", the management of the proposed abattoir are committed to:

- Conducting and analysis of training to identify the relevant training required.
- Ensuring relevant training is undertaken by themselves and other staff.
- Inducting new staff into the operation, including internal training on their responsibilities under this SBMP.

Figure 12 shows the organisational structure of the proposed abattoir that will be implemented once operational.

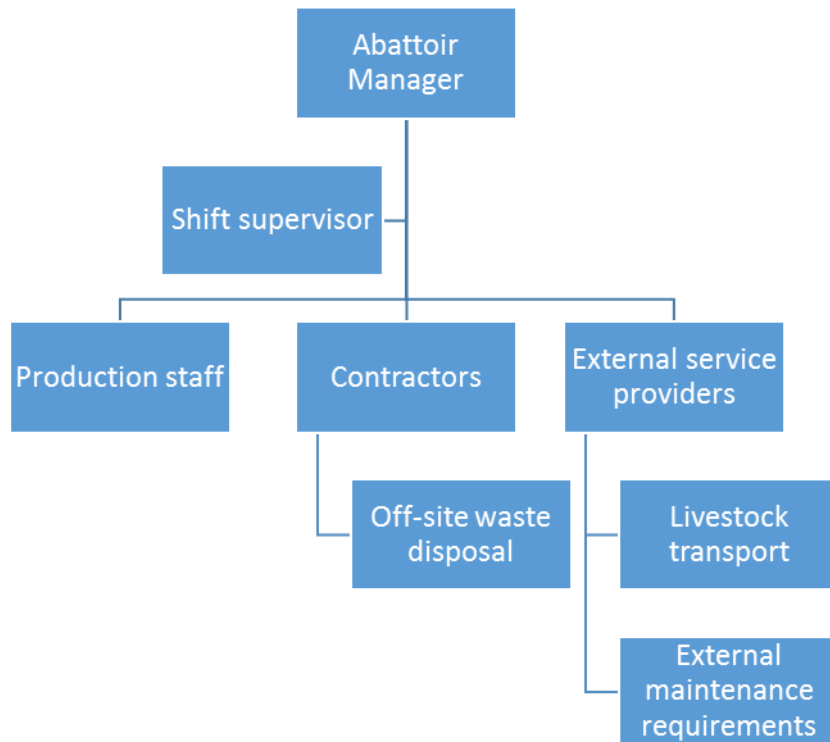


FIGURE 12 - PROPOSED ABATTOIR ORGANISATIONAL CHART

6 ENVIRONMENTAL IMPACTS AND MANAGEMENT

6.1 RISK CHARACTERISATION

Risk characterisation describes the likelihood of exposure and consequences of exposure. Risk is described as the "hazard characterisation × the exposure characterisation". Risks are characterised as Low, Medium or High based on the risk assessment matrix in Table 11.

Hazard characterisation and exposure characterisation are explained below.

Hazard characterisation - "Consequence"

Hazard characterisation in this report is the qualitative and/or quantitative evaluation of the potential environmental harm associated with the hazard.

The scale of each potential adverse environmental effect has been evaluated in relation to specific performance objectives. The scale is expressed in quantitative or qualitative terms. Ordered descriptions of scale are:

- **Major - Serious or material environmental impacts, e.g., major pollution incident causing significant damage to the environment.**
- **Significant - Long term or serious environmental harm**
- **Moderate - Moderate Environmental Impact**
- **Minor - Minimal environmental impact**

- **Insignificant - Little or no environmental harm**

In order to be considered minor or insignificant hazard, the impact of the risk must achieve the specific performance objectives, as listed below. In the event a hazard does not meet the required specific performance objectives, risk management strategies have been outlined in Section 8 to aid in achieving the specific performance objectives.

Exposure characterisation - "Likelihood"

Exposure characterisation is the estimation of the likelihood of occurrence of a hazard or an impact. The aim of the exposure characterisation is the quantitative estimation of the likely exposure of either the community or environment to the impact of the potential hazard.

Ordered descriptions of exposure are:

- **Almost certain - Expected to occur, quite common**
- **Likely - Will probably occur**
- **Possible - May occur at some time**
- **Unlikely - Could occur at some time although unlikely**
- **Rare - Might occur at some time in exceptional circumstances**

TABLE 11 - RISK ASSESSMENT MATRIX

		Likelihood				
Consequence		Major	Significant	Moderate	Minor	Insignificant
	Almost certain	H	H	H	M	M
	Likely	H	H	H	M	M
	Possible	H	M	M	M	L
	Unlikely	M	M	L	L	L
	Rare	M	L	L	L	L

A concept regularly used in environmental risk assessment is that of the source – pathway – receptor model. In this model the pathway between a hazard source (for example a source of contamination) and a receptor (for example a particular ecosystem) is investigated. The pathway is the linkage by which the receptor could come into contact with the source. If no pathway exists, then no risk exists. If a pathway exists linking the source to the receptor, then the consequences of this are determined.

6.2 RISK EVALUATION

Table 12 provides a detailed evaluation of the likelihood and consequence of each risk associated with the abattoir. The choice for the likelihood and consequence ratings are based on the siting of the development and particular design features that will be used to reduce the impacts.

From Table 12 it is evident that the abattoir does not pose a high risk to the environment. The largest risk from the proposed abattoir will be to water quality and hydrological processes; and to air in the form of odour and dust.

TABLE 12 - ASSESSING THE RISK TO THE ENVIRONMENT OF THE FUCHENG ABATTOIR

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
Vegetation: To maintain representation, diversity, viability and ecological function at the species, population and community level.	Clearing of vegetation	Clearing of vegetation due to the construction of the proposed abattoir	Vegetation. Reduction of diversity and numbers of flora due to clearing.	Likely	Moderate	Medium	Section 2.5 of the report provides details of the existing flora on the site. The proposed abattoir development will be sited in an area where there are sparse living trees, however these are not mapped as remnant. Clearing of mapped vegetation will not be required. Section 8.9 provides additional details on the management of flora and vegetation at the site.	Possible	Insignificant	Low
Land: To maintain the quality of lands and soils so that the environmental values, both ecological and social, are protected.	Effluent	Excessive water being added to the effluent irrigation area	Soils. Adverse effects to the ecological functions and environmental values of the soils.	Possible	Moderate	Medium	The effluent will be carefully managed so as not to impact on soils. Effluent will not be irrigated on overcast or rainy days. The effluent will only be applied to the designated effluent irrigation area on the site - approximately 208 ha. The holding ponds have been sized to cater for prolonged periods of wet weather. During these periods, effluent can be held until weather conditions permit irrigation. Section 8.3 provides more details on the management strategies used by the abattoir to reduce impacts to soils.	Unlikely	Moderate	Low

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
	Effluent	Excessive nutrients and salts being added to the effluent irrigation areas.	Soils. Adverse effects to the ecological functions and environmental values of the soils.	Likely	Significant	High	The feedlot will analyse the effluent for irrigation, and annual monitoring of nutrient levels in the soil will keep a check of the nutrients and salts being added by effluent irrigation. Section 8.3 provides more details on the management strategies used by the feedlot to reduce impacts to soils.	Unlikely	Significant	Medium
	Erosion	Erosion of soil from the effluent irrigation areas.	Soils. Adverse effects to the ecological functions and environmental values of the soils. Land that is disturbed is not managed or rehabilitated and causes erosion on-site.	Possible	Moderate	Medium	Significant erosion is unlikely to occur as the effluent irrigation areas are relatively flat. Effluent will be applied at a rate to prevent run-off and associated erosion from occurring. Section 8.3 provides more details on the management strategies used by the feedlot to reduce impacts to soils.	Unlikely	Moderate	Low
	Erosion	Erosion of soil during construction - Soil loss due to erosion during the construction phase	Soils. Adverse effects to the ecological functions and environmental values of the soils. Land that is disturbed is not managed or rehabilitated and causes erosion on-site.	Possible	Moderate	Medium	An erosion and sediment control plan will be in place during construction and operation to protect the soils in the development area. See Section 3.3 for more details.	Unlikely	Moderate	Low

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
	Erosion	Soil erosion from stormwater runoff - Soil loss due to the convergence of stormwater runoff from the abattoir.	Soils. Adverse effects to the ecological functions and environmental values of the soils. Land that is disturbed is not managed or rehabilitated and causes erosion on-site.	Possible	Moderate	Medium	During construction, the erosion and sediment plan discussed in Section 3.3 will be in place. The existing dam in the south-east corner of the property will capture any sediment from the construction area. In addition, any previously vegetated areas will be regenerated, reducing soil erosion from the site due to stormwater runoff.	Unlikely	Moderate	Low
Fauna: To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	Clearing of vegetation and disruption of habitat.	Clearing of vegetation and habitat due to the construction of the proposed abattoir.	There are no endangered (E), vulnerable (V) or near threatened (NT) fauna species under the Wildlife Conservation Act 1950 located within 5 km of the site. There is the potential for the loss of biodiversity and least concern fauna species.	Unlikely	Insignificant	Low	There are no EVNT fauna species identified as being potentially located within 5 km of the site. Minimal clearing of vegetation will be required for the development. Section 8.3 provides more details on the management strategies used by the abattoir to reduce impacts to biodiversity.	Unlikely	Moderate	Low

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
Hydrological Processes: To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected	Stormwater runoff from the abattoir.	Buildings, loading/unloading areas and other surfaces	Surface water. Existing flow regimes of surface water are altered due to discharges of stormwater runoff from the activity.	Possible	Significant	Medium	There will be no direct discharges to watercourses. Any indirect discharge to water or a watercourse or wetland will be managed so that there will be no adverse effects due to the altering of existing flow regimes for water or a watercourse. The proposed abattoir development will not interfere with the natural drainage. Runoff from buildings will be captured to be reused on site. The proposed abattoir site is also not within a flood prone area.	Unlikely	Moderate	Low
	Consumption of groundwater.	Consumption of groundwater for abattoir use.	Groundwater. Existing flow regimes of groundwater are altered due to consumption from the abattoir activity. There may be draw down effects on nearby water courses and wetlands.	Possible	Significant	Medium	Groundwater is used as the water source for the abattoir. The supply of groundwater is constantly observed and monitored to ensure there are no decreases in the production yield – refer to Section 8.2.	Unlikely	Moderate	Low

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
Inland Waters Environmental Quality: To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.	Soil leachate	Ponds and effluent irrigation areas	Groundwater contamination	Possible	Moderate	Medium	Any area in which there is a serious risk that soil leachate movement might contaminate groundwater (e.g. ponds/drains) will be underlain by a liner (most likely a clay liner) to mitigate that risk. Section 8.2 provides more details on the management strategies used by the abattoir to reduce impacts to groundwater.	Unlikely	Moderate	Low
	Stormwater runoff from the abattoir.	Internal roads and parking, lairage, and composting areas.	Surface water contamination	Likely	Moderate	High	Impacts to the surface water of the site and the surrounding area could occur due to operation of the abattoir and its associated effluent irrigation areas. With careful management, these activities are not likely to affect the quality of surface water moving off-property. The abattoir has been appropriately sited such that it will not affect surface waters. Section 8.2 provides more details on the management strategies used by the abattoir to reduce impacts to groundwater. Stormwater management is detailed in Section 3.2.	Unlikely	Significant	Medium
Air Quality and Atmospheric Gases: To maintain air quality for the protection of the environment and	Inappropriate management and overuse of resources on-site.	Greenhouse gas emissions due to on-site energy consumption (electricity, gas, fuel)	There are increased greenhouse gas emissions from the facility from power generation and methane production.	Likely	Moderate	High	Ensuring all equipment is operated in an energy efficient manner. Using energy efficient equipment where possible. Ultimately, biogas will supply gas power for boilers.	Likely	Minor	Medium



Fucheng International Abattoirs Pty Ltd, GOONDIWINDI

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Likelihood	Consequence	Risk	Management Strategy	Likelihood	Consequence	Residual Risk
human health and amenity, and to minimise the emission of greenhouse and other atmospheric gases through the application of best practice.	Inappropriate management and overuse of resources on-site.	Greenhouse gas emissions due to transport	Environment/People. There are increased greenhouse gas emissions from the facility.				Only using on-site vehicles when required. Provide a local abattoir for surrounding grazing and feedlot operations reduces the amount of fuel used to transport cattle to existing abattoirs. Maintaining vehicles in sound operating order.			
Amenity/Human Health: To ensure that impacts to amenity are reduced as low as reasonably practicable and to ensure that human health is not adversely affected.	Noise	Operation of the abattoir results in an increase in noise during construction of the proposed development and during on-going operation.	People. Adverse effects on people's enjoyment of their surrounds and/or health due to noise.	Likely	Moderate	High	There will be a vegetated screen located between the abattoir and receptors to the west. All other receptors are well away from the feedlot and do not require additional buffering. Management strategies will be in place to reduce noise from vehicles and machinery used on-site. Contractors will be informed of noise nuisance concerns and requested to limit noise generation. On-site vehicles will have a modified beeper installed ("croaker"), with flashing lights. No alarm systems will be used on-site. Site speed limit will be set. Section 8.6 provides more details on the management strategies used by the abattoir to reduce impacts to community amenity due to noise.	Possible	Moderate	Medium



Fucheng International Abattoirs Pty Ltd, GOONDIWINDI

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
	Odour	The rendering facility, holding pond, and effluent irrigation areas could all generate some odours.	People. Adverse effects on people's enjoyment of their surrounds.	Likely	Moderate	High	Proper management and regular maintenance of the rendering facility, holding ponds, solids storage area, and effluent irrigation areas are important functions in controlling odour generation. In addition, odour modelling indicates that there is adequate separation distance to the nearest sensitive receptor. Effluent will not be irrigated on overcast or rainy days, reducing odour impacts. There will be a vegetated screen planted between the feedlot and the receptors to the west, which will reduce odour impacts. Section 8.4 provides more details on the management strategies used by the abattoir to reduce impacts to community amenity due to odour.	Unlikely	Moderate	Low

Factor/Objective	Source	Pathway	Receptor & impact at receptor	Like-lihood	Conse-quence	Risk	Management Strategy	Like-lihood	Conse-quence	Residual Risk
	Dust	The internal roads, solids storage area and lairage could all generate some dust.	People. Adverse effects on people's enjoyment of their surrounds and/or health due to dust				High use internal roads will be sealed with bitumen which will minimise dust generation. Water trucks will be used to suppress dust from earthworks and traffic on dirt roads. Vegetative screens e.g. trees will be maintained to aid dispersion and capture of dust. Vehicle speeds will be limited to 30 km/hour. In addition, the closest sensitive receptor is 355 m north-west of the proposed abattoir site. Section 8.5 provides more details on the management strategies used by the abattoir to reduce impacts to community amenity due to dust.			

7 POTENTIAL ENVIRONMENTAL IMPACTS

The abattoir development may result in both positive and negative impacts to the surrounding environment. Potential impacts on the environment caused by the abattoir operations include:

1. Impacts to surface water
2. Impacts to ground water
3. Impacts to soils
4. Impacts to community amenity due to odour
5. Impacts to community amenity due to dust
6. Impacts to community amenity due to noise
7. Impacts to community amenity due to visual impact
8. Impacts to community amenity due to pest and vermin
9. Impacts to biodiversity
10. Impacts to cultural heritage

Potential environmental impacts arising from operating the abattoir are addressed in the sections below.

1. Impacts to surface water from transportation of organic matter, nutrients and chemicals to water bodies by:
 - a) Untreated wastewater – overtopping of ponds;
 - b) Treated wastewater – run-off from the irrigation area;
 - c) Stormwater run-off from abattoir site to surface waters; and
 - d) Flooding of treatment ponds and irrigation infrastructure.
2. Impacts to ground water from seepage of nutrients and chemicals contained within:
 - a) Treatment ponds; and
 - b) Irrigation areas.
3. Impacts to soils from accumulation of nutrients within soil from:
 - a) Irrigation of treated wastewater; and
 - b) Accumulation of nutrients within soil from seepage of wastewater from treatment ponds
4. Impacts to community amenity due to odour emitted from:
 - a) Treatment ponds;
 - b) Livestock lairage;
 - c) Storage of treated wastewater & wastewater irrigation site; and
 - d) Solid waste separated from liquid waste
5. Impacts to community amenity due to dust generated by:
 - a) Traffic movements including livestock delivery and pickup of carcasses and other products.
6. Impacts to community amenity due to noise from:
 - a) Traffic - on local roads and at the abattoir site will generate noise. This includes:

- i. Delivery of livestock to the abattoir;
 - ii. Refrigerated trucks at the loading docks including parking, and loading of product onto these trucks for carriage off-site;
 - iii. Removal of by-products and waste; and
 - iv. Staff vehicle movements

7. Impacts to community amenity due to visual impact impacts by:
 - a) The abattoir infrastructure and activities.

8. Impacts to community amenity due to pest and vermin from:
 - a) Wastewater ponds, which can provide a favourable habitat for certain species of birds; and
 - b) Uncovered or inappropriately stored solid waste, which may attract pests and vermin.

9. Impacts on sensitive flora and fauna due to:
 - a) Clearing of habitat;
 - b) Impacts on wildlife corridors; and
 - c) Increases in feral animals and pests.

8 MANAGEMENT OF POTENTIAL ENVIRONMENTAL IMPACTS

8.1 IMPACTS TO SURFACE WATER

8.1.1 OBJECTIVES

- Objective 1: Minimise surface water contamination due to overtopping from the wet weather storage pond.
- Objective 2: Minimise surface water contamination from application of treated wastewater or sludge to reuse areas.
- Objective 3: Minimise surface water contamination from solid wastes produced at the abattoir.
- Objective 4: Minimise surface water contamination from stormwater produced from the abattoir.

8.1.2 MANAGEMENT STRATEGIES

Objective 1 - Minimise surface water contamination from the wet weather pond.

- a. The wet weather storage pond has been designed such that overtopping frequency is less than 1 in 10 years.
- b. The treatment ponds have above-ground banks, excluding the entry of stormwater runoff.
- c. Clean upstream catchment run-off is diverted around the treatment ponds.

Objective 2 - Minimise surface water contamination from application of treated wastewater or sludge to reuse areas.

- a. A 50 m buffer distance will surround all wastewater and sludge disposal areas to ensure that treated wastewater or sludge does not flow directly into surface waters or onto neighbouring properties.
- b. Treated wastewater or sludge will not be applied immediately before, during or shortly following rainfall events, or when heavy rainfall or flooding is predicted.

Objective 3 - Minimise surface water contamination from solid wastes produced at the abattoir.

- a. Solid waste materials including sludge, will be composted on-site on a bunded area with a compacted clay base and applied to land that is not identified for effluent irrigation. Any composted material that is not utilised on-site will be transported off-site by an approved regulated waste transport company.

Objective 4 - Minimise surface water contamination from stormwater produced from abattoir.

- a. Stormwater from the roof of the abattoir and associated buildings will be collected into rainwater tanks.
- b. A stormwater management plan will be finalised prior to commencement of the activity.
- c. A diversion bank will ensure upstream stormwater flows are directed away from the treatment ponds to ensure that excess stormwater does not allow them to overtop.

8.1.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to surface water impacts:

- Procedure 6 - Pond capacity checking
- Procedure 15 – Irrigation and sludge management
- Procedure 17 - Bunding and diversion banks
- Procedure 4 – Management and removal of solid wastes

8.1.4 SPECIFIC PERFORMANCE INDICATORS

The general specific performance indicator is that the abattoir does not have a negative impact on surface water quality.

- a. Wet weather pond overtopping does not exceed frequency of 1 in 10 years.
- b. Irrigation is undertaken to ensure no run-off occurs.
- c. All waste stored on-site is bunded or otherwise contained to minimise stormwater contamination.
- d. All upstream runoff is directed around the abattoir facility and treatment system.
- e. The abattoir does not have a negative impact on surface water quality.

8.1.5 MONITORING AND RECORDING FREQUENCY

In the event where surface water is contaminated due to the wet weather pond overtopping, samples of the overflow liquid will be obtained and analysed. Data from these analyses will be retained and documented along with other information including date and time of the pond overflow and cause of the event.

9.1.6 REPORTING AND REVIEW

Documentation of the date and time of any overtopping event will be recorded in the Environmental Data Record (Record Sheet 2) and analyses will be documented and filed.

9.1.7 CORRECTIVE ACTIONS

Objective 1 - Minimise surface water contamination from overtopping of ponds.

- Review hydrological modelling of the pond system using measured inflow data to determine the adequacy of the system.

Objective 2 - Minimise surface water contamination from application of treated wastewater to reuse areas.

- In the event of surface water contamination arising from irrigation of treated wastewater, such activities will be suspended until rectified.

Objective 3 - Minimise surface water contamination from solid wastes produced from the abattoir.

- Check for damage to bunds and containment systems and repair as required.

Objective 4 - Minimise surface water contamination from stormwater produced from abattoir.

- Reassess levels of diversion banks and modify as required.

8.2 IMPACTS TO GROUNDWATER

8.2.1 OBJECTIVES

- Objective 1: Minimise groundwater contamination through leaching of nutrients from treatment ponds and composting area.
- Objective 2: Minimise groundwater contamination through leaching of nutrients and chemicals from land application of treated wastewater and sludge.
- Objective 3: Ensure annual extraction of groundwater does not exceed licensed amount.

8.2.2 MANAGEMENT STRATEGIES

Objective 1 – Minimise groundwater contamination through leaching of nutrients from treatment ponds

- a. All ponds and composting pad will be provided with a compacted clay liner with an in-situ hydraulic permeability of $<10^{-9}$ m/sec to prevent seepage of wastewater to the ground and deep soil drainage.

Objective 2 – Minimising leaching of nutrients and chemicals from land application of treated wastewater or sludge application.

- a. Management and monitoring of nutrient and chemical loading of soils within reuse areas to prevent overloading within soil profile.
- b. Wherever possible, delaying irrigation of wastewater or spreading of sludge while raining or when soil profile is excessively wet.
- c. Do not undertake irrigation or spreading of sludge in circumstances that might lead to deep leaching of nutrients.

Objective 3 – Ensure annual extraction of groundwater does not exceed licensed amount

- a. Install a water meter on the bore/s and record monthly extraction.

8.2.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to groundwater impacts:

- Procedure 9 - Water usage
- Procedure 12 - Groundwater bore monitoring
- Procedure 15 – Irrigation and sludge management

8.2.4 SPECIFIC PERFORMANCE INDICATORS

Objective 1 – Minimise groundwater contamination through leaching of nutrients from treatment ponds and composting pads

- a. No contamination of the on-site groundwater bore (no consistent increase of groundwater chemical parameters)

Objective 2 – Minimising leaching of nutrients and chemicals from irrigation of treated wastewater or sludge application.

- a. Ensure irrigation is undertaken at sustainable rates and rotation of irrigation areas is undertaken to ensure even distribution of contaminants.
- b. Refer to Specific performance indicators in Impacts to Soils, Section 8.3.

Objective 3 – Ensure annual extraction of groundwater does not exceed licensed amount

- a. Annual extraction does not exceed licensed quantity. The water year is the period from 1 July to 30 June.

8.2.5 MONITORING AND RECORDING FREQUENCY

Chemical analysis of groundwater is required to assess the impact of abattoir operations on groundwater quality. If changes to groundwater quality show no consistent increase, it is assumed that groundwater quality is not affected.

Objective 1 – Minimise groundwater contamination through leaching of nutrients from treatment ponds

- a. Annual testing of chemical composition of groundwater used for abattoir water supply.

Objective 2 – Minimising leaching of nutrients and chemicals from irrigation of treated wastewater or sludge application

- a. Annual testing of chemical composition of soil profile within the wastewater disposal area. Detected increases in nutrient loading of soils within the wastewater disposal area resulting from monitoring would be used as a trigger point to indicate risk of contamination of groundwater below irrigation reuse areas.

Objective 3 – Ensure annual extraction of groundwater does not exceed licensed amount

- a. Record weekly water usage.
- b. Record annual groundwater extraction.

8.2.6 REPORTING AND REVIEW

Monitoring analyses will be recorded and presented to the Administering Authority upon request.

8.2.7 CORRECTIVE ACTIONS

Objective 1 – Minimise groundwater contamination through leaching of nutrients from treatment ponds and composting pad

- a. Thoroughly investigate the integrity of the liner or clay compacted base of the ponds.

Objective 2 – Minimising leaching of nutrients and chemicals from irrigation of treated wastewater or sludge application

- a. Review irrigation management plan.
- b. Review sludge application rates.

Objective 3 – Ensure annual extraction of groundwater does not exceed licensed amount

- a. If bore water and abattoir water are significantly different to design targets, undertake a revised analysis of wastewater treatment system.

8.3 IMPACTS TO SOILS

8.3.1 OBJECTIVES

Objective 1: Manage soils to which treated wastewater or sludge is applied, to prevent nutrient and salt overloading of soils within the wastewater and sludge reuse areas.

Objective 2: Manage soils during construction to prevent impacts due to erosion

8.3.2 MANAGEMENT STRATEGIES

Objective 1 – Prevent nutrient overloading of soils within wastewater reuse areas.

- a. Rotating the irrigation areas;
- b. Samples of wastewater for irrigation will be taken annually for analysis of nutrient content. Refer to Table 13; and
- c. Soil sampling should be undertaken annually from the monitoring points outlined in Table 13. Samples are required to be taken annually. Some parameters are only analysed every two years. Refer to Table 14.

Objective 2 – Prevent soil erosion during construction.

- a. Minimise stripping of vegetation to the smallest area required. Stockpile stripped topsoil and grass for revegetation after construction is completed. Store stockpile within the sediment-controlled zone;
- b. When construction is completed, revegetation of disturbed areas will be undertaken. Planting of fast growing grass species will be carried out to promote rapid establishment of ground cover. Re-laying of stockpiled topsoil and kikuyu will be undertaken to encourage quick re-establishment of vegetation; and
- c. Erosion control measures (silt fences, vegetation swales, etc.) will be retained until sufficient ground cover becomes established

8.3.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to soil impacts:

- Procedure 13 - Soil monitoring in wastewater disposal area
- Procedure 11 - Wastewater quality monitoring

8.3.4 SPECIFIC PERFORMANCE INDICATORS

Accumulation of nutrients and/or detrimental alteration to the physical properties of the soils within the wastewater disposal area beyond sustainable limits are unacceptable outcomes. This will be achieved through ongoing soil monitoring.

Erosion and sediment control will be undertaken in accordance with the IECA *Best Practice Sediment and Erosion Control Guidelines* (2008).

8.3.5 MONITORING AND RECORDING FREQUENCY

Objective 1 – Prevent nutrient overloading of soils within wastewater and sludge reuse areas.

- a. Soil sampling will be undertaken annually from the irrigation areas that have been irrigated for the past 12 months and the irrigation area that is proposed to be irrigated for the next 12 months and from a sludge disposal area when sludge is applied.
- b. Wastewater used for irrigation will be sampled regularly to ensure there are no inconsistencies.

TABLE 13 - MONITORING PARAMETERS FOR WASTEWATER, USED FOR IRRIGATION

Parameter	Source	Frequency
Volume of irrigated wastewater (ML)	Irrigation pump	Weekly
Irrigated area (ha)	-	Weekly
pH	Sample from irrigation outlet	Quarterly
Sodium adsorption ratio (SAR)	Sample from irrigation outlet	Quarterly
Total dissolve solids (mg/L)	Sample from irrigation outlet	Quarterly
Chloride (mg/L)	Sample from irrigation outlet	Quarterly
Total nitrogen and its forms (mg/L)	Sample from irrigation outlet	Quarterly
Total phosphorous (mg/L)	Sample from irrigation outlet	Quarterly
Faecal coliforms (organisms/100 mL)	Sample from irrigation outlet	Quarterly

*The above frequency can be revised after initial results of the first twelve months (four sets of data) have been reviewed by a suitably qualified person.

TABLE 14 - PARAMETERS FOR SOIL ANALYSIS IN IRRIGATION AREAS

Parameters	Frequency	Soil depth
Total nitrogen or TKN	Annually	0 to 10cm
Exchangeable sodium percentage (ECP)	Annually	0 to 10cm
Organic carbon	Annually	0 to 10cm
Phosphorous	Annually	0 to 10cm
Electrical conductivity	Annually	0 to 10cm, 20-30cm & 50-60cm (or bottom of root zone)
Nitrate N	Annually	0 to 10cm, 20-30cm & 50-60cm (or bottom of root zone)

pH	Annually	0 to 10cm, 20-30cm & 50-60cm (or bottom of root zone)
Chloride	Once every two years	Bulked sample
Calcium	Once every two years	Bulked sample
Magnesium	Once every two years	Bulked sample
Sodium	Once every two years	Bulked sample
Potassium	Once every two years	Bulked sample

All determination of the quality of contaminants released to the environment must be undertaken by a person or body possessing appropriate experience and qualification to perform the required determinations.

All instruments and devices used for the measurement or monitoring of any parameter must be calibrated and appropriately operated and maintained.

Objective 2 – Prevent soil erosion during construction.

- a. Check sediment containment structures following rain events for build-up of sediment or failure of control.

8.3.6 REPORTING AND REVIEW

Documentation of all sampling and results are required, including:

- a. Volume of wastewater applied to reuse area (recorded on a daily basis)
- b. Soil analysis
- c. Wastewater analysis

All records pertaining to the SBMP are kept for a minimum of five years. These will be made available to the Administering Authority upon request.

8.3.7 CORRECTIVE ACTIONS

Objective 1 – Prevent nutrient overloading of soils within wastewater and sludge reuse areas.

- Where accumulation of nutrients or salt is detected, management strategies should be implemented to ensure sustainable irrigation of wastewater.

Objective 2 – Prevent soil erosion during construction

- Where sediment build-up occurs, excess sediment should be retained and replaced following construction.
- If the failure of a sediment control structure fails, the structure should be repaired, replaced or alternative measures investigated.

8.4 IMPACTS TO COMMUNITY AMENITY – ODOUR

Odour modelling has been undertaken (Appendix L) and indicates that there will be an acceptable level of impact to the nearest sensitive receptors.

8.4.1 OBJECTIVES

Objective 1: To minimise odour emissions from the abattoir.

Objective 2: To minimise odour emissions from the treatment ponds.

Objective 3: To minimise odour emissions from the irrigation of treated wastewater.

Objective 4: To minimise odour emissions from solid waste materials.

8.4.2 MANAGEMENT STRATEGIES

Objective 1 – Minimise odour emissions from the abattoir.

- a. All operational surfaces within the abattoir will be cleaned daily.
- b. Lairage areas will be cleaned daily with solid manure removed and high-pressure cleaning undertaken.
- c. Any spillages of solid waste material external to the abattoir will be cleaned up immediately.
- d. Spare plant items such as wastewater treatment plant pumps, motors and consumables are to be maintained in case of an unforeseen event, i.e. plant breakdown.
- e. Back-up power supply to be maintained in case of an unforeseen event, i.e. power failure.

Objective 2: Minimise odour emissions from the treatment ponds

- a. Purpose-designed wastewater treatment ponds have been constructed to maximise biological breakdown of wastes and minimise odour emissions.

Objective 3: Minimise odour emissions from the irrigation of treated wastewater

- a. Wastewater will not be irrigated on public holidays (when the abattoir is not operating anyway).
- b. Wastewater will be irrigated using a low-pressure sprinkler method, to reduce formation of aerosol particles.
- c. Wastewater mains and irrigation system shall be flushed with at least one irrigation system volume of clean water to prevent potentially odorous material remaining in the irrigation system between irrigation events.

- d. The operation of the wastewater irrigation system is to be limited to the daytime hours to maximise dispersion of any associated odours and to accelerate drying of the wastewater at the surface.
- e. The irrigation mains and irrigator will generally operate for a few hours at a time.

Objective 4: Minimise odour emissions from solid waste materials

- a. Storage of solid waste materials will be composted on-site prior to removal off-site.
- b. Composting will be undertaken in accordance with industry guidelines.

8.4.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to odour impacts:

- Procedure 3 – Cleaning following daily operation (abattoir and lairage area)
- Procedure 4 – Management and removal of solid wastes
- Procedure 14 – Odour monitoring
- Procedure 15 – Irrigation and sludge management
- Procedure 18 – Complaint investigation and recording

8.4.4 SPECIFIC PERFORMANCE INDICATORS

The abattoir needs to meet the objectives of the *Environmental Protection Act 1994*:

“to protect Queensland’s environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)”.

The environmental values to be enhanced or protected under the *Environmental Protection (Air) Policy 2008* are:

- i. the qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems; and
- ii. the qualities of the air environment that are conducive to human health and wellbeing; and
- iii. the qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and
- iv. the qualities of the air environment that are conducive to protecting agricultural use of the environment.

In accordance with the *Guideline for Odour Impact Assessment from Developments* (DEHP QLD 2013), the specific performance indicator is that “any release of noxious or offensive odours will not cause a nuisance at any odour sensitive place”.

8.4.5 MONITORING AND RECORDING FREQUENCY

Objective 1 – Minimise odour emissions from the abattoir.

- a. A complaints register will be used to record all odour complaints (Record Sheet 1). Details will be logged immediately and the following recorded:
 - i. Date, time and the method by which the complaint was made.
 - ii. Any personal details of the complainant or a note about the complainant.
 - iii. Nature of the complaint.

Objective 2: Minimise odour emissions from treatment ponds

- a. Odour observations should be made on a regular basis (quarterly) and recorded.
- b. If an odour is detected, measures are to taken to investigate and address the sources of odour as per the Corrective Actions.
- c. Further assessments will be carried out in response to validated odour complaints.

The assessments will be undertaken using the German Standard VDI 3940 Determination of Odorants in Ambient Air by Field Inspection as a guide ((VDI)-RICHTLINIEN 1993). The VDI scale and procedure are provided in the Odour Monitoring Record located in Appendix N. It is important to note that VDI scale and Odour Monitoring Record has been used as a guide and the format and procedure may change with management and research.

When the assessment is undertaken, the assessor must not be desensitised to the odour. The assessor must have been away from the site for a minimum period of 30 minutes prior to undertaking the assessment.

Objective 3: To minimise odour emissions from the irrigation of treated wastewater.

- a. Odour observations will be completed while the irrigator is operating.
- b. The observations will be completed within 50 m downwind of the irrigator, during dry weather conditions with winds not exceeding 5 m/s at ground level.

All odour monitoring records will be kept for at least five years.

8.4.6 REPORTING AND REVIEW

Ongoing Reporting and Reviewing

Where the odour intensity assessment indicates that odour levels are unacceptable (intensity levels A-D in the Odour Assessment Record), corrective action is required. This

involves the Abattoir Manager recording the details of the problem and the proposed method of solving the problem in the Environmental Data Record (Record Sheet 2; Appendix O).

The Environmental Data Record (Record Sheet 2; Appendix O) and the Complaints Register (Record Sheet 1; Appendix O) will be monitored regularly by the Abattoir Manager to determine the effectiveness of the implemented tasks to meet the objectives. Any areas where deficiencies consistently and/or unnecessarily occur will be investigated further and appropriate corrective actions undertaken. Recorded complaints will be reviewed and the following information will be reported in the Complaints Register (Appendix O):

- Management options available to reduce or solve the problem.
- Corrective action taken to eliminate the source of each complaint.
- Effectiveness of method used.
- Response of complainant/s about the level of impact after steps have been put into place to solve the problem.
- Details of further monitoring (through assessment by the Abattoir Manager and consultation with the complainants).

8.4.7 CORRECTIVE ACTIONS

Objective 1 – Minimise odour emissions from the abattoir.

- a. Review of documentation of odour complaints in the register to distinguish cause of odour.
- b. Review of cleaning operations within the abattoir, and modification of practices and/or Standard Operating Procedures, as relevant.

Objective 2: Minimise odour emissions from treatment ponds

- a. Investigate alternative management and engineering options to reduce odour emissions from the treatment ponds.

Objective 3: To minimise odour emissions from the irrigation of treated wastewater.

- a. Investigation of potential procedures that may help to reduce odour emissions from irrigation of treated wastewater.

Objective 4: To minimise odour emissions from solid waste

- a. Investigation of potential procedures that may help to reduce odour emissions from solid waste (should not be necessary as solid waste is removed daily).

8.5 IMPACTS TO COMMUNITY AMENITY – DUST

8.5.1 OBJECTIVES

Objective 1: To minimise dust emissions from the transport of livestock, products, staff movements and other transport requirements.

Objective 2: To minimise dust complaints.

8.5.2 MANAGEMENT STRATEGIES

Objective 1 – Minimise dust emission originating from various transport operations.

- a. Maximum vehicle speeds limited on abattoir premises to 20 km/hr.
- b. All solid waste material will be removed from the property in appropriately covered vehicles by a licensed contractor.

Objective 2 – Minimise dust and visual amenity complaints

- a. Maintain a complaints register.
- b. Operate a telephone complaints line.
- c. Instruct all staff on the appropriate handling of dust complaints.

8.5.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to dust impacts:

- Procedure 1– Contractor’s vehicles
- Procedure 2 – Abattoir vehicles and equipment
- Procedure 16 – Staff training
- Procedure 18 – Complaint investigation and recording

8.5.4 SPECIFIC PERFORMANCE INDICATORS

The abattoir must comply with the *Environmental Protection Policy (Air) 2008* in that it protects;

“the qualities of the air environment that are conducive to human health and well being, protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and to protecting agricultural use of the environment”.

Therefore, the dust emissions from the abattoir and operations must not cause any dust exposure of a serious and persistent nature to any sensitive place located at or beyond the boundaries of the property.

8.5.5 MONITORING AND RECORDING FREQUENCY

The Abattoir Manager will undertake visual assessments to monitor dust emissions.

Assessments will be undertaken:

- i. In response to validated dust complaints.
- ii. More frequently during prolonged dry periods or after a validated complaint.
- iii. When the wind speed is moderate to strong.
- iv. When the wind is blowing from the abattoir towards sensitive receptors.
- v. During daylight hours.

The results of the visual assessments will be placed in the Dust Assessment Record (Record Sheet 6) provided in Appendix N.

Dust Monitoring

Dust monitoring will be undertaken if persistent and verified dust complaints are made to either the abattoir management or the Administering Authority. In this instance, a suitably qualified person will undertake a detailed dust analysis to determine whether the dust deposition exceeds the performance indicators above.

Complaint Recording

A Complaints Register will be used to record all dust and visual amenity complaints. Details will be logged immediately and the following recorded:

- Date, time and the method by which the complaint was made.
- Any personal details of the complainant or a note about the complainant.
- Nature of the complaint.

8.5.6 REPORTING AND REVIEW

Where the visual assessment indicates that dust levels are unacceptable, corrective action is required. The details of the problem and the proposed method of solving the problem are to be recorded in the Environmental Data Record (Appendix O) by the Abattoir Manager. Dust monitoring, in the process detailed above, may be conducted following persistent and verified complaints regarding dust emissions.

The Environmental Data Record (Appendix O) and any dust monitoring results must be kept on-site and are available to the Administering Authority upon request.

8.5.7 CORRECTIVE ACTIONS

Objective 1 – Minimise dust emission originating from various transport operations.

- a. Reduce speed limits on unsealed roads on-site.
- b. Increase water applications to unsealed roads on-site.

Objective 2 – Minimise dust complaints.

- a. Determine the specific source of dust.
- b. Analyse the cause of the complaint.
- c. Take appropriate remedial action (modify the design or operation accordingly).

8.6 IMPACTS TO COMMUNITY AMENITY – NOISE

8.6.1 OBJECTIVES

Objective 1: To minimise noise generation during construction and ongoing operations, and minimise noise complaints.

8.6.2 MANAGEMENT STRATEGIES

- a. During construction of the abattoir, best available control technology and practices will be employed to limit noise emissions;
- b. Mechanical plant such as refrigeration compressors should be located on the eastern façade away from nearest noise sensitive receptors;
- c. During construction of the development, any work that is likely to generate audible noise at sensitive receptors will be limited to the time periods 6.30 am to 6.30 pm Monday to Saturday;
- d. Contractors will be informed of noise nuisance concerns and requested to limit noise generation (e.g. engine braking, limiting airbrakes, horns, excessive revving of motors, avoidance of impact with solid objects during load-out, livestock delivery, construction, maintenance and earthmoving operations);
- e. Operating hours will be limited to 4.00 am - 10.00 pm Monday to Saturday;
- f. Cleaning and rendering may occur outside of these hours. During these times, there will be vehicle movements associated with the employees needed to assist with these activities;
- g. Site speed limit will be 30 km/hr;
- h. Equipment such as air conditioning, refrigeration units, pumps and associated plant must be designed, installed and operated to comply with appropriate noise limits;
- i. Regular maintenance of machinery and vehicles. If a vehicle/machine is creating excessive noise, maintenance must be undertaken to correct the problem;
- j. All access doors for unloading and for personnel will be closed except when required for access; and
- k. Drivers of refrigerated product trucks are to be advised that:
 - i. Body-mounted refrigeration units are to be switched off whilst on-site; and
 - ii. No amplified music/sound to be used as part of truck/driver activities, or at the unloading areas, dock or any other external areas at the abattoir.
 - iii. No reversing alarms are to be used or broadband reversing alarms are fitted to refrigerated product trucks.
- l. No external alarm bells or paging systems are to be used.
- m. All on-site driveways/roads be sealed and well maintained (no potholes) to minimise on-site truck noise.

- o. A noise complaints register is to be maintained and noise complaints addressed.
- p. Instruct all staff on the appropriate handling of noise complaints.

8.6.3 RELEVANT STANDARD OPERATING PROCEDURES

- Procedure 1– Contractor’s vehicles
- Procedure 2 – Abattoir vehicles and equipment
- Procedure 4 – Management and removal of solid wastes
- Procedure 16 – Staff training
- Procedure 18 – Complaint investigation and recording

8.6.4 SPECIFIC PERFORMANCE INDICATORS

TABLE 15 – NOISE LIMITS

Noise level measured in dB(A)	Monday to Saturday			Sunday and Public Holidays		
	7am-6 pm	6pm-10pm	10pm-7am	9am-6pm	6pm-10pm	10pm-9am
Noise measured at a nuisance sensitive place						
$L_{Aeq\ adj, T}$	Background +5	Background +3	Background +0	Background +5	Background +3	Background +0
$MaxL_{pA, T}$	Background +10	Background +8	Background +5	Background +10	Background +8	Background +5
Noise measured at a commercial place						
$L_{Aeq\ adj, T}$	Background +10	Background +8	Background +5	Background +10	Background +8	Background +5
$MaxL_{pA, T}$	Background +15	Background +13	Background +10	Background +15	Background +13	Background +10

The overall noise level generated by the abattoir must also comply with the requirements of the *Environmental Protection (Noise) Policy 2008*. This policy states that the environmental values to be enhanced or protected under this policy are the qualities of the acoustic environment that are conducive to:

- (a) protecting the health and biodiversity of ecosystems; and
- (b) human health and wellbeing, by ensuring a suitable acoustic environment for individuals to do any of the following
 - (i) sleep;
 - (ii) study or learn;

- (iii) be involved in recreation, including relaxation; and
- (c) protecting the amenity of the community.

Noise in respect to the operation of the proposed abattoir must not cause environmental harm or environmental nuisance and noise levels shall not exceed the decided criteria.

8.6.5 MONITORING AND RECORDING FREQUENCY

As a precautionary measure, the Abattoir Manager will undertake periodic assessments of potential noise emission. Assessments will be undertaken as close as practical to the significant receptors identified in Figure 4. The Noise Assessment Record (Record Sheet 6) provided in Appendix N is used to assess nuisance. The noise monitoring must occur:

- i. When the wind is light to moderate;
- ii. During a period of high activity (e.g. time of livestock delivery); and
- iii. At least once per winter.

Noise Monitoring

Further appropriate noise monitoring will be undertaken by a suitably qualified consultant if persistent and verified noise complaints are made to either abattoir management and/or the Administering Authority.

Complaint Recording

A Complaints Register will be used to record all noise complaints. Details will be logged immediately and the following recorded:

- Date, time and the method by which the complaint was made;
- Any personal details of the complainant or a note about the complainant; and
- Nature of the complaint.

8.6.6 REPORTING AND REVIEW

Where noise assessments indicate that noise levels are unacceptable, details of the problem and the proposed method of solving the problem will be recorded in the Environmental Data Record (Appendix O).

Periodically, noise monitoring results will be reviewed by the Abattoir Manager (or their consultants) to determine the effectiveness of the implemented tasks to meet the objectives. Any areas where deficiencies consistently, and/or unnecessarily, occur will be investigated further and appropriate corrective actions undertaken.

The Complaints Register will be updated monthly. Recorded complaints will be reviewed and the following information will be reported in the Complaints Register:

- Management options available to reduce or solve the problem.
- Corrective action taken to eliminate the source of each complaint.
- Effectiveness of method used.
- Response of complainant/s about the level of impact after steps have been put into place to solve the problem.
- Details of further monitoring (through assessment by the Abattoir Manager and consultation with the complainants).

8.6.7 CORRECTIVE ACTIONS

After determining the specific source of noise, and analysing the cause of the noise, the following will be undertaken:

- a. Adjustment or replacement of faulty equipment; and/or
- b. Reschedule noisy activities if practical; and/or
- c. Relocate noisy activities; and/or
- d. Investigation of additional actions to reduce noise generation.

8.7 IMPACTS TO COMMUNITY AMENITY – VISUAL

8.7.1 OBJECTIVES

Objective 1: To reduce impact of development from sensitive viewpoints.

Objective 2: To minimise visual amenity complaints.

8.7.2 MANAGEMENT STRATEGIES

Objective 1 – To reduce impact of development from sensitive viewpoints

- a. The proposed abattoir has been appropriately sited such that it should not negatively impact visual amenity. The development has been setback over 350 m from the Cunningham Highway. The existing vegetation shall be maintained; and
- b. Additional plantings are proposed between the proposed abattoir and the closest sensitive receptors.

Objective 2 – Minimise visual amenity complaints.

- a. Maintain a Complaints Register;
- b. Operate a telephone complaints line; and
- c. Instruct all staff on the appropriate handling visual amenity complaints.

8.7.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to visual impacts:

- Procedure 10 - Visual amenity screens
- Procedure 16 – Staff training
- Procedure 18 – Complaint investigation and recording

8.7.4 SPECIFIC PERFORMANCE INDICATORS

The abattoir must comply with the *Environmental Protection Policy (Air) 2008* in that it protects

“the qualities of the air environment that are conducive to human health and wellbeing, protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and to protecting agricultural use of the environment”.

The sensitive places around the proposed abattoir are the receptors identified in Figure 4. The objectives of the management strategies are to enable effective screening in the short and long term, and to ensure a durable and low-maintenance outcome.

8.7.5 MONITORING AND RECORDING FREQUENCY

Monitor the existing vegetation to ensure the level of screening is maintained. Record any additional planting in the Environmental Management Record (Record Sheet 2; Appendix O).

Complaint Recording

A complaints register will be used to record all visual amenity complaints. Details will be logged immediately and the following recorded:

- Date, time and the method by which the complaint was made.
- Any personal details of the complainant or a note about the complainant.
- Nature of the complaint.

8.7.6 REPORTING AND REVIEW

Where visual assessment of screening indicates that existing or newly planted vegetation is failing to grow, corrective action is required. The details of the problem and the proposed method of solving the problem will be recorded in the Environmental Data Record by the Abattoir Manager.

The Environmental Data Records will be kept on-site and will be made available to the Administering Authority upon request.

8.7.7 CORRECTIVE ACTIONS

Objective 1 – To reduce impact of development from sensitive viewpoints

- a. Plant additional screening around the proposed abattoir development.

Objective 3 – Minimise visual amenity complaints.

- a. Determine the viewpoint from which complainant observes negative visual impact; and
- b. Take appropriate remedial action (investigate planting of additional screening).

8.8 IMPACTS TO COMMUNITY AMENITY - PESTS AND VERMIN

8.8.1 OBJECTIVES

Objective 1: Minimise the incidence of pests/vermin around the abattoir.

Objective 2: Minimise the incidence of pests/vermin around the solid waste.

Objective 3: Minimise the incidence of pests/vermin complaints.

8.8.2 MANAGEMENT STRATEGIES

Objective 1 – Pests/Vermin around the proposed abattoir

- a. Baiting program around the abattoir, as required;
- b. Grass surrounding the abattoir kept short;
- c. Outdoor surrounds kept in a tidy state at all times;
- d. Any spillages cleaned up promptly;
- e. Strategic baiting programs will be used to control rodents and pests, as necessary; and
- f. Minimise ponding of rain water on-site suitable for mosquito breeding.

Objective 2 – Pests/Vermin around the solid waste

- g. All carcass, meat waste or meat scraps are removed from site on a daily basis.
- h. Storage of solid waste materials in solid waste skips at all times, with no temporary storage of solid waste materials in unenclosed areas of the site.
- i. Solid waste is to be removed off-site from the storage area on a daily basis (Monday to Friday).

Objective 3 – Pests/Vermin complaints

- a. Maintain a Complaints Register.
- b. Instruct all staff on the appropriate handling of complaints.

8.8.3 RELEVANT STANDARD OPERATING PROCEDURES

Standard operating procedures are listed in Appendix M. The following are relevant to pests and vermin impacts:

- Procedure 7 – Vermin control
- Procedure 8 – Dogs, cats, foxes and wild bird control

- Procedure 4 – Management and removal of solid wastes
- Procedure 16 – Staff training
- Procedure 18 – Complaint investigation and recording

8.8.4 SPECIFIC PERFORMANCE INDICATORS

The proposed abattoir meets the objective of the *Environmental Protection Act 1994*:

“to protect Queensland’s environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)”.

The proposed abattoir must therefore not increase the number or variety of the following animals:

- i. Flies.
- ii. Rats and Mice.
- iii. Wild Birds.
- iv. Dogs, cats and foxes.
- v. Mosquitoes.

8.8.5 MONITORING AND RECORDING FREQUENCY

Monitoring and assessment of effectiveness of pest management strategies is to be recorded on a monthly basis.

8.8.6 REPORTING AND REVIEW

Where the monitoring indicates that pest/vermin numbers or varieties are increasing, corrective action will be undertaken. The Abattoir Manager will record details of the problem, and the proposed method of solving the problem in the Environmental Data Record (Appendix O).

At least quarterly, pest/vermin monitoring results will be reviewed by the Abattoir Manager to determine the effectiveness of the implemented tasks to meet the objectives. Any areas where deficiencies occur will be investigated further and appropriate corrective actions undertaken.

8.8.7 CORRECTIVE ACTIONS

If flies, rats and mice, wild birds, dogs, cats or foxes become a problem the following corrective action will be undertaken.

Objective 1 – Pests/Vermin around the abattoir

- a. Use of adulticides to kill flies.
- b. Investigate and repair any potholes or areas causing ponding of fresh water on-site, as these can be breeding habitats for mosquitoes.
- c. Using spot treatment if problem sites with high maggot numbers are identified (outside of the abattoir).
- d. Rotating insecticide groups.
- e. Maintaining a baiting program of anticoagulant rodenticides, tracking powders (poisonous dust) or gels and fumigants (outside of the abattoir).
- f. If there is resistance to some baiting chemicals, use an alternative chemical (outside of the abattoir).
- g. Cleaning up spills to avoid attracting wild birds and vermin.

Objective 2 – Pests/Vermin around the solid waste

- a. No corrective action required as all solid waste removed off-site on a daily basis (Monday-Friday).

Objective 3 – Pests/Vermin complaints

- a. Determine the specific source of pests/vermin.
- b. Analyse the cause of the complaint.
- c. Take appropriate remedial action (modify the design or operation accordingly).

8.9 IMPACTS TO BIODIVERSITY

Sections 2.5 and 2.7 of this report provides details of the existing flora and fauna on-site.

The proposed abattoir development will not require the clearing of any regulated vegetation or construction in an environmentally significant area. The proposed abattoir development is not located near to areas of ecological significance and will not create barriers to the movement of fauna along any biodiversity corridors. Separation distance will be maintained between the areas of ecological significance and the abattoir to ensure flora and fauna are separated from any potential hazards.

Impacts to biodiversity from the abattoir are possible from wastewater sources and pests/vermin. Sections 8.1, 8.2, 8.3 and 8.8 provide management strategies to address these risks.

8.10 CONTINGENCY PLANS

8.10.1 RECORDING OF EMERGENCIES AND INCIDENTS

As soon as practicable after becoming aware of any emergency or incident which results in the releases of contaminants that occurs not in accordance with the conditions of the development approval, the Abattoir Manager must notify the Administering Authority's Pollution Hotline (1300 130 377). The Abattoir Manager must also notify the Administering Authority's pollution hotline for any event where environmental harm is caused or threatened.

Written advice detailing the following information must be provided to the Administering Authority within 14 days following any notification:

- a. The name of the registered operator of the activity to which this development approval relates, including the development approval number;
- b. The name and telephone number of a designated contact person;
- c. The location of the release/event;
- d. The time of the release/event;
- e. The time the registered operator became aware of the release/event;
- f. The suspected cause of the release/event;
- g. A description of the resulting effects of the release/event;
- h. The results of any sampling performed in relation to the release/event;
- i. The results of any sampling performed in relation to the release/event;
- j. Actions taken to mitigate any environmental harm (including environmental nuisance) caused by the release/event; and
- k. Proposed actions to prevent a recurrence of the release/event.

All emergencies and incidents must also be recorded in an Emergencies and Incidents Record. The following information is to be recorded:

- a. The location of the emergency or incident;
- b. The time of the release;
- c. The time that the Abattoir Manager became aware of the release;
- d. The suspected cause of the release; and
- e. Actions taken to prevent any further release and mitigate any environmental harm and/or environmental nuisance caused by the release.

8.10.2 WATER SUPPLY LOSS

A back-up water supply (available storage in rainwater tanks) will be available in the case of breakdown or loss of supply from the bore.

8.10.3 EQUIPMENT MALFUNCTION

The Abattoir Manager and abattoir staff have the skills required to fix most minor equipment malfunctions. Commonly needed spare parts will be kept on-site.

8.10.4 FIRE

Fire hazards will be managed primarily through a prevention strategy involving careful abattoir design and management. Potentially flammable chemicals will be stored in sealed containers within an enclosed, locked shed. In the event of a fire starting in or approaching the abattoir, the Rural Fire Service would be contacted immediately. Precautions will be taken to ensure staff safety e.g. buildings or areas will be evacuated if necessary.

Additional water may be available on-site for the purpose of firefighting from the wet-weather pond if required.

8.10.5 TEMPORARY OR PERMANENT LOSS OF TRAINED OPERATORS

At all times, staff will be trained in the duties and responsibilities applicable to their position. As much as possible, at least one other staff member will be familiar with the duties of the other staff members.

8.11 MANAGEMENT OF SITE BASED MANAGEMENT PLAN

8.11.1 SBMP IMPLEMENTATION AND MANAGEMENT

The Abattoir Manager is responsible for the ongoing management of the SBMP and achievement of environmental goals.

The effectiveness of the SBMP is monitored on an ongoing basis by comparing monitored results with the objectives for each identified environmental impact. Individual components of the SBMP are assessed as necessary and an entire system evaluation conducted annually. Modifications will be made to the SBMP as necessary.

All documents pertaining to the SBMP, including records, will be held in the administration office where they are accessible to all staff and the Administering Authority (upon request). All records pertaining to the SBMP are kept for a minimum of five years.

8.11.2 STAFF AND CONTRACTOR TRAINING

Staff involved in the day-to-day operation of the proposed abattoir will be briefed on the requirements of the SBMP and any development approval conditions by the Abattoir Manager. Upon employment, all staff/contractors will be inducted in the SBMP. Staff will undergo a site induction completed by the Shift Supervisor and/or Abattoir Manager to identify key operational, environmental, safety and emergency aspects of the proposed abattoir.

It is the Abattoir Manager's responsibility to ensure that all staff members are regularly trained in the components of the SBMP that are relevant to their duties and responsibilities. Training will be conducted using a combination of techniques including direct supervision of tasks, group training and independent reading of relevant information by staff members.

Staff will be updated on procedural changes as needed e.g. when relevant sections of the SBMP are upgraded by the Abattoir Manager.

Staff performance in relation to environmental management duties and responsibilities will be reviewed when the SBMP is reviewed on an annual basis. However, where unsatisfactory environmental performance occurs, relevant staff and procedures will be investigated promptly.

8.11.3 DOCUMENT CONTROL

All documents pertaining to the SBMP will be kept at the proposed abattoir. Abattoir staff will access them as required. Documents will be updated as appropriate and all current issues held at the administration office.

8.11.4 CORRECTIVE ACTION, COMMUNICATION AND NOTIFICATION

When non-conformities are identified within the system, action will be taken to correct them. Each case of non-conformity will be assessed to determine why the non-conformity occurred and to put steps in place to prevent the problem recurring. Details will be recorded in the Environmental Data Record, and the SBMP updated if necessary.

Abattoir staff will be instructed to contact the Shift Supervisor and /or Abattoir Manager in the event of any environmental incident or contaminant release at the proposed abattoir. An example of a register of environmental incidents or emergencies is contained in Appendix N.

The Abattoir Manager will contact the Administering Authority as soon as practicable after becoming aware of any release of contaminants from the abattoir.

8.11.5 REVIEW OF ENVIRONMENTAL PERFORMANCE AND CONTINUOUS IMPROVEMENT

The SBMP will be audited by the Abattoir Manager at least annually to ensure that it is working effectively. This process will identify changes (if needed) and make appropriate recommendations. The audit will analyse the way in which procedures are actually carried out compared to the way in which they are written and analysis of monitoring data to determine future monitoring needs and also put forward recommendations regarding future monitoring and analysis.

The frequency of monitoring and the results of the monitoring data will be compared with the requirements listed in the SBMP. This is to establish if monitoring is being undertaken as described in the SBMP, if there are recent changes to the system that are not covered by the SBMP or if changes need to be made to the SBMP.

An assessment of the data from the monitoring activities will be undertaken. This is to confirm that there is compliance with the level of impact stated in the objectives. It is also used to determine whether the type and frequency of monitoring is appropriate.

After three years, all monitoring results should be reviewed. An assessment of the data from all monitoring activities will be undertaken by a suitably qualified person. The assessment will be used to determine whether the type and frequency of monitoring is appropriate. If appropriate, recommendations may be for changes to monitoring requirements.

9 RECORDING REQUIREMENTS

9.1 DAILY

Record daily:

- a. All livestock coming in and mass of carcasses dispatched from the abattoir, including number and date of movement.
- b. Volume of wastewater applied to wastewater disposal area.

9.2 WEEKLY

Record weekly:

- a. Bore water meter reading.
- b. Rainwater tank meter reading.
- c. Weekly water usage (sum of rainwater and bore water usage).

9.3 MONTHLY

Record monthly:

- a. Monitoring and assessment of effectiveness of pest management strategies is to be recorded on a monthly basis.

9.4 QUARTERLY

Record quarterly:

- a. Odour observations.

9.5 ANNUALLY

- a. All details of any environmental measurement and monitoring undertaken, including
 - i. Groundwater
 - ii. Wastewater quality (every 6 months)

- iii. Odour
 - iv. Soil
- b. Review of staff training requirements.

9.6 AS REQUIRED

Record as required:

- a. All irrigation undertaken.
- b. Any complaints.
- c. Any emergencies and incidents.
- d. Any items of concern noted during ad hoc or monitoring assessments.
- e. Any accidental release of contaminants.
- f. Any training undertaken.

10 SAMPLE RECORD SHEETS

The records that must be maintained at all times by the abattoir owner, Abattoir Manager and the abattoir staff are:

1. **Complaints Register** - to record details of complaints made by the general public in relation to impacts on community amenity
2. **Environmental Data Record** - to record any items of concern noted during ad hoc or monitoring assessments by the Abattoir Manager or abattoir staff as well as any actions taken and the effectiveness of those actions and any items of concern noted during monitoring or assessment of laboratory analysis or other monitoring information.
3. **Emergency and Incident Record** - to record any accidental release of contaminants and the action taken to restrict these from causing environmental pollution.
4. **Training Register** – to record all training undertaken by abattoir management and staff.
5. **Odour Assessment Record** - to record all odour monitoring undertaken.
6. **Dust and Noise Assessment Record** - to record all dust and noise monitoring undertaken.
7. **Irrigation Record** - to record all irrigation undertaken.
8. **Water Usage Record** - to record all water usage at the abattoir.
9. **Sludge Application Record** – to record all sludge application.

Example copies of records and registers are attached in Appendix N.

11 PLANNING FRAMEWORK

11.1 ENVIRONMENTAL PROTECTION REGULATION 2008

Abattoirs are a Prescribed Environmentally Relevant Activity (ERA) under Schedule 2 of the *Environmental Protection Regulation 2008*. An environmental authority is required to conduct an ERA. The development consists of the following ERAs:

- 25 - Meat processing (2c) – meat processing, including rendering, >50,000 tonnes of meat or meat products in a year;
- 14 - Electricity generation (2a) – generating electricity by using a fuel, other than gas, at a rated capacity of 10 MW electrical to 150 MW electrical;
- 15 – Fuel burning – using fuel burning equipment that is capable of burning at least 500 kg of fuel in an hour; and
- 53 – Composting and soil conditioner manufacturing – manufacturing, from organic material or organic waste, 200 t or more of compost or soil conditioners in a year

ERA 14 (2a) has the highest aggregate environmental score and is considered the primary ERA. There are no current approvals in place for the existing abattoir.

11.2 THE SUSTAINABLE PLANNING ACT 2009

The purpose of the *Sustainable Planning Act 2009* (SPA) is to achieve ecological sustainability by:

- coordinating planning at all levels of government;
- managing the process by which development occurs;
- mitigating the adverse impacts of development; and
- continuing the coordination and integration of planning at local, regional and State levels.

The development for which approval is sought comprises a Material Change of Use. Assessment against the Planning Scheme indicates that the proposal is subject to impact assessable in accordance with Section 314 of the *Sustainable Planning Act 2009*. The proposed development is impact assessable as it is an Industrial Activity having a total use area greater than 150m³ (4.1.2 (1), *Waggamba Shire Planning Scheme - Rural Zone*).

The land will not require re-zoning as the proposed use is in line with the Rural Zone and is defined as an Industrial Activity which includes Noxious Industries where:

“Noxious Industry” – means an industry where: (2) the process involved; or the method of manufacture; or the nature of the materials or goods which are used, produced or stored; (a) causes fumes, vapours or gases, or discharges dust, foul liquid, blood or other impurities; or (b) constitutes a danger to person of “Premises”. (Section 2.4 Definitions).

In assessing an Impact assessable development application, the assessment manager must assess the part of the application against each of the following matters or things to the extent the matter or thing is relevant to the development—

- (a) the State planning regulatory provisions;
- (b) the regional plan for a designated region, to the extent it is not identified in the planning scheme as being appropriately reflected in the planning scheme;
- (c) State planning policies, to the extent the policies are not identified in—
 - (i) any relevant regional plan as being appropriately reflected in the regional plan; or
 - (ii) the planning scheme as being appropriately reflected in the planning scheme;
- (d) a temporary local planning instrument;
- (e) a preliminary approval;
- (f) a planning scheme.

To be an appropriate land use in the Rural Zone, the activity must demonstrate a nexus with rural activities. The abattoir meets this requirement as it directly relates to rural activities including grazing and feedlots.

In addition to the matters or things against which the assessment manager must assess the application, the assessment manager must assess the part of the application having regard to the following

- (a) the common material;
- (b) any development approval for, and any lawful use of, premises the subject of the application or adjacent premises;
- (c) any referral agency's response for the application.

11.3 STATE PLANNING POLICIES

State Planning Policies are relevant to the assessment of this application where they are not appropriately reflected in either a Regional Plan or Planning Scheme relevant to the site. The applicability of relevant State Planning Policies is identified in Table 16. Compliance with relevant provisions from State Planning Policies is also addressed in Table 16.

Maps relating to the State Planning Policies are available in Appendix J.

TABLE 16 - STATE PLANNING POLICY

State Interests	Planning/Compliance
Liveable communities and Housing	
Liveable communities	Not applicable to this development application.
Housing supply and diversity	Not applicable to this development application.
Economic growth	
Agriculture	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Development and construction	Not applicable to this development application.
Mining and extractive resources	Not applicable to this development application.
Tourism	Not applicable to this development application.
Environment and heritage	
Biodiversity	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Coastal environment	Not applicable to this development application.
Cultural heritage	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Water quality	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Safety and resilience to hazards	
Emissions and hazardous activities	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Natural hazards, risks and resilience	This Policy is identified as being appropriately reflected within the Planning Scheme. Therefore, an assessment against this policy is not required.
Infrastructure	
Energy and water supply	Not applicable to this development application.
State transport and infrastructure	Not applicable to this development application..
Strategic airports and aviation facilities	Not applicable to this development application..
Strategic ports	Not applicable to this development application.

11.4 WAGGAMBA SHIRE COUNCIL PLANNING SCHEME (V2, 2013)

11.4.1 INTRODUCTION

Pursuant to the provisions of Section 314 (2) of the *Sustainable Planning Act 2009*, a development application must be assessed against the relevant planning scheme. The relevant planning scheme in this instance is the *Waggamba Shire Council Planning Scheme 2013*. A summary of the assessment of the proposal development against the provisions of this Planning Scheme is outlined below.

11.4.2 DEFINITION OF USE

Under the provisions of the Planning Scheme, the proposed use is defined as "**Industrial Activities – Noxious Industry**". The relevant use is defined as follows:

"Industrial Activities" – Premises used for activities involving the manufacture, production, servicing, storage and distribution of goods, articles, equipment or vehicles, including:

1. "Extractive industry";
2. "Industry";
3. **"Noxious industry"**;
4. "Service station";
5. "Storage facility"; and
6. "Transport terminal".

"Noxious industry" – means an industry where:

1. the use of "Premises" causes detriment to the amenity of the area by reason of the emission of noise or vibration; and
2. the process involved; or the method of manufacture; or the nature of the materials or goods which are used, produced or stored:
 - a. causes fumes, vapours or gases, or discharges dust, foul liquid, blood or other impurities; or
 - b. constitutes a danger to persons or "Premises".

11.4.3 STRATEGIC DIRECTION

The proposed development has been assessed against the Strategic Direction for *Waggamba Shire Council Planning Scheme*. The assessment concluded that the proposed development complies with the strategic direction of the planning scheme.

The Environment

The proposed abattoir development has been sited to meet the desired environmental outcomes of the *Waggamba Shire Council Planning Scheme*. The proposed development has been sited such that adverse impacts will be minimised. Management strategies will be implemented to further reduce the risk of adverse impacts on community amenity, water

quality, to prevent land degradation, loss of habitat and biodiversity and to protect riparian areas.

Areas of environmental significance (including areas along water courses) have been identified to ensure their environmental, biodiversity and landscape values are protected and enhanced through compatible development. The proposed development site is not located on any areas of ecological significance or wetlands. There are areas of ecological significance surrounding the subject lot however, the development has been sited to have minimal effects on the natural environmental values.

Economic Development

The proposed abattoir development aligns with the strategic direction for economic development in the area. The proposed development is a productive use of rural land which will protect and enhance economic potential of the area. The proposed development will require significant capital investment as well as generating a large number of FTEs during the construction and operation phases of the development, enabling economic growth in both Goondiwindi Town and surrounding rural areas. The location of the proposed abattoir is such that residents of the Goondiwindi Town will have an increased access to local jobs. Fucheng is committed to using local staff with a focus on indigenous employment and training.

Community and Services

The Goondiwindi Regional Council rural region is characterised by a broad spectrum of activities that are often interspaced by considerable distances. These activities extend from conventional agricultural practices to localised service industries to highly sophisticated agro-industrial complexes. The proposed abattoir fits in with this range of activities as they will require a regular supply of cattle from both their own property and surrounding grazing land and feedlots. Goondiwindi is a growing regional centre and rural towns in the region often provide a very broad spectrum of uses and services that often exceed that anticipated for the population being served. The proposed abattoir contributes to this in terms of providing a local destination for cattle, in turn minimising the amount of traffic across the wider region and minimising costs for producers. The proposed development will contribute to community well-being through provision of employment, both directly and indirectly. The development is appropriately located in a Rural zone so impacts on sensitive land uses and community amenity should be minimised.

11.5 ZONING & ASSESSMENT STATUS

Under the *Waggamba Shire Council Planning Scheme 2013*, the Shire is divided into seven land use zones. The subject land is located in the **Rural Zone**. It is anticipated that the proposed development will be assessed against the rural zone code. The following constraints and performance criteria (PC) apply to the development:

- PC 33 - Good Quality Agricultural Land Overlay;
- PC 37 – Bushfire Hazard; and
- PC 39 – Transport Infrastructure.

11.5.1 RURAL ZONE CODE

The proposed development is located within the Rural Zone.

The following provisions comprise the Rural Zone Code -

- Local Government purpose of this zone
- Criteria for assessment - Specific outcomes and acceptable solutions for the Rural Zone

Purpose of the Rural Zone

The following outcomes are the Purpose of the Code:

1. The Shire has an appropriate land use structure that is in accordance with the environmental characteristics of the locality and that avoids conflict between incompatible “uses”.
2. The Rural “Zone” retains its viability as an area of primary production.
3. Future “Rural activities” are appropriately located within the Rural “Zone” and existing and future “Rural activities” are not prejudiced by inappropriate development.
4. Within the Rural “Zone”, “development”:
 - a. maintains the environment, including soil, air and water, compatible with healthy natural systems and ensures public health and safety;
 - b. protects Good Quality Agricultural Land (GQAL) from fragmentation, alienation or encroachment of incompatible land “uses” in accordance with State Planning Policy 1/92 – Development and Conservation of Agricultural Land;
 - c. is located, designed and operated in a manner that protects and enhances the predominant rural scale, intensity, form and character;
 - d. maintains the rural amenity;
 - e. does not prejudice or impact adversely on other “uses” including those within other “Zones”;
 - f. does not prejudice extractive or mining resources;

- g. has an appropriately designed access to the road network, and traffic generated by the development does not impact adversely on the local road network;
 - h. protects areas and sites of conservation importance, including cultural and high landscape values;
 - i. is undertaken in an orderly and logical sequence to achieve an efficient provision of infrastructure;
 - j. is located and designed in ways that minimise the need for flood, bushfire and landslide mitigation, and to protect people and premises from such natural events;
 - k. has water supply, stormwater disposal, sustainable effluent and waste disposal and power, to appropriate standards, adequate for the “use”; and
 - l. does not impact adversely on infrastructure.
5. Within the Rural “Zone”, the Rural “Zone” Code allows for:
- a. tourist related uses (“bed and breakfast premises” and “visitor accommodation”) and “home businesses” where they are of a small scale and are compatible with surrounding “uses”;
 - b. the protection of existing “intensive animal industries” and “extractive industries” from incompatible “uses”;
 - c. “intensive animal industries” and “extractive industries”, where located and operated so as to ensure no detrimental impact on surrounding “uses” or on the environment; and
 - d. limited industrial “uses”, where it can be demonstrated those “uses” are associated with rural production and can not reasonably be established in the Industrial “Zone”.

Specific outcomes and acceptable solutions for the Rural Zone code

The specific outcomes sought from the Rural Zone code are included in Column 1 of Table 17. The acceptable solutions are in Column 2 of Table 17 (green in the far right column = compliance). This table represents the relevant specific performance outcomes outlined in Table 4.1.3.4 of the *Waggamba Shire Council Planning Scheme* and if or how the proposed abattoir development will achieve compliance.

TABLE 17 - RURAL ZONE CODE

Performance Criteria		Acceptable Solution	Compliance Assessment
Location	<p>PC1 Non-“Rural activities” - Locational Criteria</p> <p>Non-“Rural activities” are located in the Rural “Zone” only where those activities:</p> <ul style="list-style-type: none"> (a) do not impact adversely on the amenity of the Rural “Zone”; (b) demonstrate a nexus with rural activities or natural or cultural resources; (c) do not prejudice the consolidation of like non-“Rural activities” in other more appropriate “Zones”; (d) do not prejudice the productive capacity of existing or future rural land; and (e) protect the landscape values and scenic qualities of the Rural “Zone”. 	No acceptable solution is prescribed.	<ul style="list-style-type: none"> (a) Impacts to community amenity due to odour and noise have been minimised odour modelling indicates that the impacts to neighbouring properties is within acceptable limits. (b) The abattoir is directly reliant on supply of cattle from rural activities, both from feedlots and grazing operations. (c) The land required for lairage and effluent irrigation is significant and this type of development would not be easily accommodated in the industrial area. (d) There will be minimal rural land area disturbed for the construction of the abattoir and effluent management system. (e) Appropriate vegetation buffers will be constructed along the southern and western boundaries of the property to minimise the impact on visual amenity from the highway and neighbouring dwellings.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Amenity	<p>PC2 Non-“Rural activities” - Scale</p> <p>Non-“Rural activities” are of an appropriate scale to protect the amenity of the Rural “Zone” and do not prejudice the operation and viability of other “Uses” or activities in the Rural “Zone” or other “Zones”.</p>	<p>AS2 The “Total use area” is less than 150m² on a lot.</p>	<p>The abattoir will be appropriately sized to minimise any impacts on the local amenity of the Rural Zone. Section 8 outlines the management strategies in place to minimise impacts to the surrounding environment.</p>
Amenity	<p>PC3 Non-“Rural activities” - Operating Hours</p> <p>Non-“Rural activities” are operated so as to ensure that the activities and the operation of equipment occur at appropriate times to protect the amenity of the Rural “Zone”.</p>	<p>AS3 Non-“Rural activities” are operated only between the hours of 7:00am and 6:00pm.</p>	<p>The abattoir will be operating 24 hours a day with various activities undertaken across the 24 hours. Operating hours are outlined in Section 3.7 and management strategies for minimising the effects of operations on the surrounding amenity are outlined in Section 8.</p>
Amenity	<p>PC4 Non-“Rural activities” - Delivery of Goods</p> <p>The loading and unloading of goods in connection with non-“Rural activities” occurs at appropriate times to protect the amenity of the Rural “Zone”.</p>	<p>AS4.1 Loading and unloading occurs only between the hours of: (a) 8:00am and 6:00pm, Monday to Friday and (b) 8:00am and 12:00 (noon) on Saturdays.</p> <p>AS4.2 No loading and unloading occurs on Sundays and Public Holidays.</p>	<p>The abattoir will be operating 24 hours a day with various activities undertaken across the 24 hours. Operating hours are outlined in Section 3.7 and management strategies for minimising the effects of operations on the surrounding amenity are outlined in Section 8. Minimal traffic movements will occur on Sundays and Public Holidays.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Amenity	<p>PC5 “Residential Activities” - Density</p> <p>Land within the Rural “Zone” is maintained for rural activities.</p>	<p>For “<i>Detached houses</i>”: AS5.1 No more than 1 (one) “<i>Detached house</i>” per lot.</p> <p>For “<i>Caretaker’s residences</i>”: AS5.2 No more than 1 (one) “<i>Caretaker’s residence</i>” per lot.</p> <p>For all other “<i>Residential activities</i>”: No acceptable solution is prescribed.</p>	N/A – No residential activities are proposed
Amenity	<p>PC6 Height</p> <p>The height of “<i>Buildings</i>” and “<i>Structures</i>” does not impact adversely on the amenity of the Rural “Zone” and is consistent with the predominant rural form.</p>	<p>AS6 “<i>Buildings</i>” and “<i>Structures</i>” other than those within 100 metres of the boundary of an “<i>Airport</i>” are less than 8.5 metres in height and are not more than 2 (two) storeys at any point above natural ground level. (Except where establishing in an existing “<i>Building</i>” and no “<i>Building works</i>” are being undertaken for that existing “<i>Building</i>” and excluding windmills, silos and other rural operational equipment).</p>	
Amenity	<p>PC7 Setbacks and Boundary Clearances</p> <p>“<i>Buildings</i>” and “<i>Structures</i>” are located to ensure the rural amenity is protected and enhanced.</p>	<p>AS7.1 “<i>Buildings</i>” and “<i>Structures</i>” have a setback of not less than 20 metres from any road frontage other than a State Controlled Road as identified on Land Characteristics Map – Features Map 1.</p> <p>AS7.2 “<i>Buildings</i>” and “<i>Structures</i>” have side and rear boundary clearances of not less than 15 metres from property boundaries. (Except where establishing in an existing “<i>Building</i>” and no “<i>Building works</i>” are being undertaken for that existing “<i>Building</i>”).</p>	The proposed abattoir and associated structures will have a minimum setback from any road or boundary of 85 m (anaerobic pond).
Amenity	<p>PC8 Transport Movements</p> <p>Transport movements associated with the use protect the amenity of the locality.</p>	<p>For “<i>Rural activities</i>” and “<i>Industrial activities</i>”: AS8 Transport movements do not occur through residential areas.</p> <p>For all other “<i>Uses</i>”: No acceptable solution is prescribed.</p>	No transport movements will occur through residential areas.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Amenity	<p>PC9 “Building” and “Structure” Design</p> <p>“Buildings” and “Structures” are designed such that the amenity of the Rural “Zone” is protected and maintained.</p>	No acceptable solution is prescribed.	Buildings will be constructed in materials that will reduce the impact on the scenic amenity of the area. Additional tree plantings will further reduce the impact from these buildings.
Amenity	<p>PC10 Ridgelines and Escarpments</p> <p>Ridgelines and escarpments are maintained in a natural state to protect rural character and landscape values.</p>	<p>AS10 All “Buildings” and “Structures” maintain a minimum 50 metre separation distance to a ridgeline or escarpment. (Except where establishing in an existing “Building” and no “Building works” are being undertaken and excluding windmills and other rural operational equipment.)</p>	Complies - The property is generally flat and does not contain any ridgelines or escarpments.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Amenity	<p>PC11 Landscaping and “External Activity Areas”</p> <p>Landscaping and “external activity areas” are provided on - site to:</p> <ul style="list-style-type: none"> (a) contribute to a pleasant and functional rural built form; (b) contribute to the Rural “Zone’s” positive visual qualities and ensure continuous vegetated streetscape; (c) screen and reduce the visual mass and impact of “buildings”, “structures”, “external activity areas” and infrastructure¹; (d) respond positively to climatic conditions, including sun and breeze control; (e) ensure the amenity² and privacy³ of adjoining “premises” are protected and maintained; (f) prevent soil erosion and protect and maintain habitat values; (g) make provision for recreation areas; and (h) ensure artificially created waterbodies have an attractive appearance and stabilised banks. 	<p>For all “Development” with a street frontage: AS11.1 Landscaping is provided along the entire street frontage, other than for vehicle or pedestrian accesses, consisting of:</p> <ul style="list-style-type: none"> (a) a minimum width of three (3) metres planted with lawn and/or groundcovers, as identified in Schedule 3, Landscaping Requirements, Section 3.7, spaced at a density to achieve a minimum of 80% coverage within two years of planting and shade trees, as identified in Schedule 3, Landscaping Requirements, Section 3.7, spaced a maximum of seven (7) metres apart, as illustrated in Schedule 3, Landscaping Requirements, Section 3.2; <p style="text-align: center;">or</p> <ul style="list-style-type: none"> (b) mulched garden beds, as identified in Schedule 3, Landscaping Requirements, Section 3.8, with a minimum width of two (2) metres planted with shrubs, as identified in Schedule 3, Landscaping Requirements, Section 3.7, at a density of one shrub per three (3) square metres an/or groundcovers, as identified in Schedule 3, Landscaping Requirements, Section 3.7, spaced at a density to achieve 80% coverage within two years of planting and shade trees, as identified in Schedule 3, Landscaping Requirements, Section 3.7, spaced a maximum of twenty (20) metres apart, as illustrated in Schedule 3, Landscaping Requirements, Section 3.2. <p>For “Industrial activities” adjoining land: other than in the Industrial “Zone”; and used for non- “Industrial activities”:</p> <p>AS11.2 A vegetated buffer with a minimum width of thirty (30) metres shall be provided along the entire boundary, planted randomly with trees and large shrubs, as identified in Schedule 3, Landscaping Requirements, Section 3.7, having mature heights of between two (2) and eight (8) metres, with foliage overlapping, spaced a maximum of five (5) metres apart in any direction, as illustrated in Schedule 3, Landscaping Requirements, Section 3.3.</p>	<p>A landscape buffer in line with <i>Schedule 3, Landscaping Requirements</i> will be provided along the road frontage and western boundary of the lot to minimize the impact on visual amenity from the Cunningham Highway and sensitive receptors.</p>

Performance Criteria		Acceptable Solution	Compliance Assessment
Amenity		<p>For artificially created waterbodies: AS11.3 A minimum of 50% of the length of the banks of the excavated area is informally planted with trees and shrubs as identified in Schedule 3, Landscaping Requirements, Section 3.7</p> <p>For all other: No acceptable solution is prescribed.</p>	N/A – No artificial waterbodies will be created. The banks of the effluent treatment ponds will be grassed where possible.
Amenity	<p>PC12 Lighting</p> <p>The design of lighting does not prejudice the amenity of the Rural “Zone” through poorly directed lighting, lighting overspill or lighting glare.</p>	<p>AS12 Direct lighting or lighting does not exceed 8.0 lux at 1.5 metres beyond the boundary of the site.</p>	Lighting will meet the requirements of <i>AS4282 Control of Obtrusive Effects of Outdoor Lighting</i> . Appropriate vegetation buffers will be installed to minimise impacts to adjacent properties from external lighting.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Amenity	<p>PC13 Separation of Incompatible Land Uses</p> <p>Separation distances are provided to ensure:</p> <ul style="list-style-type: none"> (a) the future viability of surrounding “Uses”; (b) infrastructure items are protected from incompatible “Development”; (c) an appropriate standard of amenity and public safety; and (d) conflict arising from incompatible “Uses” is minimised. 	<p>For “<i>Sensitive land uses</i>” and “<i>rural activities</i>” other than “<i>Intensive animal industries</i>”: AS13.1 Minimum separation between “<i>Sensitive land uses</i>” and “<i>rural activities</i>” comply with the “Buffer Area Design Criteria” as contained in Table 2 of Section 3.47 of SPP1/92 – Planning Guideline – “Separating Agricultural and Residential Land Uses”.</p> <p>For “<i>Intensive animal industries</i>”: AS13.2 Minimum separation distances to “<i>Sensitive land uses</i>” are as stated in Schedule 2, Division 1: Separation Distances – Intensive Animal Industries, Section 1.1.</p> <p>For “<i>Sensitive land uses</i>”: AS13.3 Minimum separation distances to “<i>Intensive animal industries</i>” are as stated in Schedule 2, Division 1: Separation Distances – Intensive Animal Industries, Section 1.2.</p> <p>For “<i>Grazing</i>”: AS13.4 Pens and yards maintain a minimum separation distance of 300 metres to “<i>sensitive land uses</i>” not associated with the “<i>grazing</i>”.</p> <p>For all “<i>Uses</i>” other than “<i>Extractive Industries</i>”: AS13.5 “<i>Buildings</i>”, “<i>Structures</i>” and “<i>External Activity Areas</i>” maintain a minimum separation distance to “<i>Extractive Industries</i>” as stated in Schedule 2, Division 2: Separation Distances – Extractive Industries, Section 2.1.</p> <p>For all “<i>Uses</i>”: AS13.6 “<i>Buildings</i>”, “<i>Structures</i>” and “<i>External Activity Areas</i>” maintain a minimum separation distance to petroleum and gas pipelines (as identified on Land Characteristics Map – Features Map 1) and to refuse tips (as identified in Schedule 2, Division 5: Refuse Tips, Section 5.1) as stated in Schedule 2, Division 4: Separation Distances – Infrastructure Items, Section 4.1.</p>	<p>Minimum separation distances are provided in Section 17. There are no resource activities, or petroleum/gas pipelines located near the property. Management strategies to minimise the impact of the abattoir on surrounding uses are provided in Section 8. Odour modelling has been undertaken for the proposed abattoir (Appendix L).</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Infrastructure	<p>PC14 Water Supply</p> <p>All “Premises” have an adequate volume and supply of water for the “Use”, which is also adequate for fire fighting purposes.</p>	<p>AS14.1 “Premises” are connected to Council’s reticulated water supply system.</p> <p>or</p> <p>AS14.2 “Premises” are connected to an approved water allocation as provided by the relevant agency.</p> <p>or</p> <p>For “Residential Activities”: AS14.3 “Premises” are connected to a rain water tank with a minimum capacity of: (a) 45 000 litres where not in a reticulated water supply area; (b) 11 000 litres where in a reticulated water supply area.</p> <p>For all “Uses” other than “Residential Activities”: No acceptable solution is prescribed.</p>	<p>The property has been recently approved for a total of 450 ML of groundwater. It is anticipated that improved efficiency will be incorporated into the detailed design of the abattoir to ensure this water supply will be adequate for the proposed abattoir.</p>
Infrastructure		<p>For all “Premises” in Medium and High bushfire hazard areas as identified on Land Characteristics Map – Bushfire Hazard Areas: AS14.4 On-site water storage of not less than 5000 litres is provided by way of dam, swimming pool or tank fitted with fire brigade tank fittings.</p> <p>or</p> <p>AS14.5 The reticulated water supply has flow and pressure characteristics of 10 litres a second at 200 kPa</p>	<p>The property is located in an area of low bushfire hazard.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Infrastructure	<p>PC15 Effluent Disposal</p> <p>All “Premises” provide for the treatment and disposal of effluent and other waste water to ensure the protection of public health and environmental values.</p>	<p>AS15.1 “Premises” are connected to Council’s reticulated sewerage system.</p> <p>or</p> <p>AS15.2 “Premises” not in a sewered area have an on-site effluent disposal system in accordance with Schedule 1, Division 4: Standards for Sewerage, Section 4.2.</p>	<p>The staff amenities will be serviced by an appropriately sized sewage treatment plant. A detailed wastewater management plan will be completed prior to commencement of the activity.</p>
Infrastructure	<p>PC16 Stormwater</p> <p>Stormwater is collected and discharged so as to:</p> <p>(a) protect the stability of buildings or the use of adjacent land; and</p> <p>(b) protect and maintain environmental values</p>	<p>AS16 Stormwater is collected and discharged in accordance with Schedule 1, Division 5: Standards for Stormwater Drainage, Section 5.1.</p>	<p>It is anticipated that stormwater from the building roofs and surrounding hardstand areas will be contained within the existing dam in the south-west corner of the property. A detailed stormwater management plan will be completed during the operational works and building approvals.</p>
Infrastructure	<p>PC17 Electricity</p> <p>“Premises” are provided with an adequate supply of electricity for the “Use”.</p>	<p>AS17 All “Premises” have a supply of electricity.</p>	<p>Electricity for the proposed activity will be via mains supply. Investigations into electricity supply with Essential Energy are currently underway. Boiler power for the rendering facility will be supplied by biogas or coal.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Infrastructure	<p>PC18 Vehicle Access</p> <p>Vehicle access is provided to ensure the safe and functional operation for motorists and pedestrians.</p>	<p>For “Agriculture”, “Bed and breakfast premises”, “Caretaker’s residence”, a “Material Change of Use” from one to another of, “Commercial premises”, “Professional office” or “Shop” where not involving “Building Work”, “Detached house”, “Grazing”, “Home business” and “Visitor accommodation”: AS18.1 All “Premises” must have vehicle access to a formed road. Access is to be designed and constructed in accordance with Schedule 1, Division 2: Standards for Roads, Carparking, Manoeuvring Areas and Access, Section 2.3(2).</p> <p>For all other “Uses”: AS18.2 All “Premises” must have vehicle access to a formed road. Access to be designed and constructed in accordance with Schedule 1, Division 2: Standards for Roads, Carparking, Manoeuvring Areas and Access, Section 2.3(1).</p>	<p>The proposed site entrance will be upgraded as required. There is no access to the site via a local road.</p>
Infrastructure	<p>PC19 Vehicle Parking and Service Vehicle Provision</p> <p>Vehicle parking and service vehicle provision:</p> <ul style="list-style-type: none"> (a) is adequate for the “Use”; (b) ensures safe and functional operation for motorists and pedestrians; (c) incorporates climate responsive design elements; (d) utilises vegetation to visually define specific areas and functions; and (e) does not visually dominate the “premises”. 	<p>AS19.1 All “Uses” provide vehicle parking in accordance with Schedule 1, Division 2: Standards for Roads, Carparking, Manoeuvring Areas and Access, Section 2.2(1)(a)</p> <p>AS19.2 Car parking, service vehicle parking and manoeuvring areas are designed and constructed in accordance with Schedule 1, Division 2: Standards for Roads, Carparking, Manoeuvring Areas and Access, Section 2.2(1)(b)</p> <p>AS19.3 Shade trees, as identified in Schedule 3, Landscaping Requirements, Section 3.7, are provided at the rate of one (1) tree per six (6) car parking spaces and one (1) tree per ten (10) metres of driveway length, as illustrated in Schedule 3, Landscaping Requirements, Section 3.6.</p>	<p>Refer to the Concept Design Report (Appendix K) for more information on parking.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Infrastructure	<p>PC20 Roads, Firebreaks and Fire Maintenance Trails</p> <p>Adequate all-weather road access is provided between the “Premises” and the existing road network. In High and Medium bushfire hazard areas, adequate road access is provided for fire fighting/other emergency vehicles and for safe evacuation.</p>	<p>AS20.1 Roads are designed and constructed in accordance with Schedule 1, Division 2: Standards for Roads, Carparking, Manoeuvring Areas and Access, Section 2.1(1)</p> <p>For “Uses” in High or Medium bushfire hazard areas as identified on the Land Characteristics Map – Bushfire Hazard Areas: AS20.2 Roads, firebreaks and fire maintenance trails are designed and constructed in accordance with Schedule 1, Division 6: Standards for Roads in Bushfire Hazard Areas, Firebreaks and Fire Maintenance Trails, Sections 6.1, 6.2.</p>	All major internal roads will be sealed with bitumen.
Infrastructure	<p>PC21 “Electricity transmission line easement” - Vegetation</p> <p>Transmission lines within an “Electricity transmission line easement” are protected from vegetation.</p>	<p>AS21.1 Planted vegetation within an “Electricity transmission line easement” shall have a mature height not exceeding 2.5 metres as shown in Schedule 2, Division 3: Powerline / Electricity Easements, Section 3.2 Diagram 3.</p> <p>AS21.2 No part of planted vegetation, at its mature size, is located closer than 2.5 metres to an electricity transmission line as shown in Schedule 2, Division 3: Powerline / Electricity Easements, Section 3.2 Diagram 3.</p>	N/A - No electricity transmission line easements are located on the property.
Infrastructure	<p>PC22 “Electricity transmission line easement” - Vegetated Buffers</p> <p>Vegetated buffers adjoining an “Electricity transmission line easement” are maintained to provide:</p> <ul style="list-style-type: none"> (a) a visual buffer to the easement; and (b) a separation distance from the easement. 	<p>AS22 Existing vegetation, comprising trees and/or shrubs, shall be retained within 20 metres of an “Electricity transmission line easement” as shown in Schedule 2, Division 3: Powerline / Electricity Easements, Section 3.2 Diagram 4.</p>	N/A - No electricity transmission line easements are located on the property.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Infrastructure	<p>PC23 “Electricity transmission line easement” - Separation Distance</p> <p>“Habitable buildings” and “Child oriented uses” are located to ensure community safety.</p>	<p>AS23 “Habitable buildings” and “Child oriented uses” maintain a minimum separation distance from the most proximate boundary of an “Electricity transmission line easement” in accordance with Schedule 2, Division 3: Powerline / Electricity Easements, Section 3.1 (1) and Section 3.1 Diagram 1.</p>	<p>N/A - No electricity transmission line easements are located on the property.</p>
Environmental	<p>PC24 “Watercourses” and “Lakes”</p> <p>“Development” ensures the maintenance of riparian areas and water quality including protection from off-site transfer of sediment.</p>	<p>AS24 A minimum 50 metre wide buffer area is provided extending out from the high bank of any “Watercourse” or “Lake”. Buffer areas include a cover of vegetation, including grasses.</p>	<p>There are no watercourses located on the property and there is at least 300 m separation from the abattoir to the nearest watercourse.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Environmental	<p>PC25 Vegetation Retention</p> <p>“Development” retains vegetation for the:</p> <ul style="list-style-type: none"> (a) protection of scenic quality and vegetated streetscape; (b) provision of landscaped areas and elements; (c) purpose of positive climate response; (d) protection of general habitat; (e) maintenance and protection of soil quality; and (f) establishment of open space corridors and networks. 	<p>AS25 Vegetation comprising 20% of each regional ecosystem type is retained within each lot with retained vegetation made up of woody remnant, regrowth or replanted natural species, excluding deep-rooted crops and clear fell plantation forestry. The shade lines are a minimum of 10 metres in width; clumps have an area greater than 2 hectares.</p>	<p>No additional clearing will be required for the development. Additional tree buffers will be planted along the southern and eastern boundaries.</p>
Environmental	<p>PC26 Cultural Heritage</p> <p>“Development” ensures the protection and maintenance of places and items of cultural heritage.</p>	<p>AS26.1 A minimum separation distance of 50 metres is provided to the “Bed and banks” of “Watercourses” and “Lakes”.</p> <p>AS26.2 A minimum separation distance of 50 metres is provided to cemeteries and burial sites as identified in Schedule 2, Division 6: Places and Items of Cultural Heritage, Section 6.1.</p>	<p>No cultural heritage sites have been identified (Section 2.9) and there is a minimum buffer of 300 m from the abattoir to the nearest watercourse.</p>
Environmental	<p>PC27 Air Emissions</p> <p>Air emissions from “Premises” do not cause environmental harm or nuisance to adjoining properties or “Sensitive land uses”.⁴</p>	<p>No acceptable solution is prescribed.</p>	<p>Refer to the Odour Report (Appendix L) for more information. All internal roads will be sealed.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Environmental	<p>PC28 Noise Emissions</p> <p>Noise emissions from “Premises” do not cause environmental harm or nuisance to adjoining properties or “Sensitive land uses”.⁵</p>	No acceptable solution is prescribed.	Ongoing liaison with neighbours and monitoring will ensure noise emissions are not causing environmental nuisance. Operating hours will be between 4 am and 10 pm.
Environmental	<p>PC29 Water Quality</p> <p>The standard of effluent and / or stormwater runoff from “Premises” ensures the quality of surface and underground water is suitable for:</p> <ul style="list-style-type: none"> (a) the biological integrity of aquatic ecosystems; (b) recreational “use”; (c) supply as drinking water after minimal treatment; (d) agricultural “use”; or (e) industrial “use”.⁶ 	No acceptable solution is prescribed.	The effluent treatment ponds have been adequately sized and effluent irrigation will be undertaken at sustainable rates (Section 4).

	Performance Criteria	Acceptable Solution	Compliance Assessment
Environmental	<p>PC30 Excavation or Filling</p> <p>Excavating or filling of land:</p> <p>(a) ensures safety and amenity for the users of the "Premises" and land in close proximity;</p> <p>(b) minimises soil erosion;</p> <p>(c) limits detrimental impacts on water quality; and</p> <p>(d) where resulting in the creation of a waterbody, ensures the slopes and lines of the banks of the waterbody are of a natural shape and form.</p>	<p>AS30.1 Batters have a maximum slope of 25%, are terraced at every rise of 1.5 metres and each terrace has a minimum depth of 750mm.</p> <p>AS30.2 Excavation or filling within 1.5 metres of any site boundary is battered or retained by a wall that does not exceed 1 metre in height.</p> <p>AS30.3 Excavation or filling is undertaken in accordance with Schedule 1, Division 1: Standards for Construction Activities, Section 1.1</p>	<p>Detailed earthworks designs have not been completed and all earthworks will be undertaken in accordance with AS30.3. Detailed designs will be undertaken as a part of an operational works application.</p>
Environment	<p>PC31 Construction Activities</p> <p>Erosion control measures and silt collection measures ensure that environmental values are protected during construction activities.</p>	<p>AS31 During construction soil erosion and sediment is controlled in accordance with standards contained in Schedule 1, Division 1: Standards for Construction Activities, Section 1.1</p>	<p>A detailed ESCP has not been prepared and will be submitted in response to an RFI.</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Constraint	<p>PC32 “Development” in the vicinity of “Airports”</p> <p>“Development” in the vicinity of “Airports”:</p> <p>(a) protects the operation of the “Airport”;</p> <p>(b) is designed and located to achieve a suitable standard of amenity for the proposed activity; and</p> <p>(c) does not restrict the future operational requirements of the “Airport”.⁷</p>	<p>AS32 “Buildings” and “Structures” within 100 metres of the boundary of an “airport” are less than 7.5 metres in height at any point above natural ground level. (Except where establishing in an existing “Building” and no “Building works” are being undertaken for that existing “Building”.)</p>	N/A
Constraint	<p>PC33 Good Quality Agricultural Land Areas</p> <p>Good Quality Agricultural Land areas as identified on the Land Characteristics Map – Good Quality Agricultural Land are conserved and managed for the longer term and protected from development that may lead to its alienation or diminished productivity.⁸</p>	No acceptable solution is prescribed.	The existing abattoir building site will be utilised as much as possible. The application of effluent to the surrounding cultivation will subsidise inorganic fertilisers. The abattoir has been sited on the soil with the lowest agricultural value.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Constraint	<p>PC34 Flooding</p> <p>“Premises” are designed and located so as:</p> <ul style="list-style-type: none"> (a) not to be adversely impacted upon by flooding; (b) to protect life and property; and (c) not to have an undesirable impact on the extent or magnitude of flooding.⁹ 	No acceptable solution is prescribed.	The abattoir is located beyond known flood levels.
Constraint	<p>PC35 Protected Areas</p> <p>“Development” is undertaken to ensure the protection of:</p> <ul style="list-style-type: none"> (a) areas of significant biodiversity and habitat value and high scenic quality; and (b) essential habitat for endangered, rare or threatened species. 	AS35 A minimum separation distance of 100 metres is provided to Protected Areas as identified on Land Characteristics Map – Features Map 1.	No clearing or impact to protected areas will occur as a result of the development.
Constraint	<p>PC36 Sloping Land</p> <p>“Development” is undertaken to ensure:</p> <ul style="list-style-type: none"> (a) vulnerability to landslip, erosion and land degradation is minimised; and (b) safety of persons and property is not compromised. 	AS36 “Development” is not undertaken on slopes greater than 15%.	The site is generally flat.

	Performance Criteria	Acceptable Solution	Compliance Assessment
Constraint	<p>PC37 Bushfire Hazard</p> <p>“Development” is located to maintain the safety of people and property from Bushfire Hazard¹⁰.</p>	<p>AS37 “Development” is undertaken in Low Bushfire Hazard Areas as identified on Land Characteristics Map – Bushfire Hazard Areas.</p>	<p>The activity is located in a low bushfire hazard area.</p>
Constraint	<p>PC38 High and Medium Bushfire Hazard Areas</p> <p>“Development” in High or Medium Bushfire Hazard Areas, as identified on Land Characteristics Map – Bushfire Hazard Areas, maintains the safety of people and property by mitigating the risk through:</p> <p>(a) the siting of buildings, ensuring setbacks from hazardous vegetation are maximised and elements least susceptible to fire are sited closest to the bushfire hazard; and</p> <p>(b) the provision of firebreaks to ensure adequate setbacks between “Buildings”, “Structures” and “Hazardous vegetation”¹¹.</p>	<p>For “Development” in areas of High or Medium Bushfire Hazard as identified on Land Characteristics Map – Bushfire Hazard Areas, and on lots greater than 2500m²:</p> <p>AS38.1 “Buildings” and “Structures”:</p> <p>(a) are sited within the lowest bushfire hazard area;</p> <p>(b) achieve minimum setback distances from hazardous vegetation of 1.5 times the predominant mature canopy tree height or 10 metres, which ever is the greater; and</p> <p>(c) achieve a setback distance from any retained vegetation strips or small areas of vegetation of 10 metres.</p> <p>For “Development” in areas of High or Medium Bushfire Hazard as identified on Land Characteristics Map – Bushfire Hazard Areas, and on lots less than or equal to 2500m²:</p> <p>No acceptable solution is prescribed.</p> <p>For “Development” in areas of High or Medium Bushfire Hazard as identified on Land Characteristics Map – Bushfire Hazard Areas: AS38.2 Firebreaks or fire maintenance trails are provided in accordance with Schedule 1, Division 6: Standards for Roads in Bushfire Hazard Areas, Firebreaks and Fire Maintenance Trails, Section 6.2.</p>	<p>N/A</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
Constraint	<p>PC39 Transport Infrastructure</p> <p>Separation distances are provided to ensure:</p> <p>(a) transport infrastructure items are protected from incompatible “Development”; and</p> <p>(b) an appropriate standard of amenity and public safety is provided to adjoining “Uses”.</p>	<p>AS39 “Buildings” and “Structures” maintain a minimum separation distance to Rail Lines and State Controlled Roads (as identified on Land Characteristics Map – Features Map 1) as stated in Schedule 2, Division 4: Separation Distances – Infrastructure Items, Section 4.1.</p>	<p>The proposed buildings meet the minimum 100 m separation to a state controlled road.</p>
“Use”	<p>PC40 “Airport”</p> <p>“Airport” activities:</p> <p>(a) do not adversely impact on the amenity of surrounding residents;</p> <p>(b) ensure the safe operation of aeronautical and support activities; and</p> <p>(c) ensure the safety of surrounding “Premises”.¹²</p>	<p>No acceptable solution is prescribed.</p>	<p>N/A</p>
“Use”	<p>PC41 “Bed and breakfast premises”</p> <p>“Premises” used for a “Bed and breakfast premises” are of a scale and are operated in a manner so as not to impact adversely on the amenity of the locality.</p>	<p>AS41.1 Provision is made for no more than 6 (six) paying guests to be accommodated at any one time.</p> <p>AS41.2 “Premises” contains not more than 2 (two) “Accommodation units” for guest accommodation purposes.</p>	<p>N/A</p>

	Performance Criteria	Acceptable Solution	Compliance Assessment
"Use"	<p>PC42 "Extractive industry"</p> <p>"Premises" used for extractive industries:</p> <p>(a) do not impact adversely on the amenity of other "Uses" in the Rural "Zone" or other "Zones";</p> <p>(b) are designed and operated to ensure the protection and maintenance of environmental values;</p> <p>(c) are rehabilitated to provide for future re-use of the land and to prevent ongoing risk of adverse impacts on the local environment and amenity; and</p> <p>(d) are designed and operated so that the safety of persons and property is not compromised.</p>	No acceptable solution is prescribed.	N/A

	Performance Criteria	Acceptable Solution	Compliance Assessment
"Use"	<p>PC43 "Home business"</p> <p>"Premises" used for a "Home business" are of a scale and are operated in a manner so as not to impact adversely on the amenity of the locality.</p>	<p>AS43.1 No more than 1 (one) person other than the residents of the "Premises" is employed in the "Home business".</p> <p>AS43.2 No more than 50m² of "Total use area" is used for the purposes of a "Home business".</p> <p>AS43.3 No more than 2 (two) clients normally attend the "Premises" at any one time.</p> <p>AS43.4 No goods or products produced by other businesses are displayed for sale in any window or outdoor area.</p> <p>AS43.5 Operate only between the hours of 7:00am and 6:00pm.</p>	N/A
"Use"	<p>PC44 "Intensive animal industries"</p> <p>"Intensive animal industries":</p> <p>(a) do not impact adversely on the amenity of the Rural "Zone", and surrounding areas;</p> <p>(b) are designed and operated to ensure the protection and maintenance of environmental values; and</p> <p>(c) are rehabilitated to provide for future re-use of the land and to prevent ongoing risk of adverse impacts on the local environment and amenity.</p>	No acceptable solution is prescribed.	N/A

	Performance Criteria	Acceptable Solution	Compliance Assessment
"Use"	<p>PC45 "Visitor accommodation"</p> <p>"Premises" used for "Visitor accommodation" purposes are of a scale and are operated in a manner so as not to impact adversely on the amenity or the future productivity capabilities of the Rural "Zone".</p>	<p>AS45.1 Provision is made for no more than 12 (twelve) paying guests to be accommodated at any one time.</p> <p>AS45.2 "Premises" contain not more than 6 (six) "Accommodation units" or camping or caravan sites.</p> <p>AS45.3 "Premises" are not located on Good Quality Agricultural Land areas as identified on the Land Characteristics Map – Good Quality Agricultural Land.</p>	N/A

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APPENDIX A - IDAS FORMS

IDAS form 1—Application details

(Sustainable Planning Act 2009 version 4.3 effective 5 December 2016)

This form must be used for **ALL** development applications.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete this form (*IDAS form 1—Application details*)
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form and any other IDAS form relevant to your application must be used for development applications relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

PLEASE NOTE: This form is not required to accompany requests for compliance assessment.

Mandatory requirements

Applicant details (Note: the applicant is the person responsible for making the application and need not be the owner of the land. The applicant is responsible for ensuring the information provided on all IDAS application forms is correct. Any development permit or preliminary approval that may be issued as a consequence of this application will be issued to the applicant.)

Name/s (individual or company name in full)

Fucheng International Abattoirs Pty Ltd

For companies, contact name

C/- Lily Zeng, Ray White Rural International

Postal address

PO Box 5200

Suburb	Sydney		
State	NSW	Postcode	2000
Country	Australia		

Contact phone number

0430 696 303

Mobile number (non-mandatory requirement)

Fax number (non-mandatory requirement)

Email address (non-mandatory requirement)

lily.zeng@raywhite.com

Applicant's reference number (non-mandatory requirement)

1. What is the nature of the development proposed and what type of approval is being sought?

Table A—Aspect 1 of the application (If there are additional aspects to the application please list in Table B—Aspect 2.)

- a) What is the nature of the development? (Please only tick one box.)
- Material change of use Reconfiguring a lot Building work Operational work
- b) What is the approval type? (Please only tick one box.)
- Preliminary approval under s241 of SPA Preliminary approval under s241 and s242 of SPA Development permit
- c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)
- Meat Processing facility and associated infrastructure
- d) What is the level of assessment? (Please only tick one box.)
- Impact assessment Code assessment

Table B—Aspect 2 of the application (If there are additional aspects to the application please list in Table C—Additional aspects of the application.)

- a) What is the nature of development? (Please only tick one box.)
- Material change of use Reconfiguring a lot Building work Operational work
- b) What is the approval type? (Please only tick one box.)
- Preliminary approval under s241 of SPA Preliminary approval under s241 and s242 of SPA Development permit
- c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)
-
- d) What is the level of assessment?
- Impact assessment Code assessment

Table C—Additional aspects of the application (If there are additional aspects to the application please list in a separate table on an extra page and attach to this form.)

- Refer attached schedule Not required

2. Location of the premises (Complete Table D and/or Table E as applicable. Identify each lot in a separate row.)

Table D—Street address and lot on plan for the premises or street address and lot on plan for the land adjoining or adjacent to the premises (Note: this table is to be used for applications involving taking or interfering with water.) (Attach a separate schedule if there is insufficient space in this table.)

- Street address **and** lot on plan (All lots must be listed.)
 Street address **and** lot on plan for the land adjoining or adjacent to the premises (Appropriate for development in water but adjoining or adjacent to land, e.g. jetty, pontoon. All lots must be listed.)

Street address					Lot on plan description		Local government area (e.g. Logan, Cairns)
Lot	Unit no.	Street no.	Street name and official suburb/locality name	Post-code	Lot no.	Plan type and plan no.	
i)			Cunningham Highway	4390	15	SP135722	Goondiwindi Regional
ii)			Cunningham Highway	4390	16	SP135722	Goondiwindi Regional
iii)							

Planning scheme details (If the premises involves multiple zones, clearly identify the relevant zone/s for each lot in a separate row in the below table. Non-mandatory)

Lot	Applicable zone / precinct	Applicable local plan / precinct	Applicable overlay/s
i)	Rural Zone		GQAL, Bushfire, Transport Infrastructure
ii)			
iii)			

Table E—Premises coordinates (Appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay.) (Attach a separate schedule if there is insufficient space in this table.)

Coordinates (Note: place each set of coordinates in a separate row)				Zone reference	Datum	Local government area (if applicable)
Easting	Northing	Latitude	Longitude			
					<input type="checkbox"/> GDA94 <input type="checkbox"/> WGS84 <input type="checkbox"/> other	

3. Total area of land on which the development is proposed (indicate square metres)

5,120,000m² (512ha)

4. Current use/s of the premises (e.g. vacant land, house, apartment building, cane farm etc.)

Vacant decommissioned abattoir and grazing land

5. Are there any current approvals (e.g. a preliminary approval) associated with this application? (Non-mandatory requirement)

No Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

6. Is owner's consent required for this application? (Refer to notes at the end of this form for more information.)

No
 Yes—complete either Table F, Table G or Table H as applicable

Table F

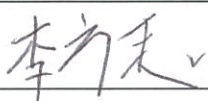
Name of owner/s of the land	GAOQI LI
I/We, the above-mentioned owner/s of the land, consent to the making of this application.	
Signature of owner/s of the land	
Date 10 APR 2017	

Table G

Name of owner/s of the land	
<input type="checkbox"/> The owner's written consent is attached or will be provided separately to the assessment manager.	

Table H

Name of owner/s of the land	
<input type="checkbox"/> By making this application, I, the applicant, declare that the owner has given written consent to the making of the application.	

7. Identify if any of the following apply to the premises (Tick applicable box/es.)

- Adjacent to a water body, watercourse or aquifer (e.g. creek, river, lake, canal)—complete Table I
- On strategic port land under the *Transport Infrastructure Act 1994*—complete Table J
- In a tidal water area—complete Table K
- On Brisbane core port land under the *Transport Infrastructure Act 1994* (No table requires completion.)
- On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* (no table requires completion)
- Listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* (no table requires completion)

Table I

Name of water body, watercourse or aquifer

Table J	
Lot on plan description for strategic port land	Port authority for the lot

Table K	
Name of local government for the tidal area (if applicable)	Port authority for the tidal area (if applicable)

8. Are there any existing easements on the premises? (e.g. for vehicular access, electricity, overland flow, water etc)

No Yes—ensure the type, location and dimension of each easement is included in the plans submitted

9. Does the proposal include new building work or operational work on the premises? (Including any services)

No Yes—ensure the nature, location and dimension of proposed works are included in plans submitted

10. Is the payment of a portable long service leave levy applicable to this application? (Refer to notes at the end of this form for more information.)

No—go to question 11 Yes

10a. Has the portable long service leave levy been paid? (Refer to notes at the end of this form for more information.)

No
 Yes—complete Table L and submit, with this application, the local government/private certifier’s copy of the accepted QLeave form

Table L		
Amount paid	Date paid (dd/mm/yy)	QLeave project number (6 digit number starting with A, B, E, L, P or S)

11. Has the local government agreed to apply a superseded planning scheme to this application under section 96 of the Sustainable Planning Act 2009?

No
 Yes—please provide details below

Name of local government	Date of written notice given by local government (dd/mm/yy)	Reference number of written notice given by local government (if applicable)

12. List below all of the forms and supporting information that accompany this application (Include all IDAS forms, checklists, mandatory supporting information etc. that will be submitted as part of this application)

Description of attachment or title of attachment	Method of lodgement to assessment manager
IDAS Forms 1, 5, 8 and 8a	Email
Development Application and Supporting Information Report for an Abattoir	Email

13. Applicant's declaration

By making this application, I declare that all information in this application is true and correct (Note: it is unlawful to provide false or misleading information)

Notes for completing this form

- Section 261 of the *Sustainable Planning Act 2009* prescribes when an application is a properly-made application. Note, the assessment manager has discretion to accept an application as properly made despite any non-compliance with the requirement to provide mandatory supporting information under section 260(1)(c) of the *Sustainable Planning Act 2009*

Applicant details

- Where the applicant is not a natural person, ensure the applicant entity is a real legal entity.

Question 1

- Schedule 3 of the Sustainable Planning Regulation 2009 identifies assessable development and the type of assessment. Where schedule 3 identifies assessable development as "various aspects of development" the applicant must identify each aspect of the development on Tables A, B and C respectively and as required.

Question 6

- Section 263 of the *Sustainable Planning Act 2009* sets out when the consent of the owner of the land is required for an application. Section 260(1)(e) of the *Sustainable Planning Act 2009* provides that if the owner's consent is required under section 263, then an application must contain, or be accompanied by, the written consent of the owner, or include a declaration by the applicant that the owner has given written consent to the making of the application. If a development application relates to a state resource, the application is not required to be supported by evidence of an allocation or entitlement to a state resource. However, where the state is the owner of the subject land, the written consent of the state, as landowner, may be required. Allocation or entitlement to the state resource is a separate process and will need to be obtained before development commences.

Question 7

- If the premises is listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* it may be necessary to seek compliance assessment. Schedule 18 of the Sustainable Planning Regulation 2009 identifies where compliance assessment is required.

Question 10

- The *Building and Construction Industry (Portable Long Service Leave) Act 1991* prescribes when the portable long service leave levy is payable.
- The portable long service leave levy amount and other prescribed percentages and rates for calculating the levy are prescribed in the Building and Construction Industry (Portable Long Service Leave) Regulation 2013.

Question 10a

- The portable long service leave levy need not be paid when the application is made, but the *Building and Construction Industry (Portable Long Service Leave) Act 1991* requires the levy to be paid before a development permit is issued.
- Building and construction industry notification and payment forms can be completed on the QLeave website at www.qleave.qld.gov.au. For further information contact QLeave on 1800 803 481.

Privacy—The information collected in this form will be used by the Department of Infrastructure, Local Government and Planning (DILGP), assessment manager, referral agency and/or building certifier in accordance with the processing and assessment of your application. Your personal details should not be disclosed for a purpose outside of the IDAS process or the provisions about public access to planning and development information in the *Sustainable Planning Act 2009*, except where required by legislation (including the *Right to Information Act 2009*) or as required by Parliament. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002*.

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NOTIFICATION OF ENGAGEMENT OF A PRIVATE CERTIFIER

To Council. I have been engaged as the private certifier for the building work referred to in this application

Date of engagement	Name	BSA Certification license number	Building classification/s

QLEAVE NOTIFICATION AND PAYMENT (For completion by assessment manager or private certifier if applicable.)

Description of the work	QLeave project number	Amount paid (\$)	Date paid	Date receipted form sighted by assessment manager	Name of officer who sighted the form

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 5—Material change of use assessable against a planning scheme

(Sustainable Planning Act 2009 version 3.1 effective 3 August 2015)

This form must be used for development applications for a material change of use assessable against a planning scheme.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form must also be used for material change of use on strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* that requires assessment against the land use plan for that land. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

Mandatory requirements

1. Describe the proposed use. (Note: this is to provide additional detail to the information provided in question 1 of *IDAS form 1—Application details*. Attach a separate schedule if there is insufficient space in this table.)

General explanation of the proposed use	Planning scheme definition (include each definition in a new row) (non-mandatory)	No. of dwelling units (if applicable) or gross floor area (if applicable)	Days and hours of operation (if applicable)	No. of employees (if applicable)
Abattoir	Industrial Activities – Noxious Industry		4am-10pm, Mon-Sat	365

2. Are there any current approvals associated with the proposed material change of use? (e.g. a preliminary approval.)

No Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

3. Does the proposed use involve the following? (Tick all applicable boxes.)

- | | | |
|--|--|---|
| The reuse of existing buildings on the premises | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes |
| New building work on the premises | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes |
| The reuse of existing operational work on the premises | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes |
| New operational work on the premises | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes |

Mandatory supporting information

4. Confirm that the following mandatory supporting information accompanies this application

Mandatory supporting information	Confirmation of lodgement	Method of lodgement
All applications		
<p>A site plan drawn to an appropriate scale (1:100, 1:200 or 1:500 are recommended scales) which shows the following:</p> <ul style="list-style-type: none"> the location and site area of the land to which the application relates (<i>relevant land</i>) the north point the boundaries of the relevant land any road frontages of the relevant land, including the name of the road the location and use of any existing or proposed buildings or structures on the relevant land (note: where extensive demolition or new buildings are proposed, two separate plans [an existing site plan and proposed site plan] may be appropriate) any existing or proposed easements on the relevant land and their function the location and use of buildings on land adjoining the relevant land all vehicle access points and any existing or proposed car parking areas on the relevant land. Car parking spaces for persons with disabilities and any service vehicle access and parking should be clearly marked for any new building on the relevant land, the location of refuse storage the location of any proposed retaining walls on the relevant land and their height the location of any proposed landscaping on the relevant land the location of any stormwater detention on the relevant land. 	<input checked="" type="checkbox"/> Confirmed	Email
A statement about how the proposed development addresses the local government’s planning scheme and any other planning instruments or documents relevant to the application.	<input checked="" type="checkbox"/> Confirmed	
A statement about the intensity and scale of the proposed use (e.g. number of visitors, number of seats, capacity of storage area etc.).	<input checked="" type="checkbox"/> Confirmed	
<p>Information that states:</p> <ul style="list-style-type: none"> the existing or proposed floor area, site cover, maximum number of storeys and maximum height above natural ground level for existing or new buildings (e.g. information regarding existing buildings but not being reused) the existing or proposed number of on-site car parking bays, type of vehicle cross-over (for non-residential uses) and vehicular servicing arrangement (for non-residential uses). 	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	

A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves the reuse of existing buildings		
Plans showing the size, location, existing floor area, existing site cover, existing maximum number of storeys and existing maximum height above natural ground level of the buildings to be reused.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves new building work (including extensions)		
Floor plans drawn to an appropriate scale (1:50, 1:100 or 1:200 are recommended scales) which show the following: <ul style="list-style-type: none"> the north point the intended use of each area on the floor plan (for commercial, industrial or mixed use developments only) the room layout (for residential development only) with all rooms clearly labelled the existing and the proposed built form (for extensions only) the gross floor area of each proposed floor area. 	<input checked="" type="checkbox"/> Confirmed	
Elevations drawn to an appropriate scale (1:100, 1:200 or 1:500 are recommended scales) which show plans of all building elevations and facades, clearly labelled to identify orientation (e.g. north elevation)	<input checked="" type="checkbox"/> Confirmed	
Plans showing the size, location, proposed site cover, proposed maximum number of storeys, and proposed maximum height above natural ground level of the proposed new building work.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves reuse of other existing work		
Plans showing the nature, location, number of on-site car parking bays, existing area of landscaping, existing type of vehicular cross-over (non-residential uses), and existing type of vehicular servicing arrangement (non-residential uses) of the work to be reused.	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	
When the application involves new operational work		
Plans showing the nature, location, number of new on-site car parking bays, proposed area of new landscaping, proposed type of new vehicle cross-over (non-residential uses), proposed maximum new vehicular servicing arrangement (non-residential uses) of the proposed new operational work.	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

OFFICE USE ONLY

Date received Reference numbers

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 5—Material change of use assessable against a planning scheme

(Sustainable Planning Act 2009 version 3.1 effective 3 August 2015)

This form must be used for development applications for a material change of use assessable against a planning scheme.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form must also be used for material change of use on strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* that requires assessment against the land use plan for that land. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

Mandatory requirements

1. Describe the proposed use. (Note: this is to provide additional detail to the information provided in question 1 of *IDAS form 1—Application details*. Attach a separate schedule if there is insufficient space in this table.)

General explanation of the proposed use	Planning scheme definition (include each definition in a new row) (non-mandatory)	No. of dwelling units (if applicable) or gross floor area (if applicable)	Days and hours of operation (if applicable)	No. of employees (if applicable)
Abattoir	Industrial Activities – Noxious Industry		4am-10pm, Mon-Sat	365

2. Are there any current approvals associated with the proposed material change of use? (e.g. a preliminary approval.)

No Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

3. Does the proposed use involve the following? (Tick all applicable boxes.)

- | | | |
|--|--|---|
| The reuse of existing buildings on the premises | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes |
| New building work on the premises | <input type="checkbox"/> No | <input checked="" type="checkbox"/> Yes |
| The reuse of existing operational work on the premises | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes |
| New operational work on the premises | <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes |

Mandatory supporting information

4. Confirm that the following mandatory supporting information accompanies this application

Mandatory supporting information	Confirmation of lodgement	Method of lodgement
All applications		
<p>A site plan drawn to an appropriate scale (1:100, 1:200 or 1:500 are recommended scales) which shows the following:</p> <ul style="list-style-type: none"> • the location and site area of the land to which the application relates (<i>relevant land</i>) • the north point • the boundaries of the relevant land • any road frontages of the relevant land, including the name of the road • the location and use of any existing or proposed buildings or structures on the relevant land (note: where extensive demolition or new buildings are proposed, two separate plans [an existing site plan and proposed site plan] may be appropriate) • any existing or proposed easements on the relevant land and their function • the location and use of buildings on land adjoining the relevant land • all vehicle access points and any existing or proposed car parking areas on the relevant land. Car parking spaces for persons with disabilities and any service vehicle access and parking should be clearly marked • for any new building on the relevant land, the location of refuse storage • the location of any proposed retaining walls on the relevant land and their height • the location of any proposed landscaping on the relevant land • the location of any stormwater detention on the relevant land. 	<input checked="" type="checkbox"/> Confirmed	Email
A statement about how the proposed development addresses the local government’s planning scheme and any other planning instruments or documents relevant to the application.	<input checked="" type="checkbox"/> Confirmed	
A statement about the intensity and scale of the proposed use (e.g. number of visitors, number of seats, capacity of storage area etc.).	<input checked="" type="checkbox"/> Confirmed	
<p>Information that states:</p> <ul style="list-style-type: none"> • the existing or proposed floor area, site cover, maximum number of storeys and maximum height above natural ground level for existing or new buildings (e.g. information regarding existing buildings but not being reused) • the existing or proposed number of on-site car parking bays, type of vehicle cross-over (for non-residential uses) and vehicular servicing arrangement (for non-residential uses). 	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	

A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	<input type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves the reuse of existing buildings		
Plans showing the size, location, existing floor area, existing site cover, existing maximum number of storeys and existing maximum height above natural ground level of the buildings to be reused.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves new building work (including extensions)		
Floor plans drawn to an appropriate scale (1:50, 1:100 or 1:200 are recommended scales) which show the following: <ul style="list-style-type: none"> • the north point • the intended use of each area on the floor plan (for commercial, industrial or mixed use developments only) • the room layout (for residential development only) with all rooms clearly labelled • the existing and the proposed built form (for extensions only) • the gross floor area of each proposed floor area. 	<input checked="" type="checkbox"/> Confirmed	
Elevations drawn to an appropriate scale (1:100, 1:200 or 1:500 are recommended scales) which show plans of all building elevations and facades, clearly labelled to identify orientation (e.g. north elevation)	<input checked="" type="checkbox"/> Confirmed	
Plans showing the size, location, proposed site cover, proposed maximum number of storeys, and proposed maximum height above natural ground level of the proposed new building work.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
When the application involves reuse of other existing work		
Plans showing the nature, location, number of on-site car parking bays, existing area of landscaping, existing type of vehicular cross-over (non-residential uses), and existing type of vehicular servicing arrangement (non-residential uses) of the work to be reused.	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	
When the application involves new operational work		
Plans showing the nature, location, number of new on-site car parking bays, proposed area of new landscaping, proposed type of new vehicle cross-over (non-residential uses), proposed maximum new vehicular servicing arrangement (non-residential uses) of the proposed new operational work.	<input type="checkbox"/> Confirmed <input checked="" type="checkbox"/> Not applicable	

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

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Date received

Reference numbers

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 8—Environmentally relevant activity

(Sustainable Planning Act 2009 version 3.1 effective 3 August 2015)

This form must be used for development applications for an environmentally relevant activity.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in either the *Sustainable Planning Act 2009* (SPA), the Sustainable Planning Regulation 2009, the *Environmental Protection Act 1994* or the Environmental Protection Regulation 2008.

Mandatory requirements

1. **What is the nature of the proposed environmentally relevant activity (ERA)?** (complete a new Table A for each proposed ERA—including ERAs that are not concurrence ERAs)

Table A

ERA number and name	25 Meat Processing
ERA threshold	2c
Applicable fees	\$
Proposed scale/capacity	72,000 tonnes
Type of approval sought	<input checked="" type="checkbox"/> Development permit and environmental authority (see notes) <input type="checkbox"/> Preliminary approval
Is the proposed ERA a concurrence ERA?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes

Table A

ERA number and name	14 Electricity Generation
ERA threshold	2a
Applicable fees	\$
Proposed scale/capacity	10MW
Type of approval sought	<input checked="" type="checkbox"/> Development permit and environmental authority (see notes) <input type="checkbox"/> Preliminary approval
Is the proposed ERA a concurrence ERA?	<input type="checkbox"/> No <input type="checkbox"/> Yes

Table A

ERA number and name	15 Fuel Burning
ERA threshold	N/A
Applicable fees	\$
Proposed scale/capacity	500kg/hr

Type of approval sought	<input checked="" type="checkbox"/> Development permit and environmental authority (see notes) <input type="checkbox"/> Preliminary approval
Is the proposed ERA a concurrence ERA?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes
Table A	
ERA number and name	53 Composting and soil conditioner manufacturing
ERA threshold	N/A
Applicable fees	\$
Proposed scale/capacity	7,200 tonnes/year
Type of approval sought	<input type="checkbox"/> Development permit and environmental authority (see notes) <input type="checkbox"/> Preliminary approval
Is the proposed ERA a concurrence ERA?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes

2. Are there any existing ERAs on or associated with the premises?

- No
 Yes—complete a new Table B for each existing ERA

Table B	
ERA number and name	
ERA threshold	
Existing scale/capacity	
Is the ERA proposed to continue on site?	<input type="checkbox"/> No <input type="checkbox"/> Yes

3. Does the proposed activity involve any of the following? (Tick all applicable boxes.)

- Release of water or waste to a wetland for treatment
 Release of waste directly to groundwater

Mandatory supporting information

4. Confirm that the following mandatory supporting information accompanies this application		
About the subject land	Confirmation of lodgement	Method of lodgement
Description of the site, including site maps showing vegetation, topography and any areas of cultural or heritage significance.	<input checked="" type="checkbox"/> Confirmed	
Details of any known acid sulphate soils within or adjoining the premises.	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	
Details about how the choice of the site, at which the activity is to be carried out, minimises serious environmental harm on areas of high conservation value and special significance and sensitive land uses at adjacent places.	<input checked="" type="checkbox"/> Confirmed	
Details about how the location for the activity on a site protects all environmental values relevant to adjacent sensitive uses.	<input checked="" type="checkbox"/> Confirmed	

Details about how the design of the facility permits the operation of the site, at which the activity is to be carried out, in accordance with best practice environmental management.	<input checked="" type="checkbox"/> Confirmed	
About the proposed ERA		
Attachment to IDAS form 8—application for an environmental authority (EM941) completed and required information provided.	<input checked="" type="checkbox"/> Confirmed	
A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	<input checked="" type="checkbox"/> Confirmed <input type="checkbox"/> Not applicable	

Notes for completing this form:

- An environmental authority is required to operate an ERA.
- A development approval is only required if at least one of the ERAs to be operated is a concurrence ERA.
- Schedule 2 of the Environmental Protection Regulation 2008 states the aggregate environmental scores, the thresholds that apply to ERAs, and which ERAs are concurrence ERAs (denoted by a 'C' in schedule 2, column 3).
- This development application is taken to be an application for an environmental authority. This application is not properly made unless it includes the Attachment to IDAS form 8—application for an environmental authority (EM941).
- There are annual fees associated with the operation of an ERA. These fees are initially payable 20 business days after the environmental authority takes effect. After this initial payment, annual fees will be payable on the anniversary of the take effect day. Chapter 8 and Schedule 10 of the Environmental Protection Regulation 2008 contain all information about the applicable fees and how they are calculated.

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

OFFICE USE ONLY

Date received

Reference numbers

The *Sustainable Planning Act 2009* is administered by the Department of Infrastructure, Local Government and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

Application form

Environmental Protection Act 1994

IDAS form 8—attachment for an application for an environmental authority

This form is to be attached to the IDAS form 8 when making a development application for prescribed environmentally relevant activities (ERAs). Under section 115 of the Environmental Protection Act 1994 (EP Act) the development approval application is taken to be an application for an environmental authority for the prescribed ERAs.

It is recommended that prior to making an application for an environmentally relevant activity (ERA), you read the information on what to provide with an application. This information is located on the Business Queensland website (formerly the Queensland Government's Business and Industry Portal) at www.business.qld.gov.au (use the search term "Environmental licence"). This website also has a diagnostic tool called the "forms and fees finder" which will help identify any fees and supporting information you need to make an application.

Only use this application form if you are applying for a new environmental authority (EA) where:

- All applicants are registered suitable operators¹.
- The ERA/s being applied for do not form part of an ERA project under an existing EA.
- If more than one ERA is being applied for, the ERAs must be carried out as part of a single integrated operation:
 - the ERAs will be carried out under the day to day management of a single responsible individual (e.g. a site manager or operations manager); and
 - all of the ERAs are operationally interrelated, that is, the operation cannot function without all of the ERAs. Separate applications will need to be made for the ERAs that cannot be carried out as a single integrated operation; and
 - the ERA/s are, or will be, carried out at one or more places; and
 - the places where the ERAs will be carried out are close enough to make the integrated day to day management of the activities feasible.
- The ERA/s being applied for are prescribed under section 19 of the *Environmental Protection Act 1994* (EP Act).
- If any of the ERAs being applied for are to be carried out on a parcel of land within a state development area and a particular use for the parcel of land is not stated in the approved development scheme, you have applied for, or hold a current approval for the use under section 84(4)(b) of the *State Development and Public Works Organisation Act 1971*.
- The application is not to dredge or extract more than 10,000 tonnes of material a year in the North Stradbroke Island region.

¹ If you are not a registered suitable operator you cannot apply for a new environmental authority. To become a registered suitable operator apply online through Connect at www.ehp.qld.gov.au/connect or request the form "Application to be a registered suitable operator - ESR/2015/1771" by emailing palm@ehp.qld.gov.au or phoning 1300 130 372 (option 4).

Privacy statement

Where ERAs are administered by the Queensland Government:

The Department of Environment and Heritage Protection and Department of Agriculture and Fisheries are collecting the information on this form to process your application for an EA. The collection is authorised under Chapter 5 of the EP Act.

Please note that the administering authority is required to keep this application on a register of documents open for inspection by members of the public under section 540 of the EP Act, and must permit a person to take extracts from the register pursuant to section 542 of the EP Act. Your personal information will not be otherwise disclosed to any other parties unless authorised or required by law. For queries about privacy matters please email privacy@ehp.qld.gov.au or telephone: 13 74 68.

Where ERAs are administered by a local government:

Contact the local government for their privacy information.

Pre-lodgement meeting

If you would like to have a pre-lodgement meeting:

- for prescribed ERAs 2, 3 and 4—contact the Department of Agriculture and Fisheries by email at livestockregulator@daf.qld.gov.au
- for local government administered ERAs, contact the local government
- for any other ERA—please complete and lodge the form “Application for pre-lodgement services” (ESR/2015/1664²), prior to lodging this standard application for an environmental authority.

² This application form is available at www.qld.gov.au, using the publication number ESR/2015/1664 as a search term.

IDAS form 8—attachment for an application for an environmental authority

The fields marked with an asterisk * are mandatory, if they are not completed then your application may be considered not properly made under section 128 of the *Environmental Protection Act 1994*.

1. Applicant details

To nominate a site or application contact for this application please provide details at Questions 14 and 15.

Is there more than one applicant? *	<input checked="" type="checkbox"/> No—provide applicant's details below. <input type="checkbox"/> Yes—provide the principal applicant's details below and all other applicants' details in Attachment 1—"Joint applicants and appointment of principal applicant"
Name - individual or contact person if applicant is a organisation*	Suitable Operator Reference Number* RSO001208
Organisation name, including any trading name (*if an organisation) Fucheng International Abattoirs Pty Ltd	ABN/ACN (*if an organisation)
Residential or registered business address (not a post office box)*	Phone*
Postal address (if same as above, write "AS ABOVE")*	Facsimile
Email*	<input checked="" type="checkbox"/> Indicate if you want to receive correspondence via email

1.1 Nomination of an agent for this application

I/we nominate the below agent to act on my/our behalf and to receive correspondence relating to this application.

Do you want to nominate an agent for this application?*	
<input type="checkbox"/> No → Go to <i>Question Error! Reference source not found.</i> <input checked="" type="checkbox"/> Yes → Complete the agent's details here.	
Name of agent – individual or contact person if agent is an organisation Lily Zeng	
Organisation name, including trading name if an organisation Ray White Rural International	ABN/ACN (if an organisation)
Postal address PO Box 5200 Sydney 2001 NSW	Phone 0430 696 303
Email lily.zeng@raywhite.com	<input type="checkbox"/> Indicate if you do not want to receive correspondence via email

2. Details of the ERA(s) being applied for

Complete the table below by advising which ERA(s) you are applying for. If the ERA has eligibility criteria and standard conditions³, identify whether you can comply with them. Select "N/A" where there are no eligibility criteria and standard conditions for that ERA. If you cannot comply with all of the applicable standard conditions, select "no" and attach details of the standard conditions you cannot comply with.

³ ERAs with eligibility criteria and standard conditions are listed at: www.business.qld.gov.au (use the search term "eligibility criteria").

IDAS form 8—attachment for an application for an environmental authority

ERA number*	Threshold*	Name of ERA*	I can comply with the eligibility criteria*	I can comply with all the standard conditions*
25	2c	Meat Processing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
14	2a	Electricity Generation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
15		Fuel Burning	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
53		Composting and soil conditioner manufacturing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No

I have attached details of the standard conditions that I cannot comply with.

3. Description of land where the ERA/s will be carried out

Where activities will be undertaken at more than one location, provide details in Appendix 2.

Number*	Street Name*	Suburb/Town*	Postcode*
	Cunningham Highway	Goondiwindi	4390
Real Property Description*		Specific area within the location ie GPS or other descriptor*	
Lot 15 & 16 Plan SP135722			
Port (*if applicable)		Project Name (*if applicable)	

4. Details of contaminated land

Is there a site management plan in effect for contaminated land that relates to the land that is the subject of this application?*		
<input checked="" type="checkbox"/> No	Go to <i>Question 5</i> .	
<input type="checkbox"/> Yes	Description of land*	
	Lot and plan number(s)	Local Government Area*
	Lot	Plan
	Lot	Plan
	Lot	Plan
	Lot	Plan

5. Existing environmental authorities at the location

Do you have any existing environmental authorities at this location?*		
<input checked="" type="checkbox"/> No	Go to <i>Question 6</i> .	
<input type="checkbox"/> Yes	Existing EA number(s)*	Certification*
		<input type="checkbox"/> I certify that the ERA(s) being applied for do not form part of any existing environmental authority/ies

6. Other related approvals

To avoid the possibility of your environmental authority application being invalid, you need to ensure any other required applications have been made prior to lodging this application. If you are not sure what approvals are required you should contact the planning area of your local government authority or if the area is within a State development area, visit the Department of State Development website at:

<http://www.statedevelopment.qld.gov.au> (search for state development area).

Are you required to obtain any of the following approvals to conduct the ERA(s)?*					
<ul style="list-style-type: none"> e.g. An approval for the use of land under the <i>State Development and Public Works Organisation Act 1971</i> 					
<input checked="" type="checkbox"/> No	Go to <i>Question 7</i>				
<input type="checkbox"/> Yes	Approval name*	Legislation*	Application number*	Date lodged*	Approval status*

7. Environmental offsets

An environmental offset, under the *Environmental Offsets Act 2014*, may be required for an ERA where, despite all reasonable measures to avoid and minimise impacts on certain environmental matters, there is still likely to be significant residual impact on one or more of those matters.

You must verify the presence, whether temporary or permanent, of those environmental matters. For more information refer to the Queensland Environmental Offsets Policy and the Significant Residual Impact Guideline at the Queensland Government website at www.qld.gov.au, using the search term “environmental offsets”.

Will the ERA(s) being applied for result in a significant residual impact to a matter of State environmental significance (MSES)?*	
<input checked="" type="checkbox"/> No	Go to <i>Question 8</i> .
<input type="checkbox"/> Yes	<p>You must attach supporting information that:</p> <ol style="list-style-type: none"> Details the magnitude and duration of the likely significant residual impact on each prescribed environmental matter (other than matters of local environmental significance) for the entire activity; and Demonstrates that all reasonable measures to avoid and minimise impacts on each of those matters will be undertaken.

7.1 Notice of election

Has a notice of election been submitted to the administering authority, or is being submitted as part of this application?	
<input checked="" type="checkbox"/> No	Go to <i>Question 7.2</i> .
<input type="checkbox"/> Yes	<input type="checkbox"/> You can attach the notice of election, if it has not been submitted to the department. Go to <i>Question 7.3</i> .

7.2 Staged environmental offsets

Offset delivery can be staged, however for this to occur, the condition of any approved environmental authority needs to state that both the activity and the offset may be staged. As part of your notice of election for each stage under the *Environmental Offsets Act 2014*, you are required to provide a detailed assessment of the quantum of impact of that stage and the offset obligation requirement to be delivered for that stage.

Will the proposed ERA(s) and delivery of an environmental offset be undertaken in stages?	
<input checked="" type="checkbox"/> No	Go to <i>Question 7.3</i>
<input type="checkbox"/> Yes	You must attach supporting information that details of how the activity/activities are proposed to be staged.

IDAS form 8—attachment for an application for an environmental authority

7.3 Nature conservation environmental offset

Has another authority issued under the <i>Nature Conservation Act 1992</i> required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?	
<input checked="" type="checkbox"/> No	Go to <i>Question 7.4</i>
<input type="checkbox"/> Yes	Provide permit number:

7.4 Marine parks environmental offset

Has marine park permit issued under the <i>Marine Parks Act 2004</i> required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?	
<input checked="" type="checkbox"/> No	Go to <i>Question 8</i>
<input type="checkbox"/> Yes	<input type="checkbox"/> You must attach a copy of the marine park permit to this application.

8. Matters of national environmental significance

There are currently nine matters of national environmental significance (MNES) which have been defined in the *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act). These are:

- world heritage properties
- national heritage places
- wetlands of international importance (listed under the Ramsar Convention)
- listed threatened species and ecological communities
- migratory species protected under international agreements
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mines)
- a water resource, in relation to coal seam gas development and large coal mining development

To determine whether the proposed ERA(s) will have a significant impact on MNES and for referral requirements, please refer to the guidance provided by the Federal Government's Department of Environment on www.environment.gov.au.

Would the carrying out of the proposed ERA(s) be likely to have a significant impact on a MNES?*	
<input checked="" type="checkbox"/> No	Go to <i>Question 9</i> .
<input type="checkbox"/> Yes	Has the proposal been referred to the Federal Department of Environment for formal assessment and approval? <input type="checkbox"/> No → Go to <i>Question 9</i> . <input type="checkbox"/> Yes → Go to <i>Question 8.1</i> .

8.1 EPBC Act approval for environmental offsets

Has an approval issued under the EPBC Act required an environmental offset for the same, or substantially the same, impact and the same, or substantially the same, MSES?	
<input type="checkbox"/> No	Go to <i>Question 9</i> .
<input type="checkbox"/> Yes	I have attached a copy of the approval under the EPBC Act. Are there any MNES which were assessed under the EPBC Act which are the same, or substantially the same as an MSES, but that were not conditioned in the approval? <input type="checkbox"/> No → Go to <i>Question 9</i> <input type="checkbox"/> Yes → List these MNES:

9. Environmental impact statement under the *State Development and Public Works Organisation Act 1971*

Certain stages of the EA application process may not apply if the proposed activities were assessed as part of a coordinated project declared under the *State Development and Public Works Organisation Act 1971* (State

IDAS form 8—attachment for an application for an environmental authority

Development Act), you are only required to answer Questions 9 to 9.1 if you have a current CG’s evaluation report for the project.

Has an environmental impact statement (EIS) process under State Development Act been completed?*	
<input type="checkbox"/> No	Go to <i>Question 10</i> .
<input type="checkbox"/> Yes	What is the title and project name of the completed EIS?*
	<input type="checkbox"/> The EIS was completed for all activities that are the subject of this application. <ul style="list-style-type: none"> <input type="checkbox"/> The environmental risks or the way the activity/activities are proposed to be carried out have not changed since the EIS was completed. <input type="checkbox"/> The environmental risks or the way the activity/activities are proposed to be carried out have changed since the EIS was completed.
	<input type="checkbox"/> The EIS was not completed for all activities that are the subject of this application. <ul style="list-style-type: none"> <input type="checkbox"/> The environmental risks or the way the activity/activities are proposed to be carried out have not changed since the EIS was completed. <input type="checkbox"/> The environmental risks or the way the activity/activities are proposed to be carried out have changed since the EIS was completed.
	Was the EIS completed for all activities that are the subject of this application?*
	<input type="checkbox"/> No Please list the activities that were not included in the EIS or attach documentation with this information to this application: <input type="checkbox"/> I have attached the required supporting information.
<input type="checkbox"/> Yes	

9.1 Coordinator-General’s conditions

Are there CG’s conditions that relate to the ERA(s) being applied for?*	
<input type="checkbox"/> No →	Go to <i>Question 10</i> .
<input type="checkbox"/> Yes →	Name of the CG’s evaluation report:

10. Assessment of the environmental impact

This question is **not applicable** if an EIS process under the State Development Act has been completed for all the ERA(s) that are the subject of this application and the environmental risks of the activities **and** the way they are proposed to be carried out has not changed since the EIS was completed.

You must attach to this application an assessment of the likely impact of each ERA on environmental values (*if applicable), including:

- a description of the environmental values likely to be affected by each relevant activity
- details of any emissions or releases likely to be generated by each relevant activity
- a description of the risk and likely magnitude of impacts on the environmental values
- details of the management practices proposed to be implemented to prevent or minimise adverse impacts
- details of how the land the subject of the application will be rehabilitated after each relevant activity ceases

I have attached an assessment of the environmental impact and specific supporting information.

11. Details of waste management

Describe the proposed measures for minimising and managing waste generated by the activity/ies below *
Refer to supporting information.

I have attached the proposed measures.

12. Take effect date (when fees will commence being charged)

You may nominate when the EA will take effect should it be approved. The date the environmental authority takes effect will be the date from which you can commence the activities as well as the date your annual fees will commence to be charged (your anniversary date). Under section 200 of the EP Act, if a development permit for a material change of use under the *Sustainable Planning Act 2009* or a State development area (SDA) approval is required in order to carry out the ERA the EA cannot take effect until the development permit or SDA approval takes effect (known as taking effect pending development approval).

Do you want the EA to take effect on the decision date, nominated date, or pending development approval? *	
<input checked="" type="checkbox"/> Decision date	The take effect date will be the date of the decision.
<input type="checkbox"/> Nominated date	Details of nominated take effect date:

13. Nomination of site contact

An alternative contact nominated by the legal entity which holds, or will in future hold, a relevant authority issued by the department. The department may direct correspondence relating to actual or potential compliance matters to the site contact.

Do you want to nominate a site contact? *		<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes, provide details below
Title*	First Name*	Surname*	
Email Address*		<input type="checkbox"/> Indicate if you want to receive correspondence via email	
Phone			

14. Nomination of application contact

An alternative contact nominated by the legal entity which has submitted, or will in future submit, applications to be assessed by the department. All departmental correspondence relating to the assessment of applications will be directed to the application contact, however, if the application results in the issuing of a relevant authority, the relevant authority will be sent to the applicant.

IDAS form 8—attachment for an application for an environmental authority

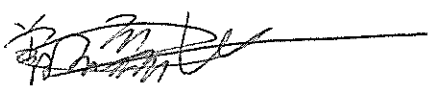
Name or Position*
Primary Phone*
Secondary Phone
Email Address*

15. Applicant declaration

I declare that the information I have provided is true and correct. I understand that it is an offence under the *Environmental Protection Act 1994* to give information that I know is false, misleading or incomplete.

I will comply with all conditions on my environmental authority as well as any relevant provisions in the *Environmental Protection Act 1994*.

I understand that I am responsible for managing the environmental impacts of these activities, and that approval of this application is not an endorsement by the administering authority of the effectiveness of the management practices proposed or implemented.

Applicant's full name* YULEI ZENG	Applicant's position* DIRECTOR
Applicant's signature* 	Date* 10 APR 2017

Submit attachment, together with any additional information, with all relevant IDAS forms to the assessment manager for the development application.

Attachment 1**Joint applicants and appointment of principal applicant**

We are joint applicants for this environmental authority application and hereby appoint _____ as the principal applicant to receive statutory documents relating to this application.

Name - individual or contact person if applicant is an organisation*	Suitable Operator Reference Number*
Organisation name, including trading name (*if an organisation)	ABN/ACN (*if an organisation)
Residential or registered business address (not a post office box)*	Phone*
Postal address (if same as above, state "AS ABOVE") *	Facsimile
Email*	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature*	Date*

Name - individual or contact person if applicant is an organisation*	Suitable Operator Reference Number*
Organisation name including trading name (*if an organisation)	ABN/ACN (*if an organisation)
Residential or registered business address (not a post office box)*	Phone*
Postal address (if same as above, state "AS ABOVE") *	Facsimile
Email*	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature*	Date*

Name - individual or contact person if applicant is an organisation*	Suitable Operator Reference Number*
Business name including trading name (*if an organisation)	ABN/ACN (*if an organisation)
Residential or registered business address (not a post office box)*	Phone*
Postal address (if same as above, state "AS ABOVE") *	Facsimile
Email*	<input type="checkbox"/> Indicate if you want to receive correspondence via email
Signature*	Date*

Attachment 2**List of locations where the ERA(s) will be carried out.**

Where there is more than one location list all locations and which ERA(s) will be conducted at each location.

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

Number*	Street Name*	Suburb/Town*	Postcode*	ERA/s*
Real Property Description*		Specific area within the location ie GPS or other descriptor (*if applicable e.g. dredging)		
Lot	Plan			

APPENDIX B - GROUNDWATER BORE CARDS

BORE REPORT

REG NUMBER 12549

REGISTRATION DETAILS

OFFICE Goondiwindi	BASIN 4162	LATITUDE 28-28-59	MAP-SCALE 104
DATE LOG RECD	SUB-AREA	LONGITUDE 150-25-08	MAP-SERIES M
D/O FILE NO. 019	SHIRE 3610-GOONDIWINDI REC	EASTING 247325	MAP-NO 8941
R/O FILE NO. W1644	LOT 15	NORTHING 6846551	MAP NAME GOODAR
H/O FILE NO. L14623B	PLAN SP135722	ZONE 56	PROG SECTION
	ORIGINAL DESCRIPTION L15 MH138	ACCURACY	PRES EQUIPMENT
		GPS ACC	
GIS LAT -28.483222	PARISH NAME 1193-COMMORON		ORIGINAL BORE NO
GIS LNG 150.4190101	COUNTY MARSH		BORE LINE -
CHECKED Y			
			POLYGON
			RN OF BORE REPLACED
FACILITY TYPE Artesian - Controlled Flow	DATE DRILLED 29/05/1954		DATA OWNER
STATUS Existing	DRILLERS NAME		
ROLES	DRILL COMPANY		
	METHOD OF CONST. CABLE TOOL 1954 & 1987		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM (mm)	TOP (m)	BOTTOM (m)
A	12/07/1987	1	Steel Casing	5.000	WT	152	0.00	111.60
A	12/07/1987	2	Steel Casing	5.000	WT	127	0.00	216.40
A	12/07/1987	3	Open Hole				216.40	289.60
X	12/07/1987	1	Grout			142	0.00	111.60
X	12/07/1987	2	Grout			150	111.60	216.40

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	3.70	LOAM (DRILLER W J CURNOW 1954)
2	3.70	18.90	CLAY
3	18.90	60.40	SAND
4	60.40	96.30	SILT

BORE REPORT

REG NUMBER 12549

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
5	96.30	118.30	SHALE
6	118.30	165.20	SANDSTONE (WATER AT 137 M SWL -1.8M)
7	165.20	170.70	SHALE (BORE DEEPENED BY A D SHELLEY)
8	170.70	171.90	HARD ROCK (COMPLETED 12/7/87)
9	171.90	218.20	SHALES
10	218.20	220.70	GREY SANDSTONE
11	220.70	222.20	VERY HARD ROCK
12	222.20	226.20	WHITE SANDSTONE
13	226.20	232.30	WATER BEARING SANDSTONE SMALL FLOW
14	232.30	250.90	WHITE SANDSTONE
15	250.90	251.50	ROCK
16	251.50	268.80	WHITE SANDSTONE
17	268.80	270.10	ROCK
18	270.10	276.50	WATER BEARING SANDSTONE
19	276.50	277.10	ROCK
20	277.10	284.40	WATER BEARING SANDSTONE
21	284.40	286.50	HARD SANDSTONE
22	286.50	289.60	ROCK BACK PRESSURE 107 KPA TEMP 26 C
23			FLUSH FLOW 227 M3D STEADY FLOW 87 M3D
902			1954 SWL-1.80,1987 SWL +10.9,TMP 26 C
903			29/05/1954 DISCH 65.5 M3D
910	136.00	165.00	QUALITY DESCRIPT/CONDUCT: POTABLE
911	226.20	232.20	QUALITY DESCRIPT/CONDUCT: POTABLE
912	270.10	276.50	QUALITY DESCRIPT/CONDUCT: POTABLE
913	277.10	284.40	QUALITY DESCRIPT/CONDUCT: 1230

STRATIGRAPHY DETAILS

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	1			KUMBARILLA BEDS
DNR	2			KUMBARILLA BEDS

BORE REPORT

REG NUMBER 12549

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	3			KUMBARILLA BEDS
DNR	4			KUMBARILLA BEDS

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD (l/s)	CTR	CONDIT	FORMATION NAME
1	136.00	165.00	SDST							PS	KUMBARILLA BEDS
2	226.20	232.20	SDST							PS	KUMBARILLA BEDS
3	270.10	276.50	SDST							PS	KUMBARILLA BEDS
4	277.10	284.40	SDST							PS	KUMBARILLA BEDS

PUMP TEST DETAILS PART 1

PIPE	DATE	REC NO.	RN OF PUMP-BORE	TOP (m)	BOTTOM (m)	DIST (m)	METH	TEST TYPES	PUMP TYPE	SUCTION SET (m)	Q PRIOR TO TEST (l/s)	DUR OF Q PR (min)	PRES ON ARRIV (m)	Q ON ARRIV (l/s)
A	22/07/1987	1	12549			1.00	ART	FR ST DT						10.93

PUMP TEST DETAILS PART 2

PIPE	DATE	REC	TEST DUR (mins)	SWL (m)	RECOV. TIME (mins)	RESID. DD (m)	MAX DD or P RED (m)	Q at MAX DD (l/s)	TIME TO MAX DD (mins)	Max Q (l/s)	CALC STAT HD (m)	DESIGN YIELD (l/s)	DESIGN BP (m)	SUCT. SET (m)	TMSY (m2/DAY)	STOR
A	22/07/1987	1	300	9.81			10.83	1.01	1	1.55	10.23				8	0.00000000

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

A	22/10/1954	1	GCL	014395	159.00	PU	GB	0		943.60	0.00	9	614	0.0	56.0	12.06
---	------------	---	-----	--------	--------	----	----	---	--	--------	------	---	-----	-----	------	-------

BORE REPORT

REG NUMBER 12549

PIPE E	DATE	RD ANALYST	QAN	DEPT H (m)	RMK	SRC	COND (uS/cm)	pH	Si (mg/L)	TOTAL IONS (mg/L)	TOTAL SOLIDS (mg/L)	HARD	ALK	FIG. OF MERIT	SAR	RAH
A	22/07/1987	1 GCL	120911	0.00	PU	GB	1200	8.6	15	1080.00	750.00	4	580	0.0	62.5	11.50

WATER ANALYSIS PART 2

PIPE	DATE	RD	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	22/10/1954	1	391.8		1.4	1.4		0.0		367.5	178.8	1.30		1.4				
A	22/07/1987	1	305.0	1.1	1.8	0.0	0.03	670.0	0.14	18.0	69.0	0.60	0.0	11.0				

WATER LEVEL DETAILS

PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE	PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE	PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE	
X	29/05/1954	-1.80		N	NR													

WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK (mEq)	METH	SOURCE
A	22/07/1987				26.0					PU	GB

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

BORE REPORT

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**** End of Report. Produced: 11/04/2016 02:58:10 PM ****

BORE REPORT

REG NUMBER 77048

REGISTRATION DETAILS

OFFICE	Goondiwindi	BASIN	4162	LATITUDE	28-29-24	MAP-SCALE	104
DATE LOG RECD		SUB-AREA	AB	LONGITUDE	150-25-04	MAP-SERIES	M
D/O FILE NO.	B0619	SHIRE	3610-GOONDIWINDI REC	EASTING	247226	MAP-NO	8941
R/O FILE NO.		LOT	16	NORTHING	6845783	MAP NAME	GOODAR
H/O FILE NO.		PLAN	SP135722	ZONE	56	PROG SECTION	
		ORIGINAL DESCRIPTION	L15 MH138	ACCURACY		PRES EQUIPMENT	
				GPS ACC			
GIS LAT	-28.4901342	PARISH NAME	1193-COMMORON			ORIGINAL BORE NO	
GIS LNG	150.4178332	COUNTY	MARSH			BORE LINE	-
CHECKED	Y						
						POLYGON	
						RN OF BORE REPLACED	
FACILITY TYPE	Artesian - Controlled Flow	DATE DRILLED	22/06/1993			DATA OWNER	
STATUS	Existing	DRILLERS NAME					
ROLES	WS	DRILL COMPANY					
		METHOD OF CONST.					

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM (mm)	TOP (m)	BOTTOM (m)
A	22/06/1993	1		6.350	WT	219	0.00	120.00
A	22/06/1993	2		6.350	WT	168	0.00	640.00
A	22/06/1993	3		6.350	WT	143	632.50	756.00
A	22/06/1993	4	Perforated or Slotted Casing	12.700	AP	143	700.00	756.00

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1	0.00	1.50	BLACK SOIL
2	1.50	11.00	COLOURED CLAY
3	11.00	17.00	SAND & GRAVEL
4	17.00	21.00	YELLOW CLAY
5	21.00	27.00	SAND & GRAVEL

BORE REPORT

REG NUMBER 77048

PUMP TEST DETAILS PART 1

PIPE	DATE	REC RN OF NO. PUMP-BORE	TOP (m)	BOTTOM (m)	DIST (m)	METH	TEST TYPES	PUMP TYPE	SUCTION SET (m)	Q PRIOR TO TEST (l/s)	DUR OF Q PR (min)	PRES ON ARRIV (m)	Q ON ARRIV (l/s)
A	11/10/1995	1			1.20	ART	AC FR DT ST					69.98	0.00
A	06/03/2003	1			1.16	ART	ST FR ST			0.05	10000	69.26	0.05

PUMP TEST DETAILS PART 2

PIPE	DATE	REC	TEST DUR (mins)	SWL (m)	RECOV. TIME (mins)	RESID. DD (m)	MAX DD or P RED (m)	Q at MAX DD (l/s)	TIME TO MAX DD (mins)	Max Q (l/s)	CALC STAT HD (m)	DESIGN YIELD (l/s)	DESIGN BP (m)	SUCT. SET (m)	TMSY (m2/DAY)	STOR
A	11/10/1995	1	394				69.97	9.44			73.45				16	
A	06/03/2003	1	150	69.47			61.40	8.40	60	10.80						

BORE CONDITION

DATE	DRAIN DETAILS		HEADWORKS				FLOW IRREGULARITY	PRECIPITATE	EST USE (ML/yr)	STOCK		COMMENT
	TOT LEN (km)	MAX C RUN D (km) N	RET LEN (km)	C D N	C T L	LEAK				CATTLE	SHEEP	
06/03/2003					G	F	H2S	S		0	0	meter not catching flow to turkeys nest. leaking main to turkeys nest

ELEVATION DETAILS

**** NO RECORDS FOUND ****

WATER ANALYSIS PART1

PIPE	DATE	RD ANALYST	QAN	DEPT H (m)	RMK	SRC	COND (uS/cm)	pH	Si (mg/L)	TOTAL IONS (mg/L)	TOTAL SOLIDS (mg/L)	HARD	ALK	FIG. OF MERIT	SAR	RAH
A	15/09/1993	1 GCL	146710			GB	2960	8.5	19	2569.78	1854.36	16	1246	0.0	83.4	24.58
A	31/07/2008	1 SGS	CCS1		XX	GB	2650	8.0		2563.67	1783.94	17	1258	0.0	76.7	24.81

WATER ANALYSIS PART 2

PIPE	DATE	RD	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	15/09/1993	1	777.2	6.6	5.1	0.9	0.00	1445.3	0.00	36.7	293.5	4.46	0.0	0.0				
A	31/07/2008	1	718.0	5.0	5.0	< 1.0	< 0.01	1534.0	0.02		294.0	4.00	< 1.0	< 1.0	< 0.01	< 0.10	0.52	< 0.01

BORE REPORT

REG NUMBER 77048

WATER LEVEL DETAILS
**** NO RECORDS FOUND ****

WIRE LINE LOG DETAILS
**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)	pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)	Eh (mV)	ALK (mEq)	METH	SOURCE
A	06/03/2003		2980		36.7					MA	GB

SPECIAL WATER ANALYSIS
**** NO RECORDS FOUND ****

BORE REPORT

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**** End of Report. Produced: 11/04/2016 02:55:33 PM ****

APPENDIX C – WATER LICENCES

Client Ref: 246037
File Ref: GDI-B619



11 March 2016

Department of
Natural Resources and Mines

FUCHENG INTERNATIONAL ABATTOIRS PTY LTD
LEVEL 17
135 KING STREET
SYDNEY NSW 2000

Dear Sir/Madam

Transfer of Water Licence: reference 77048H, application reference 577655

As you are now the owner of the parcels of land to which the above Water Licence attaches, the chief executive has transferred this water entitlement into your name and a copy of the licence is enclosed for your records.

Taking of water under this water entitlement is subject to the licensee having approved works (ie. pump, bore etc) under the *Sustainable Planning Act 2009* for the parcel of land on which the works are located.

This Water Licence is given in accordance with section 228 of the *Water Act 2000* in respect of the decision on the above application.

Yours Sincerely

Lindy Edwards
Administration Officer

Natural Resources and Mines
42 Callandoon Street Goondiwindi
PO Box 253
Goondiwindi QLD 4390
Telephone +61 7 46716100
Facsimile +61 7 46713163
Website <http://www.dnrm.qld.gov.au/>
ABN 59 020 847 551

WATER LICENCE
Water Act 2000



Reference	77048H	Expiry Date	30/06/2111
Licensee	FUCHENG INTERNATIONAL ABATTOIRS PTY LTD		
Authorised Activity	The taking of underground water from the Surat 6 Management Unit (Great Artesian Basin) with the point of take under Lot 16 on SP135722.		
Authorised Purpose	Industrial		
Description of Land	Attached to the land described as Lot 16 on SP135722.		
Nominal Entitlement	73 Megalitres		

This water licence is subject to the conditions endorsed hereon or attached hereto.

Under the *Sustainable Planning Act 2009* a development permit may be required for operational works to take or interfere with the water described in this licence. The licensee must ensure that the relevant development approvals have been obtained prior to installing or constructing new or additional operational works.

Given at Goondiwindi this ELEVENTH day of MARCH 2016.

**Delegate of the Chief Executive
Department of Natural Resources and Mines**



The information below outlines requirements that may apply to your water licence under the *Water Act 2000* (the Act). It also outlines how the chief executive may deal with your water licence under the Act.

- The chief executive may grant or grant in part a licence with or without conditions and may amend or cancel a licence.
- It is an offence under the Act to contravene a condition of a water licence.
- Water taken under a licence may only be used within the boundaries of the land identified on the licence as 'attached' land unless a regulation or a water resource plan allows water to be seasonally assigned or relocated to other land.
- For a licence that states a maximum area authorised to be irrigated, the specified area is:
 - the maximum area, in whole or as the aggregate of part areas, that may be irrigated in any one growing season
 - measured in whole or in aggregate parts, as the 'fence to fence' area of the crop to which water is applied.
- For a licence that states a maximum or nominal volume, this is the quantity of water that may be taken in a water year. Unless otherwise specified in a water resource plan or regulation, the water year is from 1 July to 30 June in the following year.
- Water use on an area of land in excess of any authorised area or in excess of any authorised volume is an offence under the Act.
- Should the licensee cease to be the owner of the land to which this licence attaches, the new owner of the land becomes the licensee.
- Should the registered owner dispose of part of the land to which this licence attaches, the licence becomes jointly held by all owners of the land to which the licence related before the disposal. However, within 90 business days after the owner disposes of part of the land, one or more of the owners of the land to which the licence relates may, with the consent of the other owners, apply for one or more licences to replace the jointly held licence.
- To prevent a licence from becoming jointly held on disposal of part of the land, it is possible to apply to subdivide or amend the licence before the disposal, so that on disposal, the original licence (as amended) or a new subdivided licence will transfer to the new owner of the land to which the licence attaches.
- Water licences are issued with an expiry date of 30 June 2111 unless another date is stated in a water resource plan or a resource operations plan.
- The licensee must not tamper, or allow others to tamper with any measurement or recording device associated with this licence, such that it fails to operate accurately. Tampering with any measurement or recording device is an offence under the Act and may result in prosecution.
- Where the chief executive has any reason to doubt the accuracy of a meter or any other recording device, the chief executive may calculate the volume, time or rate of water diverted by any means that the chief executive deems appropriate.
- The licensee must allow an authorised officer of DNRM full and free access to the facility at all reasonable times for the purpose of checking compliance with the licence conditions or the Act generally. Obstructing an authorised officer is a serious offence under the Act.
- During times of water shortage the chief executive, by notice, may limit:
 - the times during which water may be taken during any period specified, or
 - the volumes of water which may be taken during any water year or in any other specified period, or
 - the area that may be irrigated in any water year or any other specified period.
- The licensee must pay any fee or charge associated with the licence as prescribed by a regulation. The licensee will be invoiced annually for the water licence fee while the licence remains in force. Prescribed fees are subject to adjustment from periodic reviews and Consumer Price Index (CPI) movements.
- Before submitting any application for a dealing with the licence, it is suggested that the licensee contact their nearest DNRM business centre to obtain details of what dealings can be applied for, the application process and current fees.

APPENDIX D - EPBC ACT PROTECTED MATTERS REPORT (MNES)



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 11/04/16 13:22:33

[Summary](#)

[Details](#)

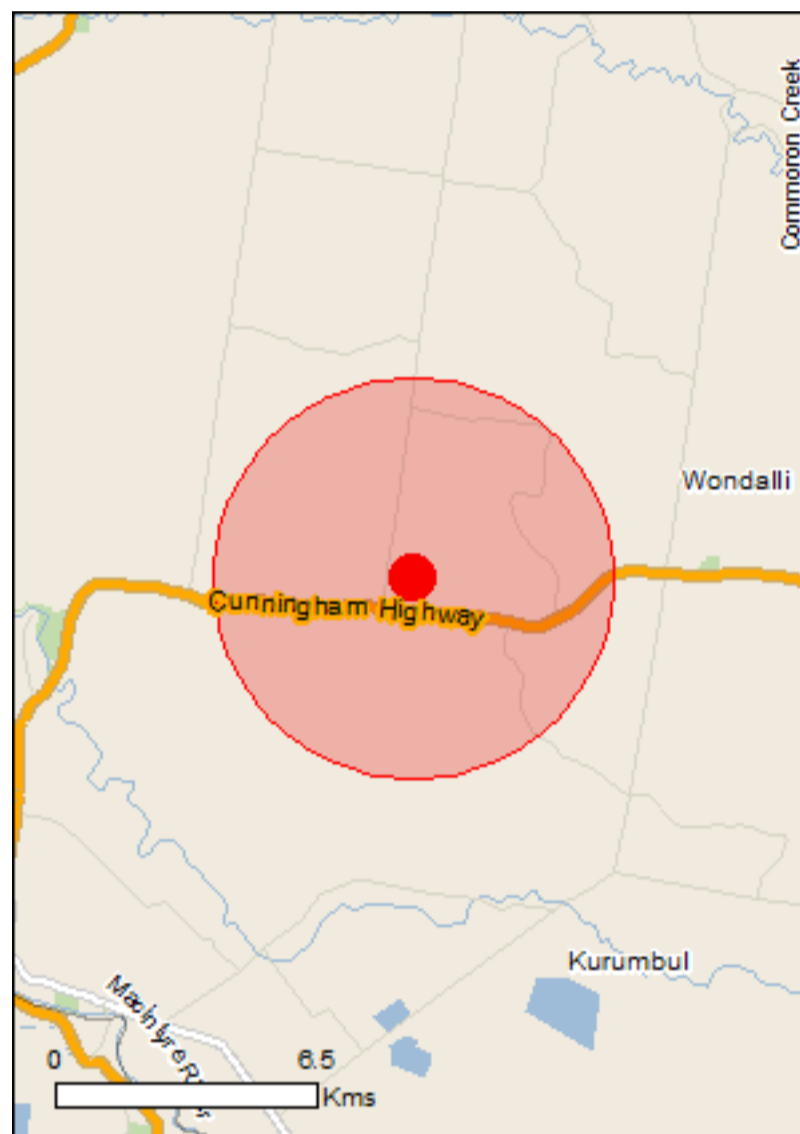
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	13
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	10
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	23
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	1100 - 1200km
Riverland	1000 - 1100km
The coorong, and lakes alexandrina and albert wetland	1200 - 1300km

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community may occur within area
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat may occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Fish

Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
---	------------	--

Mammals

Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
<u>Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</u>		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Plants		
<u>Westringia parvifolia</u> [4822]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
<u>Anomalopus mackayi</u> Five-clawed Worm-skink, Long-legged Worm-skink [25934]	Vulnerable	Species or species habitat may occur within area
<u>Delma torquata</u> Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
<u>Egernia rugosa</u> Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
<u>Furina dunmali</u> Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species

[[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
<u>Apus pacificus</u> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<u>Hirundapus caudacutus</u> White-throated Needletail [682]		Species or species habitat may occur within area
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<u>Motacilla flava</u> Yellow Wagtail [644]		Species or species habitat may occur within area
<u>Myiagra cyanoleuca</u> Satin Flycatcher [612]		Species or species habitat may occur within area
Migratory Wetlands Species		
<u>Ardea alba</u> Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
<u>Ardea ibis</u> Cattle Egret [59542]		Species or species habitat may occur within area
<u>Gallinago hardwickii</u> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

Invasive Species [[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		

Name	Status	Type of Presence
<p>Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Lycium ferocissimum African Boxthorn, Boxthorn [19235]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Opuntia spp. Prickly Pears [82753]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]</p>		<p>Species or species habitat likely to occur within area</p>
<p>Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]</p>		<p>Species or species habitat likely to occur within area</p>

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-28.48859 150.41605

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Parks and Wildlife Commission NT, Northern Territory Government](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

APPENDIX E - WILDLIFE ONLINE SPECIES LIST



Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point

Species: All

Type: All

Status: All

Records: All

Date: All

Latitude: -28.4911

Longitude: 150.4145

Distance: 5

Email: sam.donald@rangeenviro.com.au

Date submitted: Monday 11 Apr 2016 13:16:21

Date extracted: Monday 11 Apr 2016 13:20:05

The number of records retrieved = 33

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Hylidae	<i>Cyclorana novaehollandiae</i>	eastern snapping frog		C		4/4
animals	amphibians	Hylidae	<i>Cyclorana alboguttata</i>	greenstripe frog		C		2/2
animals	amphibians	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog		C		1
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		1
animals	amphibians	Hylidae	<i>Cyclorana sp.</i>					1/1
animals	amphibians	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog		C		1
animals	amphibians	Myobatrachidae	<i>Crinia parinsignifera</i>	beeping froglet		C		1
animals	birds	Acanthizidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		1
animals	birds	Acanthizidae	<i>Aphelocephala leucopsis</i>	southern whiteface		C		1
animals	birds	Anatidae	<i>Anas gracilis</i>	grey teal		C		1
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		1
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	pieb butcherbird		C		1
animals	birds	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow		C		1
animals	birds	Artamidae	<i>Cracticus tibicen</i>	Australian magpie		C		1
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		2
animals	birds	Cacatuidae	<i>Eolophus roseicapillus</i>	galah		C		1
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		2
animals	birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		C		1
animals	birds	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		1
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		1
animals	birds	Maluridae	<i>Malurus cyaneus</i>	superb fairy-wren		C		1
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		1
animals	birds	Meliphagidae	<i>Acanthagenys rufogularis</i>	spiny-cheeked honeyeater		C		1
animals	birds	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark		C		2
animals	birds	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		1
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		1
animals	birds	Psittacidae	<i>Psephotus haematonotus</i>	red-rumped parrot		C		1
animals	birds	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail		C		1
animals	birds	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		2
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		2/2
plants	higher dicots	Fabaceae	<i>Medicago sativa subsp. sativa</i>		Y			1/1
plants	higher dicots	Malvaceae	<i>Gossypium hirsutum</i>		Y			1/1
plants	higher dicots	Scrophulariaceae	<i>Eremophila mitchellii</i>			C		2/2

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ().

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

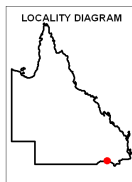
APPENDIX F - PROTECTED PLANTS SEARCH RESPONSE



Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets



This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

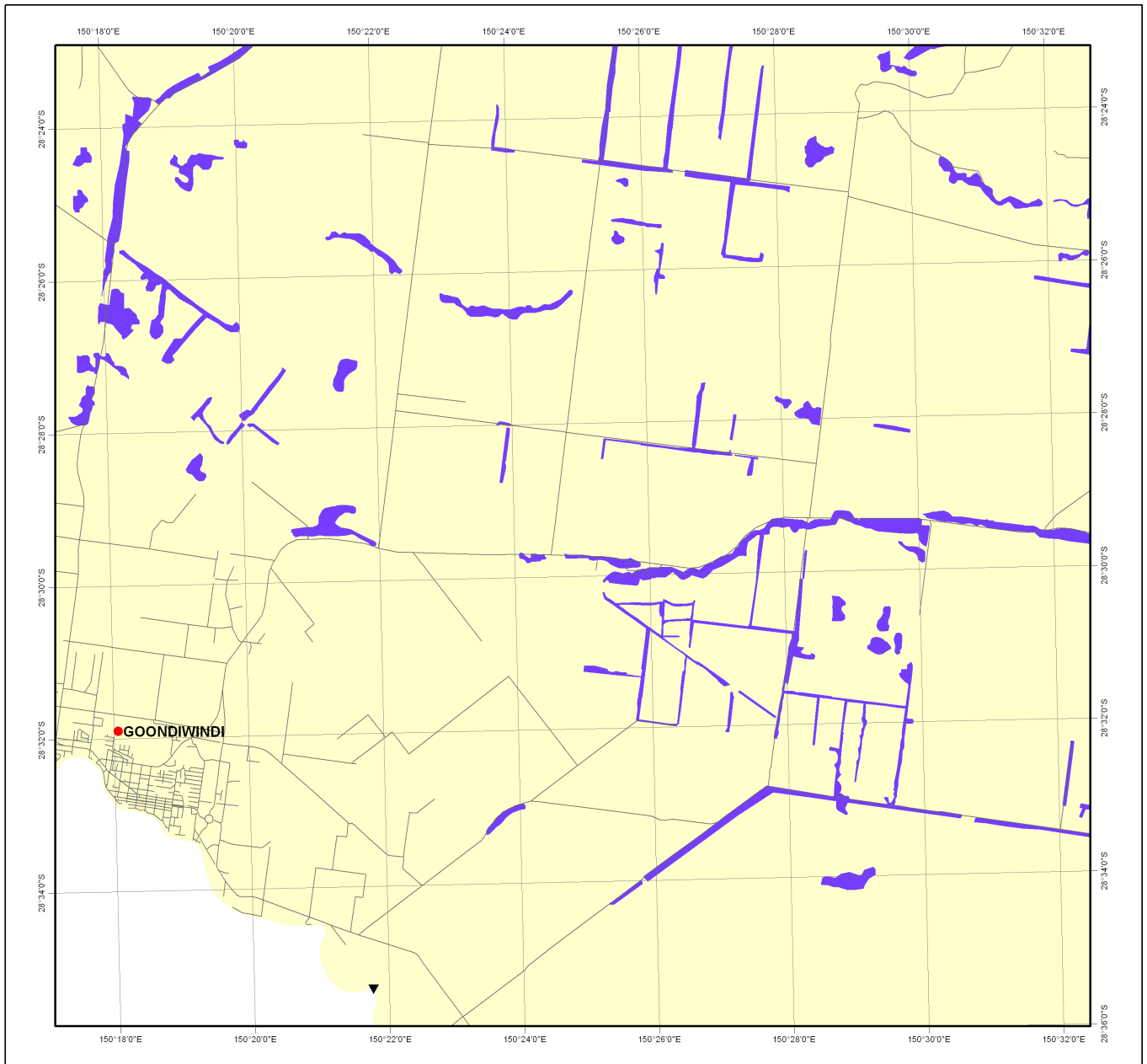
For further information or assistance with interpretation of this product, please contact the Department of Environment and Heritage Protection at palm@ehp.qld.gov.au



This product is projected into:
 GDA 1994 Queensland Albers

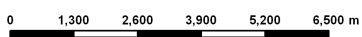
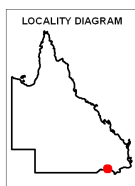
Disclaimer:
 While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

APPENDIX G - ENVIRONMENTALLY SENSITIVE AREAS



ENVIRONMENTALLY SENSITIVE AREAS - Mining Activities

- | | | | | |
|-------------------|---|-------------------|---|----------------|
| | Mining Leases | CATEGORY C | | Nature Refuges |
| | National Parks | | Regional Parks (resource use area) | |
| | Regional Parks (general) | | State Forests | |
| | Forest Reserves | | Timber Reserves | |
| | Wet Tropics World Heritage Area | | Declared Catchment Areas | |
| | Great Barrier Reef Marine Park Area | | Declared Irrigation Areas | |
| | Marine Parks other than General Use Zones | | Drainage Areas | |
| CATEGORY B | | | River Improvement Areas | |
| | World Heritage Areas | | Stanbroke DLA | |
| | Queensland Heritage Register Places | | Coastal Management District | |
| | Ramsar Sites | | Dams and Weirs | |
| | Cultural Heritage Registered Areas and DLA's other than Stanbroke | OTHERS | | |
| | Special Forestry Areas | | Towns | |
| | Fish Habitat Areas | | Roads | |
| | Koala Plan | | Repealed Wild River Nominated Waterways | |
| | Coordinated Conservation Areas | | Repealed Wild River Preservation Areas | |
| | Endangered Regional Ecosystems (Biodiversity Status) | | Repealed Wild River High Preservation Areas | |
| | Marine Parks other than General Use Zones | | Mahogany Glider Habitat | |
| | Marine Plants | | Directory of Important Wetlands | |
| | | | Queensland | |



This product is projected into GDA 1994 MGA Zone 56

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

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External contributors (non-government parties) of the data for this product are: Great Barrier Reef Marine Park Authority

Regional ecosystem mapping (remnant biodiversity status) may incorporate amendments, resulting from property level assessments, to the release version of the mapping available on QSpatial.

NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

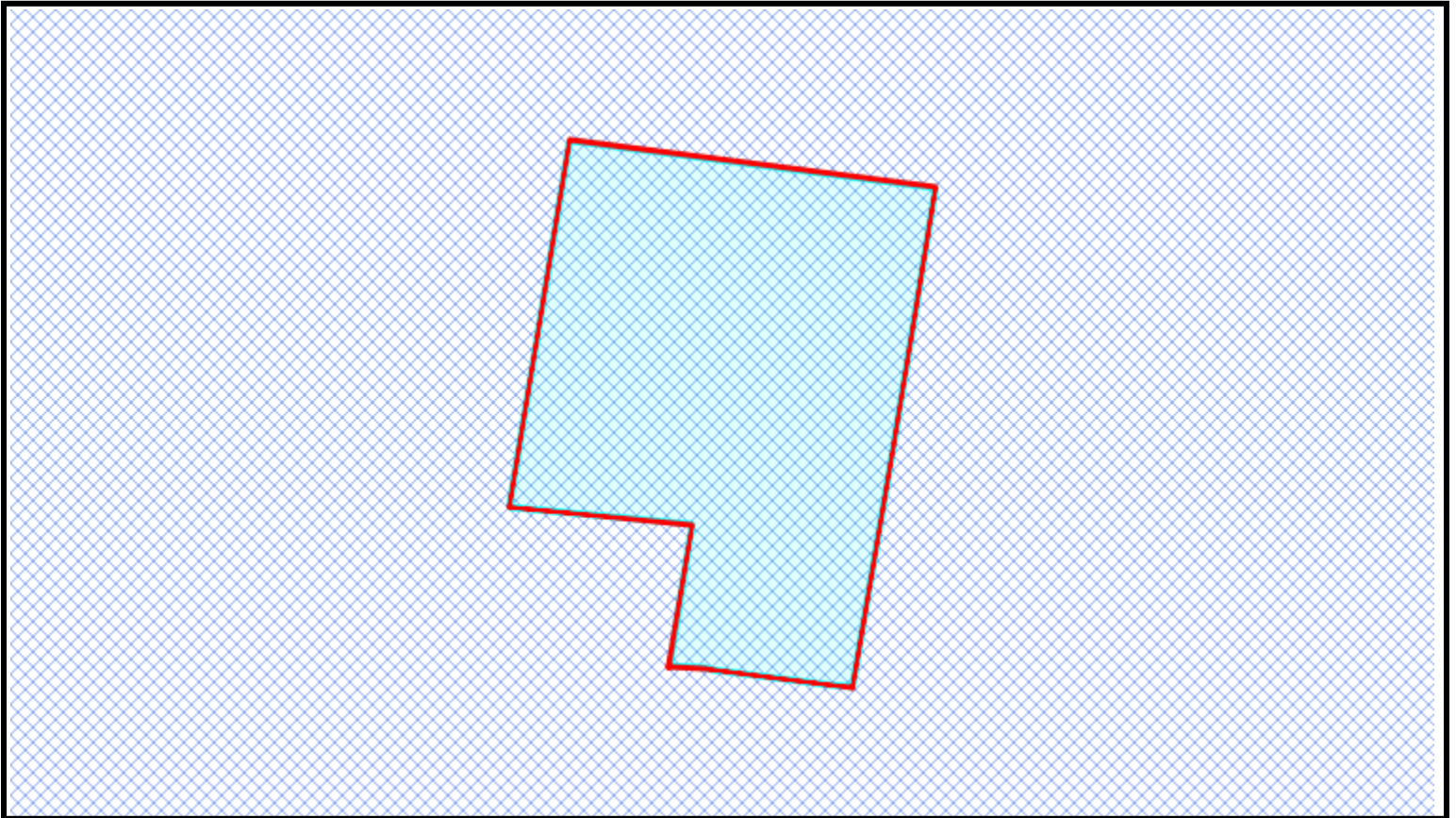
The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.

APPENDIX H - DATSIMA SEARCH RESPONSE

Lot on Plan Search

Reference Number:	11700
Lot:	15
Plan:	SP135722
LGA:	Goondiwindi Regional
Buffer Distance:	5 metres



There are no Aboriginal cultural heritage site points recorded in your specific search area.

There are no Aboriginal cultural heritage site polygons recorded in your specific search area.

Lot on Plan Search

Cultural heritage party for the area is:

QC Ref Number	QUD Ref Number	Party Name	Contact Details
QC2009/002	QUD101/2009	Bigambul People	Just Us Lawyers 238 Kelvin Grove Rd KELVIN GROVE QLD 4059 Phone: (07) 3369 7145 Fax: (07) 3315 2221

There is no cultural heritage body recorded in your specific search area.

There are no cultural heritage management plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Study Cultural Heritage Areas recorded in your specific search area.

Regional Coordinator:

Name	Position	Phone	Mobile	Email
Andrew Rutch	Cultural Heritage Coordinator Southern Region	1300 378 401	0459 840 294	Andrew.Rutch@datsip.qld.gov.au

Lot on Plan Search

I refer to your application in which you requested advice on Aboriginal cultural heritage places recorded on the above location.

The Cultural Heritage Database and Register search has been completed and I would like to advise that no Aboriginal cultural heritage is currently recorded in your specific search area, from the data provided by you. However, it is probable that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area. Therefore, our records are not likely to reflect a true picture of the Aboriginal cultural heritage values of the area.

I note that, pursuant to the Cultural Heritage Duty of Care Guidelines, you have advised that the proposed activity is a 'Category 5 activity'. As such, I take this opportunity to remind you that in accordance with those Guidelines:-

Where an activity is proposed under category 5 there is generally a high risk that it could harm Aboriginal cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where an activity is proposed under category 5, it is necessary to notify the Aboriginal Party and seek:

- (a) Advice as to whether the feature constitutes Aboriginal cultural heritage; and
- (b) If it does, agreement as to how best the activity may be managed to avoid or minimise harm to any Aboriginal cultural heritage.

I remind you also that the extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent to which the person consulted with Aboriginal parties about the carrying out of the activity, and the results of the consultation are factors a court may consider when determining if a party has complied with the duty of care.

Please refer to our website www.datsip.qld.gov.au/people-communities/aboriginal-and-torres-strait-islander-cultural-heritage for a copy of the gazetted Cultural Heritage duty of care guidelines, which set out reasonable and practical measures for meeting the duty of care.

Should you have any further queries, please do not hesitate to contact the approval officer on 1300 378 401.

Kind regards

The Director

Cultural Heritage | Community Participation | Department of Aboriginal and Torres Strait Islander Partnerships

**APPENDIX I - CONTAMINATED LAND REGISTER AND ENVIRONMENTAL
MANAGEMENT REGISTER SEARCH RESPONSE**



Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.ehp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Lucas Talbot
11 Clifford Street
Toowoomba QLD 4350

Transaction ID: 50277196 EMR Site Id: 15 April 2016
Cheque Number:
Client Reference:

This response relates to a search request received for the site:

Lot: 16 Plan: SP135722
CUNNINGHAM Highway
GOONDIWINDI

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if EHP has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if EHP has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Administering Authority

APPENDIX J - STATE PLANNING POLICY MAPPING (MSES)

State Planning Policy

Local government development assessment

Date: 19/07/2016



Department of Infrastructure
Local Government
and Planning

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Disclaimer: This map has been prepared with due care based on the best available information at the time of publication. The State of Queensland holds no responsibility for any errors, inconsistencies or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties.



State Interests - consolidated list for all selected Lot Plans

MSES - Regulated vegetation

Climatic regions - stormwater management design objectives

Flood hazard area - Level 1 - Queensland floodplain assessment overlay*

Bushfire hazard area (Bushfire prone area)

State Interests listed for each selected Lot Plan

Lot Plan: 15SP135722 (Area: 4386000 m²)

BIODIVERSITY

- MSES - Regulated vegetation

WATER QUALITY

- Climatic regions - stormwater management design objectives

NATURAL HAZARDS RISK AND RESILIENCE

- Bushfire hazard area (Bushfire prone area)

Lot Plan: 16SP135722 (Area: 742800 m²)

BIODIVERSITY

- MSES - Regulated vegetation

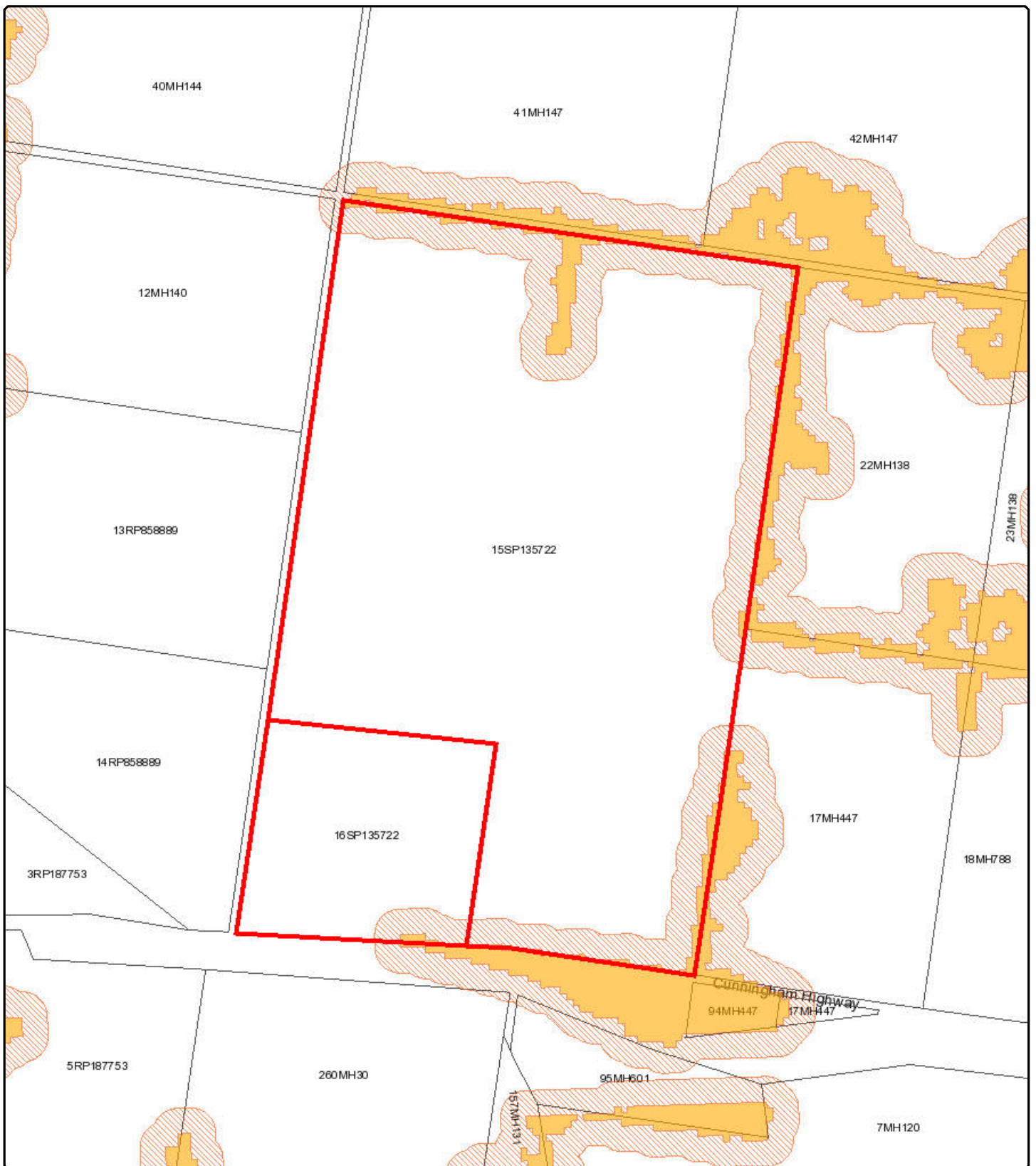
WATER QUALITY

- Climatic regions - stormwater management design objectives

NATURAL HAZARDS RISK AND RESILIENCE

- Flood hazard area* - Level 1 - Queensland floodplain assessment overlay

- Bushfire hazard area (Bushfire prone area)



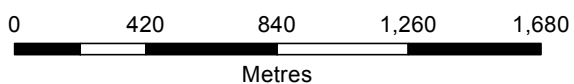
State Planning Policy

Local government development assessment



Department of Infrastructure
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and Planning

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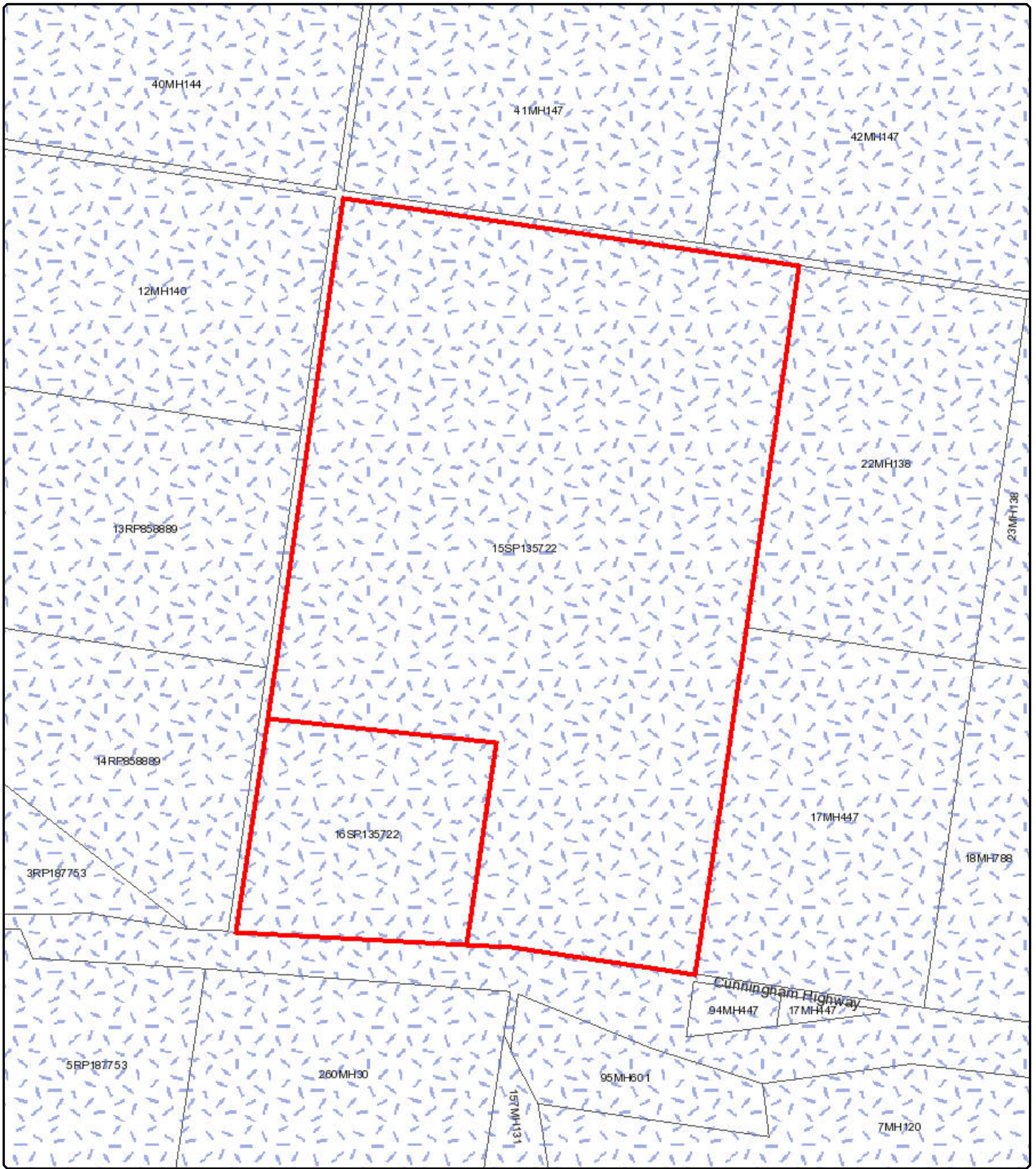


Date: 19/07/2016

Legend

Bushfire hazard area (Bushfire prone area)

- Very High Potential Bushfire Intensity
- High Potential Bushfire Intensity
- Medium Potential Bushfire Intensity
- Potential Impact Buffer



State Planning Policy
Local government development assessment



Department of Infrastructure
Local Government
and Planning

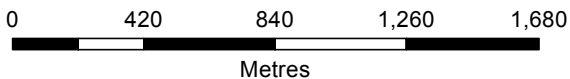
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Legend

Climatic regions - stormwater management design objectives



Climatic regions - stormwater management design objectives



Date: 19/07/2016

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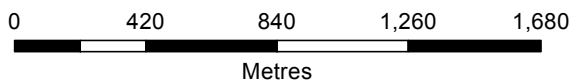
State Planning Policy
Local government development assessment



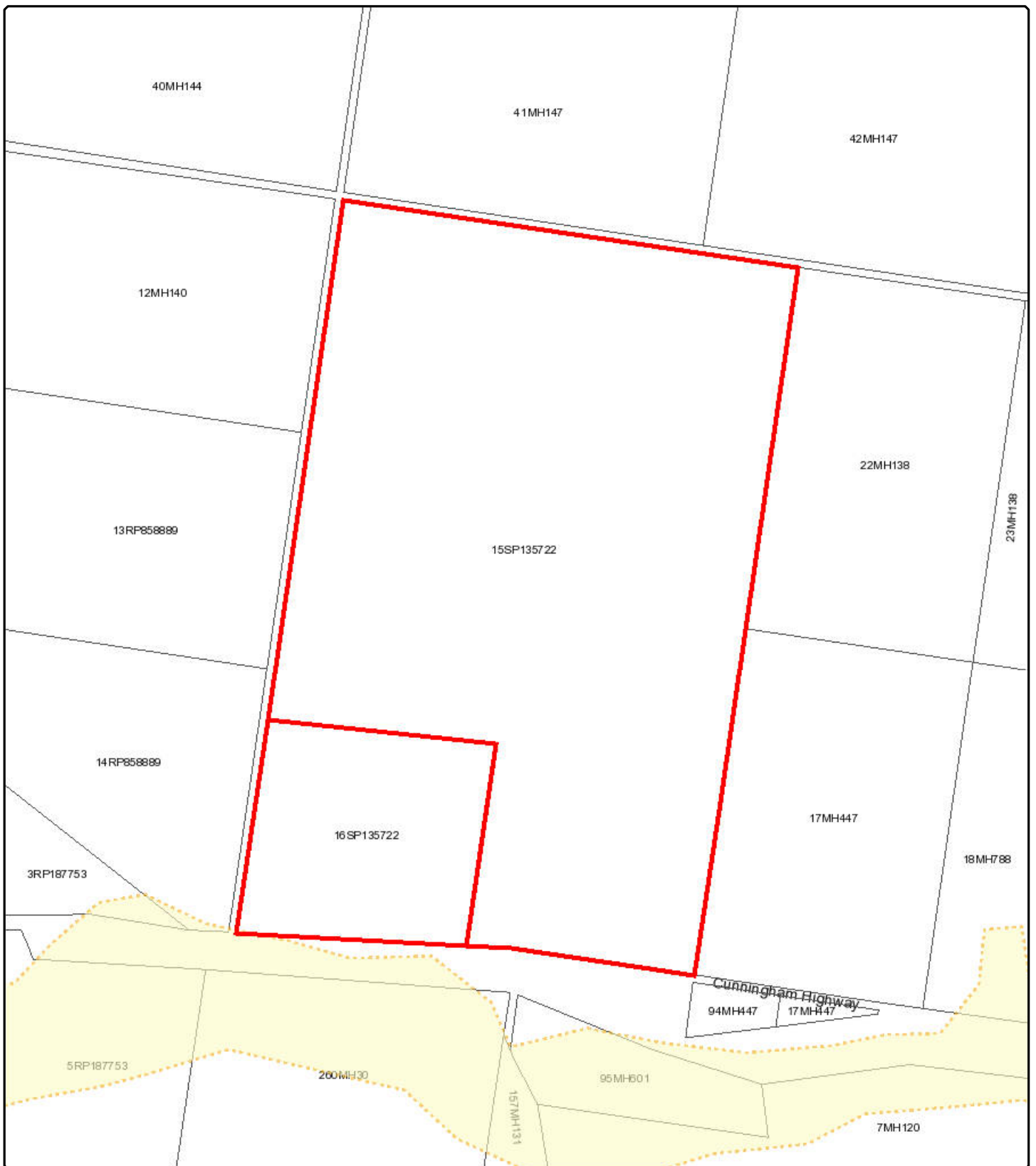
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Legend

- MSES - Regulated vegetation
- MSES - Regulated vegetation



Date: 19/07/2016



State Planning Policy
Local government development assessment




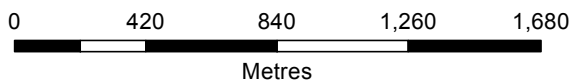
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Legend

Flood hazard area* - Level 1 - Queensland
floodplain assessment overlay

 Flood hazard area* - Level 1 -
Queensland floodplain assessment
overlay



Date: 19/07/2016

APPENDIX K – CONCEPT DESIGN REPORT – ABATTOIR, GOONDIWINDI



Concept Design Report – Abattoir, Goondiwindi

CLIENT NAME	Fucheng Australai Pty Ltd		
PROJECT DESCRIPTION	Concept Design Report		
LOCATION	Goondiwindi, QLD		
PROJECT NUMBER	W20356		
DATE	22 December 2016		
DATE	REVISION #	COMMENT	AUTHOR
22/12/2016	D	Final Draft	Michael Matthewson

TABLE OF CONTENTS

1	Introduction	3
2	Key Plant Features	4
2.1	Capacity	4
2.2	Products	4
2.3	Overall Layout.....	4
2.4	Site Services	6
	<i>2.4.1 Water</i>	<i>6</i>
	<i>2.4.2 Other services</i>	<i>6</i>
3	Capital Expenditure Budgets	7
4	Operational cost Inputs.....	8
4.1	Manning.....	8
4.2	Water	8
4.3	Wastewater	8
4.4	Solid Waste Management	9
4.5	Energy Usage	10
5	Operating Details.....	11
	Appendix 1 - Drawings.....	14

1 INTRODUCTION

Fucheng International Abattoir Pty Ltd has purchased an old smallstock abattoir site near Goondiwindi and plan to re-establish a new beef abattoir on the site. It is proposed that the redevelopment on completion will allow the processing 1,000 head of cattle per day over two shifts and supply domestic and export markets.

Wiley have been engaged to develop design concept for the Goondiwindi facility. Key to this report is the provision of documentation to support lodgement of a development application (by others). This report contains a generic site plan, information required for the town planning report, preliminary manning and utility demand assessments.

In addition, this report contains approximate order of costs for building and equipment.

2 KEY PLANT FEATURES

The meat processing facility in the Goondiwindi region should be constructed to provide hygienic production, effective labour utilisation and energy efficiency as key design input parameters. It should also include the utilisation of best practice technologies such as high efficiency motors, VSD control and energy recovery systems (e.g. waste heat recovery). Workplace Health & Safety (WH&S) and operator ergonomics and wellbeing are also key inputs to any potential plant to reduce injuries, workers compensation, staff turnover, etc.

The plant would be designed to meet Australian Quarantine and Inspection Service (AQIS) export requirements and more specifically the import requirements of foreign regulators including, but not limited to;

- European Union (EU)
- United States Department of Agriculture (USDA)
- China

The re-development would need to be designed and configured to meet the requirements of Federal, state and local regulations including Queensland department of Environment and Heritage Protection (QDEHP), the Goondiwindi Regional Council, the National construction code 2016 (NCC) and the relevant Australian standards. Process operations and production systems should be designed to meet Halal requirements and comply with WH&S, animal welfare, biosecurity and environmental standards.

2.1 Capacity

The indicative plant has been costed to process 1000 head of cattle per day over 2 x 7.6 hour shifts, 5 days per week, 240 days per year. The plant can be configured to allow future expansion to operate up to six days per week if required. The slaughter process will typically operate at a rate of 66 cattle per hour.

The large majority of cattle processed will be grain fed sourced from Woodlands Farms with the balance of cattle being sourced from producers in the border Rivers, Maranoa, Warrego and Balonne region. The average dressed carcass weight is expected to be 300 kgs, with variation in processing categories of Cow, Bull, Steer as required.

Whilst the average 300 kg average carcass has been adopted, the plant would be configured to process 250 to 400 kg HSCW to allow flexibility with the plant's production capabilities.

2.2 Products

The plant would be configured to produce the full Ausmeat range of chilled and frozen boxed beef products including red and green offal along with a full range of co products. These include hides, tallow, meat and bone meal, and dried blood meal.

Hides will be removed following legging, salt cured and containerised prior to removal from site.

Edible offal (following evisceration) will be collected, processed, chilled or frozen and containerised to suit market requirements and export standards. Inedible offal, blood and other process by-products will be utilised by on-site high temperature rendering facilities allowing paunch content and yard wash-down solids to be processed in an on-site composting facility.

2.3 Overall Layout

The indicative layout of the facility consists of the following key production areas:

- Stock receiving and unloading
- Cattle holding pens
- Cattle Ante Mortem yards
- Slaughter and offal processing
- Carcass chillers and chiller freezers
- Offal carton handling, chilling and freezing facilities
- Boning room with amenities
- Carton handling, chilling and freezing facilities
- Chilled and frozen storage
- Finished goods loadout
- Rendering plant, meat meal, tallow, dried blood production and hide processing
- Services and utilities
- Wastewater treatment
- Amenities and administration
- Truck access and roads
- Private vehicle and visitor parking

Construction materials and features would be consistent with the AQIS construction guidelines for export establishments, and current industry best practice for processing areas which predominantly consists of:

- Concrete structural and wearing slabs.
- Non-slip epoxy resin hi-build floor sealants.
- Galvanised structural steel frame.
- In-ground or under slab HDPE drainage.
- Colourbond roofing and weather fascia's.
- Impervious Insulated panel ceilings and walls.
- Low energy lighting up to 1000 lux.
- Hot Dipped Galvanised carcass overhead conveying systems.
- Hygienic, stainless steel pipe, metalwork, fittings and equipment within process area.
- Electrical and automation installation suitable for intensive wash-down.

The rendering plant should be located on the “dirty” side of the site in close proximity to the slaughter floor and boning room. The AQIS construction guidelines for an export establishment recommend a minimum of 28 meters separation of the rendering plant from hygienic facilities.

2.4 Site Services

2.4.1 Water

Water efficient plant and process design are key considerations for any potential meat processing plant. Efficient water usage will be paramount for ongoing operations including:

- Drinking water for people and livestock;
- Water for showers, toilets, hand basins etc.;
- Sterilisation and process requirements;
- Wash-down of process equipment, the slaughter house, offal and paunch processing, chillers boning room etc.;
- Washing of livestock trucks after unloading; and
- Fire fighting

Potable standard of water quality will be required for most of the above operations. Due to export quality requirements, stormwater and recycled wastewater cannot be used in the meat processing activities. Export establishments require compliance to the importing countries requirements for water quality used for meat processing. It is expected that the overall plant potable water consumption will approach 2500 L/ Hd.

2.4.2 Other services

The indicative concept has included the following site services:

- Refrigeration plant – two stage Ammonia with glycol secondary refrigerant for boning and offal rooms.
- Evaporative air cooled ventilation to slaughter floor
- Steam generation and reticulation
- Potable water treatment - chlorination system
- Hot and warm water generation and reticulation
- Compressed air reticulation
- Wastewater pre-treatment (screens, DAF, etc.)
- Stormwater collection and drainage

3 CAPITAL EXPENDITURE BUDGETS

The likely capital expenditure requirements for a 1000 head / day plant operating two shifts per day, 240 days per year is in the order of **AUD \$ 84,600,000 to \$105,100,000**. This figure has been developed utilising industry and proprietary historical cost data and where possible verified against the current market.

To deliver a project of this size, there would be a significant period of time required during the approvals, design and procurement stages of the project prior to establishing a site. For the purpose of this report we recommend that an additional allowance be made for the escalation of pricing during this period. Current annual cost escalation in the Qld construction industry is running at approximately 3.5 % and as such for this work to commence in 2018 an additional **\$ 3,900,000** should be considered.

The cost of construction in rural and remote (non-metropolitan) areas will also attract additional costs and overheads. It is expected for this project located close to Goondiwindi, a remote construction allowance of **\$ 11,200,000** should be added.

Additionally, cost estimates have been undertaken for a number of options and additional works. These options are as follows:

OPTION	Likely Capital Cost	Likely ROI
Biogas recovery from wastewater	\$ 3,300,000	5.75%
Automated chilled carton Handling (ASRS)	\$ 8,500,000	22.0%
	\$ 13,900,000	

Notable exclusions include the following:

- *GST*
- *Land*
- *Project Contingency*
- *Mobile plant and equipment*
- *Rock excavation*
- *Consumables*
- *Office equipment and fit out.*
- *Spare parts*
- *Raw water treatment to potable standard*
- *Raw water storage*
- *Services and Infrastructure external to the site*
- *Other similar items.*

4 OPERATIONAL COST INPUTS

4.1 Manning

The expected manning for the plant is based on a high efficiency and productivity configuration with external senior management and Head Office support. The plant, when fully operational, is expected to employ approximately 365 employees. An approximate breakup of the expected manning is as follows:

Area	Number
Slaughter and Offal	110
Boning	210
Maintenance	20
Rendering	5
Administration	30
Total	365

Slaughter includes – all yards, slaughter, offal, chillers, hygiene, supervisors

Boning includes – chillers loadout, boning, packing, freezers/chilling, loadout, hygiene, supervisors

The above numbers do not include personnel undergoing training. The numbers do not include extras to cover leave absences, If the plant does operate 52 weeks per year, an additional 9-10% of staffing levels will be required to cover for annual leave absences.

The total manning of 365 personnel does not include the expected reduction in resources that would result from the inclusion of automated chilled carton storage and sortation systems. If the automated carton handling system option was taken up, then an additional 20 people over 2 shifts could be removed .

4.2 Water

Based on 1000 cattle/day, the estimated potable water demand is approx. 2.5ML/day. It has been assumed for that the available water is of potable quality and meets the requirements of the regulatory bodies, in particular the EU if required as an export destination. Detailed analysis of the water supply must be undertaken to ensure the water is available for the required daily production.

4.3 Wastewater

The estimated nett wastewater discharged from the plant at the final discharge point is approximately 2.25 ML/day. Where possible, the production of wastewater should be minimised and water recycling should be adopted. It is foreseeable that up to a 1ML of water could be is recycled per day for non-potable use. This would result in requirement for waste water treatment equipment to process approx. 3.25ML/day.

Site wastewater (after removal of solids and blood) is expected to result from the following sources:

- Slaughter and evisceration
- Equipment sterilisation, wash stations, plant wash down
- Offal processing
- Chillers
- Rendering operations
- Truck washing and pen wash down; and
- Amenities.

The wastewater effluent stream post primary screening is expected to produce approximate nutrient loadings as follows;

Nutrient	Units	Value
Nitrogen N (mg/L)	N (mg/L)	250
Phosphorous	P (mg/L)	35
Biological Oxygen Demand	BOD (mg/L)	2500
Fats Oils and Grease	FOG (mg/L)	1600

Note these values do not take into account the quantity or strength of any recycled waste water streams that may be used throughout the plant for non-potable applications (e.g. yards wash down)

Septic systems will be required from the personnel amenities; as human sources of waste are not permitted to be mixed with abattoir wastewater.

Following onsite treatment to reduce the loadings of BOD, suspended solids, oil & grease and nutrients, wastewater will be irrigated onto the property. An irrigation management plan should be developed for the sustainable disposal of the treated wastewater. It is assumed that the Goondiwindi site has sufficient areas of land available for the disposal of the treated wastewater. The suitability of the site will need to be thoroughly assessed and its capacity confirmed for the irrigation of the expected effluent on both a hydraulic and nutrient basis.

4.4 Solid Waste Management

Organic wastes should be collected for removal to an approved composting and solid waste processing facility. General plastics and packaging waste should be collected for disposal. The major solid waste streams expected to be generated are:

- Manure, paunch grass and associated material
- Solid waste residues arising from effluent treatment
- Disposable Personal Protective Equipment (PPE) and packaging material; and
- General waste including office and canteen wastes.

Solid waste streams are expected to produce daily quantities as follow;

Waste	Units	Value
Organic (e.g. paunch material)	Kg/day	30,000
In organic (plastics, packaging)	Kg/day	2000

4.5 Energy Usage

The estimated total energy requirement for refrigeration, ventilation, process equipment, lighting, administration is around 4 MW. A significant proportion of the electrical load usage is associated with freezing and chilling of carcasses and carton product. Peak electrical demand is expected to be approximately 5MW. The peak demand will be dependent on the mix of frozen and chilled products.

Boiler power required is expected to be 10MW. Boiler fuel is likely to be coal in the Goondiwindi location. A gas fired boiler may be considered for operation on LPG and biogas (recovered from waste water system).

The exact energy requirement will vary depending on the final operating configuration of the plant. Once the production rate, shift length, and product mix are established then a more accurate assessment of the plants energy requirements can be made.

Estimated total energy use during operation of the proposed meat processing facility is summarised below.

Service	Energy (GJ/day)
Electricity	342
Steam (Coal)	580
Total	922

5 OPERATING DETAILS

Holding & Undercover Yards

Holding yards are required to have the capacity of one shift of cattle as per the AQIS Guidelines. The unpaved holding pens occupy an area of approximately 2200m².

Roofed and paved yards can accommodate 25% of the day's kill, with capacity of 250 head of cattle, With total area of yards occupying approximately 900m², including raceways and suspect pen. Treated wastewater will be used for cleaning the majority of the cattle yards. Potable water will be used in the final cattle wash prior to the cattle being slaughtered.

The 'green' wastewater stream from the yards will be collected and treated separately to the 'red' wastewater stream coming from the slaughtering, boning and rendering operations.

The yard's layout will be consistent with designs recommended by animal welfare expert, Dr Temple Grandin. The use of curved raceways is deliberately designed for smooth animal movements, reducing animal stress and maximising the quality of the meat products. An ante-mortem or suspect inspection yard is located adjacent to the outfeed to the cattle race to the slaughter floor.

An access walkway will be incorporated for external visual ante-mortem inspections.

Slaughter Floor

For the 1000 per day double shift operation, the knocking box can be a typical box and cradle arrangement, for the slaughtering rate of 66 carcasses per hour. At 66 bodies per hour, a single hide puller and a single splitting saw will accommodate the production rate. Waste from the trimming of carcasses will be collected and sent to the rendering operation for processing and conversion to meat meal.

The orientation of the landing cradle from the knocking box could allow accreditation for the operation to supply Halal markets if required. Blood from the sticking area through to the hide puller will be collected for further processing, maximising blood yield and reducing nutrient loads in the wastewater.

Hide-on personnel will access the slaughter floor through an ante-room which is segregated from hide-off personnel. This practice maximises hygiene standards for improved food safety. The use of rise and fall platforms where required for regular carcass inspection or tasks will be included for personnel safety and ergonomics. Fall restraint systems will be incorporated on elevated platforms to enhance personnel safety while operating, and also for cleaning and maintenance personnel.

Red and green offal will be collected and processed. Cartons of product will be conveyed to the on-site chilling and freezing facilities. As part of the green offal process, paunches will be opened and dry-dumped, reducing nutrient loads in the wastewater stream. Intestines processing has been included, in order to maximise product recovery and yields.

Hides will be removed following legging, salt cured and containerised prior to removal from site.

Carcass Chillers/Freezers

From the slaughter floor, graded sides will be cooled overnight in carcass chillers, for improved meat quality. Each chiller will hold approximately 125 bodies, with side plenum fan coil units for efficient carcass chilling. At the slaughter rate of 66 per hour, the chillers will be loaded in less than 2 hours, which is considered best practice for carcass quality.

The plant has been configured for 100% of carcass production to be deboned in the boning room for chilled or frozen cartons of beef. The majority of all products will be destined for the export market.

The carcass chillers will allow 24-hour cooling time. High efficiency fan coil units will be used in combination with PLC control of variable speed fans and modulating refrigeration valves for accurate temperature and air flow control over the carcasses. There may be some whole carcass loadout but this is considered to be a minor product stream and would typically only be for local butcher trade or high value airfreight product (e.g. wagyu). It would be reasonable to assume that the total carcass loadout capacity of up to 30 carcasses per day

Boning Room

Carcasses will be deboned in the boning room with the products being a combination of whole chilled primals, frozen trimming products and frozen bulk or layer pack products of shin/shank, briskets, and loin cuts. The boning room has a side chain system for full set break-down of carcasses. The side chain boning system will have the higher value chilled primals vacuum packed for maximum shelf life. Cartons of chilled products will be cooled in a continuous blast chilling tunnel in 24 hours.

Plate freezers will handle non-chilled products with a 24-hour freeze cycle.

The boning operation will commence with the carcasses being deboned with the forequarters being separated from the side and deboned as table style boning, and the hindquarter remaining on the boning chain for breakdown into the various primal cuts.

For 380 HSCW, it is anticipated the boners will approach 16-17 carcasses per boner throughput in a 7.6 hour shift for heavy grain fed carcasses.

Carton Handling

Typically, cartons from the blast chill tunnel and plate freezers, will be sent through a manual palletising process to sort into individual product codes and stored as required prior to loading out into containers and refrigerated transport. Alternatively, chilled cartons can be diverted to an Automated Storage and Retrieval systems (ASRS) which will sort cartons for automated storage and palletising. The ASRS units have the ability to significantly reduce labour requirements, and the associated OH&S overhead of manual labour.

Automated palletising of cartons will avoid the potential for injuries normally associated with manual systems. Cold storage of palletised cartons is included, with a 200 pallet chilled carton store and a 350 pallet frozen carton store. This will allow for the holding, sorting and storage of production for typically 3-4 days of production at full capacity.

The majority of chilled and frozen carton production will be destined for the export market in either 20' or 40' containers. The load-out operation will have the ability for loading pantechs for the domestic market.

At 500 cattle per 2 x shift, the production of up to 11000-13000 cartons per day will be sent to export markets. If all product is despatched in 20' containers, there will be up to 20 containers of chilled and frozen products despatched daily.

There will be daily truck deliveries of packaging materials, including vacuum barrier bags, poly wrapping, cardboard, labels, stretch-wrapping and pallets. A packaging materials store is located adjacent to the boning room operation.

Rendering

Waste slaughter, inedible offal, fat and bone material from the slaughtering and boning operations will be processed in a rendering operation. Meat meal will be despatched in containers.

Blood will be collected from the slaughter floor, dried and despatched as blood meal in bulk bags. Approximately 16 tonnes of blood meal will be generated weekly at 1000 cattle per day. There is the option to use coagulated blood as an input to the rendering process, to maintain protein levels at or close to 50%.

Tallow will be recovered from the fat materials in the rendering process, and stored in an on-site tank farm for despatch in tankers. Daily despatch of tallow will be 2-3 tanker loads. The rendering process will be designed for the start-up capacity of 1000 cattle per day. The rendering operation will closely match the slaughtering and boning operations.

A heat recovery system will be utilised in the rendering process for the generation of hot water. Hot water is generally recovered at 75°C, and then boosted in additional heat exchangers to the minimum 82°C used in knife sterilisers on the slaughter floor.

Wastewater

The green stream from the yards and paunch opening operations will be collected and screened. The screened solids would typically be composted for conversion to a soil conditioner.

The red stream from the slaughtering, boning and rendering operations will be screened for solids removal. The solids will be returned to the rendering operation for processing. The wastewater underflow from the screening process will then be passed through a dissolved air flotation system (DAF) for the removal of fat and solids. These solids will be returned to the rendering operation for further processing. Fat recovery from this process can be further processed and sold as a low grade tallow product.

It is proposed that post the screening and DAF primary treatment process above, the combined red and green waste streams will pass to an anaerobic lagoon. Biogas from this lagoon will could as an option be collected and used as a fuel source in a boiler for steam generation. Depending on the required final effluent quality, could be followed by an aerobic lagoon system which may include mechanical aeration, chemical dosing and sludge settling. It is proposed that treated wastewater from the system will be irrigated under and reused as per approved irrigation management plan. Sludge extracted from the waste water treatment process will be mixed with paunch material for composting.

The design and capital requirements of the waste water treatment systems other than the primary screening and DAF process and optional Biogas recovery plant noted above have not been assessed in this report.

Administration, Laboratory and Carparking

The administration building will house office staff and the operations amenities. The amenities will contain facilities for the segregation of higher risk hygiene operations of yards, hide-on slaughter floor personnel and rendering, from the low risk hygiene operations of hide-off, boning room and load-out personnel. A small on-site laboratory will perform the analysis of products for fat content of trimmings products, and chemical analysis of meat meal and tallow.

Car parking for employee and visitor vehicles has been allowed for at the site.

Appendix 1 - Drawings

OUR VALUES

Around here we live by a core set of values that guide our behaviour and form the foundation of the Wiley culture. We hold these values high, above all else, especially when times are tough. They keep us focused on what is important as we continue to grow.



A sense of community.

At Wiley we value relationships that include, nurture, support and protect our people as families do. We actively seek life balance by working hard, having fun and celebrating openly. We care passionately about the environment and our surroundings with an eye to making a difference where we can.



Integrity in all we do.

At Wiley we take responsibility for achieving the best we can with the hand we are dealt. We keep our promises and always follow through. We do not hide behind half-truths, excuses or blame. We respect each other equally and act honestly with courage. There is one set of rules that applies to everyone.



Quality first.

At Wiley we take pride in what we do and we do what makes us proud. We pursue excellence in a professional way through continual improvement. We set high standards for ourselves and others. Our passion for presentation and form is the tangible way we communicate our commitment to quality.



Future focus.

At Wiley we plan and act with the big picture in mind. We enable and challenge ourselves and our clients to lead. We are always receptive to new ideas. We embrace change and the future with enthusiasm. We take pride in our ability to creatively problem solve and find the best solution in every situation. Our belief in continuous learning reflects a pure delight and appreciation for creative discovery and innovation that leads to elegant solutions.



Empower our people.

At Wiley we actively encourage and enable our people to develop and grow to their greatest potential. We embrace individuality and provide a flexible working environment in which there is room to learn from our mistakes. We support personal development and autonomy yet encourage teamwork and collaboration. By recognising and celebrating our individual and collective strengths we empower our people.

APPENDIX L – ODOUR MODELLING REPORT

APPENDIX M – STANDARD OPERATION PROCEDURES

This section lists procedures to be followed by management and staff of the proposed abattoir to ensure the environmental objectives listed in Section 7 are achieved. All staff are to be trained and instructed to follow these Standard Operating Procedures.

DAILY PROCEDURES

PROCEDURE 1– CONTRACTOR’S VEHICLES

Responsible person: Abattoir Manager and Contractors

All contractor vehicle movements

- a. Contractors must be informed of the abattoir's management procedures and their associated responsibility (e.g. restricting the use of engine braking, refrigeration units in trucks to be switched off whilst on-site).
- b. Contractors are to be advised to limit noise generation during delivery and dispatch. Contractors are to minimise noise due to engine braking, limiting airbrakes, minimise use of horns and excessive revving of motors, avoidance of impact with solid objects during load-out, livestock delivery, construction, maintenance and earthmoving operations.
- c. In particular, load-out (dispatch) contractors are to be advised to minimise noise by:
 - i. Switching off body-mounted refrigeration units whilst on-site,
 - ii. Using no amplified music/sound as part of truck/driver activities, or at the unloading areas, dock or any other external areas at the abattoir.
 - iii. Whilst on-site, no reversing alarms are to be used except if broadband reversing alarms are fitted to refrigerated product trucks.
- d. Contractors are to be advised that faulty equipment/vehicles are to be serviced upon discovery.
- e. Contractors are to be advised that excessively noisy equipment/vehicles must be replaced if they cannot be appropriately repaired.
- f. All vehicles (either delivery or dispatch) are to use the designated areas for turning, set-down, dispatch, and parking.

Delivery of stock vehicle movements

- a. Traffic movements, related to delivery of stock, will be limited in their hours of delivery to the abattoir, to the specific times - 4.00 am to 10.00 pm

PROCEDURE 2 – ABATTOIR VEHICLES AND EQUIPMENT

Responsible person: Abattoir Manager

- a. Drivers of vehicles must be informed of the management procedures and their associated responsibility (e.g. restricting the use of engine braking).
- b. Faulty equipment/vehicles are to be serviced upon discovery.
- c. Excessively noisy equipment/vehicles must be replaced or repaired.
- d. Spares of plant items such as wastewater treatment plant pumps, motors and consumables are to be maintained in case of an unforeseen event, i.e. plant breakdown.
- e. All staff are to park private vehicles within the designated car park allocated for staff.

PROCEDURE 3 – CLEANING FOLLOWING DAILY OPERATION (ABATTOIR AND LAIRAGE AREA)

Responsible person: Abattoir Manager

- a. Solid wastes from within the abattoir will be excluded from liquid wastewater, prior to addition to the waste treatment system.
- b. Cleaning and sanitation of internal surfaces within the abattoir and chillers will be in accordance with relevant food safety standards prescribed by governing food safety authorities.
- c. Spillages and wastage of sanitation chemicals will be avoided (above that necessary for compliance with food safety standards).

PROCEDURE 4 – MANAGEMENT AND REMOVAL OF SOLID WASTES

Responsible person: Abattoir Manager and Contractors

- a. All operators of plant and equipment will be trained in the use of the equipment.
- b. Solid wastes will be composted in accordance with Australian Standard 4454 – Composts, soil conditioners and mulches.

PROCEDURE 5 – WATER STORAGE TANKS AND SUPPLY

Responsible person: Abattoir Manager

- a. Check water storage tanks for sufficient water volume. If unusually low water volume in the storage tanks, check the following:
 - i. Operation of bore pump
 - ii. Leakages in supply to storage tanks.
 - iii. Leakages in the water storage tanks.
 - iv. Water supply to abattoir.
- b. If water supply from on-site bore is interrupted, contingency water supplies should be engaged.

WEEKLY PROCEDURES

PROCEDURE 6 - POND CAPACITY CHECKING

Responsible person: Abattoir Manager

- a. Determine the depth of water in the wet weather pond (this should be between 0 m and 3.0 m).
- b. If the water depth is more than 2.5 m, determine if irrigation is allowable.
- c. If the water depth is more than 2.5 m and irrigation is not possible, initiate appropriate contingency measures to prevent overflow of the wet weather pond.

PROCEDURE 7 – VERMIN CONTROL

Responsible person: Abattoir Manager

- a. Maintain a baiting program according to the National Biosecurity protocols.
- b. All baits are placed in a dark safe place beyond the reach of children and domestic animals.
- c. Ensure the following good sanitation procedures have been completed:
 - i. Procedure 3 – Cleaning following daily operation (abattoir and lairage area).
 - ii. The availability of fresh drinking water will be minimised.
 - iii. Drinkers within the lairage area shall be maintained and leakages fixed promptly.
 - iv. Grass surrounding the abattoir facility shall be checked and mowed as required.
 - v. Breeding sites (holes, burrows etc.) will be minimised.

PROCEDURE 8 – DOGS, CATS, FOXES AND WILD BIRD CONTROL

Responsible person: Abattoir Manager

- a. Ensure the following good sanitation procedures have been completed:
 - i. Procedure 3 – Cleaning following daily operation (abattoir and lairage area)
 - ii. Procedure 7 – Vermin control
- b. Visually inspect around the abattoir for signs of wild dogs, cats and foxes.
- c. Contact the Goondiwindi Regional Council if there are visible signs of wild dogs, cats and foxes.

PROCEDURE 9 - WATER USAGE

Responsible person: Abattoir Manager

- a. Read meter on the bore.
- b. Read meter on the clean rainwater tank.
- c. Record this information in a Water Usage Record Sheet.
- d. Tally the groundwater usage, to ensure it doesn't exceed the licensed amount.
- e. Tally the water usage in the abattoir (sum of bore water and rainwater) and express as a kL/tonne of hot standard carcass weight (HSCW) basis.
- f. Compare the actual water usage with the design water usage (Appendix K).

MONTHLY PROCEDURES

PROCEDURE 10 - VISUAL AMENITY SCREENS

Responsible person: Abattoir Manager

- a. Following plantation of the additional screening, monthly checks are to be made to ensure the landscaping is providing suitable screening.
- b. Assess whether visual screening between the proposed abattoir and the closest sensitive receptor is working appropriately to screen the abattoir operations.
- c. Following heavy rainfall and high winds, check the integrity of the plantations and assess the durability of the visual screens to ensure they are still in place and providing effective coverage.
- d. In the event that the plantations are not providing suitable coverage or are not durable or low maintenance, investigate the use of other tree/plant species to provide adequate growth.

SIX-MONTHLY PROCEDURES

PROCEDURE 11 - WASTEWATER QUALITY MONITORING

Responsible person: Abattoir Manager

- a. All samples should be collected in accordance with the Monitoring and Sampling Manual (DERM 2009), as set out below, or the most up to date version of this manual.
- b. Correct sampling protocol is required. Sterile bottles are required if analysing for pathogens and a separate plastic bottle is required for the analysis of other elements.
- c. The sample should be collected from the irrigation pump at the wet weather pond being the point from which it would be extracted for irrigation.
- d. Let the pump run for several minutes before commencing sampling. This will allow for any solids in the suction line to be flushed out prior to sampling.
- e. The samples should be collected from the pump outlet in a clean bucket.
- f. To ensure a representative sample, at least 10 sub-samples of wastewater should be collected, each a few minutes apart.
- g. When finished sampling, the samples should be stirred gently to mix, then poured immediately into the sample bottle.
- h. It is important to exclude air from the plastic bottle samples. This can be achieved by filling the bottle to the top, then slightly squeezing the bottle until it just overflows, then while still squeezing, tightly screw the top on.
- i. The sterile sample bottle (required for pathogen analysis) should not be filled completely (i.e. leave about 1-2 cm of airspace above the sample).
- j. The samples must be kept refrigerated in the dark and should be placed in an esky with crushed ice or a portable refrigerator during transportation to a laboratory for analysis.
- k. Samples should be submitted for analysis as soon as practical after sampling (preferably within 6 hours).
- l. The analysis of wastewater irrigated monitoring programme should include the following parameters:
 - i. pH
 - ii. Conductivity
 - iii. BOD5
 - iv. Suspended Solids
 - v. Chloride
 - vi. Sodium
 - vii. Total Nitrogen
 - viii. Ammonia Nitrogen
 - ix. Total Phosphorus as P
- m. On return of analysis data, results should be compared with the Specific Performance Indicators outlined in Table 18.

TABLE 18 - DISCHARGE FINAL WASTEWATER QUALITY DESIGN PARAMETERS

Constituent	Abbreviation	Units	Value
Biochemical Oxygen Demand	BOD	mg/L	16
Total Suspended Solids	TSS	mg/L	30
Total Nitrogen	TN	mg/L	240
Ammonia	NH ₄ -N	mg/L	125
Nitrates / Nitrites	NO _x -N	mg/L	100
Total Phosphorous	TP	mg/L	9
Dissolved Reactive Phosphorous	DRP	mg/L	7
Total Dissolved Solids	TDS	mg/L	2,980
Electrical conductivity	EC	μS/cm	4,660
Potassium	K	mg/L	105
pH	pH	-	6-8.5
Escherichia coli	E. coli	cfu/100mL	480

ANNUAL PROCEDURES

PROCEDURE 12 - GROUNDWATER BORE MONITORING

Responsible person: Abattoir Manager

- a. An annual sample from the groundwater bore is required to be analysed.
- b. Let the bore pump run for at least 10 minutes before commencing sampling to purge. This will clear any stagnant water from the lines and allow for a more representative sample to be taken.
- c. The sample should be collected from the pump outlet in a clean bucket.
- d. To ensure a representative sample, at least 10 sub-samples should be collected, each a few minutes apart.
- e. When finished, the sample should be stirred gently to mix it then poured immediately into the correct sample bottle (plastic bottle - provided by laboratory).
- f. Air must be excluded from the sample bottles.
- g. Samples must be kept refrigerated and should be placed in an esky with crushed ice during transportation to a laboratory for analysis.
- h. Samples should be submitted for analysis within 6 hours of sampling.
- i. All samples should be taken in accordance with the Monitoring and Sampling Manual (DERM 2009).
- j. On return of sample analysis data, all results will be kept on-site for interpretation by a suitably person upon request of the Administering Authority.
- k. At each sampling, record:
 - i. the name and location of bore
 - ii. the depth to groundwater
 - iii. the date and time of day that sampling occurs
 - iv. the name of the sampler
 - v. the date and time of dispatch to the laboratory
 - vi. the method of preserving samples
 - vii. analysis parameters requested

PROCEDURE 13 - SOIL MONITORING IN WASTEWATER DISPOSAL AREA

Responsible person: Abattoir Manager

Soil samples will be collected from areas within the wastewater disposal area (WDA) on an annual basis.

Soil sampling will be undertaken from the area that has been irrigated for the past 12 months and the area that is proposed to be irrigated for the next 12 months. Figure 3 gives the approximate location of the irrigation area.

The annual soil monitoring procedure is as follows:

- a. Identify which area has been irrigated for the past 12 months and which area is proposed to be irrigated for the next 12 months
- b. At the identified sampling points within each area, extract continuous soil cores down to a total depth of 100 cm.
- c. From each soil core, take samples of soil in the following depth ranges: 0-20 cm, 20-30 cm, 50-60 cm and 90-100 cm. Repeat the soil coring at each soil test pit location until sufficient sample from each depth range is obtained. The sample size should be at least 1 kg.
- d. For each discrete sample taken in the 20-30 cm and 50-60 cm range, bag and label each sample and analyse the soil for chloride, EC (1:5) and pH (1:5).
- e. For each depth range given in Table 19 (i.e. 0-30 cm, 50-60 cm and 90-100 cm), prepare a composite sample for each area. This is done by combining and mixing all the samples into a large bucket or similar, spreading out on a flat, uncontaminated area, and undertaking quartering until a representative 1 kg sample is taken.
- f. Bag and label each sample. Arrange to have the composite samples tested for the parameters listed in Table 19.
- g. For each sample, record:
 - i. the name and location of test pit and irrigation area
 - ii. the depth range of the sample taken
 - iii. the date and time of day that sampling occurs
 - iv. the name of the sampler
 - v. the date and time of dispatch to the laboratory
 - vi. the method of preserving samples
 - vii. analysis parameters requested for each sample
- h. Samples must be kept cool and must reach the laboratory within 48 hours.
- i. Samples need to be collected in accordance with the Monitoring and Sampling Manual (DERM 2009) or the most up to date version of the manual.

TABLE 19 - PARAMETERS FOR COMPOSITE SOIL SAMPLE ANALYSIS

Parameter	Units	0-30 cm	50-60 cm	90-100 cm
Total Nitrogen	mg/kg	Yes	-	-
Organic Carbon	mg/kg	Yes	-	-
Phosphorous (Colwell)	mg/kg	Yes	Yes	Yes
Nitrate N	mg/kg	Yes	Yes	Yes
Electrical Conductivity (1:5)	dS/m	Yes	Yes	Yes
pH	-	Yes	Yes	Yes
Exchangeable calcium	cmol(+)/kg	Yes	Yes	Yes
Exchangeable magnesium	cmol(+)/kg	Yes	Yes	Yes
Exchangeable sodium	cmol(+)/kg	Yes	Yes	Yes
Exchangeable potassium	cmol(+)/kg	Yes	Yes	Yes
Chloride	mg/kg	Yes	Yes	Yes
Exchangeable Sodium Percentage (ESP)	%	Yes	Yes	Yes

ON-GOING PROCEDURES

PROCEDURE 14 – ODOUR MONITORING

Responsible person: Abattoir Manager

- a. Odour observations are to be recorded on a quarterly basis at the each of the monitoring points shown in Figure 4 to confirm levels of odour are normal for production volume, based on personal experience.
- b. If an odour is detected, measures are to be taken to investigate and address the sources of odour.
- c. Further assessments will be carried out in response to validated odour complaints.
- d. The assessments will be undertaken using the German Standard VDI 3940 Determination of Odorants in Ambient Air by Field Inspection as a guide ((VDI)-RICHTLINIEN 1993).
- e. When the assessment is undertaken, the assessor must not be desensitised to the odour.
- f. Record any unusual events in the Environmental Data Record, including corrective action taken, and the effectiveness of this action to remediate odour.

PROCEDURE 15 – IRRIGATION AND SLUDGE MANAGEMENT

Responsible person: Abattoir Manager

Irrigation of treated wastewater from the proposed abattoir will be in accordance the Section 4.4 of this report. Both irrigation of treated wastewater and application of sludge will be undertaken in accordance with the following:

- a. Irrigation/sludge application is only to occur within the prescribed area.
- b. A 50 m buffer distance will be kept between irrigation/sludge application areas and any property boundary or watercourse.
- c. Wastewater will not be irrigated on public holidays (when the abattoir is not operating anyway).
- d. Wastewater will be irrigated using a low-pressure sprinkler method, to reduce formation of aerosol particles.
- e. Wastewater mains and irrigation system shall be flushed with at least one irrigation system volume of clean water to prevent potentially odorous material remaining in the irrigation system between irrigation events.
- f. The operation of the wastewater irrigation system is to be limited to the daytime hours to maximise dispersion of any associated odours and to accelerate drying of the wastewater at the surface.

- g. The irrigation main and irrigator will generally operate for a few hours several times a month.
- h. Check the weather forecasts and do not irrigate/apply sludge when heavy rain (>25mm) is predicted.
- i. Do not irrigate/apply sludge too soon (less than 48 hours) after heavy rain (>25mm) has been received.
- j. Check the wastewater disposal area or sludge application area after rainfall to determine when it is dry enough to undertake irrigation/sludge application once again.
- k. Only apply irrigation water/sludge when the soil is sufficiently dry to absorb the irrigation volume being applied without pooling or run-off occurring.
- l. Monitor the soil during irrigation/sludge application to ensure that surface pooling and run-off treated wastewater does not occur.
- m. If excessive pooling or run-off is observed, immediately cease irrigation/sludge application and determine likely cause, i.e. soil is too wet or application rate is too high.
- n. Recommence irrigation/sludge application again once pooling or run-off is controlled.
- o. Check irrigator periodically to ensure it is in good condition.
- p. For irrigation application, record the following in the Irrigation Record (Record Sheet 7) the following items:
 - i. Date of application
 - ii. Irrigation sub-area used
 - iii. Approximate area of application (ha)
 - iv. Time period of application (hours)
 - v. Application rate (mm)
- q. For sludge application, record the following in the Sludge Application (Record Sheet 9) the following items:
 - i. Date
 - ii. Approximate area of application (m²)
 - iii. Volume pumped (m³)
 - iv. Application rate (mm)
 - v. Checks for run-off or ponding
 - vi. Weather observations

PROCEDURE 16 – STAFF TRAINING

Responsible person: Abattoir Manager

- a. Ensure that all staff and contractors are aware of their responsibilities in general environmental management and procedural responsibilities.
- b. Provide staff and contractor training as required and when appropriate, attend environmental courses, seminars or workshops, if available.
- c. Enter any environmental in-house training / information programs into the Staff Training Record, Record Sheet 4.

FOLLOWING HEAVY RAINFALL PROCEDURES

PROCEDURE 17 - BUNDING AND DIVERSION BANKS

Responsible person: Abattoir Manager

- a. Check the bunding around the pond systems to ensure it is stable and unaffected by the heavy rainfall.
- b. If bunding is eroded or slumped below this level, repair bunding.
- c. If any overflow occurred, improve bunding around the appropriate area.
- d. Check no clean upstream catchment run-off flowed into the treatment pond system.

AS REQUIRED PROCEDURES

PROCEDURE 18 – COMPLAINT INVESTIGATION AND RECORDING

Responsible person: Abattoir Manager

- a. To facilitate effective communication with the community, a sign with the abattoir office telephone number and Abattoir Manager's name will be maintained at the entrance to the property.
- b. All complaints must be investigated and recorded in the Complaints Register.
- c. The complaint record shall include:
 - i. Time and date of complaint / incident.
 - ii. Method of communication (telephone, fax, letter, personal visit).
 - iii. Name, address and contact telephone number of complainant (Note: if complainant does not wish to be identified, then "Not Identified" is to be recorded.).
 - iv. Nature of the complaint.
 - v. The action taken by the abattoir in relation to the complaint, including any follow up contact with the complainant.
 - vi. If no action was taken by the abattoir, the reasons why no action was taken.
- d. Recorded complaints will be reviewed and the following information will be reported in the Complaints Register:
 - i. Management options available to reduce or solve the problem.
 - ii. Corrective action taken to eliminate the source of each complaint.
 - iii. Effectiveness of method used.
 - iv. Response of complainant/s about the level of impact after steps have been put into place to solve the problem.
 - v. Details of further monitoring (through assessment by the Abattoir Manager and consultation with the complainants).

PROCEDURE 19 - SUITABILITY OF SLUDGE USED FOR APPLICATION

Responsible person: Abattoir Manager

- When application of sludge is necessary, a sample of sludge is to be tested and analysed. The analysis results are to be used, in conjunction with the soil test results, to calculate an appropriate application rate.
- If parameters exceed the nutrient uptake of crops, no application should be undertaken and removal of sludge off-site by an approved contractor for appropriate disposal is required.

PROCEDURE 20 - SLUDGE SAMPLING

Responsible person: Abattoir Manager

Samples are to be collected of the sludge material to be removed and applied to land prior to commencing desludging and/or spreading.

The procedure is as follows:

- Prepare sample sheets and sample bags.
- Sludge sample to be taken from sludge that will be used for land application.
- Send the samples to a NATA-accredited laboratory with the relevant sample sheets.
- Samples are to be sent as soon as possible after collection.
- Samples are to be tested for the following analytes:
 - Colwell Phosphorus (Colwell P)
 - Nitrate Nitrogen (NO³-N)
 - Exchangeable Sodium Percentage (ESP)
 - Electrical Conductivity (EC 1:5)
 - pH
 - Chloride

The nutrient status of soils will be analysed by a laboratory with NATA accreditation. The results analysis of the sludge will be used, in conjunction with the soil sampling results and information on crop harvest nutrient uptake, to decide on the appropriate application rate.

PROCEDURE 21 - SELECTION OF AREA FOR LAND APPLICATION

Responsible person: Abattoir Manager

- Select an appropriate area for sludge application.
- Check the wind speed and direction.
- Do not select an area where the prevailing wind direction will carry any odours towards the closest neighbouring residence or people.
- Do not select an area that has had recent sludge application before checks are made to determine if the area can absorb the volume and nutrients applied.

EROSION AND SEDIMENT CONTROL PROCEDURES

PROCEDURE 22 – DAILY SITE INSPECTION

Responsible Person: Abattoir Manager

- The Abattoir Manager will undertake a site inspection on a daily basis, checking that the erosion and sedimentation control measures are in working order.
- The Site Foreman will implement any maintenance on erosion or sedimentation control measures before continuing project construction.

PROCEDURE 23 – PRE-CONSTRUCTION EROSION AND SEDIMENT CONTROL

Responsible Person: Site Foreman

Erosion Control

- Stabilise of one entry/exit point prior to construction.
- The Site Foreman will program work activities to complete construction of the ten sheds in stages, only starting another section when one is partially completed to minimise the area of disturbed ground that is exposed to erosion at any one time.
- The Site Foreman will instruct plant operators to minimise removal of vegetation and limit exposed areas. Minimise unnecessary clearance of vegetation.
- Stockpile stripped topsoil and kikuyu for revegetation after construction is completed. Store stockpile within the sediment-controlled zone.
- Store topsoil stockpile within the sediment-controlled zone.
- Design and construct diversion channels for clean water runoff.

Sediment Control

- Install sediment fences along the low side of the development site, between watercourses/streams and the exposed areas.
- Provide devices such as vegetation retention, hay bales, sedimentation fences, and sandbags to reduce flow, reduce scour and capture sediment.

PROCEDURE 24 – DURING CONSTRUCTION EROSION AND SEDIMENT CONTROL

Responsible Person: Site Foreman

Erosion Control

- The Site Foreman will instruct plant operators to minimise removal of vegetation and limit exposed areas. Minimise unnecessary clearance of vegetation.
- Stripped topsoil and kikuyu will be laid on exposed areas after each section is completed to allow for rapid revegetation. Where topsoil and kikuyu is not available, other stabilisation techniques will be introduced e.g. revegetation, erosion control mats, or mulching
- Diversion banks and channels will be maintained and repaired as required.

Sediment Control

- Divert clean water around the construction site and stabilise any drainage channels.
- Provide devices such as vegetation buffer zones, hay bales, sedimentation fences, and sandbags. Maintain all control measures in good working order.

PROCEDURE 25 – POST-CONSTRUCTION EROSION AND SEDIMENT CONTROL

Responsible Person: Site Foreman

Erosion Control

- When construction is completed, revegetation of disturbed areas will be undertaken. Planting of fast growing grass species will be carried out to promote rapid establishment of ground cover. Re-laying of stockpiled topsoil and kikuyu will be undertaken to encourage quick re-establishment of vegetation.
- Erosion prevention measures will be retained until sufficient ground cover becomes established.

Sediment Control

- Permanent revegetation and stabilisation the site.
- Permanent drainage systems are in working order and stabilised.

PROCEDURE 26 – POST–RAINFALL EVENT EROSION AND SEDIMENT CONTROL

Responsible Person: Abattoir Manager

Erosion Control

- Assess any damage that has occurred as a result of the rainfall event.
- If significant damage has occurred, complete an entry in the Environmental Data Record (Appendix N) to record the incident.
- Repair diversion banks and channels if required.
- Repair erosion gullies if required.
- Install erosion control measures in erosion sensitive areas.

Sediment Control

- Assess any damage that has occurred as a result of the rainfall event.
- If significant damage has occurred, complete an entry in the Environmental Data Record (Appendix N)
- Repair control measures such as vegetation buffer zones, hay bales, sedimentation fences, and sandbags if required.
- Remove silt from the sedimentation fences and ensure the fences are in working order.

APPENDIX N – SAMPLE RECORD SHEETS



RECORD SHEET 1- COMPLAINTS REGISTER

The complaint registration form below is to be used to record all complaints received at the abattoir. Further details may be provided on pages to be attached.

Date	Complainant's name	Complaint	Complaint recorded by	Source of problem	Comment / Action taken	Does complainant believe impact has declined?	Further action taken	Signature of responding officer



RECORD SHEET 2 - ENVIRONMENTAL DATA RECORD

The environmental data record form below is to be used to record any items of concern noted during ad hoc or monitoring assessments by the Abattoir Manager or abattoir staff as well as any actions taken and the effectiveness of those actions and any items of concern noted during monitoring or assessment. Further details may be provided on pages to be attached.

Date	Item	Comment/ Action taken	Effectiveness of action taken	Requirement/ Recommendation for changes to SBMP	Signature of person responsible



RECORD SHEET 3 - EMERGENCY AND INCIDENT RECORD

The emergency and incident registration form below is to be used to record any accidental release of contaminants and the action taken to restrict these from causing environmental pollution.

Date & time of incident	Date & time aware of incident	Cause of incident	Location of the incident	Corrective action



RECORD SHEET 4- TRAINING REGISTER

The following is an example record of formal environmental training/information programs undertaken.

NAME:
POSITION:
ADDRESS:
PHONE NO:

COMMENCED WORK:
QUALIFICATIONS/SKILLS:
JOB DESCRIPTION:

<u>QUALIFICATION/TRAINING REGISTER</u>	<u>DATE</u>	<u>SIGNATURE OF TRAINER</u>
HYGIENE SANITATION		
LIVESTOCK HANDLING & MOVEMENT		
INSTRUCTION IN CORRECT USE OF PRODDERS		
INSTRUCTION IN STUNNING OF SMALL STOCK		
CLEANING & SANITATION OF WORK AREAS & TOOLS		
ANTE-MORTEM INSPECTION		
POST-MORTEM INSPECTION		
INSTRUCTION IN EUTHANASIA METHODS		
EFFLUENT & ENVIRONMENTAL MANAGEMENT		

APPROVED: _____ **DATE:** _____



RECORD SHEET 5 - ODOUR ASSESSMENT RECORD

- STEP 1:** Using the German VDI 3882 ((VDI)-RICHTLINIEN 1993) odour intensity scale provided, record the odour intensity every 30 seconds over a 10 minute period.
- STEP 2:** Enter the highest intensity level experienced during the 10 minute period into the record below.
- STEP 3:** When an odour intensity of A-D is experienced, corrective action is required.

GERMAN VDI 3882 odour intensity scale

Odour intensity	Extremely strong	Very strong	Strong	Distinct	Weak	Very weak	Not perceptible
Intensity level	A	B	C	D	E	F	G

Name	Date	Time	Wind direction	Wind strength	Odour Monitoring Point		
					MP 1	MP 2	MP 4

RECORD SHEET 6- DUST & NOISE ASSESSMENT RECORD

	Name	Date & Time	Wind direction	Dust from abattoir		Noise from abattoir	
				Absent	Present	Absent	Present
MP 1							
MP 2							
MP 3							
MP 1							
MP 2							
MP 3							
MP 1							
MP 2							
MP 3							



RECORD SHEET 9- SLUDGE APPLICATION RECORDING SHEET

Date	Initials	Approx area (m²)	Volume pumped (m³)	Application rate (mm)	Checks for run-off or ponding	Weather observations

APPENDIX O- MEDLI DATA

Enterprise: Fucheng Abattoir

Description:
Proposed Abattoir Goondiwindi

Client: Fucheng

MEDLI User: Riki Lewis/Margaret Jewell

Scenario Details:
The high strength effluent is irrigated over a large land area to minimise nutrient leaching.

MEDLI REPORT - FULL RUN



medli

Climate Data: Goondiwindi, -28.5°, 150.4°

Run Period: 01/01/1970 to 31/12/2004 35 years, 0 days

Climate Statistics:

	5th ▾ Percentile	50th Percentile	95th ▾ Percentile
Rainfall (mm/year)		431	852
Pan Evaporation (mm/year)	1673	1909	2225

Climate Data:

Chart Table

Monthly Daily

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rain (mm)	89.0	76.2	48.1	38.9	46.7	25.2	37.7	32.3	34.4	51.9	64.7	72.6	617.5
Pan (mm)	255.3	203.2	194.1	136.6	91.7	69.0	74.3	102.5	146.0	193.5	224.4	258.1	1948.7
Max Temp (oC)	33.6	32.5	31.0	27.3	22.9	19.4	18.6	20.6	24.4	27.8	30.5	32.8	26.8
Min Temp (oC)	19.9	19.6	17.3	13.2	9.5	5.8	4.6	5.7	9.1	13.1	16.2	18.7	12.7
Rad (MJ/m2/day)	24.8	23.0	20.9	17.3	13.7	12.3	13.3	16.8	20.6	23.0	24.8	25.6	19.7
Net Evap (mm)	166.3	127.1	146.0	97.7	45.1	43.7	36.6	70.3	111.6	141.6	159.7	185.5	1331.1

DESCRIPTION



Effluent type: 8495 Fucheng Desert Oaks

Wastestream before any recycling or pretreatment

Average daily quantity and flow-weighted average quality:

Chart Table

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Effluent (ML)	2.0	2.5	2.5	2.5	2.6	2.4	2.5	2.6	2.4	2.6	2.5	2.4	2.5
TN (mg/L)	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0	220.0
TP (mg/L)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
TDS (mg/L)	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4	1318.4
VS (mg/L)	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0	1200.0
TS (mg/L)	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0	2600.0

Pretreatment

Piggery Rotating Screen (0.8mm), removing 0.02 effluent volume, 0.08 nitrogen, 0.11 phosphorus, 0.19 volatile solids and 0.14 total solids. (All values presented as fractions)

Wastestream after any recycling and pretreatment if applicable

Effluent quantity: 878.96 ML/year or 2.41 ML/day (Min-Max: 0.00 - 3.43)

Flow-weighted average (minimum - maximum) daily effluent quality entering pond system:

	Concentration (mg/L)	Load (kg/year)
Total Nitrogen	202.40 (0.00 - 202.40)	177901.91 (177723.39 - 178417.62)
Total Phosphorus	31.15 (0.00 - 31.15)	27379.67 (27352.19 - 27459.04)
Total Dissolved Salts	1318.40 (0.00 - 1318.40)	1158823.50 (1157660.67 - 1162182.78)
Volatile Solids	972.00 (0.00 - 972.00)	854351.06 (853493.76 - 856827.72)
Total Solids	2236.00 (0.00 - 2236.00)	1965359.03 (1963386.88 - 1971056.36)

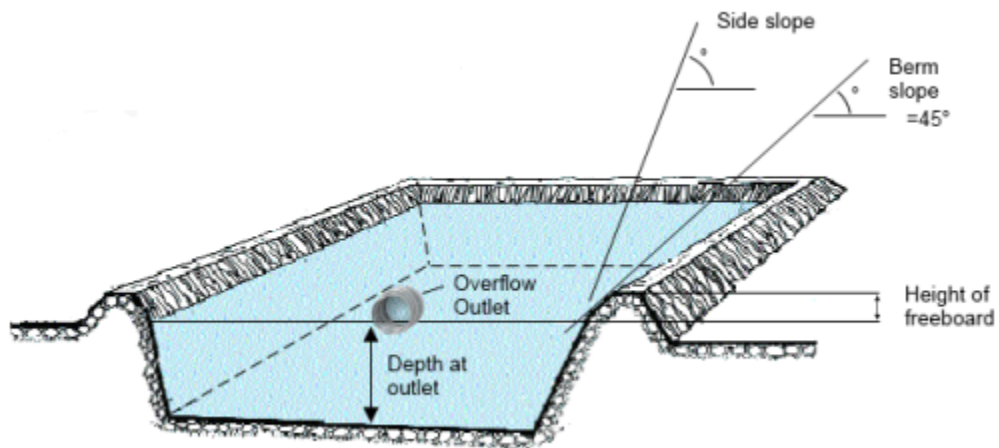
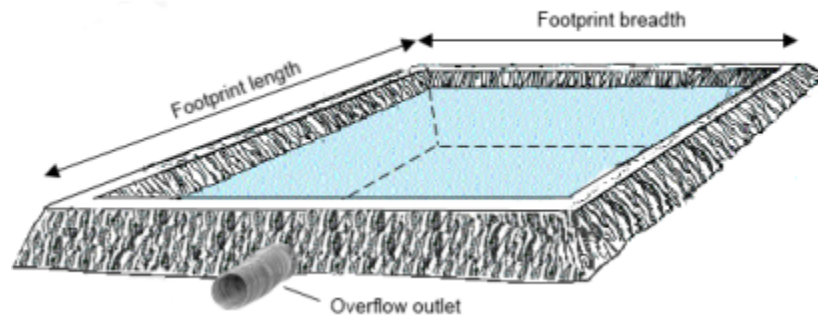
DESCRIPTION



Pond system: 3 ponds with an anaerobic pond first in the series

Pond system details:

	Pond 1	Pond 2	Pond 3
Maximum pond volume (ML)	117.00	70.00	70.00
Minimum allowable pond volume (ML)	34.11	70.00	57.17
Pond depth at overflow outlet (m)	5.00	2.00	3.00
Maximum water surface area (m2)	28141.67	37273.28	26141.10
Pond footprint length (m)	169.75	195.06	163.68
Pond footprint width (m)	169.75	195.06	163.68
Pond catchment area (m2)	28816.69	38049.52	26791.82
Average active volume (ML)	94.48	69.55	56.74



DESCRIPTION

Irrigation pump limits:

Minimum pump rate per area limit (ML/day/ha)	0.00
Maximum pump rate per area limit (ML/day/ha)	1.00

Shandyng water:

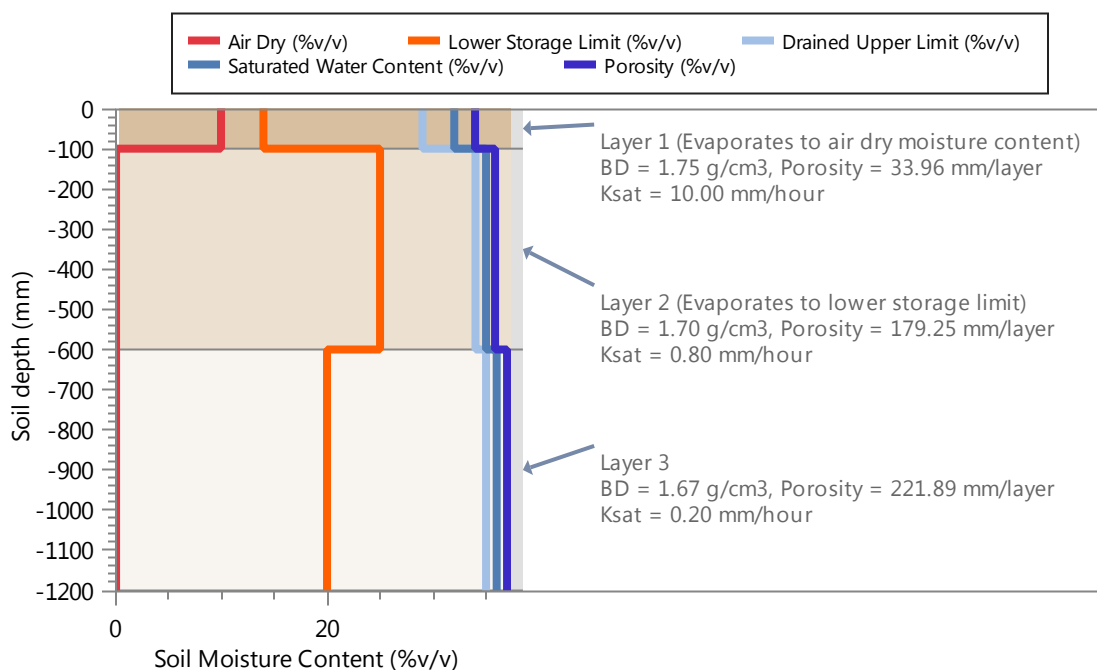
Annual allocation of fresh water available for shandyng (ML/year)	0.00
Maximum rate of application of fresh water (ML/day)	0.00
Nitrogen concentration (mg/L)	0.00
Salinity (dS/m)	0.00
Minimum shandy water is used	False

Land: Desert Oaks Fucheng

Area (ha): 100.00

Soil Type: Mod Duplex 1 for Fucheng, 1200.00 mm defined profile depth

Profile Porosity (mm)	435.09
Profile saturation water content (mm)	423.00
Profile drained upper limit (or field capacity) (mm)	409.00
Profile lower storage limit (or permanent wilting point) (mm)	259.00
Profile available water capacity (mm)	150.00
Profile limiting saturated hydraulic conductivity (mm/hour)	0.20
Surface saturated hydraulic conductivity (mm/hour)	10.00
Runoff curve number II (coefficient)	82.00
Soil evaporation U (mm)	8.00
Soil evaporation Cona (mm/sqrt day)	4.00



DESCRIPTION

Plant Data: Continuous Kikuyu 2 Pasture

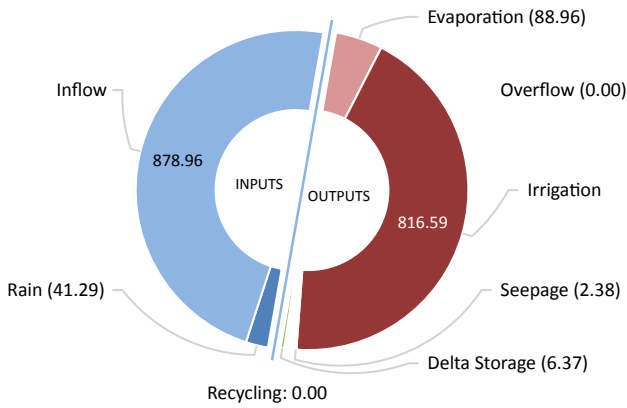
Average monthly cover (fraction) (minimum - maximum)	0.83 (0.72 - 0.89)
Maximum crop factor at 100% cover (mm/mm) (Maximum crop coefficient 0.85 x Pan coefficient 1)	0.85
Total plant cover (both green and dead) left after harvest (fraction)	1.00
Maximum potential root depth in defined soil profile (mm)	1200.00
Salt tolerance	Moderately tolerant
Salinity threshold EC sat. ext. (dS/m)	3.00
Proportion of yield decrease per dS/m increase (fraction/dS/m)	0.03



Pond System Water Performance - Overflow: 3 ponds with an anaerobic pond first in the series

Capacity of wet weather storage pond: **70 ML**

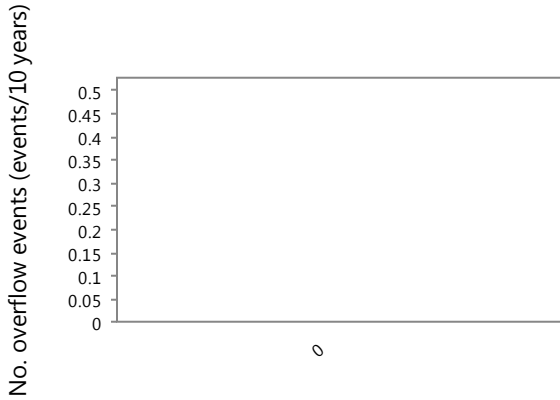
Pond System Water Balance (ML/year)



Name	Value
Rain	41.29
Inflow	878.96
Recycling	0.00
Evaporation	88.96
Overflow	0.00
Irrigation	816.59
Seepage	2.38
Delta Storage	6.37

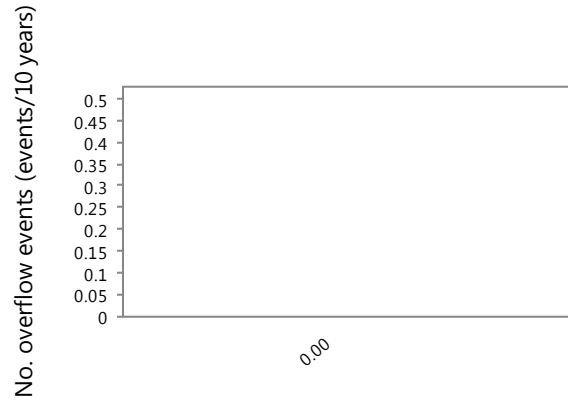
Overflow Diagnostics

Volume of overflow (ML/year)	0.00
No. days pond overflows (days/year)	0.00
Average duration of overflow (days)	0.00
Effluent Reuse (Proportion of Inflow + Net Rain Gain that is Irrigated) (fraction)	1.00
Probability of at least 90% reuse (fraction)	1.00



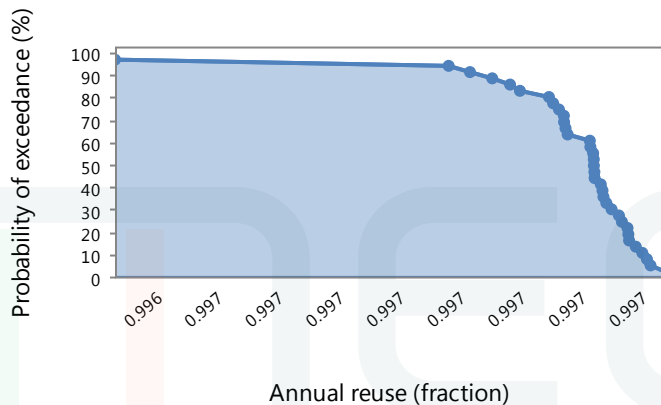
Overflow event duration exceeded (days)

[Export plot](#)



Overflow volume exceeded (ML)

[Export plot](#)



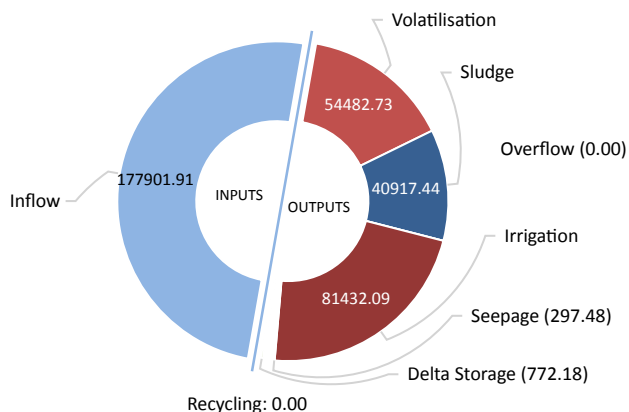
Annual reuse (fraction)

[Export plot](#)

Pond System Performance - Nutrient: 3 ponds with an anaerobic pond first in the series

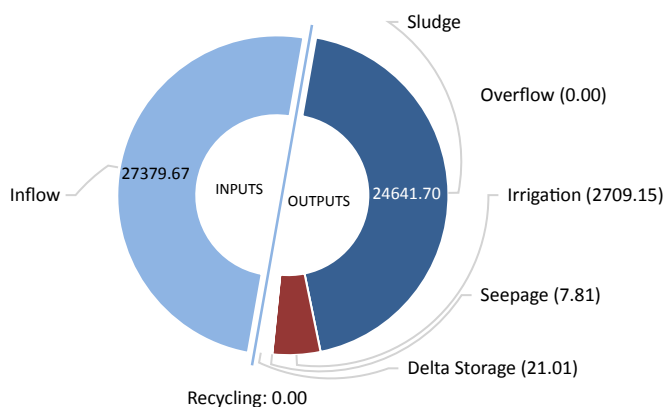
Pond System Nutrients and Salt Balance:

Nitrogen Balance (kg/year)



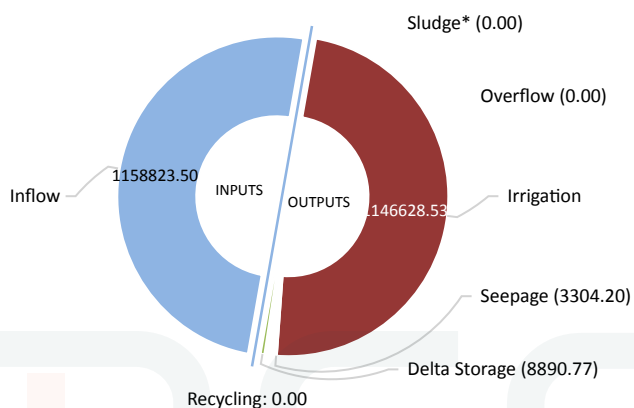
Name	Value
Inflow	177901.91
Recycling	0.00
Volatilisation	54482.73
Sludge	40917.44
Overflow	0.00
Irrigation	81432.09
Seepage	297.48
Delta Storage	772.18

Phosphorus Balance (kg/year)



Name	Value
Inflow	27379.67
Recycling	0.00
Sludge	24641.70
Overflow	0.00
Irrigation	2709.15
Seepage	7.81
Delta Storage	21.01

Salt Balance (kg/year)



Name	Value
Inflow	1158823.50
Recycling	0.00
Sludge*	0.00
Overflow	0.00
Irrigation	1146628.53
Seepage	3304.20
Delta Storage	8890.77

* Salt removal in sludge is not calculated from the pond salt balance. However if salt could be assumed to be present in the sludge at the same concentration as in the pond supernatant (up to a maximum of salt added in inflow) - then salt accumulation in the sludge could be 8035.60 kg/year

Pond System Sludge Accumulation: 3632573.10 kg dwt/year

Pond System Performance - Nutrient: 3 ponds with an anaerobic pond first in the series

Pond Nutrient Concentrations and Salinity:

Average across simulation period	Pond 1	Pond 2	Pond 3
Average nitrogen concentration of pond liquid (mg/L)	136.93	114.51	98.93
Average phosphorus concentration of pond liquid (mg/L)	3.21	3.33	3.32
Average salinity of pond liquid (dS/m)	2.13	2.20	2.20

Value on final day of simulation period	Pond 1	Pond 2	Pond 3
Final nitrogen concentration of pond liquid (mg/L)	137.41	115.78	100.75
Final phosphorus concentration of pond liquid (mg/L)	3.22	3.35	3.36
Final salinity of pond liquid (dS/m)	2.13	2.22	2.22

PERFORMANCE



Irrigation Performance:

Water Use: (assumes 100% Irrigation Efficiency)

Pond water irrigated (ML/year)	816.59
Average Shandy water irrigation (ML/year) (minimum - maximum)	0.00 (0.00 - 0.00)
Total water irrigated (ML/year)	816.59
Proportion of irrigation events requiring shandying (fraction of events)	0.00
Proportion of years shandying water allocation of 0 ML/year is exceeded (fraction of years)	0.00
Average exceedance as a proportion of annual shandy water allocation (fraction of allocation) (minimum - maximum)	0.00 (0.00 - 0.00)

Irrigation Quality:

Average nitrogen concentration of irrigation water - before ammonia loss during irrigation (mg/L)	99.72
Average nitrogen concentration of irrigation water - after ammonia loss during irrigation (mg/L)	75.79
Average phosphorus concentration of irrigation water (mg/L)	3.32
Average salinity of irrigation water (dS/m)	2.19

Irrigation Diagnostics:

Proportion of Days pond volume below min. vol. for irrigation (fraction)	0.28
Proportion of Days irrigation occurs (fraction)	0.72



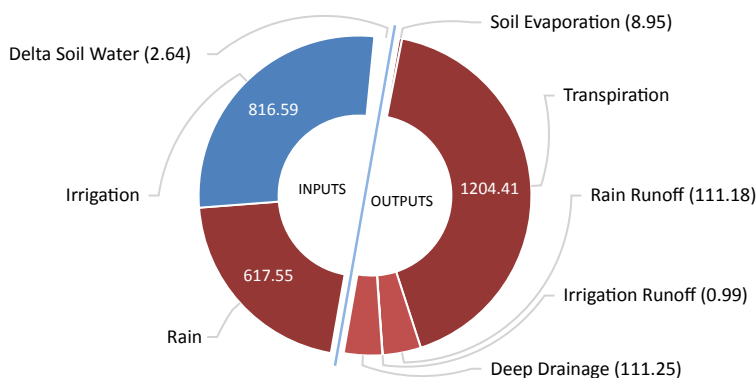
Land Performance - Soil Water

Paddock: Desert Oaks Fucheng, 100 ha

Soil Type: Mod Duplex 1 for Fucheng, 150.00 mm PAWC at maximum root depth

Land Water Balance (mm/year):

mm/year % Total inputs



Name	Value
Rain	617.55
Irrigation	816.59
Soil Evaporation	8.95
Transpiration	1204.41
Rain Runoff	111.18
Irrigation Runoff	0.99
Deep Drainage	111.25
Delta Soil Water	-2.64

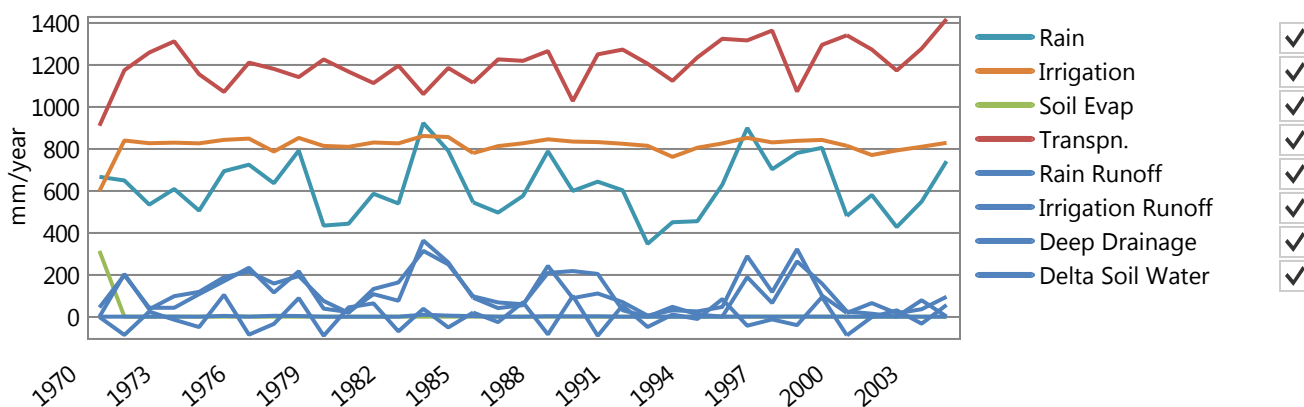
Average Monthly Totals (mm):

Chart Table

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rain	89.0	76.2	48.1	38.9	46.7	25.2	37.7	32.3	34.4	51.9	64.7	72.6	617.5
Irrigation	54.2	63.2	67.1	67.5	77.6	68.3	75.1	74.0	64.6	72.2	67.2	65.6	816.6
Soil Evap	2.3	0.0	0.0	0.8	2.1	1.3	1.1	1.0	0.2	0.0	0.0	0.0	8.9
Transpn.	123.9	119.0	107.9	83.2	52.8	45.8	53.9	77.7	102.3	131.1	146.7	160.1	1204.4
Rain Runoff	13.9	13.1	5.0	6.9	12.4	7.4	16.4	9.7	8.4	7.7	6.9	3.3	111.2
Irrigation Runoff	0.0	0.0	0.0	0.1	0.4	0.1	0.3	0.0	0.0	0.1	0.0	0.0	1.0
Deep Drainage	1.9	1.9	2.3	3.5	11.7	21.3	28.8	20.2	10.2	5.2	3.5	0.8	111.3
Delta Soil Water	1.2	5.5	0.0	11.9	44.8	17.5	12.2	-2.4	-22.1	-20.0	-25.2	-26.0	-2.6

Average Annual Totals (mm/year):

Chart Table



PERFORMANCE



Land Performance - Soil Nutrient

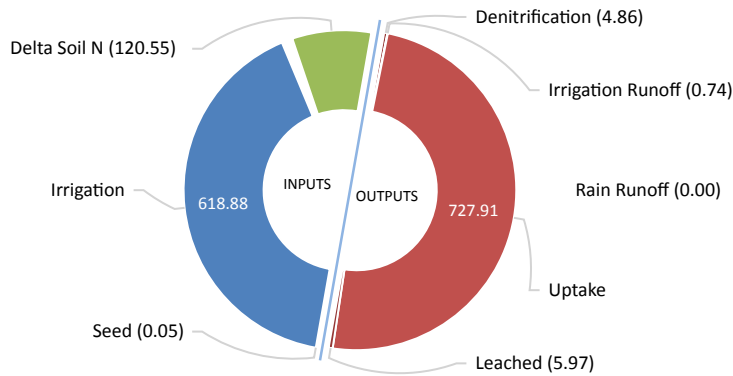
Paddock: **Desert Oaks Fucheng, 100 ha**

Soil Type: **Mod Duplex 1 for Fucheng**

Irrigation ammonium volatilisation losses (kg/ha/year): 195.44

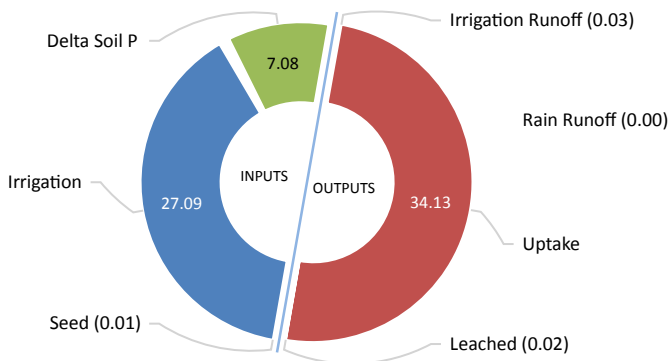
Proportion of total nitrogen in irrigated effluent as ammonium (fraction): 0.80

Land Nitrogen Balance (kg/ha/year)



Name	Value
Seed	0.05
Irrigation	618.88
Denitrification	4.86
Irrigation Runoff	0.74
Rain Runoff	0.00
Uptake	727.91
Leached	5.97
Delta Soil N	-120.55

Land Phosphorus Balance (kg/ha/year)



Name	Value
Seed	0.01
Irrigation	27.09
Irrigation Runoff	0.03
Rain Runoff	0.00
Uptake	34.13
Leached	0.02
Delta Soil P	-7.08

PERFORMANCE

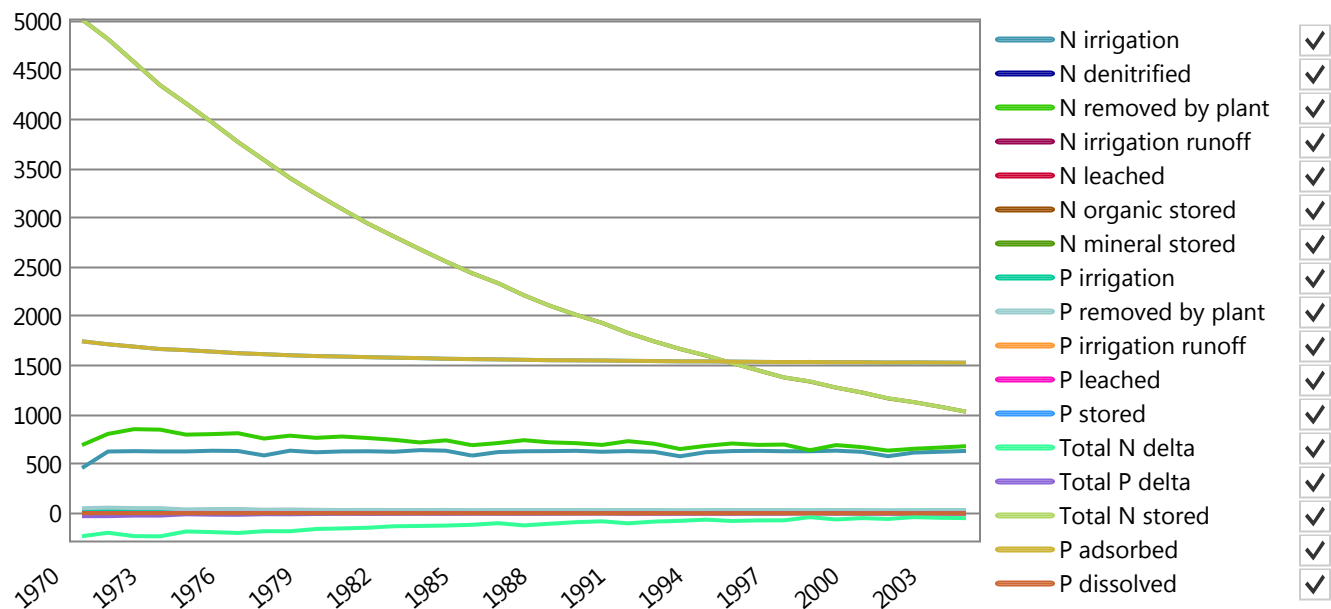


Land Performance - Soil Nutrient

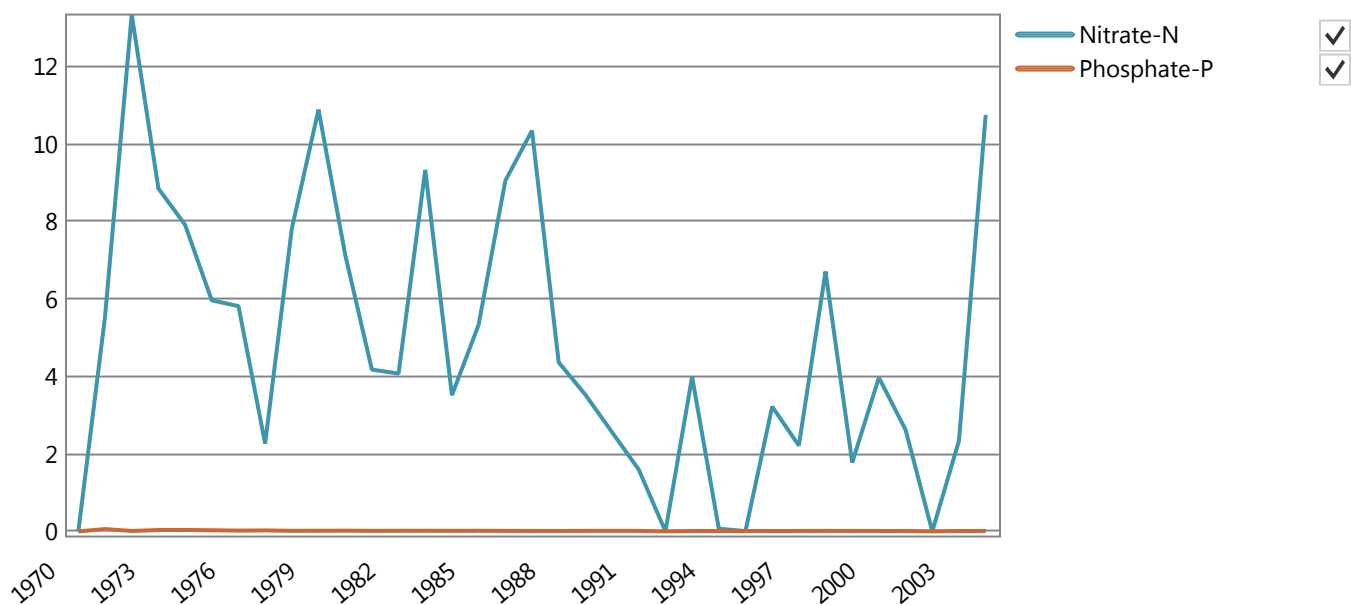
Paddock: Desert Oaks Fucheng, 100 ha

Soil Type: Mod Duplex 1 for Fucheng

Annual Nutrient Totals (kg/ha):



Annual Nutrient Leaching Concentration (mg/L):



PERFORMANCE



Plant Performance and Nutrients

Paddock: Desert Oaks Fucheng, 100 ha

Soil Type: Mod Duplex 1 for Fucheng

Plant: Continuous Kikuyu 2 Pasture

Average annual shoot dry matter yield (kg/ha/year)	28775.42 (25119.23 - 32571.20)
Average monthly plant (green) cover (fraction) (minimum - maximum)	0.83 (0.72 - 0.89)
Average monthly root depth (mm) (minimum - maximum)	1190.84 (1172.25 - 1200.00)

Nutrient Uptake (minimum - maximum):

Average annual net nitrogen removed by plant uptake (kg/ha/year)	727.91 (636.46 - 854.40)
Average annual net phosphorus removed by plant uptake (kg/ha/year)	34.13 (26.18 - 56.98)
Average annual shoot nitrogen concentration (fraction dwt)	0.03 (0.02 - 0.03)
Average annual shoot phosphorus concentration (fraction dwt)	0.002 (0.001 - 0.002)

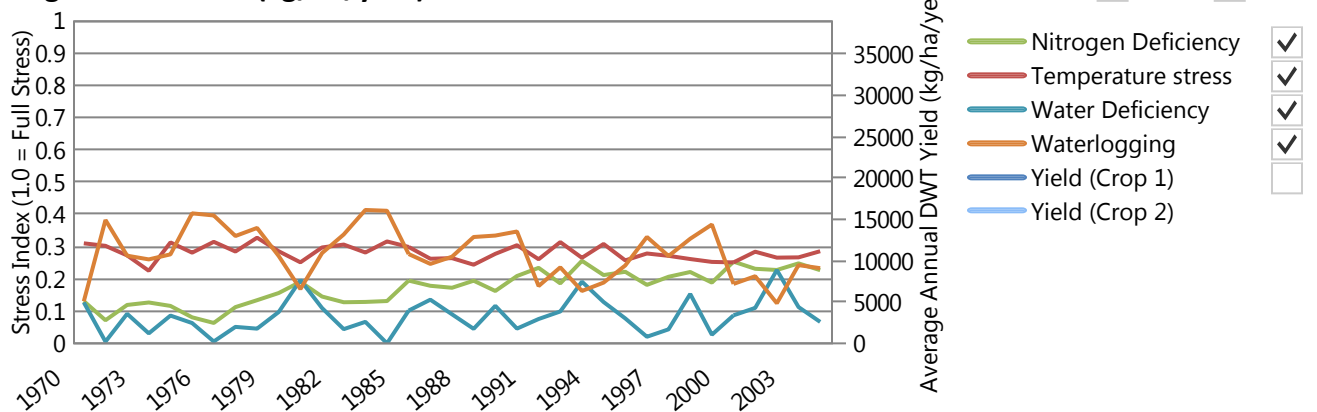
Average Monthly Yield (kg/ha/year) and Plant Stresses

Chart Table

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nitrogen Deficiency	0.45	0.43	0.32	0.29	0.07	0.00	0.00	0.00	0.00	0.03	0.16	0.35
Temperature stress	0.07	0.05	0.02	0.09	0.39	0.71	0.79	0.67	0.36	0.10	0.04	0.06
Water Deficiency	0.25	0.20	0.18	0.16	0.05	0.01	0.00	0.00	0.00	0.01	0.03	0.12
Waterlogging	0.08	0.12	0.15	0.17	0.38	0.52	0.53	0.48	0.37	0.26	0.19	0.10
Yield (Crop 1)	2750	2734	2782	2397	1381	650	544	1215	2574	3989	3961	3796
Yield (Crop 2)	0	0	0	0	0	0	0	0	0	0	0	0

Average Annual Yield (kg/ha/year) and Plant Stresses

Chart Table



No. of harvests/year: 5.06 (normal), 0.03 (forced by crop death due to water stress (0.03))

No. days without crop/year (days/year): 0.31 due to water stress (0.31)

PERFORMANCE



Land Performance

Paddock: Desert Oaks Fucheng, 100 ha

Soil Type: Mod Duplex 1 for Fucheng

Plant: Continuous Kikuyu 2 Pasture

Salt tolerance	Moderately tolerant
Salinity threshold EC sat. ext. (dS/m)	3.00
Proportion of yield decrease per dS/m increase (fraction/dS/m)	0.03
No. years assumed for leaching to reach steady-state (years)	10.00

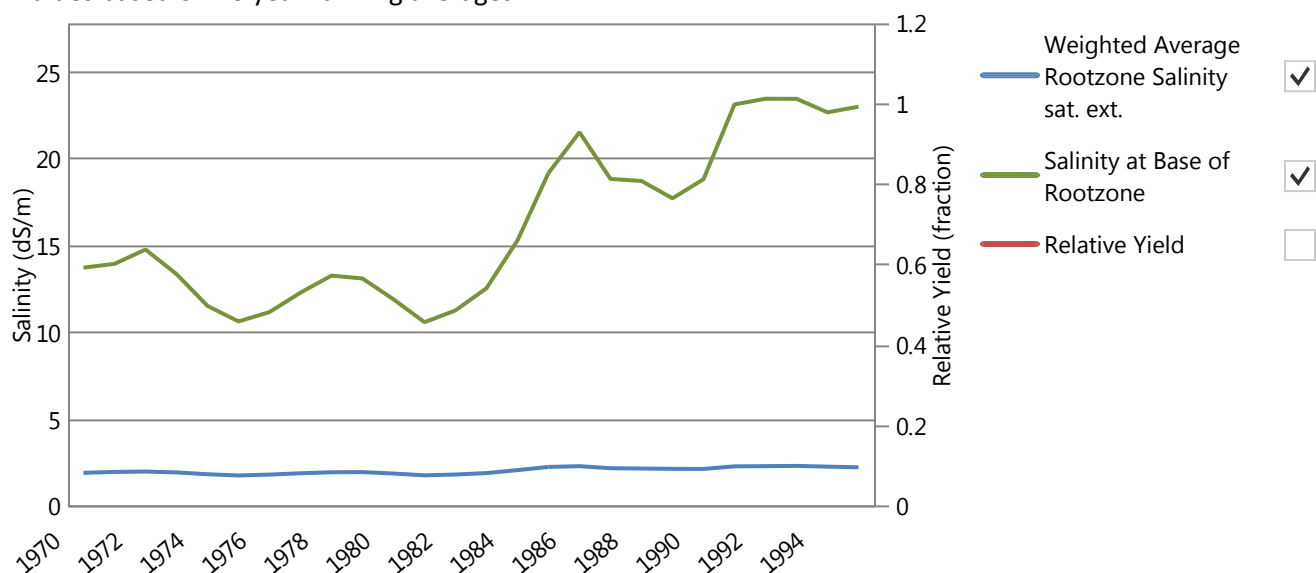
Soil Salinity:

Salinity of infiltrated water (Average salinity of rainwater = 0.03 dS/m) (dS/m)	1.37
Salt added by rainfall (kg/ha/year)	97.22
Average annual effluent salt added & leached at steady state (kg/ha/year)	11550.14
Average leaching fraction based on 10 year running averages (fraction)	0.31
Average water-uptake-weighted rootzone salinity sat. ext. (dS/m)	2.06
Salinity of the soil solution (at drained upper limit) at base of rootzone (dS/m)	16.18
Relative crop yield expected due to salinity (fraction)	1.00
Proportion of years that crop yields would be expected to fall below 90% of potential due to salinity (fraction)	0.00

Average Annual Rootzone Salinity and Relative Yield:

Chart Table

All values based on 10 year running averages



PERFORMANCE



Groundwater

Recharge:

Average groundwater recharge (ML/day): 0.30

Average nitrate-N concentration of recharge (mg/L): 5.37

Aquifer characteristics:

Thickness (m)	10.0
Porosity (fraction)	0.1
Specific flux (mm/hour)	0.4
Vertical dispersion coefficient (m ² /day)	1.0
Longitudinal dispersion coefficient (m ² /day)	100.0
Retardation factor due to adsorption (multiplier)	1.0

Groundwater Nitrate-N concentration (mg/L) at property boundary, 1000 m from effluent irrigation area:

Chart Table

Year	Depth below water table surface		
	0 m	5.5 m	9.1 m
1974	1.04	1.04	1.04
1979	2.34	2.34	2.34
1984	3.05	3.05	3.05
1989	3.46	3.46	3.46
1994	3.70	3.70	3.70
1999	3.86	3.86	3.86
2004	3.96	3.96	3.96

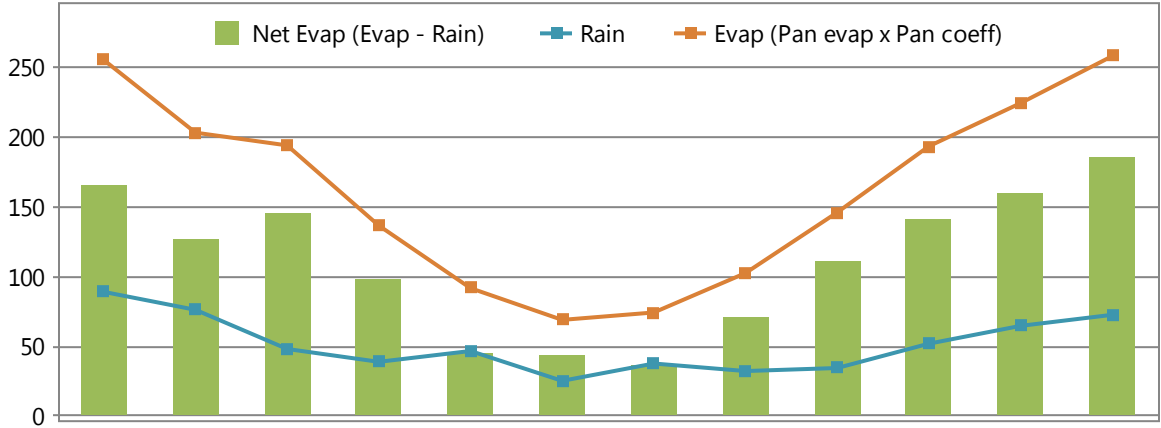


Sustainability Diagnostics: Fucheng Abattoir

Averaged Historical Climate Data Used in Simulation (mm)

Location: **Goondiwindi, -28.5°, 150.4°**

Run Period: **01/01/1970 to 31/12/2004** 35 years, 0 days



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rain	89.0	76.2	48.1	38.9	46.7	25.2	37.7	32.3	34.4	51.9	64.7	72.6	617.5
Evap	255.3	203.2	194.1	136.6	91.7	69.0	74.3	102.5	146.0	193.5	224.4	258.1	1948.7
Net Evap	166.3	127.1	146.0	97.7	45.1	43.7	36.6	70.3	111.6	141.6	159.7	185.5	1331.1
Net Evap/day	5.4	4.5	4.7	3.3	1.5	1.5	1.2	2.3	3.7	4.6	5.3	6.0	3.6

DIAGNOSTICS



Sustainability Diagnostics: Fucheng Abattoir

Pond System: 3 ponds with an anaerobic pond first in the series

8495 Fucheng Desert Oaks - 878.96 ML/year or 2.41 ML/day generated on average

Effluent entering pond system after any pretreatment and recycling

Average (Minimum-Maximum) influent quality calculated for 256.26 non-zero flow days, after any pretreatment and recycling.

Constituent	Concentration (mg/L)	Load (kg/year)
Total Nitrogen	202.40 (0.00 - 202.40)	177901.91 (177723.39 - 178417.62)
Total Phosphorus	31.15 (0.00 - 31.15)	27379.67 (27352.19 - 27459.04)
Total Dissolved Salts	1318.40 (0.00 - 1318.40)	1158823.50 (1157660.67 - 1162182.78)
Volatile Solids	972.00 (0.00 - 972.00)	854351.06 (853493.76 - 856827.72)
Total Solids	2236.00 (0.00 - 2236.00)	1965359.03 (1963386.88 - 1971056.36)

Last pond (Wet weather store): 70.00 ML

Theoretical hydraulic retention time (days)	29.09
Average volume of overflow (ML/year)	0.00
No. overflow events per year exceeding threshold* of 0.03 ML (no./year)	0.00
Average duration of overflow (days)	0.00
Effluent Reuse (Proportion of Inflow + Net Rain Gain that is Irrigated) (fraction)	1.00
Probability of at least 90% effluent reuse (fraction)	1.00
Average salinity of last pond (dS/m)	2.20
Salinity of last pond on final day of simulation (dS/m)	2.22
Ammonia loss from pond system water area (kg/m2/year)	21.02

* The threshold is the volume equivalent to the top 1 mm depth of water of a full pond

Overflow exceedance:

Chart Table

Overflow volume exceeded (ML)	No. overflow events (events/10 years)
0.00	0.00

DIAGNOSTICS



Sustainability Diagnostics: Fucheng Abattoir

Irrigation Information

Irrigation: 100 ha total area (assumed 100% irrigation efficiency)

	Quantity/year	Quantity/ha/year
Total irrigation applied (ML)	816.59	8.17
Total nitrogen applied (kg)	61888.39	618.88
Total phosphorus applied (kg)	2709.15	27.09
Total salts applied (kg)	1146628.53	11466.29

Shandying

Annual allocation of fresh water for shandying (ML/year)	0.00
Average Shandy water irrigation (ML/year) (minimum - maximum)	0.00 (0.00 - 0.00)
Average exceedance as a proportion of annual shandy water allocation (% of allocation) (minimum - maximum)	0.00 (0.00 - 0.00)
Proportion of irrigation events requiring shandying (fraction of events)	0.00
Minimum shandy water is used	False

Irrigation Issues

Proportion of Days irrigation is turned off (fraction)	0.00
Proportion of Days irrigation is prevented when triggered (fraction)	0.28
Proportion of Days irrigation occurs (fraction)	0.72



Sustainability Diagnostics: Fucheng Abattoir

Paddock Land: Desert Oaks Fucheng: 100 ha

Irrigation: Lateral Move Fucheng with 0.3% ammonium loss during irrigation

Irrigation triggered every 1 days
Irrigate up to a soil water content of drained upper limit plus 5.00 mm
Irrigation window from 1/1 to 31/12 including the days specified
A minimum of 1 days must be skipped between irrigation events

Soil Water Balance (mm): Mod Duplex 1 for Fucheng, 150.00 mm PAWC at maximum root depth

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rain	89.0	76.2	48.1	38.9	46.7	25.2	37.7	32.3	34.4	51.9	64.7	72.6	617.5
Irrigation	54.2	63.2	67.1	67.5	77.6	68.3	75.1	74.0	64.6	72.2	67.2	65.6	816.6
Soil Evap	2.3	0.0	0.0	0.8	2.1	1.3	1.1	1.0	0.2	0.0	0.0	0.0	8.9
Transpn.	123.9	119.0	107.9	83.2	52.8	45.8	53.9	77.7	102.3	131.1	146.7	160.1	1204.4
Rain Runoff	13.9	13.1	5.0	6.9	12.4	7.4	16.4	9.7	8.4	7.7	6.9	3.3	111.2
Irr. Runoff	0.0	0.0	0.0	0.1	0.4	0.1	0.3	0.0	0.0	0.1	0.0	0.0	1.0
Drainage	1.9	1.9	2.3	3.5	11.7	21.3	28.8	20.2	10.2	5.2	3.5	0.8	111.3
Delta	1.2	5.5	0.0	11.9	44.8	17.5	12.2	-2.4	-22.1	-20.0	-25.2	-26.0	-2.6

Soil Nitrogen Balance

Average annual effluent nitrogen added (kg/ha/year)	618.88
Average annual soil nitrogen removed by plant uptake (kg/ha/year)	727.91
Average annual soil nitrogen removed by denitrification (kg/ha/year)	4.86
Average annual soil nitrogen leached (kg/ha/year)	5.97
Average annual nitrate-N loading to groundwater (kg/ha/year)	5.97
Soil organic-N kg/ha (Initial - Final)	5150.00 - 1032.10
	101.35 - 0.03
Average nitrate-N concentration of deep drainage (mg/L)	5.37
Max. annual nitrate-N concentration of deep drainage (mg/L)	13.33

Soil Phosphorus Balance

Average annual effluent phosphorus added (kg/ha/year)	27.09
Average annual soil phosphorus removed by plant uptake (kg/ha/year)	34.13
Average annual soil phosphorus leached (kg/ha/year)	0.02
Dissolved phosphorus (kg/ha) (Initial - Final)	0.41 - 0.03
Adsorbed phosphorus (kg/ha) (Initial - Final)	1777.10 - 1529.66
Average phosphate-P concentration in rootzone (mg/L)	0.02
Average phosphate-P concentration of deep drainage (mg/L)	0.02
Max. annual phosphate-P concentration of deep drainage (mg/L)	0.06
Design soil profile storage life based on average infiltrated water phosphorus concn. of 2.05 mg/L (years)	76.56

DIAGNOSTICS



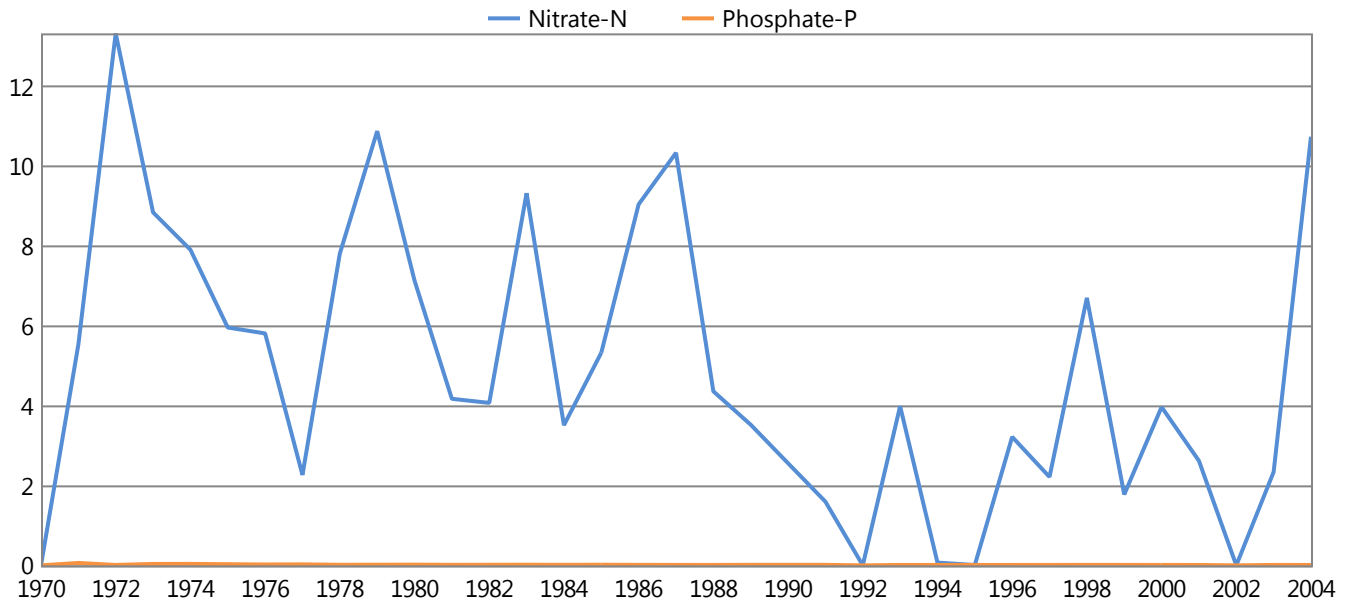
Sustainability Diagnostics: Fucheng Abattoir

Paddock Land: Desert Oaks Fucheng: 100 ha

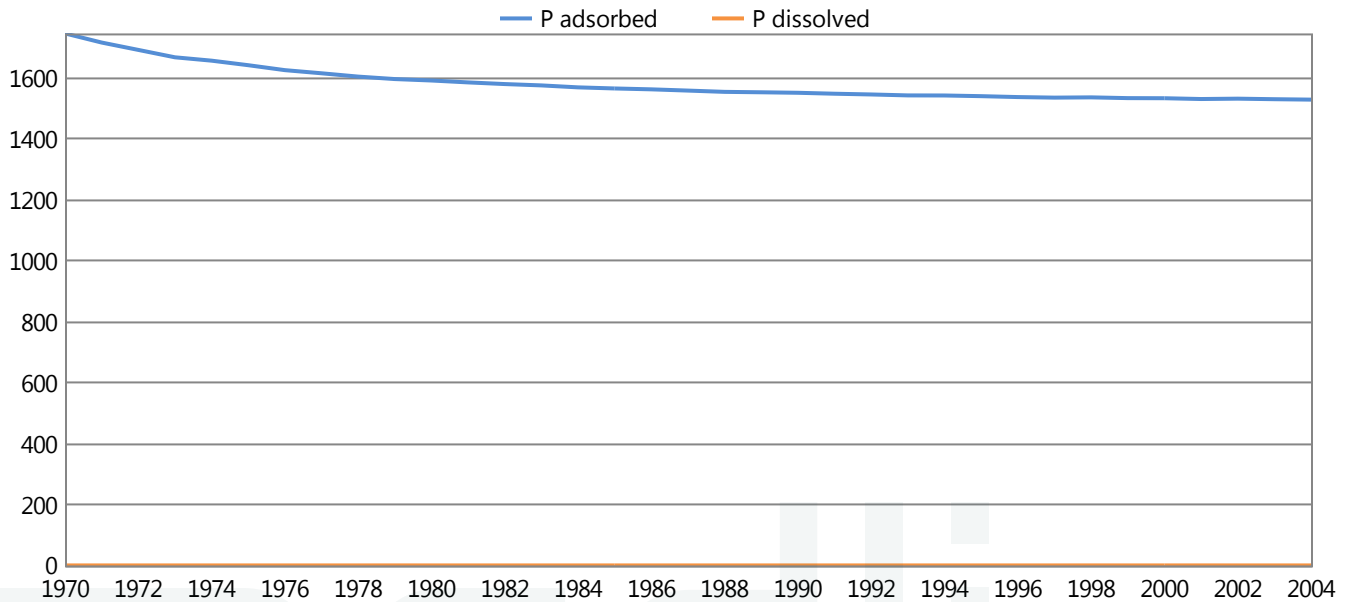
Irrigation: Lateral Move Fucheng with 0.3% ammonium loss during irrigation

DIAGNOSTICS

Annual nutrient leachate concentration (mg/L)



Annual Phosphate-P in soil (kg/ha)



Sustainability Diagnostics: Fucheng Abattoir

Paddock Plant Performance: Desert Oaks Fucheng: 100 ha

Average Plant Performance (Minimum - Maximum): Continuous Kikuyu 2 Pasture

Average annual shoot dry matter yield (kg/ha/year)	28775.42 (25119.23 - 32571.20)
Average monthly plant (green) cover (fraction)	0.83 (0.72 - 0.89)
Average monthly crop factor (fraction)	0.70 (0.61 - 0.76)
Total plant cover (both green and dead) left after harvest (fraction)	1.00
Average monthly root depth (mm)	1190.84 (1172.25 - 1200.00)
Average number of normal harvests per year (no./year)	5.06 (3.00 - 6.00)
Average number of normal harvests for last five years only (no./year)	5.20
Average number of crop deaths per year (no./year)	0.03 (0.00 - 1.00)
Average number of crop deaths for last five years only (no./year)	0.00
Average annual nitrogen deficiency index (0 = no stress, 1 = full stress) (coefficient)	0.17 (0.06 - 0.26)
Average January temperature stress index (0 = no stress, 1 = full stress) (coefficient)	0.07 (0.01 - 0.14)
Average July temperature stress index (0 = no stress, 1 = full stress) (coefficient)	0.79 (0.53 - 0.93)
Average monthly water stress index (0 = no stress, 1 = full stress) (coefficient)	0.09 (0.00 - 0.25)
Average monthly waterlogging index (0 = no stress, 1 = full stress) (coefficient)	0.28 (0.08 - 0.53)
No. days without crop/year (days)	0.31

Soil Salinity - Plant salinity tolerance: Moderately tolerant

Assumes 1.0 dS/m Electrical Conductivity = 640 mg/L Total Dissolved Salts

All values based on 10 year running averages

Salinity of infiltrated water (Average salinity of rainwater = 0.03 dS/m) (dS/m)	1.37
Salt added by rainfall (kg/ha/year)	97.22
Average annual effluent salt added & leached at steady state (kg/ha/year)	11550.14
Average leaching fraction based on 10 year running averages (fraction)	0.31
Average water-uptake-weighted rootzone salinity sat. ext. (dS/m)	2.06
Salinity of the soil solution (at drained upper limit) at base of rootzone (dS/m)	16.18
Relative crop yield expected due to salinity (fraction)	1.00
Proportion of years that crop yields would be expected to fall below 90% of potential due to salinity (fraction)	0.00

DIAGNOSTICS



Run Messages

Messages generated when the scenario was run:

Full run chosen

DIAGNOSTICS

