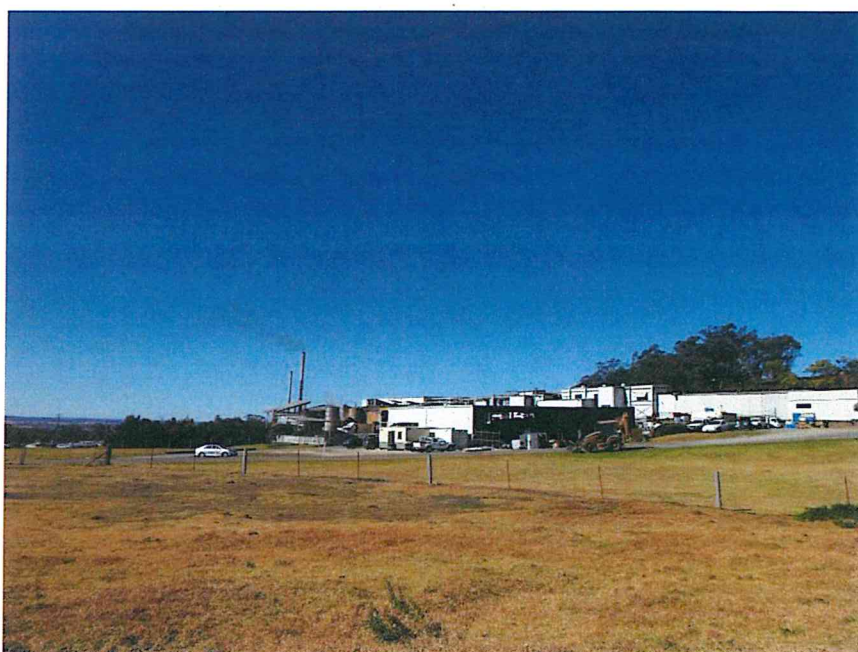




ASSESSMENT REPORT:
Rendering Plant and Bio-digester Plant, Inverell
(SSD-6093)



Secretary's
Assessment Report
Section 89E of the
Environmental Planning and Assessment Act 1979

December 2014

ABBREVIATIONS

Department Applicant	Department of Planning and Environment Bindaree Beef Pty Ltd, or any other person or persons who rely on this consent to carry out the development that is subject to this consent
BCA	Building Code of Australia
CIV	Capital Investment Value
Consent	This development consent
Council	Inverell Shire Council
DA	Development Application
DAF	Dissolved Air Flotation
EARS	Environmental Assessment Requirements
Secretary	Secretary, or nominee
EEC	Endangered Ecological Communities
EIS	The Environmental Impact Statement titled ' <i>Biodigester Plant and Rendering Plant</i> ' and accompanying appendices, prepared by Mitchel Hanlon Consulting Pty Ltd and dated July 2014
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPI	Environmental Planning Instrument
ICNG	Interim Construction Noise Guidelines
INP	Industrial Noise Policy
LEP	Local Environmental Plan
Minister	Minister for Planning
NOW	Department of Primary Industries - NSW Office of Water
NSW	New South Wales
OEH	Office of Environment and Heritage
RBL	Rating Background Level
RMS	Roads and Maritime Services
RTS	Response to Submissions titled ' <i>Biodigester Plant and Rendering Plant Submissions Report</i> ' and accompanying appendices, dated October 2014 and prepared by Mitchel Hanlon Consultants Pty Ltd
SEPP	State Environmental Planning Policy
SEPP 33	<i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development</i>
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSD	State Significant Development
TAPM	The Air Pollution Model
VOC	Volatile organic compounds

Cover Photograph: Bindaree Beef Abattoir

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EXECUTIVE SUMMARY

Bindaree Beef Pty Ltd (the Applicant) has submitted a development application and Environmental Impact Statement (EIS) for the construction and operation of a wastewater treatment plant (bio-digester) and rendering plant at the Bindaree Beef abattoir located at 7307 Gwydir Highway, Inverell in the Inverell Shire Local Government Area.

The abattoir has been in operation since the early 1950s, and was purchased by the Applicant in 1995 from North West Exports, who previously owned the abattoir. The Applicant currently supplies beef products to both domestic and overseas markets including Singapore, Japan and the USA.

The abattoir currently employs over 700 people and at full capacity, is capable of processing up to 1,100 cattle a day. The site has had a history of odour and waste management issues which is largely due to current and past waste management practices at the abattoir.

The EIS for the project describes two components:

- a bio-digester to process waste and wastewater to generate biogas; and
- a rendering plant to render inedible products for purified fat and protein productions.

The proposed anaerobic digester plant will accept all waste streams including manure, paunch material and waste from the abattoir plant to generate bio-gas, solid fertiliser and liquid digestate (a nutrient rich product of anaerobic digestion). The bio-digester has the benefit of completely eliminating the waste streams that are generated by the abattoir while also producing gas to supplement electricity consumption at the abattoir.

The proposed render plant will be located on a greenfield site adjacent to the abattoir plant and will replace an existing render plant currently located within the facility. The proposed render plant is a new plant design. The key benefits of the rendering plant replacement are reduced steam and electrical consumption due to shorter cooking times, elimination of coal as an energy source and reducing greenhouse gas emissions.

In 2013, the Applicant was awarded a \$23 million grant from the Australian Federal Government through the Clean Technology Food and Foundries Investment Program to go towards the capital costs of the project.

The development application has a capital investment value of over \$43 million and would employ approximately 60 people during construction. The proposal would assist in the long term sustainability of the abattoir allowing it to continue to provide economic support for the region while also reducing some of the environmental impacts of the site.

The proposal is classified as State Significant Development (SSD) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) because it involves development for the purposes of electricity generating works or heat and their co-generation with a capital investment value of more than \$30 million. As such, the proposal meets the criteria in Clause 20(a) of Schedule 1 in the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Consequently, the Minister for Planning is the consent authority.

The Department of Planning and Environment (the Department) exhibited the EIS from 16 July 2014 until 18 August 2014, and received a total of 9 submissions including 6 submissions from public authorities and 3 submissions from surrounding land owners and community members. All of the public authorities generally support the project; however a number of questions were raised in relation to odour, noise and groundwater. Three submissions were received from the public who raised issues around odour and noise from the project.

Additional information providing clarification on these issues was provided by the Applicant in its Response to Submissions (RTS) report, which was submitted to the Department in October 2014. The public authorities have accepted the RTS and consider that the project should be approved subject to a number of recommended conditions.

The Department has considered the EIS, submissions on the project, and the RTS in accordance with all relevant matters under Section 79C of the EP&A Act, the objects of the EP&A Act and the principles of ecologically sustainable development.

The Department has recommended a number of conditions including measures to manage air quality and odour, noise limits, water, traffic, landscaping and vegetation, hazards and risks. The Department has also recommended conditions for on-going environmental management, including annual reporting and regular independent audits.

The Department's assessment concluded that the project would provide a number of environmental improvements from the existing operation, including in the following areas:

- air quality and odour – the project is expected to result in a significant reduction in odour emissions from the site;
- waste management – the project would reduce certain waste material generated by the facility;
- greenhouse gas emissions – the project is predicted to reduce current greenhouse gas emissions emitted from the facility by around 52%; and
- truck movements – the project would reduce some heavy vehicle movements.

The Department is satisfied that any environmental impacts can be mitigated and managed to achieve acceptable levels of environmental performance, and that the project would provide a range of environmental and economic benefits for the region, through the provision of long term operational jobs and improved environmental outcomes by way of reduced greenhouse emissions and odour impacts.

Consequently, it considers the proposal to be in the public interest, and recommends approval subject to conditions.

1. BACKGROUND

1.1 Background

Bindaree Beef Pty Ltd (the Applicant) is a family owned and operated abattoir located at Inverell in Northern NSW, in the Inverell Local Government Area (see **Figure 1**). The abattoir has been in operation since the early 1950s and was purchased by Bindaree Beef in 1995 from North West Exports, who previously owned the abattoir.



Figure 1: Regional context

The Applicant currently supplies beef products to both domestic and overseas markets including Singapore, Japan and the USA. The Applicant is a significant contributor to the local economy of Inverell and is important to the long-term growth of the region. The abattoir currently employs over 700 people, the majority of which live in Inverell, and is strategically located close to cattle farms and sale yards so that it can process cattle all year round.

The abattoir operates under a series of development consents approved by Inverell Shire Council and an Environmental Protection Licence (No. 802) issued by the Environment Protection Authority (EPA). At full capacity, the abattoir is capable of processing up to 1,100 cattle a day.

In 2012, the Australian Federal Government introduced a carbon pricing regime which resulted in additional expenses for the Applicant through carbon taxes and increasing electricity costs. The abattoir currently uses 19 giga watt hours (GWh) per year of electricity and over 7,300 tonnes per year of coal resulting in high electricity costs and greenhouse gas emissions. To reduce these costs and associated carbon emissions, the Applicant investigated several options to modify or replace its existing plant.

The Applicant identified anaerobic digestion and bio-gas generation technology as a viable option to reduce its reliance on the grid electricity supply. An anaerobic digester plant (bio-digester) would utilise the waste streams from the abattoir to generate a bio-gas, solid fertiliser and liquid digestate which can be reused on site.

In 2013, the Applicant lodged an application through the Federal Government's Clean Technology Food and Foundries Investment Program for a new rendering plant and bio-digester. The Applicant established a small scale pilot bio-digester to demonstrate the viability of the technology and was successful in obtaining around \$23 million in Commonwealth funding as a dollar for dollar grant ratio towards the proposal.

The proposal would assist in securing the long term sustainability of the abattoir providing economic support for the region while also reducing the environmental impacts of the site.

1.2 Site Description

The Applicant is seeking to construct and operate a bio-digester and a rendering plant (the project) located at its abattoir at 7307 Gwydir Highway, Inverell (the site). The site is approximately 3km west of the township of Inverell (see **Figure 1**).

The project is located on Lot 83 DP 753638 and is approximately 119 ha in area, of which approximately 5 ha is occupied by the abattoir (see **Figure 2**). The farm 'Alsace' is located south of the site and is also owned by the Applicant. Hay production and grazing by cattle is undertaken on the farm. The closest private residences are located 280m east and 800m south of the site on Copeton Dam Road, and 1km west of the site on McNeils Lane (see **Figure 2**).

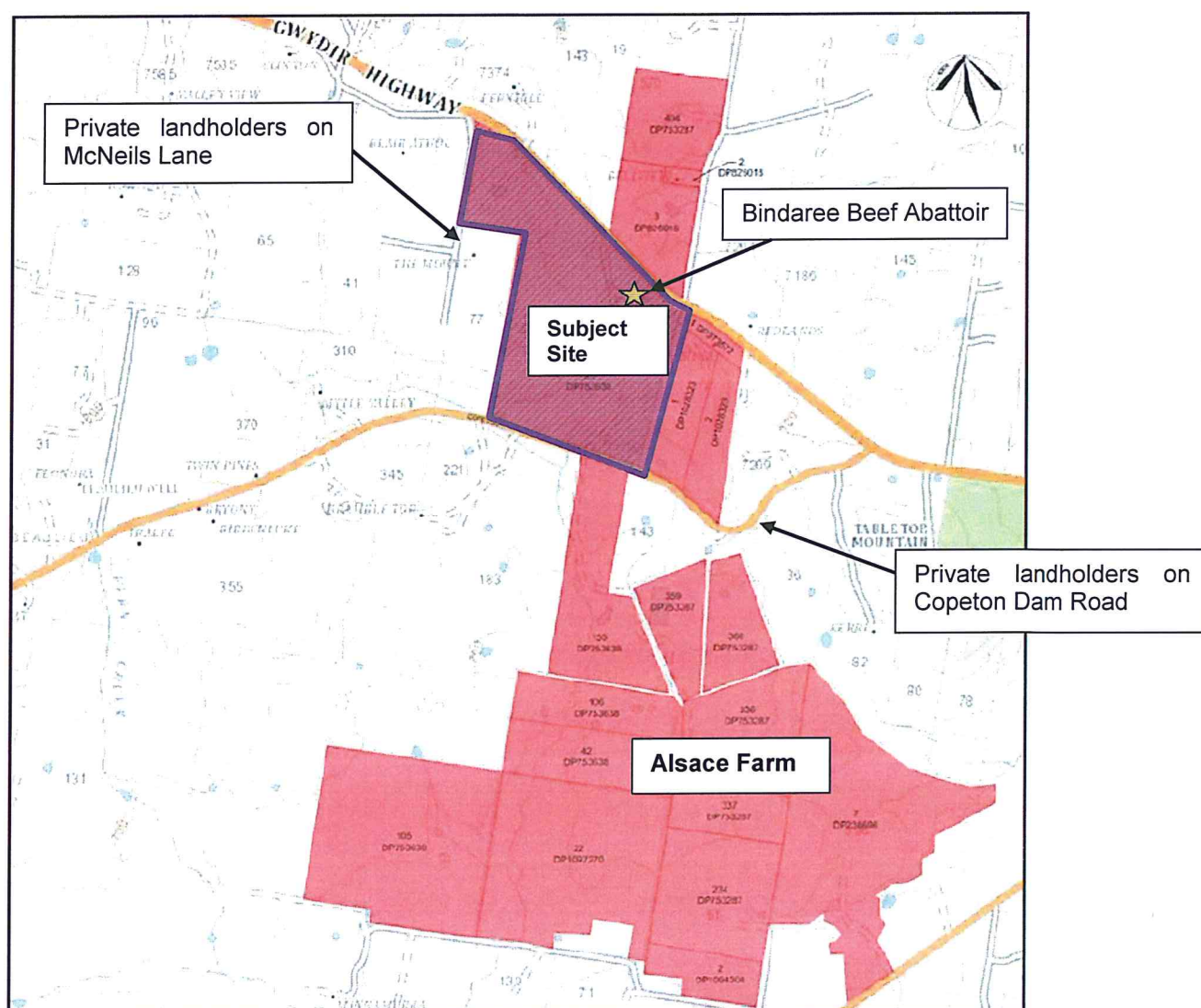


Figure 2: Lots under ownership of Bindaree Beef

The site is zoned for Primary Production (RU1) and contains an existing abattoir plant (see **Figure 3** for site layout) which includes:

- unloading yards;
- holding pens;
- slaughter floor and boning room;
- cold storage and freezer areas;
- rendering plant;
- workshops;
- two coal-fired boilers; and
- administration buildings and car parking.



The existing abattoir is located on a broad flat valley surrounded by gently sloping hills. Three anaerobic ponds and an irrigation dam are located to the south of the existing abattoir plant. Road access to the site is via the Gwydir Highway.

In addition, a 1.5 km buffer area was established around the abattoir to manage landuse conflicts between the existing abattoir and future development near the site. The buffer was introduced in 2008 and is included in the *Inverell Local Environmental Plan 2012*.

1.4 Current Operations

The abattoir currently processes approximately 1,100 cattle a day and produces approximately 331.5 megalitres of wastewater (which includes solids) per annum which is treated on site. As a result, the site has a history of odour and waste management issues due to past and current operational practices at the abattoir.

Waste Management Process

The abattoir produces large amounts of liquid and solid waste which are classified into two waste streams: red stream and green stream.

The red stream is comprised of bloods, fats, oils, grease and wash-down water from the meat processing plant. The current treatment process of the red stream is to direct the waste into effluent holding ponds for the anaerobic and aerobic breakdown of organic material. The resulting wastewater is then irrigated on the surrounding agricultural land, referred to as Alsace Farm.

The green stream is comprised of solid waste including paunch material (undigested grass) and manure which is collected from holding pens, dried and spread onto the surrounding cropping areas on site. Inedible products such as the head, feet and bones are directed to the rendering plant for processing.

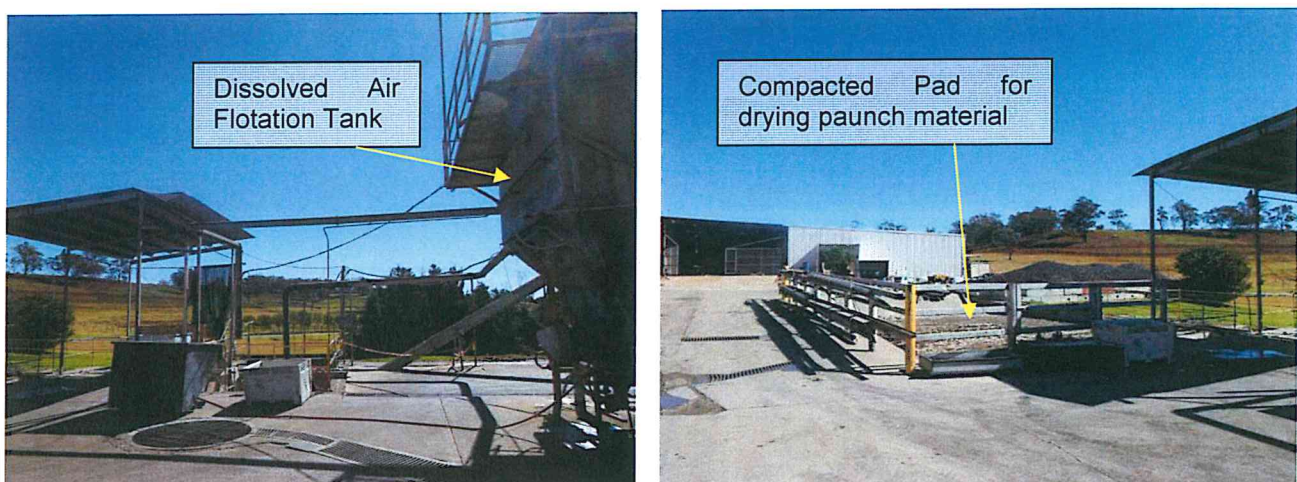


Figure 4: Processing of red stream waste via Dissolved Air Flotation Tank (left) and green stream waste (paunch material and manure) is left to dry on a compacted pad (right)

The current waste management process at the abattoir is shown in **Figure 4**, illustrated in **Figure 5** and summarised as follows:

- approximately 1.3 megalitres a day (5 days a week) of wastewater travels through a trommel and flotation tank to remove solids before being pumped to the anaerobic pond for treatment;
- the wastewater flows to the three aerobic ponds for treatment and is pumped to the wet weather storage for irrigation;
- solid meat waste filtered from the wastewater stream is removed and taken to the rendering plant for processing;
- paunch material is separated through a trommel and is stored on a compacted pad to dewater. It is then trucked to the cropping areas and spread out;
- manure from the holding pens is cleaned regularly and stored on a compacted pad prior to spreading on-farm; and
- solid inorganic waste (packing waste, plastics and general domestic waste) is stored in skip bins and transported to the Inverell landfill for disposal.

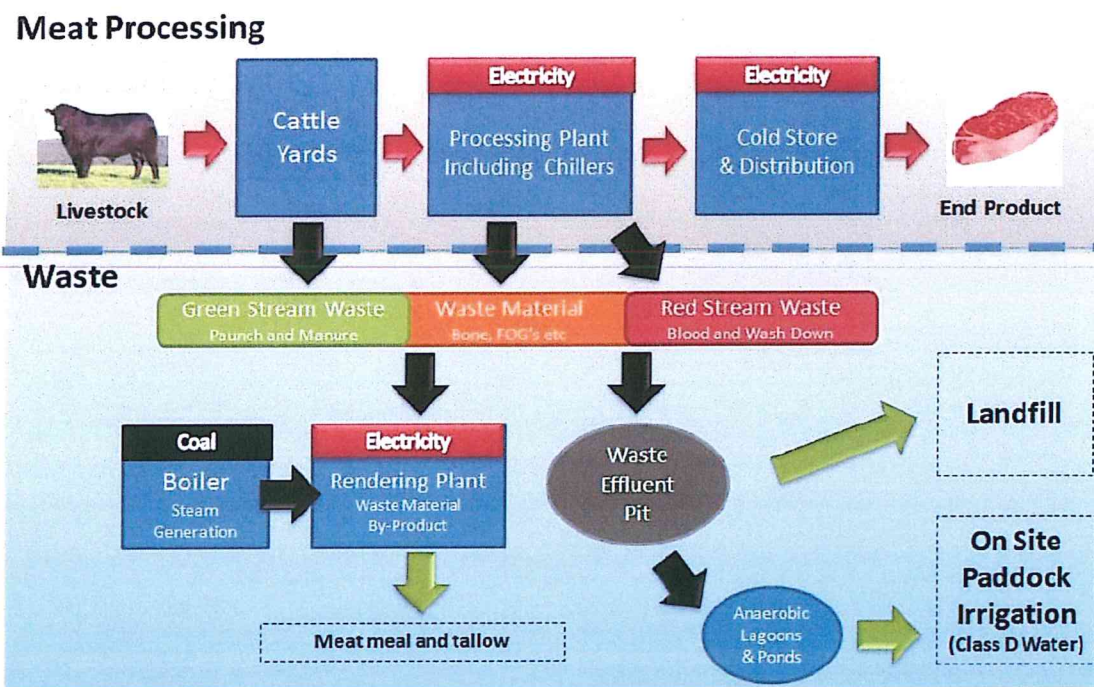


Figure 6: Current waste management process

Rendering Plant and Coal-Fired Boiler

The existing rendering plant is located within the existing abattoir. Its primary function is to heat or cook inedible meat and solid waste products from the animal including the head, feet, bones and offal producing meat meal for pet food production and tallow (which is rendered fat).

The rendering plant is comprised of a cooker powered by two coal-fired boilers which produces steam and hot water for the process. The coal-fired boilers use approximately 7,300 tonnes of coal each year which is brought in by truck and stored in piles outside the rendering plant (see **Figure 7**).

The existing rendering plant was built in the 1970s and over time the cooker has become inefficient resulting in longer cooking times. The plant is not fully enclosed and the boiler has been observed to emit black smoke during the shut-down and start-up processes. This has resulted in negative environmental impacts in the surrounding environment such as odour and air quality complaints.

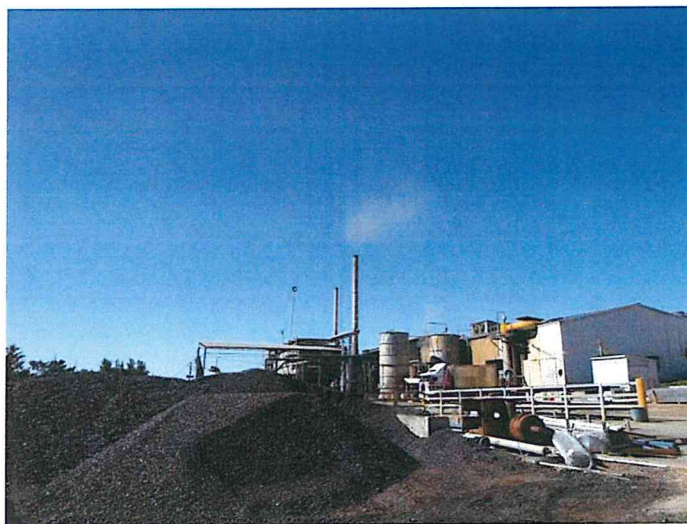


Figure 7: Coal piles and existing rendering plant

2. THE DEVELOPMENT

2.1 Proposed anaerobic digester

The proposal seeks to construct and operate an anaerobic digester (bio-digester) to enable the project to utilise existing waste streams as an energy source. The proposal would enable the Applicant to:

- supplement its current electricity requirements;
- reduce annual production costs;
- significantly reduce odour generation from the site; and
- improve and modernise its waste management practices.

The bio-digester will process both red and green waste streams generated from the abattoir operations to produce bio-gas to supplement electricity consumption on site and reduce use of coal as an energy source, and produce a solid fertiliser and liquid digestate (a low odour fertiliser for sale). This process is illustrated in **Figure 8** below.

The anaerobic digestion process uses bacteria to breakdown solid waste and wastewater in the absence of oxygen, converting it into gas which will power the proposed rendering plant, boiler and the processing facility. Secondly, the bio-digester will also produce wastewater with minimal organic matter which will be suitable for use as fertiliser to be reused on site. The process is expected to create a closed loop system in which the waste generated by the abattoir operation can be converted into energy to be reused for the abattoir operation.

The bio-digester would be developed on a greenfield site owned by the Applicant adjacent to the existing abattoir plant. It would operate 24 hours a day, 7 days per week.

Post-Project Operations

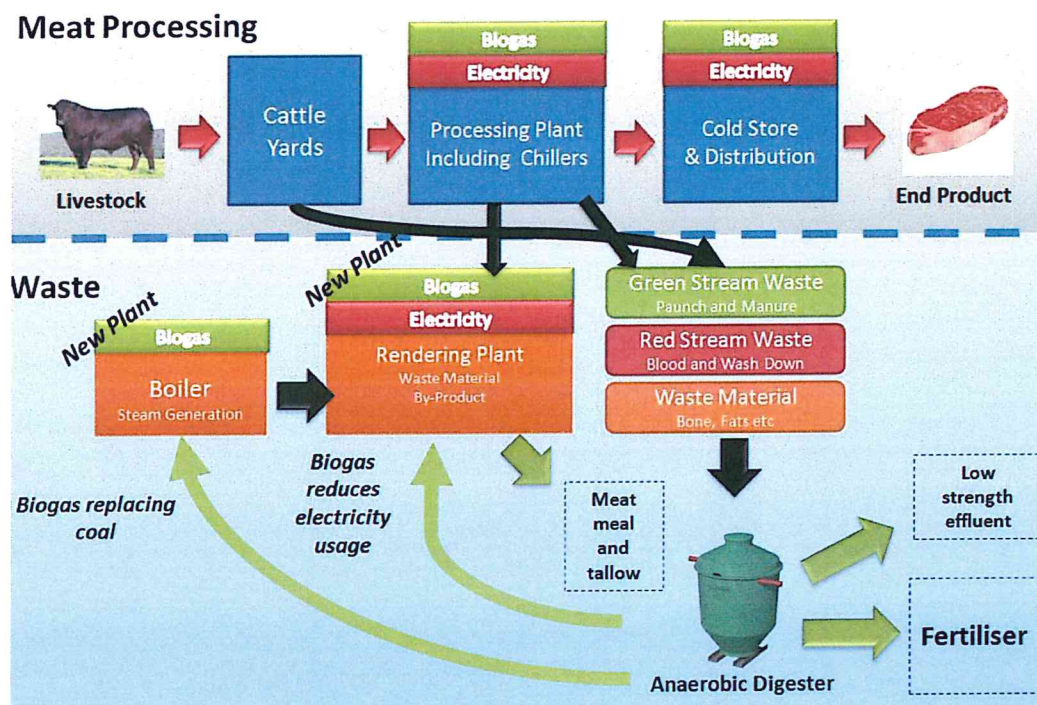


Figure 8: Post Project Operations

2.2 Proposed rendering plant

The proposed rendering plant will consist of a new cooker, presses and process equipment within a fully enclosed building. The new rendering plant is expected to use less electricity, have shorter cooking times and provide a waste heat recovery system where water will be heated from heat generated by the cooking process. The new rendering plant will not require any coal to power it, thereby reducing the use of a non-renewable fuel and reducing greenhouse gas emissions. Instead, one bio-gas fired boiler would be required to power the rendering plant, with the second coal-fired boiler used only as a back-up. The odours

generated by the rendering plant would be directed to a new biofilter located adjacent to the rendering plant. The biofilter uses moist organic materials to absorb and biologically degrade odours.

2.3 Other works

The major components of the project are summarised in **Table 1** below. The project is described in full in Mitchel Hanlon Consulting's EIS, which is attached at Appendix D.

Table 1: Main Project Components as described in the EIS

Aspect	Description				
Summary	Construction and operation of a new rendering plant and wastewater treatment plant that will produce biogas to be reused at the site. The project is expected to result in energy efficiencies, reduced greenhouse gas emissions and improved odour and waste management.				
External Works	- The project also proposes external works including construction of a: - bio-digester; - new enclosed rendering plant and boiler; and - new bio-filter.				
Odour and Dust Controls	Decommissioning of the: - anaerobic ponds; and - old rendering plant and one coal fired boiler.				
Vehicular Access, Traffic Generation and Parking	- Access to the site is provided via the Gwydir Highway. - During construction, an additional 43 trips per day would be generated. - During operation, the project is not expected to generate additional employee or truck trips. Coal trucks will be eliminated which will reduce the number of truck trips by around 4 each week.				
Waste Management	Aerobic ponds and paunch and manure stockpile area will be decommissioned once the bio-digester is operational				
Landscaping	- The EIS includes landscaping works such as: - planting of native trees to the north and north-east of the proposed bio-digester and rendering plant; - establishment of local indigenous plant species; and - retain existing canopy vegetation located on the eastern, western and southern sides of the project.				
Construction and Operation Hours	<table border="1"> <thead> <tr> <th>Construction</th><th>Operation</th></tr> </thead> <tbody> <tr> <td> 7.00am to 6.00pm (Monday to Friday); 8.00am to 1.00pm (Saturdays); and - No work on Sundays or Public Holidays. </td><td> 24 hours, 7 days a week. </td></tr> </tbody> </table>	Construction	Operation	7.00am to 6.00pm (Monday to Friday); 8.00am to 1.00pm (Saturdays); and - No work on Sundays or Public Holidays.	24 hours, 7 days a week.
Construction	Operation				
7.00am to 6.00pm (Monday to Friday); 8.00am to 1.00pm (Saturdays); and - No work on Sundays or Public Holidays.	24 hours, 7 days a week.				
CIV	\$43 million				
Employment	Construction: 60 employment positions. Operation: retention of existing 700 employees				

3. STATUTORY AND STRATEGIC CONTEXT

3.1 Strategic Context

NSW 2021

The project is consistent with the goals and priorities of *NSW 2021*, particularly Goal 3 as it would assist in maintaining economic growth in regional NSW through allowing the facility to reduce its costs and improve operational efficiencies. In doing so, the facility would also be able to remain competitive in the market place, allowing for the retention of operational jobs and enabling the sustainable growth of the beef industry in the Inverell region.

New England North West Regional Action Plan

The project is consistent with the regional priorities of the New England North West Regional Action Plan particularly in supporting sustainable economic growth for the region.

The project is important to the agricultural industry in the New England North West region, particularly the beef industry, and would enable the Applicant to remain viable and competitive through adopting a sustainable new technology and creating efficiencies in operational performance.

The project would also create additional jobs for the region during construction and would allow for the retention of operational jobs once construction is completed. Although no new additional jobs would be created during operation, the project would provide additional opportunities for retraining and upskilling.

3.2 State Significant Development

The proposal is classified as State Significant Development (SSD) under Part 4 of the EP&A Act because the proposed bio-digester plant is defined as "Electricity generating works and heat or co-generation" under the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and has a capital investment value of more than \$30 million. As such, it meets the criteria in Clause 20(a) of Schedule 1 in the SRD SEPP.

Consequently, the Minister for Planning is the consent authority for the project.

3.3 Delegated Authority

The Minister for Planning delegated responsibility for the determination of State Significant Development applications to the Executive Director, Infrastructure and Industry Assessments where:

- the relevant local council has not made an objection;
- a political disclosure statement has not been made; and
- there are less than 25 public submissions in the nature of objections.

There have not been more than 25 public submissions objecting to the project and Council has not objected to the project. No political disclosure statement was made for this application or any previous related application, and no reportable political donation disclosures were made by any persons who have lodged a submission.

Accordingly, the application is able to be determined by the Executive Director – Infrastructure and Industry Assessments under delegation.

3.4 Permissibility

The site is zoned RU1 Primary Production under the *Inverell Local Environmental Plan 2012* (LEP 2012). The proposed rendering plant would be characterised as a *Rural Industry* and is permitted with consent under the Inverell LEP 2012 within this zone.

Under the Inverell LEP 2012, the proposed bio-digester would be characterised as 'electricity generating works and heat or co-generation' which is not permissible with consent in the RU1 Primary Production zone. However, under Clause 34 of the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP), electricity generating works within RU1 Primary Production zones are permissible with consent.

Consequently, the application is able to be determined by the Executive Director – Infrastructure and Industry Assessments under delegation.

3.5 Exhibition and Notification

Under Section 89F(1) of the EP&A Act, the Secretary is required to make the Development Application (DA) and any accompanying information of an SSD application publicly available for at least 30 days.

After accepting the Environmental Impact Statement (EIS) for the proposal, the Department:

- made it publicly available from Wednesday 16 July 2014 to Monday 18 August 2014;
 - on the Department's website;
 - at the Department's Information Centre (Bridge Street, Sydney);
 - at the Nature Conservation Council's Head Office (Sydney); and
 - at Inverell Shire Council.
- notified landowners in the vicinity of the site about the exhibition period by letter;
- notified relevant State government authorities and Inverell Shire Council by letter; and
- advertised the exhibition in the Inverell Times.

3.6 Considerations under Section 79C of the EP&A Act

Under Section 79C of the EP&A Act, in determining a development application (DA), a consent authority is required to take a number of matters into consideration in relation to the project. The Department has given due consideration to the matters prescribed by Section 79C

The Department's detailed consideration of the project against the provisions of Section 79C of the EP&A Act is contained within Appendix B of this report.

3.7 Environmental Planning Instruments

Under Section 79C of the EP&A Act, the consent authority, when determining a development application, must take into consideration the provisions of any environmental planning instrument (EPI) and draft EPI (that has been subject to public consultation and notified under the EP&A Act).

The Department has considered the project against the relevant provisions of several key environmental planning instruments including:

- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy (Rural Lands) 2008;*
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development;*
- *State Environmental Planning Policy No. 44 – Koala Habitat*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *Inverell Local Environmental Plan 2012.*

The Department is satisfied that, subject to the implementation of the recommended conditions of consent, the proposal is generally consistent with the aims, objectives and provisions of these instruments (see Appendix C).

Development Control Plans (DCPs) do not apply to SSD under Clause 11 of the SRD SEPP. Notwithstanding this, the Department has considered the relevant provisions of *Inverell Shire Development Control Plan 2013* (Inverell DCP) in its assessment of the proposal in Appendix C of this report.

3.8 Objects of the EP&A Act

In determining the application, the consent authority should consider whether the proposal is consistent with the relevant objects of the EP&A Act. These objects are detailed in Section 5 of the EP&A Act, and include:

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iii) *the protection, provision and co-ordination of communication and utility services,*
 - (iv) *the provision of land for public purposes,*
 - (v) *the provision and co-ordination of community services and facilities, and*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development, and*
 - (viii) *the provision and maintenance of affordable housing, and*
- (b) *to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*
- (c) *to provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The Department has fully considered the objects of the EP&A Act, including the encouragement of Ecologically Sustainable Development (ESD), in its assessment of the application.

The Department considers that objects (a)(i), (ii), (vi) and (vii) are most relevant to the merit assessment of this application. The Department has given due consideration of these objects in its assessment of the proposal (see **Table 2** below).

Table 2: Objects of the EP&A Act and relevance to the project

Object	Consideration
5(a)(i)	The project would ensure the proper management and development of a suitably zoned (i.e. primary production) land for the economic welfare of the community including the creation of a sustainable activity that would increase employment opportunities during construction and enable

	the retention of all operational roles.
5(a)(ii)	The site is located on suitably zoned land that has been used for primary industry since the 1950s. The proposal would allow for future expansion of operations to take place on site that would enable the retention of operational roles while also ensuring a reliable supply of high quality beef to meat suppliers.
5(a)(vi)	The Department's assessment in Section 5 of this report demonstrates that with the implementation of recommended conditions of consent, the impacts of the project can be mitigated and/or managed to ensure the environment is protected.
5(a)(vii)	The project is unlikely to have an adverse impact on native flora or fauna, including threatened species, populations and ecological communities, and their habitats. The use of biogas instead of coal would reduce greenhouse gas emissions and is therefore consistent with the principles of ESD (see Section 3.9 below).

3.9 Ecologically Sustainable Development

The EP&A Act adopts the definition of ESD found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- (a) *the precautionary principle;*
- (b) *inter-generational equity;*
- (c) *conservation of biological diversity and ecological integrity; and*
- (d) *improved valuation, pricing and incentive mechanisms.*

The potential environmental impacts of the project have been assessed and, where potential impacts have been identified, mitigation measures and environmental safeguards have been recommended.

As demonstrated by the Department's assessment in Chapter 5 of this report, the project is not anticipated to have any adverse impacts on native flora or fauna, including threatened species, populations and ecological communities, and their habitats. As such, the Department considers that the Proposal would not adversely impact on the environment and is consistent with the objectives of the EP&A Act and the principles of ESD.

3.10 Integrated Approvals

Under Section 89K of the EP&A Act, the Applicant is required to obtain a number of further approvals, but these must be approved in a manner that is consistent with the Part 4 approval for the SSD under the EP&A Act.

In this case, the proposal requires an Environmental Protection License (EPL) under the *Protection of the Environment Operations Act 1997*.

As such, the Department has consulted with the Environment Protection Authority (EPA) and considered the relevant issues relating to the issue of an EPL in the assessment of the proposal (see Section 5 of this report).

3.11 Other Approvals

While the EP&A Act provides the framework for planning and development approvals in NSW, there are a number of other State Acts and Regulations that are of relevance to the proposal. In this instance, the proposal may require a separate approval, new license or variation to an existing license under the following legislation:

- *Water Management Act 2000;*
- *Protection of the Environment Operations Act 1997;*
- *Rural Fires Act 1997;*
- *Roads Act 1993;*
- *Native Vegetation Act 2003;*
- *Threatened Species Conservation Act 1995; and*
- *National Parks and Wildlife Act 1974.*

In the EIS, the Applicant has committed to ensuring all appropriate approvals, licenses and/or license variations have been obtained, prior to the relevant project works commencing.

4. ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received 9 submissions on the project including:

- 6 from public authorities; and
- 3 from the general public.

A summary of the issues raised in submissions is provided below. A full copy of these submissions is attached in Appendix E.

4.1 Public Authorities

There were no objections to the proposal by Council or the government agencies.

Inverell Shire Council (Council) was satisfied that the environmental impacts of the project would be adequately assessed through referral to the relevant government agencies. Council was satisfied that the Department would include conditions that ensure appropriate construction and operational management plans would be prepared, approved and implemented for the project.

The **Environment Protection Authority** (EPA) raised a number of issues relating to the air quality and noise assessments. For air, the EPA recommended that additional modelling should be undertaken for the air quality assessment while for noise; the EPA recommended that the default rating background levels be adopted for the project. Notwithstanding, the EPA determined that it would be able to issue an amended Environment Protection License (EPL) for the project, subject to conditions.

The **Office of Environment and Heritage** (OEH) requested that a biodiversity assessment be undertaken to confirm the presence of the White Box Yellow Box Blakely's Red Gum Woodland (Box Gum Woodland) Environmental Ecological Community (EEC) on the site.

Roads and Maritime Services (RMS) recommended that a Traffic Management Plan should be prepared for the project and that the Applicant should continue to consult the RMS on any future upgrades concerning the Gwydir Highway.

NSW Office of Water (NOW) and NSW Trade and Investment did not object to the project but NOW raised a number of issues relating to groundwater monitoring and management.

4.2 General Public

Three (3) submissions were received from members of the public which raised the following issues:

- odour issues resulting from the current plant operations and waste management; and
- noise impacts from the new rendering plant and bio-digester.

Key issues raised in submissions are considered in more detail in Section 5 of this report.

4.3 Response to Submissions

On 14 October 2014, the Applicant provided a response to the issues raised in the submissions (see Appendix F). The RTS provided some additional information and clarification in relation to air quality, noise and water, and provided some updated mitigation measures the Applicant proposes to implement. The RTS has been made publicly available on the Department's website.

The Department has considered the issues raised in the submissions, and the Applicant's responses to these issues, in Section 5 of this report.

5. ASSESSMENT

In assessing the merits of the proposal, the Department has considered the EIS (Appendix D), the issues raised in submissions and the Applicant's Response to Submissions (RTS) report (Appendices E & F). The assessment has involved consideration of the provisions of relevant EPIs, Section 79C and the objects of the EP&A Act, including the object to encourage ecologically sustainable development.

The Department considers the key issues associated with the project to be air quality, noise and water which are addressed in Sections 5.1, 5.2 and 5.3 below. All other issues are considered to be minor and are addressed in Table 3 in Section 5.4.

5.1 Air Quality and Odour

Issue

The proposal could result in changes to the odour impacts from the project.

Consideration

The EIS for the project included an air quality assessment prepared by Vipac Engineers and Scientists (Vipac) (refer to Appendix G in the EIS). Vipac used dispersion modelling to predict the air emissions that would be generated by the new plant and compared these results against the applicable EPA air quality criteria. The assessment considered the potential level of impact and the appropriate management and mitigation measures required for the project.

The site is located approximately 3km west of Inverell with the nearest sensitive receivers located 280m east and 800m south of the site on Copeton Dam Road and 1km west of the site on McNeils Lane. The abattoir is situated on a broad flat valley surrounded by gently sloping hills to the east and west of the site.

The site has a history of odour issues associated with the operation of the abattoir particularly from the existing plant and current wastewater treatment practices. The Applicant indicated that in response to community consultation undertaken as part of the proposal, odour was identified as the key issue of concern.

The air quality assessment was reviewed by the EPA who raised a number of technical issues relating to fuel combustion emissions, meteorological modelling and odour impact predictions. These issues are discussed below.

Fuel Combustion Emissions

The main sources of fuel combustion emissions from the project would be from the biogas boiler and three fuel generators. An existing coal fired boiler would also be used as a backup boiler during servicing of the new biogas boiler.

The project has the potential to produce pollutants such as sulphur dioxides, nitrogen oxides and volatile organic compounds (VOCs) as a result of the combustion of biogas and the anaerobic decomposition of manure. The modelled combustion emissions were assessed against the EPA's criteria for specific pollutants such as nitrogen dioxide ($246\mu\text{g}/\text{m}^3$ (1 hour)), sulphur dioxide ($570\mu\text{g}/\text{m}^3$ (1 hour)) and carbon monoxide ($30,000\mu\text{g}/\text{m}^3$ (1 hour)). The EIS indicated that the fuel combustion emission levels at all sensitive receiver locations would be well within the applicable EPA criteria.

However, the EPA raised concerns with some aspects of the predicted air emissions from the new bio-gas boiler, the three fuel generators and the retained coal-fired boiler. The EPA was concerned that the predicted emissions may not comply with the emission standards listed in the *Protection of the Environment Operations (Clean Air) Regulation 2010* (Clean Air Regulation).

In response to these concerns, the Applicant committed to implementing a range of mitigation measures in relation to the coal-fired boiler including the installation of sluice hoppers to manage loading activities and to undertake further stack testing to ensure compliance with the standards set in the Clean Air Regulation. In relation to the new boiler, the Applicant has committed to meet the standards set by the EPA and to undertake further testing to ensure compliance is achieved.

To ensure the project's emissions meet the relevant criteria, the Department has recommended a number of stringent conditions in consultation with the EPA, particularly around verification of emissions prior to commencing the operation of the project. This includes conditions which require the Applicant to:

- meet strict emission limits;
- design and construct the emission stacks to meet the EPA's emission limits; and
- prepare and submit a post-commission verification report to the EPA to ensure compliance with the limits.

Meteorological and odour modelling

The Air Pollution Model (TAPM) was developed by Vipac and was used to model the prevailing meteorological conditions in the region. The prevailing winds are east-north-easterly and north-easterly with the most common wind speed at the site being around 5-8m/s.

TAPM data was entered into an air dispersion model (CALPUFF) which predicted the likely odour impacts of the project. The EPA raised a number of issues with the air quality assessment undertaken, including the reliability of the meteorological data used in the model and the method used to model the potential odour impacts.

The EPA recommended that the Applicant set up an on-site meteorological station as part of the recommended conditions. The Department concurs with the EPA's assessment and has recommended conditions for the Applicant to establish a meteorological station which will establish site specific meteorological data to assist in the future recording and management of odour related issues with the site.

Predicted Odour Impacts

The EIS outlines that the main odour sources from the existing abattoir include the:

- existing rendering building and bio-filter;
- anaerobic and aerobic ponds;
- holding pens;
- paunch and manure stockpile area; and
- irrigation area.

The EIS stated that the project, including the decommissioning of one of two coal-fired boilers, the paunch and manure stockpile area and the three aerobic ponds, would contribute to the reduction in odour from the site. The main sources of odour from the project would be the:

- irrigation area;
- biofilter;
- dried product (fibre);
- trommels (green and red waste streams);
- Dissolved Air Flotation tanks (DAF);
- holding pens; and
- new rendering plant (process emissions to bio-filter and fugitive building emissions captured and exhausted from roof vents)

The EIS assessed the potential odour impacts from the proposal in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW DEC, 2005) and adopted an odour criterion of 7OU/m³.

The EPA, however, noted that due to the close proximity of a number of sensitive receivers to the site, an odour criterion of 5OU/m³ or 6OU/m³ would be a more relevant criterion to apply to the assessment given the increased likelihood of an individual finding the odour generation to be offensive.

Current operations at the abattoir were modelled and the impacts are illustrated in **Figure 9** below. The results indicate that there are currently exceedances of the odour criteria at the closest sensitive receivers, with the greatest odour level identified at around 14-18 OU/m³ (note - this is a spot level predicted at the closest property). Notwithstanding the current level of odour generation, the EIS indicated that odour complaints received by the EPA mostly occur when there has been a system failure at the abattoir.

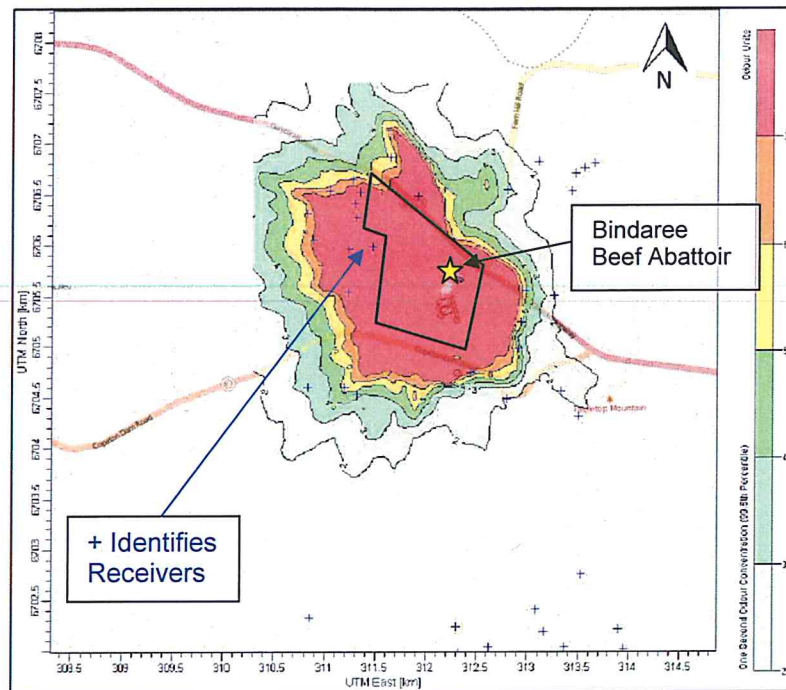


Figure 9: Existing Odour Impacts (99th percentile)

The EIS considered and modelled both the existing abattoir and the project under two future operational scenarios. These were operations under 'Normal Conditions' and a 'Failure or Worst Case' scenario such as a major equipment malfunction.

The EPA advised that due to the uncertainty around the predicted odour impacts of the project, it would be prudent for the Department to base its assessment on a worst case scenario. The assessment of a worst case scenario is the general practice undertaken as part of the Department's assessment of applications.

The potential odour impacts under normal operating conditions and a worst case scenario is outlined in **Figure 10a** and **Figure 10b** below. The worst case scenario considers the impacts of the existing abattoir, and modelled equipment malfunctions from the project, including the total failure of the extraction fans within the proposed rendering plant (which provide 50% capture efficiency) and odour being emitted from the three roof mounted vents.

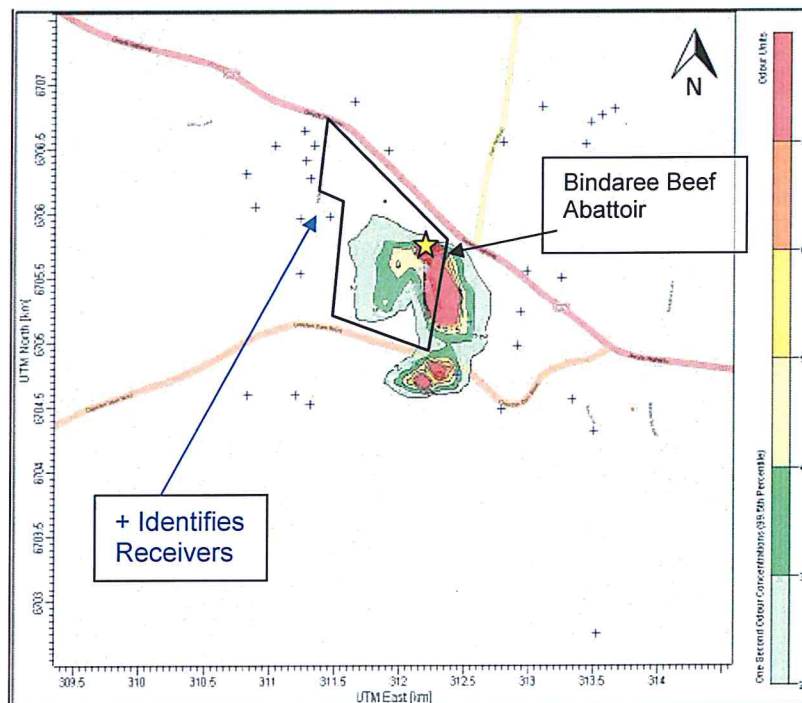


Figure 10a: Predicted Odour Impacts – Normal Conditions [99th Percentile]

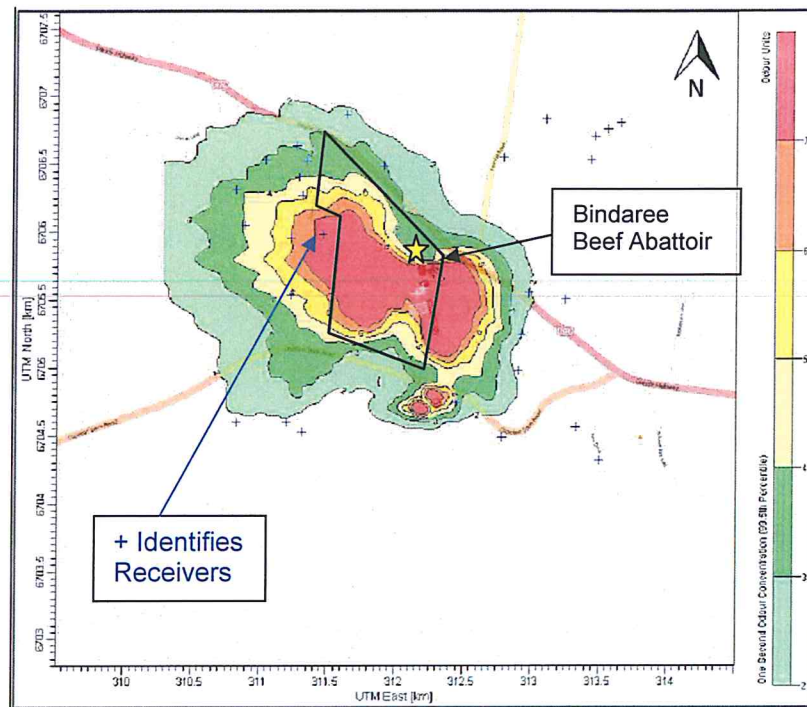


Figure 10b: Predicted Odour Impacts –Worst Case Scenario [99th Percentile]

As illustrated in **Figure 10a**, the project would result in a major improvement to the existing level of odour emitted from the facility. Under normal operating conditions (ie a non-worst case), odour levels are predicted to reduce to around 1-3 OU/m³ at the closest receivers. While under the worst case scenario (see **Figure 10b**), odour levels are predicted to be around 5-7 OU/m³ at the closest receivers.

As outlined in the assessment, the project would result in a significant improvement to the levels of odour generated by the facility. However, the Department acknowledges that under a worst case scenario, there may be some minor exceedance of the odour criteria. These situations are however expected to be infrequent and relatively short term.

However, to ensure odour emissions from the proposal are adequately managed, the Department has recommended, in consultation with the EPA, a number of stringent conditions. The conditions require the Applicant to ensure the proposal is designed to effectively manage odour, to verify potential impacts prior to operation and further odour reduction measures should exceedances be identified. The recommended conditions require the Applicant to:

- comply with the requirements of the EPA's EPL for the site;
- ensure that the project does not cause or permit the emission of offensive odours;
- carry out a verification study and prepare an air emissions report and bio-filter management report prior to operation of the project to the satisfaction of the EPA and the Secretary; and
- undertake an odour impact assessment and mitigation study to identify additional odour reduction measures at the request of the EPA.

Conclusion

The Department concludes that the air quality and odour impacts from the project could be adequately managed at the site. The project may produce air pollutants from the new biogas boilers, exhaust stack and the existing coal fired boiler. However, the Department has included a number of conditions which require the Applicant to comply with the air emissions limits set out in the EPL and to undertake additional verification testing for the boilers and exhaust stacks.

The project is also expected to result in a significant improvement in the odour levels being emitted from the facility. The Department has recommended a number of conditions for odour impacts to be adequately managed at the site, which includes the requirement for the Applicant to ensure that offensive odours are not emitted from the site and for the Applicant to undertake odour verification and identification of additional odour reduction strategies if complaints.

In addition, given the predicted improvements the proposal will have on the overall odour performance of the site, the Department is of the view that Council may wish to consider the scope of the existing 'buffer area' defined in the Inverell LEP.

5.2 Noise

Issue

The project could result in noise impacts on nearby sensitive receivers.

Consideration

The EIS for the project included a noise impact assessment carried out by Vipac Engineers and Scientists (see Appendix H of the EIS) which considered the potential construction and operational noise impacts of the proposal. The Department is generally satisfied that the assessment was carried out in accordance with the *Interim Construction Noise Guidelines* (ICNG) and the *Industrial Noise Policy* (INP).

The EIS indicates that the site is located on flat terrain surrounded by low ridges to the east and west of the site. Due to this topography, noise impacts are likely to extend further to the north and south during calm conditions (occurring mainly at night). Temperature inversions were also considered for prevailing and worst-case weather conditions for noise predictions as temperature inversions on the site are known to occur for more than 30% of night time hours during the winter months.

The site is located approximately 3km west of the township of Inverell. There are approximately 40 sensitive receivers which surround the broader Binadree Beef operation, which were considered in the noise assessment (see **Figure 11**). The closest receiver is around 280m to the east of the abattoir.

Ambient background noise measurements were carried out at three representative noise monitoring locations:

- Location 1 (R35 – Copeton Dam Road) which is the closest sensitive receiver east of the site and representative of sensitive receivers 1, 33-35 and 42-44 (marked in green on **Figure 11**);
- Location 2 (R31 – Copeton Dam Road) which is the closest residential receiver south of the site and representative of sensitive receivers 10-32 and 36-41 (marked in blue on **Figure 11**); and
- Location 3 (R9 – McNeils Lane) which is the closest residential receiver west of the site and representative of sensitive receivers 2-9 (marked in yellow on **Figure 11**).

Construction Noise

Construction of the project is only proposed to occur during standard daytime hours (being 7am to 6pm, Monday to Friday, 8am to 1pm on Saturdays, no work on Sundays or public holidays) while the abattoir is in operation. Construction of the project is likely to take around 18 months. Key construction noise impacts are likely to include emissions associated with construction machinery, generators, excavator and noise associated with the existing abattoir such as cattle deliveries and plant equipment (eg pumps and fans).

Overall, the assessment indicates that construction noise impacts from the project would comply with the EPA's ICNG. However, under worst case meteorological conditions there could be a marginal 2dBA exceedance at one receiver (R42, located west of the site on Gwydir Highway) of the relevant noise management level of 40dBA.

However, given that the construction works would be undertaken during standard daytime hours and would be short in duration, the Department's assessment concludes that the overall impacts would be acceptable, and any potential exceedance would be minor and irregular in occurrence. In addition, the EPA raised no issues in relation to construction noise.

Notwithstanding, the Applicant has committed to a number of management measures including minimising noise through managing the timing frequency and duration of works and use of best technology.

In addition, the Department has recommended conditions to restrict construction hours to standard daytime hours and also recommended that the Applicant prepare and implement a Noise Management Plan as part of a wider Construction Management for the project. The plan would include identifying high noise generating construction activities, including proposed times when these works would be carried out (including respite periods if required) and mitigation measures to minimise adverse impacts from these activities, including those committed to by the Applicant in the EIS.

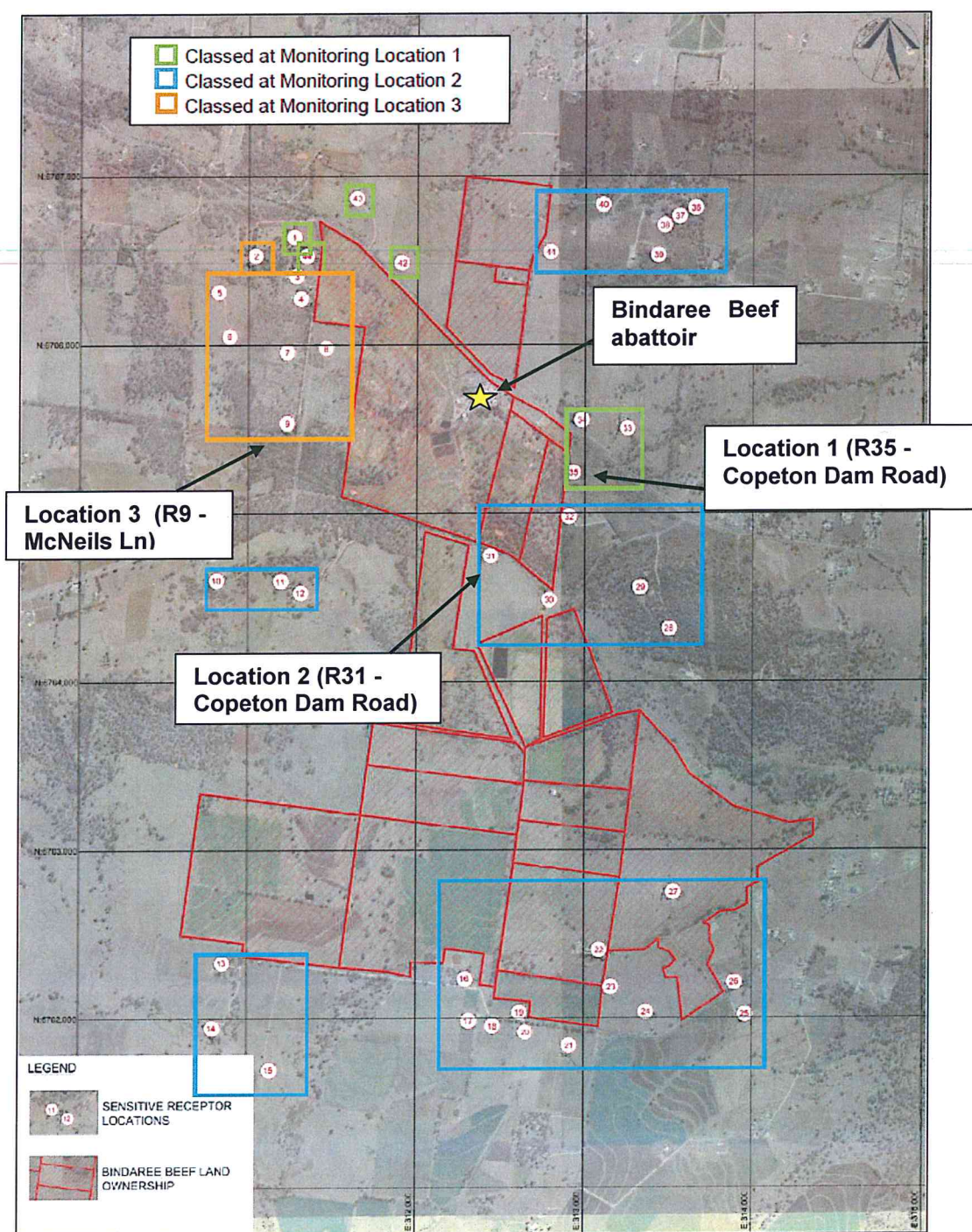


Figure 11 Sensitive receivers

Operational noise

The noise assessment for the proposal, considered the potential impacts from the new plant and equipment operating in addition to operational noise emissions from the existing abattoir. The existing noise sources from the abattoir which were considered included noise associated with cattle deliveries, general truck movements, pumps and fans, forklift movements and general farm machinery.

Noise Assessment Criteria

In establishing the Rating Background Level (RBL) at the site, Vipac included the existing abattoir in the background noise measurements. The EPA advised that the background noise assessment used to determine the RBL did not meet the requirements of the NSW Industrial Noise Policy (INP) as the noise from the existing development should be excluded from the background noise measurements.

The EPA recommended that the Applicant either establish the RBL without the abattoir operating or accept a default minimum RBL of 30 dBA for all surrounding receivers. The EPA further recommended that the default minimum Project Specific Noise Limit ($LA_{eq(15 \text{ minute})}$) of 35 dBA and night time sleep disturbance criteria ($LA1(1 \text{ minute})$) of 45 dBA should be applied as noise limits for all receiver locations during future operation.

The Applicant accepted the EPA's recommended noise limits as it advised that it would be operationally and financially unable to close the plant down for the required period of time. However, the Applicant's EIS did find that during future operational activities under worst case meteorological scenarios, it would still comply with the 35dBA criteria at all sensitive receivers. The Department notes that the proposed limits during operation are the most conservative that could be applied to any industrial complex in accordance with the INP and has included these limits in the recommended conditions.

The EIS indicated that the main noise sources during operation would come from the existing abattoir. The EIS predicted that as the project would be located further away from the existing abattoir, operational noise from the abattoir would become less audible for receivers to the west of the site and more audible for receivers to the north of the site during the worst case meteorological conditions. Nonetheless, noise levels at all sensitive receiver locations are predicted to comply with the default minimum noise criteria during the worst case meteorological scenario. The Department is satisfied that the noise levels from the project would comply with the noise criteria and has included these noise limits in the recommended conditions.

Noise Monitoring

In its RTS, the Applicant objected to the number of proposed noise monitoring locations and the frequency of noise monitoring during operation proposed in the recommended EPL. The EPA subsequently reduced the number of noise monitoring locations but advised that the frequency of noise monitoring should be retained until the variability of noise impacts can be established and continued compliance is demonstrated by the Applicant. The Department agrees with the EPA and has recommended conditions for the Applicant to prepare a noise management plan which would incorporate a noise monitoring program for reporting and ongoing compliance to ensure that noise levels from the project are in line with the predictions reported in the EIS.

One submission from the public raised concerns about the potential increased noise impacts at their property on 84 Ditzell Drive, Inverell. However, the noise assessment predicts compliance with the proposed noise limits of 35 dBA. The EPA and the Department agree that the recommended noise conditions would adequately address the concerns raised by the public submission.

However to ensure noise emissions are adequately managed and comply with the relevant noise criteria, the Department has recommended a number of noise conditions. This includes requirements for the Applicant to:

- comply with the strict noise limits during the operation of the project;
- prepare and implement a noise management plan which incorporates a noise monitoring program for reporting ongoing compliance and evaluating the performance of the project while also verifying that noise levels from the project are consistent with or lower than the predictions made in the EIS; and
- undertake attended noise monitoring to demonstrated compliance with the noise limits.

Conclusion

The Department's assessment concludes that the potential construction and operation noise emissions can meet relevant limits and that the recommended conditions include stringent measures to manage and monitor noise emissions, verify noise levels and implement further measures to ensure noise complies with the noise criteria.

5.3 Water

Issue

The project has the potential to impact surface water and groundwater resources.

Consideration

Surface Water

The site is located on the side of a hill, which is cleared of pasture, and is slightly undulating, with natural drainage generally provided by runoff through a series of intermittent gullies across the site. The site has not been identified as a flood prone area and is located 30m from the closest drainage natural line.

The site lies within the Macintyre River and Copeton Dam catchments and has been considerably modified by the existing abattoir plant and associated on-site works, including three earth storage dams, which intercepts natural flows for on-site storage, collection and reuse. The existing plant area is about two thirds impervious and one third hardstand, and is combined with natural surface (grassed and pasture).

Stormwater flows from the plant area are directed north east to open, grass lined swale drains to the irrigation dams and to natural flow lines and to the existing box culvert at the Gwydir Highway (Figures 12 and 13), which ultimately discharge into an earth dam on the northern side of the Highway. The existing impervious, hard stand plant area has increased the natural flow rate by around 8% which is currently mitigated by the on-site storage dams and reused for irrigation purposes.



Figure 12 Swale Drain (view from plant)



Figure 13 Existing Culvert at Highway (view looking northwest)

The construction of the proposed render plant and bio-filter plant would result in impervious roof area discharge to pipe flow, surrounding pervious area discharges to swale drains, and some modifications to the existing swale drain discharge network.

Overall, the EIS calculates that the render plant and bio-filter plant would contribute additional flows of 51 litres per second (l/s) and 16 (l/s) respectively, and the bio-digester plant a further predicted discharge of 284 l/s. This increase in discharge is within the capacity of the existing pipe and would be contained within existing drainage works.

Stormwater runoff from the new plants would be collected from the roof, hardstand areas and roads around each of the new facilities. The Applicant has made a commitment to implement a number of stormwater management and mitigation measures across the site including rainwater tanks, swale drains and dams (Figure 14).

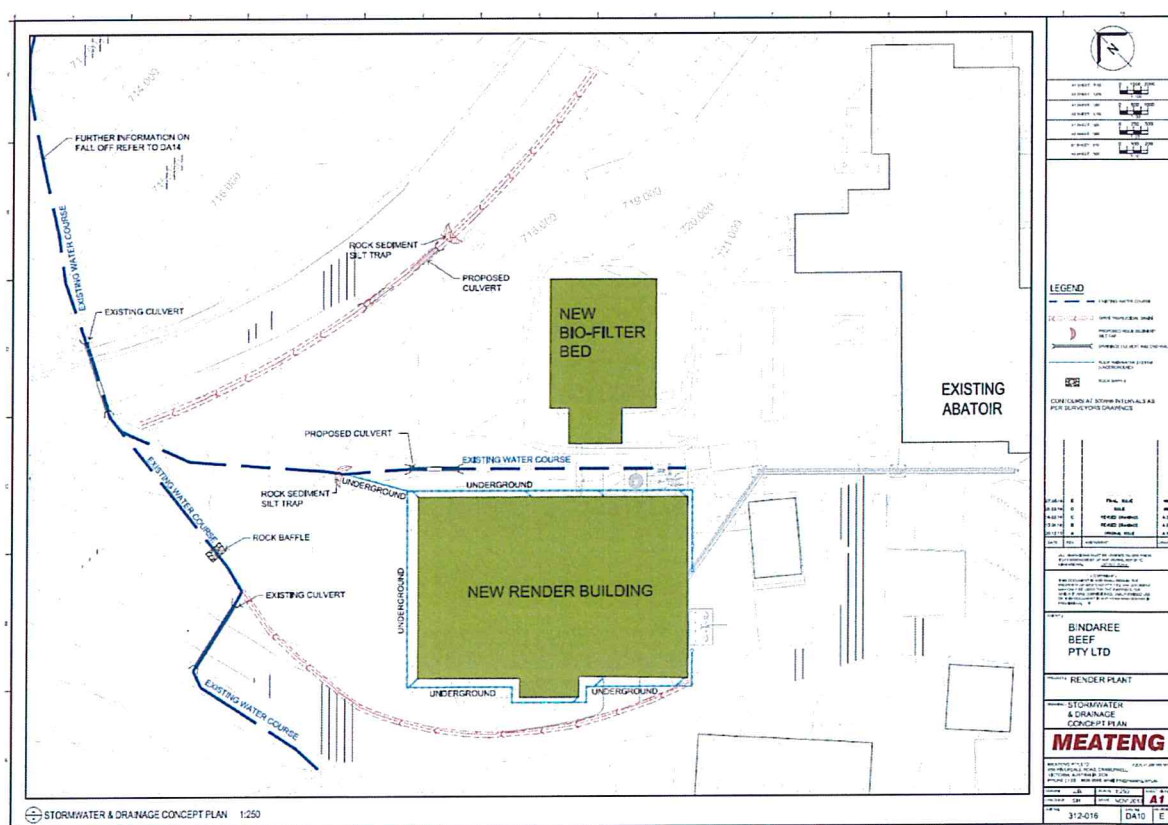


Figure 14 Stormwater and Drainage Plan

The Department has considered the effect on the discharges to the existing stormwater system both in the immediate existing plant area and ultimately to the box culvert at the Gwydir Highway, and considers that the additional impact of the proposed works would be minor when compared to and in the context of existing discharges to the system.

During construction, the Applicant would install erosion and sediment controls for the site, including a deflection bank to divert clean runoff away from the site, sediment fencing and swale drains. With these controls in place, the Department is satisfied that soil impacts would be minimal and are able to be managed. Consistent with best practice, the Department has recommended conditions requiring the Applicant to prepare an Erosion and Sediment Control Plan for the proposed development.

The EPA (which currently regulates water discharges from the site through the EPL) did not raise any issues with the stormwater management measures proposed by the Applicant and NOW highlighted the importance of ensuring that appropriate erosion and sediment control and stormwater mitigation and management measures are put in place to limit any potential impacts on surface water and groundwater sources in the locality.

The Department agrees with NOW and has recommended conditions to ensure that the Applicant develops and implements these erosion and sediment controls and stormwater management measures in

consultation with the EPA and NOW in accordance with current policies and guidelines and that the design specifications for the collection system (as well as all details of the irrigation dams and anaerobic ponds) be included as part of a Surface Water Management Plan for the site.

In addition, to further ensure that any potential adverse impacts to surrounding surface water sources are minimised and appropriately managed, the Plan would also be required to include:

- performance criteria, including trigger levels for detecting and investigating any potentially adverse surface water impacts benchmarked against pre-agreed baseline conditions;
- a surface water monitoring and reporting program for early detection of potentially adverse surface water impacts; and
- a surface water response plan to respond to any exceedances of the surface water performance criteria, including the contingency measures that will be put in place to mitigate/offset any adverse surface water impacts.

In terms of water quantity, the Department also requires the Applicant to prepare a Site Water Balance that includes details of sources and security of supply, water use and management on site, EPL off site water discharges, reporting procedures and investigates and implements all reasonable and feasible measures to minimise water use on site.

Groundwater

The site contains a number of existing groundwater bores that are currently in use for stock and domestic purposes that would not be utilised by the project. There is the potential however for digestate (a by-product of the anaerobic digestions process and is a low odour fertiliser), to migrate into aquifers and adversely affect groundwater quality.

NOW advised that insufficient data was provided to allow a detailed understanding of the current groundwater conditions to be understood. One of the main concerns from NOW was that impacts of historic climate and land management on groundwater levels and quality were not discussed and that details of the groundwater monitoring were not clearly outlined in the EIS.

To address this lack of reported groundwater data, the Applicant has agreed to work collaboratively with NOW to review and revise the groundwater monitoring network to ensure the groundwater monitoring is adequate moving forward. This should include the adequacy of the spatial distribution of the network and any need to monitor effluent leakage from the existing holding ponds and irrigation storage dams.

NOW's main concern was that the limited groundwater quality data (e.g. pH, nitrogen and nitrates, phosphorus and electrical conductivity) that had been presented, indicates that on site effluent irrigation has recharged the underlying basalt aquifer and has resulted in groundwater contamination.

Given that groundwater contamination has already occurred, most likely from past effluent management practices on the site, the Department and NOW considers that appropriate measures should be put in place to better manage wastewater generated on site to prevent and minimise such impacts taking place in the future.

However, as the effluent volumes and composition data from the EIS are uncertain, the potential future risks to groundwater from onsite effluent management cannot also be fully ascertained at present. To address this, NOW recommends that an updated Digestate Management Plan be required to be prepared and implemented which focuses on:

- the reinstatement of the pilot wastewater treatment program;
- the development of an irrigation control system;
- mapping of soil types, nutrient and metal retention properties, and deep drainage potential; and
- the risk of groundwater becoming contaminated by effluent and an analysis of the potential adverse impact that this could have on aquifers and other groundwater users in the area.

Further, NOW recommends that the Applicant develop an early-detection groundwater quality monitoring, trigger levels, reporting and response plan, benchmarked to a suitable definition of baseline conditions, including a groundwater remediation plan and identification of any make good measures if contamination occurs.

The Department agrees with NOW's recommendations and has incorporated them into the draft consent conditions as components of a Groundwater Management Plan which would need to be prepared and implemented in consultation with NOW and requires the Applicant to:

- include plans and a description of the spatial distribution and baseline data of groundwater monitoring levels, yield and quality of the existing groundwater monitoring network;
- an assessment of whether it is necessary to monitor effluent leakage from the existing irrigation dams and anaerobic ponds;
- performance criteria, including trigger levels for detecting and investigating any potentially adverse groundwater impacts to aquifers and other groundwater users in the area benchmarked against pre-agreed baseline conditions;
- a groundwater monitoring and reporting program for early detection of potentially adverse groundwater impacts; and
- a groundwater response plan to respond to any exceedances of the groundwater performance criteria, including the contingency measures that will be put in place to mitigate/offset any adverse groundwater water impacts.

Conclusion

In conclusion, the Department is satisfied that the potential impacts of the project on existing surface water and groundwater resources are able to be minimised and managed to acceptable standards both now and in the future, subject to conditions, as recommended above.

5.4 Other Issues

The Department's assessment of other issues is provided in Table 3 below.

Table 3 Assessment of other issues

Consideration	Recommended Conditions
Greenhouse Gas • The project would substantially reduce greenhouse gas emissions from the abattoir by installing an anaerobic digester to capture methane emissions for use as a fuel source, and by offsetting coal use. • The EIS included a greenhouse gas (GHG) assessment, which compared emissions from the operation of the existing abattoir and wastewater management system with emissions from the operation of the project. • The assessment concluded that the annual carbon dioxide equivalent (CO₂-e) emissions from the site would be reduced by around 52% as a result of the project. • The Applicant reports existing Scope 1, 2 and 3 GHG emissions in accordance with the <i>National Greenhouse and Energy Reporting Act 2007</i> (NGER), with annual emissions in 2012-13 of 64.73 kilotonnes CO₂-e. • The GHG assessment predicted annual emissions from the project as 35.38 kilotonnes CO₂-e. The primary reductions are achieved by removing coal burning (16 kilotonnes CO₂-e) and the capture of methane (16 kilotonnes CO₂-e). • Given the predicted reduction in GHG emissions from installation of the anaerobic digester and the offsetting of coal use, the Department is satisfied that the project would substantially improve the GHG emissions from the abattoir.	Require the Applicant to: • Prepare and implement an Energy Efficiency and Greenhouse Gas Reduction Plan in consultation with the EPA for the project, prior to the commencement of operation.
Biodiversity • The bio-digester is to be constructed on a paddock that is highly disturbed and has been used for the abattoir operations since the 1950s. The bio-digester site is mostly cleared of native vegetation and dominated by exotic grasses. • OEH carried out a site inspection on 7 August 2014 and determined that a degraded remnant of White Box / Yellow Box Blakely's Red Gum Woodland (Box Gum Woodland) could be present on the site. The Box Gum Woodland is listed as an Endangered Ecological Community (EEC) under the <i>Threatened Species Conservation Act 1995</i>. • In response to a request by OEH, an ecological assessment was prepared which concluded that no Box Gum Woodland occurs on the site and that the potential for regeneration of native vegetation was considered low due to the high nutrient status of the soil. • OEH were satisfied with the findings of the assessment and advised that no further assessment of the EEC is required. • As such, the Department's assessment concludes that the project would not have an impact on any EEC's, primarily due to the highly disturbed nature of the site. • Notwithstanding, the Department has included conditions that relate to landscaping and vegetation management of the site to improve habitat values for local fauna species.	Require the Applicant to: • prepare and implement a Landscaping and Vegetation Management Plan for the project, prior to construction.
Traffic and Access • Traffic access to the site currently accesses the site via an existing access point off the Gwydir Highway.	Require the Applicant to: • prepare and implement a

Consideration	Recommended Conditions
- Traffic associated with the project would also use this access point. - The EIS included a traffic impact assessment (TIA) which concluded that: - construction would generate an additional 43 vehicle trips per day due to additional staff and delivery of materials, over an 18 month construction period; - there would be no additional traffic movements during operation of the project as there is no increase in deliveries, production or staff numbers; and - there would be a reduction of four (4) B-Double truck deliveries per week during operation due to the cessation of coal deliveries. - The TIA also noted that the existing auxiliary right (AUR) turn treatment at the intersection of the access road and the Gwydir Highway does not currently comply with AustRoads Guidelines. The assessment recommended that a channelised right turn treatment [CHR(S)] be provided for vehicles approaching from the west and an auxiliary left turn treatment (AUL) are provided for vehicles travelling from the east. - RMS concurred with these recommendations and noted that the Applicant would be required to enter into a Works Authorisation Deed with RMS for these works. RMS also recommended conditions requiring a Vehicle Transport Management Plan, and a restriction on heavy vehicles larger than B-Doubles accessing the site until the intersection is upgraded to AustRoads Guidelines. - In response to the RMS' concerns, the Department has recommended a condition that requires the Applicant to consult with both the RMS and Council concerning the potential need and timing for these intersection works.	Construction Traffic Management Plan in consultation with RMS and Council prior to construction; - prepare a Vehicle Transport Management Plan; - consult with RMS and Council within 12 months of the date of the consent concerning the potential need to undertake intersection works; and - ensure that no vehicles larger than B-Double trucks access the site.
Hazard and Risks	
- A Preliminary Hazard Analysis (PHA) was completed for the project as part of the EIS. The PHA confirmed that: - the existing storage quantity of 6,860kg of anhydrous ammonia within the refrigeration system exceeds the threshold value in <i>State Environmental Planning Policy 33 – Hazardous and Offensive Development</i> (SEPP 33); - the storage quantity of anhydrous ammonia would not increase as a result of the project and would remain within the limit of the existing EPL (7,680kg); - storage of chlorine, liquid petroleum gas (LPG), refrigerated carbon dioxide (CO₂) and refrigerated oxygen (O₂) do not exceed the threshold values in SEPP 33; and - the proposed storage of biogas (9,000m³) and the distance of the storage tank from the nearest property boundary (270m) would not be deemed "potentially hazardous". - The PHA analysed the potential consequence in the event of a release of anhydrous ammonia and concluded that none of the release scenarios would have an impact beyond the site boundary. In addition, adequate control measures are in place, thus the potential off-site risk associated with the release of anhydrous ammonia is considered to be low. - The PHA also concluded that the heat radiation impact from the ignition of a biogas release would not pose a significant off-site risk to surrounding land uses. - Toxic dispersion modelling was also carried out to evaluate the worst case effect of a release of hydrogen sulphide from the biogas tank. The modelling found that impacts to surrounding land uses would be low, provided that the Applicant has emergency procedures and a leak detection system in place. - The Applicant has committed to a number of management measures including an emergency response plan and installation of safety devices around the proposed bio-digester. - The Department's assessment concludes that the project would not have a significant off-site risk and has recommended conditions requiring a number of hazard related studies prior to construction and commissioning of the project and for on-going management of the site.	Require the Applicant to prepare hazard related studies, including: - a Fire Safety Study, Hazard and Operability Study, Final Hazards Analysis and Construction Safety Study, prior to the commencement of construction; - an Emergency Plan and Safety Management System prior to commissioning new plant; and - a hazard audit after 12 months and then every 3 years thereafter.
Digestate Management	
- The operation of the bio-digester will generate a by-product referred to as digestate (or bio-fertiliser). - It is a nutrient rich material, which can be used as an organic fertiliser. - The applicant proposes to apply the material to the broader Bindaree property; primarily on the Alsace Farm a 479 ha area used for cattle grazing and hay production. - The EIS considered the capacity of the receiving soils to accept the material, including nutrient overloading, increase in salinity and sodicity. - The assessment concluded that the soils on the site are suitable to accept the material and that a detailed cropping regime would be applied to ensure nutrient levels are managed. - To further ensure soils are managed, the Applicant has committed to a range of	Require the Applicant to: prepare and implement a Digestate Management Plan.

Consideration	Recommended Conditions
management measures including preparing and implementing a Digestate Management Plan which would include a detailed monitoring program and management practices. The Department's assessment concludes that suitable measures will be in place to ensure digestate impacts can be adequately managed.	
Waste	
- Waste generated during construction of the bio-digester and rendering plant would be removed for off-site recycling. - Current operational waste generation includes organic matter such as manure, paunch and animal skins, and office wastes, paper, cardboard and plastics. - Future operation of the bio-digester and rendering plant would not generate any additional waste streams and would either reduce or eliminate the generation of certain existing waste products generated, including fly ash from the boilers, dewatered pond sludge and various animal by-products. - The Department's assessment therefore concludes that waste from the project can be effectively managed, subject to conditions.	Require the Applicant to: - ensure all waste generated on site is classified in accordance with the EPA's <i>Waste Classification Guidelines</i> and disposed of to a facility that may lawfully accept the waste; and - prepare and implement a Waste Management Plan for the project, prior to construction.
Dust	
- Dust from the existing operation primarily generates from the cattle holding pens and from boiler emissions. - However, the air quality assessment in the EIS found that PM₁₀ concentrations at sensitive receivers are below the EPA's PM₁₀ 24 hour average dust criteria. - The EIS concluded that the project would not exceed the relevant EPA criteria and that the impacts at all sensitive receivers would be negligible. - The EPA did not raise any issues in relation to dust. - The Department is satisfied that the dust impacts of the project would be negligible, subject to recommended conditions	Require the Applicant to: implement the best management practice, including all reasonable and feasible dust mitigation measures during construction.
Visual Amenity	
- The abattoir is located on flat land between an eastern and western ridge. - Due to existing vegetation and topography, the receptors to the east, south and west of the project would experience minimal amenity impact. - The proposed bio-digester is likely to be more visually prominent than the existing infrastructure particularly to viewing locations along the Gwydir Highway. - The Applicant has committed to additional landscaping in the potentially visually sensitive areas immediately north and north-east of the proposed site. - The Department is satisfied that the visual impacts of the project would be acceptable.	Require the Applicant to: prepare and implement a Landscaping and Vegetation Management Plan for the project, prior to construction
Bushfire Risks	
- Council's Bush Fire Prone Land Map indicates that the site is within the 100m buffer zone from 'designated Category 1 Vegetation', meaning that the existing facility is affected by vegetation that may pose a fire hazard. - However, the proposed rendering plant and bio-digester are located outside the 100m buffer zone. - Notwithstanding, the Applicant committed to comply with the requirements of <i>Planning for Bushfire Protection 2006</i> (NSW RFS). - This includes a committed to install a separate fire hydrant system for the new plants, establish a 20m protection buffer around the proposed bio-digester, appropriate access for emergency services, preparation of a bushfire/grassland management plan and emergency evacuation plan. - The Department has considered these commitments from the Applicant and is satisfied that the bushfire risk would be adequately managed.	Require the Applicant to: implement suitable risk controls in accordance with requirements of <i>Planning for Bushfire Protection 2006</i> (NSW RFS) during construction and operation.
Heritage	
- The site is not listed as being a heritage item or containing items under the Inverell LEP 2012. - OEH carried out a heritage survey of the site and was satisfied that there are no Aboriginal heritage items that have been identified or uncovered on or in the vicinity of the site. - The Department's assessment concludes that it is highly unlikely that the project would have any Aboriginal heritage impact but has recommended conditions to deal with unexpected heritage objects.	Require the Applicant to: cease works and notify the relevant authorities in the event that any Aboriginal cultural object(s) or human remains are uncovered on-site during construction of the external bunkers.

6. CONCLUSION

The Department has assessed the merits of the proposal having regard to the objects of the EP&A Act and the principles of ecologically sustainable development.

The existing facility has been in operation since the early 1950s and has had a history of odour and waste management issues during this time, largely due to current and past waste management practices at the site.

The proposal will provide an important opportunity to address this previous odour and waste management issues and will also assist Bindaree beef in ensuring the long term sustainability of the abattoir.

The Department's assessment concluded that the project would reduce a number of environmental impacts of the site, particularly odour impacts and greenhouse gas emissions, while also eliminating the need for coal trucks to enter the site. However, there would be some short-term noise and dust impacts as a result of construction works.

The Department has recommended a number of conditions including measures to manage air quality and odour, noise limits, water, traffic, landscaping and vegetation, hazards and risks. The Department has also recommended conditions for on-going environmental management, including annual reporting and regular independent audits.

Overall, the Department concluded that the project would improve the environmental performance of the site and appropriately manage odour, noise and water impacts associated with the project in line with current best practice.

The proposal is consistent with goals and priorities of *NSW 2021* and the *New England North West Regional Action Plan* as the Applicant would continue to provide economic support for the Inverell region. Improving the infrastructure on the site would ensure the Applicant can remain viable and competitive through adopting a sustainable new technology and creating efficiencies in operational performance.

Consequently, the Department considers that the project is in the public interest and should be approved, subject to conditions.

The Applicant, the EPA, Council and RMS have all reviewed and generally accept the recommended conditions.

7. RECOMMENDATION

It is recommended that the Executive Director:

- **consider** the findings and recommendations of this report;
- **approve** the development application under section 89E of the EP&A Act; and
- **sign** the attached development consent (refer Appendix A).



Chris Ritchie
Manager
Industry Assessments

10/12/14



Chris Wilson
Executive Director
Infrastructure and Industry Assessments

10.12.14