

APPENDIX 

**Preliminary Hazard Analysis  
(SLR, 2014d)**

This page left intentionally blank



global environmental solutions

Preliminary Hazard Assessment  
Proposed Small Stock Abattoir Development & Continued  
Operation of the Blayney SeaLink Complex  
Newbridge Road Blayney NSW 2799

Report Number 610.13744.00030 PHA R2 PHA

5 November 2014

Metziya Pty Ltd

Version: Revision 0

# Preliminary Hazard Assessment

## Proposed Small Stock Abattoir Development & Continued Operation of the Blayney SeaLink Complex

### Newbridge Road Blayney NSW 2799

PREPARED BY:

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
2 Lincoln Street Lane Cove NSW 2066 Australia

(PO Box 176 Lane Cove NSW 1595 Australia)  
T: 61 2 9428 8100 F: 61 2 9427 8200  
E: sydney@slrconsulting.com www.slrconsulting.com

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Metziya Pty Ltd.  
No warranties or guarantees are expressed or should be inferred by any third parties.  
This report may not be relied upon by other parties without written consent from SLR Consulting.

SLR Consulting disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

#### DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
610.13744.00030 PHA R2	Revision 0	5 November 2014	C Simpson	N Redfern	N Redfern

## Executive Summary

This document presents a Preliminary Hazard Assessment (PHA) required to fulfil the Hazard and Risk Planning requirement of the Development Application in accordance with the Multi-Level Risk Assessment Guidelines stipulated in conducting such analysis.

This PHA has been carried out in accordance with the Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning, NSW Department of Planning, (HIPAP 4) as stipulated by Planning Assessment Commission of New South Wales.

Where further analysis was required the PHA has been carried out in accordance with the Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (HIPAP 6).

The Preliminary Hazard Analysis has found that the operation of the proposed development meets the criteria laid down in HIPAP 4 Risk Criteria for Land Use Safety Planning and would not cause any risk, significant or minor, to the community.

Other spill, fire and incident events are not likely to extend significantly beyond the boundary of the site, with the exception of a major plant fire where, regardless of the type of operation there will always be a risk of potentially harmful smoke plumes downwind from a fire. In the majority of large fires the buoyant nature of a smoke plume means any potentially harmful materials are rapidly dispersed.

It is the conclusion of this PHA that the proposed development meets all the requirements stipulated by the Department of Planning and hence would not be considered, with suitable engineering controls in place, to be an offensive or hazardous development on site or would not be impacted by any hazardous incidents from adjoining facilities off site.

## Table of Contents

1	INTRODUCTION	1
1.1	Scope	1
2	OVERVIEW OF THE PROPOSED DEVELOPMENT	1
2.1	Proposed Development	1
2.2	Surrounding Land Uses and Zoning	3
3	HAZARD IDENTIFICATION	4
3.1	Methodology	4
3.2	Hazard Identification	4
3.3	Hazard Analysis	4
3.3.1	Consequence Estimation	4
3.3.2	Probability Likelihood Estimation	4
3.3.3	Risk Evaluation and Assessment	5
3.4	Assessment Criteria	5
3.4.1	Individual Fatality Risk Levels	5
3.4.2	Injury Risk Levels	5
3.4.3	Risk of Property Damage and Accident Propagation	6
3.4.4	Criteria for Risk Assessment to the Biophysical Environment	6
3.5	Potential Hazardous Incidents Identified For Further Discussion	7
3.5.1	Ammonia	7
3.6	Assessment Criteria Applicable to the Proposed Development Application	10
3.6.1	Heat-Flux Radiation Criteria	10
3.6.2	Explosion Over-Pressure Criteria	10
3.6.3	Toxic Exposure Criteria	10
3.6.4	Biophysical Environment Risk Criteria	10
3.7	Concluding Remarks	10
4	CONCLUSION	11

## 1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR Consulting) has been engaged by Horney & Associates Consulting Pty Ltd on behalf of Metziya Pty Ltd (Metziya) to assess the potential impacts of the proposed construction and operation of a small stock abattoir suitable for the processing and packaging of rangeland goats, as well as some lambs and sheep.

The proposed "Development Site" is located approximately one kilometre east of the Blayney township within the Blayney SeaLink Industrial Estate in the Central West region of NSW (see Figure 1). It is addressed to 137 Newbridge Road, Blayney NSW, and is identified as Lots 103 to 105 and 107 in Deposited Plan (DP) 1161062 in the Blayney Local Government Area (LGA). The combined titles comprise approximately 47 hectares. As evident on Figure 2, Lots 103 to 105 in DP 1161062 encompass the Applicant's existing cold storage facility known as Blayney SeaLink Cold Store Complex, while Lot 107 in DP 1161062 comprises vacant land. The Development Site is primarily zoned IN1 General Industrial, with the western extent zoned RU2 Rural Landscape (see Figure 3).

A Preliminary Risk Screening Assessment was previously completed in accordance with Applying SEPP 33 - Hazardous and Offensive Development Application Guidelines (DoP 2011). The screening indicated that the development is "potentially hazardous", and therefore a Preliminary Hazard Analysis (PHA) must be prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (DoP, 2011). The PHA should estimate the cumulative risks from the existing and proposed development.

Where SEPP 33 identifies a development as potentially hazardous and/or offensive, developments are required to undertake a PHA to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls.

The purpose of the PHA is to assess whether the proposed development impacts on the current surrounding land uses and or if the development is offensive or hazardous, thereby posing an unacceptable risk to the surrounding community or if the proposed development may be potentially subject to hazards or risks from existing development in the surrounding area.

### 1.1 Scope

This PHA has been carried out in accordance with the *Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning, NSW Department of Planning*, (HIPAP 4) as stipulated by Planning Assessment Commission of New South Wales.

This study evaluates potential hazards to land uses at identified surrounding sites from the proposed development and the impact of that hazard can be adequately controlled and not exceed the risk criteria set out in HIPAP 6 *Hazard Assessment*.

## 2 OVERVIEW OF THE PROPOSED DEVELOPMENT

### 2.1 Proposed Development

Metziya is seeking a single new development consent under Part 4 of the EP&A Act to develop a small stock abattoir within the Development Site and for continued operation of the existing Blayney SeaLink Cold Store Complex, which was previously approved under Development Applications 59-01-02; 29-02-03; 60-2006; 66-2005; 9-2009; 155-2008; 8-2009. The proposal comprises the development of an abattoir with the capacity to process up to 4,500 head per day, comprising primarily rangeland goats and some sheep/lambs, along with the continuing operation and use of the existing Blayney SeaLink Cold Store Complex located within the Development Site (collectively referred to as the Project). Figure 4 shows the conceptual layout of the proposed development in relation to the existing complex, with a detailed description provided in the sub-sections below.

The Development Site already contains an operating cold store complex, and the construction and operation of a facility such as an abattoir that requires freezer storage enables the efficient use of infrastructure that is already approved and in operation on the site. The facility has been designed to be equipped to a high standard in order to obtain and maintain registration by the Department of Agriculture, Fisheries and Forestry (DAFF) and allow effective servicing of leading export markets.

Ancillary infrastructure will support the abattoir, including separate vehicular ingress and egress from/to the adjoining Newbridge Road, heavy vehicle manoeuvring and turning areas, car parking and a wastewater treatment system.

The disturbance footprint for the new abattoir will be relatively small at approximately 3.1 hectares, including the rooved building area, vehicle manoeuvring and parking areas, and a wastewater treatment plant. The commercial activities associated with the abattoir will also be largely confined to this area. The overall development footprint, including the existing Blayney SeaLink Cold Store Complex and Abattoir, will comprise approximately 9.5 hectares.

A summary of the key aspects of the proposed small stock abattoir is provided in Table 4.1.

**Table 1 Summary of the Small Stock Abattoir Development**

<b>Aspect</b>	<b>Description</b>
<b>Livestock processing</b>	Small stock (primarily goats, with some lambs)
<b>Daily livestock processing capacity</b>	Up to 4,500 head
<b>Operating hours</b>	24 hours per day
<b>Operating days</b>	Seven days per week (excluding public holidays)
<b>Employees</b>	165 full time equivalent positions
<b>Product</b>	Transported via refrigerated containers to Port Botany for export.
<b>On-site livestock enclosure</b>	Enclosed holding pens for short-term containment prior to processing.
<b>By-products management</b>	Sent off-site to appropriately licensed facilities. No on-site disposal of waste materials.
<b>Water supply</b>	Council reticulated town water supply.
<b>Daily water requirement</b>	Up to 585 kL. The site's existing connection will meet this demand. Water to be delivered over 24 hours to onsite reservoir.
<b>Daily wastewater generation</b>	Up to 520 kL
<b>Wastewater management</b>	Treated on-site prior to discharge to Newcrest Mining Limited's Cadia Valley Operations approved minerals dewater facility adjoining the Development Site, where it will be pumped via a return water line to the Cadia Valley Operation's mine.
<b>Power Supply</b>	Reticulated electricity will be the development's principal source of energy. Electricity needs will be met via the site's existing connection to Essential Energy's reticulated electricity network.
<b>Average heavy vehicle movements to/from the site</b>	58
<b>Vehicle Access</b>	Access will be from Newbridge Road. Construction of a new intersection off Newbridge Road will be required.

## 2.2 Surrounding Land Uses and Zoning

Under the provision of the Blayney Local Environment Plan (LEP) 2012, the Development Site is primarily zoned IN1 General Industrial, with the western extent zoned RU2 Rural Landscape (see Figure 3). As evident on Figure 3, the land immediately to the east of the Development Site is also zoned IN1 General Industrial, while the land to west and south is zoned RU2 Rural Landscape and the land to the north is zoned SP2 Infrastructure (rail infrastructure facilities).

The abattoir and associated infrastructure will be constructed within the IN1 zone. In accordance with the LEP, livestock processing industries are permitted with development consent within land zoned IN1 General Industrial.

*Those land uses permissible with consent in the IN1 zone are:*

*Agricultural produce industries; Aquaculture; Bee keeping; Depots; Garden centres; Hardware and building supplies; Heliports; Industrial training facilities; Kiosks; Landscaping material supplies; Light industries; Neighbourhood shops; Plant nurseries; Roads; Rural supplies; Take away food and drink premises; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Water recycling facilities; Any other development not specified in item 2 or 4*

*Those land uses prohibited in the IN1 zone are:*

*Agriculture; Air transport facilities; Airstrips; Amusement centres; Biosolids treatment facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Child care centres; Commercial premises; Correctional centres; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Farm buildings; Forestry; Function centres; Health services facilities; Heavy industrial storage establishments; Heavy industries; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Jetties; Marinas; Mooring pens; Moorings; Public administration buildings; Registered clubs; Residential accommodation; Respite day care centres; Rural industries; Sewage treatment plants; Tourist and visitor accommodation; Waste disposal facilities; Water recreation structures; Water recycling facilities; Wharf or boating facilities*

The neighbouring land, properties and other important land user areas are detailed in **Table 3**.

**Table 2 Neighbouring Premises**

Direction	Distance from Boundary of Development Site	Company/Operations (Lot & DP)	Use of Premises	Land Use Category
North	80 m	Rail line (Lots 1&2; DP7098682 & DP1161062)	Railway	SP2 Infrastructure (rail infrastructure facilities)
North	196 m	Farm (Lot 1 DP371155; Lot 1 DP662977; Lot 2 DP659193)	Farming (paddock)	RU2 Rural Landscape
South	Less than 50 m	Athol Homestead (Lot 400 DP1070085)	Residence and function venue	RU2 Rural Landscape
East	Less than 50 m	Vacant Land (Lot 106 DP1161062)	Approval granted to Cadia Valley Operations for construction of a minerals dewatering facility	General Industrial IN1
East	800 m	Farm (Lot 2 DP659193)	Farming	RU2 Rural Landscape
West	450 m	Farm (Lot 3 DP6158)	Farmstead	RU2 Rural Landscape
West	1000 m	Blayney Township	Urban area	B2 Local Centre

### **3 HAZARD IDENTIFICATION**

The hazard analysis and quantified risk assessment approach developed and recommended in HIPAP relies on a systematic and analytical approach to the identification and analysis of hazards and the quantification of off-site risks to assess risk tolerability and land use safety implications. HIPAP advocates a merit-based approach, the level and extent of analysis must be appropriate to the hazards present and therefore, need only progress to the extent necessary for the particular case.

#### **3.1 Methodology**

The procedures adopted by this study for assessing hazardous impacts involve the following steps:

- Step 1: Hazard identification;
- Step 2: Hazard analysis (consequence and probability estimations); and
- Step 3: Risk evaluation and assessment against specific criteria.

The following sections of the report discuss the hazard identification and analysis process as prescribed in HIPAP.

#### **3.2 Hazard Identification**

This is the first step in the risk assessment. It involves the identification of all theoretically possible hazardous events as the basis for further quantification and analysis. This does not in any way imply that the hazard identified or its theoretically possible impact will occur in practice. Essentially, it identifies the particular characteristics and nature of hazards to be further evaluated in order to quantify potential risks.

To identify hazards, a survey of operations was carried out to isolate the events which are outside normal operating conditions and which have the potential to impact outside the boundaries of the Site. In accordance with HIPAP 4, these events do not include occurrences that are a normal part of the operation cycles of the Site but rather the atypical and abnormal, such as the occurrence of a significant liquid spill during product transfer operations.

#### **3.3 Hazard Analysis**

After a review of the events identified in the hazard identification stage and the prevention/protection measures incorporated into the design of the Site, any events which are considered to have the potential to result in impacts off-site or which have the potential to escalate to larger incidents are carried to the next stage of analysis.

##### **3.3.1 Consequence Estimation**

This aspect involves the analysis and modelling of the credible events carried forward from the hazard identification process in order to quantify their impacts outside the boundaries of the Site. In this case these events typically include explosion, fire fume, dispersion/propagation and their potential effects on people and/or damage to property.

##### **3.3.2 Probability Likelihood Estimation**

Where necessary, the likelihood of incidents quantified as a result of Section 3.3.1 are determined by adopting probability and likelihood factors derived from published data.

### 3.3.3 Risk Evaluation and Assessment

The risk analysis includes the consequences of each hazardous event and the frequencies of each initiating failure. The results of consequence calculations (radiation and overpressure contours, and toxic exposure levels) together with the probabilities and likelihood's estimated are then compared against the accepted criteria, as specified by the Department of Planning and Infrastructure applicable for the Site. Whether it is considered necessary to conduct the predictions would depend on the probabilities and likelihood estimated and if the risk criteria are exceeded.

### 3.4 Assessment Criteria

The risk criteria applied is specified by Hazardous Industry Planning Advisory Paper No 4 - Risk Criteria for Land Use Safety Planning (HIPAP 4). Following is a general discussion of the criteria that is used to assess the risk of a development on the surrounding community and environment.

#### 3.4.1 Individual Fatality Risk Levels

The following paragraphs are reproduced from HIPAP 4 relating to individual fatality risk levels:

"People in hospitals, children at school or old-aged people are more vulnerable to hazards and less able to take evasive action, if need be, relative to the average residential population. A lower risk than the one in a million criteria (applicable for residential areas) may be more appropriate for such cases. On the other hand, land uses such as commercial and open space do not involve continuous occupancy by the same people.

The individual's occupancy of these areas is on an intermittent basis and the people present are generally mobile. As such, a higher level of risk (relative to the permanent housing occupancy exposure) may be tolerated. A higher level of risk still is generally considered acceptable in industrial areas".

The risk assessment criteria for individual fatality risk are presented below.

Land Use	Risk Criteria x 10 <sup>-6</sup>
Hospitals, schools, etc	0.5
Residential	1
Commercial	5
Sporting and active open space	10
Industrial	50

#### 3.4.2 Injury Risk Levels

Injury risk levels from HIPAP 4 are stated below for heat of radiation.

- Incident heat flux radiation at residential areas should not exceed 4.7 kW/m<sup>2</sup>, at frequencies of more than 50 chances in a million per year.
- Incident explosion overpressure at residential areas should not exceed 7 kPa, at frequencies of more than 50 chances in a million per year.

The requirements for toxic exposure are stated as follows:

- Toxic concentrations in residential areas should not exceed a level that would be seriously injurious to sensitive members of the community following a relatively short period of exposure at maximum frequency of 10 in a million per year.
- Toxic concentrations in residential areas should not cause irritation to the eyes or throat, coughing or other acute physiological responses in sensitive members of the community over a maximum frequency of 50 in a million per year.

Please note that a risk hazard assessment only examines events that are considered to have the potential for significant off-site consequences.

### **3.4.3 Risk of Property Damage and Accident Propagation**

HIPAP 4 indicates that siting of a hazardous installation must account for the potential for propagation of an accident causing a “domino” effect on adjoining premises. This risk would be expected within an industrial estate where siting of hazardous materials on one Site may potentially cause hazardous materials on an adjoining premises to further develop the size of the accident.

The criteria for risk to damage to property and of accident propagation are stated as follows:

- Incident heat flux at neighbouring potentially hazardous installations or at land zones to accommodate such installations should not exceed a risk of 50 in a million per year for the 23 kW/m<sup>2</sup> heat flux level.
- Incident explosion overpressure at neighbouring potentially hazardous installations, at land zoned to accommodate such installations or at nearest public buildings should not exceed a risk of 50 in a million per year for the 14 kPa explosion overpressure level.

### **3.4.4 Criteria for Risk Assessment to the Biophysical Environment**

HIPAP 4 indicates that siting of potentially hazardous developments also needs to consider the risk from accidental releases into the biophysical environment. Acute and chronic toxicity impacts are considered to be of most relevance.

The assessment of the ultimate effects from toxic releases into the natural ecosystem is difficult, particularly in the case of atypical accidental releases. Consequence data is limited and factors influencing the outcome variable and complex. In many cases, it may not be possible or practical to establish the final impact of any particular release. Because of such complexity, it is inappropriate to provide generalised criteria to cover any scenario. The acceptability of the risk will depend upon the value of the potentially affected zone or ecosystem to the local community and wider society.

The suggested criteria for sensitive environmental areas relate to the potential effects of an accidental release or emission on the long-term viability of the ecosystem or any species within it and are expressed as follows:

- Industrial developments should not be sited in proximity to sensitive natural environmental areas where the effects or consequences of the more likely accidental emissions may threaten the long-term viability of the ecosystem or any species within it; and
- Industrial developments should not be sited in proximity to sensitive natural environmental areas where the likelihood or probability of impacts that may threaten the long-term viability of the ecosystem or any species within it is not substantially lower than the existing background level threat to the ecosystem.

### 3.5 Potential Hazardous Incidents Identified For Further Discussion

Following a review of neighbouring properties a series of potentially hazardous events or scenarios were considered to identify if further comprehensive qualitative analysis is required. Each event or scenario shall be discussed in detail and the need for a further quantitative analysis considered.

The following current potential hazards could not be eliminated through the first review and require further examination:

- Ammonia release;
- Plant failure
- Fire;

These scenarios are discussed below in Table 2.

#### 3.5.1 Ammonia

Ammonia a dangerous good and is classified as Class 2.3 Toxic Flammable Gas with a sub-risk 8 corrosive material. The lower explosive limit (LEL) for ammonia is 15% meaning that while it is capable of forming flammable gas mixtures, very high concentrations are required and the general volatility of the material limits the extent of any flammable concentration zones.

At ambient temperatures and pressures ammonia (NH<sub>3</sub>) is a colourless gas with a strong pungent and irritating odour. The highly hygroscopic nature of the material means that large gaseous releases are often visible as a mist. Within the plant, ammonia is circulated as both a gas and liquid and is stored under pressure. There exist the potential for a leak or rupture from an ammonia system that could release high pressure ammonia gas or liquid. Historically, large quantities or releases of ammonia have been known to have off-site impacts. The potential impacts off site are dependent on the volume of material being released, the atmospheric conditions and topography.

The USEPA uses a term "Toxic Endpoint" defined as follows:

"The 'toxic endpoint' for ammonia is 200 ppm (0.14 mg/L). This airborne concentration has been published by the American Industrial Hygiene Association (AIHA) and is the maximum airborne concentration below which it is believed that nearly all individuals can be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action. "

This is a useful guide to the concentration that a population could safely experience and take their own precautionary actions to evacuate or shelter if required.

**Table 3: Summary of Potential Major Incident Scenarios**

Major Incident	Description	Potential Outcomes	Frequency Estimate	Likely Consequences	Controls	Residual Risk Level
<b>Ammonia Release – Pipe Rupture</b>	Pipe rupture post condenser side ruptures leading to ammonia leak. Plant will shutdown on pressure drop leading to short – ‘plug’ release of ammonia	Ammonia release over a short period (say 10 minutes)	Rare - Very Rare	Some potential for minor, short term off site impacts downwind from a release. Some medical treatment may be required in a worst case scenario Localised evacuation may be required	Automated compressor shutdown on loss of pressure Plant complies with AS1677:1998. Early level leak detection in plant room Periodic Maintenance and Inspections Ammonia gas detectors to detect leak	Acceptable
<b>Ammonia Release –Vessel Failure</b>	Ammonia release inside building/plant room from surge tank. Surge tank contains vapour/liquid mixture of ammonia.	Slow leak from closed building as ammonia vapourises	Very Rare	Some potential for minor, short term off site impacts downwind from a release. Some medical treatment may be required in a worst case scenario Localised evacuation may be required	Periodic vessel inspection and system maintenance	Acceptable
<b>Ammonia Release –and fire</b>	Release of ammonia and then ignition to start a fire	Site wide fire	Very Rare	Potential for downwind irritation if unburned ammonia is part of smoke plume, potential for generation of high NO <sub>x</sub>	Ammonia Gas Detection system triggers plant shutdown at 1/5 LEL for Ammonia Plant complies with AS1677:1998.	Acceptable
<b>Ammonia Release – pipe leak (corrosion)</b>	Small ammonia leak, local odour noticed on site	Minor leak/plant shutdown and isolation	Rare	Minor irritation/injury to staff present – No off site impacts expected	Periodic Maintenance and Inspections	Acceptable
<b>Ammonia Release – Overpressure</b>	Leak or release of ammonia gas		Rare	Minor irritation/injury to staff present – No off site impacts expected	Pressure Safety Valves, Plant design pressure rated	Acceptable
<b>Ammonia Release – Pipework Flange/weld failure</b>	Small leak of ammonia gas or liquid under pressure. Will continue until leak is stopped	Localised odour/irritation	Rare	Minor irritation/injury to staff present – No off site impacts expected	Periodic Maintenance and Inspections	Acceptable
<b>Ammonia Release Maintenance Operations</b>	Maintenance error or accident	Small localised release of ammonia – most likely inside plant room	Unlikely	Minor irritation/injury to staff present – No off site impacts expected	All maintenance work on refrigeration equipment carried out by licenced and accredited personnel	Acceptable

**Table 3: Summary of Potential Major Incident Scenarios (con't.)**

Major Incident	Description	Potential Outcomes	Frequency Estimate	Likely Consequences	Controls	Residual Risk Level
<b>Ammonia Release – Fire Impact (external)</b>	Fire starts in another section of the building and impinges on the plant room	Potential for fire to spread to refrigeration system – ammonia would then likely be released and burn/act as additional fumes	Very Rare	Potential for downwind irritation if unburned ammonia is part of smoke plume, potential for generation of high NO <sub>x</sub>	Plant room is separate from operations.	Acceptable
<b>Site Fire</b>	Fire starts in another section of the building and impinges on the plant room	Potential for fire to spread to refrigeration system – ammonia would then likely be released and burn/act as additional Acceptable fumes	Rare	Potential for downwind irritation if unburned ammonia is part of smoke plume, potential for generation of high NO <sub>x</sub>		Acceptable
<b>Ammonia Release mechanical impact on pipe/vessel</b>	Impact causes pipe rupture or leak	Minor leak/plant shutdown and isolation	Very Rare	Minor irritation/injury to staff present – No off site impacts expected	Pipes are lagged and this afford a significant degree of protection from mechanical impact. Pipe work Plant separated from normal operations.	Acceptable
<b>Ammonia release heat exchanger leak</b>	Leak at plate heat exchanger of ammonia	Localised ammonia leak in plant room	Unlikely	Minor irritation/injury to staff present	Periodic inspections and maintenance.	Acceptable

The most hazardous operation on the site is the ammonia based refrigeration system. The current refrigeration equipment and plant room will be expanded to meet additional cooling requirements and at the same time the equipment will be upgraded to ensure it meets the requirements of AS1677:1998.

AS1677 requires the installation and maintenance of number of safety features for ammonia based refrigeration plant and equipment specifically designed to reduce the overall risk of operations. The correct operation and maintenance of this equipment has been assumed as part of the likelihood assessments.

### **3.6 Assessment Criteria Applicable to the Proposed Development Application**

In accordance with HIPAP 4 Risk Criteria for Land Use Safety Planning, the following is a discussion of the risk assessment criteria that shall be applied to the proposed development application.

#### **3.6.1 Heat-Flux Radiation Criteria**

As discussed above, further consequence analysis of an incident involving heat radiation from a fire from neighbouring sites is not considered necessary.

#### **3.6.2 Explosion Over-Pressure Criteria**

As discussed above, further consequence analysis of an incident involving explosion over pressure from a fire on-site is not considered necessary.

#### **3.6.3 Toxic Exposure Criteria**

The proposed development does store chemicals at quantities to be classified as an industrial or commercial site, however the ammonia is in a closed system with engineering controls in place limiting the potential for uncontrolled release.

Consequently, a consequence analysis of an incident involving toxic gas emissions from a fire on-site is not considered necessary.

#### **3.6.4 Biophysical Environment Risk Criteria**

The proposed development will store notable volumes of dangerous goods, in the form of ammonia. This may tend to generate toxic releases in the event of a large spill, however the ammonia is in a closed system with engineering controls in place.

Consequently, a further consequence analysis of an incident involving toxic releases into the biophysical environment is not considered necessary.

### **3.7 Concluding Remarks**

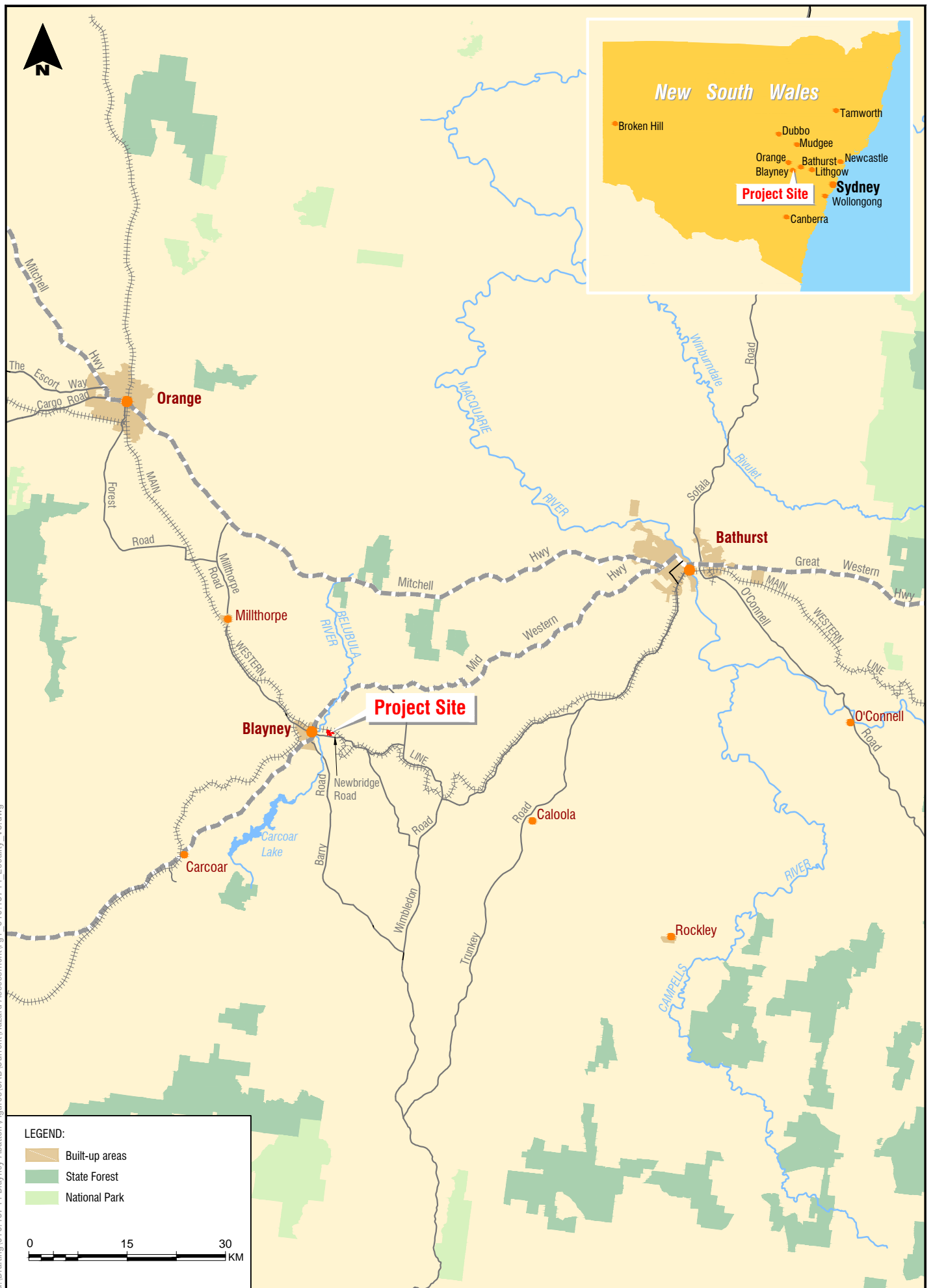
It is considered that the operations of the proposed development with the safeguards as stipulated would not cause significant off site risks. Whilst the development is considered to be a hazardous development given the quantity of ammonia stored within the refrigerant system, the quantity is reached by an increase in existing facilities which are currently managed and compliant to Australian Standards. This has been verified by the current maintenance contractor for the existing site (*refer to Appendix A*)

## **4 CONCLUSION**

The Preliminary Hazard Analysis has found that the operation of the proposed development meets the criteria laid down in HIPAP 4 Risk Criteria for Land Use Safety Planning and would not cause any risk, significant or minor, to the community.

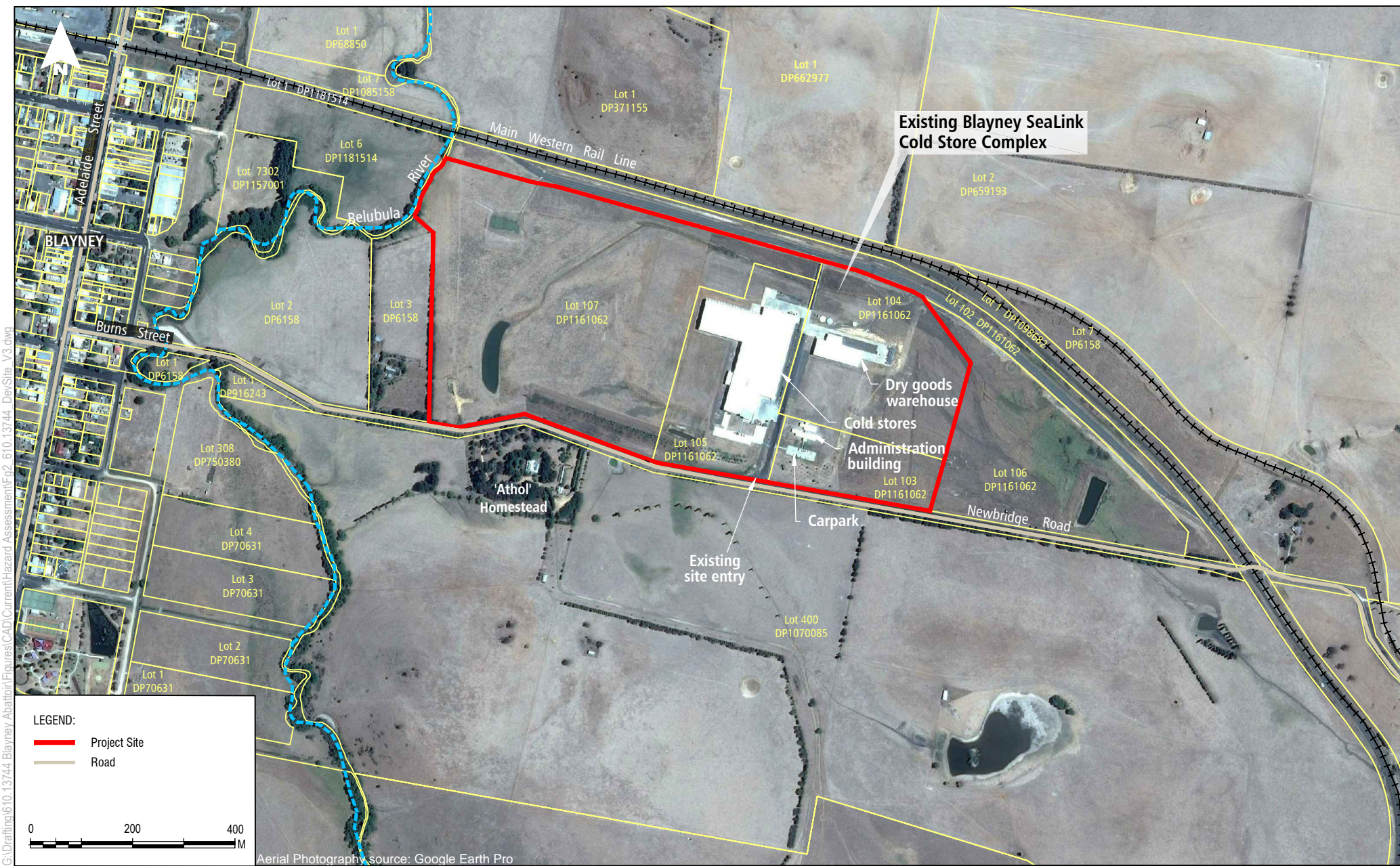
Other spill, fire and incident events are not likely to extend significantly beyond the boundary of the site, with the exception of a major plant fire where, regardless of the type of operation there will always be a risk of potentially harmful smoke plumes downwind from a fire. In the majority of large fires the buoyant nature of a smoke plume means any potentially harmful materials are rapidly dispersed.

It is the conclusion of this PHA that the proposed development meets all the requirements stipulated by the Department of Planning and hence would not be considered, with suitable engineering controls in place to be an offensive or hazardous development on site or would not be impacted by any hazardous incidents from adjoining facilities off site.



G:\Drafting\610\_13744 Blayney Abattoir\Figures\CAD\Curent\Hazard Assessment\Fig\_610\_13744\_Locality\_V3.dwg

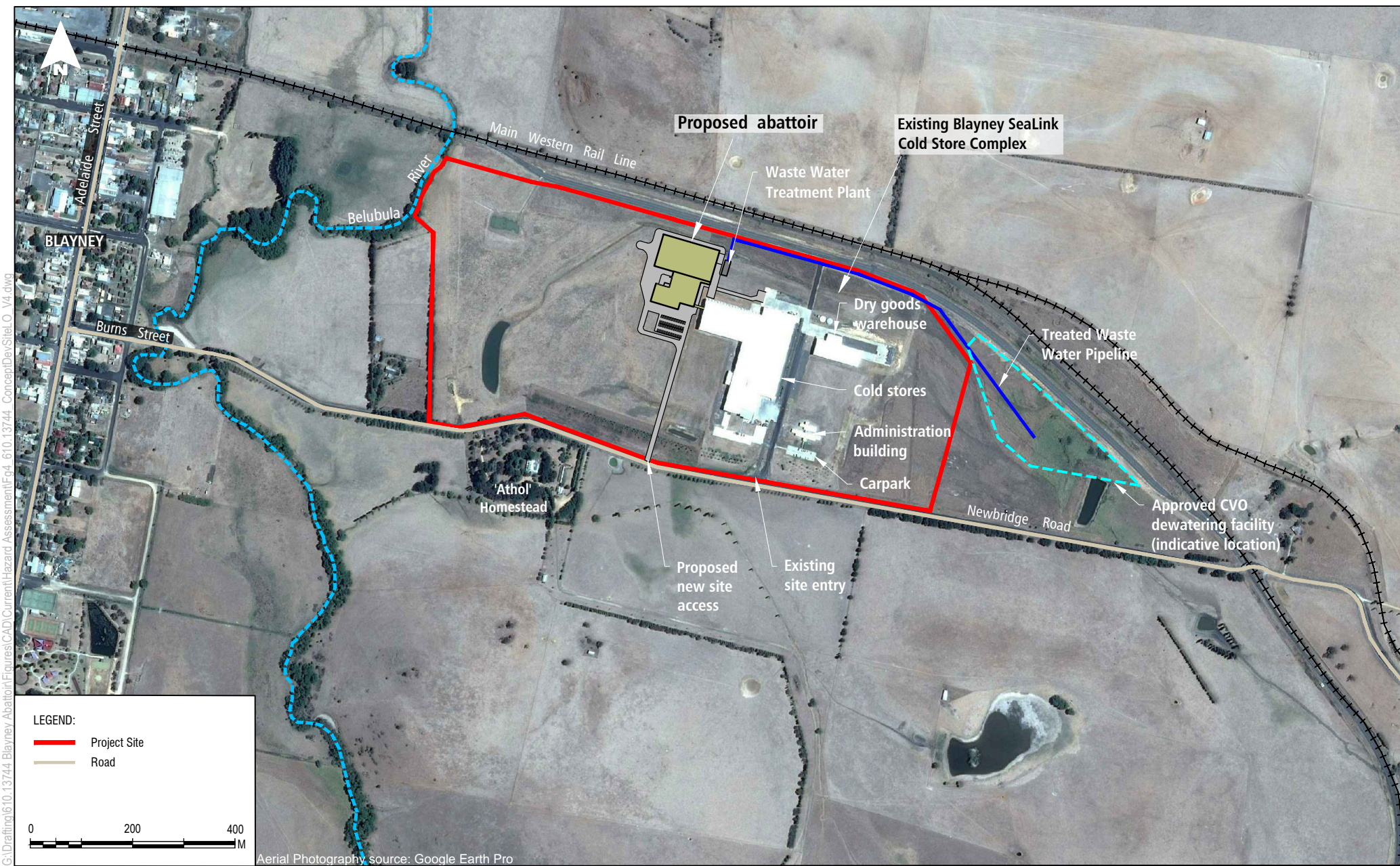
To be printed A4



G:\Drafting\610.13744\Blayney Abattoir\Figures\CAD\Current\Hazard Assessment\Fig\_2\_610.13744\_DevSite\_V3.dwg

To be printed A4





G:\Drafting\610.13744\Blayney Abattoir\Figures\CAD\Current\Hazard Assessment\Fig4\_610.13744\_ConceptDev\Stiel\_O\_V4.dwg

To be printed A4

## Appendix A



**METZIYA PTY LTD**  
P.O. Box 16  
BLAYNEY NSW 2799

ABN: 95 040 219 926

Ph: (02) 6368 9400  
Fax: (02) 6368 4290

31 October 2014

Nicole Armit  
Principal - Environmental Management, Planning and Approvals  
SLR Consulting Australia Pty Ltd

Dear Nicole

**Blayney Small Stock Abattoir  
Maintenance Refrigeration**

I can confirm that the maintenance of the Blayney SeaLink refrigeration system which contains ammonia is carried out in accordance with Australian Standard AS/NZS1677.1 Parts 1 and 2.

The system is audited daily, all functions inspected weekly and maintained according to the manufacturer's operation manual. Boilers are separately inspected and accredited annually by qualified refrigeration certifiers.

Yours faithfully

A handwritten signature in black ink, appearing to read 'George Tanos'.

George Tanos  
**Managing Director**

21<sup>st</sup> October, 2014

Hornery & Associates Consulting Pty Ltd  
PO Box 742  
KIAMA NSW 2533

ATTENTION: Mr. Ray Hornery

Dear Sir

SEALINK, BLAYNEY NSW REFRIGERATION SYSTEM

We hereby certify that the refrigeration plant installed by Tri Tech Refrigeration Australia Pty Ltd was designed and installed in compliance with the SAA Refrigeration code as 1677. 2:1998 parts one (1) and two (2)

The system is a pumped recirculation system utilising the environmentally friendly ammonia as the refrigerant which has a zero ozone depleting factor and zero global warming potential.

We trust the above meets with your requirements, Should you require any additional information please do not hesitate to contact the writer

Yours faithfully  
TRI TECH REFRIGERATION AUSTRALIA PTY LTD



**LES CRAVEN**  
Director