• JOHN NEWTON B. Surv; M.I.S. Aust. • TONY DENNY B. Surv; (Hons); M.I.S. Aust. • DAMIAN CHAPELLE BTP. CPP.

Gateway Planning Proposal

To Rezone Land at Lennox Street, Casino

ON BEHALF OF
G MCKENNA

Site: Lots 85, 86 & 87 DP 755627 and
Lots 1 & 2 DP 545750

Our Ref: 17/356

Date: January 2018

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

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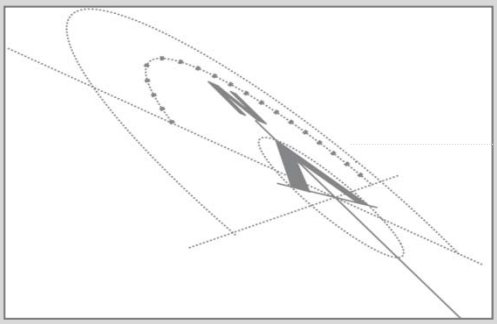
• Email office@newtondennychapelle.com.au • Also at: Cassino Court, 100 Barker St., Casino N.S.W. 2470 • Phone/Fax (02) 6662 5000



Document Control Sheet

Document Control Sheet

Document and Project Details	
Document Title:	Gateway Planning proposal to Permit Residential Subdivision at Lennox Street, Casino.
Author:	Adrian Zakaras
Project Manager:	Damian Chapelle
Date of Issue:	31 January 2017
Job Reference:	17/356
Project Outline:	Gateway Planning proposal to rezone vacant land at Lennox Street Casino for residential purposes.

Document Distribution				
Date	Status	Distribution – Number of Copies		
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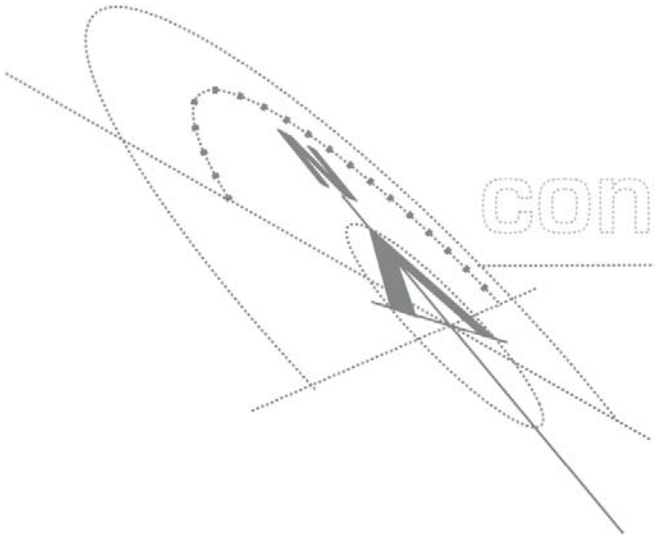
Documentation Verification	
Checked by:	Adrian Zakaras Karina Vikstrom

USAGE NOTE:

This document was prepared for the exclusive use of G McKenna for the development of land described herein and is not to be used for any other purpose or by any other person or corporation. Newton Denny Chapelle accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

The maps, development plans and exhibits shown in this report are suitable only for the purposes of this report. No reliance should be placed on this information for any purpose other than for the purposes of this report. All dimensions, number, size and shape of lots/buildings as shown on plans in this document are subject to detailed engineering design plans and final survey and may vary subject to conditions of consent issued by Council.

The information contained in this report is based on independent research undertaken by Newton Denny Chapelle. To the best of our knowledge, it does not contain any false, misleading or incomplete information.



contents

Attachments:

Attachment 1 – Engineering Report
Alta Projects

Attachment 2 – Ecological Assessment
Blackwood Ecological Services

Attachment 3 – Aboriginal Cultural Heritage Assessment
Everick Heritage Consultants Pty Ltd

Attachment 4 – Agricultural Assessment
Allen and Associates

Attachment 5 – Preliminary Contamination Site Assessment
Melaleuca Group Pty Ltd

Attachment 6 – NCRP 2036 – Urban Growth Area Variation Principles

Attachment 7 – NCRP 2036 – Important Farmland Interim Variation Criteria

Attachment 8 - Assessment against State Environmental Planning Policies

Attachment 9 - Assessment against S117 Ministerial Directions

Plans:

NDC Plan 1 – Location

NDC Plan 2 – Site Layout

NDC Plan 3 – Proposed Changes to RVLEP 2012 Mapping

1. Background

1.1 Summary of Project

Newton Denny Chapelle (NDC) has been engaged by the project proponent Mr. G McKenna, to prepare a 'Gateway Planning Proposal' for lodgement with Richmond Valley Council for land located at Lennox Street, Casino.

The land comprises five (5) titles being Lots 85, 86 & 87 DP 755627 and Lots 1 & 2 DP 545750 and contains frontage to Lennox Street, Boundary Street, Hare Street and East Street. The site has a combined area of 4.048 hectares and is zoned RU1 – Primary Production pursuant to the Richmond Valley Local Environmental Plan 2012 (RVLEP2012).

Plan 1 identifies the location of the subject land in a local context with **Plate 1** providing an aerial photo view of the property.

The purpose of the Planning Proposal is to change the zoning of the land to enable its future development for the purpose of residential uses. In this regard, the Planning Proposal involves changing the planning controls of the site to match those which are in force in the surrounding residential neighbourhood. This involves changing the zone to R1 General Residential Zone and introducing a 600m^2 minimum subdivision standard pursuant to the RVLEP2012.

Upon finalisation of the Planning Proposal, Development Consent will be sought on behalf of the Proponent, for a residential subdivision comprising approximately 46 lots over the subject land. A Preliminary Layout is provided in the Engineering Report in **Attachment 1**.

This Planning Proposal has been completed in accordance with the Department of Planning & Environment's Guide to Preparing Planning Proposals. A Gateway determination under Section 56 of the Environmental Planning and Assessment Act is sought.

1.2 Description of Site and Locality

The subject land is located at Lennox Street, Casino and in cadastral terms is known as Lots 85, 86 & 87 DP 755627 and Lots 1 & 2 DP 545750. The property is located within the Parish of South Casino, County of Richmond. The site is illustrated in **Plan 1** and **Plate 1** of this report.

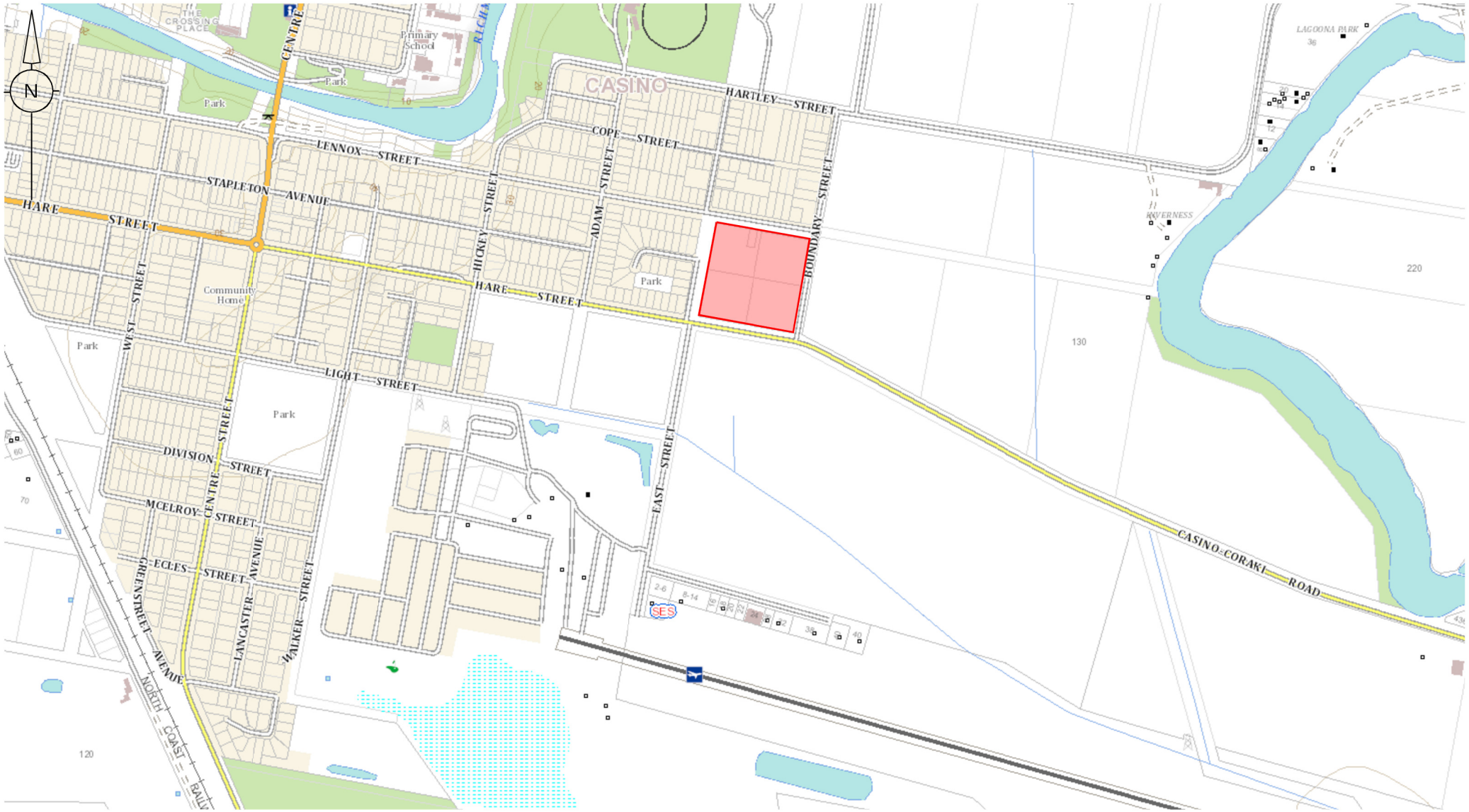
As illustrated in **Plate 2**, is zoned RU1 – Primary Production pursuant to the RVLEP2012. **Plate 3** identifies the site as being mapped as Regionally Significant Farmland pursuant to the Northern Rivers Farmland Protection Project.

The property has road frontage to Lennox Street to the north, Boundary Street to the east, Hare Street to the south and East Street to the west with no formal vehicular access arrangements from any of the street frontages.

The site is currently vacant and consists of disused agricultural land dominated by tall weedy grassland with patches of regrowth Forest red gum.

The site is adjoined to the north and west by residential development and to the south and east by agricultural land comprising low input grazing land.
Reference should be made to the following plans:

- **NDC Plan 1** provides a locality plan of the site;
- **NDC Plan 2** provides a site layout of the property and surrounds.



LEGEND:

SITE BOUNDARY

SOURCE PLAN: www.maps.six.nsw.gov.au - accessed 27.07.17

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ABN: 86 220 045 469

PLAN 1 - LOCATION

CLIENT: GRAEME MCKENNA

LOCATION: LOT 85, 86 & 87 DP755627 &
LOT 1 & 2 DP545750
LENNOX STREET
CASINO NSW

DATE: 27.07.17 REF: 17/356
SCALE: nts DRAWN: bk

NOTE:
This preliminary layout has been completed in accordance with the instructions provided by Graeme McKenna.
In this respect preliminary desktop data has been used to form this layout. The final layout is subject to the completion of a detailed survey & engineering plans. Accordingly, the conclusions reached within this report may be modified by the author upon the completion of the final design plans & site inspection. Newton Denny Chapelle accepts no responsibility for any loss or damage suffered, however so arising, to any person or corporation who may use or rely on this report.

REV	DATE	AMENDMENT
A		
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SOURCE PLAN: www.maps.six.nsw.gov.au - accessed 31.07.17

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CASINO 100 Barker St. Casino 2470 PH: 6662 5000
ABN: 36 220 045 469

PLAN 2 - SITE LAYOUT

CLIENT: GRAEME MCKENNA

LOCATION: LOT 85, 86 & 87 DP755627 &
LOT 1 & 2 DP545750
LENNOX STREET
CASINO NSW

DATE: 31.07.17 REF: 17/356
SCALE: 1 : 1250 @ A3 DRAWN: bk

Plate 1 – Aerial Photo of Subject Land **Source:** LPMA Six Viewer

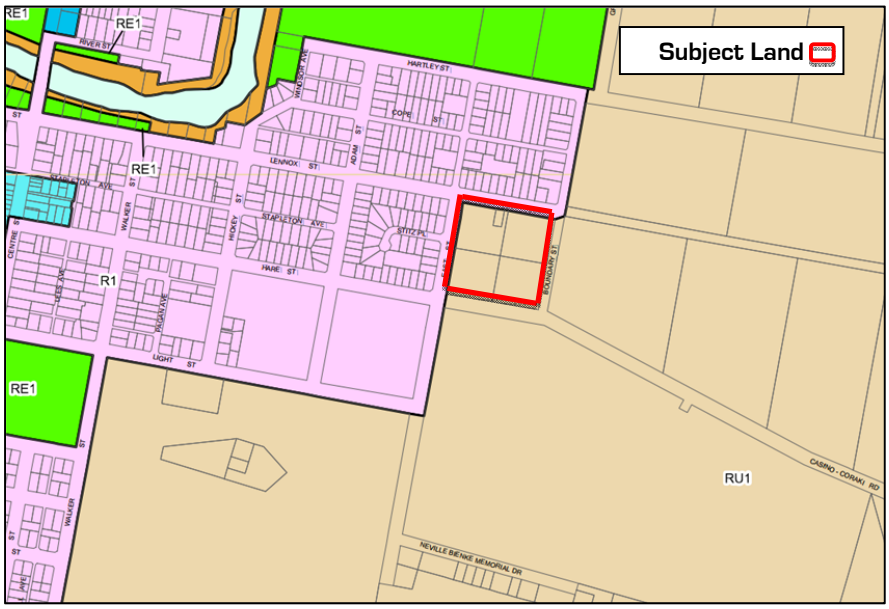


Plate 2 – RVLEP Land Zoning **Source:** Richmond Valley LEP 2012

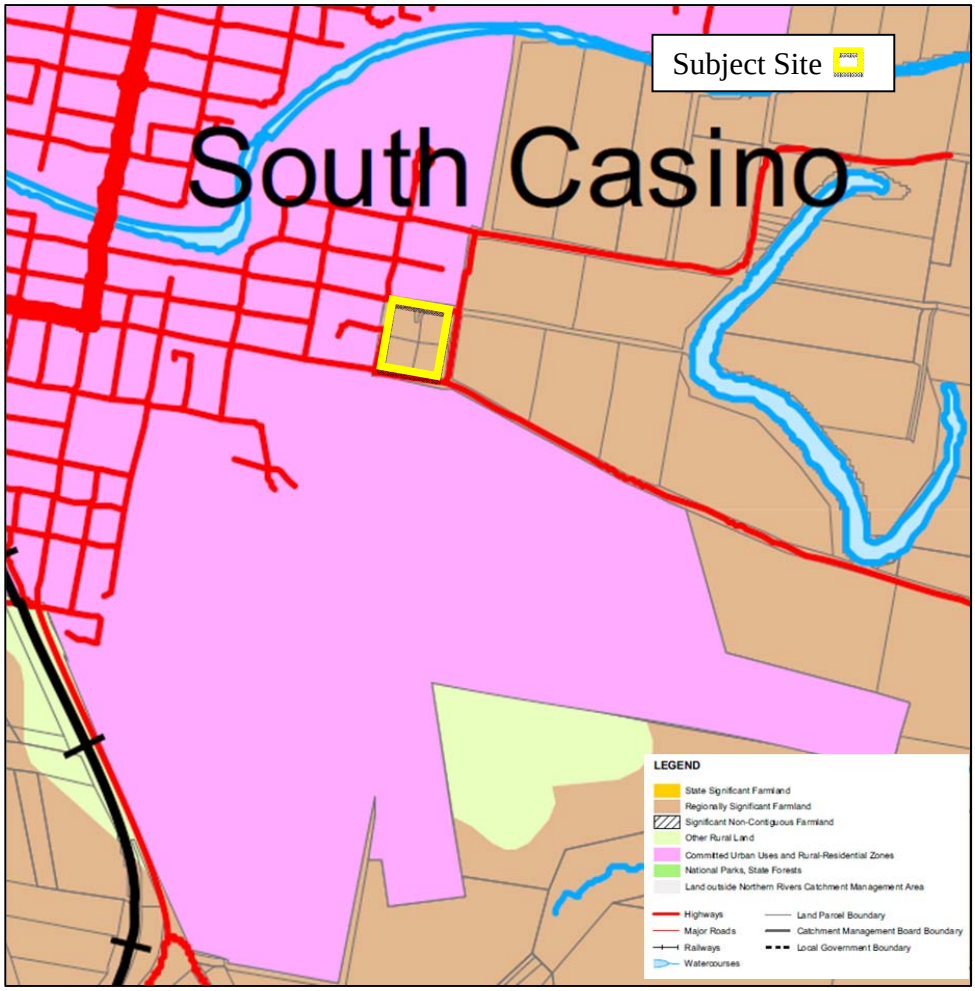


Plate 3 – Regionally Significant Farmland **Source:** Northern Rivers Farmland Protection Project

Plates 4 - 6 provide photos of the subject site.

Plate 4 – Looking into the site from Lennox Street

Plate 5 – Looking into the site from Hare Street

Plate 6 – Looking into the site from East Street

1.3 Physical Site Constraints

With respect to physical planning considerations, the following comments are made:

- **Topography** – The property can generally be characterised as relatively flat and contains a minor cross fall generally in a north south direction.
- **Habitat** - The site comprises a heavily disturbed disused farmland dominated by tall mixed weedy grassland with scattered and clumped native trees generally consisting of eucalypt species. An Ecological Assessment has been prepared by Blackwood Ecological Services and is provided in **Attachment 2**.
- **Bushfire** – The land is not mapped by Richmond Valley Council as containing bushfire prone land.
- **Heritage** – The site does not contain items of Local Environmental Heritage pursuant to the RVLEP 2012 mapping. A Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants and provided in **Attachment 3**. This assessment did not find any items of Indigenous cultural heritage sites or relics or items of local historic significance within the Project Area.
- **Flooding** – The site is located within the 'Low Hazard - LH' designation under the Casino Floodplain Hazard Category Map.

  Minor filling of the land will be required to accommodate residential development of the site. Further assessment against the Casino Floodplain Management Plan and Part H-1 Flood Planning of the Richmond Valley DCP will be required at the development application stage.

  Further discussion regarding flooding is provided within the Engineering Report contained in **Attachment 1**.

- **Acid Sulphate Soils** – The site is not mapped as containing Acid Sulphate Soils (ASS) within the RVLEP 2012 mapping.
- **Farmland** – The site is mapped as containing Regionally Significant Farmland (Refer to **Plate 3** above). An Agricultural Assessment of the site has been undertaken and is provided in **Attachment 4**. This assessment concludes that the lands are not good quality agricultural lands and the land should not be classified as Regionally Significant Farmland. An assessment against the NCRP 2036 Important Farmland Interim Variation Criteria is provided in **Attachment 7**.

- **Contamination** – A Preliminary Contaminated Land Assessment has been undertaken and is provided in **Attachment 5**. This assessment identifies a portion of the site has elevated lead levels and concludes that the site may be rezoned for residential purposes on the basis that the area identified as being contaminated is remediated and validated.

1.4 Development Concept

Upon finalisation of the Planning Proposal, Development Consent will be sought on behalf of the Proponent for a residential subdivision of the land. A Preliminary Lot Layout has been prepared and is provided within the Engineering Report in **Attachment 1**.

Full details of the proposal will be submitted with a development application post Gateway approval.

1.5 Why Submit a Planning Proposal?

The subject land is currently zoned RU1 – Primary Production and contains a minimum Lot Size for subdivision of 40 hectares under the Richmond Valley LEP 2012. The land is not suitable for agricultural production pursuits given its size, location and soil types. The land is adjoined by residential development to the north and west and is easily serviced. As such, it is proposed to rezone the land to enable its future development for a range of residential purposes.

1.6 Pre-lodgement Process

Pre-lodgement discussions were held between Newton Denny Chapelle and Richmond Valley Council Planning staff concerning the Planning Proposal, whilst the proponent has also held discussions with Council. This Planning Proposal along with the associated attachments have been prepared as a result of these discussions.

2. Planning Proposal

Part 1 Objectives and Intended Outcomes

The objective of this Planning Proposal is to amend the planning controls applicable to Lots 85, 86 & 87 DP 755627 and Lots 1 & 2 DP 545750 located at Lennox Street, Casino to enable its subdivision and development for residential purposes.

Part 2 Explanation of Provisions

2.1 Proposed Changes to Richmond Valley LEP 2012

The land the subject to this Planning Proposal is currently zoned RU1 – Primary Production under the Richmond Valley Local Environmental Plan (RVLEP) 2012, and contains a minimum subdivision lot size requirement of 40 hectares.

The following amendments are required to the Richmond Valley LEP 2012 to enable the subdivision and development of the land for residential purposes.

- **Acid Sulphate Soils Map** – No change.
- **Wetlands Map, Riparian Land and Waterways Map** – No change.
- **Drinking Water Catchment Map** – No change.
- **Dwelling Opportunity Map** – No change.
- **Heritage Map** – No change.
- **Height of Buildings Map** – No change.
- **Key Sites Map** – No change.
- **Land Application Map** – No change.
- **Land Reservation Acquisition Map** – No change.
- **Lot Size Map (Sheet LSZ-006A)** – Application of a 600m^2 minimum lot size for the area of land proposed to be rezoned in accordance with **NDC Plan 3**;
- **Land Zoning Map (Sheet LZN-006A)** – Application of an R1 – General Residential Zone in accordance with **NDC Plan 3**.

- **Terrestrial Biodiversity Map** – No change.
- **Landslide Risk Map** – No change.

Part 3 Justification

1. Is the Planning Proposal a result of a strategic study or report?

No. However, this Planning Proposal seeks to enable a land use on the site that is compatible with the existing residential character of Lennox Street. As discussed within the Agricultural Assessment in **Attachment 4**, the site is not considered suitable for agricultural production due to the lot configuration & size, soil type and relationship to nearby residential development.

Direction 1 of the North Coast Regional Plan 2036 provides guidelines where urban growth areas can be varied as new information becomes available or to fix anomalies. Any variation must be in accordance with the Urban Growth Area Variation Principles provided within NCRP 2036. Compliance with these principles is provided below within **Attachment 6**. The variation to the urban growth area is justified given the site is adjacent to existing residential development.

Given the proximity of the site to existing residential development including utility services and public roads, it is considered that the best use of the site is for residential purposes. It was discussed during the pre-lodgement meeting with Council that exclusion of the land from the Casino Urban Settlement Strategy is considered to be an anomaly.

2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Amending the zoning and minimum lot size provisions within the Richmond Valley Local Environmental Plan 2012 is the most effective way to achieve the intended outcomes.

3. Is the planning proposal consistent with the objectives and actions of the applicable regional, sub-regional or district plan or strategy (including any exhibited draft plans or strategies)?

North Coast Regional Plan 2036

The North Coast Regional Plan (NCRP) 2036 has been prepared by the Department of Planning and Environment to manage expected growth in a sustainable manner. The Regional Plan applies to the Far North Coast and Mid North Coast of NSW (being an area which stretches from Port Macquarie in the south to Tweed Heads in the north). The Plan includes Richmond Valley Council and is therefore applicable to the current proposal.

The Regional Plan has a number of Directions of relevance to the current Planning Proposal:

Direction 1: Deliver environmentally sustainable growth

Comment: As discussed above, the land is not located within the Town and Village Growth Boundary of Richmond Valley Council. This direction provides guidelines to vary urban growth areas as new information becomes available or to fix anomalies. Any variation must be in accordance with the Urban Growth Area Variation Principles provided within NCRP 2036. Compliance with these principles is provided below within **Attachment 6**.

Direction 3: Manage Natural Hazards and Climate Change

Comment: The subject land is mapped as being flood prone on Council mapping. Reference should be made to the assessment against Ministerial Direction 4.2 for discussion on this matter. The land is not mapped as being bushfire prone.

Direction 11: Protect and enhance productive agricultural lands.

Comment: The subject land is mapped as being Regionally Significant Farmland under the Northern Rivers Farmland Protection Project (refer to **Plate 3**). This direction recognises that agricultural production may not be suitable on some small pockets of mapped important farmland. The Agricultural Assessment provided in **Attachment 4** discusses the lands agricultural viability and concludes that the land is not suitable for agricultural uses for various reasons and that the soil type of the land being poorly drained Weisenbodens is not a soil type listed within the Northern Rivers Farmland Protection Project soil landscapes and variants selected for inclusion as important farmland. An assessment against Appendix B: Important Farmland Interim Variation Criteria is provided in **Attachment 7**.

Direction 22: Deliver greater housing supply

Comment: The proposal seeks to increase the housing supply of Casino by enabling the site to be rezoned for residential purposes. As identified in Figure 10 of the NCRP 2036, the Richmond Valley LGA will require a minimum of 1,550 additional houses by 2036. The proposal will assist in the attainment of this goal.

Local Government Narrative – Richmond Valley

Comment: The Regional Plan identifies the following as a priority:

- *"Deliver new housing in Riley's Hill, Evans Head, Woodburn and Casino*
- *Enhance the variety of housing options available in Casino, Evans Head and Coraki and support the unique character of local towns and villages."*

The current proposal is consistent with this approach as it provides for the provision of additional opportunities for new housing within Casino.

4. Is the Planning Proposal consistent with the Council's local strategy or local strategic plan?

The Casino Urban Land Release Strategy (16 August 2005) adopted by Richmond Valley Council aims to (amongst other objectives):

I. *to set aside sufficient land for a range of residential, commercial, industrial and community land uses which will cater for the projected population growth of the Town over the next twenty years to the year 2025';*

II. *To provide for the planned growth of Casino by identifying both development constraints and development opportunities and to outline a strategic sustainable approach to the future growth of the Town; and*

III. *To regulate development in Casino in order to achieve a desirable built environment for a growing population and economy which projects and enhances existing and future amenity by minimising land use conflict.*

Direction 1 of the North Coast Regional Plan 2036 provides guidelines where urban growth areas can be varied as new information becomes available or to fix anomalies. Any variation must be in accordance with the Urban Growth Area Variation Principles provided within NCRP 2036. Compliance with these principles is provided below within

Attachment 6. The variation to the urban growth area is justified given the site is adjacent to existing residential development.

Whilst not identified within the land release strategy, the current Planning Proposal is not considered to be antipathetic to the objectives and / or implementation of the intent of the Casino Urban Land Release Strategy as the proposal seeks to provide additional residential land to accommodate the future growth of Casino. The land is located within an existing urban environment and is readily serviceable.

5. Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

The Planning Proposal is generally consistent with the provisions of applicable State Environmental Planning Policies. An assessment of the project against these policies is provided within **Attachment 8**.

6. Is the Planning Proposal consistent with applicable Ministerial Directions (s117 Directions)?

The Planning Proposal is generally consistent with the provisions of applicable S117 Ministerial Directions with adequate justification provided concerning any inconsistency. An assessment of the project against these requirements is provided at **Attachment 9.**

7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities or their habitats will be adversely affected as a result of the proposal?

With respect to vegetation, the property is best described as disused agricultural land dominated by tall mixed weedy grassland to around 1 metre tall. Common species include Rhodes grass, Setaria, Broad-leaved paspalum, Narrow-leaved carpet grass, Kikuyu and Blady grass. Pasture weeds include Blue billygoat weed, Crofton weed, Centella, Ragweed, Cobble's pegs, Fleabane, Fireweed, Verben and Paddy's Lucerne. Occasional occurrences of Groundsel bush, Lantana, Mother-of-millions and Camphor laurel are also evident.

The subject site is not identified as containing terrestrial biodiversity on the Richmond Valley LEP 2012 Terrestrial Biodiversity Map.

An Ecological Assessment has been prepared by Blackwood Ecological Services and is provided in **Attachment 2**. This assessment concludes that *"the site has limited biodiversity value due to historical land clearing, fragmentation and weed invasion."* This assessment also includes a discussion regarding the implications of the future development of the land with regard to the recently commenced *Biodiversity Conservation Act 2016*.

8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

Potential environmental impacts in relation to the development have been identified and addressed below:

- *Contamination* – A Preliminary Contaminated Land Assessment has been undertaken by Melaleuca Group and is provided in **Attachment 5**. This assessment identified elevated levels of lead of part of the site. Melaleuca concluded however that the *"site may be rezoned for residential purposes on the basis the area identified is subsequently remediated and validation of the area demonstrates the Area of Concern would not represent a significant risk of harm to end users of a proposed residential development."* Remediation and validation of the site will occur prior to residential occupation of the site and as part of any future development application process;

- *Flooding* – The information contained under Section 1.3 and within **Attachment 1** of this Planning Proposal considers and addresses flooding;

- *Stormwater Drainage* – Stormwater drainage for the development will be considered and addressed post Gateway determination within detailed designs at the future development application and construction stages. Preliminary discussions in regards to Stormwater drainage is provided within the Engineering Report contained in **Attachment 1**;

- *Coastal Hazards* - The development is not subject to the SEPP 71 Coastal Policy;

- *Bushfire Hazard* – The subject land is not mapped as being bushfire prone in accordance with bushfire hazard maps adopted by Richmond Valley Council;

- *Acid Sulfate Soils* - The subject site is not mapped as containing Acid Sulfate Soils within the RVLEP 2012 mapping.

- *Landslip* - The subject site is not mapped as containing areas of landslip within the RVLEP 2012 mapping.

- *Cultural Heritage* - The site does not contain items of Local Environmental Heritage pursuant to the RVLEP 2012 mapping. A Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants and provided in **Attachment 3**. This assessment did not find any items of Indigenous cultural heritage sites or relics or items of local historic significance within the Project Area.

9. Has the planning proposal adequately addressed any social and economic effects?

The rezoning of the land for residential purposes will have positive social and economic effects, and in particular the development of the land for housing will assist in meeting regional dwelling targets identified within the NCRP 2036 The community benefit associated with the proposed development will be found in the provision of additional housing to service the future population needs of the Richmond Valley LGA.

The additional following social and economic benefits will be provided:

- **Creation of local employment opportunities through new jobs and multiplier effect on the local economy –** The construction of the subdivision and future dwelling houses will provide an increase in local employment opportunities that will have flow-through effects through tradespeople to suppliers and capacity for increased retail expenditure.

- **Increase in housing supply and choice –** The creation of additional lots will in-turn enable the construction of additional dwellings which may be either owner occupied or leased thereby contributing to the housing stock within the existing Casino urban catchment area.

- **Demand for community services in the locality –** It is envisaged that the future residential occupation of any lots created will increase the demand for services in the locality by virtue of the resultant increase in population. The

subject site is accessible and within good proximity to existing services within the Casino township which contains a diverse range of community facilities together with retail, administrative, health, education, transport, open space and sporting services.

Utility services are further discussed below under Question 10 and within **Attachment 1**.

No social impacts are envisaged in regard to cultural heritage matters having regard to the information provided above under Question 8 in relation to Cultural Heritage.

10. Is there adequate public infrastructure for the planning proposal?

The Planning Proposal involves a relatively modest 'infill' development within the existing township of Casino. No significant impacts are expected with respect to State and Commonwealth infrastructure services.

With respect to local service infrastructure subject land is located immediately adjoining an urban environment and is in close proximity to reticulated water, sewer, telecommunications, electricity and stormwater drainage networks. Following rezoning, any future subdivision will need to secure connection to the required infrastructure services. In this regard, we note that reticulated water, sewer, drainage, electricity and telecommunication infrastructure are all available in close proximity to the subject site. An Engineering Services Report is provided in **Attachment 1**.

11. What are the views of state and Commonwealth public authorities consulted in accordance with the Gateway Determination?

To be completed following receipt of the Gateway Determination.

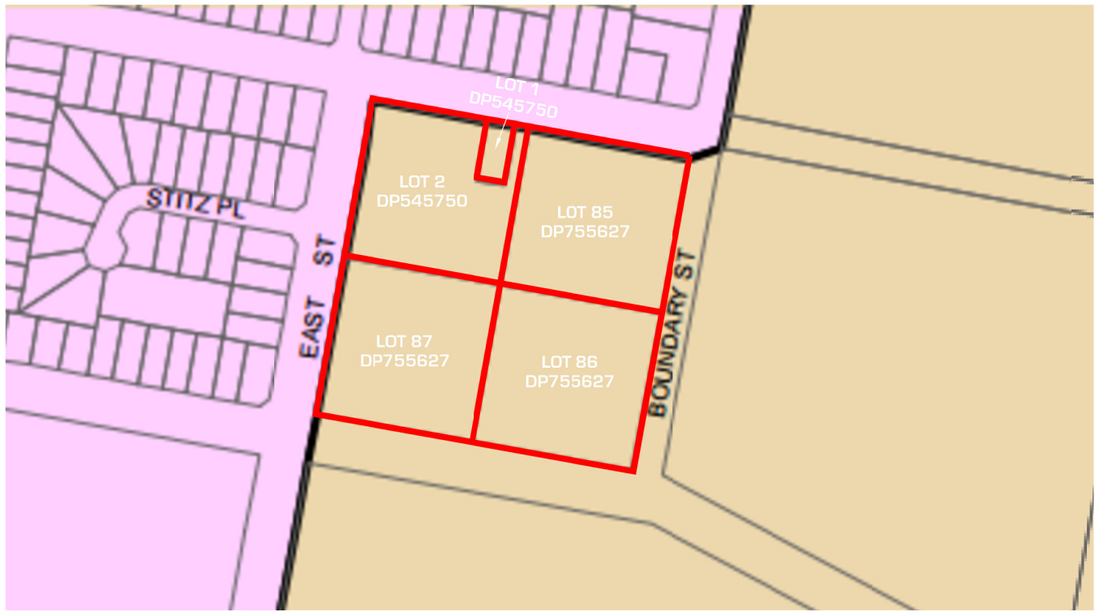
Part 4 Mapping

Land Zoning Map

NDC Plan 3 illustrates the proposed changes to the Land Zoning Map pursuant to the RVLEP 2012.

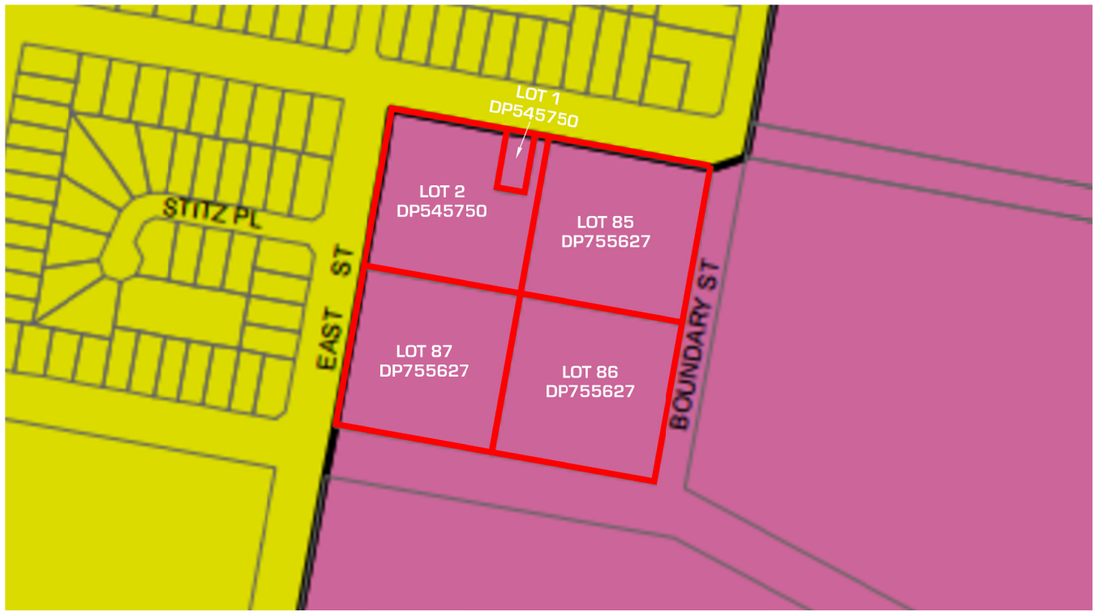
Lot Size Map

NDC Plan 3 illustrates the proposed changes to the Lot Size Map pursuant to the RVLEP 2012.



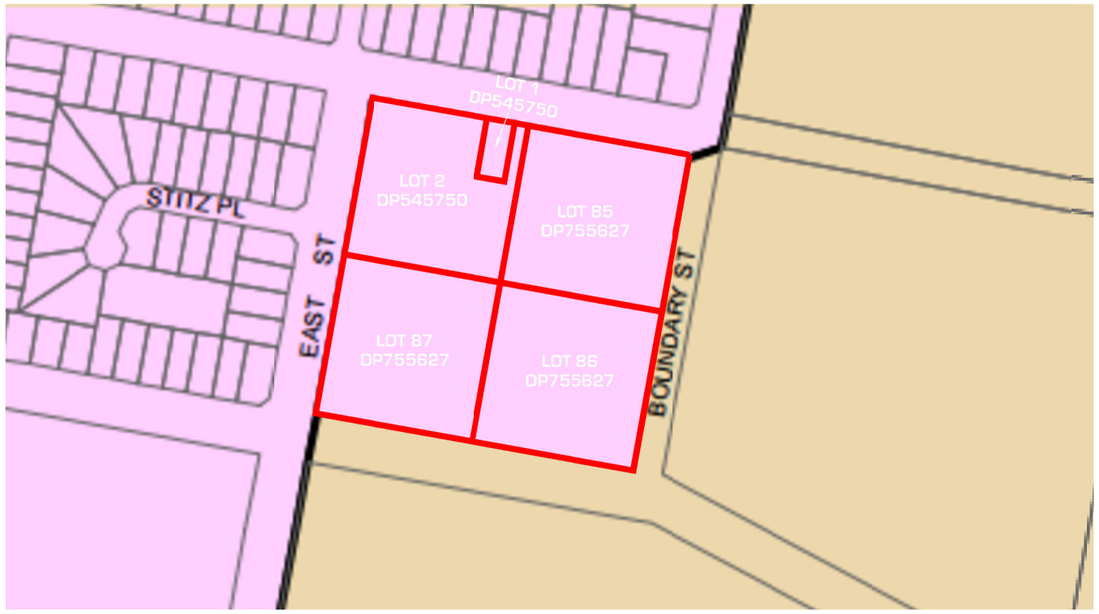
EXISTING ZONING -
Richmond Valley Local Environmental Plan 2012

RU1 PRIMARY PRODUCTION



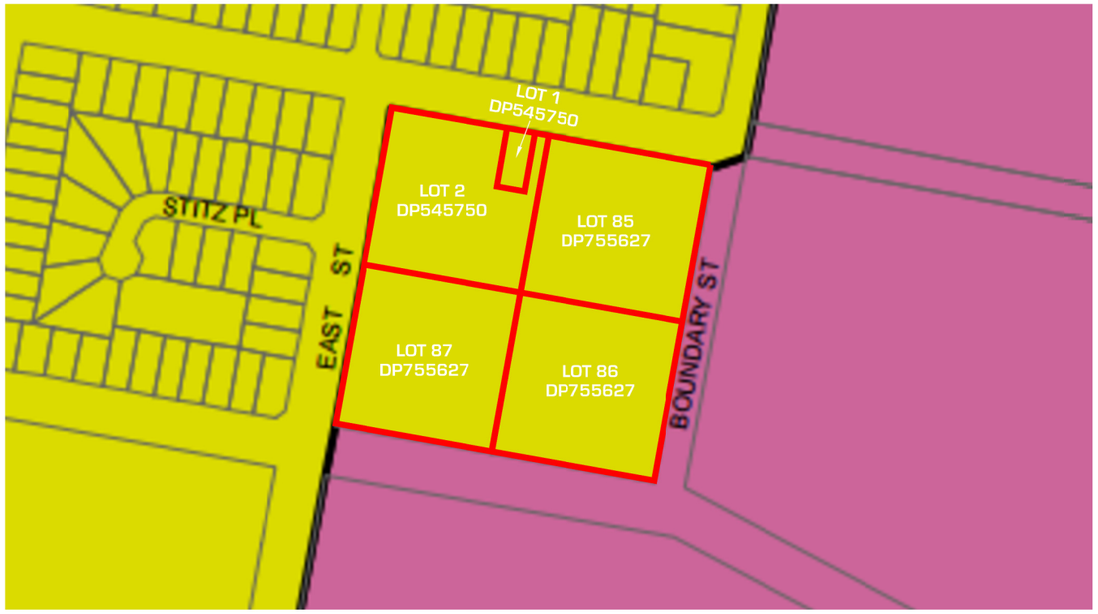
EXISTING MIN LOT SIZE -
Richmond Valley Local Environmental Plan 2012

AB 40ha



PROPOSED ZONING -
Richmond Valley Local Environmental Plan 2012

R1 GENERAL RESIDENTIAL



PROPOSED MIN LOT SIZE -
Richmond Valley Local Environmental Plan 2012

M 600m²

REV	DATE	AMENDMENT
A		
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SITE LOTS 85, 86 & 87 DP755627 &
LOT 1 & 2 DP545750

SOURCE PLAN: www.Leglislation.nsw.gov.au LEP mapping - accessed 04.10.17

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PLAN 3 - PROPOSED CHANGES TO RVLEP 2012 MAPPING

CLIENT: GRAEME MCKENNA

LOCATION: LOT 85, 86 & 87 DP755627 &
LOT 1 & 2 DP545750
LENNOX STREET CASINO NSW

DATE: 04.10.17 REF: 17/356
SCALE: 1 : 4000 @ A3 DRAWN: bk

Part 5 Community Consultation

It is expected that the Planning Proposal will be exhibited for a period of 28 days in accordance with standard procedures.

Part 6 Project Timeline

Plan Making Step	Estimated Completion
Council Resolution	December 2017
Gateway Determination (Anticipated)	March 2018
Government Agency Consultation	April 2018
Public Exhibition Period	July 2018
Public Hearing (if required)	N/A
Submissions Assessment	August 2018
RPA Assessment of Planning Proposal and Exhibition Outcomes	September 2018
Submission of Endorsed LEP to DP&I for finalisation	October 2018
Anticipated date RPA will make plan (if delegated)	January 2019
Forwarding of LEP Amendment to DP&I for notification (if delegated)	January 2019

REFERENCES

- NSW Planning and Environment - A Guide to Preparing Planning Proposals
- NSW Planning and Environment – North Coast Regional Plan 2036
- Richmond Valley Local Environmental Plan 2012
- Richmond Valley Development Control Plan 2015
- Richmond Valley Council – Casino Urban Land Release Strategy (16 August 2005)

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 1

Engineering Report

Alta Projects

ENGINEERING : DESIGN : MANAGEMENT

ENGINEERING REPORT

Rezoning Application

Proposed 46 Lot Residential Subdivision
at
Hare Street, Casino

For

Wombat Developments #1 Pty Ltd

A6125/17/ENG

September 2017
SH/TK

Prepared by

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Civil and Structural Engineering
Project Management
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Document Control						
Revision		Author	Signature	A6125/17/ENG - Authorised for Issue		
No.	Date			Reviewer	Signature	Document Status
-	Sept 2017	Steven Harrison		Steven Harrison		A

R - Revision F - Final A - Approval P - Preliminary

- Contents -

APPENDICES

1.0 INTRODUCTION

This engineering report is lodged in support a planning application seeking approval to rezone five (5) rural lots located at Hare Street, Casino [lots 1 & 2 DP 5475, lots 85-87 DP 755627] for residential development.

The proposed development is to consist of forty-six (46) residential allotments of approximately 800m^2 in area (refer Preliminary Layout Plan at appendix A).

A number of pre-lodgement meetings with Council have been carried out to date.

This report addresses civil engineering issues only and must be read in conjunction with applications and other supporting information lodged by *Newton Denny Chapelle* Planners.

2.0 SITE DESCRIPTION

The subject site is square in shape and bounded by Lennox Street to the north, Hare Street to the south, East Street to the west and Boundary Street to the east.

Residential development exists to the north and west of the site with rural land to the east and south. As such the site represents the orderly eastward progression of Casino township's residential development.

Lenox, Boundary and Hare Street are partially formed with sealed through lanes in place. East Street is partially formed along it's southern leg to Stitz Place only with an open stormwater drain over its northern leg and along the eastern side of the southern leg.

The site appears to the eye to be essentially flat, sloping at around 1% from the north-west to the south-east.

Rural land to the south of the site is understood to retain/attenuate stormwater during storm events.

The site is currently vacant with good grass cover and a few scattered small trees. A number of trees have been planted along the Hare Street frontage and Council has indicated its desire for these trees to be retained post development.

3.0 FLOODING

A search of Council's *Flood Plan Matrix* – indicates the site to be classed *FE2 – Low Hazard* with major event flow velocity vectors generally less than 0.10.

Minor filling of the site is envisaged to facilitate allotment drainage and allow conventional slab on ground dwelling to achieve necessary flood immunity.

4.0 ACCESS

Proposed allotments along Hare Street, Lennox Street and Boundary Street will take access directly to their frontages as per adjacent residential development.

A new *access street* is proposed to roughly bisect the subject site north from south and take access from Boundary Street. The *access street* will be cul-de-saced at its western end. No access to East Street is proposed.

5.0 SERVICES

5.1 Stormwater Drainage

Stormwater infrastructure is in place adjacent and opposite the site in Boundary Street draining toward rural land to the south and suitable for connection of the proposed development.

It is understood that rural land to the south of the subject site has an attenuation function for the greater area and no on-site attenuation of stormwater is warranted.

5.2 Water Supply

Water mains are in place opposite the subject site on Lennox Street and East Street suitable for connection of reticulation mains to be constructed throughout the proposed development.

5.3 Sewerage

An existing Sewerage Pump Station (SPS) exists adjacent the subject site on Lennox Street at depths sufficient to command the proposed development.

5.4 Electricity

Overhead High Voltage (HV) power is in place along Lennox Street and Hare Street.

5.5 Telecommunications

Telecommunication services are in place along Lennox Street and Hare Street opposite the subject site.

Appendix

A

Proposed Development Layout

0 10 20 30 40 50

SCALE 1:500 A1, 1:1000 A3

NOTE: ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND BEARING AN ORIGINAL SIGNATURE SHALL BE USED FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CHKD

APPROVAL
NOT FOR CONSTRUCTION

.....
DIRECTOR APPROVAL
RPEQ - 4784

Design: PBL
Drawn: PBL
Date: OCT 2017

Checked: .....

Datum AHD

A1 SHEET SIZE

FILENAME : a6125-PL01.dwg - DATE : 11/10/17 - 1:03pm - XREF's:

ALTA PROJECTS
A.B.N. 611355330
26 Memorial Avenue, Cotton Tree
PO Box 559, Cotton Tree, QLD, 4558
Tel (07) 5475 4125 Fax (07) 5479 1607
Email: engineers@alta.net.au
Web: http://www.alta.net.au

ENGINEERING : DESIGN : MANAGEMENT

PROJECT:
PROPOSED RESIDENTIAL ESTATE
HARE STREET, CASINO
for WOMBAT DEVELOPMENTS #1 PTY LTD

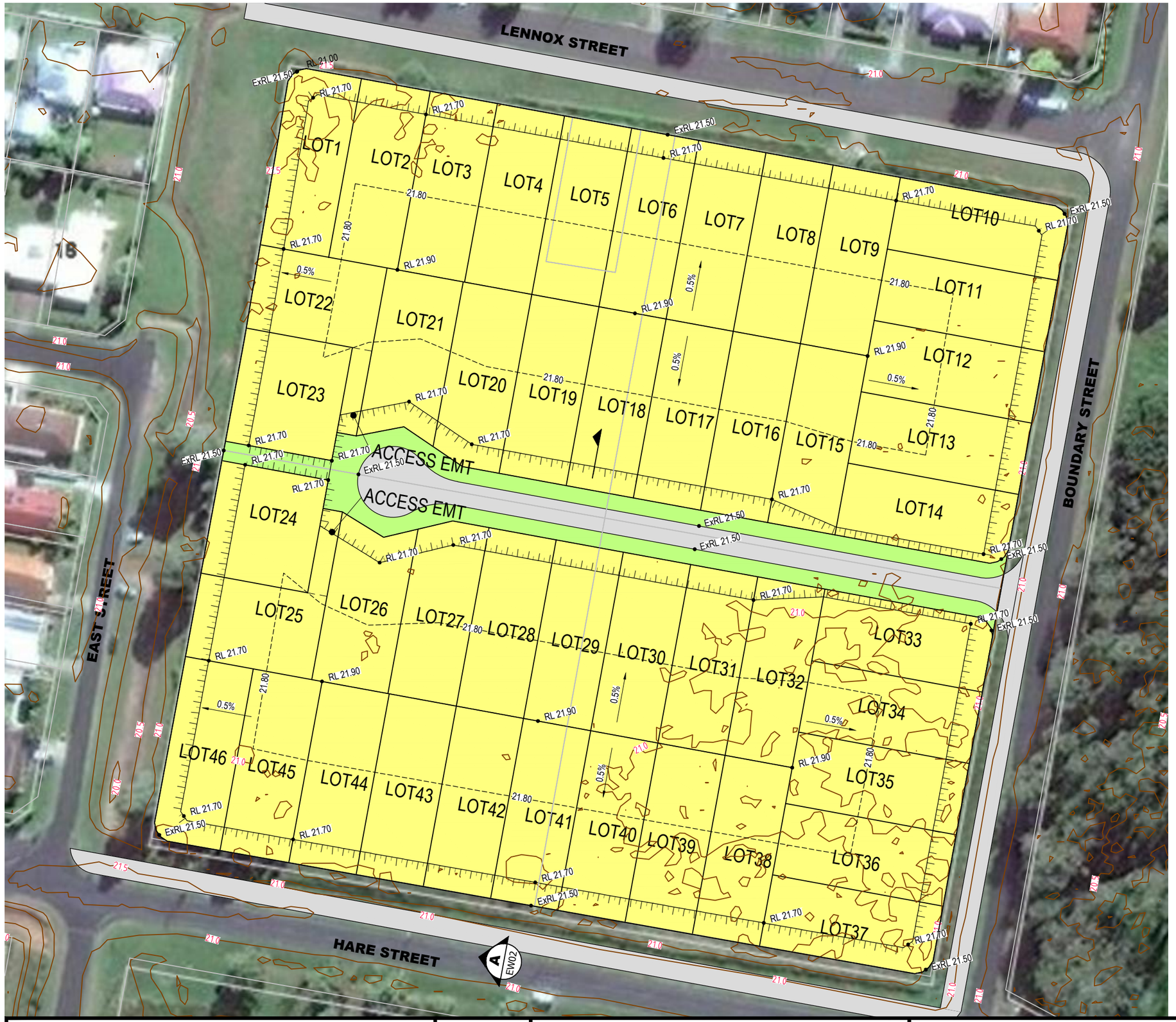
Council Ref:

DRAWING TITLE:
PRELIMINARY DEVELOPMENT LAYOUT

DRAWING No: A6125/17/PL01

Revision

Sheet 1 of



N

MINIMUM FFL = 22.0m

0 10 20 30 40 50m

SCALE 1:500 A1, 1:1000 A3

NOTE: ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND BEARING AN ORIGINAL SIGNATURE SHALL BE USED FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CHKD

PRELIMINARY
NOT FOR CONSTRUCTION
DIRECTOR APPROVAL
RPEQ - 4784

Design: SH
Drawn: NG
Date: DEC 2017
Checked:
Datum AHD
A1 SHEET SIZE

ALTA PROJECTS
A.B.N. 611355330
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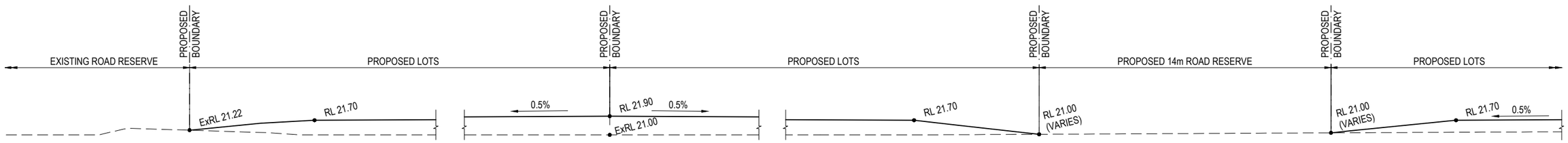
ENGINEERING : DESIGN : MANAGEMENT

FILENAME : a6125-EW01.dwg - DATE : 13/12/17 - 9:57am - XREF's: a6125-X-BASE; A6125-X-SURVEY

PROJECT:
PROPOSED RESIDENTIAL ESTATE
HARE STREET, CASINO
for WOMBAT DEVELOPMENTS #1 PTY LTD
Council Ref:

DRAWING TITLE:
PRELIMINARY EARTHWORKS LAYOUT

DRAWING No: A6125/17/EW01
Revision
Sheet 1 of 1



SECTION A
SCALE 1:100 A1 EW01

MINIMUM FFL = 22.0m

NOTE: ONLY DRAWINGS MARKED "FOR CONSTRUCTION" AND BEARING AN ORIGINAL SIGNATURE SHALL BE USED FOR CONSTRUCTION PURPOSES.

REV	DATE	DESCRIPTION	BY	CHKD

PRELIMINARY
NOT FOR CONSTRUCTION
DIRECTOR APPROVAL
RPEQ - 4784

Design: SH
Drawn: NG
Date: DEC 2017
Checked:
Datum AHD
A1 SHEET SIZE

ALTA
ENGINEERING : DESIGN : MANAGEMENT

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FILENAME : a6125-EW02 (B).dwg - DATE : 13/12/17 - 9:57am - XREF's:

PROJECT:
PROPOSED RESIDENTIAL ESTATE
HARE STREET, CASINO
for WOMBAT DEVELOPMENTS #1 PTY LTD
Council Ref:

DRAWING TITLE:
PRELIMINARY EARTHWORKS SECTION

DRAWING No: A6125/17/EW02
Revision
Sheet 1 of 1

Appendix

B

Council Flood Planning Matrix

RICHMOND VALLEY COUNCIL

FLOOD PLANNING MATRIX

Casino Flood Planning Matrix - URBAN

TABLE 1: RESIDENTIAL, COMMERCIAL AND INDUSTRIAL DEVELOPMENT WITHIN AN URBAN AREA

Controls	Development / Building Type	No Hazard	Flood Hazard Category					Additional Constraint[1]
			Rare Low Hazard[2]	Low Hazard	High Depth Hazard	High Isolation Hazard	High Floodway Hazard	Rare High Floodway Hazard[2]
Land Use Suitability & Fill Level	Existing Lot - New Development	N/A	SF1	SF1	SF1	SF1		SF1
	(this line not used)							
	Subdivision	N/A	SF2	SF2	SF2			
	Emergency Services Site (Hospitals, etc.)	N/A	SF3a	SF3a				
	Other Community Service Building (School, etc.)	N/A	SF3b	SF3b				
Floor Level	New Habitable Building	N/A	FL2c	FL2c	FL2c	FL2c		FL2c
	New Commercial or Industrial Building	N/A	FL2a	FL2a	FL2a	FL2a		FL2a
	New Emergency Service Building (Hospitals, etc.)	FL3a	FL3a	FL3a				
	New Other Community Service Building (School, etc.)	FL3b	FL3b	FL3b				
	New Ancillary Building (eg shed, carport)	N/A	FL1	FL1	FL1	FL1		FL1
	Building Extension	N/A	FL4a	FL4a	FL4b	FL4b		FL4b
Building Components		N/A	BC1	BC1	BC1	BC1		BC1
Structural Soundness	Ancillary Building (eg. shed, carport)	N/A	SS1	SS1	SS1	SS1		SS2
	Other Building	N/A	SS1	SS1	SS2	SS2		SS3
Flood Effect	Existing Lot - New Development	N/A	FE1	FE2	FE2	FE2		FE2
	Subdivision	N/A	FE2	FE2	FE2			FE3
	New Ancillary Building (eg shed, carport)	N/A	FE1	FE2	FE2	FE2		FE2
	Building Extension	N/A	FE1	FE1	FE2	FE2		FE3
	Other Developments (road raising, etc)	N/A	FE1	FE2	FE2	FE2	FE3	FE3
Evacuation & Access	Existing Lot - New Development	N/A	EA1	EA1	EA1	EA1		EA1
	Subdivision	N/A	EA3	EA3	EA3			
	Emergency Service Site (Hospitals, etc.)	N/A	EA4a	EA4a				
	Other Community Service Site (Schools, etc.)	N/A	EA4b	EA4b				
Flood Awareness, etc		N/A	FA2	FA2	FA2	FA2	FA2	FA2

Note 1: In addition to being assigned one of the standard flood hazard categories, a site may be classified as a "Rare High Floodway Hazard". In this instance, the most stringent of the two controls is to be used.
For example, if the site is classified as both "Low Hazard" and "Rare High Floodway Hazard", no community services buildings are permitted (because "unsuitable" is more stringent than SF3b)

Note 2: The extreme flood hazard categories (i.e. "Rare Low Hazard" and "Rare High Floodway Hazard") are applicable only to the 2D model region in Casino
An explanation of the criteria used to define the hazard categories is contained in the Casino Floodplain Management Study (WBM Oceanics Australia, 2001)

Control Measures

RICHMOND VALLEY COUNCIL

Casino Flood Planning Matrix - URBAN

N/A	Controls Not Applicable
//////	Unsuitable Land Use - Not considered suitable for development
	LAND USE SUITABILITY & MINIMUM FILL LEVEL
SF1	Consider for development subject to the controls below. No minimum fill level required.
SF2	Consider for development subject to the controls below. For residential and commercial areas, the minimum fill level to be greater than or equal to the 100 year flood level. For industrial areas, the minimum fill level to be greater than or equal to the 10 year flood level.
SF3a	Consider for development subject to the controls below. Minimum fill level greater than or equal to the PMF flood level. Mid-Richmond: If no site exists that can practically fulfill the above PMF requirement, the 500 year flood level plus 0.5m may substitute
SF3b	Consider for development subject to the controls below. Council to give consideration on the benefits of using the development during and after a flood emergency. If the site is to be used for a flood emergency, the minimum fill level should preferably be greater than or equal to the PMF flood level. Mid-Richmond: If no site exists that can practically fulfill the above PMF requirement, the 500 year flood level plus 0.5m may substitute
	MINIMUM FLOOR LEVEL
FL1	No minimum floor level required (Council to advise developer of flood risk and potential damage to building & contents. Flood levels available on request)
FL2a	All floor levels to be greater than or equal to the 100 year flood level
FL2b	Not used
FL2c	All floor levels to be greater than or equal to the 100 year flood level plus 0.5m
FL3a	All floor levels to be greater than or equal to the PMF flood level. Mid-Richmond: If no site exists that can practically fulfill the above PMF requirement, the 500 year flood level plus 0.5m may substitute
FL3b	If practical, some or all floor levels to be greater than or equal to the PMF flood level, so that these buildings will be available for accommodation / storage during and after a flood emergency. Mid-Richmond: If no site exists that can practically fulfill the above PMF requirement, the 500 year flood level plus 0.5m may substitute
FL4a	All floor levels to be as close to the *minimum floor level* above (habitable or other) as practical and not less than the floor level of the existing building being extended if the existing floor level is less than or equal to the minimum floor level. If the extended weatherproof area exceeds 50% of the existing weatherproof area, the extension is treated as a new building. The extended weatherproof area is measured as the cumulative area of any previous extensions plus the proposed extension.
FL4b	As for FL4a with the maximum percentage increase in extended weatherproof area to be: (a) 50% if the extension's floor level is less than one (1) metre below the 100 year flood level; (b) 25% if the extension's floor level is greater than two (2) metres below the 100 year flood level; or (c) pro-rata between 50% and 25% for floor levels from one (1) metre to two (2) metres below the 100 year flood level.
	BUILDING COMPONENTS
BC1	Buildings to have flood compatible material below the higher of (a) the minimum floor level or (b) the 1 in 100year flood level plus 0.5m.
	STRUCTURAL SOUNDNESS
SS1	No structural soundness requirements for the force of floodwater, debris & buoyancy
SS2	Engineers report to prove that structures subject to a flood up to the 100 year event can withstand the force of floodwater, debris & buoyancy.
SS3	Engineers report to prove that structures subject to a flood up to the 500 year event can withstand the force of floodwater, debris & buoyancy.
	FLOOD EFFECT
FE1	No action required
FE2	The flood impact of the development to be considered by Council, with Council having the right to request an engineer's report (see FE3 below)
FE3	Engineers report required to prove that the development will not result in adverse flood impact elsewhere
	EVACUATION/ACCESS
EA1	Council to provide information on flood evacuation strategy
EA2	Not used
EA3	Reliable access for pedestrians and transport required during the 100yr ARI event. Council to provide information on flood evacuation strategy
EA4a	Emergency service site - should have good access up to the PMF and preferably not cut-off from the main residential area(s). Council to evaluate suitablility of site in this respect.
EA4b	If site to be used during and after a flood emergency (see FL3b above), should have good access up to the PMF and preferably not cut-off from the main residential area(s).
	FLOOD AWARENESS
FA1	Not used
FA2	S149(2) Certificates to notify possible affectation by a flood in the Richmond River and/or one of its tributaries. The severity of flooding can be determined by comparison of surveyed levels of the site with predicted flood heights, and also the flood hazard.

Flood Information Definitions

Casino and Mid Richmond Floodplain Risk Management Plans

Australian Height Datum (AHD)

National survey datum, where 0.0 m AHD is approximately mean sea level.

Design Flood

A calculated flood representing a specific likelihood of occurrence (eg the 1 in 100 year flood has a 1% probability of happening or being exceeded in any year, 50 year/2%, 20year/5%, 500year/0.2%, etc).
It is to be noted that there are floods larger than the adopted standard 100 year design flood.

Floodplain Hazard Category

The potential threat to persons or property due to flood.
The hazard category is used as a tool for assessing the suitability and minimum requirements for land development. The 100 year design flood categories will apply to the majority of LEP zonings (eg residential), while the extreme flood event categories (500 year and PMF) will be used for zonings such as essential services (eg hospital).
The category is based on a combination of velocity (V) and depth (D) at the particular location.

- **High Floodway Hazard (HFH)** *based on **100 year** design flood.*
  Flow paths that carry significant volumes of flood water during a 100 year flood.
  Danger to life and limb, evacuation difficult, potential for structural damage, high social disruption, and economic losses. V > 2m/s or VxD>1 [for D >1m] or D+(0.3xV)>1 [for V>1m/s]

- **High Depth Hazard (HDH)** *based on **100 year** design flood.*
  Areas where floodwaters are deep but are not flowing with high velocity.
  V <1m/s and VxD<1 or D+(0.3xV)>1

- **High Isolation Hazard (HIH)** *based on **100 year** design flood.*
  As per High Depth but with no easy access to safe refuge (ie more than 500m to high ground).

- **Possible High Depth Hazard (HFH) or Low Hazard (LH)** *based on **100 year** design flood.*
  Insufficient ground level information. Final category dependent on the exact ground levels at the particular site.

- **Low Hazard (LH)** *based on **100 year** design flood.*
  Flood depths and velocities are sufficiently low that people and their possessions can be evacuated. V <2m/s and D+(0.3xV)<1

- **Rare Low Hazard (RLH)** *based on **PMF**.*
  Any land that is inundated in the PMF event and has not been assigned one of the other hazard categories. These areas are generally above the 100 year design flood.

- **Rare High Floodway Hazard (RHFH)** *based on **500 year** design flood.*
  Flow paths that carry significant volumes of flood water during a 500 year design flood.
  These areas may or may not be affected by the 100 year design flood.
  Danger to life and limb, evacuation difficult, potential for structural damage, high social disruption, and economic losses. V > 2m/s or VxD>1 [for D >1m] or D+(0.3xV)>1 [for V>1m/s]

Freeboard

A factor of safety usually expressed as a height above the flood standard. Freeboard tends to compensate for factors such as wave action, localised hydraulic effects and uncertainties in the design flood levels. **The adopted freeboard for habitable areas is 0.5 metres.**

Habitable Areas

A living or working area, such as a lounge room, dining room, rumpus room, kitchen, bedroom or workroom, or in an industrial or commercial situation, an area used for offices or to store valuable possessions susceptible to flood damage.

Probable Maximum Flood (PMF)

An extreme design flood deemed to statistically be the maximum flood likely to occur.

Richmond Valley Council

Casino & Mid Richmond Flood Studies
Casino & Mid Richmond Floodplain Risk Management Studies and Plans

1890's A flood that reportedly "broke across High St and into Casino town". The 1 in 100 year design flood does not reach this level. (Modelling during the Floodplain Management Study of floods greater than the 100 year flood, indicate that part of High St through to the railway line does become a floodway in rarer flood events, eg 1 in 500yr design flood.

Feb 21st 1954 1954 Flood (peak at 2am) Represents the largest flood experienced in Casino and lower river areas in the 20th Century. The 1954 flood has been estimated as being in the order of a 1 in 70 to 80 year flood for Casino. (State Government guidelines use the 1 in 100 year flood as the benchmark for floodplain planning. The 1 in 100 year flood has a 1% chance of occurring or being exceeded in any year.)

Casino Flood Inundation Map - 1980

Prepared by the NSW Water Resources Commission in 1980. This was Council's source of 100 year design flood information for almost 20 years.

Casino Flood Study - 1997 to 1998, and Mid Richmond Flood Study – 1997 to 2000

WBM Oceanics were commissioned by Casino Council and Richmond River Shire Council, with financial support from the NSW Department of Land and Water Conservation (DLWC) to:

- Carry out an historic flood information survey and site inspections
- Collect additional topographic survey data
- Develop computer models
- Calibrate and verify models to historical floods
- Establish design flood behaviour
- Present the results in a variety of non-technical and technical formats

Casino Floodplain Risk Management Study and Plan – 1998 to 2002
Mid Richmond Floodplain Risk Management Study and Plan – 1998 to 2004

WBM Oceanics were commissioned to carry out the studies and plans. The Floodplain Risk Management Studies draw on the results of the Flood Studies and investigate possible measures to control the flood hazard and reduce flood damages (eg floor level controls, planning requirements, flood mitigation measures, etc).

Property surveys (3,800 properties) were carried out to define the existing floor level, ground levels, and general information regarding size and condition for damages estimates. Properties identified in the flood study and in urban areas as being affected by the Probable Maximum Flood (PMF) were surveyed.

During the course of the floodplain study, the decision was made to develop a detailed two-dimensional (2D) model of the Casino area using the TUFLOW software. (The original 1D model was only able to use topographic level information. The 2D model was able to use the large amount of actual survey information that had been gathered. The increase in the scale of the models is illustrated by the 1D model using some 500 points for its calculations, and the 2D model using some 85,000 cells over a smaller area for its calculations.)

The Casino Floodplain Risk Management Plan was adopted by Council 21st May 2002, and the Mid Richmond Floodplain Risk Management Plan was adopted by Council 17th February 2004. They have been developed using the State Government Floodplain Development Manual – the management of flood liable land.

The following information: for Casino & Mid Richmond areas is available via the contacts below	Minimum Habitable Floor Level (based on 100yr design flood) 1 in 100yr Design Flood Level Flood Hazard Category (to be used in planning guidelines) Existing habitable floor levels of the development on the site Existing low and high ground levels on the site An information sheet with definitions Flood levels and velocities for Q20, Q50, Q100, Q500, and PMF floods

UPDATE: The Richmond River Flood Mapping Study (in conjunction with Richmond River County Council) has been completed with final report issued April 2010 with Base design floods for Q 20, 50, 100, 500, and PMF floods. Two climate change scenarios were run (effectively for 2030 and 2070). Council then considered the climate change issues and adopted a Scenario 3 (CC3) - +900mm sea level rise with a 10% increase in rainfall intensity - for the appropriate long term management of flooding. The Casino model is currently being updated for climate change. The Floodplain Risk Management Plans are also being updated and merged. **Not all information is currently available on Council's website as a new web site one stop shop for flood information is being developed.** It will include technical information, flood levels, floor levels, historic information and photos, development requirements, links to SES, BoM, river gauges, road closures, etc.

www.richmondvalley.nsw.gov.au just type **flood** in the search box,

or Contact Council's Senior Administration Engineer Mr Brian Eggins on 66 600 235
or by email at brian.eggins@richmondvalley.nsw.gov.au

updated 3 July 2012

RLH

RLH

RLH

LH

HDH

HDH

Flood Hazard Categories
and 100yr velocity vectors
(excluding climate change)

Appendix

C

Council Infrastructure Plan

Richmond Valley Council

Locked Bag 10, Casino NSW 2470
Ph (02) 6660 0300 Fax (02) 6660 1300
E-mail: council@richmondvalley.nsw.gov.au

Dial Before You Dig request **SEQ No.60024891**

Note: Plans are not suitable for Conveyancing Purposes

Caller Details	Name Miss Tess Kaddatz	DBYD ID. 1607778
From:	**Aidan Macqueen** **Ph:** **(02) 6660 0224** **Operations Engineer - Water & Sewer Services** **Fax:** **(02) 6660 1300** **Email: aidan.macqueen@richmondvalley.nsw.gov.au**	
Original To Follow By Mail ☐ Yes ☒ No	Please Telephone Re Attached ☐ Yes ☒ No	

Council has (refer attached plan) water, sewer and stormwater pipes in the vicinity of the area described below. There may be culverts under the road and roadside drains.

For detailed locations of water/sewer, please contact Aidan Macqueen Ph 0439 411 504
For detailed locations of stormwater, please contact Matt Kinkead Ph 02 66 600 242

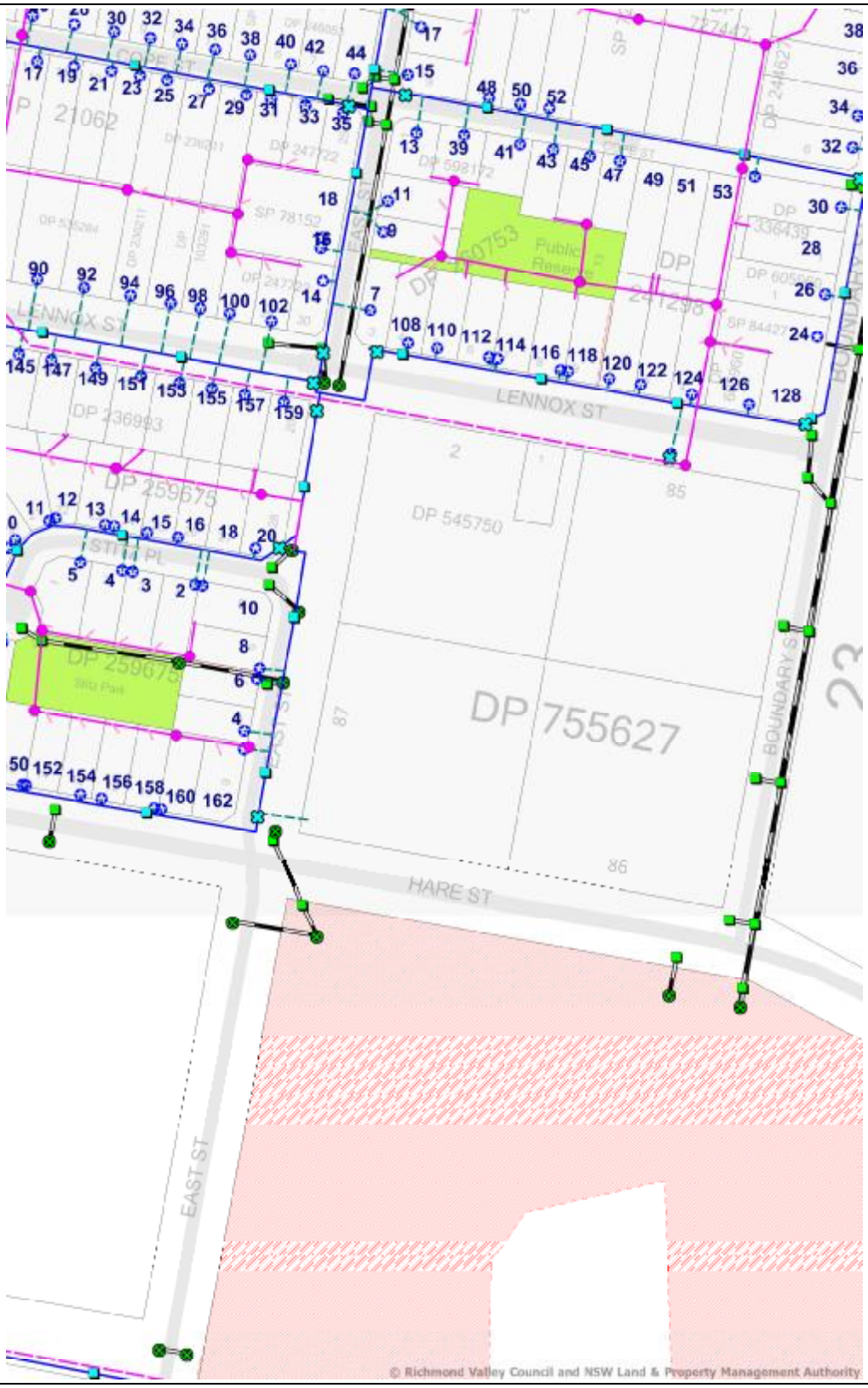
ADDRESS=	Hare Street
SUBURB=	Casino
STATE=	NSW
POSTCODE=	2470
ACTIVITY CODE=	23
ACTIVITY DESCRIPTION=	Planning & Design
MAP TYPE=	Penguin
MAP REF=	256G8,256G9,256H8,256H9
PRIVATE/ROAD/BOTH=	P
LOCATION IN ROAD=	Not Supplied
MESSAGE=	Not Supplied
DBYDMESSAGE=	DigSAFE generated referral

WARNING

- **Prior to commencement of work the location of Councils infrastructure within the vicinity of the proposed works is required.**
- **Where service conflicts may occur, location of Council infrastructure maybe arranged prior to commencement of work.**
- **Please note that there maybe other private infrastructure within the vicinity of your request including electricity, interallotment stormwater drainage, private water line, gas lines and telecommunication cables etc.**
- **Plans may not show the presence of all cables, pipes and plant.**
- **The location of services relative to road boundaries, property fences etc may change over time and the accuracy of plans is not guaranteed.**
- **Any work in a road reserve requires the approval of Council (Section 138 Roads Act 1993).**
- **Any work in the road reserve of a State Road (Pacific Highway, Bruxner Highway, Summerland Way) also requires the concurrence of the R.M.S. Grafton (Ph 02 6640 1300). (Section 61 & 138 Roads Act 1993)**
- **DBYD advice is valid for sixty (60) days from the date the information is provided.**

Regards

Aidan Macqueen
Operations Coordinator – Water and Sewer



Legend

- House No
- PlanText
- Pressure Sewerage Flushing Pits
- Pressure Sewerage Pod Pump
- Pressure Sewerage Pod Control Panel
- Sewerage Manholes
- Sewerage Manholes Not Maintained
- Pressure Sewerage Valves
- Sewerage RM Valves
- Sewerage Vent Stacks
- Sewerage RM Valve Pits
- Pressure Sewerage Connection
- Sewerage Connections
- Sewerage Pipelines
- Sewerage Pipelines Not Maintained
- Water Swabbing Pits
- Water Valves
- Water Valves Not Maintained
- Water Hydrants
- Water Hydrants Not Maintained
- Water Meters
- Water Connections
- Water Pipelines
- Water Pipelines Not Maintained
- Stormwater Headwall
- Stormwater Pit
- IAD Structure Not Maintained
- IAD Pit Not Maintained
- Stormwater Main
- IAD Conduit Not Maintained
- Parcel
- Road Seal
- Easement or Restriction
- Parks
- Creeks
- State Forest
- National Parks and Nature Reserves

Richmond Valley Council
Corner of Walker St and Graham Pl
Locked Bag 10
CASINO NSW 2470
Ph: (02) 6660 0300
Fax: (02) 6660 1300
Email: council@richmondvalley.nsw.gov.au

IMPORTANT
This map was produced on the GEOCENTRIC DATUM OF AUSTRALIA 1994 (GDA94), which has superseded the Australian Geographic Datum of 1984 (AGD66/84). Heights are referenced to the Australia Height Datum (AHD) heights. For most practical purposes GDA94 coordinates and satellite derived (GPS) coordinates based on the World Geodetic Datum 1984 (WGS84) are the same.

Projection: MGA94 Zone 56

Cost:

Date: Friday, 31 March 2017

Prepared By: Exponare_Default

Subject Land

SEQ:60024891 - Hare Street Casino NSW 2470

Map Scale: 1:2,000 at A3

NORTH

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 2

Ecological Assessment

Blackwood Ecological Services

BLACKWOOD ECOLOGICAL SERVICES

Ecological Assessment

Proposed Rezoning of
·Lots 85,86 and 87 DP 755627
&·Lots 1 and 2 DP 545750

Lennox Street, Casino, NSW
A Report to Graeme McKenna
August 2017

NOTE

Document Verification

Project Title:	Lennox St Casino Rezoning	
Project Number:	1740	
Project File Name:	Lennox St Casino Rezoning Ecological Assessment.docx	
Revision	Date	Author:
Final	24/08/17	Mark Free

Blackwood Ecological Services
PO Box 336
BANGALOW NSW 2479
www.blackwoodecology.com.au

BLACKWOOD ECOLOGICAL SERVICES

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Background

Blackwood Ecological Services have been engaged by Graeme McKenna to complete an Ecological Assessment for a proposed rezoning of land at Lots 85, 86 and 87 DP 755627 and Lots 1 and 2 DP 545750, Lennox Street, Casino, NSW.

1.2 The Subject site

The Subject site refers to the area proposed for rezoning. The Subject site for this study consists of land within:

- Lots 85,86 and 87 DP 755627
- Lots 1 and 2 DP 545750

The Subject site is approximately 4.2 hectares and is located on the corner of Lennox Street and Boundary Street Casino. **FIGURE 1** shows the location of the Subject site.

The Subject site is located on the southern side of the Richmond River on the eastern fringe of existing residential development. The site consists of disused agricultural land with stands of regenerating eucalypt vegetation.

1.3 The Study area

The Study area refers to the Subject site together with any additional areas which are likely to be affected by the proposal, either directly or indirectly. The Study area in this case includes adjoining areas of land and vegetation. Land to the north and west consists of existing residential development. Land to the south and east consists of agricultural land with scattered patches of eucalypt woodland and forest dominated by Forest red gum.

1.4 Proposed development

The proposed development involves the rezoning of the Subject site to allow for residential subdivision. It is anticipated that future residential subdivision would involve clearing of existing vegetation and filling of low-lying parts of the site.

Project & Project No.
1740 Lennox St and Boundary St, Casino

Author & Date
MF 16/8/2017

Source
NSW LPI SixViewer

Figure 1
Locality

2 FLORA

2.1 Introduction

This section discusses the methods used in the vegetation assessment and presents the results of the assessment. Relevant databases and reports were reviewed to identify records of locally occurring Threatened and Rare plant species, populations and communities.

2.2 Database searches

2.2.1 NPWS Database search

A search of the NPWS Database revealed records of seven Threatened flora species within 5km of the Subject site. These species are shown in **TABLE 1**.

TABLE 1
NPWS DATABASE RECORDS OF THREATENED FLORA SPECIES WITHIN 5 KM OF THE SUBJECT SITE

Botanical name	Common name	NSW Status
Gossia fragrantissima	Sweet Myrtle	E1
Melaleuca irbyana	Weeping Paperbark	E1
Grevillea hilliana	White Yiel Yiel	E1
Desmodium acanthocladum	Thorny Pea	V
Sophora fraseri	Brush Sophora	V
Archidendron hendersonii	White Lace Flower	V
Clematis fawcettii	Northern Clematis	V

KEY

E1	Endangered
E4A	Critically endangered
V	Vulnerable

2.2.2 Commonwealth EPBC Act (1999) Database search

A search of the Commonwealth EPBC Act (1999) Database revealed potential suitable habitat for a number of Threatened flora species within 5km of the Subject site. These species are shown in **TABLE 2**.

The Commonwealth EPBC Act Protected Matters Report is included in full in **APPENDIX A**.

TABLE 2
COMMONWEALTH EPBC ACT (1999) DATABASE OF THREATENED FLORA SPECIES WITH POTENTIAL SUITABLE HABITAT WITHIN 5 KM OF THE SUBJECT SITE

Botanical name	Common Name	Status
Arthraxon hispidus	Hairy jointgrass	V
Bosistoa transversa	Three-leaved bosistoa	V
Bulbophyllum globuliforme	Hoop pine orchid	V
Clematis fawcettii	Stream clematis	V
Corchoris cunninghamii	Native jute	E
Cryptocarya foetida	Stinkning cryptocarya	V
Desmodium acanthocladum	Thorny pea	V
Eucalyptus glaucina	Slaty red gum	V
Gossia fragrantissima	Sweet myrtle	E
Marsdenia longiloba	Clear milkvine	V
Owenia cepiodora	Onionwood	V
Phaius australis	Lesser swamp orchid	E
Thesium australe	Austral toadflax	V

KEY
E Endangered
V Vulnerable

2.3 Site assessment

2.3.1 Introduction

This section discusses flora species and vegetation on the Subject site and the ecological significance of this vegetation. Site surveys were undertaken on the 18th of August 2017.

The objectives of the site assessment were:

- To identify vegetation communities and flora species present in the area subject to the proposed development.
- To complete targeted searches for significant flora species known from the locality and considered possible occurrences based on an assessment of site habitats.
- To assess potential impacts on site vegetation.

2.3.2 Site vegetation

Description and Location

FIGURE 2 shows the location of vegetation patches and individual trees on the Subject site. A list of plant species recorded on the site is included in **APPENDIX B**.

The site consists of disused agricultural land now dominated by tall mixed weedy grassland to around 1m tall. Common species include Rhodes grass, Setaria, Broad-leaved paspalum, Narrow-leaved carpet grass, Kikuyu and Blady grass. Pasture weeds include Blue billygoat weed, Crofton weed, Centella, Ragweed, Cobbler's pegs, Fleabane, Fireweed, Verbena and Paddy's Lucerne. There are occasional occurrences of Groundsel bush, Lantana, Mopther-of-millions and Camphor laurel.

0 Scale (metres) 50 100

BLACKWOOD ECOLOGICAL SERVICES
WWW.BLACKWOODECOLOGY.COM.AU

Project
1740 Lennox St and Boundary St, Casino

Author & Date
MF Aug 17

Source
LPI SixMaps

Figure 2
Site vegetation

PLATE 1 TALL WEEDY GRASSLAND DOMINATES THE SUBJECT SITE

The southern portion of the site supports two larger Forest red gum trees and patches of regrowth Forest red gum. Occasional Teatree (*Melaleuca alternifolia*) occur in the midstorey.

PLATE 2 PATCH OF REGENERATING FOREST RED GUM FOREST IN THE SOUTH

A patch of regrowth Forest red gum in the south-western corner of the site is lower lying and has a groundcover of Swamp ricegrass and *Eleocharis acuta.*

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PLATE 3 SOUTH-WESTERN PATCH OF FOREST RED GUM WITH ELEOCHARIS

East of Boundary Street, which forms the eastern boundary of the Subject site, the neighbouring property supports a more extensive area of regenerating Forest red gum forest.

PLATE 4 MORE EXTENSIVE REGENERATING FOREST EAST OF BOUNDARY ST

Conservation status

Vegetation across the majority of the site consists of highly modified grassland with scattered and clumped native trees and generally has minimal conservation value. Areas with Forest red gum and may be considered a degraded form of the *Sub-tropical coastal floodplain forest* EEC.

Scattered eucalypt trees provide some forage habitat for common mobile native fauna species, particularly birds and bats.

2.3.3 Significant species recorded

No Threatened (TSC Act 1995, EPBC Act 1999) flora species were recorded within the Subject site or adjacent land during the survey. No Hairy joint grass was recorded although the timing of the survey was not ideal for the detection of this species. The NPWS Atlas database search did not show any records of this species within 5km of the Subject site and it is not known to occur in the Study area.

2.3.4 Priority Weeds

Consistent with new Commonwealth biosecurity measures, NSW has reformed its weed, pest and disease legislation. The NSW Biosecurity Strategy 2013-2021 and NSW Biosecurity Act (2015) provide a framework for safeguarding primary industries, natural environments and communities from a range of pests, diseases and weeds. The NSW Biosecurity Act (2015) repeals the Noxious Weeds Act (1993).

The North Coast Regional Strategic Weed Management Plan has been developed in response to these reforms and lists priority weeds for the North Coast area. The status and distribution of any of these weeds present at the site are summarised in **TABLE 3**.

TABLE 3
STATE PRIORITY WEED OBJECTIVE AND DISTRIBUTION OF PRIORITY WEEDS RECORDED WITHIN THE SUBJECT SITE

Species	Sate Priority Weed Objective	Distribution
Camphor laurel	Additional species of concern	Sparsely distributed as a small tree within regrowth Forest red gum patches.
Lantana	Asset protection	Present in a few patches across the site.
Fireweed	Asset protection	Sparsely distributed throughout grassland areas.
Groundsel bush	Containment	Present in a few patches across the site.
Broad-leaf pepper tree	Containment	Sparsely distributed as a small tree within regrowth Forest red gum patches.

Asset protection - These weeds are widely distributed in some areas of the State. As Weeds of National Significance, their spread should be minimised to protect priority assets.
Containment - These weeds are widely distributed in parts of the region. While broad scale elimination is not practicable, minimisation of the biosecurity risk posed by these weeds is reasonably practicable.
Additional species of concern - These species are a high priority for asset protection. Many are actively managed under a number of current programs, or are commercial species with a manageable biosecurity risk. It is not feasible to contain or eradicate these species, however minimising their impacts is
reasonably practicable.

3 FAUNA

3.1 Introduction

This section discusses the methods used in the fauna assessment and presents the results of the assessment. Relevant databases were reviewed to identify records of locally occurring Threatened fauna species, populations and communities.

The fauna assessment consisted of:

- A review of relevant databases and literature.
- An assessment of site fauna habitats.

Site habitats were assessed in terms of their value for native fauna species on the 18th of August 2017 in conjunction with the flora survey. The assessment focused on identifying habitat features associated with Threatened species known from the locality. Particular attention was paid to habitat features such as:

- The presence of mature trees with hollows, fissures and/or other suitable roosting/nesting places.
- Presence of hollow logs/debris and areas of dense leaf litter.
- The presence of preferred Koala food tree species.
- The presence of preferred Glossy black cockatoo feed trees.
- Condition, flow and water quality of drainage lines and bodies of water.
- Areas of dense vegetation.
- Presence of fruiting flora species and blossoming flora species, particularly winter-flowering species.
- Vegetation connectivity and proximity to neighbouring areas of vegetation.
- Presence of caves, hollow trees and/or man-made structures suitable as microchiropteran bat roost sites.

3.2 Database searches

3.2.1 NPWS Database search

A search of the NPWS Database revealed records for 13 Threatened fauna species within 5km of the Subject site. These species are shown in **TABLE 4**.

TABLE 4
NPWS DATABASE RECORDS OF THREATENED FAUNA SPECIES WITHIN 5 KM OF THE SUBJECT SITE

Common name	Scientific name	NSW Status
Australian Painted Snipe	*Rostratula australis*	E1
Black-necked Stork	*Ephippiorhynchus asiaticus*	E1
Black-tailed Godwit	*Limosa limosa*	V
Blue-billed duck	*Oxyura australis*	V
Brush-tailed phascogale	*Phascogale topoatafa*	V
Comb-crested Jacana	*Irediparra gallinacea*	V
Curlew sandpiper	*Calidris ferruginea*	E1
Eastern Grass Owl	*Tyto longimembris*	V
Freckled Duck	*Stictonetta naevosa*	V
Glossy Black-Cockatoo	*Calyptorhynchus lathami*	V

Common name	Scientific name	NSW Status
Koala	*Phascolarctos cinereus*	V
Little Bentwing-bat	*Miniopterus australis*	V
Magpie Goose	*Anseranas semipalmata*	V

KEY
E1 Endangered
V Vulnerable

3.2.2 Commonwealth EPBC Act (1999) Database search

A search of the Commonwealth EPBC Act (1999) Database revealed potential suitable habitat for a number of Threatened fauna species within 5km of the Subject site. These species are shown in **TABLE 5**.

The Commonwealth EPBC Act Protected Matters Report is included in full in **APPENDIX B**.

TABLE 5
COMMONWEALTH EPBC ACT (1999) DATABASE OF THREATENED FAUNA SPECIES WITH POTENTIAL SUITABLE HABITAT WITHIN 5 KM OF THE SUBJECT SITE

Common Name	Scientific name	Status
Australasian Bittern	*Botaurus poiciloptilus*	E
Australian Painted Snipe	*Rostratula australis*	V
Coxen's Fig-Parrot	*Cyclopsitta diophthalma coxeni*	E
Eastern bristlebird	*Dasyornis brachypterus*	E
Painted honeyeater	*Grantiella picta*	V
Black-breasted button quail	*Turnix melanogaster*	V
Giant barred frog	*Mixophyes iteratus*	E
Grey-headed Flying-fox	*Pteropus poliocephalus*	V
Brush-tailed rock wallaby	*Petrogale pencillata*	V
Koala (combined populations of Qld, NSW and ACT)	*Phascolarctos cinereus*	V
Large-eared Pied Bat	*Chalinolobus dwyeri*	V
Long-nosed Potoroo (SE mainland)	*Potorous tridactylus tridactylus*	V
Pink underwing moth	*Phyllodes imperialis smithersi*	E
New Holland Mouse	*Pseudomys novaehollandiae*	V
Red goshawk	*Erythrotriorchis radiatus*	V
Regent honeyeater	*Anthochaera phrygia*	E
Spotted-tailed Quoll	*Dasyurus maculatus*	V
Swift Parrot	*Lathamus discolor*	E

KEY
E Endangered
V Vulnerable

3.3 Site assessment

3.3.1 Site habitats

The Subject site generally provides habitat only for common native species adapted to disturbed habitats. Scattered eucalypt trees on the site provide forage habitat for mobile native fauna species, particularly birds and bats and may provide habitat for more common nomadic and migratory species.

The Subject site supports some mature trees with developing hollows suitable for hollow-dwelling mammals and other species. The lack of habitat continuity or significant forest patches in the vicinity of the site together with the disturbance history of the Study area means that rarer hollow dwelling mammals such as the Brush-tailed phascogale and gliders are unlikely to occur.

Forest red gums on the site are potential Koala feed trees. No evidence of Koala activity (scats or scratches) was recorded on site despite targeted searches of all Forest red gums. The NPWS Atlas of NSW Wildlife shows no records of Koala close to the Casino township although there are several records of Koalas in the wider area and this species may occur at times.

Lower lying areas provide habitat for only the most common disturbance adapted amphibians including *Crinia signifera*, *Litoria peroni*, *Litoria fallax* and the introduced Cane toad. Reptile diversity is likely to be low due to the lack of structural complexity and absence of a groundcover layer.

3.3.2 Significant fauna species

No Threatened (TSC Act 1995, EPBC Act) fauna species were recorded during the site assessment.

3.3.3 Wildlife corridors and habitat connectivity

Movement opportunities for fauna through this highly disturbed landscape are generally limited. Scattered trees in the surrounding area form a highly tenuous habitat linkage with trees on the property providing a stepping stone for mobile fauna species, particularly birds and bats and species tolerant of more open and disturbed habitats. More extensive woodland and open forest vegetation occurs in areas 3-5km to the south and south-west of the Subject site.

3.3.4 Potential occurrence of Threatened fauna

APPENDIX C lists the threatened fauna species known from the locality and considers the likelihood of these species occurring on the site. This Table includes species from the NPWS and EPBC databases as well as several other species known from other sources. Some of these species, particularly birds and bats, may be occasional or regular visitors to the site depending on seasonal migrations, availability of forage resources and other factors.

Based upon this assessment the following threatened fauna species have some limited potential to occur within the Subject site and surrounding study area:

- Koala
- Grey-headed flying fox
- Little bent-wing bat

4 BIODIVERSITY VALUES, IMPACTS AND AMELIORATION

4.1 Introduction

This section discusses the biodiversity values of the site as well as potential impacts associated with the proposed rezoning and future residential development of the Subject site. The assessment considers general impacts associated with the future occupation of the site and the development of residential lots across the site.

4.2 Summary of biodiversity values

The Subject site has limited biodiversity value due to historical land clearing, fragmentation and weed invasion. There is very little connectivity with any habitat of substance for most fauna species. No threatened flora species were recorded within the Subject site or are considered likely to occur.

Areas with Forest red gum may be considered a degraded form of the *Sub-tropical coastal floodplain forest* EEC listed on the Schedules of the TSC Act 1995. Small remnant and regrowth elements of this community type are patchily distributed throughout the Richmond River floodplain in the locality. Site vegetation does not comply with the condition thresholds of any Threatened Ecological Communities listed under the EPBC Act.

Scattered eucalypt trees have conservation value and provide forage habitat for mobile native fauna species, particularly birds and bats. Koalas are known from the wider area and Forest red gum trees on the site represent potential Koala foraging habitat, although no evidence of Koala use was recorded on site during the site survey.

4.3 Potential impacts

4.3.1 Flora

4.3.1.1 Direct removal of vegetation

Future rural residential subdivision of the site in general accordance with existing residential subdivision adjacent to the site would require the clearance of existing vegetation on the site.

Clearance of existing vegetation on the site would result in the loss of 3370m^2 of regenerating Forest red gum open forest including two larger mature Forest red gum trees.

4.3.1.2 Creation of edge effects and introduction of weed species to the Study area

The Subject site is already highly modified as a result of past clearing and agricultural practices. The proposed rezoning would not fragment or isolate any areas of native vegetation or increase edge effects on areas of retained vegetation.

4.3.2 Fauna

4.3.2.1 Loss of fauna habitat and degradation of neighbouring areas of habitat

Site habitats are highly modified and have only marginal habitat value for the majority of native fauna. The loss of existing site vegetation is unlikely to impact upon any populations of native fauna in the locality.

4.3.2.2 Impacts on corridor values

The proposed rezoning of the site is unlikely to have any significant negative impact on fauna movement opportunities or sever any important wildlife corridors.

5 STATUTORY AND PLANNING ASSESSMENT

5.1 Introduction

This section includes consideration of the Proposed rezoning with regard to:

- Section 5A of the Environment Protection & Assessment Act (1979) (7 part tests);
- The Commonwealth Environment Protection and Biodiversity Conservation Act (1999).
- State Environmental Planning Policies (SEPP)
    - SEPP 14 Coastal wetlands
    - SEPP 26 Littoral rainforests
    - SEPP 44 Koala Habitat Protection

5.2 Section 5A Assessment of Significance

Section 5A of the NSW Environmental Planning and Assessment Act (1979) requires a number of factors to be taken into account in determining the significance of impact of a development on threatened species, populations or ecological communities, or their habitats. The seven factors to be taken into account under the Assessment of Significance are known as the Seven Part Test.

At Development application stage, Assessments of Significance should be completed for the following Threatened fauna species considered possible occurrences in the Study area:

- Koala
- Grey-headed flying fox
- Little bent-wing bat

An Assessment of Significance should also be completed for the *Sub-tropical coastal floodplain forest* EEC.

5.3 Commonwealth EPBC Act (1999)

5.3.1 Introduction

Under the environmental assessment provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of National Environmental Significance are subject to a rigorous assessment and approval process. An action includes a project, development, undertaking, activity, or series of activities. An action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance.

The Act identifies seven matters of national environmental significance:

- World Heritage properties
- National heritage places
- Wetlands of international importance (Ramsar wetlands)
- Threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- Nuclear actions (including uranium mining)

The EPBC Act Policy Statement 1.1 Significant Impact Guidelines (DEH 2006) outline an assessment process, including detailed criteria, to assist in deciding whether or not referral to the Minister is required. These guidelines replace the EPBC Act Administrative Guidelines of July 2000.

At Development application stage, an assessment following the guidelines and definitions set out in the EPBC Act Policy Statement 1.1 should be completed for the Grey-headed flying-fox and the Koala.

5.4 SEPP 14 Coastal Wetlands and SEPP 26 Littoral Rainforests

The Subject site does not occur within or adjacent to any areas of SEPP 14 Coastal wetlands or SEPP 26 Littoral Rainforest.

5.5 SEPP 44 Koala Habitat Protection

The SEPP 44 Koala Habitat Protection Policy aims to "encourage the proper conservation and management of area of natural vegetation that provide habitat for Koalas, to ensure permanent free-living populations over their present range and to reverse the current trend of population decline."

SEPP 44 consists of a series of questions to provide a basis for the assessment of lands as potential and/or core Koala habitat. These questions have been addressed below.

1. Does the policy apply?

Does the subject land occur in an LGA identified in Schedule 1?

The Subject site occurs in the Richmond Valley LGA, which is listed under Schedule 1.

Is the landholding to which the DA applies greater than 1 hectare in area?

Yes

2. Is the land potential Koala habitat?

Does the site contain areas of native vegetation where the trees of types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component?

Yes. Forest red gum constitutes over 15% or more of the tree component in forested patches of the site.

3. Is there core Koala habitat on the subject land?

No. The NPWS Atlas of NSW Wildlife does not include any Koala records on or adjacent to the site and targeted searches of Forest red gums did not record any evidence of Koalas present on the site.

4. Is there a requirement for the preparation of a Plan of Management for identified core Koala habitat?

No.

6 SUMMARY & CONCLUSIONS

Blackwood Ecological Services have been engaged by Graeme McKenna to complete an Ecological Assessment for a proposed rezoning of land at Lots 85, 86 and 87 DP 755627 and Lots 1 and 2 DP 545750, Lennox Street, Casino, NSW. The Subject site is approximately 4.2 hectares and is located on the corner of Lennox Street and Boundary Street Casino. The Subject site is located on the southern side of the Richmond River on the eastern fringe of existing residential development. Land to the north and west consists of existing residential development. Land to the south and east consists of agricultural land with scattered patches of eucalypt woodland and forest dominated by Forest red gum.

The proposed development involves the rezoning of the Subject site to allow for residential subdivision. It is anticipated that future residential subdivision would involve clearing of existing vegetation and filling of low-lying parts of the site.

Site surveys were undertaken on the 18th of August 2017. The site consists of disused agricultural land now dominated by tall mixed weedy grassland to around 1m tall. Common species include Rhodes grass, Setaria, Broad-leaved paspalum, Narrow-leaved carpet grass, Kikuyu and Blady grass with a variety of common pasture weeds. The southern portion of the site supports two larger Forest red gum trees and patches of regrowth Forest red gum. Occasional Teatree (*Melaleuca alternifolia*) occur in the midstorey. A patch of regrowth Forest red gum in the south-western corner of the site is lower lying and has a groundcover of Swamp ricegrass and *Eleocharis acuta.* East of Boundary Street, which forms the eastern boundary of the Subject site, the neighbouring property supports a more extensive area of regenerating Forest red gum forest.

The Subject site generally provides habitat only for common native species adapted to disturbed habitats. Scattered eucalypt trees on the site provide forage habitat for mobile native fauna species, particularly birds and bats and may provide habitat for more common nomadic and migratory species. The Subject site supports some mature trees with developing hollows suitable for hollow-dwelling mammals and other species. The lack of habitat continuity or significant forest patches in the vicinity of the site together with the disturbance history of the Study area means that rarer hollow dwelling mammals such as the Brush-tailed phascogale and gliders are unlikely to occur.

Forest red gums on the site are potential Koala feed trees. No evidence of Koala activity (scats or scratches) was recorded on site despite targeted searches of all Forest red gums. The NPWS Atlas of NSW Wildlife shows no records of Koala close to the Casino township although there are several records of Koalas in the wider area and this species may occur at times. No Threatened (TSC Act 1995, EPBC Act) fauna species were recorded during the site assessment.

The Subject site has limited biodiversity value due to historical land clearing, fragmentation and weed invasion. There is very little connectivity with any habitat of substance for most fauna species. No threatened flora species were recorded within the Subject site or are considered likely to occur. Areas with Forest red gum may be considered a degraded form of the *Sub-tropical coastal floodplain forest* EEC listed on the Schedules of the TSC Act 1995. Small remnant and regrowth elements of this community type are patchily distributed throughout the Richmond River floodplain in the locality. Site vegetation does not comply with the condition thresholds of any Threatened Ecological Communities listed under the EPBC Act.

The Subject site does not occur within or adjacent to any areas of SEPP 14 Coastal wetlands or SEPP 26 Littoral Rainforest.

7 REFERENCES

Department of Environment & Conservation (2005) **Threatened species assessment guidelines. The assessment of significance.**

Department of Environment & Conservation (2011). **Threatened species, populations and ecological communities**. www.threatenedspecies.environment.nsw.gov.au

Higgins, P.J. (Ed.) (1999) **Handbook of Australian, New Zealand and Antarctic Birds.** Oxford University Press, Melbourne.

NPWS (2002) Threatened Species of the Upper North Coast of NSW – Flora. NPWS Northern Directorate, Coffs Harbour.

APPENDIX A

COMMONWEALTH EPBC DATABASE PROTECTED MATTERS SEARCH RESULTS

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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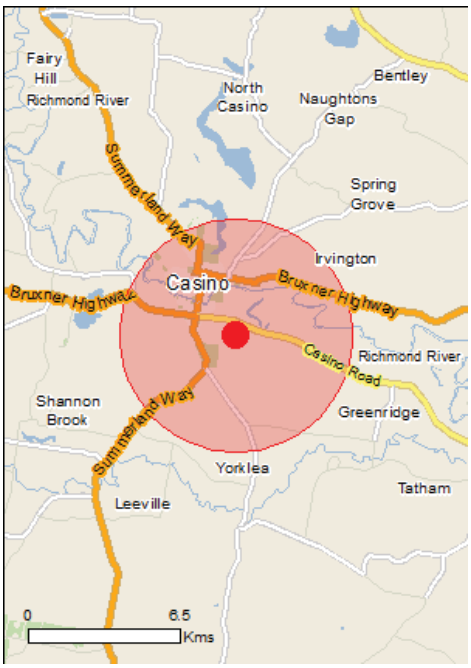

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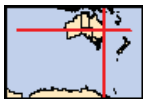

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	26
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	5
Commonwealth Heritage Places:	1
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	33
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
Insects		

Name	Status	Type of Presence
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Defence Service Homes Corporation
Commonwealth Land - Telstra Corporation Limited
Defence - CASINO GRES DEPOT (Army Training Depot) ; 41 RNSWR CASINO

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Historic		
Casino Post Office	NSW	Listed place

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		

Name	Status	Type of Presence
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-28.87949 153.05993

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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APPENDIX B

FLORA SPECIES LIST

Flora species list

Lots 85, 86 and 87 DP 755627 and Lots 1 and 2 DP 545750
Lennox Street, Casino, NSW

Where uncertainty exists due to the unavailability of reproductive material, the taxon is preceded by a question mark, or plants are identified to genus level only. Botanical nomenclature follows G.J. Harden (ed) (1990-2002) Flora of New South Wales, UNSW Press, except where recent changes have occurred.

Notes:

*	Denotes an introduced species as well as non-local native species.
BOLD	Species of conservation significance are bolded.

Family	Botanical Name	Common Name
Monocotyledons		
Amaryllidaceae	*Crinum pedunculatum*	Swamp lily
Asparagaceae	*Beaucarnia recurvata**	Ponytail palm
Cyperaceae	*Cyperus* sp.	
	Eleocharis acuta	
Juncaceae	*Juncus usitatus*	Common rush
Phormiaceae	*Dianella caerulea*	Flax lily
Poaceae	*Axonopus* sp.	Carpet grass
	*Chloris gayana**	Rhodes grass
	Imperata cylindrica	Blady grass
	Leersia hexandra	Swamp ricegrass
	*Paspalum dilatatum**	Paspalum
	*Pennisetum clandestinum**	Kikuyu
	Sacciolepis indica	Indian cupscale grass
	*Setaria sphacelata**	Setaria
	Themeda australis	Kangaroo grass
Dicotyledons		
Anacardiaceae	*Schinus terebinthifolia**	Broad-leaf pepper tree
Apiaceae	*Centella asiatica*	Centella
	Hydrocotyle sp.	Pennywort
Apocynaceae	*Parsonsia straminea*	Common silkpod
Asclepiadaceae	*Gomphocarpus physocarpus**	Balloon cotton bush
Asteraceae	*Ageratina adenophora**	Crofton weed
	*Ageratum houstonianum**	Blue billygoat weed
	*Ambrosia artemisiifolia**	Annual ragweed
	*Baccharis halimifolia**	Groundsel
	*Bidens pilosa**	Cobblers pegs
	Conyza sp.*	Fleabane
	*Erechtites valerianifolia**	Brazilian fire weed
	*Hypochaeris radicata**	Cats ear

Family	Botanical Name	Common Name
	*Onopordum acanthium**	Scotch thistle
	*Senecio madagascariensis**	Fireweed
	*Sonchus oleraceus**	Common sowthistle
Crassulaceae	*Bryophyllum delagoense**	Mother-of-millions
Euphorbiaceae	*Glochidion ferdinandi*	Cheese tree
Lauraceae	*Cinnamomum camphora**	Camphor laurel
Loranthaceae	*Amyema* sp.	Mistletoe
Malvaceae	*Sida rhombifolia**	Paddy's lucerne
Mimosaceae	*Acacia irrorata*	Green wattle
Moraceae	*Ficus watkinsiana*	Strangler fig
	Maclura cochinchinensis	Cockspur
	*Morus alba**	Mulberry
Myrtaceae	*Eucalyptus tereticornis*	Forest red gum
	Melaleuca alternifolia	
Plantaginaceae	*Plantago sp.*	Plantains
Polygonaceae	*Rumex brownii**	Swamp Dock
Ranunculaceae	*Ranunculus* sp.	
Rosaceae	*Rosa* sp.	Rose bush
Sapindaceae	*Cupaniopsis anacardioides*	Tuckeroo
Solanaceae	*Solanum seaforthianum**	Climbing nightshade
Verbenaceae	*Lantana camara**	Lantana
	*Verbena bonariensis**	Purple top
Violaceae	*Viola hederacea* subsp. *hederaceae*	Native violet

APPENDIX C

LIKELIHOOD OF OCCURRENCE OF THREATENED FAUNA SPECIES

BLACKWOOD ECOLOGICAL SERVICES

TABLE C1
LIKELIHOOD OF OCCURRENCE OF THREATENED FAUNA SPECIES

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Amphibians			
Giant barred frog	Giant Barred Frogs forage and live amongst deep, damp leaf litter in rainforests, moist eucalypt forest and nearby dry eucalypt forest, at elevations below 1000 m. They breed around shallow, flowing rocky streams from late spring to summer.	Unlikely. Not recorded within 10km of the subject site and no suitable habitat present.	No
Forest and woodland birds			
Black-breasted button-quail	Preferred habitat includes drier low closed forests, including dry rainforests, vine forest and vine thickets, often in association with Hoop Pine, and Bottletree scrubs. The understorey may be dense or sparse, but a deep, moist leaf-litter layer, in which the birds forage, is an important component of habitat.	No suitable habitat present.	No
Coxen's Fig-Parrot	Limited to about five populations scattered between Bundaberg in Queensland and the Hastings River in NSW. Usually recorded from drier rainforests and adjacent wetter eucalypt forest.. Also found in the wetter lowland rainforests that are now largely cleared in NSW. The bird shows a decided preference for fig trees, but also feeds on other fruiting rainforest species.	Unlikely. Species has not been recorded within a 10km area around the site on the NSW Atlas database.	No
Eastern Bristlebird	Occurs in vegetation with a dense ground cover, typically high elevation open forest or woodland with a dense tussock-grass or sedge understorey adjacent to rainforest or wet eucalypt forest.	No suitable habitat present.	No
Eastern grass owl	The Grass owl occupies coastal heath and tall grassland habitats.	Unlikely	No
Glossy black cockatoo	Found in coastal forests and open inland woodland in eastern Australia. The Glossy black-cockatoos distribution is limited to habitat which contains sufficient seed reserves of their three favoured species of food trees: *Allocasuarina littoralis*, *Allocasuarina torulosa* and *A. verticillata* (Forshaw 1981) and suitable large hollow bearing trees for nesting. There is no suitable forage habitat on site.	Unlikely . There is no suitable forage habitat on site.	No
Painted honeyeater	Inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*.	No suitable habitat present.	No

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Red goshawk	Red Goshawks inhabit open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water, and are often found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Unlikely. Not recorded within 10km of the subject site.	No
Regent honeyeater	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. In NSW the distribution is very patchy and mainly confined to the two main breeding areas (at Capertee Valley and the Bundarra-Barraba region) and surrounding fragmented woodlands. In some years non-breeding flocks converge on flowering coastal woodlands and forests where they prefer Swamp mahogany and Spotted gum forests.	Unlikely. Not recorded within 10km of the subject site.	No
Swift parrot	This migratory species is very rarely recorded in the locality.	Unlikely. Not recorded within 10km of the subject site.	No
Wetland birds			
Australasian Bittern	The Australasian bittern generally prefers freshwater habitats although it may also use dense saltmarsh vegetation in estuaries and flooded grasslands.	Unlikely.	No
Australian painted snipe	This species prefers the fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Unlikely.	No
Black-necked stork	Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries.	Unlikely	No
Blue-billed duck	The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. Blue-billed Ducks are partly migratory, with short-distance movements between breeding swamps and overwintering lakes with some long-distance dispersal to breed during spring and early summer. Blue-billed Ducks usually nest solitarily in Cumbungi over deep water between September and February. They will also nest in trampled vegetation in Lignum, sedges or Spike-rushes, where a bowl-shaped nest is constructed.	Unlikely.	No

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Comb-crested jacana	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation.	Unlikely	No
Freckled duck	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Unlikely	No
Magpie goose	Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges.	Unlikely	No
Oceanic and coastal birds			
Black-tailed godwit	Primarily a coastal species. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats.	Unlikely	No
Curlew sandpiper	Generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland.	Unlikely	No
Terrestrial mammals			
Brush-tailed rock wallaby	Typically occupy north-facing cliffs in dry eucalypt forest and woodland. The species is highly territorial and remains in the same site permanently.	No suitable habitat present.	No
Brush-tailed phascogale	Prefers dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter.	No suitable habitat present.	No
Koala	Koalas live in eucalypt woodlands and forests. Home range size varies according to quality of habitat, ranging from less than two hectares to several hundred hectares.	Possible	**Minor**
Long-nosed potoroo	This species occurs in coastal heathland habitats at several locations along the Far North Coast.	Unlikely. Not recorded within 10km of the subject site.	No
Spotted-tail quoll	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Quolls are rarely recorded in the locality.	Unlikely. Suitable habitat is not present.	No
New Holland Mouse	Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Unlikely. No suitable habitat is present and species has not recorded within 10km of the subject site.	No

Species	Notes	Likelihood of occurrence on site	Potential for impact?
Bats			
Grey-headed flying fox	This species occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens and cultivated fruit crops also provide habitat for this species.	**Likely** to forage throughout the Study area during flowering and fruiting of site vegetation.	**Minor**
Large-eared pied bat	This species is found in well-timbered areas containing gullies. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin, frequenting low to mid-elevation dry open forest and woodland close to these features.	Unlikely. This species was not recorded on the Atlas of NSW Wildlife and the site contains no roost sites and only marginal forage habitat.	No
Little bent-wing bat	This species generally roosts in caves and tunnels during the day and forages for insects beneath the canopy of forested habitats at night.	**Possible,** has been previously recorded in the Study area.	**Minor**
Invertebrates			
Pink underwing moth	The Pink Underwing Moth is found below the altitude of 600 m in undisturbed, subtropical rainforest. It occurs in association with the vine *Carronia multisepalea*, a collapsed shrub that provides the food and habitat the moth requires in order to breed	Unlikely. No suitable habitat is present and species has not recorded within 10km of the subject site.	No

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File No: 1740
16th January 2018

Graeme McKenna
c/o Adrian Zakaras
Newton Denny Chapelle
Suite 1, 31 Carrington Street
LISMORE NSW 2480

Dear Graeme

RE: ECOLOGICAL ASSESSMENT, LENNOX ST, CASINO, NSW

Blackwood Ecological Services completed an Ecological assessment for a proposed rezoning of land at Lots 85, 86 and 87 DP 755627 and Lots 1 and 2 DP 545750, Lennox Street, Casino, NSW in August 2017.

Following review of the Ecological assessment, Richmond Valley Council have requested additional information related to the implications of the future development of the land with regard to the recently commenced Biodiversity Conservation Act 2016. This letter addresses Council's requests for additional information.

Future clearing of native vegetation

Land clearing in rural areas of NSW is regulated under the Local Land Services Act 2013 (NSW) (LLS Act) and the Local Land Services Regulation 2014 (NSW) (LLS Regulation). The site is currently zoned RU1 Primary Production.

The Native Vegetation Regulatory (NVR) Map (accessed January 2018) shows the site is not mapped as *Land excluded from the LLS Act*. It does not contain any areas mapped as *Sensitive Regulated Land* or *Vulnerable Regulated Land*. The NVR map has not been finalised and does not yet show areas of Category 1-Unregulated land. During the transition period when Stage 1b draft NVR mapping does not have regulatory effect, landowners will be responsible for determining how Category 1 - Unregulated Land and Category 2 – Regulated Land applies to their land, in accordance with the LLS Act.

As the site does not currently contain any areas of mapped Regulated land and the Ecological assessment indicates that the site does not contain sufficient biodiversity values to warrant categorisation as sensitive or vulnerable regulated land, the site is best described as unregulated land. If land is unregulated, or exempt, it can be cleared without needing to obtain authorisation under the LLS Act.

Following future rezoning of the site, the site may potentially be mapped as *Land excluded from the LLS Act,* as this category applies to neighbouring areas of residential land. Should this occur, the land clearing regulations of the LLS Act and LLS Regulation would no longer apply.

The Biodiversity Offsets Scheme Threshold is a test used to determine when it is necessary to engage an accredited assessor to apply the Biodiversity Assessment Method (the BAM) to assess the impacts of a proposal. It is used for local developments (development applications submitted to councils) and clearing that does not require development consent in urban areas and areas zoned for environmental conservation (under the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017).

The Biodiversity Conservation Regulation 2017 sets out threshold levels for when the Biodiversity Offsets Scheme will be triggered. The threshold has two elements:

- whether the amount of native vegetation being cleared exceeds a threshold area
- whether the impacts occur on an area mapped on the Biodiversity Values map published by the Minister for the Environment.

If clearing and other impacts exceeds either trigger, the Biodiversity Offset Scheme applies to the proposed development including biodiversity impacts prescribed by clause 6.1 of the Biodiversity Regulation 2017.

Under Clause 7.2 of the Biodiversity Conservation Regulation 2017, clearing of native vegetation is declared to exceed the biodiversity offsets scheme threshold if the area proposed to be cleared is in excess of 0.25ha on land less than 1ha in size or in excess of 0.5ha on land less than 40ha but not less than 1ha. The area proposed for rezoning is a total of approximately 4ha. The area of regrowth native vegetation on the site has been calculated at 0.2175ha.

Future clearing of this native vegetation will not exceed the biodiversity offsets scheme threshold and the Biodiversity Assessment Method will not need to be applied on this basis. The Biodiversity Offsets Scheme Entry Threshold Tool was accessed on the 16th of January 2018. The BOSET mapping shows that the site does not contain mapped Biodiversity Values.

Tests of significance for Threatened species

Under the NSW BC Act (2016), the threatened species 'test of significance' is used to determine if a development or activity is likely to significantly effect threatened species or ecological communities, or their habitats. It is sometimes also referred to as the '5-part test'. It is applied as part of the Biodiversity Offsets Scheme entry requirements and for Part 5 activities. A Biodiversity Development Assessment Report would be required if the future development is likely to 'significantly affect threatened species'.

The test of significance is set out in s.7.3 of the Biodiversity Conservation Act 2016, and requires that the following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

a) *in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,*
b) *in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:*
    i. *is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or*
    ii. *is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*
c) *in relation to the habitat of a threatened species or ecological community:*
    i. *the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and*
    ii. *whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and*
    iii. *the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*
d) *whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),*
e) *whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.*

Based on application of the 5 part test, potential future clearing of native vegetation would be unlikely to significantly affect the Threatened fauna species that the Ecological assessment identified as requiring consideration (Koala, Grey-headed flying-fox and Little bent-wing bat) as habitats on the site are of marginal importance to these species and are already fragmented from neighbouring areas of vegetation.

Please contact me if you require any further information.

Yours sincerely,

Mark Free
MANAGER & PRINCIPAL ECOLOGIST

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 3

Aboriginal Cultural Heritage Assessment

Everick Heritage Consultants Pty Ltd

EVERICK
Heritage Consultants Pty Ltd
ABN 78 102 206 682

OCTOBER 2017

ABORIGINAL CULTURAL HERITAGE DUE DILIGENCE ASSESSMENT

LENNOX STREET REZONING

CASINO, NSW

PREPARED FOR GRAEME MCKENNA

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Innovative Heritage Solutions

Report Reference:
Hill, T., R. Mazlin and T. Robins 2017 *Lennox Street Rezoning, Casino, NSW: Cultural Heritage Assessment (September 2017)*. Everick Heritage Consultants Pty Ltd. Unpublished report prepared for Graeme McKenna.

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1	Draft	R. Mazlin	All	24.07.2017	T. Robins
2	Draft	Tim Hill	All	14.08.2017	T. Robins
3	Final Draft	Tim Hill	All	04.10.2017	T. Robins

EXECUTIVE SUMMARY

Everick Heritage Consultants (the Consultant) was commissioned by Newton Denny Chapelle Pty Ltd (NDC) on behalf of Graeme KcKenna (the Proponent) to undertake a Cultural Heritage Due Diligence Assessment for the rezoning of land at Lennox Street, Casino, NSW (the Project). The Project Area is identified as Lots 85, 86 and 87 on DP755627 and Lots 1 and 2 on DP545750 comprising 5.2 hectares. The purpose of the Planning Proposal is to rezone the Project Area from RU1-Primary Production to R1-General Residential under the provisions of the *Richmond Valley Local Environmental Plan 2012*.

The intent of this cultural heritage assessment is to assess the suitability of the amended land use proposal in relation to potential impacts to Aboriginal (Indigenous) and non-Aboriginal (non-Indigenous) heritage. Should potentially significant heritage be identified, the assessment will consider higher level planning mechanisms through which such heritage can be adequately managed at the planning proposal and at the development application stage.

The brief for this project was to undertake a Cultural Heritage Assessment of a suitable standard to be submitted in support of the Project. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

a) a search of relevant heritage registers;

b) review of historical aerials;

c) a site inspection conducted with a representative of the Casino Boolangle Local Aboriginal Land Council ('CBLALC');

d) assessments of archaeological significance and impact; and

e) report on findings and recommended management strategies.

The methods used for this assessment are in compliance with the Office of Environment and Heritage ('OEH') *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010) and all relevant legislation as described in Section 2 of this Report. The following report complies with the accepted methodology for undertaking a Due Diligence Assessment under the *National Parks and Wildlife Act 1974* ('NPW Act').

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 24 July 2017 (Client Service ID 292412) (Appendix B). The search returned one registered Aboriginal site (AHIMS# 04-4-0124) within the search area, however it is listed with information restrictions.

The Project Area is within the area administered for Aboriginal cultural heritage purposes by the Casino Boolangle Local Aboriginal Land Council (CBLALC). A pedestrian survey of the Project Area for Aboriginal cultural heritage was undertaken by Graham Randall, Sites Officer of the CBLALC, with Senior Archaeologist Tim Hill of Everick Heritage Consultants, on the 01 August 2017.

The literature review identified potential archaeological sites as being: single *artefacts, artefact scatters* and *scarred trees*. *Rock shelters* containing occupation deposits, possibly art and grinding grooves are likely in locations where bed rock extrudes from hill slopes. These do not occur in the Project Area. *Quarry sites* may occur where sources of hard quartz sandstones, conglomerate or cryptocrystalline sedimentary rock occurs. These conditions do not occur in the Project Area. *Ceremonial sites* which feature raised earth mounds/stone mounds and sites of a purely spiritual nature are unlikely, as it is probably reasonable to assume that these locations would have been previously recorded through oral history sources. Land clearing over the subject lands would also have caused the destruction of ceremonial sites containing fixed structures in the nature of earth banks and stone arrangements and possibly scatter surface archaeological materials.

RESULTS - INDIGENOUS CULTURAL HERITAGE ASSESSMENT

As a result of the desktop study and field inspection the following conclusions were established with Graham Randall, the Casino Boolangle LALC Sites Officer.

a) No Indigenous cultural heritage sites or relics were identified within the Project Area.

b) No areas have been identified that are considered to contain potential archaeological deposits of significant Aboriginal heritage, such that they warrant archaeological excavation. The project area is located more than 200 metres from the Richmond River and as such is not considered a Potential Archaeological Deposit.

c) The Grays Lane Camp is widely known in the Aboriginal community and is located to the north of the Project Area near the old crossing of the Richmond River. The camp was an entrance point whereby Aboriginal people registered with Police before being provided entry to Casino township.

d) The Project Area has been disturbed in a manner which constitutes 'disturbance' within the meaning of the Due Diligence Code and is consistent with the Due Diligence Code.

RESULTS - NON INDIGENOUS HERITAGE ASSESSMENT

No items of local historic significance were identified within the Project Area. The Casino Municipality marker is located at the intersection of Hare St (Coraki Road) and Boundary Road is noted. This small concrete marker is located within the road reserve to the immediate east of the Project Area boundary- delineated by a rural fence. The marker is approximately 1m north of a storm water drain.

Graham indicated that four old houses existed in the south-western portion of the Project Area along the Coraki Road. Two of these houses were lived in by the King and Roberts families. The only remnants of these houses were some vine type rose bushes and an old stump. These items are not understood to be of significance to the Aboriginal community.

RECOMMENDATIONS

The Consultant is of the opinion that the proposed works are unlikely to lead to harm to Aboriginal objects. Whilst additional archaeological investigations are not considered necessary, as a precautionary measure the following recommendations are provided:

Recommendation 1: Cultural Heritage Induction

It is recommended that a cultural heritage induction is provided to all contractors who are engaged as site supervisors or act in senior operational roles. The purpose of the cultural heritage induction is to;

- Make staff aware of the survey effort to date and potential for the Project Area to contain Aboriginal sites;
- Provide sufficient training for staff to identify Aboriginal objects should they be impacted during construction works; and
- Ensure that staff are aware of response procedures in the event of any harm to Aboriginal sites during construction works.

It is recommended that eh cultural heritage induction is provided by a suitably experienced member of the Aboriginal community or a qualified archaeologist.

Recommendation 2: Aboriginal Object Find Procedure.

If it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area:

a) work in the surrounding area is to stop immediately;

b) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;

c) an appropriately qualified archaeological consultant is to be engaged to identify the material; and

d) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the *ACHCRP Guidelines* (2010).

Should the material be identified as an Aboriginal object and the proposed works cannot be amended to avoid the Aboriginal site an Aboriginal Heritage Impact Permit (AHIP) would be required prior to recommencement of works in the vicinity of the site. Consultation with stakeholders from the Aboriginal community would be required as a part of the AHIP application process.

Recommendation 3: Aboriginal Human Remains

Although it is unlikely that Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Woodburn), the Bandjalang People #2 and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 4: Conservation Principles

It is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.

Recommendation 5: Casino Municipality marker

No items of local historic significance were identified within the Project Area. The Casino Municipality marker is located at the intersection of Hare St (Coraki Road) and Boundary Road is noted. This small concrete marker is located within the road reserve to the immediate east of the Project Area boundary- delineated by a rural fence.

No works should be undertaken within 5m of this marker without additional assessment.

CONTENTS

TABLES AND FIGURES

DEFINITIONS

The following definitions apply to the terms used in this report:

Aboriginal Object means any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

Aboriginal Place means any place declared to be an Aboriginal place (under s. 84 of the NPW Act) by the Minister administering the NPW Act, by order published in the NSW Government Gazette, because the Minister is of the opinion that the place is or was of special significance with respect to Aboriginal culture. It may or may not contain Aboriginal Objects.

ACHCRP Guidelines means the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010).

AHIP means Aboriginal Heritage Impact Permit.

Archaeological Code of Practice means the OEH *Archaeological Code of Practice for the Investigation of Aboriginal Objects in New South Wales* (2010).

Due Diligence Code means the OEH *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (2010).

CBLALC means Casino Boolangle Local Aboriginal Land Council.

LEP means the Local Environment Plan.

NDC means Newton Denny Chapelle Pty Ltd.

NPW Act means the *National Parks and Wildlife Act 1974* (NSW).

NPW Regulations means the *National Parks and Wildlife Regulations 2009* (NSW).

OEH means the New South Wales Office of Environment and Heritage.

Project Area means the land subject to this assessment, Lots 85, 86 and 87 on DP755627 and Lots 1 and 2 on DP545750, Lennox Street Casino NSW.

Proposed Works means all activities associated with and as an outcome of the planning proposal to which this report relates. Future works are anticipated to include residential development which may involve earth works, construction and landscaping within the Project Area (including activities undertaken by subsequent landholders).

Proponent means Graeme McKenna.

RVC means the Richmond Valley Council.

The Project means the Planning Proposal to rezone the Project Area from RU1 – Primary Production to R1 -General Residential to provide for future subdivision of approximately 40 residential blocks.

The Consultant means qualified archaeological staff and/or contractors of Everick Heritage Consultants Pty Ltd.

1. INTRODUCTION

1.1 Purpose of the Archaeological Investigation

Everick Heritage Consultants (the Consultant) was commissioned by Newton Denny Chapelle Pty Ltd (NDC) on behalf of Graeme KcKenna (the Proponent) to undertake a Cultural Heritage Due Diligence Assessment for the rezoning of land at Lennox Street, Casino, NSW (the Project). The Project Area is identified as Lots 85, 86 and 87 on DP755627 and Lots 1 and 2 on DP545750 comprising 5.2 hectares.

The intent of this cultural heritage assessment is to assess the suitability of the amended land use proposal in relation to potential impacts to Aboriginal (Indigenous) and non-Aboriginal (non-Indigenous) heritage. Should potentially significant heritage be identified, the assessment will consider higher level planning mechanisms through which such heritage can be adequately managed at the planning proposal and at the development application stage.

1.2 Description of Planning Proposal

The proponent is proposing to rezone the Project Area from RU1 – Primary Production to R1 -General Residential to provide for future subdivision of approximately 40 residential blocks.

Whilst the current proposal relates to a planning proposal, the impact assessment (Section **Error! Reference source not found.**) assumes that future development applications may result in the total removal of soils with the potential to contain Aboriginal Objects. The heritage management recommendations have been structured with this level of impact in mind. Having regard to the low potential for the Project Area to contain Aboriginal Objects, the recommendations have been structured to address the rezoning application and any subsequent Development Applications.

1.3 Proponent, Project Brief & Methodology

The brief for this project was to undertake a Cultural Heritage Assessment of a suitable standard to be submitted in support of the Project. In accordance with the relevant administrative and legislative standards for New South Wales (see Section 2 below), the methods employed in this assessment included:

a) a search of relevant heritage registers;

b) review of historical aerials;

c) a site inspection conducted with a representative of the Casino Boolangle Local Aboriginal Land Council ('CBLALC');

d) assessments of archaeological significance and impact; and

e) report on findings and recommended management strategies.

The methods used for this assessment are in compliance with the Office of Environment and Heritage ('OEH') *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (2010) and all relevant legislation as described in Section 2 of this Report. The following report complies with the accepted methodology for also undertaking a Due Diligence Assessment under the *National Parks and Wildlife Act 1974* ('NPW Act').

1.4 Report Authorship

The desktop study was undertaken by Senior Archaeologist Adrian Piper and Archaeologist Robbie Mazlin. The field inspection was conducted by Senior Archaeologist Tim Hill. This report was written by Tim Hill and Robbie Mazlin. Technical review was completed by Everick Director Tim Robins. Aboriginal Community Consultation was conducted by Tim Robins.

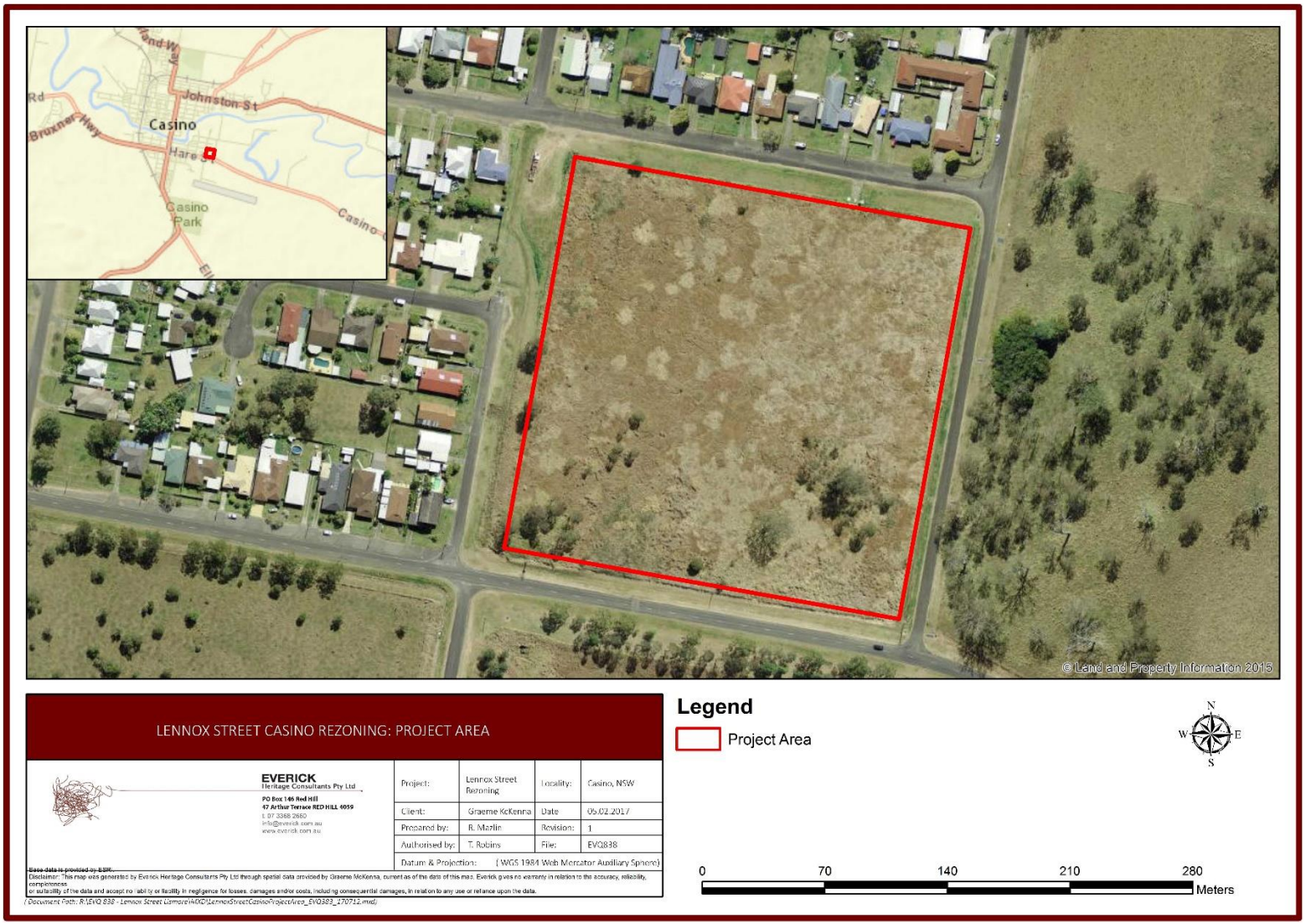

Figure 1: Regional Location of Project Area

2. LEGISLATIVE AND PLANNING CONTEXT

The primary State legislation concerning cultural heritage in New South Wales are the NPW Act 1974 (NSW) and the Council Local Environment Plans and Development Control Plans. The Commonwealth also has a role in the protection of nationally significant cultural heritage through the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth), *The Protection of Movable Cultural Heritage Act 1986* (Cth) and the *Historic Shipwrecks Act 1976* (Cth).

For the purposes of this assessment the State and local legislation are most relevant. The consent authorities will be the Richmond Valley Shire Council and, where a referral agency is required, the OEH. Approval from the OEH will also be required should the Project impact on identified Aboriginal Objects. The information below lists the legislative and policy framework within which this assessment is set.

2.1 The National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974* (NSW) (NPW Act) is the primary legislation concerning the identification and protection of Aboriginal cultural heritage. It provides for the management of both Aboriginal Objects and Aboriginal Places. Under the NPW Act, an Aboriginal Object is any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area, regardless of whether the evidence of habitation occurred before or after non-Aboriginal settlement of the land. This means that every Aboriginal Object, regardless of its size or seeming isolation from other Objects, is protected under the Act.

An Aboriginal Place is an area of particular significance to Aboriginal people which has been *declared* an Aboriginal Place by the Minister. The drafting of this legislation reflects the traditional focus on Objects, rather than on areas of significance such as story places and ceremonial grounds. However, a gradual shift in cultural heritage management practices is occurring towards recognising the value of identifying the significance of areas to Indigenous peoples beyond their physical attributes. With the introduction of the *National Parks and Wildlife Amendment Act 2010* (NSW) the former offence provisions under Section 86 of 'disturbing', 'moving', 'removing' or 'taking possession' of Aboriginal Objects or Places have been replaced by the new offence of 'harming or desecrating'. The definition of 'harm' is 'destroying, defacing or damaging an Object'. Importantly, in the context of the management recommendations in this assessment, harm to an Object that is 'trivial or negligible' will not constitute an offence.

The penalty for individuals who inadvertently harm Aboriginal Objects has been set at up to $55,000, while for corporations it is $220,000. Also introduced is the concept of '*circumstances of aggravation*' which allows for harsher penalties (up to $110,000) for individuals who inadvertently harm Aboriginal heritage in the course of

undertaking a commercial activity or have a record for committing similar offences. For those who knowingly harm Aboriginal cultural heritage, the penalty will rise substantially. The maximum penalty will be set at $275,000 or one year imprisonment for individuals, while for corporations it will rise to $1,100,000.

Where a land user has or is likely to undertake activities that will harm Aboriginal Objects, the Director General (OEH) has a range of enforcement powers, including stop work orders, interim protection orders and remediation orders. The amended regulations also allow for a number of penalties in support of these provisions. The NPW Act also now includes a range of defense provisions for unintentionally harming Aboriginal Objects:

a) Undertaking activities that are prescribed as 'Low Impact'.

b) Acting in accordance with the new Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (2010).

c) Using a consulting archaeologist who correctly applies the OEH Code of Practice for Archaeological Conduct in New South Wales (2010) ('Archaeological Code of Practice').

d) Acting in accordance with an Aboriginal Heritage Impact Permit (AHIP).

The regulations allow for a range of low impact activities to be undertaken without the need to consult the OEH or a consulting archaeologist. Generally, those who undertake activities of this nature will not be committing an offence, even if they inadvertently harm Aboriginal Objects. These activities include:

a) Maintenance – For example on existing roads and tracks, or on existing utilities such as underground power cables and sewage lines.

b) Farming and Land Management – for land previously disturbed, activities such as cropping, grazing, bores, fencing, erosions control etc. *

c) Removal of dead or dying vegetation - only if there is minimal ground disturbance.

d) Environmental rehabilitation – weed removal, bush regeneration.

e) Development in accordance with a Development Certificate issued under the EPA Act 1979 (provided the land is previously disturbed). *

f) Downhole logging, sampling and coring using hand held equipment.

g) Geochemical surveying, seismic surveying, costeaning or drilling. *

* This defense is only available where the land has been disturbed by previous activity. Disturbance is defined as a clear and observable change to the land's surface, including but not limited to land disturbed by the following: soil ploughing; urban development; rural infrastructure (such as dams and fences); roads, trails and walking tracks; pipelines, transmission lines; and storm water drainage and other similar infrastructure.

2.2 Due Diligence Code of Practice for the Protection of Aboriginal Objects 2010

The Due Diligence Code has been applied in Section 10 of this assessment. It operates by posing a series of questions for land users before they commence development. These questions are based around assessing previous ground disturbance. An activity will generally be unlikely to harm Aboriginal Objects where it:

a) will cause no additional ground disturbance; or

b) is in a developed area; or

c) in a significantly disturbed area.

Where these criteria are not fulfilled, further assessment for Aboriginal cultural heritage will typically be required prior to commencing the activity.

2.3 The ACHCRP (2010)

The *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010) ('ACHCRP') provide an acceptable framework for conducting Aboriginal community consultation in preparation for impacts to Aboriginal cultural heritage. Proponents are required to follow them where a Project is likely to impact on cultural heritage and where required by Council. It is recommended by the OEH that all cultural heritage assessments involve this level of consultation, although it is not strictly a requirement unless it meets the above criteria. The ACHCRP Guidelines typically take a minimum of 90 days to complete. However, in complicated Projects this period may need to be extended by several months. The Guidelines require public notice of the assessment, preparation of a proposed methodology, undertaking site meetings and excavations where required, the production of a draft report, which is distributed to the registered Aboriginal groups and the production of a final report.

Although not strictly required, a thorough consultation process will treat the ACHCRP Guidelines as a minimum standard of community consultation. Generally, consultants must go to further effort to identify the significance of a given site to the Aboriginal community. This will likely include undertaking additional site inspections if requested by Aboriginal stakeholders, fully resourcing the community by providing copies of past archaeological and environmental assessments in the region and meeting with community members to seek their opinions of the site.

2.4 The Richmond Valley Local Environmental Plan 2012 and Richmond Valley Development Control Plan 2012

The Richmond Valley Local Environmental Plan 2012 (LEP) provides statutory protection for items already listed as being of heritage significance (Schedule 5 – Environmental Heritage), that fall under the ambit of the *Heritage Act 1977* (NSW) and Aboriginal Objects under the *National Parks and Wildlife Act 1974* (NSW). It ensures that essential best practice components of the heritage decision making process are followed.

For listed heritage items, relics and heritage conservation areas, the following action can only be carried out with the consent of the Richmond Valley Shire Council:

a) demolishing, defacing, damaging or moving a heritage item or a building, work, relic, tree or place within a heritage conservation area, or

b) altering a heritage item or a building, work or relic within a heritage conservation area by making structural changes to its exterior, or

c) altering a heritage item or a building, work or relic within a heritage conservation area by making non-structural changes to the detail, fabric, finish or appearance of its exterior, except changes resulting from any maintenance necessary for its ongoing protective care, which does not adversely affect its heritage significance, or

d) moving a relic, or excavating land for the purpose of discovering, exposing or moving a relic, or

e) erecting a building on, or subdividing, land on which a heritage item is located or which is within a heritage conservation area.

In addition, Council may not grant development consent without considering whether the lands contain potential Aboriginal archaeological deposits (Part 5.10 and Schedule 2).

The *Richmond Valley Development Control Plan 2012* (DCP 2012) refers to visual impacts to commercial and residential built heritage. The principle contribution the DCP 2012 makes is to expand on the issues Council must consider before granting a development consent that may impact on a heritage item. Visual Impacts to built heritage must assess the following:

a) Heritage Significance – if the land on which development is proposed has any item of heritage significance.

b) Heritage Items – adjoining or adjacent listed items.

c) Heritage Area – if the development is proposed within an identified area.

d) Adjoining or adjacent to a Significant Streetscape Element (defined as being more than forty years old and having largely original decorative embellishments)

2.5 The Heritage Act (1977) NSW

The *Heritage Act 1977* (NSW) ('Heritage Act') is aimed at identifying and protecting significant items of historic (as opposed to Aboriginal) cultural heritage. The focus of the legislation is on identifying places of either local or state heritage significance, and protecting them by registration on heritage registers. Significant historic heritage items are afforded little protection (other than at the discretion of councils) where they are not on a heritage register. Of note are the provisions allowing for interim heritage orders (Part 3), which grants the Minister or the Minister's delegates, (which importantly may include a local government agent) the power to enter a property and provide emergency protection for places that have not yet been put on a heritage register but that may be of local or State significance.

The *Heritage Act 1977* (NSW) also makes allowances for the protection of archaeological deposits and relics (Part 6). An archaeological 'relic' means any deposit, object or material evidence which relates to the settlement of the area, not being Aboriginal settlement. Importantly, a former requirement for an archaeological relic to be 50 years or older has recently been repealed. The focus is now on the item's potential heritage significance, not its age. As will be discussed below, it is highly unlikely that archaeological relics of significant historic sites are located within the Project Area.

2.6 ICOMOS Burra Charter

The International Council on Monuments and Sites (ICOMOS) is the peak body of professionals working in heritage conservation. ICOMOS has adopted the *Burra Charter* which describes acceptable standards for the assessment and management of items of cultural heritage significance in Australia. Although not a legal requirement, the *Burra Charter* has been adopted by Australian heritage professionals as a guide to assessing and managing heritage places and artefacts.

3. ABORIGINAL COMMUNITY CONSULTATION

3.1 Traditional Owner Knowledge

The Aboriginal Stakeholders are the primary determinants of the significance of their cultural heritage. Members of the Aboriginal community will be consulted, and will continue to be consulted, with regard to their concerns not only about known archaeological sites in the region, but also about cultural values such as areas with historic and spiritual significance, and other values relating to flora and fauna of the area.

Everick Heritage recognises that there is Traditional Owner knowledge associated with the region that may have to be treated in a confidential manner. Where there is potential for impacts upon Aboriginal heritage as a result of future development proposals, consultation under ACHCRP (2010) would apply.

3.2 Consultation with the Casino Boolangle LALC

Project information, including a site plan, was provided to the CEO of the Casino Boolangle LALC by email on 25 July 2017. CBLALC Sites Officer Graham Randall undertook an inspection of the Project Area on the 1 August 2017, with Senior Archaeologist Tim Hill. The Sites Officer is aware of places of particular cultural significance within the Casino/Richmond locality and Aboriginal archaeological sites in the vicinity of the Project Area.

4. ABORIGINAL CULTURAL HERITAGE DESKTOP REVIEW

4.1 The OEH Aboriginal Heritage Information Management System (AHIMS)

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 24 July 2017 (Client Service ID 292412) (Appendix B). The search returned one registered Aboriginal site (AHIMS# 04-4-0124) within the search area, however it is listed with information restrictions. Subsequent correspondence with OEH (Appendix 3) indicated that the site was a Resource and Gathering place referred to as the 'Grays Lane Camp'.

Care should be taken when using the AHIMS database to reach conclusions about site prevalence or distribution. For example, a lack of sites in a given area should not be seen as evidence that the area was not occupied by Aboriginal people. It may simply be an indication that it has not been surveyed for heritage or that the survey was undertaken in areas or at times of poor ground surface visibility. Further, care needs to be taken when looking at the classification of sites. There are also errors with the data.

4.2 Other Heritage Registers: Aboriginal & Historic Cultural Heritage

The following heritage registers were accessed on 24 July 2016:

- **The World Heritage List** (Australian Heritage Council): Contains no heritage listings within or within close proximity to the Project Area.
- **The National Heritage List** (Australian Heritage Council): Contains no heritage listings within or within close proximity to the Project Area.
- **Commonwealth Heritage List** (Australian Heritage Council): Contains no heritage listings within or within close proximity to the Project Area.
- **Register of the National Estate** (Australian Heritage Council): Contains no heritage listings within or within close proximity to the Project Area.
- **The State Heritage Register and Inventory** (NSW Heritage Office): Contains no heritage listings in Section 1-3 (*NSW Heritage Act*) within the Project Area.
- **Richmond Valley Local Environment Plan 2012**: Contains one place of local heritage significance in close proximity to the Project Area under Schedule 5 of the LEP. This is listed as the Casino Municipality boundary marker located on the north-eastern corner of Hare Street and Boundary Street. The marker is approximately 5 metres east of the Project Area boundary fence.

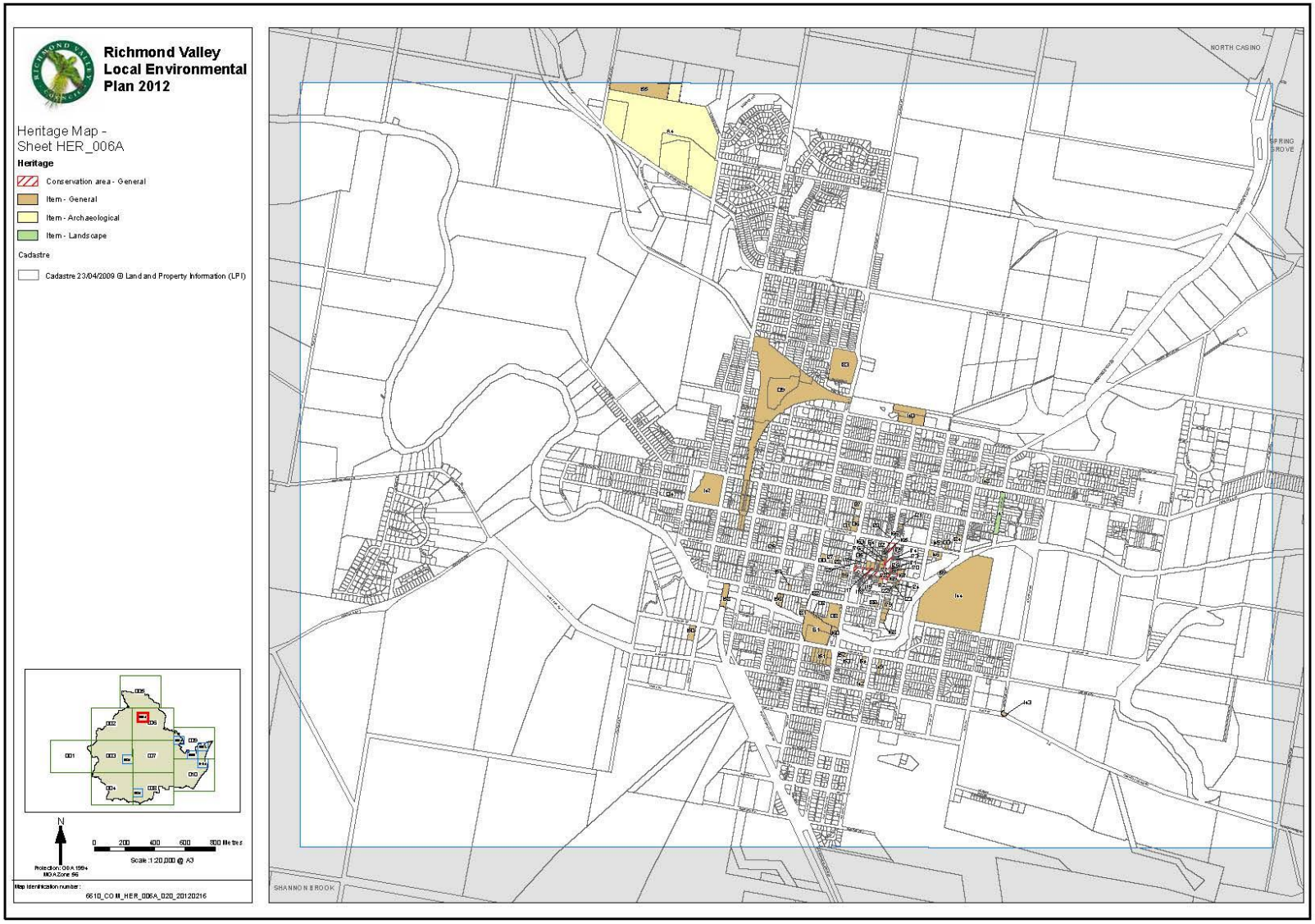

Figure 2: Richmond Valley LEP 2012

5. LANDSCAPE CONTEXT

5.1 Topography

The Project Area has a consistent elevation of 22 m asl with no significant topographic variation. This is consistent with the soil landscape identified by Morand (1994) which predicts simple convex slopes with reliefs of 20-30m and moderately broad crests, as well as alluvial plains of extremely low relief.

5.2 Soils Landscapes and Vegetation

The Project Area has been mapped as the Leycester soil landscape (Morand 1994). This soil landscape is characterised by level to gently undulating, broad to extensive alluvial plains. These plains are of extremely low relief, with deep, poorly to moderately well-drained alluvial Black Earths and Structured Clays (Morand 1994: 127). Extensively cleared open-forests are associated with this soil landscape with current vegetation consisting of closed sod grassland ground cover with isolated trees.

The Project Area is currently clear of vegetation, excluding some sporadic tree coverage and has likely been used for agricultural purposes.

5.3 Disturbance Analysis

The Project Area is within an area which meets the definition of 'Disturbed' under the Due Diligence Code of Practice. The Due Diligence Code of Practice (OEH 2010) provides the following definition of 'disturbed land';

> "*Land is disturbed if it has been the subject of human activity that has changed the land surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water and sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks*" (OEH 2010:18)

The proposed crossing alignment will be mostly located within land subject to the following types of disturbance;

- Forest clearing;
- Low intensity agriculture;

- Drainage works;
- Historic dwelling including gardens; and
- Dumping of fill and soil material.

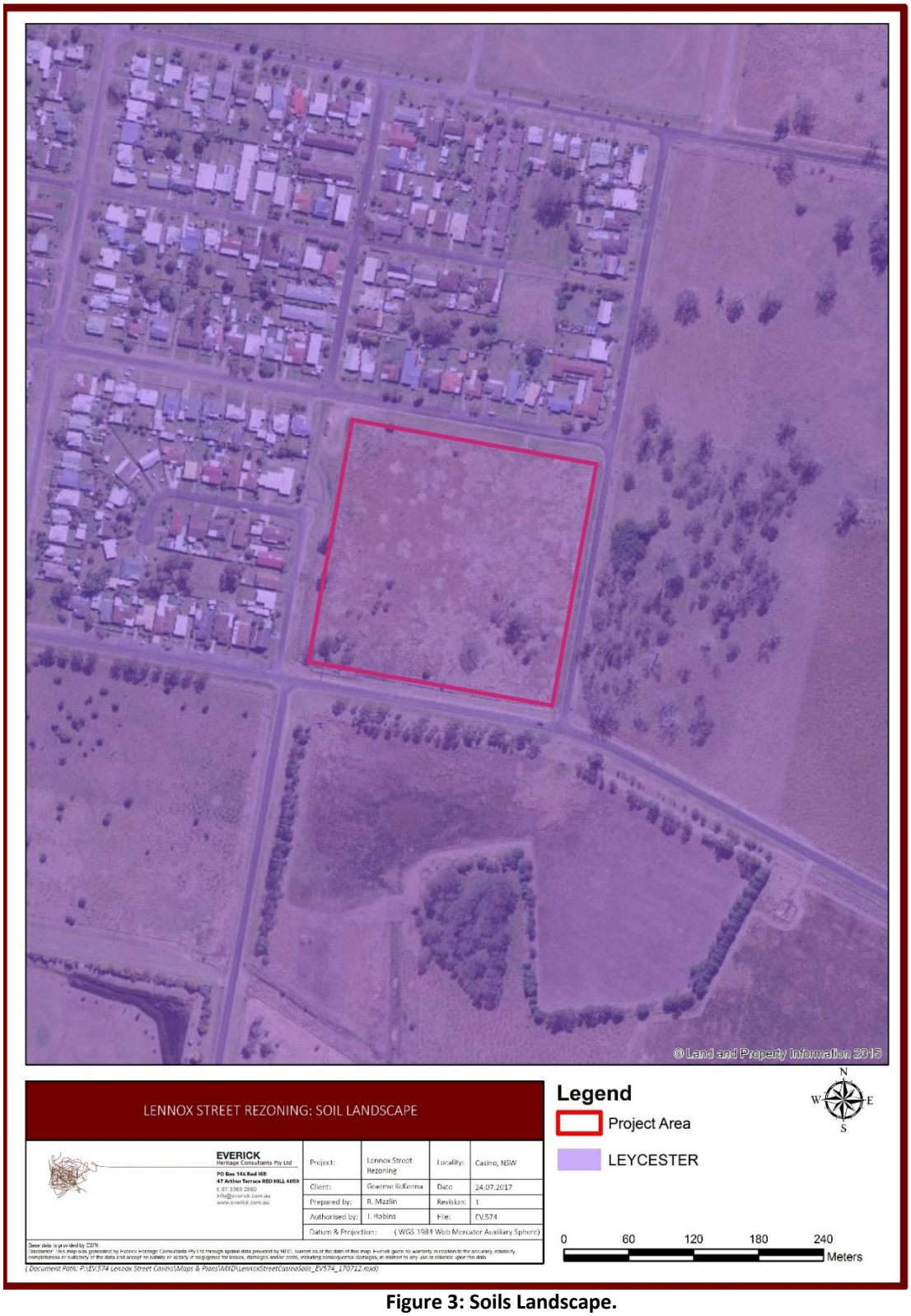

Figure 3: Soils Landscape.

6. ABORIGINAL CULTURAL CONTEXT

6.1 Ethnohistorical Summary

6.1.1 Territories, Settlement and Movement

The Aboriginal people of the Casino area were part of a wider linguistic group, the Bundjalung which included about twenty dialects spoken between the Clarence and Logan Rivers extending west to Tenterfield (Crowley 1978:1). The concentration of Bundjalung dialects to the north compared to the fewer dialect groups of the adjoining southern Kumbainggiri led Crowley to suggest that the Bundjalung areas may have been colonised earlier than the Kumbainggiri allowing a greater number of dialects to develop. Crowley also suggested that coastal Bundjalung dialects varied significantly from inland Bundjalung dialects (Crowley 1991). Joshua Bray, a settler on the Tweed River travelled from the coast to the inland Bundjalung dialect country of the Upper Richmond and found that "The language of the Aborigines is sometimes completely different thirty miles away" (Bray 1899:193). The Casino area was occupied by people speaking the Galibal dialect. The Galibal dialect group occupied the area between the McPherson Range in the north, tributaries of the Richmond River (Shannon Brook & Mongogare Creek) to the south, the Richmond Range to the west and the Tweed and Mackellar Ranges to the east (Crowley 1978). Land belonged to clan groups whose boundaries had been established in mythology (Creamer and Godwin 1984). A group of families might make up a clan or 'horde' which was a land holding group occupying a distinct territory. These clan territories have been described on the coastal plain by Ainsworth (1922) on the lower Richmond and Bray (1901) for the coastal and upper Tweed Valley. A loose confederation of clan groups recognised a wider social and linguistic association. Tindale (1974) places the Galibal dialect group within the territory of the 'Badjalang' which included the greater part of the Clarence and Richmond River floodplains.

6.2 Previous Indigenous Cultural Heritage/Archaeological Assessments

The purpose of a review of previous archaeological and broader Aboriginal cultural heritage assessments is to provide insights into the potential types and locations of sites to be found in the wider locality. However the information must be used bearing in mind the topography, access to food and material resources and impacts of European land uses. It is seldom that the background of assessment purpose, environmental, historical and social contexts between one area of assessment and another would allow the simple extrapolation of previous results to a current project assessment.

Cultural heritage assessments carried out in the vicinity of the Project Area include Piper (2004), Robins and Piper (2005), Piper (2009), Robins (2012) and Everick Heritage (2015). These reports can provide information on potential types and locations of sites to be found in the area. The first two assessments were conducted at a 4.5

km north-east of Casino off Spring Grove Road. The site proposed subdivision was situated on substantially cleared south facing hillslopes with ridges and gullies. The Piper (2004:26) assessment noted a low density artefact scatter on a low ridge falling to the Richmond River flood plain. Further investigations the following year (Robins and Piper 2005) did not reveal any additional Aboriginal cultural heritage.

The Piper (2009) cultural heritage assessment was conducted at Nammoona, North Casino. An archaeological survey of the area was undertaken by the A Piper and Mr Bill Walker, the Sites Officer for the Casino Boolangle LALC. The survey identified two Aboriginal sites (Scarred Tree One (Nammoona 1) and Scarred Tree Two (Nammoona 2), which were registered with OEH AHIMS. Three scarred trees were recorded immediately beyond the study area boundaries. No other Aboriginal sites or items of historic (non-Indigenous) cultural heritage were located.

The Robins (et al 2012) assessment north-west of Casino was of a range of wastewater treatment infrastructure, including for the installation of pipes, treatment tanks and irrigation works. No aboriginal objects or places were identified in this assessment. Ground surface visibility was poor to fair, with most of the subject lands being highly disturbed. During the assessment an artefact scatter also containing hearth stones was located on slopes to the Richmond River. This site comprised a low density artefact scatter on a river terrace located approximately 30m west of the Richmond River.

The floodplain at the base of the slope was, before it was drained, an extensive area of wetland (Clarence Randall pers. comm. 2011). The site was thus located on relatively high ground between the Richmond River and the wetlands at the base of the hill. The site comprised approximately nine artefacts, a river pebble and a number of hearth fragments. The artefacts comprised one silcrete core, one silcrete micro-core, one silcrete retouched flake, two silcrete flakes, a silcrete pebble, and a chalcedony micro-core. Scattered amongst the artefacts were numerous small fragments (maximum size c. 7 cm) of orange clay hearthstone fragments.

The site significance assessment concluded. This site, though small and disturbed, is an interesting one. Few archaeological sites have been recorded near the river in this locality, although it is a logical place for site location. It is close to permanent water and a range of resources from a number of different resources. The raw materials are diverse and from different localities. The chalcedony possibly comes from further east where sources of this material have been recorded. The silcrete is not local and possibly comes from the ranges to the north. Clay heat retainers are also not a common feature of sites in the region (Robins et al 2012:77-79).

Barton 1996 and 1998 conducted archaeological surveys over proposed quarry locations at Cedar Point five kilometres south of Kyogle. The study areas were grazing lands on a weathered basalt ridge overlooking the Richmond River floodplain. "…Two archaeological scarred trees were located in the Calill Quarry study area…"

(Benton 1996: 6). Both scars were elongated in shape, on mahogany trees. A concurrent archaeological study at Chadburn quarry five kilometres to the east of Kyogle found no archaeological sites.

A cultural heritage assessment at Dobies Bight in relation to a quarry expansion proposal over approximately 35ha of Kangaroo Creek sand stone based low back hills to the Richmond River floodplain, found no evidence of Aboriginal sites (Everick Heritage 2013).

A desktop study for Transgrid by Ozark summarised the Aboriginal sites data from DECCW as consisting of two clusters of sites at Casino and Dyraaba to the west and commenting on the surprising lack of registered sites in an area of considerable development. The report makes reference to an Aboriginal resource gathering site at Greys Lane (DECCW#04-4-0124) on the south side of the Richmond River and a cluster of five scarred trees (DECCW # 04-4-0031-35) is recorded at Wooroowoolgen west of Casino. Clusters of rock shelter art painting, engraving and ceremonial sites are recorded at Dyraaba (Ozark 2009: 12-13). Site 04-4-0124 is the nearest to the Project Area and this description supplements the AHIMS extensive search.

The Bora Ridge bora ring is located 7 km north-west of the Moonimba Ridge on a low spur onto the Richmond River floodplain. Sources indicate it was last used in approximately the 1890's. A Primary School occupied part of the ceremonial ring until its closure. The ring bank is now fenced but indistinguishable due to tree growth. McBryde refers to three bora rings at Casino one at north Casino, Bentley and one unnamed location at Casino. She also records literary references to bora rings at Busby's Flat and Wyan in the Richmond Ranges (McBryde 1974: 57).

The few sites recorded to date are as much a reflection of the lack of systematic archaeological surveys as the lack of archaeological sites. The Sites of Significance Survey Team recorded a large number of ceremonial, spiritual and natural mythological sites between 1974 and the 1980s. These include natural mythological sites, bora ceremonial areas, increase sites (djurbils) and various other types of sites, of which details remain confidential. The majority of these sites are located in the northern regions of the Galibal territory. A member of that team described the concentration of sites in the Bundjalung tribal area as, '… one of the densest concentrations of sites of significance to Aboriginal people in New South Wales' (Creamer: correspondence NPWS 1979).

6.3 Predictive Modelling

The predictive model is based upon the review of the results of previous assessments, archaeological and ethno historical research, an assessment of relationships between landscapes and their Aboriginal land use potential, Aboriginal community information and the review of the current AHIMS site listings. From the review it is clear that there is at least a low/moderate potential association between the low hills landform unit and Aboriginal sites. As the subject lands fall within this landform there is a potential for archaeological sites to occur. The Project Area

is primarily elevated former grazing land with an uncertain proportion of cultivation due in part to the poorer sandy soils. There is a potential at least for the following types of archaeological sites to occur within the Project Area, however European land use practices will have a direct bearing on site survivability.

The anticipated archaeological sites in this area will be: single artefacts and artefact scatters associated with camps along the Richmond River. Due to the distance of the Project Area from the River it is unlikely that the Project Area would comprise a focus of camping, however there may have been some ancillary activities which may have resulted in the discard of stone artefacts.

Land clearing over the Project Area would also have caused the destruction of modified trees and ceremonial sites.

7. NON-INDIGENOUS CULTURAL CONTEXT

Casino, originally known as 'The Falls', is considered the oldest settlement on the Richmond River. In 1840 Henry Clay and George Stapleton took up 30,000 acres of rich grazing land along the east bank of the Richmond River, and formed the station they named Cassino (Daley 1968:24). When inspected just a year later, they had already found a level track to Grafton, built a weatherboard house, outbuildings, a piggery, and had land under cultivation (Daley 1968:25). For a year Clay and Stapleton were the only squatters in the whole of the Richmond Valley (Daley 1968:25). However, by 1848 the area had also become the centre of the squatting runs of the Richmond and Upper Clarence (Richmond Valley Council 2007), with 21 stations taking up all the good grazing land on the Richmond (Daley 1968:43). During this period, cedar cutters arrived in the Richmond Valley, travelling overland when cedar became hard to get around the Clarence River. Camps were formed along the network of creeks that flowed through the valley, and schooners came up the river to load the logs (Daley 1968:33).

The village of Casino, in the heart of the prosperous grazing district and on the main road between Grafton, and Moreton Bay and Ipswich, became a popular settlement (Daley 1968:69). Nine and a half square miles around the village had been reserved to keep the squatters from encroaching, and allotments and farms were sold for above the minimum price (Daley 1968:69). The building of a Post Office in 1849 and a Courthouse in 1852 had proved the beginnings of a township, and by the late 1880s several substantial brick buildings demonstrated the growing importance of Casino in the region. In the 1900s the large squatting runs were subdivided into dairy farms and the construction of the railway brought additional prosperity (Richmond Valley Council 2007).

8. FIELD SURVEY: ABORIGINAL CULTURAL HERITAGE

8.1 Survey Team

The Project Area is within the area administered for Aboriginal cultural heritage purposes by the Casino Boolangle Local Aboriginal Land Council (CBLALC). A pedestrian survey for Aboriginal cultural heritage of the Project Area was undertaken by Graham Randall Sites Officer of the CBLALC, with Senior Archaeologist Tim Hill of Everick Heritage Consultants, on the 1 August 2017.

8.2 Assessment Methods

The field assessment methods aimed to inspect exposed ground surfaces as conditions would allow; to record any archaeological material found and assess its significance; and assess the potential for concealed Aboriginal archaeological sites. The assessment also aims to establish if there are sites or areas of a non-archaeological nature significant to the Aboriginal community. At this stage of the assessment this is through consultation with Casino-Boolangle LALC.

Photographs were taken as a record of general features and conditions and to document the degree of surface visibility. Notes were made of the degree of surface visibility, the area of visibility, ground cover, land uses and any other relevant features. Hand held GPS (GDA 94 datum) was used to record the extent of survey coverage except where fence lines, google and topographic mapping provided clear reference points.

Archaeological features may include evidence of stone artefact scatters or individual artefacts, traces of bone (human and animal), shell deposits, scarred trees and ash-stained earth that might represent fireplaces. When artefacts are found their location was recorded with a GPS, photographed and generally described. A note is made of artefact types and their numbers. General characteristics of the artefacts are noted including raw material type and condition including the degree of weathering and heat cracking. The length, width and thickness of a number of artefacts are recorded. Woodland areas with ‘old growth’ trees would be inspected for evidence of Aboriginal scarring due to bark removal or holes/notches cut into bark and tap wood. The details would be logged on standard OEH Site Recording Forms for registration with the OEH AHIMS.

8.3 Constraints to Site Detection

The landform pattern of this locality is alluvial floodplain. The topography of the Project Area is uniform with the exception of relatively small man-made drains along the western boundary of the Project Area.

A summary of the landscape features and broad disturbance types are listed in Table 1.

Table 1: Summary of Environment and Ground Disturbance for Survey Units.

Survey Unit	*Environmental Description*	*Ground Disturbance Summary*
LANDFORM Alluvial floodplain	Total Area: ca 5.2 ha. Slope classes: level.	Tree clearing, Grazing, remnants of old gardens.

An assessment of the constraints to site detection is made to assist in formulating a view as to the effectiveness of the field inspection to find Aboriginal sites and cultural materials. It also assists in the forming of a view of the likelihood of concealed sites, keeping in mind the potential attributes of the location to Aboriginal people and a specific knowledge of the disturbance impacts that European land uses and natural processes may have had on the 'survivability' of Aboriginal sites in a Project Area

The constraints to site detection are almost always most influenced by post European settlement land uses and seldom by natural erosion processes. The area of surface exposure and the degree of surface visibility within exposed surfaces are usually the product of 'recent' land uses e.g. land clearing, ploughing, road construction, natural erosion and accelerated (manmade) erosion (McDonald et .al. 1990:92).

In this case the major 'manmade' constraints to Aboriginal site survivability, if they exist, appear to be the impacts of land clearing, grazing and an unknown degree of cultivation.

8.4 Survey Coverage

To achieve as thorough and effective an archaeological field assessment as possible a systematic ground survey of all surfaces is the best method to achieve effective coverage. However in the Project Area conditions due to closed ground covers of grass prevented a systematic search. Therefore an opportunistic search of any exposed ground surfaces was the only means practically possible. These were limited to small shaded areas. Old growth trees were inspected for evidence of Aboriginal scarring or carving.

The field conditions for survey were significantly constrained by grass cover, which was waist high across the Project Area at the time of survey. Ground surface Visibility was less than 10%. As such systematic visual inspection was not undertaken.

Table 2 presents information on the extent to which survey data provides sufficient evidence for an evaluation of the distribution of archaeological materials across the Project Area. The evaluation of survey coverage provides a

measure of the potential for each of the survey units to reveal archaeological evidence. The calculations in Table 2 do not provide an exact percentage of area, but a reasonable estimate.

Table 2: Survey Coverage.

Unit	Area (Ha)	Exposure %	Area of Exposure (Ha)	Visibility %	Area for Site Detection (Ha)	% of Lf for Site Detection	Sites Found
Alluvial flat	5.2	5	0.26	5	0.013	0.25	0

The areas of exposure and the subsequent proportion of the survey unit where site detection is possible, are low for archaeological assessments but common in this locality, where exposure percentages of less than 10% are the norm.

Figure 4: General survey conditions on western section of Project Area.

Figure 5: Typical grass cover including mature weeds and introduced grasses.

Figure 6: HSG 1. Typical grass cover on southern boundary.

Figure 7: Stand of regrowth trees.

9. RESULTS

9.1 INDIGENOUS CULTURAL HERITAGE ASSESSMENT

As a result of the desktop study and field inspection the following conclusions were established with Graham Randall, the Casino Boolangle LALC Sites Officer.

e) No Indigenous cultural heritage sites or relics were identified within the Project Area.

f) No areas have been identified that are considered to contain potential archaeological deposits of significant Aboriginal heritage, such that they warrant archaeological excavation. The project area is located more than 200 metres from the Richmond River and as such is not considered a Potential Archaeological Deposit.

g) The Grays Lane Camp is widely known in the Aboriginal community and is located to the north of the Project Area near the old crossing of the Richmond River. The camp was an entrance point whereby Aboriginal people registered with Police before being provided entry to Casino township.

h) The Project Area has been disturbed in a manner which constitutes 'disturbance' within the meaning of the Due Diligence Code and is consistent with the Due Diligence Code.

9.2 NON INDIGENOUS HERITAGE ASSESSMENT

No items of local historic significance were identified within the Project Area. The Casino Municipality marker is located at the intersection of Hare St (Coraki Road) and Boundary Road is noted. This small concrete marker is located within the road reserve to the immediate east of the Project Area boundary- delineated by a rural fence. The marker is approximately 1m north of a storm water drain.

Graham indicated that four old houses existed in the south-western portion of the Project Area along the Coraki Road. Two of these houses were lived in by the King and Roberts families. The only remnants of these houses were some vine type rose bushes and an old stump. These items are not understood to be of significance to the Aboriginal community.

10. DUE DILIGENCE ASSESSMENT INDIGENOUS HERITAGE

The purpose of the Due Diligence Assessment is to determine if there are areas that have a particular potential to contain Aboriginal cultural heritage and to assess whether development proposals will destructively impact upon known and or concealed Aboriginal heritage sites.

As discussed in Section 2, the Due Diligence Code recommends a staged analysis of cultural and archaeological factors. The information below documents the analysis of the Project Area when compared against these guidelines.

10.1 Step 1: Will the activity disturb the ground surface?

Yes. As a result of the rezoning it is expected that there will be a development application for the construction of residential dwellings. These works will disturb the ground surface to a moderate degree and will include construction of roads, drains, essential infrastructure (plumbing and electricity), residential dwellings and landscaping.

10.2 Step 2a: Search of AHIMS Database

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 24 July 2017 (Client Service ID 292412) (Appendix B). The search returned one registered Aboriginal site (AHIMS# 04-4-0124) within the search area, however it is listed with information restrictions. Subsequent correspondence with OEH (Appendix 3) indicated that the site was a Resource and Gathering place referred to as the 'Grays Lane Camp'. The Grays Lane Camp is widely known in the Aboriginal community and is located to the north of the Project Area near the old crossing of the Richmond River. The camp was an entrance point whereby Aboriginal people registered with Police before been provided entry to Casino township.

10.3 Step 2b: Is the activity in an area where landscape features indicate the presence of Aboriginal cultural heritage?

Having regard to:

a) the nature of Aboriginal occupation in the region;

b) the Project Area's proximity to resources; and

c) the Project Area's original vegetation, soils and topography.

The Project Area is a riverine environment which originally supported dense forest in the immediate river and creeks together with open woodland and grasslands (that became sought after by European pastoralists) on higher ground. The main topographic features are floodplains where prior to drainage schemes lagoons and vast swamps would have provided a wide range of aquatic and terrestrial food sources.

It is noted that Aboriginal sites are recorded within the upper Richmond River Valley along the riverfront and on nearby ridgelines. However, the Project Area is located in an area more than 200m from water and as such is not within an area identified by the Due Diligence Code as requiring additional investigation.

10.4 Step 2c: Is there evidence of past ground disturbance?

The Project Area is within an area which meets the definition of 'Disturbed' under the Due Diligence Code of Practice. The Due Diligence Code of Practice (OEH 2010) provides the following definition of 'disturbed land';

> "*Land is disturbed if it has been the subject of human activity that has changed the land surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water and sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks*" (OEH 2010:18)

The proposed crossing alignment will be mostly located within land subject to the following types of disturbance;

- Forest clearing;
- Low intensity agriculture;
- Drainage works;
- Historic dwelling including gardens; and
- Dumping of fill and soil material.

10.5 Additional Steps

A site inspection was completed with Graham Randall from Casino Bolangle LALC which identified did not identify any Aboriginal sites of significance within the Project Area.

11. RECOMMENDATIONS

The Consultant is of the opinion that the proposed works are unlikely to lead to harm to Aboriginal objects. Whilst additional archaeological investigations are not considered necessary, as a precautionary measure the following recommendations are provided:

Recommendation 1: Cultural Heritage Induction

It is recommended that a cultural heritage induction is provided to all contractors who are engaged as site supervisors or act in senior operational roles. The purpose of the cultural heritage induction is to;

- Make staff aware of the survey effort to date and potential for the Project Area to contain Aboriginal sites;
- Provide sufficient training for staff to identify Aboriginal objects should they be impacted during construction works; and
- Ensure that staff are aware of response procedures in the event of any harm to Aboriginal sites during construction works.

It is recommended that eh cultural heritage induction is provided by a suitably experienced member of the Aboriginal community or a qualified archaeologist.

Recommendation 2: Aboriginal Object Find Procedure.

If it is suspected that Aboriginal material has been uncovered as a result of development activities within the Project Area:

e) work in the surrounding area is to stop immediately;

f) a temporary fence is to be erected around the site, with a buffer zone of at least 10 metres around the known edge of the site;

g) an appropriately qualified archaeological consultant is to be engaged to identify the material; and

h) if the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the *ACHCRP Guidelines* (2010).

Should the material be identified as an Aboriginal object and the proposed works cannot be amended to avoid the Aboriginal site an Aboriginal Heritage Impact Permit (AHIP) would be required prior to recommencement of works in the vicinity of the site. Consultation with stakeholders from the Aboriginal community would be required as a part of the AHIP application process.

Recommendation 3: Aboriginal Human Remains

Although it is unlikely that Human Remains will be located at any stage during earthworks within the Project Area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The Site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Woodburn), the Bandjalang People #2 and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the Site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

Recommendation 4: Conservation Principles

It is recommended that all effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.

Recommendation 5: Casino Municipality marker

No items of local historic significance were identified within the Project Area. The Casino Municipality marker is located at the intersection of Hare St (Coraki Road) and Boundary Road is noted. This small concrete marker is located within the road reserve to the immediate east of the Project Area boundary- delineated by a rural fence.

No works should be undertaken within 5m of this marker without additional assessment.

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APPENDIX A: CORRESPONDANCE WITH ABORIGINAL COMMUNITY

From: Tim Hill
Sent: Tuesday, 25 July 2017 9:20 AM
To: 'ceo@cblalc.com.au' <ceo@cblalc.com.au>
Cc: 'Robert Mazlin' <r.mazlin@everick.com.au>
Subject: Rezoning application- Lennox St Casino

Hi Paula
Everick Heritage Consultants has been engaged by Newton Denny Chapelle to undertake a Due Diligence assessment for the property at the eastern end of Lennox Street, Casino. The Project Area is identified as Lots 85, 86 and 87 on DP755627 and Lots 1 and 2 on DP545750 comprising 5.2 hectares. Please see attached a map. The proponent is applying to rezone the land at this stage.

Can you please confirm the availability of a sites officer next week- any day except Wednesday? Or give me a call to discuss if you have additional questions.

Ta

Tim Hill BA (Hons.)

Senior Archaeologist

EVERICK Heritage Consultants Pty Ltd
ABN 78102206682

PO Box 200
Coffs Harbour NSW 2450

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Mob: 0422 309 822
Fax: (07) 3368 2440
Email: t.hill@everick.com.au

Web: www.everick.com.au

APPENDIX B: AHIMS EXTENSIVE SEARCH REPORT

Office of Environment & Heritage

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : EV.574
Client Service ID : 292412

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
04-4-0124	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			

Contact Mr.Lauire Wlison **Recorders** Damien Hofmeyer,Mr.Ashley Moran **Permits**

Report generated by AHIMS Web Service on 24/07/2017 for Serena Love for the following area at Lot : 86, DP:DP755627 with a Buffer of 1000 meters. Additional Info : Site location. Number of Aboriginal sites and Aboriginal objects found is 1

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

Page 1 of 1

APPENDIX 3: CORRESPONDENCE WITH AHIMS

From: David Gordon [mailto:David.Gordon@environment.nsw.gov.au]
Sent: Thursday, 27 July 2017 8:59 AM
To: Tim Hill <t.hill@everick.net.au>
Subject: RE: AHIM extensive search- Lennox St Casino

Hi Tim,

I can confirm that it is recorded as an Aboriginal Resource and Gathering Site.

The Sites name is Grays Lane Camp.

Thanks

David

From: Tim Hill [mailto:t.hill@everick.net.au]

Sent: Tuesday, 25 July 2017 8:32 AM

To: CCHD Information Systems & Assessment Mailbox <ahims@environment.nsw.gov.au>

Cc: Roger Mehr <Roger.Mehr@environment.nsw.gov.au>; Robert Mazlin <r.mazlin@everick.com.au>

Subject: AHIM extensive search- Lennox St Casino

Hi
Please see attached an extensive search for Lennox St Casino, undertake yesterday. The site has a complete restriction applied and I understand that the informant has passed away. I am aware that the work undertaken by Damien Hoffmeir with Uncle Laurie Wilson was largely a cultural mapping/ oral history project and included registration of a number of sites which are not Aboriginal Objects.

Having consideration for our clients obligations under the Due Diligence Code of Practice, can you please provide additional information as to wether this site relates to an Aboriginal object or is a resource use/ gathering place?

Please call to discuss if you need.

Tim Hill BA (Hons.)

Senior Archaeologist

EVERICK Heritage Consultants Pty Ltd
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Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 4

Agricultural Assessment

Allen and Associates

Agricultural & Property
Management Consultants

Allen & Associates

Allen & Associates
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Alstonville NSW 2477

P: 0416 241 513
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ABN 14 625 275 025

AGRICULTURAL ASSESSMENT

on

Lots 85, 86 & 87 DP 755627
And
Lots 1 & 2 DP 545750

Lennox Street, Casino

Prepared by:

John Allen
October 2017

TABLE OF CONTENTS

LIST OF APPENDICES

1 EXECUTIVE SUMMARY

1. Allen & Associates have been requested to undertake an agricultural assessment of 4.0 hectares of land situated at Lennox Street and Boundary Street Casino. The land is currently zoned RU1 (Primary Production) and it is the intent of the applicant to rezone the land to R1 (General Residential) to allow residential development. The land is also as a part of the Northern Rivers Farmland Project classified as Regionally Significant Farmland.

2. The agricultural suitability classification undertaken as a part of this report classified the lands as Class 4 land. This is in contrast to the Northern Rivers Farmland Protection Project which has classified the land as Regionally Significant Farmland. For a number of reasons and in contrast to the methodology of the Northern Rivers Farmland Protection Project (NRFPP) it is believed that the data obtained from this current study is more valid for the purposes of accurately determining the agricultural suitability of the site. In particular:

- This study conducted field inspections and observations that were specific to the site. In contrast the NRFPP methodology relied on field inspections and observations that were specific to the wider region or soil landscape.
- A much smaller mapping scale of 1:100,000 was utilised for the NRFPP. This is in contrast to the site specific inspection and study that was undertaken in order to prepare this report. The NRFPP acknowledges that because of the 1:100,000 mapping scale used that it may have unintentionally included inferior quality lands in the state or regional classification.
- The NRFPP indicates that the soils within the Leycester soil landscape (that is associated with the site) and that which is given a Regionally Significant classification are Black Earths. The site specific inspection in contrast determined the soils of the site to be poorly drained Weisenbodens. The Weisenboden soil type is not listed as an associated soil type within the NRFPP soil landscapes and variants selected for inclusion as important farmland.
- The NRFPP classifies land within the Leycester soil landscape as regionally significant farmland; that is the land has a capability classification of II to IV. Capability classes II to IV are characterised by land uses that require regular or at least rotational cultivation. Land within the site is not suited to cultivation of any kind; that is a capability class of VI. This capability classification corresponds to an Agricultural Land Classification of Class 4; that is land that is suited to grazing but not for cultivation.
- The land has a high risk of land use conflict due to being bounded on the west and north with existing residential lands. Applying a buffer zone between any suitable agriculture on the site and the sensitive and adjacent residential lands further reduces the amount of usable land that is available to agriculture.
- The site has an area of 4.0 hectares. The amount of usable land after accounting for a buffer zone (land use conflict avoidance strategy) would reduce the amount of usable land to approximately 3.3 hectares. Grazing enterprises have been shown to be the highest possible agricultural use for the site. Gross margin budgets available indicate a maximum annual income for the site of $1,147.34. This level of income is not adequate to support a family.

3. It is the conclusion of this report that the lands within the site are Class 4 lands. The land is not good quality agricultural land and the land so classified cannot be classified as Regionally Significant Farmland. As per the above information it is the belief that the NRFPP has unintentionally included land within the site in the category of Regionally Significant Farmland.

4. The removal of the agricultural zoning from this land and its alienation from agricultural use will not in any significant way detract from the total agricultural production potential of the region. The land is poor quality agricultural land and its rezoning will take pressure off other areas of land for similar development which may have a higher long term agricultural potential.

5. From an agricultural perspective, preservation of larger contiguous areas of higher quality prime agricultural lands that are separate to and situated some distance from the site for long term agricultural use is of a higher priority than preservation of this low quality land. Furthermore, the rezoning of this land will take pressure off other areas of land for similar development which may have a higher long term agricultural potential.

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2 INTRODUCTION

6. Allen & Associates have being requested by Newton Denny Chapelle to undertake an agricultural assessment of Lots 85, 86 and 87 of DP 755627 and Lots 1 and 2 of DP 545750. The lands (referred to as the "site" in this report) are situated at Lennox Street Casino.

7. This report is to accompany a proposal for a residential subdivision of the site. The Richmond Valley LEP 2012 zones the site as RU1 (Primary Production). The site is also classified as Regionally Significant Farmland as per the Northern Rivers Farmland Project.

8. The minimum lot size for land within the RU1 zone of the Richmond Valley Council is 40 hectares. It is therefore proposed as a part of this application to rezone the site to R1.

3 PROPERTY DESCRIPTION

3.1 General

9. A site inspection was undertaken on the 1st of September 2017 by the writer in order to prepare this report.

10. The site is located on the corner of Lennox Street and Boundary Street Casino. Refer to Appendix 1 which shows the location of the site. The total area of the site is approximately 4.0 hectares. The site is zoned as RU1 Primary Production. Refer to Appendix 2 for further information.

11. The site is currently unused and is characterised by native grasses and scattered stands of timber. Land uses surrounding the site vary between urban and low intensity agriculture. Refer to Appendix 3. Residential land is situated directly opposite and adjacent the western and northern boundaries of the site. These lands are an extension of the wider Casino township. Sports and Recreation (sporting fields) land use is situated further to the north. Grazing lands are situated to the north east, east and south east. The Casino Airport is located approximately 700 metres directly to the south.

12. The site and surrounding areas have excellent infrastructural services already established including capital city air services at both Ballina and Lismore, education facilities including a University at Lismore and a TAFE College at Wollongbar, national road transport works, post and telephone services, electricity supply and excellent goods and services suppliers in all the adjacent major centres etc.

3.2 Topography

13. The dominant landform pattern of the site is a Backplain which extends into a wider Alluvial Plain of the surrounding region. The site itself is located within a transitional area between the wider plain landform to the east and a small area of low, gentle rises directly to the west and in the vicinity of Hare Street.

14. As per the inherent nature of the topography of the land, the minimal degree of slope throughout the site means that there is a low associated soil erosion risk and on the basis of slope therefore the land is suited to regular and or continuous cultivation. Before making such a land use decision however, other site attributes such as soil type, drainage, buffer zone requirements and issues of practical land use management need also to be considered.

3.3 Climate

15. The climate of the region is subtropical with a generally wet summer and autumn followed by a dry winter and spring. Flood rains are common in the district and although rainfall tends to be seasonal excessive rain can occur in any season of the year. This is of particular relevance to the site with regard to the inherent soil type and associated internal drainage.

16. Temperatures are warm to hot in summer and this allows a long pasture and crop growing season when moisture levels permit. Lower elevated lands (land to the north of Plain Station Creek Road and lower footslopes to the south of this road) are frost prone.

3.4 Soil Type

17. Inspection of the site revealed that the soil type inherent to the land is a Wiesenboden. Wiesenboden soils are similar to Black Earth soils, the exception being the existence of a duller colour B horizon[1]. Black Earths for reference have a uniform clay profile with colours ranging from dark grey to very dark brown or black. Weisenboden soils are typically associated with Black Earths in more poorly drained sites[2].

18. In this instance the Weisenboden soil identified has approximately 5cm of dark brown to black light clay overlies a dark brown light medium clay that becomes a heavier clay at a depth of approximately 40cm. Orange brown to reddish mottling was observed throughout the B horizon or subsoil. The soil was found to be very moist at a depth of 30cm and below and was saturated at a depth of approximately 70cm.

19. Appendix 4 is an extract from the soils landscape mapping of the Lismore-Ballina area and shows that all of the site is included within the Leycester soil landscape[3]. Soils within this landscape have been categorised by this publication as deep, poorly to moderately well drained alluvial Black Earths and Structured Clays throughout the floodplains and in less well-drained areas such as slope-alluvial plain boundaries and ox-bow floors, poorly drained Weisenbodens.

20. The site inspection and associated soil survey undertaken as a part of this report agrees with the findings of the DLWC publication.

4 AGRICULTURAL CLASSIFICATION

21. There are a number of published classification systems that can be used to classify the land into varying classes according to its quality and potential land use. These include for instance the Rural Land Capability[4] system and the Rural Land Evaluation Manual[5]. The Rural Land Capability system classifies land into eight classes known as land capability classes while the Rural Land Evaluation Manual classifies land into six classes known as agricultural suitability classes.

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[1] Stephens *opcit*
[2] Charman, P.E.V., Murphy, B.W. (eds). (1991), *Soils. Their Properties and Management*. A Soil Conservation Handbook for New South Wales. Sydney University Press.
[3] Morand, D.T. (1994) *Soil Landscapes of the Lismore-Ballina 1:100000 Sheet*. Department of Conservation and Land Management.
[4] Emery, K.A. (1985). *Rural Land Capability Mapping*, Soil Conservation Service of NSW.
[5] New South Wales Department of Planning (1988), *RLEM. Rural Land Evaluation Manual*, Sydney.

22. The six separate classes identified within the Rural Land Evaluation Manual are outlined below.

Class 1

Arable land suitable for intensive cultivation where constraints to sustained high levels of agricultural production are minor or absent.

Class 2

Arable land suitable for regular cultivation for crops but not suited to continuous cultivation. It has a moderate to high suitability for agriculture but edaphic (soil factors) or environmental constraints reduce the overall level of production and may limit the cropping phase to a rotation with sown pastures.

Class 3

Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with pasture. The overall production level is moderate because of edaphic or environmental constraints. Erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation and soil conservation or drainage works may be required.

Class 4

Land suitable for grazing but not for cultivation. Agriculture is based on native pastures or improved pastures established using minimum tillage techniques. Production may be seasonally high but the overall production level is low as a result of major environmental constraints.

Class 5

Land unsuitable for agriculture or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors, which preclude land improvement.

Specialist Class

Land which, because of a combination of climate and soil, is well suited to intensive production of a crop or a narrow range of crops whose special requirements limit their successful culture to such land. This class may include some lands formerly described as unique.

23. Using the RLEM classification given, land within the site is classified as being Class 4 land; that is it is land suitable for grazing but not for cultivation.

24. The principle factors in the land classification given in this instance are the inherent soil type and associated drainage characteristics and also the issue of land use conflict.

4.1 Poor Soil Drainage

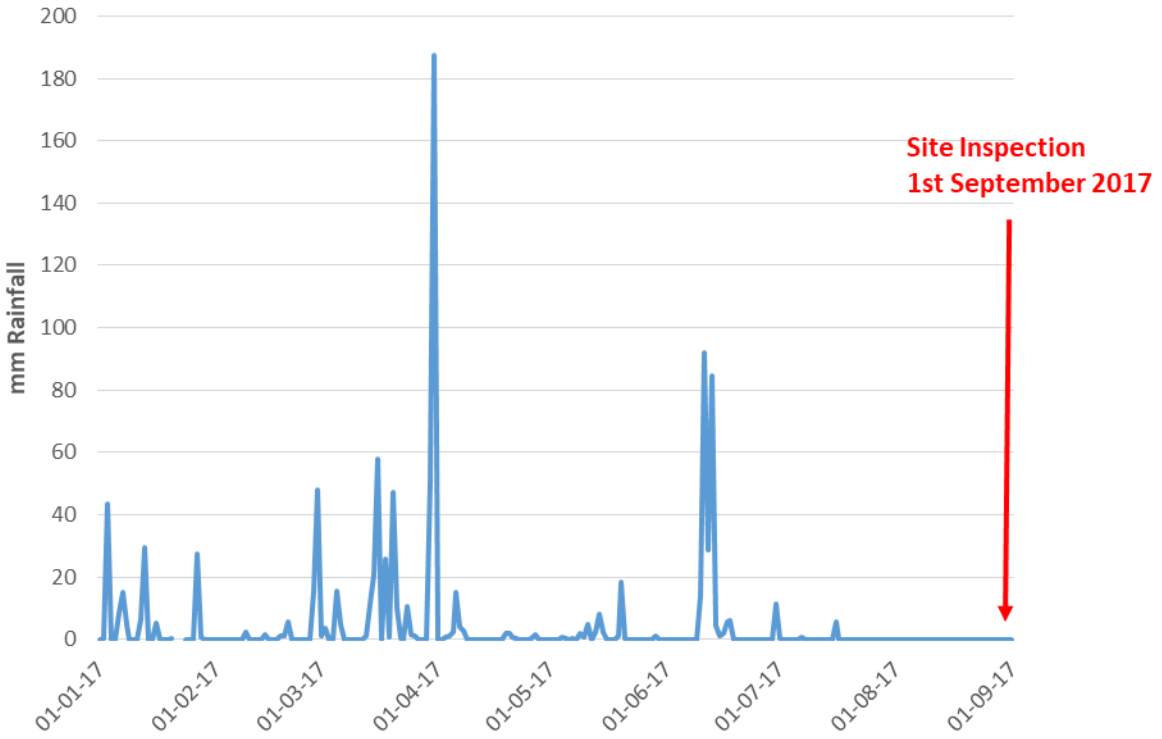
25. The site was inspected on the 1st of September 2007. The earliest recorded rainfall (taken from the Casino Airport[6]) prior to this date was on the 16th of July, 46 days previous to this when 5.8mm of rainfall was recorded. The first previous period of significant rainfall prior to the site inspection was 75 days previous to this when approximately 238mm of rainfall was received at Casino Airport (and presumably the site) over a 9 day period (10th of June to the 18th of June). Refer to Figure 1 for further information.

26. Even with the extended dry period being experienced at the site prior to the site inspection the soil was still found to be wet to saturated at depth upon excavation.

27. On this land then, only moderate levels of rainfall are necessary to saturate the soil type (Weisenboden) with water. Once the soil is saturated it cannot be cultivated and if it is growing a crop then the growth of the crop will be adversely affected. Furthermore the high seasonal rainfall of the region will usually mean that these lower flat lands are waterlogged for extended periods of the year. Overall it is believed that the use of these soils for cultivated agriculture is severely restricted by poor subsoil drainage.

[6]http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=136&p_display_type=dailyDataFile&p_startYear=&p_c=&p_stn_num=058208

Figure 1: Daily rainfall - Casino Airport. 1/1/17 - 1/9/17



4.2 Land Use Conflict

28. There is always concern regarding the potential conflict that may arise from developments that are non-agricultural in nature in close association with existing agricultural enterprises.

29. In this particular instance, landuses that immediately surround the site are identified as urban (residential, sports and recreation, airport) and agricultural (grazing). Refer to Appendix 3. The agricultural land uses (grazing) are situated to the east of the site; that is to the east of the Casino township.

30. One of the most widely used management tools in situations of this nature are buffer zones which are incorporated between potentially conflicting land uses. The Living and Working in Rural Areas handbook[7] provides recommended design specifications for buffer zones depending on the interacting land use/s.

31. As per the land classification which is given for the site (Class 4) an obvious assumed land use choice is grazing such as cattle (beef) grazing enterprises. Assuming then a grazing enterprise within the site and the existing residential lands to the west and north a 50 metre desirable buffer is provided as a recommended separation distance for the purposes of conflict avoidance[8]. Accounting then for this 50 metre buffer zone this then reduces the amount of usable land for grazing purposes to approximately 3.3 hectares from 4.0 hectares. It is not believed that a 3.3 hectare grazing operation is a sustainable land use choice from an economic point of view.

32. To provide another example of the effect of buffer zone requirements on this particular land, cropping (although shown not to be suited to the land due to poor soil drainage) is used as a

[7] Learmonth, R., Whitehead, R., Boyd, B and Fletcher, S (2007), *Living and Working in Rural Areas*. Centre for Coastal Agricultural Landscapes
[8] *ibid*

potential land use. To provide an adequate zone of separation between cropping enterprises and residential areas, 300 metres is the recommended buffer zone[9]. A required buffer zone of this nature would (even if the land was capable) totally preclude cropping enterprises from this particular site as all of the land within the site would fall within the required buffer zone – there is approximately 30 metres from the site boundary to the houses to the north and west and the site itself is approximately only 200 metres wide/long.

5 POTENTIAL AGRICULTURAL LAND USE

33. This report has shown that the land within the site has a low agricultural potential due to poor soil drainage and a high risk of land use conflict. Grazing on native pastures or improved pastures established using minimum tillage is the highest agricultural use possible. Low intensity grazing operations are by their very nature not very lucrative per unit area of land. The site is 4.0 hectares in area in total, with approximately only 3.3 hectares available for purposeful grazing (buffer zone requirement), and so the use of the land for such a purpose would constitute a hobby farm situation at best rather than a purposeful commercial agricultural venture.

34. Figure 2 provides gross margin comparisons between different beef cattle enterprises for NSW. Depending on the enterprise adopted a gross margin between $134.80 per hectare and $347.68 per hectare is theoretically possible. In a theoretical scenario that assumed the highest gross margin enterprise ($347.68 – grow out early weaned calves) was undertaken on the land a total annual income of $1,147.34 is potentially achievable. It is not believed that this level of income is adequate to support a family without supplementary income.

Figure 2: Gross Margins - Beef Cattle Enterprises

NSW GOVERNMENT | Primary Industries

Summary of gross margins for NSW beef enterprises, Feb 2017

Enterprise	No. of hectares		GM/ha	GM/DSE
	imp	nat		
Inland Weaners		372	189.14	47.29
Coastal weaners- unimproved pasture		254	134.80	33.77
Coastal weaners- improved pasture	173		316.10	39.57
Butcher vealers	209		230.98	28.94
MSA at 20 mths	80	306	205.96	42.70
Feeder steers		424	206.58	51.71
Grow out early weaned calves 160-340kg	80		347.68	43.66
Growing out steers 240-460kg	108		279.42	34.97
Jap Ox	92	400	196.93	41.49

Gross Margins quoted include pasture costs.

Individual budgets also report gross margins without pasture costs.

[9] *ibid*

5.1 Loss of Agricultural Land

35. Rezoning of the land within the site to a non-agricultural purpose would result in the removal of the land from future agricultural production. For a number of reasons it is not considered that this will have a significant effect on the long term agricultural production potential of the wider region.

36. All of the land within the site has been identified to be low value agricultural land (Class 4) with little inherent existing or future production potential. Given the poor agricultural quality of the land, its removal from an agricultural zoning and or land use will not in any significant way detract from the total agricultural production potential of the region.

37. From an agricultural perspective preservation of larger contiguous areas of higher quality prime agricultural lands that are separate to and situated some distance from the site for long term agricultural use is of a higher priority than preservation of this low quality land. Furthermore, rezoning of the land will take pressure off other areas of land for similar development which may have a higher long term agricultural potential.

6 NORTHERN RIVERS FARMLAND PROTECTION PROJECT

38. Appendix 5 shows an extract of the Northern Rivers Farmland Protection Project (abbreviated from this point within this report as NRFPP) 1:100,000 mapping and indicates that all of the site is classified as Regionally Significant farmland.

39. The underlying aim of the NRFPP is to protect important agricultural land from the encroachment of non-agricultural land uses that include residential for example. Under the Project, important agricultural lands have been classified as significant farmland at either a regional or state level.

6.1 Northern Rivers Farmland Protection Project Mapping Methodology

40. In order to identify and map the better quality agricultural lands at a state and regional level, information from a variety of sources was analysed. These sources include: Rural Land Capability mapping (SCS/DLWC), Agricultural Land Classification/Suitability Mapping (DLWC), 1:100,000 Soil Landscape Mapping, Agricultural Industry Mapping and Multi-attribute mapping (DLWC)[10]. After analysis of these datasets, it was concluded that the soil landscape data and associated mapping (scaled at 1:100,000) was the most suitable dataset available for identifying broad farmland protection areas[11].

6.2 Sources of Potential Error, Mapping and Data Inconsistencies

41. The NRFPP aimed to identify broad areas of significant farmland on a regional scale. Subsequently the farmland significance identified may not necessarily be accurate at the property scale.[12] In contrast, this report involved field observations and testing at the property level; that is the field observations undertaken were site specific. For this reason it is believed that the data obtained from this study is more valid for the purposes of accurately determining the agricultural suitability of the site in contrast to the methodology of the NRFPP. Further explanations follow in the information below.

[10] Department of Infrastructure, Planning and Natural Resources and NSW Department of Primary Industries, 2004, *Northern Rivers Farmland Protection Project – Proposals for Protecting Farmland.*
[11] *ibid.*
[12] Department of Infrastructure, Planning and Natural Resources and NSW Department of Primary Industries, 2004, *Northern Rivers Farmland Protection Project – Mapping Methodology*.

- **NRFPP methodology – mapping scale**

44. The NRFPP mapping is published at a scale of 1:100,000. In contrast the site specific land classification given for this site was determined on the basis of site specific investigations. Larger scale mapping is more likely to detect localised changes in mapped attributes in comparison to smaller scale mapping (1:100,000). Furthermore it is acknowledged that agricultural land classification maps produced at small scales (1:50,000 to 1:100,000) are inappropriate for making decisions relating to individual development applications or minor rezoning proposals[13].

42. The Farmland Protection mapping methodology has similarly to the 1:100,000 soil landscapes mapping acknowledged its own limitations with the mapping process, that inconsistencies are likely and that inaccuracies at a property scale are expected[14]. Furthermore, the project concedes that the maps may have unintentionally included inferior quality lands in the state or regional classifications[15] and this is principally due to the scale (1:100,000) at which the map was prepared.

- **NRFPP methodology - Table 1 – Soil landscapes & variants in the Northern Rivers selected for inclusion as important farmland**

43. As per the DLWC soil mapping the site is shown to be located within the mapped Leycester soil landscape. The dominant soil type within this soil landscape is identified as a Black Earth which occurs throughout the associated wider alluvial flood plains. The poorly drained Weisenboden soil type is also included within the Leycester soil landscape, although it is identified as being located within isolated slope-alluvial plain boundaries (as per the site) and ox-bow floors[16].

44. The above is of significance because in *Table 1 – Soil landscapes & variants in the Northern Rivers selected for inclusion as important farmland* of the Northern Rivers Farmland Protection Project Methodology Report, the Black Earth soil type is the only soil type that is listed in the Leycester soil landscape. The Weisenboden soil type is not listed as an included soil type within the Leycester soil landscape selected for inclusion as important farmland.

45. In Table 1 of the NRFPP methodology document landscape drainage for the Leycester soil landscape is identified as being moderate. Alternatively, site inspections undertaken as a part of this report showed that landscape and soil drainage was imperfect to poor.

- **NRFPP – land capability classification**

46. The NRFPP indicates that the site (by association with the Leycester soil landscape) is regionally significant farmland. The Leycester soil landscape, within Table 2 – Characteristics of included soil landscapes of the NRFPP methodology report, is given a Land Capability classification[17] of II to IV. The capability classes of II to IV are associated with land uses that are capable of cultivation and or grazing with occasional cultivation[18].

47. Note that the Rural Land Capability classification system (Land Capability classes I to VIII) is a separate system to the Agricultural Land Classification system (Agricultural Land classes 1 to 5, Special Class).

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[13] Hulme, T., Grosskopf, T., and Hindle, J. (2002) *Agricultural Land Classification. Agfact AC.25*. NSW Agriculture.
[14] Department of Infrastructure, Planning and Natural Resources and NSW Department of Primary Industries, 2004, *Northern Rivers Farmland Protection Project – Mapping Methodology*.
[15] Department of Infrastructure, Planning and Natural Resources and NSW Department of Primary Industries, 2004, *Northern Rivers Farmland Protection Project – Proposals for Protecting Farmland.*
[16] Morand *opcit*
[17] Emery, K.A., (1985) *Rural Land Capability Mapping*. Land & Water Conservation
[18] Department of Infrastructure, Planning and Natural Resources and NSW Department of Primary Industries, 2004, *Northern Rivers Farmland Protection Project – Mapping Methodology*.

48. This report in contrast to the NRFPP Methodology report has utilised the Agricultural Land Classification system and has classified the land as Class 4.

49. In reference to the NSW Agfact Agricultural Land Classification publication (which is an adaptation from the original RLEM) the following characteristics are recognised as being associated with Class 1, Class 2, Class 3 and Special class agricultural lands[19].

- Class 1 lands have deep soils, the land is capable of sustaining regular cultivation, the soil profile is well drained to moderately well drained and erosion hazard is low.
- Class 2 lands have deep to moderately deep soils, the land is capable of sustaining regular cultivation, the soil profile is either moderately well drained or rapidly drained and the erosion hazard is low to moderate.
- Class 3 lands have well drained to imperfectly drained soil profiles and moderate to limited suitability for cultivation.
- Special class lands are, because of a combination of soil, climate and other features, well suited to intensive production of a crop or narrow range of crops whose special requirements limit their successful culture to such land.

50. In relative terms, Classes 1 to 3 of the Agricultural Land Classification system would correspond to a Land Capability classification of I to IV.

51. This report has shown that certain characteristics that are necessary for a Class 1, 2, 3 and Special class classification as per the above do not exist for the site. The soil profiles are not well, moderate or even imperfectly drained and the soils are not capable of sustaining either continuous, regular or rotational cultivation. The land within the site cannot therefore be classified as either Class 1, 2, 3 or Special class. The land is Class 4 land.

52. The NRFPP has given the site due to its association with the Leycester soil landscape a Land Capability classification of II to IV. This agricultural report disagrees with the NRFPP and has shown that the land within the site, due to being suitable for grazing but not for cultivation, is more accurately given a Land Capability classification of VI or in terms of the Agricultural Land Classification system a Class 4 classification.

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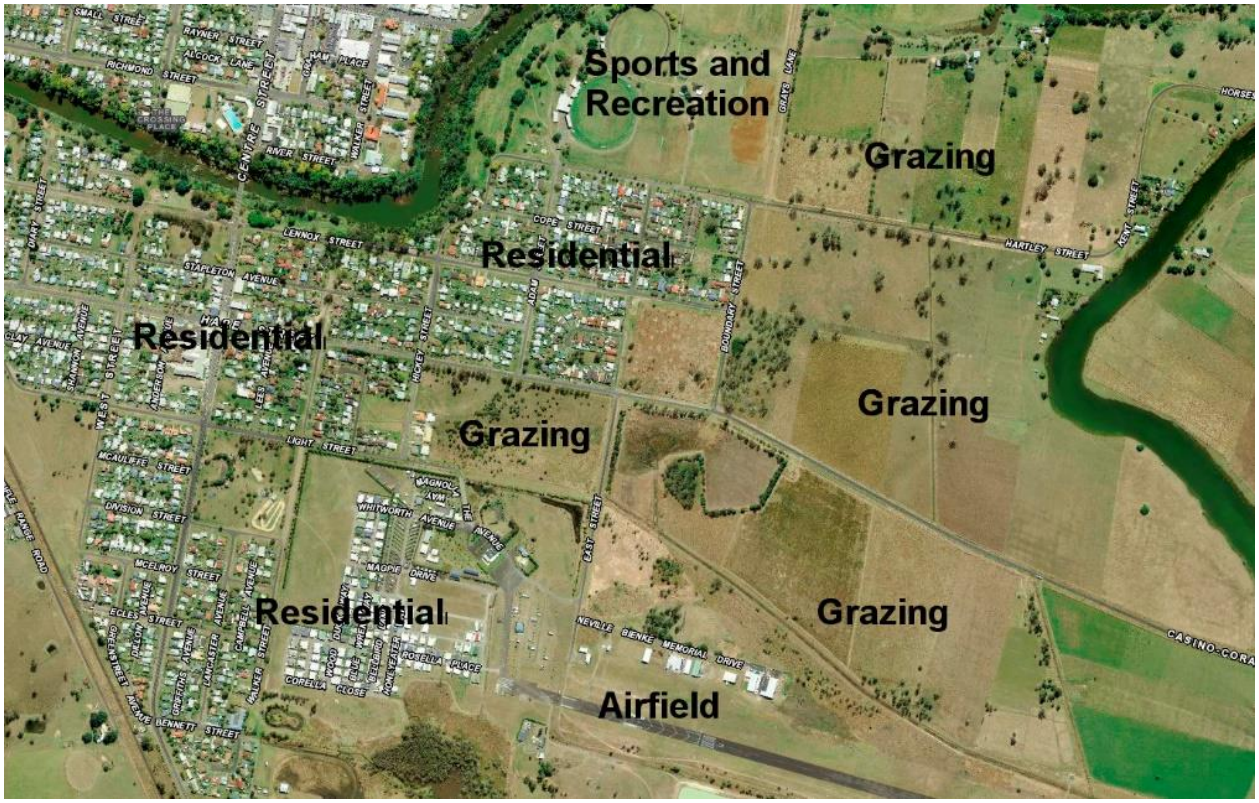
[19] *ibid*

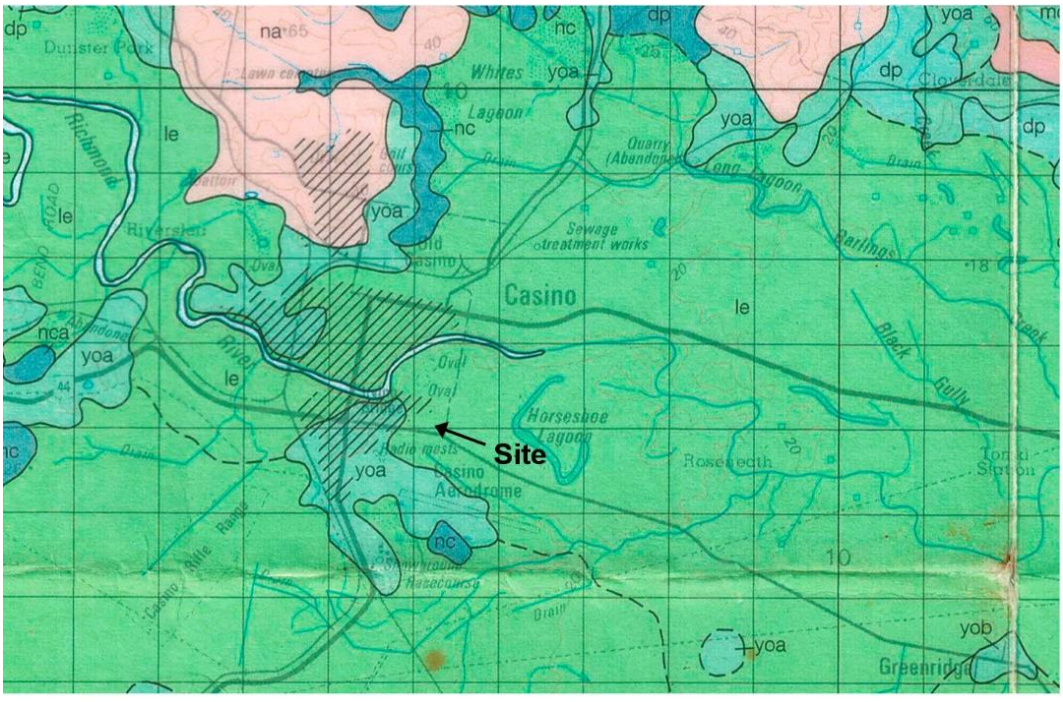
Appendix 1: Site Location

Appendix 2: Site Zoning

Appendix 3: Surrounding Land Use



Appendix 4: DLWC Soil Landscape Mapping



le

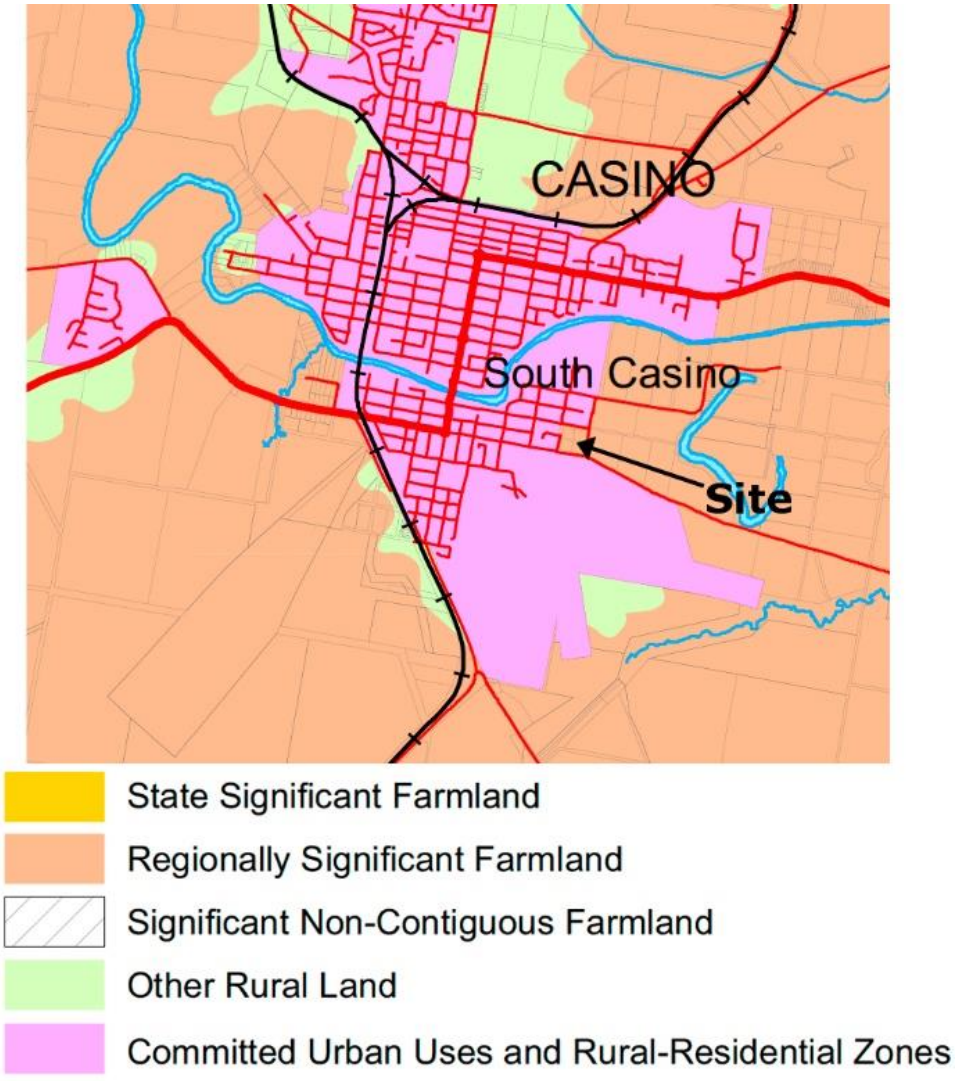
LEYCESTER (277 km²)

Landscape—level to gently undulating broad to extensive (500 - >1 500 m) alluvial plains of extremely low relief, draining the MacKellar Hills. Extensively cleared closed- and open-forest.

Soils—deep (>200 cm), poorly to moderately well-drained alluvial Black Earths (Ug5.15, Ug5.17) and Structured Clays (Uf6.42) occur throughout the floodplains. Wetter areas, such as ox-bow floors, have deep (>200 cm), poorly drained Weisenboden (Ug5.15, Ug5.17). Deep (>200 cm), well-drained Earthy Sands (Uc5.21) line channels.

Limitations—moderately erodible, moderately plastic soils with low wet bearing strength, moderate shrink-swell and localised waterlogging. Flooding, stream bank erosion.

Appendix 5: State Significant Farmland



Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 5

Preliminary Contamination Land Assessment

Melaleuca Group Pty Ltd

Preliminary Contaminated Land Assessment
for Proposed Rezoning at
Lots 85, 86 & 87 DP755627 and Lots 1 & 2 DP545750
Lennox St, CASINO NSW 2470

Melaleuca Group Pty Ltd

Date: 4th September 2017

Prepared for:
G McKenna

Further Information:
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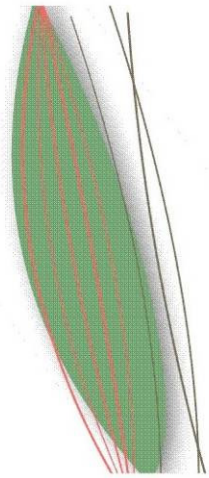
melissa.vanzwieten@exemail.com.au

.....
Dr. Melissa Van Zwieten
Environmental Scientist



Melaleuca Group Pty Ltd

Table of Contents

1. Introduction

Melaleuca Group has been engaged by G McKenna to undertake a Preliminary Contaminated Land Assessment and prepare a report for a proposed rezoning at Lots 85, 86 & 87 DP755627 and Lots 1 & 2 DP545750 Lennox St, Casino NSW 2470 (the site). Please refer to Figure 1 for the site locality plan and Figure 2 for current layout. The total allotment area is approximately 4 ha. As depicted in Figure 2, the site is currently unoccupied. The Investigation Area covers the entire allotment areas.

The objective of this preliminary investigation has been to determine if land contamination has occurred from historical and current land use activities occurring on site or immediately nearby. To determine if the site poses a significant risk of harm to end users (and nearby sensitive receptors), a review of historical information including aerials has been completed. In addition, some soil samples have been collected from a representative area of the property in the approximate vicinity of a new dwelling. These have been analysed for a range of contaminants typically associated with the land uses identified as having occurred on site. The results of the soil analysis are compared to relevant EPA acceptable levels in order to assess the significance of risk.

This investigation is to Stage 1 of the Managing Land Contamination Planning Guidelines (DUAP and EPA, 1998). If contamination levels exceed the adopted EPA acceptable levels, a detailed investigation is then required (i.e. a Stage 2 investigation). If the contamination levels are below the relevant acceptable levels, and information gathered as part of the investigation also supports that contamination was unlikely to have occurred; only a Stage 1 investigation would be required.

This preliminary investigation has been used to identify the following:

- Past and present potentially contaminating activities occurring on or near the site; and
- The presence of Potential Contaminants of Concern associated with the identified land uses.

The investigation will also:

- Discuss the site condition;
- Provide a preliminary assessment of the site's contamination status; and
- Assess the need for further investigations.

Relevant documents considered in the preparation of this investigation included:

- Clarence Valley Council (2006) *Contaminated Land Policy*;
- ANZECC and NHMRC (1992) *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*;
- Council of Standards Australia (2005) *AS 4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil – Non-volatile and semi-volatile compounds*;
- NSW DEC (2006) *Contaminated Sites – Guidelines for the NSW Site Auditor Scheme 2nd Edition*;
- NSW EPA (1995) *Contaminated Sites – Sampling Design Guidelines*;
- NSW EPA (2011) *Guidelines for Consultants Reporting Contaminated Sites*; and

- National Environment Protection Council (NEPC) (2013) *National Environment Protection (Assessment of Site Contamination) Measure*

This preliminary assessment report is written in accordance with NSW EPA (2011) Guidelines for Consultants Reporting on Contaminated Sites.

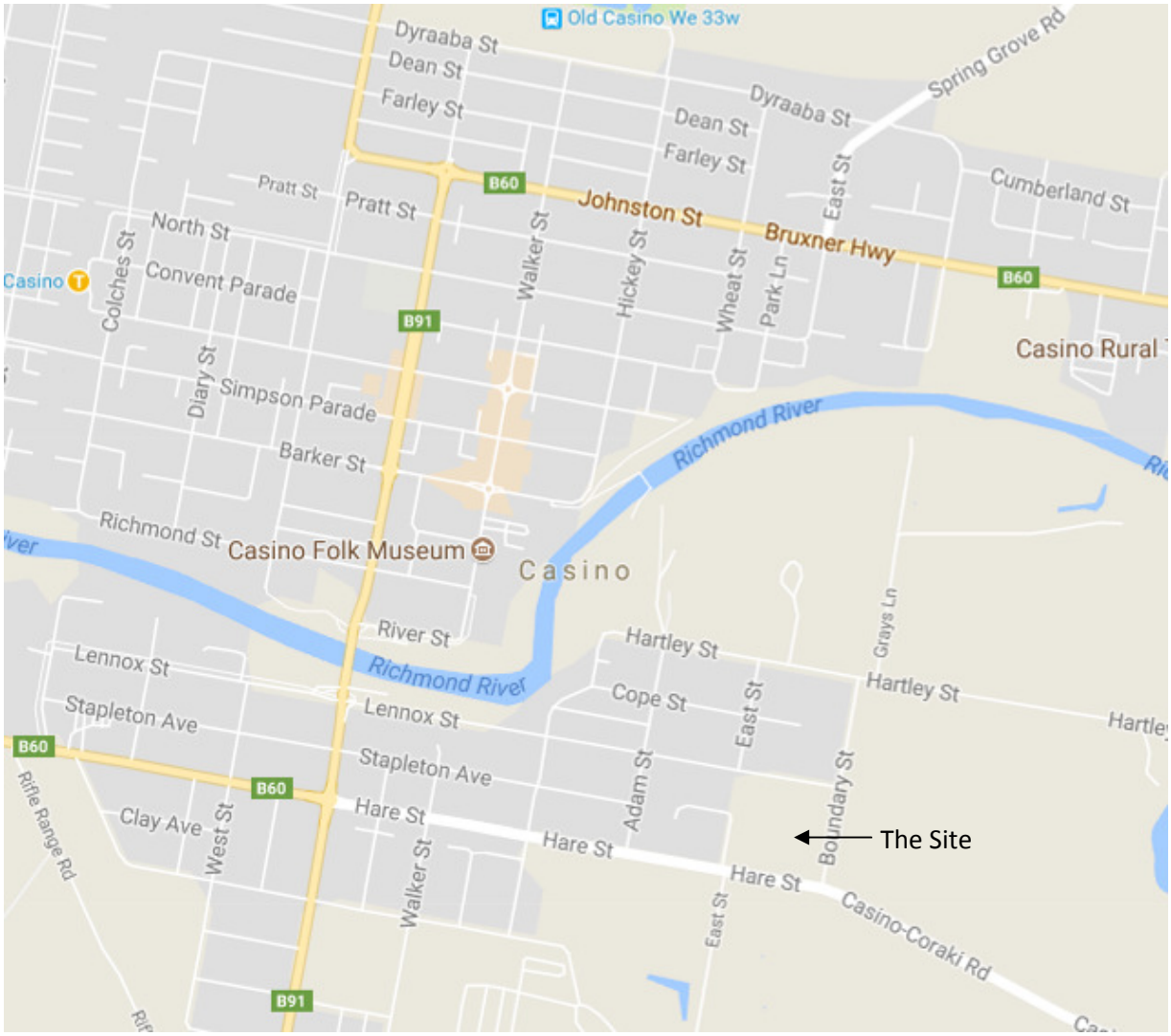


Figure 1. Locality Plan.

Figure 2. Recent (2012) aerial showing subject site as a vacant allotment

2. The Site

2.1 Site Identification and Zoning

The subject site, Lots 85, 86 & 87 DP755627 and Lots 1 & 2 DP545750, collectively is approximately 4ha in size and square in shape. The site is surrounded by residential allotments to the north and west and cleared/grazing lands to the east and south. Access to the site is from all four sites including Lennox St, Boundary St, Hare St and East St.

The site is zoned RU1 Primary Production under the Richmond Valley Local Environmental Plan (2012). The proposed rezoning would to be R1 General Residential and the zoning reflects the landuses in the vicinity.

2.2 Site Usages

As previously mentioned the site is current vacant. It appears the site has not been grazed nor slashed in recent years. It is understood from the proponent that grazing has occurred historically until relatively recently.

A review of historical aerial photography from 1967, 1987 and 2005 was undertaken (Figures 3 to 5 respectively). In all images the Investigation Area is relatively devoid of trees and structures. No cropping is apparent in any of the images. However, the image from 1967 indicates a dwelling was once located on the site. A 'dwelling-like' structure and associated smaller building are located in the south-western section of the site (Figure 3). No knowledge of this building could be obtained. While no certainty can be provided as to whether the building was for residential purposes, the interpretation of the aerial photography indicates a dwelling and associated outbuildings that were typical of the period.

The expansion of residential landuses surrounding the site are apparent in the images. Plates 1 - 4 illustrate the general condition of the Investigation Area in its current state.

2.3 Inventory of Known Chemicals and Wastes and their Location

An inventory of chemicals and/or wastes stored at the site was not available. It is considered as no structure appear on the site from 1987, chemical usage would have been minimal and limited to irregular weed control with none stored on the site within the past 30 years.

Figure 3. 1967 Historical aerial photograph of site showing the estimated location of the site and enlargement of area around dwelling as inset..

Figure 4. 1987 Historical aerial photograph of site showing the estimated location of the site.

Figure 5. 2005 Historical aerial photograph of site (Source: Google Earth)

Plate 1. Road frontage (Hare St) at estimated front entrance to old dwelling site. Note scrambling roses in left of photo (typical garden escapee of the period).

Plate 2. South-westerly view of Investigation Area.

Plate 3. South-easterly view of Investigation Area.

Plate 4. Northerly view of Investigation Area.

2.4 Possible Contaminant Sources

Despite the lack of recent heavy use of chemicals at the site, historical use may be possible at the site. Table 1 below lists the sources of potential contamination at the site and their associated contaminants of concern.

Table 1: Potential Contaminants of Concern for Identified Activities

Identified Contaminant Source	Potential Contaminants	Targeted Contaminants
Vacant land/Residential/Rural Activities		
General Activities including historical residential landuse	**Fertiliser** (Calcium phosphate, Calcium Sulfate, nitrates, ammonium sulfate, carbonates, potassium, copper, magnesium, molybdenum, boron, cadmium) **Fungicides (**carbamates, copper sulfate, copper chloride, sulfur, chromium, zinc) Herbicides (Ammonium Thyocyanate, carbamates, organochlorines, organophosphates, arsenic, mercury, triazines) **Pesticides** (Arsenic, lead, organochlorines, organophosphates, sodium tetraborate, carbamates, sulfur, synthetic pyrethroids) Solvents (Xylene, kerosene, methyl isonutyl ketone, amyl acetate, chlorinated solvents)	**Metals** (Silver, Arsenic, Lead, Cadmium, Copper, Nickel, Selenium, Zinc, Mercury, Iron and aluminium) **Pesticides** (a-BHC, Hexachlorobenzene, b-BHC, g-BHC (Lindane), d-BHC, Heptachlor, Aldrin, Heptachlor epoxide, transchlordane, Endosulfan I, cischlordane, Dieldrin, 4,4-DDE, Endrin, Endosulfan II, 4,4-DDD, Endosulfan sulfate, 4,4-DDT, Methoxyxhlor. For specific chemicals related to dipsite, refer Section 2.8.3.

2.5 Historic Use of Adjacent Land

While extensive historical reviews of aerial photography and the like was not undertaken (see above), it is believed adjacent land uses have been similar to the site in that the area until the 1960s whereby imagery indicates the expansion of the township of Casino into areas surrounding the site.

2.6 Local Usage of Ground/Surface Waters

A search of existing licensed groundwater bores within 250 m of the investigation was conducted using the NSW Department of Primary Industries Office of Water (http://allwaterdata.water.nsw.gov.au/water.stm) website. No groundwater bores were located within 250 m of the proposed building areas. The closest (GW304806) is located approximately 400m to the south-west of the closest boundary of the site.

2.7 State and Local Authority Records

2.7.1 Contaminated Land Records

A search of the Contaminated Land Record (EPA 2016a) for the Richmond Valley Local Government Area (LGA) did not identify any site notices relating to the site or adjoining the site.

2.7.2 Protection of the Environment Operations Act Licenses

A search of the current list (EPA, 2016b) of licensed activities as per Schedule 1 of the Protection of the Environment Operations Act 1997 did not identify any licensed polluting activities occurring within or adjacent to the site.

2.7.3 Cattle Tick Dip Sites

A search of the NSW Department of Primary Industry (DPI) Cattle Dip Site Locator tool (http://www.dpi.nsw.gov.au/content/agriculture/livestock/health/images/information-by-species/cattle/ticks/cattle-dip-site-locator) indicated that the Cattle Tick Dip Site LYLES is located approximately 1.3km north-east of the closest boundary of the Site. This Dipsite is recorded as Decomm Bath by NSW DPI. This dip lies well outside the 200m residential investigation buffer and thereby no further consideration is considered necessary.

3. Site Inspection and Condition

3.1 Topography

The topography of the Investigation Areas is has a mild slope with a southerly aspect. Elevation ranges from approximately 20 to 22 m AHD across the site.

3.2 Visible Signs of Contamination

The Investigation Areas were traversed on foot in order to identify any signs of contamination. No obvious signs of contamination (such as plant stress, surface spills, waste materials, imported fill, odours etc.) were evident during the site investigation. The estimated area of the location of the once existing dwelling was traversed as best possible. The area was covered in scrambling roses. As such, this confirmed the approximate location of the front yard, but hampered investigations for signs of building debris and the like.

A visual inspection of adjacent land from the subject land indicated that there were no clearly visible signs of contamination adjoining the study area or across the subject site.

3.3 Flooding Potential

The entire site and Investigation Area is mapped as flood liable. .

3.4 Locally Sensitive Environments

There are no sensitive environments within the locality of the site such as SEPP 14 (Coastal Wetlands) or SEPP 26 (Littoral Rainforest).

The Site lies within the catchment of Oaky Creek which in turn drains to the Richmond River which is located approximately 3.8km to the east.

3.5 Local Geology and Soil Description

NSW DPI (2004) describes the geology of the Site as Quaternary Alluvial Plain. The geology is further described as: Silt, clayey silt, sandy silt, silty sand, very fine to medium sand, silty clay, organic mud; usually fining upward and interbedded.

The above geological description is confirmed by Morand (2001) for the Investigation Area where the geology is described as Quaternary alluvial valley in-fill sediments - dominantly alluvial clay with minor sand and rive gravels. Fine-grained sediments of the less intensely weathered basalt areas prdominate.

The site is mapped by Morand (2001) as an alluvial landscape being *Leycester* (le). These are described by Morand (2001) as:

Leycester (**le**):

> **Landscape** – level to gently undulating broad to extensive (500-1500m) alluvial plains of extremely low relief, draining the MacKellar Hills. Extensively cleared closed- and open-forest.

Soils – deep (>200cm), poorly to moderately well-drained alluvial Black Earths (Ug5.15, Ug5.17) and Structured Clays (Uf6.42) occur throughout the floodplains. Wetter areas, such as ox-bow floors, have deep (>200cm), poorly drained Weisenboden (Ug5.15, Ug5.17). Deep (>200cm), well-drained Earthy Sands (Uc5.21) line channels.

Limitations – moderately erodible, moderately plastic soils with low wet bearing strength, moderate shrink-swell and localised waterlogging. Flooding, stream bank erosion.

3.6 Location and Extent of Imported and Locally Derived Fill

No fill was identified during the site inspection and soils investigated appeared to be natural soils of the site.

3.7 Location of Bore Hole Tests

All soil samples were taken from surface samples, thus no boreholes were constructed for this investigation.

3.8 Depth to Groundwater Table

Depth to groundwater was not investigated, however, it is anticipated to be relatively shallow given the low lying nature of the locality.

3.9 Local Meteorology

The average annual rainfall recorded at the Casino Airport (058063; closest weather station), is 1,097.4 and shows the highest volume of rainfall falling in December through to April. The driest months are May to November. The average monthly maximum temperature (in summer) is 31.3°C and the average minimum temperature (in winter) is 6.7°C.

4. Sampling and Analysis Plan and Sampling Methodology

4.1 Sampling, Analysis and Data Quality Objective (DQOs)

The objective of this preliminary investigation is to gather information with regard to the type, location, concentration and distribution of contaminants to determine if the subject site represents a risk of harm to end users and sensitive receptors. To determine this, soil sampling and laboratory analysis has been conducted upon surface soils collected from the Investigation Areas.

4.2 Rationale

The subject site is approximately 4 ha in size. A systematic sampling plan was used across the site. As a result, 49 samples were collected from the site. In addition, a further 7 samples were collected in a targeted pattern in the proximity of the once existing dwelling. Samples were composited into 14 samples for analysis. Figure 6 indicates the location of each individual sample point. Sample density is considered appropriate for the study area and consistent with NSW EPA Guidelines (1995).

Composite samples were analysed for a full range of heavy metals and organochlorine (OC) pesticides (including Aldrin, Cis-chlordane, Trans-chlordane, HCB, DDD, DDE, DDT, Alpha-BHC, Beta-BHC, Delta-BHC, Lindane, Dieldrin, Endrin, Heptachlor, Heptachor epoxide, Alpha-endosulfan, Beta-endosulfan, Endosulfan sulfate, Methoxychlor).

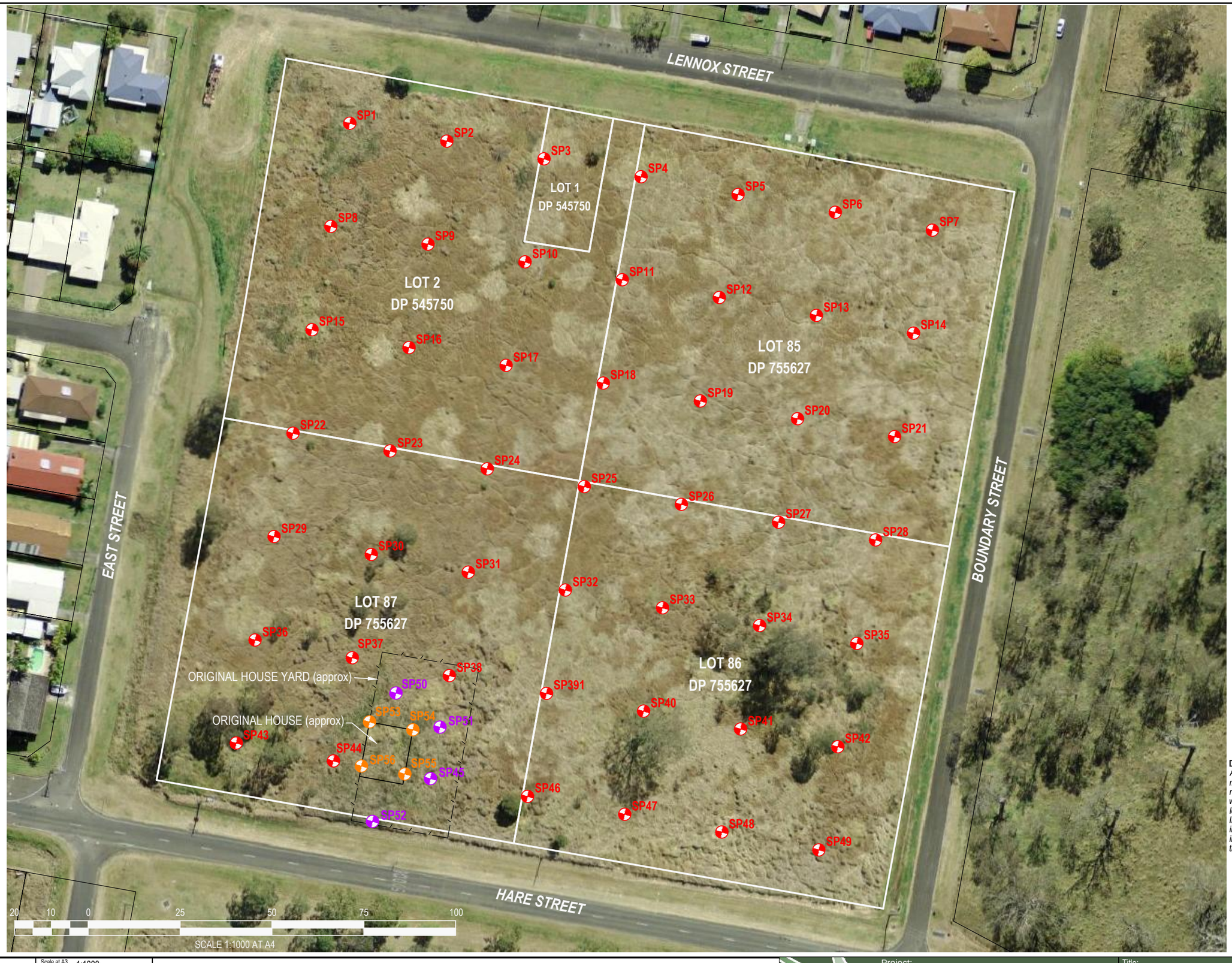
Organophosphate (OP) pesticides were not analysed as the site history did not identify any likelihood of these pesticides occurring and no elevated levels of OC or arsenic were identified at the site (samples are stored for OP analysis if required). The bacterial decomposition of OP pesticide is very rapid and the occurrence of elevated levels of OP's in the environment is rare (i.e. based on over 1000 soils analysed in soils of Northern NSW by EAL).

Polychlorinated Biphenyls (PCBs) were not analysed, as a source of contamination was not identified (i.e. PCB sources identified from electrical supply industry or mining). Poly-Aromatic Hydrocarbons (PAH), Total Petroleum Hydrocarbons (TPH) and BTEX were also not analysed on the soils as these organic analytes are only typically analysed for service station sites, or at sites with above or under-ground onsite hydrocarbon storage.

4.3 Sampling Methodology

Surface samples (0 – 150mm depth) were collected using a stainless steel spade, with soil being placed in snap lock plastic sample bags. The sampling procedure utilised in this investigation was generally in accordance with AS 4482.1 – 2005.

All soil samples were placed into an esky with ice bricks, and delivered to the Environmental Analysis Laboratory at Southern Cross University, Lismore. Metals analysis was conducted by EAL and quality control included blanks, duplicates and traceable certified NIST (National Institute of Standards Technology) reference soil in every sample batch. Analysis is conducted using a Perkin Elmer ELANDRC-e ICPMS (Inductively Coupled Plasma Mass Spectrometry). Chain of custody forms, laboratory quality assurance and laboratory quality control documentation are available on request. The analysis of pesticides and TPH was subcontracted to the NATA-registered Labmark laboratory (refer to Appendix A for subcontracted results with all QA/QC results).



MGA

FIGURE 6

DISCLAIMER:
All details shown hereon are approximate only and may be subject to final survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation.
In particular, no reliance should be placed on the information on this plan for any financial dealings involving the land. This note is an integral part of this plan.

NOTE: Postion of Aerial Image is in approximate location only. For an accurate location of existing features a detailed survey by a Registered Surveyor should be carried out.

SOURCE:
Image: *https://maps.six.nsw.gov.au/*

Design	MV	Scale at A3	1:1000
Drawn	GC	Datum	NA
Date	04.09.2017	Filename	MG18003-SP01.dwg
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Dwg. No.	MG18003-SP01	Sheet No.	1 of 2
		Issue	A

Legend
- Sample Point
- Sample Point (Elevated Lead Concentrations - Below Residential A HBIL)
- Sample Point (Elevated Lead Concentrations - Above Residential A HBIL)

Melaleuca Group Pty Ltd

Project: LOTS 85, 86, 87 IN DP 755627 & LOTS 1 & 2 IN DP545750 LENNOX ST, CASINO

Title: **SOIL SAMPLING PLAN**

5. Basis for Assessment Criteria

The acceptable limits of the parameters tested are based on the NSW DEC (2006) Contaminated Sites - Guidelines for the NSW Site Auditor Scheme (2nd Edition)(2006) and the new NEPM (2013) guidelines. In particular Column 1 of Table 'Soil Investigation Levels for Urban Redevelopment Sites in NSW'. Column 1 represents Human - Based Investigation Levels (HBIL) for developments being 'Residential with gardens and accessible soil including children's daycare centres, preschools, primary schools, town houses or villas'. The investigation levels adopted for this investigation are presented below in Table 2.

Table 2: Soil investigation levels for urban redevelopment sites in NSW: Column 1 'Residential with gardens and accessible soil including children's daycare centres, preschools, primary schools, town houses or villas' (NSW DEC 2006).

Contaminant	Acceptable Limit Column 1 (mg/kg) (2006)	Acceptable Limit Column 1 (mg/kg) (2013)
Arsenic	100	100
Cadmium	20	20
Chromium (VI)	100	100
Cobalt		100
Copper	1,000	6,000
Lead	300	300
Manganese	1,500	3,800
Nickel	600	430
Zinc	7,000	7,400
Mercury	15	40
OC's (aldrin and dieldrin)	10	6
OC's (DDT, DDD, DDE)	200	240

5.1 Background Levels

Metals occur naturally within soils and are a natural constituent of geological materials that erode and assist in the formation of soils. The background levels of metals analysed, obtained from ANZECC and NHMRC (1992) Table 4 'Environmental Soil Quality Guidelines', are presented below in Table 3.

Table 3: Background ranges for potential contaminants.

Contaminant	Background Range (mg/kg)
Arsenic	0.2 – 30
Cadmium	0.04 - 2
Chromium (VI)	0.5 – 110 (possible underestimate)
Copper	1 - 190
Lead	<2 – 200
Manganese	4 – 12,600
Nickel	2 - 400
Zinc	2 - 180
Mercury	0.001 - 0.1

6. Results

The results from the laboratory soil testing regime and comparison to the guideline limits is provided below in Tables 4 and 5. The soil sampling numbers correlate with the soil sampling locations as shown on Figure 6.

The full suite of heavy metals tested are provided below. For organochlorine pesticides, twenty (20) chemical constitutes of these organochlorine pesticides were tested for. A summary of these results are provided below.

In accordance with the NSW EPA Sampling Design Guidelines, the acceptable threshold concentration values for the suspected contaminants were adjusted (divide by 4) to resolve the issue of hot spot dilution for composite sampling.

All metals were found to be either at or below expected background ranges or below assessment criteria. The exception of high Lead levels in Composites 13 and 14. These consisted of samples collected from the vicinity of the old dwelling. Individual Lead levels (Table 5) indicate a elevated lead levels in the vicinity of the dwelling and the surrounding area. All organochlorine pesticides were below analytical limits.

Table 4a: Composite Sampling Results.

Contaminant	Composite Sample C1 (SP1,8,15,22)	Composite Sample C2 (SP2,9,16,23)	Composite Sample C3 (SP3,10,17,24)	Composite Sample C4 (SP4,11,18,25)	Composite Sample C5 (SP5,12,19,26)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
Silver (mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	**na**	**na**
Arsenic (mg/kg)	2.1	1.9	2.1	2.2	1.8	**25**	**0.2 – 30**
Lead (mg/kg)	11	16	11	11	11	**75**	**<2 – 200**
Cadmium (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**5**	**0.04 - 2**
Chromium (mg/kg)	36	36	35	34	36	**25**	**0.5 – 110 (possible underestimate)**
Copper (mg/kg)	18	20	19	18	20	**1500**	**<2 – 190**
Manganese (mg/kg)	870	921	1018	767	2035	**950**	**4 – 12,600**
Nickel (mg/kg)	25	25	27	24	34	**107.5**	**2 - 400**
Selenium (mg/kg)	0.8	0.8	0.8	1.2	1.0	**50**	**na**
Zinc (mg/kg)	58	73	60	56	66	**1850**	**2 - 180**
Mercury (mg/kg)	<0.05	<0.05	<0.05	<0.05	<0.05	**10**	**0.001 - 0.1**
Iron (%DW)	4.82	4.78	4.87	5.15	4.67	**na**	**na**
Aluminium (%DW)	2.42	2.41	2.40	2.43	2.77	**na**	**na**
Beryllium (mg/kg)	1.3	1.3	1.4	1.5	1.3	**15**	**Not available**
Boron (mg/kg)	0.9	0.7	1.0	0.7	1.2	**1125**	**Not available**
Cobalt (mg/kg)	28	28	31	26	55	**25**	**1 - 40**

Contaminant	Composite Sample C1 (SP1,8,15,22)	Composite Sample C2 (SP2,9,16,23)	Composite Sample C3 (SP3,10,17,24)	Composite Sample C4 (SP4,11,18,25)	Composite Sample C5 (SP5,12,19,26)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
DDT (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**60**	**<0.2**
Aldrin + Dieldrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
Chlordane (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**12.5**	**<0.2**
Endosulfan (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**67.5**	**<0.2**
Endrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Heptachlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
HCB (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Methoxychlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**75**	**<0.2**
Other Organochlorine Pesticides (mg/Kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**<2.5**	**<0.2**

Table 4b: Composite Sampling Results.

Contaminant	Composite Sample C6 (SP6,13,20,27)	Composite Sample C7 (SP7,14,21,28)	Composite Sample C8 (SP29,30,31,32)	Composite Sample C9 (SP33,34,35,42)	Composite Sample C10 (SP41,47,48,49)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
Silver (mg/kg)	<0.5	<0.5	<0.5	<0.5	<0.5	**na**	**na**
Arsenic (mg/kg)	1.7	2.0	1.9	1.9	1.9	**25**	**0.2 – 30**
Lead (mg/kg)	10	11	12	10	10	**75**	**<2 – 200**
Cadmium (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**5**	**0.04 - 2**
Chromium (mg/kg)	39	36	36	36	37	**25**	**0.5 – 110 (possible underestimate)**
Copper (mg/kg)	22	20	20	20	20	**1500**	**<2 – 190**
Manganese (mg/kg)	992	691	715	643	822	**950**	**4 – 12,600**
Nickel (mg/kg)	32	24	25	24	23	**107.5**	**2 - 400**
Selenium (mg/kg)	0.8	0.9	1.0	0.8	0.8	**50**	**na**
Zinc (mg/kg)	67	64	64	58	61	**1850**	**2 - 180**
Mercury (mg/kg)	<0.05	<0.05	<0.05	<0.05	<0.05	**10**	**0.001 - 0.1**
Iron (%DW)	5.29	5.53	4.96	5.31	5.72	**na**	**na**
Aluminium (%DW)	3.10	2.74	2.65	2.82	2.76	**na**	**na**
Beryllium (mg/kg)	1.5	1.4	1.3	1.5	1.5	**15**	**Not available**
Boron (mg/kg)	0.4	1.1	0.9	0.6	0.6	**1125**	**Not available**
Cobalt (mg/kg)	34	25	26	23	30	**25**	**1 - 40**

Contaminant	Composite Sample C6 (SP6,13,20,27)	Composite Sample C7 (SP7,14,21,28)	Composite Sample C8 (SP29,30,31,32)	Composite Sample C9 (SP33,34,35,42)	Composite Sample C10 (SP41,47,48,49)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
DDT (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**60**	**<0.2**
Aldrin + Dieldrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
Chlordane (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**12.5**	**<0.2**
Endosulfan (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**67.5**	**<0.2**
Endrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Heptachlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
HCB (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Methoxychlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**75**	**<0.2**
Other Organochlorine Pesticides (mg/Kg)	<0.1	<0.1	<0.1	<0.1	<0.1	**<2.5**	**<0.2**

Table 4c: Composite Sampling Results.

Contaminant	Composite Sample C11 (SP38,39,40,46)	Composite Sample C12 (SP36,37,43,44)	Composite Sample C13 (SP45,50,51,52)	Composite Sample C14 (SP53,54,55,56)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
Silver (mg/kg)	<0.5	<0.5	<0.5	<0.5	**na**	**na**
Arsenic (mg/kg)	2.6	1.9	3.1	7.3	**25**	**0.2 – 30**
Lead (mg/kg)	14	20	90	488	**75**	**<2 – 200**
Cadmium (mg/kg)	0.1	0.1	0.4	2.4	**5**	**0.04 - 2**
Chromium (mg/kg)	39	35	37	50	**25**	**0.5 – 110 (possible underestimate)**
Copper (mg/kg)	22	22	45	374	**1500**	**<2 – 190**
Manganese (mg/kg)	774	1218	655	779	**950**	**4 – 12,600**
Nickel (mg/kg)	26	32	25	31	**107.5**	**2 - 400**
Selenium (mg/kg)	0.8	1.0	0.7	1.0	**50**	**na**
Zinc (mg/kg)	76	106	254	1187	**1850**	**2 - 180**
Mercury (mg/kg)	<0.05	0.18	0.08	0.25	**10**	**0.001 - 0.1**
Iron (%DW)	6.11	5.27	5.43	4.68	**na**	**na**
Aluminium (%DW)	2.77	2.82	2.76	1.95	**na**	**na**
Beryllium (mg/kg)	1.6	1.4	1.5	1.3	**15**	**Not available**
Boron (mg/kg)	0.6	0.7	0.3	1.7	**1125**	**Not available**
Cobalt (mg/kg)	26	39	24	23	**25**	**1 - 40**

Contaminant	Composite Sample C11 (SP38,39,40,46)	Composite Sample C12 (SP36,37,43,44)	Composite Sample C13 (SP45,50,51,52)	Composite Sample C14 (SP53,54,55,56)	Adjusted Acceptable Limit (2013)	Background Range (mg/kg)
DDT (mg/kg)	<0.1	<0.1	<0.1	<0.1	**60**	**<0.2**
Aldrin + Dieldrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
Chlordane (mg/kg)	<0.1	<0.1	<0.1	<0.1	**12.5**	**<0.2**
Endosulfan (mg/kg)	<0.1	<0.1	<0.1	<0.1	**67.5**	**<0.2**
Endrin (mg/kg)	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Heptachlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	**1.5**	**<0.2**
HCB (mg/kg)	<0.1	<0.1	<0.1	<0.1	**2.5**	**<0.2**
Methoxychlor (mg/kg)	<0.1	<0.1	<0.1	<0.1	**75**	**<0.2**
Other Organochlorine Pesticides (mg/Kg)	<0.1	<0.1	<0.1	<0.1	**<2.5**	**<0.2**

Table 5a: Soil Sampling Results - Individual Lead Results (Composite 13, house yard).

Contaminant	Sample SP45	Sample SP50	Sample SP51	Sample SP52	Residential Acceptable Limit[a]
Lead (mg/kg)	140	58	9	40	**300**

Table 5b: Soil Sampling Results - Individual Lead Results (Composite 14, vicinity of dwelling).

Contaminant	Sample SP53	Sample SP54	Sample SP55	Sample SP56	Residential Acceptable Limit[a]
Lead (mg/kg)	476	2,187	217	438	**300**

7. Discussion and Conclusion

A Preliminary Contamination Site Assessment for the proposal was warranted to ensure past land uses have not resulted in contamination of the area.

The site history did not indicate broad and heavy use of any pesticides or chemicals on the subject site. Usage within the Investigation Area in general terms would most likely to have been localised for historic farming purposes (i.e. grazing) including intermittent weed control measures. Current chemical usage is minimal. While some historic practices may have applied chemicals at higher rates, the sampling effort, in general has indicated this has not been the case.

The exception was the identification of a dwelling once existed on the site. A main building (presumed a dwelling) and smaller structures were identified in the southern portion of the Investigation Area along Hare St from a historical (1967) image.

This assessment identified soils in the immediate vicinity of the dwelling containing high levels of Lead when compared to Residential A limits (Composite 14). Lead levels within soils more distant (Composite 13) also had elevated levels, but concentrations were below Residential A HBIL.

Table 6 summarises the average Lead concentrations across the site with Figure 7 providing an indication of the area of the site impacted by levels of Lead greater than Residential A HBIL for Lead (i.e. 300mg/kg).

Table 6. Summary of Lead (mg/kg) results

	Lead (mg/kg)
Average (all results)	52
95% UCL (all results)	112
Average (excluding Composites 13 and14)	12
95% UCL (excluding Composites 13 and14)	13.82
Average (Composite 13 -house yard only)	62
95% UCL (Composite 13 -house yard only)	127.6
Average (Composite 14 -dwelling only)	829
95% UCL (Composite 14 -dwelling only)	1905

The results also show slightly elevated levels of Chromium, Manganese and Cobalt at various location s across the site. The metals Chromium and Manganese are typically found in significant background concentrations in the volcanic basalt derived soils in this region (refer Table 3). The elevated levels of Chromium and Manganese are considered indicative of naturally occurring levels

in the local soils (Lancaster, 2006). High levels of Cobalt can also be attributed to the soils being derived from Basalt (Bourke, 2010). High Cobalt levels have been seen previously in both soils from the locality and in soils with high Chromium and Manganese (G. Lancaster, Pers. Comm.). The NSW EPA 1995 guidelines allows the option of removing background concentrations from site assessment levels hence in many cases reducing potentially elevated levels to negligible levels of no concern. Thereby, the elevated levels of Chromium, Manganese and Cobalt found at the site are considered due to background levels within natural soils.

All other metal concentrations in the soils are within expected background levels.

No pesticides (OCs) were present above analytical detection limits in the samples analysed.

Conclusions

On the basis of the data collected, the majority of the site meets the HBIL for Residential A development on all Chemicals of Concern with the exception of Lead. With regard to this element, the majority of the site also meets the Residential A HBIL for Lead of 300 mg/kg. As the proposal is for rezoning to Residential, it is considered appropriate the area around the once existing dwelling is remediated in due course. While development would inherently disturb the soil through building pad construction, roads and filling for flooding, it is considered the most appropriate remediation method is through *insitu* remediation by way of 'Landfarming'. Alternatively the removal of impacted soils to the local landfill may occur.

Remediation of the site is considered to fall under the definition of Category 2 works under SEPP55 and as such Council is to be notified 30 days prior to the commencement of remediation. Final options for remediation will be determined in the near future and a Remedial Action Plan (RAP) provided to Council for approval prior to commencement. At the completion of the remediation, a validation sampling effort and Validation Sampling Plan will be completed and provided to Council.

Thereby based on the findings of this investigation, it is considered the site may be rezoned for Residential purposes on the basis the area identified is subsequently remediation and validation of the area demonstrates the Area of Concern would not represent a significant risk of harm to end users of a proposed residential development.

Legend

- Sample Point
- Sample Point (Elevated Lead Concentrations - Below Residential A HBIL)
- Sample Point (Elevated Lead Concentrations - Above Residential A HBIL)
- Remediation Area (600m²)

FIGURE 7

2 1 0 10 20

SCALE 1:400 AT A4

DISCLAIMER:
All details shown hereon are approximate only and may be subject to final survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation.
In particular, no reliance should be placed on the information on this plan for any financial dealings involving the land. This note is an integral part of this plan.

NOTE: Postion of Aerial Image is in approximate location only. For an accurate location of existing features a detailed survey by a Registered Surveyor should be carried out.

SOURCE:
Image: *https://maps.six.nsw.gov.au/*

Scale at A4	1:400
Drawn	GC
Date	04.09.2017
Checked	MV
Dwg. No.	MG18003-SP02A

Melaleuca Group Pty Ltd
Dr Melissa Van Zwieten
Senior Environmental Scientist
Mobile: 0427 628 847
melissa.vanzwieten@exemail.com.au

Project: LOTS 85, 86, 87 IN DP 755627 & LOTS 1 & 2 IN DP545750 LENNOX ST, CASINO

Title: **REMEDIATION PLAN**

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Melaleuca Group declares that does not have, nor expects to have, a beneficial interest in the subject project.

DISCLAIMER

Melaleuca Group has conducted work concerning the environmental status of the property, which is the subject of this report, and has prepared this report on the basis of that assessment.

The work was conducted, and the report has been prepared, in response to specific instructions from the client or a representative of the client to whom this report is addressed, within the time and budgetary requirements of the client, and in reliance on certain data and information made available to Melaleuca Group. The analysis, evaluations, opinions and conclusions presented in this report are based on that information, and they could change if the information is in fact inaccurate or incomplete.

Melaleuca Group has made no allowance to update this report and has not taken into account events occurring after the time its assessment was conducted.

This report is intended for the sole use of the client and only for the purpose for which it was prepared. Any representation contained in the report is made only to the client unless otherwise noted in the report. Any third party who relies on this report or on any representation contained in it does so at their own risk.

Appendices

Appendix A: Laboratory Results

RESULTS OF SOIL ANALYSIS

56 soil samples supplied by Melaleuca Group Pty Ltd on 31st July, 2017 - Lab Job No. G1663
Soil samples supplied were composited by EAL into 14 composite samples for analysis
Analysis requested by Melissa Van Zwieten. Your Job: Lennox St, Casino
PO Box 6 CASINO NSW 2470

ANALYTE	METHOD REFERENCE	Composite Sample 1 C1 (SP1, 8, 15, 22)	Composite Sample 2 C2 (SP2, 9, 16, 23)	Composite Sample 3 C3 (SP3, 10, 17, 24)	Composite Sample 4 C4 (SP4, 11, 18, 25)	Composite Sample 5 C5 (SP5, 12, 19, 26)	Composite Sample 6 C6 (SP6, 13, 20, 27)	Composite Sample 7 C7 (SP7, 14, 21, 28)	Composite Sample 8 C8 (SP29, 30, 31 32)	Composite Sample 9 C9 (SP33, 34, 35, 42)	Composite Sample 10 C10 (SP41, 47, 48, 49)	Composite Sample 11 C11 (SP38, 39, 40, 46)	Composite Sample 12 C12 (SP36, 37, 43, 44)	Composite Sample 13 C13 (SP45, 50, 51, 52)	Composite Sample 14 C14 (SP53, 54, 55, 56)	*RESIDENTIAL A Guideline Limit*		*COMMERCIAL/ INDUSTRIAL D Guideline Limit*		*Background*
																Composite - Column A	*Individual - Column A*	*Composite - Column D*	*Individual - Column D*	*Range*
	Job No.	*G1663/C1*	*G1663/C2*	*G1663/C3*	*G1663/C4*	*G1663/C5*	*G1663/C6*	*G1663/C7*	*G1663/C8*	*G1663/C9*	*G1663/C10*	*G1663/C11*	*G1663/C12*	*G1663/C13*	*G1663/C14*	*See note 1a*	*See note 1a*	*See note 1d*	*See note 1d*	*See note 2*
TEXTURE (SAND, CLAY, SILT)	** inhouse	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	..	..	..	..	..
MOISTURE %	** c	27	31	30	36	35	35	37	32	33	34	36	32	35	29	..	..	..	..	..
SILVER (mg/Kg DW)	*a*	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	*na*	*na*	*na*	*na*	*na*
ARSENIC (mg/Kg DW)	*a*	2.1	1.9	2.1	2.2	1.8	1.7	2.0	1.9	1.9	1.9	2.6	1.9	3.1	7.3	*25*	*100*	*750*	*3,000*	*0.2-30*
LEAD (mg/Kg DW)	*a*	11	16	11	11	11	10	11	12	10	10	14	20	90	488	*75*	*300*	*375*	*1,500*	*<2-200*
CADMIUM (mg/Kg DW)	*a*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.4	2.4	*5*	*20*	*225*	*900*	*0.04-2.0*
CHROMIUM (mg/Kg DW)	*a*	36	36	35	34	36	39	36	36	36	37	39	35	37	50	*(<25)*	*(<100)*	*(<900)*	*(<3,600)*	*0.5-110*
COPPER (mg/Kg DW)	*a*	18	20	19	18	20	22	20	20	20	20	22	22	45	374	*1,500*	*6,000*	*60,000*	*240,000*	*1-190*
MANGANESE (mg/Kg DW)	*a*	870	921	1018	767	2035	992	691	715	643	822	774	1218	655	779	*950*	*3,800*	*15,000*	*60,000*	*4 - 12,600*
NICKEL (mg/Kg DW)	*a*	25	25	27	24	34	32	24	25	24	23	26	32	25	31	*100*	*400*	*1,500*	*6,000*	*2-400*
SELENIUM (mg/Kg DW)	*a*	0.8	0.8	0.8	1.2	1.0	0.8	0.9	1.0	0.8	0.8	0.8	1.0	0.7	1.0	*50*	*200*	*2,500*	*10,000*	*na*
ZINC (mg/Kg DW)	*a*	58	73	60	56	66	67	64	64	58	61	76	106	254	1187	*1,850*	*7,400*	*100,000*	*400,000*	*2-180*
MERCURY (mg/Kg DW)	*a*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.18	0.08	0.25	*10*	*40*	*183*	*730*	*0.001-0.1*
IRON (% DW)	*a*	4.82	4.78	4.87	5.15	4.67	5.29	5.53	4.96	5.31	5.72	6.11	5.27	5.43	4.68	*na*	*na*	*na*	*na*	*na*
ALUMINIUM (% DW)	*a*	2.42	2.41	2.40	2.43	2.77	3.10	2.74	2.65	2.82	2.76	2.77	2.82	2.76	1.95	*na*	*na*	*na*	*na*	*na*
BERYLLIUM (mg/Kg DW)	*a*	1.3	1.3	1.4	1.5	1.3	1.5	1.4	1.3	1.5	1.5	1.6	1.4	1.5	1.3	*15*	*60*	*125*	*500*	*na*
BORON (mg/Kg DW)	*a*	0.9	0.7	1.0	0.7	1.2	0.4	1.1	0.9	0.6	0.6	0.6	0.7	0.3	1.7	*1,125*	*4,500*	*75,000*	*300,000*	*na*
COBALT (mg/Kg DW)	*a*	28	28	31	26	55	34	25	26	23	30	26	39	24	23	*25*	*100*	*1,000*	*4,000*	*na*
PESTICIDE ANALYSIS SCREEN																				
DDT+DDE+DDD (mg/Kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*60*	*240*	*900*	*3,600*	*<0.1*
Aldrin + Dieldrin (mg/Kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*2*	*6*	*11*	*45*	*<0.1*
Chlordane (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*13*	*50*	*133*	*530*	*<0.1*
Endosulfan (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*68*	*270*	*500*	*2,000*	*<0.1*
Endrin (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*3*	*10*	*25*	*100*	*<0.1*
Heptachlor (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*2*	*6*	*13*	*50*	*<0.1*
HCB (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*3*	*10*	*20*	*80*	*<0.1*
Methoxychlor (mg/kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	*75*	*300*	*625*	*2,500*	*<0.1*
Other Organochlorine Pesticides (mg/Kg)	*c*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	..	..	..	..	*<0.1*

METHODS REFERENCE

a. 1:3Nitric/HCl digest - APHA 3125 ICPMS
b. 1:3Nitric/HCl digest - APHA 3120 ICPOES
c. Analysis sub-contracted - Envirolab report no. 172691
*** denotes these test procedure or calculation are as yet not NATA accredited but quality control data is available*

NOTES

1a. HIL A ✗ Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.
1b. HIL B ✗ Residential with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
1c. HIL C ✗ Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. This does not include undeveloped public open space.
1d. HIL D ✗ Commercial/industrial, includes premises such as shops, offices, factories and industrial sites.
(REFERENCE: Health Investigation Guidelines from NEPM (National Environmental Protection, Assessment of Site Contamination, Measure), 2013; Schedule B1).
2. Environmental Soil Quality Guidelines, Page 40, ANZECC, 1992.

Additional NOTES

DW = Dry Weight. na = no guidelines available

Organochlorine pesticide (OC's) screen: (HCB, alpha-BHC, gamma-BHC, Heptachlor, delta-BHC, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, Endosulfan 1, pp-DDE, Dieldrin, Endrin, pp-DDD, Endosulfan 2, pp-DDT, Endrin Aldehyde, Endosulfan Sulphate, Methoxychlor)

NATA
Accreditation No. 14960.
Accredited for compliance with ISO/IEC 17025.

checked:.....

RESULTS OF SOIL ANALYSIS

8 samples supplied by Melaleuca Group Pty Ltd on 11th August, 2017 - Lab Job No. G2089
Analysis requested by Melissa Van Zwieten. **Your Project: Lennox St, Casino**
118 Beacon Road TEVEN NSW 2478

	Method	Sample 1 SP45	Sample 2 SP50	Sample 3 SP51	Sample 4 SP52	Sample 5 SP53	Sample 6 SP54	Sample 7 SP55	Sample 8 SP56
	Job No.	*G2089/1*	*G2089/2*	*G2089/3*	*G2089/4*	*G2089/5*	*G2089/6*	*G2089/7*	*G2089/8*
Lead (mg/Kg)	1:3 Nitric/HCl digest - APHA 3125 ICPMS	140	58	9	40	476	2,187	217	438

Notes:

1: ECEC = Effective Cation Exchange Capacity = sum of the exchangeable Mg, Ca, Na, K, H and Al
2: Exchangeable bases determined using standard Ammonium Acetate extract (Method 15D3) with no pretreatment for soluble salts. When Conductivity ≥0.25 dS/m soluble salts are removed (Method 15E2).
3. ppm = mg/Kg dried sample
4. Exchangeable sodium percentage (ESP) is calculated as sodium ($cmol^+$/Kg) divided by ECEC
5. All results as dry weight DW - samples were dried at 40°C for 24-48hrs prior to crushing and analysis.
6. Aluminium detection limit is 0.05 $cmol^+$/Kg; Hydrogen detection limit is 0.1 $cmol^+$/Kg. However for calculation purposes a value of 0 is used.
7. For conductivity 1 dS/m = 1 mS/cm = 1000 μS/cm
8. 1 $cmol^+$/Kg = 1 meq/100g
9. Methods from Rayment and Lyons, Soil Chemical Methods - Australasia
10. Conversion of cmol+/Kg to mg/Kg multiply cmol+/Kg by:
    230 for Sodium; 391 for Potassium; 200 for Calcium; 122 for Magnesium; 90 for Aluminium
11. Metals analysed by ICP-MS (Inductively Coupled Plasma - Mass Spectrometry) or ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry)

NATA
WORLD RECOGNISED ACCREDITATION
Accreditation No. 14960.
Accredited for compliance with ISO/IEC 17025.

Environmental Analysis Laboratory, Southern Cross University,
Tel. 02 6620 3678, website: scu.edu.au/eal

checked: .....
Graham Lancaster
Laboratory Manager

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 6

NCRP 2036 – Urban Growth Area Variation Principles

NORTH COAST REGIONAL PLAN 2036

URBAN GROWTH AREA VARIATION PRINCIPLES

Urban Growth Area Variation Principles		Planning Proposal Response
Policy	The variation needs to be consistent with the objectives and outcomes in the North Coast Regional Plan 2036 and any relevant Section 117 Directions and State Environmental Planning Policies, and should consider the intent of any applicable local growth management strategy.	• Compliance with the relevant provisions of the NCRP 2036, S117 Directions and SEPPs is provided within the Planning Proposal. Variations where necessary have been justified.
Infrastructure	The variation needs to consider the use of committed and planned major transport, water and sewerage infrastructure, and have no cost to government. The variation should only be permitted if adequate and cost-effective infrastructure can be provided to match the expected population.	• The land is adjacent to existing residential land and in close proximity to available services. Preliminary discussions regarding the availability of services is provided within the Engineering Report in **Attachment 1** of the Planning Proposal. • Local bus services will be able to service the development if required, demonstrating consistency with s117 Direction 3.4 Integrating Land Use and Transport. A traffic impact assessment is not deemed to be required in this instance.
Environmental and farmland protection	The variation should avoid areas: • of high environmental or heritage value; • mapped as important farmland, unless consistent with the interim variation criteria prior to finalising the farmland mapping review.	• The site comprises a heavily disturbed disused farmland dominated by tall mixed weedy grassland with scattered and clumped native trees generally consisting of eucalypt species. An Ecological Assessment has been prepared by Blackwood Ecological Services and is provided in **Attachment 2**. • Whilst the land is mapped as being Regionally Significant Farmland, the Agricultural Assessment provided demonstrates the land is not suitable for agricultural activities for a variety of reasons including size, location and soil type. As such the proposal will not occupy productive agricultural land.

Land use conflict	The variation must be appropriately separated from incompatible land uses, including agricultural activities, sewage treatment plants, waste facilities and productive resource lands.	• The land is located immediately adjacent to an existing urban environmental with no incompatible land uses in close proximity to the site. Appropriate buffers to adjacent agricultural land to the east and south are provided.
Avoiding risk	The variation must avoid physically constrained land identified as: • flood prone; • bushfire-prone; • highly erodible; • having a severe slope; and • having acid sulfate soils.	• The site is located within the 'Low Hazard - LH' designation under the Casino Floodplain Hazard Category Map. Minor filling of the land will be required to enable dwellings to be erected above the 1 in 100-year flood level. Furthermore we note that: • The subject land is not mapped as being bushfire prone or containing acid sulfate soils. • The land is relatively flat.
Heritage	The variation must protect and manage Aboriginal and non-Aboriginal heritage.	• The site does not contain items of Local Environmental Heritage pursuant to the RVLEP 2012 mapping. A Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants and provided in **Attachment 3**. This assessment did not find any items of Indigenous cultural heritage sites or relics or items of local historic significance within the Project Area.
Coastal area	Only minor and contiguous variations to urban growth areas in the coastal area will be considered due to its environmental sensitivity and the range of land uses competing for this limited area.	• The land is not located within the coastal area.

Newton Denny Chapelle
SURVEYORS PLANNERS ENGINEERS

ATTACHMENT 7

NCRP 2036 – Important Farmland Interim Variation Criteria

NORTH COAST REGIONAL PLAN 2036

IMPORTANT FARMLAND INTERIM VARIATION CRITERIA

Important Farmland Interim Variation Criteria Land may be suitable for uses other than farmland if:		Planning Proposal Response
Agricultural capability	The land is isolated from other important farmland and is not capable of supporting sustainable agricultural production.	• The Agricultural Assessment provided demonstrates the land is not suitable for agricultural activities for a variety of reasons including size, location and soil type. As such the proposal will not occupy productive agricultural land.
Land use conflict	The land use does not increase the likelihood of conflict and does not impact on current or future agricultural activities in the locality.	• The land is bounded by residential streets with residential development to the north and west of the site. Appropriate buffers can be provided to agricultural land to the east and south of the site. • No intensive agricultural activities are undertaken in close proximity to the site.
Infrastructure	The delivery of infrastructure (utilities, transport, open space, communications and stormwater required to service the land is physically and economically feasible at no cost to State and Local Government.	• The land is adjacent to existing residential land and in close proximity to available services. Preliminary discussions regarding the availability of services is provided within the Engineering Report in **Attachment A** of the Planning Proposal. • Local bus services will be able to service the development if required, demonstrating consistency with s117 Direction 3.4 Integrating Land Use and Transport. A traffic impact assessment is not deemed to be required in this instance.
Environment and heritage	The proposed land uses do not have an adverse impact on areas of high environmental value, Aboriginal or historic heritage significance.	• The site does not contain items of Local Environmental Heritage pursuant to the RVLEP 2012 mapping. A Cultural Heritage Assessment has been undertaken by Everick Heritage Consultants and provided in **Attachment C**. This assessment did not find any items of Indigenous cultural heritage sites or relics or items of local historic significance within the Project Area.

Avoiding risk	Risks associated with physically constrained land are identified and avoided, including: • flood prone; • bushfire-prone; • highly erodible; • severe slope; and • acid sulfate soils.	• The site is located within the 'Low Hazard - LH' designation under the Casino Floodplain Hazard Category Map. Minor filling of the land will be required to enable dwellings to be erected above the 1 in 100-year flood level. • The subject land is not mapped as being bushfire prone or containing acid sulfate soils. • The land is relatively flat.

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ATTACHMENT 8

Assessment Against State Environmental Planning Polices

Assessment Against State Environmental Planning Policies

State Environmental Planning Policy	Applies?	Comments
SEPP 1 Development Standards.	N/A	-
SEPP 14 Coastal Wetlands.	N/A	-
SEPP 19 Bushland in Urban Areas.	N/A	-
SEPP 21 Caravan Parks.	N/A	-
SEPP 26 Littoral Rainforests.	N/A	-
SEPP 30 Intensive Agriculture	N/A	-
SEPP 33 Hazardous & Offensive Development.	N/A	-
SEPP 36 Manufactured Home Estates.	N/A	-
SEPP 44 Koala Habitat Protection.	Applies	An assessment against the provisions of SEPP 44 has been undertaken within the Flora and Fauna Assessment prepared by Blackwood Ecological Services contained in **Attachment 2**. This assessment concludes that the site does not contain core Koala Habitat and a Koala Plan of Management is not required to be prepared.
SEPP 47 Moore Park Showground.	N/A	-
SEPP 50 Canal Estate Development.	N/A	-
SEPP 52 Farm Dams & Other Works in Land & Water Management Plan Areas.	N/A	-
SEPP 55 Remediation of Land.	Applies	A Preliminary Contaminated Land Assessment has been prepared by The Melaleuca Group and is provided in **Attachment 5**. This assessment concludes that the site may be rezoned for residential purposes providing the area of identified with high levels of lead is remediated and validated prior to residential development.
SEPP 62 Sustainable Aquaculture.	N/A	-
SEPP 64 Advertising & Signage.	N/A	-
SEPP 65 Design Quality of Residential Flat Buildings.	N/A	-
SEPP 70 Affordable Housing (Revised Schemes).	N/A	-
SEPP 71 Coastal Protection	N/A	The development is not subject to the SEPP 71 Coastal Policy.
SEPP (Affordable Rental Housing) 2009	N/A	-
SEPP (Building Sustainability Index:	N/A	-

State Environmental Planning Policy	Applies?	Comments
BASIX) 2004		
SEPP (Educational Establishments and Child Care Facilities) 2017	N/A	-
SEPP (Exempt and Complying Development Codes) 2008	N/A	-
SEPP (Housing for Seniors or People with a Disability) 2004	N/A	-
SEPP (Infrastructure) 2007	N/A	-
SEPP (Integration and Repeals) 2016	N/A	-
SEPP (Kosciuszko National Park — Alpine Resorts) 2007	N/A	-
SEPP (Kurnell Peninsula) 1989	N/A	-
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	N/A	-
SEPP (Miscellaneous Consent Provisions) 2007	N/A	-
SEPP (Penrith Lakes Scheme) 1989	N/A	-
SEPP (Rural Lands) 2008	Applies	As discussed within the Agricultural Assessment provided as part of this Planning Proposal, the rezoning of the land for residential purposes is unlikely to have an impact on rural lands in the vicinity of the site. Furthermore, the site itself is unable to support viable agricultural activities.
SEPP (State and Regional Development) 2011	N/A	-
SEPP (State Significant Precincts) 2005	N/A	-
SEPP (Sydney Drinking Water Catchment) 2011	N/A	-
SEPP (Sydney Regional Growth Centres) 2006	N/A	-
SEPP (Three Ports) 2013	N/A	-
SEPP (Urban Renewal) 2010	N/A	-
SEPP (Vegetation in Non-Rural Areas) 2017	N/A	-
SEPP (Western Sydney Employment Area) 2009	N/A	-
SEPP (Western Sydney Parklands) 2009	N/A	-

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ATTACHMENT 9

Assessment Against S117 Ministerial Directions

Assessment Against S117 Ministerial Directions

Section 117 Direction	Applies?	Comments
1. Employment and Resources		
1.1 Business and Industrial Zones	N/A	-
1.2 Rural Zones	Applies	**Justified inconsistency** The land is mapped as being Regionally Significant Farmland. However, an Agricultural Assessment has been undertaken and is provided in **Attachment 4** which concludes the land is not good quality agricultural land, cannot support viable agricultural activities and cannot be classified as Regionally Significant Farmland. Furthermore, compliance with Appendix B of the NCRP 2036 relating to farmland variation criteria is provided in **Attachment 8**.
1.3 Mining, Petroleum Production and Extractive industries	N/A	-
1.4 Oyster Aquaculture	N/A	-
1.5 Rural Lands	Applies	**Justified inconsistency** Refer to discussion above under Direction 1.2 Rural Zones.
2. Environment and Heritage		
2.1 Environmental Protection Zones	N/A	-
2.2 Coastal Protection	N/A	-
2.3 Heritage Conservation	Applies	**Consistent.** The subject land is not identified as being nor adjoined by an item of heritage significance pursuant to the Richmond Valley LEP 2012 heritage mapping. An Aboriginal Cultural Heritage Due Diligence Assessment has been undertaken by Everick Heritage Consultants and is provided in **Attachment 3**. This assessment did not find any Indigenous cultural heritage sites or relics within the project area and concludes that *'the proposed works are unlikely to lead to harm to Aboriginal objects."*
2.4 Recreation Vehicle Areas	N/A	-
2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs	N/A	-

3. Housing, Infrastructure and Urban Development		
3.1 Residential Zones	Applies	**Consistent.** The Planning Proposal involves the application of a zoning framework consistent with residential development within the immediate locality. The R1 General Residential zone provides for a variety of residential and other compatible land uses including dwellings, dual occupancies and multi dwelling housing. The subject site is adjacent to existing residential development and is easily serviced. An Engineering Services Report is provided in **Attachment 1** which demonstrates the site can be serviced via existing service connections that are adjacent to the site. As discussed within the Agricultural Assessment provided in **Attachment 4** and the Ecological Assessment in **Attachment 2**, the proposal will not have a significant impact on the natural environment or resource lands.
3.2 Caravan Parks and Manufactured Home Estates	N/A	-
3.3 Home Occupations	N/A	-
3.4 Integrated Land Use and Transport	Applies	**Consistent.** The subject site is located within an existing residential area and is bounded on all sides by the existing road network. The surrounding road network is considered capable of accommodating the future residential development of the land.
3.5 Development Near Licensed Aerodromes	N/A	-
3.6 Shooting Ranges	N/A	-
4. Hazard and Risk		
4.1 Acid Sulfate Soils	N/A	The subject site is not mapped as containing Acid Sulfate Soils within the RVLEP 2012 mapping.
4.2 Mine Subsidence and Unstable Land	N/A	The subject site is not mapped as containing areas of landslip within the RVLEP 2012 mapping.
4.3 Flood Prone Land	Applies	**Consistent.** The information contained under Section 1.3 and within **Attachment 1** of this Planning Proposal considers and addresses flooding. Concerning Item 6, flooding has been considered and addressed under Questions 3 of this Planning Proposal for Council review and consideration. In this regard: o The subject site is not located within a floodway o Richmond Valley Council has adopted the Casino Flood Plain Risk Management Plan and Part H-1 Flood Planning of the Richmond Valley Development Control Plan which applies to various design controls associated with the flood characteristics of the site. A

		future development application will need to address these provisions to the satisfaction of the consent authority. o The site will require minor filling to enable future dwellings to have a finished floor level located above the 1 in 100 year ARI flood level, which the subject property appears to be able to comply with based on a desk-top analysis. Notwithstanding the above, an additional flood assessment may be completed post Gateway Determination if deemed necessary by the Department of Planning.
4.4 Planning for Bushfire Protection	N/A	The subject land is not mapped as bushfire prone on Richmond Valley Council's adopted bushfire hazard mapping.
5. Regional Planning		
5.1 Implementation of Regional Strategies	N/A	-
5.2 Sydney Drinking Water Catchments	N/A	-
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	Applies	**Justified inconsistency** The land is mapped as being Regionally Significant Farmland. However, an Agricultural Assessment has been undertaken and is provided in **Attachment 4**. This assessment has concluded that *"the land is not good quality agricultural land and the land so cannot be classified as Regionally Significant Farmland."* The soil type of the land being poorly drained Weisenbodens is not a soil type listed within the Northern Rivers Farmland Protection Project soil landscapes and variants selected for inclusion as important farmland. Additionally, compliance with Appendix B of the NCRP 2036 relating to farmland variation criteria is provided in **Attachment 8**. The consistency of the proposal with the North Coast Regional Plan 2036 is provided above within Section 2 under Question 3 of the Planning Proposal.
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	N/A	-
5.5 Development in the Vicinity of Ellalong, Paxton and Milifield (Cessnock LGA).	Revoked	-
5.6 Sydney to Canberra Corridor	Revoked	-
5.7 Central Coast	Revoked	-
5.8 Second Sydney Airport: Badgerys Creek	N/A	-
5.9 North West Rail Link Corridor Strategy	N/A	-

5.10 Implementation of Regional Plans	Applies	**Consistent.** The consistency of the proposal with the North Coast Regional Plan 2036 is provided above within Section 2 under Question 3 of the Planning Proposal.
6. Local Plan Making		
6.1 Approval and Referral Requirements	Applies	No referral or concurrence requirements proposed within the Planning Proposal.
6.2 Reserving Land for Public Purposes	N/A	-
6.3 Site Specific Provisions	N/A	-
7. Metropolitan Planning		
7.1 Implementation of the Metropolitan Plan for Sydney 2036	N/A	-
7.2 Implementation of Greater Macarthur Land Release Investigation	N/A	-
7.3 Parramatta Road Corridor Urban Transformation Strategy	N/A	-
7.4 Implementation of North West Priority Growth Area Land Use and Infrastructure Implementation Plan	N/A	-
7.5 Implementation of Greater Parramatta Priority Growth Area Interim Land Use and Infrastructure Implementation Plan	N/A	-
7.6 Implementation of Wilton Priority Growth Area Interim Land Use and Infrastructure Implementation Plan	N/A	-