Enclosure 6

Revised LUCRA report Version 3,
prepared by Geolink

Land Use Conflict Risk Assessment

Lot 104 DP751388, James Creek Road Subdivision

PO Box 119
Lennox Head NSW 2478
T 02 6687 7666

PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 02 6772 0454

PO Box 229
Lismore NSW 2480
T 02 6621 6677

info@geolink.net.au

Prepared for: MPD Investments

Certification

	Name	***Signature***	***Date***
Prepared by	Jacob Sickinger Senior Environmental Planner Emma Anderson Environmental Planner	 	 Updated 18/04/2023
Reviewed by	Kale Hardie-Porter Environmental Planner Jacob Sickinger Senior Environmental Planner	 	10/05/2022 Updated 14/04/2023

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1. Introduction and Background

1.1 Background

GeoLINK has been engaged by MPD Investments to prepare a Land Use Conflict Risk Assessment (LUCRA) to support a development application (DA) for proposed residential subdivision at Lot 104 DP 751388 James Creek Road, James Creek within the Clarence Valley Local Government Area (LGA).

This report aims to review and consider the potential for land use conflict in the context of surrounding rural zonings and associated land uses and whether interface management is required as part of the proposed subdivision. This LUCRA should be read in conjunction with the Statement of Environmental Effects (SEE) and the associated design plans/ drawings.

Initially issued in May 2022, this LUCRA has subsequently been amended in response to Council's request for additional information dated 2 December 2022 and also to address an amended plan of subdivision incorporating the following key changes:

1. The 25m separation buffer initially proposed along the western boundary between the subject property and the farming property to the west has been increased to 50m;
2. The inclusion of a 25m vegetated buffer within the 50m separation buffer;
3. Increased stormwater management measures to closely mimic existing conditions by resulting in close to no additional run-off volume; and
4. Minor changes to lot sizes to accommodate amendments to the plan of subdivision.

With regards to Council's additional information request that specifically relates to the LUCRA, the following is advised:

Consultation with adjoining landowners

GeoLINK staff met with the adjoining landowners following the initial round of public submissions. Since then, and following Council's request for additional information, GeoLINK has approached Council to arrange a further meeting between the applicant and landowner to discuss concerns raised during the public exhibition stage. However, to date no further meetings have been facilitated.

Consequently, concerns raised in the submission have been identified and are addressed in this amended LUCRA. The LUCRA has also been amended to describe the nature of agricultural activities on surrounding properties as outlined in the submission from the adjoining landowner.

Proposed buffer distance

The LUCRA has been amended to address the following DPI publications: Factsheet *Landuse Conflict Risk Assessment Guide* (2011) and *Buffer Zones to Reduce Land Use Conflict with Agriculture* (Interim Guideline) (2018).

The proposed development has been amended to provide a 50m separation buffer between the western boundary, consistent with the recommended guidelines. A 25m planted vegetation buffer is included within the 50m buffer. These buffers will be within the development site and will not encroach on neighbouring land. Information about farming practices provided by the adjoining landowner and potential impacts have been reconsidered in the LUCRA, which demonstrates that these measures will be effective in reducing potential impacts to acceptable levels.

Potential conflicts associated with stock yards have been included and assessed in the amended LUCRA.

Spray Draft

The LUCRA has been amended to include details provided by the landowner in relation to the use of spray rigs and potential impacts considered.

Flooding

The LUCRA has been amended with regards to flood refuge areas and stocking density as provided by the landowner and potential impacts considered.

Stormwater

The issues raised in relation to potential impacts from stormwater have been re-addressed in the LUCRA.

Figure 1.1 and **Figure** 1.2 on the following pages show the previous and the amended plan of subdivision.

1.2 Proposal Overview

The proposal is for subdivision of the site and associated development, including an internal access road that would connect to James Creek Road. The proposal involves:

- Creation of 332 lots (327 residential lots, 1 commercial lot, 4 drainage reserves and associated public open space areas). Residential lots abut the southern and eastern boundaries, whereas lots are offset 25m (by a perimeter road reserve) from the northern boundary and 50m from the western boundary.
- Construction of infrastructure provisions (including service installations/connections and road construction).

The proposal will generally allow the retention of scattered trees along the north-east, western and southern boundaries of the site.

Access for all proposed lots will be via an intersection to James Creek Road. The internal road network comprises a permeable symmetric layout of through roads, including a main ring road and several smaller loop roads.

Illustration 2.1 and **Illustration 2.2** (in **Section 2.1** of this report) provide a site locality map and an aerial image of the site overlaid with the proposed subdivision layout.

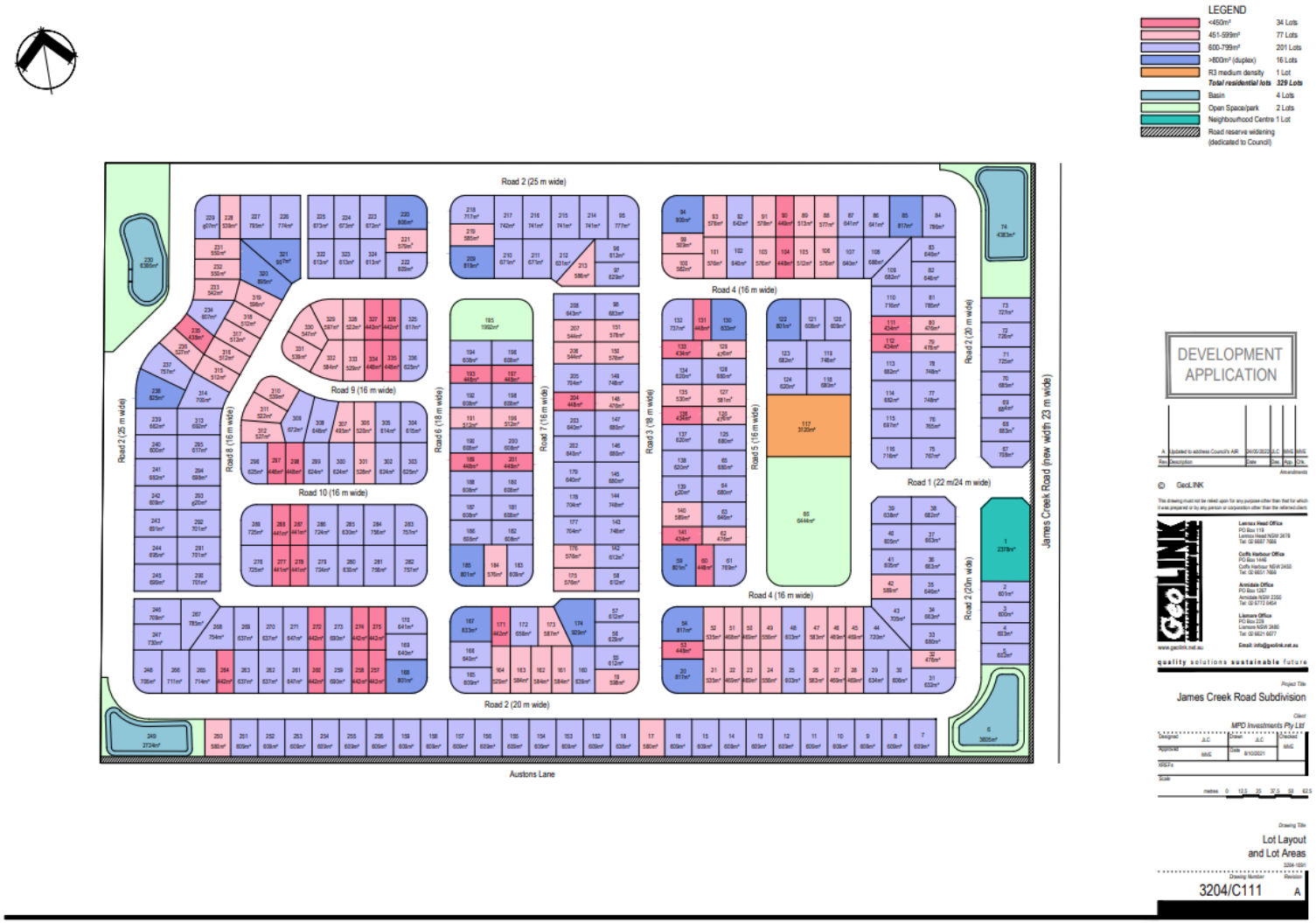


Figure 1.1 Previous Subdivision Layout

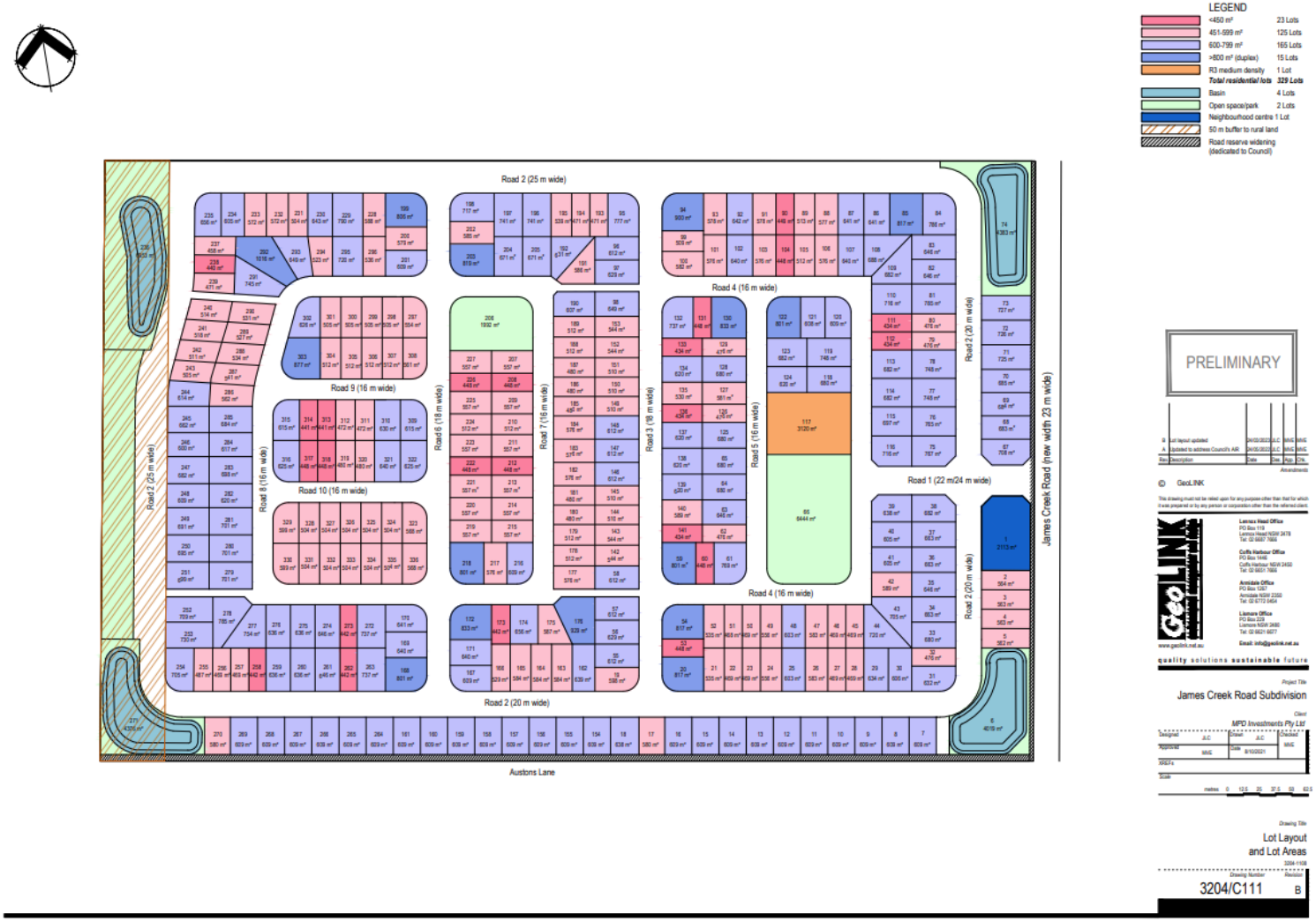


Figure 1.2 Amended Subdivision Layout incorporating 50m to the western boundary

1.3 Planning Context

1.3.1 Statutory Controls and Local Environmental Plan

The site is zoned under the Clarence Valley Local Environment Plan 2011 (CVLEP) as follows:

- Zone R1 – General Residential.
- Zone R3 – Medium Density Residential.
- Zone B1 – Neighbourhood Centre.

Table 1.1 shows the zone objectives for each of the relevant zones.

Table 1.1 Zone Objectives

LEP Zoning	Zone Objectives
Zone R1 – General Residential	■ *To provide for the housing needs of the community.* ■ *To provide for a variety of housing types and densities.* ■ *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
Zone R3 – Medium Density Residential	■ *To provide for the housing needs of the community within a medium density residential environment.* ■ *To provide a variety of housing types within a medium density residential environment.* ■ *To enable other land uses that provide facilities or services to meet the day to day needs of residents.* ■ *To enable serviced apartments while maintaining the medium density residential character and amenity of a locality.*
Zone B1 – Neighbourhood Centre.	■ *To provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood.* ■ *To reinforce the neighbourhood centres of Coutts Crossing, Glenreagh, Lawrence and Ulmarra as the locations for commercial premises.* ■ *To minimise conflict between land uses within the zone and land uses within adjoining zones.* ■ *To enable other land uses that are compatible with and do not detract from the viability of retail, business and community uses within the zone.*

The proposed subdivision has been designed to reflect the objectives of each of the zones and is considered consistent with the relevant zone objectives under CVLEP. The Proposal is permissible with consent.

Surrounding land use zones include a rural, large lot residential, and environmental zones. The site and surrounding zoning provisions are shown in **Illustration 2.2**.

1.3.2 Development Control Plan

The Clarence Valley Residential Development Control Plan (CVDCP) 2011 supports the provisions of CVLEP and provides a set of development objectives and provisions for development within the Clarence Valley LGA. The relevant provisions of the DCP and how they relate to the proposed development are addressed in the SEE.

The CVDCP (applicable to residential or rural zones) does not contain any specific policies or criteria relating to matters of potential rural land use conflict. Despite the lack of such guidance/ controls in the CVDCP, the accepted guideline to assess land use conflict is the NSW DPI *Living and Working in Rural Areas Handbook* (the Handbook). This is the primary guide to assess proposals when there are residential uses proposed to interface with rural land or agricultural activities. Other supporting guiding documents introduced by DPI since the publication of the Handbook in 2007 are address in Section 1.4.

1.3.3 North Coast Regional Plan 2036

The application was lodged before the release of the North Coast Regional Plan 2041. The provisions of the 2036 Plan therefore still apply to the proposal.

The purpose of the North Coast Regional Plan (NCRP) 2036 is to provide a strategic land use planning framework to guide land use and planning priorities in the North Coast Region to 2036. The Plan informs local strategic planning statements and local environmental plans.

The NCRP 2036 indicates the need for a minimum additional housing supply of 3,550 dwellings for the Clarence Valley LGA by 2036. The most relevant North Coast Regional Plan 2036 goal guiding this is *Goal 4: Great housing and lifestyle options,* which includes the following Directions:

- *Direction 22 - Support delivery of a greater housing supply*
- *Direction 23 - Increase housing diversity and choice*
- *Direction 25 - Deliver more opportunities for affordable housing*

Noting the importance and strategic direction given to boosting housing supply, the NCRP 2036 also acknowledges the importance of rural lands and agricultural activity on the North Coast and includes Direction 11 which is to *protect and enhance productive agricultural lands.* Under Direction 11, the following relevant Actions are noted:

- *11.1 Enable the growth of the agricultural sector by directing urban and rural residential development away from important farmland and identifying locations to support existing and small-lot primary production, such as horticulture in Coffs Harbour.*
- *11.2 Deliver a consistent management approach to important farmland across the region by updating the Northern Rivers Farmland Protection Project (2005) and Mid North Coast Farmland Mapping Project (2008).*
- *11.3 Identify and protect intensive agriculture clusters in local plans to avoid land use conflicts, particularly with residential and rural residential expansion.*

Importantly, these matters and related Directions and Actions are typically used to guide future urban land use planning and urban land release decisions, such as associated rezoning proposals. In the current context, the subject land at James Creek Road has already been through the strategic planning and rezoning process. It has been identified and designated for urban/ residential development and zoned according.

The proposed subdivision has been designed to allow for the orderly future development of the site for residential purposes and ensure efficient use of land resources. The proposed development is permissible.

1.3.4 Mid North Coast Farmland Project 2008

The Mid North Coast Farmland Mapping Project followed the Northern Rivers Farmland Protection Project which was completed in March 2005. The project has aimed to identify and protect regionally significant farmland from urban and rural residential encroachment and land use conflict. Additionally, it has aimed to encourage farmland areas to be targeted for land management assistance where suitable through Catchment Management Authority funding.

Regionally significant farmland is defined, for Mid North Coast Farmland Mapping Project, as 'land capable of sustained use for agricultural production with a reasonable level of inputs and which has the potential to contribute substantially to the ongoing productivity and prosperity of a region.'

The resulting maps (see **Figure 1.3** for excerpt of relevant map) showed farmland to be protected from urban and rural residential rezoning by the Minister for Planning's former Section 117 Direction under the *Environmental Planning and Assessment Act 1979*. As depicted in **Figure 1.3**, the subject site of the proposed subdivision is identified as "proposed urban area". Furthermore, the immediately adjacent land is not mapped as "regionally significant farmland" but is mapped as "other rural land". The nearest mapped regionally significant farmland is approximately 290m to the east (refer to **Illustration 2.2**).

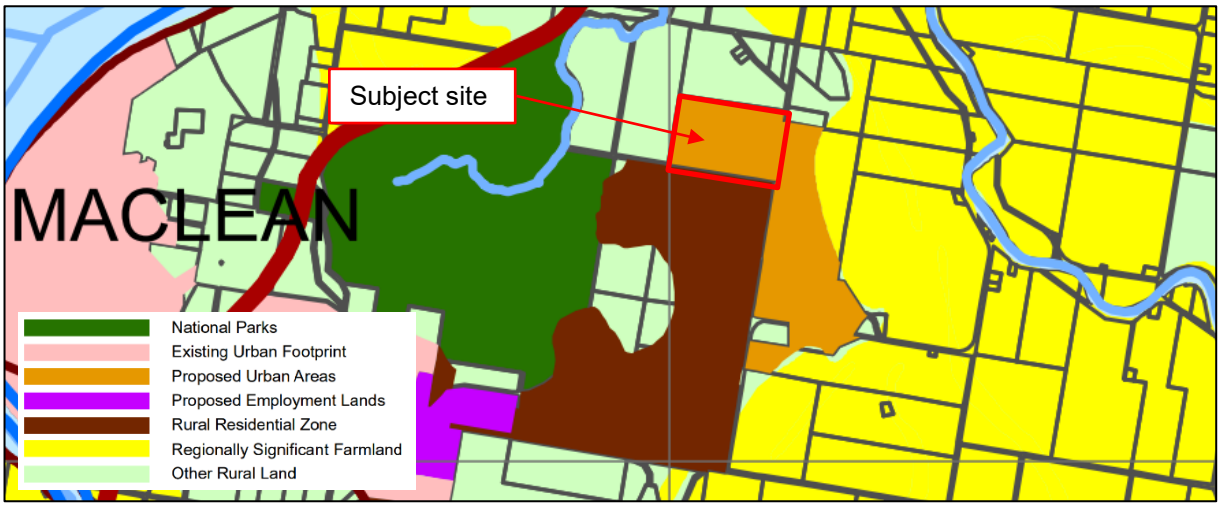


Figure 1.3 Excerpt from Map 1 of 4 from Mid North Coast Farmland Mapping Project (2008)

This acknowledges that at a strategic and statutory level, the site has been declared as suitable for residential purposes and the zoning/ agricultural land mapping reflects this. Nonetheless, the area is yet to commence urbanisation, and rural land and agricultural activities remain present in the surrounding area. Hence, more specific consideration of the potential for rural land use conflict is now given based on the proposed DA for residential subdivision. The purpose of this LUCRA is to assess the potential for land use conflict between existing rural uses/ activities and proposed residential uses, and recommend any necessary measures to help avoid, minimise, or manage this.

1.3.5 State Environmental Planning Policy (Primary Production) 2021

The relevant aims of State Environmental Planning Policy (Primary Production) 2021 (Primary Production SEPP) are:

(b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources,

(c) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,

Part 2.2 of the Primary Production SEPP provides identification and protection of agricultural land of State and regional significance. Land is State significant agricultural land if it is listed in Schedule 1. However, at the time of writing, Schedule 1 was blank and the Primary Production SEPP does not identify any land that is afforded such statutory protection due to its agricultural significance.

1.3.6 State Environmental Planning Policy (Resources & Energy) 2021

Biophysical Strategic Agricultural Land (BSAL) is land with high quality soil and water resources capable of sustaining high levels of productivity and has been mapped under the above SEPP which offers protections from mining activity that could impact BSAL land.

BSAL plays a critical role sustaining the State's $12 billion agricultural industry. A total of 2.8 million hectares of BSAL has been identified and mapped at a regional scale across the State. As shown in **Illustration 2.2**, neither the subject site nor the immediately adjoining land is mapped as BSAL.

1.4 Living and Working in Rural Areas Guideline

The *Living and Working in Rural Areas Handbook* (Learmonth et al. 2007) (the Handbook) publication presents a consolidation of best practices and strategies arising from managing land use conflict on the North Coast of NSW. The Handbook addresses land use conflicts and interface issues arising between agricultural practices and neighbouring residents.

LUCRA's were initially conceived in the Handbook by the Centre for Coastal Agricultural Landscapes in partnership with the Northern Rivers Catchment Management Authority as a tool to better manage potential land use conflicts between residential development and rural activities and environmental attributes/assets on the NSW North Coast.

The Handbook, in particular *Chapter 6 Development Control*, provides guidance in the assessment and mitigation of potential land use conflict matters and have been used as a resource for this LUCRA. The Handbook outlines principles and measures to avoid or minimise the potential for land use conflict. Land use buffers (physical separation) are a common land use planning tool in reducing potential conflicts through the separation of certain uses. Though it is recognised that the purpose and application of buffers will vary depending upon individual circumstances and merit assessment. The Handbook recommends various general buffer distances (in metres) that may be considered as an adequate separation between residential areas/urban development and rural activities/primary industries, with the most relevant to this assessment being:

- Grazing of stock: 50m.
- Sugar cane, cropping and horticulture: 300m.
- State and regionally significant farmland: 300m.

It is important however, to recognise that buffers should not always be the default position and they are part of the toolkit in reducing land use conflict. While buffers can form part of a management response, they do not lessen the need for sound strategic planning and appropriate identification of land release areas and rezoning.

Additionally, generic application of separation/ buffers do not replace the need for individual assessment of a proposal based on the specific characteristics of the site, locality and proposal itself.

The site, proposal, and contextual specifics will inform the need for and range of potential management measures, and numeric separation buffers should not necessarily be used as an "easy" default position. Local and site-specific circumstances and application of relevant policies and specific guidelines will guide what measures are ultimately reasonable and appropriate in the circumstances. It is also noted that whilst complying with a default or standard buffer setback can help reduce conflict, it cannot guarantee the avoidance of conflict or interface issues completely. Chapter 3 of the Handbook also describes other management practices that could be used to reduce potential conflicts.

There are also a range of buffer types that can be utilised, in addition to standard physical separation, these include:

- **Separation buffers:** are the most common and involve establishing a physical separation between land uses where conflict could arise.
- **Biological and vegetated buffers:** created by vegetation planting and physical landscaping works. These can be a substitute where default physical separation distances cannot be fully achieved and/or also help with visual amenity and also reduce chemical spray drift and dust.
- **Landscape and ecological buffers:** refer to the use of existing vegetation to help reduce impact from development and can be used to maintain and protect existing vegetation and habitat.
- **Property management buffers:** refer to the use of alterative or specialised management practices or actions at the interface between uses where the potential for conflict is high.

It is noted also that where new residential development/ dwellings are proposed on existing land with dwelling entitlement(s), or within land that has been through the strategic planning process and rezoned accordingly to residential, the setbacks and buffers normally required in a predominately rural setting may no longer be necessarily the most appropriate or practical response (if measures are necessary at all based on the site context). In these cases, discretion should be used to determine the level of potential conflict in this context and any necessary conflict avoidance strategies. Variations to buffer recommendations are permissible and ultimately the strategy adopted should consider the site-specific circumstances.

This LUCRA has been prepared given the proposed residential land use of the site and nearby/ adjoining rural land. The purpose of the LUCRA is to identify land use compatibility and any potential conflict between the proposed land use and neighbouring land uses and therefore, assists in the identification of the potential for future land use conflict and any necessary management measures that may be required. The LUCRA aims to:

- Assess the effect of the proposed land use on neighbouring land uses;
- Identify any potential risk of conflict between the proposed and neighbouring land uses;
- Provide an understanding of any likely land use conflict;
- Where deemed necessary, address land use issues and risks before a new land use proceeds or before a dispute arises; and
- Where required, highlight or recommend strategies to help avoid or minimise conflict.

In order to achieve the aims outlined above, a four-step assessment process has been undertaken as follows:

1. **Information Gathering** – The site biophysical characteristics, the nature of the development proposed, and the surrounding land uses are described.
2. **Risk Level Evaluation** - Each proposed activity is identified, and an assessment of potential land use conflict level is assigned. The higher the risk level, the more attention it will require.
3. **Identification of Risk Mitigation Management Strategies** – Where required, management strategies are identified which can assist in lowering the risk of potential conflict.

4. **Record Results** – Key issues, risk level and recommended management strategies are recorded and summarised.

1.4.1 Factsheet: Landuse Conflict Risk Assessment Guide

The DPI Factsheet *Landuse Conflict Risk Assessment Guide* was published in 2011 to provide guidance on practical measures to use when conducting a LUCRA and is primarily focused on conflicts effecting agricultural developments. The Factsheet identifies rural amenity issues as the most common land use conflict as listed below, followed by environmental protection issues. It also identifies direct impacts from neighbouring land uses on farming operations:

Rural Amenity issues:

- Air quality due to agriculture and rural industry (odour, pesticides, dust, smoke and particulates);
- Use and enjoyment of neighbouring land (eg noise from machinery); and
- Visual amenity associated with rural industry (eg use of netting, planting of monocultures and impacts on views).

Environmental protection issues:

- Soil erosion leading to land and water pollution;
- Clearing of native vegetation; and
- Stock access to waterways.

Impacts from neighbouring land:

- Harassment of livestock from straying domestic animals;
- Trespass;
- Changes to stormwater flows or water availability; and
- Poor management of pest animals and weeds.

The Factsheet confirms that it is the right of new rural residents, existing residents and rural producers alike to live in and enjoy rural environments. Furthermore, that to avoid and resolve disputes, information and communication are necessary to achieve informed and reasonable expectations and a mutual understanding of the needs of different lifestyles.

The Factsheet also confirms the important role a LUCRA can play in assessing and managing potential land use conflict. This LUCRA generally follows the suggested structure of the Factsheet which is consistent with the four-step assessment process outlined in The *Living and Working in Rural Areas Handbook*:

1. Gather information about proposed land use change and associated activities;
2. Evaluate the risk level of each activity;
3. Identify risk reduction management strategies; and
4. Record LUCRA results.

1.4.2 Primefact: An Interim Guideline: Buffer Zones to Reduce Land Use Conflict with Agriculture

The *Buffer Zones to Reduce Land Use Conflict with Agriculture* (Interim Guideline) was produced by DPI in 2018 to provide further advice about incorporating appropriate buffer zones into developments,

with suggested distances provided from which a development should be further evaluated for possible impacts. The Guideline notes the growing potential for community scrutiny of agricultural land uses as residential development continues to expand into areas that have long been associated with primary production, and as land typically used for agriculture purposes may be used less intensively. The NSW Right to Farm Policy was developed in 2015 partly in response to the increase in land use conflict noted by Local Government. The consistent application of separation distances is recognised in the Guideline as having a role in implementing this policy.

The Guideline reinforces that land separation continues to be an effective way of minimising potential land use conflict and of enabling primary producers to operate effectively with fewer constraints, while it also plays a key role in farm biosecurity and in managing impacts on the environment from agriculture. The importance for buffers for new residential developments to not rely on adjacent rural landholdings to provide buffer zones to the new development is also reinforced.

The *Living and Working in Rural Areas Handbook* is still the most comprehensive publication pertaining to buffer/ separation distance. However, since 2007 there have been changes with respect to buffers and industry best practice management by agricultural sectors and various policies, guidelines, regulations and legislation. Relevant changes have been incorporated into the 2011 Guidelines.

The suggested evaluation distances in the Guideline between sensitive receptors and agricultural activities relevant to the proposal are as follows:

- Stock grazing 50m.
- Stock yards 200m.
- Outdoor cropping/sugar cane 300m.
- Outdoor horticulture 250m.

2. Information Gathering

2.1 Site and Proposal Overview

Details of the subject site and proposal are summarised below:

Site details and address	Lot 104 DP751388, James Creek Road, James Creek
LGA	Clarence Valley Local Government Area
Zoning	Zone R1 – General Residential; Zone R3; Medium Density Residential; Zone B1 – Neighbourhood Centre; as per CVLEP.
Development type	Residential subdivision and associated works, including low and medium density residential lots, and construction of supporting infrastructure.

Illustration 2.1 shows the site locality and **Illustration 2.2** shows an aerial image of the site overlaid with zoning and the proposed subdivision layout.

0 1 Km

Site Locality - Illustration 2.1

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: JTS
Source of base data: OpenStreet Map
Date: 05/05/2022

2.2 Site Description

Lot 104 DP 751388 (the site) is rectangular in shape and has an area of approximately 33 ha. It is situated mid-way along James Creek Road in James Creek, bounded by James Creek Road to the east and Austons Lane to the south, with large rural lots to the north and west. The lot to the north is densely vegetated. Approximately 650m further to the west flows James Creek and approximately 1.3km to the east flows Palmers Channel. Both waterways flow north, discharging into the Clarence River approximately 1.7km north of the site.

James Creek is a small, rural locality on the north coast of NSW. The nearest townships are Maclean, Gulmarrad and Yamba, all within 10-15 minutes' drive of the site. Grafton is the nearest larger centre, located 45 minutes' drive southwest.

The site has been historically cleared and modified for agriculture, sugar cane production and cattle grazing. It is currently essentially clear of vegetation other than grass. The crest of a small hill is located slightly to the north-west of the centre of the site. From this crest, the land falls away in all directions with slopes on the site typically in the range of 3% to 10%.

The site is predominantly zoned R1 General Residential, with a portion zoned R3 Medium Density Residential. There is also a small area approximately 2,100m² zoned B1 Neighbourhood Centre. This area has the potential to include a neighbourhood shop or similar compatible commercial development.

No natural watercourses or water features occur.

The site occurs on the New Italy (ne) soil landscape (Morand, 2001), characterised by moderately deep, poorly/imperfectly drained Grey Kurosols and moderately deep, imperfectly drained Yellow Kurosols throughout hillslopes and crests. Shallow (<100 cm), moderately well-drained Orthic Tenosols (Siliceous Sands) occur within rolling to steep low hills forming on the Maclean Sandstone Member of the Walloon Coal Measures.

Photographs of the site are shown at **Plate 2.1** through to **Plate 2.2**.

Plate 2.1 Subject site: Cleared land proposed to be developed and adjacent northern vegetation

Plate 2.2 Subject site: Cleared land proposed to be developed and adjacent northern vegetation

2.2.1 Topography, Climate and Natural Features

The crest of a small hill is located slightly to the north-west of the centre of the site. From this crest, the land falls away in all directions with slopes on the site typically in the range of 3% to 10%. The site ranges in elevation from around 5 m AHD to 21 m AHD.

The site comprises grassland with limited and isolated stands/scatters of native vegetation.

No natural watercourses or water features occur on the site.

The nearest weather station is located at Harwood Island (Harwood Sugar Mill) (6.6km away), however it does not offer the full range of climatic information. The next closest weather station with full statistics is located at Yamba Pilot Station (16km away). Climate statistics from this weather station are provided at **Figure 2.1**. Whilst not reflecting the exact on-site/ local weather conditions, the results provide a reasonable indication of the general weather that can be experienced in the broader locality.

Figure 2.1 Monthly Local Climate Conditions and Statistics

Summary statistics YAMBA PILOT STATION

A summary of the major climate statistics recorded at this site is provided below. There is also an extended table with more statistics available. More detailed data for individual sites is available.

Site information

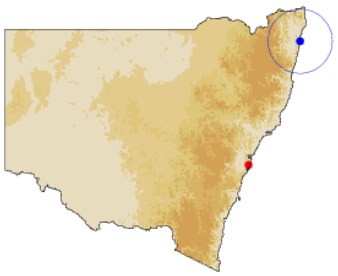
Site name: YAMBA PILOT STATION
Site number: 058012
Latitude: 29.43 °S **Longitude:** 153.36 °E
Elevation: 27 m
Commenced: 1877 **Status:** Open
Latest available data: 05 May 2022

Additional information

Additional site information

Nearest alternative sites

1. 058027 HARWOOD SUGAR MILL (10.6km)
2. 058052 TABBIMOBILE STATE FOREST (27.3km)
3. 058212 EVANS HEAD RAAF BOMBING RANGE AWS (27.8km)



View larger map

0 150 300 500 800m
Elevation - metres

View: Main statistics / All available | Period: Use all years of data | Text size: Normal / Large

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years		Plot	Map
Temperature																	
Mean maximum temperature (°C)	26.8	26.8	26.1	24.3	21.8	19.7	19.1	20.2	22.1	23.4	24.7	26.0	23.4	145	1877 2022		
Mean minimum temperature (°C)	20.3	20.4	19.3	16.5	13.3	10.9	9.8	10.5	13.0	15.5	17.5	19.2	15.5	145	1877 2022		
Rainfall																	
Mean rainfall (mm)	139.5	163.2	191.6	160.4	153.4	136.7	100.3	75.2	58.8	79.6	92.3	117.7	1463.2	142	1877 2022		
Decile 5 (median) rainfall (mm)	112.5	137.6	163.4	136.1	123.2	112.5	65.8	54.4	42.6	65.7	76.2	102.4	1407.3	145	1877 2022		
Mean number of days of rain ≥ 1 mm	10.3	11.0	13.5	11.5	10.5	8.8	7.5	6.6	6.4	7.7	8.2	9.0	111.0	145	1877 2022		
Other daily elements																	
Mean daily sunshine (hours)																	
Mean number of clear days	8.0	6.3	7.8	9.9	10.7	11.5	14.6	16.1	15.2	12.1	9.6	9.4	131.2	54	1944 2010		
Mean number of cloudy days	10.7	10.7	11.7	9.4	10.7	9.5	7.6	6.2	5.6	8.2	9.9	10.0	110.2	54	1944 2010		
9 am conditions																	
Mean 9am temperature (°C)	23.8	23.5	22.6	20.3	16.9	14.1	13.1	14.7	18.0	20.4	21.5	23.0	19.3	58	1907 2010		
Mean 9am relative humidity (%)	78	81	80	79	78	78	74	70	67	69	74	76	75	54	1944 2010		
Mean 9am wind speed (km/h)	13.6	13.8	13.7	12.9	11.9	12.7	12.5	12.7	12.9	13.5	12.9	12.7	13.0	54	1944 2010		
9am wind speed vs direction plot																	
3 pm conditions																	
Mean 3pm temperature (°C)	25.2	25.3	24.4	22.7	20.5	18.5	17.9	18.6	20.1	21.2	22.6	24.0	21.8	55	1944 2010		
Mean 3pm relative humidity (%)	75	75	74	71	67	65	61	60	64	70	72	75	69	54	1944 2010		
Mean 3pm wind speed (km/h)	21.1	20.6	20.6	17.9	15.4	15.4	15.7	18.1	21.2	23.0	21.9	21.5	19.4	54	1944 2010		
3pm wind speed vs direction plot																	

Wind observations for Yamba are shown in the wind roses at **Figure 2.2** and **Figure 2.3**. Annual wind direction averages predominately tend from the south and southeast, with gentle westerlies also experienced in the morning. Winds predominately tend from south, southeast and northeast in the afternoon. Wind speed is mostly medium, with gentle and gusty conditions also experienced. However, it is noted that this stronger wind gust is likely influenced by the coastal location of the Yamba Station, with wind speeds generally less inland and therefore wind speeds at the site are likely to be low to medium.

Figure 2.2 Annual Wind Rose 9am

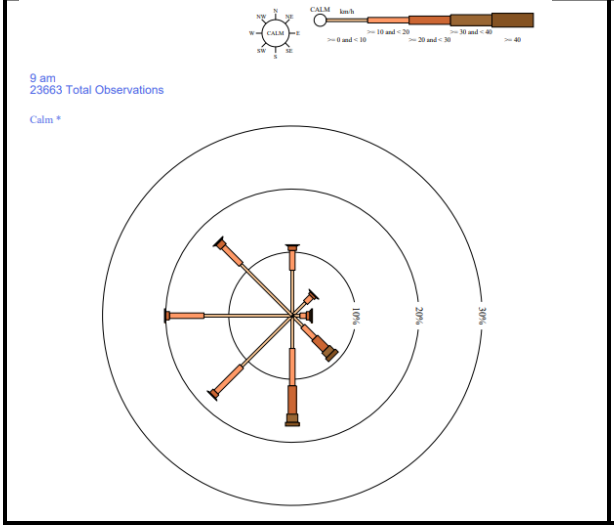
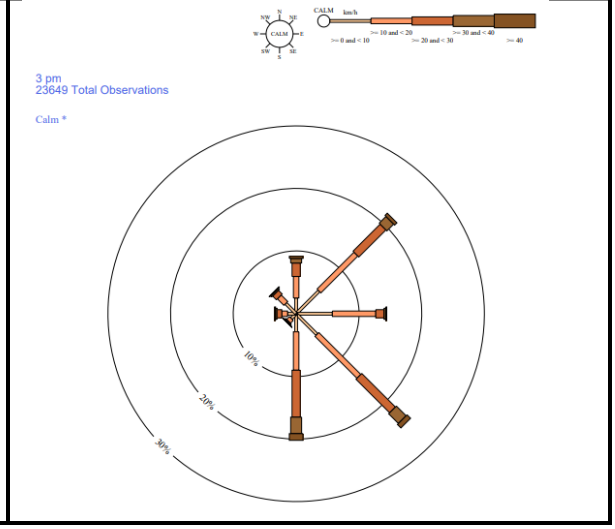


Figure 2.3 Annual Wind Rose 3pm



2.2.2 Adjoining and Surrounding Land Uses

The site sits on a large property within a rural context, with village type and large lot residential urban development present in the locality. Surrounding land is mostly rural in character and comprises grazing land, cropping and horticultural plantations, and interspersed rural dwellings/ hobby farms, with a notable large lot residential development area directly to the south.

The following land uses adjoin the boundaries of the site:

- To the north is a rural property within the RU2 Rural Landscape zone, comprising forested land which extends along the entire northern boundary (refer to **Plate 2.3**). The nearest dwelling to the north is about 300m away.
- To the east is James Creek Road. Beyond the road is rural land zoned RU1 Primary Production, comprising open grassland and scattered trees, drainage lines and minor intermitted waterbodies. Further to the east, commencing about 550m from the site, are crops (sugar cane) and horticulture. There appears to be a small livestock yard/pen located on the property east of James Creek Road, approximately 10 m east of the boundary with James Creek Road, and about 25 m from the boundary of the subject site. The nearest dwelling to the east is approximately 200m away.
- To the south comprises of R5 Large Lot Residential zone that has been developed accordingly with dwellings. The nearest dwelling in this zone is about 120m south of the boundary.
- To the west is rural land zoned RU2 Rural Landscape. The adjoining western lot is a medium sized holding of 33ha and occupied by a dwelling (about 220m to the northwest of the subject site). The land is partly forested with remanent vegetation, including a section along the western boundary, and partly grassland used for cattle grazing. Approximately 20-30 cattle were observed grazing the open pasture during a site inspection in April 2022. In a submission to Council from an

adjoining land holder, it is advised that this lot forms part of a 700-acre farming operation upon which a herd of 80 breeders together with sugar production is undertaken. Pasture improvement is also already actively undertaken as part of farming activities with plans for further fodder crops and horticultural (eg macadamia nuts).

- Further to the west is more rural land and also environmental conservation zoning that covers swampy forests/ wetland areas. A view of historical aerial imagery indicates that the land use activity on this land has not materially changed for decades. This land is more than 250m from the boundary with the development site, and is largely contained within the Yaegl Nature Reserve, which would suggest that it is unlikely to be able to support, or be used for intensive agricultural activity.

The zoning and land uses present in the surrounding area, including that described above and dwellings surrounding the site, are depicted in **Illustration 2.2.** There are no other sensitive land use types within 500m of the site. **Plate 2.3** to **Plate 2.8** show the land use characteristics at the west, north and south boundaries of the site, as described above.

Plate 2.3 Vegetated land adjoining the northern boundary interface

Plate 2.4 Large lot residential land/ development to the south

Plate 2.5 Rural land to the west (partly forested section)

Plate 2.6 Rural land to the west (edge of forested area opening to grazing land beyond)

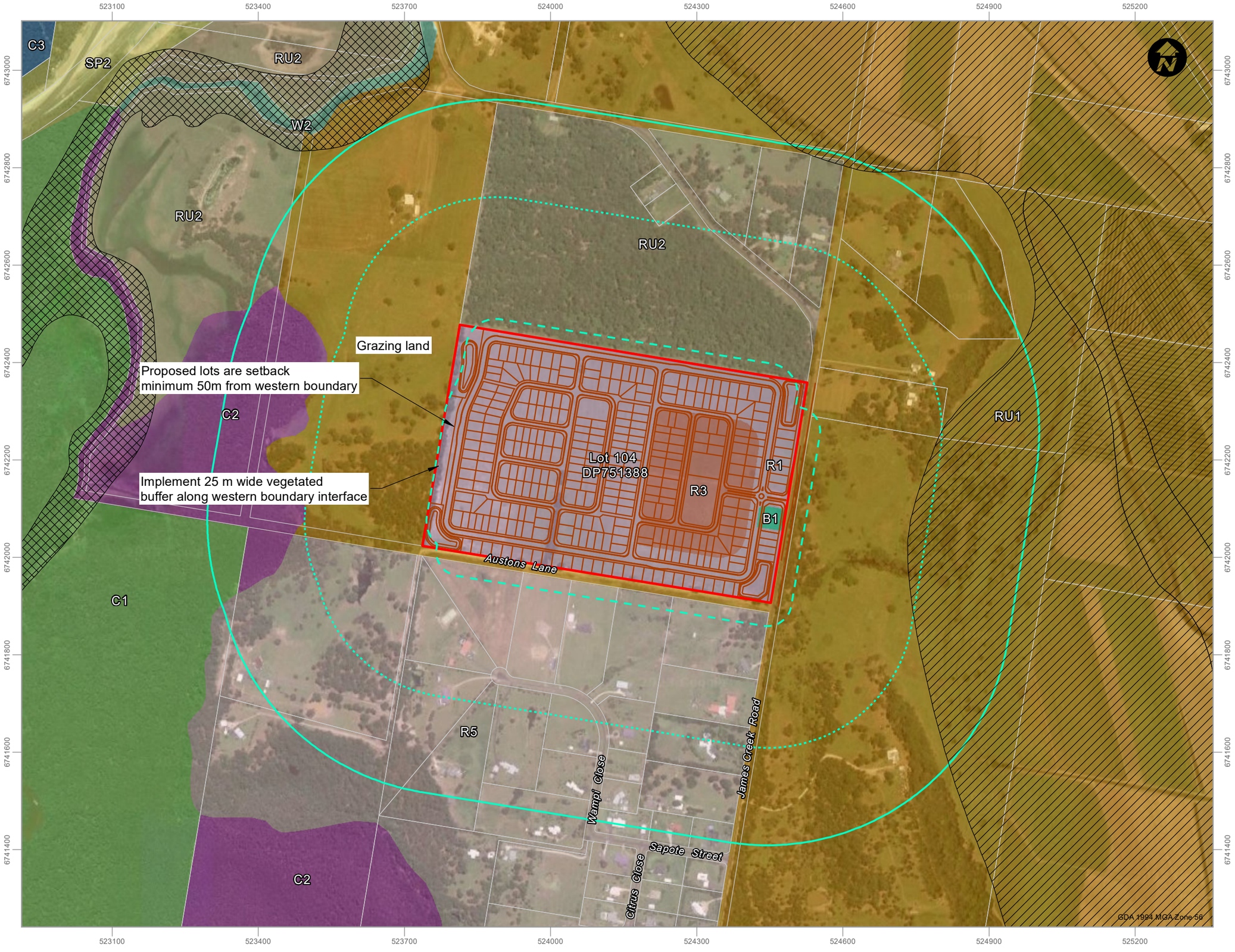
Plate 2.7 Open western interface to low intensity cattle grazing land.

Plate 2.8 Scattered trees along western boundary with low intensity grazing of cattle beyond.

Plate 2.9 Location of small livestock yard/ pen east of James Creek Road

2.2.3 Consultation

GeoLINK staff met with the adjoining landowners following the initial round of public submissions. Since then, and following Council's request for additional information, GeoLINK has approached Council to arrange a further meeting between the applicant and landowner to discuss concerns raised during the public exhibition stage. However, to date no further meetings have been facilitated. Concerns raised in the submissions however have been identified and are addressed in this amended LUCRA.



LEGEND

- Site boundary
- Cadastre
- Regionally significant farmland
- Biophysical Strategic Agricultural Land
- C1 National Parks and Nature Reserves
- C2 Environmental Conservation
- C3 Environmental Management
- B1 Neighbourhood Centre
- R1 General Residential
- R3 Medium Density Residential
- R5 Large Lot Residential
- RU1 Primary Production
- RU2 Rural Landscape
- SP2 Infrastructure
- W2 Recreational Waterways

Distance (m) from proposed residential lots

- 50
- 300
- 500
- Proposed lot layout

0 150 Metres

Site Zoning and Surrounding Land Use Context - Illustration 2.2

Information shown is for illustrative purposes only
Drawn by: AB Checked by: MVE Reviewed by: ERA
Source of base data: Google Maps
Date: 31/03/2023
Revision: A

2.3 Potential Land Use Conflict

2.3.1 General Potential Rural Interface Conflicts

The proposed development of a site should consider the surrounding land use context and where necessary be designed to minimise instances of incompatibility such that any important agricultural values or farming practices that may occur in an area are not inhibited, or adversely affect the amenity of future residents. Where such instances do arise, measures to ameliorate potential conflicts may be necessary.

Conflict between residential development and agricultural land uses (particularly intensive forms) is most likely to occur where residential land uses directly abut, or are close to, active farmland and primary production such that they are likely to be affected by regular agricultural activities. Conflict between the proposed residential development of the site and existing agricultural activities is a potential cause for concern at this site given the proximity to adjacent agricultural activities (i.e. cattle grazing, production of crops or fodder etc). The likelihood is not expected to be high however, given measurements incorporated into the design of the subdivision to control and minimise potential external impacts and also the nature and scale of adjoining agricultural activities. Furthermore, the area is zoned for residential/ urban purposes (meaning there is a reasonable expectation for development to occur) and there are no obvious high conflict activities present nearby.

Generally, potential conflict can arise from the use of agricultural chemicals, noise, dust and odour generating activities. Adverse impacts of the proposed future residential development of the site on farmland could include traffic, noise (vehicles), trespass, rubbish dispersal, vermin control, sediment and stormwater run-off. Complaints from new residents about proximal and intensive agricultural activities can also cause conflict and put pressure on agricultural uses if they cannot effectively co-exist.

When considering potential land use conflict between residential and agricultural activities it is important to also recognise that all agricultural activities:

- Should incorporate reasonable and practicable measures to protect the environment in accord with the *Protection of the Environment Operations Act 1997* (POEO Act) and associated industry specific guidelines; and
- Are legally conducted as required by other legislation covering workplace health and safety, and the use and handling of agricultural chemicals.

Nevertheless, certain activities practised by even careful and responsible farmers/ operators may result in a nuisance to adjacent residential areas, for example, unavoidable odour drift and noise impacts. People's sensitivity to potential nuisance/ impacts can also be variable and subjective.

Possible typical conflicts that can arise between agricultural enterprises and residential development are provided in **Table 2.1**.

Table 2.1 Typical Conflicts That Can Occur Between Agriculture/ Rural Activities and Nearby Residential Uses

Concern/Conflict Issue	*Common Causes*
Noise	■ Dogs, general livestock noise. ■ Equipment, pumps, plant, spray machines, transport. ■ Ancillary equipment associated with on-farm processing.

Concern/Conflict Issue	Common Causes
	■ Livestock processing. ■ Extractive industry processes (excavation, blasting etc).
Odour and Dust	■ Soil disturbance and excavation. ■ Excess/concentrated manure. ■ Agricultural fertilisers and chemicals. ■ Intensive animal industries. ■ Management and application of effluent to pasture.
Health concerns	■ Chemicals. ■ Spray drift. ■ Smoke.
Water	■ Access. ■ Pumping. ■ Quantity. ■ Runoff and pollution.
Smoke and ash	■ Burning off.
Visual amenity	■ Large structures. ■ Netting. ■ Greenhouses.
Nuisance	■ Stray dogs. ■ Vandalism. ■ Trespass. ■ Noxious and environmental weeds.

The Handbook (in particular Chapter 6 Development Control) provides guidance in the assessment and mitigation of potential land use conflict matters and has been used as a resource for this LUCRA where applicable.

2.3.2 Site-specific Observations and Potential Conflicts

Conflict between the proposed residential development of the site and agricultural activities is of medium consequence in this context given the design of the proposed development, the nature and scale of the adjoining agricultural activity, and the known expectation for residential/ urban development to occur given the site zoning and strategic land use planning proposes that has already occurred.

In summary:

- There is no risk of rural land use conflict to the north given the adjoining block is heavily forested and no future activity for agriculture use is envisioned (ie. the vegetation is unlikely to be cleared for the purpose of agricultural use).
- There is no notable rural land use conflict risk to the south, given the interface with a large lot residential development. Some of these properties may have animals, including limited numbers of livestock, however this would be more akin to pets and lifestyle/ hobby farm situations given the restrained size of lots (being about 2ha).
- The eastern interface does not present any immediately adjoining rural activity or risk of conflict. James Creek Road and border vegetation provides adequate separation from grazing land and the cropping land beyond, which is well separated from the site and satisfies the recommended separation buffer in the Handbook. An aged livestock yard/pen located east of James Creek Road

appears to be located approximately 10 m east of the boundary with James Creek Road. The small scale of this yard/pen would suggest that it is ancillary to low intensity grazing activities on the surrounding farmland and used irregularly. There is no formal access point/driveway visible connecting the yard to the road, suggesting it is not used for regular loading or unloading of stock. Its use would likely be intermittent and not intensive, as distinct from a larger or commercial type stock yard or intensive livestock operation which would be utilised on a regular basis, involve large numbers of stock and be subject to regular, large vehicle movements. The yards are setback 10 m from the eastern boundary of James Creek Road, which is about 20 m wide in this location. Activities associated with the use of this yard is not likely to be intensive or potentially offensive (when compared to larger formal or commercial stock yards, sale yards or lot feeding), however there is potential for its use to affect future adjoining residential uses in a minor way (e.g. minor noise from stock or activity when in use).

- The western boundary interfaces with open forest and pasture grazing land. The forested section is established and approximately 100m wide by 200-220m long (along the boundary). The adjoining landowners advise that a rotational grazing system is employed, meaning at times the stocking density may be quite high. Furthermore, this area may be utilised by stock for shelter or during times of flood, when the lower sectors of the property are subject to inundation/ flooding. Open pasture adjoins the northern half of the western boundary, with cattle able to roam free to the boundary fence. A site inspection in April 2022 confirmed that the primary use appears to be cattle grazing, with 20-30 cattle observed in the distance. No notable agricultural activity, odour or noise was observed and there were no cattle/stock yards, sheds, stock transporting infrastructure or other intensively used facilities ancillary to livestock grazing activities present or within view of the western boundary interface.
- Information provided in the submission from the adjoining landowner confirms that, depending on seasonal conditions, they have capacity to run up to 80 breeders over this area, which is part of a total area of 88ha. Details of the paddock rotation arrangements have been provided by the landowner, who advised that the paddock directly adjoining the proposed subdivision is occupied from approximately eight months of the year, outside of which typical maintenance activities may include fencing, slashing, fertilising, weed management and so on. While the activities within this area would not seem to be intensive nor potentially offensive (in comparison to intensive livestock activities such as dairies, feedlots, pig or poultry farms), there is potential for these activities to affect future adjoining residential uses.

Theoretically, this rural activity could have the potential to result in the following conflict points with new residential uses (the likelihood of occurrence and potential consequence/risk of such matters specific to this local context/interface is assessed in **Section 3**):

Noise:

- Noise emissions can adversely affect residential amenity and enjoyment.
- Noise emissions could occur from livestock, marking and weaning calves, and noise radiated by farm vehicles, machinery, power-tools, gates and other associated/ ancillary farm infrastructure such as pumps, ramps, loading facilities, yards and sheds and vermin control (i.e. use of firearms).

Dust:

- Dust emissions can adversely affect residential amenity and enjoyment. Dry periods, land cultivation/ frequent machinery movements, or potential overstocking of livestock could result in related dust and air quality impacts.

Odour:

- Livestock (including the rare occasion if an animal carcass is present), wet/ boggy areas, and excess accumulation of dung (and flies) can cause potential odour if herds and pastures are not managed appropriately. Depending on wind conditions and proximity, this can drift and affect residential amenity and enjoyment.

Spray drift and residue:

- Graziers if they are not practicing organic grass-fed production can use chemicals. Farms may use pesticides and herbicides that are applied via spraying. Primarily if and when these are employed, they are done so in ideal conditions i.e. without strong winds, meaning sometimes this may take place at night. However, the potential for off-target movement of agricultural chemicals (spray drift) can be a cause for concern to residents in proximity. Concerns generally relate to agricultural chemical exposure, but also due to detection of odours associated with the chemical. No aerial agricultural spraying is known to occur in the area.
- Broadcast spraying is undertaken at the adjoining property. Spraying at excessive pressure increases the proportion of small droplets from a nozzle which are prone to drift via wind. Small droplets can travel long distances in air currents and can cause damage to other crops, and the environment. The adjoining landowner 'regularly' uses a pressurized boom spray on a tractor for weed control activities. Spot spraying of weeds by low pressure knapsack or hand lance from a vehicle are also common potential spray requirements associated with certain farming activities. This method is targeted and does not present a significant risk of spray drift to the proposed adjoining residential development. There are codes of practice for agriculture and the use of chemicals; however, deviation from codes of practice can occur, and by the same token, complaints may occur despite compliance.

Threats to Biosecurity:

- Introduction of diseases and parasites
- Introduction and spread of weeds.

Domestic Animals:

- Domestic animals, including dogs, may get lost and chase or attack livestock.
- Use of poisons for vermin control may result in accidental poisoning of domestic animals.

Surface water and sediment laden runoff:

- Excessive irrigation or heavy rainfall could cause sediment, fertiliser or chemical laden surface water runoff to occur and impact land and the environment downstream. Alternatively, the proposed urban development will alter land surface characteristics and the hydrological balance on the subject site. The increase of impermeable surfaces and changes to drainage patterns can accelerate soil erosion, siltation and sedimentation, result in rubbish dispersion on adjoining land, and increase the risk of flooding if not appropriately designed and managed. Techniques to alleviate conflict due to downstream effects of the proposed development include suitable erosion, sediment and stormwater control/treatment during the construction and operational stages of the development.

Traffic and access:

- Agricultural machinery/ vehicles could cause traffic delays or interruptions if slow moving or heavy vehicles frequent the area/ use the same collector road and if adequate design/ updates are not

undertaken. Similarly, new residential development will generate increased traffic movements that may impact primary industry traffic access and movements if appropriate road infrastructure is not provisioned.

3. Land Use Conflict Risk Assessment

3.1 Potential Activities, Issues and Risk

This assessment primarily relates to any issues arising from potential conflict between agricultural practices/ activities and the proposed residential subdivision. Potential risks or impacts that may give rise to possible land use conflicts have been considered and evaluated in the context of the site, surroundings and land use policy setting to establish if any minimisation or management measures may be required.

In this instance, the main potential for conflict to arise would be through perceived or actual impacts from adjoining grazing and farming activities to the west, on future residential uses/ development. All potential conflict points identified in **Section 2.3** have been evaluated for risk in the following sections.

3.2 Risk Evaluation and Ranking

A risk assessment matrix is used in LUCRAs to rank the potential land use conflicts in terms of significance. The matrix assesses the environmental/ public health and amenity impacts according to the:

- Probability of occurrence; and
- Severity/ consequence of impact.

The procedure of environmental/public health and amenity hazard identification and risk control are performed in three stages.

1. Environmental/ public health & amenity hazard identification;
2. Risk assessment and ranking;
3. Risk control development.

Procedure:

1. Prepare LUCRA Hazard Identification and Risk Control table/ form.
2. List all hazards associated with each activity.
3. Assess and rank the risk arising from each hazard before “controls” are applied on the LUCRA form.
4. If required, an unacceptable risk rating is indicated, develop controls that minimise the probability and consequence of each risk using the five level methods.
5. Re-rank each risk with the control in place to ensure that the risk has been reduced to an acceptable level. If the risk ranking is not deemed to be acceptable, consideration should be given to whether the proposed activity should be allowed to proceed or whether additional management is required.

3.2.1 Risk Assessment Probability and Severity

Activities with the potential to cause conflict are assessed and ranked using the risk assessment/ranking matrix shown in **Table 3.1**.

It is necessary to differentiate between an 'environmental hazard' and an 'environmental risk'. 'Hazard' indicates the potential for harm, while 'risk' refers to the probability of that harm occurring. For example, the presence of chemicals stored in a building is a hazard, but while the chemicals are stored appropriately, the risk is negligible.

The risk ranking matrix yields a risk ranking from 25 to 1. It covers each combination of five levels of 'probability' (as defined in **Table 3.2**) and five levels of 'severity' or 'consequence', (a number 1 to 5 as defined in **Table 3.3**) to identify the risk ranking of each impact. For example, an activity with a 'probability' of D (unlikely) and a 'consequence' of 3 yields a risk rank of 9.

A rank of 25 is the highest magnitude of risk that is a highly likely, very serious event.

A rank of 1 represents the lowest magnitude or risk, an almost impossible and very low consequence event.

Generally, a risk rating of 1-10 is considered an acceptable risk that does not need intervention; whilst a risk ranking of 11-25 (highlighted red) is considered an unacceptable risk and likely requires management/mitigation measures to help avoid or reduce potential risk to an acceptable level.

Table 3.1 Risk Ranking/ Assessment Matrix

PROBABILITY	A – Almost Certain	B – Very Likely	C - Possible	D - Unlikely	E - Rare
CONSEQUENCE					
1 – Severe	25	24	22	19	15
2 – Major	23	21	18	14	10
3 – Moderate	20	17	13	9	6
4 – Minor	16	12	8	5	3
5 – Negligible	11	7	4	2	1

Table 3.2 Probability of Occurrence

Level	*Descriptor*	*Description*
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur or 'it has happened'
C	Possible	Could occur or 'I've heard of it happening'
D	Unlikely	Could occur in some circumstances but not likely to occur
E	Rare	Practically impossible

Table 3.3 Measure of the Consequence/ Severity of Impact

Severity	*Description and Implications*
Severe (Level 1)	▪ Severe and/or permanent damage to the environment. ▪ Irreversible even with management. ▪ Odours so offensive people are evacuated or leave voluntarily. ▪ Many public complaints. ▪ Almost certainly contravenes protection of the environment & operations act (POEO act) and the conditions of council's licenses and permits.
Major (Level 2)	▪ Serious and/or long-term impact to the environment. ▪ Long-term management implications. ▪ Some public complaints, impacts pass quickly. ▪ Likely contravenes POEO act and the conditions of council's licenses and permits.
Moderate (Level 3)	▪ Moderate and/or medium-term impact to the environment. ▪ Some ongoing management implications. ▪ Broader public unaware and no, or only few localised, complaints. ▪ Impacts generally pass quickly. ▪ May contravene POEO act and the conditions of council's licenses and permits..
Minor (Level 4)	▪ Minor and/or short-term impact to the environment. ▪ Can be effectively managed as part of normal operations. ▪ No complaints. ▪ Does not contravene POEO act or the conditions of council's licenses and permits.
Negligible (Level 5)	▪ Very minor impact to the environment. ▪ Can be effectively managed as part of normal operations. ▪ No measurable or identifiable impact on the environment.

Each proposed activity is recorded on **Table 3.5** and an assessment of potential land use conflict level is assigned accordingly. Ranking is given before and after any relevant ameliorating measures are applied to mitigate the given activity impacts. The higher the risk level, the more attention/ management it will likely require in order to reduce the ranking level. Risk rankings are derived from the risk ranking tables above.

Table 3.4 below provides an overview of the site features and conditions that can influence the potential level of conflict. These potential factors can influence the potential level of conflict and therefore inform the subsequent risk assessment. The areas of potential conflict outlined in **Table 3.4** will then be addressed through the risk/hazard assessment and management measures/controls outlined in **Table 3.5**.

Table 3.4 LUCRA Site Assessment and Influential Factors

Site Feature/ Element	*Condition/Comments*	*Potential for Conflict*
Residential Development/ Buffer Distances	Default buffer distances to residential development from the following activities identified in the Handbook / Primefact include: ■ Grazing of stock: 50m. ■ Sugar cane, cropping and horticulture: 300m. ■ State and regionally significant farmland: 300m. ■ Stockyards: 200m. ■ No horticulture/ plantations/ cropping is present within 500m of the proposed residential lots. This satisfies the buffer recommendation. ■ The nearest mapped regionally significant farmland is about 290m away and would reasonably satisfy the buffer recommendation of 300m. The minor localised encroachment (as shown on **Illustration 2.2**) is inconsequential and is not currently cultivated. ■ The forested area west of the boundary may be used by stock for shelter and flood refuge. The inclusion of the 50m buffer within the development site satisfies the buffer recommendation of 50m. ■ The frontage of the nearest residential lots are setback 50m from the western adjoining grazing land which satisfies the 50m separation buffer distance recommended. This separation buffer is further reinforced with the inclusion of a proposed 25m vegetation buffer. ■ A small cattle/ livestock yard on the property east of James Creek Road is located about 7m east of the road boundary and further separated from future residential land by the proposed 23m wide road reserve.	Adjacent grazing is low-intensity however, combined with the potential congregation of stock within the forested area to the west, there presents a moderate potential conflict due to scale, separation, and lack of nearby ancillary farm/livestock infrastructure. The small cattle/ livestock yard to the west is modest in size and has no formal vehicle access apparent. It would likely be ancillary to low intensity grazing activity on the adjoining lot. There presents a low potential for conflict due to its possible use, yet is impacts are moderated by its scale, separation and existing vegetation.
Site Location: Vehicular Access	The subject site would be accessed off James Creek Road. This is the main road that local rural activities use. Hence there could be conflicts between heavy and slow-moving vehicles and future residents' cars. Measures to reduce any potential traffic impacts would be addressed through the design, development and traffic assessment component of this DA, including any necessary road upgrades and intersections.	Low to moderate
Exposure and wind	The majority of wind likely to be experienced in the area (refer to Wind Roses at **Figure 2.2** and **Figure 2.3**) would be of moderate speed and primarily from the south or east, or northeast.	Low-moderate
Run-on and Seepage, Site Drainage and Water pollution	Run-on or seepage on adjoining farmland will be negligible. The land is undulating however there are no defined drainage lines water courses present on site.	Low

Site Feature/ Element	Condition/Comments	Potential for Conflict
Agricultural Chemical Spray Drift	Broadcast spraying occurs on the adjoining property. Given prevailing wind conditions and the 50m distance buffer (including a 25m vegetation buffer) significant spray use/drift is not expected.	Low-moderate
Odour	With the range of rural activities in the area (e.g. cattle grazing, use of spray implements) there is the potential for activities to impact on adjoining residential uses. Areas of surface saturation could increase odour, however wet and low-lying areas are more than 50m from the proposed residential lots, although cattle do periodically utilise the forested area for shelter and flood refuge. Provision of the recommended 50m buffer will significantly reduce the risk of odour, particularly with the inclusion of a 25m vegetated strip within this buffer.	Low-moderate
Noise	The likelihood of noise impacts from the existing agricultural activities is low given there would be intermittent use of tractors and vehicles, general noise of grazing livestock, and, other than one small livestock yard/pen east of James Creek Road, there is a lack of nearby ancillary farm infrastructure (such as sheds, cattle/stock yards and loading infrastructure). The 50 m separation buffer and 25 m vegetated buffer along the western side of the site will also ameliorate potential impacts from noise generated as part of agricultural activities on the adjoining property, during times cattle are in the adjoining section or settled in the forested areas during floods or for shelter. The yard/pen east of James Creek Road is small scale and would likely be used intermittently in association with surrounding low intensity grazing activities only. The approximately 7m setback from the boundary, combined with the proposed 23 m wide road reserve and rear yards/fences of proposed residential properties will minimise any potential impacts from noise when this yard may be in use. Existing vegetation will also contribute to screen activities from external properties. This yard is not expected to represent any regular or intensive use and is not expected to significantly affect the presence of rural noise in the area.	Low-moderate
Dust	The main sources of dust from nearby rural activities could include soil cultivation, tractor use, potential over-stocking (though unlikely), and transport movements. These activities in the local context of the adjoining land are not considered high risk in relation to generating airborne particulate matter (dust). Further, wind speeds are not expected to be significant at this location. The dominant wind directions would also minimise direct exposure to potential dust.	Low

Site Feature/ Element	Condition/Comments	Potential for Conflict
	Potential effects are further reduced with the inclusion of the 50m separation buffer and physical barrier provided by the 25m vegetation barrier.	
Residential subdivision design	The residential subdivision has been designed to make efficient use of land resources zoned for such purposes. The layout includes an outer perimeter road along the northern and west boundaries, and the provision of a 50m separation buffer as per the guidelines, with the addition of the 25m vegetated buffer enhancing its effectiveness in minimise potential impacts. The development will comply with Council policy and satisfies the DCP. All residential dwellings will be adequately setback from street frontages, side and rear boundaries. All lots will be adequately fenced. The development has been adequately engineered and designed to manage traffic generate and stormwater quality and quantity.	Low

Table 3.5 Hazard Identification, Risk Evaluation, Mitigation/Control & Ranking

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
Noise (livestock grazing and ancillary farm infrastructure)	Noise from livestock, including marking and weaning calves and use of a nearby small yard/pen. Livestock may also utilise the nearby forested area west of the boundary as flood refuge and/or shelter/shade. Noise produced by gates, machinery (e.g. chainsaws, power-tools, spray rigs, pumps), farm vehicles (e.g. tractors and ATVs) and other associated/ancillary farm infrastructure (e.g. pumps, irrigation, cattle ramps, loading facilities, yards and sheds). Potential noise associated with pest/vermin control and use of firearms, sometimes at night.	B4 = 12 unacceptable. C3 = 13 unacceptable.	No significant noise is expected. The immediately adjoining farm activity is low-intensity and there is no ancillary farm infrastructure that would generate additional noise. The scale of the livestock yard/pen east of James Creek Road is small and ancillary, commensurate to the surrounding farming activities. Cattle may congregate in the forested area for shelter and flood refuge, however this would also be on an intermittent, impermanent basis and subject to pasture/paddock rotation. Occasional livestock noise is not unreasonable and would generally be tolerable in this context. Likewise, noise from vehicles and machinery would be intermittent, although there is potential for tractors to be used at night to achieve suitable conditions to minimise spray drift, impacts on bees etc. The use of firearms is strictly regulated and users must attend mandatory training and be appropriately licenced. The provision of a 50m separation buffer as recommended by the guidelines, including a physical vegetated buffer of 25m, will effectively reduce potential issues and conflict associated with noise. A sufficient separation buffer to the livestock yard located to the east of the site will be maintained due to its location on the opposite side of James Creek Road, with a separation of around 30m and presence of an intersecting road. Existing vegetation and future	D4 = 5 acceptable D4 = 5 acceptable

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
			residential fencing will contribute to provide an effective screen and minimise potential noise from this area.	
Dust generation	Dust emissions can adversely affect residential amenity and enjoyment. Dry periods, land cultivation/ frequent machinery movements, or overstocking of livestock could result in related dust and air quality impacts.	B4 = 12 unacceptable	Dust generation as a result of agricultural activities on the adjoining property are not anticipated to be of a scale or intensity to result in unacceptable effects on residential premises. Pasture/ paddock rotation (confirmed by landowner) would periodically rest areas and minimise potential damage to/ depletion of ground cover/ pasture. The provision of a 50m separation buffer as recommended by the guidelines, including a physical vegetated buffer of 25m will effectively reduce potential issues and conflict associated with dust.	D5 = 2 acceptable
Odour	Livestock activity/ presence (including if an animal died nearby), wet/boggy areas, and excess accumulation of manure can cause potential odour which could drift. There is also the potential that conditions could result in increased fly population. Odours associated with application of herbicides for weed management and/or fertiliser. It is noted that some agricultural chemicals contain strong odours to enable easy identification over a long distance. This can cause concern even where extremely low levels of chemical may be present.	C3 = 13 unacceptable C3 = 13 unacceptable	The subdivision design incorporates measures that are appropriate to mitigate any potential impacts from odour as a result of adjoining farming operations, given the scale and intensity of activities. The 50m separation buffer will include a 25m vegetated buffer within the western boundary of the development site which will act as a physical barrier and further reinforce the effectiveness of the distance between the source of the potential odour and the receptor. The planted/ vegetated buffer (using appropriate species, including native flowering or fragment species can help minimise odour) will assist in reducing any potential occurrence of odour.	D4 = 5 acceptable

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
	Although, no significant odour is expected there is some potential as a result of wet and/or warm weather conditions, wind direction or when cattle 'camp' in the vicinity of the forested area.		Effective animal carcass disposal carried out in accordance with relevant Department of Primary Industry standards will prevent potential problems associated with odour or other health and environmental impacts.	
Runoff and erosion management during development construction	Potential for sediment laden or contaminated runoff and erosion if not effectively managed during construction.	C3 = 13 unacceptable	Sedimentation and erosion controls will be implemented for the construction phase of the development.	D5 = 2 acceptable
Surface water changes and stormwater and management from proposed development	Increase of impermeable surfaces and stormwater runoff and potential risk of erosion during heavy rain events, particularly after dry events Need for appropriate integration and management of stormwater and avoidance of potential impacts to receiving environment and catchment.	C3 = 13 unacceptable	Stormwater runoff would be captured by drainage system/infrastructure, with adequate quality and quantity targets achieved. The design of the residential development would address stormwater management and drainage in accordance with Councils Development Control Plan. To prevent offsite issues as a result of increased stormwater generation, a stormwater management strategy has been designed for the proposed development that incorporates the following measures: – Earthworks will reprofile the development site to redirect run-off and reduce the catchment area which flows into neighbouring land; – Substantial stormwater management devices for water treatment, detention and infiltration have been designed to intercept runoff and provide appropriate stormwater management; – The design aims to mimic the current situation regarding the physical discharge of surface water across the boundary and physical measures will	D5 = 2 acceptable

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
			be incorporated to disburse runoff across a wider area consistent with the existing drainage to avoid concentration of runoff. – The post-development peak flows will be substantially lower than the pre-development peak flows for all design storm events. This will reduce the risk and likelihood of scour and erosion within the downstream farmland and is over-and-above standard requirements. – Stormwater treatment modelling using industry standard MUSIC software indicates that Council's treatment requirements will be met, and pollutant loads leaving the site in the post-development situation will be less than in the pre-development situation. – A long-term water balance simulation indicates that the combination of rainwater reuse, evapotranspiration and infiltration into the underlying soils from the bioretention basin and infiltration trench, will result in the average annual volume of surface water runoff onto the adjoining property in the post-development situation being within 1% of the pre-development situation.	
Surface water and sediment laden runoff	Potential for sediment laden or contaminated runoff from up-slope agricultural practices into residential areas and impacts on water quality, including stockwater, as a result of increased pollutants.	C3 = 13 unacceptable	As above. Potential impacts associated with increased stormwater generation has been extensively considered and design measures will be incorporated into the stormwater management strategy to prevent impacts on water quality.	D5 = 2 acceptable
Rubbish dispersal	Potential for rubbish dispersion onto adjoining land from residential development.	C3 = 13 unacceptable	The residential subdivision will be serviced by Council's waste collection service. Measures will also be	D4 = 5 acceptable

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
			incorporated into the stormwater management system to capture litter and rubbish.	
Use of Agricultural/ Horticultural Sprays	Spray drift associated with weed management and application of herbicides and/or fertiliser has the potential to adversely affect the health and safety of persons in non-targeted areas. There can also be perceived risk related to this practice being nearby. Spot spraying by low pressure knapsack or hand lance from a vehicle and the use of boom or boomless spray rigs with ATV, ute or tractor are common potential spray requirements associated with farming activities and may present a significant risk of spray drift.	C3 = 13 unacceptable	All landholders are required to incorporate reasonable and practicable measures to protect the environment in accordance with the POEO Act and associated industry specific guidelines and are subject to workplace health and safety, and guidelines for the use and handling of agricultural chemicals. The 50m separation buffer as recommended and inclusion of the 25m vegetated buffer between farming activities and the nearest sensitive receiver which will act as an effective barrier that will assist in reducing/capturing any potential occurrence of spray drift.	D4 = 5 acceptable
Threats to biosecurity	■ Introduction of diseases and parasites. ■ Introduction and spread of weeds.	C3 = 13 unacceptable	■ Adequate boundary/exclusion fencing during construction and operation of the development (the site will be fenced with dog-proof fencing). ■ In NSW everyone has a general biosecurity responsibility under the *Biosecurity Act* to prevent, minimise and avoid the risk of from weeds. ■ During construction only clean machinery would be brought to site, disturbed ground would be stabilised progressively, and appropriate management measures implemented to prevent the possible spread/tracking of soil and weeds.	D4 = 5 acceptable

Activity	*Identified Potential Issue/Hazard*	*Risk Ranking*	*Mitigating Factors and/or Control Methods*	*Residual and/or Controlled Ranking*
Domestic animals	■ Domestic animals, including dogs, may get lost and chase or attack livestock. ■ Potential accidental poisoning of domestic animals from use of poisons for vermin control (eg 1080). ■ Use of firearms associated with vermin control and euthanasia of sick or dying animals.	C3 = 13 unacceptable	■ The residential estate will be fenced with dog-proof fencing along the west, north, and south boundaries. ■ All residential lots/rear yards would be securely fenced. ■ There are council policies for ownership of pets and associated responsibility (registration/ microchipping etc). ■ The use of both poisons associated with vermin control and firearms is strictly regulated and users must attend mandatory training and be appropriately accredited/licenced. ■ The use of some pesticides/poisons require mandatory community notification to be undertaken to inform the public and minimise potential accidental poisoning occurring.	E3 = 6 acceptable
Traffic and access	Potential conflicts between farm/heavy vehicles and residential vehicular access and generation along James Creek Road.	C3 = 13 unacceptable	James Creek Road is proposed to be widened/ upgraded at site frontage. The intersections within the future urban area will be designed to meet engineering standards to adequately and safely cater for the expected traffic generation, accounting for both existing traffic and traffic post development.	D4 = 5 acceptable

4. Discussion, Conclusion and Recommendations

The land use conflict risk assessment presented in **Section 3**, particularly **Table 3.5**, has identified and evaluated a range of potential land use conflicts between the future residential development of the subject site and surrounding land uses in the rural landscape, notably proximal cattle grazing and land management activities on adjoining land to the west.

While land in the locality contains active farmland and associated activities, this is primarily located over 500m to the east and northeast and satisfies the separation recommendations of the Handbook in these directions. The only proximal/ adjoining farmland and rural activity is cattle grazing and land management activities to the west.

Most of the potential conflicts identified in this LUCRA are of low risk, with some being potentially moderate when unmitigated. The following matters were identified as being ranked as potentially unacceptable (though still not significant) prior to taking into account mitigating factors and/or control methods. These include the following matters associated with adjoining grazing activity and the interface with the proposed residential development:

- Noise.
- Dust generation.
- Odour.
- Runoff and erosion management during development construction.
- Surface water changes and stormwater and management from proposed development.
- Surface water and sediment laden runoff.
- Use of Agricultural/ Horticultural sprays.
- Threats to biosecurity.
- Domestic animals..
- Traffic and access
- Rubbish Dispersal.

Of the above, water runoff, stormwater/erosion management, threats to biosecurity, domestic animals, and traffic/ access can be managed through common/ standard measures that do not involve or require buffers or alternative buffer solutions (e.g. narrower vegetated buffers). These matters have been assessed in **Table 3.5** as being manageable, with an acceptable residual risk, based on design outcomes and engineering requirements that would be required as part of the subdivision design and proposal anyway (i.e. to assess relevant LEP and DCP provisions).

Potential impacts from adjoining agricultural activities, including possible noise, dust, and odour were not considered high risk or likely to need specific intervention given the site context and nature of the agricultural activity. Yet even with low risk there is still the potential for conflict when introducing new residential uses in proximity. The inclusion of the 50m separation buffer within the development site is consistent with the Handbook's recommended setback and will effectively reduce potential impacts from the adjoining activities on sensitive receivers, particularly when reinforced with the 25m vegetated buffer which will act as a physical barrier.

The Handbook, in particular Chapter 6 Development Control, provides guidance in the assessment and mitigation of potential land use conflict matters. Though it is recognised that buffers are effective at reducing potential conflicts, the purpose and application of buffers varies depending upon individual

circumstances and buffers should not always be the sole or default position, especially where site specific circumstances and merit assessment warrants or justifies an alternative solution or variation. The Handbook outlines that where new residential development/dwellings are proposed on land with dwelling entitlements, such as land that has been through the strategic planning process and zoned for residential purposes, the setbacks and buffers normally recommended for rural areas may not be appropriate or practical. In this case, discretion is required to determine the level of potential conflict in this particular context and whether conflict avoidance strategies are a necessity, and if so, to what extent they may be required to be effective and add value.

In this context, for the reasons outlined in this LUCRA and Table 3.5 it is not necessary to impose the standard recommended separation buffer distance from the eastern livestock yard/pen. The separation provided from the modest yard/pen, combined with the intersecting road reserve, existing vegetation and future residential fencing and road noise, would be adequate and reasonably achieve the aims and objectives of the Handbook and land use conflict minimisation. The proposed arrangement is considered to be acceptable and justified as follows:

- There is no notable risk of land use conflict along the site's northern or southern boundary.
- Proximal surrounding agricultural activities have been assessed and do not pose a significant risk of conflict, with most risks being minor-moderate and manageable.
- More intensive plant-based agriculture and cropping, as well as mapped regionally significant farmland (west of the site and James Creek Road), is well separated from the site, reasonably satisfying the Handbook recommendations and objectives.
- The livestock yard/pen east of James Creek Road is small scale and does not appear to be used for intensive or regular long-term uses. It appears to be ancillary to general grazing activity and has no apparent shelter infrastructure or formal road access (suggesting no regular extended holding periods or loading or unloading activity). It would likely be used occasionally for low intensity or hobby farm purposes ancillary to existing low intensity grazing activity. Therefore, potential impacts associated with its use would be low. The separation distance from the boundary of the nearest residential property to the yards would be about 33m, with rear yards of proposed residential lots providing further separation between any residence. This distance, combined with existing vegetation and future residential fencing, and road noise from the adjacent road, would be adequate to minimise potential impacts from adjoining activities to an acceptable level. Default physical separation/buffer metrics for stock yards (e.g. 200m) as per the DPI interim buffer guideline are not applicable nor necessary in this context and would make for inefficient use of the residentially zoned land. The Handbook and guideline acknowledge this is not the intention of the recommended buffer metrics and the reference to stock yards is more akin to regularly used formal yards for extended holding, processing, sales, or loading and unloading volumes of livestock (the subject yard/pen is not considered to align with this use/purpose given its appearance and setting). Additionally, the level of risk in this context does not warrant this imposition as the yards are not large-scale nor commercial yards and use would is not expected to be intensive.
- The adjoining western interface, whilst rural land and rurally zoned, is not used (historically or presently) for intensive agriculture. Cattle grazing and land management activities have occurred historically and are currently present. This is generally low impact. Hence the 50m distance separation as per the Handbook, augmented with the 25m vegetation buffer, is sufficient to effectively reduce potential impacts of adjoining activities on residential properties, including the intermittent use of the forested area by stock for refuge, and in consideration of the lack of farm infrastructure in this location that could concentrate potential impacts (e.g. noise or odour

associated with cattle yards, feed troughs, or loading/transport facilities). The separation buffer will also include a perimeter road reserve of 25m wide and dwelling setback requirements that would result in houses being setback an additional 6m (resulting in an overall dwelling setback of around at least 56m) from the immediate western boundary/ interface. Given this, where people will live and recreate outside of their houses (in their rear yards) will be more than 56m from the grazing land boundary interface, providing reasonable separation. The vegetated buffer, combined with the presence of existing vegetation along/ adjacent to part of the west boundary, would provide an additional mitigating element and result in an adequate buffer and vegetated screen that satisfactorily minimises the potential for conflict with adjoining activities. In this context, this is an acceptable interface management response.

- The strategic, local and site-specific circumstances justify development of the land for residential purposes and whilst there are some active rural/ agricultural interfaces, those nearby are limited to grazing and land management activities and are not significant, nor does the immediate adjoining land represent significant or protected farmland, or wide-spread/ intensive agricultural activity.

Overall, the identified potential risks are generally low and acceptable, and do not require high levels of intervention or management. Some limited risks were identified; however, these can be readily managed to an acceptable outcome. This LUCRA has demonstrated that the proposed development is acceptable, and the proposal is not expected to increase, substantially alter, or likely cause, unacceptable or significant land use conflict. Some limited risk associated with immediately adjoining grazing and farming activities is present, however a 50m setback combined with an integrated 25m vegetated buffer strip, that would be established along the western boundary within the development site, would help ameliorate this to an acceptable level. Stormwater and traffic management would be subject to engineering design solutions which are required as part of the normal DA process and would achieve satisfactory outcomes.

The proposal therefore is reasonably consistent with the intent and relevant objectives of the Handbook. Strict application of the recommended separation buffer for stock yards in this context is not applicable, is unnecessary and onerous, especially when a smaller buffer, combined with vegetation and roadside traffic/noise, is likely to be of sufficient benefit/effect given the nature, scale and context of the adjoining farming activities.

Recommendations:

Residential lots adjacent to the western grazing land shall have a minimum 50 metre setback from the western boundary. Additionally, within this setback, a 25-metre wide planted/ vegetated buffer is to be established and maintained along the western boundary (within the development site, and as indicated on **Illustration 2.2**). The vegetated buffer is to be generally consistent with the following principles/ criteria (adapted from *Planning Guidelines: Separation Agricultural and Residentials Land Uses* – The State of Queensland, Department of Natural Resources 1997 and Nambucca (Table F2) Development Control Plan):

- Establish a 25m wide planted/ vegetated buffer along the western boundary of the development site/ within the western road reserve (the minimum width of a vegetation buffer is that of the canopy at maturity). This needs to commence early in the development process, noting vegetation takes time to mature.
- Contain random plantings of a variety of tree and shrub species of differing growth habits and mature heights (e.g. ground covers, low, mid-storey, and canopy species, fast growing pioneers and slower growing species) – refer to Lismore (Chapter 11) and Nambucca (Table F2) Council Development Control Plans for suitable guides to buffer planting species.
- Include a diversity of species, including those with long, thin and rough foliage.

- Provide a permeable barrier which allows air to pass through the buffer. A porosity of 0.5 is acceptable (approximately 50 per cent of the screen should be air space).
- Foliage is to achieve reasonable coverage from the base to the crown.
- Include species which are fast growing and hardy.
- Have a mature tree height of at least five to ten metres.
- Does not compromise Asset Protection Zones or conflict with *Planning for Bushfire Protection 2019,* and preferably favours species selection that are more resistant to combustion and bushfire.

A detailed landscape plan should be prepared by a suitably qualified person, generally in accordance with this recommendation.

References

Living and Working in Rural Areas. A handbook for managing land use conflict issues on the NSW North Coast, Centre for Coastal Agricultural Landscapes, 2007. Learmonth, R., Whitehead, R., Boyd, B., & Fletcher, S.

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Primefact: Buffer Zones to Reduce Land Use Conflict with Agriculture, 2018. NSW Government Department of Primary Industries.

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