(FUTURE) PUBLIC EXHIBITION DATES

(Start) to (Finish)

Planning Proposal under section 3.33 of the *Environmental Planning and Assessment Act 1979*

Port Macquarie-Hastings Local Environmental Plan 2011 (Amendment No 59)

Le Clos Sancrox

Ccl ref: PP2019-2.1

DP&E ref: PP-2021-2733

Date: 09/08/2021

PORT MACQUARIE HASTINGS COUNCIL

Planning Proposal Status

Stage	Version Date
Draft	2/03/2021
Reported to Council (section 3.33)	17/03/2021
Adopted by Council & referred to DP&E (sec 3.34 (1))	30/03/2021
Gateway Panel determination (sec 3.34 (2))	13/05/2021
Revisions required: Yes / No	09/08/2021
Public Exhibition (where applicable) (Schedule 1 clause 4)	
For Council review (section 3.35 (1))	
Adopted by Council for submission to Minister's delegate (section 3.36 (2))	

Council Address	Contact Officer
Port Macquarie-Hastings Council PO Box 84 PORT MACQUARIE NSW 2444	Kieran Metcalfe Senior Strategic Planner Email kieran.metcalfe@pmhc.nsw.gov.au Phone (02) 6581 8529

Adoption of the Planning Proposal

1. For initial Gateway determination

This Planning Proposal was endorsed on 30 March 2021 by the undersigned Council delegate:

Signed KMETCALFE

Name Kieran Metcalfe

Position Senior Strategic Planner

2. For section 3.35 finalisation

This Planning Proposal was endorsed on ..... by *Port Macquarie-Hastings Council*, or *the undersigned Council delegate* (delete one):

Signed .....

Name .....

Position .....

Exhibition Information

Content
Proposed amendments to Local Environmental Plans are exhibited in a descriptive form within a 'Planning Proposal'.

Details of the amendments contained in this **Planning Proposal PP2019-2.1** are contained in **Part 4**. They cover:

- Land Zoning,
- Lot Size,
- Floor Space Ratio; and
- Height of Buildings.

The specifics of how the LEP would be amended is described in **Part 2**.

Exhibition
The exhibition period is from start to finish, with the Planning Proposal available for inspection by any person at Council's offices at Port Macquarie, Laurieton and Wauchope, and on haveyoursay.pmhc.nsw.gov.au.

Submissions
Any person may make a written submission to Council up until the end of the exhibition period. The submission should quote Council's reference 'PP2019-2.1', and be emailed to council@pmhc.nsw.gov.au, lodged through haveyoursay.pmhc.nsw.gov.au, or posted to:

The Chief Executive Officer
Port Macquarie-Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444

Note that any submission may be made public. Also note:

Section 10.4 (5) of the *Environmental Planning and Assessment Act* 1979 states:

> *'A person who makes a relevant public submission to a council in relation to a relevant planning application made to the council is required to disclose the following reportable political donations and gifts (if any) made by the person making the submission or any associate of that person within the period commencing 2 years before the submission is made and ending when the application is determined—*
>
> *(a) all reportable political donations made to any local councillor of that council,*
>
> *(b) all gifts made to any local councillor or employee of that council.*
>
> *A reference in this subsection to a reportable political donation made to a local councillor includes a reference to a donation made at the time the person was a candidate for election to the council.'*

Further information

For further information please contact Kieran Metcalfe on (02) 6581 8529.

Table of Contents

Executive Summary **5**
Background 5
Planning Proposal **6**
Part 1 - Objectives or Intended Outcomes 6
Part 2 - Explanation of Provisions 6
Part 3 – Justification 13
A - Need for the planning proposal. 13
B - Relationship to strategic planning framework. 13
C - Environmental, social and economic impact. 24
D - State and Commonwealth interests. 33
Part 4 – Mapping 37
A - Affected land 37
B - Comparison of before and after 38
C - Draft LEP maps 43
Part 5 – Community Consultation 43
Part 6 – Project Timeline 44
Appendix A – Report to Council and Meeting Minutes 20 February 2019 ..... **45**
Appendix B – Consistency with applicable State Environmental Planning Policies **46**
Appendix C – Consistency with applicable Section 9.1 Ministerial Directions **51**
Appendix D – Principal Applicants Planning Proposal Documentation **58**

Executive Summary

This is a Planning Proposal prepared under section 3.33 of the *Environmental Planning and Assessment Act* 1979, in relation to a proposed amendment to *Port Macquarie-Hastings* (PMH) *Local Environmental Plan* (LEP) *2011*. It will be assessed by Port Macquarie-Hastings Council, the NSW Department of Planning, Industry and Environment, and (depending on the Gateway determination) used for public participation on the proposed LEP amendment.

Background

Proposal	Le Clos Sancrox
Property Details	Le Clos Sancrox Lots 1-52 DP 776681
Principal Applicant	LCS Estates Pty Ltd C/- Land Dynamics Australia
Land owner	Various
Description of Proposal	This Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011) to modify land zoning, minimum lot size, floor space ratio and height of buildings provisions in relation to land comprising Lots 1-52 DP 776681. For the purposes of this report, all land described above is referred to as Le Clos Sancrox. The intended effect of the Planning Proposal request is to facilitate a change in land use from rural to urban and environmental uses including medium density and general residential, public open space, business, environmental conservation, environmental management and environmental living. This change is intended to facilitate the development of a variety of residential and supporting uses and to conserve areas of high environmental value within the site. The site is also within the Fernbank Creek and Sancrox Planning Investigation Area. This planning investigation is being undertaken concurrently with the progression of this Planning Proposal.
Location	A location map is included in Part 4 - Mapping.

Planning Proposal

Part 1 - Objectives or Intended Outcomes

This Planning Proposal seeks to amend Port Macquarie-Hastings LEP 2011 to rezone Lots 1-52 DP 776681, Sancrox (collectively known as Le Clos Sancrox) from RU1 to R1, R3, B2, E2, E3, E4 and RE1 and amend the applicable minimum lot size, floor space ratio and height of buildings provisions that apply.

The intended effect of the Planning Proposal request is to facilitate a change in land use from rural to urban and environmental uses including medium density and general residential, public open space, business, environmental conservation, environmental management and environmental living. This change is intended to facilitate the development of a variety of residential and supporting uses and to conserve areas of high environmental value within the site.

Part 2 - Explanation of Provisions

As detailed within Part 1, this Planning Proposal seeks to amend Port Macquarie-Hastings LEP 2011 to rezone Lots 1-52 DP 776681, Sancrox (collectively known as Le Clos Sancrox) from RU1 to R1, R3, B2, E2, E3, E4 and RE1 and amend the applicable minimum lot size, floor space ratio and height of buildings provisions that apply.

The intended effect of the Planning Proposal request is to facilitate a change in land use from rural to urban and environmental uses including medium density and general residential, public open space, business, environmental conservation, environmental management and environmental living. This change is intended to facilitate the development of a variety of residential and supporting uses and to conserve areas of high environmental value within the site.

A comparison of provisions between the existing LEP and the proposed LEP in terms of objectives and intended outcomes is provided within Tables 1 - 4 below.

Table 1 - Explanation of Provisions (Land Use Zones)

Land Use Zone	Objectives	Intended Outcomes
Current Provision		
Primary Production (RU1)	• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. • To encourage diversity in primary industry enterprises and systems appropriate for the area. • To minimise the fragmentation and alienation of resource lands. • To minimise conflict between land uses within the zone and land uses within adjoining zones.	Under Council's principle planning instrument, the LEP, the subject site is zoned RU1 Primary Production. This land use zone seeks to achieve primary production objectives as set out in the LEP, but is inconsistent with the intended outcomes for the site as detailed within this planning proposal report.
Proposed Provision		
General Residential (R1)	• 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.	To provide general residential housing opportunities within the site under the framework of Council's Urban Growth Management Strategy and the Draft Fernbank Creek and Sancrox Villages Structure Plan.
Medium Density Residential (R3)	• 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 provide medium density housing opportunities within close proximity of planned services, including business and public open space areas.

Local Centre (B2)	• To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. • To encourage employment opportunities in accessible locations. • To maximise public transport patronage and encourage walking and cycling. • To ensure that new developments make a positive contribution to the streetscape and contribute to a safe public environment.	The proposed B2 zoning allows for a variety of land uses which would complement the emerging planned residential and existing rural-residential land uses nearby, as has been achieved by way of other local and neighbourhood centres within the local government area. The proposed B2 area would be located towards the centre of the Sancrox locality, maximising access to services for the wider Sancrox area as detailed within the Draft Fernbank Creek and Sancrox Villages Structure Plan. This central location, adjacent to Sancrox Road and within walking distance of planned medium density residential areas, is also intended to encourage public transport patronage and walking and cycling.
Environmental Conservation (E2)	• To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values. • To prevent development that could destroy, damage or otherwise have an adverse effect on those values. • To protect coastal wetlands and littoral rainforests. • To protect land affected by coastal processes and environmentally sensitive land. • To prevent development that adversely affects, or would be adversely affected by, coastal processes. • To enable development of public works and environmental facilities where such development would not have an overall detrimental impact on ecological, scientific, cultural or aesthetic values.	To protect, manage and restore areas of the site with identified high environmental value, such as areas containing endangered ecological communities.

Environmental Management (E3)	• To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values. • To provide for a limited range of development that does not have an adverse effect on those values.	To protect, manage and restore areas of environmental value, that do not contain endangered ecological communities or other higher order environmental constraints.
Environmental Living (E4)	• To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values. • To ensure that residential development does not have an adverse effect on those values.	To provide for low-impact residential development in areas of the site that have been identified as having environmental value, but that also contain existing residential development.
Public Recreation (RE1)	• To enable land to be used for public open space or recreational purposes. • To provide a range of recreational settings and activities and compatible land uses. • To protect and enhance the natural environment for recreational purposes.	To enable land to be used for public open space or recreational purposes, in support of nearby residential and business areas.

Table 2 - Explanation of Provisions (Minimum Subdivision Lot Size)

Minimum subdivision lot size			
Objectives	**Current Provision**	**Proposed Provisions**	**Intended Outcomes**
(a) to ensure that lot sizes are compatible with local environmental values and constraints, (b) to facilitate efficient use of land resources for residential and other human purposes,	40 hectares (AB3)	40 hectares (AB3)	Retention of a large minimum lot size within areas of environmental value, to minimise potential development intensification within these areas.

(c) to minimise the fragmentation of rural land suitable for sustainable primary production, (d) to protect high ecological, scientific, cultural or aesthetic values of land in environmental protection zones.		2000 square metres (V)	To facilitate larger lot sizes within areas identified for 'environmental living', to both facilitate protection of environmental values and facilitate low impact residential use of the land.
		450 square metres (G)	To facilitate an appropriate scale of subdivision for residential and commercial development.

Table 3 - Explanation of Provisions (Floor Space Ratio)

Floor Space Ratio			
Objectives	**Current Provision**	**Proposed Provisions**	**Intended Outcomes**
(a) to regulate density of development and generation of vehicular and pedestrian traffic, (b) to encourage increased building height and site amalgamation at key locations, (c) to provide sufficient floor space for high quality development for the foreseeable future, (d) to ensure that buildings are compatible with the bulk and scale of the existing and desired future character of the locality.	Blank - no maximum	Blank - no maximum	Retention of no floor space ratio provision, to reflect the limited potential for land use intensification within areas identified as having environmental value.
		1:1 (N)	To facilitate higher density development within central, collocated business and medium density residential areas.

		0.65:1 (G)	To facilitate orderly, low density residential development of land within general residential and environmental living areas.

Table 4 - Explanation of Provisions (Height of Buildings)

Height of Buildings			
Objectives	**Current Provision**	**Proposed Provisions**	**Intended Outcomes**
(a) to ensure that buildings are compatible with the height, bulk and scale of the existing and desired future character of the locality, (b) to minimise visual impact, disruption of views, loss of privacy and loss of solar access to existing development, (c) to minimise the adverse impact of development on heritage conservation areas and heritage items, (d) to nominate heights that will provide a transition in built form and land use intensity within the area covered by this Plan.	Blank - no maximum	Blank - no maximum	Retention of no height of buildings provision in reflection of the limited potential for land use intensification within areas identified as having environmental value.
		8.5 metres (I)	To facilitate orderly, low density and low height development of land within general residential and environmental living areas. This is intended to establish low density residential character with access to business and open space areas, within a transition area between surrounding environmental and rural areas and proposed medium density and business land uses adjacent to Sancrox Road.

		11.5 metres (L)	To facilitate a transition to higher development within central, collocated business and medium density residential areas that are suited to such development due to proximity to proposed supporting services within the site.

Part 3 – Justification

A - Need for the planning proposal.

1. Is the planning proposal a result of any strategic study or report?

The Port Macquarie - Hastings Urban Growth Management Strategy (UGMS) 2011-2031 identified rural residential investigation of Le Clos Sancrox as an immediate action. Initial planning investigations of the area were followed by the development of an Issues Paper and formation of a Reference Group in 2011. A Structure Plan was developed, exhibited and finalised in 2015, but not adopted by Council due to identification of the area for further investigation to facilitate the potential long term growth of Port Macquarie as part of UGMS 2017-2036. Le Clos Sancrox was subsequently identified within UGMS 2017-2036 as a potential long term growth area.

This Planning Proposal and the wider Fernbank Creek and Sancrox Planning Investigation is a subsequent outcome of a Resolution of Council when adopting UGMS 2017-2036, which identified the area as a *'Preliminary Investigation Area'*. At its Ordinary Meeting of 20 February 2019, Council Resolved to invite the Le Clos Sancrox landowners to submit a Planning Proposal in parallel with Stage 1 planning (the Fernbank Creek and Sancrox Planning Investigation) in order to assist in informing the planning process.

Given the above, it has been determined that this Planning Proposal is a result of both strategic studies and reports, being the UGMS and the Fernbank Creek and Sancrox Planning Investigation with the development of the subsequent draft Fernbank Creek and Sancrox Villages Structure Plan.

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

This Planning Proposal is the only means of amending PMH LEP 2011 to permit the objectives and intended outcomes as outlined within this document, as the current PMH LEP provisions applying to the land (including land zoning, minimum lot size, floor space ratio and height of buildings) do not permit the proposed urban and environmental land use objectives and outcomes sought through this proposal.

B - Relationship to strategic planning framework.

3. Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (including any exhibited draft plans or strategies)?

The North Coast Regional Plan 2036 (NCRP) identifies that the greatest population growth on the North Coast will be experienced around regional cities like Tweed Heads, Coffs Harbour and Port Macquarie. As such, bringing opportunities for greater housing choice to meet the growing and changing population. The NCRP also encourages accommodation of coastal growth whilst protecting coastal values. In this regard, the site is considered suitable for the proposed uses as:

- It would provide a range of residential and ancillary business development outcomes to cater for future population growth between the existing townships of Port Macquarie and Wauchope,

- Areas of high environmental value within the site have been sought for conservation through the application of the 'avoid, minimise, offset' principals,
- Notwithstanding the existing rural zoning of the site, there will be no loss of important farmland and the change in land use will not impact upon any existing agricultural land use within or adjoining the site,
- The site is not subject to direct flooding or acid sulfate soil constraints; and
- The site is able to be serviced by extension and upgrading of existing infrastructure. This infrastructure may also be utilised by future development within the area.

In addition to the NCRP, the North Coast Settlement Planning Guidelines 2019 (NCSPG) have been produced to provide councils with guidance when considering the most appropriate location for future residential and employment land when preparing or reviewing land use planning strategies. The objectives of the NCSPG are:

- To ensure that residential and employment land uses are located on the most appropriate land and;
- To focus demand for additional housing in established centres and only consider new greenfield release areas where sufficient demand and the need for additional capacity can be demonstrated.

Constraints planning has been undertaken in relation to the proposal and areas of high environmental value have been excluded from areas proposed for land use intensification. The NCSPG indicates that *'Future settlement, where permitted by the regional strategies and outside the agreed growth areas, must be located to minimise environmental impacts and be sustainable. Such settlement must satisfy the sustainability criteria contained in Appendix 1 of the Regional Strategies.'* The site is located outside of the urban investigation area boundaries identified in the NCRP. However, this is addressed below, and the assessment criteria has been considered to demonstrate the merit of this Planning Proposal.

In response to the need for additional housing stock identified in the NCRP, this proposal provides an opportunity to accommodate additional housing without significant adverse environmental impacts or loss of important farmland.

The proposal is consistent with the NCRP goals as follows:

- Proposed development has been focused to areas of least biodiversity sensitivity, with consideration of the 'avoid, minimise, offset' principles.
- In relation to natural hazards, the site is not flood prone and bush fire constraints have been considered to ensure compliance with Planning for Bush fire Protection 2019.
- The proposal will facilitate the creation of new housing and a local commercial centre.
- The proposal fits within the wider Fernbank Creek and Sancrox Planning Investigation Area, which facilitates coordinated development and infrastructure planning, consideration of local character and areas of high environmental value.
- A safe and efficient transport network is identified, which may service the development of the subject site and connect into the wider Fernbank Creek and Sancrox Planning Investigation Area, including through the provision of a collector road through the site and connection to the Pacific Highway.
- The proposal will not impact upon mapped important farmland.

- The proposal provides housing, services and facilities that are within walking distance of each other, including housing of varying densities and forms, as well as an opportunity for a school and child care centre, all connected via a series of pathways which facilitates walking and cycling. The housing diversity may also include seniors living housing to assist with the aging population.
- Engagement with the Birpai Local Aboriginal Land Council has occurred during the planning process and no areas of known Aboriginal Heritage Significance are proposed to be impacted upon.
- The distinct character of the site and the North Coast has been considered in the concept subdivision plan, which respects the landform, ecological features and views from the site.
- The site and the concept layout takes advantage of both existing and proposed road, water, sewer and stormwater infrastructure and does not rely upon adjoining landowners for connections or extensions.
- The housing facilitated through the proposal will assist to achieve minimum housing targets for the local government area.

In relation to housing supply, the NCRP states:

"Figure 10 shows the minimum housing supply each local government area should plan to deliver over the next 20 years to meet population growth. Certain councils may not have sufficient capacity in their urban growth areas to satisfy demand. As a priority, councils should work with their local communities to identify appropriate locations to provide an adequate supply of residential land. The delivery of housing in significant release areas can be accelerated by identifying where upfront investment in local infrastructure can assist land release. The NSW Government's Housing Acceleration Fund offers funding for new infrastructure projects that support housing supply."

It is considered that the Planning Proposal is consistent with the NCRP as it satisfies the Variation Criteria required for development outside the Urban Growth Area and has merit.

The consistency of the proposal with the Urban Growth Area Variation Principles as detailed within Appendix A of the NCRP is detailed below.

Table 5 - Consistency with Urban Growth Area Variation Principles

Urban Growth Area Variation Principles		Comment
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.	The subject proposal is consistent with the objectives and outcomes in the North Coast Regional Plan 2036, relevant Section 117 Directions, applicable State Environmental Planning Policies and Council's Urban Growth Management Strategy (refer to Part 3 and Appendices C and D of this report).
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 road network, transport and servicing of the site and the wider area has been considered in the specialist reports and plans which accompany this report. Upgrades can be provided without relying upon adjoining private landowners and can service the wider area.
Environmental and farmland protection	The variation should avoid areas: • of high environmental or heritage value; and • mapped as important farmland, unless consistent with the interim variation criteria prior to finalising the farmland mapping review.	Ecological assessment of the site has informed the proposed LEP provisions and has considered the 'avoid, minimise and offset' hierarchy. In doing so, large areas of ecological value will be protected and enhanced and corridors created to provide good connection to large areas of ecological significance on adjoining land. The maps accompanying the current LEP do not identify the site as being affected by heritage. An Aboriginal Cultural Heritage Assessment has also been undertaken. This assessment has concluded that *'based on the Site Inspection and other investigation, there is no reason from*

Urban Growth Area Variation Principles		Comment
		an Aboriginal Cultural and Heritage perspective that this rezoning cannot proceed, subject to the following: 1. *An Aboriginal Sites officer be present when excavation or clearing commences.* 2. *At such time as development site works start, should any artefacts be turned up or located, Birpai LALC Aboriginal Sites Officers are to be contacted immediately and work on the site stopped pending further assessment.'* *The site does not contain mapped important farmland.*
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.	There are no active intensive commercial agricultural activities, sewerage treatment plants or waste facilities within the vicinity of the proposal. However, a quarry, which may be considered an incompatible land use, is located to the north-east of the site. A State Significant Development Application has recently been exhibited for an expansion of the quarry to the west of the existing quarry site. In relation to the potential impact of this resource and land use on potential future development within the area, the Department of Regional NSW – Mining, Exploration and Geoscience, Geological Survey NSW (GSNSW) was consulted in March 2020 in relation to the wider Fernbank Creek and Sancrox planning investigation. In its response dated 23 September 2020, the Department advised *'Any determination of the Sancrox Quarry Expansion Project (SSD 7293) would likely see GSNSW place a 1km transition area (buffer) around any approved expansion disturbance area (as the quarry uses blasting techniques). Accordingly, GSNSW advise that the associated transition area would slightly encroach further into Areas B3* (which includes the proposal site), *B1 and A1. Transition areas are an indicative area surrounding an identified resource (or operating mine or quarry). They indicate an area*

Urban Growth Area Variation Principles		Comment
		that may possibly be impacted by potential activities associated with mining or quarrying operations such as noise, vibration, dust, traffic etc. Transition areas 'flag' the possibility of not only potential impacts from active extractive operations, but conversely potential impacts from proposed development close to (and possibly encroaching on) identified resource areas. In relation to potential land use conflicts between the proposed Sancrox Quarry, the Sancrox Quarry Expansion Project and adjoining areas within the site, the Sancrox Quarry Expansion Project Environmental Impact Statement (EIS) (ERM 2019) has been considered in the development of this Planning Proposal. Whilst it is understood that the quarry expansion proposal may be refined in response to submissions received in relation to the public exhibition of the EIS, the EIS has been referenced as the best available source of information at the time that this Planning Proposal was developed. It is anticipated that any existing quarry impacts, or any impacts as a result of the refinement of the proposal are likely to be less than those associated with the current Sancrox Quarry Expansion proposal as detailed within the EIS. It is also anticipated that potential impacts to existing receivers assessed within the EIS can provide an indication of what impacts may occur to future potential receivers within the area, given that the most potentially impacted existing receivers are generally closer to the quarry than potential future receivers. In relation to the potential impacts of the quarry expansion, the EIS identified that both construction and operational noise levels have the potential to exceed the applicable criteria, limits and thresholds if they are not suitably mitigated. The assessment also identified that blasting overpressure and vibration levels have a limited potential to exceed the applicable criteria. In addition to noise and vibration, the EIS assesses

Urban Growth Area Variation Principles		Comment
		other potential impacts including air quality, hydrology, soil and water, traffic, social and amenity impacts which may occur as a result of the construction and operation of the quarry. In relation to potential impacts, the EIS recommends a number of mitigation, management and monitoring options to reduce these potential impacts. In relation to potential exceedances of the Approved Methods Criterion for air quality, the EIS found that the level of impact to surrounding sensitive receptors is considered to be acceptable under the Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industries Developments (NSW Government 2018). Overall, the EIS concluded that there were no significant environmental impacts identified during the preparation of the EIS that cannot be mitigated by appropriate mitigation and management strategies. Notwithstanding the above, this Planning Proposal incorporates land use intensification within the vicinity of the quarry. As such, the potential impacts of quarry operations in relation to this proposed change in land use have been considered as part of this Planning Proposal. In consideration of potential impacts, the proposed Le Clos Sancrox zoning and concept layout provides a vegetated buffer to the existing quarry and any future expansion to assist in mitigating potential impacts. The wider area of Sancrox surrounding the site is currently zoned rural, as is the subject site currently. Given the progression of the wider Fernbank Creek and Sancrox Planning Investigation, it is reasonable to expect that the adjoining land to the north and west will be pursued for similar development in the future under the framework of the draft Fernbank Creek and Sancrox Villages Structure Plan. The land to the

Urban Growth Area Variation Principles		Comment
		south and east is of high environmental value. As such, it would be reasonable to expect that land use in these locations will not change significantly in the future. Furthermore, the proposed zonings and concept layout provides for a vegetated corridor along much of these two boundaries which will provide a buffer to the environmentally significant land to the south and east, assisting with reducing any potential land use conflict.
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 bush fire prone land and bush fire constraints, along with associated mitigation measures, have been identified through a Strategic Bush Fire Study to comply with Planning for Bushfire Protection 2019 (PBP 2019). This has included the zoning layout being developed having regard to the necessary Asset Protection Zones (APZs). The Strategic Bush Fire Study and associated APZ plans are included within Attachment D to this report. No other hazards have been identified in relation to this proposal.
Heritage	The variation must protect and manage Aboriginal and non-Aboriginal heritage.	The Planning Proposal is supported by an Aboriginal Cultural Heritage Assessment prepared by the Birpai Local Aboriginal Land Council. The assessment advised that there is no reason that the rezoning cannot proceed in respect to Aboriginal Cultural Heritage issues. The recommendations of the report state: *'Based on the Site Inspection and other investigations, there is no reason for an Aboriginal Cultural and Heritage perspective that this rezoning cannot proceed, subject to the following:* *1. An Aboriginal Sites office be present when excavation or clearing commences.* *2. At such time as development site works start, should any artefacts be turned up or located, Birpai LALC Aboriginal Site Officers are to be*

Urban Growth Area Variation Principles		Comment
		contacted immediately and work on site stopped pending further assessment.' As such, it has been determined that the rezoning can continue, subject to monitoring of any future clearing or earthworks during development of the site. In addition to the above, the maps accompanying the current LEP do not identify the site as being affected by heritage, nor the surrounding land. No State listed items are located within the vicinity of the site.
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 site is located west of the Pacific Highway, therefore this principal is not applicable.

Given the above, the Planning Proposal is considered to have planning merit for the following reasons:

- It gives effect to the North Coast Regional Plan 2036.
- It gives effect to the local Urban Growth Management Strategy.
- It responds to a change in circumstances with respect to the 2015 Structure Plan created for Sancrox and now reflects a desire for residential rather than rural-residential land use.
- It has site-specific merit, having regard to:
  - The substantially unconstrained nature of the site,
  - The implementation of the 'avoid, minimise, offset' principals in relation to the environmental values that are present on the site; and
  - The ability to connect the site to existing services and infrastructure, subject to extension and upgrading as applicable.

4. Will the planning proposal give effect to a council's endorsed local strategic planning statement, or another endorsed local strategy or strategic plan?

Port Macquarie - Hastings Council adopted its first Local Strategic Planning Statement (LSPS) *'Shaping Our Future 2040'* on 30 September 2020. *'Shaping Our Future 2040'* is the core strategic land-use planning document for the whole of Port Macquarie-Hastings Local Government Area (LGA). It outlines the 20-Year vision for land-use planning in the local area and sets the direction for the community's environmental, social, and economic land-use needs.

Shaping Our Future will guide land-use planning decisions into the future. It will guide the character of centres and neighbourhoods and give direction to the decisions made to preserve and enhance the wellbeing of people, the environment and lifestyle. It sets in motion a series of actions to be implemented by Council, other levels of government and the private sector over time.

Shaping Our Future is a living document and as such will be regularly reviewed in order to adapt to changes in the community's needs and priorities, national and state priorities and changes in the external environment over its 20-year life.

The Role of *Shaping Our Future* is to:

- Set the 20 year land-use vision for the Port Macquarie - Hastings region,
- Identify the special characteristics that contribute to local identity and make the area special,
- Recognise shared community values and how they will be maintained or enhanced,
- Direct how future change are managed,
- Identify and give effect to relevant directions located within the North Coast Regional Plan 2036,
- Identify gaps of knowledge where further strategic planning work is needed,
- Link Council's strategies and plans to the implementation of the NSW Government's Strategic Plans; and
- Shape planning controls to facilitate the external environment over its 20-year life.

This Planning Proposal, with demonstrated consistency with the North Coast Regional Plan 2036, seeks to ensure that appropriate land use planning is undertaken in order to achieve the above goals.

Relevant aspects of this LSPS that have been considered as part of the development of this planning proposal include:

- Assessing this planning proposal within a strategic framework as part of the strategic merit test (as outlined in NSW Department of Planning, Industry & Environment guidelines for preparing planning proposals and local environmental plans), as detailed within Part 3 of this document,
- Using LSPS principals within Part 3 of this document to inform proposed planning controls as outlined within Part 4 of this document,
- Alignment of the Planning Proposal with the wider Draft Fernbank Creek and Sancrox Villages Structure Plan as outlined within Part 3 of this document, which also considers the LSPS,
- Identification of infrastructure priorities to support growth as outlined within Part 3 of this document; and
- Identification of sustainable transport planning, such as pedestrian connectivity and public transport as outlined within Part 3 of this document.

It can also be noted that the strategic planning work undertaken in the development of this Planning Proposal would be used to inform operational and delivery plans to better align growth and change with community needs and expectations.

In relation to Council's Urban Growth Management Strategy (UGMS) the Le Clos Sancrox site is identified as a *'potential long term growth area'* on page 61 of Council's UGMS.

Key Action 6 of the UGMS incorporates *'preliminary stage 1 planning for potential future growth at Fernbank Creek and Sancrox'*. This planning has included the preparation of a discussion paper in relation to the Fernbank Creek and Sancrox Planning Investigation Area. This discussion paper was used to inform the development of the draft Fernbank Creek and Sancrox Villages Structure Plan, which includes the Le Clos Sancrox site.

Given the above, this proposal is considered to give effect to Council's endorsed UGMS and the draft Fernbank Creek and Sancrox Villages Structure Plan.

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

The proposal is consistent with applicable State Environmental Planning Policies. Detailed assessment of consistency is contained in Appendix B.

6. Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?

The proposal is consistent with applicable Ministerial Directions under section 9.1 of the *Environmental Planning and Assessment Act* 1979. Detailed assessment of consistency is contained in Appendix C.

C - Environmental, social and economic impact.

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?

An ecological assessment has been undertaken in relation to this proposal and is included within Appendix D to this report. This assessment has found that the site contains threatened species and their habitats along with a confirmed and a mapped endangered ecological community (EEC). In order to avoid impacts to these species and these areas, the principles of '*avoid, minimise, offset'* as detailed within the *Biodiversity Conservation Act* 2016 have been implemented in relation to the proposal through:

- Designating areas of high environmental value and/or significance as E2 or E3 zones where practicable, this includes designation of two areas of identified endangered ecological communities within the site as E2,
- Minimising vegetation removal and the subsequent requirement for offsets; and
- Pursuing on-site offset of vegetation removal where practical, where vegetation is proposed to be removed.

Along the eastern boundary of the site, in an area which includes existing dwellings, vegetation has been proposed to be retained and an E4 zoning has been proposed to reflect the existing dwellings while facilitating vegetation retention.

It can be noted that the original development footprint was larger in size and extended into the cleared southern area and along the eastern boundary where the current arrangement allows for dwelling sites. During the ecological review and discussions between Council and the Principal Applicant, these two key areas along the southern and eastern boundaries were substantially excluded from future development and an environmental zoning proposed through much of this area in order to create a corridor and buffer to adjacent vegetated areas. The existing Le Clos Sancrox Road will form the buffer between the new development and the corridor being created. This corridor will enhance the regional corridor on the adjoining land, which continues in a northward direction from the site.

To further ensure minimisation of vegetation removal, a vegetated corridor has now also been proposed along Sancrox Road. This will also assist to act as a visual and acoustic buffer to the nearby Sancrox Quarry, in addition to its ecological function.

Figure 1 below indicates the vegetation that is proposed to be removed based on the development concept plan, and the area of the site that is available for offset planting. This offset planting is in addition to existing vegetation being retained.

A draft Vegetation Management Plan has also been prepared for the overall development, which is illustrated within Figure 2 below.

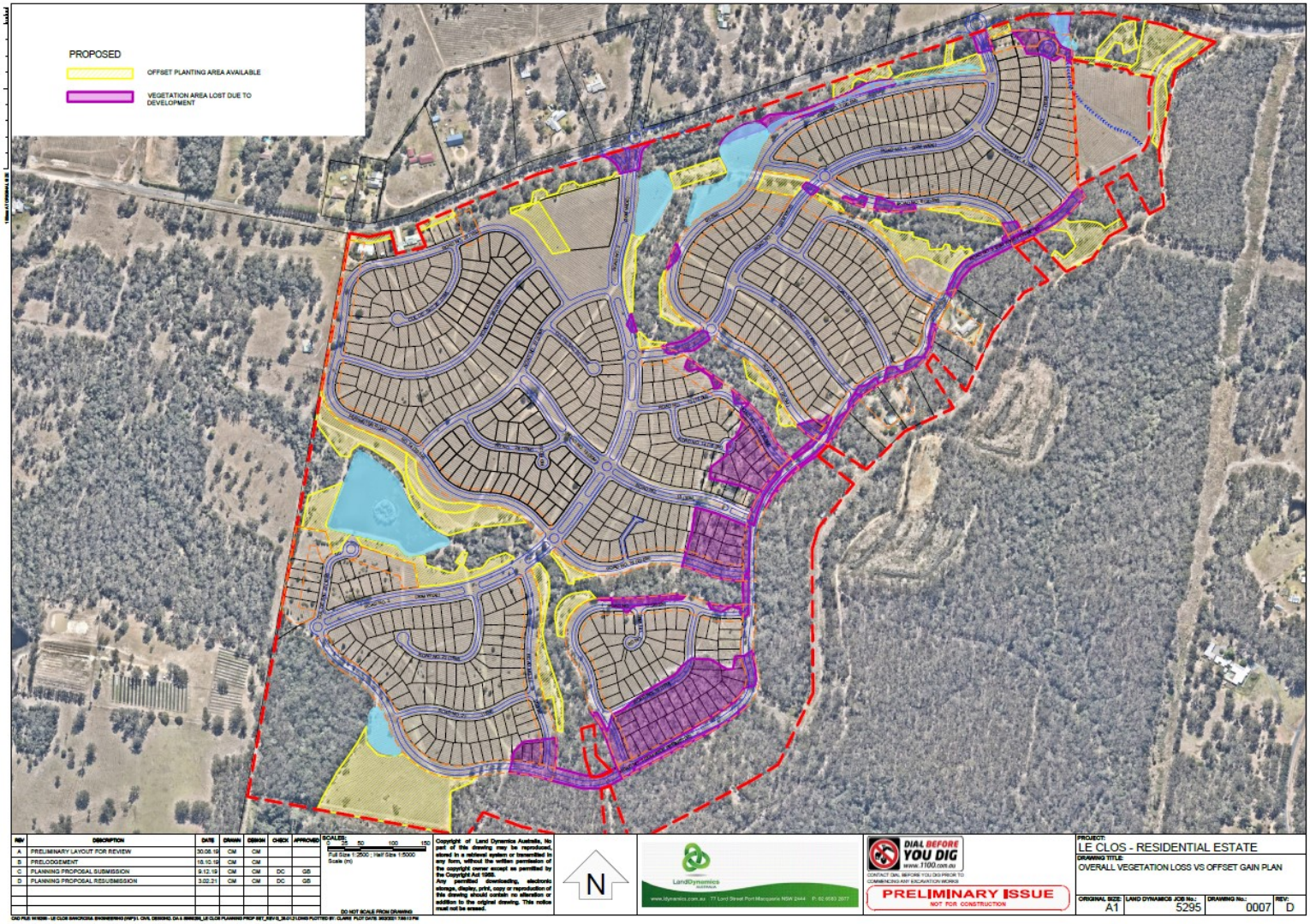


Figure 1 - Amount of Vegetation Removed and Offset Planting Area Available

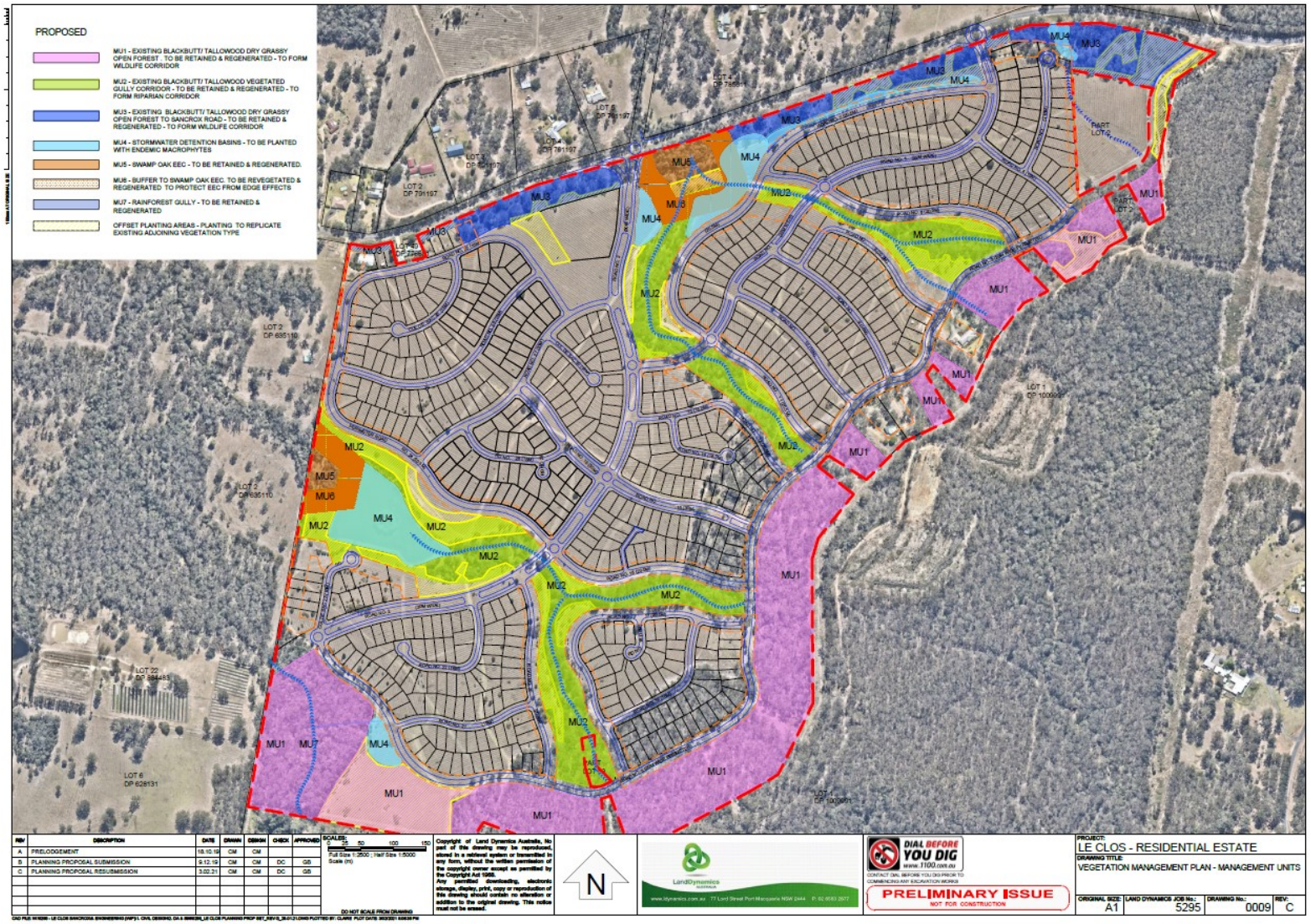


Figure 2 - Draft Vegetation Management Plan

The concept subdivision design provided by the Principal Applicant has also allowed for wider road reserves within the R1 land in order to accommodate drainage swales throughout the site. However, this will have a dual purpose from an ecological perspective to provide an increased buffer to the areas of higher environmental value.

The Principal Applicant has indicated that Biodiversity Certification will be pursued in relation to the proposal.

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

Other likely environmental effects of the Planning Proposal are discussed under the headings below.

Bush Fire

The site is identified as being bush fire prone land. As such, a strategic bush fire study has been prepared to ensure consideration of potential bush fire impacts and the implementation of appropriate mitigation measures in accordance with the NSW Governments guideline '*Planning for Bushfire Protection 2019'*. This study is included within Appendix D to this report.

The Principal Applicant has advised that appropriate asset protection zones (APZs) can be accommodated on site and this has informed the environmental zoned land boundaries. The required APZs will be contained in residentially zoned land. An indicative subdivision layout, including APZs, has been provided with the documentation included within Appendix D to this report.

The Rural Fire Service has been consulted in relation to the Fernbank Creek and Sancrox Planning Investigation, which incorporates Le Clos Sancrox proposal. As a result of this consultation, advice has been provided to Council in relation to matters that should be taken into consideration in the preparation of the strategic bush fire study for the area. These matters have been considered in relation to the preparation of the Le Clos Sancrox strategic bush fire study included as Appendix D to this report.

Quarry Operations

The existing Sancrox Quarry is located to the immediate north of the proposal. It is an identified mineral resource which supplies the construction industry with a range of products. The operator of the quarry has also recently lodged a State Significant Development Application with the NSW Government to expand this quarry operation. The proposed quarry expansion footprint is illustrated within Figure 3 below.

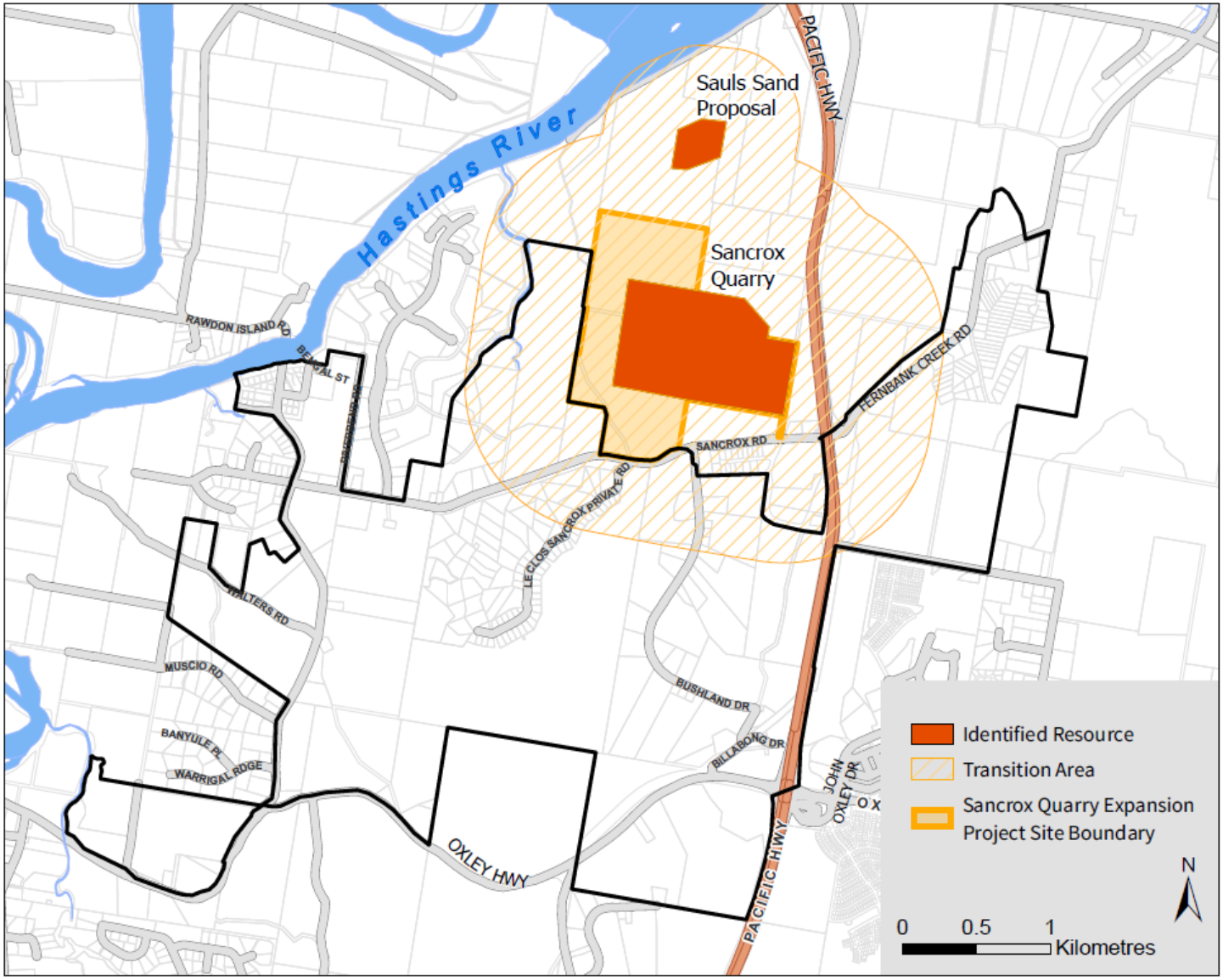


Figure 3 - Mineral Resources

In relation to potential land use conflicts between the proposed Sancrox Quarry, the Sancrox Quarry Expansion Project and adjoining areas within the site, the Sancrox Quarry Expansion Project Environmental Impact Statement (EIS) (ERM 2019) has been considered in the development of this Planning Proposal. Whilst it is understood that the quarry expansion proposal may be refined in response to submissions received in relation to the public exhibition of the EIS, the EIS has been referenced as the best available source of information at the time that this Planning Proposal was developed. It is anticipated that any existing quarry impacts, or any impacts as a result of the refinement of the proposal are likely to be less than those associated with the current Sancrox Quarry Expansion proposal as detailed within the EIS. It is also anticipated that potential impacts to existing receivers assessed within the EIS can provide an indication of what impacts may occur to future potential receivers within the area, given that the most potentially impacted existing receivers are generally closer to the quarry than potential future receivers.

In relation to the potential impacts of the quarry expansion, the EIS identified that both construction and operational noise levels have the potential to exceed the applicable criteria, limits and thresholds if they are not suitably mitigated. The assessment also identified that blasting overpressure and vibration levels have a limited potential to exceed the applicable criteria. In addition to noise and vibration, the EIS assesses other potential impacts including air quality, hydrology, soil and water, traffic, social and amenity impacts which may occur as a result of the construction and operation of the quarry.

In relation to potential impacts, the EIS recommends a number of mitigation, management and monitoring options to reduce these potential impacts. In relation to potential exceedances of the Approved Methods Criterion for air quality, the EIS found that the level of impact to surrounding sensitive receptors is considered to be acceptable under the Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industries Developments (NSW Government 2018).

Overall, the EIS concluded that there were no significant environmental impacts identified during the preparation of the EIS that cannot be mitigated by appropriate mitigation and management strategies.

Notwithstanding the above, this Planning Proposal incorporates land use intensification within the vicinity of the quarry. As such, the potential impacts of quarry operations in relation to this proposed change in land use have been considered as part of this Planning Proposal. In consideration of potential impacts, the proposed Le Clos Sancrox zoning and concept layout provides a vegetated buffer to the existing quarry and any future expansion to assist in mitigating potential impacts.

Potential Noise Impacts

An acoustic review has been undertaken to assess potential noise impacts associated with the proposal. This review is included within Appendix D of this report. The review has considered the adjoining land uses and traffic noise. These include Sancrox Road, the Sancrox Quarry, a nearby animal boarding and breeding establishment, potential high speed rail to the east and existing adjoining land uses. The acoustic review concludes:

Concerning traffic noise:

- Noise from existing significant roads will comply at the development due to the large separation distance. The site is approximately 1500 metres from the Pacific Highway.
- Traffic noise generated by the development on Sancrox Road is expected to comply at existing receptors. Those existing residences are generally setback 40 metres from the road.
- Traffic noise generated by the development is expected to comply at future receptors within the development itself.
- If a school is located on site, traffic noise into the school should be assessed. Depending on the location of the school, minor noise mitigation may be required.

Concerning noise from industrial facilities external to the site:

- Noise from the existing kennel north of the site may be audible at some lots. It is recommended that noise from the kennel be assessed and if mitigation is necessary, agreement be reached with the operator of the kennel.

Concerning noise from the proposed High Speed Rail (HSR):

- Given the distance from the alignment to the nearest proposed lots, and that the railway line may be in cut at this location, it is probable that noise from the railway will comply with guidelines at residential lots.
- HSR noise to a school, particularly if the school is located in the north-east corner of the site, may need to be considered. While noise to playgrounds will generally be satisfactory, noise to classrooms may require closed windows and therefore consideration of ventilation.

In addition to the above, in relation to the potential noise and vibration impacts of the Sancrox Quarry, as detailed previously within this document, the EIS identified that both construction and operational noise levels have the potential to exceed the applicable criteria, limits and thresholds if they are not suitably mitigated. The assessment also identified that blasting overpressure and vibration levels have a limited potential to exceed the applicable criteria. Notwithstanding the above, the EIS concluded that there were no significant environmental impacts identified during the preparation of the EIS that cannot be mitigated by appropriate mitigation and management strategies.

It can be noted that in order to retain trees along Sancrox Road, there is a considerable setback to Sancrox Road. This area could also be embellished with mounding or landscaping to assist further with acoustic mitigation.

If further potential acoustic impacts are identified at the development application stage, individual ameliorative measures can be investigated and implemented.

Visual Impacts

The site has frontage to Sancrox Road and will be visible to passers-by, as well as some nearby properties.

In order to mitigate potential visual impacts, a vegetated corridor has been proposed between Sancrox Road and much of the proposed development within the site. In addition, the provisions of Council's Development Control Plan would apply to future development within the site, which would act to guide urban design outcomes.

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

The potential social and economic effects of the proposal are considered under the headings below.

Social

A Social Impact Assessment has been prepared in relation to this proposal. This assessment is included within Appendix D of this report.

In relation to liveability considerations, the concept design for the site provides opportunities for pedestrian and cyclist connectivity throughout the development. This network also connects through to existing employment land and the Thrumster Town Centre to the east and to other residential areas of the Fernbank Creek and Sancrox Planning Investigation Area to the north and west.

A location has been identified by the Principal Applicant for a potential school and child care centre in the western portion of the site in the vicinity of the local business centre. The portion of R3 zoned land also allows for increased densities and variety of housing form, within walking distance of the local centre and proposed bus stops.

The proposal includes potentially positive social and economic benefits through employment generation within the small business zone, as well as through the construction phase for all zones. It is not considered that the business component of the proposal would be a major attractor in its own right due to its small size and would complement the developing residential areas, as well as the existing population of Sancrox.

It has been concluded within the Social Impact Assessment that negative impacts associated with the proposal to allow for the subdivision can be mitigated as part of the development application design and assessment process, as well as through appropriate ongoing site management and as part of a refinement of certain aspects of the site design. In addition, the Principal Applicant has concluded that none of the issues identified in the consultation undertaken as part of the Social Impact Assessment would prevent the rezoning from occurring.

Economic

Based on the concept subdivision plan for the proposal as detailed within Appendix D of this report, the proposal will yield residential, business and open space urban development. It is expected that this development will contribute to increased economic activity within the local area, including within the existing townships of Wauchope and Thrumster.

During the social impact assessment survey undertaken by the Principal Applicant, a response was received from Hanson who operate the quarry to the north-east of the site. Beyond the amenity impacts discussed previously within this report, the Principal Applicant has determined that there could be an economic impact upon the quarry with the addition of new residents into the area, with subsequent potential implications on quarry operations. However, the Principal Applicant has outlined that the proposed zoning and concept subdivision layout has sought to minimise land use conflict between the proposal site and the quarry. It has been advised that this will be achieved through incorporation of a vegetated buffer and upgrades to Sancrox Road in addition to

mitigation measures proposed to be implemented by the quarry as a result of the proposed expansion of the quarrying operation.

In most instances, the demand for business zoned land within a new growth area would be generated over time by incremental population growth. However, in this instance, there is already some existing demand from existing residential and industrial development within Sancrox. Development of Le Clos Sancrox and the wider Sancrox area, along with the identified continued population growth, further strengthens the need for business land and a neighbourhood centre within the site.

Below is a summary of the key findings from the Economic Impact Assessment included as Appendix D to this report:

- There is unlikely to be an adverse impact upon the retail hierarchy of Port Macquarie given the small scale proposed.
- There is a strong need for a neighbourhood or local centre between Thrumster and Wauchope and the proposed zoning addresses a shortfall at the lower end of the hierarchy following the closure of the former Sancrox corner store.
- The local or neighbourhood centre will service existing residents, as well as the new population from Le Clos Sancrox and the remainder of the Sancrox area once developed.
- The potential economic impact will not threaten the viability or level of service presently enjoyed by residents and visitors, but will enhance the overall level of service by providing a facility not presently available in this location. Any potential impacts are likely to be in the short term and would be made good through the provision of a new business centre.
- The proposal (neighbourhood centre) will reduce car dependency due to its planned integration into the development of the new Le Clos Sancrox estate with good connectivity for walking and cycling and public transport.
- The net benefit to the community in providing a local or neighbourhood centre within Le Clos Sancrox residential development is the key contribution to provision of a liveable community.
- There will be an economic injection experienced by the businesses who operate from the proposed business land and the location and connections ensure easy access.

In relation to the potential economic impacts of the proposal to the wider community through infrastructure and service provision, initial work has been undertaken by Council to assess community income in relation to housing types. This initial assessment identified that high density residential development within existing town centres can generate more than 7 times more income per hectare for the community compared with duplexes, more than 8 times more income per hectare than detached standard residential houses and more than 190 times more income per hectare when compared with rural residential development.

In relation to expenditure to service these development types, lower density development further from town centres such as Port Macquarie and Wauchope require more infrastructure such as roads, drainage, water, sewer and services such as waste collection (as applicable) over greater distances to service fewer residents. This discrepancy between income and expenditure results in fewer resources being available to the community for other services and may ultimately result in an income deficit to service economically inefficient development types.

This proposal has sought to increase the efficiency of land use and housing supply in comparison with earlier work undertaken by Council to inform the Greater Sancrox Structure Plan 2014 - 2034. However, the most efficient and high value development type for the community will continue to be infill development, including high density development within existing town centres. Promotion of this development type is a key focus of the LSPS and the NCRP.

D - State and Commonwealth interests.

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

Infrastructure would be adequate to meet the needs of the proposal with additional upgrades required by way of road works, new intersections, new sewerage and water infrastructure and extension of services. The Principal Applicant has indicated that the required upgrades and additional infrastructure would be funded by the developer and there is no expected shortfall in service provision. In addition, the scale of the Planning Proposal is not expected to place additional unreasonable demand on open space or waste facilities, with wider impacts associated with these facilities and services also being considered as part of the wider Fernbank Creek and Sancrox Planning Investigation. In relation to service provision by local emergency and community services, consultation is required to be undertaken as part of the progression of this proposal and the wider Fernbank Creek and Sancrox Planning Investigation to identify any additional service requirements and associated mechanisms to facilitate such services.

Essential infrastructure currently available to the site includes water, electricity and telecommunications. A number of the services would need to be upgraded to ensure capacity is met and this will require further detailed investigation. Plans included within Appendix D of this report show preliminary future servicing concepts for the site.

Any additional future infrastructure requirements associated with the proposal identified through the wider Fernbank Creek and Sancrox Planning Investigation or any other Council, State or Federal Government investigation, plan or strategy would be required to be addressed at the developers expense. Servicing and infrastructure is discussed in further detail under the headings below.

<u>Vehicle, Pedestrian and Cyclist Network</u>

From an accessibility perspective, the site is well located with respect to major roads and the traffic network. The site has frontage to Sancrox Road, which has access to the east to the Pacific Highway and Oxley Highway to the south via Rawdon Island Road. The traffic assessment accompanying this Planning Proposal identifies the need for road upgrades to Sancrox Road and addition of round-a-bouts at the two new roads. There is no identified need for intersection upgrades at existing intersections with Sancrox Road. However, the traffic assessment has recommended minor intersection works as the development progresses, in order to improve road safety, but not directly related to the Le Clos Sancrox development. This provides a wider public benefit for the area.

The upgrade works to Sancrox Road would allow for bus stops, pedestrian pathways and Cycleway, which all assist with connections into the future subdivision and connection from Le Clos Sancrox to the wider community.

<u>Railway</u>

Wauchope railway station is located approximately six kilometres to the west of the site and provides access to Sydney to the south and Brisbane to the north.

In addition, a potential high speed rail corridor and station has been identified for land immediately east of the site. Whilst there is currently no certainty that the high speed rail proposal will proceed, this Planning Proposal has had regard to the corridor and there is the ability to extend the pedestrian connectivity from the site to the station in the future should this proposal eventuate.

Stormwater and Water Quality

The site naturally drains towards Sancrox Road and the western boundary with a number of first and second order streams dissecting the site. A large dam is located to the central western boundary capturing a large portion of the runoff from the property and the adjoining property to the south and west. In relation to maintaining water quality, the intent would be to provide bioretention in the gullies, utilising the natural topography of the site.

Water quality measures are included in the stormwater design to treat the water as it traverses the site via a series of swales, to avoid the need for large basins.

The design has allowed for wider road reserves within the proposed R1 land in order to accommodate the drainage swales throughout the site. The wider road reserve will have many additional benefits in addition to accommodating the drainage infrastructure, but will also increase the openness of the overall development, provide further buffer to areas of high environmental value and allow for asset protection zones.

Sewer

Sewer is not currently available to the site but is located to the eastern end of Sancrox Road, adjoining Expressway Spares.

New sewer infrastructure would be required to service the site. The Principal Applicant has identified that the preferred option would be to provide a 'centralised' sewer pump station to the north of the site allowing greater flexibility to service a larger surrounding area. This option incorporates a rising main along Sancrox Road feeding back into the existing sewer pump station located at the intersection of Sancrox Road and the Pacific Highway. This would then discharge into the existing gravity fed network. The Principal Applicant has further advised that sewer servicing of the site can alternatively be managed by way of a 'self-servicing' sewer pump station upon the site itself with a sewer rising main leading back to the existing sewer pump station at the intersection of Sancrox Road and Pacific Highway. Although not the preferred option, it could be considered if time and landowner consent issues delayed or prevented the 'centralised' option from occurring within a reasonable timeframe.

Preliminary calculations have been prepared by the Principal Applicant to ensure the provision of a gravity sewer system within the site and leading to a 'self-servicing' pump station is feasible. These calculations have also been extended to include a 'centralised' pump station option including a larger surrounding catchment area.

Preliminary calculations undertaken by Council have indicated that sewer infrastructure will be required to be extended and updated to service the proposal. Further investigation will be required to determine detailed requirements and the cost of such infrastructure provision will be required to be funded by the developer.

Water

Although the UGMS mentions a very limited water supply from the existing Sancrox Reservoir to the Sancrox area for domestic and firefighting purposes (UGMS, p.111), a

new 20 mega litre reservoir has been constructed. This reservoir caters for the current and future demands of urban development and urban growth areas including the Sancrox area.

The current water supply network includes existing 100mm diameter and 150mm diameter watermains located along Sancrox Road and within the development site. It is envisaged however that the 300mm water main near to Expressway Spares to the east would need to be upgraded in the future along Sancrox Road to the subject site. Further investigation will be required to determine detailed requirements and the cost of such infrastructure provision will be required to be funded by the developer.

Telecommunications

A Dial Before You Dig search shows that telecommunications already exist to the site, servicing the smaller existing lots along the Le Clos Sancrox Road. This network will be required to be upgraded to service any future lots and development sites.

Confirmation has been received by the Principal Applicant from NBN Co in 2018 that NBN can be made available to the site.

Electricity

The Principal Applicant has advised that a *'Dial Before You'* Dig search shows that an electrical network already exists to the site servicing the smaller existing lots along the Le Clos Sancrox Road. This network will be required to be upgraded to service any future lots and developments sites. An email was received by the Principal Applicant from Essential Energy in 2018 confirming that the site can be serviced, subject to staging. Essential Energy will also be consulted in relation to electrical servicing for the wider Fernbank Creek and Sancrox area as part of the Fernbank Creek and Sancrox Planning Investigation. This will ensure holistic consideration of electrical provision to cater for future potential growth within the Fernbank Creek and Sancrox area.

11. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Consultation in relation to this proposal will be undertaken in accordance with relevant statutory requirements as part of the planning process, which occurs post-Gateway determination.

Notwithstanding the above, proactive consultation in relation to this proposal has been undertaken by the Principal Applicant with representatives of the Department of Planning, Industry and Environment's Planning Division, as well as the Biodiversity and Conservation Division. Below is a summary of the key discussions with both divisions as advised by the Principal Applicant.

Department of Planning, Industry and Environment's Planning Division

- Review the need for land, land supply may be zoned but not necessarily developable.
- Address the UGMS, variation principles and section 9.1 Ministerial Directions.
- The Department has identified this area for investigation.
- Explain the merits and how it fits within with the wider planning.
- Address inconsistency regarding the quarry.

Department of Planning, Industry and Environment's Biodiversity Conservation Division

- Address the NCRP and avoid areas of High Environmental Value (HEV).
- Explain how the proposal maximises avoidance and how the layout has evolved with respect to ecology. Look at constraints and opportunities, avoid HEV and form an argument which supports the proposed land uses.
- Consider Bio-certification at Planning Proposal stage.
- Consider Aboriginal Heritage.
- Consider impacts from basins, pathways and road edges in the ecological assessment.
- Identify recreational open space, not just conservation.

A letter was received by the Principal Applicant after a site visit with the Department of Planning, Industry and Environment's Biodiversity Conservation Division which provided further information regarding biodiversity conservation, including application and determination processes, as well as discussing consistency with the NCRP. These comments have been considered and incorporated into this document in accordance with information provided by the Principal Applicant.

Discussions have also been held between the Principal Applicant and the Department of Education to ascertain whether a public school would be appropriate in this location. The Department of Education advised that they did not feel there was a need. Discussions have also occurred between the Principal Applicant and a private school provider who has expressed interest and the north-west corner of the site as a possible future school location.

It can be noted that much of the above information in relation proactive consultation has been provided by the Principal Applicant in support of this proposal, and has generally not been verified by Council. However, any future statutory consultation would be verified by Council and managed in accordance with applicable Council policies and statutory requirements.

Part 4 – Mapping

A - Affected land

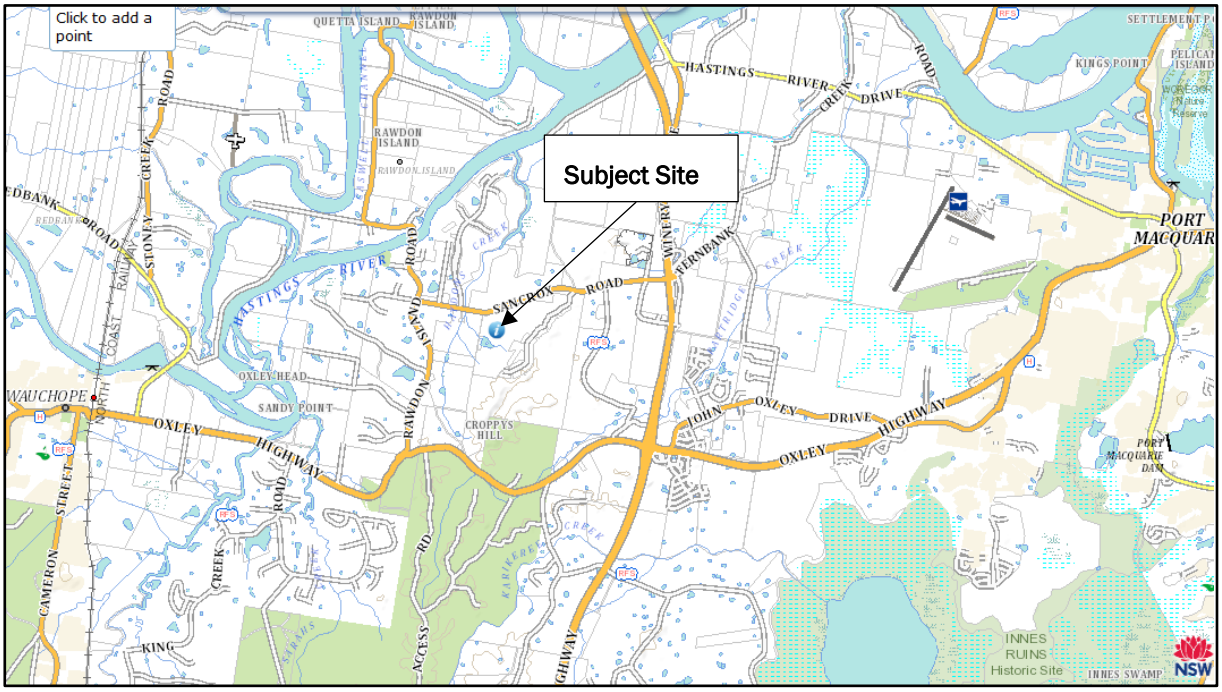


Figure 4 - Contextual Location of the subject land (source: www.sixmaps.nsw.gov.au)

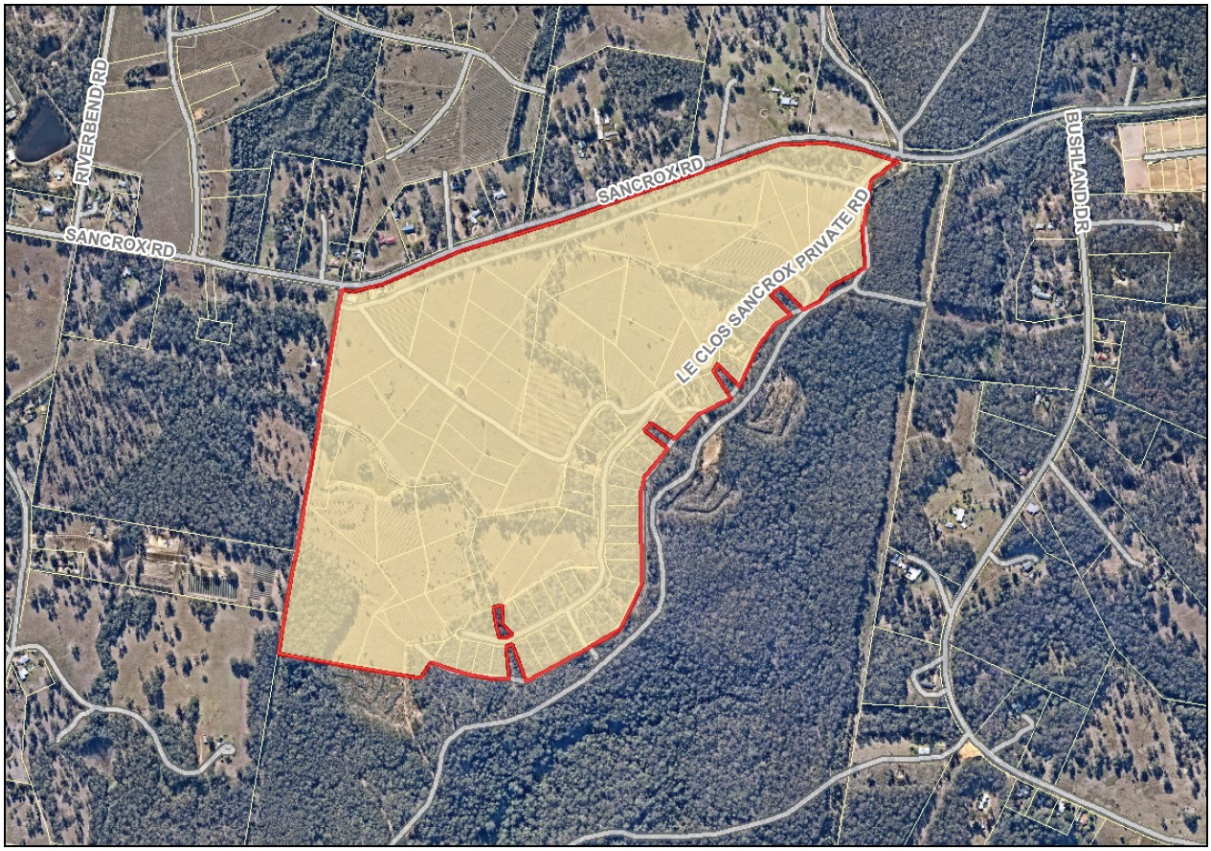


Figure 5 – Location of Extent of Le Clos Sancrox Highlighted Yellow

B - Comparison of before and after

Below are map extracts showing the current mapping and proposed changes.

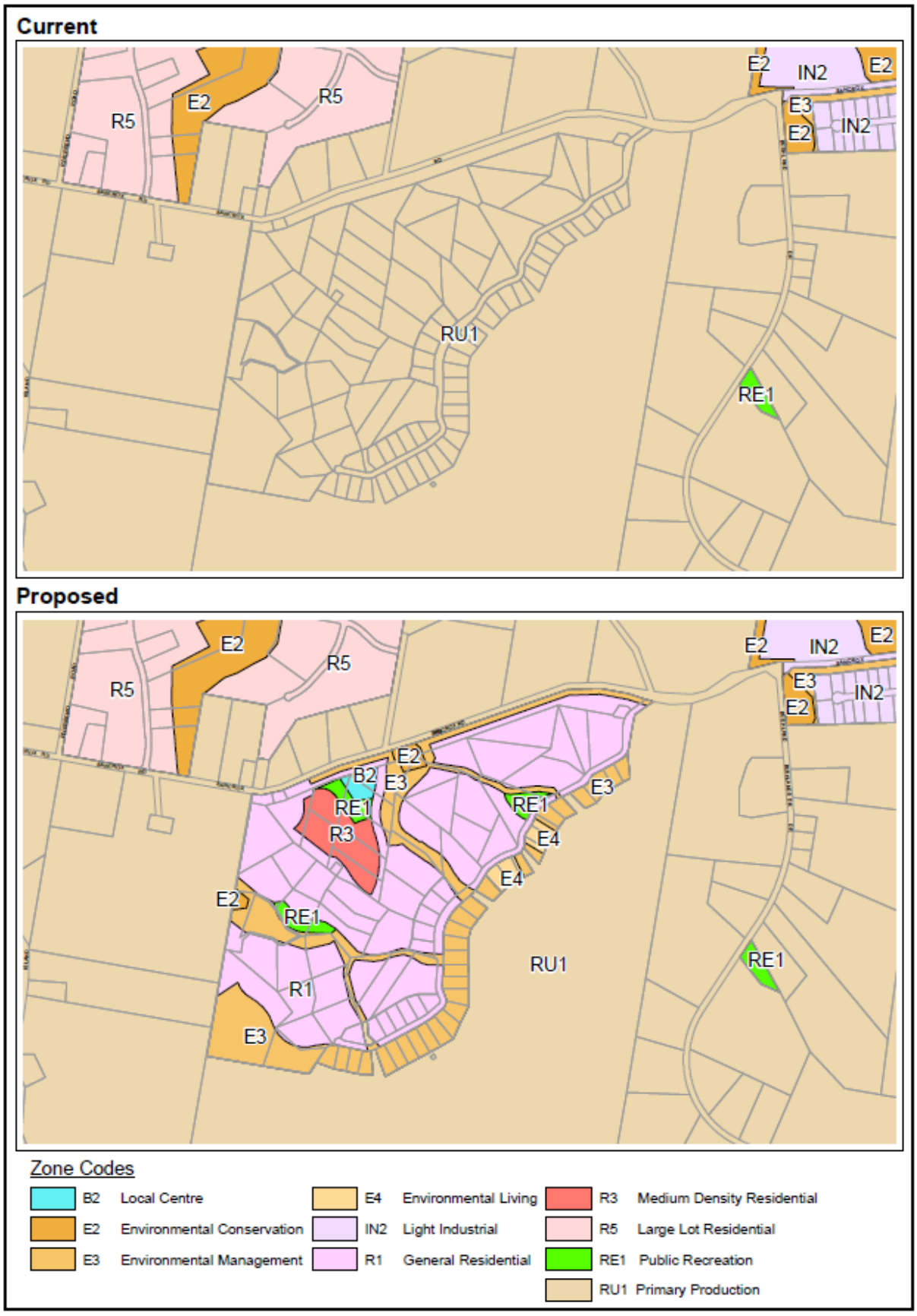


Figure 6 - Land Zoning Map

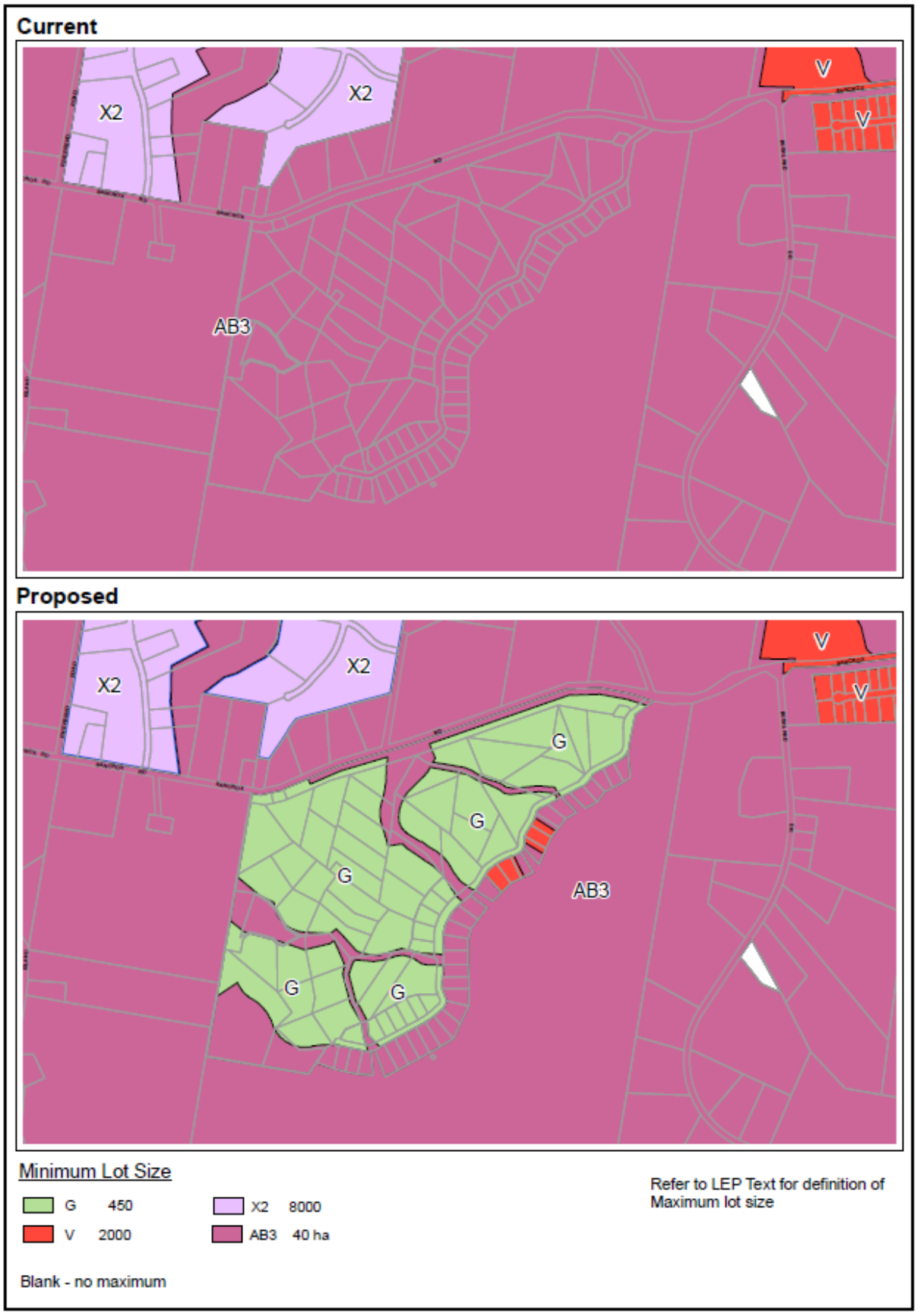


Figure 7 - Lot Size Map

Figure 8 - Floor Space Ratio Map

Figure 9 - Height of Buildings Map

C - Draft LEP maps

If the Planning Proposal is approved, then the current relevant LEP map sheets will be replaced by the above map sheets.

Note that while these maps may appear like the legal LEP maps, the only LEP maps that have any legal status are those listed and viewable on the NSW Legislation website. The map name (at the bottom of the map legend), including the date ("YYYYMMDD") at the end, is important. The date represents the date that version of the map was prepared, and not the date that it took effect (if at all).

If the Planning Proposal is approved, then the final maps may be updated from the maps forming part of this Planning Proposal to include:

- Any changes made by Council,
- Formatting changes, and
- Any applicable updates arising from other concurrent LEP amendments.

Part 5 – Community Consultation

Community consultation associated with this proposal would be undertaken in accordance with relevant statutory requirements as part of the planning process, which occurs post-Gateway determination.

Proactive community consultation undertaken to date by the Principal Applicant has occurred as part of the development of a Social Impact Assessment, included within Appendix D to this report. Feedback received as a result of this consultation has been reported to be generally positive, with amenity impacts such as noise from the nearby animal boarding establishment and quarry having been considered in the design of the zoning layout and concept subdivision plan.

In addition to the above, significant stakeholder consultation has also been undertaken as part of the development of the draft Fernbank Creek and Sancrox Villages Structure Plan, which includes the subject site. This has included internal Council consultation in relation to the Structure Plan undertaken as part of an internal working group on 17 September 2019. Feedback from this working group has been used to inform the development of a subsequent Discussion Paper and Fact Sheet. These documents were formally placed on public exhibition for a period of 28 days from 22 January 2020 until 19 February 2020. During this period, feedback from the community was sought through:

- Addressed letters and fact sheets posted to landholders within and adjoining the Planning Investigation Area,
- A landholder workshop / presentation at Council's Port Macquarie Customer Service Centre on 6 February 2020,
- Provision of information on Council's website,
- Advertisement in local print media on 22 and 29 January and 5 and 12 February 2020; and
- A 'pop up' session held at Sovereign Place Town Centre, Thrumster on 12 February 2020.

45 submissions were received as a result of this public exhibition, including submissions from six government agencies, being Transport for New South Wales, the Department of

Planning, Industry and Environment (Planning Division), Essential Energy, the Department of Primary Industries (Agriculture), the Department of Primary Industries (Fisheries) and the Department of Planning, Industry and Environment (Biodiversity Conservation Division).

Matters raised within the submissions received have been considered during the preparation of the draft Fernbank Creek and Sancrox Villages Structure Plan.

Stakeholder consultation during the preparation of the draft Fernbank Creek and Sancrox Villages Structure Plan has also been undertaken with various project stakeholders including landholders, community members and Government Agencies. This consultation has included a community information session on 24 September 2020 and a Government Agency reference group meeting on 30 November 2020.

Once finalised, the draft Fernbank Creek and Sancrox Villages Structure Plan is intended to be placed on public exhibition for a period of 28 days to seek further feedback from the community and other stakeholders in the finalisation of the draft Structure Plan.

Part 6 – Project Timeline

The project timeline below is based on anticipated dates and timeframes, though there can be unexpected delays. It is assumed that Council has delegation to carry out certain plan-making functions. Delegation would be exercised by Council's Chief Executive Officer or the Director of Strategy and Growth.

Table 6 - Project Timeline

	2021									2022				
Anticipated dates	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Commencement (date of Gateway determination)														
Timeframe for the completion of required technical information														
Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)														
Commencement and completion dates for public exhibition period														
Timeframe for consideration of submissions														
Timeframe for the consideration of the proposal post exhibition														
Date of submission to the department to finalise the LEP														
Date Council will make the plan (if delegated)														
Date Council will forward to the department for notification.														

Appendix A – Report to Council and Meeting Minutes 20 February 2019

PRESENT

Members:

Councillor Lisa Intemann (Deputy Mayor)
Councillor Rob Turner
Councillor Michael Cusato
Councillor Peter Alley
Councillor Justin Levido
Councillor Geoff Hawkins
Councillor Lee Dixon

Other Attendees:

General Manager (Craig Swift-McNair)
Director Corporate Performance (Rebecca Olsen)
Director Development and Environment (Melissa Watkins)
Acting Director Infrastructure (Jeffery Sharp)
Acting Director Strategy and Growth (Holly McBride)
Group Manager Governance and Procurement (Blair Hancock)
Governance Support Officer (Bronwyn Lyon)
Communications Manager (Andy Roberts)

The meeting opened at 5:30pm.

01 ACKNOWLEDGEMENT OF COUNTRY

The Deputy Mayor opened the Meeting with an Acknowledgement of Country and welcomed all in attendance in the Chamber.

02 LOCAL GOVERNMENT PRAYER

Pastor Mark Minturn from the Coastside Church delivered the Local Government Prayer.

03 APOLOGIES

RESOLVED: Dixon/Alley

That the apologies received from Mayor Pinson and Councillor Griffiths be accepted.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

04 CONFIRMATION OF MINUTES

RESOLVED: Cusato/Hawkins

That the Minutes of the Ordinary Council Meeting held on 12 December 2018 be confirmed.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

05 DISCLOSURES OF INTEREST

Councillor Cusato declared a Non-Pecuniary, Significant Interest in Item 11.01 - Notice of Motion - Exception Under General Provisions of the Markets Policy, the reason being that Councillor Cusato Has business interests selling the same products.

Councillor Cusato declared a Pecuniary Interest in Item 12.15 - Airport Business Park Planning Proposal - status update, the reason being that Councillor Cusato is the owner of a hanger in the precinct.

Councillor Levido declared a Non-Pecuniary, Significant Interest in Item 12.10 - Strategic Land Use Planning - Fernbank Creek and Sancrox, the reason being that Councillor Levido is the principle of Levido Law and Property. The Firm acts for the owners of property within the West Lindfield precinct dealt with as part of the report before Council.

Councillor Levido declared a Non-Pecuniary, Significant Interest in Item 12.11 - Planning Proposal - 2019 Administrative Review of Port Macquarie - Hastings LEP 2011, the reason being that Councillor Levido is the principle of Levido Law and Property. The Firm acts for the owner of a property the subject of the report before Council.

Councillor Levido declared a Non-Pecuniary, Significant Interest in Item 12.12 - Homedale Road, Kew - Planning Proposal and Draft Development Control Plan Provisions - consideration of submissions, the reason being that Councillor Levido is the principle of Levido Law and Property. The Firm acts for the owner of the property the subject of the report before Council.

Councillor Levido declared a Non-Pecuniary, Significant Interest in Item 14.05 - T-18-53 Design and Construction of Underbores - Beechwood and Bonny Hills, the reason being that Councillor Levido is the principle of Levido Law and Property. The Firm acts for the principals of one of the tenderers as to the matter the subject of the report before Council.

Councillor Intemann declared a Non-Pecuniary, Less Than Significant Interest in Item 12.14 - DA2018 - 562.1 Demolition of Existing Buildings, Consolidation and Boundary Adjustment, and Construction of Seniors Housing at Lots 10 - 13 DP 861177, Lot 1 DP 782560, Lot 1 DP 393967, Lot 1 DP 390610, Lot 1 DP 1053812, Lot 1 DP 121189, Lot 1 DP 795534, Lot 1 DP 151300, Lot 3 and 4 DP 347796, No. 15 - 21 Cameron Street and 3 Young Street, Wauchope, the reason being that Councillor Intemann is a Director of Hastings Co-operative, which is located nearby to the Wauchope RSL proposal. After consultation with the Hastings Co-operative Executive, Councillor Intemann declared a non-pecuniary less than significant interest arising from the possibility of no more than an “insignificant” benefit to the Hastings Co-operative business from potential patronage from the future residents of the proposed development.

06.01 MAYORAL DISCRETIONARY FUND ALLOCATIONS

RESOLVED: Intemann

That the Mayoral Discretionary Fund allocations for the period 29 November 2018 to 6 February 2019 inclusive be noted.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

07 CONFIDENTIAL CORRESPONDENCE TO ORDINARY COUNCIL MEETING

RESOLVED: Levido/Dixon

That Council determine that the attachments to Item Numbers 09.09 and 09.12 be considered as confidential, in accordance with section 11(3) of the Local Government Act.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

08 PUBLIC FORUM

The Deputy Mayor advised of applications to address Council in the Public Forum from:

1. Mr Grant Mitchell regarding Impact of Proposed Flood Free Airport Access Route on Oxley Highway / Fernhill Road Residents and Wildlife.
2. Ms Peta Watters regarding Orbital Road Opposition.
3. Mr James Munro regarding Orbital Road Proposal.
4. Mr Stuart Redman regarding The Hatch Road – Air Monitoring.

RESOLVED: Turner/Alley

That the above requests to speak in the Public Forum be acceded to.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

08.01 IMPACT OF PROPOSED FLOOD FREE AIRPORT ACCESS ROUTE ON OXLEY HIGHWAY / FERNHILL ROAD RESIDENTS AND WILDLIFE

Mr Grant Mitchell, representing the Fernhill Road and Oxley Highway Sustainable Progress Group, addressed Council in regard to the Impact of the Proposed Flood Free Airport Access Route on Oxley Highway / Fernhill Road Residents and Wildlife.

08.02 ORBITAL ROAD OPPOSITION

Ms Peta Watters addressed Council in regard to opposition of the Orbital Road.

08.03 ORBITAL ROAD PROPOSAL

Mr James Munro addressed Council in regard to an Orbital Road Proposal.

08.04 THE HATCH ROAD - AIR MONITORING

Mr Stuart Redman addressed Council in regard to air monitoring of The Hatch Road.

REQUEST TO SPEAK ON AN AGENDA ITEM

The Deputy Mayor advised of requests to speak on an agenda item, as follows:

Item 12.07 – Mr Garry Krestensen in opposition of the recommendation.
Item 12.08 – Mr Philip Lloyd in opposition of the recommendation.
Item 12.09 – Rev. Dr. John Barrett OAM in opposition of the recommendation.
Item 12.09 – Mr Tony Thorne in support of the recommendation.
Item 12.09 – Mr Grant Mitchell in opposition of the recommendation.
Item 11.01 – Mr Ian McKittrick in support of the recommendation.
Item 11.01 – Mr Desley Bailey in support of the recommendation.
Item 12.02 – Dr John Lusk in support of the recommendation.
Item 12.10 – Mr Maurice Driscoll in opposition of the recommendation.
Item 12.10 – Mr Graham Burns in opposition of the recommendation.
Item 12.12 – Ms Julie Edgecombe in opposition of the recommendation.
Item 12.13 – Ms Elizabeth Williams in opposition of the recommendation.
Item 12.13 – Mr Wayne Evans in support of the recommendation.
Item 12.14 – Ms Geraldine Haigh in support of the recommendation.
Item 12.17 – Mr David Pensini in support of the recommendation.

RESOLVED: Hawkins/Dixon

That the requests to speak on an agenda item be acceded to.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

SUSPENSION OF STANDING ORDERS

RESOLVED: Alley/Turner

That Standing Orders be suspended to allow Items 12.06, 12.07, 12.08, 12.09, 11.01, 12.02, 12.10, 12.12, 12.13, 12.14 and 12.17 to be brought forward and considered next.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.06 QUESTION FROM PREVIOUS MEETING - ORBITAL ROAD - DEVELOPMENT IN INVESTIGATION AREA

RESOLVED: Levido/Alley

That Council note the information provided in this report regarding development of the Orbital Road route options and investigation area.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.07 QUESTION FROM PREVIOUS MEETING - ORBITAL ROAD - CURRENT INVESTIGATION AREA

Mr Garry Krestensen addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Levido/Cusato

That Council note the information contained in this report regarding the determination of the current investigation zone for the Orbital Road.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.08 PORT MACQUARIE-HASTINGS LOCAL GOVERNMENT AREA TRAFFIC STUDY

Mr Philip Lloyd addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Alley/Levido

That Council note:
1. The information contained in this report and attached Port Macquarie-Hastings Local Government Area Traffic Study reports.
2. That the Port Macquarie-Hastings Local Government Area Traffic Study will be used for strategic future road network and land use planning.
3. That any future road upgrades identified within this study will be the subject of separate Council resolutions prior to work being undertaken.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.09 ORBITAL ROAD - FEASIBILITY STUDY

Rev. Dr. John Barrett OAM, representing the St Columba Anglican School, addressed Council in opposition of the recommendation.

Mr Tony Thorne, King and Campbell Pty Ltd, representing Jim and Gail Newton, addressed Council and spoke on the information in the report and raised concerns with respect to some of the information provided and answered questions from Councillors.

Mr Grant Mitchell representing Save Fernhill Community Action Group addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Alley/Turner

That Council:

1. Note the information contained in this report and the attached Engineering Feasibility Study for the proposed Orbital Road.
2. Further that in noting the Engineering Feasibility Study (which is the subject of this report), does not infer that Council has made any decisions on a preferred route or routes for the proposed Orbital Road.
3. Note that any future decisions on preferred routes relating to the proposed Orbital Road, will be the subject of future reports to Council for consideration.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

11.01 NOTICE OF MOTION - EXCEPTION UNDER GENERAL PROVISIONS OF THE MARKETS POLICY

Councillor Cusato declared a Non-Pecuniary, Significant Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 7:37pm.

Mr Ian McKittrick, Ewetopia Farm, address Council in support of the recommendation and answered questions from Councillors.

Ms Desley Bailey, The Eastward Garden, addressed Council in support of the recommendation.

RESOLVED: Intemann/Hawkins

That Council:

1. Subject to a successful application under Council's Markets Policy, admit the Tuesday Real Food Market in the Hay Street Forecourt as a trial exception

under the general provisions of the Markets Policy relating to timing in the CBD, with a set-up time from 11am and start time of noon, and the trial to end 31 December 2019.

2. Request the General Manager to:
   a) Report to Council any future application for exception under the Markets Policy, for Council's determination.
   b) Advise the approved operator of the Hay Street Forecourt Tuesday Real Food Market of the terms of the policy exception for those markets, namely that only fresh local food products be offered, and the approved operator is required to manage the stalls in accordance with the approved exception and provide a compliance report by 30 November 2019.
   c) Table the compliance report referred to in 2(b) to Council in conjunction with the review of Markets Policy at the December 2019 Ordinary Council Meeting.

CARRIED: 6/0
FOR: Alley, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

Councillor Cusato returned to the meeting, the time being 07:56pm.

Councillor Hawkins left the meeting, the time being 7:57pm.
Councillor Hawkins returned to the meeting, the time being 7:58pm.

12.02 LEGAL ADVICE ON WATER FLUORIDATION

Dr John Lusk addressed Council in support of the recommendation.

RESOLVED: Turner/Alley

That Council note the information included in this Legal Advice on Water Fluoridation report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.10 STRATEGIC LAND USE PLANNING - FERNBANK CREEK AND SANCROX

Councillor Levido declared a Non-Pecuniary, Significant Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 8:00pm.

Mr Maurice Driscoll, Maurice Driscoll Consulting, representing the Le Clos Sancrox Landowners, addressed Council in opposition of the recommendation and answered questions from Councillors.

Mr Graham Burns, Land Dynamics, representing the landowners, addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Turner/Hawkins

That Council:
1. Note the information in the February 2019 Strategic Land Use Planning - Fernbank Creek and Sancrox Report.
2. Note that a Greater Sancrox Area Structure Plan was tabled at the Council Meeting in February 2015 and deferred pending adoption of the UGMS.
3. Note that according to landowner representatives, the Le Clos Sancrox owners have all now committed to acting as a single entity to achieve a co-ordinated planning outcome.
4. Immediately commence Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS.
5. Invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.
6. Allow the General Manager to adequately resource this program.
7. Include regular updates on this matter in the biannual Site Specific LEP Amendments Update Report in March and September of each year.

CARRIED: 6/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann and Turner
AGAINST: Nil

12.12 HOMEDALE ROAD, KEW - PLANNING PROPOSAL AND DRAFT DEVELOPMENT CONTROL PLAN PROVISIONS - CONSIDERATION OF SUBMISSIONS

Councillor Levido declared a Non-Pecuniary, Significant Interest in this matter and remained out of the room and was out of sight during the Council's consideration.

Ms Julie Edgecombe addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Cusato/Turner

That this item be deferred pending consideration of potential unauthorised works on the site and the matter be reported back to Council with advice on these matters as soon as practicable.

CARRIED: 6/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann and Turner
AGAINST: Nil

Councillor Levido returned to the meeting, the time being 8:31pm.

Councillor Dixon left the meeting, the time being 8:31pm.
Councillor Dixon returned to the meeting, the time being 8:33pm.

12.13 DA2017 - 667.1 DEMOLITION OF EXISTING BUILDING AND CONSTRUCTION OF BOAT STORAGE FACILITY AND PUBLIC AMENITIES, TREE REMOVAL AND ROAD WORKS AT LOT 2 DP 535212, NO. 9 MCINHERNEY PARK, PORT MACQUARIE

Ms Elizabeth Williams addressed Council in opposition of the recommendation.

Mr Wayne Evans, representing Sailability, addressed Council in support of the recommendation and answered questions from Councillors.

RESOLVED: Intemann/Hawkins

1. That DA2017 – 667 for demolition of existing building and construction of boat storage facility and public amenities, tree removal and road works at Lot 2, DP 535212, McInherney Close, Port Macquarie, be determined by granting consent subject to the recommended conditions.
2. That the facility and land tenure arrangements be confirmed and reported back to Council.

CARRIED: 6/1
FOR: Alley, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Cusato

12.14 DA2018 - 562.1 DEMOLITION OF EXISTING BUILDINGS, CONSOLIDATION AND BOUNDARY ADJUSTMENT, AND CONSTRUCTION OF SENIORS HOUSING AT LOTS 10 - 13 DP 861177, LOT 1 DP 782560, LOT 1 DP 393967, LOT 1 DP 390610, LOT 1 DP 1053812, LOT 1 DP 121189, LOT 1 DP 795534, LOT 1 DP 151300, LOT 3 AND 4 DP 347796, NO. 15 - 21 CAMERON STREET AND 3 YOUNG STREET, WAUCHOPE

Councillor Intemann declared a Non-Pecuniary, Less Than Significant Interest in this matter and remained in the room during the Council's consideration.

Ms Geraldine Haigh, GEM Planning Projects, representing the applicant, addressed Council in support of the recommendation and answered questions from Councillors.

RESOLVED: Levido/Cusato

That this matter be deferred to enable a briefing to Councillors on car parking specific to this application and generally and the historical agreement of 1967 involving the Wauchope RSL Club and Council and a report be brought back to the April 2019 Council Meeting.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.17 DA2018 - 353.1 COMMERCIAL PREMISES AND TOURIST AND VISITOR ACCOMMODATION WITH CLAUSE 4.6 VARIATION TO CLAUSE 4.3 (HEIGHT OF BUILDINGS) AND CLAUSE 4.4 (FLOOR SPACE RATIO) OF THE PORT MACQUARIE-HASTINGS LOCAL ENVIRONMENTAL PLAN 2011 AT LOT 123 DP 1219042, NO. 17 CLARENCE STREET, PORT MACQUARIE

Mr David Pensini, representing the applicant, addressed Council in support of the recommendation and answered questions from Councillors.

MOVED: Levido/Intemann

That DA2018 – 353 be refused on the grounds that:

1. Insufficient on-site car parking has been provided (deficit of 21 spaces) as required by the Port Macquarie-Hastings Development Control Plan 2013. In the context of this proposed tourist development located within an area with time limited parking the public interest would not be well served by allowing such a significant shortfall in parking spaces on site, or offsetting this number of spaces via the contribution plan.
2. The proposed turning movements at the reception area are unreasonably compromised and should be redesigned to avoid regular interruption to the in-out vehicular movements by the 3-point turn.

FORESHADOWED MOTION

MOVED: Intemann

That DA2018 – 353 be deferred to allow the applicant to readdress non-compliance with development standards and provide further car parking provision on site so as to avoid dependence on parking offsets.

THE MOTION WAS PUT

MOVED: Levido/Intemann

That DA2018 – 353 be refused on the grounds that:

1. Insufficient on-site car parking has been provided (deficit of 21 spaces) as required by the Port Macquarie-Hastings Development Control Plan 2013. In the context of this proposed tourist development located within an area with time limited parking the public interest would not be well served by allowing such a significant shortfall in parking spaces on site, or offsetting this number of spaces via the contribution plan.
2. The proposed turning movements at the reception area are unreasonably compromised and should be redesigned to avoid regular interruption to the in-out vehicular movements by the 3-point turn.

LOST: 3/4
FOR: Cusato, Dixon and Levido
AGAINST: Alley, Hawkins, Intemann and Turner

FORESHADOWED MOTION WAS PUT

RESOLVED: Intemann/Alley

That DA2018 – 353 be deferred to allow the applicant to readdress non-compliance with development standards and provide further car parking provision on site so as to avoid dependence on parking offsets.

CARRIED: 6/1
FOR: Alley, Cusato, Dixon, Hawkins, Intemann and Turner
AGAINST: Levido

09.01 QUESTION FROM PREVIOUS MEETING - MAYOR - DELEGATED AUTHORITY

RESOLVED: Turner/Levido

That Council note the information contained in this response to the Question from Previous Meeting relating to the Mayors Delegated Authority.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.02 MID NORTH COAST JOINT ORGANISATION FINANCIAL STATEMENT

RESOLVED: Alley/Levido

That Council note the information contained in this Mid North Coast Joint Organisation financial statement report.

CARRIED: 5/2
FOR: Alley, Dixon, Intemann, Levido and Turner
AGAINST: Cusato and Hawkins

09.03 STATUS OF REPORTS FROM COUNCIL RESOLUTIONS

RESOLVED: Cusato/Turner

That Council note the information contained in the Status of Reports from Council Resolutions report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.04 DESIGNATED PERSONS

RESOLVED: Levido/Hawkins

That Council determine that the following position become a Designated Person pursuant to the provisions of section 441 of the Local Government Act 1993:

1. Project Manager Infrastructure Delivery.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.05 DISCLOSURE OF INTEREST RETURN

RESOLVED: Levido/Hawkins

That Council note the Disclosure of Interest returns for the following positions:

1. Building Surveyor Team Leader Building Regulation – Fire Safety
2. Contracts Administrator
3. Design Engineer
4. Development Compliance Co-ordinator
5. Development Compliance Officer
6. Engineering Planning Manager
7. Environmental Projects Officer
8. Group Manager Digital Technology
9. Group Manager Organisational Performance
10. Group Manager Regulatory Services (title change from Group Manager Compliance)
11. Land Use Planning Manager
12. Operations Engineer
13. Senior Works Engineer
14. Stormwater Engineer
15. Water and Sewer Operations Manager
16. Water and Sewer Planning Manager
17. Water and Sewer Process Manager
18. Water and Sewer Process Engineer
19. Water and Sewer Headworks Engineer
20. Water and Sewer Operations Engineer
21. Water and Sewer Planning Engineer
22. Works Engineer

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.06 DELEGATED AUTHORITIES - CERTIFICATE OF IDENTIFICATION ISSUED UNDER THE SWIMMING POOLS ACT 1992

RESOLVED: Cusato/Alley

That the seal of Council be affixed to the certificates of identification issued under the Swimming Pools Act 1992, for the following Council staff:

1. Anna Stricker – Building Surveyor

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.07 2020 ORDINARY LOCAL GOVERNMENT ELECTION

RESOLVED: Alley/Hawkins

That Council note:

1. The Office of Local Government circular informing of an Independent Pricing and Regulatory Tribunal review relating to the costs of conducting local government elections in New South Wales.
2. That a further report will be presented to Council when the Electoral Commission estimates to administer the 2020 local government election and constitutional referendum are released.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.08 POLICY REVIEW - RISK MANAGEMENT POLICY- POST PUBLIC EXHIBITION

RESOLVED: Hawkins/Alley

That Council:

1. Adopt the Risk Management Policy.
2. Rescind the Risk Management Framework Policy and reclassify the document as an internal procedure.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.09 LEGAL FEES

RESOLVED: Alley/Cusato

That Council note the information in the Legal Fees report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.10 FINANCIAL IMPACT OF COST SHIFTING FROM OTHER LEVELS OF GOVERNMENT

RESOLVED: Hawkins/Levido

That Council note the information contained in the Financial Impact of Cost Shifting From Other Levels of Government report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.11 INVESTMENT POLICY REVIEW - POST EXHIBITION

RESOLVED: Cusato/Hawkins

That Council adopt the amended Investment Policy.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.12 QUARTERLY BUDGET REVIEW STATEMENT - DECEMBER 2018

RESOLVED: Hawkins/Turner

That Council note the Quarterly Budget Review Statement for the December 2018 Quarter.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.13 MONTHLY BUDGET REVIEW - JANUARY 2019

RESOLVED: Hawkins/Intemann

That Council:
1. Adopt the adjustments in the "Budget Variations – January 2019" section of the Monthly Budget Review – January 2019.
2. Amend the 2018-2019 Operational Plan to include all budget adjustments approved in this report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.14 INVESTMENTS - DECEMBER 2018

RESOLVED: Hawkins/Turner

That Council note the Investment Report for the month of December 2018.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.15 INVESTMENTS - JANUARY 2019

RESOLVED: Alley/Hawkins

That Council note the Investment Report for the month of January 2019.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.16 2018-2019 OPERATIONAL PLAN - QUARTERLY PROGRESS REPORT AS AT 31 DECEMBER 2018

RESOLVED: Dixon/Cusato

That Council note the 2018-2019 Operational Plan - Quarterly Progress Report as at 31 December 2018.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.17 GLASSHOUSE BIANNUAL REPORT AND UPDATE ON STRATEGIC PLAN RECOMMENDATIONS

RESOLVED: Turner/Hawkins

That Council note the information provided in the Glasshouse Biannual Report and Update on Strategic Plan Recommendations report.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.18 DIGITAL TECHNOLOGY PROJECT STATUS

RESOLVED: Hawkins/Dixon

That Council note the information in the Digital Technology Project Status report and the progress made to date.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.19 COMMUNICATIONS STRATEGY - OXLEY HIGHWAY TRAFFIC CONGESTION AND ROADS AUTHORITIES

RESOLVED: Turner/Hawkins

That Council note the action taken and communications planning in place regarding the Oxley Highway traffic congestion and Council versus State Government road responsibilities.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

09.20 DEVELOPMENT ACTIVITY AND ASSESSMENT SYSTEM PERFORMANCE

RESOLVED: Cusato/Dixon

That Council note:
1. The Development Activity and Assessment System Performance report for the second quarter of 2018-2019; and
2. The four (4) clause 4.6 - Port Macquarie-Hastings Local Environmental Plan 2011 determinations that have been made under staff delegation.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

10.01 RECOMMENDED ITEMS FROM THE MAYOR'S SPORTING FUND SUB-COMMITTEE - DECEMBER 2018

RESOLVED: Intemann/Turner

That Council, pursuant to the provisions of Section 356 of the Local Government Act 1993, grant financial assistance from the Mayor's Sporting Fund as follows:
1. Kayle Enfield the amount of $350.00 to assist with the expenses he would have incurred travelling to and competing at the Australian All Schools National Surfing Titles held in South Australia from 1 – 8 December 2018 inclusive.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

10.02 FINAL REPORT: ABORIGINAL AWARENESS AND UNDERSTANDING STRATEGY 2013 - 2017

RESOLVED: Turner/Hawkins

That Council:
1. Note the end of term report of the Aboriginal Awareness and Understanding Strategy 2013 – 2017.
2. Request the General Manager report this matter to the next Cultural Steering Group.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

10.03 GRANT APPLICATIONS QUARTERLY REPORT

RESOLVED: Cusato/Hawkins

That Council note the first quarterly Grant Application Report, providing an overview of grants applied for or obtained in the 2018-19 financial year.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

10.04 TOWN CENTRE MASTER PLAN PRIORITY PROJECT - DRAFT OPERATIONAL PLAN 2019/20

RESOLVED: Hawkins/Dixon

That Council:
1. Approve the deferral of the following Town Centre Master Plan projects from the 2018/19 Operational Plan listed in the financial section of this report to allow for focus on the Port Macquarie Foreshore Walkway Project.
2. Include in the draft 2019/2020 operational plan a budget of $985,000 for the Port Macquarie Foreshore Walk Project from the Town Centre Master Plan Reserve.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

Item - 11.01 Notice of Motion - Exception Under General Provisions of the Markets Policy - has been moved to another part of the document.

12.01 NOTICE OF MOTION - CLASSIFICATION OF OCEAN DRIVE AND HASTINGS RIVER DRIVE TO STATE ROAD

RESOLVED: Alley/Cusato

That Council:
1. Note that Ocean Drive and Hastings River Drive are currently classified by the Roads and Maritime Services as a Regional Road.
2. Request the General Manager write to the Hon. Melinda Pavey MP, Minister for Roads, Maritime and Freight, requesting that Gazetted Road Number 600 be reclassified as a State Road under the Roads Act 1993.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

Item - 12.02 Legal Advice on Water Fluoridation - has been moved to another part of the document.

12.03 BOUNDARY ADJUSTMENT BETWEEN PART COUNCIL'S PORT MACQUARIE WATER SUPPLY DAM LAND AND 1 ORR STREET

RESOLVED: Hawkins/Turner

That Council note that the application for the boundary adjustment between part Council's Port Macquarie Water Supply Dam Land and 1 Orr Street has been withdrawn by the applicant.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.04 CLASSIFICATION OF LAND REQUIRED FOR SEWER PURPOSES AT COMBOYNE AND LONG FLAT

RESOLVED: Levido/Dixon

That Council:

1. Pursuant to Section 34 of the Local Government Act 1993, commence the process to classify the following lots as "operational" land by placing on public exhibition from 27 February 2019 for a minimum period of 28 days, the proposed resolutions:
   a) "It is intended to classify Lot 1 DP1240385 (land situated at Main Street, Comboyne) as operational land";
   b) "It is intended to classify Lot 2 DP1244793 (land situated off Henry Street, Long Flat) as operational land";
   c) "It is intended to classify Lot 2 DP1244795 (land situated off Henry Street, Long Flat) as operational land".
2. Note that a further report will be tabled to Council at the April 2019 Ordinary Council meeting, detailing any submissions received from the public during the exhibition period.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

12.05 TRANSFER OF LAND TO COUNCIL FOR SEWER PURPOSES - PACIFIC HIGHWAY, SANCROX

Councillor Alley left the meeting, the time being 10:11pm.

RESOLVED: Levido/Hawkins

That Council:

1. Accept the transfer of Lot 3 Deposited Plan 1241253, Pacific Highway, Sancrox;
2. Delegate authority to the General Manager to execute, electronically or otherwise, all documents including, but not limited to, any authorisation form as required associated with the transfer in accordance with the Electronic Transactions Act 2000;
3. Pursuant to Section 34 of the Local Government Act 1993 commence the process to classify Lot 3 Deposited Plan 1241253 as “operational land” by placing on public exhibition the proposed resolution “It is intended to classify Lot 3 Deposited Plan 1241253 (land situated at Pacific Highway, Sancrox) as operational land” from 27 February 2019 for a minimum period of 28 days;
4. Note that a further report will be tabled at the April 2019 Ordinary Council meeting detailing any submissions received during the exhibition period.

CARRIED: 6/0
FOR: Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

Item - 12.06 Question From Previous Meeting - Orbital Road - Development in Investigation Area - has been moved to another part of the document.

Item - 12.07 Question From Previous Meeting - Orbital Road - Current Investigation Area - has been moved to another part of the document.

Item - 12.08 Port Macquarie-Hastings Local Government Area Traffic Study - has been moved to another part of the document.

Item - 12.09 Orbital Road - Feasibility Study - has been moved to another part of the document.

Item - 12.10 Strategic Land Use Planning - Fernbank Creek and Sancrox - has been moved to another part of the document.

12.11 PLANNING PROPOSAL - 2019 ADMINISTRATIVE REVIEW OF PORT MACQUARIE - HASTINGS LEP 2011

Councillor Levido declared a Non-Pecuniary, Significant Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 10:12pm.

RESOLVED: Turner/Cusato

That Council:

1. Prepare a draft Planning Proposal as described in this report, pursuant to section 3.33 of the Environmental Planning and Assessment Act 1979, for the amendment of the provisions of Port Macquarie-Hastings Local Environmental Plan 2011, in relation to the seven issues as generally described in this report.
2. Forward the draft Planning Proposal to the Department of Planning and Environment for a Gateway Determination pursuant to section 3.34 of the Act, and request that the Gateway Determination authorise Council to be the local plan-making authority.
3. Upon receipt of the Gateway Determination, complete the relevant procedures under section 3.34 and clause 4 of Schedule 1 of the Act, including public exhibition of the Planning Proposal.

CARRIED: 5/0
FOR: Cusato, Dixon, Hawkins, Intemann and Turner
AGAINST: Nil

Councillor Levido returned to the meeting, the time being 10:13pm.

Councillor Alley returned to the meeting, the time being 10:13pm.

Item - 12.12 Homedale Road, Kew - Planning Proposal and Draft Development Control Plan Provisions - consideration of submissions - has been moved to another part of the document.

Item - 12.13 DA2017 - 667.1 Demolition Of Existing Building And Construction Of Boat Storage Facility And Public Amenities, Tree Removal And Road Works At Lot 2 DP 535212, No. 9 McInherney Park, Port Macquarie - has been moved to another part of the document.

Item - 12.14 DA2018 - 562.1 Demolition of Existing Buildings, Consolidation and Boundary Adjustment, and Construction of Seniors Housing at Lots 10 - 13 DP 861177, Lot 1 DP 782560, Lot 1 DP 393967, Lot 1 DP 390610, Lot 1 DP 1053812, Lot 1 DP 121189, Lot 1 DP 795 - has been moved to another part of the document.

12.15 AIRPORT BUSINESS PARK PLANNING PROPOSAL - STATUS UPDATE

Councillor Cusato declared a Pecuniary Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 10:13pm.

RESOLVED: Levido/Dixon

That Council note the information contained in the Airport Business Park Planning Proposal – Status Update report.

CARRIED: 6/0
FOR: Alley, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

Councillor Cusato returned to the meeting, the time being 10:16pm.

Councillor Hawkins left the meeting, the time being 10:16pm.

12.16 WITHDRAWAL OF CAVEATS - LOT 16 DP 1221921 AND LOT 234 DP 1224670, BRENCHLEY CIRCUIT (RIVERBREEZE ESTATE), WAUCHOPE

RESOLVED: Levido/Turner

That Council:
1. Approve the execution of the Withdrawal of Caveats AK978502 and AM225925 relating to Lot 16 DP 1221921 and Lot 234 DP 1224670, Brenchley Circuit, Wauchope; and
2. Authorise the General Manager to execute any necessary dealings in respect of this matter.

CARRIED: 6/0
FOR: Alley, Cusato, Dixon, Intemann, Levido and Turner
AGAINST: Nil

Item - 12.17 DA2018 - 353.1 Commercial Premises and Tourist and Visitor Accommodation with Clause 4.6 variation to Clause 4.3 (Height of Buildings) and Clause 4.4 (Floor Space Ratio) of the Port Macquarie-Hastings Local Environmental Plan 2011 at Lot 123 DP 1219 - has been moved to another part of the document.

13 QUESTIONS FOR NEXT MEETING

13.01 PARKING STRATEGY AND PARKING CONTRIBUTIONS RESERVE

Question from Councillor Intemann:

Could the General Manager please update Councillors on the status of the review of the Parking Strategy and the parking contributions reserve?

Comments by Councillor (if provided)**:**

Nil.

13.02 WAUCHOPE HERITAGE DEVELOPMENT CONTROL PLAN

Question from Councillor Intemann:

Could the General Manager please update Councillors on the status of a heritage DCP, or similar, for Wauchope, in view of comments by Council's Heritage Advisor on page 235 of the agenda identifying an "urgent need" for such instruments.

Comments by Councillor (if provided)**:**

Nil.

13.03 AIRPORT PLANNING PROPOSAL - REGULAR REPORTING SCHEDULE

Question from Councillor Turner:

Could the General Manager advise if there is a regular reporting schedule planned for the airport planning proposal?

Comments by Councillor (if provided)**:**

Nil.

Councillor Hawkins returned to the meeting, the time being 10:18pm.

CONFIDENTIAL COMMITTEE OF THE WHOLE

RESOLVED: Turner/Alley

1. That pursuant to section 10A subsections 2 & 3 and 10B of the Local Government Act 1993 (as amended), the press and public be excluded from the proceedings of the Council in Confidential Committee of the Whole (Closed Session) on the basis that items to be considered are of a confidential nature.
2. That Council move into Confidential Committee of the Whole (Closed Session) to receive and consider the following items:

Item 14.01	Council Owned Land in William Street Port Macquarie (PIN 34119) This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.
Item 14.02	EOI-18-04 Independent Member of the Audit, Risk and Improvement Committee This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.
Item 14.03	Supply of Electricity This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.
Item 14.04	Update on T-18-26 Supply of a Fully Automated, Self Cleaning Toilet Facility This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.
Item 14.05	T-18-53 Design and Construction of Underbores - Beechwood and Bonny Hills This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.
Item 14.06	T-18-59 Hastings River Drive Upgrade - Pre-construction This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial

information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.

Item 14.07 Hastings River Drive Property Purchase
This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

3. That the resolutions made by the Council in Confidential Committee of the Whole (Closed Session) be made public as soon as practicable after the conclusion of the Closed Session and such resolutions be recorded in the Minutes of the Council Meeting.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

ADJOURN MEETING

The Ordinary Council Meeting adjourned at 10:19pm.

RESUME MEETING

The Ordinary Council Meeting resumed at 10:30pm.

ADOPTION OF RECOMMENDATIONS FROM THE CONFIDENTIAL COMMITTEE OF THE WHOLE

RESOLVED: Turner/Alley

That the undermentioned recommendations from Confidential Committee of the Whole (Closed Session) be adopted:

Item 14.01 Council Owned Land in William Street Port Macquarie (PIN 34119)

This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

RECOMMENDATION
That Council:
1. Note the information contained in the Council Owned Land in William Street Port Macquarie (PIN 34119) report.
2. Delegate authority to the General Manager to enter into a Second Deed of Extension with Gowing Bros Limited, to extend the date for exercise of the Call Option Deed with Gowing Bros Limited for the option to purchase the property by a further six (6) months to 4 October 2019.

Item 14.02 EOI-18-04 Independent Member of the Audit, Risk and Improvement Committee

This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

RECOMMENDATION
That Council:
1. Appoint Mr Michael Parkinson as an independent member of the Audit, Risk and Improvement Committee for a four (4) year term.
2. Maintain the confidentiality of the documents and considerations in respect of Expression of Interest EOI-18-04.

Item 14.03 Supply of Electricity

This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.

RECOMMENDATION
That Council:
1. Note the rates accepted by Local Government Procurement for the contract extension to the Supply of Electricity contracts.
2. Maintain the confidentiality of the documents and considerations

in respect of the Supply of Electricity contracts.

Item 14.04 Update on T-18-26 Supply of a Fully Automated, Self Cleaning Toilet Facility

This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.

RECOMMENDATION
That Council note the information contained in the Update on T-18-26 Supply of a Fully Automated, Self Cleaning Toilet Facility Report.

Item 14.05 T-18-53 Design and Construction of Underbores - Beechwood and Bonny Hills

This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.

RECOMMENDATION
That Council:
1. Accept the quotation from Ledonne Constructions Pty Ltd for $555,643 (exclusive of GST) for the Design and Construction of Underbores – Beechwood and Bonny Hills.
2. Affix the seal of Council to the necessary documents.
3. Maintain the confidentiality of the documents and considerations in respect of Tender T-18-53.

Item 14.06 T-18-59 Hastings River Drive Upgrade - Pre-construction

This item is considered confidential under Section 10A(2)(d(i)) of the Local Government Act 1993, as it contains commercial information of a confidential nature that would, if disclosed, prejudice the commercial position of the person who supplied it.

RECOMMENDATION
That Council:
1. Defer consideration of Tender T-18-59 Hastings River Drive Upgrade – preconstruction project until the 20 March 2019 Ordinary Council meeting.
2. Maintain the confidentiality of the documents and consideration in respect of request for quotation T-18-59.

Item 14.07 Hastings River Drive Property Purchase

This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

RECOMMENDATION
That Council:

1. Undertake an acquisition for the purchase of Lot 2 DP39064 (210 Hastings River Dr, Port Macquarie).
2. Submit an offer and commence acquisition, once the impact of flood mapping is determined, within the adopted value range nominated by Council's Consulting Valuer for the purchase of Lot 1 DP39064 (212A Hastings River Dr, Port Macquarie).
3. Subject to the outcome of resolutions 1 and 2 above, delegate to the General Manager authority to:
   a) Sign the Contracts for Sale.
   b) Sign the letters to Revenue NSW seeking an exemption from the payment of Stamp Duty.
   c) Sign the Revenue NSW Purchaser Declaration Forms.
   d) Sign the Land Registry Services Transfer Forms.
   e) Sign any of the above or additional forms, either by hand or electronically, that may be required with the recent introduction of e-conveyancing.
4. Utilise Council's Hastings River Drive Contributions Plan and an internal loan from Council's Major Roads Contribution Plan to complete these acquisitions.
5. Combine the Hastings River Drive and Major Roads Contributions Plans at the time of updating the Major Roads Contribution Plan.
6. Reimburse the relevant Contribution Plan should any future sales of the land occur.
7. On completion of the purchase of each of Lot 2 DP39064 (210 Hastings River Dr, Port Macquarie) and Lot 1 DP39064 (212A Hastings River Dr, Port Macquarie), pursuant to Section 34 of the Local Government Act 1993, commence the process to classify each of the lots as "operational" land by placing on exhibition for minimum period of 28 days the proposed resolution "it is intended to classify Lot 2 DP39064 (210 Hastings River Dr, Port Macquarie) and Lot 1 DP39064 (212A Hastings River Dr, Port Macquarie) as operational land."
8. Note that a further report will be tabled to Council detailing any submissions received from the public during the exhibition period.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner
AGAINST: Nil

The meeting closed at 10:31pm.

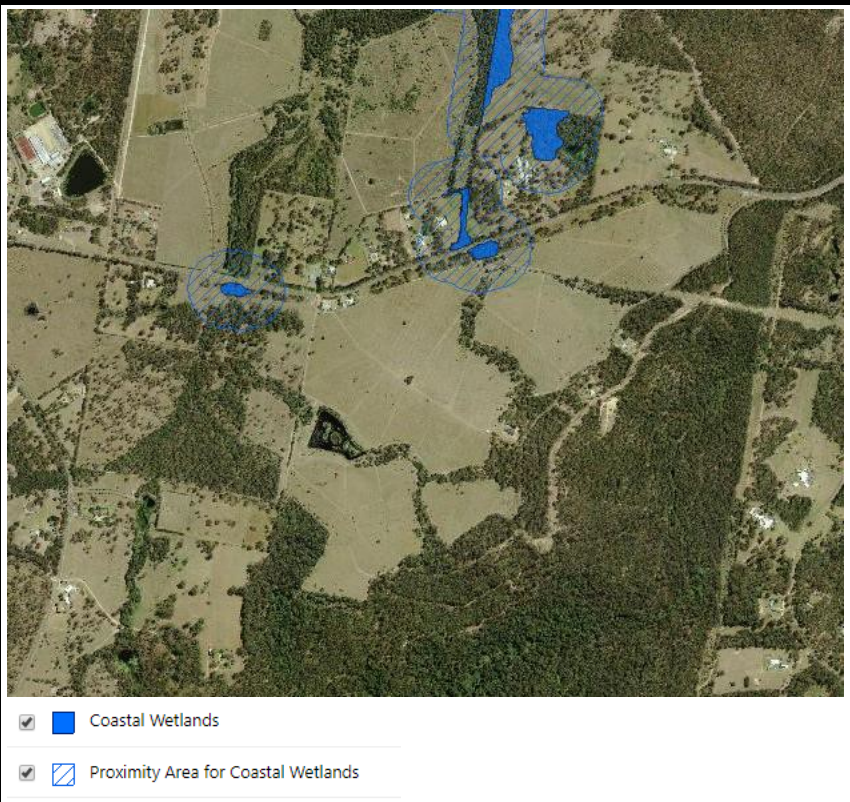
……..
Peta Pinson
Mayor

Appendix B – Consistency with applicable State Environmental Planning Policies

Listed below are the SEPPs that are relevant to the subject proposal.

State Environmental Planning Policies	Consistency
State Environmental Planning Policy (Koala Habitat Protection) 2020	This SEPP: • Provides a framework for councils to prepare a strategic koala plan of management that would apply to the whole or part of a local government area. • Applies to development applications on land over one hectare in a relevant LGA. • Requires development applications to be consistent with a council strategic koala plan of management that applies to the land, or, if there is no strategic plan, sets out a two-step process to determine if the land is core koala habitat and if it is, produce an Individual Koala Plan of Management before council can grant consent to a development application. • Exempts clearing of vegetation from the application of the SEPP if the purpose of the clearing is to maintain an Asset Protection Zone as part of rebuilding a dwelling destroyed or damaged by bush fire and allows the dwelling to be sited anywhere on the lot. • Saves all Koala Plans of Management approved under SEPP 44 and 2019 Koala SEPP. The site contains Potential Koala Habitat, but a combination of a grid-based Spot Assessment Technique (SAT) survey, spotlighting and call playback failed to detect any Koalas. This is confirmed by the ecological assessment undertaken and included within Appendix D to this report. There are no other statutory considerations required under SEPP 44 for Potential Koala Habitat (PKH). Majority of PKH retained and PKH losses are offset via planting with Tallowwood-dominated vegetation. Connectivity for koalas around and through the site is maintained and enhanced through proposed environmental corridors. The Ecological Assessment indicates: • The site contains Potential Koala Habitat (e.g. Lot 48), but a combination of a SAT survey, spotlighting and call playback in the breeding seasons failed to detect any Koalas, despite adjacent land to the south and east being identified as Core Koala Habitat (low density Koala population). A Koala Plan of Management (KPoM) is therefore not required. • Notwithstanding the above, the proposed development concept considers the potential for long term recovery of the local Koala population via: – Converting the majority of the currently heavily forested parts of the site to an Environmental zoning to protect it in perpetuity. – Infill planting with native forest dominated by Koala food trees in the existing cleared area in the southwest to reinforce local and regional linkage values. – Retaining and augmenting riparian zones to maintain local corridor values. – Utilising best practice for road crossings of riparian zones to provide for Koalas to pass under the roads.

State Environmental Planning Policies	Consistency
	In addition to the above, extensive ecological investigations were undertaken by Biolink as part of the Sancrox Structure Plan in 2015. Those investigations identified a sub-regional connection in a north-south direction to the east of the site and a local connection through the centre of the site. The indicative concept plan prepared to inform this Planning Proposal has been more conservative and avoided larger areas than indicated in the Structure Planning, with the creation of more corridors and linkages than originally envisaged. Following ecological investigations and discussions between the Principal Applicant and Council, the footprint of the future residential subdivision and associated proposed zonings has also been reduced to allow for increased koala food tree retention and creation of corridor links.
State Environmental Planning Policy No 55—Remediation of Land	This SEPP introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. A Stage 1 Site Contamination Assessment has been undertaken in relation to this Planning Proposal and is included as Appendix D to this document. This assessment has found the site to be appropriate for proposed residential development from a site contamination perspective provided the recommendations and advice of the report are adopted.
State Environmental Planning Policy (Affordable Rental Housing) 2009	This SEPP may apply to future development within the proposal area, in seeking to achieve the affordable rental housing aims of the Policy.
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004	This SEPP will apply to residential development within the site. Such development will be required to demonstrate consistency with the provisions of this SEPP.
State Environmental Planning Policy (Coastal Management) 2018	The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act* 2016, including the management objectives for each coastal management area, by: (a) managing development in the coastal zone and protecting the environmental assets of the coast, and (b) establishing a framework for land use planning to guide decision-making in the coastal zone, and (c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act* 2016. Below is an extract of the SEPP mapping which identifies a small portion of land along the northern boundary of the site as being affected by coastal wetlands and wetlands proximity area mapping. Development is not precluded from the mapped area but rather is Designated Development at the Development Application stage. Given the location on Sancrox Road, opposite an unformed road and as it is a low point on the site and will exceptional sight distance, the full extent of this area cannot be avoided by development. However, the environmental qualities in this area have been considered in the zoning layout, with application of a proposed E2 - Environmental Conservation zoning within the coastal wetlands area.

State Environmental Planning Policies	Consistency
	 *Above Figure – Coastal Management SEPP Extract*
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017	The aim of this Policy is to facilitate the effective delivery of educational establishments and early education and care facilities across the State. It is not known at this stage if education facilities, whilst permissible within the proposed residential zones, will be established within the site. However, the proposed residential zoning would support an educational establishment or child care facility (if sought), in accordance with the SEPP.
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	This Policy aims to provide streamlined assessment processes for development that complies with specified development standards This SEPP contains a range of exempt and complying provisions that are likely to apply to future development within the proposal area.
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004	This Policy aims to encourage the provision of housing (including residential care facilities). It is not known at this stage if seniors housing or aged care facilities, whilst permissible within the proposed residential zones, will be established within the site. However, the proposed residential zoning allows for seniors living and the provision of a small business zone would assist with proximity to facilities and services.
State Environmental Planning Policy (Infrastructure) 2007	The aim of this Policy is to facilitate the effective delivery of infrastructure across the State. The site has frontage to Sancrox Road, which has access to the east to the

State Environmental Planning Policies	Consistency
	Pacific Highway and Oxley Highway to the south via Rawdon Island Road. The traffic assessment accompanying this Planning Proposal does not identify the need for intersection upgrades at these major roads. Notwithstanding, this Planning Proposal will be required to be referred to Transport for New South Wales in accordance with Clause 104 of this Policy. The development of sewer, water and stormwater infrastructure to service the proposal area is able to be carried out by or on behalf of Council in any zone under this SEPP.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007	The aims of this Policy are, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries: a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and (b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and (b1) to promote the development of significant mineral resources, and (c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources, and (d) to establish a gateway assessment process for certain mining and petroleum (oil and gas) development— (i) to recognise the importance of agricultural resources, and (ii) to ensure protection of strategic agricultural land and water resources, and (iii) to ensure a balanced use of land by potentially competing industries, and (iv) to provide for the sustainable growth of mining, petroleum and agricultural industries. Mineral resources have been considered in the development of this Planning Proposal and the draft Fernbank Creek and Sancrox Villages Structure Plan. In addition, the Mining, Exploration and Geoscience Division of the Department of Regional NSW has been consulted in the development of the draft Fernbank Creek and Sancrox Villages Structure Plan. Through this consideration and consultation, no development constraints that would inhibit the suitability of the proposed land uses have been identified.
Primary Production and Rural Development 2019	The aims of the Policy are to facilitate orderly economic use and development of lands for primary production. Notwithstanding the existing rural zoning of the site, there will be no loss of important farmland and the change in land use will not impact upon any existing agricultural land use within or adjoining the site.

State Environmental Planning Policies	Consistency
	As such, notwithstanding the existing rural zoning of the site, there will be no loss of important farmland and the change in land use will not impact upon any existing agricultural land use within or adjoining the site.
State Environmental Planning Policy (State and Regional Development) 2011	The aims of this Policy are to identify development that is State significant development, State significant infrastructure and critical State significant infrastructure, and that is regionally significant development. Development with a capital investment value of more than $30 million is declared as regionally significant development and is required to be determined by the relevant Regional Planning Panel. Should this be the case for any future Development Application in relation to the subject land, the proposal will be regionally significant development and will be referred to the Regional Planning Panel for determination.

Appendix C – Consistency with applicable Section 9.1 Ministerial Directions

Listed below are the relevant section 9.1 (2) Directions (including Objectives) that apply to the proposal.

Copies of the full Directions are available on the Department of Planning, Industry and Environment's website.

Section 9.1 (2) Directions and Objectives	Consistency
1 Employment and Resources	
1.1 Business and Industrial Zones The objectives of this direction are to: (a) encourage employment growth in suitable locations, (b) protect employment land in business and industrial zones, and (c) support the viability of identified strategic centres.	This proposal includes a small parcel of business zoned land to facilitate the provision of a small component of retail/commercial development and a community facility. These land uses will be primarily for the surrounding residents or any other complimentary uses in the residential areas and is appropriately located towards the geographical centre of Sancrox. The addition of this small pocket of business land will not alter the hierarchy of commercial land within the Port Macquarie area, will not impact upon existing employment land and does not alter the viability of the identified strategic centres. This facility is smaller than a Neighbourhood Centre and the total potential floor space area for employment lands in the area is not expected to be reduced by this proposal. This proposed business zone would increase the liveability of the development and surrounding residential areas within Sancrox, whilst still allowing for the nearby town centres of Thrumster (Sovereign Place) and Wauchope to be the main nearby commercial centres. This inconsistency is justified by the economic assessment included within Appendix D of this report and the proposal is considered consistent with this Direction.
1.2 Rural Zones The objective of this direction is to protect the agricultural production value of rural land.	The proposal is inconsistent with this Direction as it rezones land from rural to residential and business zones. This inconsistency is permitted by the Direction given that it is 'justified by a study prepared in support of the Planning Proposal which gives consideration to the objectives of this direction', being the draft Fernbank Creek and Sancrox Villages Structure Plan.
1.3 Mining, Petroleum Production and Extractive Industries The objective of this direction is to ensure that the future extraction of State or regionally significant reserves of coal, other minerals, petroleum and extractive materials are not compromised by inappropriate development.	The Sancrox Quarry is located to the immediate north of the proposal. It is an identified mineral resource which supplies the construction industry with a range of products. Mineral resources have been considered in the development of this Planning Proposal and the

Section 9.1 (2) Directions and Objectives	Consistency
	draft Fernbank Creek and Sancrox Villages Structure Plan. In addition, the Mining, Exploration and Geoscience Division of the Department of Regional NSW has been consulted in the development of the draft Fernbank Creek and Sancrox Villages Structure Plan. Through this consideration and consultation, no development constraints that would inhibit the suitability of the proposed land uses have been identified.
1.5 Rural Lands The objectives of this direction are to: (a) protect the agricultural production value of rural land, (b) facilitate the orderly and economic development of rural lands for rural and related purposes.	The subject proposal would effect land within existing rural zones and proposes the facilitation of change to existing rural land uses. Notwithstanding, the draft Fernbank Creek and Sancrox Villages Structure Plan (which includes the proposal site) has: (a) considered and can be consistent with the applicable regional plan and Local Strategic Planning Statement (upon amendment to this plan and statement if required to incorporate the relevant provisions of the draft Fernbank Creek and Sancrox Villages Structure Plan). (b) considered the significance of agriculture and primary production to the State and rural communities. (c) identified and protected environmental values, including but not limited to, maintaining biodiversity, the protection of native vegetation, cultural heritage, and the importance of water resources. (d) considered the natural and physical constraints of the land, including but not limited to, topography, size, location, water availability and ground and soil conditions. (e) promoted opportunities for investment in productive, diversified, innovative and sustainable rural economic activities. (f) considered support of farmers in exercising their right to farm. (g) prioritised efforts and considered measures to minimise the fragmentation of rural land (where applicable) and reduce the risk of land use conflict, particularly between residential land uses and other rural land uses. (h) considered State significant agricultural land identified in State Environmental Planning Policy (Primary Production and Rural Development) 2019 for the purpose of ensuring the ongoing viability of this land. (i) Considered the social, economic and environmental interests of the community.

Section 9.1 (2) Directions and Objectives	Consistency
	In consideration of the above, as required by this direction, it has been demonstrated that the proposal: a) is consistent with the priority of minimising rural land fragmentation and land use conflict, particularly between residential and other rural land uses. b) will not adversely affect the operation and viability of existing and future rural land uses and related enterprises, including supporting infrastructure and facilities that are essential to rural industries or supply chains. c) is appropriately located taking account of the availability of human services, utility infrastructure, transport and proximity to existing centres as detailed within the draft Fernbank Creek and Sancrox Villages Structure Plan. The proposal has also been determined necessary taking account of existing and future demand and supply of rural residential land as detailed within the draft Fernbank Creek and Sancrox Villages Structure Plan. In addition to the above, proposed minimum lot sizes within environment protection zones are being sought in accordance with the Rural Subdivision Principles in clause 5.16 of the Port Macquarie - Hastings Local Environmental Plan. Proposal is considered consistent with this direction.
2 Environment and Heritage	
2.1 Environmental Protection Zones The objective of this direction is to protect and conserve environmentally sensitive areas.	This Planning Proposal includes approximately 1 ha of E2 land, 24.5 ha of E3 land and 1.5 ha of E4 zoned land. The principles of "avoid, minimise and offset" have been adopted in determining the environmental zones and developable area, minimising impacts upon areas of high environmental value. Proposal is considered consistent with this direction.
2.2 Coastal Management The objective of this direction is to protect and manage coastal areas of NSW.	The Planning Proposal does not affect the natural attributes of the NSW coast. Whilst the site is largely cleared, a small portion of land along the northern boundary of the site is identified as being affected by coastal wetlands and wetlands proximity area mapping. Development is not precluded from the mapped area, but rather is Designated Development at the Development Application stage. Given the location on Sancrox Road, opposite an unformed

Section 9.1 (2) Directions and Objectives	Consistency
	road and as it is a low point on the site and will exceptional sight distance, the full extent of this area cannot be avoided by development. However, the environmental qualities in this area have been considered in the zoning layout, with application of a proposed E2 - Environmental Conservation zoning within the coastal wetlands area. The proposal is inconsistent with this Direction. However, the consistency criteria within the Direction can be met.
2.3 Heritage Conservation The objective of this direction is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.	The Planning Proposal is supported by an Aboriginal Cultural Heritage Assessment prepared by the Birpai Local Aboriginal Land Council. The assessment advised that there is no reason that the rezoning cannot proceed in respect to Aboriginal Cultural Heritage issues. The recommendations of the report state: *'Based on the Site Inspection and other investigations, there is no reason for an Aboriginal Cultural and Heritage perspective that this rezoning cannot proceed, subject to the following:* *1. An Aboriginal Sites office be present when excavation or clearing commences.* *2. At such time as development site works start, should any artefacts be turned up or located, Birpai LALC Aboriginal Site Officers are to be contacted immediately and work on site stopped pending further assessment.'* As such, it has been determined that the rezoning can continue, subject to monitoring of any future clearing or earthworks during development of the site. In addition to the above, the maps accompanying the current LEP do not identify the site as being affected by heritage, nor the surrounding land. No State listed items are located within the vicinity of the site. The proposal is consistent with the Direction.
3 Housing, Infrastructure and Urban Development	
3.1 Residential Zones The objectives of this direction are: (a) to encourage a variety and choice of housing types to provide for existing and future housing needs, (b) to make efficient use of existing infrastructure and services and ensure that new housing has appropriate access to infrastructure and services, and	The proposal to rezone the subject land to allow residential development is considered to be efficient use of existing land and services and given that the site is largely cleared and not significant farmland, it does not result in substantial environmental impacts such as large scale loss of trees or impacts upon threatened species. The services provided to the site can be

Section 9.1 (2) Directions and Objectives	Consistency
(c) to minimise the impact of residential development on the environment and resource lands.	extended to the proposed residential zoned land. A variety of housing forms may result given the proposed R1 and R3 zones, in accordance with the Direction. The proposal does not contain any provisions which will reduce the permissible residential density of the land. The proposal is consistent with the Direction.
3.4 Integrating Land Use and Transport The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives: (a) improving access to housing, jobs and services by walking, cycling and public transport, and (b) increasing the choice of available transport and reducing dependence on cars, and (c) reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and (d) supporting the efficient and viable operation of public transport services, and (e) providing for the efficient movement of freight.	As this proposal creates urban land, this Direction applies. The Sancrox area is serviced by Busways Route 335W, which provides access into the centre of Port Macquarie and Wauchope. Provision has been made within the Concept Subdivision Plan for upgrade of Sancrox Road to include cycleway and pathways and a collector road through the site, with a roundabout on the western boundary which allows for bus turn arounds until such time as the adjoining land is developed and a through connection established. It is expected that as the wider Sancrox area develops, Busways will provide services via the local road network. In determining the appropriate zonings for the site, the constraints were determined and a concept layout developed, which includes an upgrade of Sancrox Road, collectors roads through the site and creation of on-road and off-road alternate transport such as walking or cycling both within and between the adjoining sites. Ultimately, pedestrian and cycling connections would be established between the site and employment land and Thrumster Town Centre to the east and nearby proposed residential areas as detailed within the draft Fernbank Creek and Sancrox Villages Structure Plan. Further, the traffic assessment indicates that two round-a-bouts are required on Sancrox Road at Road 1 and 2 and that the provision of bus bays at these intersections is necessary. Bus stops will also be incorporated into the future collector roads through the site to allow for future connections. The proposal is considered consistent with the Direction.
4 Hazard and Risk	
4.4 Planning for Bushfire Protection The objectives of this direction are: (a) to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas, and	As the site is mapped as bush fire prone land, a strategic bush fire study has been prepared and accompanies this Planning Proposal with respect to potential bush fire impacts.

Section 9.1 (2) Directions and Objectives	Consistency
(b) to encourage sound management of bush fire prone areas.	Appropriate asset protection zones (APZs) can be accommodated on site and this has informed the environmental zoned land boundaries. The required APZs will be contained in residentially zoned land. An indicative subdivision layout, with APZs clearly demonstrated, has been provided with the Planning Proposal documentation. The Rural Fire Service have been consulted in relation to the Fernbank Creek and Sancrox Planning Investigation, which incorporates Le Clos Sancrox proposal. Further consultation with the Rural Fire Service is also proposed to be undertaken following Gateway Determination. The proposal is considered consistent with the Direction.
5 Regional Planning	
5.10 Implementation of Regional Plans The objective of this direction is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans.	In accordance with North Coast Regional Plan 2036, this proposal provides an opportunity to accommodate additional housing without significant adverse environmental impacts or loss of important agricultural land. The small commercial component of this proposal does not undermine upon the local commercial hierarchy. Consistency of this Planning Proposal with the North Coast Regional Plan 2036 is detailed within Part 3 of this report. The proposal is considered consistent with the Direction.
6 Local Plan Making	
6.1 Approval and Referral Requirements The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.	This Planning Proposal will not introduce any additional requirements for concurrence with other Government agencies. The proposal is considered consistent with the Direction.
6.2 Reserving Land for Public Purposes The objectives of this direction are: (a) to facilitate the provision of public services and facilities by reserving land for public purposes, and (b) to facilitate the removal of reservations of land for public purposes where the land is no longer required for acquisition.	The proposal includes changes to land uses to facilitate land for future public purposes such as public open space and environmental conservation. Further information including the nature and timing of provision of such land for these purposes would be detailed within documentation in relation to associated planning agreements and/or contributions plans as applicable. The proposal is considered consistent with the Direction.
6.3 Site Specific Provisions The objective of this direction is to discourage unnecessarily restrictive site specific planning controls.	The implementation of the subject Planning Proposal is intended to facilitate a higher order use for the site in accordance with the provisions of the North Coast Regional Plan 2036, the

Section 9.1 (2) Directions and Objectives	Consistency
	relevant Community Strategic Plan and Port Macquarie - Hastings Council Urban Growth Management Strategy. The proposal will utilise existing land use zones as detailed within the current standard planning instrument and will not introduce new planning provisions to this instrument in accordance with this direction. The proposal is considered consistent with the Direction.

Appendix D – Principal Applicants Planning Proposal Documentation

LandDynamics
AUSTRALIA

PLANNING PROPOSAL

Proposed Rezoning

Le Clos Sancrox

Lots 1, 3-12, 14-48 & 50-52 DP 776681

Sancrox Road, Sancrox

On behalf of

LCS Estates Pty Ltd

December 2019

Rev A – February 2021

Prepared for:

LCS Estates Pty Ltd

Prepared By:

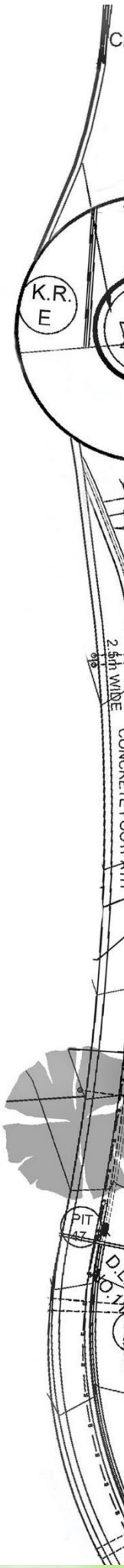
Land Dynamics Australia

77 Lord Street Port Macquarie NSW 2444 – PO Box 2459 Port Macquarie NSW 2444

T: 02 6583 2677 E: pm@ldynamics.com.au

www.ldynamics.com.au

	Name	Date
Prepared By	Donna Clarke	10/12/19
Checked By	Graham Burns	10/12/19
Rev A Prepared By	Donna Clarke	18/02/21
Rev A Checked By	Graham Burns	18/02/21



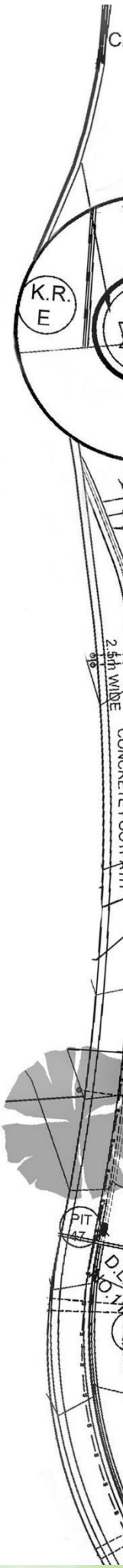
Disclaimer

This report was prepared in accordance with the scope of works set out in correspondence between the client and Land Dynamics Australia. To the best of Land Dynamics Australia's knowledge, the report presented herein accurately reflects the Client's intentions when the report was printed. However, it is recognised that conditions of approval at time of consent, post development application modification of the proposals design, and the influence of unanticipated future events may modify the outcomes described in this report.

Land Dynamics Australia used information and documentation provided by external persons, companies and authority. Whilst checks were completed by Land Dynamics Australia to ensure that this information and/or documentation was accurate, it has been taken on good faith and has not been independently verified. It is therefore advised that all information and conclusions presented in this report apply to the subject land at the time of assessment, and the subject proposal only.

Table of Contents

PRELIMINARY....4
SUBJECT SITE....5
BACKGROUND....11
PRE-LODGEMENT....18
PART 1 – OBJECTIVES OR INTENDED OUTCOMES SITE ANALYSIS....19
PART 2 - EXPLANATION OF PROVISIONS....21
PART 3 – JUSTIFICATION....26
Section A - Need for the Planning Proposal....26
3.1 Is the planning proposal a result of an endorsed local strategic planning statement, strategic study or report?....26
3.2 Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way? 27
Section B - Relationship to strategic planning framework....27
3.3 Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (including any exhibited draft plans or strategies)?....27
3.4 Will the planning proposal give effect to a council's endorsed local strategic planning statement, or another endorsed local strategy or strategic plan?....34
3.5 Is the planning proposal consistent with applicable State Environmental Planning Policies?....39
3.6 Is the planning proposal consistent with applicable Ministerial Directions (S9.1 directions)?....41
Section C - Environmental, social and economic impact....48
3.7 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?....48
3.8 Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?....51
3.9 How has the planning proposal adequately addressed any social and economic effects?....54
Section D - State and Commonwealth interests....56
3.10 Is there adequate public infrastructure for the planning proposal?....56
3.11 What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?....58
PART 4 – MAPPING....59
PART 5 – COMMUNITY CONSULTATION....64
PART 6 – PROJECT TIMELINE....64
CONCLUSION....65
APPENDICES....67



PRELIMINARY

This Planning Proposal has been drafted in accordance with Section 3.33 of the Environmental Planning and Assessment Act 1979 and the Department of Planning and Environment's "*A guide to preparing planning proposals*" dated December 2018.

This Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011) to rezone land comprising a number of landholdings collectively known as Le Clos Sancrox from RU1 Primary Production to a range of urban uses including R1 General Residential, R3 Medium Density, B2 Local Centre and environmental zones including E2 Environmental Conservation, E3 Environmental Management and E4 Environmental Living. The request is to develop a variety of residential and supporting uses and to conserve areas of environmental value.

The intended effect of the Planning Proposal request is to amend planning controls including zone, lot size and height of building controls, on the subject land. This will allow for an on-going issue of a Moratorium of development on the site being resolved, which has been identified as being a priority to be rectified.

The site has been identified as areas subject to Outline Planning in Council's Urban Growth Management Strategy (UGMS). Further, the UGMS allows for site specific planning proposals as part of the overall strategic planning program. This Planning Proposal is not considered to be premature before the Structure Planning for the wider area given the history of the site with respect to a consent for dwellings in place on the site and that the site is located west of the Pacific Highway, outside of the coastal strip, as well as being identified for investigation.

As part of this Planning Proposal, specialist review has been taken with respect to ecology, bushfire, traffic, servicing, demand, social, economic, aboriginal, acoustic, land contamination, servicing and urban design.

The subject site is likely to yield approximately 75.5 ha of residential land (R1 and R3) or approx. 680 lots, which is important for the future growth as identified in the UGMS in this locality. This is strategically important as the Regional Plan encourages a supply of land in the local government area, whilst ensuring that environmentally sensitive areas are avoided and acknowledging that some Councils may not have sufficient capacity in their urban growth areas to satisfy the demand. Given the length of time for a rezoning to occur, it is important to commence area wide planning, as well as site specific planning when an opportunity arises such as Le Clos Sancrox.

Proactive consultation in relation to this proposal has been undertaken with representatives of the Department of Planning, Industry and Environment's Planning Division, as well as the Biodiversity and Conservation Division. As a result of this consultation, biodiversity certification is being investigated to achieve certainty with respect to the ecological outcome.

This Planning Proposal document must be read in conjunction with the following accompanying Appendices:

A. Proposed Local Environmental Plan Map Set
B. Ecological Assessment
C. Vegetation Offsets Plan
D. Bushfire Assessment
E. Bushfire APZ Plan
F. Traffic Assessment
G. Overall Sewer Strategy
H. Development Lots Servicing Strategy
I. Stormwater Quality Assessment, Onsite Detention Modelling & Flooding Review
J. Contamination Report
K. Aboriginal Cultural Heritage Assessment
L. Land Supply and Demand Assessment
M. Social Impact Assessment
N. Economic Impact Assessment

O. Acoustic Review
P. Subdivision Concept Layout Overall
Q. Subdivision Concept Layout Detailed
R. Urban Design Guidelines
S. Vegetation Management Plan
T. Voluntary Planning Agreement Request Letter
U. Landowners Report & Deed

The Planning Proposal provides a balanced outcome for the subject land in that it provides future residential opportunities on predominantly cleared land, protection and embellishment of land with environmental value and addresses the on-going issue of a Moratorium imposed on the landowners, restricting legal development of their land.

The Planning Proposal has both strategic and site specific merit and is consistent with the Regional Plan and local UGMS, as demonstrated in this document and the assessment against the Urban Growth Area Variation Principles and S9.1 Ministerial Directions.

SUBJECT SITE

The subject site is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and forms part of the Greater Sancrox Area, as identified by Council. The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox (Lots 1, 3-12, 14-48 & 50-52 DP 776681) and has an area of approx. 104ha. The plan below in Figure 1 details the extent of the boundaries of the properties included and Figures 2 to 4 provide the context of Le Clos Sancrox with respect to the greater Sancrox Area, Wauchope and Port Macquarie.

Le Clos Sancrox is part of the previous wider Cassegrain vineyards. To the north of the site is Verdun Estate which was also part of the previous vineyard land and has recently been rezoned by Council to large lot residential. To the north is a range of rural-residential dwellings and an animal boarding and breeding establishment. To the north-east of the site is Sancrox Quarry and further along Sancrox Road is Expressway Spares, which is part of a future industrial land investigations area. The site is generally surrounded by rural land, noting that extensive clearing has occurred on the land to the east recently.

The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. The site is relatively cleared, with vegetation in fingers through the site and around the edges. A number of drainage lines dissect the site falling towards Sancrox Rd.

The Greater Sancrox Area is located approximately 6.4km north east of the Wauchope town centre and 13km west of the Port Macquarie town centre and contains a land area of approximately 1,400 hectares. The region is bound by the Oxley Highway to the south, the Pacific Highway to east and rural lands to the west and the Hastings River to the north. The predominate land use is rural, including agriculture and rural-residential. In general, lot sizes range between 1 to 10ha, with only four lots greater than 50 ha. The majority of small land parcels are located in the areas off Rawdon Island Road and Sancrox Road.

The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this Planning proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the Moratorium issue.

The site and surrounding area has been subject of extensive Structure Planning in 2015, which was delayed pending Council's Urban Growth Management Strategy and the change in strategy from rural-residential to residential zoning of the area. The site has been identified as areas subject to Outline Planning in Council's Urban

Growth Management Strategy. Rezoning the land is considered the most suitable and transparent way of achieving the objectives of this proposal. The area of Sancrox is the logical next area for development, with Area 13 planning ceasing at the highway. This area of Thrumster is developing at a steady rate, with a good take up of land by purchasers. The site is well located with easy access to the existing universities, schools, hospitals, shopping and other services and facilities within Port Macquarie and Wauchope.

An aerial photograph of the site and surrounds is shown below, with the subject site outlined in blue.

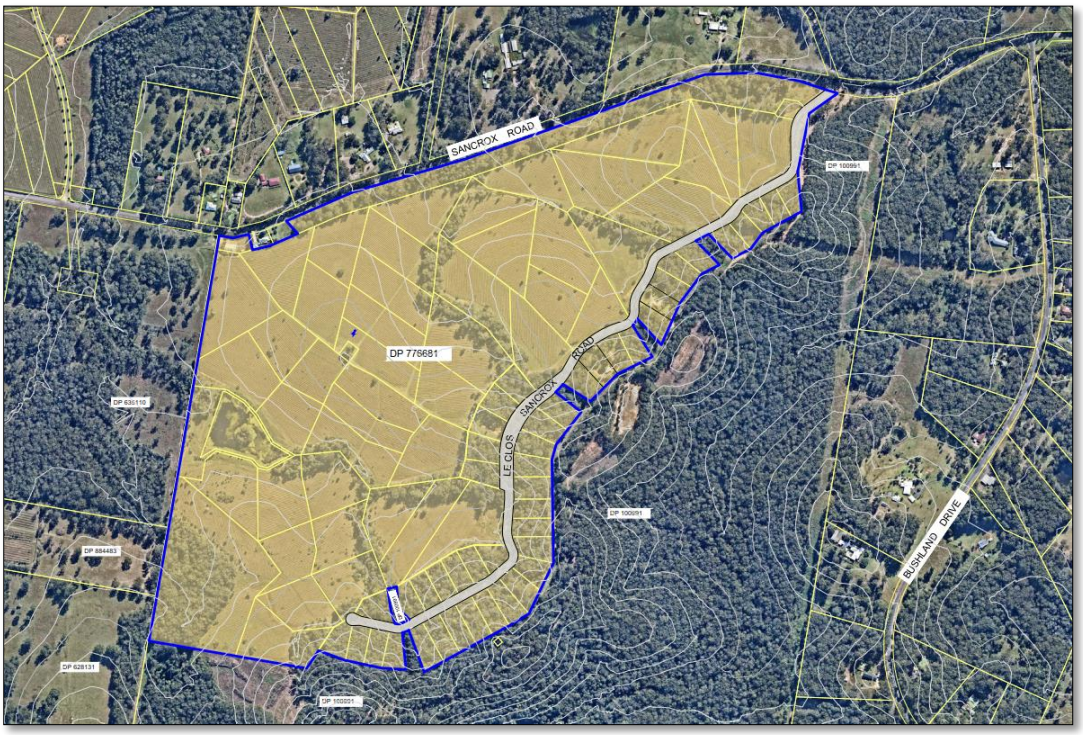


Figure 1 – Location of Extent of Le Clos Sancrox Highlighted Yellow

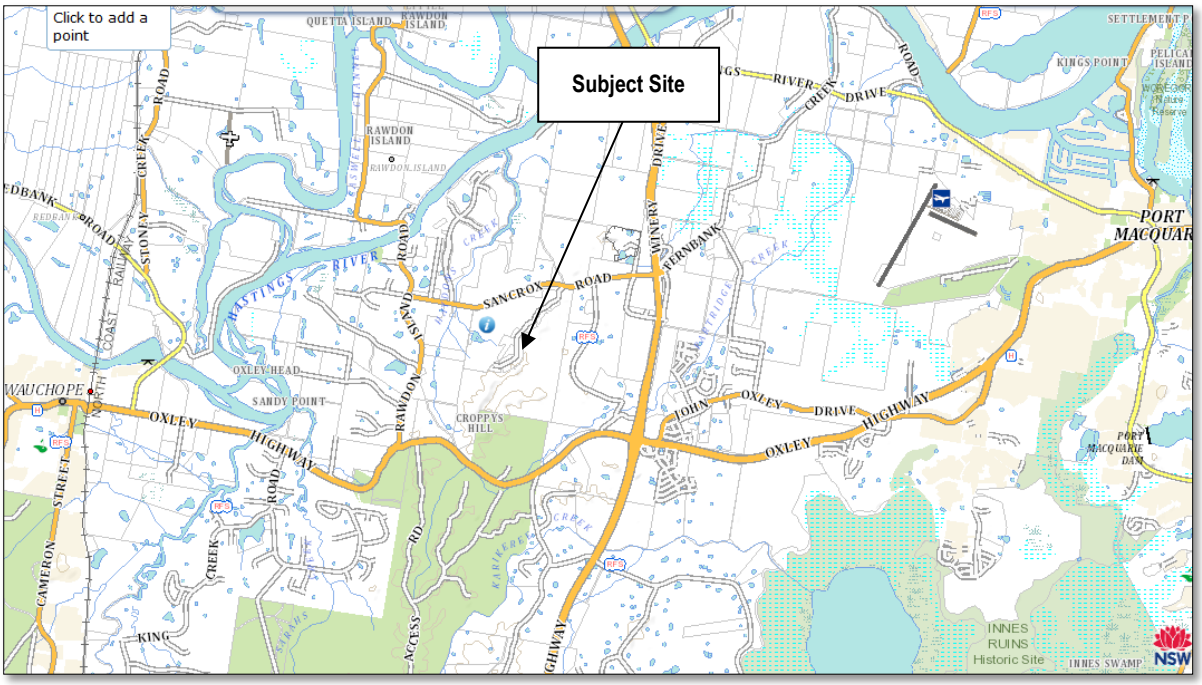


Figure 2 - Contextual Location of the subject land (source: www.sixmaps.nsw.gov.au)

Figure 3 - Close Up Aerial Map of the subject land (source: www.nearmap.com)

The site is currently zoned RU1 Primary Production under the LEP 2011, as too is immediately surrounding land. The site includes the following features:

- Storage building in north-west corner.
- Le Clos Sancrox Road along the eastern boundary.
- 46 residential building blocks with frontage to Le Clos Sancrox Road.
- 46 bush blocks, each connected to a residential building block.
- 3 dwellings on residential building blocks.
- Previous viticulture infrastructure and small outbuildings associated with the rural use of the land.
- The remainder of the site not containing dwellings is primarily cleared and currently utilised for grazing of cattle.
- EEC in three areas of the site, one being along the northern boundary in the central area of the site and the other two along the western boundary in the vicinity of the existing dam.
- A number of watercourses traverse the site from the upper areas down towards the dam and northern boundary in the central area of the site.
- Rights of way on title for access to Le Clos Sancrox Road for the adjoining land to the east and south being Lot 1 DP 1009991.

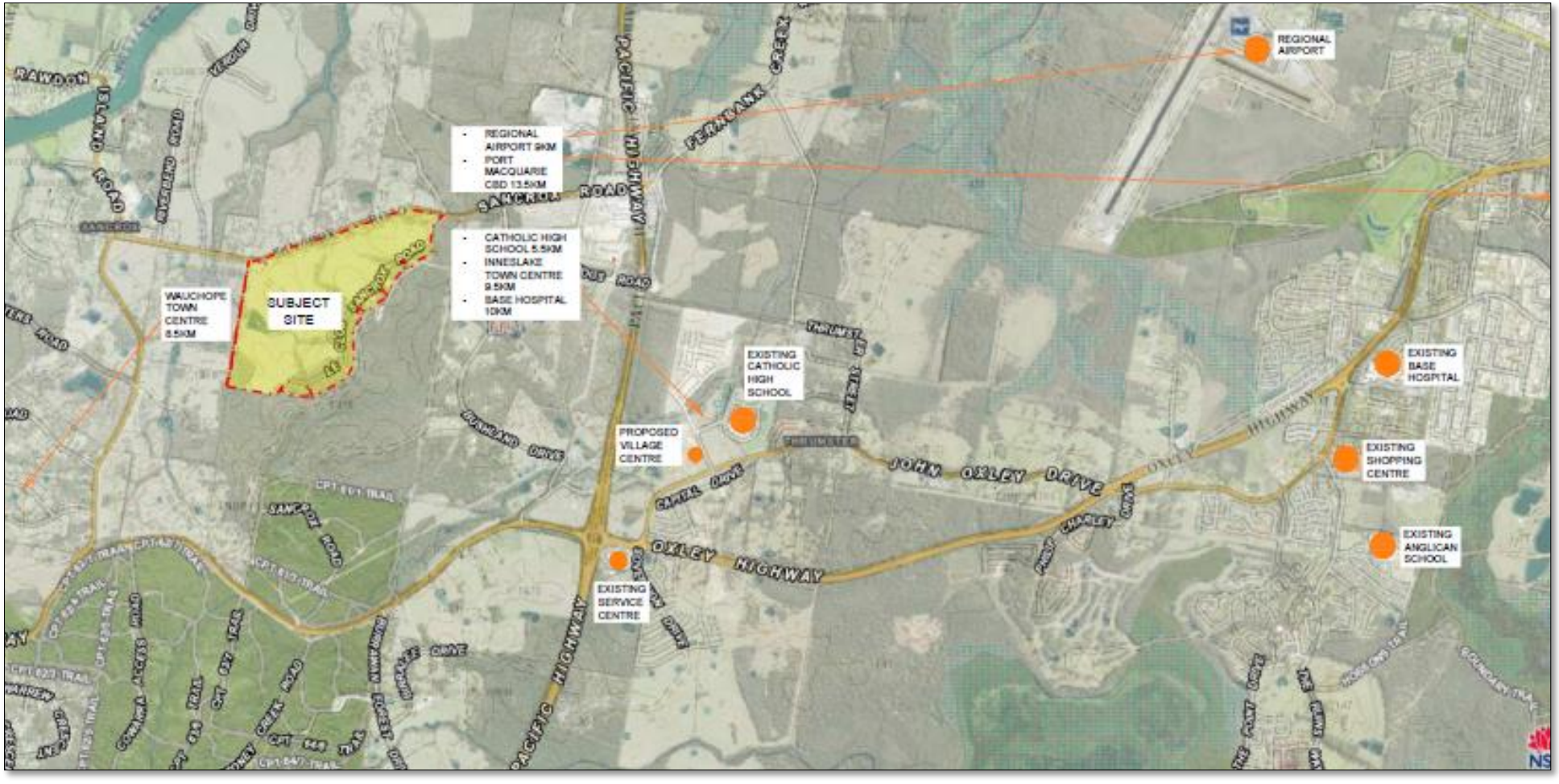


Figure 4 - Broadscale Analysis Extract

Below are photographs of the site:

Figure 5 – Photographs of the Site

BACKGROUND

For many years, Claude Cassegrain (the then landowner) championed for an area wide development to control urban sprawl westwards from Port Macquarie. The area extended from the Airport westwards to Rawdon Island. Notably, Hastings 2000 Project was developed, which had the support of landowners in the area, Council and the State Government.

Le Clos Sancrox specifically has a long history with Council in being identified for rezoning from rural to rural-residential in the since 2006. Council support has been provided and then dismissed, and development opportunities limited by way of a Moratorium being imposed 13 years ago, and then investigations shelved. This has been a constant source of frustration for the numerous landowners and no opportunity provided to legally develop their land, contrary to the development approval in place in 1987. Currently, the site is subject of a Moratorium imposed by Council on 9 October 2006 until the site is rezoned from rural.

Council has acknowledged in the Structure Planning for Sancrox and by way of recent resolutions dated 19 September 2018 and 20 February 2019 that this situation needs to be resolved as a priority and remove the Moratorium for Le Clos Sancrox by way of rezoning of the site and invited a Planning Proposal submission.

Below is a summary of the key approvals and resolutions, and regular liaison with Council in the preparation of the Planning Proposal.

1991 – Hastings 2000 Project

The figure below is an extract from a submission to the State Government in June 1991 regarding Hastings 2000 Project which details the initial background of Le Clos Sancrox and surrounds, as well as acknowledging an award for Le Clos Sancrox. Hastings 2000 Project had a broader focus and included technology and jobs to support the

increasing residential area and supported growth away from the coast and in the logical area between Port Macquarie and Wauchope. It also included health and education, including a university.

1.3 Planning Basis

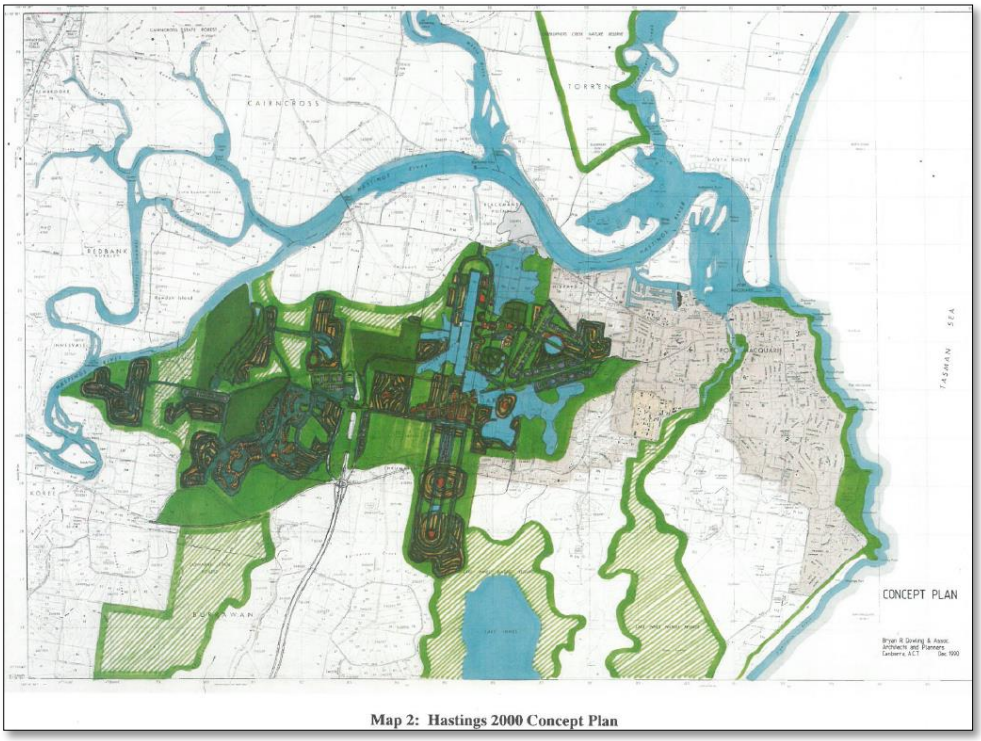
Hastings 2000 is, in part, a Regional Development Plan for the Port Macquarie area. The existing Port Macquarie area has a population of approximately 27,000 people on a land area of 2,100 hectares. The Hastings 2000 Project proposes to utilise an additional 1,750 hectare of land immediately to the west of the existing township for an additional 70,000 persons over the next 15 to 20 year period. It will, in that time frame, create approximately 16,500 permanent wealth creating jobs and an additional 18,800 permanent support jobs in the Hastings region. It will establish in the region an economically sustainable total population of 100,000 persons.

4.1 Background

In 1975, Gerard Cassegrain & Co Pty Ltd (G.C. & Co) were offered assistance by the then Department of Decentralisation and Development to expand their manufacturing activities. During the course of investigating methods of assistance, it became clear to Claude Cassegrain that the Hastings Valley had fundamental economic problems which were not being effectively addressed. The problems were subsequently to be aggravated due to the polarisation of sectional interest. Developers versus conservationists, bureaucracy versus private enterprise, and the growth of conflicting industries.

In 1979 the Port Macquarie Council was informed of the need to encourage the re–direction of the economic base of the Hastings. In 1980 the Cassegrains convened an informal private group consisting of local professional leaders to prepare a sustainable land use plan, limited to the Cassegrain land holding. The group received input from national and international town planning organisations. The result of this work identified the need to aggregate a larger land holding and the requirements of substantial funds to carry out the detailed studies. 1987 saw the first stage and practical application of the H2000 ideology, the building of Le Clos Sancrox – a clos is a system of sub–division of rural land into small individual farms which presents a contiguous area, allowing them to be developed and managed effectively as one farm. Le Clos Sancrox received a National 1988 Bi–Centennial Heritage Award.

Figure 6 – Extracts from Hastings 2000 Project



Map 2: Hastings 2000 Concept Plan

Figure 7 – Concept Plan Extract from Hastings 2000 Project

1987 - Development Consent DA 50/87 Overall Estate

Council granted consent to DA 50/87 on 8 April 1987 subject to conditions, for the creation of 46 rural home site and viticulture allotments and support allotments. The restrictions on the titles of the allotments has occurred in accordance with this consent and a separate development application is required for a dwelling on any allotment.

2006 - DA 2006/0312 relating to Lot 9 & Moratorium

In 2006, Council granted consent for a dwelling house on Lot 9. As part of the approval of DA 2006/0312 relating to Lot 9, Council also resolved to impose a Moratorium on all development in Le Clos Sancrox and Le Clos Verdun Estate, with the rezoning to Rural-Residential of the latter being gazetted 3 months later. There is a Moratorium on development "*because the inadequate size of the existing lots to meet current standards for effluent disposal and bushfire protection when constructing a dwelling. It is proposed that Council resolve this situation as a priority, if possible, having regard to other co-ordination issues in the GSA*." (source: Greater Sancrox Structure Plan, p41). The site is considered unconstrained as discussed above in relation to the outlined key issues in the Structure Plan and Le Clos Verdun has been rezoned.

The report to Council on 9 October 2006 indicated that "*the only viable option for appropriate development of the Le Clos farms is re-configuration to combine the vineyard lot and the house lot into one larger house lot. Given the non-viability of the Estate for its intended purpose and the fact that Council's Rural Residential Strategy 2004 identifies this area as an investigation area, redevelopment is supported*". The report also states that "*Council could justify accepting a rezoning proposal for Le Clos Sancrox prior to the completion of the new LEP…. However, the environmental investigations and necessary studies would need to be financed by the existing landowners*".

Further, Council has also resolved at the time of imposing the Moratorium, to review it in November 2008 or if not before if rezoning or reconfiguration occurs. This did not occur and there is a record of various letters from landowners to Council around this time, with particular reference to a letter dated 14 April 2008 from Le Clos Pty Ltd writing on behalf of the land owners on Le Clos Sancrox to express concern regarding the status of Le Clos Sancrox in the Sancrox Structure Plan and requesting an urgent rezoning and indicating they would facilitate the studies or to reverse the Moratorium it placed on development so the owners can build on their present blocks, and allow appropriate bush fire hazard reduction measures to take place. Neither of these options occurred.

2011 – UGMS 2011-2031

Below is an extract from the previous UGMS 2011-2031 which identified Le Clos Sancrox as an immediate action to commence in 2010/11. The Structure Planning followed by development of an Issues Paper and formation of a Reference Group.

Key Housing Strategies	Implementation Actions	Timing	Notes / Map References
• Rural residential development will be planned as part of total dwelling targets.	• Prepare a Structure Plan for the Sancrox area, including Gateway sites adjacent to the Pacific and Oxley Highways at Sancrox to establish a long term planning framework for staged development in the Sancrox area.	Immediate	• Council will concurrently consult with landowners in the Le Clos Sancrox subdivision regarding possible future reconfiguration of that subdivision. See Strategy Summary Map for Structure Plan boundary (Reference 24), which includes Gateway sites (References 10 & 11), urban investigation areas (References 25 & 26) and Reference 29. Reference 25 requires investigation, and Council to seek a revision to the Mid North Coast Regional Strategy, prior to any rezoning. • Council will also review funding options for infrastructure provision in the Sancrox area, including development contributions plans and planning agreements.
	• Planning investigations for the rural residential investigation area to the east of Logans Crossing Rd., Kendall.	Short-term	See Strategy Summary Map Reference 27.

Immediate = *Commenced or to commence 2010/11*
Short Term = *Commence investigations 2011/12 – 2014/15 (timing to be determined in annual works program by Council)*
Medium term = *Approximate commencement 2015 – 2025 (subject to review)*
Long term = *Approximate commencement 2025+ (subject to review)*

18 February 2015 Resolution of Council

On 18 February 2015, Council resolved as follows relating to the Sancrox Structure Plan:

"That Council:

1. Note the revised Greater Sancrox Area Structure Plan as described in this report.

2. Include as part of Council's current review of the Port Macquarie-Hastings Urban Growth Management Strategy 2011, consideration/investigations;

a. to determine whether urban development relating to Port Macquarie should be permitted to the west of the Pacific Highway with such consideration/investigations to include the potential urban capability/serviceability/capacity of lands between Oxley Highway to the north, Pacific Highway to the west and Houston Mitchell Drive to the south in reaching any conclusion or conclusions; and

b. as to the viability of rural residential development in the Greater Sancrox area.

3. Request the General Manager report to a Council Meeting promptly after the aforesaid review is completed and endorsed/adopted by Council with respect to the Greater Sancrox Area focusing on the implications of the review on that Area.

4. Defer this matter until after consideration of the report dealt with in 3 above."

The Structure Plan was noted but not formally endorsed by Council due to the UGMS review commencing and the potential change in future planning of the area to residential rather than rural-residential.

Point 3 of the above resolution required a further report promptly after the above review. This did not occur.

20 June 2018 – Report to Council on Urban Growth Management Strategy

Council considered a report on the Urban Growth Management Strategy on 20 June 2018 and resolved as follows:

"That Council:

1. Note the submissions received and recommended amendments to the draft Urban Growth Management Strategy contained in the attached Consultation Report.

2. Adopt the revised Urban Growth Management Strategy attached to this report.

3. Submit the revised Urban Growth Management Strategy to the Director General of the NSW Department of Planning for approval.

4. Delegate to the General Manager the authority to make minor amendments and corrections to the Strategy during referral to the Department of Planning.

5. That Council receive an annual update report in relation to the implementation and status of the Urban Growth Management Strategy actions during preparation of Council's annual Operational Plans.

6. That Council amend the revised Urban Growth Management Strategy attached to this report to address an ambiguity and ensure the body of the Strategy is consistent with Key Action #6, as follows: Page 62 be updated to reflect the combination of Fernbank Creek and Sancrox such that the wording is amended as follows: "The priority order for long term investigations around Port Macquarie in terms of land capability and suitability is Fernbank Creek and Sancrox, and then Lake Innes."

7. Note the resolution from the Ordinary Council Meeting of February 2015 that the General Manager is to provide a report to Council on the Greater Sancrox Area after the Urban Growth Management Strategy is endorsed/adopted by Council.

8. Request that the report be presented at or before the Council Meeting of September 2018 and that the report consider in more detail the timing of investigations and the resourcing requirements to achieve an earlier commencement."

Point 6 confirms that Sancrox is the priority for investigations and this was re-iterated as part of the discussion at the Council meeting where it was acknowledged that the UGMS was already one year in and that the investigations

were to occur in the first 1-2 years, and as such were to commence immediately to avoid further delay and meet the identified timing. Point 7 refers to the resolution of Council from February 2015 above relating to Le Clos Sancrox.

The report to Council on 20 June 2018 includes the following section of Le Clos Sancrox:

> *"The Le Clos Sancrox subdivision was approved by Council in 1986 to permit cooperative viticulture, including approximately 46 house lots with an average size of 3200 sqm. Unfortunately, it has proven very difficult to resolve on-site effluent disposal, bushfire protection and access arrangements for these house lots. In 2006, Council resolved to 'impose a Moratorium on all development of properties in the Le Clos Sancrox and Le Clos Verdun Estates until such time that appropriate rezoning and reconfiguration of the Estate has been finalised'.*
>
> *In 2009, the Le Clos Verdun estate was rezoned to rural residential, following coordinated investigations by landowners in that estate. Similar investigations have not been undertaken for the Le Clos Sancrox estate to date. The Sancrox area was proposed for rural residential and there have been structure plan investigations by Council. However, the Sancrox area has now been proposed generally for future urban development in the draft UGMS and the landowners are looking for a clear direction to provide certainty regarding development on their lots.*
>
> *Council planners have met with landowner representatives from the Le Clos Sancrox estate on two occasions since exhibition of the draft UGMS. The discussion with landowners has included an overview of the land supply and long term growth context in the draft UGMS, as discussed above, as well as the need for coordinated infrastructure and environmental planning from Council's and the community's perspective.*
>
> *The landowner representatives have indicated a willingness to coordinate a reconfiguration of the existing Le Clos subdivision. This will need to include preparation of support studies, funding for key infrastructure and coordination of delivery, including environmental management. A number of options may exist for rezoning and reconfiguration and it is proposed to consider this in more detail in a separate report to Council as soon as possible, in accordance with Part 3 of the resolution of Council in February 2015 (shown earlier in this part of the report)."*

Point 8 requires the preparation of a report on Le Clos Sancrox now that the UGMS has been adopted.

We do however note that there was an error in the report extract quoted above. The rezoning of Verdun was gazetted on 12 January 2007, not 2009.

Discussions have been held by the landowners with Peter Cameron, Council's then Manager – Strategic Planning after the June 2018 Council meeting and they were invited to prepare this submission. The discussions held with Council were generally positive. A subsequent meeting was held with Council on 13 August 2018 to provide an update on the recent investigations and to confirm that the report will be finalised and submitted to form part of the upcoming report to Council.

16 August 2018 – Submission to Council Special Case for Rezoning & Preliminary Investigations – Le Clos Sancrox

Land Dynamics Australia prepared a letter to Council on behalf of the landowners at Le Clos Sancrox, following on from discussions with Council and the support to progress the rezoning of Le Clos Sancrox on its own, as a special case. The submission included:

1. Preliminary Planning Report for Rezoning
2. Broadscale Planning Analysis
3. Preliminary Constraints Mapping
4. Preliminary Sewer Planning Concept Plan
5. Preliminary Future Services Plan
6. Preliminary Concept Plan Option A

7. Preliminary Concept Plan Option B
8. Moratorium Letter
9. Extract Greater Sancrox Structure Plan
10. Preliminary Bushfire Assessment
11. Preliminary Ecology Assessment
12. Electricity Email
13. NBN Email
14. Minutes of Sancrox Quarry Community Consultative Committee meeting of 6 July 2018

Council has a copy of this background and details of the preliminary investigations should they be required during the consultation, however as the reports have been explored further, they have not been provided as an appendix in order to avoid confusion.

19 September 2018 – Further Report to Council

On 19 September 2018, Council considered a report in relation to the proposed Fernbank Creek and Sancrox Outline Plan and resolved as follows:

"That Council:

1. Request that the General Manager commence Stage 1 planning for the Fernbank Creek and Sancrox areas in 2018/19.

2. Request that the General Manager commence a review of planning for the West Lindfield deferred land in 2018/19, to potentially supplement the supply of residential land in the short term.

3. Write to the Le Clos Sancrox landowner representatives seeking confirmation from the landowner group that the landowners can act as one coordinated legal entity.

4. Subject to confirmation of 3 above, invite the landowner group to submit a proposal which can be considered by Council in parallel with, but not before completion of the preparation of the Outline Plan in 2 above.

5. Note the additional resource requirements as a result of recommendations 1 to 4 above and allow the General Manager to resource this increased program appropriately.

6. Submit an update report on all the above actions to the February 2019 meeting of council."

This resolution allowed the Planning Proposal for Le Clos Sancrox to be considered by Council in parallel with, but not before completion of the preparation of the Outline Plan.

In accordance with Point 3, on 17 October 2018 Council wrote to Land Dynamics:

"In accordance with part 3 of Council's resolution, would you please provide confirmation that all of the Le Clos Sancrox landowners are in agreement to act as one co-ordinated legal entity. Please provide further detail regarding the terms of that agreement which will enable the landowners to plan for and deliver coordinated outcomes."

Following on from discussions with Council to progress the Planning Proposal for Le Clos Sancrox in January 2019, information was submitted to Council on 31 January 2019 that advised "*as at this date there is 100% agreement on the formation of the Coordinated Legal Entity via Deed of Participation and Power of Attorney*" and included a report on the Formation of the Le Clos Sancrox Lot Owners (LCSLO) Coordinated Legal Entity (CLE).

20 February 2019

Council at its meeting of 20 February 2019 resolved:

"That Council:

1. Note the information in the February 2019 Strategic Land Use Planning - Fernbank Creek and Sancrox Report.

2. Note that a Greater Sancrox Area Structure Plan was tabled at the Council Meeting in February 2015 and deferred pending adoption of the UGMS.

3. Note that according to landowner representatives, the Le Clos Sancrox owners have all now committed to acting as a single entity to achieve a co-ordinated planning outcome.

4. Immediately commence Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS.

5. Invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.

6. Allow the General Manager to adequately resource this program.

7. Include regular updates on this matter in the biannual Site Specific LEP Amendments Update Report in March and September of each year."

This resolution resolved to:

- Immediately commence Outline Planning for Sancrox-Fernbank Creek as detailed in the UGMS and provided resources to do so.
- Invite a Planning Proposal from Le Clos Sancrox in parallel with the outline planning. Importantly, this resolution allows Le Clos Sancrox planning to progress before the wider planning.

6 March 2019 – Commencement of Planning Proposal preparation

Discussions commenced between Council, Land Dynamics and the representative from Le Clos Sancrox regarding the preparation of the Planning Proposal.

12 April 2019 – Pre-lodgement Meeting

A pre-lodgement meeting was held between Land Dynamics and Peter Cameron, Council's then Manager – Strategic Planning and Jeffery Sharp, Council's Director Infrastructure.

The discussions included the documentation required for submission with the Planning Proposal and included an intent that once Gateway determination is achieved for the rezoning that a Development Application will be prepared, which will run concurrently with the rezoning and allow Council to have greater detail. This removed the need for a Development Control Plan.

21 June 2019 - Sewer & Water Discussions with Council

Discussions with Sam Rooney, Council's then Acting Water and Sewer Planning Manager Water and Sewer Strategic Planning Engineer Infrastructure, regarding the future sewer and watermain works that will be associated with the Planning Proposal.

5 July 2019 - Initial Regular Meeting with Council

Initial regular catch up with Council to ensure that we are on track and working in parallel with Council's Outline planning for Sancrox held. Planning and traffic was primarily discussed.

23 July 2019 - Regular Meeting with Council

Regular catch up with Council to ensure that we are on track and working in parallel with Council's Outline planning for Sancrox held. Stormwater and water quality primarily was discussed.

30 September 2019 - Regular Meeting with Council

Regular catch up with Council to ensure that we are on track and working in parallel with Council's Outline planning for Sancrox held. Ecology primarily was discussed and preliminary zoning and layout plans were tabled. Initial discussions regarding a Voluntary Planning Agreement, buffer to the quarry and the previous resolutions of Council were also discussed.

Note: the regular catch up was delayed in August 2019 due to the Manager – Strategic Planning departing Council and no leadership of the project temporarily. The meetings re-commenced in September 2019.

17 October 2019 – Meeting with Department of Planning, Industry and Environment's Planning Division

Below is a summary of the key discussions:

- Review need for land, land supply may be zoned but not necessarily developable.
- Address UGMS, variation principles and s9.1 Ministerial Directions.
- The Department identified this area for investigation.
- Explain the merits and how it fits in with the wider planning.
- Address inconsistency regarding the quarry.

18 October 2019 – Submission of Draft Documentation to Council

The Planning Proposal and suite of accompanying documentation was submitted to Council for review prior to the second pre-lodgement meeting with Council.

28 October 2019 – On-site Meeting with Department of Planning, Industry and Environment's Biodiversity and Conservation Division

Below is a summary of the key discussions:

- Address North Coast Regional Plan and avoid High Environmental Value.
- Explain how the proposal maximises avoidance and how the layout has evolved with respect to ecology. Look at constraints and opportunities, avoid HEV and form an argument which supports the proposed land uses.
- Consider Bio-certification at Planning Proposal stage.
- Consider aboriginal heritage.
- Consider impacts from basins, pathways and road edges in ecological assessment.
- Identify recreational open space, not just conservation.

A letter was received after the site visit with the Department of Planning, Industry and Environment's Biodiversity and Conservation Division which provided further information regarding biodiversity conservation, including how to apply and determination, as well as discussing consistency with the North Coast Regional Plan. These comments have been considered and incorporated into this document. Biodiversity Certification will be sought post Gateway.

1 November 2019 – Pre-lodgement with Council Prior to Lodgement

A second pre-lodgement meeting was held with Council's Planner and various technical officers. Detailed notes were provided regarding planning, ecology, bushfire, traffic, design guidelines, supply and demand, social impact economic impact, acoustics, Voluntary Planning Agreement and Vegetation Management Plan. Further information was provided separately regarding water and sewer.

PRE-LODGEMENT

As a result of the pre-lodgement meeting on 12 April 2019, Council provided information to assist in relation to preparation of this submission including identification of the required documentation. Below is a summary of the information that is to be addressed, as advised by Council.

- Planning report supporting the proposal including indicative zone boundaries, lot sizes, lot layout and proposed development staging. This is part of the planning proposal which needs to address DP&E guidelines, as noted below.
- Land supply and demand assessment.
- Current ecology survey and impact assessment. Stage 1 BAM report - requires registered assessor. Consideration of the Avoid, Minimise, Offset test. Early consultation with OEH recommended to ensure delivery offsets feasible and acceptable. Identify how proposed zones will allow achievement of the requirements of the BAM recommendations/outcomes.

- Bushfire assessment. Incorporate recommendations of bushfire assessment into lot layout/subdivision design noting preference for perimeter roads and ensuring APZs do not conflict with BAM requirements. Consider water supply issues, emergency/evacuation routes, etc.
- Infrastructure Servicing Strategy (water, sewer, stormwater, roads, footpaths and cycleways, electricity NBN etc). The Outline Plan is important here to determine the infrastructure needs for the area as a whole.
- Traffic assessment and modelling. The Outline Plan is important here to determine the infrastructure needs for the area as a whole.
- Aboriginal Archaeology. Including the need to consult the Local Aboriginal Land Council.
- Heritage if applicable – can be incorporated within the planning report.
- Flooding. Catchment based flood modelling. Floodplain management planning - Floodplain Development Manual process. Identification of Flood Planning Levels. Flood evacuation routes.
- Stormwater Quality and Onsite Detention Modelling. Concept stormwater quality and quantity management plan. Plan to be consistent with Council design specifications. Management facilities - long term ownership and management costs to be considered.
- Geotechnical / contamination. Address State Environmental Planning Policy No 55. Council's Contaminated Land Policy 2017.
- Urban design / development yield analysis. The Outline Plan is important here to determine the design for the area as a whole.
- Acoustic assessment. Potential noise sources: Traffic and adjoining land uses.
- Draft Planning Proposal prepared in accordance with the DPE Guidelines.
- Any proposal for a VPA – letter of offer if necessary only required at time of lodgement of PP.
- Quarry buffer review.
- Social Impact Assessment.
- Economic Impact Assessment.

A second pre-lodgement meeting was held with Council's Planner and various technical officers on 1 November 2019. Detailed notes were provided regarding planning, ecology, bushfire, traffic, design guidelines, supply and demand, social impact economic impact, acoustics, Voluntary Planning Agreement and Vegetation Management Plan. Further information was provided separately regarding water and sewer.

The cover letter contains a response to the issues raised as the second pre-lodgement meeting and appropriate changes made to the documentation before lodgement of this Planning Proposal.

This Planning Proposal has provided the requested information, including within accompanying Appendices.

PART 1 – OBJECTIVES OR INTENDED OUTCOMES SITE ANALYSIS

This Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance. This planning proposal is seeking re-zoning to allow for future urban development. A subdivision concept layout has been developed to demonstrate future subdivision layout and inform the proposed zones.

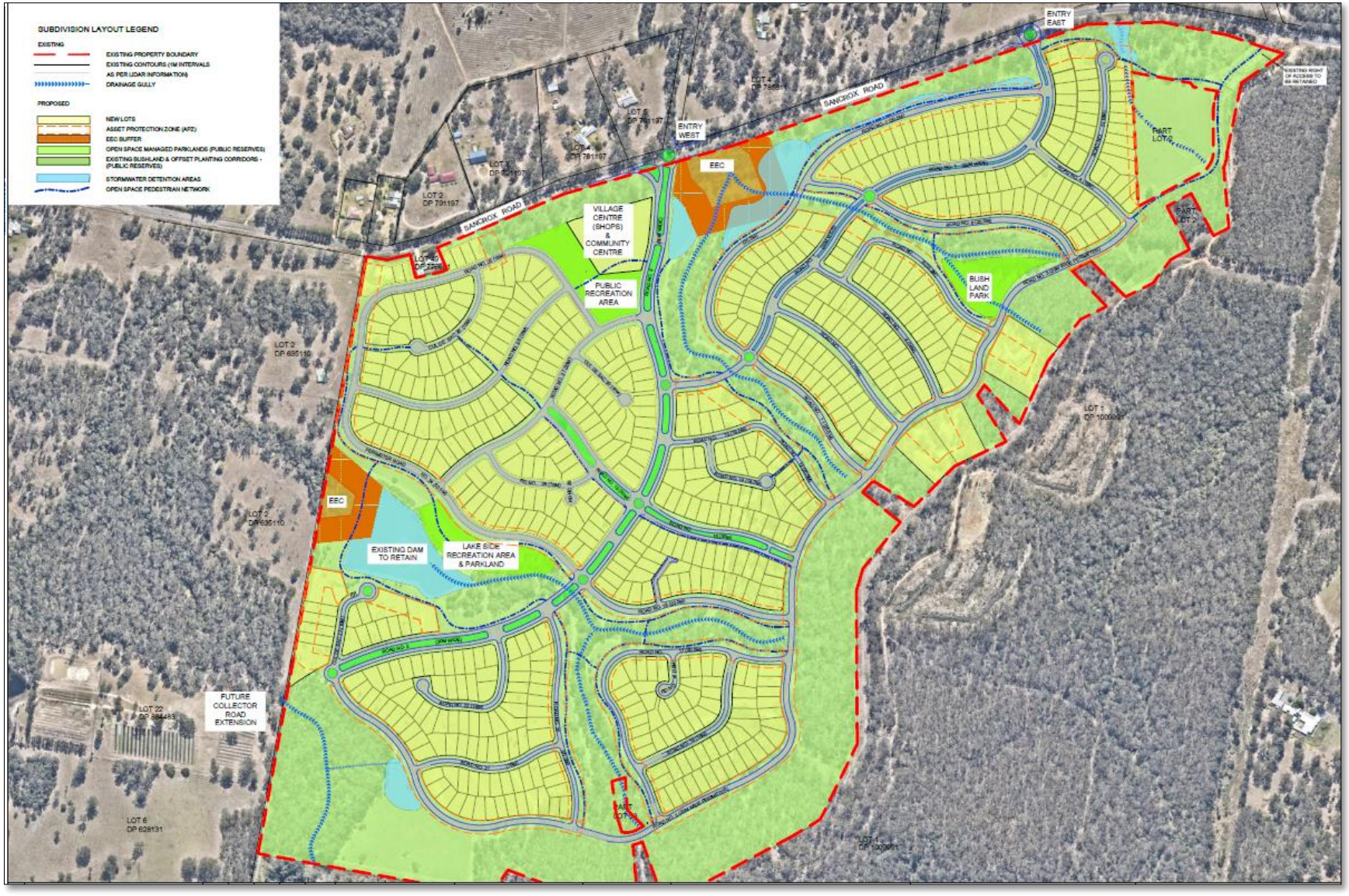


Figure 8 - Subdivision Concept Layout

The key objectives of this Planning Proposal is to:

- Achieve residential development of the site, complementary to the surrounding future desired character of the emerging residential area of Sancrox, whilst having regard to the existing characteristics of the area and the constraints of the site.
- Allow for a range of densities of residential development, as well as allowing for complimentary uses within residential zones including educational establishments.
- Enable commercial purposes, specifically a Local Centre to complement the proposed residential estate and provide supporting services for the residents.
- Conserve areas of environmental significance.

This Planning Proposal is accompanied by draft site specific Guidelines which includes provisions for future development of the land and sets standards for the entire estate.

PART 2 - EXPLANATION OF PROVISIONS

To facilitate development on the land, the following amendments to the Port Macquarie Local Environment Plan 2011 are proposed with the outcomes to be achieved by:

- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Land Zoning Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox from RU1 Primary Production to:
    - R1 General Residential,
    - R3 Medium Density,
    - B2 Local Centre,
    - E2 Environmental Conservation,
    - E3 Environmental Management, and
    - E4 Environmental Living.
- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Lot Size Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a minimum lot size of:
    - 450m² for the proposed R1 General Residential,
    - 450m² for the proposed R3 Medium Density,
    - No minimum lot size for the proposed B2 Local Centre,
    - 40 ha for the proposed E2 Environmental Conservation,
    - 40ha for the proposed E3 Environmental Management, and
    - 2000m² for the proposed E4 Environmental Living.
- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Floor Space Ratio Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a maximum floor space ratio of:
    - 0.65:1 for the proposed R1 General Residential,
    - 1:1 for the proposed R3 Medium Density,
    - 1:1 for the proposed B2 Local Centre, and
    - 0.65:1 for the proposed E4 Environmental Living.

- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Height of Buildings Map on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a maximum height of:
    - 8.5m for the proposed R1 General Residential,
    - 11.5m for the proposed R3 Medium Density,
    - 11.5m for the proposed B2 Local Centre, and
    - 8.5m for the proposed E4 Environmental Living.

Existing Zoning

Under Council's principle planning instrument, Port Macquarie-Hastings Local Environmental Plan 2011, the subject site is zoned RU1 Primary Production with a minimum subdivision lot size of 40 hectares. This reflects the previous use of the area before residential rezoning and development and is no longer the appropriate zone.

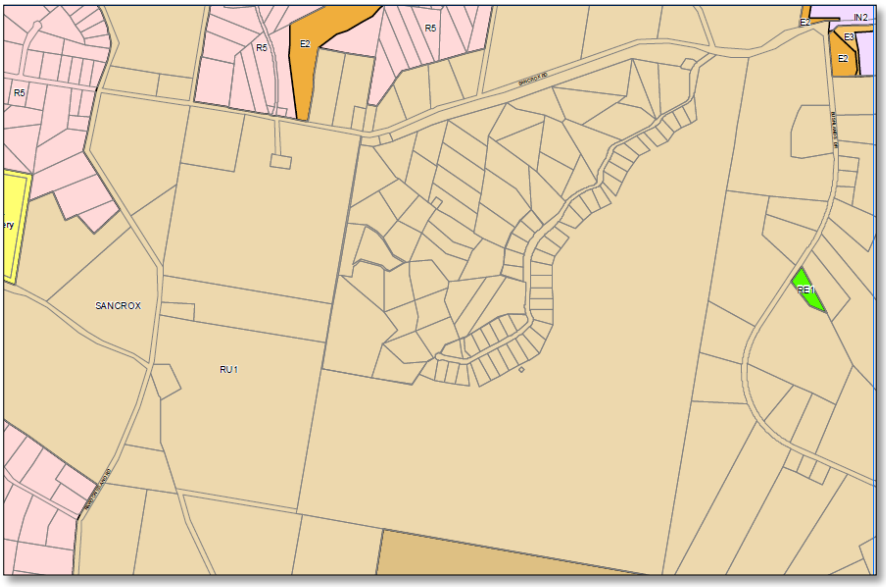


Figure 9 - Zoning Extract from PMHLEP 2011

The maps accompanying the current LEP do not identify the site as being affected by flooding, acid sulphate soils, heritage, koala habitat or height or floor space controls.

The site is immediately adjoined by rural zoned land, however pockets of R5 Large Lot Residential are distributed to the north and west and to the east is the Pacific Highway and areas of land zoned for industrial purposes.

Proposed Zone Changes

The existing zoning for rural purposes has not been appropriate for the site for numerous years and identified at the time of imposition of the Moratorium in 2006 that rezoning would be supported, however at the cost of the landowners. The Structure Planning work undertaken up to 2015 also identified the rezoning of the site as a priority. Subsequently Council has resolved over the past 18 months to rectify the situation and on the basis of the adopted UGMS, the invitation for the site specific rezoning was forthcoming.

The current UGMS has changed the thinking for the Sancrox planning, with a desire for residential rather than rural-residential, in order to satisfy the future planning demands for the wider area.

The R1 General Residential zoning table states:

Zone R1 General Residential

1 Objectives of zone

- 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.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dwelling houses; Group homes; Home industries; Hostels; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Tank-based aquaculture; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Backpackers' accommodation; Boat building and repair facilities; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water storage facilities; Water treatment facilities; Wharf or boating facilities; Wholesale supplies

It is important that educational establishments and dwelling houses can be achieved in R1 General Residential zone.

The R3 Medium Density zoning table states:

Zone R3 Medium Density Residential

1 Objectives of zone

- 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.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Group homes; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Respite day care centres; Roads; Seniors housing; Tank-based aquaculture; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Car parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Dual occupancies; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Passenger transport facilities; Pond-based aquaculture Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Semi-

detached dwellings; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Wharf or boating facilities; Wholesale supplies

It is important that educational establishments and dwelling houses can be achieved in R3 Medium Density zone.

It is also envisaged that a low scale form of retail premises would operate to support the residential area.

The B2 Local Centre zoning table states:

Zone B2 Local Centre

1 Objectives of zone

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To ensure that new developments make a positive contribution to the streetscape and contribute to a safe public environment.

2 Permitted without consent

Home occupations

3 Permitted with consent

Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hostels; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tank-based aquaculture; Tourist and visitor accommodation; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Pond-based aquaculture Research stations; Residential accommodation; Rural industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste or resource management facilities; Wharf or boating facilities; Wholesale supplies

The proposed B2 zoning allows for a variety of land uses which would complement the emerging residential and existing rural-residential land uses nearby, as has been achieved by way of other local and neighbourhood centres such as Watonga and Waniora Shops.

The E2 Environmental Conservation zoning table states:

Zone E2 Environmental Conservation

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.
- To protect coastal wetlands and littoral rainforests.
- To protect land affected by coastal processes and environmentally sensitive land.
- To prevent development that adversely affects, or would be adversely affected by, coastal processes.
- To enable development of public works and environmental facilities where such development would not have an overall detrimental impact on ecological, scientific, cultural or aesthetic values.

2 Permitted without consent

Nil

3 Permitted with consent

Environmental facilities; Environmental protection works; Oyster aquaculture; Recreation areas; Research stations; Roads

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

The E3 Environmental Management zoning table states:

Zone E3 Environmental Management

1 Objectives of zone

- To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.
- To provide for a limited range of development that does not have an adverse effect on those values.

2 Permitted without consent

Home occupations

3 Permitted with consent

Community facilities; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Home-based child care; Home businesses; Horticulture; Information and education facilities; Kiosks; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Research stations; Roads; Tank-based aquaculture; Water recreation structures

4 Prohibited

Industries; Multi dwelling housing; Residential flat buildings; Retail premises; Seniors housing; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

The E4 Environmental Living zoning table states:

Zone E4 Environmental Living

1 Objectives of zone

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
- To ensure that residential development does not have an adverse effect on those values.

2 Permitted without consent

Home occupations

3 Permitted with consent

Backpackers' accommodation; Bed and breakfast accommodation; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Home-based child care; Home businesses; Horticulture; Information and education facilities; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Research stations; Respite day care centres; Roads; Tank-based aquaculture; Water recreation structures

4 Prohibited

Industries; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

PART 3 – JUSTIFICATION

Consistent with the Department of Planning and Environment's publication "*A guide to preparing planning proposals*", this section includes:

- Section A: Need for the Planning Proposal
- Section B: Relationship to strategic planning framework
- Section C: Environmental, social and economic impact, and
- Section D: State and Commonwealth interests

In addition, the strategic merit test has been reviewed with respect to the Planning Proposal. Circular PS 16-004 by Department of Planning & Environment dated 30 August 2016 states:

> *"The key factor in determining whether a proposal should proceed to a Gateway determination should be its strategic merit. The Department has strengthened the Strategic Merit Test and proposals will now be assessed to determine if they are:*
>
> *• consistent with the relevant regional plan outside of the Greater Sydney Region, the relevant district plan within the Greater Sydney Region, or corridor/precinct plans applying to the site, including any draft regional, district or corridor/precinct plans released for public comment; or*
>
> *• consistent with a relevant local strategy that has been endorsed by the Department; or*
>
> *• responding to a change in circumstances, such as the investment in new infrastructure or changing demographic trends that have not been recognized by existing planning controls.*
>
> *A proposal that seeks to amend controls that are less than 5 years old will only be considered where it clearly meets the Strategic Merit Test.*
>
> *…*
>
> *Having met the Strategic Merit Test, the relevant Planning Panel or the Commission must then determine if the proposal has site-specific merit, having regard to:*
>
> *• the natural environment (including known significant environmental values, resources or hazards);*
>
> *• the existing uses, approved uses and likely future uses of land in the vicinity of the land subject to the proposal; and*
>
> *• the services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangements for infrastructure provision.*
>
> *Proposals that do not reasonably meet the assessment criteria above in the opinion of the Planning Panel or Commission will not be able to proceed to a Gateway determination."*

Section B demonstrates that the strategic merit test has been achieved.

The proposal has been assessed having regard for all State Environmental Planning Policies, Ministerial s.117 Directions and the relevant guidelines set out within the regional plans

Section A - Need for the Planning Proposal

3.1 Is the planning proposal a result of an endorsed local strategic planning statement, strategic study or report?

The Planning Proposal is the result of a strategic study, namely an outcome of the resolution of Council when adopting Urban Growth Management Strategy 2017-2036. Refer to discussion in background earlier. The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider

Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this site specific Planning Proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the long-standing Moratorium issue, which has been identified as a priority for resolution since its imposition in 2006.

The previous UGMS 2011-2031 identified Le Clos Sancrox as an immediate action to commence in 2010/11. The Structure Planning followed by development of an Issues Paper and formation of a Reference Group in 2011. A Structure Plan was developed and exhibited and finalised in 2015, but not adopted by Council. It is understood that the extensive Structure Planning in 2015 was delayed pending Council's Urban Growth Management Strategy and the change in strategy from rural-residential to residential zoning of the area.

The site has been identified as areas subject to Outline Planning in Council's Urban Growth Management Strategy. Rezoning the land is considered the most suitable and transparent way of achieving the objectives of this proposal.

3.2 Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The planning proposal is the only legal method of amending LEP 2011 to permit development applications to be submitted, considered and determined for a change of use of the site.

Council's UGMS 2017-2036 aims '*to achieve well-planned growth in the right places, to create a more diverse and prosperous economy and maintain a healthy environment and great places to live*' and the housing priorities for Port Macquarie housing choice strategies include:

> *"Preparation of an Outline Plan (Stage 1 investigations) for the Fernbank Creek and Sancrox potential future growth areas (Action 6), taking into account the significant environmental values and mineral resources transition areas (Action 6)."*

	Action	Description	Indicative timing
6	Preparation of an Outline Plan (Stage 1 investigations) for the Fernbank Creek and Sancrox potential future growth areas	Preliminary Stage 1 planning for potential future growth at Fernbank Creek and Sancrox	Year 2-4

Based on this, the timing is Year 2 (2018) to Year 4 (2020). This is consistent with the resolution of Council in 2018 and 2019 to commence Stage 1 planning for the Fernbank Creek and Sancrox areas in 2018/19 and most recently the resolution of 20 February 2019 to immediately commence Stage 1 investigations and invite the Planning Proposal from Le Clos Sancrox, which could occur in parallel, and if before, will inform the wider Stage 1 investigations.

The Planning Proposal avoids significant ecological impacts and will allow appropriate development that will manage environmental hazards and achieve housing choice in Sancrox. The site is capable of connection to existing water and sewerage services, without reliance on adjoining properties.

Section B - Relationship to strategic planning framework

3.3 Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (including any exhibited draft plans or strategies)?

The North Coast Regional Plan 2036 identifies that the greatest population growth pressure will be experienced around the regional cities like Tweed Heads, Coffs Harbour and Port Macquarie. As such bringing greater opportunities for housing choice to meet the growing and changing population. The Strategy encourages accommodation of coastal growth whilst protecting coastal values and locating within an existing main settlement. In doing so, the site is considered suitable for residential purposes, with a small component of business zoned land to accommodate the information centre, for the following reasons:

- The site is already serviced and the future development can easily be serviced by extension of existing services and provision of a SPS in an unformed road reserve, which does not rely upon adjoining

landowners. The SPS would service a wider catchment than the subject site, which assists with Council's wider planning.

- Notwithstanding the zoning, there will be no loss of agricultural land as it has not been successfully utilised for agricultural purposes and is not identified as significant farmland. agricultural purposes and is not identified as significant farmland.' Whilst the lack of success of past agricultural pursuits is not a clear indication that the land is unviable for agriculture, there is already a development consent in place which includes a form of housing on this site. It is acknowledged that there will be a loss of primary production land, however the highest and best use is as proposed within this Planning Proposal given that the land has not been identified as significant farmland and does not facilitate any existing agricultural production. Further, given the relatively small lot sizes and isolation from mapped important agricultural land and buffers due to vegetation corridors, it is unlikely that this area will be used for productive agricultural purposes in the future and the proposal does not increase the likelihood of conflict or impact on current adjoining land due to the current absence of agricultural land use or future agricultural activities in the locality due to the current constraints and surrounding land uses.
- The site is not subject to flooding or acid sulfate soils.
- The site is located within close proximity of the settlements of Port Macquarie and Wauchope, providing good services and facilities for the future residents.
- The small commercial portion of land will complement the residential area and provide a service for existing and future local residents, which is not currently provided in the area.

The Regional Plan acknowledges Port Macquarie as "*a regional city with a thriving cultural and civic centre, accommodating a distinctive mix of retail, commercial, tourism, entertainment and cultural activities. Coastal and rural centres, such as Lake Cathie, Bonny Hills, Laurieton and Wauchope, will continue to provide local jobs and lifestyle housing options that support their character. The area has a diverse and vibrant economy as a result of ongoing investment in the health, education, agriculture and aviation sectors. The Port Macquarie Base Hospital; the development of the new Charles Sturt University Campus; and the ongoing delivery of tertiary education by other providers, including the University of Newcastle and North Coast TAFE, will increase local opportunities and deliver jobs*."

North Coast Settlement Planning Guidelines have been reviewed to provide a framework to ensure adequate supply of housing is provided to meet the population needs. In reviewing, the constraints planning has been undertaken and areas of high environmental value have been excluded. The guidelines indicates that ""*Future settlement, where permitted by the regional strategies and outside the agreed growth areas, must be located to minimise environmental impacts and be sustainable. Such settlement must satisfy the sustainability criteria contained in Appendix 1 of the Regional Strategies*." The site is located outside of the urban investigation area boundaries identified in the plan, however this is addressed below, and the assessment criteria considered to demonstrate the merit of this Planning Proposal.

In response to the need for additional housing stock identified in the Regional Strategy, this site is a prime opportunity to accommodate additional housing without adverse environmental impacts or loss of agricultural land given this site has not been utilized as a vineyard for approximately 30 years. The use of cleared land adopts the sustainable land use principles, rather than utilizing land which is currently used for agricultural purposes or contains ecological features.

The proposal is consistent with the Regional Plan goals as follows:

- Settlement planning principles indicates urban growth areas off the Pacific Highway.
- Enhances areas of high environmental value. This has been reflected in the large areas of environmental zoned land recommended, which was informed by the ecological assessment and the desire to create corridors and enhance the connectivity through the site and into adjoining large areas of ecological value.

- Developable areas have been focused on areas of least biodiversity sensitivity and the "avoid, minimise, offset" principles adopted.
- Reduce the risk from natural hazards as the site is not flood prone and bushfire constraints have been managed through the subdivision concept plan and will comply with Planning for Bushfire Protection 2006 and Draft 2018 plan.
- Transport corridors are utilised and strengthened. Sancrox Road provides direct accessed to the Pacific Highway and planning has had regard to the future high speed rail to the east.
- The local economy will thrive with the addition of residents and creation of a local commercial centre to assist with the day to day needs of the existing and future residents.
- A safe and efficient transport network is identified, which will service the development of the subject site and connect into the wider area planning, including provision of a Collector Road through the site and connection to the highway via the existing good connections.
- Productive agricultural lands are protected. The subject site is a failed viticulture use and is not identified as important farmland under the plan.
- The proposed planning of the subject site can be used to plan the wider Sancrox urban expansion, coordinate development and infrastructure, protect the local character and environment of an area, and establish stronger relationships between communities.
- Provides housing, services and facilities that are within walking distance of each other, including housing if varying densities and forms, as well as an opportunity for a school and child care centre, all connected via a series of pathways which facilitates walking and cycling. The housing diversity may also include seniors' living housing to assist with the aging population.
- Engagement with Aboriginal communities has occurred during the planning process and a report is contained in an appendix.
- The distinct character of the site and the North Coast has been considered in the concept subdivision plan, which respects the landform, ecological features and views from the site.
- The site and the concept layout takes advantage of both existing and new road, water, sewer and stormwater infrastructure and does not rely upon adjoining landowners for connections or extensions.
- The housing will assist Council to achieve the minimum housing supply each local government area should plan to deliver over the next 20 years to meet population growth.

The Regional Plan states:

> *"Figure 10 shows the minimum housing supply each local government area should plan to deliver over the next 20 years to meet population growth. Certain councils may not have sufficient capacity in their urban growth areas to satisfy demand. As a priority, councils should work with their local communities to identify appropriate locations to provide an adequate supply of residential land. The delivery of housing in significant release areas can be accelerated by identifying where upfront investment in local infrastructure can assist land release. The NSW Government's Housing Acceleration Fund offers funding for new infrastructure projects that support housing supply."*

The area specific portion of Figure 10 referenced within the Regional Plan indicates an increase of 8,800 additional dwellings between 2016 and 2036.

It is considered that the Planning Proposal is consistent with the Regional Plan as it satisfies the Variation Criteria required for development outside the Urban Growth Area and has merit. These criteria form the basis of the strategic merit and site-specific merit assessment for the rezoning review process.

Appendix A of the Regional Plan contains the Urban Growth Area Variation Principles, which are stated below and a comment provided.

Urban Growth Area Variation Principles		Comment
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.	Consistent. Refer to discussion within this Planning Proposal document.
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 road network, transport and servicing of the site and the wider area has been considered in the specialist reports and plans. Upgrades can be provided without relying upon adjoining private landowners and will service the wider area.
Environmental and farmland protection	The variation should avoid areas: • of high environmental or heritage value; and • mapped as important farmland, unless consistent with the interim variation criteria prior to finalising the farmland mapping review.	The ecological assessment of the subject site has informed the proposed zoning and embraced the avoid principle in particular. In doing so, large areas of ecological value will be enhanced and corridors created, to provide good connection to large areas of ecological significance on adjoining land. The ecological outcome is far superior to that envisaged in the Structure Planning undertaken in 2015. The maps accompanying the current LEP do not identify the site as being affected by heritage. Further commentary is provided in Section 3.7 regarding consistency with the Regional Plan in terms of biodiversity and high environmental lands, and the reasoning behind the current layout and how the 'avoid, minimise, offset' hierarchy has been achieved.
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 quarry located to the north-east of the site is the main incompatible land use. It is to be noted that Council's position with respect to the quarry for a number of years is that any required buffer must be accommodated on site and this is reflected in the Structure Planning for the wider area. This is consistent with a regional wildlife corridor indicated in Council's Development Control Plan (shown green in Figure 11 in Section 3.7 below relating to ecology), based on their ecological work undertaken. This corridor provides a clear vegetated barrier between the quarry and subject site. A current State Significant Development proposal has been exhibited from 30 October 2019 to 27 November 2019 for an expansion of the quarry westwards into the regionally significant ecological corridor. There is no certainty regarding approval of this application and given that this application extends into the regional significant ecological

		corridor, extends the life beyond previous agreements under DA 2012/305 and associated Planning Agreement and associated restrictions on development of adjoining industrial land until 2018, to allow for the quarry to be exhausted. Regular contact has occurred with the assessing officer for the proposal and no response has been forthcoming from the applicant with request to the letters requesting information and a response to submissions dated 18 December 2109, 22 January 2020 and 26 February 2020. The partial response which includes a Blast Management Plan has been provided, which addresses how safety and minimisation of impact at neighbouring sites will be achieved and maintained, as well as detailing the blast clearance being well within their boundaries and away from LCS. The DCP plan had a clear delineation of the industrial land from other land to the east, with the ecological corridor as a buffer. The proposed Le Clos Sancrox zoning and concept layout further increases this ecological corridor within the site to provide a larger buffer to the existing quarry and any expansion, should it be approved. The wider area of Sancrox surrounding the site is currently zoned rural, as is the subject site currently. Given the progression of the wider Outline Planning and the outcomes of the 2015 Structure Plan, it is reasonable to expect that the adjoining land to the north and west will be rezoned in the coming years, with a short period of time in transition between the rezoning of this site. The land to the south and west is of high environmental value and identified by Council in previous investigations as being a significant ecological corridor. The proposed zonings and concept layout provides for a vegetated corridor along these two boundaries which will provide a buffer to the environmentally significant land to the south and east, assisting with reducing any potential land use conflict. The proposed vegetated buffer has also been extended to the north-east corner of the site and along Sancrox Road to further enhance the wider ecological buffer, retain vegetation and assist with land use conflict between the existing quarry further to the east and the potential high speed rail. Notwithstanding the current rural zoning, there will be no loss of agricultural land as it has not been successfully utilised for agricultural purposes and is not identified as significant farmland or for agricultural purposes and is not identified as significant farmland.' Whilst the lack of success of past agricultural pursuits is not a clear indication

		that the land is unviable for agriculture, there is already a development consent in place which includes a form of housing on this site. It is acknowledged that there will be a loss of primary production land, however the highest and best use is as proposed within this Planning Proposal given that the land has not been identified as significant farmland and does not facilitate any existing agricultural production. Further, given the relatively small lot sizes and isolation from mapped important agricultural land and buffers due to vegetation corridors, it is unlikely that this area will be used for productive agricultural purposes in the future and the proposal does not increase the likelihood of conflict or impact on current adjoining land due to the current absence of agricultural land use or future agricultural activities in the locality due to the current constraints and surrounding land uses.
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 bushfire prone land and bushfire constraints have been managed through the subdivision concept plan and will comply with Planning for Bushfire Protection 2006 and Draft 2018 plan. The zonings have been developed having regard to the necessary Asset Protection Zones. A Bushfire Assessment and associated APZ plans accompanies this Planning Proposal. A Strategic Bushfire Study will form part of the Planning Proposal post Gateway. It is however noted that the level of detail provided in the planning proposal will support and reinforce the matters required for consideration in the Strategic Bushfire Study as the Planning Proposal report will include sufficient information for its use as a subdivision scale bushfire hazard report. Therefore, the proposed bushfire report will contain a greater level of information than contemplated by a Strategic Bushfire Study. Buffers to areas of public infrastructure will reflect the assessed level of bushfire hazard for the areas. The assessed level of bushfire threat will consider existing and plant vegetation characteristics and management. APZ's will be in accordance with Planning for Bush Fire Protection 2006 as this is the relevant compliance standard. Provision will however be made for compliance with Planning for Bush Fire Protection 2018 although uncertainty exists regarding the nature of compliance required under Planning for Bush Fire Protection 2018. Council is required to consult with the Rural Fire Service after a Gateway Determination has been issued. Planning for Bushfire Protection 2019 has

		been released and the RFS website indicates "*It is expected that PBP 2019 will be legislatively adopted on 1 March 2020. The NSW RFS has committed that a minimum two month period will be provided between the time notification of the adoption date is given and the adoption date of PBP 2019"*. During the current period, either the existing 2006 or proposed 2019 version can be used. With respect to LEP preparation, PBP 2019 states "*As part of the consultation process with the NSW RFS, a bush fire assessment is required to be submitted to demonstrate compliance with the s9.1(2) Directions and PBP. Where the proposal is of a strategic nature, this should take the form of a Strategic Bush Fire Study particularly if this PP is proposed to progress concurrently with a development application*." PDP 2019 also requires an indicative development layout where residential, which demonstrates APZ. An indicative subdivision layout, with APZ clearly demonstrated, has been provided. The bushfire assessment provided is sufficient for Gateway determination and can be amended based on Gateway determination and feedback from the RFS. No other hazards are applicable to the site.
Heritage	The variation must protect and manage Aboriginal and non-Aboriginal heritage.	The Planning Proposal is supported by an Aboriginal Cultural Heritage Assessment prepared by the Birpai Local Aboriginal Land Council. The assessment advised that there is no reason that the rezoning cannot proceed in respect to Aboriginal Cultural Heritage issues. The rezoning can continue, subject to monitoring of any future earthworks during development of the site. An AHIMS search has not revealed aboriginal heritage on the site or within 50m of the site and a copy of the search forms an attachment to this report. In accordance with the NSW Office of Environment and Heritage's "Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales" and flowchart in Section 8, no further investigation is required and it is standard practice if any item of heritage significance is revealed during construction of the development works will cease immediately and the appropriate authorities will be contacted. The maps accompanying the current LEP do not identify the site as being affected by heritage, nor the surrounding land. No State listed items are located within the vicinity of the site. Council's website indicates that "*During the early settlement of the Hastings valley, a customs post was situated*

		at Sancrox to collect duties on the freight transported on the Hastings River. It is said that a Frenchman was the first person in charge of the customs station and various names were bestowed on the area, including the name St Croix. It is believed that the name Sancrox was derived from this early settlement name." There is a strong French history of ownership in the area, which has strong connections to the Cassegrain family in the recent 50 or so years. There is no evidence of European heritage significant on the Le Clos Sancrox site, which is removed from the waterfront.
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 site is located west of the Pacific Highway, therefore not applicable.

The Planning Proposal is considered to have planning merit for the following reasons:

- It gives effect to the Regional Plan.
- It gives effect to local Urban Growth Management Strategy.
- It responds to a change in circumstances with respect to the 2015 Structure Plan created for Sancrox and now reflects a desire for residential rather than rural-residential.
- It has site-specific merit, having regard to the unconstrained nature of the site; the retention and enhancement of the natural environment; the unique situation of a Moratorium being placed on the current development consent on the site, which prevents any development; and that services and infrastructure are readily available or easily extended to the site to facilitate the Planning Proposal.

3.4 Will the planning proposal give effect to a council's endorsed local strategic planning statement, or another endorsed local strategy or strategic plan?

Urban Growth Management Strategy 2017-2036

The UGMS identifies areas of growth and investigation. Within the previous Urban Growth Management Strategy (UGMS) 2010-2031, the re-subdivision of the Le Clos farms at Sancrox was mentioned heavily, with immediate timing for investigations which was indicated as commencing in 2010/11. The Structure Planning work did occur to satisfy a key objective of the UGMS in force at that time and was reported to Council for adoption in 2015 and delayed pending the revised UGMS.

UGMS 2017-2036, as exhibited did not support investigations at Sancrox, however as a result of public interest, with a large number of submissions to the exhibited documents from landowners of Le Clos Sancrox, the UGMS was amended prior to adoption and Le Clos Sancrox included in the Structure Plan for Sancrox in the adopted UGMS 2017-2036. The Strategy did however identify Sancrox as a "*new residential investigation area'* and a key action to be implemented.

The report to Council on 20 June 2018 was detailed with respect to Le Clos Sancrox, as touched on above and indicated that Council could support investigation areas outside of the urban growth boundary in the Regional Plan, such as Le Clos Sancrox, and that Outline plans are to be prepared. The adopted UGMS includes Le Clos Sancrox as part of Outline Plan areas, as shown below highlighted yellow in the figure below.

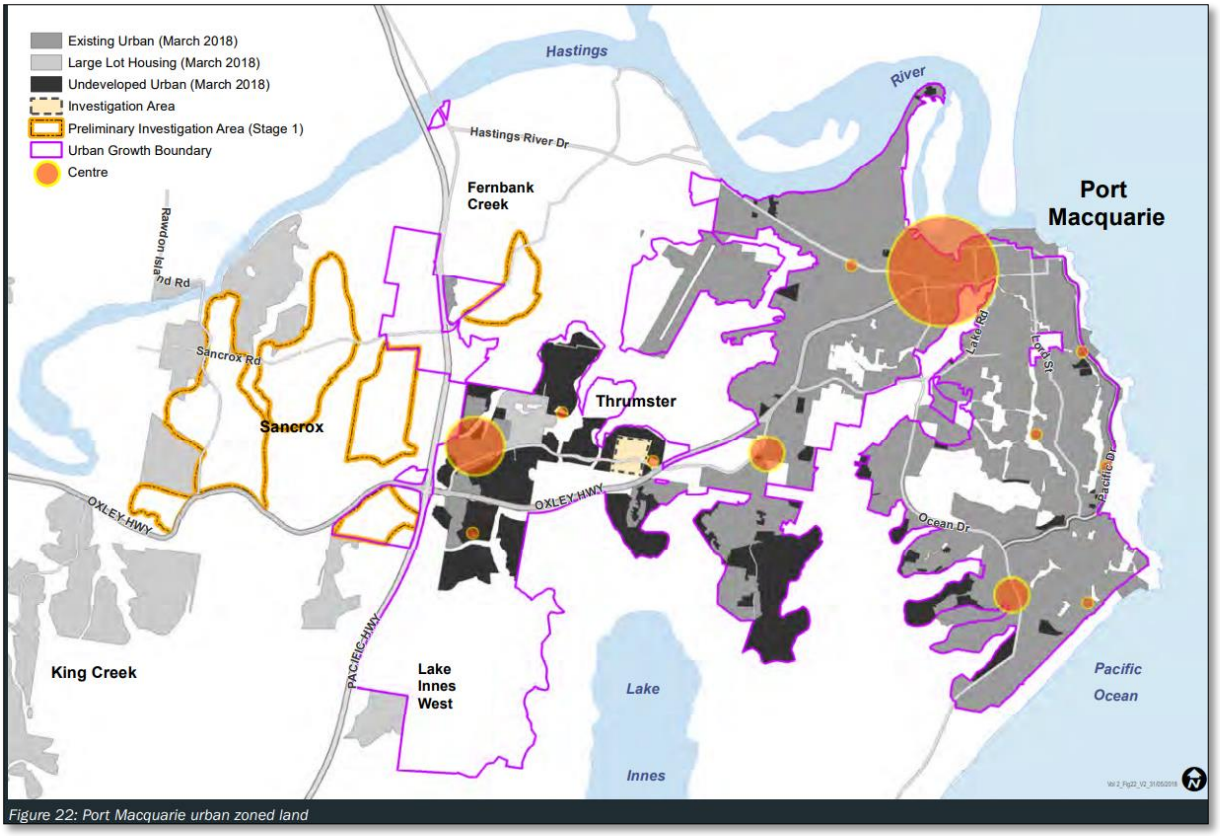


Figure 22: Port Macquarie urban zoned land

Figure 10 - UGMS Outline Plan Areas Identified yellow (source: www.pmhc.nsw.gov.au)

The UGMS report stated:

> *"In addition to planning for the West Lindfield deferred area, it is proposed that Council commence Stage 1 investigations for the Fernbank Creek and Sancrox areas, as discussed above, commencing in year 2 of this Strategy.*
>
> *This is proposed to involve:*
>
> *• Consideration of the structure planning work already done for the Sancrox area,*
>
> *• Consult landowners regarding future growth and the investigation process,*
>
> *• Preparation of an Outline Plan for urban development in the Fernbank Creek and Sancrox areas, to identify precincts and areas where the coordination of development can be achieved,*
>
> *• State government endorsement of the Outline Plan as proposed in the DP&E submission (see Part 2A of this report), and*
>
> *• Commencement of more detailed investigations in one or more of those precincts, subject to the outcomes of the Outline Plan.*
>
> *The preparation of an Outline Plan is an important step given the high level of fragmentation in the Sancrox area and the need for coordinated infrastructure and environmental management outcomes. Isolated, ad hoc proposals on individual properties will not result in a coordinated outcome.*
>
> *The aim of the Outline Plan will be to create a plan for long term growth, including sustainable local communities and urban environments. There will need to be consultation with multiple landowners, State agencies and the community, similar to the planning undertaken by Council for the Thrumster and Rainbow Beach urban release areas.*

The Outline Plan will provide a framework for more detailed precinct plan investigations, and then local environmental plan, development control plan and contributions planning for individual precincts. It will not result in the rezoning of all potential future growth areas in the Fernbank Creek and Sancrox areas significantly ahead of the supply principles in the UGMS.

Infrastructure funding will be a key issue and the expected sequence of development in these areas is generally east to west given the need for sewerage infrastructure from Fernbank Creek to Sancrox.

Environmental management will also be a key issue. Current known areas of high environmental value or hazard (e.g. flooding) are not proposed be investigated for urban development and the focus of investigations will therefore be on potential future growth A and B, as shown in the long term growth analysis in this report.

The preliminary consultation and investigation will consider the need for support studies to address key matters, such as:

- *Urban design*
- *Heritage values*
- *Environmental issues*
- *Hazards such as bushfire, flooding and buffers between uses*
- *Transport planning and infrastructure*
- *Water, sewerage and stormwater infrastructure*
- *Social and recreational opportunities*

More detailed follow up investigations are expected to be proposed in stages for specific precincts following completion of the Outline Plan."

It was clearly identified that servicing and environmental considerations would be key. These have been considered in detail as part of the accompanying specialist reports including ecology, which demonstrates that Le Clos Sancrox has no unmanageable constraints and is ideal for progression to the site specific Planning Proposal. This information will compliment and inform the wider Outline Planning for the greater Fernbank Creek – Sancrox area. Further, the united and committed group of landowners at Le Clos Sancrox will ensure that the Outline Planning will occur in a timely manner and with less issues than a group of unrelated landowners, as with the remainder of Sancrox.

A Key Action of the UGMS2017-2036 relating to Housing Choice states:

6	Preparation of an Outline Plan (Stage 1 investigations) for the Fernbank Creek and Sancrox potential future growth areas	Preliminary Stage 1 planning for potential future growth at Fernbank Creek and Sancrox	Year 2-4

Council has resolved in February 2019 to make Le Clos Sancrox a priority in their planning and allow the site specific planning to proceed on its own and will compliment and inform the wider Outline Planning. This is consistent with the Key Action above.

The site specific planning has had regard to the previous Structure Planning work with respect to environmental considerations, road network, identified developable land and servicing. The change of land use from rural-residential to residential to reflect the desires of the UGMS 2017-2036 will continue the previous Structure Planning work and the investigations for this site specific Planning Proposal has had regard to the UGMS Outline Plan Areas Identified yellow, in particular with respect to traffic impacts.

UGMS also identified that the planning for rural-residential at Sancrox has been deferred given the supply at Beechwood, Kendall and surrounds.

UGMS specifically states (p.62):

"The Sancrox area (areas B1 to B4) has been investigated by Council since adoption of the 2011 Urban Growth Management Strategy, including significant consultation with local residents and landowners. There are areas of existing rural residential development and fragmented ownership, areas of high biodiversity

vegetation, preferred koala habitat and environmental corridors. There is also a high speed rail corridor identified by the Federal government and a need for buffers to extractive resources and industry. Despite these constraints, there are large relatively unconstrained areas, including the Le Clos Sancrox estate, which have considerable potential for future residential development."

We note the letter dated 2 November 2018 from the Department of Planning & Environment which approved the UGMS, subject to certain requirements. We note the second dot point allows individual planning proposals outside of the regional plan urban growth area boundaries where "*individual planning proposals can demonstrate consistency with the regional plan and the urban growth area variation principles*". This document demonstrates this consistency.

The UGMS allows for site specific planning proposals as part of the overall strategic planning program, as detailed below.

Community consultation

Site-specific planning proposals

Council will aim to ensure that the focus remains on delivering large-scale, coordinated planning for growth.

In addition, Council considers requests to amend zones and other planning controls in existing urban areas. Such proposals often involve isolated properties, which can be considered independently, without any significant impact on Council's overall planning for urban growth.

Council will continue to prioritise these smaller, site-specific proposals as a part of its overall strategic planning program, based on the following criteria:

> Is the proposal within the Urban Growth Area, as shown in the North Coast Regional Plan? If not:

– Is the proposal consistent with the North Coast Regional Plan Variation Principles?

– Is it consistent with the principles of this Strategy?

– Will the proposal limit options for coordinated long term growth?

> Is the proposal small scale and able to be considered independently of planning for future growth? Where a proposal adds significantly to the supply of vacant urban land, the timing of investigations should be prioritised in the successive reviews of this Strategy.

> Does it involve high value environmental land? If so, can this be addressed using the 'avoid, ameliorate, offset' principle in the Regional Plan.

> Does the proposal involve significant infrastructure issues (e.g. highway access)? If so, can these be addressed?

> Is the proposal in the public interest (e.g. is there an expected benefit to the community)

Figure 11 - UGMS Site Specific Planning Proposal Extract (source: www.pmhc.nsw.gov.au)

This Planning Proposal is not considered to be premature before the Structure Planning for the wider area given the history of the site with respect to a consent for dwellings in place on the site and that the site is located west of the Pacific Highway, outside of the coastal strip, as well as being identified for investigation.

The Planning Proposal provides a balanced outcome for the subject land in that it provides future residential opportunities on predominantly cleared land, protection and embellishment of land with environmental value and addresses the on-going issue of a Moratorium imposed on the landowners, restricting legal development of their land.

The Planning Proposal has both strategic and site specific merit and is consistent with The Regional Plan and principles of the UGMS, as demonstrated in this document and the assessment against the Urban Growth Area Variation Principles and S9.1 Ministerial Directions.

The Planning Proposal does not add significantly to the supply, with approx. 683 residential lots in total. Approx. 500 dwellings per year are provided in the LGA based on recent building approval data, which equates to an additional year of land supply for the LGA. This would be absorbed in the current UGMS figures given the areas within the current residential zoning that are significantly constrained and unlikely to be developed, as discussed in the land supply and demand report. Noting that development of this size is generally staged, the supply of the

650 lots would occur over a number of years (estimated to be 50 per stage based on our experience of other local subdivisions), full development of the site could be 10-15 years away.

The Residential Land Supply & Demand Assessment accompanying this report has considered the future growth of Sancrox, the impact of population growth on dwelling demand (and hence lot demand), the adequacy of land presently zoned or identified for development at Sancrox and the broader state of supply and demand in the Port Macquarie Hastings area. The key conclusions and findings of the report are:

- Sancrox is an important growth area in the context of the Port Macquarie Hastings market and is identified as an residential investigate area.
- A key factor to note that coastal subdivisions were granted approval by the State Government on a large scale in the LGA around 2009. Many of these consent have been in place for a large number of years and only have been constructed and available in the market in recent years and continuing currently. This however will dry up in the coming years and there is a need to commence the rezoning process now for future areas of housing given the length of time to undertake a rezoning.
- Subdivisions are usually staged over a number of years and do not provide this instant boost of land into the economy at one time. Noting that development of this size is generally staged, the supply of the 650 lots would occur over a number of years (estimated to be 50 per stage based on our experience of other local subdivisions), full development of the site could be 10-15 years away. Further, land release is often market driven.
- A further consideration relates to a large amount of land zoned for residential purposes but being highly constrained due to ecological value and unlikely to result in approval being granted for subdivision. This skews some of the housing projections undertaken by Council as part of the UGMS.
- The relative ease of extending services and roads and the lack of available land in Sancrox, the identified land is suitable for rezoning ahead of Council's Structure Plan for the wider area. This additional land will reduce the demand on existing housing and lot stock.

The land does contain limited areas of high environmental value, however the principles of avoid, minimise and offset have been adopted.

The infrastructure requirements of the Planning Proposal have been considered and are manageable.

Consideration of the Public Interest has occurred as part of the Social Impact Assessment. There is further opportunity for additional consultant when the Planning Proposal, and subsequent Development Application, are exhibited. Noting that the feedback was generally positive and the amenity impacts such as noise from the nearby animal boarding establishment and quarry have been addressed in the design of the concept subdivision plan.

This Planning Proposal gives effect the UGMS and associated resolutions of Council.

Towards 2030 Community Strategic Plan

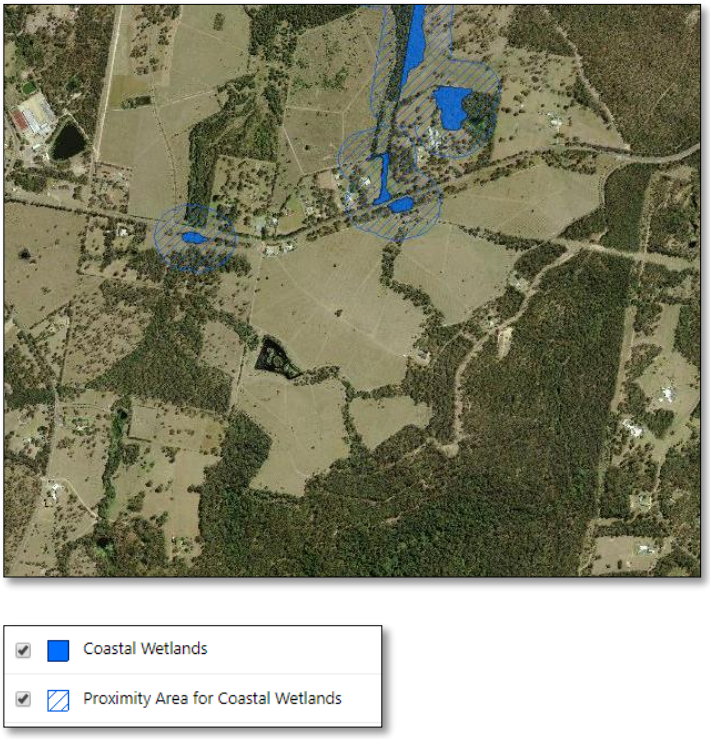
The key strategies of Towards 2030 Community Strategic Plan for both business and industry and natural and built environment are satisfied by this Planning Proposal. The Planning Proposal will:

- Provide for business zoned lands in close proximity to existing and proposed urban areas, assisting residents with their day to day needs.
- Provide for effective management and maintenance of urban services (water, sewer)
- Assist in minimising the impact of natural events, through appropriate environmental zoning and mitigation measures; and
- Facilitate development that is compatible with the natural and built environment.

3.5 Is the planning proposal consistent with applicable State Environmental Planning Policies?

In assessment against the relevant State Environmental Planning Policies (SEPP) is shown in the following table.

SEPP	Comment
State Environmental Planning Policy (Koala Habitat Protection) 2020	This policy encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent wild populations will be maintained over their present range. The site contains Potential Koala Habitat, but a combination of a grid-based SAT survey, spotlighting and call playback failed to detect any Koalas. This is confirmed by the ecological assessment undertaken and included as an appendix. There are no other statutory considerations required under KSEPP 2020 for Potential Koala Habitat (PKH). Majority of PKH retained and PKH losses are offset via planting with Tallowwood-dominated vegetation. Connectivity for koalas around and through the site is maintained and enhanced. It is important to note at the time of preparation of this PP, SEPP 44 was in force and now KSEPP 2020 is in force, which essentially is the same as SEPP 44, hence the site remains as Potential Koala Habitat only. The Ecological Assessment indicates: • The site contains Potential Koala Habitat (e.g. Lot 48), but a combination of a SAT survey, spotlighting and call playback in the breeding seasons failed to detect any Koalas, despite adjacent land to the south and east being identified as Core Koala Habitat (low density Koala population). • A KPoM is thus not required. • Notwithstanding this, the proposed development concept considers the potential for long term recovery of the local Koala population via: o Converting the majority of the currently heavily forested parts of the site (much of which is currently zoned for large lot residential) to an Environmental zoning to protect it in perpetuity. o Infill planting with native forest dominated by Koala food trees in the existing cleared area in the southwest to reinforce local and regional linkage values. o Retaining and augmenting riparian zones to maintain local corridor values. o Utilising best practice for road crossings of riparian zones to provide for Koalas to pass under the roads. Extensive ecological investigations were undertaken by Biolink as part of the Structure Plan in 2015. Those investigations identified a sub-regional connection in a north-south direction to the east of the site and a local connection through the centre of the site. The indicative concept plan prepared for this Planning Proposal have been more environmental conscious and avoided larger areas than indicated in the Structure Planning and has created additional corridors and linkages than envisaged. Following the ecological investigations and discussions with Council, the footprint of the future residential subdivision and associated proposed zonings was reduced to allow for increased koala food tree retention and creation of corridor links. It is considered that the Planning Proposal is consistent with this direction.
(Coastal Management) 2018	The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by: (a) managing development in the coastal zone and protecting the environmental assets of the coast, and (b) establishing a framework for land use planning to guide decision-making in the coastal zone, and (c) mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose

SEPP	Comment
	of the definitions in the Coastal Management Act 2016. Below is an extract of the SEPP mapping which identified a small portion along the central portion of the northern boundary as being affected by wetlands proximity area mapping. Development is not precluded from the mapped area but rather is Designated Development at the Development Application stage. Given the location on Sancrox Road, opposite an unformed road and as it is a low point on the site and will exceptional sight distance, this area cannot be avoided by development. The environmental qualities in this area have been considered in the Subdivision Concept plan.  *Figure 12 – Coastal Management SEPP extract* It is considered that the Planning Proposal is consistent with this direction.
(Primary Production and Rural Development) 2019	The aims of the Policy are to facilitate orderly economic use and development of lands for primary production. The land is not mapped as regionally significant farmland and the history of the site and the location of the site is not suitable agricultural land. Whilst the site is currently zoned for rural purposes, the development consent in place allows for a use which allows for 46 dwellings in close proximity and is not the traditional agricultural or rural-residential use of the land. As such, the proposed rezoning for urban purposes is not inconsistent and does not result in loss of ideal rural land. Notwithstanding the zoning, there will be no loss of agricultural land as it has not been successfully utilised for agricultural purposes and is not identified as significant farmland or agricultural purposes and is not identified as significant farmland.' Whilst the lack of success of past agricultural pursuits is not a clear indication that the land is unviable for agriculture, there is already a development consent in place which includes a form of housing on this site. It is acknowledged that there will be a loss of primary production land, however the highest and best use is as proposed within this Planning Proposal given that the land has not been identified as significant farmland and does not facilitate any existing agricultural production. Further, given the relatively small lot sizes and isolation from mapped important agricultural land and buffers due to vegetation corridors, it is unlikely that

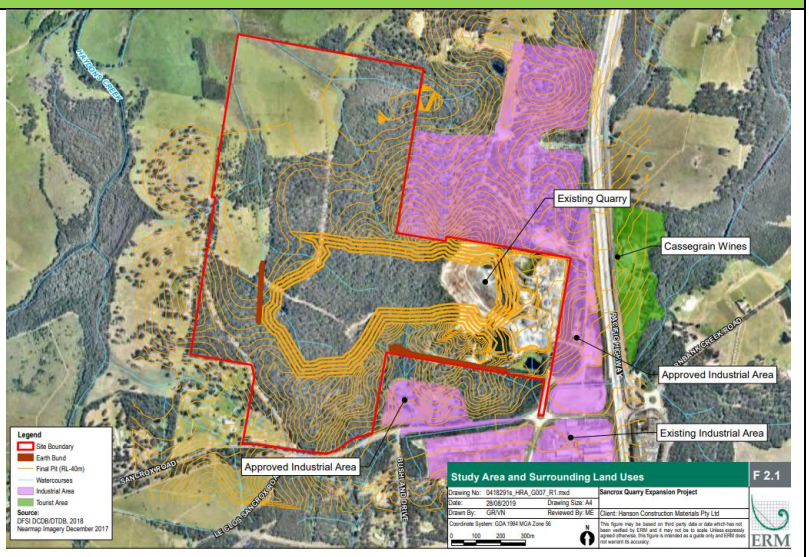
SEPP	Comment
	this area will be used for productive agricultural purposes in the future and the proposal does not increase the likelihood of conflict or impact on current adjoining land due to the current absence of agricultural land use or future agricultural activities in the locality due to the current constraints and surrounding land uses.
BASIX 2004	This SEPP will apply to the development residential land if rezoned. It is considered that the Planning Proposal is consistent with this direction.
No. 55—Remediation of Land	SEPP 55 requires consideration to be given prior to rezoning land, as to whether or not the site is contaminated. Council will confirm where further investigation is required, however this has occurred as part of the overall development Le Clos Sancrox Road, Sancrox. The site is not registered on Council's contaminated lands register nor does the Contamination Assessment indicate that the previous use would preclude the proposed residential use. It is considered that the Planning Proposal is consistent with this direction.
(Infrastructure) 2007	The aim of this Policy is to facilitate the effective delivery of infrastructure. The site has frontage to Sancrox Road, which has access to the east to the Pacific Highway and Oxley Highway to the south via Rawdon Island Road. The traffic assessment accompanying this Planning Proposal does not identify the need for intersection upgrades at these major roads. It is considered that the Planning Proposal is consistent with this direction.
(Housing for Seniors or People with a Disability) 2004	Seniors housing or aged care facilities, whilst permissible land uses within the proposed residential zones, are not known if they will be established within the site. The proposed zonings allow for seniors living and the provision of a small business zone will assist with proximity to facilities and services.
(Educational Establishments and Child Care Facilities) 2017	Education facilities, whilst permissible land uses within the proposed residential zones, are not known if they will be established within the site. The proposed residential zoning will support an educational establishment or child care facility, consistent with the SEPP.

3.6 Is the planning proposal consistent with applicable Ministerial Directions (S9.1 directions)?

The below table is a review of the proposal against the relevant S9.1 Ministerial Directions.

Direction	Comment
1. Employment and Resources 1.1 Business and Industrial Zones 1.2 Rural Zones 1.3 Mining, Petroleum Production and Extractive Industries 1.4 Oyster Aquaculture 1.5 Rural Lands	*1.1 - Business and Industrial Zones* This proposal includes a small parcel of commercially zoned land to facilitate the provision of a small component of retail/business. This facility will be primarily for the surrounding residents and visitors to the school and child care centre or any other complimentary uses in the residential areas and is appropriately located. The objectives of this direction are to encourage growth in suitable locations, protect employment land in business and industrial zones and support the viability of identified centres. The addition of this small pocket of business land will not alter the hierarchy of commercial land within the Port Macquarie area, will not impact upon existing employment land and does not alter the viability of the identified strategic centres. This facility is smaller than a Neighbourhood Centre and the total potential floor space area for employment lands in the area is not expected to be reduced by this proposal. This proposed business zone will increase the liveability of the development of Sancrox, whilst still allowing for the nearby town centres of Thrumster (Sovereign Place) and Wauchope to be the main attracters. This

Direction	Comment
	inconsistency is justified by the economic assessment accompanying Proposal is consistent with this direction. *1.2 - Rural Zones* The proposal is inconsistent with the direction as it rezones land from rural to residential and business purposes. This inconsistency is permitted by the Direction given that it "*is of minor significance*". The objective of this direction is to protect the agricultural production value of rural land. The land is not currently being used for rural purposes and is not economically viable to continue in a state of limbo with a development application unable to be acted upon and a Moratorium in place. Further, the inconsistency is considered justifiable on the basis that the site is identified in Council's UGMS for investigation and by resolution of Council. Notwithstanding the rural zoning, there will be no loss of agricultural land as it has not been successfully utilised for agricultural purposes and is not identified as significant farmland or agricultural purposes and is not identified as significant farmland.' Whilst the lack of success of past agricultural pursuits is not a clear indication that the land is unviable for agriculture, there is already a development consent in place which includes a form of housing on this site. It is acknowledged that there will be a loss of primary production land, however the highest and best use is as proposed within this Planning Proposal given that the land has not been identified as significant farmland and does not facilitate any existing agricultural production. Further, given the relatively small lot sizes and isolation from mapped important agricultural land and buffers due to vegetation corridors, it is unlikely that this area will be used for productive agricultural purposes in the future and the proposal does not increase the likelihood of conflict or impact on current adjoining land due to the current absence of agricultural land use or future agricultural activities in the locality due to the current constraints and surrounding land uses. *1.3 Mining, Petroleum Production and Extractive Industries* This applies where there is potential to restricting the potential development of resources of coal, other minerals, petroleum or extractive materials which are of State or regional significance by permitting a land use that is likely to be incompatible with such development. The existing quarry to the north-east has in the recent years had plans to expand, and is currently on exhibition for comment. The plan is shown below, with the existing quarry on the eastern portion of the site and the expanded quarry shown in orange, extending in a westerly direction.

Direction	Comment
	 *Figure 13 – Extract from EIS for Quarry Expansion (source: https://www.planningportal.nsw.gov.au/major-projects/project/9946)* The quarry has ample room to accommodate any necessary buffers on the site, which coupled with Sancrox Road and any proposed mounding and planting along the road frontage, will provide ample separation and should not prevent operations to continue or expand in some form. There is ample room within the quarry site to contain any buffers to be contained within the quarry site to minimise impacts to the investigation area of Sancrox. This is consistent with a regional wildlife corridor indicated in Council's Development Control Plan (shown green in Figure 14 in Section 3.7 below relating to ecology), based on their ecological work undertaken. This corridor provides a clear vegetated barrier between the quarry and subject site. A current State Significant Development proposal has recently been exhibited for an expansion of the quarry westwards into the regionally significant ecological corridor. There is no certainty regarding approval of this application and given that this application extends into the regional significant ecological corridor, extends the life beyond previous agreements under DA 2012/305 and associated Planning Agreement and associated restrictions on development of adjoining industrial land until 2018, to allow for the quarry to be exhausted. Whilst the application is still awaiting additional information to allow the assessment of the expansion to continue, a partial response which includes a Blast Management Plan has been provided, which addresses how safety and minimisation of impact at neighbouring sites will be achieved and maintained, as well as detailing the blast clearance being well within their boundaries and away from LCS. This document provides certainty that LCS is some 550m away from the outer edge of the blast clearance and this land is well vegetated. The EIS for the Quarry Expansion also considered noise and the findings of their assessment and concluded that there was a need for mitigation measures to ensure compliance with relevant construction and operational noise levels. The measures relate primarily to operational controls such as hours of operation, limiting idling of engines, regular maintained machines, movements to occur in a forward direction to avoid reversing alarms, control of complaints, management

Direction	Comment
	plans and most importantly bunding. Implementation of these measures will prevent any impacts from the Quarry for Le Clos Sancrox with respect to noise or vibration. The EIS for the Quarry Expansion also considered air quality and the findings of their assessment and identified some air quality exceedances. The measures relate primarily to operational controls such as roads being sealed, dust extraction, water sprays, mobile sprinklers, watering, storage of dry product and delivery of product to the quarry and installation of vapour balancing system. Implementation of these measures will prevent any impacts from the Quarry for Le Clos Sancrox with respect to air quality. The EIS for the Quarry Expansion also considered air quality and the findings of their assessment and indicated that there is unlikely to be visual impacts due to the landform and topography and existing vegetation screening The DCP plan had a clear delineation of the industrial land from other land to the east, with the ecological corridor as a buffer. The proposed Le Clos Sancrox zoning and concept layout further increases this ecological corridor within the site to provide a larger buffer to the existing quarry and any expansion, should it be approved. The proposed Le Clos Sancrox zonings and concept layout provides for a vegetated corridor along these two boundaries which will provide a buffer to the environmentally significant land to the south and east, assisting with reducing any potential land use conflict. The proposed vegetated buffer has also been extended to the north-east corner of the site and along Sancrox Road to further enhance the wider ecological buffer, retain vegetation and assist with land use conflict between the existing quarry further to the east. It is clear that whilst the expansion of the quarry is not ideal, this Planning Proposal has taken measures to ensure that there is adequate separation between uses and screening by retention of existing vegetation. Given that Sancrox is expanding and is the logical extension between Port Macquarie and Wauchope and has been supported via Structure Plans, Urban Growth Management Plans and Development Control Plans, for urban expansion, further increase in the quarry in this location appears to be at odds with the planning to date. A review of quarries on the mid-coast has indicated an existing availability, coupled with approval of a new quarry at Bago, which indicates this quarry in not a scarce resource. This inconsistency is of minor significance as there is no certainty regarding the expansion and the site has room to accommodate buffers. *1.5 - Rural Lands* The purpose of this SEPP (Rural lands) is to prevent the loss of rural lands and maintain the rural settlements and lifestyle. The site, whilst zoned RU1, does not form part of a rural settlement or contribute to the rural lifestyle given it is a failed viticulture and development application for a form of housing which varies from the surrounding rural-residential. This inconsistency is permitted by the Direction given that it "is of minor significance" and is complies with the objectives of the SEPP. Further, the inconsistency is considered justifiable on the basis that the site is identified in Council's UGMS for investigation and by resolution of Council.

Direction	Comment
2. Environment and Heritage 2.1 Environment Protection Zones 2.2 Coastal Protection 2.3 Heritage Conservation 2.4 Recreation Vehicle Areas 2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs	2.1 Environment Protection Zones This Planning Proposal includes 1 ha of E2 land, 24.5 ha of E3 land and 1.5 ha of E4 zoned land. The principles of "avoid, minimise and offset" have been adopted in determining the environmental zones and developable area, minimising impacts upon areas of high environmental value. Proposal is consistent with this direction. *2.2 Coastal Protection* The Planning Proposal does not affect the natural attributes of the NSW coast. Whilst the site is largely cleared, the SEPP mapping which identified a small portion along the central portion of the northern boundary as being affected by wetlands proximity area mapping. Development is not precluded from the mapped area but rather is Designated Development at the Development Application stage. Given the location on Sancrox Road, opposite an unformed road and as it is a low point on the site and will exceptional sight distance, this area cannot be avoided by development. The environmental qualities in this area have been considered in determining the zonings and Subdivision Concept Plan. Proposal is inconsistent with this direction, however, the Consistency Criteria within the Direction could be met. *2.3 Heritage Conservation* The Planning Proposal is supported by an Aboriginal Cultural Heritage Assessment prepared by the Birpai Local Aboriginal Land Council. The assessment advised that there is no reason that the rezoning cannot proceed in respect to Aboriginal Cultural Heritage issues. The Recommendations of the report state: "*Based on the Site Inspection and other investigations, there is no reason for an Aboriginal Cultural and Heritage perspective that this rezoning cannot proceed, subject to the following:* 1. *An Aboriginal Sites office be present when excavation or clearing commences.* 2. *At such time as development site works start, should any artefacts be turned up or located, Birpai LALC Aboriginal Site Officers are to be contacted immediately and work on site stopped pending further assessment."* The rezoning can continue, subject to monitoring of any future earthworks during development of the site. An AHIMS search has not revealed aboriginal heritage on the site or within 50m of the site and a copy of the search forms an attachment to this report. In accordance with the NSW Office of Environment and Heritage's "Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales" and flowchart in Section 8, no further investigation is required and it is standard practice if any item of heritage significance is revealed during construction of the development works will cease immediately and the appropriate authorities will be contacted. The maps accompanying the current LEP do not identify the site as being affected by heritage, nor the surrounding land. No State listed items are located within the vicinity of the site. The proposal is consistent with the Direction.

Direction	Comment
3. Housing, Infrastructure and Urban Development 3.1 Residential Zones 3.2 Caravan Parks and Manufactured Home Estates 3.3 Home Occupations 3.4 Integrating Land Use and Transport 3.5 Development Near Regulated Airports and Defence Airfields 3.6 Shooting Ranges 3.7 Reduction in non-hosted short term rental accommodation period	*3.1 Residential Zones* The objective of this direction is to broaden the choice of building types and locations, make more efficient use of existing infrastructure and services, reduce the consumption of land for housing and associated urban development on the urban fringe, and be of good design. The proposal to rezone the subject land to allow residential development is considered to be efficient use of existing land and services and given that the site is largely cleared and not significant farmland, it does not result in substantial environmental impacts such as large scale loss of trees or impacts upon threatened species. The services provided to the site can be extended to the proposed residential zoned land. A variety of housing forms may result given the proposed R1 and R3 zones, in accordance with the Direction. The proposal does not contain any provisions which will reduce the permissible residential density of the land. The proposal is consistent with the Direction. *3.4 Integrating Land Use and Transport* As this proposal creates urban land, this Direction applies. The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts improve access to housing, jobs and services by walking, cycling and public transport, reduce dependence on cars, and travel demand including the number of trips, especially by car. The Sancrox area is serviced by Busways Route 335W, which provides access into the centre of Port Macquarie and Wauchope. Provision has been made within the Concept Subdivision Plan for upgrade of Sancrox Road to include cycleway and pathways and a Collector Road through the site, with a roundabout on the western boundary which allows for bus turn arounds until such time as the adjoining land is developed and a through connection established. It is expected that as the wider Sancrox area develops, Busways will provide services via the Collector Road system. In determining the appropriate zonings for the site, the constraints were determined and a concept layout developed, which includes an upgrade of Sancrox Road, Collectors Roads through the site and creation of on-road and off-road alternate transport such as walking or cycling both within and between the adjoining sites. Ultimately as the area develops, Sancrox Road would provide pedestrian and cycling connections to the employment land further to the east, a future high speed rail is that progresses and the surrounding residential development once the wider planning is finalised. Further, the traffic assessment indicates that two round-a-bouts are required on Sancrox Rd at Road 1 and 2. And that the provision of bus bays at these intersections is necessary. Bus stops will also be incorporated into the future Collector Roads through the site to allow for future connections. The proposal is consistent with the Direction.
4. Hazard and Risk 4.1 Acid Sulfate Soils 4.2 Mine Subsidence and Unstable Land 4.3 Flood Prone Land 4.4 Planning for Bushfire Protection	*4.4 Planning for Bushfire Protection* A Bushfire report has been prepared and accompanies this Planning Proposal with respect to the bushfire impacts as the site is mapped as bushfire prone land. Appropriate APZ can be accommodated on site and has informed the environmental zoned land boundaries. The required APZ will be contained in residentially zoned land. The Direction requires that Council consult with the Rural Fire Service after a Gateway Determination has been issued. Planning for Bushfire Protection 2019

Direction	Comment
	has been released and the RFS website indicates "*It is expected that PBP 2019 will be legislatively adopted on 1 March 2020. The NSW RFS has committed that a minimum two month period will be provided between the time notification of the adoption date is given and the adoption date of PBP 2019*". During the current period, either the existing 2006 or proposed 2019 version can be used. With respect to LEP preparation, PBP 2019 states *"As part of the consultation process with the NSW RFS, a bush fire assessment is required to be submitted to demonstrate compliance with the s9.1(2) Directions and PBP. Where the proposal is of a strategic nature, this should take the form of a Strategic Bush Fire Study particularly if this PP is proposed to progress concurrently with a development application*." PDP 2019 also requires an indicative development layout where residential, which demonstrates APZ. A Strategic Bush Fire Study has been prepared. An indicative subdivision layout, with APZ clearly demonstrated, has been provided. The bushfire assessment provided is sufficient for Gateway determination and can be amended based on gateway determination and feedback from the RFS. The Development Application will not be lodged until after Gateway determination. The proposal is consistent with the Direction.
5. Regional Planning 5.1 Implementation of Regional Strategies 5.2 Sydney Drinking Water Catchments 5.3 Farmland of State and Regional Significance on the NSW Far North Coast 5.4 Commercial and Retail Development along the Pacific Highway, North Coast 5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA) (Revoked 18 June 2010) 5.6 Sydney to Canberra Corridor (Revoked 10 July 2008. See amended Direction 5.1) 5.7 Central Coast (Revoked 10 July 2008. See amended Direction5.1) 5.8 Second Sydney Airport: Badgerys Creek (Revoked 20August 2018) 5.9 North West Rail Link Corridor Strategy 5.10 Implementation of Regional Plans 5.11 Development of Aboriginal Land Council land	*5.1 Implementation of Regional Strategies* The objective of this direction is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans. In accordance with North Coast Regional Plan 2036, this site is a prime opportunity to accommodate additional housing without adverse environmental impacts or loss of agricultural land. The small commercial component does not impact upon the strategies. Consistency of this planning proposal with the North Coast Regional Plan 2036 is demonstrated within Section 3.3.
6. Local Plan Making 6.1 Approval and Referral Requirements	*6.1 Approval and Referral Requirements* The Planning Proposal does not include provisions that require the concurrence, consultation or referral of development applications to a Minister or public

Direction	Comment
6.2 Reserving Land for Public Purposes 6.3 Site Specific Provisions	authority.

It is acknowledged that additional information may be required after a Gateway determination has been issued, to demonstrate consistency with a direction or enable the Secretary to agree to an unresolved inconsistency.

Section C - Environmental, social and economic impact

3.7 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?

The planning proposal does not impact on threatened species, populations or ecological communities of the habitat. The site is highly disturbed with areas of ecological value and no serious or irreversible flora, fauna or environmental impacts are anticipated. Having regard to the high level of disturbance and absence of biodiversity values identified for the site, it is considered unlikely that any threatened species, populations or ecological communities would be adversely affected because of the proposal. Refer to the accompanying Ecological Assessment which is an appendix to this report.

The principles of avoid and minimising have been employed and the tree removal has been limited and the areas of importance have been incorporated into the proposed E3 zones. Along the eastern boundary of the site, in the area which accommodates dwelling sites, vegetation has ben retained and an appropriate zoning of E4 recommended to accommodate the existing dwelling and vegetation retention. The original development footprint was larger in size and extended into the cleared southern area and along the eastern boundary where the current arrangement allows for dwelling sites. During the ecological review and discussions with Council, these two key areas along the southern and eastern boundaries were expected from future development and an environmental zoning proposed in order to create a corridor along the entire eastern and south boundary, with the exception of the two dwellings in existence in this area. The existing Le Clos Sancrox Road, which will need to be upgraded, will form the buffer between the new development and the corridor being created. This corridor will significantly enhance the regional corridor on the adjoining land, which continues in a northward direction, as shown below.

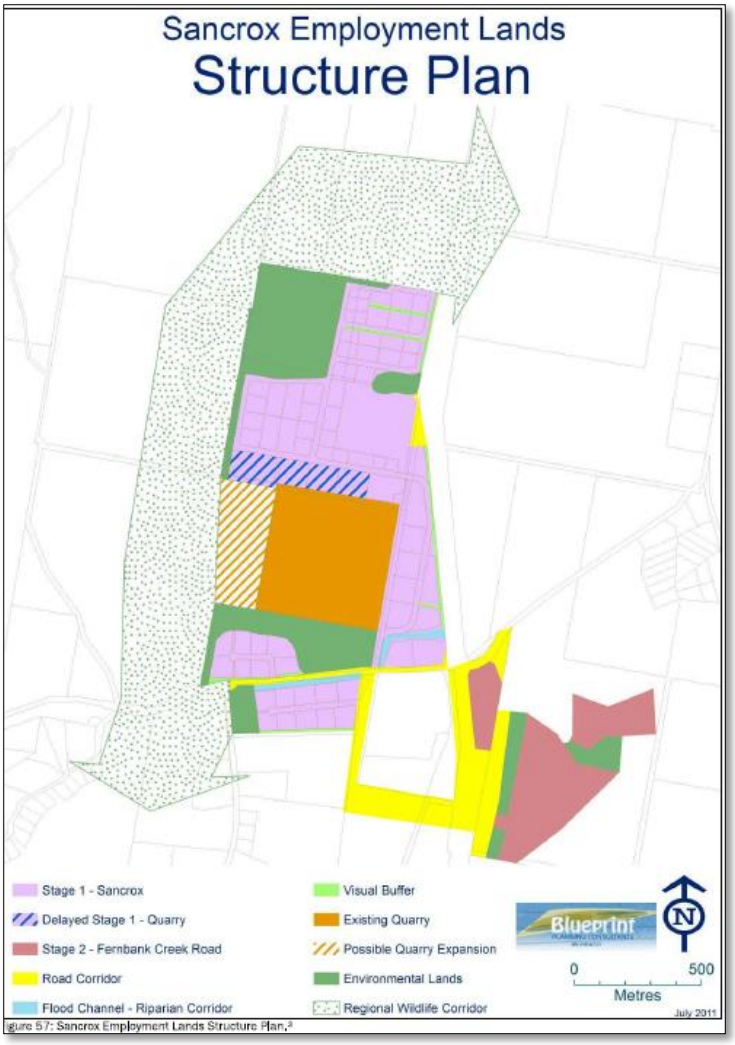


Figure 14 - Regional Wildlife Corridor (shown green dotted) – PMHC Development Control Plan (source: www.pmhc.nsw.gov.au)

As an extension of this corridor and to minimise vegetation removal, a vegetated corridor has now been retained along Sancrox Road. This will assist visually and acoustically, in addition to its key function from an ecological perspective. Further, it provides a buffer to the quarry further to the east.

The preliminary ecological advice addresses the principles of avoid, minimize offset under the *Biodiversity Conservation Act 2016*. The figure below indicates the vegetation is being removed by the likely development based on the concept plan, and that considerably more area is available for offset planting. This offset planting is in addition to existing vegetation being retained.

The assessment confirms that there is EEC in three areas of the site, one being along the northern boundary in the central area of the site and the other along the western boundary in the vicinity of the existing dam.

A draft Vegetation Management Plan is being developed for the overall development, based on the concept and a draft accompanies this document and shown below. It is proposed that the environmental lands be dedicated to Council and the VMP ensures maintenance.

The design has allowed for wider road reserves within the R1 land in order to accommodate the drainage swales throughout the site, but this will have a due purpose from an ecological perspective to provide an increased buffer to the areas of environmental value.

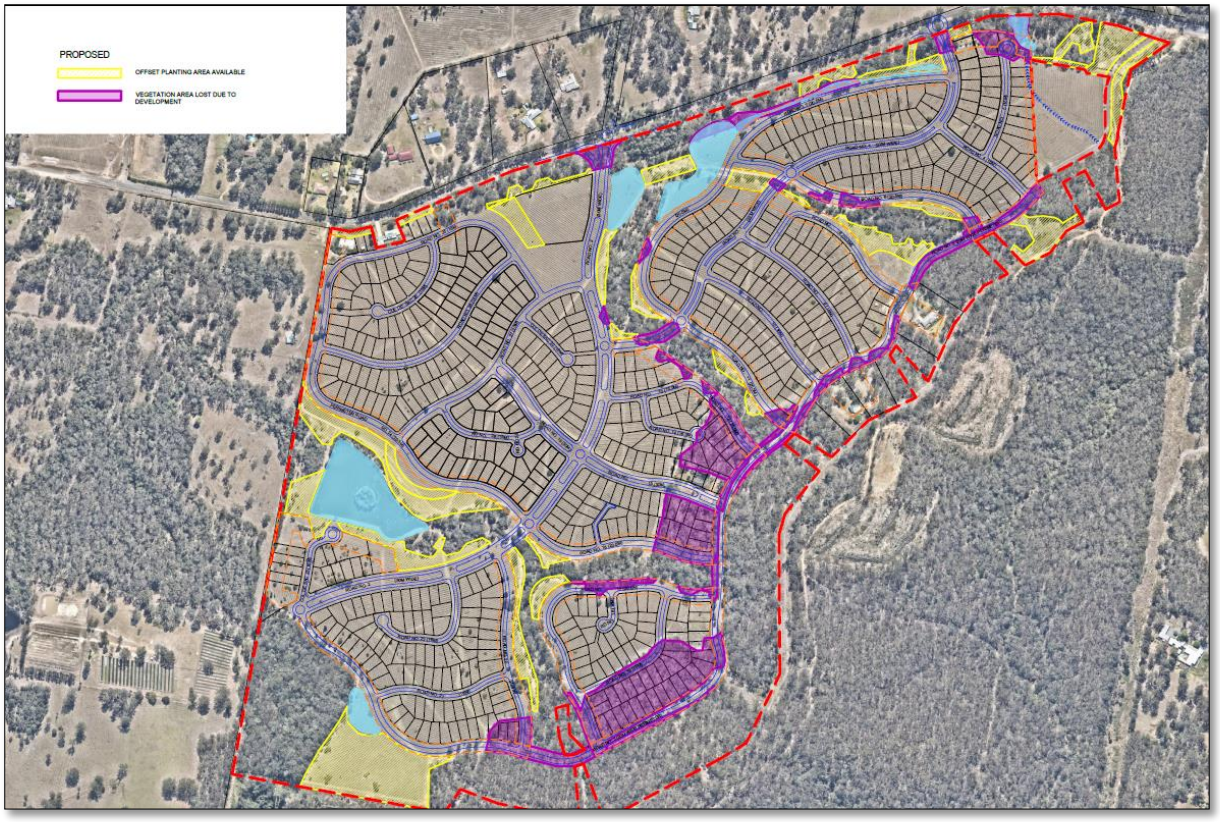


Figure 15 – Amount of Vegetation Removed & Offset Planting area available

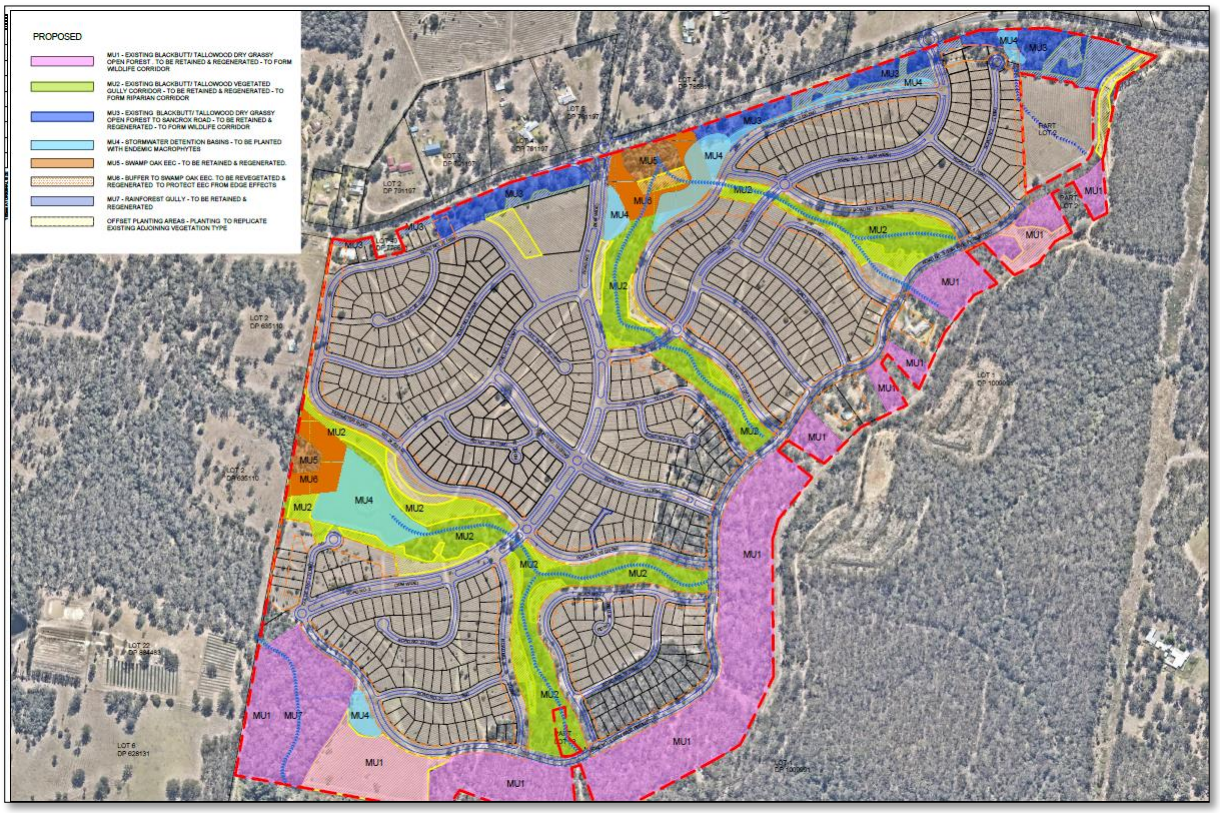


Figure 16 – Draft Vegetation Management Plan

Based on discussions with Council's Ecologist, the key consideration is the overall ecological benefit rather than numbers of replacement planting that has been achieved. Preliminary discussions have been undertaken with Department of Planning, Industry and Environment's Biodiversity and Conservation Division. Below is a summary of the key discussions:

- Address North Coast Regional Plan and avoid High Environmental Value.
- Explain how the proposal maximises avoidance and how the layout has evolved with respect to ecology.
- Look at constraints and opportunities, avoid HEV and form an argument which supports the proposed land uses.
- Consider Bio-certification at Planning Proposal stage.

A letter was received following the site visit which explained biodiversity certification.

Further consultation after Gateway determination is issued can occur with the NSW Office of Environment and Heritage regarding the of the biodiversity assessment, its' methods and findings if necessary.

Biodiversity certification is to be pursued with the aim of exhibition of documentation concurrently with the Planning Proposal documentation.

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

Bushfire

The site is identified as being bushfire prone land and the vegetation being retained creates a threat for the future development. The indicative lot layout and road design has incorporated perimeter roads and Asset Protection Zones into the design and within residential zones and not environmental zones. Refer to the accompanying Bushfire Assessment which concludes that subject to the implementation of appropriate bushfire threat reduction measures, bushfire risk is manageable.

Appropriate APZ can be accommodated on site and has informed the environmental zoned land boundaries. The required APZ will be contained in residentially zoned land.

Council is required to consult with the Rural Fire Service after a Gateway Determination has been issued. Planning for Bushfire Protection 2019 has been released and the RFS website indicates "*It is expected that PBP 2019 will be legislatively adopted on 1 March 2020. The NSW RFS has committed that a minimum two month period will be provided between the time notification of the adoption date is given and the adoption date of PBP 2019*". During the current period, either the existing 2006 or proposed 2019 version can be used.

With respect to LEP preparation, PBP 2019 states *"As part of the consultation process with the NSW RFS, a bush fire assessment is required to be submitted to demonstrate compliance with the s9.1(2) Directions and PBP. Where the proposal is of a strategic nature, this should take the form of a Strategic Bush Fire Study particularly if this PP is proposed to progress concurrently with a development application*." PDP 2019 also requires an indicative development layout where residential, which demonstrates APZ.

A Strategic Bush Fire Study has also been prepared.

An indicative subdivision layout, with APZ clearly demonstrated, has been provided. The bushfire assessment provided is sufficient for Gateway determination and can be amended based on Gateway determination and feedback from the RFS.

Any future development on the site is capable of satisfying bushfire requirements and will be subject to individual assessment at the Development Application stage.

Residential Amenity

The proposed zoning which was informed by the indicative layout, has had regard to the residential amenity of the future residents within the estate, as well as the adjoining land uses.

Amenity Impacts from Quarry

To the north-east of the site is a quarry and consideration has been given to the potential impacts with respect to their operations and the need for a buffer. The extract below from the UGMS indicates a resource transition area which appears to extend onto the north-east corner of the site, as circled green on the image.

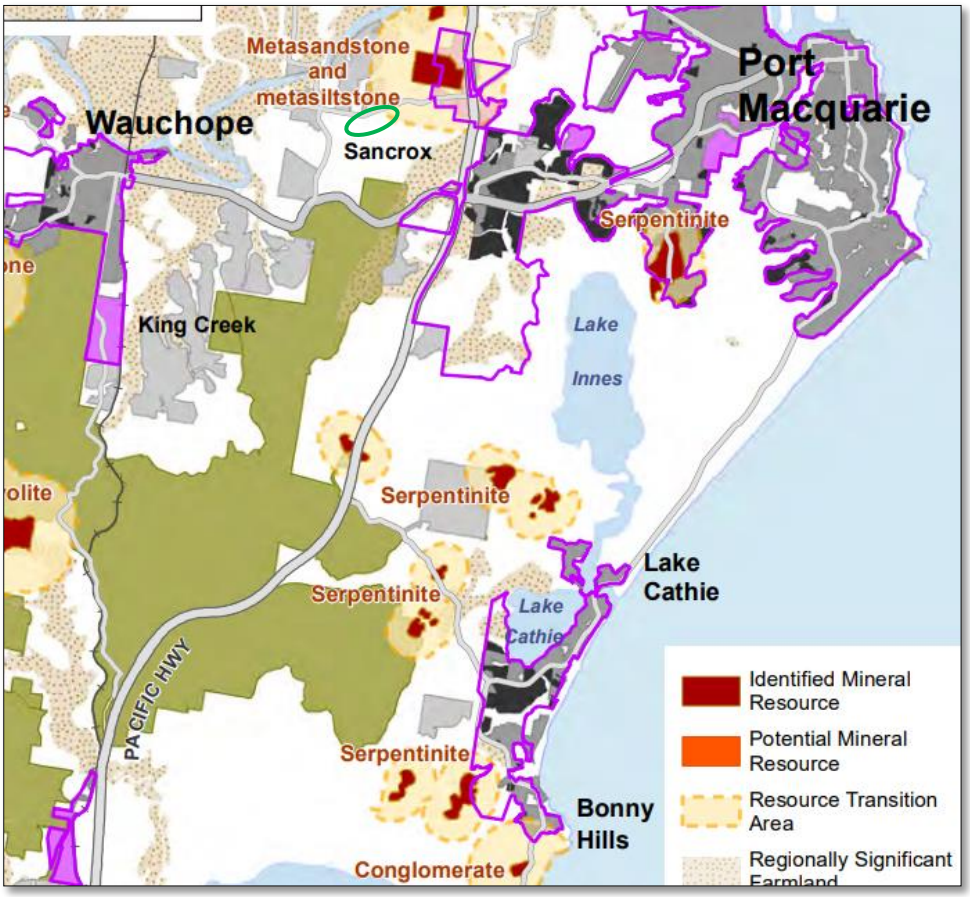


Figure 17 - Natural resource locations UGMS (source: www.pmhc.nsw.gov.au)

The Secretary's requirements have been sought in 2015 and again in 2017 for an expansion of Sancrox Quarry (SSD-7293). An Environmental Impact Statement has now been prepared and an application lodged for State Significant Development. The quarry has ample room to accommodate any necessary buffers on the site, which coupled with Sancrox Road and any proposed mounding and planting along the road frontage, will provide ample separation and should not prevent operations to continue or expand in some form. There is ample room within the quarry site to contain any buffers to be contained within the quarry site to minimise impacts to the investigation area of Sancrox. This is consistent with a regional wildlife corridor indicated in Council's Development Control Plan (shown green in Figure 14 in Section 3.7 relating to ecology), based on their ecological work undertaken. This corridor provides a clear vegetated barrier between the quarry and subject site.

A current State Significant Development proposal has recently been exhibited for an expansion of the quarry westwards into the regionally significant ecological corridor. There is no certainty regarding approval of this application and given that this application extends into the regional significant ecological corridor, extends the life beyond previous agreements under DA 2012/305 and associated Planning Agreement and associated restrictions on development of adjoining industrial land until 2018, to allow for the quarry to be exhausted. The DCP plan had a clear delineation of the industrial land from other land to the east, with the ecological corridor as a buffer. The

proposed Le Clos Sancrox zoning and concept layout further increases this ecological corridor within the site to provide a larger buffer to the existing quarry and any expansion, should it be approved.

The proposed Le Clos Sancrox zonings and concept layout provides for a vegetated corridor along these two boundaries which will provide a buffer to the environmentally significant land to the south and east, assisting with reducing any potential land use conflict. The proposed vegetated buffer has also been extended to the north-east corner of the site and along Sancrox Road to further enhance the wider ecological buffer, retain vegetation and assist with land use conflict between the existing quarry further to the east.

It is clear that whilst the expansion of the quarry is not ideal, this Planning Proposal has taken measures to ensure that there is adequate separation between uses and screening by retention of existing vegetation. Given that Sancrox is expanding and is the logical extension between Port Macquarie and Wauchope and has been supported via Structure Plans, Urban Growth Management Plans and Development Control Plans, for urban expansion, further increase in the quarry in this location appears to be at odds with the planning to date.

Representatives from Le Clos Sancrox are part of the Community Consultative Committee with Hanson. Hanson has advised the Sancrox Quarry Community Consultative Committee at the meeting of 6 July 2018, in Item 6 of the Minutes, in response to a question in respect to the impact of future development upon adjoining properties that "*there are policies in place that trigger when land acquisition is required. Hanson are engineering the project according, to avoid this trigger*". This is consistent with Council's request for buffers to remain on site.

The comments below also have regard to the potential acoustic impacts from the quarry, as discussed below.

Acoustic & Vibration

An Acoustic review has occurred and accompanies this report, which considers the adjoining land uses and traffic noise. These include Sancrox Road, the quarry, the animal boarding and breeding establishment, potential high speed rail to the west and existing adjoining land uses. It is to be noted that in order to retain trees along Sancrox Road, there is a considerable setback to Sancrox Rd, which can also be embellished with mounding or landscaping to assist further with acoustic qualities.

An Acoustic Review was undertaken with respect to the existing nearby land uses including the quarry, as well as the proposed residential land use and potential for educational establishment. The conclusion states:

"Concerning traffic noise:

- *Noise from existing significant roads will comply at the development due to the large distance. The site is approximately 1500 m from the Pacific Highway.*
- *Traffic noise generated by the development on Sancrox Road is expected to comply at existing Receptors. Those existing residences are generally setback 40 m from the road.*
- *Traffic noise generated by the development is expected to comply at future Receptors within the development itself.*
- *If the school is located on site, traffic noise into the school should be assessed. Depending on the location of the school, minor noise mitigation is may be required.*

Concerning noise from industrial facilities external to the site:

- *The Sancrox Quarry S Assessment was used to show that noise from the Quarry will comply with appropriate noise trigger levels at all locations and all times. Noise from blasting and vibration will also comply.*
- *Noise from the existing kennel north of the site may be audible at some lots. It is recommended that noise from the kennel be assessed and if mitigation is necessary and agreement be reached with the operator of the kennel.*

Concerning noise from the proposed High Speed Rail:

- *Given that the distance from the alignment to the nearest proposed lots, and that the railway line may be in cut at this location, it is probable that noise from the railway will comply with guidelines at residential lots.*
- *HSR noise to a school, particularly if the school is located in the north-east corner of the site, may need to be considered. While noise to playgrounds will generally be satisfactory, noise to classrooms may require closed windows and therefore consideration of ventilation."*

No major acoustic impacts have been identified and at the development Application stage, individual ameliorative measures can be imposed.

The EIS for the Quarry Expansion also considered noise and the findings of their assessment and concluded that there was a need for mitigation measures to ensure compliance with relevant construction and operational noise levels. The measures relate primarily to operational controls such as hours of operation, limiting idling of engines, regular maintained machines, movements to occur in a forward direction to avoid reversing alarms, control of complaints, management plans and most importantly bunding. Implementation of these measures will prevent any impacts from the Quarry for Le Clos Sancrox with respect to noise or vibration.

Air Quality

The EIS for the Quarry Expansion also considered air quality and the findings of their assessment and identified some air quality exceedances. The measures relate primarily to operational controls such as roads being sealed, dust extraction, water sprays, mobile sprinklers, watering, storage of dry product and delivery of product to the quarry and installation of vapour balancing system. Implementation of these measures will prevent any impacts from the Quarry for Le Clos Sancrox with respect to air quality.

Visual Impacts

The site has frontage to Sancrox Road and will be visible to passers-by. It is also noted that Urban Design Guidelines have been developed for the estate which maintains a consistent and acceptable visual appearance of the overall development and landscape buffer provide screening to Sancrox Rd.

The EIS for the Quarry Expansion also considered air quality and the findings of their assessment and indicated that there is unlikely to be visual impacts due to the landform and topography and existing vegetation screening.

3.9 How has the planning proposal adequately addressed any social and economic effects?

Social

A Social Impact Assessment was undertaken, which included a letterbox drop to surrounding properties and survey questions to be completed.

The concept design for the site provides opportunities for pedestrian and cycle connectivity throughout the entire development, which reduces the dependency on vehicles. A site has been identified for a potential school and child care centre in the western portion of the site in the vicinity of the local business centre. The portion of R3 zoned land also allows for increased densities and variety of housing form, in walking distance of the local centre and bus stops ion the proposed Collector Road.

With respect to the wider context, discussions with Council Officers have identified the need for a pathway and/or cycleway along Sancrox Road, which will provide connection to the future development in Sancrox, as well as the existing industrial area to the east, future high speed rail to the east and existing recreational areas further to the west.

The environmental constraints of the site are managed and embellished and a buffer including mounding and landscaping in addition to fencing has been provided to Sancrox Road.

The proposal includes potentially positive social and economic benefits through employment generation within the small retail zone, as well as through the construction process for all zones.

It is not considered that the business component will be a major attractor in its own right due to its small size and will complement the developing residential areas, as well as the existing population of Sancrox.

It is concluded in the Social Impact Assessment that negative impacts associated with the proposed rezoning to allow for the subdivision can be mitigated as part of the development application design and assessment process, as well as through appropriate ongoing site management and as part of a refinement of certain aspects of the site design. None of the issues identified in the consultation would prevent the rezoning from occurring.

This Social Impact Assessment has sought to identify any issues relating to the rezoning and corresponding subdivision. A positive social benefit is gained for the future residents and the wider Sancrox area.

Economic

Based on the Concept Subdivision Plan, the yield of the site is expected as follows:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha)
- Business - approx. 1 ha of commercially zoned land

It is expected that this yield will bring a boost to the centre of Wauchope in particular.

During the Social Impact Assessment survey, a response was received from Hanson who operate the quarry to the north-east of the site. Beyond the amenity impacts discussed elsewhere, there could be a perceived economic impact upon the quarry with the addition of new residents into the area. However, the proposed zoning and concept subdivision layout has incorporated a vegetated buffer, which in combination with the upgrades Sancrox Road and the ecological corridor and buffers within the quarry site are sufficient, and any economic impacts are not directly resulting from the subject Planning Proposal.

In most instances, business zoned land is determined at the time of the overall zoning of a growth area and the population would follow. However, in this instance, there is already a demand established from the recent residential growth of Sancrox and neighbouring estates. The development of a new state in Sancrox contributes significantly to the need for business in this area to provide for the day to day conveniences of the existing and proposed residents and visitors and nearby workers.

In keeping with the strategies, development of Le Clos Sancrox and the wider Sancrox area, along with the identified continued population growth, further strengthens the need for business land and a local or neighbourhood centre.

The business growth within Wauchope and Thrumster has considerable need and the subject site is identified as a prime location to accommodate the ever increasing demand and given that Le Clos Sancrox is emerging as the first development within the area.

Below is a summary of the key findings of this Economic Impact Assessment:

- There is unlikely to be an adverse impact upon the retail hierarchy of Port Macquarie given the small scale proposed.
- There is a strong need for a neighbourhood or local centre between Thrumster and Wauchope and the proposed zoning addresses a shortfall of the lower end of the hierarchy since the closure of Sancrox corner store.
- The local or neighbourhood centre will service existing residents, as well as the new population from Le Clos Sancrox and the remainder of the Sancrox area once developed.
- The potential economic impact will not threaten the viability or level of service presently enjoyed by residents and visitors, but will enhance the overall level of service by providing a facility not presently

available in the region. Any potential impacts are likely to be in the short term and would be made good through the provision of a new local centre.

- Will reduce car dependency due to its planned integration into the development of the new Le Clos Sancrox estate with good connectivity for walking and cycling and public transport.
- The net benefit to the community in providing a local or neighbourhood centre within Le Clos Sancrox residential development is the key contribution to provision of a liveable community.
- There will be an economic injection will be experienced by the businesses who operate from the proposed business land and the location and connections ensure easy access.

Section D - State and Commonwealth interests

3.10 Is there adequate public infrastructure for the planning proposal?

Road Network

From an accessibility viewpoint, the subject site is well located with respect to major roads and the traffic network. The site has frontage to Sancrox Road, which has access to the east to the Pacific Highway and Oxley Highway to the south via Rawdon Island Road. The traffic assessment accompanying this Planning Proposal identifies the need for road upgrades to Sancrox Road and addition of round-a-bouts at the two new roads. There is no need for intersection upgrades at existing intersections with Sancrox Road, however has recommended minor intersection works as the development progresses, in order to improve road safety, but not directly related to the Le Clos Sancrox development. This provides a wider public benefit for the area.

The upgrade works to Sancrox Road would allow for bus stops, pedestrian pathways and Cycleway, which all assist with connections into the future subdivision and connection from Le Clos Sancrox to the wider community.

A Traffic Impact Assessment accompanies this Planning Proposal.

Servicing

The existing infrastructure is adequate to serve or meet the needs of the proposal, with additional upgrades required by way of road works, new intersections, a new Sewer Pump Station (in public road) and extension of services within the public road to the site. The investigations undertaken have concluded that the upgrades would be funded by the developer of the site and there is no expected shortfall in service provision. The provision and funding of State infrastructure is not necessary for this proposal.

Given the previous Structure Plan investigations and the updated current investigations, scale of the planning proposal is not expected to place additional unreasonable demand on the road network, open space, waste facilities or local emergency services. The area is already serviced with all necessary public infrastructure in place.

Essential infrastructure currently available to the subject site is water, electricity and telecommunications . A number of the services may need to be upgraded to ensure capacity is met and this will require further investigation. Discussions were held with Council officers in August 2018 in regard to future sewer and water servicing requirements and it was confirmed that the site 'is unconstrained' in relation to servicing. The accompanying plans show preliminary future servicing concepts for the subject site.

Stormwater & Water Quality

The site naturally drains towards Sancrox Road and the western boundary with a number of first and second order streams dissecting the site. A large dam is located to the central western boundary of the property capturing a large portion of the runoff from the subject property and adjoining property to the south and west. The intent would be to provide bioretention in the gullies, utilizing the natural topography of the site.

Water qualities measures are included in the stormwater design to treat the water as it traverses the site via a series of swales, to avoid the need for large basins.

The design has allowed for wider road reserves within the R1 land in order to accommodate the drainage swales throughout the site. The wider road reserve will have many additional benefits in addition to accommodating the drainage infrastructure, but will also increase the openness of the overall development, provide further buffer to the areas of environmental value and allow for asset protection zones.

Sewer

Sewer is not currently available to the site but is located to the eastern end of Sancrox Rd, adjoining Expressway Spares. Preliminary discussions with Council's Sewer & Water Manager at a meeting on 7 August 2018 have indicated that numerous options are available, and constraints are minimal in providing sewer to the site. These discussions were progressed further in July 2019.

A new sewer pump station will be required to service the site. The preferred option would be to provide a 'centralised' sewer pump station to the north of the site allowing greater flexibility to service a larger surrounding area. A rising main would be required along Sancrox Road feeding back into the existing sewer pump station located at the intersection of Sancrox Rd and the Pacific Highway. This would then discharge into the existing gravity fed network. Sewer servicing of the subject site can alternatively be managed by way of a 'self-servicing' sewer pump station upon the site itself with a sewer rising main leading back to the existing SPS at Pacific Highway intersection. Although not the preferred option it would be considered if time and landowner consent issues delayed or prevented the 'centralised' option from occurring within a reasonable timeframe.

Land Dynamics have prepared preliminary calculations to ensure the provision of a gravity sewer system within the site and leading to a 'self-servicing' pump station is feasible. These calculations have also been extended to include a 'centralised' pump station option including a larger surrounding catchment area. The below figure shows indicative gravity fed sewer options within an extended catchment highlighting approximate invert levels and the ability for this system to be a workable option.

Water

Although the UGMS mentions a very limited water supply from the existing Sancrox Reservoir to the Sancrox area for domestic and firefighting purposes (UGMS, p.111), a new 20 mega litre reservoir has been constructed. This reservoir caters for the current and future demands of urban development and Urban growth areas including the Sancrox area.

The current water supply network to the site is shown in the diagram below. The existing 100mm diameter and 150mm diameter watermains are located along Sancrox Road and within the development site. It is envisaged however that the 300mm water main near to Expressway Spares to the east will need to be upgraded in the future along Sancrox Road to the subject site. This was confirmed by Council's Sewer & Water Manager who highlighted that any upgrades would be a requirement of any future development.

Telecommunications

A Dial Before You Dig search shows that telecommunications already exists to the site servicing the smaller existing lots along the Le Clos Sancrox Road. This network will be upgraded to service any future lots and development sites.

Confirmation has been received from NBN Co in 2018 that NBN can be made available to the development site. Discussions have occurred directly with NBN and they have provided an email confirming availability and likely costs.

Electricity

A Dial Before You Dig search shows that an electrical network already exists to the site servicing the smaller existing lots along the Le Clos Sancrox Road. This network will be upgraded to service any future lots and developments sites. An email was received from Essential Energy in 2018 confirming that the site can be serviced, subject to staging.

Railway

Wauchope station is located approximately 6km to the west of the site and provides access to Sydney to the south and Brisbane to the north.

The map below is an extract from the Phase 2 investigations that depicts the relevant portion of the provisional rail corridor for the proposed high-speed rail alignment from north to south commencing at Brisbane and finishing at Melbourne, noting the indicated alignment is outside of the subject site.

Having regard to the possible location of the Port Macquarie station to the east of the site, and within walking distance of the site, provides opportunities for greater public transport use by the residents and less car dependency, which is a good planning outcome around railway stations.

Council's advice to date has indicated that there is no certainty that the high speed rail will proceed, and this may in fact be correct given its location through heavily vegetated and ecologically significant land to the east, as well as the quarry land to the north-east. Notwithstanding this, the design has had regard to the corridor and there is the ability to extend the pedestrian connectivity to the station in the future should it eventuate.

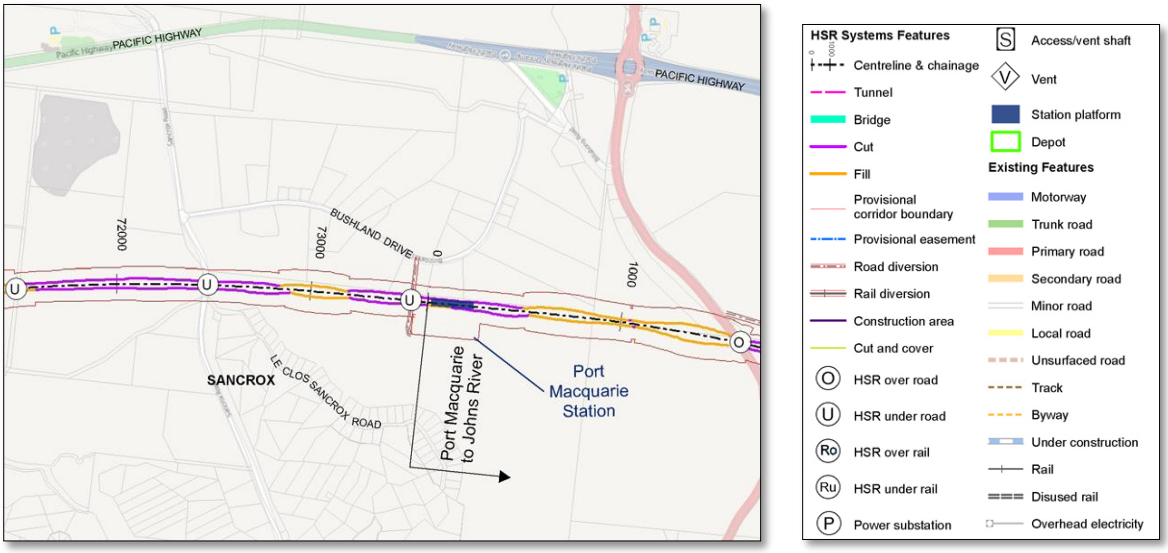


Figure 18 - Phase 2 Investigations - High-speed rail alignment Extract (source: www.infrastructure.gov.au/rail/publications/high-speed-rail-study-reports)

3.11 What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?

Consultation in relation to this proposal will be undertaken in accordance with relevant statutory requirements as part of the planning process, which occurs post-Gateway determination.

Proactive consultation in relation to this proposal has been undertaken with representatives of the Department of Planning, Industry and Environment's Planning Division, as well as the Biodiversity and Conservation Division. Below is a summary of the key discussions with both divisions.

Department of Planning, Industry and Environment's Planning Division

- Review need for land, land supply may be zoned but not necessarily developable.
- Address UGMS, variation principles and s9.1 Ministerial Directions.
- The Department identified this area for investigation.
- Explain the merits and how it fits in with the wider planning.
- Address inconsistency regarding the quarry.

Department of Planning, Industry and Environment's Biodiversity and Conservation Division

- Address North Coast Regional Plan and avoid High Environmental Value.

- Explain how the proposal maximises avoidance and how the layout has evolved with respect to ecology. Look at constraints and opportunities, avoid HEV and form an argument which supports the proposed land uses.
- Consider Bio-certification at Planning Proposal stage.
- Consider aboriginal heritage.
- Consider impacts from basins, pathways and road edges in ecological assessment.
- Identify recreational open space, not just conservation.

A letter was received after the site visit with the Department of Planning, Industry and Environment's Biodiversity and Conservation Division which provided further information regarding biodiversity conservation, including how to apply and determination, as well as discussing consistency with the North Coast Regional Plan. These comments have been considered and incorporated into this document. Biodiversity Certification will be sought post Gateway.

As part of the informing planning work, discussions were held with the Department of Education to ascertain whether a public school would be appropriate in this location, who advised that they did not feel there was a need. This is not a view shared given the lack of existing schools in the area and the current demand on existing local schools, including private schools. Discussions have occurred with a private school provider who has expressed considerable interest and the north-west corner of the site has been earmarked as a possible future location, noting that R1 zone allows educational establishments. To date, no agreement has been reached and as such the planning proposal is progressing on a residential zoning.

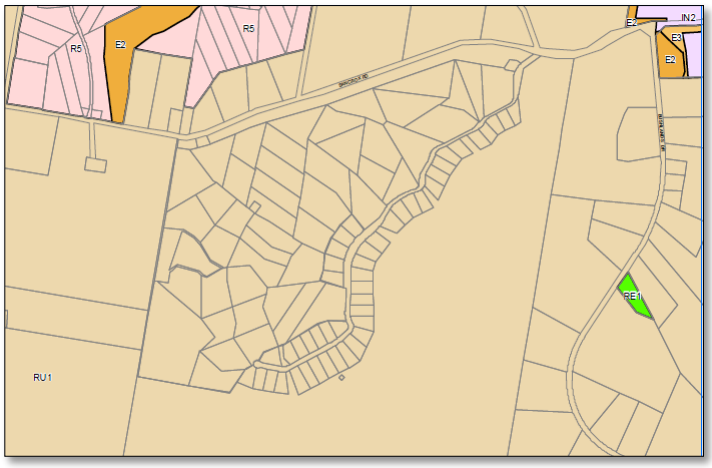
A pre-lodgement meeting has been held with Council to discuss the Planning Proposal following the resolutions of Council to invite a site specific Planning Proposal. Council has advised that the Planning proposal has merit and requested a formal submission to Council for inclusion within Council's Strategic Planning Program. The requested documentation at the pre-lodgement has been provided.

PART 4 – MAPPING

The proposed LEP map amendments are indicated below, with a comparison between the existing and proposed maps Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox.

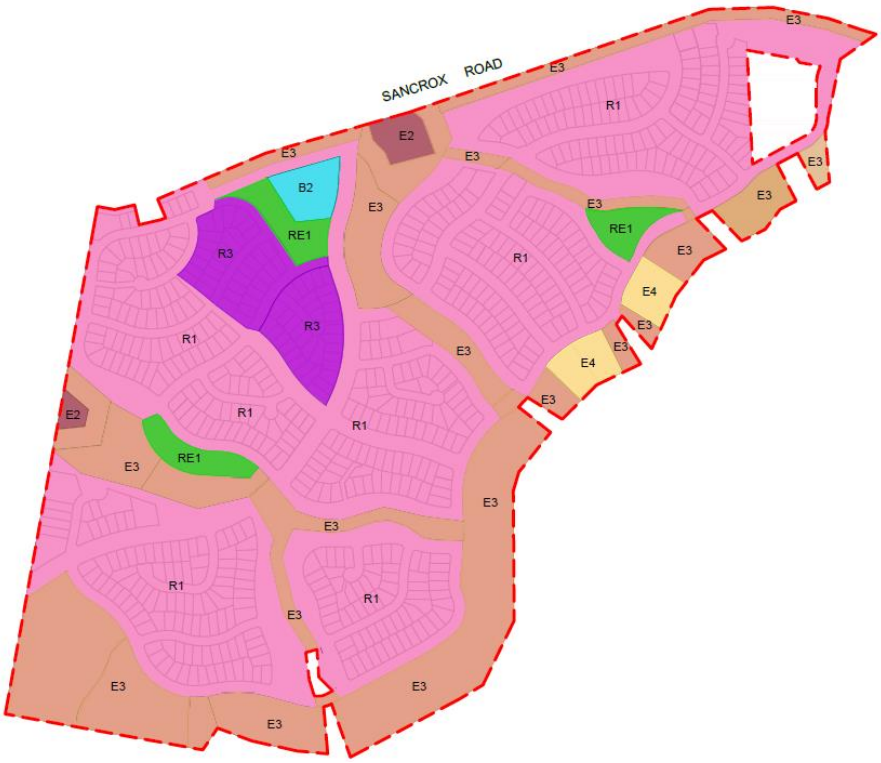
Zoning Map

Current



RU1 Primary Production

Proposed



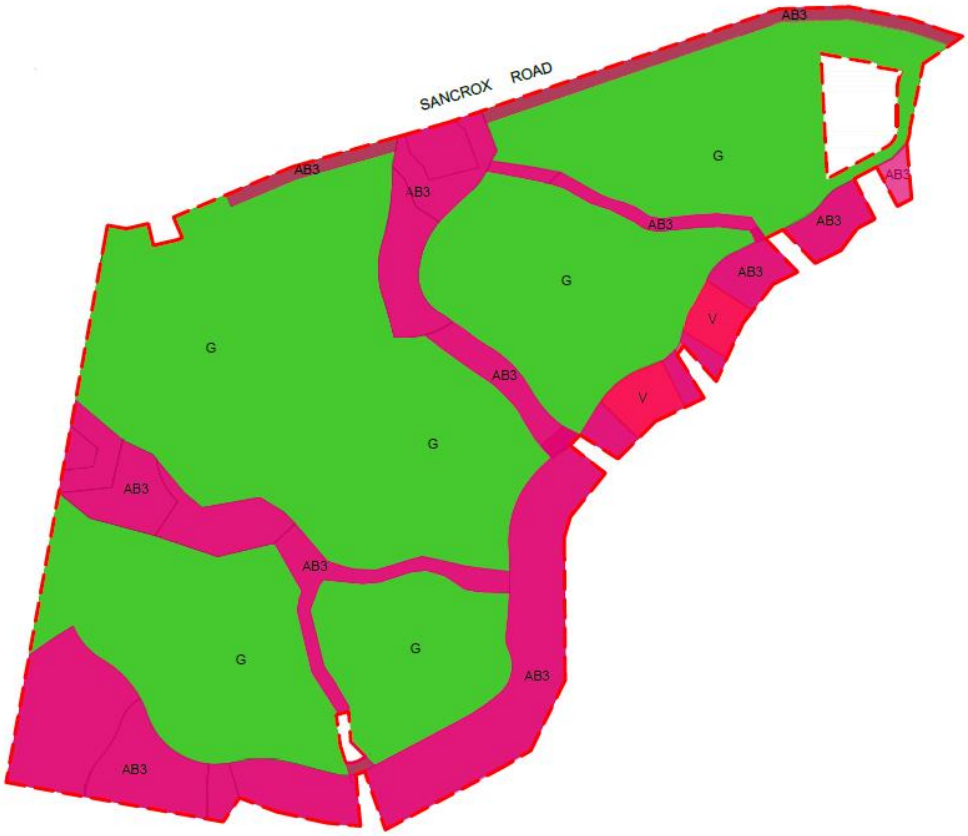
E1 National Parks and Nature Reserves
E2 Environmental Conservation
E3 Environmental Management
E4 Environmental Living
R1 General Residential
R3 Med ium Density Residential
B2 Local Centre

Lot Size Map

Current

AB3 40 ha

Proposed



G 450 V 2000 AB3 40 ha

Floor Space Ratio Map

Current

N/A

Proposed

Height of Buildings Map

Current

Proposed

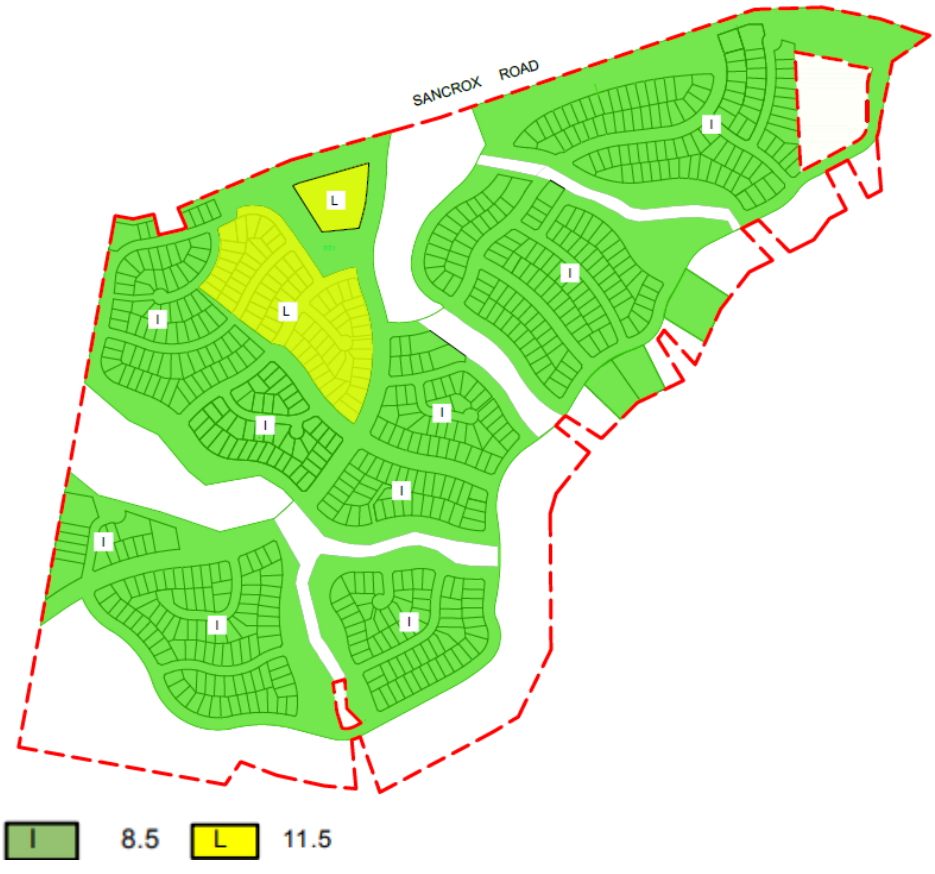


Figure 19 – Existing & Proposed LEP maps

To ensure consistency with the technical requirements when preparing LEP plans, it is expected that prior to exhibition, Council will prepare the accurate plans.

PART 5 – COMMUNITY CONSULTATION

The planning proposal will be placed on public exhibition by Council in accordance with the Department of Planning and Environment's "*A guide to preparing local environmental plans*". The proposal is considered to be 'low' impact. Whilst the subject land and surrounding land is zoned primarily for rural uses, the area is under investigation as part of Council's wider strategic planning to transition to smaller lot residential. The proposed pattern of surrounding land use zones and/or land uses will complement the large lot residential which is prevalent in the area and the wider small lot residential in the adjacent Thrumster; is consistent with the strategic planning framework; presents minimal issues with regard to infrastructure servicing which is capable of extension and the additional requirements will be identified and addressed through the planning proposal process; is not a principal LEP; and does not reclassify public land. Rezoning of the land was invited over 13 years ago, Structure Planning had commenced and finalised in 2015 and the latest UGMS 2017-2036 indicated outline planning could occur on this site.

The proposal to rezone the subject land to allow residential development is considered to be efficient use of existing land and services and given that the site is largely cleared and not significant farmland, it does not result in substantial environmental impacts such as large scale loss of trees or impacts upon threatened species. The services provided to the site can be extended to the proposed residential zoned land. The wider area of Sancrox surrounding the site is currently zoned rural, as is the subject site currently. Given the progression of the wider Outline Planning and the outcomes of the 2015 Structure Plan, it is reasonable to expect that the adjoining land to the north and west will be rezoned in the coming years, with a short period of time in transition between the rezoning of this site. The land to the south and west is of high environmental value and identified by Council in previous investigations as being a significant ecological corridor. The proposed zonings and concept layout provides for a vegetated corridor along these two boundaries which will provide a buffer to the environmentally significant land to the south and east, assisting with reducing any potential land use conflict. The proposed vegetated buffer has also been extended to the north-east corner of the site and along Sancrox Road to further enhance the wider ecological buffer, retain vegetation and assist with land use conflict between the existing quarry further to the east and the potential high speed rail.

The future development presents no significant issues with regard to infrastructure servicing, acknowledging that that there will be additional infrastructure and service requirements, but that these additional requirements have been identified and addressed within the appendices accompanying the Planning Proposal.

As part of the Social Impact Assessment, a survey was conducted of surrounding properties and overall the response to rezoning was positive. One of surveys returned indicated they did not support a change in zoning, due to a perceived impact upon the operations of the quarry. Since that time, a State Significant Development for expansion of the quarry has been placed on exhibition, noting that there is no certainty regarding approval of this application.

Council will exhibit the Planning Proposal after Gateway determination and is likely to include an advertisement in the local paper, consultation with adjoining landowners, display at Council and on Council's website.

PART 6 – PROJECT TIMELINE

There is desire for this rezoning to occur concurrently with a Development Application being lodged once Gateway determination is received. This will allow the development of the land to occur immediately after the land is rezoned.

Based on the resolutions of Council, this site specific Planning Proposal will occur in parallel with Outline Planning for wider Fernbank Creek – Sancrox area. The resolutions indicate that the plan under this proposal will inform the wider planning but does not require this proposal to be delayed. Council at its meeting of 20 February 2019 resolved:

"That Council:

1. Note the information in the February 2019 Strategic Land Use Planning - Fernbank Creek and Sancrox Report.

2. Note that a Greater Sancrox Area Structure Plan was tabled at the Council Meeting in February 2015 and deferred pending adoption of the UGMS.

3. Note that according to landowner representatives, the Le Clos Sancrox owners have all now committed to acting as a single entity to achieve a co-ordinated planning outcome.

4. Immediately commence Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS.

5. Invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.

6. Allow the General Manager to adequately resource this program.

7. Include regular updates on this matter in the biannual Site Specific LEP Amendments Update Report in March and September of each year."

Below is an indicative timeframe.

March 2019	Anticipated commencement date (date of Gateway determination)
April 2020	Anticipated timeframe for the completion of required technical information
May 2020	Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)
June 2020	Commencement and completion dates for public exhibition period
July 2020	Timeframe for consideration of submissions
August 2020	Timeframe for the consideration of a proposal post exhibition
September 2020	Date of submission to the Department to finalise the LEP
October 2020	Anticipated date the local plan-making authority will make the plan (if authorised)
November 2020	Anticipated date the local plan-making authority will forward to the PCO for publication

CONCLUSION

This report recommends that Council proceed with a Planning Proposal, as described in this report, and seek a Gateway Determination from the NSW Department of Planning and Environment pursuant to section 3.34 of the *Environmental Planning and Assessment Act 1979.*

To facilitate development on the land, the following amendments to the Port Macquarie Local Environment Plan 2011 are proposed with the outcomes to be achieved by:

- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Land Zoning Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox from RU1 Primary Production to:
    - R1 General Residential,
    - R3 Medium Density,
    - B2 Local Centre,
    - E2 Environmental Conservation,
    - E3 Environmental Management, and
    - E4 Environmental Living.

- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Lot Size Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a minimum lot size of:
    - 450m² for the proposed R1 General Residential,
    - 450m² for the proposed R3 Medium Density,
    - No minimum lot size for the proposed B2 Local Centre,
    - 40 ha for the proposed E2 Environmental Conservation,
    - 40ha for the proposed E3 Environmental Management, and
    - 2000m² for the proposed E4 Environmental Living.
- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Floor Space Ratio Map 13B on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a maximum floor space ratio of:
    - 0.65:1 for the proposed R1 General Residential,
    - 1:1 for the proposed R3 Medium Density,
    - 1:1 for the proposed B2 Local Centre, and
    - 0.65:1 for the proposed E4 Environmental Living.
- Amending the Port Macquarie – Hastings Local Environmental Plan 2011 Height of Buildings Map on land comprising a number of landholdings collectively known as Le Clos Sancrox to permit a maximum height of:
    - 8.5m for the proposed R1 General Residential,
    - 11.5m for the proposed R3 Medium Density,
    - 11.5m for the proposed B2 Local Centre, and
    - 8.5m for the proposed E4 Environmental Living.

Progression of this Planning Proposal to Gateway for determination to enable the rezoning will allow for additional residential housing stock for the area, with ancillary business uses and environmental land.

The site has a development consent in place which allows for housing, however it is not considered to be the most suitable outcome for the site. Further, the Moratorium on development on the site has been in place for an extended period of time and Council has resolved to deal with this site specific Planning Proposal as a priority in this regard.

The environmental qualities of the site have led the way for formation of the proposed zoning and the concept subdivision plan has provided for a high standard of liveability for the further residents.

The Guidelines developed for the site will ensure a high standard of development results, which will set the tone for the quality development expected in the emerging Sancrox area.

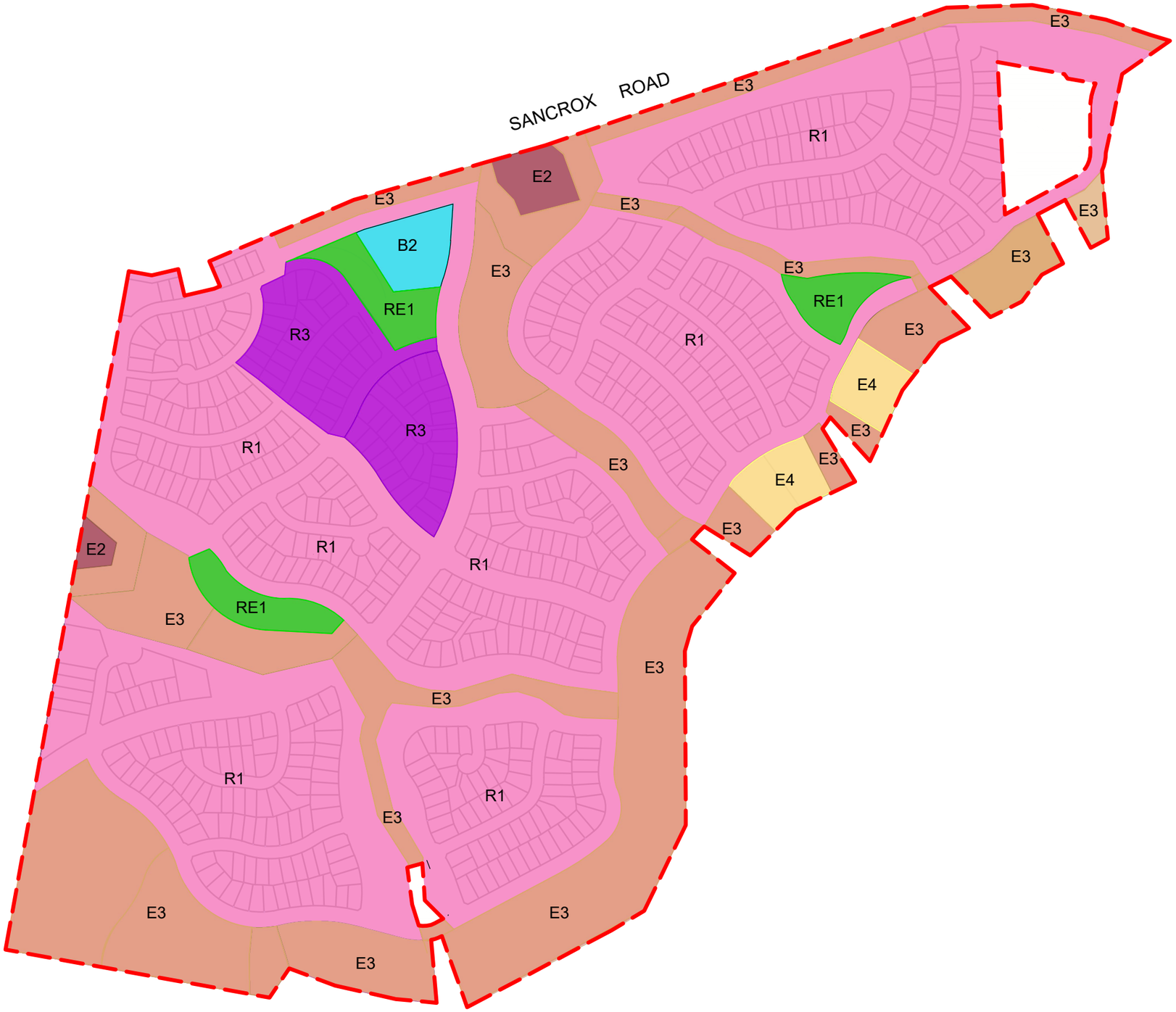
The Planning Proposal is considered appropriate and allows a sustainable use of the land and provision of additional housing for the locality, consistent with regional and local plans.

APPENDICES

A. **Proposed Local Environmental Plan Map Set**
B. **Ecological Assessment**
C. **Vegetation Offsets Plan**
D. **Bushfire Assessment**
E. **Bushfire APZ Plan**
F. **Traffic Assessment**
G. **Overall Sewer Strategy**
H. **Development Lots Servicing Strategy**
I. **Stormwater Quality Assessment, Onsite Detention Modelling & Flooding Review**
J. **Contamination Report**
K. **Aboriginal Cultural Heritage Assessment**
L. **Land Supply and Demand Assessment**
M. **Social Impact Assessment**
N. **Economic Impact Assessment**
O. **Acoustic Review**
P. **Subdivision Concept Layout Overall**
Q. **Subdivision Concept Layout Detailed**
R. **Urban Design Guidelines & Building Guidelines**
S. **Vegetation Management Plan**
T. **Voluntary Planning Agreement Request Letter**
U. **Landowners Report & Deed**

PROPOSED

- R1 - GENERAL RESIDENTIAL
- B2 - LOCAL CENTRE
- R3 - MEDIUM DENSITY RESIDENTIAL
- E4 - ENVIRONMENTAL LIVING
- E3 - ENVIRONMENTAL MANAGEMENT
- E2 - ENVIRONMENTAL CONSERVATION
- RE1 - PUBLIC RECREATION



REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	16.10.19	CM	CM	DC	
B	PLANNING PROPOSAL SUBMISSION	10.12.19	CM	CM	DC	GB
C	COUNCIL SUBMISSION	1.02.21	CM	CM	GB	

SCALES: NOT TO SCALE

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE: PROPOSED LAND ZONING MAP

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	LEP 2001	C

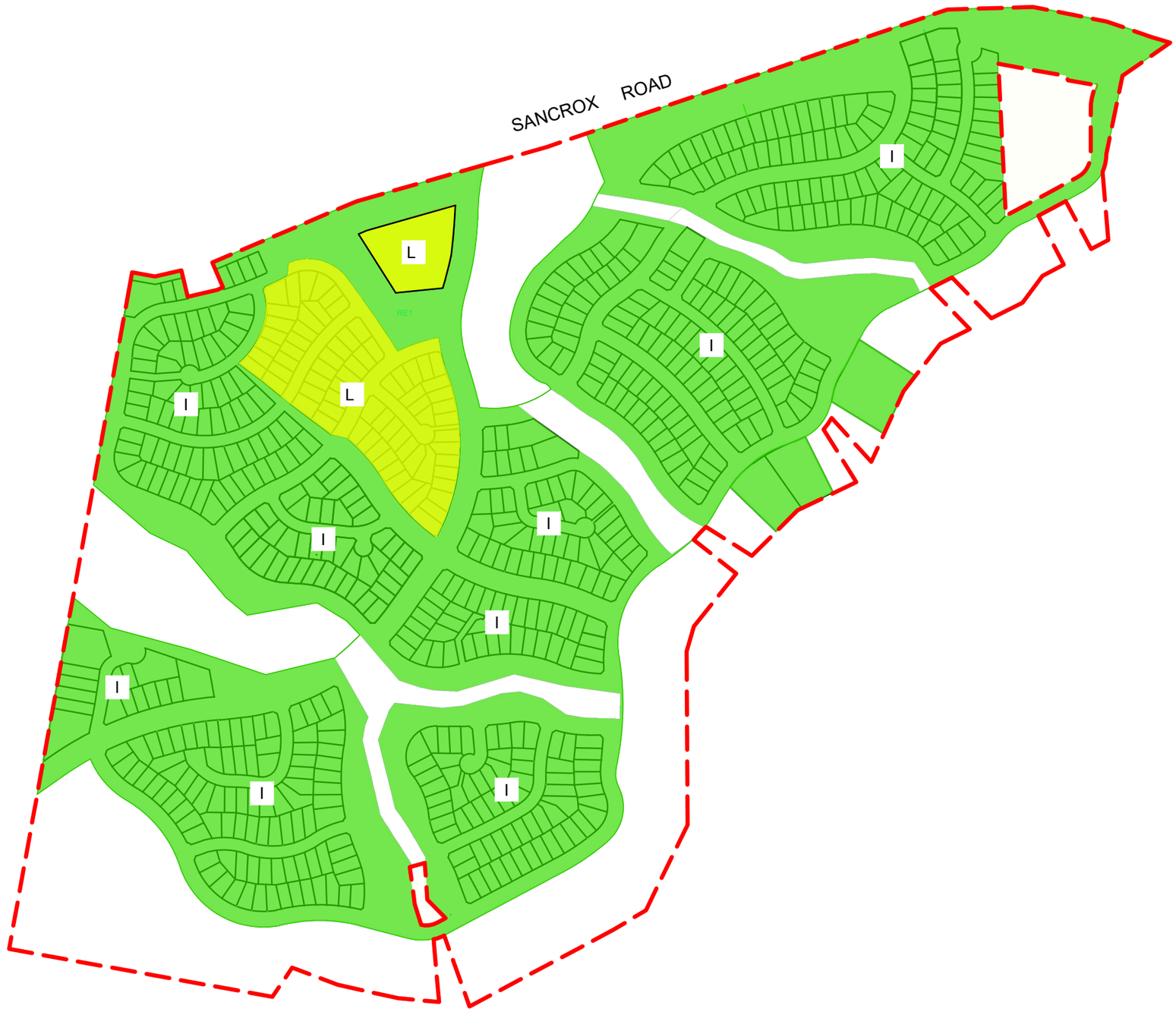
CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 1/02/2021 11:37:43 AM

MAXIMUM BUILDING HEIGHT (M)

L - 11.5

I - 8.5

100mm AT ORIGINAL SIZE



REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	16.10.19	CM	CM	DC	
B	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
C	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:

NOT TO SCALE

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au

CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
PROPOSED HEIGHT OF BUILDINGS MAP

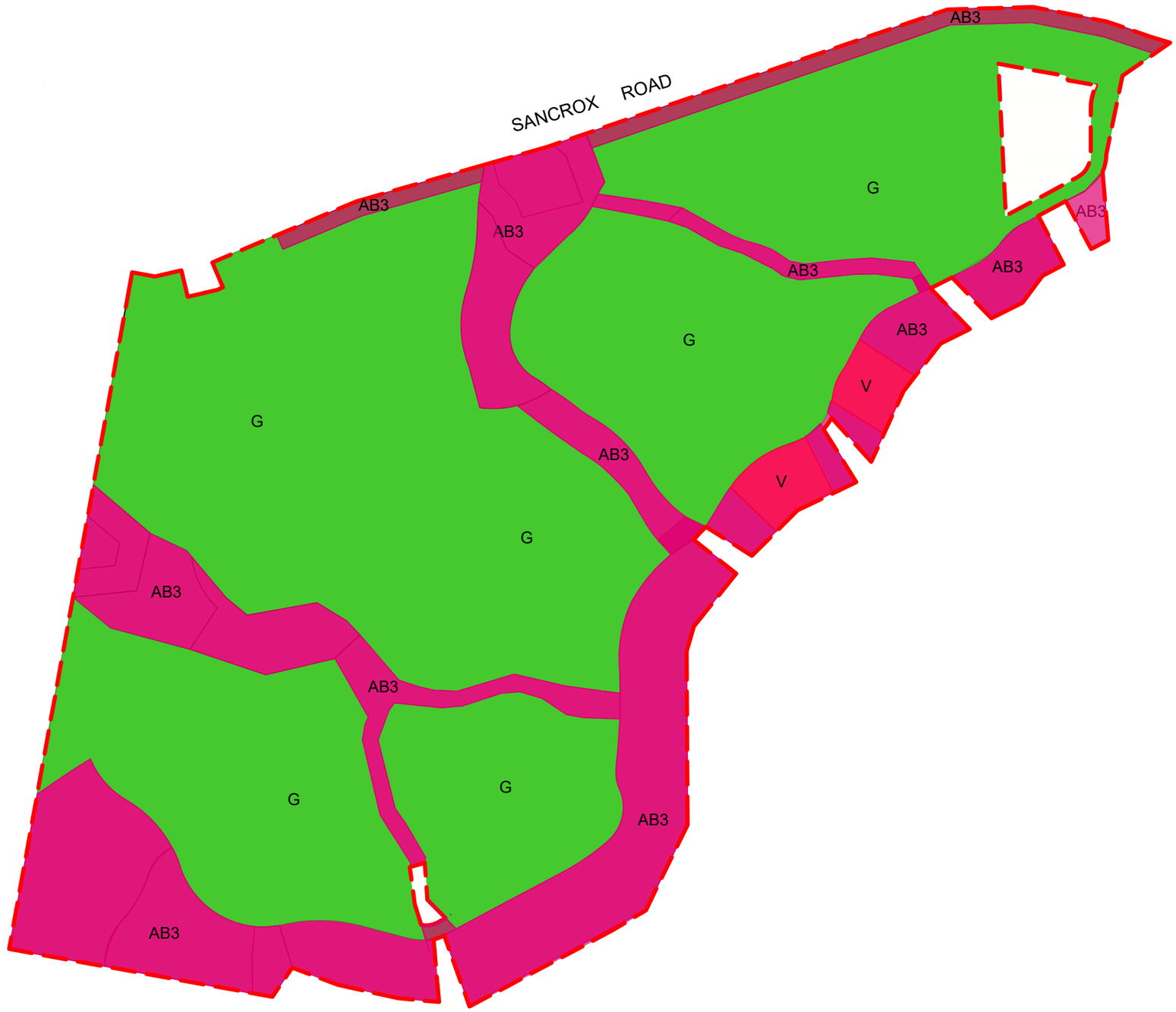
ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	LEP 2002	C

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: ANDREW PLOT DATE: 18/02/2021 2:25:29 PM

MINIMUM LOT SIZE (M2)

- G - 450
- V - 2000
- AB3 - 40HA

100mm AT ORIGINAL SIZE



REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	16.10.19	CM	CM	DC	
B	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
C	PLANNING PROPOSAL RESUBMISSION	2.02.21	CM	CM	DC	GB

SCALES:

NOT TO SCALE

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au

CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE: PROPOSED LOT SIZE MAP

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	LEP 2003	C

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 1:37:58 PM

MAXIMUM FLOOR SPACE RATIO (n:1)

G - 0.65

N - 1.00

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	16.10.19	CM	CM	DC	
B	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
C	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:

NOT TO SCALE

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au

CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
PROPOSED FLOOR SPACE RATIO MAP

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	LEP 2004	C

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 1:57:38 PM

Wednesday, 17 February 2021

Donna Clarke
Land Dynamics Pty Ltd
PO Box 2459
Port Macquarie
NSW 2444

Delivery via email: donna.clarke@ldynamics.com.au

ABN 86139603268
6 John Street
Port Macquarie 2444
Phone: 6593 6178
Mobile: 0431 833 968
Email: jbenvironsw@gmail.com

Dear Donna,

Re: Constraints advice for proposed rezoning and future residential development of Le Clos, Sancrox.

As per request, we provide a summary of our findings to date; an assessment of the Avoid/Minimise/Offset principles under the *Biodiversity Conservation Act 2016*; mitigation measures; and a preliminary overview assessment of other statutory obligations for the proposed.

The detailed information will be provided in the Biodiversity Certification Assessment Report (BCAR), which is to be prepared after approval of Planning Proposal for a final development concept for which bio-certification is to be sought.

1 VEGETATION

1.1 Plant Community Types

Three PCTs were identified on the site (one artificial being the aquatic vegetation in the large dam) in a series of vegetation zones based on broad condition (see **Figure 1**).

The two forest PCTs show high levels historical disturbance ie past logging, total clearing and more recently cattle grazing. One is completely artificial – established by a soakage created below the dam, although the Swamp Oak may also be non-original (ie. not originally in this area):

- PCT 690 – Blackbutt - Tallowwood dry grassy open forest of the central parts NSW North Coast Bioregion: Occurs in good condition (Vegetation Integrity >60) as regrowth forest, and very low condition (VI <5) as paddocks/former vineyards.
- PCT 1235 - Swamp Oak swamp forest of the coastal lowlands of the NSW North Coast Bioregion: Two patches of regrowth with approximate VI 55.
- 1740 - Tall Spike Rush freshwater wetland: Occurs as fringe around the edge of the large dam. VI not assessed as retained. Edge highly trampled by cattle.

1.2 Endangered Ecological Communities (EECs)

The proposed development envelope contains only limited areas of one EEC – *Swamp Oak Swamp Forest on Coastal Floodplains* (see **Figure 2**).

This EEC was confirmed to occur on alluvial soils at the head of the 3rd order stream on Lot 48, where it has regrown from previous clearing and may not be the original EEC. Another patch in a soak below the large dam in the west was assumed to be this EEC as no on-site soil tests were undertaken here.

The PMHC EEC mapping also maps the vegetation around the ephemeral watercourse in the southwest corner of the site as the EEC – *River-flat Eucalypt Forest on Coastal Floodplains*. A foot traverse of this area noted vegetation matching an ecotonal *River-flat Eucalypt Forest* (as defined by presence of Flooded Gum) or perhaps *Subtropical Floodplain Forest on Coastal Floodplains* as there is not clear dominance in the canopy and the understorey is dominated by common rainforest species, but only along the narrow centreline of the watercourse. The overwhelming majority of the remnant is dry sclerophyll forest on mapped residual soils whose floristics do not match any EEC listing.

1.3 Threatened Flora

No threatened flora have been found. A seasonal (spring-summer) survey for *Asperula asthenes* failed to detect any plants.

As cattle have access to the limited area of generic potential habitat around the large dam and have heavily trampled this area, this species is considered highly unlikely to be present.

Figure 1: PCTs and VZs on site

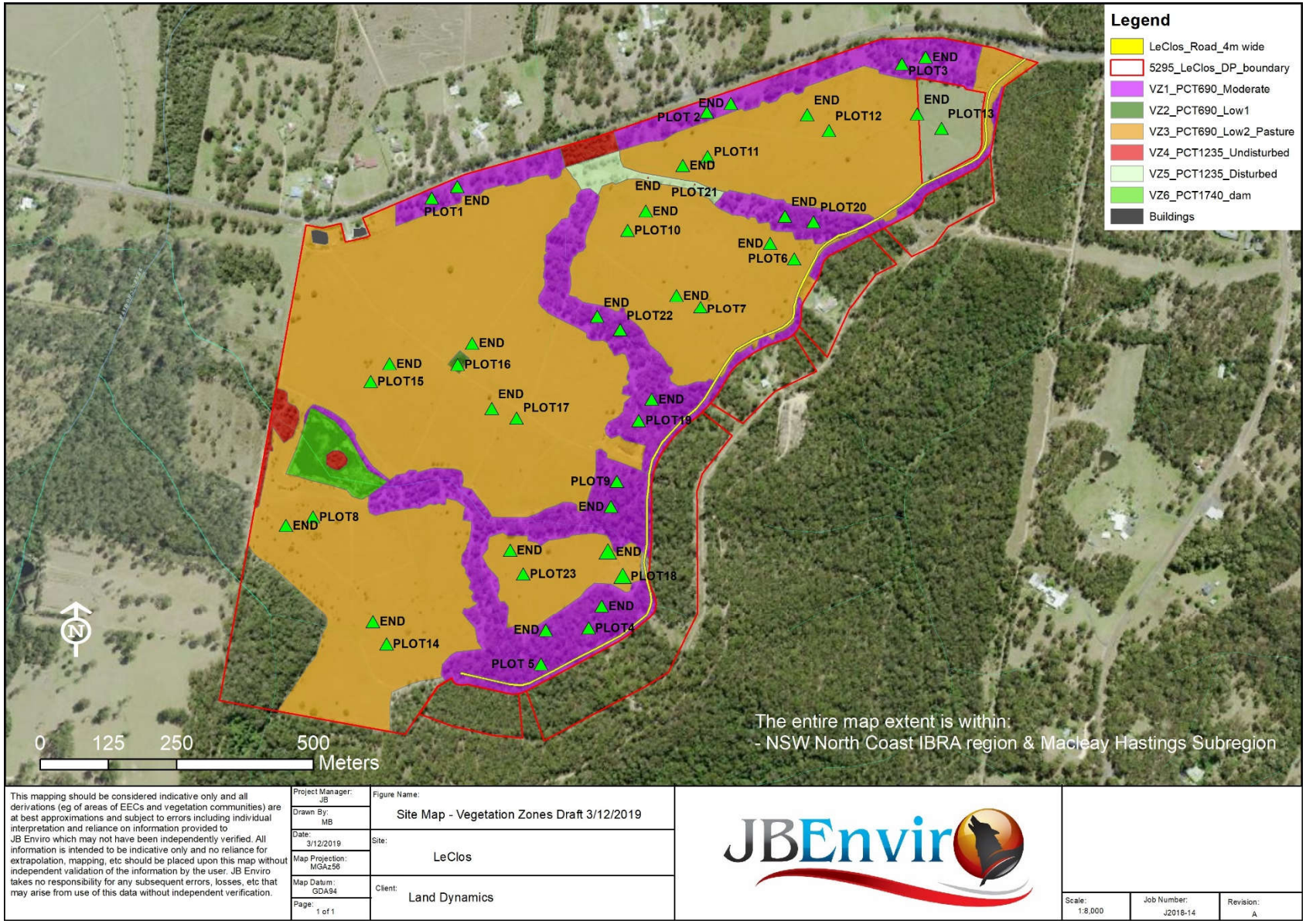
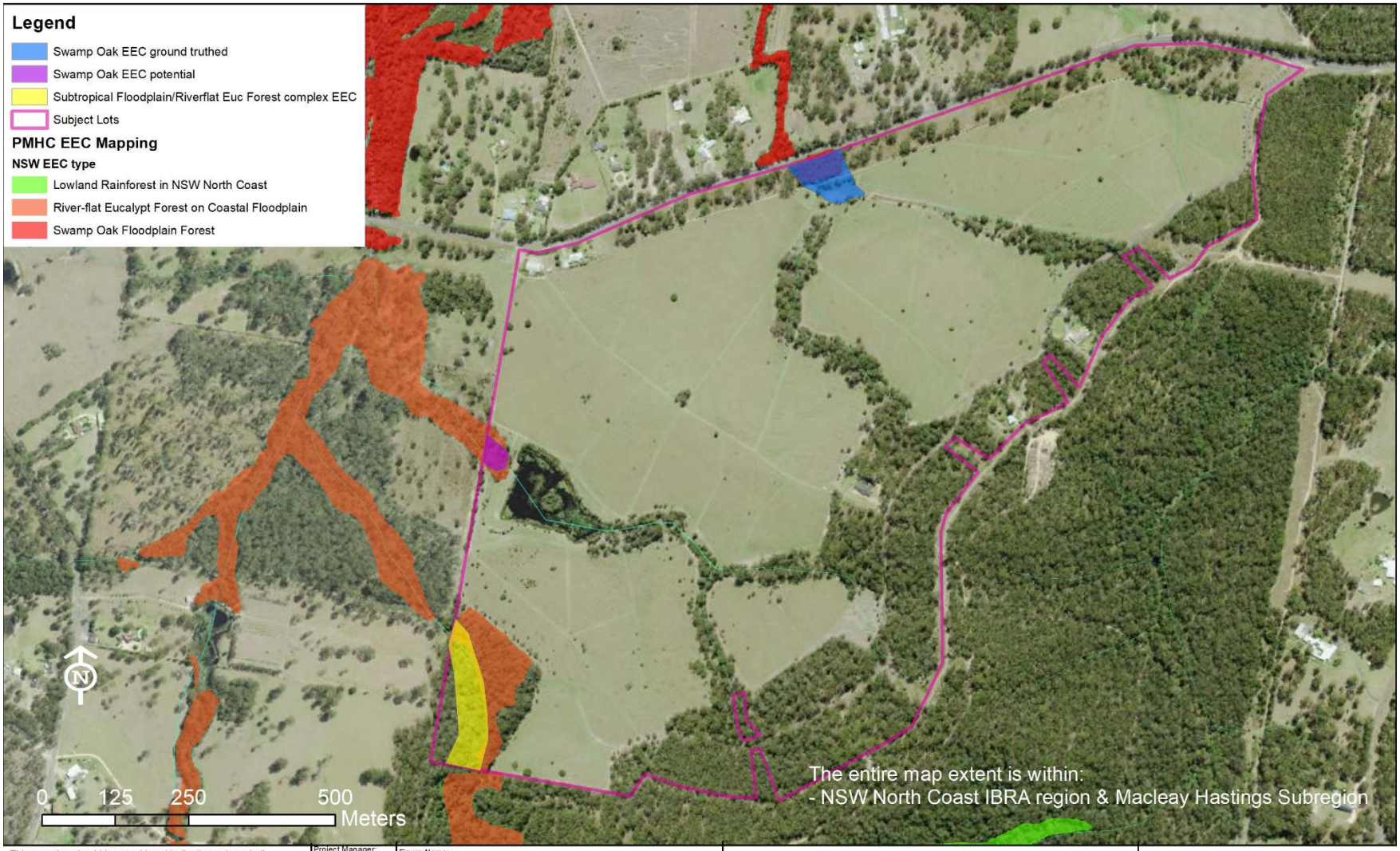


Figure 2: EECs on site



This mapping should be considered indicative only and all derivations (eg of areas of EECs and vegetation communities) are at best approximations and subject to errors including individual interpretation and reliance on information provided to JB Enviro which may not have been independently verified. All information is intended to be indicative only and no reliance for extrapolation, mapping, etc should be placed upon this map without independent validation of the information by the user. JB Enviro takes no responsibility for any subsequent errors, losses, etc that may arise from use of this data without independent verification.

Project Manager: JB	Figure Name: PMHC EECs 3/12/2019
Drawn By: MB	
Date: 27/11/2019	Site: LeClos
Map Projection: MGAz56	
Map Datum: GDA94	Client: Land Dynamics
Page: 1 of 1	

JBEnviro

Scale:	Job Number:	Revision:
1:8,000	J2018-14	A

2 FAUNA

2.1 Survey Methods

A comprehensive fauna survey has been conducted from July to September 2019 and later in December-January 2019/2020, and in February 2021 using the following methods, primarily to target Species Credit Species:

Table 1: Survey effort for fauna survey

Method	Habitat (ha)	Stratification units	Total effort	Target species
Arboreal Elliot A	<50 ha	1 (<50ha)	14 PIR cameras set for 6 weeks (total effort of 392 trap nights)	Squirrel Glider, Brushtailed Phascogale, Eastern Pygmy Possum
Arboreal Elliot B	<50 ha	1 (<50ha)		
Arboreal hair tubes	<50 ha	1 (<50ha)		
Area search	<50 ha	1 (<50ha)	32hrs: Walked 1km long transect across all habitats on site, doing area (0.5ha) search/call detection every 100m for up to 20mins per hectare depending on habitat) in the forest. Minimum 4hr per transect.	Ecosystem credit species, diurnal raptors, Bush-stone Curlew
Cage traps	Not used as no relevant Species Credit target species and Ecosystem species assumed present.			
Call playback/detection		1 (<50ha)	12hrs over 12 nights in July-August. One to two sites per night.	Powerful Owl, Masked Owl, Barking Owl, Bush-stone Curlew, Koala, Yellow-bellied Glider
Call recording (Anabat)		1 (<50ha)	Undertaken in Dec-Jan breeding period with two machines set at the large dam for 4 weeks.	Southern Myotis and all other Ecosystem Credit microchiropteran bat species.
Harp trapping		1 (<50ha)	Not used as no suitable potential flyways, and Anabat sufficient to detect target species.	Southern Myotis and all other Ecosystem Credit microchiropteran bat species.
Mist netting	Not used as Eastern Blossom Bat and Golden-tipped Bat not likely potential occurrences.			
Pitfall traps with drift net	<50 ha	1 (<50ha)	Modified Elliot A traps used for higher effectiveness.	Common Planigale
Terrestrial camera traps	<50 ha	1 (<50ha)	4 PIR cameras set for 4 weeks (total effort of 112 trap nights) paired with arboreal cameras in upper slope habitats	Ecosystem credit species, Rufous Bettong
Sand plots	Not used as habitat too disturbed or otherwise unsuitable for target species.			

Method	Habitat (ha)	Stratification units	Total effort	Target species
Search for scats and signs; turning over logs and debris, and raking leaf litter for reptiles and frogs.	<50 ha	1 (<50ha)	18hrs over the site.	Glossy Black Cockatoo, Powerful Owl, Masked Owl, Barking Owl, Koala, Pale-headed Snake, Stephen's Banded Snake, Three-toed Snake-toothed Skink
Spotlighting from vehicle	<50 ha	1 (<50ha)	1.6km along current access road each night for 8 non-consecutive nights in July-August (1/5hrs per survey night); and repeat in Dec-Jan.	Powerful Owl, Masked Owl, Barking Owl, Koala, Yellow-bellied Glider, Greater Glider, Squirrel Glider, Brushtailed Phascogale, Spotted-tail Quoll, Ecosystem credit species, Pale-headed Snake, Stephen's Banded Snake
Spotlighting on foot	<50 ha	1 (<50ha)	32hrs in July-August and again in Dec-Jan (two ecologists over 8 non consecutive nights at min. 2hrs per night each) through forest or either side of drainage lines, targeting all hollow-bearing trees.	
Stagwatching	<50 ha	1 (<50ha)	10hrs in July-August. 10hrs in December-January	Glossy Black Cockatoo, Powerful Owl, Masked Owl, Barking Owl, Greater Glider, Squirrel Glider, Brushtailed Phascogale, Pale-headed Snake, Stephen's Banded Snake, Ecosystem credit species
Terrestrial Elliot A	<50 ha	1 (<50ha)	120 traps/night over 8 over two non-consecutive weeks (960 trap nights).	Common Planigale, Eastern Pygmy Possum, New Holland Mouse
Terrestrial Elliot B	Not used as no relevant Species Credit target species (4 terrestrial PIRC set for interest).			
Terrestrial hair tubes	Not used as no relevant Species Credit target species (4 terrestrial PIRC set for interest).			
Watercourse search	<2ha	1	Scours in several drainage lines inspected via aural-visual surveys for up to 2hrs per night over 4 nights in December-January 2019-2020; and 3 nights February 2021. Call playback for 2 mins at each scour, every 50m around big dam and one side of small dam, followed by minimum 2 minutes listening.	Ecosystem credit species, Green-thighed Frog, Green and Golden Bell Frog, Pale Headed Snake.
Wetland census (diurnal)	<1ha	1	Aural-visual surveys 2hrs per session traversing all sides of the 2 dams, repeated 4 times (8hrs) in December-January 2019-2020 and 2 times in February 2021. Call playback for 2mins at each scour/dam	Green and Golden Bell Frog

Method	Habitat (ha)	Stratification units	Total effort	Target species
			(every 50m around big dam), followed by minimum 2 minutes listening.	
Wetland census (nocturnal)	<1ha	1	Scours in several drainage lines inspected via aural-visual surveys for up to 2hrs per night over 4 nights in December-January 2019-2020; and 3 nights February 2021. Call playback for 2 mins at each scour, every 50m around big dam and one side of small dam, followed by minimum 2 minutes listening.	Ecosystem credit species, Green-thighed Frog, Green and Golden Bell Frog
Tadpole survey	1	1	Dip net survey of the two dams in February 2021 following wet period in late December-early January promoting ideal breeding conditions. 6 sample sites in main dam (Plague Minnow present); 2 in small dam. Scours with water sampled with single sample site per scour.	Green-thighed Frog, Green and Golden Bell Frog

2.2 Threatened Species

2.2.1 Detected Species

The Glossy Black Cockatoo was detected via chewed cones. A Powerful Owl was heard calling >1km south of the site during spotlighting/call playback.

The site does not contain any potential breeding hollows for these species.

The Southern Myotis was confirmed via call detection to be foraging over the large dam. This bat could potentially roost in tree hollows on site.

2.2.2 Other Target Species

Only common species of birds were detected by the diurnal surveys. The latter was dominated by medium to large woodland birds.

No response was made to nocturnal call playback of any mammal species.

Spotlighting was extremely unproductive. A few common macropods, possums, diurnal birds and foxes were the only fauna observed.

PIR cameras recorded the Brushtail Possum, Sugar Glider and Northern Brown Bandicoots. Elliot A trapping recorded very few Brown Antechinus and Bush Rats.

There are no large raptor nests on site.

Only common frogs typical of modified rural habitats and their tadpoles were detected over all survey periods. Plague Minnow are abundant in the large dam, which is a key limitation, as is cattle grazing of the emergent aquatic vegetation in both dams.

3 KOALA HABITAT PROTECTION SEPP 2020

The site contains Potential Koala Habitat (eg. Lot 48), but a combination of a SAT survey (see **Figure 3**), spotlighting and call playback in the breeding seasons failed to detect any Koalas, despite adjacent land to the south and east being identified as Core Koala Habitat (low density Koala population).

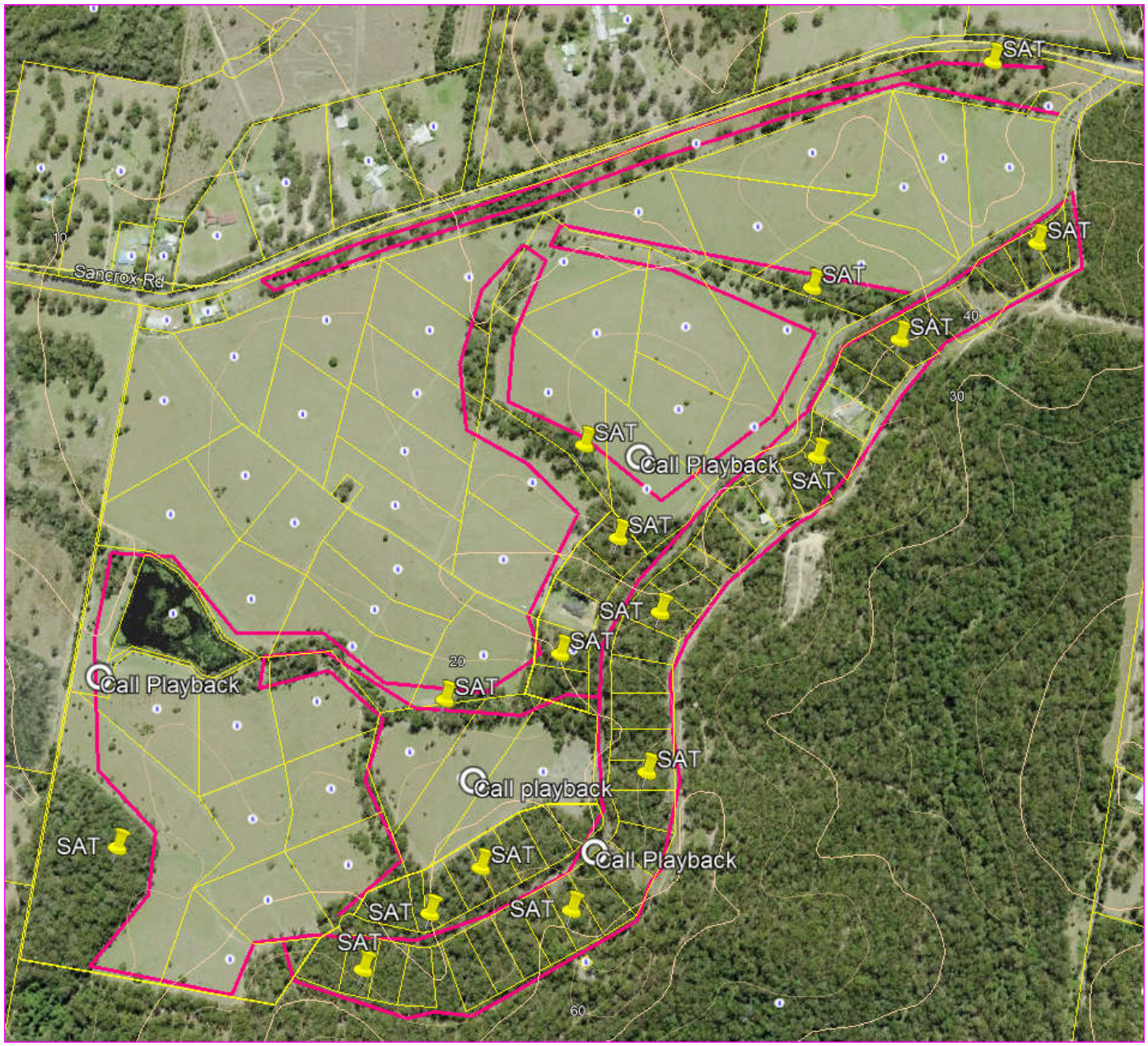
A KPoM is thus not required.

Notwithstanding this, the proposed development concept in **Figure 5** considers the potential for long term recovery of the local Koala population via:

- Converting the majority of the currently heavily forested parts of the site (much of which is currently zoned for large lot residential) to an Environmental zoning to protect it in perpetuity.
- Infill planting with native forest dominated by Koala food trees in the existing cleared area in the southwest to reinforce local and regional linkage values.
- Retaining and augmenting riparian zones to maintain local corridor values.
- Utilising best practice for road crossings of riparian zones to provide for Koalas to pass under the roads.

Figure 3: Koala survey (winter-spring)

Red line indicates spotlighting route



4 PMHC DCP

4.1 EECs:

The EECs identified on site will require 35m fully vegetated buffer zones under the DCP.

These will be achieved either in combination with the riparian zone infill planting (northern EEC) or as a distinct planted zone (western EEC), as shown in Figure 5. The southwest EEC has an existing vegetated buffer.

Planting will be governed by a Vegetation Management Plan (VMP).

4.2 Hollow-bearing trees (HBTs):

The site (the upper half of the eastern large lots were not surveyed as not impacted) contains the following as illustrated in **Figure 4**:

- 15 hollow-bearing trees (potentially a few more on upper slopes of eastern fringe of site on large lot residential area)
- 18 hollow-bearing termitaria.

The following appear to fall into the development envelope:

- 4 hollow-bearing trees (3 stags in poor condition, 1 large Grey Gum on the edge of the existing road possibly at risk if road widened)
- 4 termitaria with cavities (low value as dens for mammals often due to isolation or likely small internal cavity size).

The assessment under the DCP HBT protocol is provided in **Table 2**. The hollow-bearing trees which occur close to very close (latter being the aforementioned Grey Gum) to the edge of the existing access road formation are to be surveyed to determine if they can be retained during upgrade of the road.

Any HBT or hollow-bearing termitaria which has to be removed will be offset with nest boxes or similar artificial hollow (eg. recent entrance making strategy into suitable trees pioneered by OEH in Coonabarabran) at a ratio of at least 1:1 per hollow. Where one hollow may support fauna with different internal cavity requirements, more nest boxes will be required eg. bat boxes and bird or glider boxes for the one hollow.

The eastern E1 area and Lot 48 which contain the bulk of the site's hollow-bearing trees and termitaria (most termitaria are in the drainage lines) will be protected in perpetuity by rezoning these areas to Environmental Protection.

Figure 4: Hollow-bearing trees (H) and arboreal termitaria (T) on site

Table 2: PMHC DCP 2013 HBT protocol assessment

HBT	Tree species	Alive/Dead		Trunk DBH (cm)		No. Hollows		Hollow Size (cm)		Habitat Proximity		Longevity		Total Score	Comments
1	stag	Dead	1	<60	0	1	0	>10cm	3	<30m	2	High	0	6	Consists of a small arboreal termitaria in handful of trees on top of hill in open paddock. **To be removed.**
2	Grey Gum 1	Alive	3	60-80	1.5	2-4	1.5	>10cm	3	<30m	2	High	3	14	On edge of 1st order drainage line and retained in VRZ. Likely Brushtail Possum scratches on trunk. Two medium sized branch hollows.
3	stag	Dead	1	<60	0	1	0	>10cm	3	<30m	2	Low	0	6	Single chimney hollow in broken leader which offers no significant value – at best a Brushtail Possum or Wood Duck. Highly comprised stability by major fire scar at base. **To be removed.**
4	stag	Dead	1	<60 (cm	0	1	0	>5cm	2	<30m	2	High	0	5	Final stage stag (no crown limbs) with basal fire scar on edge of Le Clos Rd. Small termitaria in top and fissure hollow on north side. **To be removed**.
5	stag	Dead	1	80-100	3	2-4	1.5	>10cm	3	<30m	2	High	0	10.5	Very large final stage stag with stubs of former twin leaders with chimney hollows on top, probably dirt filled. Fissures on side indicating limited viability. **To be removed**.
6	Tallowwood	Alive	3	60-80	1.5	2-4	1	<5cm	1	<30m	2	High	3	11.5	Over-rated value as hollows only in termitaria and likely to be limited internal cavity as termitaria is not very wide in girth. **To be removed**.
7	Thick-leaved Mahogany	Alive	3	<60	0	1	0	<5cm	1	In situ	3	High	3	10	Single trunk hollow at base of leader split. Potential Sugar Glider, bat or small parrot hollow. Near crossing but appears retained.
8	White Stringybark 1	Alive	3	<60	0	2-4	1.5	<5cm	1	<30m	2	High	3	10.5	Small termitaria (about 50cm diameter) with two small hollows, probably not occupied due to insufficient internal cavity. **Possibly to be removed**

HBT	Tree species	Alive/Dead		Trunk DBH (cm)		No. Hollows		Hollow Size (cm)		Habitat Proximity		Longevity		Total Score	Comments
9	White Stringybark 2	Alive	3	<60	0	2-4	1.5	<5cm	1	<30m	2	High	3	10.5	Small termitaria with small hollows, probably not occupied due to insufficient internal cavity. **Possibly to be removed**
10	Grey Gum 2	Alive	3	80-100	3	2-4	1.5	>5cm	2	In situ	3	High	3	15.5	Very large, mature Grey Gum on edge of existing Le Clos Rd, **possibly at risk of removal by road upgrade**. Bark scratched and hollows likely occupied.

Photo 1: The largest stag to be removed

Photo 2: A typical termitaria to be removed

4.3 Koala Food Trees:

The DCP requires 1:2 offsets for loss of Koala food trees (KFTs).

The vast majority of KFTs have been avoided by retaining the majority of existing forest on site. The total number (295) of primary and secondary KFTs to be removed is estimated as follows:

- Primary browse: 69 Tallowwoods
- Secondary browse: 226 Grey Gums

Many of the Grey Gums are only suppressed trees <6m tall and <15cm trunk DBH in the southwest patches which will never achieve a significant level of development due to competition with established canopy trees. The site has also experienced no significant fire since its recovery post-logging, and these trees may well be lost in natural pruning events such as a medium to high intensity fire event.

A smaller number of other supplementary tree species will also be removed (eg. White Stringybark).

The primary and secondary trees are to be replaced in the infill planting of the riparian zones as co-dominant species in the plantings here, in existing canopy gaps on Lot 48, and in the large southwest offset area as part of complete revegetation of these areas for a net biodiversity benefit, in line with the objectives of section 2.6.3.2 of the DCP: "*To retain viable representative samples of native vegetation, which have an intact structure and complete floristics, wherever practical*".

4.4 Riparian zones:

In line with the *Water Management* (WM) *Act 2000*, vegetated riparian zones (VRZs) will be established along the drainage lines. Offsets for intrusions into the VRZ are met by infill planting to widen the riparian zones.

The Biodiversity Assessment Methodology (BAM) has recommended different specifications for buffer widths, as does the PMHC DCP 2013. The following table compares these widths (WMA Act and BAM measured from one side of the watercourse from top of bank, hence total width is double specifications shown):

Table 3: PMHC DCP 2013 riparian zone buffers

Stream Order	WMA Act VRZ (m)	BAM buffers (m)	DCP 2013 Intermittent Flow (m)	DCP 2013 Permanent Flow (m)
1	10	10	10	30
2	20	20	40	40
3	30	30	50	50
4	40	40	65	65
5	40	40	-	-
6+	40	50	-	-

5 BIODIVERSITY CONSERVATION ACT 2016

5.1 Serious and Irreversible Impacts

No SAII species is known or likely to occur, hence no SAII threshold is exceeded.

5.2 Biodiversity Offset

In addition to the mitigation measures, the proposal will require Ecosystem Credits for the approx. 6.61ha of dry sclerophyll forest PCT, and Species Credits for the Southern Myotis.

The DA consent will specify the offset requirements, and the credits must be retired before commencement of the activity.

5.3 Avoid, Minimise, Offset, and Prescribed Impacts

The following tables assesses the relevant sections of the BAM which assess the “Avoid Minimise Offset” principles, and Prescribed Impacts in line with the BAM (see section 8, sub-sections 8.1-8.3), and BAM Operations Manual for Stage 2.

5.3.1 Locating a Project to Avoid and Minimise Impacts

The following table details where the proposal has aimed to avoid and minimise impacts on vegetation and habitat by location of the development footprint after considering the findings of the BAM and fauna survey, which saw significant changes to the original concept layout to reduce the extent of vegetation removal.

Table 4: Locating a project to avoid and minimise impacts on vegetation and habitat

Approach	How addressed	Justification
Locating the proposal in areas where there are no biodiversity values	• Majority of development footprint located within former vineyards which was below minimum VI hence no offsets required. • Original footprint included development of Lot 48. Lot 48 now largely retained for corridor values, hollow-bearing trees and density of primary-preferred KFTs. • Southwest corner remnant identified as significant for corridor and riparian buffer role, hence retained as is. • Large dam retained with perimeter vegetation to be expanded to improve connectivity and buffering. • EECs retained with buffers. • Majority of primary preferred KFTs and HBTs retained.	• Three areas of forest to be cleared to consolidate separation of core forest habitats from riparian corridors for higher long term bushfire management practicality, and reduce incentive for fauna to cross multiple points of a main road and hence be exposed to vehicle strike. This allows mitigation to be focused as key crossing points for maximum effectiveness. • Net gain in forest area via infill planting of riparian zones, Lot 48 and southern revegetation area to widen key local linkages. • Majority of high value vegetation kept separate from development and adjoining other forest habitat, to be dedicated public reserve.
Locating the proposal in areas where the native vegetation or threatened species habitat is in the poorest condition	As above: development is predominantly focussed on former vineyards.	As above plus removal of approximately 6.61ha of native vegetation offset by revegetation of approx. 9.41ha.
Locating the project in areas that avoid habitat for species and vegetation in high threat categories (e.g. an EEC or CEEC), indicated by the biodiversity risk weighting for a species	• All EECs avoided and retained with buffers as per DCP.	• EECs retained within vegetated riparian zones within public reserves. • VMP to improve condition of the EECs and establishment of buffer zone where not currently present (western EEC).

Approach	How addressed	Justification
Locating the proposal such that connectivity enabling movement of species and genetic material between areas of adjacent or nearby habitat is maintained	• All existing riparian zones with forest retained as vegetated. • Number of riparian zone crossings minimised by road design. • Crossings of Lot 48 and riparian zones mitigated by best practice in line with RMS standards. • No more residences east of existing access road to minimise additional fragmentation. • APZs setback from retained and revegetation areas via roads and dwelling setback. • No residential developing in southern cleared area to pose a gap between forested land east and west within a key local corridor.	• All riparian zone corridors apart from southwest corner currently have high edge effect constraints, or major gaps in forest connectivity. Replanting these area (eg. both sides of the large dam) improves the functional effectiveness of these riparian zones as corridors, and helps offset the road crossings. • Crossings of Lot 48 and riparian zones mitigated by best practice in line with RMS standards. • Key corridor via southwest retained and significantly augmented via infill planting of over 2ha of cleared land to widen corridor and buffer edge effects. This corridor is much more significant for local movements to the northwest given its width, connection to a large body of core habitat to the south, and connection to the next largest local remnant to the northwest.

5.3.2 Designing a Project to Avoid and Minimise Impacts

The development has been designed in a way which avoids and minimises impacts as outlined below:

Table 5: Designing a proposal to avoid and minimise impacts on vegetation and habitat

Approach	How addressed	Justification
Reducing the clearing footprint of the project	• Majority of development has focused on existing cleared land where VI <20 hence no Ecosystem Credits required. • All currently approved lots for dwellings east of current access road not developed now to be dedicated as public reserve.	• Four areas of existing forest in southeast to be removed to consolidate separate core forest habitat and development for more practical bushfire control, and reduce incentive for fauna to cross multiple points of a main road and hence be exposed to vehicle strike. • Layout retains most of Lot 48 for its linkage value, and more importantly the majority of forest fringing the east and south, with revegetation seeing a net gain.
Locating ancillary facilities in areas where there are no biodiversity values	• Stormwater infrastructure within existing cleared areas. • APZs achieved via setback from public reserves. • No residential lots to have retained vegetation hence 10/50 rule will not apply. • Communications, power, water and electricity combined with road easements, or existing (eg. along current access road).	
Locating ancillary facilities in areas where the native vegetation or threatened species habitat is in the poorest condition (i.e. areas that have a lower Vegetation Integrity score)	As above.	As above.
Locating ancillary facilities in areas that avoid habitat for species and vegetation in high threat status categories (e.g. an EEC or CEEC)	As above – all EECs avoided.	Primary access may trim edges of EEC buffer zone but this is countered by WSUD measures and infill planting to fill in canopy gaps and widen upstream VRZs, adding further buffer functions.

Approach	How addressed	Justification
Providing structures to enable species and genetic material to move across barriers or hostile gaps	• Crossings of riparian zones and Lot 48 linear corridor in line with RMS best practice designs.	• Crossings of riparian zones unavoidable due to other constraints eg. safe bushfire escape and serviceability for school buses and garbage trucks. • Utilising best practice design and methodology to mitigate impacts of linear infrastructure.
Making provision for the demarcation, ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on the development site.	• Total extent of infill planting and revegetation will see net gain in forest cover. • VMP to manage all revegetation, and improve condition of existing forest eg. removal of lantana from Lot 48 EEC. • Retained habitat to be dedicated as public reserve.	• Infill planting and revegetation under VMP aims to achieve net gain in forest habitat, buffer EECs but also achieve same or net gain in KFTs to meet DPC objectives.
Efforts to avoid and minimise impacts through design must be documented and justified.	• As above.	As stated above

5.3.3 Prescribed biodiversity impacts

The future development is assessed for prescribed biodiversity impacts as follows:

Table 6: Prescribed biodiversity impacts

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities affected
Impacts of development on the habitat of threatened species or ecological communities associated with: • karst, caves, crevices, cliffs and other geological features of significance, or • rocks, or • human made structures, or • non-native vegetation	• No karst, caves, rocks, abandoned buildings, mines, etc on site. • No non-native vegetation providing habitat. • Large dam offers potential foraging habitat for Southern Myotis.	• Large dam offers potential foraging habitat for Southern Myotis and to be buffered by vegetated buffer.
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	• Crossing of 3 of the 4 main riparian zones with roads and of linear corridor along Lot 48 by roads. • Most important linkage (southwest corridor) retained and to be significantly augmented by infill planting over 2ha of pasture. • Eastern parts of site retained forested separated by existing road from residential area development apart from existing dwellings. • All remaining habitat to be dedicated public reserve to maintain values in perpetuity.	• Increased vehicle strike risk for any fauna crossing current access and new threat to fauna using the central and northern riparian zones. • Not Core Koala Habitat and Lot 48 and three riparian zones do not provide key linkages to any significant habitat to north or northwest due to historical clearing for rural landuses and eventual physical barrier of Hastings River. • No threatened species with low mobility confirmed to use the corridors affected.

Prescribed biodiversity impact	Description in relation to the development site	Threatened species or ecological communities affected
Impacts of development on movement of threatened species that maintains their lifecycle	As above	• No threatened species with low mobility and dependent on the affected linkages for lifecycle movements confirmed to use the corridors affected. The affected riparian zones and Lot 48 highly constrained by edge effects. • Southwest corridor augmentation will affirm its value as the most significant local corridor.
Impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining)	• No dams to be removed. • Urbanisation of catchment mitigated by WSUD and infilling of riparian zones to widen VRZ or create where currently absent, to buffer nutrient and runoff changes. • No reduction of flows to Coastal Floodplain EECs – no new dams created.	• Swamp Oak Floodplain Forest and River-flat Eucalypt Forest EEC present, but buffered by existing or proposed vegetated buffers and WSUD. • Southern Myotis would forage periodically forage over large dam, but again buffered by existing or proposed vegetated buffers and WSUD.
Impacts of vehicle strikes on threatened species or on animals that are part of a TEC.	• No TECs directly impacted by roads. • Crossing of three riparian zones by roads will pose new threat to fauna which are common to both TECs and non-TECs.	• No TEC's directly impacted. • Marginal Green-thighed Frog potential habitat in southwest not affected.

5.3.5 Locating a project to avoid and minimise prescribed biodiversity impacts

The following table evaluates if the development has been located in a way which avoids and minimises prescribed biodiversity impacts:

Table 7: Locating a project to avoid and minimise prescribed biodiversity impacts

Approach	How addressed	Justification
Locating the envelope of surface works to avoid direct impacts on the habitat features	• Most of development footprint in vegetation below minimum VI. • Minimised number of crossings of riparian zones. • Large dam retained.	• No impacts on bushrock. • No non-native vegetation providing habitat for threatened species. • Large dam offers foraging habitat for Southern Myotis.
Locating the envelope of sub-surface works, both in the horizontal and vertical plane, to avoid and minimise operations beneath the habitat features, e.g. locating long wall panels away from geological features of significance or water dependent plant communities and their supporting aquifers	• No change to current watertable or landscape drainage patterns	• Major drainage lines are retained as per WM Act requirements. • Infill planting to widen VRZs above statutory requirements.
Locating the project to avoid severing or interfering with corridors connecting different areas of habitat, migratory flight paths to important habitat or preferred local movement pathways	• Minimised crossing of riparian zones and Lot 48 subject to other constraints. • Consolidation of habitat to east and south which provides the key local corridor for biodiversity, and providing a distinct separation from residential development via the existing access road.	• Current zoning potentially allows clearing/fragmentation of intact forest along eastern fringe for dwellings. Now conserved as public reserve. • Removal of patches of forest outside riparian zones west of existing access allows consolidation of habitat and residential land, improving practical management of bushfire in the long term under a drier climate.

Approach	How addressed	Justification
Optimising project layout to minimise interactions with threatened and protected species and ecological communities, e.g. designing turbine layout to allow buffers around features that attract and support aerial species, such as forest edges, riparian corridors and wetlands, ridgetops and gullies	• Consolidation of core habitat to east and south separated from residential footprint by boundary road. • Southwest corner avoided and existing gap in southern corridor to be infilled to offset changes in edge effects impacting other riparian linkages and Lot 48 linkage. • EECs retained with buffers and in public reserve. • All remaining habitat retained in public reserves in zoning that prevents future development.	• Consolidation of core habitat to east and south separated from residential footprint by boundary road assists in reducing vehicle strike risk, dumping of greenwastes, conflicts between bushfire risk perception and ecological management. • Dedication of all habitat to public reserve consolidates conservation management to one authority.
Locating the project to avoid direct impacts on water bodies	• All existing dams retained within riparian zones with widening of VRZs to increase buffering.	• Large dam recognised as providing source of biodiversity in study area, and periodic foraging habitat for Southern Myotis.

5.3.6 Designing a project to avoid and minimise prescribed biodiversity impacts

The following table evaluates if the development has been designed in a way which avoids and minimises prescribed biodiversity impacts.

Table 8: Designing a project to avoid and minimise prescribed biodiversity impacts

Approach	How addressed	Justification
Engineering solutions, e.g. proven techniques to minimise fracturing of bedrock underlying features of geological significance, water dependent communities and their supporting aquifers; proven engineering solutions to restore connectivity and favoured movement pathways	• Road design at crossings of riparian zones and Lot 48 to incorporate underpass and arboreal crossings in line with RMS best practice.	• Maintain current values of these areas as linkages, although southwest corridor has the most significant value due to its width and direct connection between the remnant northwest and Cowarra State Forest to the south.

Approach	How addressed	Justification
Design of project elements to minimise interactions with threatened and protected species and ecological communities	• Consolidation of core habitat to east and south separated from residential footprint by boundary road. • Southwest corner avoided and existing gap in southern corridor to be infilled to offset changes in edge effects impacting other riparian linkages and Lot 48 linkage. • EECs retained with buffers and in public reserve. • All remaining habitat retained in public reserves in zoning that prevents future development.	• Consolidation of core habitat to east and south separated from residential footprint by boundary road assists in reducing vehicle strike risk, dumping of greenwastes, conflicts between bushfire risk perception and ecological management. • Dedication of all habitat to public reserve consolidates conservation management to one authority.
Design of the project to maintain environmental processes critical to the formation and persistence of habitat features not associated with native vegetation	• Overwhelming majority of forest retained in public reserves. • Fallen HBTs and large trees to be relocated to southern revegetation area to act as hollow logs.	• Consolidation of core habitat to east and south which form part of larger local band of largely intact forest extending north from Cowarra State Forest to northern Sancrox. Maintaining this larger edge:volume ratio buffers edge effects and also increases viability of local populations via higher carrying capacity and niche diversity, than achievable in narrow riparian zones or small patches of forest separated by roads from core habitat.
Design of the project to maintain hydrological processes that sustain threatened species and TECs	• All riparian zone crossings to include structures to maintain free flows, and also not increase erosion and sedimentation eg. via scouring. • No diversion of low away from TECs. • WSUD to maintain water quality to statutory limits.	• Design of crossings to meet statutory requirements. • Design of WSUD to meet statutory requirements.

Approach	How addressed	Justification
Design of the project to avoid and minimise downstream impacts on rivers, wetlands and estuaries by control of the quality of water released from the site.	• All riparian zone crossings to include structures to maintain free flows, and also not increase erosion and sedimentation eg. via scouring. • WSUD to maintain water quality to statutory limits. • Widening of VRZs beyond statutory requirement and infill planting to revegetate currently non-forested riparian zones.	• Design of crossings to meet statutory requirements. • Design of WSUD to meet statutory requirements. • Contributes to meeting net gain in habitat objective.

6 MITIGATION MEASURES

The following table details the draft proposed mitigation measures, which are in addition to the offsets required under the BC Act:

Table 9: Mitigation measures

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Infill planting of riparian zones to widen corridors. • Approximately 9.41ha to be re-established or augmented to forest. • Includes KFTs offsets to meet DCP. • Includes VRZ requirements for WM Act 2000 to offset crossings. • Area to be protected in perpetuity.	High: • Loss of approx. 6.61ha of vegetation for development. • Three riparian zones crossed by roads.	Very low: • Condition of consent. • Governed by VMP. • Compliance enforcement under development consent by PMHC.	• Infill area between APZ and existing riparian zones outside recreation and WSUD areas. • Canopy trees dominated by KFTs (except adjunct to roads). • Understorey of rainforest pioneer species to reduce fire risk. • Outer edge of *Lomandra* or *Gahnia*. • Vegetation Management Plan (VMP) to guide and govern. • Area to be protected in perpetuity.	• Enhanced buffering of riparian zones. • Enhanced carrying capacity. • Enhanced corridor functions. • Pedestrian access only via provided paths.	Construction to operation	Proponent (VMP) PMHC (compliance enforcement)

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Infill southwest offset area: • Offset loss of approx. 6.61ha of fully structured dry sclerophyll forest for crossings and residential lots. • Includes KFTs offsets to meet DCP.	High: • Loss of 6.61ha of vegetation for development. • Three riparian zones crossed by roads.	Very low: • Condition of consent with performance indicators linked to subsequent approvals. • Governed by VMP. • Compliance enforcement under development consent by PMHC.	• Infill paddock in southwest with fully structured forest, grading from dry to wet sclerophyll with slope. • Canopy trees dominated by KFTs (except adjunct to roads). • Understorey to vary from dry sclerophyll to rainforest pioneer species as per natural succession to assist bushfire management. • Outer edge fronting development planted with *Lomandra* or *Gahnia*. • Vegetation Management Plan (VMP) to guide and govern. • Area to be protected in perpetuity. • Retain firetrail along boundaries.	• Enhanced carrying capacity. • Enhanced northwest corridor function. • Pedestrian access only via provided paths.	Construction to operation	Proponent (VMP) PMHC (compliance enforcement)

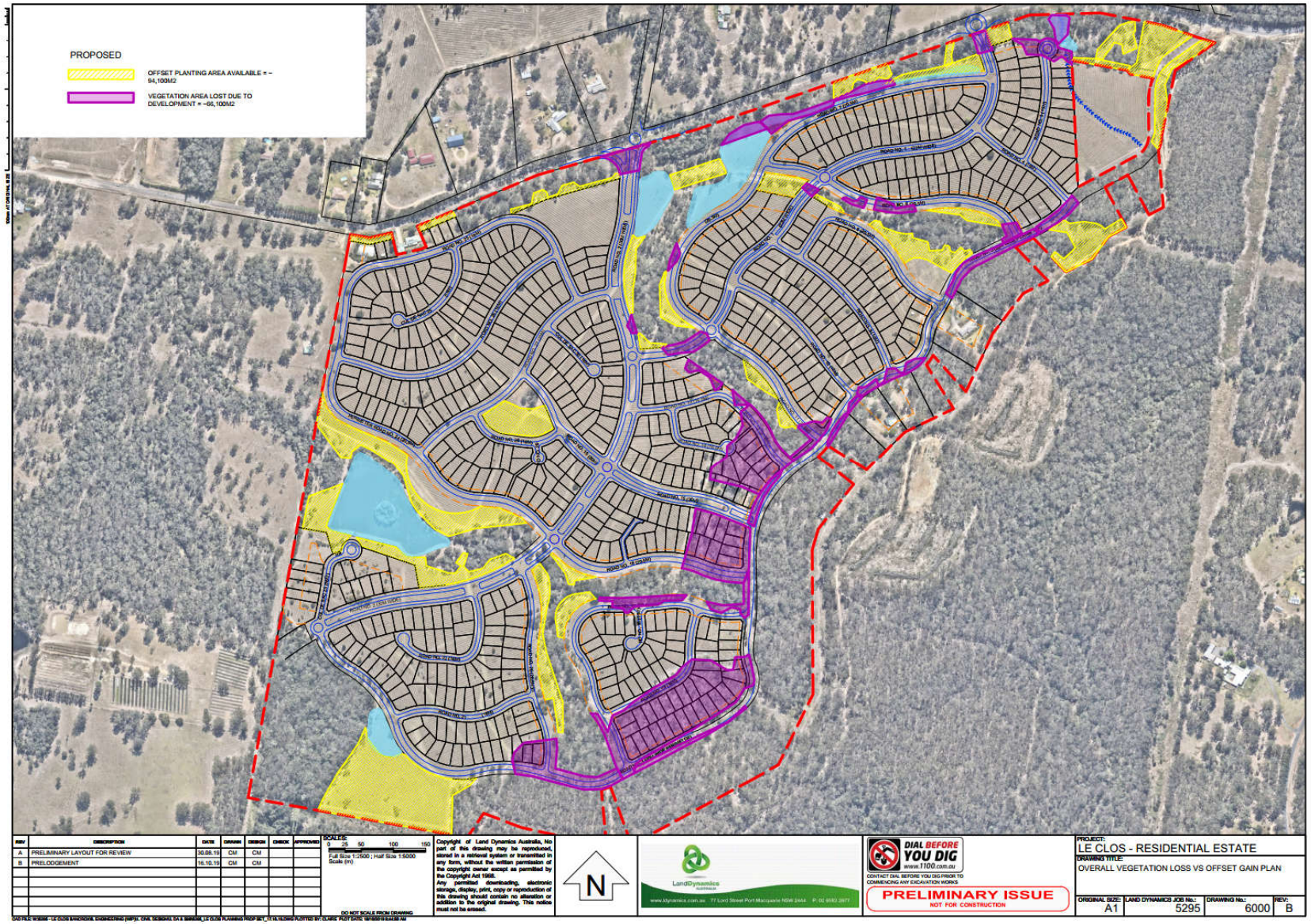
Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Planting out of EEC buffers as per DCP	Low: • Currently subject to runoff from former vineyard, now grazed by cattle.	Very low: • Combined with VRZ widening, EECs will be significantly buffered from current status	• EECs to be buffered by 35m planting of fully structured native forest, which will include KFTs. • Implemented under VMP.	• DCP obligations met. • Additional biodiversity. • Additional carrying capacity	Construction - operation	Proponent
Fauna crossings - terrestrial	High – three riparian zones to be crossed as well as two crossings of ribbon of forest on Lot 48, creating new barrier with increased threat of vehicle mortality.	Very low: • Crossings to be designed at pre-DA stage and meet RMS standard principles.	• Riparian zone crossings to use minimum 3m x 3m culverts – subject to topography but not <2.4m x 2.4m. • Fauna furniture to be provided as per RMS guidelines. • Fauna fencing (floppy top or similar) up and downstream of crossing to funnel fauna into the underpass. • Streetlighting on road at crossing points to maximise driver detection of fauna.	• No effective barrier to fauna movement.	Construction	Proponent

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Fauna crossings - arboreal	High – three riparian zones to be crossed and two crossings of Lot 48, creating new barrier with increased threat of vehicle mortality.	Very low: • Crossings to be designed at pre-DA stage and meet RMS standard principles.	• Rope bridge to be provided over each riparian zone and Lot 48 crossings.	• No effective barrier to fauna movement.	Construction	Proponent
Install nest boxes to offset loss of minimum 7 hollow-bearing trees and arboreal termitaria: • All hollow-bearing trees lost are stags with limited longevity eg. basal fire scars.	High: • Development will see loss of 3 hollow-bearing trees and 4 termitaria. One to two more hollow-bearing trees may need removal for existing road upgrade	Nil: • Final road design to avoid additional HBT loss if possible. • Offset via nest boxes per hollow, including 2 extra HBTs in case have to be removed.	• Two HBTs on edge of existing road to be surveyed and accounted in final road redesign. • Nest boxes to be erected in retained forest along east and southwest where hollows are currently uncommon or absent. • Nest boxes to be erected at least 2 months before clearing to allow fauna to detect them.	• HBT loss minimised. • Offset requirements of DCP met.	Construction	Proponent Ecologist

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Relocation of hollow logs to southwest offset area to augment habitat regeneration: • Studies show coarse woody debris is a key habitat component for biodiversity. • Hollow logs take >100 years to recruit from regrowth forest, but enhance biodiversity via provided refuge and foraging substrate.	High: • Logs will be destroyed during clearing. • >100 years to gain logs in planted area via natural processes.	Low: • Logs relocated to meet consent condition. • Ecologist to direct and document log relocation.	• Relocate any salvageable current or potential (>50cm DBH) hollow-bearing trees and logs to southwest offset area during clearing phase. • Randomly locate to provide refuge habitat for fauna.	• Majority of existing hollows and logs relocated. • Higher diversity of fauna in offset area within 10yrs of planting.	Construction	Proponent Ecologist
Timing works to avoid critical life cycle events such as breeding or nursing.	High – loss of at least 7 hollow-bearing trees and termitaria, plus some groundcover and logs.	Low	Clearing outside breeding season of Southern Myotis which has potential to roost in tree hollows.	Avoid impacts on breeding.	Avoid spring-summer	Proponent
Instigating clearing protocols including pre-clearing surveys and staged clearing, and the presence of a trained ecological or licensed wildlife handler during clearing events	High – loss of at least 7 hollow-bearing trees and termitaria, plus some groundcover and logs.	Low	Consent condition requiring the measure in future DA.	Minimal if any fauna mortality	Prior to and during clearing.	Proponent PMHC Ecologist.
Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance	Moderate – risk of impacts on retained KFTs and HBTs, and adjacent EECs.	Low	Consent condition requiring the measure in future DA.	EECs and habitat features protected during construction.	DA consent and construction phase.	Proponent PMHC

Measure	Risk before mitigation	Risk after mitigation	Action	Outcome	Timing	Responsibility
Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment during dwelling construction	High – risk of impacts on EEC and large dam (frog and Southern Myotis habitat)	Low	• Consent condition requiring the measure in future DA. • Development complies with WSUD during construction and operation.	Watercourses and dam protected during construction and operation.	DA consent and construction phase.	Proponent PMHC
Selective retention of in APZ during clearing.	High – risk of loss of these trees	Very low	Consent condition requiring the measure in future DA.	Protected during construction.	DA consent and construction phase.	Proponent PMHC
Temporary fencing and signage to protect significant environmental features such as riparian zones during construction.	High – risk of impacts riparian zone.	Very low	Consent condition requiring the measure in future DA.	Threatened plant protected during construction.	DA consent and construction phase.	Proponent PMHC
Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Low – risk of introduction of frog and plant diseases.	Very low	Consent condition in future DA for hygiene measures ie. washdown of construction machinery before entering site.	No disease introduced during major earthmoving works.	DA consent and construction phase.	PMHC
Staff training and site briefing to communicate environmental features to be protected and measures to be implemented.	High – risk of impacts on riparian zone.	Very low	Consent condition requiring include toolbox talks to ensure all workers aware of issues.	No impacts during construction.	DA consent and construction phase.	Proponent PMHC
Firewood collection banned from public reserves	Low risk of residents collecting firewood.	Very low	• Protective zoning. • Signage indicating public reserve and firewood collection is illegal	No firewood collection	DA consent Operation	Proponent PMHC

Figure 5: Proposed loss and gain areas



7 EPBC Act 1999

The provisions of the EPBC Act require determination of whether the proposal has, will or is likely to have a significant impact on a "*matter of national environmental significance"*. These matters are listed and addressed as follows:

1. **World Heritage Properties**: The site/study area is not listed as a World Heritage area nor does the proposal affect any such area.

2. **Ramsar Wetlands of International Significance**: No Ramsar wetland occurs on or adjacent to the site, nor does the proposal affect a Ramsar Wetland.

3. **Threatened Species and Communities:** The White-throated Needletail (Vulnerable), Koala (Vulnerable), Grey-Headed Flying Fox (Vulnerable) and the Spotted-tail Quoll (Endangered) considered potential occurrences in the study area. One EEC has been confirmed to occur, and possibly an ecotonal version of another nominated EEC may occur. None are considered at risk of a significant impact.

4. **Migratory Species Protected under International Agreements**: No migratory species is likely to be significantly affected by the proposal.

5. **Nuclear Actions**: The proposal is not a nuclear action.

6. **The Commonwealth Marine Environment (CME)**: Listed as relevant to the site though is not within the CME nor does it affect such.

7. **The Great Barrier Reef Marine Park:** The proposal does not affect the Great Barrier Reef Marine Park.

8. **National Heritage**: The site does not contain an item of National Heritage.

9. **A water resource, in relation to coal seam gas development and large coal mining development:** The proposal is not a mining development.

The proposal thus is not considered to require referral to the Department of Environment and Energy (DotEE) for approval under the EPBC Act.

Yours faithfully,

Jason Berrigan.
Director, JBEnviro
B. Nat. Res. (Hons). Grad. Cert. (Fish.).
MECANSW, MRZSNSW, MABS, MAHS, MAPCN

PROPOSED

OFFSET PLANTING AREA AVAILABLE

VEGETATION AREA LOST DUE TO DEVELOPMENT

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY LAYOUT FOR REVIEW	30.08.19	CM	CM		
B	PRELODGEMENT	18.10.19	CM	CM		
C	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
D	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 25 50 100 150
Full Size 1:2500 ; Half Size 1:5000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
OVERALL VEGETATION LOSS VS OFFSET GAIN PLAN

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0007	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 7:55:13 PM

DAVID PENSINI
Building Certification and
Environmental Services

25th January 2021

Land Dynamics Australia
PO Box 2459
PORT MACQUARIE NSW 2444

Attention: Graham Burns

Dear Sir,

Re: Strategic Bushfire Study – Proposed Rezoning Lot 1 DP 776681, Lots 3 – 48 DP 776681 and Lot 50 DP 776681 Le Clos Sancrox Road, Sancrox

It is proposed to rezone land, which is known as Lot 1 DP 776681, Lots 3 – 48 DP 776681 and Lot 50 DP 776681 Le Clos Sancrox Road, Sancrox so as to provide for the following land use zonings;

- General Residential (R1); and
- Medium Density (R3); and
- Environmental Living (E4); and
- Village Centre (B2); and
- Environmental Conservation (E2); and
- Environmental Management (E3).

A concept plan for the proposed rezoning and its future development is provided as **Appendix 1**.

It is noted that NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 provides that for strategic development proposals in bush fire prone areas a Strategic Bush Fire Study is to be prepared.

The level of information required within such a study is dependent upon the nature of the LEP amendment, scale of the proposal, the bush fire risk and its potential impact upon the wider infrastructure network. The Strategic Bush Fire Study provides the opportunity to assess whether new development is appropriate in the bush fire hazard context. It also provides the ability to assess the strategic implications of future development for bush fire mitigation and management.

In accordance with Table 4.2.1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 the following Strategic Bushfire Study is provided in relation to the proposed rezoning. It is noted that this Study is additional and complementary to the Preliminary Draft Bushfire Hazard Assessment Report prepared by David Pensini – Building Certification and Environmental Services dated October 2019.

1.0 LANDSCAPE ASSESSMENT

In order to determine the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape the following methodology was taken.

1.1 Assessment Methodology

(i) Stage 1 - Desktop Survey

The identification and assessment of existing and historic information pertaining to the subject site in relation to;

- Weather
- Vegetation.
- Topographic features.

(ii) Stage 2 - Field Survey.

Detailed inspections of the subject site were undertaken by David Pensini - Building Certification and Environmental Services in April 2019, 8th October 2019 and the 20th January 2021 in order to identify relevant bushfire hazard factors and characteristics such as;

- Topographic conditions.
- Vegetation characteristics.
- Weather
- Fire Danger

Each of the above factors need to be considered in determining the bushfire hazard for the subject site and proposed rezoning. These factors must be reviewed in determining the bushfire protection measures which are applicable to the subject site and the proposed rezoning of the areas of land which are the subject of this report.

The assessment of slope and vegetation characteristics has been carried out in accordance with Appendix 1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

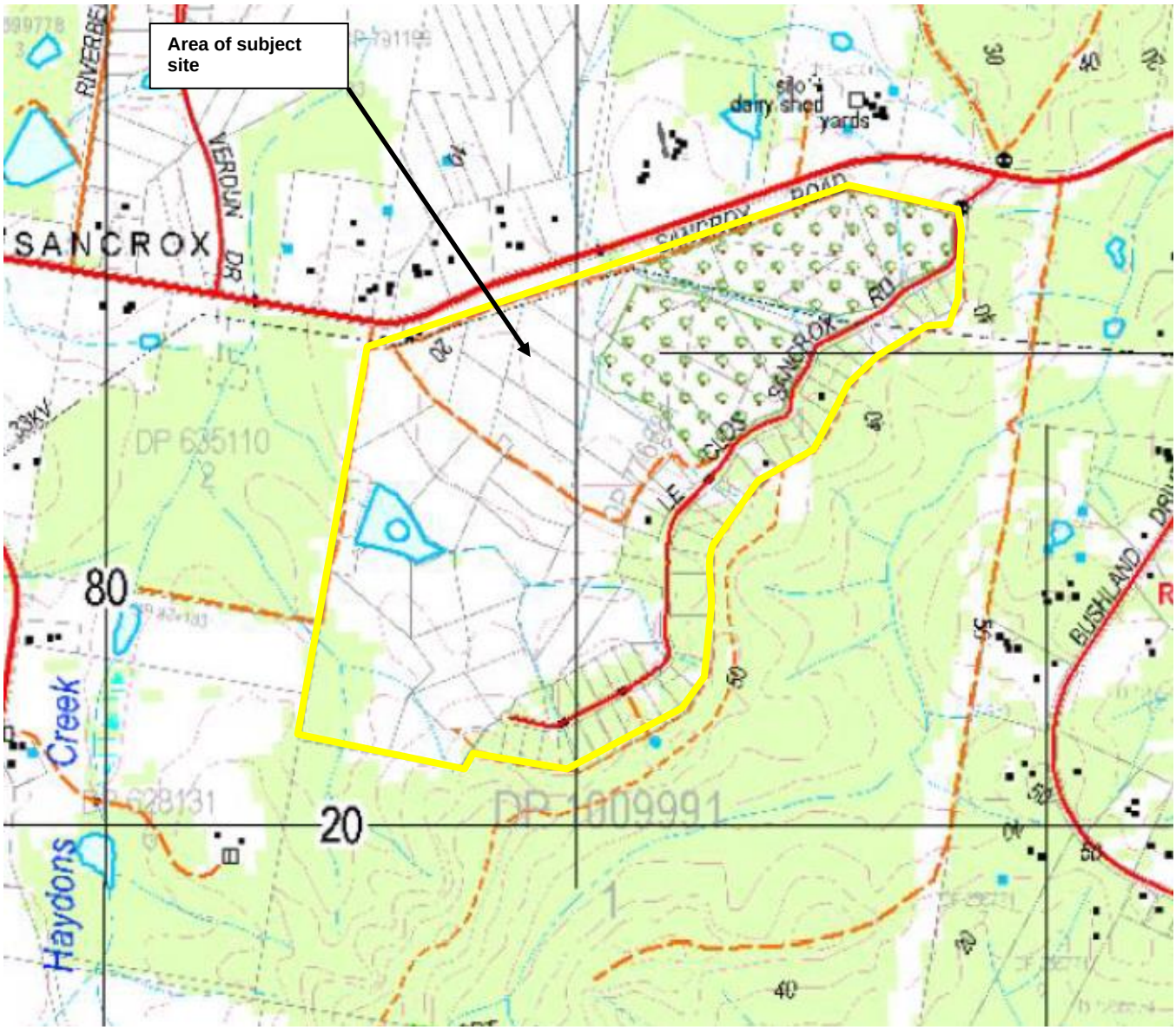
1.2 Topography

Topography is a major factor to consider when assessing the bushfire risk of any development which is subject to compliance with the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019. Therefore, the slope of the subject site and surrounding area, (to a distance of 100m), was measured using a Suunto PM-5/360 PC Clinometer.

The topography of the subject site and the immediate area is influenced by an east to west hill/ridgeline the crest of which is located to the south of the subject site. Consequently, slope conditions are, in the main, gentle to moderate south to north downslopes towards the meander of the Hastings River which is located at distance to the north of the subject site. It is however noted that a number of small south to north flowing intermittently flowing creek/gullies are present on the subject site with these features providing for undulating slope conditions over the subject site albeit that slope conditions remain gentle with slopes becoming steeper with distance towards the south. Slope conditions on adjoining and adjacent land are similar to the subject site although slopes on land to the south become steeper and transition to southerly downslopes.

Slope conditions over the subject site and on adjoining and adjacent land can be seen in **Figure 1** below;

Figure 1 – Topographic Conditions



The following table indicates the slopes measured within the vegetation affecting the site of the proposed rezoning.

Table 1 - Slope Assessment Results

DIRECTION OF HAZARD	SLOPE	UPSLOPE/DOWN SLOPE
Within the subject site	4˚ - 5˚	Down slope
North	2˚ - 3˚	Down slope
South	4˚ - 5˚ (0˚)	Down slope
East	4˚ - 5˚	Down slope
West	4˚ - 5˚	Down slope

Having regards to the above the topography of the subject site and surrounds does not represent any major constraints in terms of bushfire behaviour.

1.3 Vegetation Assessment

The vegetation on and surrounding the area of the subject site which is proposed to be rezoned was assessed over a distance of 140m from the proposed development.

The vegetation formations were classified using the system adopted as per Keith (2004) and in accordance with Appendix 1 of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

The following information is provided in relation to the floristic characteristics of the subject site and adjoining and adjacent land in the area which is the subject of the rezoning proposal as relevant to bushfire hazard assessment.

In adopting a conservative approach to bushfire hazard assessment, worst case vegetation characteristics have been identified.

1.3.1 Vegetation within Development Site

The subject site contains a number of vegetation communities with grasslands with scattered and small clusters of trees predominating over the majority of the subject site.

Areas of Dry Sclerophyll Forest are present in the southern portion of the subject site with a number of narrow bands of remnant highly disturbed of Wet Sclerophyll Forest retained adjacent to the north flowing intermittently flowing creek/gullies which are present on the subject site. A small area of Forested Wetland is located in the far southwestern portion of the subject site in conjunction with areas of Dry Sclerophyll Forest.

A narrow band of remnant highly disturbed area of Dry Sclerophyll Forest has been retained immediately adjacent to the Sancrox Road reserve which adjoins the subject site along its northern boundary. It is also noted that a small area of Forested Wetland vegetation is present adjacent to the northern boundary of the subject site roughly in the area of the mid-point of the boundary.

It is noted that the development concept for the subject site provides for the modification of vegetation so as to provide for managed land within the proposed residential and village centre lots and associated infrastructure such as roads and active use open public spaces. It is however noted that areas of unmanaged hazard vegetation will be retained within the proposed 'green corridors', environmental living lots and the areas of bushland which are proposed to be retained along the southern portion of the subject site and within proposed offset areas. Having regards to the above in adopting a conservative approach to bushfire hazard assessment the following vegetation classifications have been adopted for the purposes of this report;

- 'Green Corridors' within the subject site – Wet Sclerophyll Forest. It is noted that whilst width and riparian context of some of the proposed corridors could support a remnant vegetation classification, (i.e. specification similar to Rainforest), in adopting a conservative approach to hazard assessment a Forest classification has been adopted.

- 'Green Corridor' adjacent to the western portion of northern boundary of the subject site – Specification similar to Rainforest. This classification has been adopted on the basis of the narrow width, (<30m), of this area of vegetation and the fragmentation of continuity of vegetation which will result due to the presence of Sancrox Road and managed vegetation to the north and the predominance of managed vegetation to the south. Additionally, the proposed public road intersections will further fragment this narrow band of vegetation.

- ‘Green Corridor’ adjacent to the eastern portion of northern boundary of the subject site – Dry Sclerophyll Forest.

- Retained Forest vegetation within environmental living lots – Wet Sclerophyll Forest.

- Vegetation within offset public reserve - Wet Sclerophyll Forest.

- Vegetation within unmanaged bushland within residual lot/public reserve – Wet Sclerophyll Forest.

1.3.2 Vegetation on Adjoining and Adjacent Land to Development Site

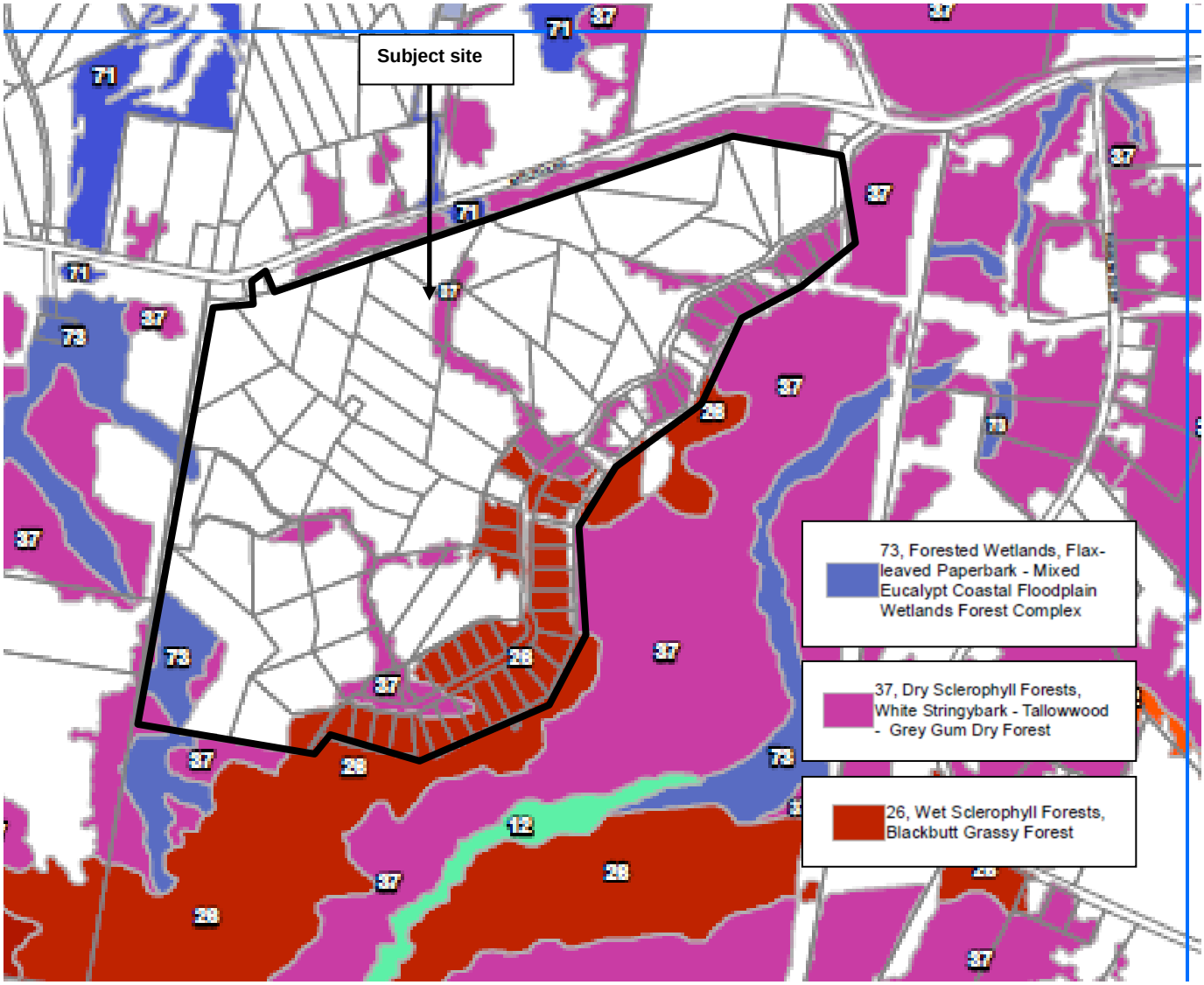
The following vegetation characteristics were identified as being relevant to the proposed rezoning of the subject site having regard to the vegetation characteristics of adjoining and adjacent land.

Vegetation to the north of the subject site is dominated by Grasslands with scattered and clusters of trees although some areas of Wet Sclerophyll Forest are located at distance to the north of the subject site.

A mix of grasslands with scattered and clusters of trees and areas of Dry Sclerophyll Forest and Forested Wetland are present to the west of the subject site. In adopting a conservative approach to hazard management, a Wet Sclerophyll Forest classification was adopted for the land to the west of the subject site.

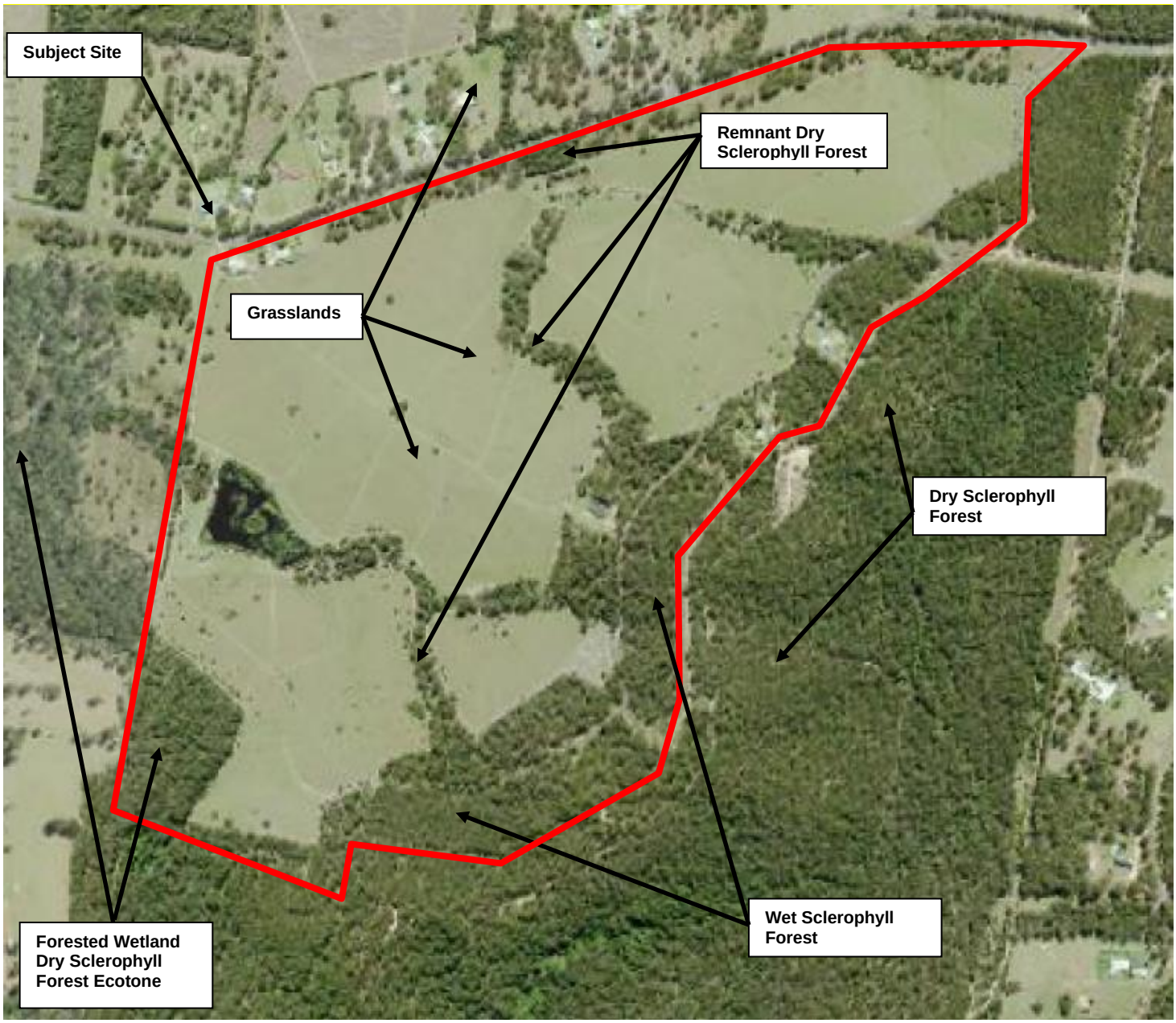
The aforementioned assessment of vegetation is consistent with vegetation mapping of the area conducted by Port Macquarie-Hastings Council in 2013, refer to **Figure 2** below;

Figure 2 - Vegetation Characteristics of Area



An indication of the relationship of the vegetation of bushfire significance to the area of land which are proposed to be rezoned is presented in **Figure 3** below.

Figure 3 - Vegetation Relationships to the Subject Land



The following table summarizes the worst-case vegetation structures which are of bushfire significance to the proposed rezoning and consequential development allotments.

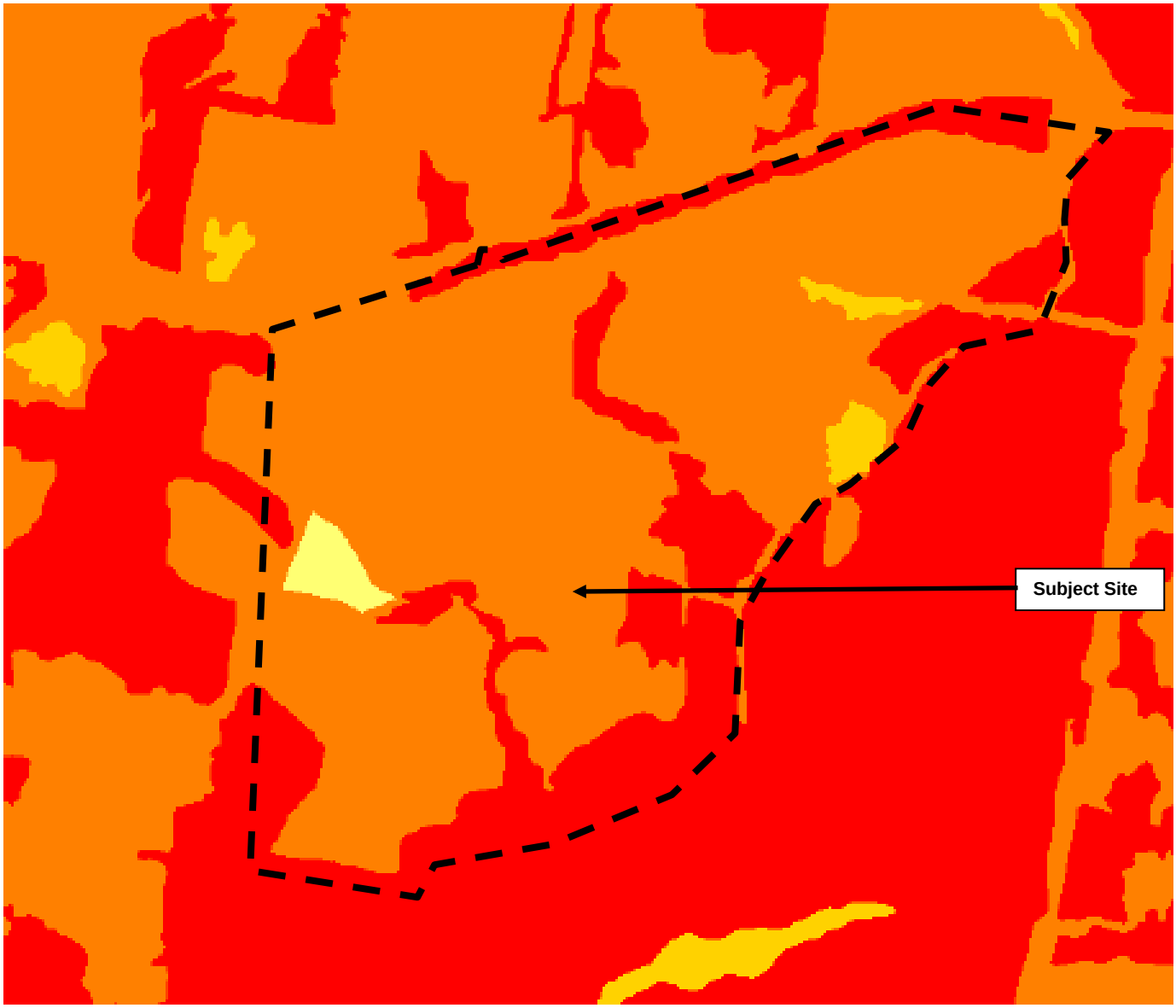
Table 2 – Summary of Vegetation Characteristics

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION – (Keith, 2004)
Within the subject site	Wet and Dry Sclerophyll Forest within the proposed 'Green Corridors', environmental living lots and bushland areas which are not subject to development.	Wet and Dry Sclerophyll Forest

	Specification similar to Rainforest within proposed 'Green Corridor' along the western portion of the northern property boundary of the subject site	Rainforest Specification
	Grasslands within undeveloped stages of the proposed subdivision	Grasslands
North	Grasslands within developed rural/rural residential lots	Grasslands
South	Wet Sclerophyll Forest on adjoining land.	Wet Sclerophyll Forest
East	Dry Sclerophyll Forest on adjoining land.	Dry Sclerophyll Forest
West	Grasslands with scattered trees and areas of Wet Sclerophyll Forest and Forested Wetland on adjoining land.	Wet Sclerophyll Forest

It is noted that the identification of areas of bushfire hazard vegetation is generally consistent with the bushfire risk mapping for the area, refer to **Figure 4**, however the characteristics of the vegetation which is proposed to be retained within the 'green corridors' within the subject site would suggest a Category 2 classification rather than a Category 1 classification as provided for in the following figure.

Figure 4 – Extract from Bushfire Risk Mapping



1.4 Climate/Weather

The typical/average climate of the Port Macquarie area is a humid subtropical climate characterised by warm humid summers and mild winters. The average daily maximum temperature is around 21.5^{0}C, while the average daily minimum temperature is around 10^{0}C - 11^{0}C.

Long-term average annual rainfall is around 1,500mm whilst annual pan evaporation is estimated to be approximately 1,400mm.

Based on long-term, (1910–2011), observations, temperatures have been increasing in the North Coast Region since about 1970, with higher temperatures experienced in recent decades. This warming trend is expected to continue, with anticipated considerable rainfall variability across seasons and from year to year. These projected changes include increasing maximum and minimum temperatures, increasing number of hot days, decreasing number of cold nights together with winter rainfall and increasing autumn and spring rainfall. Average fire weather and severe fire weather days are projected to increase in summer and spring.

The bush fire season for the Port Macquarie area generally runs from July to November, however, can extend into December or January with low rainfalls. Strong northwest to southwest winds often prevail within that time of year. Longer bush fire seasons occur when summer rainfall is lower than normal, with the bush fire season extending through summer to early autumn. Serious fires have occurred late in the season under dry summer conditions.

Prevailing weather conditions associated with the bush fire season are characterised by dry north-westerly winds, usually associated with high pressure systems and the passage of cold fronts. Extended periods of low rainfall, and the resultant fuel moisture deficiencies, combined with summer temperatures and hot dry westerly winds form the circumstances for high intensity fires to develop. Although summer rains generally bring an end to the fire season, short dry spells can create extensive wildfires in the area as late as April. Generally, these fires have proved to be less damaging than those occurring in spring/early summer. The climate projections indicate that there is a likelihood of more frequent and higher intensity bushfires occurring when low seasonal rainfall occurs.

Notwithstanding the above, it is noted bushfires do not always conform to widely accepted characteristics. Other fire weather conditions must also be contemplated such as preceding weather conditions, (such as low rainfall or drought), air temperature and relative humidity. If the area has been subject to drought or low rainfall for a period of time, vegetation health tends to deteriorate with increased leaf drop, curing and drying. This contributes to increased ground fuel loads and general ignition susceptibility. Prolonged dry periods also reduce soil moisture content.

Air temperatures of above 30 degrees Celsius are typically conducive to more severe fire weather, as are extended periods of higher-than-average air temperatures. In conjunction, low relative humidity, (i.e. low air moisture content), is also a contributing factor to increased fire weather.

In concert, all of the above factors can impact on the ability for fire to propagate, and alter behaviour and intensity characteristics and as such, fire weather is a significant component of bushfire hazard. Whilst an assessment of vegetation types, fuel loads, effective slope and other factors can be readily undertaken, fire weather can fluctuate across days, weeks and seasons and can have a significant impact on the potential for bushfire threat as well as influence bushfire behaviour and intensity.

In accordance with NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019, NSW Rural Fire Service, ***NSW Local Government Areas FDI*****,** May 2017 and Table 2.1 of AS 3959 - 2018, the fire weather for the subject site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

Based upon the above it is considered that climatic conditions are at times conducive to supporting bushfire, with the subject site containing and being located adjacent to areas of vegetation which provide for fuel loads sufficient to support and promote bushfires.

2.0 BUSHFIRE RISK ASSESSMENT

2.1 Overview of Bushfire Attack Mechanisms

Bushfires have long remained a fundamental characteristic of the Australian bush landscape, and likewise Australians have long retained a strong affinity with bush environments.

There remain a number of common factors which are associated with bushfire hazard and events and these include the incidence of fire weather, availability of fuel along with its type, structure and continuity or fragmentation, and the context of development at the urban / bushland interface.

Bushfire attack refers to the various methods in which bushfire may impact upon life and property and principally encompass the following modes of attack:

(i) Direct flame contact

Direct flame attack refers to flame contact from the main fire front, where the flame which engulfs burning vegetation is one and the same as that which assumes contact with the building. It is estimated that only 10 to 20 per cent of buildings lost to bushfire occur as a direct result of flame attack.

(ii) Ember and firebrand attack

The convective forces of bushfire raise burning embers into the atmosphere on prevailing winds and deposit them to the ground ahead of the fire front.

Typically, ember attack occurs approximately 30 minutes prior to the arrival of the fire front and continues during the impact of the fire front and for several hours afterwards, thus it is the longest lasting impact of bushfire attack. Firebrands occur in a very similar manner but relate to larger items of debris that may still be carried by the wind when alight, such as candle and ribbon barks. In essence, building loss via ember attack relates largely to the vulnerabilities and peculiarities of each building, its distance from hazardous vegetation and whether an occupant (or the like) is present to actively defend it. It is estimated by the CSIRO that approximately 80 to 90 per cent of buildings lost by bushfire are lost as a result of ember attack either in isolation or in combination with radiant heat impact.

(iii) Radiant heat flux

Exposure to radiant heat remains one of the leading causes of fatalities associated with bushfire events. Measured in kilowatts per m2, radiant heat is the heat energy released from the fire front which radiates to the surrounding environment, deteriorating rapidly over distance. In terms of impact on buildings, radiant heat can pre-heat materials making them more susceptible to ignition or can cause non-piloted ignition of certain materials if the energy transmitted reaches a threshold level. Radiant heat can also damage building materials such as window glazing, allowing openings into a building through which embers may enter. Radiant heat impact is an especially important factor in building-to-building ignition.

In terms of radiant heat exposure for humans, it can cause pain to unprotected skin in milder situations or life threatening and fatal injury in higher exposure thresholds.

(iv) Fire-driven wind

The convective forces of bushfire typically result in strong to gale force fire-driven winds which in itself, can lead to building damage. The typical effects of fire driven wind include the conveyance of embers, damage from branches and debris hitting the building, as well as direct damage to vulnerable building components such as lifting roofs or roof materials and the damage / breakage of windows.

(v) Smoke

Smoke emission remains a secondary effect of bushfire and is one which is typically not addressed by bushfire assessments. Irrespective, it is important to note the potentially severe impact of smoke emission on the human respiratory system. It can lead to difficulties in breathing, severe coughing, blurred or otherwise compromised vision, and can prove fatal. It is also important to note that toxic

smoke can occur during bushfire, particularly where buildings or materials are ignited. With regard to evacuation, it can reduce visibility and create difficulties for particularly vulnerable persons.

In the progression of a bushfire event, the above five methods interact either exclusively or in concert. It is estimated that approximately 80 to 90 per cent of buildings lost to bushfire are located within 100m of the bushland interface, hence the relevance of statutory provisions and recommendations implemented across Australia which respond to various types of buildings within 100m of adjacent classifiable vegetation.

2.2 Bushfire Activity History

The Mid Coast Bush Fire Risk Management Plan, (BFMP 2019), identifies that the main sources of ignition in mid coast area, (includes the subject site), are:

- Escapes from Legal Burning off
- Incendiarism/arson
- Re ignition of previous wildfire or hazard reduction
- Illegal burning off
- Lightning

Many of the abovementioned fires occur as a result of private 'Hazard Reduction' burns by private landowners, which by act or omission have escaped into forested areas requiring major suppression efforts.

Incendiarism/arson commonly occurs in both grassland and forested areas across the Midcoast area. Increased visitation is thought to be a contributing factor to increased incidence of incendiarism.

Lightning activity in the area is mainly associated with late spring and summer thunderstorm activity, which is normally, (but not always), accompanied by rainfall.

The subject site and surrounds are not known to have an extensive history of bushfire.

Recent bushfire activity was not detected on or immediately adjacent to the subject site despite bushfires to the northwest, south and west of Port Macquarie during November and December 2019 and January 2020.

It is noted that the bushfire activity around Port Macquarie in November/December 2019 and January 2020 was predominately to the east of the Pacific Highway with the closest area of bushfire activity to the subject site being approximately 1.5km to the east of the subject site.

The Mid Coast BFMC Bush Fire Risk Management Plan 2019 does not identify any particular 'at risk' assets on or adjacent to the subject site nor does it identify any specific bushfire threat management actions for the locality.

2.3 Potential Bush Fire Behaviour

Whilst each bushfire event is different, fire spreads by responding to changes in fuel, terrain, and weather conditions. Therefore, based on landscape conditions and fire history, potential fire behaviour can be determined.

It is generally anticipated that a potential fire within the locality and surrounds, would spread more quickly and have the potential for higher intensities when burning under the influence of southerly winds, particularly during warmer summer months.

In this regard the most likely bushfire risk scenario would be a fire moving from the south towards the north within the Forest vegetation contained within the undeveloped areas of land in the southern, eastern and western aspects of the subject site. This risk is however tempered by the generally upslope topography within the hazard vegetation to the south of the subject site and the reduced and fragmented fuel loads which are present on adjoining land to the west of the subject site. The south to north fire spread scenario was demonstrated in the November/December 2019 bushfires to the south and west of Port Macquarie.

Additionally, it is possible that bushfires may also move from adjoining and adjacent land to the north towards the south under the influence of northerly wind conditions. This risk is however tempered by the reduced fuel loads associated with the residentially occupied areas of land which extend to the north of Sancrox Road.

The proposed presence of vegetated 'green corridors' and remnant areas of vegetation within the development site do present as a bushfire risk to the future development of the subject site however the generally narrow width of the corridors and the fragmentation of connectivity of vegetation does significantly reduce the risk of bushfire risk and impact associated with fire within these areas. It is noted that the bushfire risk posed by the vegetation which is to be retained onsite could be reduced via its removal/modification however this needs to be balanced against the environmental and aesthetic values of the vegetation, the risk posed to assets and life safety of a bushfire within the 'green corridors' and remnant areas of bushland together with opportunities to reduce risk via the implementation of bushfire threat management measures.

Not withstanding the above the subject site does have the potential to be exposed to landscape scale bushfires due to the extent of bushland which extends to the south and east of the subject site.

The bushfire risk which is relevant to the subject site and proposed rezoning is summarized as follows;

Table 3 – Summary of Bushfire Behaviour Risk Summary

ASPECT	VEGETATION DESCRIPTION	SLOPE CONDITION	WORST CASE WIND INFLUENCE
Within the subject site	Wet and Dry Sclerophyll Forest within the proposed 'Green Corridors', environmental living lots and bushland areas which are not subject to development.	4˚ - 5˚ Downslope	Northerly
	Wet and Dry Sclerophyll Forest within the proposed 'Green Corridors' along the western portion of the northern property boundary of the subject site		Northerly
	Grasslands within undeveloped stages of the proposed subdivision		Variable – depending on staging
North	Grasslands within developed rural/rural residential lots	2˚ - 3˚ Downslope	Northerly

South	Wet Sclerophyll Forest on adjoining land.	4˚ - 5˚ (0˚) Upslope	Southerly and northerly
East	Dry Sclerophyll Forest on adjoining land.	4˚ - 5˚ Downslope	Southerly and northerly
West	Grasslands with scattered trees and areas of Wet Sclerophyll Forest and Forested Wetland on adjoining land.	4˚ - 5˚ Downslope	Southerly and northerly

2.4 Impacts of Climate Change

Climate change influences bushfires in the following four ways:

- **A longer fire season.** Hotter conditions mean a longer fire season, leading to more dangerous bushfires and leaving less time for hazard reduction.
- **Hotter temperatures.** Australia is getting hotter, with more extreme hot days and longer, hotter heatwaves. These conditions are increasing the risk of bushfires in many areas.
- **Drier vegetation & 'fuel'.** Hotter conditions and periods of low rainfall dry out soil and vegetation, increasing fire risk.
- **More lightning.** A warmer climate increases the chance of lightning, which is a key factor in starting fires.

The climate projections indicate that there is a likelihood of more frequent and higher intensity bushfires occurring when low seasonal rainfall occurs.

2.5 Summary of Landscape Bushfire Risk Assessment

The landscape assessment indicates the potential for bushfire attack of the subject site given the presence of bushfire hazard vegetation within the subject site and on adjoining and adjacent lands.

Available information indicates a limited fire history for the subject site and within the immediately surrounding area.

The risk of bushfire impact can however be reduced in terms of the future development of the subject site through the integration of appropriate fire mitigation via the provision of appropriate bushfire protection measures within the subject site as part of its future development. In particular, the subject site can facilitate APZ's without extensive vegetation clearing whilst other design mechanisms including perimeter roads and a connected public road network can be integrated into the future development of the subject site.

The landscape assessment indicates that it is feasible to design and build resilience into the planned community that matches or exceeds the bushfire protection requirements provided for by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

3.0 LAND USE ASSESSMENT

3.1 Existing Land Use Context

Being located at distance to the northwest of the developed areas of Port Macquarie land uses within the locality, including the subject site, have until recently been dominated by rural and bushland activities.

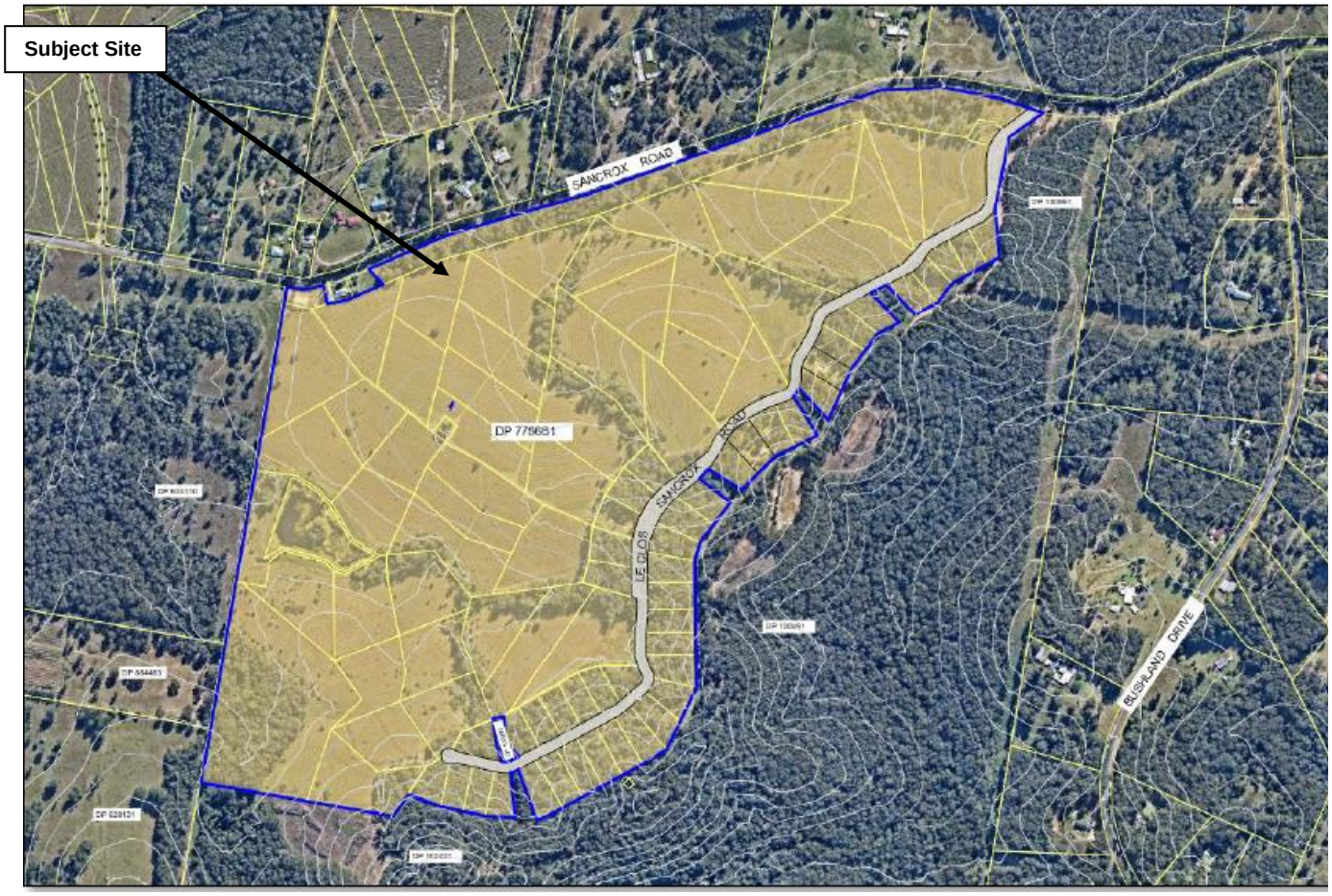
In this regard, the area of the subject site which is proposed to be developed has a history of use for viticulture associated with the operation of Cassegrain Wines. However, in more recent times the land has been used for cattle grazing purposes following the decommissioning of grape growing activities on the subject site.

The character of the area is predominately rural although the construction of a number of separate residential dwellings on land within the subject site provides for a rural residential feel within the subject site.

Large rural sized allotments adjoin the subject site to the south, east and west whilst a number of smaller rural sized lots of land are present to the north. Rural residential lots are present at distance to the northwest and southeast of the subject site whilst the Pacific Highway is located approximately 1.4km to the east of the subject site with industrial land use present adjacent to the highway.

It is noted that the subject site currently comprises forty-eight (48) separate allotments of land which reflects the co-operative viticulture venture which was intended for the land within the subject site. This approach provided for Torrens title house lots and an attached land lot which was to be used as part of the viticulture activities on the subject site. The current lot configuration reflects the original co-operative approach to the productive utilization of the land, refer to **Figure 5**.

Figure 5 – Subject Site

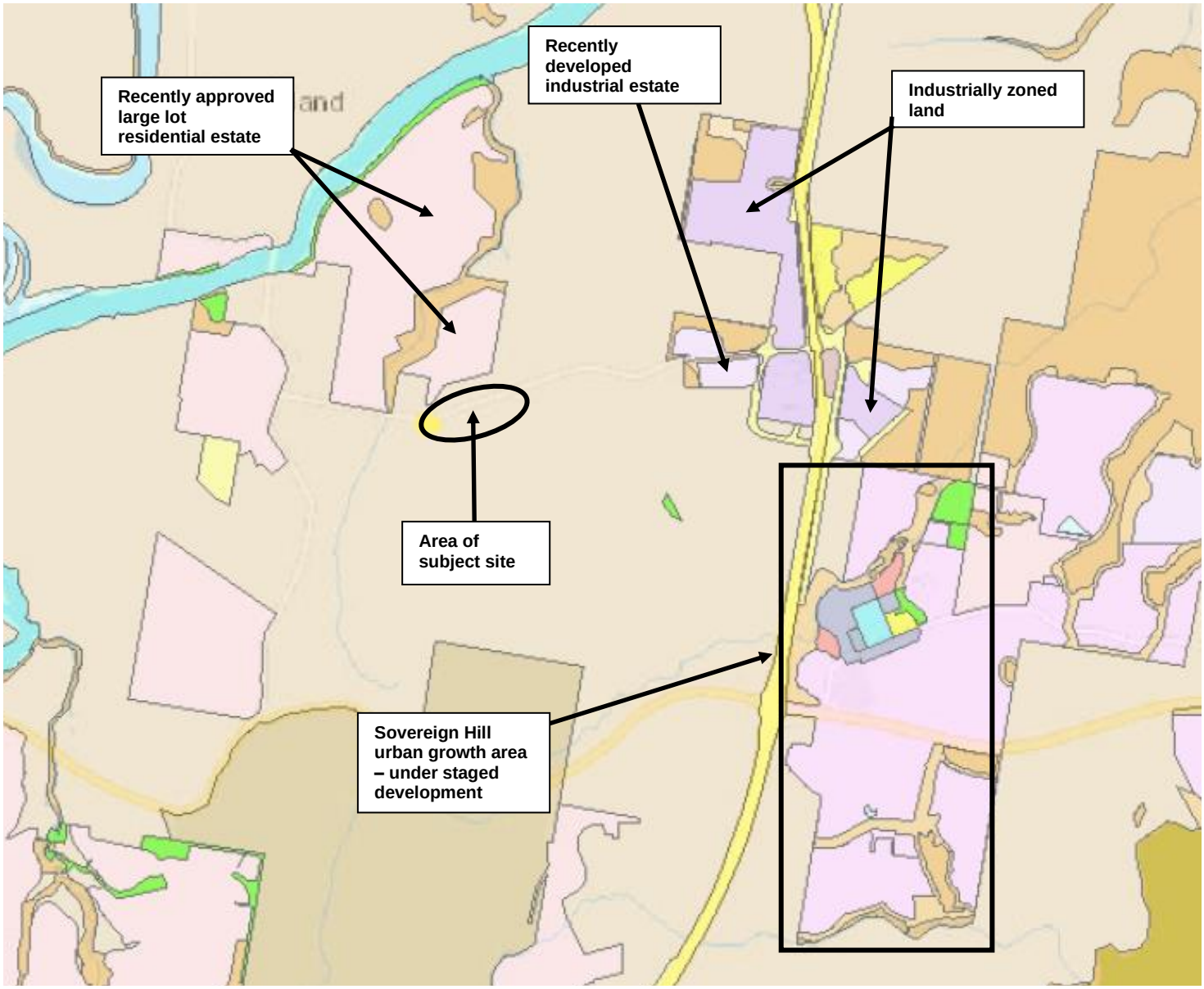


The original development concept for the subject site envisaged a higher level of residential occupancy than that which currently exists. At present there are three (3) separate residential dwellings within the subject site however the original development concept for the site provided for a significantly greater number of dwellings each of which was to be linked to a designated grape growing area within Le Clos Estate. The original development concept did not however proceed beyond the building infrastructure which is currently present in the southern portion of the subject site.

Being located approximately 2.5km to the northwest of the Sovereign Hills urban growth area, (which is located to the west of the urbanized area of Port Macquarie and known as Area 13), the land within the area has recently and will continue to experience significant land use change with residential and industrial development expanding into undeveloped land with a rural/rural residential land use history.

The area of land which is proposed to be rezoned does not currently have a direct context and relationship with existing or approved residential areas however the subject site is within an area which is identified as being potentially suitable to accommodate the westerly expansion of Port Macquarie. In this regard a recently approved industrial subdivision is located approximately 700m to the east of the subject site. Additionally, a large lot residential subdivision has been constructed on land approximately 450m to the west of the subject site. These two recent developments highlight the changing nature of land use within the locality, refer to **Figure 6** below.

Figure 6 – Existing Land Use Context



3.2 Future land use context

Whilst the subject site does not form part of an existing urban growth area, the Hastings Urban Growth Strategy, (HUGS), 2017 identifies the subject site as forming part of an area of land which maybe suitable as a potential long term growth area as modelled in hypothetical future growth scenarios.

Figure 7 – Urban Growth Investigation Opportunities

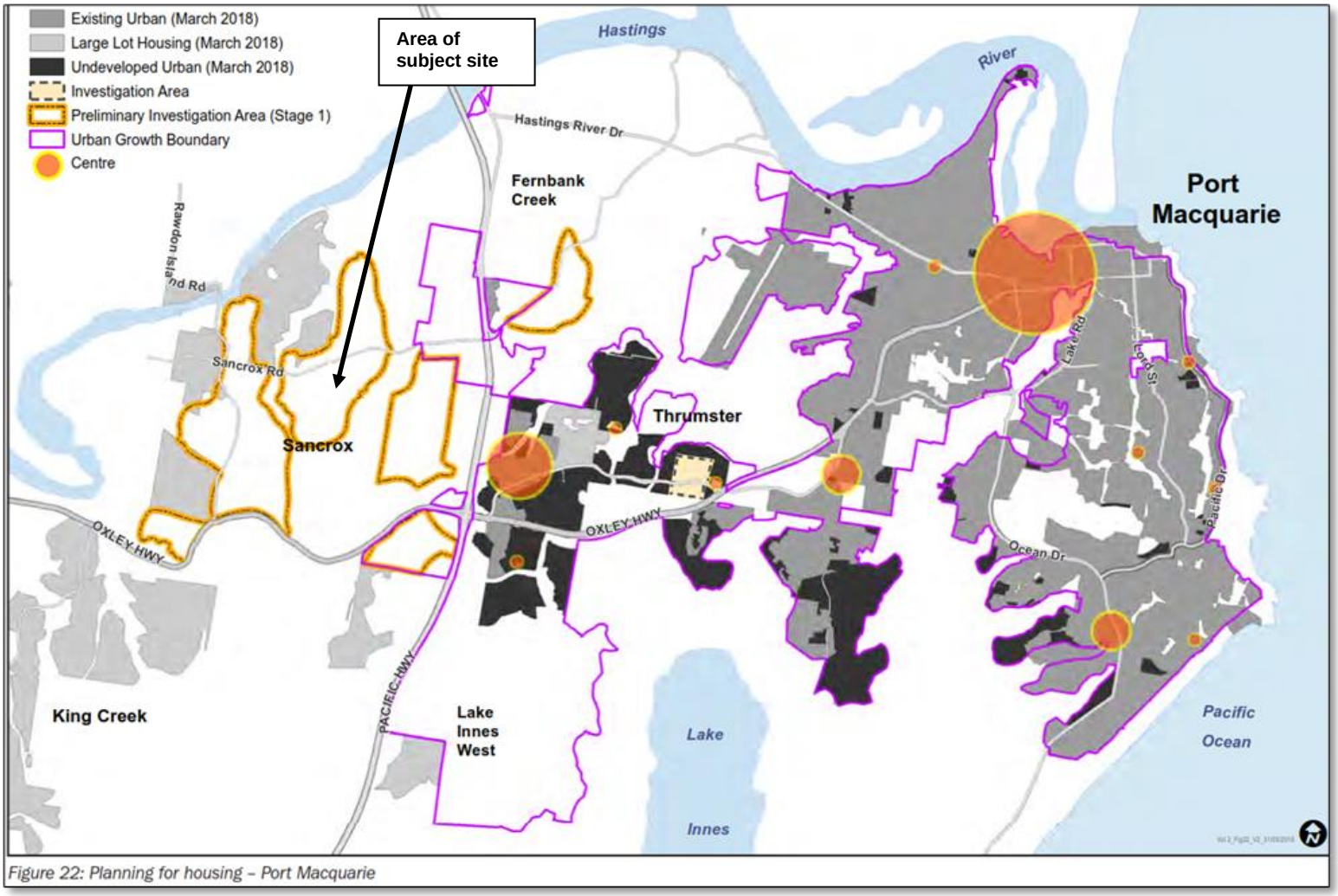


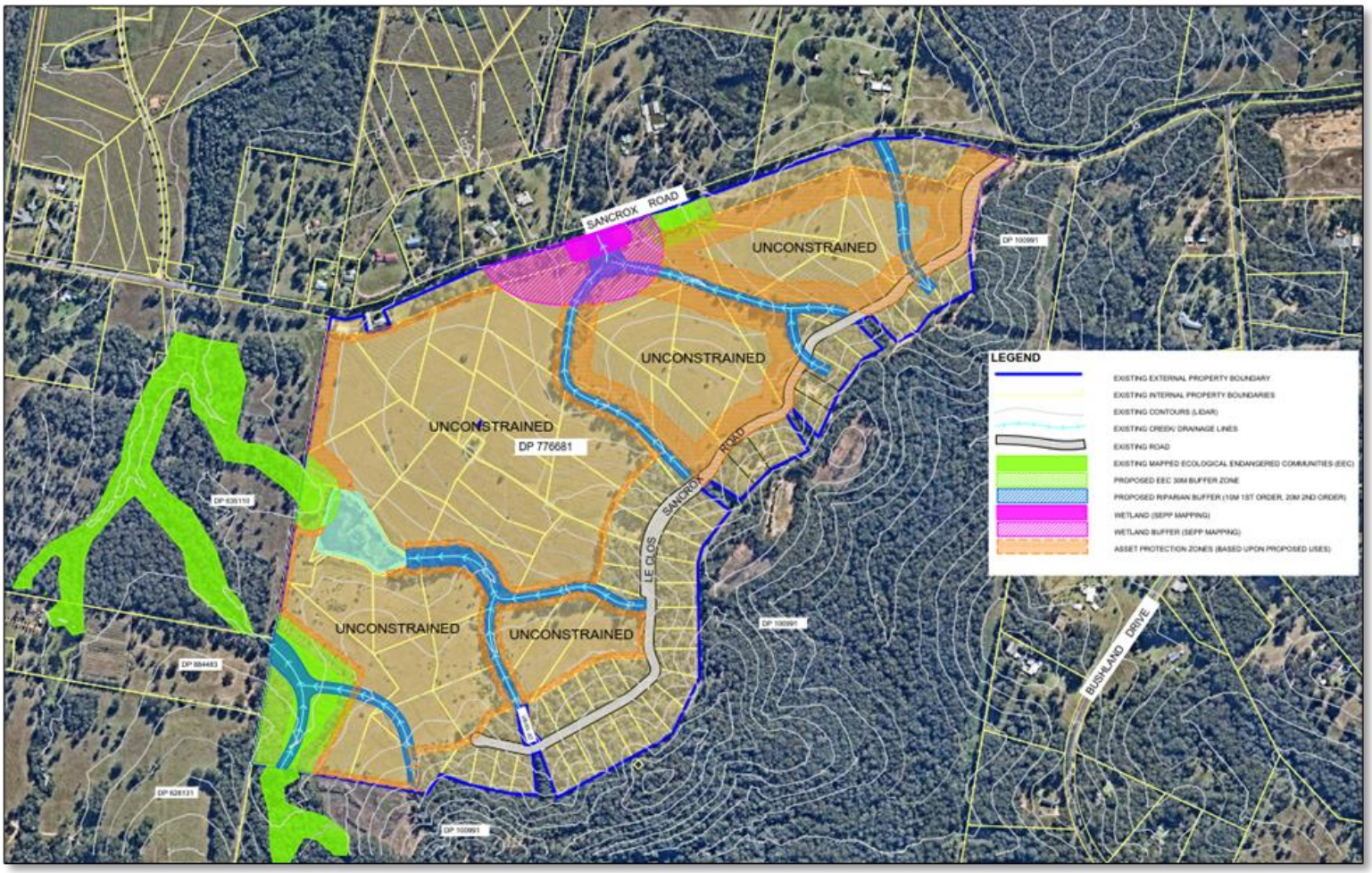
Figure 22: Planning for housing – Port Macquarie

Additionally, North Coast Regional Plan 2036 has been prepared to guide land use planning priorities and decisions to 2036 and has identified "*The regional cities of Tweed Heads, Lismore, Coffs Harbour and Port Macquarie are the primary growth anchors, delivering new jobs, and more diverse housing as well as high quality essential services*".

Whilst the subject site is located outside of the urban investigation area boundaries identified in the plan, in response to the need for additional housing stock identified in the Regional Strategy, the subject site provides a prime opportunity to accommodate additional housing without adverse environmental impacts or loss of agricultural land given that the site has not been utilized as a vineyard for approximately 30 years.

The use of cleared land, as is the case with the subject site, adopts the sustainable land use principles, rather than utilizing land which is currently used for agricultural purposes or contains ecological features. This is supported via the following constraints mapping for the subject site. It is noted that the following mapping includes the provision of the minimum required APZ's (as per NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019), in order to reflect the constraints to development posed by the areas of bushfire prone vegetation on and adjacent to the subject site;

Figure 8 – Land Use Constraints Mapping



Notwithstanding the proposed rezoning, areas of bushland will continue to adjoin the subject site to the south, east and west whilst residentially occupied rural residential lots will continue to be present to the north of the subject site. Accordingly, the subject area of land does and will continue to have an interface with areas of land containing bushfire hazard vegetation. In this regard the ongoing presence of the bushfire hazard vegetation on adjoining and adjacent land needs to be taken into consideration in the identification of bushfire threat mitigation and management responses which are relevant to the future residential and commercial development of the area of land which is the subject of this report.

However, the generally cleared nature of the land which is the subject of this report and the absence of major constraints in terms of landform and topography to the future development of the subject land suggests that the proposed rezoning of the land is consistent with sound town planning outcomes.

3.3 Proposed Land Uses and Occupant Characteristics.

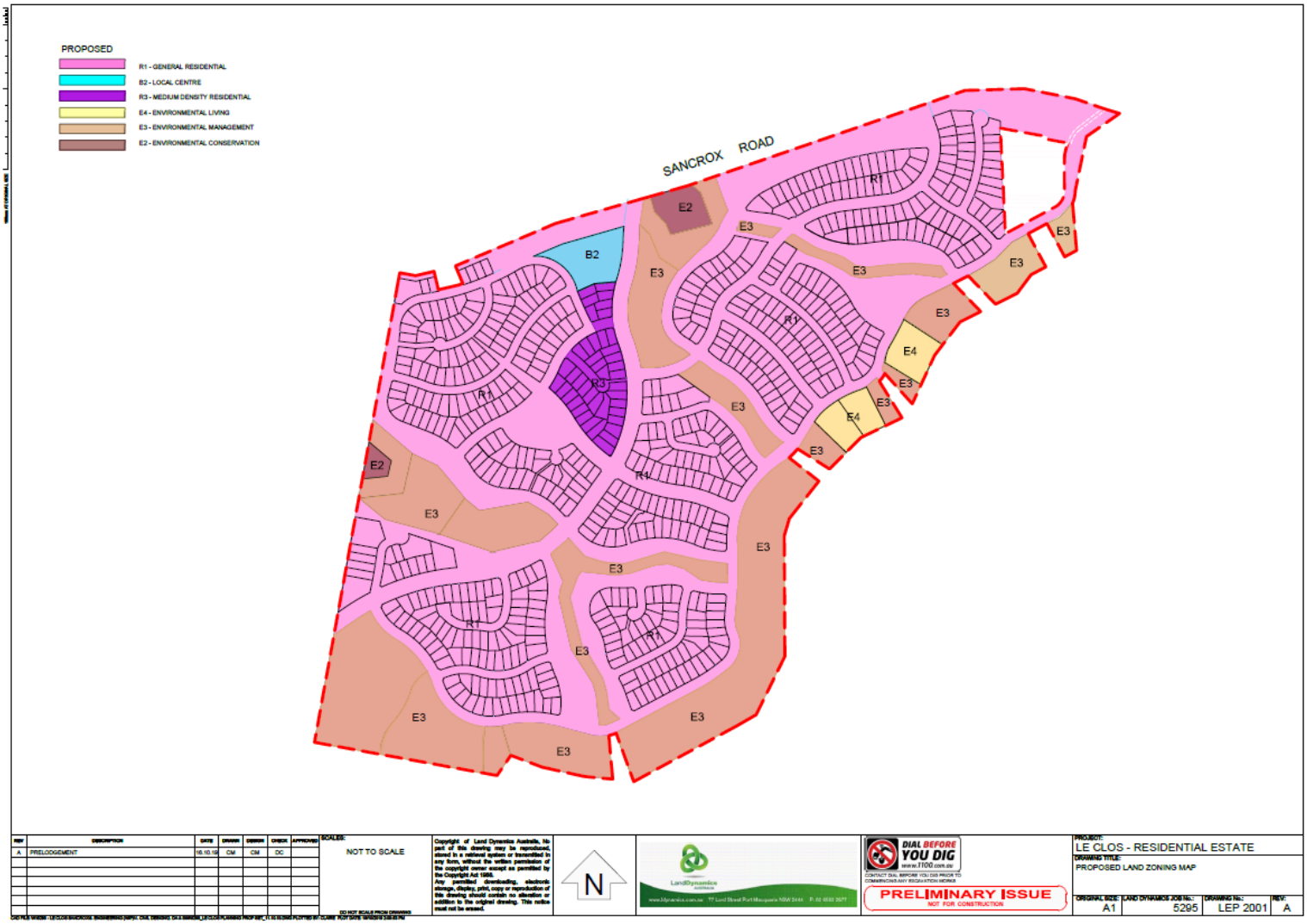
The proposed rezoning proposes the following land use zones;

- General Residential (R1); and
- Medium Density (R3); and
- Environmental Living (E4); and
- Village Centre (B2); and

- Environmental Conservation (E2); and
- Environmental Management (E3).

The proposed zones are shown in **Figure 9** below;

Figure 9 – Proposed Land Use Zones



It is noted that the rezoning is proposed to facilitate the development of the subject area of land for residential dwelling and commercial (Business) development via separate Torrens Title lots. It would therefore be expected that the density of future development and the characteristics of occupants would be entirely consistent with that expected within urban residential and associated business areas.

The typical permitted land uses associated with the proposed rezoning are summarized as follows;

Table 4 – Permitted Uses

	Residential (R1) Zone	Medium Density Residential (R3) Zone	Business - Local Centre (B2) Zone	Environmental Living (E4) Zone
Objectives of Zone	• *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.*	• *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 provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.* • *To encourage employment opportunities in accessible locations.* • *To maximise public transport patronage and encourage walking and cycling.* • *To ensure that new developments make a positive contribution to the streetscape and contribute to a safe public environment.*	• *To provide for low impact residential development in areas with special ecological, scientific or aesthetic values.* • *To ensure that residential development does not have an adverse effect on those values.*
Permitted without consent	*Home-based child care; Home occupations*	*Home occupations*	*Home occupations*	*Home occupations*
Permitted with consent	*Attached dwellings; Boarding houses; Business identification signs; Child care centres; Community facilities; Dwelling houses; Group homes; Home industries; Hostels; Multi dwelling housing; Neighbourhood shops; Places of public worship; Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4.*	*Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Group homes; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Respite day care centres; Roads; Seniors housing; Tank-based aquaculture; Any other development not specified in item 2 or 4*	*Boarding houses; Centre-based child care facilities; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hostels; Information and education facilities; Medical centres; Oyster aquaculture; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads; Service stations; Shop top housing; Tank-based aquaculture; Tourist*	*Backpackers' accommodation; Bed and breakfast accommodation; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works;*

			and visitor accommodation; Any other development not specified in item 2 or 4.	*Home-based child care; Home businesses; Horticulture; Information and education facilities; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Research stations; Respite day care centres; Roads; Tank-based aquaculture; Water recreation structures*
Prohibited	*Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Backpackers' accommodation; Boat building and repair facilities; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Electricity generating works; Entertainment facilities; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut*	*Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Car parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Depots; Dual occupancies; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Function centres; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training*	*Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Pond-based aquaculture Research stations; Residential accommodation; Rural*	*Industries; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3*

	mining; Passenger transport facilities; Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Water storage facilities; Water treatment facilities; Wharf or boating facilities; Wholesale supplies	*facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Passenger transport facilities; Pond-based aquaculture Port facilities; Public administration buildings; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Restricted premises; Rural industries; Rural workers' dwellings; Semi-detached dwellings; Service stations; Sewerage systems; Sex services premises; Signage; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Warehouse or distribution centres; Waste or resource management facilities; Wharf or boating facilities; Wholesale supplies*	*industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste or resource management facilities; Wharf or boating facilities; Wholesale supplies*	

In addition to the proposed residential dwelling and commercial (Business) land use zonings, the 'green corridors' and remnant bushland areas which are proposed to be retained on the subject site will be protected from development via Environmental Conservation (E2) and Environmental Management (E3) land use zonings.

The development concept for the subject site provides, in the main, for typically sized residential lots which would support a density of occupation which would be expected for an urban residential area. Accordingly, the future population demographics for the area would not present as being particularly 'vulnerable' in the context of socio-economic, mobility or emergency response factors.

Other future land use factors which are considered to be relevant to the proposed development are;

- The bushfire risk associated with the proposed commercial (Business) B2 land use zoning is reduced in the context of life safety due to the non-residential activities associated with this use. This is acknowledged in the nature and extent of bushfire threat management measures which are required by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 for commercial developments. Additionally, the location of the proposed business zone on the subject site and its spatial relationships to and the characteristics of the areas of the hazard vegetation provide for a reduced risk of bushfire threat to this proposed land use area.

- The development concept for the subject site does provide for a higher density of development via the Medium Density Residential (R3) zoning however apart for the potential increase in occupant numbers the future population demographics for this zone would not present as being particularly 'vulnerable' in the context of socio-economic, mobility or emergency response factors.

  As with the Business land use zoning the location of the proposed Medium Density Residential zone on the subject site and its spatial relationships to and the characteristics of the areas of hazard vegetation provide for a reduced risk of bushfire threat to this land use area.

- It is noted that the proposed Environmental Living (E4) zoning is centred upon the existing developed and residentially occupied lots within the subject site. In this regard the proposed zoning reflects the environmental values and lifestyle expectations which are provided for by existing residential development.

  Accordingly, the level of risk associated with the proposed E4 land use zone for residential occupancy is unchanged from that which currently exists. In this regard the proposed rezoning of the subject site would potentially provide for improved bushfire threat management outcomes for the occupants of assets within this land use area via the improvements to access and egress, services, emergency response and evacuation which would accompany the development of the subject site as proposed via the rezoning.

- It is acknowledged that the permitted land uses as provided for by the proposed zonings could support higher densities of occupation and involve occupants with characteristics which increase their level of vulnerability to emergency events such as bushfire and may reduce their abilities to respond in an emergency. In the context of bushfire risk these vulnerabilities are reflected in the Special Fire Protection Purpose development types, (NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019).

  It is however noted that the form of development contemplated by the concept plan for the subject site would not be expected to support these forms of development. Notwithstanding this, future development proposals which contemplate Special Fire Protection Purpose developments would need to be assessed on their own merits in terms of responding to bushfire threat and management.

3.4 Defining 'Acceptable' Land Use Planning Risk

With respect to land use planning for natural hazards, defining exactly what represents 'acceptable' risk can be a difficult task. Understanding community expectation of what represents acceptable risk versus unacceptable risk is the basis of much research both in Australia and internationally.

It is noted that in NSW, NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 has been adopted as the appropriate risk management standard in relation to land use planning and development

control in relation to property and life safety albeit that there remains an understanding that despite this combination of planning, building and other bushfire protection measures provided for in NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019, asset loss may still occur in more extreme events.

Having regard to the above, the bushfire risk to assets can be minimized through compliance with the relevant threat management measures contained within NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 as this represents the appropriate land use planning and development control standards albeit that a level of property loss is 'accepted' to a degree by existing land use planning and building construction frameworks.

Property and infrastructure may be lost in a catastrophic event, but the key determinate of 'acceptable' risk is life safety risk, and whether the proposed land use rationale, density and settlement pattern supports and enables life safety, including safe evacuation.

In analysing the question of life safety, the following key points are considered to be relevant as to the suitability of the subject site for rezoning:

- the nature of urban growth is such that in regional coastal locations the rezoning of land will inevitably provide for a bushland interface. On a local level this is evident in existing urban growth Areas 13 (west of Port Macquarie), 14 (Lake Cathie/Bonny Hills) and 15 (West Haven), whereby new major population centres have an interface with areas of bushfire hazard vegetation. Accordingly, the issue for consideration is whether the bushfire risk posed to new development is consistent with community expectation and reflects the relevant bushfire threat management requirements which are provided for by current development standards.

  As provided for in the landscape assessment there are no major constraints to the proposed residential occupation of the subject site as proposed via the rezoning as it is feasible to design and build resilience into the planned community that matches or exceeds the bushfire protection requirements provided for by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019.

  The landscape characteristics of the subject site and surrounding land are entirely consistent with that contemplated by NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019 for new development.

- the current and future population demographics for the area does not present as particularly 'vulnerable';

- the limited fire history within the subject site and surrounding areas;

- the generally cleared nature of the land which is the subject of this report and the absence of major constraints in terms of landform and topography to the development of the subject site;

- the risk benefit in relation to existing development in the area. The majority of historical residential development on the subject site has occurred without the benefit of more recent land use planning consideration from a bushfire perspective. In this regard the rezoning of the subject site and its future residential subdivision development provides an opportunity to provide for improved bushfire threat management outcomes for historical residential development on the subject site, in particular access and egress, the provision of services and emergency response and evacuation;

- the proposed evacuation options provide for high levels of movement to and from the subject site with alternative means of access to and egress from the subject site available via existing and proposed public road infrastructure. This issue is further discussed in **Section 3.0** of this report;

  It is also noted that given the size of the subject site opportunities will exist for future occupants to remain onsite and be protected from the impacts of bushfire;

- the opportunities to reduce life safety risk through the application of accepted and tested bushfire threat management measures which respond to the level of bushfire threat; and

- the close proximity of existing emergency services. This issue is further discussed in **Section 4.0** of this report;

Having regards to the above it is considered that the level of asset and life safety risk associated with the proposed rezoning of the subject site is consistent with the relevant community expectations and the relevant land use planning and development control standards.

Based upon the above information there would appear to be no major land use planning constraints to the proposed rezoning of the land and its future development as residential and business lots.

3.0 ACCESS AND EGRESS

The development concept for the subject site provides that access to future development would be via a new public road system which will connect with Sancrox Road which adjoins the subject site along the northern property boundary of the subject site.

The road hierarchy which has been adopted for the future development of the subject site provides for an efficient and effective movement of vehicles with a variety of access and egress opportunities available through the interconnection of the proposed public road network. This is important from an evacuation perspective whereby the proposed road system will provide for capacity of use, alternatives for travel and the minimization of conflict between residents and emergency services.

In this regard the design concept for the future subdivision of the subject site provides for at least two (2) separate intersections with Sancrox Road, one in the western portion of the northern property boundary whilst the other will be located in the eastern portion of the northern property boundary. The new public road system has been designed so as to form a series of connecting perimeter roads which will separate the developed areas of the subject site from those areas which are proposed to contain areas of bushfire hazard vegetation. This network of perimeter roads will separate the development areas from unmanaged bushfire prone vegetation. This approach is entirely consistent with best practice bushfire threat management with the perimeter roads providing for safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.

Additionally, the perimeter road approach which has been taken to the design of the public road infrastructure provides for high levels of access to the areas of hazard vegetation which are to be retained within the subject site and on adjoining land to the south, east and west. This is important not only from the perspective of providing suitable asset protection zones for future assets but also for the purposes of mounting bushfire control/suppression activities. As can be seen in the development

concept for the subject site, the creation of lots with a direct interface with bushfire prone vegetation has been minimized with the use of perimeter roads maximized.

Access to future lots would also be via the network of new public roads which will provide, in conjunction with the main connecting perimeter public roads, direct public road frontage to each of the proposed lots. It is also noted that the design of the proposed subdivision provides for the integration of some of the proposed public roads with future public roads which will service future development to the southwest of the subject development site.

The access and egress design for the proposed future development of the subject site provides that the number of 'no through' roads have been minimized with the length of any 'no through' roads being generally less than 200m.

The design of the public road system not only provides for alternatives for travel to and from the subject site but also within the subject site with at least two alternatives for travel available from the majority of the proposed lots. This is particularly relevant to the vegetated 'green corridor' areas which are proposed to be retained within the subject site. In this regard the concept design provides for at least two routes across these unmanaged areas which not only provides for alternatives in access and egress but also provides for fire spread containment opportunities as well as fire suppression activities.

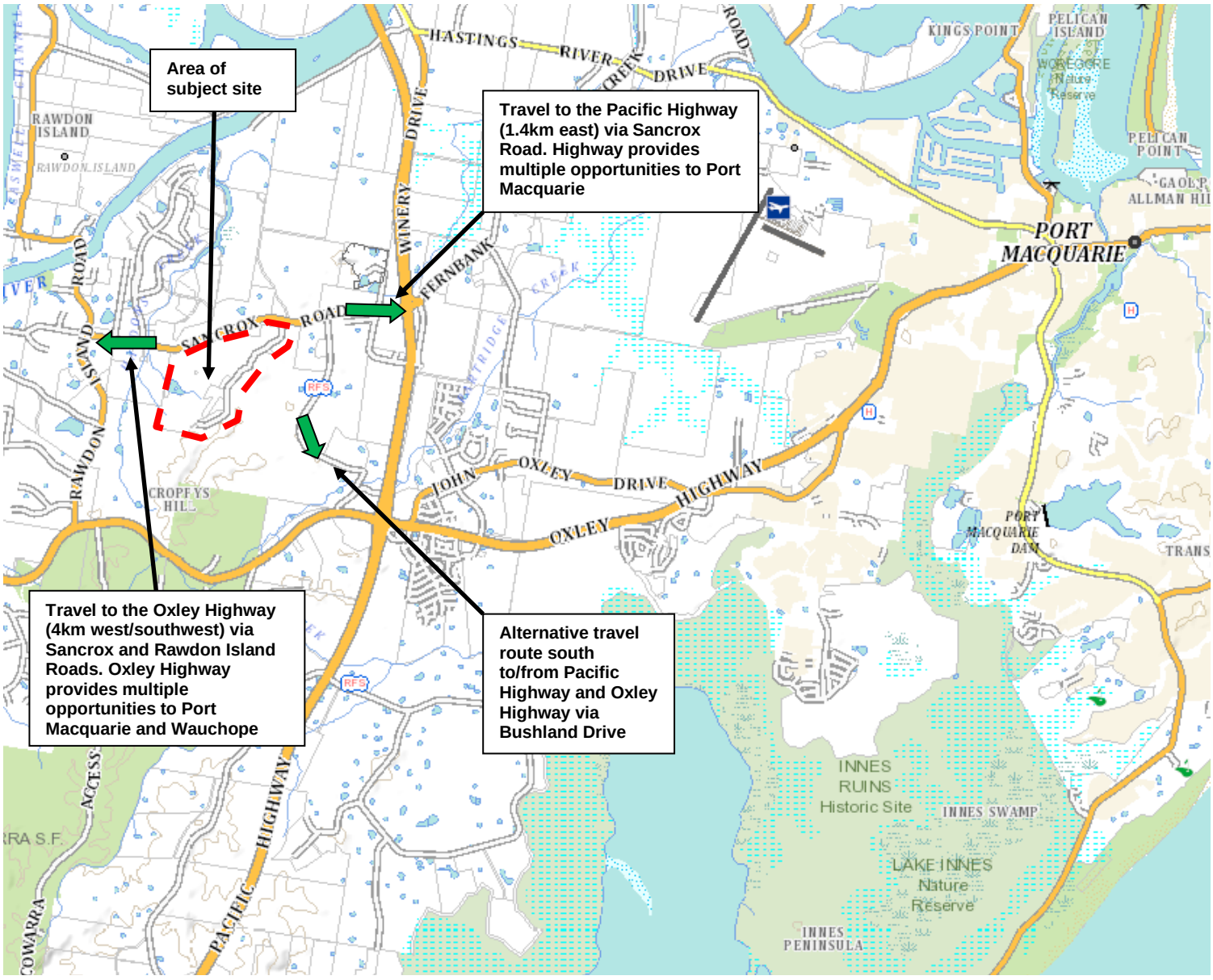
It is understood that all new roads within the future subdivision will be two-way and will be constructed to normal residential street standards. It is noted that the development concept will need to provide for temporary turning heads to some public roads until such times as the staged residential development of land within the subject site.

The sequence of staging of the proposed development can also provide for the maximization of perimeter road access whilst minimizing the length and extent of temporary 'no through' roads. Any staging of future development should provide for the movement of vehicles away from areas of bushfire hazard with movement into the centre of the development site provided for. This approach would provide for movement to and from areas of the subject site which would be sheltered from the impacts of bushfire.

Connection of the proposed new public road infrastructure which will service the future development of the subject site will be principally from the east and west using Sancrox Road which adjoins the northern boundary of the subject site. Travel via Sancrox Road to the east provides for connection with the Pacific Highway which is located approximately 1.4km from the subject site whilst travel to the west of the subject site for a distance of approximately 4km provides for connection to the Oxley Highway. It is noted that the relationship of the subject site to and its connection with major road infrastructure, (Pacific Highway and Oxley Highway), supports the suitability of the subject site for rezoning from an access and egress perspective.

It is also noted that there a number of other public roads which connect with Sancrox Road in proximity to the subject site thereby providing for a range of access and egress options to and from the subject site. It is also noted that areas which would be protected from the impacts of bushfire are located within 1.5km to the east and west of the subject site with the availability of these areas significant in the context of emergency evacuation, refer to **Figure 10** below;

Figure 10 – Access and Egress Opportunities

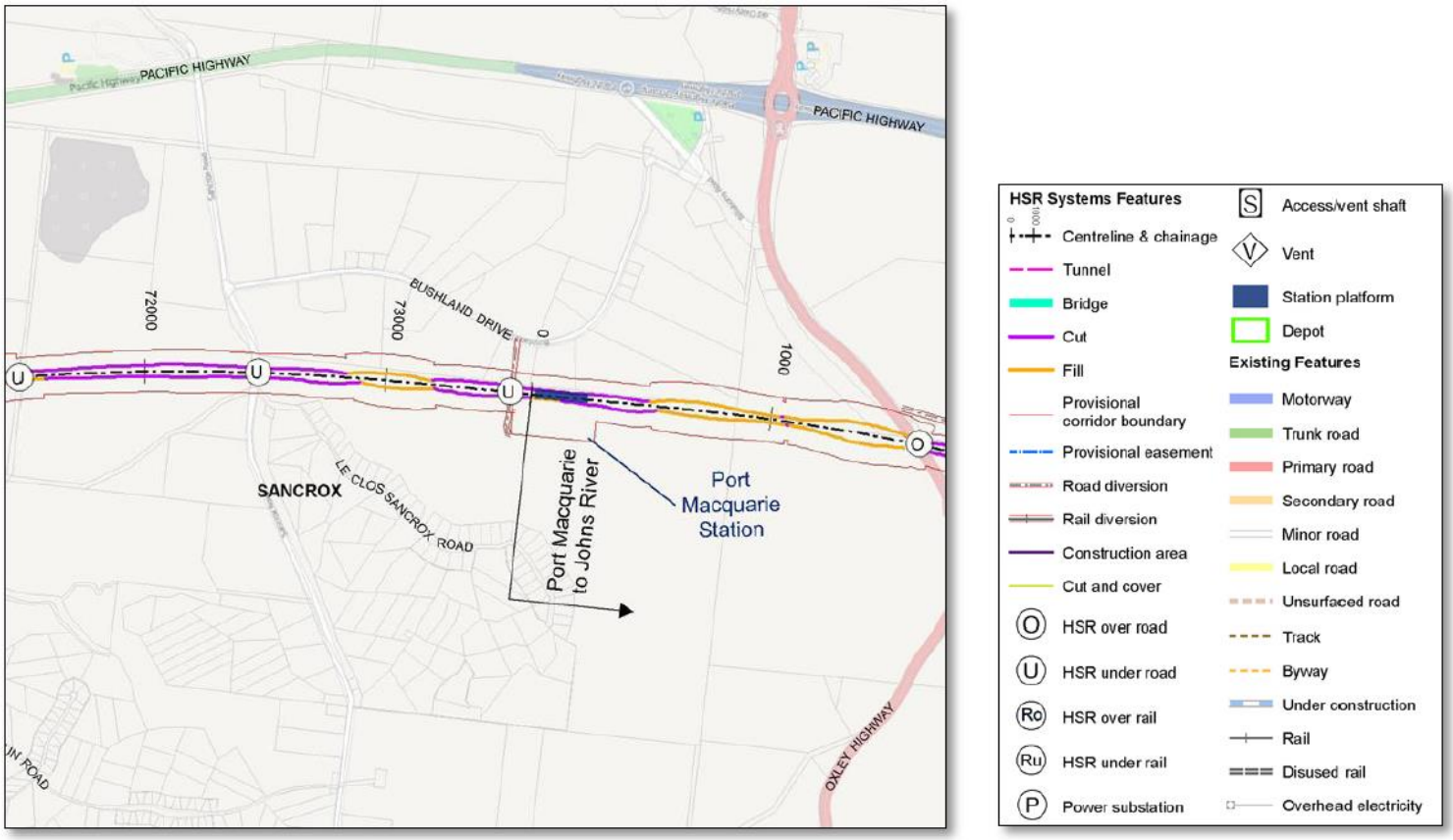


Having regards to the above, the access and egress strategy for the subject site takes advantage of existing public road infrastructure which, in the main, provides for access to and egress from areas which would be protected from the impacts of bushfire.

It is noted that the future development of the subject site would be subject to compliance with Chapter 5 of NSW Rural Fire Service***, Planning for Bushfire Protection,*** 2019 which provides the relevant access and egress bushfire threat management outcomes which are relevant to new residential subdivision development.

It is also noted that a provisional rail corridor has been identified adjacent to the eastern boundary of the subject site with this corridor supporting the proposed high speed rail network connecting Brisbane to Melbourne, refer to **Figure 11** below. The development of t high-speed rail infrastructure not only has strategic local and regional transportation implications but would also assist as a threat management measure in terms of bushfire risk in the eastern aspect of the subject site.

Figure 11 – High Speed Rail Corridor



4.0 EMERGENCY SERVICES

The question of increased demand for emergency services is a difficult one in a strategic land use planning context. On the one hand, the proposed development increases exposure of people, property and infrastructure, including increased exposure of firefighting personnel. However, the intent of this risk assessment process seeks to rationalise the strategic land use planning approach to mitigate this extent of risk exposure, acknowledging that not all risk can be avoided, and thus residual risk will remain and be transferred to others, (emergency services, the community, insurers, etc.).

At present emergency services are centred predominately upon resources from Port Macquarie, with Wauchope also supporting a range of emergency services which can respond to any incidents. Port Macquarie is located approximately 12.5km by road from the subject site whilst Wauchope is located approximately 8.5km by road from the subject site. Travel distances and times to and for emergency services are considered to be appropriate for residential development and importantly the location of the subject site provides for a range of emergency service options and opportunities, refer to **Table 5** below.

Table 5 – Emergency Services Locations

EMERGENCY SERVICE	LOCATION	ROAD TRAVEL DISTANCE TO SUBJECT SITE	ROUTE TO SUBJECT SITE
State Emergency Service	Port Macquarie – Central Road	Approximately 12km	Central Road/Lake Road/Oxley Highway/Pacific Highway/Sancrox Road
Police Service	Port Macquarie – Hay Street	Approximately 12km	Hay Street/Clarence Street/Horton Street/Gordon Street/ Oxley Highway/Pacific Highway/Sancrox Road
	Wauchope- Young Street	Approximately 9km	Young Street/Hastings Street/High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
Ambulance Service	Port Macquarie – Central Road	Approximately 12km	Central Road/Lake Road/Oxley Highway/Pacific Highway/Sancrox Road
	Wauchope – High Street	Approximately 9.2km	High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
Hospitals	Port Macquarie – Wrights Road	Approximately 9.5km	Wrights Road/Oxley Highway/Pacific Highway/Sancrox Road
	Wauchope – High Street	Approximately 9.2km	High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
NSW Fire and Rescue	Port Macquarie – Central Road	Approximately 12km	Central Road/Lake Road/Oxley Highway/Pacific Highway/Sancrox Road
	Wauchope - Campbell	Approximately 9km	Campbell Street/High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
NSW RFS	Fire Control Centre – Cameron Street	Approximately 9.1km	Cameron Street/High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
	Sancrox-Thrumster Brigade – Bushland Drive	Approximately 1.7km	Bushland Drive/Sancrox Road
	Lake Innes – Lake Innes Drive	Approximately 6km	Lake Innes Drive/Pacific Highway/Sancrox Road
	Hastings-Wauchope – Cameron Street	Approximately 9.1km	Cameron Street/High Street/Oxley Highway/Rawdon Island Road/Sancrox Road
	Telegraph Point – Mooney Street	Approximately 14.5km	Mooney Street/Telegraph Point Road/ Pacific Highway/Sancrox Road
Airport	Port Macquarie – Boundary Street	Approximately 6km (direct air travel distance) Approximately 9.2km (by road)	Boundary Street/Hastings River Drive/Fernbank Creek Road/Wamuyan Drive/Frogs Road/Sancrox Road

Specifically, in relation to bushfire, it is noted that the Sancrox-Thrumster RFS brigade is located within 1.7km of the subject site whilst the Lake Innes and King Creek services are located within 6km of the subject site. In addition, the NSW Fire Brigades at Port Macquarie and Wauchope provide for additional firefighting resources in reasonable proximity to the subject site.

The proposed rezoning of the land will however increase the demand for emergency services on the basis that the proposed rezoning of land does;

- increase the interface between residential and business development and areas of bushfire hazard vegetation when considered in the context of the nature and extent of the existing land use; and

- change the nature and density of development from that which already exists.

Notwithstanding the above, any increase in demand for emergency services associated with the proposed rezoning of land, (and its subsequent development), needs to be balanced against the fact that the nature of urban expansion which is associated with the rezoning and subsequent development of land for residential purposes is such that increases in demand for emergency services is inevitable as emergency services are required for a range of population safety and health protection issues associated with population growth. For example, in an urban context firefighting resources are required not only to respond to bushfire incidents but also in relation to responding to a range of building fire scenarios and causes.

Any increase in demand for services needs to be considered in relation to the needs for urban expansion in order to support local population growth.

An important consideration in relation to emergency services is the options and opportunities for evacuation. Having regards to the information contained in **Section 3** of this report the following factors are considered to be relevant to the issue of evacuation;

- the current and future population demographics for the area does not present as particularly 'vulnerable' in terms of evacuation responsiveness and ability;

- the concept design for road infrastructure provides for multiple evacuation travel options for any future residential subdivision development of the subject site;

- travel distances to areas of safety will be relatively short with alternative means of access to and egress from the subject site and future development available;

- the proposed road hierarchy and the interconnection of the proposed public road infrastructure will provide for safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface with hazard vegetation.

- Sancrox Road has connection with major road infrastructure to the east (Pacific Highway – approximately 1.5km) and west (Oxley Highway – approximately 4km) with this road infrastructure providing for high levels of emergency access to and egress from the subject site.

- a number of other public roads which connect with Sancrox Road in proximity to the subject site provide for a range of access and egress options to and from the subject site.

- areas which would be protected from the impacts of bushfire are located within 1.5km to the east and west of the subject site with the availability of these areas significant in the context of emergency evacuation;

- given the size of the subject site areas which would be protected from the impacts of bushfire will be available within the future development areas.

Having regards to the above, the risk for occupants and emergency service personnel of becoming isolated and at risk of harm is reduced significantly reduced by the availability of a range of emergency evacuation features and opportunities.

It is also considered that there is substantial opportunity to reduce life safety risk through the application of accepted and tested bushfire threat management measures which respond to the level of bushfire threat.

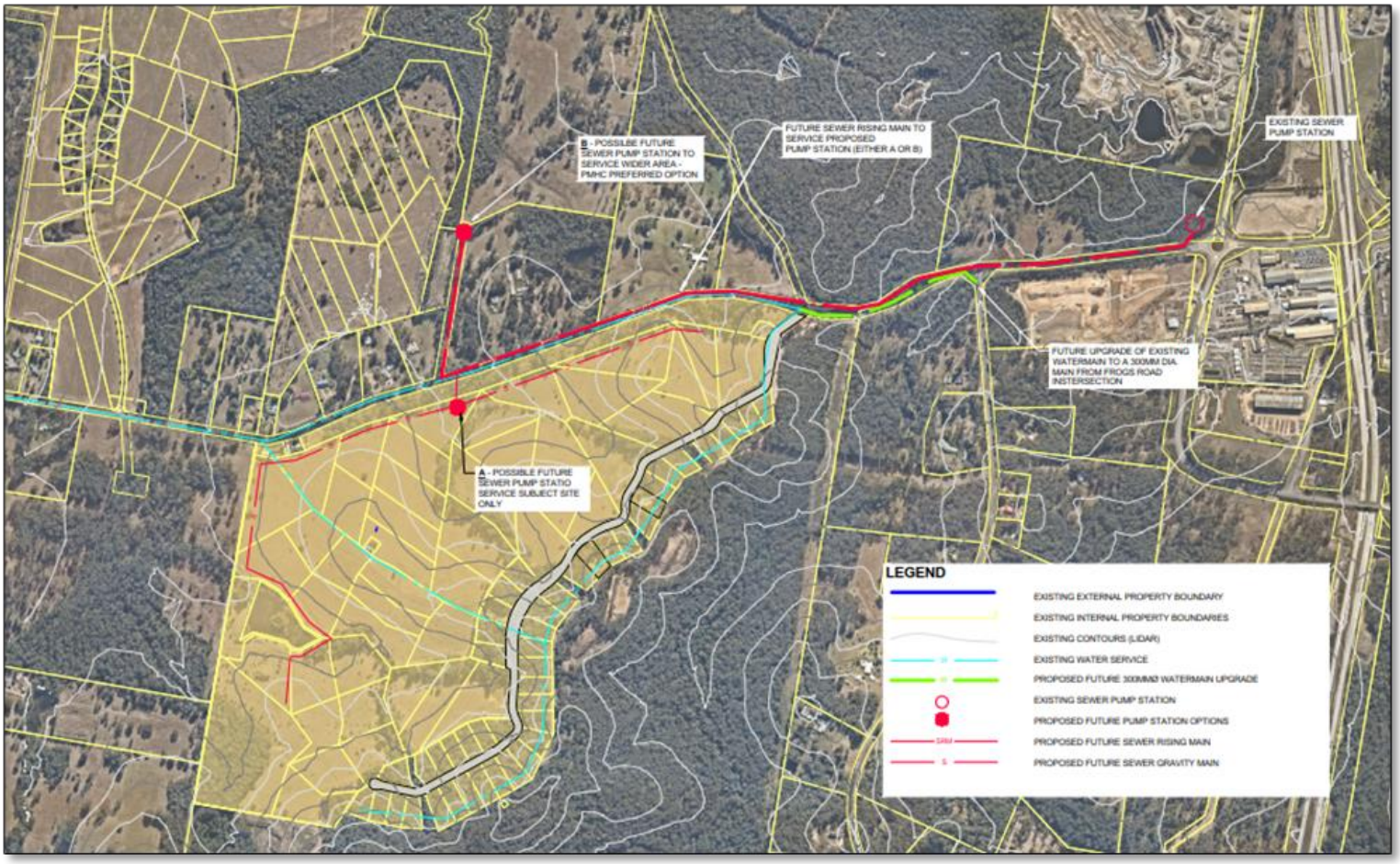
5.0 INFRASTRUCTURE

5.1 Servicing

Essential infrastructure currently available to the subject site is water, electricity and telecommunications.

A number of the services may need to be upgraded to ensure capacity is met and this will require further investigation. Discussions have been held with Council officers in August 2018 in regard to future sewer and water servicing requirements and it was confirmed that the site 'is unconstrained' in relation to servicing. The figure below shows preliminary future servicing concepts for the subject site.

Figure 12 – Preliminary Servicing Plan Extract



5.2 Water Supply

The current water supply network to the site is shown in the diagram below. The existing 100mm diameter and 150mm diameter watermains are located along Sancrox Road and within the development site. It is envisaged however that the 300mm water main near to Expressway Spares to the east will need to be upgraded in the future along Sancrox Road to the subject site.

A new 20 mega litre reservoir has been constructed to cater for the current and future demands of urban development and urban growth areas including the Sancrox area.

Given that the proposed rezoning and future development of land provides for residential and business allotments, all future lots will have access to the reticulated water supply, the extension of which will be required by Port Macquarie-Hastings Council to service future subdivisions.

There are no apparent water servicing issues which would preclude the proposed rezoning of land and subsequent development of land particularly when considered in the context of the recent changes in land use and population densities to the east, (industrial subdivision), and west, (large lot residential estate), of the subject site.

5.3 Sewerage Infrastructure

Sewer is not currently available to the site but is located to the eastern end of Sancrox Road, adjoining Expressway Spares. A new sewer pump station will be required to service the site. The preferred option would be to provide a 'centralised' sewer pump station to the north of the site allowing greater flexibility to service a larger surrounding area.

A rising main would be required along Sancrox Road feeding back into the existing sewer pump station located at the intersection of Sancrox Rd and the Pacific Highway. This would then discharge into the existing gravity fed network.

Sewer servicing of the subject site can alternatively be managed by way of a 'self-servicing' sewer pump station upon the site itself with a sewer rising main leading back to the existing SPS at Pacific Highway intersection. Although not the preferred option it would be considered if time and landowner consent issues delayed or prevented the 'centralised' option from occurring within a reasonable timeframe.

5.4 Electricity and Communications Infrastructure

Electricity supply and communications infrastructure is available in the locality and will be accessible for extension to the future development of the subject areas of land albeit that the augmentation of the existing infrastructure will be required in order to cater for the demands of future development.

It is however noted that an overhead electricity transmission powerline transects the eastern, (north to south), and northern, (east to west), portions of the subject with the presence of this infrastructure being a risk in terms of bushfire ignition and spread not only to the subject site but adjoining and adjacent land.

It is also noted that an electivity transmission powerline is located adjacent to the southern boundary of the subject site with this infrastructure being present in order to service the historical residential occupation and viticultural development of the subject site.

Electricity can start bushfires when infrastructure is damaged or foreign objects contact powerlines. This can cause arcing and generate sparks that can ignite dry vegetation. While the number of bushfires ignited by electricity is very low, (<3% of bushfires), once started they have the potential to burn large areas.

Whilst the risks posed to future development in the area from bushfires associated with the overhead electricity transmission powerlines will be reduced via reduced areas of unmanaged vegetation in the locality it is acknowledge that the presence of the overhead electricity transmission powerlines is an issue in terms of bushfire threat management albeit that the bushfire risk associated with the power line is considered to be low by virtue of the history of fire ignition associated with power lines in the area, the nature and extent of fuel loads adjacent to the route of the line and the high levels of access to the power line route. Notwithstanding this, the rezoning and future development of the subject site provides an opportunity to reduce the bushfire risk via relocation and/or provision of replacement underground services. This is particularly the case for the higher bushfire risk infrastructure which is located immediately adjacent to the southern boundary of the subject site and appears to only service assets within the subject site. This infrastructure is located adjacent to forest vegetation and represents a higher risk of bushfire ignition than the electivity supply infrastructure which transects the subject site.

It is noted that the proposed rezoning of the subject site and its residential occupation would provide for increased surveillance of bushfire ignition at a local level which in combination with the integration of the minimum bushfire threat management strategies which are relevant to new residential subdivision would assist in reducing the risk associated with vegetation ignition by electricity supply infrastructure.

Reticulated gas services are not available in the locality and are therefore not available to the subject areas of land.

6.0 ADJOINING LAND

It is noted that the rezoning of land will not change or alter the ability of adjoining and adjacent landowners to carry out bushfire threat management activities nor will the proposed rezoning of the subject land place increased pressure on adjoining landowners to introduce or implement Bushfire Management Plans as a result of the proposed rezoning.

The rezoning of the subject site will provide for managed vegetation to be present within the majority of the subject site whilst Forest and Forested Wetland vegetation will be present to the south, east and west of the subject site with managed vegetation associated with historic rural residential lots extending to the north of the subject site.

In this regard the proposed rezoning and future development of the subject land will impose no additional bushfire threat management obligations or responsibilities on adjoining land managers from that which currently exists.

It is noted that the rezoning of the land and its subsequent development for residential and business uses does not change or alter the ability of adjoining land to carry a bushfire as vegetation characteristics will remain relatively unchanged from the existing assessed level of bushfire threat.

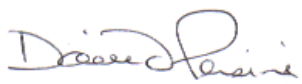
Importantly the proposed rezoning of the subject site provides for opportunities to implement improved vegetation management practices within the subject site thereby reducing the existing level of bushfire threat posed by the subject site to adjoining and adjacent land holdings. Additionally, the rezoning and future development of the subject site will provide for improved access to areas of hazard vegetation on adjoining and adjacent land which will be of benefit to the adjoining and adjacent land manager in terms of responding to bushfire threat management associated with their land.

7.0 CCONCLUSION

Based upon the information provided above the proposed rezoning of land does not pose any bushfire threat management risks which could not be resolved through the development planning process with development able to be accommodated and comply with the relevant and applicable bushfire threat management standards.

Should I be able to provide any further assistance please do not hesitate to contact me on 0434 166 150.

Yours Faithfully,

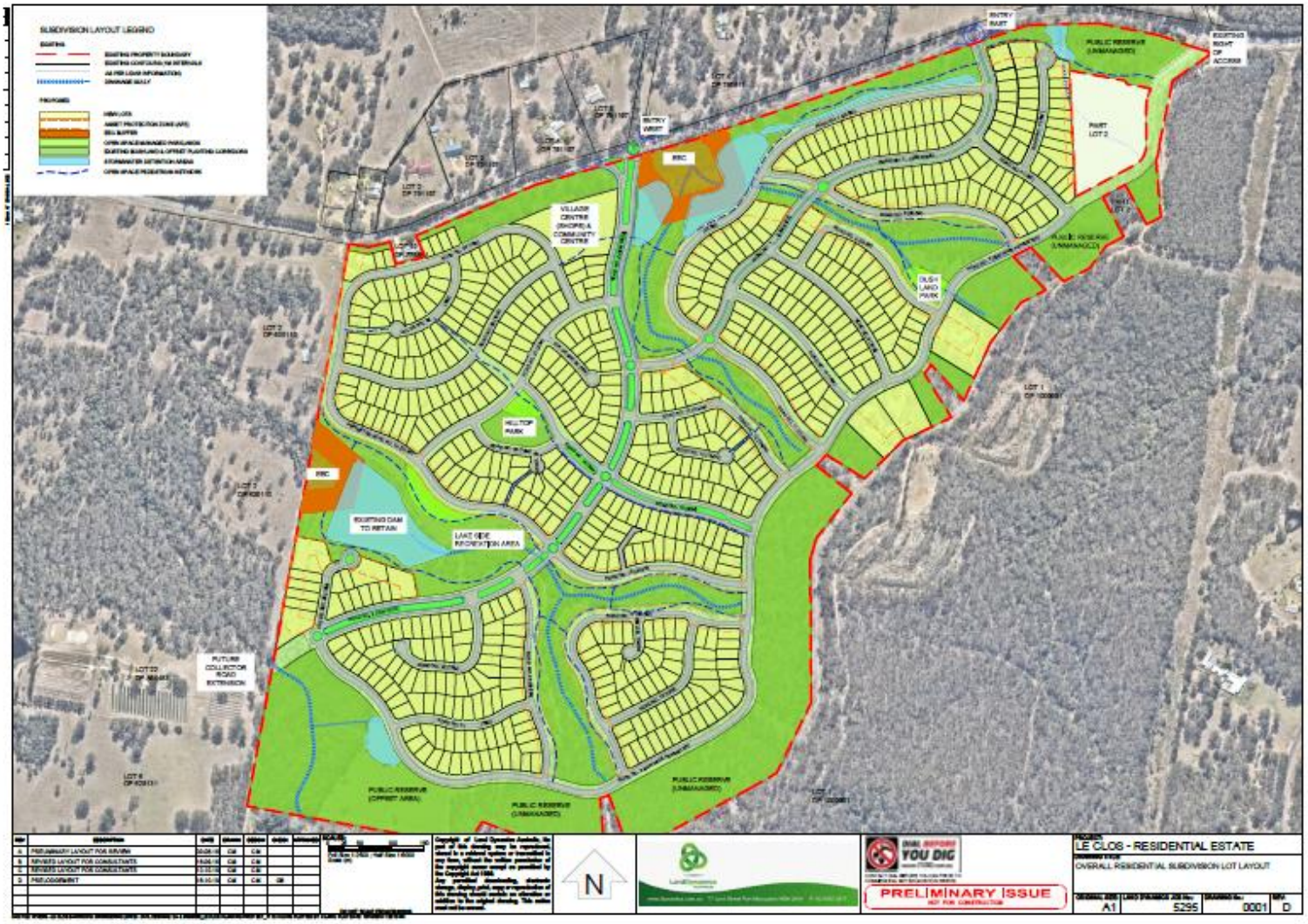


David Pensini

51 Owen Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

51 Owen Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

APPENDIX 1 – REZONING AREA AND DEVELOPMENT CONCEPT

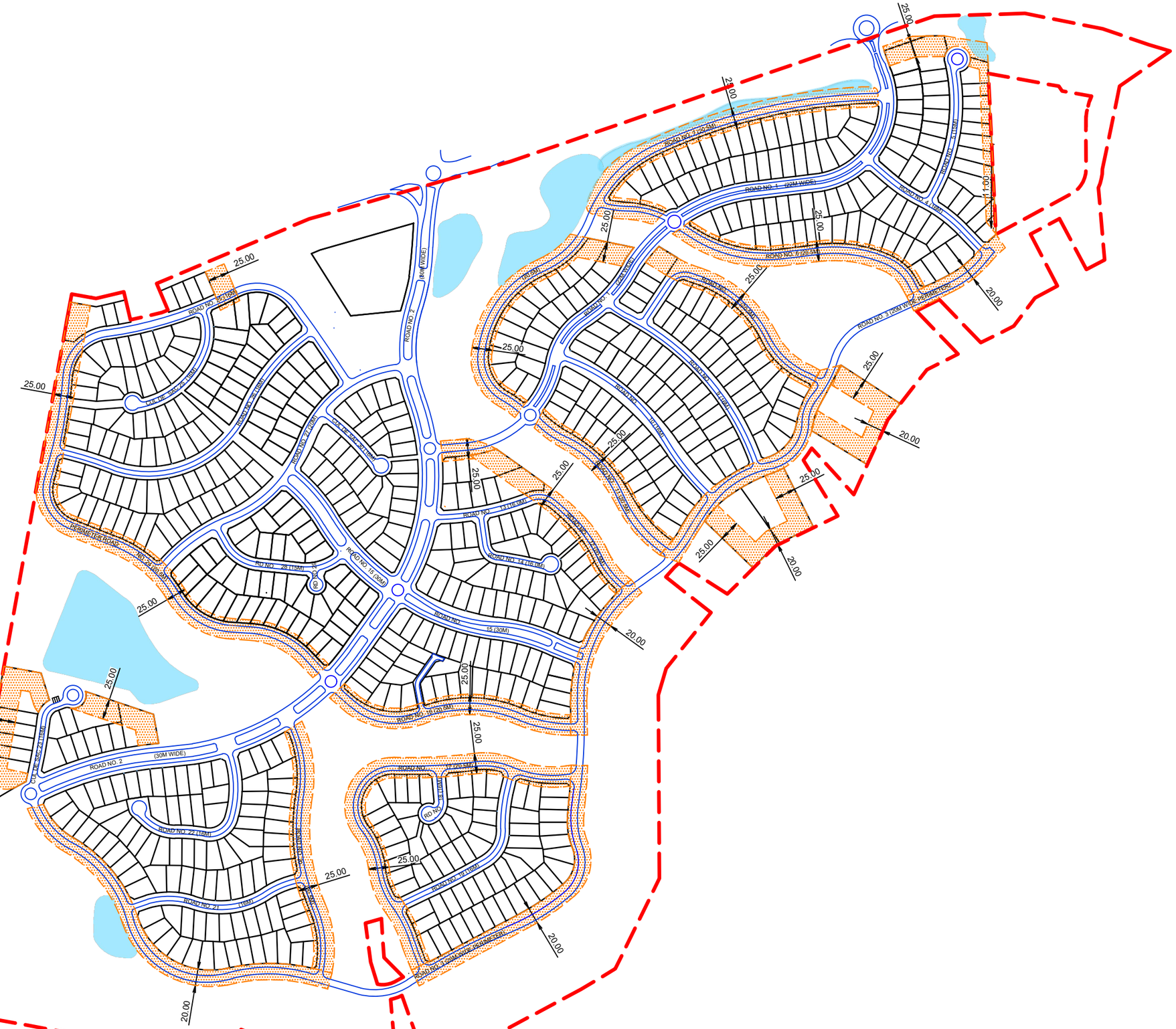


51 Owen Street, Port Macquarie NSW 2444 – PO Box 5581, Port Macquarie NSW 2444 – Phone 0434 166 150 – Email kdpensini@bigpond.com
ABN 55 183 050 741

100mm AT ORIGINAL SIZE

ASSET PROTECTION ZONE (APZ)

ASSET PROTECTION ZONE



REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	18.10.19	CM	CM		
B	PLANNING PROPOSAL SUBMISSION	10.12.19	CM	CM	DC	GB
C	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 25 50 100 150
Full Size 1:2500 ; Half Size 1:5000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

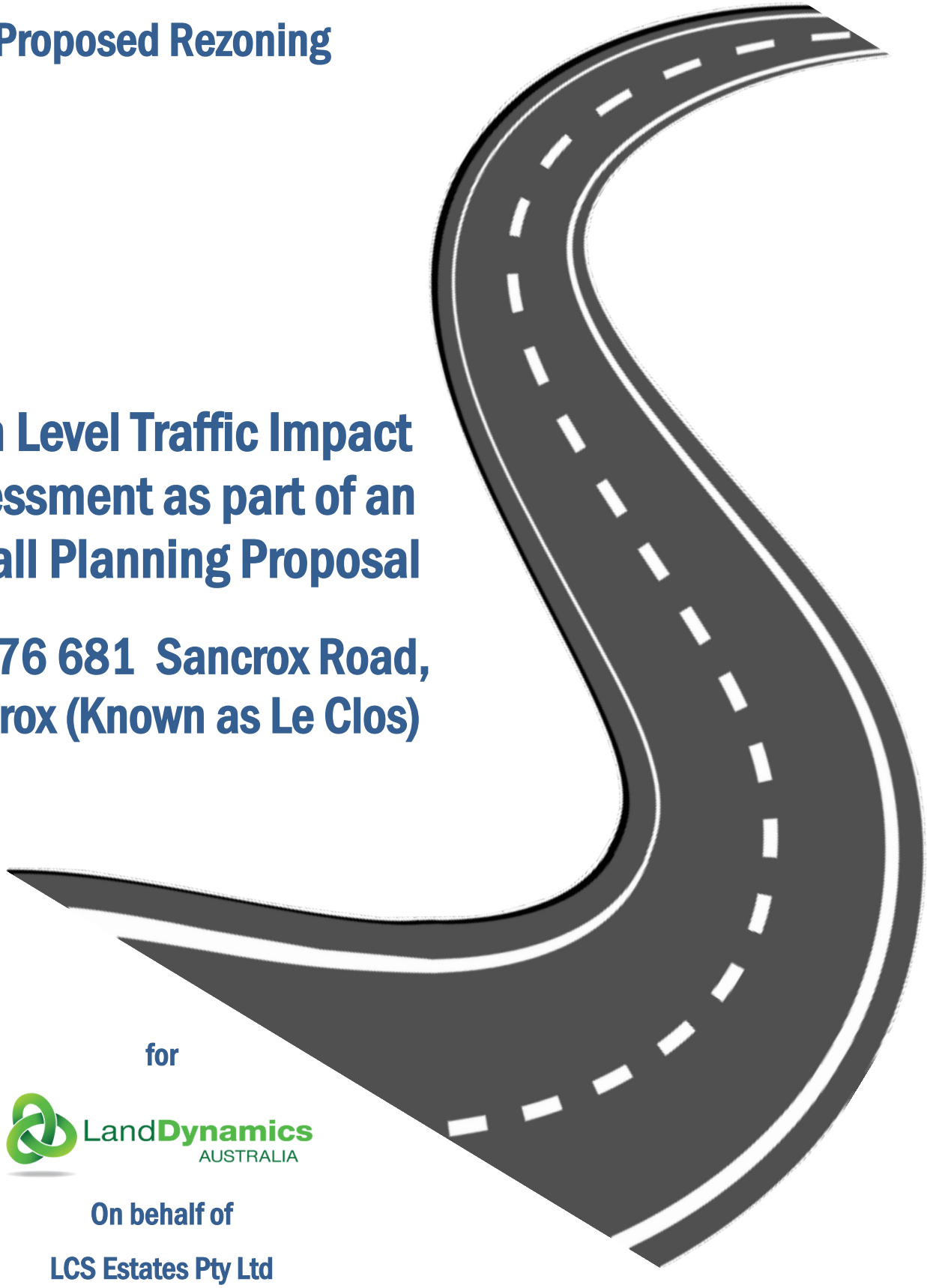
PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
ASSET PROTECTION ZONES PLAN (APZ)

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0008	C

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 7:58:59 PM

Proposed Rezoning



High Level Traffic Impact Assessment as part of an overall Planning Proposal

DP 776 681 Sancrox Road, Sancrox (Known as Le Clos)

for

LandDynamics AUSTRALIA

On behalf of

LCS Estates Pty Ltd

9 December 2019

Traffic Impact Assessment Details

Edition / Revision No.	1	2	3	
Document Status	Internal Review	DRAFT for Client Comment	FINAL	
Prepared By	Craig Nethery Director	Craig Nethery Director	Craig Nethery Director	
Reviewed By	Andy Davis Director	Andy Davis Director	Andy Davis Director	
Date	9 December 2019	9 December 2019	10 December 2019	
Issued To	Andy Davis, Director	Donna Clarke, Town Planner Land Dynamics Australia	Donna Clarke, Town Planner Land Dynamics Australia	

StreetWise Road Safety & traffic Services Pty Ltd
PO BOX 1395
Port Macquarie
NSW 2444

Mob:- 0412 009 558 (Craig Nethery)
Email:- craig@streetwisersa.com.au

Mob:- 0422 011 353 (Andy Davis)
Email:- andy@streetwisersa.com.au

www.streetwisersa.com.au

CONTENTS

EXECUTIVE SUMMARY 4

1. INTRODUCTION 8
   - 1.1 General 8
   - 1.2 Description of Project 8
   - 1.3 References 9
   - 1.4 Road Network 9

2. EXISTING TRAFFIC VOLUMES 15
   - 2.1 Background Traffic Volumes 15

3. FUTURE TRAFFIC ASSESSMENT 16
   - 3.1 Land Use Traffic Generation Rates 16
   - 3.2 Proposed Traffic Generation – Le Clos Development 18
   - 3.3 Possible Future Traffic Generation – Study Area 18
   - 3.4 Traffic Generation – Employment Land (Sancrox North) 20
   - 3.5 Inclusion of the Fernbank Creek Investigation Area in this assessment 22
   - 3.6 Traffic Distribution 22
   - 3.7 Traffic Assignment 24

4. SANCROX ROAD FUTURE STRUCTURE / CORRIDOR PLAN 26
   - 4.1 Sancrox Road Structure Plan 26
   - 4.2 Estimated Future Traffic Volumes – Study Area Wide 28
   - 4.3 Possible Future Traffic Volumes – Le Clos Only 31
   - 4.4 Future Road Capacity 35
   - 4.5 Future Road Corridor Plan – Vehicular Traffic 36
   - 4.6 Future Road Corridor Plan – Pedestrian Access 42
   - 4.7 Future Road Corridor Plan – Cyclist Access 43
   - 4.8 Future Road Corridor Plan – Public Transport 43
   - 4.9 Summary of Sancrox Road Structure / Corridor Plan Requirements 43

5. LE CLOS DEVELOPMENT DETAILED INTERSECTION ASSESSMENT 45
   - 5.1 Road No.1 Intersection Assessment 45
   - 5.2 Road No.2 Intersection Assessment 47

6. RECOMMENDATIONS 50

APPENDICES

APPENDIX A 51

DEVELOPMENT SITE PLAN PROPOSAL 51

APPENDIX B 53

APPROVED SANCROX NORTH INDUSTRIAL SUBDIVISION 53

APPENDIX C 55

INTERSECTION TRAFFIC COUNT DATA 55

APPENDIX D 64

SIDRA MODELLING REPORT 64

APPENDIX E 86

PROPOSED SANCROX CORRIDOR PLAN 86

EXECUTIVE SUMMARY

StreetWise Road Safety and Traffic Services have been engaged by Land Dynamics Australia on behalf of LCS Estates Pty Ltd to prepare a High Level Traffic Impact Assessment (TIA) as part of an overall Planning Proposal for a residential development at DP 776681 Sancrox Road, Sancrox known as Le Clos.
This High Level TIA will assess a proposed residential development of the area known as "Le Clos" on Sancrox Road, Sancrox as part of a planning proposal for the site.

Land Dynamics Australia has provided the following indication of how the site will be developed:-

- Village Centre Site (approximately 1.0 hectares in area) Zone B2,
- Existing 3 of Residential (approximately 1.50 hectares in area) Zone E4,
- Approximately 638 Low Density Residential lots (approximately 73.2 hectares in area) Zone R1, and
- Approximately 42 Medium Density Residential lots (approximately 2.3 hectares in area) Zone R3

Port Macquarie Hastings Council has indicated they have not commenced strategic planning for the area known as Sancrox / Rawdon Island. In order for this development to gain development approval (ie rezoning) some background strategic traffic planning will need to be undertaken as part of the assessment for future traffic impacts by this development relating to future local road network (Sancrox Road) upgrades.

In completing this assessment both StreetWise and Land Dynamics staff have attended a number of meetings with Port Macquarie Hastings Council Planning staff to discuss the approach and what the scope of the assessment will be.

It is hoped the assessments completed for this site and the study area will be utilised by Port Macquarie Hastings Council for future strategic planning of the area in question.

Currently there are six public access points / intersections located along Sancrox Road:-

1) Rawdon Island Road,
2) Riverbank Road,
3) Verdun Drive,
4) Le Clos,
5) Bushlands Drive, and
6) The Pacific Highway

Port Macquarie Hastings Council's Urban Growth Management Strategy (UGMS) provides an indication of the land available for rezoning to residential development. This assessment recommends utilising the existing access points with the addition of the proposed access points for the Le Clos development.

This report will give an indication of the possible future upgrades required for Sancrox Road for these locations. The future upgrades will be assessed on the derived future

traffic generation yields. A detailed assessment has been completed for the new intersections proposed as part of the Le Clos development.

It shall be noted previous extensive traffic assessment had been completed for the study area based on large lot residential development Greater Sancrox Concept Road Layout Review & Traffic Modelling (SMEC, 2014). However, with the advent of Port Macquarie Hastings Council's Urban Growth Management Strategy (UGMS) this has now required a rework of the future traffic generation for the development areas to small lot residential.

Port Macquarie Hastings Council has also provide information with regard to an approved industrial subdivision for the area known as Sancrox North in this assessment. (See Appendix B – Approved Subdivision Layout) It is also noted at the time of this assessment being completed the Department of Planning, Industry and Environment has received a development application for the expansion of the existing Hanson's Quarry located within the Sancrox North area.

As part of determining the study area to be assessed for this report input from Port Macquarie Hastings Council staff was sought. Council staff indicated they would like to see the inclusion of the Fernbank Creek area located to the east of the Pacific Highway included as part of this assessment.

Discussions were had on how much this area would impact the study area. However, it is felt the Fernbank Creek area would have minimal impacts on the proposed future traffic flows of Sancrox Road, Bushlands Drive and Rawdon Island Road.

Most of the traffic generated in the Fernbank Creek area would more than likely travel east via Fernbank Creek Road and Hastings River Drive. Any traffic flows to the north and south would likely via the Pacific Highway. Any possible trips to the west (possibly Wauchope) would more than likely be via the Pacific Highway to the Oxley Highway or via the Sancrox Interchange onto Bushlands Drive and the Oxley Highway. All trips would be considered to be internalised accessing the future Village Centre proposed as part of the Le Clos development.

Based on the derived traffic generations for the study area the following local road network (Sancrox Road) upgrades are required.

- Minimum of one travel lane in each direction (3.50m wide),
- 1.50m wide (clear width), 2.0m (if kerb & gutter) cycle lanes along edge of each travel lane,
- 0.5m shoulder outside of cycle lane. Given the future traffic volumes this will allow for emergency stopping where a vehicle can stand within the shoulder / cycle lane outside of the travel lane not obstructing traffic and therefore reducing any roadside hazard,
- 2.50m wide raised central median to allow for pedestrian / cyclist crossing, and
- Auxiliary lanes (turn lanes, acceleration & deceleration lanes) as required. (See intersection upgrades for details).

- Sancrox Rd & Rawdon Island Rd Intersection
  - a central island diameter of 16.0m,
  - a circulating roadway width of 9.0m,

- single lane entry / exit on all legs,
- offroad cyclist access on all legs, and
- pedestrian refuges on the Sancrox Rd (west) and Rawdon Island Road (north) legs.

- Sancrox Rd & Riverbend Rd Intersection
  - a central island diameter of 16.0m,
  - a circulating roadway width of 9.0m,
  - single lane entry / exit on all legs,
  - offroad cyclist access on all legs, and
  - pedestrian refuges on the Sancrox Rd (west) and Riverbend Road (south) legs.

- Sancrox Rd & Verdun Drive Intersection
  - Upgraded to a Type CHR(s) intersection layout.

- Sancrox Rd & Road No.1 (Le Clos) Intersection
  - Proposed single lane roundabout,
  - Plus eastbound right turn bay (Sancrox Rd),
  - Plus westbound left turn bay (Sancrox Rd),
  - Plus eastbound left turn bay (Road No.1 – North), and
  - Off road provision for cyclists through roundabout. (all legs)

- Sancrox Rd & Road No.2 (Le Clos) Intersection
  - Proposed single lane roundabout,
  - Plus separate eastbound left turn slip lane (Road No.2 - North),
  - Plus separate westbound left turn slip lane (Sancrox Rd),
  - Plus eastbound right turn bay (Sancrox Rd),
  - Plus westbound left turn bay (Sancrox Rd), and
  - Off road provision for cyclists through roundabout. (all legs)

- Sancrox Rd & Bushlands Drive Intersection
  - Upgraded to a Type CHR(s) intersection layout (by the year 2030).
  - Upgraded to a Type CHR Channelised intersection layout (by the year 2040).

- Sancrox Rd & Bushlands Drive Intersection (roundabout)
  - Add extra eastbound lane on entry to roundabout (Sancrox Rd, by the year 2040)
  - Upgrade off road provision for cyclists through roundabout. (all legs)

Further detailed assessment of the above upgrades will be required as development in the area comes on line. For the purposes of this assessment a design horizon of 30 years was used.

In order for the Le Clos development to indicate its direct impacts on the local road network (Sancrox Road) a separate assessment was completed taking into account the proposed future Le Clos traffic generation and traffic growth excluding the remainder of the study area development. The following local road network upgrades can be directly attributed to the Le Clos development:-

- In accordance with Figure 4.50 the development is to upgrade Sancrox Road to half width design cross section along full frontage.
- Provision of 2 roundabouts (Road No.1 and Road No.2). The construction of the northern legs of Roads No.1 and 2 roundabouts is to be undertaken by others as future development dictates.
- Provision of a Shared Path along the Sancrox Road frontage of the Le Clos site generally in accordance with Figure 4.50. All other shared path facilities are to be constructed by others as future development dictates.
- Provision of Public Transport Facilities (Bus Bay) at each of the proposed development intersections (roundabouts). All other public transport facilities are to be constructed by others as future development dictates.
- The intersection of Sancrox Road and Bushlands Drive will need to upgraded to a type CHR(s) intersection at the year 2030. Any further upgrades to this intersection are to be completed by others as future development in the area dictates.

1. INTRODUCTION

1.1 General

StreetWise Road Safety and Traffic Services have been engaged by Land Dynamics Australia on behalf of LCS Estates Pty Ltd to prepare a High Level Traffic Impact Assessment (TIA) as part of an overall Planning Proposal for a residential development at DP 776681 Sancrox Road, Sancrox known as Le Clos.

Figure 1.1 – LOCALITY SKETCH

1.2 Description of Project

This High Level TIA will assess a proposed residential development of the area known as "Le Clos" on Sancrox Road, Sancrox as part of a planning proposal for the site. (See Appendix A for Development Site Plan)

Land Dynamics Australia has provided the following indication of how the site will be developed:-

- Village Centre Site (approximately 1.0 hectares in area) Zone B2,
- Existing 3 of Residential (approximately 1.50 hectares in area) Zone E4,
- Approximately 638 Low Density Residential lots (approximately 73.2 hectares in area) Zone R1, and
- Approximately 42 Medium Density Residential lots (approximately 2.3 hectares in area) Zone R3

The above land use components will be assessed to determine the high level traffic impacts on the local road network.

1.3 References

The following references will be utilised to aid in the completion of this TIA:-

- Greater Sancrox Concept Road Layout Review & Traffic Modelling (SMEC, 2014)
- Austroads Guide to Road Design
- Austroads Guide to Traffic Management, and
- Port Macquarie Hastings Council Design Specifications (Mainly, D1 – Geometric Road)
- Port Macquarie Hastings Council's Urban Growth Management Strategy (UGMS)
- Approved Development of Industrial Subdivision known as Sancrox North at the intersection of the Pacific Motorway and Sancrox Road. (DA 305/2012) (See Appendix B – Approved Subdivision Layout)

1.4 Road Network

1.4.1 The Local Road Network

For the purposes of this high level TIA the road network to be assessed will be bounded by the Pacific Highway (A1) in the east, The Oxley Highway (B56) in the south, Sancrox Road to the north and Rawdon Island Road to the west. See Figure 1.1 for context of the Local Road Network.

1.4.2 The Pacific Motorway (A1)

The Pacific Motorway (A1) is part of the national motorway system providing north south connection between cities (Sydney, Newcastle and Brisbane) and towns (Taree, Port Macquarie, Coffs Harbour and Ballina) on the eastern seaboard.

Both the Federal and New South Wales (NSW) State Governments have provided funding for the upgrade of the section of the highway between Taree and the NSW / Queensland Border with the section located near Sancrox recently completed to motorway standard in 2017.

This upgrade to motorway standard provides for dual lane carriageways in each direction to a 110km/h posted speed limit standard with a grade separated interchange located near the industrial operation known as "Expressway Spares".

1.4.3 The Oxley Highway (B56)

The Oxley Highway (B56) is part of the national motorway system providing eastwest connection between Port Macquarie, Tamworth and Gunnedah to the west.

The Oxley Highway has recently been upgraded in the vicinity of the Rawdon Island Road intersection where the intersection has been realigned and overtaking lanes have been provided in each direction.

The posted speed limit in the vicinity of the Rawdon Island Road intersection is 90km/h.

1.4.4 Sancrox Road

Sancrox Road is a collector road servicing the Sancrox and Rawdon Island areas providing connection to Port Macquarie via the Pacific Highway and the Oxley Highway.
The formation width of Sancrox Road is generally 8.50m with 3.25m wide travel lanes. The vertical alignment is considered to be undulating with possibly some substandard vertical crest (further detailed assessment will need to be completed to determine the extent of this) for the posted speed limit at the time. The horizontal alignment is generally acceptable for the posted speed limit with some further detailed assessment required for some curves at the eastern end of Sancrox Road.

The posted speed limit for Sancrox Road is 80km/h.

1.4.5 Rawdon Island Road

Rawdon Island Road is a collector road servicing the Sancrox and Rawdon Island areas providing connection to Port Macquarie via the Oxley Highway.

The formation width of Rawdon Island Road is generally 8.50m with 3.25m wide travel lanes. The vertical alignment is considered to be undulating with possibly some substandard vertical crest (further detailed assessment will need to be completed to determine the extent of this) for the posted speed limit at the time. The horizontal alignment is generally acceptable for the posted speed limit with some further detailed assessment required for some curves along the alignment.

The posted speed limit for Sancrox Road is 80km/h.

1.4.6 Intersection of Sancrox Road & Frogs Road

The existing roundabout at the intersection of Sancrox Road and Frogs Road was constructed as part of the Pacific Highway upgrade where a grade separated interchange was provided for local access.

The roundabout will be the main access location for the future Sancrox Employment lands (Industrial Area) located to the north of the roundabout where currently a hard rock quarry gains uses it for access.

Sight distance is currently acceptable for the standards on all four legs of the roundabout.

Sancrox Road – Looking East

Sancrox Road – Looking West

Frogs Road – Looking South

Frogs Road – Looking North

1.4.7 Intersection of Sancrox Road & Bushlands Drive

The intersection of Sancrox Road and Bushlands Drive generally conforms to a BAR/BAL T junction layout with some shoulder widening for the left turn out and right turn in movements.

Sight distance is currently acceptable for the standards in both directions along Sancrox Road.

Sancrox Road – Looking West

Bushlands Drive – Looking North

1.4.1 Intersection of Sancrox Road & Le Clos Access Road

The existing intersection of Sancrox Road and the Le Clos Access Road generally conforms to a BAR/BAL T junction layout. There is no widening provided at the intersection for the safe turning of heavy vehicles out of Verdun Drive to remain in their lane.

Sight distance is currently not acceptable for the standards in both directions along Sancrox Road for both the horizontal and vertical alignments.

It shall be noted this access location will be closed in the future redevelopment of the Le Clos site.

Sancrox Road – Looking East

Sancrox Road – Looking West

Le Clos Access Road – Looking North

1.4.2 Intersection of Sancrox Road & Verdun Drive

The existing intersection of Sancrox Road and Verdun Drive generally conforms to a BAR/BAL T junction layout. There is no widening provided at the intersection for the safe turning of heavy vehicles out of Verdun Drive to remain in their lane.

Sight distance is currently acceptable for the standards in both directions along Sancrox Road.

Sancrox Road – Looking East

Sancrox Road – Looking West

Le Clos Access Road – Looking South

1.4.3 Intersection of Sancrox Road & Riverbend Road

The intersection of Sancrox Road and Riverbend Road generally conforms to a BAR/BAL T junction layout with widening at its intersection to allow for heavy vehicles to turn safely within their lane.

Sight distance is currently acceptable for the westbound approach however the eastbound approach may not be acceptable for the current posted speed limit.

Sancrox Road – Looking East

Sancrox Road – Looking West

Riverbend Road – Looking South

1.4.4 Intersection of Sancrox Road & Rawdon Island Road

The intersection is an uncontrolled four way intersection. Sancrox Road (west) services the local rural residential subdivision while Sancrox Road (east) provides connection for the Rawdon Island and Sancrox areas to in Port Macquarie and beyond.

Rawdon Island (north) services the local Rawdon Island area and provides connection to Port Macquarie via Sancrox Road (east). Rawdon Island (south) services, the areas of Walters road and Muscio Road and Warrigal Ridge to the south along with providing connection for these areas to Port Macquarie via either the Oxley Highway or Sancrox Road.

Sight distance on the Sancrox Road (east) approach is constrained for both the north and south directions by vegetation on both sides of the intersection. Sight distance to the south is also reduced by the vertical crest alignment on Rawdon Island Road (south) for the current posted speed limit. To make turning at the intersection safer Give Way signs are installed on both sides of Sancrox Road.

Sight distance on the Rawdon Island Road (south) approach is constrained for both the east and west directions by vegetation on both sides of the intersection.

Sancrox Road (east) – Looking West

Sancrox Road (west) – Looking East

Rawdon Island Road (north) – Looking South

Rawdon Island Road (south) – Looking North

2. EXISTING TRAFFIC VOLUMES

2.1 Background Traffic Volumes

To aid in the completion of the assessment, StreetWise Road Safety and Traffic Services have completed a manual intersection count to determine the AM and PM peak traffic periods for the following intersections:-

- Sancrox Road & Frogs Road, and
- Sancrox Road & Rawdon Island Road

Figures 2.10 and 2.11 provide a summary of the AM and PM peak period traffic flows for both of the intersections in question. The counts indicated the AM Peak to be between 7.45 and 8.45am with the PM Peak being between 4.45 and 5.45pm.

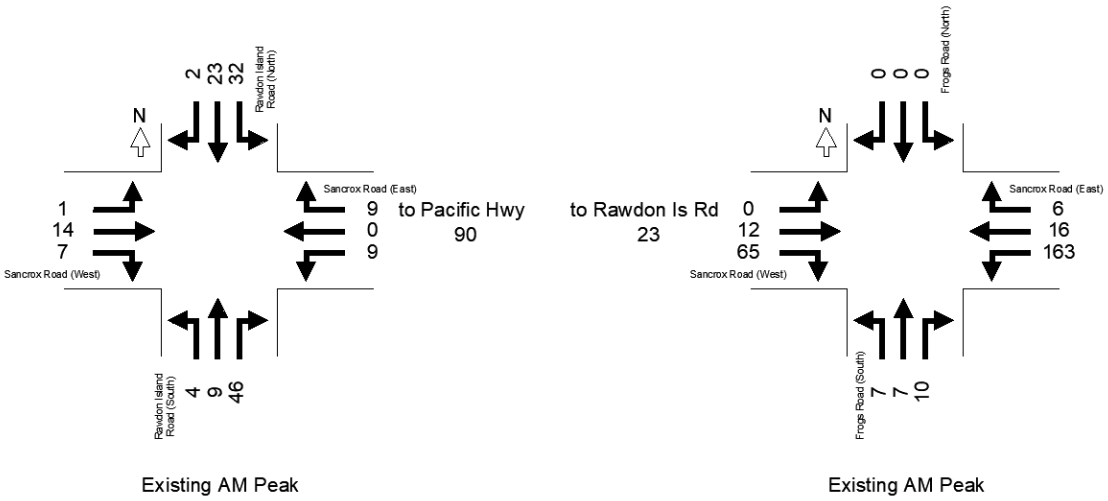


Figure 2.10 – EXISTING AM PEAK PERIOD TRAFFIC FLOWS (BOTH INTERSECTIONS)

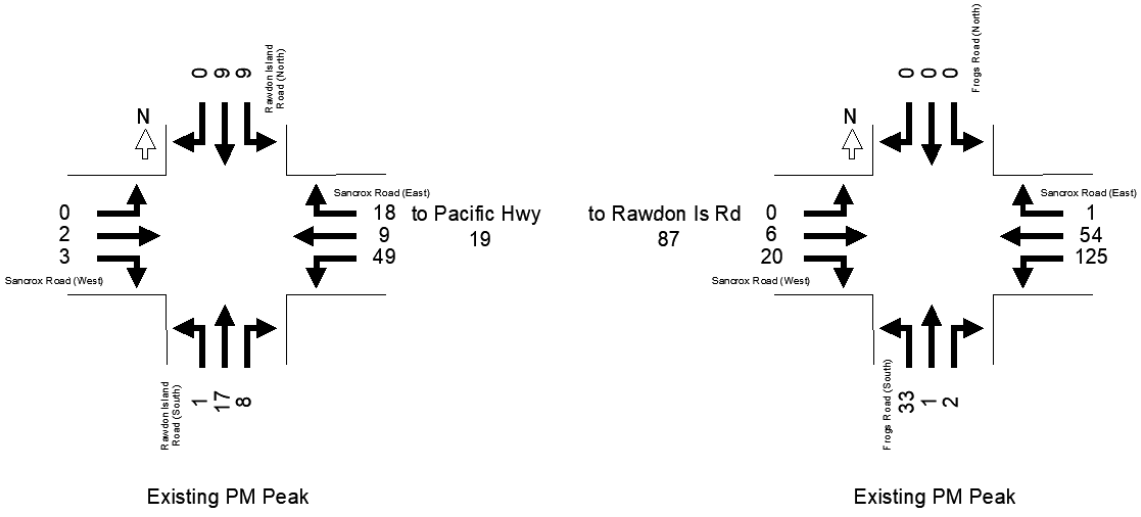


Figure 2.11 – EXISTING PM PEAK PERIOD TRAFFIC FLOWS (BOTH INTERSECTIONS)

A summary of the raw intersection counts is provided in Appendix C of this report.

Figures 2.12 and 2.13 summarise the Sancrox Road and Rawdon Island Road intersection configuration major turn requirements for the AM and PM peak periods:-

- Rawdon Island Road Southbound – Left into Sancrox Road,
- Rawdon Island Road Northbound – Right into Sancrox Road, and

- Sancrox Road Westbound – Left into Rawdon Island Road.
- Sancrox Road Westbound – Right into Rawdon Island Road.

based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings.

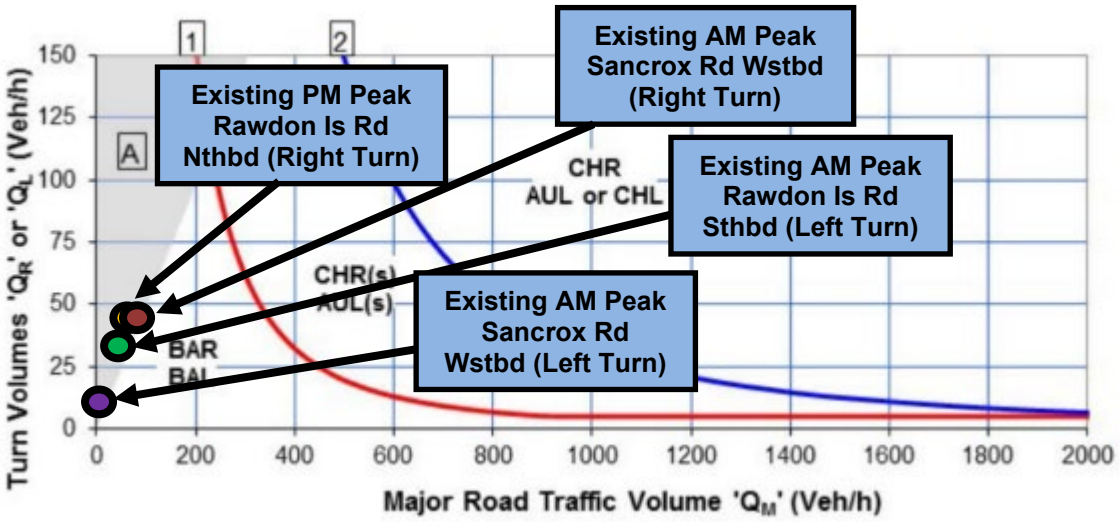


Figure 2.12 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (MAJOR TURN MOVEMENTS FOR AM PEAK AT SANCROX ROAD & RAWDON ISLAND ROAD INTERSECTION)

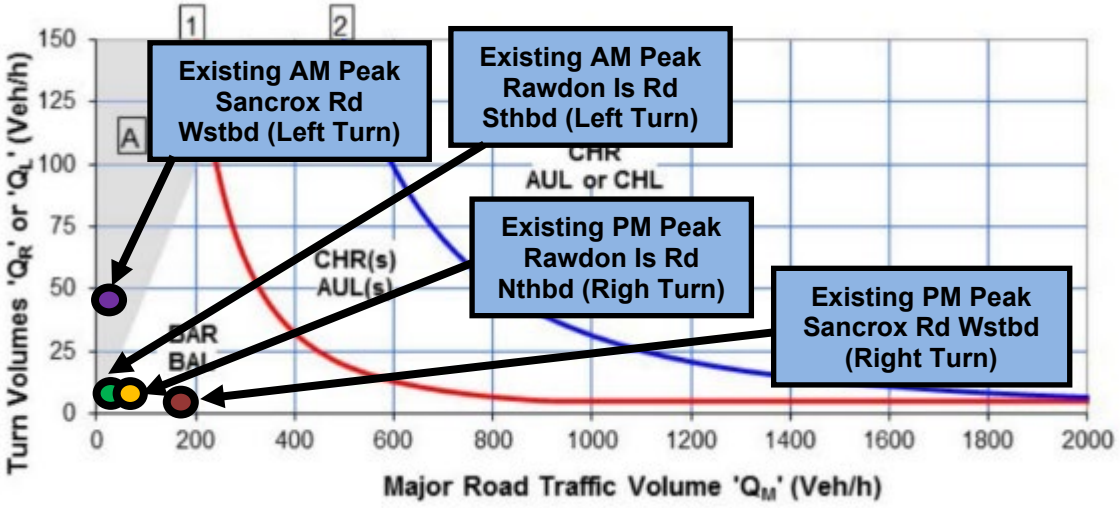


Figure 2.13 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (MAJOR TURN MOVEMENTS FOR PM PEAK AT SANCROX ROAD & RAWDON ISLAND ROAD INTERSECTION)

The assessment, based in the existing traffic volumes at the time, indicates the intersection configuration is justified as a BAR / BAL layout for both the AM and PM peak periods.

3. FUTURE TRAFFIC ASSESSMENT

3.1 Land Use Traffic Generation Rates

As outlined in section 1.2 of this assessment the following proposed land uses will be part of the overall redevelopment of the Le Clos site:-

- Village Centre Site (approximately 1.0 hectares in area) Zone B2,
- Existing 3 of Residential (approximately 1.50 hectares in area) Zone E4,
- Approximately 638 Low Density Residential lots (approximately 73.2 hectares in area) Zone R1, and
- Approximately 42 Medium Density Residential lots (approximately 2.3 hectares in area) Zone R3

It shall be noted previous extensive traffic assessment had been completed for the study area based on large lot residential development Greater Sancrox Concept Road Layout Review & Traffic Modelling (SMEC, 2014). However, with the advent of Port Macquarie Hastings Council's Urban Growth Management Strategy (UGMS) this has now required a rework of the future traffic generation for the development areas to small lot residential.

3.1.1 Traffic Flow Generation

The primary reference documents used to determine the traffic flow generated by the developments are the "RMS Guide to Traffic Generating Developments" and PMHC Development Control Plan 2013.

3.1.2 RMS Guidelines

The RMS Guide to Traffic Generating Developments provides the following trip generation rates to be used for the land use components to be considered for this development.

- Village Centre Site
  - 12.3 to 16.3 peak hour trips for up to 10 000sqm GLFA *(RMS Technical Direction – TD13-04a)*
- Existing Residential
  - 4 to 6.5 trips per dwelling
  - 0.4 to 0.65 weekday peak hour trips per dwelling *(RMS Guide to Traffic Generating Developments)*
- Low Density Residential
  - 7.4 daily trips per dwelling in regional areas.
  - 0.75 peak hour trips per dwelling in regional areas. *(RMS Technical Direction – TD13-04a)*

3.1.3 Port Macquarie Hastings Council Guidelines

Port Macquarie Hastings Council (PMHC) does not prescribe traffic generation rates.

3.1.4 Traffic Generation Rates to be Adopted for this Assessment

Based on the above information the following assumptions have been made for the determination of future traffic generation per land use as proposed by this development.

- Village Centre Site
  - 12.3 peak hour trips for up to 10 000sqm GLFA
- Medium Density Residential
  - 4 to 6.5 trips per dwelling
  - 0.4 to 0.65 weekday peak hour trips per dwelling

(RMS Guide to Traffic Generating Developments)

- Low Density Residential
  - 7.4 daily trips per dwelling in regional areas.
  - 0.75 peak hour trips per dwelling in regional areas.
    (RMS Technical Direction – TD13-04a)

3.2 Proposed Traffic Generation – Le Clos Development

Table 3.20 provides a summary of the future traffic generation is provide for the land use components of the development.

Land Use	Area (ha)	Daily Trip Rate	Peak Hour Trip Rate	Daily Trip Generation	Peak Hour Trip Generation
Village Centre Site	1.0	Nil	12.3	5000	500
Low Density	57.3	7.4	0.75	4722	479
Medium Density	2.3	4.0 - 6.5	0.4-0.65	160-260	16-26
Total Development Trip Generation				9982	1005

Table 3.20 – SUMMARY OF FUTURE TRAFFIC GENERATION

3.3 Possible Future Traffic Generation – Study Area

In order to give a true indication of the impacts future traffic volumes will have on the local road network an assessment of the possible future development yields in the area needs to be assessed.

For the purposes of this assessment Figure 3.30 indicates the study area to be assessed to determine possible future traffic generation. The study area generally takes in the following localities:-

- Bengal Street,
- Sancrox Central (Riverbend Road),
- Sancrox Central (South of Sancrox Road),
- Walters Road (North of Walters Road only)
- Le Clos Verdun,
- Le Clos,
- Sancrox North
- Freeman / Stubbs Land,
- Bushlands Drive, and
- Sancrox Employment Lands (North of Sancrox Road)

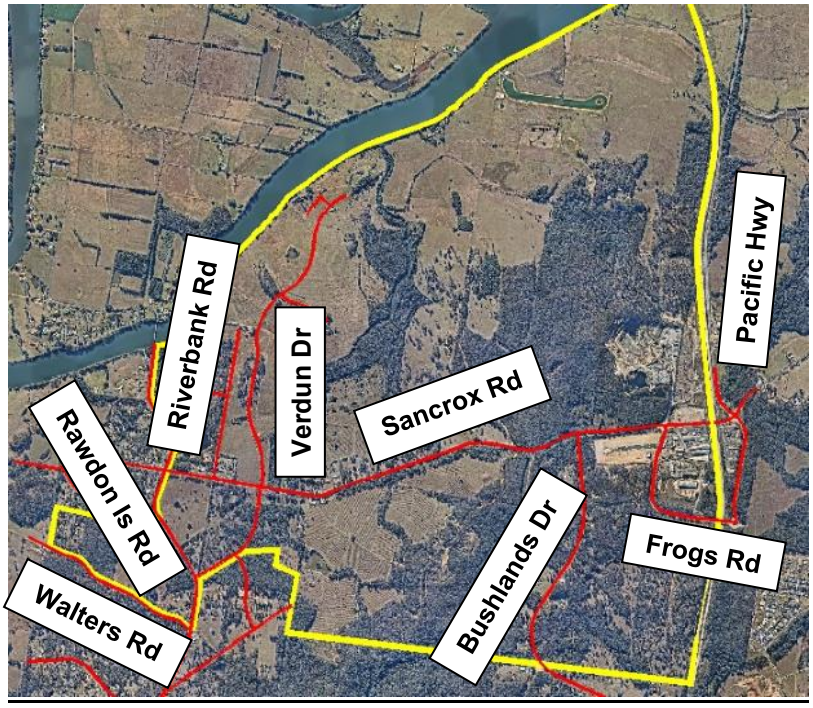


Figure 3.30 – STUDY AREA

Table 3.30 provides an indication of the assumed traffic generation each locality will generate over a design horizon period of 30 years to the year 2050.

Locality	Peak Hour Trip Generation			Daily Trip Generation		
	2030	2040	2050	2030	2040	2050
Bengal Street	19	38	38	190	380	380
Sancrox Central (Riverbend Road, North)	58	126	254	592	1260	2530
Sancrox Central (Riverbend Road, South)	80	164	330	800	1640	3298
Walters Road (North of Walters Road)	11	22	22	110	220	220
Le Clos Verdun	31	92	140	310	922	1397
Le Clos	See Section 3.2			See Section 3.2		
Sancrox North	35	80	160	29	78	126
Freeman / Stubbs Land	146	388	805	1455	3880	8046
Bushlands Drive	27	40	70	270	395	700
Sancrox Employment Lands (North of Sancrox Road)	1388	1454	1454	13875	16971	16971

Table 3.30 – SUMMARY OF STUDY AREA FUTURE TRAFFIC GENERATION

3.3.1 Traffic Generation Calculation Assumptions

The following assumptions have been used in order to calculate the above traffic generations for the study area:-

- All areas have been assumed to be zoned Residential Zone R1 and R3 (E4 existing) with exception being the Employment (Industrial) Land accessing Frogs Road to the north of the study area.
- See Section 3.2 of this report for a detailed assessment of the proposed land uses assessed for the Le Clos development traffic generation,
- A lot yield of 11 lots per hectare was used to calculate the number of lots,

- Traffic generation rates of 7.4 trips per day and 0.75 trips per peak hour were used for low density residential and 4.0 to 6.5 daily trips and 0.4 to 0.65 peak hour trips for these land uses. (In accordance with the RMS Technical Direction – TD13-04a), and
- Traffic generation rates of 5 trips per 100m^2 Gross Floor Area (GFA) per day and 0.5 trips per 100m^2 GFA per peak hour were used for the employment land use. (In accordance with the *Greater Sancrox Concept Road Layout Review & Traffic Modelling Report, SMEC 2014*).

3.4 Traffic Generation – Employment Land (Sancrox North)

As part of assessing the future road network impacts this study will assess the industrial land area known as Sancrox North located on the northwestern corner of the intersection of the Pacific Motorway and Sancrox Road.

In April 2013 Port Macquarie Hastings Council provided development approval for a 72 lot industrial subdivision. (See Figure 3.40). It shall also be noted the existing Hanson's Quarry has lodged a development application with the Department of Planning, Industry and Environment to expand its current footprint and output.

This traffic study will detail the traffic to be generated by these development in order to assess the future road network impacts.

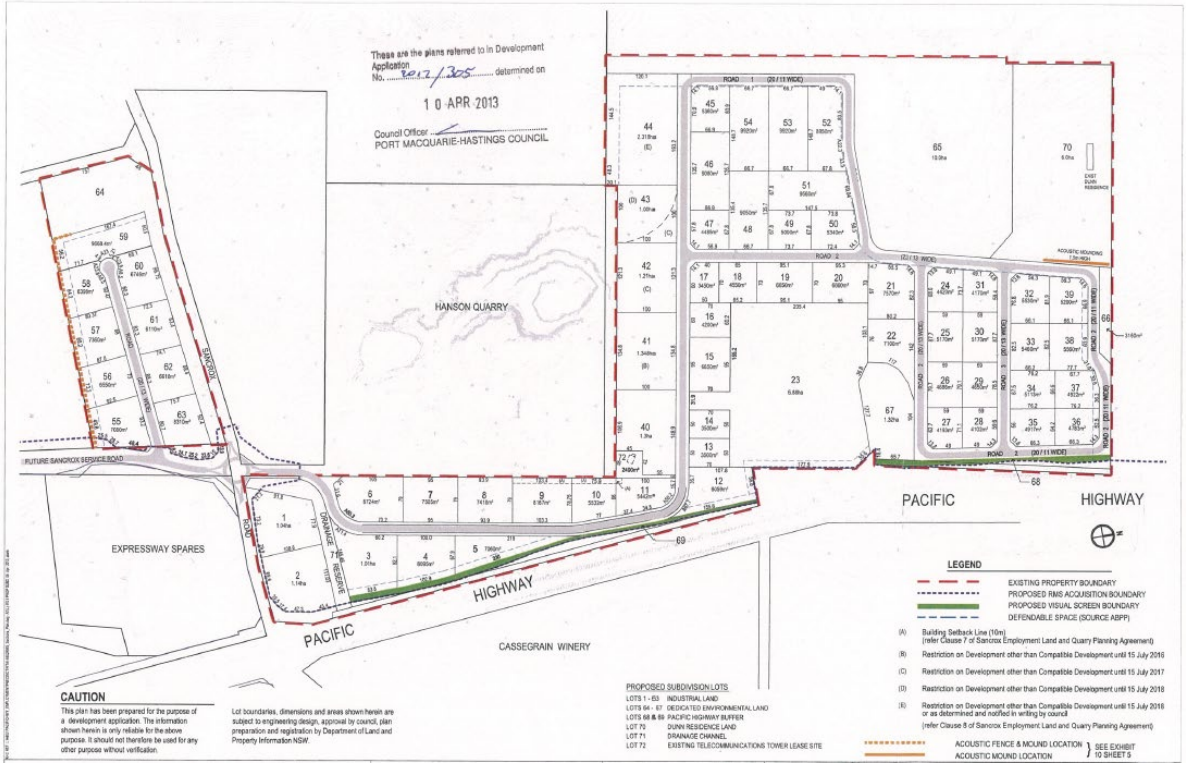


Figure 3.40 – APPROVED INDUSTRIAL LAND SUBDIVISION LAYOUT

3.4.1 Sancrox North Industrial Subdivision

As indicated Port Macquarie Hastings Council has recently approved a industrial subdivision for the area known as Sancrox North.

As part of the approval process a Traffic Study for the development was completed TTM Consulting (August 2009) to assess the future road network impacts created by this development. The following information is provided as a snapshot of the parameters used in the TTM report.

- 4 different industrial land uses were assessed,
- RMS peak hour traffic generation rates assumed 2571 peak hour trips *(Table 2, TTM report),*
- 2202 peak trips using the RMS Employee Density calculation. *(These figures were adopted in the report),*
- Traffic Assignment, AM Peak: 80% IN / 20% OUT, PM Peak: 20% IN / 80% OUT
- 2% Traffic Growth Rate *(adopted from SMEC Area 13 Sancrox Traffic Study – 2007),*
- A Design Horizon of 20 years was used *(to the year 2029),*
- The Pacific Highway Upgrade had not been commenced at the time of the TTM report being prepared, and
- The report only assessed the assessed the future impacts on the intersection of the Pacific Highway and Sancrox Road. There is detailed assessment of any traffic impacts west of Expressway Spares *(now Frogs Road).*

For the purposes of this Le Clos rezoning Traffic Study the above peak hour traffic generation figures will be used as Port Macquarie Hastings Council has provided development approval based on these figures and assumptions.

3.4.2 Hanson Quarry Development Application Proposal

At the time of this report being prepared StreetWise Road Safety & Traffic Services were made aware the existing Hanson's Hardrock Quarry located on the northern side of Sancrox Road off Frogs Road had lodged a development application with the Department of Planning, Industry and Environment to expand its operation. The quarry currently has approval to extract 455 000 tonnes per annum over 20 years and wants to increase this output to 750 000 tonnes per annum for a period of 30 years. The area of the quarry will increase from 17.2 hectares to 48.60 hectares.

The proposed expansion will increase trip movements to approximately 576 trips per day (24 peak hour trips).

3.4.3 Employment Land Take up / Development in the Municipality

Port Macquarie Hastings Council completed a review of its Industrial Land Strategy in 2015. As part of this review the report suggested the Port Macquarie Hastings area would require the rezoning of 78 to 135 hectares of land to meet the demand up to 2036. This equates to a take up (development of) 4.9 and 8.4 hectares a year over this period. The report also states the Sancrox Employment Land area including Sancrox North takeup would be higher given its locational advantage.

Since development approval for the Sancrox North subdivision was granted in April 2013 there has been approximately 2.41 hectares developed up to September 2019. This represents a take up of 3.7 hectares a year for this period. This is approximately 1.2 hectares a year less than the minimum take up prescribed in the Industrial Land Strategy review. For the purposes of this assessment the existing development take up rate for Sancrox North and the minimum Industrial Land Strategy review rates will be used. Table 3.40 provides a summary of the future traffic generation for the

Sancrox North area based on the design horizon used in this report. For the worst case full development of the Sancrox North Industrial area will be reached in 12.2 years.

Design Horizon (Years)	3.7 hect / yr take up rate (Hectares)	Traffic Generation		4.9 hect / yr take up rate (Hectares)	Traffic Generation		Comments
		Daily (5 trips / 100m² GFA)	Peak Hr (0.5 trips / 100m² GFA)		Daily (5 trips / 100m² GFA)	Peak Hr (0.5 trips / 100m² GFA)	
5	18.5	6938	694	24.5	9188	919	
9.2				45.3	16971	1697	Full Development for 4.9 hect rate
10	37.0	13875	1388	49.0	18375	1838	
12.2	45.3	16971	1697				Full Development for 3.7 hect rate
15	55.5	20813	2081	73.5	27563	2756	Not Required
20	74.0	27750	2775	98.0	36750	3675	Not Required
25	92.5	34688	3469	122.5	45938	4594	Not Required
30	111.0	41625	4163	147.0	55125	5513	Not Required

Table 3.40 – SUMMARY OF INDUSTRIAL LAND TRAFFIC GENERATION PER DEVELOPMENT (HECTARE) TAKE UP RATE

It shall also be noted, Council staff have indicated there is currently more than 200 hectares of zoned industrial land that remains vacant in the municipality and it is unlikely any further land will be rezoned industrial in the near future.

3.5 Inclusion of the Fernbank Creek Investigation Area in this assessment

As part of determining the study area to be assessed for this report input from Port Macquarie Hastings Council staff was sought. Council staff indicated they would like to see the inclusion of the Fernbank Creek area located to the east of the Pacific Highway included as part of this assessment.

Discussions were had on how much this area would impact the study area. However, it is felt the Fernbank Creek area would have minimal impacts on the proposed future traffic flows of Sancrox Road, Bushlands Drive and Rawdon Island Road.

The reason this is most of the traffic generated in the Fernbank Creek area would more than likely travel east via Fernbank Creek Road and Hastings River Drive. Any traffic flows to the north and south would likely via the Pacific Highway. Any possible trips to the west (possibly Wauchope) would more than likely be via the Pacific Highway to the Oxley Highway or via the Sancrox Interchange onto Bushlands Drive and the Oxley Highway. All trips would be considered to be internalised accessing the future Village Centre proposed as part of the Le Clos development.

3.6 Traffic Distribution

The following traffic distribution assumptions have been made for this assessment.

3.6.1 Traffic Distribution – Le Clos

The Le Clos development will utilise two access points for future egress to and from the development to be known as:-

- Road No.1 – Eastern Access location, and
- Road No.2 – Western Access location.

The following traffic distribution assumptions were made for this development:-

- Road No.1 – 12% of total development traffic generation, and
- Road No.2 – 88% of total development traffic generation.

3.6.2 Traffic Distribution – Bengal Street

It is assumed 100% of the total future traffic generation for the Bengal Street area will access Sancrox Road via Rawdon Island Road.

3.6.3 Traffic Distribution – Sancrox Central (Riverbank Road, North)

The following traffic distributions have been assumed for the Sancrox Central (Riverbank Rd, North) area:-

- 50% of future traffic generation directly to Rawdon Island Road (north), and
- 50% of future traffic generation directly to Sancrox Road.

3.6.4 Traffic Distribution – Sancrox Central (Riverbank Road, South)

The following traffic distributions have been assumed for the Sancrox Central (Riverbank Rd, South) area:-

- 50% of future traffic generation directly to Rawdon Island Road (south), and
- 50% of future traffic generation directly to Sancrox Road.

3.6.5 Traffic Distribution – Walters Road (Northern Side)

The following traffic distributions have been assumed for the Sancrox Central area:-

- 50% of future traffic generation Walters Road, Northern Side directly to Rawdon Island Road (north), and
- 50% of future traffic generation Walters Road, Northern Side directly to Rawdon Island Road (south). Not part of this assessment.

3.6.6 Traffic Distribution – Le Clos Verdun (Verdun Drive)

It is assumed 100% of the total future traffic generation for the Le Clos Verdun area will access Sancrox Road.

3.6.7 Traffic Distribution – Sancrox North

It is assumed 100% of the total future traffic generation for the Sancrox North area will access Sancrox Road via the Road No.2 (Le Clos) access location.

3.6.8 Traffic Distribution – Freeman / Stubbs Land

The following traffic distributions have been assumed for the Freeman / Stubbs land area:-

- 30% of future traffic generation to access Sancrox Road via Road No.2 (Le Clos) access location, and
- 70% of future traffic generation to access Sancrox Road via Road No.1 (Le Clos) access location.

3.6.9 Traffic Distribution – Bushlands Drive

The following traffic distributions have been assumed for the Bushlands Drive area:-

- 50% of future traffic generation to access Sancrox Road, and
- 50% of future traffic generation to access Sancrox Road. Not part of this assessment.

3.6.10 Traffic Distribution – Sancrox Employment Land (North of Sancrox Road)

It is assumed 100% of the total future traffic generation for the Sancrox Employment Land (north of Sancrox Road) will access Sancrox Road via the Frogs Road roundabout.

3.7 Traffic Assignment

The following traffic assignment assumptions have been made for this assessment.

3.7.1 Possible Future Traffic Assignment – Rawdon Island Road Intersection

- From Rawdon Island Road (North) including Bengal Street and Sancrox Central (Riverbank Road, North) direct access to Rawdon Island Road (North)
  - 1% to the west (Sancrox Road, west)
  - 31% to the south (Rawdon Island Road, south), and
  - 68% to the east (Sancrox Road, east)

- From Rawdon Island Road (South) including Walters Road (north of Walters Road) and Sancrox Central (South) direct access to Rawdon Island Road (South)
  - 2% to the west (Sancrox Road, west)
  - 28% to the north (Rawdon Island Road, north), and
  - 70% to the east (Sancrox Road, east)

- From Sancrox Road (West)
  - 4% to the north (Rawdon Island Road, north)
  - 64% to the east (Sancrox Road, east), and
  - 32% to the south (Rawdon Island Road, south)

- From Sancrox Road (East) including all westbound traffic east of the Rawdon Island Road intersection.
  - 5% to the west (Sancrox Road, west)
  - 15% to the north (Rawdon Island Road, north), and
  - 80% to the south (Rawdon Island Road, south)

3.7.2 Possible Future Traffic Assignment – Riverbank Road Intersection

- From Rawdon Island Road Intersection including all eastbound traffic.
  - 10% to the north (Riverbank Road, north)
  - 80% to the east (Sancrox Road, east), and
  - 10% to the south (Riverbank Road, south)
- From Sancrox Road (East) including all eastbound traffic.
  - 15% to the north (Riverbank Road, north)
  - 70% to the west (Sancrox Road, east), and
  - 15% to the south (Riverbank Road, south)
- From Riverbank Road (North)
  - 30% to the west (Sancrox Road, west)
  - 10% to the south (Riverbend Road, south), and
  - 60% to the east (Sancrox Road, east)
- From Riverbank Road (South)
  - 30% to the west (Sancrox Road, west)
  - 10% to the north (Riverbend Road, north), and

- 60% to the east (Sancrox Road, east)

3.7.3 Traffic Assignment – Verdun Drive Intersection

- From Riverbend Road Intersection including all eastbound traffic.
  - 5% to the north (Verdun Drive), and
  - 95% to the east (Sancrox Road, east),
- From Sancrox Road (East) including all eastbound traffic.
  - 1% to the north (Verdun Drive), and
  - 95% to the east (Sancrox Road, east)
- From Verdun Drive
  - 30% to the west (Sancrox Road, west), and
  - 70% to the east (Sancrox Road, east)

3.7.4 Traffic Assignment – Road No.2 (Le Clos) Intersection

- From Verdun Drive Intersection including all eastbound traffic.
  - 1% to the north (Road No.2, north)
  - 69% to the east (Sancrox Road, east), and
  - 30% to the south (Road No.2, south)
- From Road No.1 Intersection including all westbound traffic.
  - 20% to the north (Road No.2, north)
  - 50% to the west (Sancrox Road, west), and
  - 30% to the south (Road No.2, south)
- From Road No.2 (North)
  - 25% to the west (Sancrox Road, west)
  - 20% to the south (Road No.2, south), and
  - 55% to the east (Sancrox Road, east)
- From Road No.2 (South)
  - 29% to the west (Sancrox Road, west)
  - 1% to the north (Road No.2, north), and
  - 70% to the east (Sancrox Road, east)

3.7.5 Traffic Assignment – Road No.1 (Le Clos) Intersection

- From Road No.2 Intersection including all eastbound traffic.
  - 10% to the north (Road No.1, north)
  - 70% to the east (Sancrox Road, east), and
  - 20% to the south (Road No.1, south)
- From Bushlands Drive Intersection including all westbound traffic.
  - 20% to the north (Road No.2, north)
  - 60% to the west (Sancrox Road, west), and
  - 20% to the south (Road No.2, south)
- From Road No.1 (North)
  - 25% to the west (Sancrox Road, west)
  - 20% to the south (Road No.2, south), and
  - 55% to the east (Sancrox Road, east)

- From Road No.1 (South)
  - 29% to the west (Sancrox Road, west)
  - 1% to the north (Road No.2, north), and
  - 70% to the east (Sancrox Road, east)

3.7.6 Possible Future Traffic Assignment – Bushlands Drive Intersection

- From Road No.1 Intersection including all eastbound traffic.
  - 70% to the east (Sancrox Road, east), and
  - 30% to the south (Bushlands Drive)
- From Frogs Road Intersection including all westbound traffic.
  - 80% to the west (Sancrox Road, west), and
  - 20% to the south (Bushlands Drive)
- From Bushlands Drive
  - 25% to the west (Sancrox Road, west)
  - 20% to the south (Road No.2, south), and
  - 55% to the east (Sancrox Road, east)

3.7.7 Possible Future Traffic Assignment – Frogs Road Intersection

- From Bushlands Drive Intersection including all eastbound traffic.
  - 20% to the north (Frogs Road, north)
  - 40% to the east (Pacific Highway, north), and
  - 40% to the south (Pacific Highway, south)
- From Sancrox Road (East) including all westbound traffic.
  - 20% to the north (Frogs Road, north)
  - 50% to the west (Sancrox Road, west), and
  - 30% to the south (Frogs Road, south)
- From Frogs Road (North)
  - 10% to the west (Sancrox Road, west)
  - 40% to the south (Frogs Road, south), and
  - 50% to the east (Sancrox Road, east)
- From Frogs Road (South)
  - 20% to the west (Sancrox Road, west)
  - 60% to the north (Frogs Road, north), and
  - 20% to the east (Sancrox Road, east)

4. SANCROX ROAD FUTURE STRUCTURE / CORRIDOR PLAN

4.1 Sancrox Road Structure Plan

Port Macquarie Hastings Council has indicated they have not yet commenced strategic planning for the area known as Sancrox / Rawdon Island. In order for this development to gain development approval some background strategic traffic planning will be undertaken as part of the assessment for future traffic impacts by this development.

It is hoped the assessments completed for this site and the study area will be utilised by Port Macquarie Hastings Council for future strategic planning of the area in question.

Currently there are six public access points / intersections located along Sancrox Road:-

1) Rawdon Island Road,
2) Riverbank Road,
3) Verdun Drive,
4) Le Clos,
5) Bushlands Drive, and
6) The Pacific Highway

Figure 4.10 indicates the available land area that can be rezoned and developed as residential (orange hatch) and / or industrial land (blue hatch).

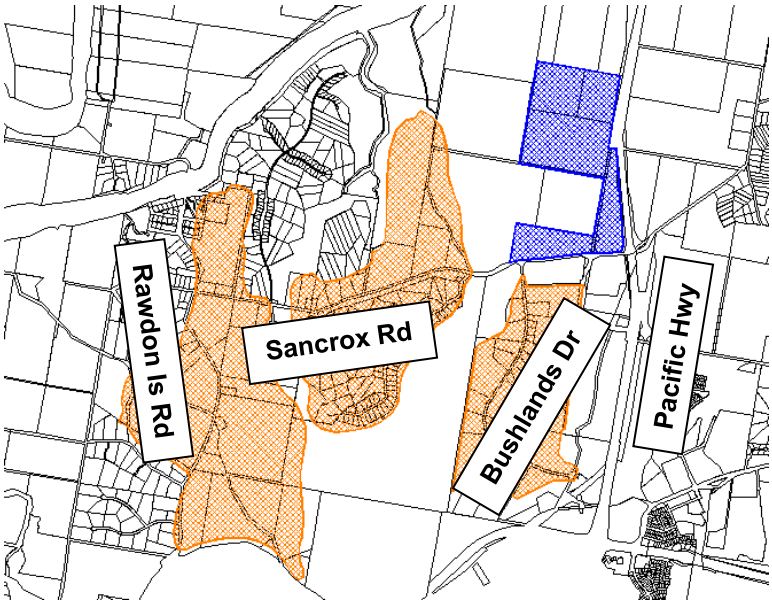


Figure 4.10– LAND SUBJECT TO REZONING FOR FUTURE RESIDENTIAL & IDUSTRIAL DEVELOPMENT

Taking into account the locations of the land available for rezoning in the study area it is recommended the existing access points:-

- Rawdon Island Road,
- Riverbank Road (north),
- Verdun Drive,
- Bushlands Drive, and
- Frogs Road.

along with the addition of the two locations proposed by the Le Clos development and a Riverbank Road (south) be utilised for future controlled access to these areas.

This report will give an indication of the possible future upgrades required for Sancrox Road at these locations. The future upgrades will be assessed based on the derived future traffic generation yields for the study area. It shall be noted a detailed assessment will also be completed for the new intersections proposed as part of the Le Clos residential development.

4.2 Estimated Future Traffic Volumes – Study Area Wide

Based on the calculations for the possible traffic generation and assumptions for the distribution and assignment of the future traffic generation for the study area the following traffic flows have been derived for the nominated intersection for a design horizon of 30 years at 10 year intervals basing the flows on the worst case scenario of the 2019 AM peak period intersection counts and a traffic growth rate of 1.5% applied to the 2019 figures for a 30 year period for the Rawdon Island Road and Frogs Road intersections. Figures 4.20 to 4.26 provide a summary of possible predicted traffic flows for the access locations within the study area.

Based on these projected traffic volumes Section 3 of this assessment provides indications for the upgrade treatments at each of the intersections in question.

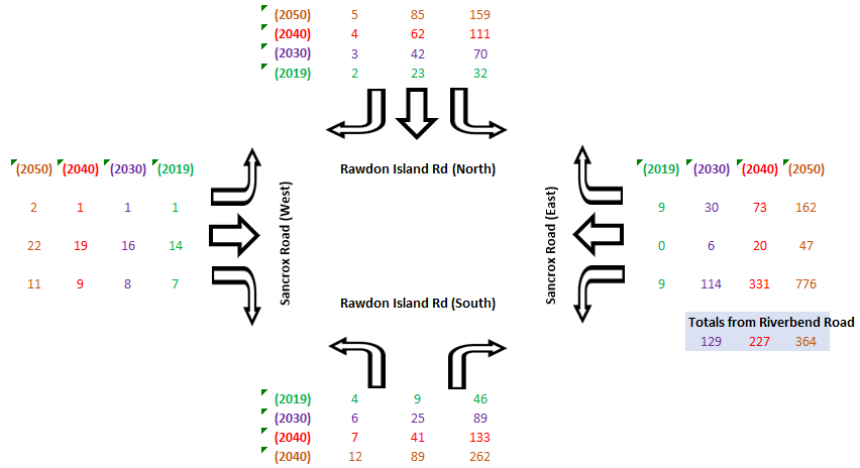


Figure 4.20 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & RAWDON ISLAND ROAD INTERSECTION (30 YEAR DESIGN HORIZON)

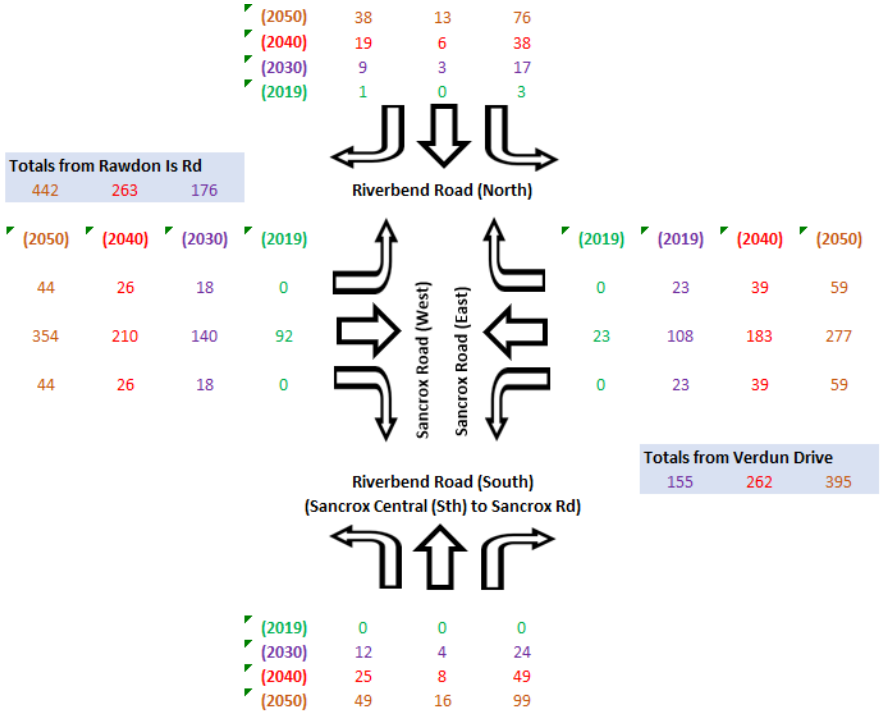


Figure 4.21 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & RIVERBEND ROAD INTERSECTION (30 YEAR DESIGN HORIZON)

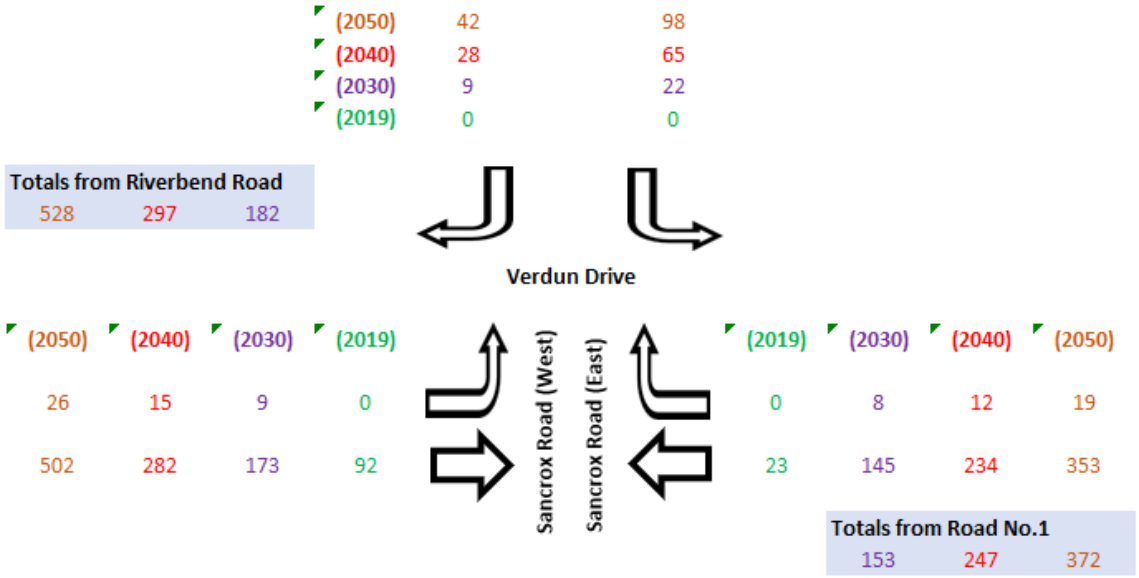


Figure 4.22 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & VERDUN DRIVE INTERSECTION (30 YEAR DESIGN HORIZON)

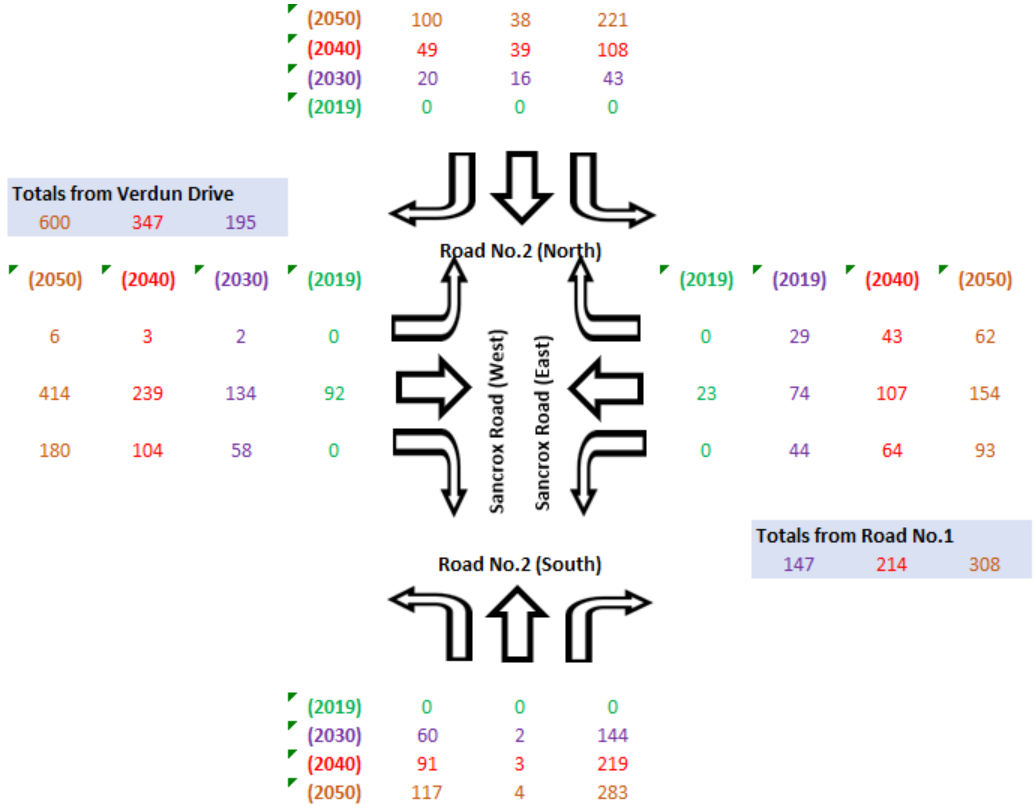


Figure 4.23 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & ROAD NO.2 (Le Clos) INTERSECTION (30 YEAR DESIGN HORIZON)

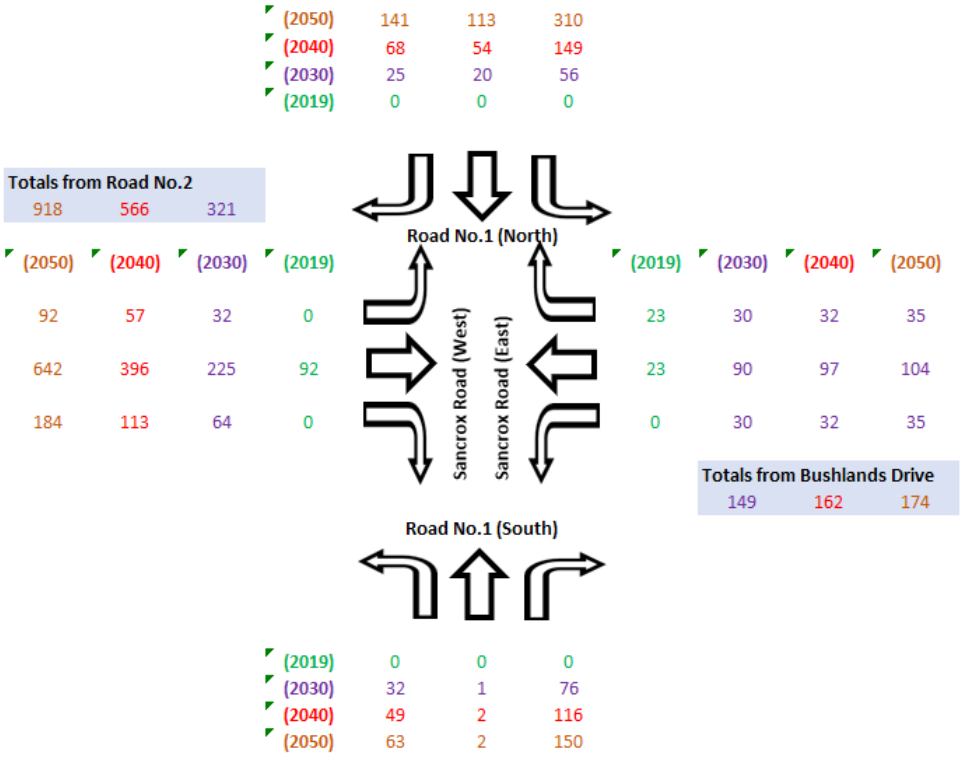


Figure 4.24 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & ROAD NO.1 (Le Clos) INTERSECTION (30 YEAR DESIGN HORIZON)

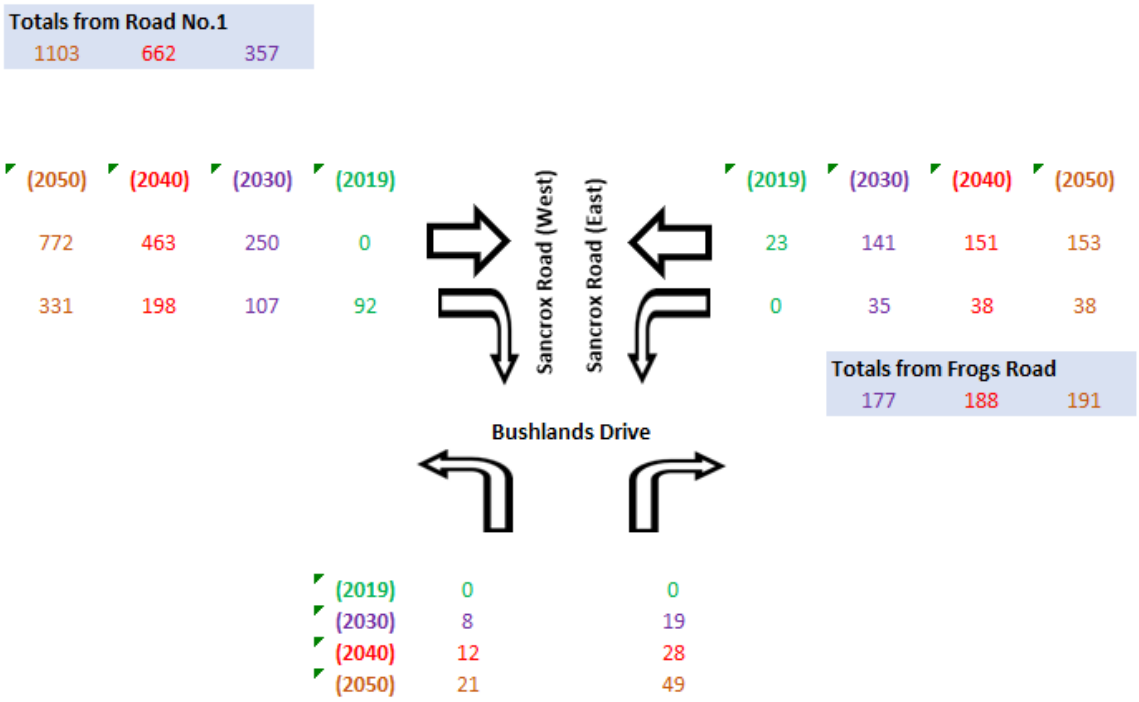


Figure 4.25 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & BUSHLANDS DRIVE INTERSECTION (30 YEAR DESIGN HORIZON)

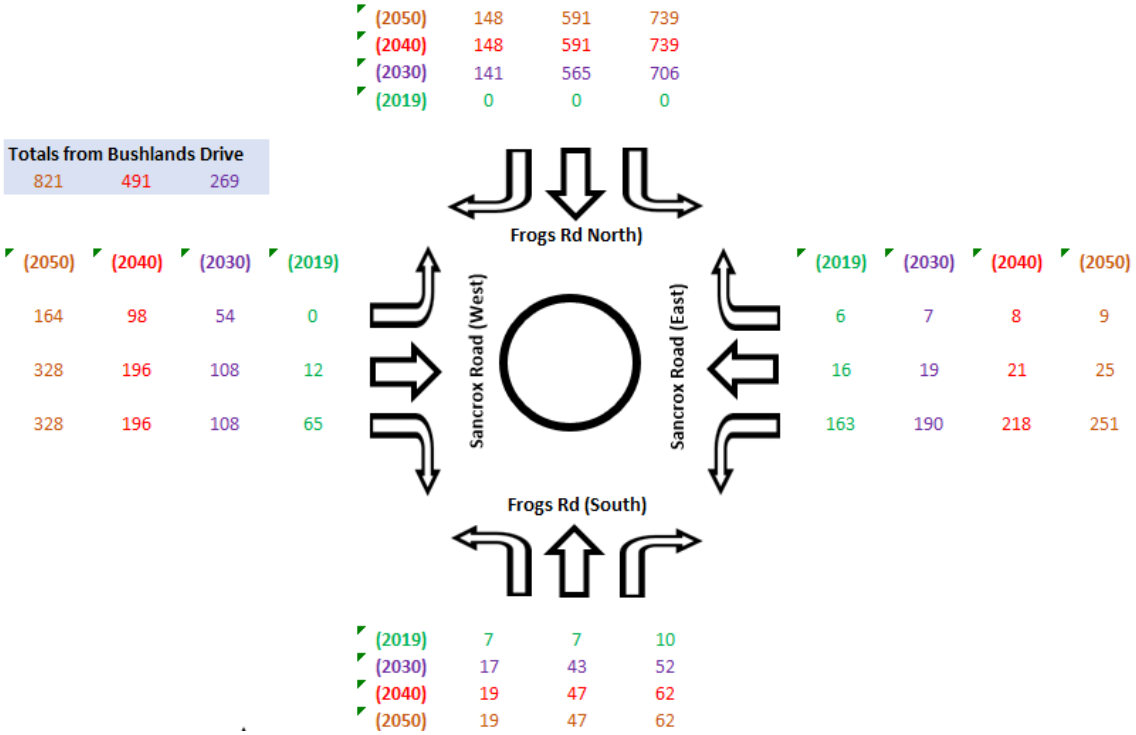


Figure 4.26 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & FROGS ROAD INTERSECTION (30 YEAR DESIGN HORIZON)

4.3 Possible Future Traffic Volumes – Le Clos Only

As part of this assessment there is a requirement to determine what road network upgrades will be triggered by this development so a Voluntary Planning Agreement (VPA) or Contributions Plan can be setup.

For the purposes of this assessment only the predicted future traffic generation for the Le Clos development will be added to the existing traffic volumes (section 2.1) to determine if the development triggers any upgrades to the road network, be it road widening or intersection upgrades.

Based on the calculations for the possible traffic generation and assumptions for the distribution and assignment of the traffic generation for the Le Clos development, the following traffic flows have been derived for the nominated intersections for a design horizon of 30 years at 10 year intervals basing the flows on the worst case scenario of the 2019 AM peak period intersection counts and a traffic growth rate of 1.5% applied to the 2019 figures for a 30 year period for the Rawdon Island Road and Frogs Road intersections. Figures 4.30 to 4.36 provide a summary of possible predicted traffic flows for the access locations within the study area.

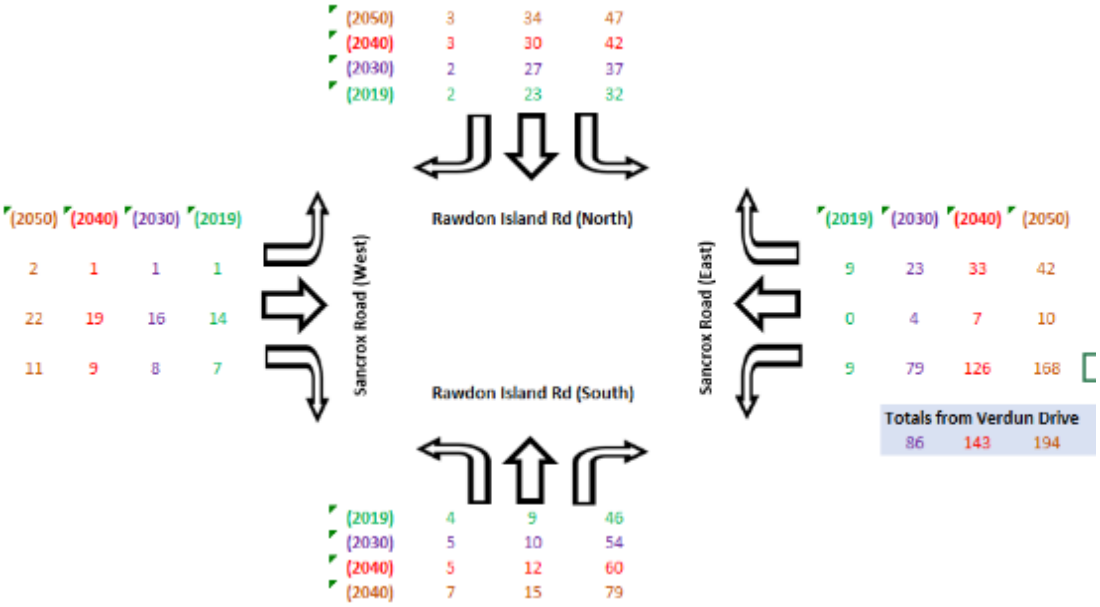


Figure 4.30 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & RAWDON ISLAND ROAD INTERSECTION (30 YEAR DESIGN HORIZON, LE CLOS FUTURE TRAFFIC GENERATION ONY)

Figure 4.31 summarises the Sancrox Road and Rawdon Island Road intersection configuration major turn requirements for the 30 year design horizon:-

- Rawdon Island Road Southbound – Left into Sancrox Road,
- Rawdon Island Road Northbound – Right into Sancrox Road, and
- Sancrox Road Westbound – Left into Rawdon Island Road.
- Sancrox Road Westbound – Right into Rawdon Island Road.

based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings.

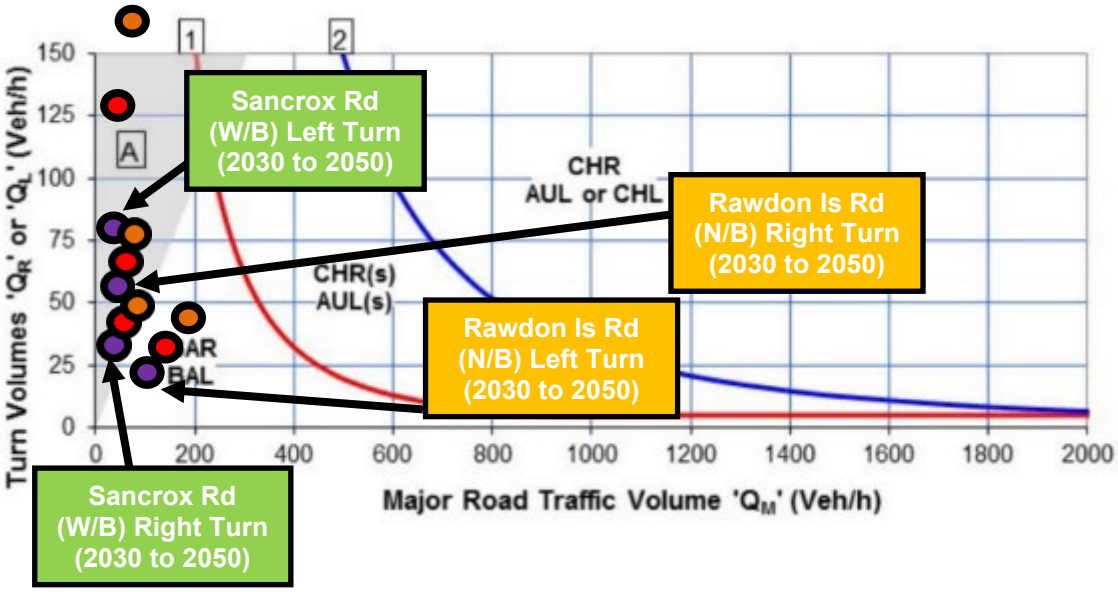


Figure 4.31 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS - SANCROX RD & RAWDON ISLAND ROAD INTERSECTION DESIGN HORIZON, (LE CLOS DEVELOPMENT ONLY)

The assessment, based on the projected traffic generation for the Le Clos development only, indicates the intersection configuration will operate adequately as a BAR / BAL layout for the 30 year design horizon. This is in keeping with the existing intersection configuration.

However, it shall be noted, four way cross junctions are not ideal from a road safety point of view where there could be a number of turn movements crossing each other creating sight distance issues for through traffic.

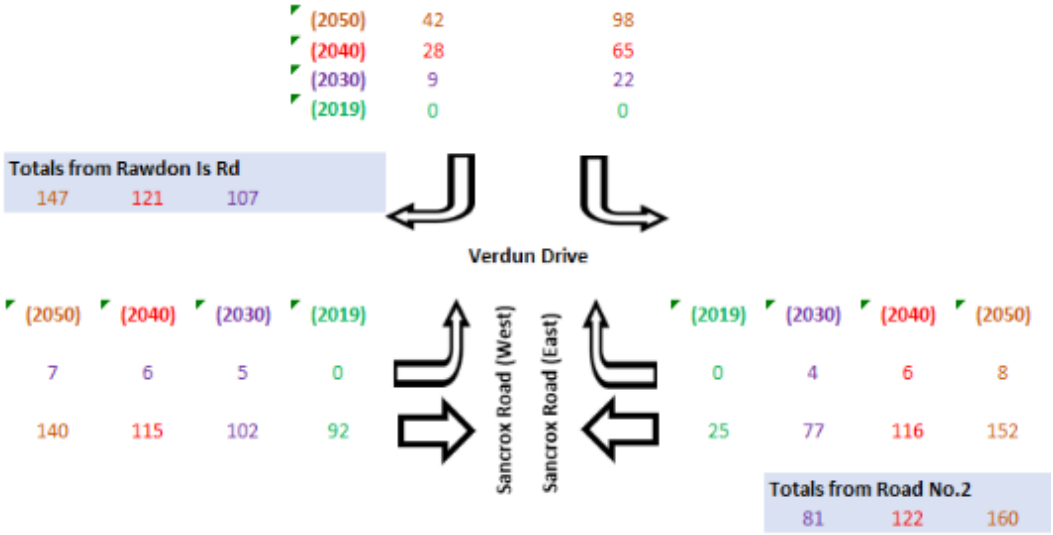


Figure 4.32 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & VERDUN INTERSECTION (30 YEAR DESIGN HORIZON, LE CLOS FUTURE TRAFFIC GENERATION ONY)

Figure 4.33 summarises the Sancrox Road and Verdun Drive intersection configuration major turn requirements for the 30 year design horizon:-

- Sancrox Road Eastbound – Left into Verdun Drive, and
- Sancrox Road Westbound – Right into Verdun Drive.

based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings.

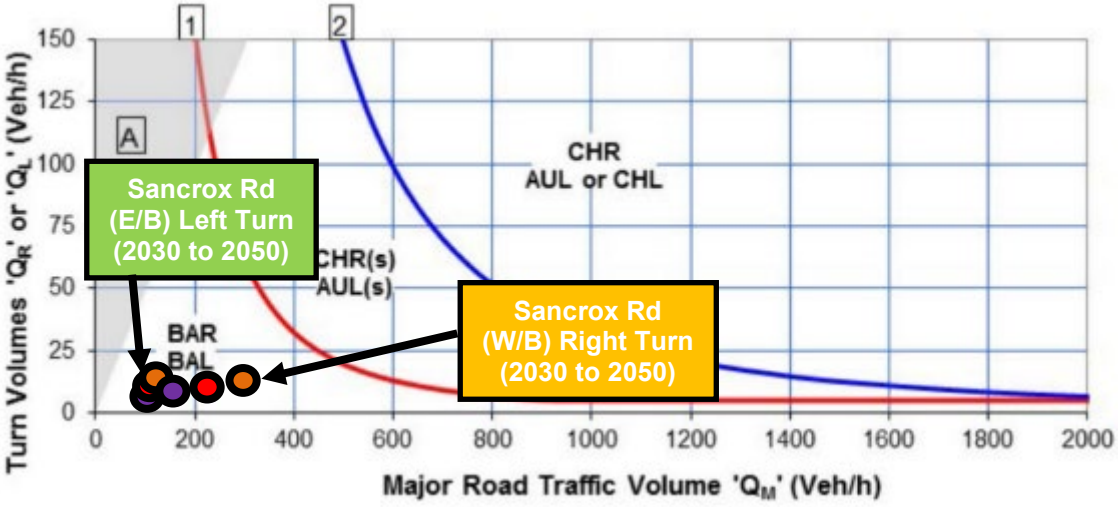


Figure 4.33 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS - SANCROX RD & VERDUN DRIVE INTERSECTION DESIGN HORIZON, (LE CLOS DEVELOPMENT ONLY)

The assessment, based on the projected traffic generation for the Le Clos development only, indicates the intersection configuration will operate adequately as a BAR / BAL layout for the 30 year design horizon.

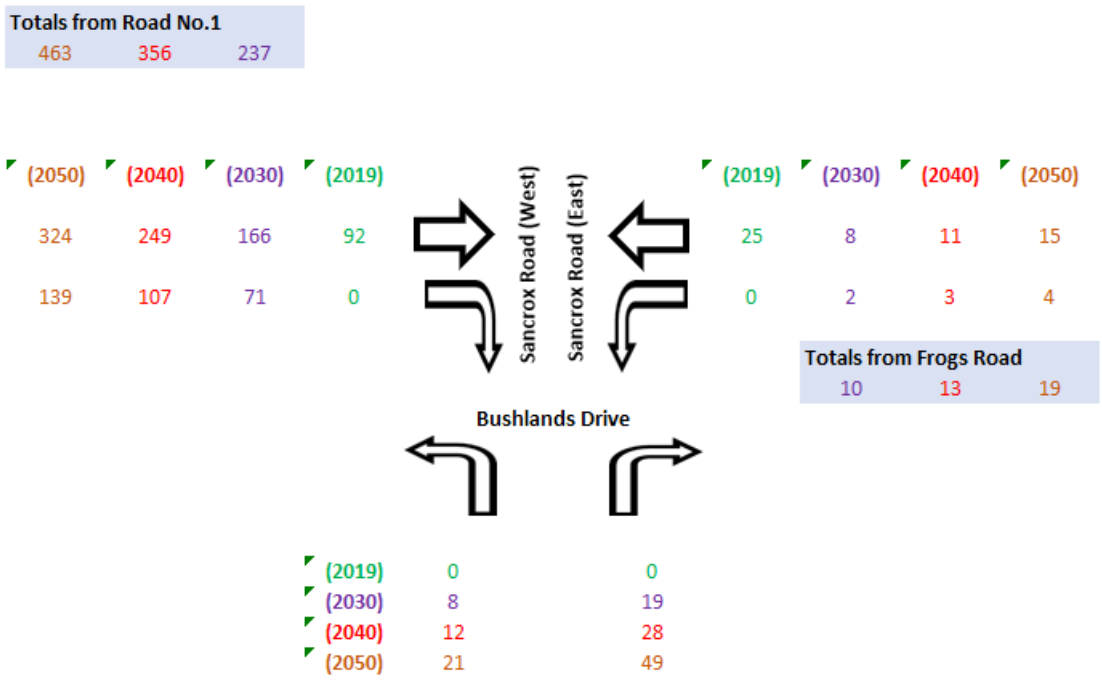


Figure 4.34 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & BUSHLANDS DRIVE INTERSECTION (30 YEAR DESIGN HORIZON, LE CLOS FUTURE TRAFFIC GENERATION ONY)

Figure 4.35 summarises the Sancrox Road and Verdun Drive intersection configuration major turn requirements for the 30 year design horizon:-

- Sancrox Road Eastbound – Right into Bushlands Drive, and
- Sancrox Road Westbound – Left into Bushlands Drive.

based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings.

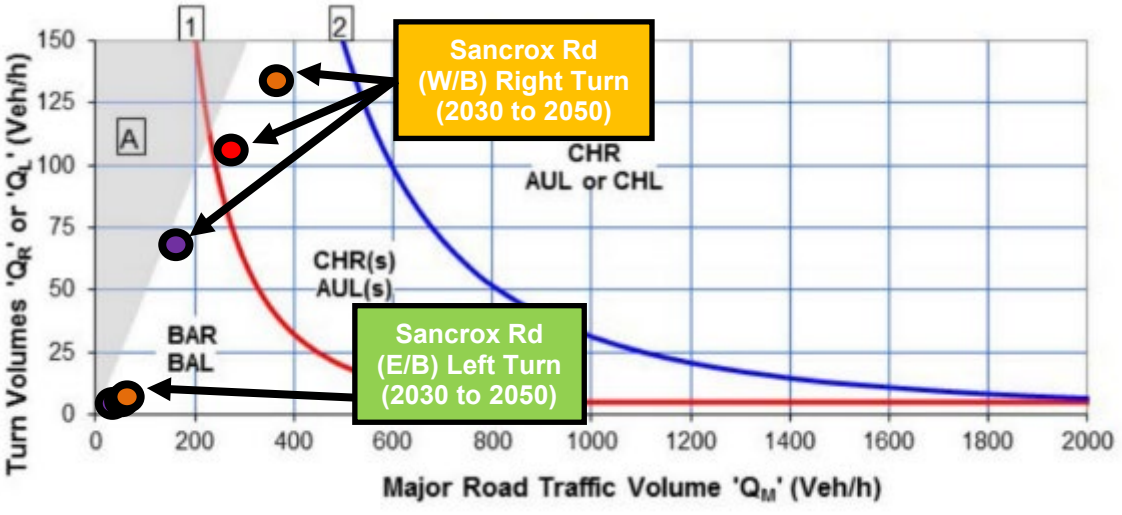


Figure 4.35 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS - SANCROX RD & VERDUN DRIVE INTERSECTION DESIGN HORIZON, (LE CLOS DEVELOPMENT ONLY)

The assessment, based on the projected traffic generation for the Le Clos development only, indicates the intersection configuration will need to be upgraded to a CHR(s) layout beyond the design horizon year of 2040.

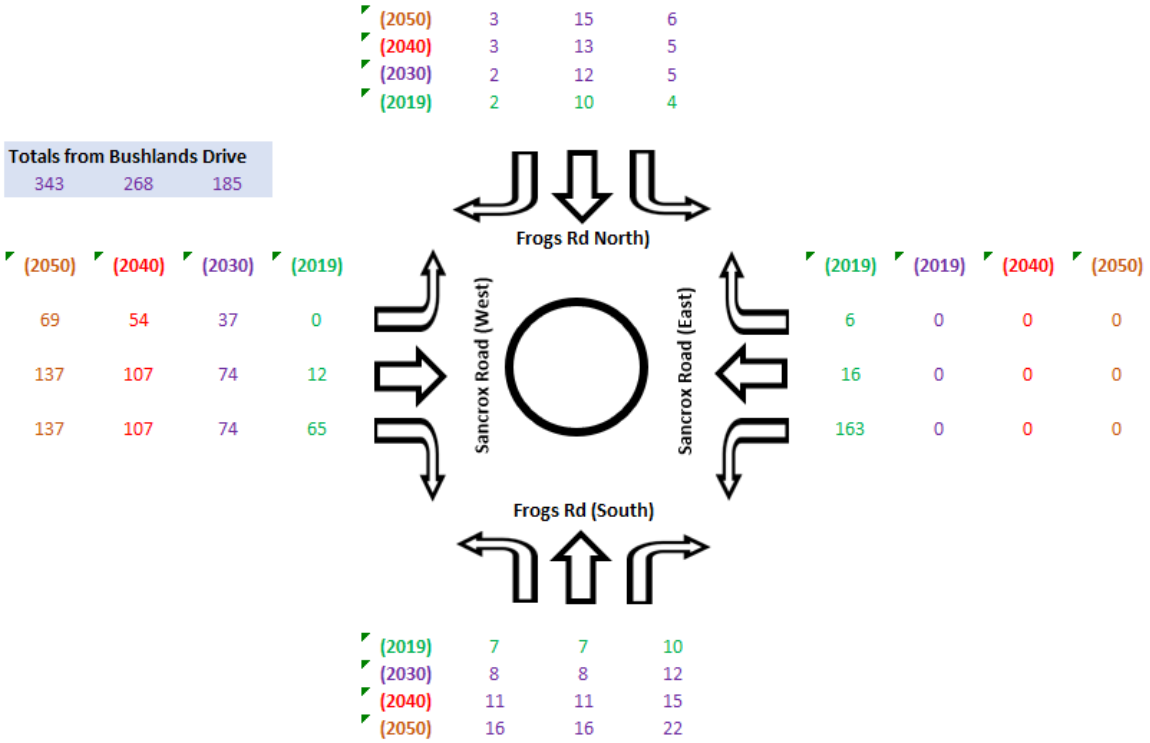


Figure 4.36 – FUTURE TRAFFIC FLOWS – SANCROX ROAD & FROGS ROAD INTERSECTION (30 YEAR DESIGN HORIZON, LE CLOS FUTURE TRAFFIC GENERATION ONY)

4.4 Future Road Capacity

Currently Sancrox Road is catering for approximately 2790 and Rawdon Island Road is 1420 vehicles per day, Annual Average Daily Traffic (AADT).
This assessment will determine Sancrox Road (19091 vpd, 1909 vphr two way) and Rawdon Island Road (15150 vpd, 1515 vphr two way) at the end of the 30 year design horizon.

In accordance with Port Macquarie Hastings Council's version of the AUSPEC-1 D01-Geometric Road Design (2003) – Table D1.5 these roads are classified as being Arterial Roads (up to 20000 vpd) with reference to the traffic volumes.

It shall be noted in accordance with the Austroads Guide to Traffic Management, Part 3 – Traffic Studies and Analysis (2013) the lane capacity for an urban road can be upto 900 vehicles per hour or 9000 vehicles per day (Table 4.30 below).

Type of lane	One-way mid-block capacity (pc/hr)
Median or inner lane	
• Divided road	1000
• Undivided road	900
Middle lane (of a 3-lane carriageway)	
• Divided road	900
• Undivided road	1000
Kerb lane	
• Adjacent to parking lane	900
• Occasional parked vehicles	600
• Clearway conditions	900

Source: Table 5.1 of Austroads Guide to Traffic Management Part 3

Table 4.30 – AUSTROADS LANE CAPACITY

Given this assessment has calculated Sancrox Road will be slightly over the 900 vphr threshold and Rawdon Island Road will fall under this threshold the remainder of this assessment will be based on the Austroads Guide and not the PMHC AUSSPEC version given it is the most upto date guide for the consideration of lane capacity.

With regard to Sancrox Road being over the Austroads threshold it shall be noted the 30 year design horizon predicted traffic volumes are very conservative in this assessment.

4.4.1 PMHC Review of AUSSPEC Version

As part of this assessment PMHC's Acting Group Manager of Infrastructure Planning, Cameron Hawkins was contacted re clarification of the matter of lane capacities. He clarified, PMHC at the time of this assessment being prepared, was completing a review of council's AUSSPEC version and was bringing it more into line with the more recent Austroads guidelines.

4.5 Future Road Corridor Plan – Vehicular Traffic

Given the above assessment criteria being completed the following road infrastructure upgrades are proposed as the future corridor plan for Sancrox Road. The design cross sections provided in this assessment are based on the Austroads Guide to Road Design, Part 3 – Geometric Design.

4.5.1 Sancrox Road

Generally as a minimum Sancrox Road should be upgraded for a design speed standard of 70km/h to:-

- Minimum of one travel lane in each direction (3.50m wide),
- 1.50m wide (clear width), 2.0m (if kerb & gutter) cycle lanes along edge of each travel lane,
- 0.5m shoulder outside of cycle lane. Given the future traffic volumes this will allow for emergency stopping where a vehicle can stand within the shoulder / cycle lane outside of the travel lane not obstructing traffic and therefore reducing any roadside hazard,
- 2.50m wide raised central median to allow for pedestrian / cyclist crossing, and
- Auxiliary lanes (turn lanes, acceleration & deceleration lanes) as required. (See intersection upgrades for details).

Figure 4.50 Provides an indication of the design cross section Sancrox Road should be upgraded to.

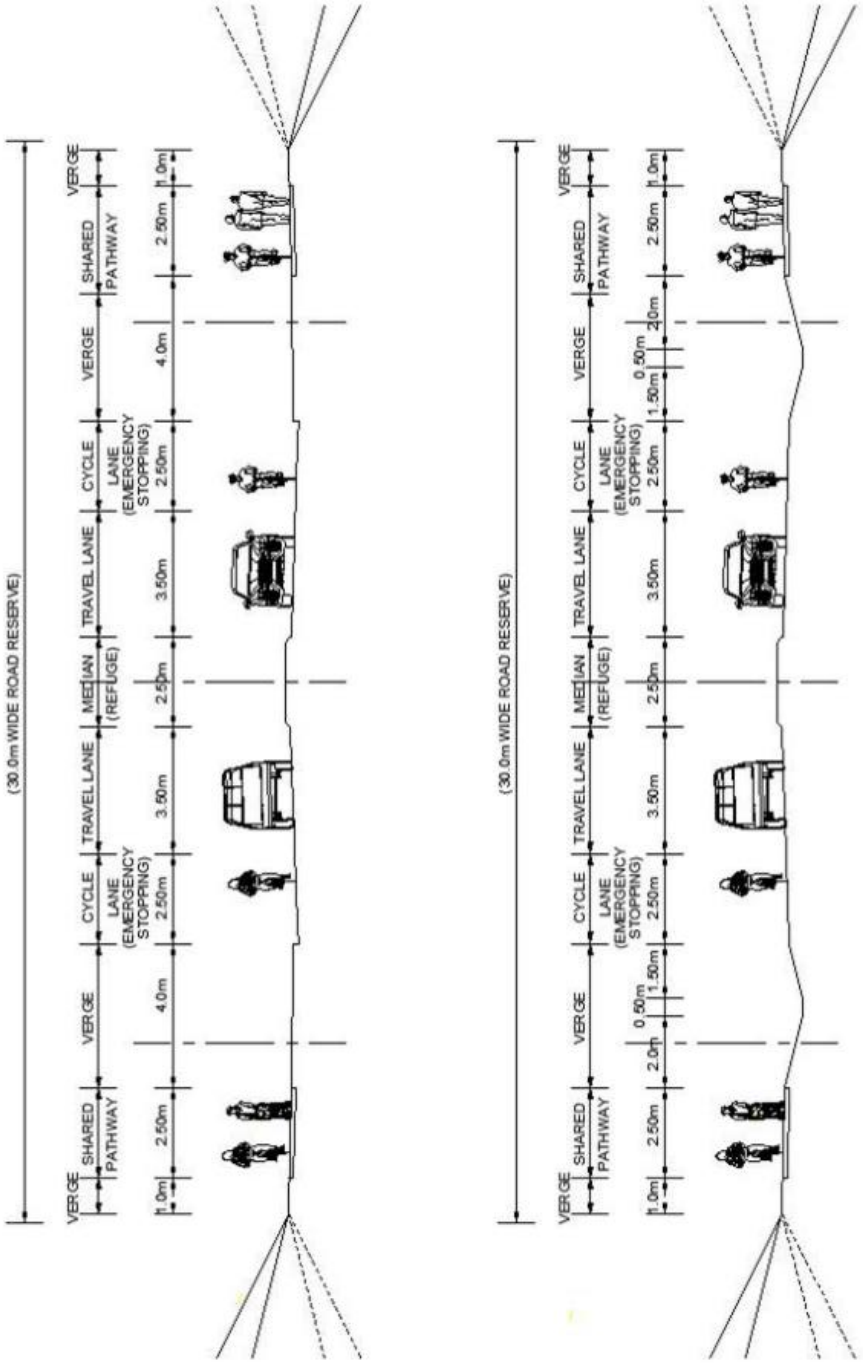


Figure 4.50 – FUTURE DESIGN CROSS SECTION, SANCROX ROAD

4.5.2 Sancrox Road & Rawdon Island Road Intersection

There is no requirement to upgrade the intersection of Sancrox Road and Rawdon Island Road based on either traffic volumes or roadway capacity. However, from a road safety point of view it is not ideal to have an uncontrolled four way intersection.

Therefore is it recommended the existing uncontrolled intersection be replaced with a roundabout. The geometric layout of the roundabout should generally conform to:-

- a central island diameter of 16.0m,
- a circulating roadway width of 9.0m,
- single lane entry / exit on all legs,

- offroad cyclist access on all legs, and
- pedestrian refuges on the Sancrox Rd (west) and Rawdon Island Road (north) legs.

4.5.3 Sancrox Road & Riverbend Road Intersection

The existing intersection of Sancrox Road and Riverbend Road generally conforms to a BAR/BAL T junction layout. Given this location is recognised as an area for future residential development (ie north and south of Sancrox Road) this location should be upgraded for the future residential requirements. Again, there is no requirement to upgrade this intersection based on either traffic volumes or roadway capacity.

However, from a road safety point of view it is not ideal to have an uncontrolled four way intersection. Therefore is it recommended the existing uncontrolled intersection be replaced with a roundabout. The geometric layout of the roundabout should generally conform to:-

- a central island diameter of 16.0m,
- a circulating roadway width of 9.0m,
- single lane entry / exit on all legs,
- offroad cyclist access on all legs, and
- pedestrian refuges on the Sancrox Rd (west) and Riverbend Road (south) legs.

4.5.4 Sancrox Road & Verdun Drive Intersection

The existing intersection of Sancrox Road and Verdun Drive generally conforms to a BAR/BAL T junction layout with some shoulder widening for the left turn out and right turn in movements.

Based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings the following assessment of the future traffic flows at the intersection have been assessed for the 30 year design horizon.

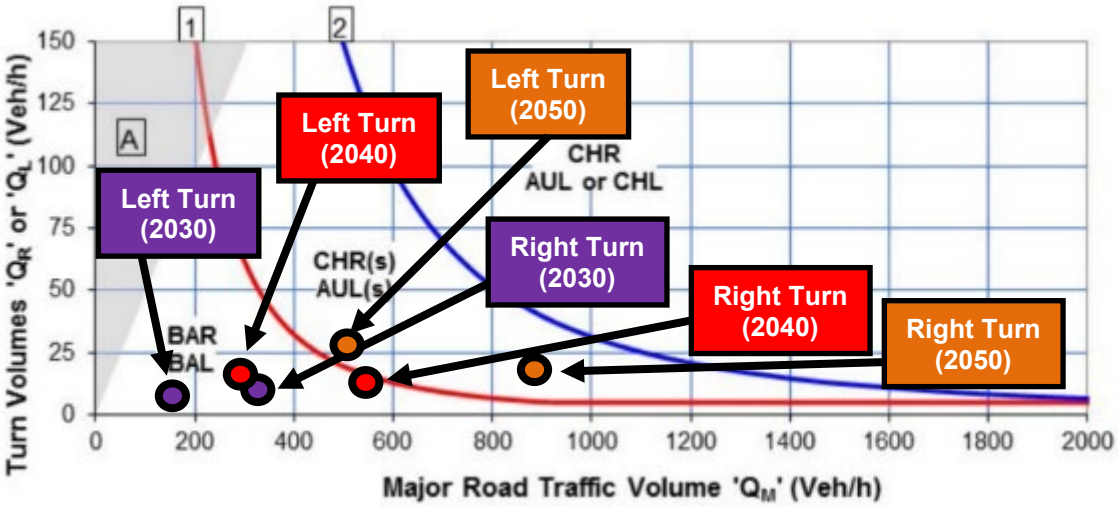


Figure 4.51 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (SANCROX RD & VERDUN DRIVE INTERSECTION DESIGN HORIZON)

Based on the warrant assessment above, the intersection of Sancrox Road and Verdun Drive will need to be upgraded to a minimum standard of a Type CHR(s)

treatment by the year 2050. For the purposes of this assessment a Type CHR(s) / AUL intersection layout will be modelled in SIDRA software modelling.

Figure 4.52 – SANCROX ROAD & VERDUN DRIVE T JUNCTION INTERSECTION LAYOUT (WITH LEFT SLIP OUT)

The following inputs were used in the setup of the model: -

- Posted speed limits, Sancrox Road = 60km/h, and Verdun Drive = 60km/h;
- SIDRA default values used unless noted otherwise.
- GAP acceptance for sign-controlled intersections adopted from Appendix E of RMS Traffic Modelling Guidelines v1.0 (2013), and are summarised in the table below:

Movement	Gap Acceptance (s)	Follow Up Headway (s)
Right turn from Major Rd	4.0	2.0
Left Turn from Minor Rd	4.5	2.5
Right Turn from Minor Rd	5.5	3.5

Table 4.50 – GAP Acceptance for Controlled Intersections

Assumptions

- HV % of 5% on all legs;
- SIDRA default values for Peak Flow Factor (95%) and Peak Period (30 minutes per hour); and
- Model Type = New South Wales.

Table 4.51 provides a summary of the 30 year design horizon SIDRA modelling results for the future intersection arrangement.

	2030	2040	2050	2050 No Slip Lane
Average Delay (secs)	0.80	1.2	1.30	**1.60**
LOS	A	A	A	**A**
95% percentile queue (m)	1.0	1.0	3.0	**4.0**
Degree of Saturation	0.096	0.157	0.280	**0.280**

Table 4.51 – SIDRA MODELLING SUMMARY FOR 30 YEAR DESIGN HORIZON

The Sancrox Road and Verdun Drive intersection will operate adequately and within capacity for all modelled scenarios.

Further to the assessment above, SIDRA software modelling was completed to determine if a left slip (acceleration) lane out of Verdun Drive will be required as part of the intersection upgrade. Table 4.51 summarises this modelling indicating the originally proposed left slip out of Verdun Drive is not required. See Figure 4.52 for revised proposed upgraded intersection layout.

Figure 4.53 –REVISED SANCROX ROAD & VERDUN DRIVE INTERSECTION LAYOUT

4.5.5 Sancrox Road & Le Clos Access Intersection

The existing Le Clos Access Road intersection will be replaced in the redevelopment of the site with two access locations. No further assessment of this intersection will be undertaken. See section 5 of this assessment for further detailed assessment of the proposed access locations.

4.5.6 Sancrox Road & Bushlands Drive Intersection

The existing intersection of Sancrox Road and Bushlands Drive generally conforms to a BAR/BAL T junction layout.

Based on Figure 2.26c of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings the following assessment of the future traffic flows at the intersection have been assessed for the 30 year design horizon.

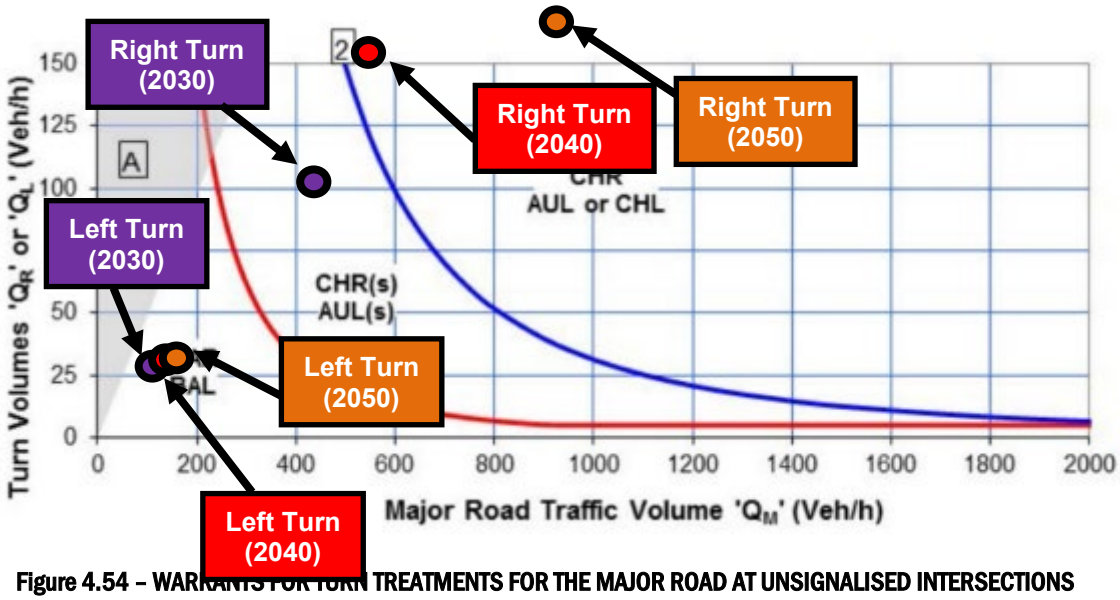


Figure 4.54 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (SANCROX RD & BUSHLANDS DRIVE INTERSECTION DESIGN HORIZON)

Based on the warrant assessment above, the intersection of Sancrox Road and Bushlands Drive will need to be upgraded to a minimum standard of a Type CHR(s) treatment by the year 2030. Consideration will need to be given beyond the year 2040 for the signalisation of the intersection due to the eastbound through and right turn movements at the intersection.

Figure 4.55 – SANCROX ROAD & BUSHLANDS DRIVE CHANNELISED INTERSECTION LAYOUT

In order to do this, SIDRA software modelling was used to assess the proposed intersection layout.

The following inputs were used in the setup of the model: -

- Posted speed limits, Sancrox Road = 60km/h, and Bushlands Drive = 60km/h;
- SIDRA default values used unless noted otherwise.
- GAP acceptance for sign-controlled intersections adopted from Appendix E of RMS Traffic Modelling Guidelines v1.0 (2013), and are summarised in the table below:

Movement	Gap Acceptance (s)	Follow Up Headway (s)
Right turn from Major Rd	4.0	2.0
Left Turn from Minor Rd	4.5	2.5
Right Turn from Minor Rd	5.5	3.5

Table 4.52 – GAP Acceptance for Controlled Intersections

Assumptions

- HV % of 5% on all legs;
- SIDRA default values for Peak Flow Factor (95%) and Peak Period (30 minutes per hour); and
- Model Type = New South Wales.

Table 4.53 provides a summary of the 30 year design horizon SIDRA modelling results for the future intersection arrangement.

	2030	2040	2050	2050 No Seagull
Average Delay (secs)	1.80	2.0	2.10	2.60
LOS	A	A	A	A
95% percentile queue (m)	3.0	5.0	9.0	9.0
Degree of Saturation	0.139	0.258	0.430	0.430

Table 4.53 – SIDRA MODELLING SUMMARY FOR 30 YEAR DESIGN HORIZON (SANCROX ROAD & BUSHLANDS DRIVE INTERSECTION)

The Sancrox Road and Bushlands Drive intersection will operate adequately and within capacity for all modelled scenarios.

Further to the assessment above, SIDRA software modelling was completed to determine if channelization (seagull) of the intersection will be required into the future as part of the intersection upgrade. Table 4.53 summarises this modelling indicating the originally proposed channelization of the intersection will not be required as a future upgrade.

However, from a road safety point of view channelization of the intersection will make it safe for turning traffic at the intersection by minimising any merge conflicts on the departure side of the right turn out of Bushlands Drive.

4.5.7 Sancrox Road & Frogs Road Intersection (Roundabout)

The existing roundabout at the intersection of Sancrox Road and Frogs Road was constructed as part of the Pacific Highway upgrade where a grade separated interchange was provided for local access.

4.6 Future Road Corridor Plan – Pedestrian Access

Currently there is no formal provision for pedestrians along Sancrox Road or within the study area in question. As a minimum connection should be provided along the length of Sancrox Road with internal connections via future land developments.

Figure 4.40 provides an indication of the design cross section to be implemented for the Sancrox Road Corridor. In summary, a 2.50m wide shared path to be located 2 to 4.0m from the edge of the shoulder. This shared path will provide a safer experience

for the inexperienced cyclists plus provide pedestrian connection along the Sancrox Road corridor.

Crossing points (pedestrian / cyclist refuges) are to be provided at a number of locations along Sancrox Road to provide east / west and north / south connections across the road alignment. See Appendix E for indicative locations of pedestrian / cyclist refuges.

4.7 Future Road Corridor Plan – Cyclist Access

Currently there is no formal provision for cyclists along Sancrox Road or the study area in question. As a minimum connection should be provided along the length of Sancrox Road with internal connections via future land developments.

Figure 4.40 provides an indication of the design cross section to be implemented for the Sancrox Road Corridor. In summary a 1.50m wide cycle lane is to be provided on each edge of the formation. This width should be increased to 2.0m wide where kerb and gutter is provided so to provide a effective minimum width of 1.50m for a cyclist to travel in. Further to this requirement, 0.50m wide shoulder is to be provided along the outside edge of each cycle lane. This is because, if a vehicle breaks down it can pull over into the cycle lane / shoulder without obstructing traffic in the travel lane thus minimising any road safety issues.

Also to be included as part of the design cross section, is the construction of a 2.50m wide shared path to be located 2 to 4.0m from the edge of the shoulder. This shared path will provide a safer experience for the inexperienced cyclists plus provide pedestrian connection along the Sancrox Road corridor.

4.8 Future Road Corridor Plan – Public Transport

Currently there is no provision for public transport along Sancrox Road or within the study area in question. As development increases in the area planning for public transport will need to be included in any future strategic planning for the area.

As a minimum consideration will need to be given for bus stop facilities along Sancrox Road in accordance with Port Macquarie Hastings Council's design standards at the time.

The future planning will need to consider connection to residential and commercial areas in relation to ease of access for all users.

4.9 Summary of Sancrox Road Structure / Corridor Plan Requirements

The following summary of the make up of the Sancrox Road Structure / Corridor Plan is based on Future Traffic Generation, Roadway Capacity, Intersection Assessment and Road Safety considerations.
The summary also provides an indication of the upgrade impacts for the local road network that the Le Clos development will create given the timing of other residential development in the area.

4.9.1 Le Clos Development Only Structure / Corridor Plan Upgrade Requirements

As indicated previously the Le Clos development will more than likely generate impacts on the local road network as there is no other residential development planned in the area at the time of this assessment being completed. Based on this

the following recommended upgrades are required to be completed by the development:-

- Minimum design standard to be 70km/h.
- Upgrade design and construction of the Sancrox Road frontage for the Le Clos site to a standard of half the design cross section suggested in Figure 4.50. Southern side of Sancrox Road to carriageway centreline. Future development in the area to be responsible for the upgrade of the northern side of Sancrox Road in this location.
- Design and Construction of 2 roundabouts (Road No.1 and Road No.2). The construction of the northern legs of Roads No.1 and 2 is to be undertaken by others as future development dictates.
- Design and Construction of a Shared Path along the Sancrox Road frontage of the Le Clos site generally in accordance with Figure 4.50. All other shared path facilities are to be constructed by others as future development dictates.
- Provision of Public Transport Facilities (Bus Bay) at each of the proposed development intersections (roundabouts). All other public transport facilities are to be constructed by others as future development dictates.
- The intersection of Sancrox Road and Bushlands Drive will need to upgraded to a type CHR(s) intersection at the year 2030. Any further upgrades to this intersection are to be completed by others as future development in the area dictates.

4.9.2 Whole of Study Area Structure / Corridor Plan Upgrade Requirements

As the area of Sancrox / Rawdon Island develops into the future there will be a requirement to upgrade the local road network based on increased traffic generation / flows and increased possibility of road safety issues relative to these increased flows. Based on the assessments of this report the following recommendations are made for the future upgrade requirements of the local road network (ie. Sancrox Road).

- Minimum design standard to be 70km/h.
- Generally the upgrading of Sancrox Road to the standard indicated in Figure 4.50 of this report by others excluding the Le Clos development as nominated in section 4.9.1.
- Future upgrade of the intersection of Sancrox Road and Rawdon Island to a single lane roundabout on each leg of the roundabout including off road access for cyclists at the roundabout. This is a road safety requirement as four way uncontrolled intersection are not acceptable with regard to road safety. The upgrade of this intersection should be commenced within 10 years of residential development commencing in the area other than that of the Le Clos site.
- Future upgrade of the intersection of Sancrox Road and Riverbend Road to a single lane roundabout on each leg of the roundabout including off road access for cyclists at the roundabout. This upgrade will be dictated by development in the area. Other than that of the Le Clos site. Further detailed assessment will need to be completed to determine the timing of this upgrade requirement.
- Future upgrade of the intersection of Sancrox Road and Verdun Drive to a Type CHR(s) intersection layout including off road access for cyclists and pedestrians at the intersection. This upgrade will be dictated by development

in the area. Other than that of the Le Clos site. Further detailed assessment will need to be completed to determine the timing of this upgrade requirement.

- Construction of Northern leg of the roundabout including off road access for cyclists at the roundabout. (Road No.1) at the Le Clos location. This upgrade will be dictated by development in the area. Other than that of the Le Clos site. Further detailed assessment will need to be completed to determine the timing of this upgrade requirement.
- Construction of Northern leg of the roundabout including off road access for cyclists at the roundabout. (Road No.2) at the Le Clos location. This upgrade will be dictated by development in the area. Other than that of the Le Clos site. Further detailed assessment will need to be completed to determine the timing of this upgrade requirement.
- The intersection of Sancrox Road and Bushlands Drive will need to upgraded to a type CHR channelised seagull intersection beyond the year 2040 once development other than that of the Le Clos site commences. The Le Clos development will require this intersection to be upgraded to a type CHR(s) intersection layout by the year 2040. Any further upgrades (channelised seagull) to this intersection are to be completed by others as future development in the area dictates.
- Future upgrade of the existing roundabout at the intersection of Sancrox Road and Frogs Road to cater for two eastbound entry lane on Sancrox Road including revised provision for off road access for cyclists and pedestrians at the roundabout. This upgrade requirement is driven by road safety with regard to lane changing at the roundabout and the increased likelihood of heavy traffic to and from the north of the roundabout with the future development of the Sancrox Employment Land area. This upgrade should be commenced within 10 years of the employment land starting development. This upgrade will be dictated by development in the area. Other than that of the Le Clos site.
- Design and Construction of a Shared Path along each side of Sancrox Road generally in accordance with Figure 4.50. All shared path facilities are to be constructed by others as future development dictates. Other than that of the Le Clos site.
- Provision of Public Transport Facilities as required by Port Macquarie Hastings Council at the time. All public transport facilities are to be constructed by others as future development dictates. Other than that of the Le Clos site.

5. LE CLOS DEVELOPMENT DETAILED INTERSECTION ASSESSMENT

The Le Clos development proposes to have two access points to service the site. Being,

- Road No.1 (approximately 500m west of the existing access road on Sancrox Road, and
- Road No.2 (approximately 500m west of the Road No.1 intersection on Sancrox Road)

These access points will be in the form of roundabout facilities.

5.1 Road No.1 Intersection Assessment

SIDRA software modelling has been completed for the intersection of Sancrox Road and Road No.1 (Le Clos Development) to determine the Level of Service (LoS) of the future intersection configuration including traffic distribution and assignment for the 30 year design horizon.

Figure 5.10 provides an indication of the roundabout layout assessment by SIDRA.

Figure 5.10 – SANCROX ROAD & Road No.1 ROUNDABOUT LAYOUT

The following inputs were used in the setup of the model: -

- Posted speed limits, Sancrox Road = 60km/h, and Road No.1 = 60km/h;
- SIDRA default values used unless noted otherwise.
- GAP acceptance for sign-controlled intersections adopted from Appendix E of RMS Traffic Modelling Guidelines v1.0 (2013), and are summarised in the table below:

Movement	Gap Acceptance (s)	Follow Up Headway (s)
Right turn from Major Rd	4.0	2.0
Left Turn from Minor Rd	4.5	2.5
Right Turn from Minor Rd	5.5	3.5

Table 5.10 – GAP Acceptance for Controlled Intersections

Assumptions

- HV % of 5% on all legs;
- SIDRA default values for Peak Flow Factor (95%) and Peak Period (30 minutes per hour); and
- Model Type = New South Wales.

Table 5.11 provides a summary of the 30 year design horizon SIDRA modelling results for the future intersection arrangement.

	2030	2040	2050	2050 alternative
Average Delay (secs)	6.2	7.2	49.5	10.1
LOS	A	A	D	A
95% percentile queue (m)	5.0	17.0	419.0	33.0
Degree of Saturation	0.136	0.350	1.090	0.513

Table 5.11 – SIDRA MODELLING SUMMARY FOR 30 YEAR DESIGN HORIZON

The Sancrox Road and Road No.1 intersection will operate adequately and within capacity for all modelled scenarios of 2030 and 2040 with exception of the 2050 period. The Northern leg fails due to the high volume of eastbound traffic.

Further testing revealed that addition of a 30m long left turn lane on the northern leg would provide adequate capacity in 2050 to reduce Average Delay to 10.1s, LOS A, 95th percentile queue of 33m and DoS of 0.513.

Figure 5.11 – REVISED SANCROX ROAD & Road No.1 ROUNDABOUT LAYOUT

5.2 Road No.2 Intersection Assessment

SIDRA software modelling has been completed for the intersection of Sancrox Road and Road No.2 (Le Clos Development) to determine the Level of Service (LoS) of the future intersection configuration including traffic distribution and assignment for the 30 year design horizon.

Figure 5.20 provides an indication of the roundabout layout assessment by SIDRA.

Figure 5.20 – SANCROX ROAD & Road No.2 ROUNDABOUT LAYOUT

The following inputs were used in the setup of the model: -

- Posted speed limits, Sancrox Road = 60km/h, and Road No.1 = 60km/h;
- SIDRA default values used unless noted otherwise.
- GAP acceptance for sign-controlled intersections adopted from Appendix E of RMS Traffic Modelling Guidelines v1.0 (2013), and are summarised in the table below:

Movement	Gap Acceptance (s)	Follow Up Headway (s)
Right turn from Major Rd	4.0	2.0
Left Turn from Minor Rd	4.5	2.5
Right Turn from Minor Rd	5.5	3.5

Table 5.20 – GAP Acceptance for Controlled Intersections

Assumptions

- HV % of 5% on all legs;
- SIDRA default values for Peak Flow Factor (95%) and Peak Period (30 minutes per hour); and
- Model Type = New South Wales.

Table 5.21 provides a summary of the 30 year design horizon SIDRA modelling results for the future intersection arrangement.

	2030	2040	2050
Average Delay (secs)	6.5	6.8	7.5
LOS	A	A	A
95% percentile queue (m)	4.0	7.0	14.0
Degree of Saturation	0.100	0.163	0.278

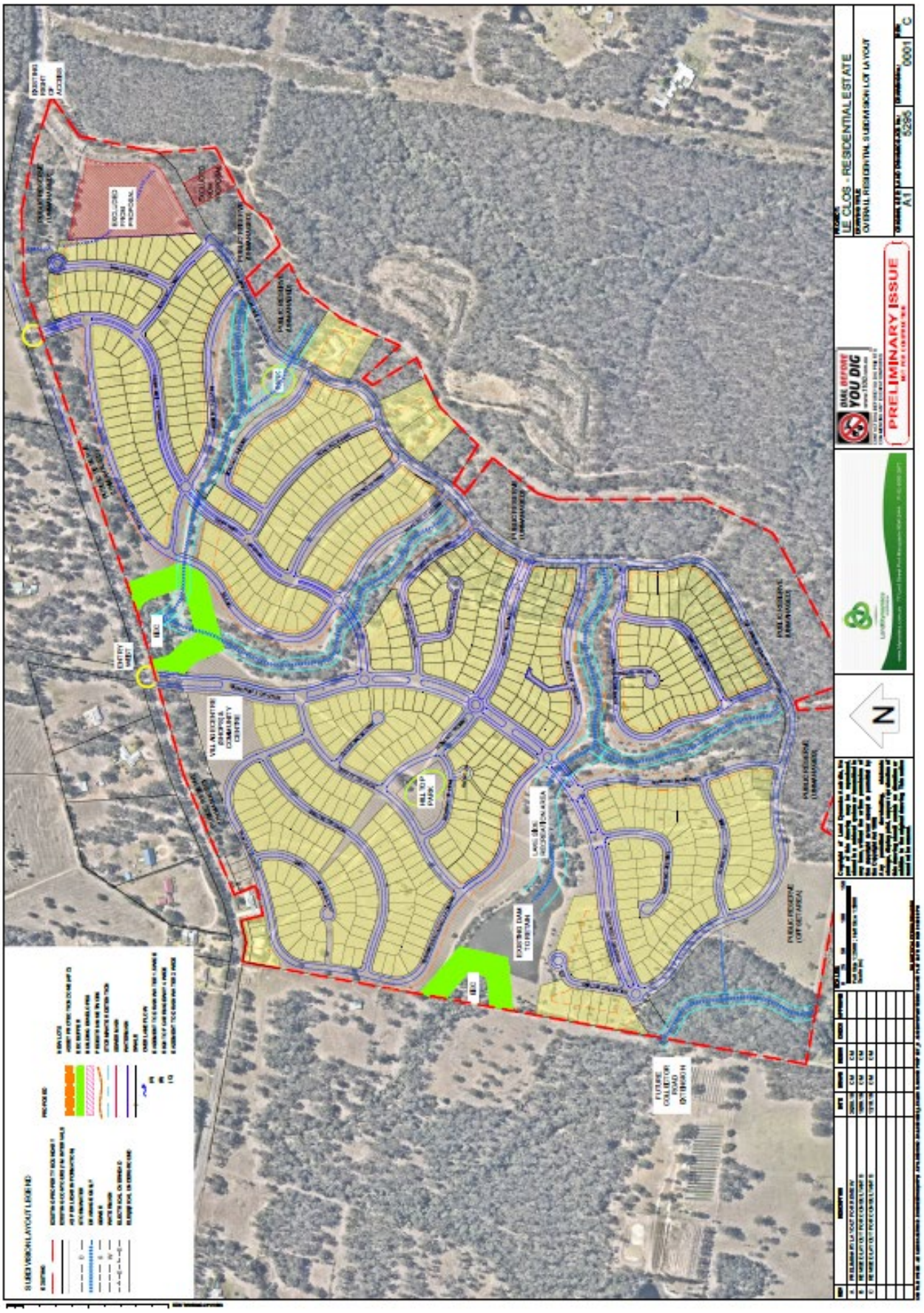
Table 5.21 – SIDRA MODELLING SUMMARY FOR 30 YEAR DESIGN HORIZON

The Sancrox Road and Road No.2 intersection will operate adequately and within capacity for all modelled scenarios of the design horizon period.

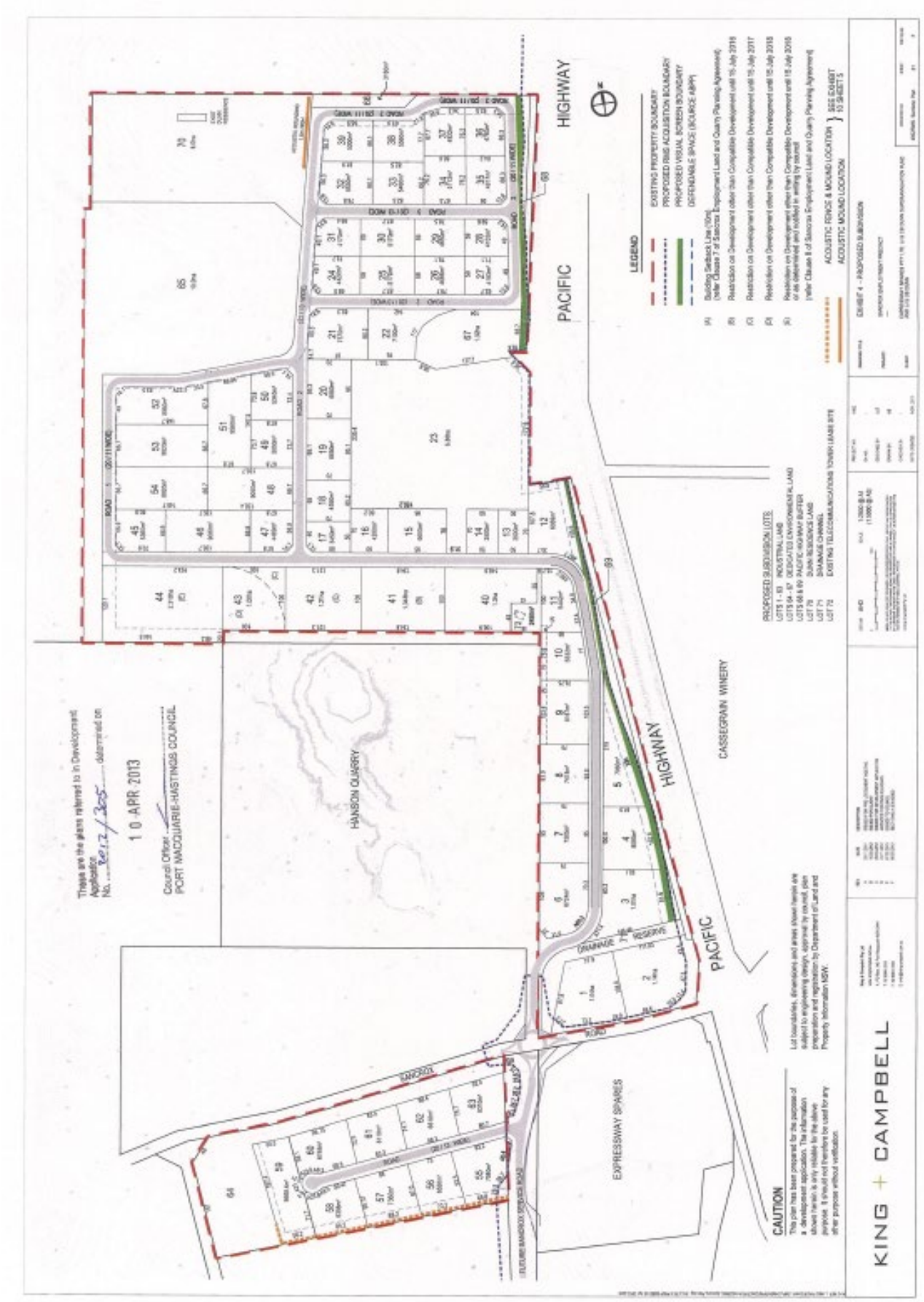
6. RECOMMENDATIONS

- In accordance with the assessments of this report it is recommended the following local road network (Sancrox Road) upgrades be directly attributed to the Le Clos Development and therefore be completed as the development staging requires.
  - In accordance with Figure 4.50 of this report the development is to upgrade Sancrox Road to half width design cross section along full frontage of the site.
  - Provision of 2 roundabouts (Road No.1 and Road No.2). Development staging will determine when each of the roundabouts are to be installed. The construction of the northern legs of Roads No.1 and 2 roundabouts is to be undertaken by others as future development dictates.
  - Provision of a Shared Path along the Sancrox Road frontage of the Le Clos site generally in accordance with Figure 4.50. All other shared path facilities are to be constructed by others as future development dictates.
  - Provision of Public Transport Facilities (Bus Bay) at each of the proposed development intersections (roundabouts). All other public transport facilities are to be constructed by others as future development dictates.
  - The intersection of Sancrox Road and Bushlands Drive will need to upgraded to a type CHR(s) intersection at the year 2030. Any further upgrades to this intersection are to be completed by others as future development in the area dictates.

APPENDIX A
DEVELOPMENT SITE PLAN PROPOSAL

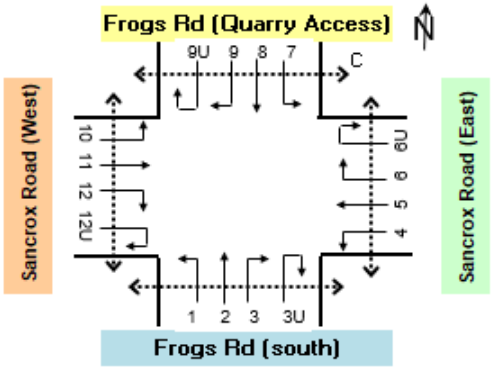

LE CLOS - RESIDENTIAL ESTATE
OVERALL RESIDENTIAL SUBDIVISION LOT LAYOUT
PRELIMINARY ISSUE
EXCLUDED FROM PROPOSAL
N

APPENDIX B
APPROVED SANCROX NORTH INDUSTRIAL SUBDIVISION


PACIFIC HIGHWAY
LEGEND
EXISTING PROPERTY BOUNDARY
PROPOSED RMS ACQUISITION BOUNDARY
PROPOSED VISUAL SCREEN BOUNDARY
DEFENDABLE SPACE (BOUNDARY)
ACOUSTIC FENCE & MOUND LOCATION
ACOUSTIC MOUND LOCATION
PROPOSED SUBDIVISION LOTS
LOTS 1 - 63 INDUSTRIAL LAND
LOTS 64 - 67 DEDICATED OPEN SPACE/NATURAL LAND
LOTS 68 & 69 PACIFIC HIGHWAY BUFFER
LOT 70 JOHN ROBINSON LAND
LOT 71 SHANNON CREEK LAND
LOT 72 EXISTING TELECOMMUNICATIONS TOWER LEASE SITE
HANSON QUARRY
CASSEGRAIN WINERY
EXPRESSWAY SPARES
DRAINAGE RESERVE
LONDON
CAMPBELL
KING + CAMPBELL
CAUTION
10 APR 2013
Council Officer
PORT MACQUARIE-HASTINGS COUNCIL

APPENDIX C
INTERSECTION TRAFFIC COUNT DATA

Job No.	82019
Client	Land Dynamics Aust
Suburb	Sancrox
Location	Sancrox Rd & Frogs Rd
Day/Date	Thursday 27 June 2019
Weather	Overcast & Some Showers
Description	Intersection Count

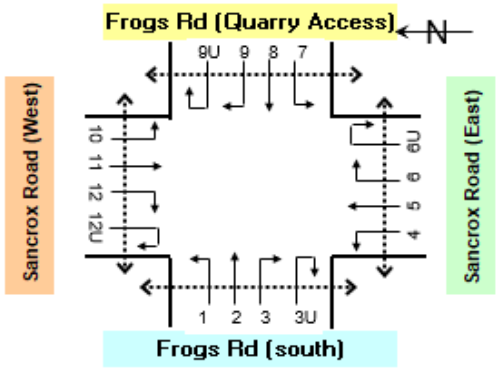


Approach	Frogs Rd (south)																Sancrox Road (East)															
Direction	**1 (Left Turn)**				**2 (Through)**				**3 (Right Turn)**				**3U (U Turn)**				**4 (Left Turn)**				**5 (Through)**				**6 (Right Turn)**				**6U (U Turn)**			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 7:15	1	0	0	**1**	5	0	0	**5**	3	0	0	**3**				**0**	4	1	0	**5**	6	1	0	**7**	8	1	0	**9**				**0**
7:15 to 7:30	2	0	0	**2**	3	2	0	**5**	0	0	0	**0**				**0**	8	1	0	**9**	3	1	0	**4**	1	1	0	**2**				**0**
7:30 to 7:45	1	0	0	**1**	2	1	0	**3**	3	1	0	**4**				**0**	12	1	0	**13**	2	0	0	**2**	3	1	0	**4**				**0**
7:45 to 8:00	2	0	0	**2**	2	2	0	**4**	2	0	0	**2**				**0**	23	4	0	**27**	2	1	0	**3**	3	1	0	**4**				**0**
8:00 to 8:15	1	0	0	**1**	2	0	0	**2**	3	0	0	**3**				**0**	38	2	0	**40**	8	0	0	**8**	1	1	0	**2**				**0**
8:15 to 8:30	3	0	0	**3**	0	0	0	**0**	3	0	0	**3**				**0**	38	3	0	**41**	3	0	0	**3**	0	0	0	**0**				**0**
8:30 to 8:45	0	1	0	**1**	1	0	0	**1**	0	2	0	**2**				**0**	53	2	0	**55**	2	0	0	**2**	0	0	0	**0**				**0**
8:45 to 9:00	1	2	0	**3**	0	0	0	**0**	0	2	0	**2**				**0**	23	0	0	**23**	0	0	0	**0**	0	0	0	**0**				**0**
9:00 to 9:15				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:15 to 9:30				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:30 to 9:45				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:45 to 10:00				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
AM Totals	**11**	**3**	**0**	**14**	**15**	**5**	**0**	**20**	**14**	**5**	**0**	**19**	**0**	**0**	**0**	**0**	**199**	**14**	**0**	**213**	**26**	**3**	**0**	**29**	**16**	**5**	**0**	**21**	**0**	**0**	**0**	**0**

Page 1

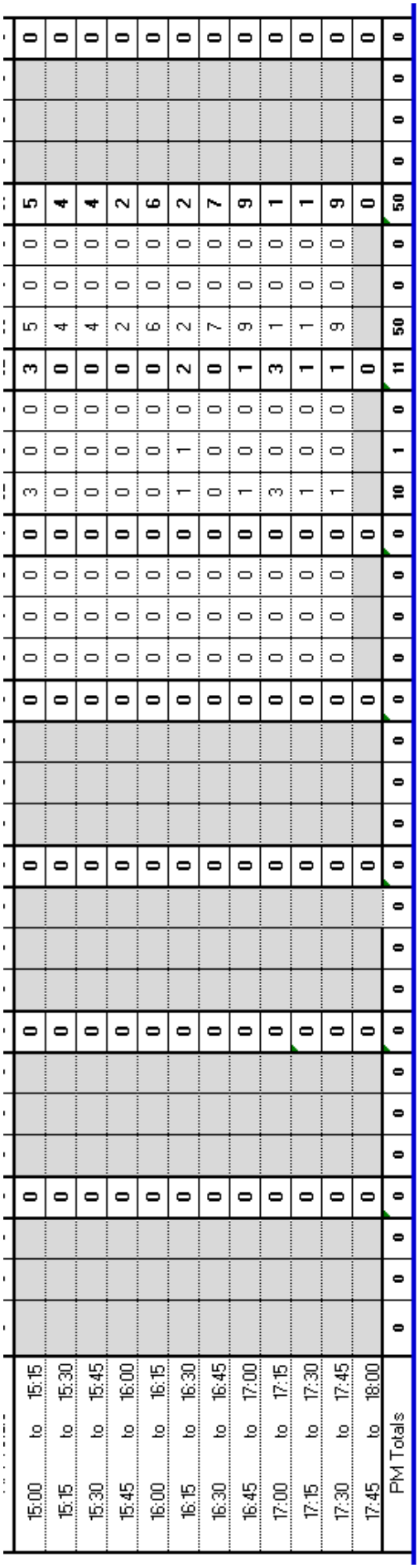
| | | |

Job No.	82019
Client	Land Dynamics Aust
Suburb	Sancrox
Location	Sancrox Rd & Frogs Rd
Day/Date	Thursday 27 June 2019
Weather	Overcast & Some Showers
Description	Intersection Count



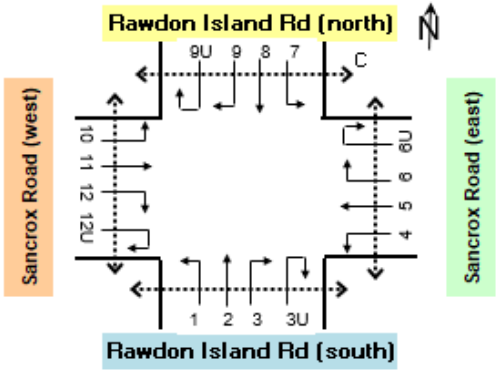
Approach	Frogs Rd (Quarry Access)																Sancrox Road (West)															
Direction	**7 (Left Turn)**				**8 (Through)**				**9 (Right Turn)**				**9U (U Turn)**				**10 (Left Turn)**				**11 (Through)**				**12 (Right Turn)**				**12U (U Turn)**			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 7:15				0				0				0				0	0	1	0	1	7	0	0	7	3	1	0	4				0
7:15 to 7:30				0				0				0				0	0	0	0	0	8	0	0	8	5	0	0	5				0
7:30 to 7:45				0				0				0				0	0	0	0	0	3	0	0	3	12	0	0	12				0
7:45 to 8:00				0				0				0				0	0	0	0	0	1	0	0	1	13	0	0	13				0
8:00 to 8:15				0				0				0				0	0	0	0	0	4	0	0	4	16	0	0	16				0
8:15 to 8:30				0				0				0				0	0	0	0	0	2	0	0	2	19	0	0	19				0
8:30 to 8:45				0				0				0				0	0	0	0	0	5	0	0	5	17	0	0	17				0
8:45 to 9:00				0				0				0				0	0	0	0	0	2	0	0	2	11	0	0	11				0
9:00 to 9:15				0				0				0				0				0				0				0				0
9:15 to 9:30				0				0				0				0				0				0				0				0
9:30 to 9:45				0				0				0				0				0				0				0				0
9:45 to 10:00				0				0				0				0				0				0				0				0
AM Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	32	0	0	32	96	1	0	97	0	0	0	0

Page 2



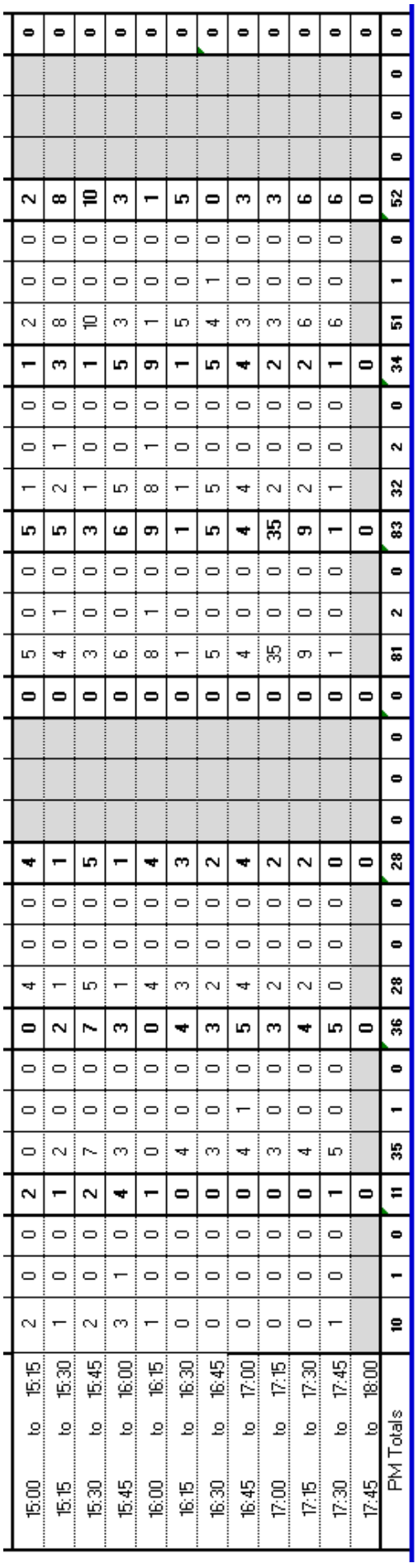
| | | |

Job No.	82019
Client	Land Dynamics Aust
Suburb	Sancrox
Location	Sancrox Rd & Rawdon Is Rd Rd
Day/Date	Thursday 27 June 2019
Weather	Rain, Cloudy & Overcast
Description	Intersection Count



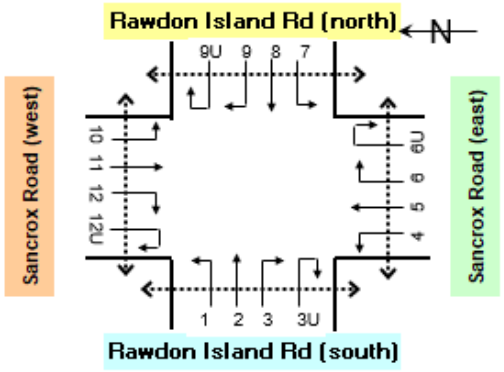
Approach	Rawdon Island Rd (south)																Sancrox Road (east)															
Direction	**1 (Left Turn)**				**2 (Through)**				**3 (Right Turn)**				**3U (U Turn)**				**4 (Left Turn)**				**5 (Through)**				**6 (Right Turn)**				**6U (U Turn)**			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 7:15	0	0	0	**0**	4	0	0	**4**	2	2	0	**4**				**0**	1	0	0	**1**	0	0	0	**0**	1	2	0	**3**				**0**
7:15 to 7:30	0	0	0	**0**	2	0	0	**2**	6	0	0	**6**				**0**	1	0	0	**1**	0	0	0	**0**	1	0	0	**1**				**0**
7:30 to 7:45	0	0	0	**0**	1	1	0	**2**	8	0	0	**8**				**0**	3	1	0	**4**	1	0	0	**1**	1	0	0	**1**				**0**
7:45 to 8:00	1	0	0	**1**	1	0	0	**1**	12	0	0	**12**				**0**	1	0	0	**1**	0	0	0	**0**	1	2	0	**3**				**0**
8:00 to 8:15	3	0	0	**3**	2	0	0	**2**	9	0	0	**9**				**0**	5	0	0	**5**	0	0	0	**0**	2	0	0	**2**				**0**
8:15 to 8:30	0	0	0	**0**	1	0	0	**1**	18	0	0	**18**				**0**	1	0	0	**1**	0	0	0	**0**	2	0	0	**2**				**0**
8:30 to 8:45	0	0	0	**0**	1	3	0	**4**	7	0	0	**7**				**0**	2	0	0	**2**	0	0	0	**0**	2	0	0	**2**				**0**
8:45 to 9:00	0	0	0	**0**	1	0	0	**1**	7	0	0	**7**				**0**	3	1	0	**4**	1	1	0	**2**	1	0	0	**1**				**0**
9:00 to 9:15				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:15 to 9:30				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:30 to 9:45				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:45 to 10:00				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
AM Totals	**4**	**0**	**0**	**4**	**13**	**4**	**0**	**17**	**69**	**2**	**0**	**71**	**0**	**0**	**0**	**0**	**17**	**2**	**0**	**19**	**2**	**1**	**0**	**3**	**11**	**4**	**0**	**15**	**0**	**0**	**0**	**0**

Page 1



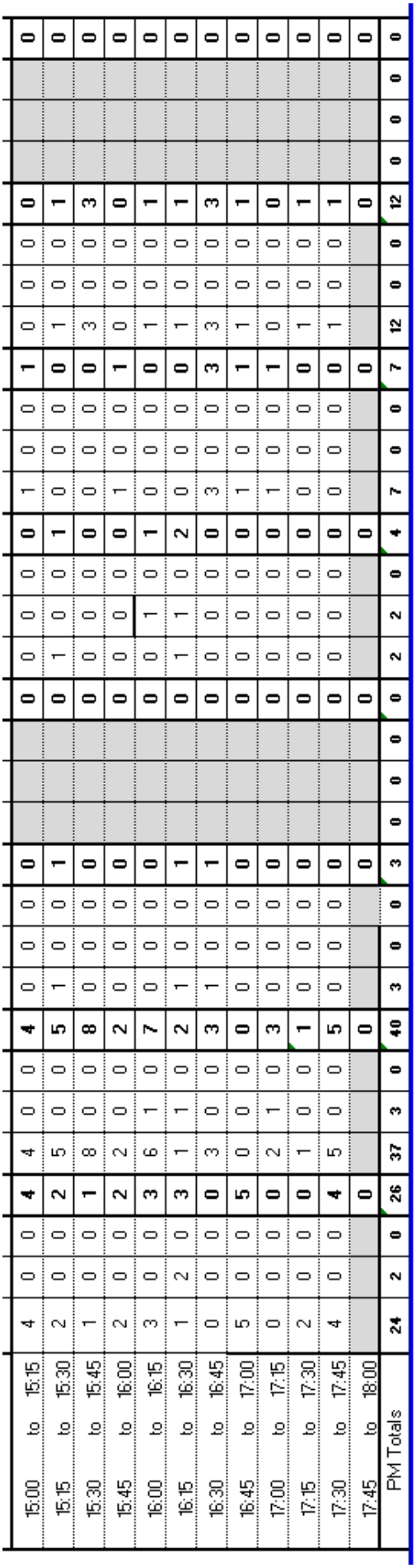
| | | |

Job No.	82019
Client	Land Dynamics Aust
Suburb	Sancrox
Location	Sancrox Rd & Rawdon Is Rd Rd
Day/Date	Thursday 27 June 2019
Weather	Rain, Cloudy & Overcast
Description	Intersection Count



Approach	Rawdon Island Rd (north)																Sancrox Road (west)															
Direction	7 (Left Turn)				8 (Through)				9 (Right Turn)				9U (U Turn)				10 (Left Turn)				11 (Through)				12 (Right Turn)				12U (U Turn)			
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
7:00 to 7:15	4	0	0	**4**	1	3	0	**4**	0	0	0	**0**				**0**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**				**0**
7:15 to 7:30	3	0	0	**3**	2	5	0	**7**	0	0	0	**0**				**0**	0	0	0	**0**	2	0	0	**2**	2	0	0	**2**				**0**
7:30 to 7:45	4	0	0	**4**	3	1	0	**4**	0	1	0	**1**				**0**	0	0	0	**0**	6	1	0	**7**	0	0	0	**0**				**0**
7:45 to 8:00	4	0	0	**4**	3	3	0	**6**	1	0	0	**1**				**0**	1	0	0	**1**	3	0	0	**3**	1	0	0	**1**				**0**
8:00 to 8:15	13	0	0	**13**	7	0	0	**7**	0	1	0	**1**				**0**	0	0	0	**0**	4	0	0	**4**	0	1	0	**1**				**0**
8:15 to 8:30	7	0	0	**7**	6	0	0	**6**	0	0	0	**0**				**0**	0	0	0	**0**	3	0	0	**3**	2	0	0	**2**				**0**
8:30 to 8:45	7	1	0	**8**	4	0	0	**4**	0	0	0	**0**				**0**	0	0	0	**0**	4	0	0	**4**	3	0	0	**3**				**0**
8:45 to 9:00	3	0	0	**3**	6	0	0	**6**	0	0	0	**0**				**0**	0	0	0	**0**	1	0	0	**1**	0	0	0	**0**				**0**
9:00 to 9:15				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:15 to 9:30				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:30 to 9:45				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
9:45 to 10:00				**0**				**0**				**0**				**0**				**0**				**0**				**0**				**0**
AM Totals	**45**	**1**	**0**	**46**	**32**	**12**	**0**	**44**	**1**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**25**	**1**	**0**	**26**	**8**	**1**	**0**	**9**	**0**	**0**	**0**	**0**

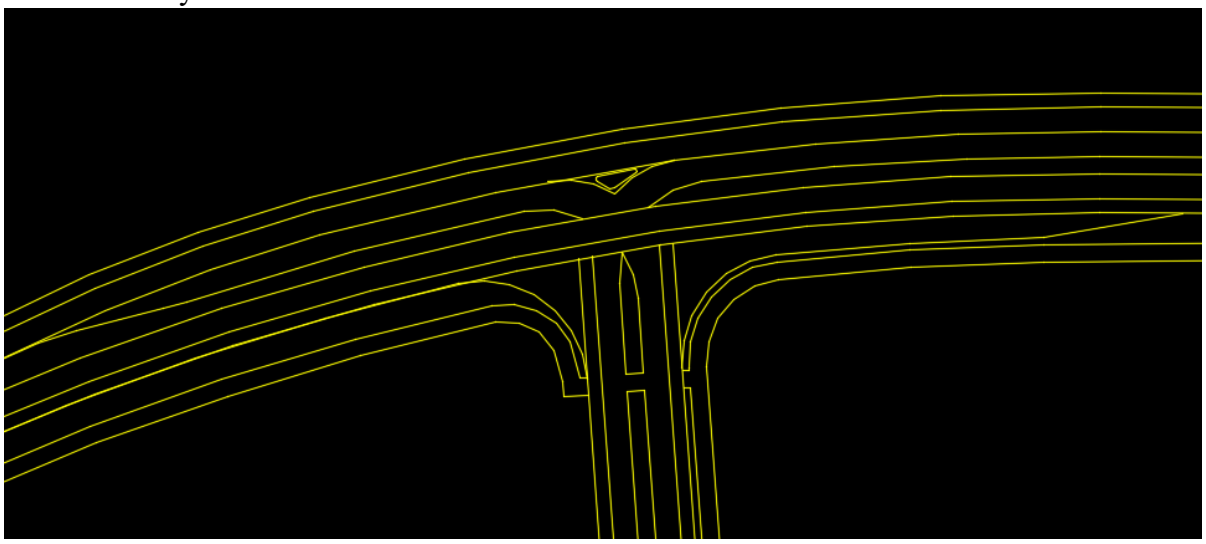
Page 2



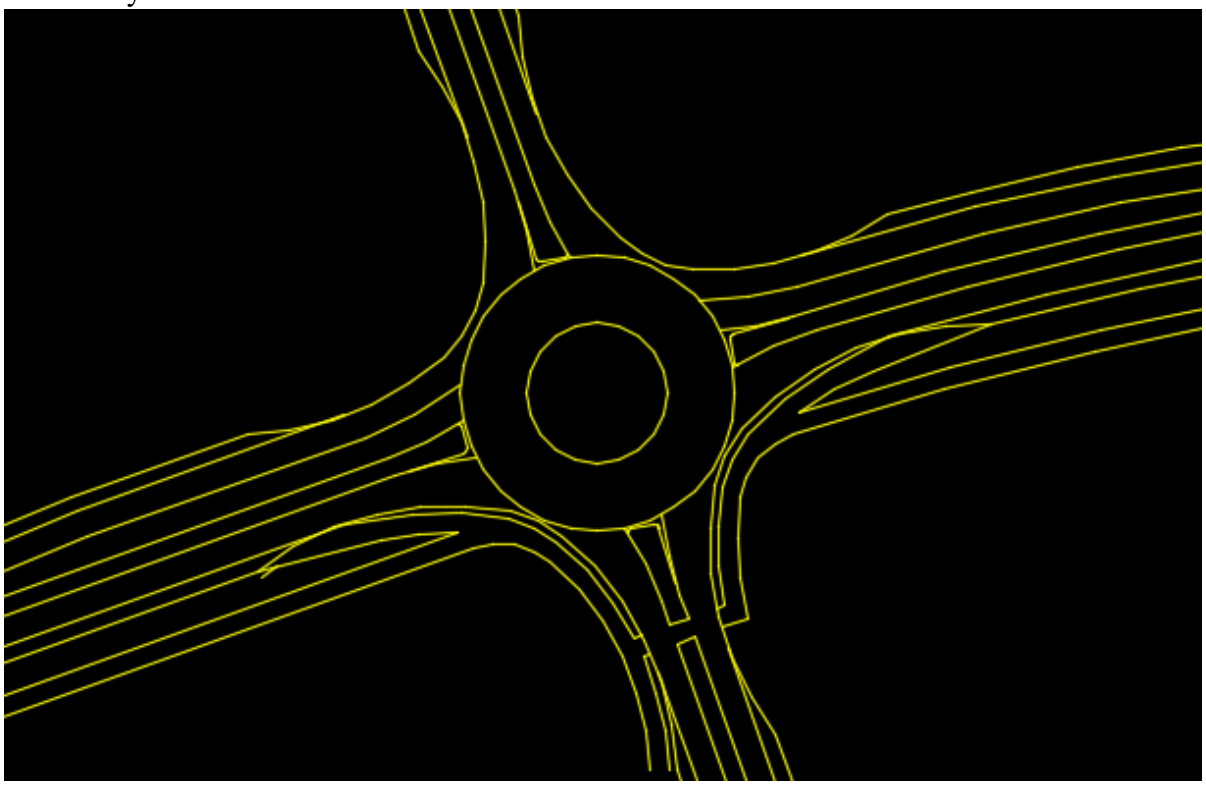
| | | |

APPENDIX D
SIDRA MODELLING REPORT

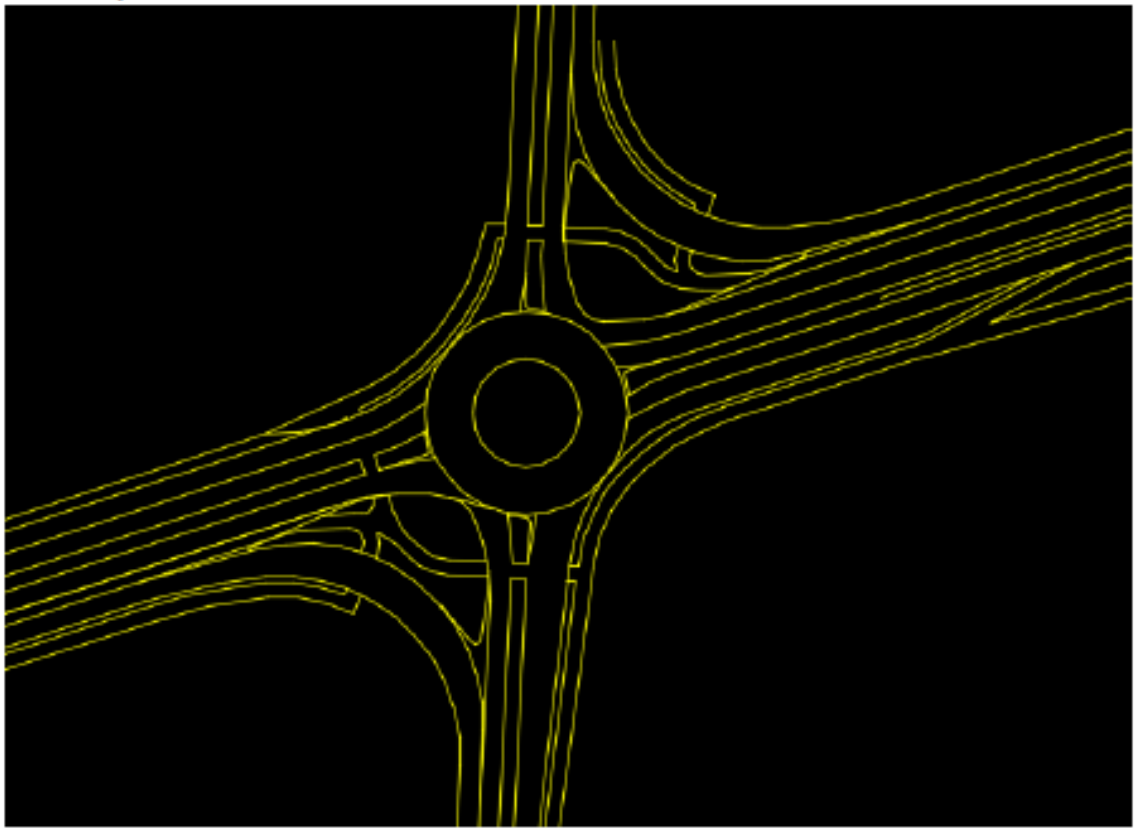
Bushlands Layout



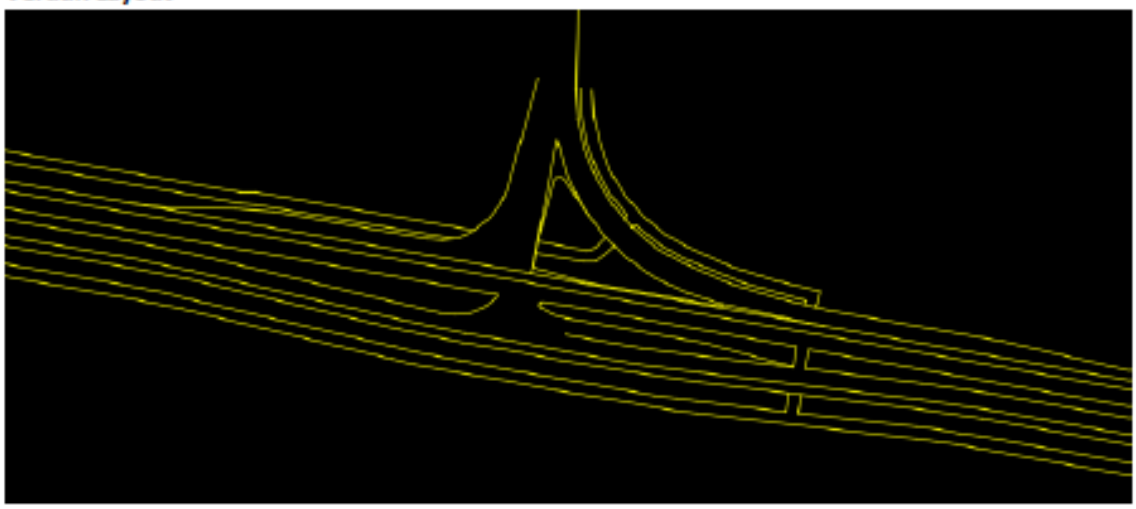
Road 1 layout



Road 2 Layout



Verdun Layout



SIDRA Model Output Summary

Detailed outputs are following, however a summary of outputs is in the table below. The outputs are direct from SIDRA Intersection.

Table 1 - SIDRA output Summary SANCROX ROAD & BUSHLANDS DRIVE INTERSECTION (Seagull)

	2030	2040	2050	2050 No seagull
Average Delay	~~(1.9s)~~ 1.8s	~~(1.9s)~~ 2.0s	~~(2.1s)~~ 2.1s	~~(2.5s)~~ 2.6s
LOS	A	A	A	B
95% percentile queue	3m	5m	9m	9m
Degree of Saturation	0.139	0.258	0.430	0.430

Table 2 - SIDRA output Summary SANCROX ROAD & ROAD 1 INTERSECTION

	2030	2040	2050	2050 alternative
Average Delay	6.2s	7.2s	**49.5s**	10.1s
LOS	A	A	**D**	A
95% percentile queue	5m	17m	**419m**	33m
Degree of Saturation	0.136	0.350	**1.090**	0.513

Table 3 - SIDRA output Summary SANCROX ROAD & ROAD 2 INTERSECTION

	2030	2040	2050
Average Delay	6.5s	6.8s	7.5s
LOS	A	A	A
95% percentile queue	4m	7m	14m
Degree of Saturation	0.100	0.163	0.278

Table 4 - SIDRA output Summary SANCROX ROAD & VERDUN DRIVE INTERSECTION

	2030	2040	2050	2050 No slip lane
Average Delay	0.8s	1.2s	1.3s	1.6s
LOS	A	A	A	A
95% percentile queue	1m	1m	3m	4m
Degree of Saturation	0.096	0.157	0.280	0.280

Bushlands Drive

Removing the seagull acceleration lane increases the average delay for the right out from 8s to 20s in 2050, resulting in a LOS B for the right out. Most other metrics are unchanged or similar.

Road 1

The intersection operates adequately and within capacity for all modelled scenarios with exception of 2050 where the Northern leg fails due to the high volume of eastbound traffic.

Testing of an alternative scenario revealed that the addition of a 30m long left turn lane on the northern leg would provide adequate capacity in 2050 to reduce Average Delay to 10.1s, LOS A, 95th percentile queue of 33m and DoS of 0.513.

Tested alternative layout for 2050 showing additional left turn lane on northern leg is included in Appendix C.

Road 2

The intersection operates adequately and within capacity for all modelled scenarios.

Verdun Drive

The intersection operates adequately and within capacity for all modelled scenarios.

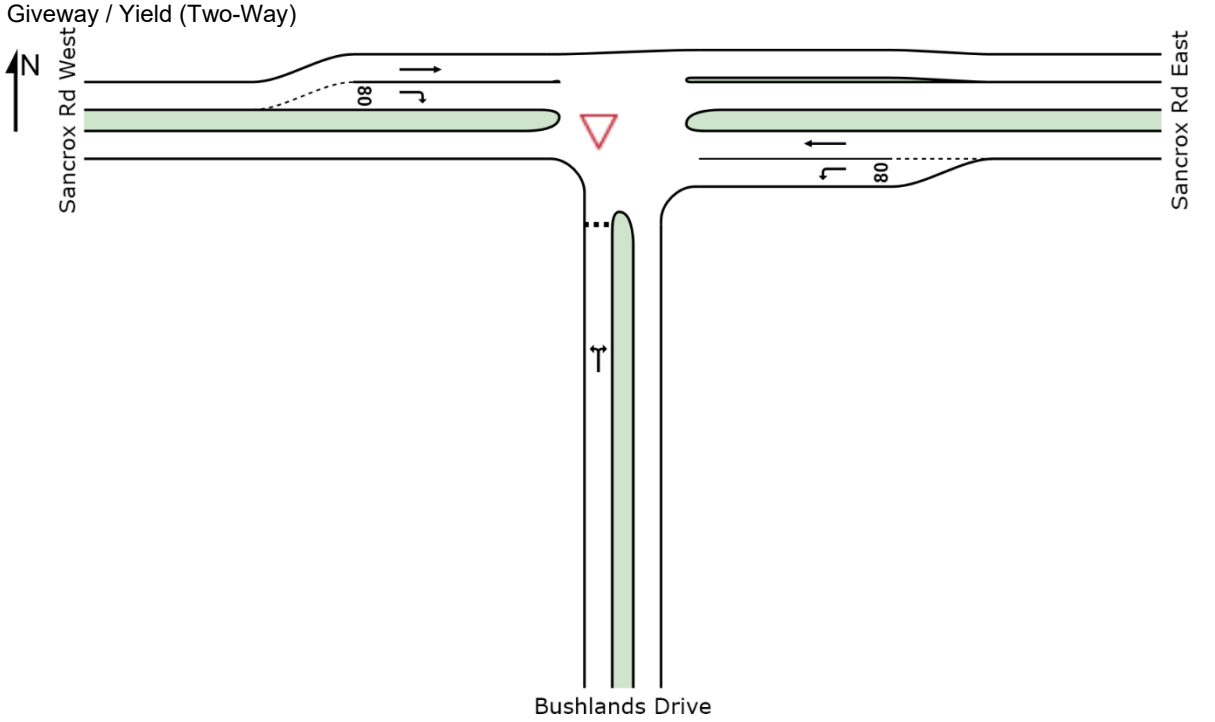
An alternative layout was requested to be tested, with the southbound left turn slip lane removed. This scenario operates adequately in 2050, with the left turn incurring an average delay of 9s with Degree of Saturation of 0.147. The tested alternative layout outputs are in Appendix C.

BUSHLANDS DRIVE - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Bushlands Dr - seagull

Sancrox Road and Bushlands Drive - seagull
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2030 seagull

Sancrox Rd and Bushlands Dr - 2030 seagull
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Bushlands Drive											
1	L2	8	5.0	0.027	6.1	LOS A	0.1	0.7	0.28	0.58	52.6
3	R2	20	5.0	0.027	6.6	LOS A	0.1	0.7	0.28	0.58	52.3
Approach		28	5.0	0.027	6.5	LOS A	0.1	0.7	0.28	0.58	52.4
East: Sancrox Rd East											
4	L2	37	5.0	0.021	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	148	5.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		185	5.0	0.079	1.1	NA	0.0	0.0	0.00	0.11	58.5
West: Sancrox Rd West											
11	T1	263	5.0	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	113	5.0	0.076	6.1	LOS A	0.4	2.6	0.30	0.58	52.1
Approach		376	5.0	0.139	1.8	NA	0.4	2.6	0.09	0.17	57.4
All Vehicles		589	5.0	0.139	1.8	NA	0.4	2.6	0.07	0.17	57.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2040 seagull

Sancrox Rd and Bushlands Dr - 2040 seagull
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Bushlands Drive											
1	L2	13	5.0	0.043	6.1	LOS A	0.1	1.1	0.32	0.61	52.4
3	R2	29	5.0	0.043	7.2	LOS A	0.1	1.1	0.32	0.61	52.2
Approach		42	5.0	0.043	6.9	LOS A	0.1	1.1	0.32	0.61	52.3
East: Sancrox Rd East											
4	L2	40	5.0	0.022	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	159	5.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		199	5.0	0.084	1.1	NA	0.0	0.0	0.00	0.12	58.5
West: Sancrox Rd West											
11	T1	487	5.0	0.258	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	208	5.0	0.143	6.2	LOS A	0.7	5.0	0.33	0.59	52.0
Approach		696	5.0	0.258	1.9	NA	0.7	5.0	0.10	0.18	57.3
All Vehicles		937	5.0	0.258	2.0	NA	0.7	5.0	0.09	0.18	57.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2050 seagull

Sancrox Rd and Bushlands Dr - 2050 seagull
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD	Mo	Demand Flows v Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Bushlands Drive												
1	L2		22	5.0	0.085	6.1	LOS A	0.3	2.1	0.36	0.65	51.9
3	R2		52	5.0	0.085	8.2	LOS A	0.3	2.1	0.36	0.65	51.7
Approach			74	5.0	0.085	7.6	LOS A	0.3	2.1	0.36	0.65	51.8
East: Sancrox Rd East												
4	L2		40	5.0	0.022	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1		161	5.0	0.085	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach			201	5.0	0.085	1.1	NA	0.0	0.0	0.00	0.11	58.5
West: Sancrox Rd West												
11	T1		813	5.0	0.430	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2		348	5.0	0.239	6.3	LOS A	1.3	9.1	0.36	0.60	51.9
Approach			1161	5.0	0.430	1.9	NA	1.3	9.1	0.11	0.18	57.2
All Vehicles			1436	5.0	0.430	2.1	NA	1.3	9.1	0.11	0.20	57.1

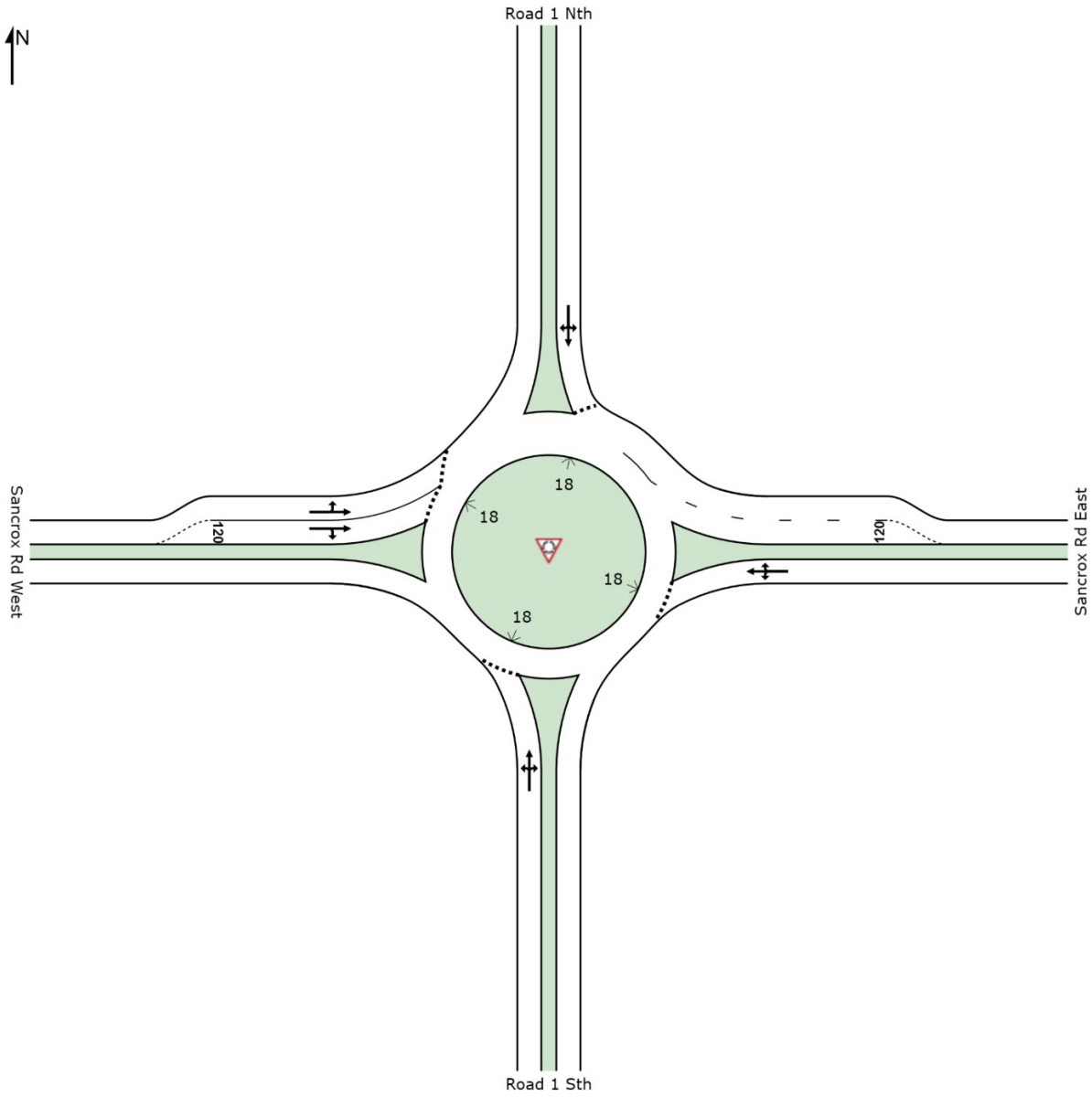
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ROAD 1 - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Road 1 - 2030

Sancrox Rd and Road 1
Roundabout



MOVEMENT SUMMARY

Site: Sancrox Rd and Road 1 - 2030

Sancrox Rd and Road 1
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 1 Sth											
1	L2	34	5.0	0.087	4.4	LOS A	0.4	3.2	0.22	0.58	52.2
2	T1	1	5.0	0.087	4.6	LOS A	0.4	3.2	0.22	0.58	53.5
3	R2	80	5.0	0.087	9.0	LOS A	0.4	3.2	0.22	0.58	53.3
Approach		115	5.0	0.087	7.6	LOS A	0.4	3.2	0.22	0.58	53.0
East: Sancrox Rd East											
4	L2	13	5.0	0.049	4.5	LOS A	0.2	1.8	0.27	0.49	53.5
5	T1	37	5.0	0.049	4.8	LOS A	0.2	1.8	0.27	0.49	54.8
6	R2	13	5.0	0.049	9.2	LOS A	0.2	1.8	0.27	0.49	54.6
Approach		62	5.0	0.049	5.6	LOS A	0.2	1.8	0.27	0.49	54.4
North: Road 1 Nth											

7	L2	59	5.0	0.104	6.0	LOS A	0.5	4.0	0.50	0.62	52.7
8	T1	21	5.0	0.104	6.2	LOS A	0.5	4.0	0.50	0.62	53.9
9	R2	26	5.0	0.104	10.6	LOS A	0.5	4.0	0.50	0.62	53.7
Approach		106	5.0	0.104	7.2	LOS A	0.5	4.0	0.50	0.62	53.2
West: Sancrox Rd West											
10	L2	34	5.0	0.136	4.7	LOS A	0.7	5.3	0.24	0.43	53.9
11	T1	237	5.0	0.136	4.7	LOS A	0.7	5.3	0.24	0.46	55.0
12	R2	67	5.0	0.101	9.1	LOS A	0.5	3.7	0.25	0.55	53.6
Approach		338	5.0	0.136	5.6	LOS A	0.7	5.3	0.24	0.48	54.6
All Vehicles		621	5.0	0.136	6.2	LOS A	0.7	5.3	0.28	0.52	54.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Road 1 - 2040

Sancrox Rd and Road 1
Roundabout

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 1 Sth											
1	L2	52	5.0	0.145	4.8	LOS A	0.8	5.8	0.34	0.60	51.9
2	T1	2	5.0	0.145	5.1	LOS A	0.8	5.8	0.34	0.60	53.1
3	R2	122	5.0	0.145	9.5	LOS A	0.8	5.8	0.34	0.60	52.9
Approach		176	5.0	0.145	8.0	LOS A	0.8	5.8	0.34	0.60	52.6
East: Sancrox Rd East											
4	L2	20	5.0	0.089	5.2	LOS A	0.5	3.4	0.42	0.55	52.9
5	T1	59	5.0	0.089	5.5	LOS A	0.5	3.4	0.42	0.55	54.1
6	R2	20	5.0	0.089	9.9	LOS A	0.5	3.4	0.42	0.55	54.0
Approach		99	5.0	0.089	6.3	LOS A	0.5	3.4	0.42	0.55	53.8
North: Road 1 Nth											
7	L2	157	5.0	0.350	8.6	LOS A	2.3	16.5	0.75	0.81	50.9
8	T1	57	5.0	0.350	8.9	LOS A	2.3	16.5	0.75	0.81	52.1
9	R2	72	5.0	0.350	13.3	LOS A	2.3	16.5	0.75	0.81	51.9
Approach		285	5.0	0.350	9.8	LOS A	2.3	16.5	0.75	0.81	51.4
West: Sancrox Rd West											
10	L2	60	5.0	0.250	4.9	LOS A	1.5	11.2	0.34	0.47	53.5
11	T1	417	5.0	0.250	4.9	LOS A	1.5	11.2	0.34	0.49	54.6
12	R2	119	5.0	0.185	9.5	LOS A	1.0	7.6	0.34	0.57	53.3
Approach		596	5.0	0.250	5.8	LOS A	1.5	11.2	0.34	0.51	54.2
All Vehicles		1156	5.0	0.350	7.2	LOS A	2.3	16.5	0.45	0.60	53.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Road 1 - 2050

Sancrox Rd and Road 1
Roundabout

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 1 Sth											
1	L2	66	5.0	0.206	5.4	LOS A	1.2	9.0	0.48	0.65	51.5
2	T1	2	5.0	0.206	5.6	LOS A	1.2	9.0	0.48	0.65	52.7
3	R2	158	5.0	0.206	10.0	LOS A	1.2	9.0	0.48	0.65	52.5
Approach		226	5.0	0.206	8.6	LOS A	1.2	9.0	0.48	0.65	52.2
East: Sancrox Rd East											
4	L2	28	5.0	0.152	6.4	LOS A	0.9	6.6	0.60	0.66	52.1
5	T1	85	5.0	0.152	6.6	LOS A	0.9	6.6	0.60	0.66	53.4
6	R2	28	5.0	0.152	11.0	LOS A	0.9	6.6	0.60	0.66	53.2
Approach		142	5.0	0.152	7.5	LOS A	0.9	6.6	0.60	0.66	53.1
North: Road 1 Nth											
7	L2	326	5.0	1.090	144.5	LOS F	57.4	419.2	1.00	3.19	17.7
8	T1	119	5.0	1.090	144.7	LOS F	57.4	419.2	1.00	3.19	17.9
9	R2	148	5.0	1.090	149.1	LOS F	57.4	419.2	1.00	3.19	17.9
Approach		594	5.0	1.090	145.7	LOS F	57.4	419.2	1.00	3.19	17.8
West: Sancrox Rd West											
10	L2	97	5.0	0.420	5.3	LOS A	3.1	22.8	0.47	0.52	52.9
11	T1	676	5.0	0.420	5.3	LOS A	3.1	22.8	0.46	0.54	54.0
12	R2	194	5.0	0.311	9.9	LOS A	2.0	14.5	0.45	0.61	52.9
Approach		966	5.0	0.420	6.2	LOS A	3.1	22.8	0.46	0.55	53.7
All Vehicles		1928	5.0	1.090	49.5	LOS D	57.4	419.2	0.64	1.38	33.1

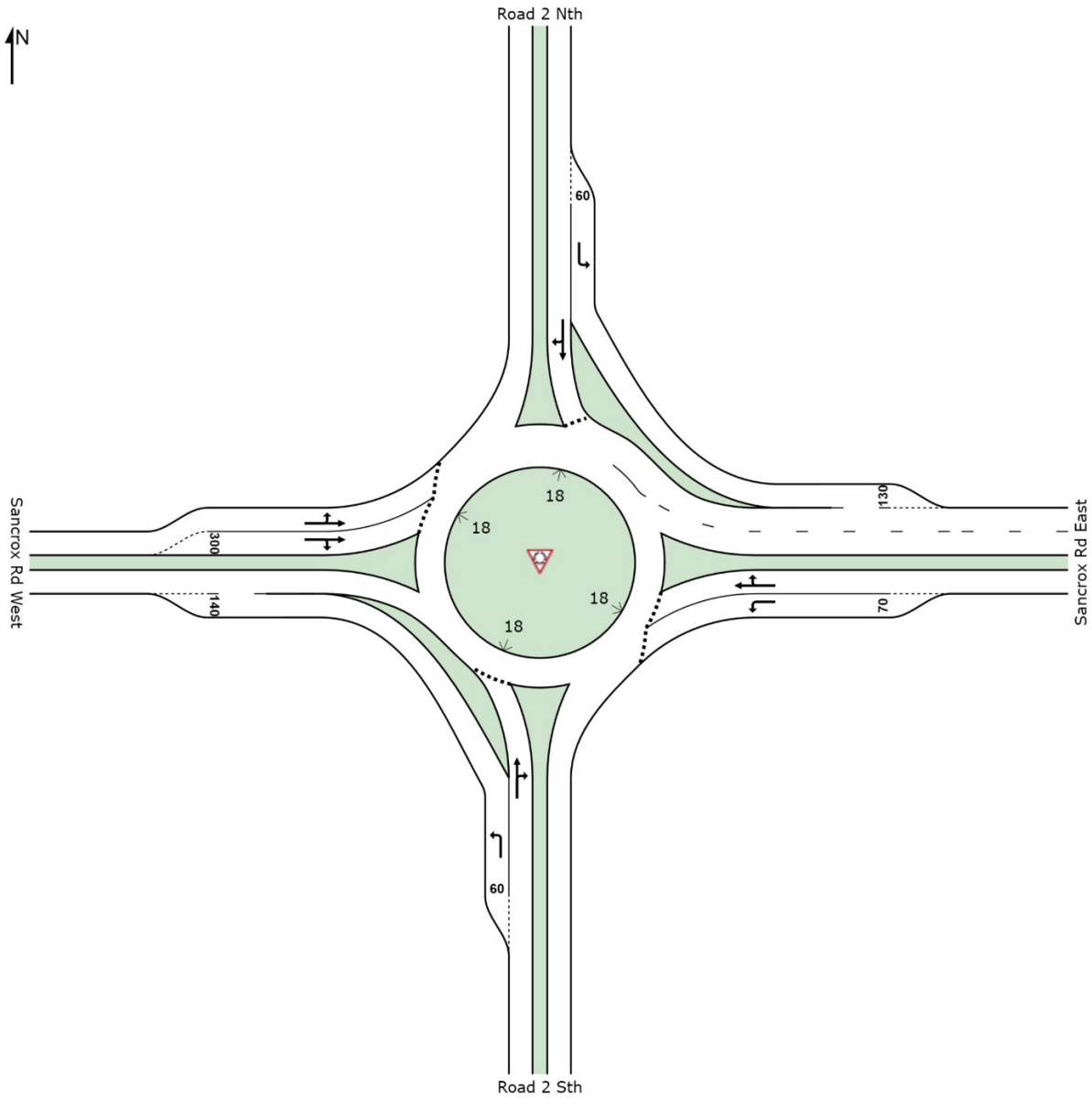
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ROAD 2 - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Road 2

Sancrox Rd and Road 2
Roundabout



MOVEMENT SUMMARY

Site: Sancrox Rd and Road 2 - 2030

Sancrox Rd and Road 2
Roundabout

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 2 Sth											
1	L2	63	5.0	0.034	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
2	T1	2	5.0	0.100	4.6	LOS A	0.5	3.7	0.22	0.60	52.4
3	R2	152	5.0	0.100	9.0	LOS A	0.5	3.7	0.22	0.60	52.3
Approach		217	5.0	0.100	7.4	LOS A	0.5	3.7	0.16	0.56	53.2
East: Sancrox Rd East											
4	L2	29	5.0	0.025	4.8	LOS A	0.1	0.9	0.25	0.48	54.0
5	T1	48	5.0	0.045	4.6	LOS A	0.2	1.6	0.23	0.49	54.6
6	R2	20	5.0	0.045	9.0	LOS A	0.2	1.6	0.23	0.49	54.4
Approach		98	5.0	0.045	5.6	LOS A	0.2	1.6	0.23	0.49	54.4

North: Road 2 Nth											
7	L2	45	5.0	0.024	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
8	T1	17	5.0	0.030	5.5	LOS A	0.2	1.1	0.44	0.58	53.0
9	R2	21	5.0	0.030	9.9	LOS A	0.2	1.1	0.44	0.58	52.9
Approach		83	5.0	0.030	5.6	LOS A	0.2	1.1	0.20	0.52	54.5
West: Sancrox Rd West											
10	L2	2	5.0	0.076	4.9	LOS A	0.4	2.9	0.32	0.45	53.5
11	T1	141	5.0	0.076	4.9	LOS A	0.4	2.9	0.32	0.48	54.5
12	R2	61	5.0	0.076	9.5	LOS A	0.4	2.8	0.33	0.58	53.0
Approach		204	5.0	0.076	6.3	LOS A	0.4	2.9	0.32	0.51	54.1
All Vehicles		602	5.0	0.100	6.5	LOS A	0.5	3.7	0.23	0.53	53.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Road 2 - 2040

Sancrox Rd and Road 2
Roundabout

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		v Total	HV								
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 2 Sth											
1	L2	96	5.0	0.052	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
2	T1	3	5.0	0.163	5.0	LOS A	0.9	6.7	0.35	0.62	52.0
3	R2	231	5.0	0.163	9.4	LOS A	0.9	6.7	0.35	0.62	51.9
Approach		329	5.0	0.163	7.7	LOS A	0.9	6.7	0.25	0.58	52.9
East: Sancrox Rd East											
4	L2	55	5.0	0.051	5.4	LOS A	0.3	1.8	0.37	0.53	53.6
5	T1	91	5.0	0.091	5.0	LOS A	0.5	3.5	0.35	0.52	54.1
6	R2	37	5.0	0.091	9.4	LOS A	0.5	3.5	0.35	0.52	53.9
Approach		182	5.0	0.091	6.0	LOS A	0.5	3.5	0.36	0.52	53.9
North: Road 2 Nth											
7	L2	114	5.0	0.061	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
8	T1	41	5.0	0.086	6.8	LOS A	0.5	3.7	0.61	0.67	52.3
9	R2	52	5.0	0.086	11.2	LOS A	0.5	3.7	0.61	0.67	52.1
Approach		206	5.0	0.086	6.2	LOS A	0.5	3.7	0.28	0.56	54.1
West: Sancrox Rd West											
10	L2	3	5.0	0.148	5.4	LOS A	0.8	6.1	0.43	0.51	53.0
11	T1	252	5.0	0.148	5.4	LOS A	0.8	6.1	0.43	0.54	54.1
12	R2	109	5.0	0.148	10.0	LOS A	0.8	5.9	0.45	0.63	52.6
Approach		364	5.0	0.148	6.8	LOS A	0.8	6.1	0.44	0.56	53.6
All Vehicles		1082	5.0	0.163	6.8	LOS A	0.9	6.7	0.34	0.56	53.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Road 2 - 2050

Sancrox Rd and Road 2
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mo	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 2 Sth											
1	L2	123	5.0	0.066	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
2	T1	4	5.0	0.233	5.7	LOS A	1.4	10.5	0.50	0.67	51.6
3	R2	298	5.0	0.233	10.0	LOS A	1.4	10.5	0.50	0.67	51.4
Approach		425	5.0	0.233	8.2	LOS A	1.4	10.5	0.35	0.61	52.6
East: Sancrox Rd East											
4	L2	91	5.0	0.094	6.1	LOS A	0.5	3.6	0.50	0.60	53.2
5	T1	151	5.0	0.165	5.6	LOS A	1.0	7.1	0.49	0.59	53.5
6	R2	60	5.0	0.165	10.0	LOS A	1.0	7.1	0.49	0.59	53.4
Approach		301	5.0	0.165	6.7	LOS A	1.0	7.1	0.49	0.59	53.4
North: Road 2 Nth											
7	L2	233	5.0	0.125	3.7	LOS A	0.0	0.0	0.00	0.47	55.8
8	T1	40	5.0	0.183	10.1	LOS A	1.3	9.8	0.85	0.81	49.8
9	R2	105	5.0	0.183	14.5	LOS A	1.3	9.8	0.85	0.81	49.7
Approach		378	5.0	0.183	7.4	LOS A	1.3	9.8	0.33	0.60	53.3
West: Sancrox Rd West											
10	L2	6	5.0	0.278	6.0	LOS A	1.8	13.3	0.56	0.58	52.5
11	T1	436	5.0	0.278	6.0	LOS A	1.8	13.3	0.56	0.61	53.5
12	R2	189	5.0	0.278	10.8	LOS A	1.7	12.6	0.58	0.70	52.1
Approach		632	5.0	0.278	7.5	LOS A	1.8	13.3	0.57	0.64	53.1
All Vehicles		1736	5.0	0.278	7.5	LOS A	1.8	13.3	0.45	0.61	53.1

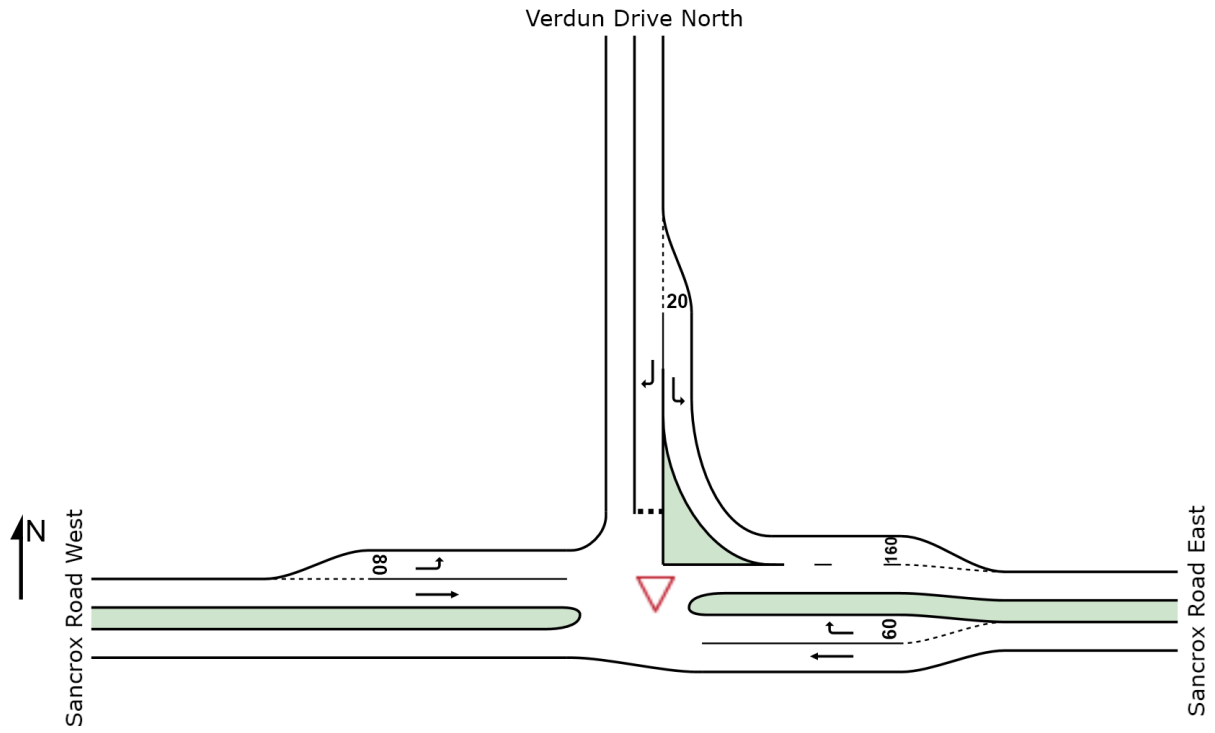
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

VERDUN DRIVE - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Verdun Dr - 2030

Sancrox Rd and Verdun Dr - 2030
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2030

Sancrox Rd and Verdun Dr - 2030
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	125	5.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	6	5.0	0.004	6.2	LOS A	0.0	0.1	0.30	0.52	52.5
Approach		132	5.0	0.066	0.3	NA	0.0	0.1	0.01	0.03	59.6
North: Verdun Drive North											
7	L2	23	5.0	0.013	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
9	R2	9	5.0	0.010	6.8	LOS A	0.0	0.2	0.34	0.59	52.2
Approach		33	5.0	0.013	6.0	LOS A	0.0	0.2	0.10	0.54	54.0
West: Sancrox Road		d West									
10	L2	9	5.0	0.005	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	182	5.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		192	5.0	0.096	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		356	5.0	0.096	0.8	NA	0.0	0.2	0.01	0.07	59.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2040

Sancrox Rd and Verdun Dr - 2040
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mo	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	226	5.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	12	5.0	0.009	6.6	LOS A	0.0	0.3	0.39	0.56	52.2
Approach		238	5.0	0.120	0.3	NA	0.0	0.3	0.02	0.03	59.5
North: Verdun Drive North											
7	L2	68	5.0	0.038	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
9	R2	29	5.0	0.040	8.1	LOS A	0.1	0.9	0.46	0.70	51.3
Approach		98	5.0	0.040	6.4	LOS A	0.1	0.9	0.14	0.58	53.7
West: Sancrox Road		d West									
10	L2	16	5.0	0.009	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	297	5.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		313	5.0	0.157	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		648	5.0	0.157	1.2	NA	0.1	0.9	0.03	0.11	58.6

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2050

Sancrox Rd and Verdun Dr - 2050
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mo	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	360	5.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	19	5.0	0.020	7.9	LOS A	0.1	0.6	0.53	0.65	51.6
Approach		379	5.0	0.191	0.4	NA	0.1	0.6	0.03	0.03	59.5
North: Verdun Drive											
7	L2	103	5.0	0.058	5.7	LOS A	0.0	0.0	0.00	0.53	54.8
9	R2	44	5.0	0.097	11.7	LOS A	0.3	2.2	0.66	0.86	48.8
Approach		147	5.0	0.097	7.5	LOS A	0.3	2.2	0.20	0.63	52.9
West: Sancrox Road West											
10	L2	27	5.0	0.015	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	528	5.0	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		556	5.0	0.280	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		1082	5.0	0.280	1.3	NA	0.3	2.2	0.04	0.11	58.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

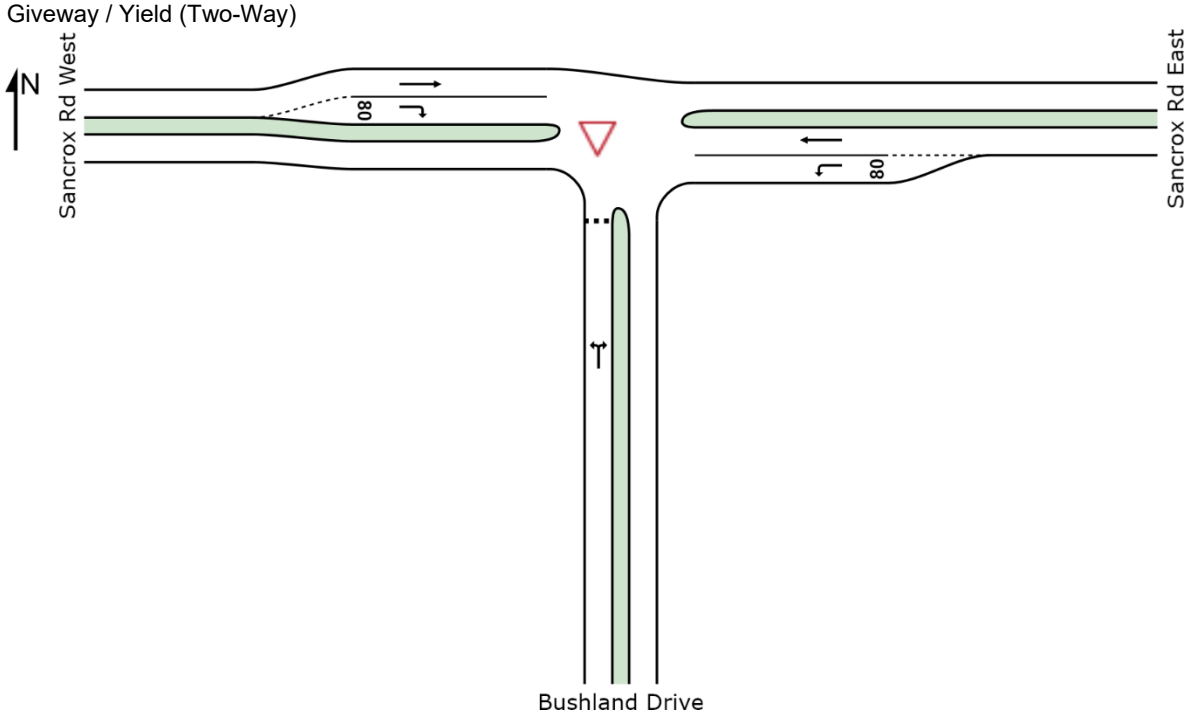
Alternative Layouts

BUSHLAND DRIVE ALTERNATIVE (no seagull) - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Bushlands Dr - 2050 ALT - CHR

New Site
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2030 ALT - CHR

Sancrox Rd and Bushlands Dr - 2030 ALT - CHR
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID		ODMo Demand v Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Bushland Drive											
1	L2	8	5.0	0.033	6.1	LOS A	0.1	0.8	0.34	0.62	52.0
3	R2	20	5.0	0.033	8.0	LOS A	0.1	0.8	0.34	0.62	51.8
Approach		28	5.0	0.033	7.4	LOS A	0.1	0.8	0.34	0.62	51.8
East: Sancrox Rd East											
4	L2	37	5.0	0.021	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	148	5.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		185	5.0	0.079	1.1	NA	0.0	0.0	0.00	0.11	58.5
West: Sancrox Rd West											
11	T1	263	5.0	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	60.0

12	R2	113	5.0	0.076	6.1	LOS A	0.4	2.6	0.30	0.58	52.1
Approach		376	5.0	0.139	1.8	NA	0.4	2.6	0.09	0.17	57.4
All Vehicles		589	5.0	0.139	1.9	NA	0.4	2.6	0.07	0.18	57.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2040 ALT - CHR

Sancrox Rd and Bushlands Dr - 2040 ALT - CHR
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Bushland Drive											
1	L2	13	5.0	0.069	6.1	LOS A	0.2	1.6	0.41	0.69	50.5
3	R2	29	5.0	0.069	11.0	LOS A	0.2	1.6	0.41	0.69	50.3
Approach		42	5.0	0.069	9.5	LOS A	0.2	1.6	0.41	0.69	50.4
East: Sancrox Rd East											
4	L2	40	5.0	0.022	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
5	T1	159	5.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		199	5.0	0.084	1.1	NA	0.0	0.0	0.00	0.12	58.5
West: Sancrox Rd West											
11	T1	487	5.0	0.258	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	208	5.0	0.143	6.2	LOS A	0.7	5.0	0.33	0.59	52.0
Approach		696	5.0	0.258	1.9	NA	0.7	5.0	0.10	0.18	57.3
All Vehicles		937	5.0	0.258	2.1	NA	0.7	5.0	0.09	0.19	57.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Bushlands Dr - 2050 ALT - CHR

Sancrox Rd and Bushlands Dr - 2050 ALT - CHR
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Bushland Drive											
1	L2	22	5.0	0.238	6.8	LOS A	0.8	5.6	0.60	0.77	45.9
3	R2	52	5.0	0.238	21.0	LOS B	0.8	5.6	0.60	0.77	45.7
Approach		74	5.0	0.238	16.7	LOS B	0.8	5.6	0.60	0.77	45.8
East: Sancrox Rd East											
4	L2	40	5.0	0.022	5.6	LOS A	0.0	0.0	0.00	0.58	53.4

5 T1		161	5.0	0.085	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		201	5.0	0.085	1.1	NA	0.0	0.0	0.00	0.11	58.5
West: Sancrox Rd West											
11	T1	813	5.0	0.430	0.1	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	348	5.0	0.239	6.3	LOS A	1.3	9.1	0.36	0.60	51.9
Approach		1161	5.0	0.430	1.9	NA	1.3	9.1	0.11	0.18	57.2
All Vehicles		1436	5.0	0.430	2.6	NA	1.3	9.1	0.12	0.20	56.7

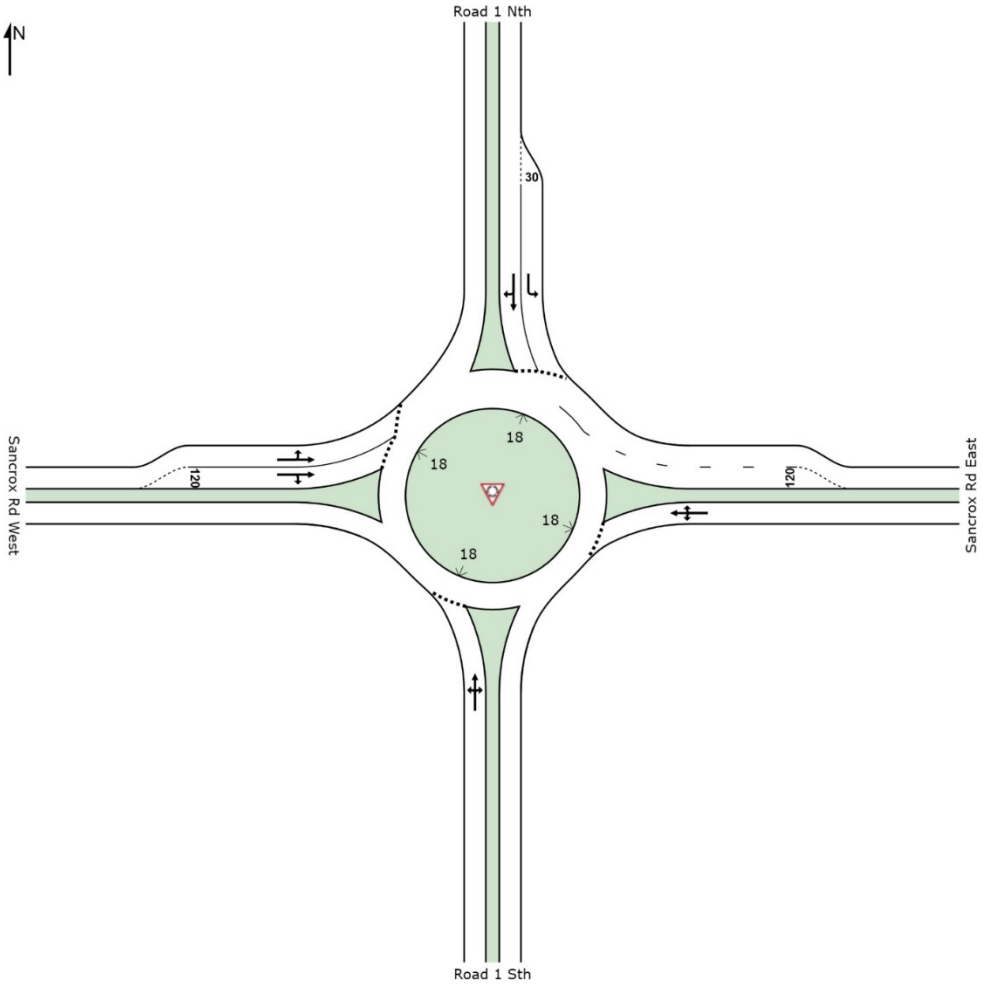
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ROAD 1 ALTERNATIVE (additional lane north leg) - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Road 1 - Alternative

Sancrox Rd and Road 1
Roundabout



MOVEMENT SUMMARY

Site: Sancrox Rd and Road 1 - 2050 - Alternative

Sancrox Rd and Road 1
Roundabout

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Road 1 Sth											
1	L2	66	5.0	0.208	5.5	LOS A	1.2	9.1	0.49	0.65	51.4
2	T1	2	5.0	0.208	5.7	LOS A	1.2	9.1	0.49	0.65	52.6
3	R2	158	5.0	0.208	10.1	LOS A	1.2	9.1	0.49	0.65	52.5
Approach		226	5.0	0.208	8.7	LOS A	1.2	9.1	0.49	0.65	52.2
East: Sancrox Rd East											
4	L2	28	5.0	0.155	6.5	LOS A	0.9	6.8	0.62	0.67	52.1
5	T1	85	5.0	0.155	6.8	LOS A	0.9	6.8	0.62	0.67	53.3
6	R2	28	5.0	0.155	11.2	LOS A	0.9	6.8	0.62	0.67	53.1
Approach		142	5.0	0.155	7.6	LOS A	0.9	6.8	0.62	0.67	53.0
North: Road 1 Nth											
7	L2	326	5.0	0.460	14.3	LOS A	4.2	30.7	0.98	0.99	47.7
8	T1	119	5.0	0.513	19.1	LOS B	4.5	33.2	0.96	1.10	44.9
9	R2	148	5.0	0.513	23.5	LOS B	4.5	33.2	0.96	1.10	44.8
Approach		594	5.0	0.513	17.6	LOS B	4.5	33.2	0.97	1.04	46.3
West: Sancrox Rd West											
10	L2	97	5.0	0.420	5.3	LOS A	3.1	22.9	0.47	0.52	52.9
11	T1	676	5.0	0.420	5.3	LOS A	3.1	22.9	0.46	0.54	54.0
12	R2	194	5.0	0.312	9.9	LOS A	2.0	14.6	0.45	0.61	52.9
Approach		966	5.0	0.420	6.2	LOS A	3.1	22.9	0.46	0.55	53.7
All Vehicles		1928	5.0	0.513	10.1	LOS A	4.5	33.2	0.63	0.72	51.0

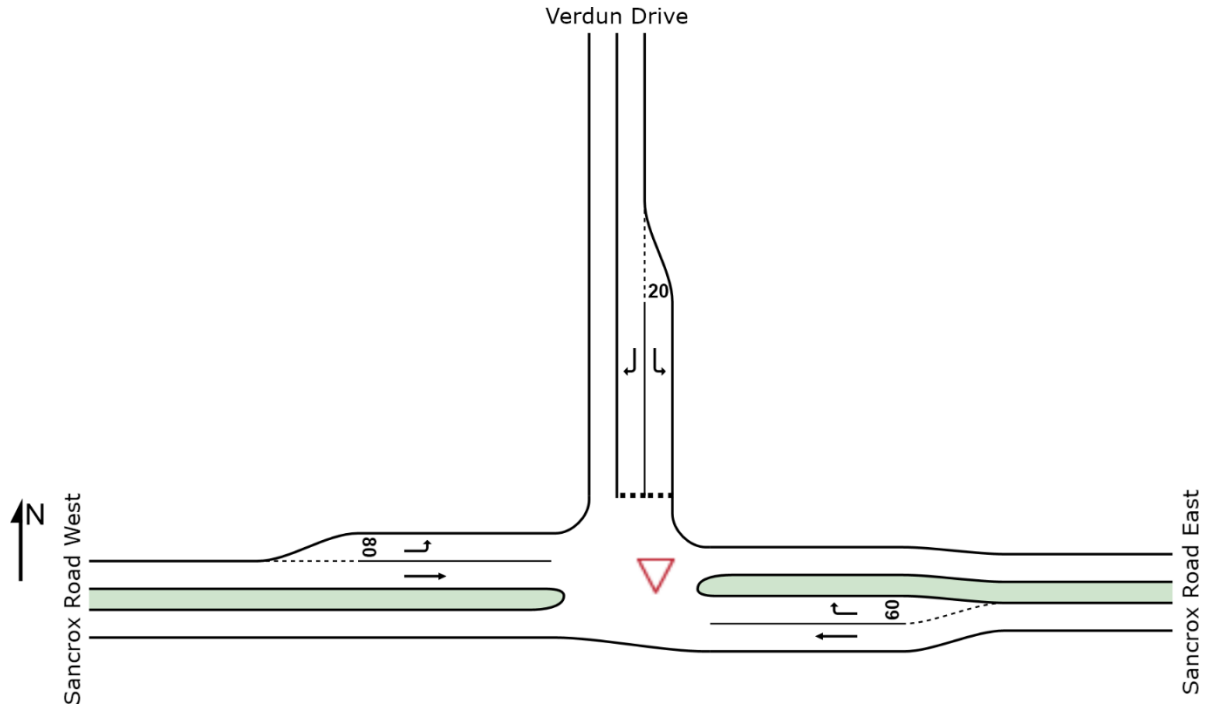
Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

VERDUN ROAD ALTERNATIVE (no left slip lane) - Model outputs

SITE LAYOUT

Site: Sancrox Rd and Verdun Dr - ALT no slip

Sancrox Rd and Verdun Dr - ALT no slip
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2030 - ALT no slip

Sancrox Rd and Verdun Dr - 2030 - ALT no slip
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	125	5.0	0.066	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	6	5.0	0.004	6.1	LOS A	0.0	0.1	0.30	0.53	52.3
Approach		132	5.0	0.066	0.3	NA	0.0	0.1	0.01	0.03	59.6
North: Verdun Drive											
7	L2	23	5.0	0.021	6.3	LOS A	0.1	0.5	0.27	0.56	52.6
9	R2	9	5.0	0.010	6.8	LOS A	0.0	0.2	0.34	0.59	52.2
Approach		33	5.0	0.021	6.5	LOS A	0.1	0.5	0.29	0.57	52.4
West: Sancrox Road West											
10	L2	9	5.0	0.005	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	182	5.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		192	5.0	0.096	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		356	5.0	0.096	0.9	NA	0.1	0.5	0.03	0.08	58.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2040 - ALT no slip

Sancrox Rd and Verdun Dr - 2040 - ALT no slip
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	226	5.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	12	5.0	0.009	6.6	LOS A	0.0	0.3	0.39	0.56	52.0
Approach		238	5.0	0.120	0.3	NA	0.0	0.3	0.02	0.03	59.5
North: Verdun Drive											
7	L2	68	5.0	0.072	7.0	LOS A	0.3	1.9	0.37	0.63	52.2
9	R2	29	5.0	0.040	8.1	LOS A	0.1	0.9	0.46	0.70	51.3
Approach		98	5.0	0.072	7.3	LOS A	0.3	1.9	0.40	0.65	52.0
West: Sancrox Road West											
10	L2	16	5.0	0.009	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	297	5.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		313	5.0	0.157	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		648	5.0	0.157	1.4	NA	0.3	1.9	0.07	0.12	58.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Sancrox Rd and Verdun Dr - 2050 - ALT no slip

Sancrox Rd and Verdun Dr - 2050 - ALT no slip
Giveway / Yield (Two-Way)

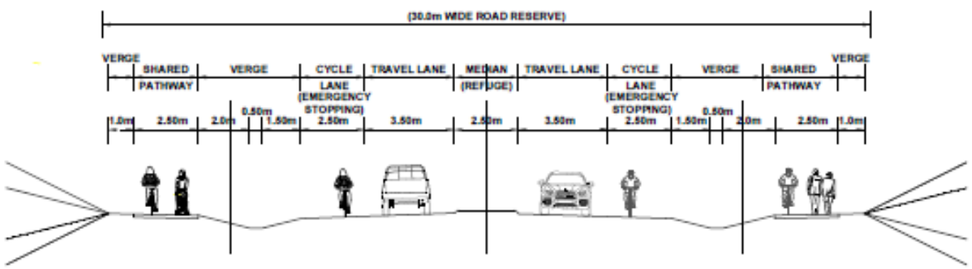
Movement Performance - Vehicles

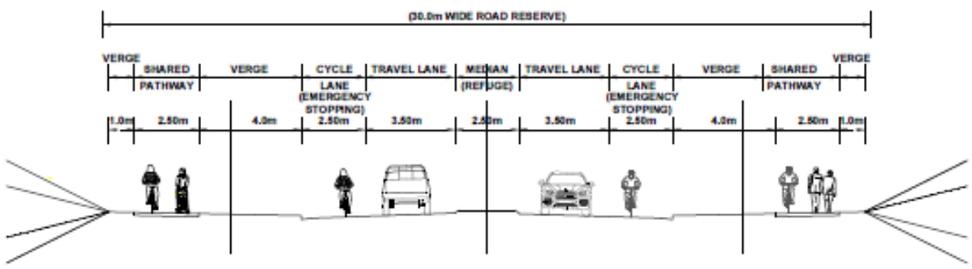
Mov ID	ODMo	Demand Flows v Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Sancrox Road East											
5	T1	360	5.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	19	5.0	0.020	7.9	LOS A	0.1	0.6	0.53	0.66	51.4
Approach		379	5.0	0.191	0.4	NA	0.1	0.6	0.03	0.03	59.5
North: Verdun Drive											
7	L2	103	5.0	0.147	8.9	LOS A	0.5	3.8	0.53	0.78	50.9
9	R2	44	5.0	0.097	11.7	LOS A	0.3	2.2	0.66	0.86	48.8
Approach		147	5.0	0.147	9.7	LOS A	0.5	3.8	0.57	0.80	50.3
West: Sancrox Road West											
10	L2	27	5.0	0.015	5.6	LOS A	0.0	0.0	0.00	0.58	53.4
11	T1	528	5.0	0.280	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		556	5.0	0.280	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		1082	5.0	0.280	1.6	NA	0.5	3.8	0.09	0.14	58.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX E
PROPOSED SANCROX CORRIDOR PLAN





No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APP'D.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 383
craig@streetwisersa.com.au or
ajd@streetwisersa.com.au

CLIENT
LandDynamics AUSTRALIA

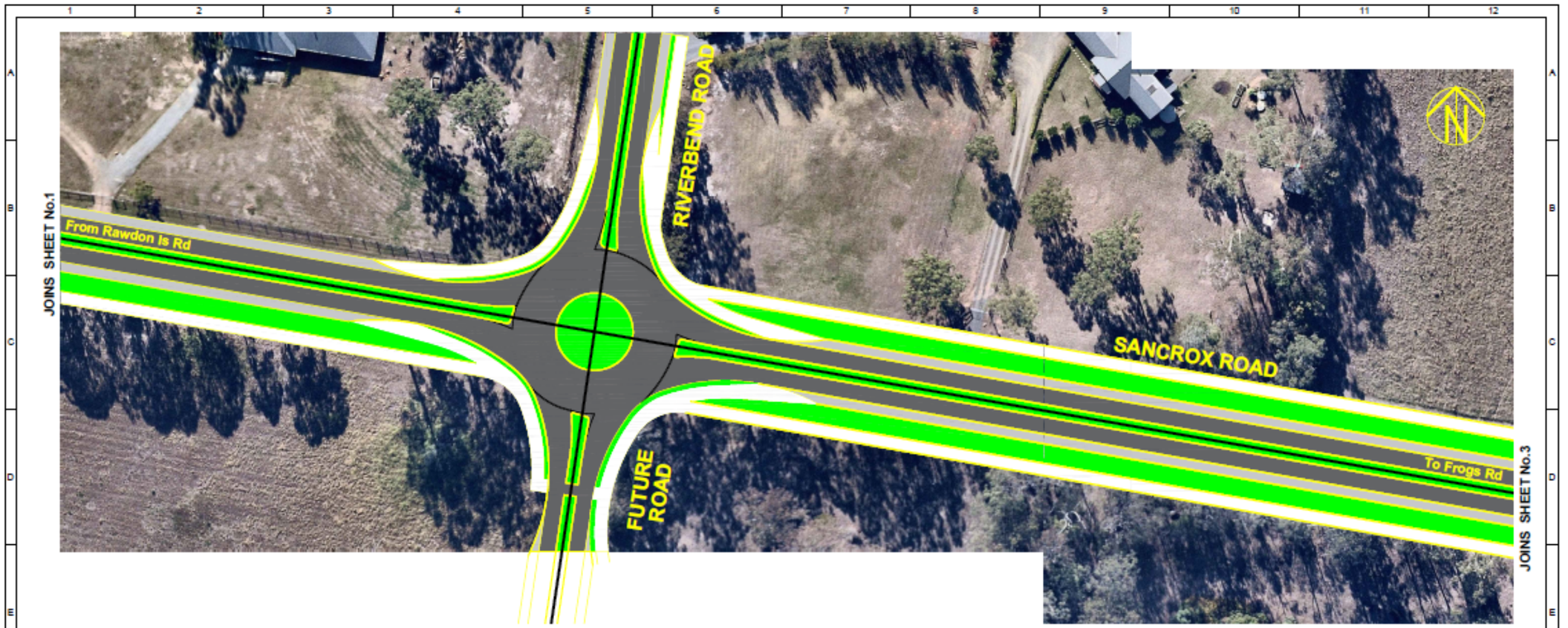
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

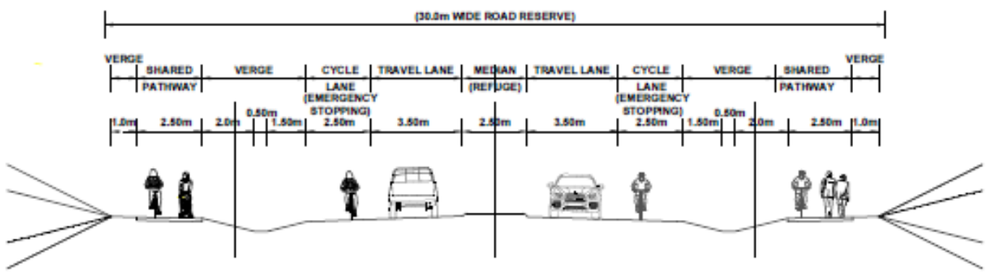
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

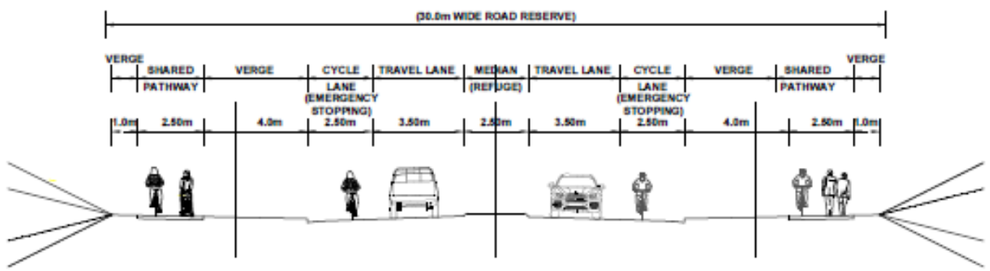
DRAWING TITLE
SHEET 1 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:54:12 AM







No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 46 804 146 215
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 383
craig@streetwiseroads.com.au or
andy@streetwiseroads.com.au

CLIENT
LandDynamics AUSTRALIA

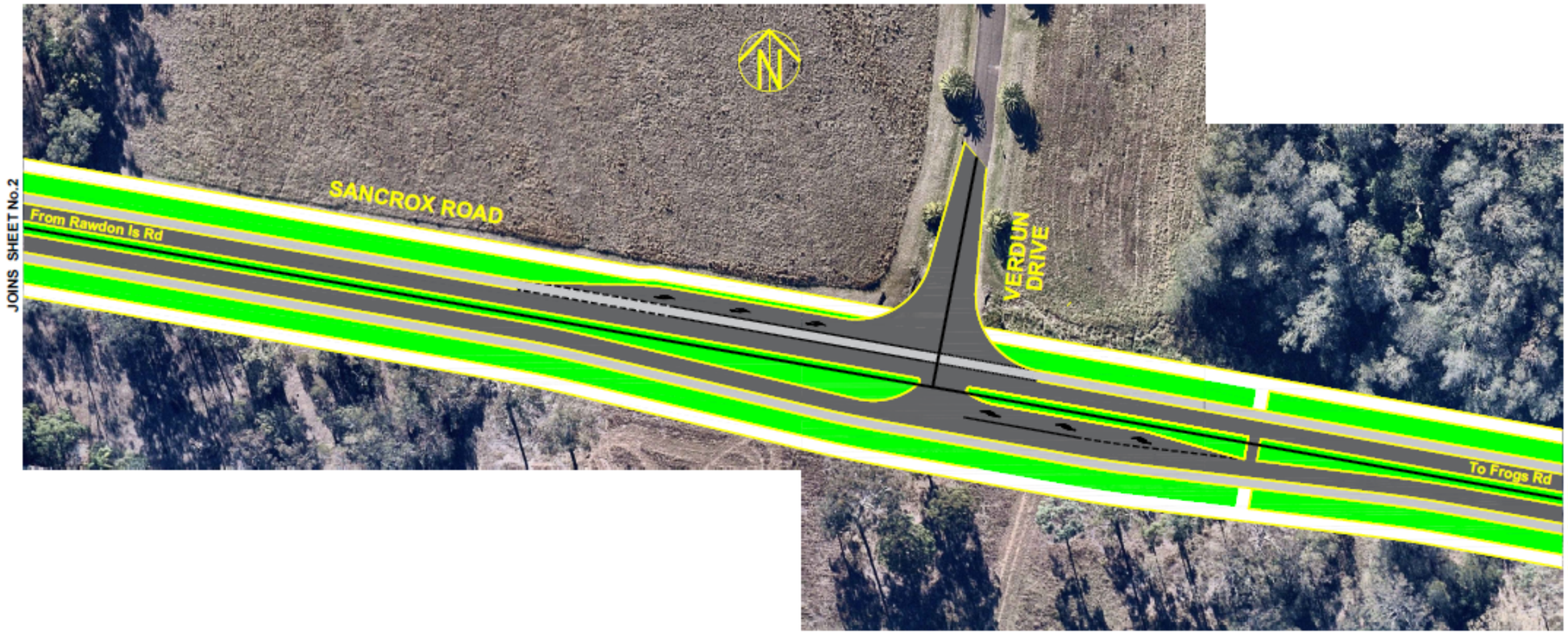
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

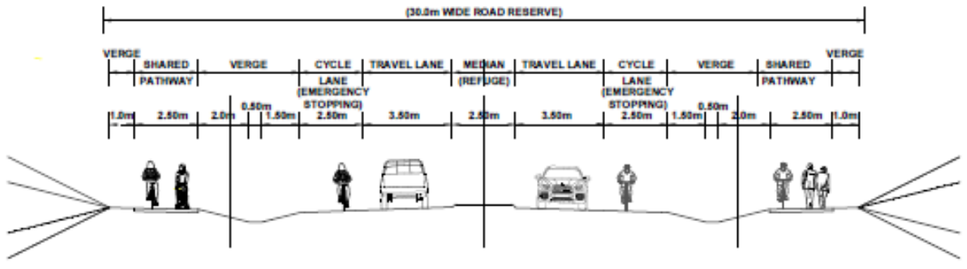
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

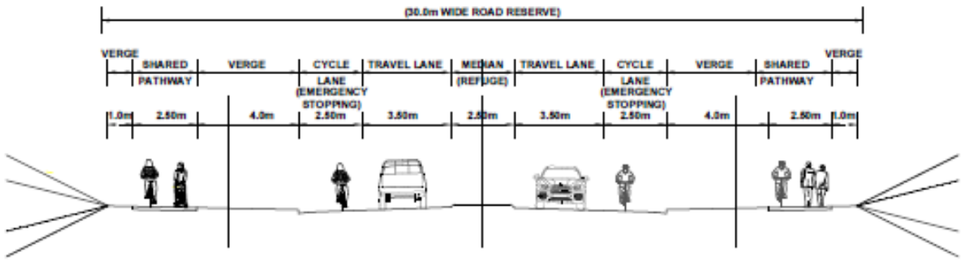
DRAWING TITLE
SHEET 2 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019







No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-19	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseras.com.au or
andre@streetwiseras.com.au

CLIENT
LandDynamics AUSTRALIA

SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

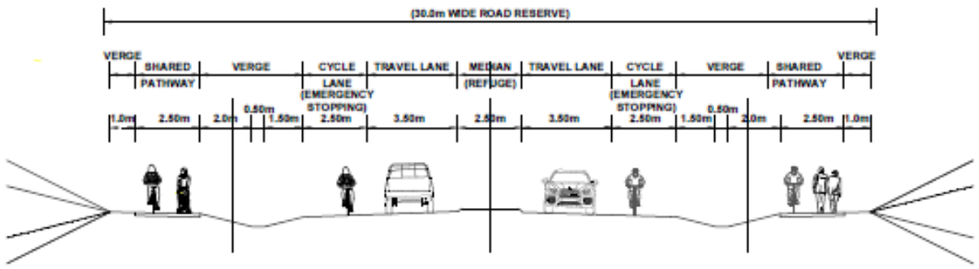
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

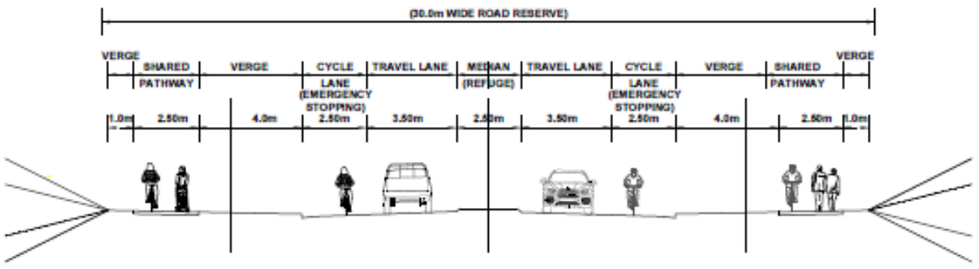
DRAWING TITLE
SHEET 3 of 13

DRAWING No. CORRIDOR PLAN REV. A

PLOTTED BY: Craig ON 10/10/2019 8:54:20 AM

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019





No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwisensw.com.au or
andy@streetwisensw.com.au

CLIENT
LandDynamics AUSTRALIA

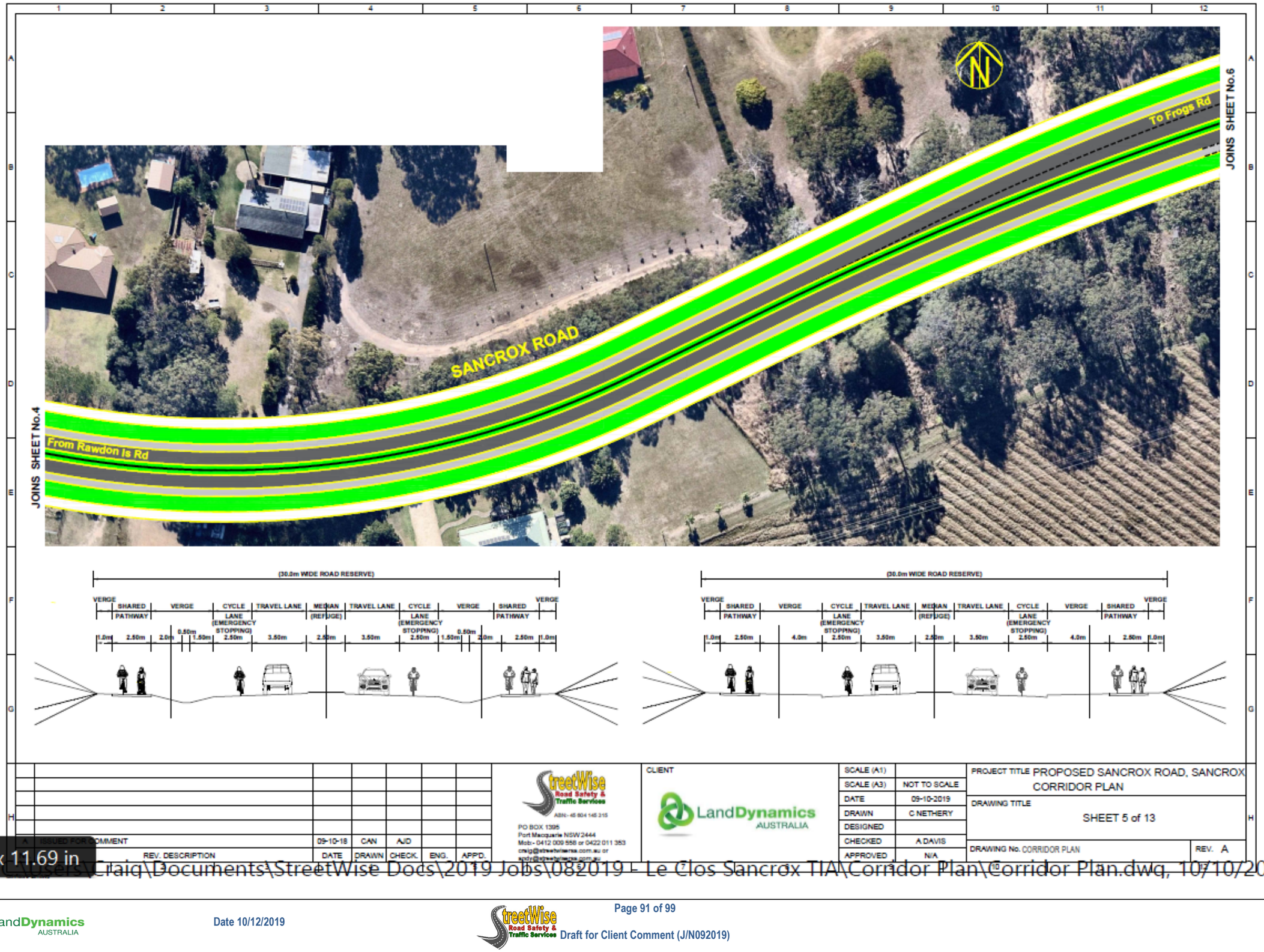
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

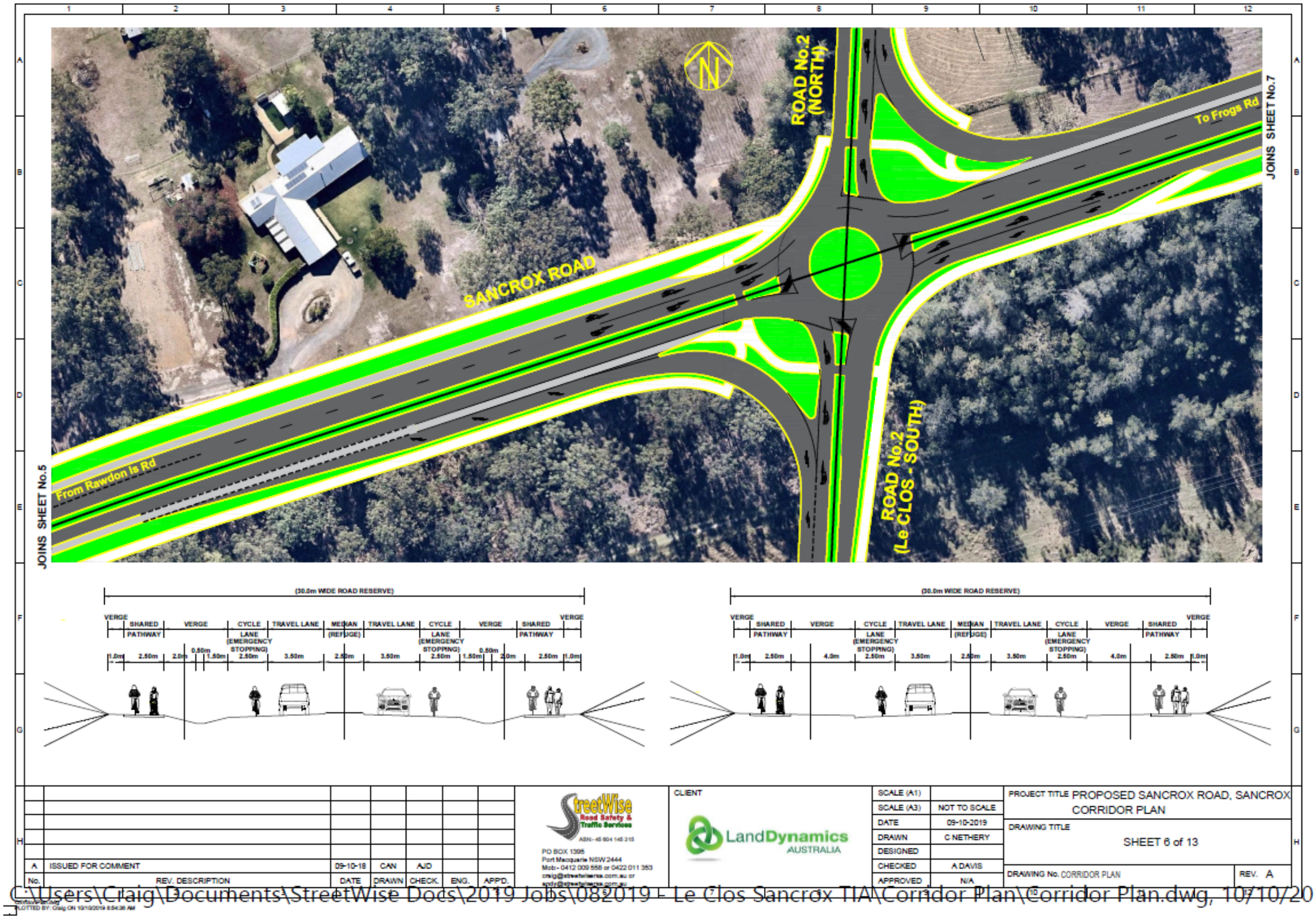
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 4 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019


SANCROX ROAD
To Frogs Rd
From Rawdon Is Rd
JOINS SHEET No.6
JOINS SHEET No.4
(30.0m WIDE ROAD RESERVE)
VERGE
SHARED PATHWAY
CYCLE LANE (EMERGENCY STOPPING)
TRAVEL LANE
MEDIAN (REFUGE)
1.0m 2.50m 2.0m 0.50m 1.50m 2.50m 3.50m 2.50m 3.50m 2.50m 1.50m 0.50m 2.0m 2.50m 1.0m
(30.0m WIDE ROAD RESERVE)
1.0m 2.50m 4.0m 2.50m 3.50m 2.50m 3.50m 2.50m 4.0m 2.50m 1.0m
A ISSUED FOR COMMENT 09-10-19 CAN AJD
REV. DESCRIPTION DATE DRAWN CHECK. ENG. APPD.
StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 215
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
CLIENT
LandDynamics AUSTRALIA
SCALE (A1)
SCALE (A3) NOT TO SCALE
DATE 09-10-2019
DRAWN C NETHERY
DESIGNED
CHECKED A DAVIS
APPROVED N/A
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX CORRIDOR PLAN
DRAWING TITLE SHEET 5 of 13
DRAWING No. CORRIDOR PLAN
REV. A
x 11.69 in
C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019



No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 804 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseroadsafety.com.au or
andy@streetwiseroadsafety.com.au

CLIENT
LandDynamics AUSTRALIA

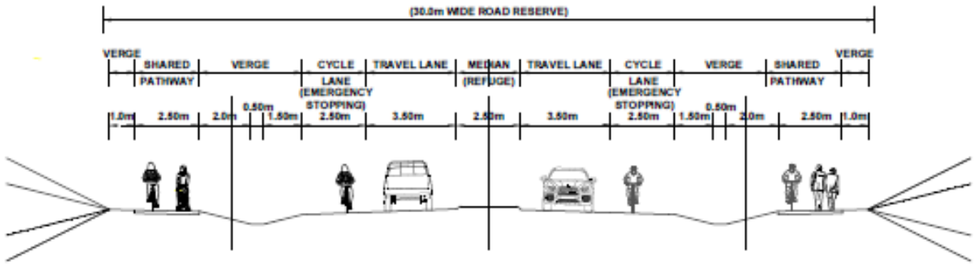
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

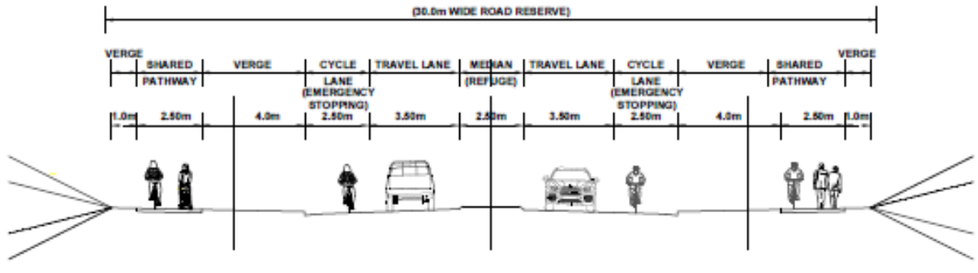
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 6 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:54:36 AM





No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-19	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 804 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseras.com.au or
andy@streetwiseras.com.au

CLIENT
LandDynamics AUSTRALIA

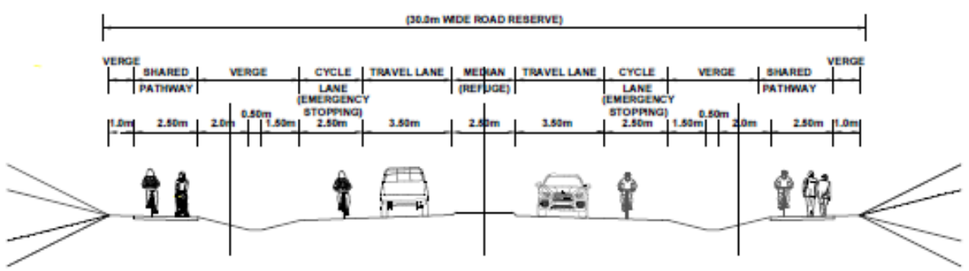
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

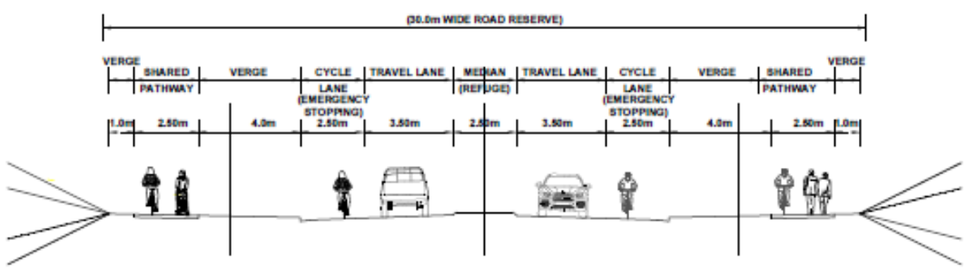
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 7 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:54:41 AM





No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-19	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseroadsafety.com.au or
andy@streetwiseroadsafety.com.au

CLIENT
LandDynamics AUSTRALIA

SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

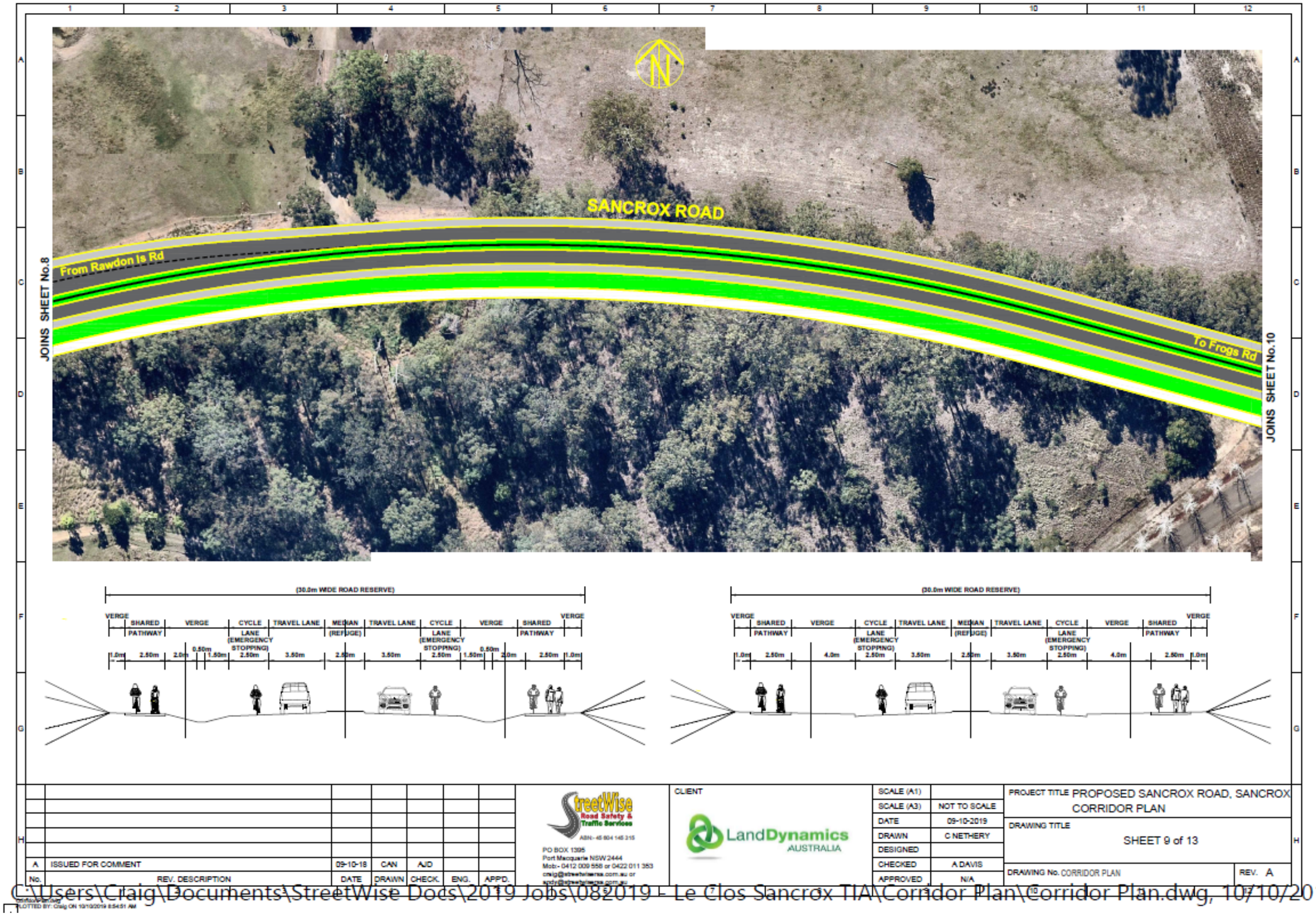
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

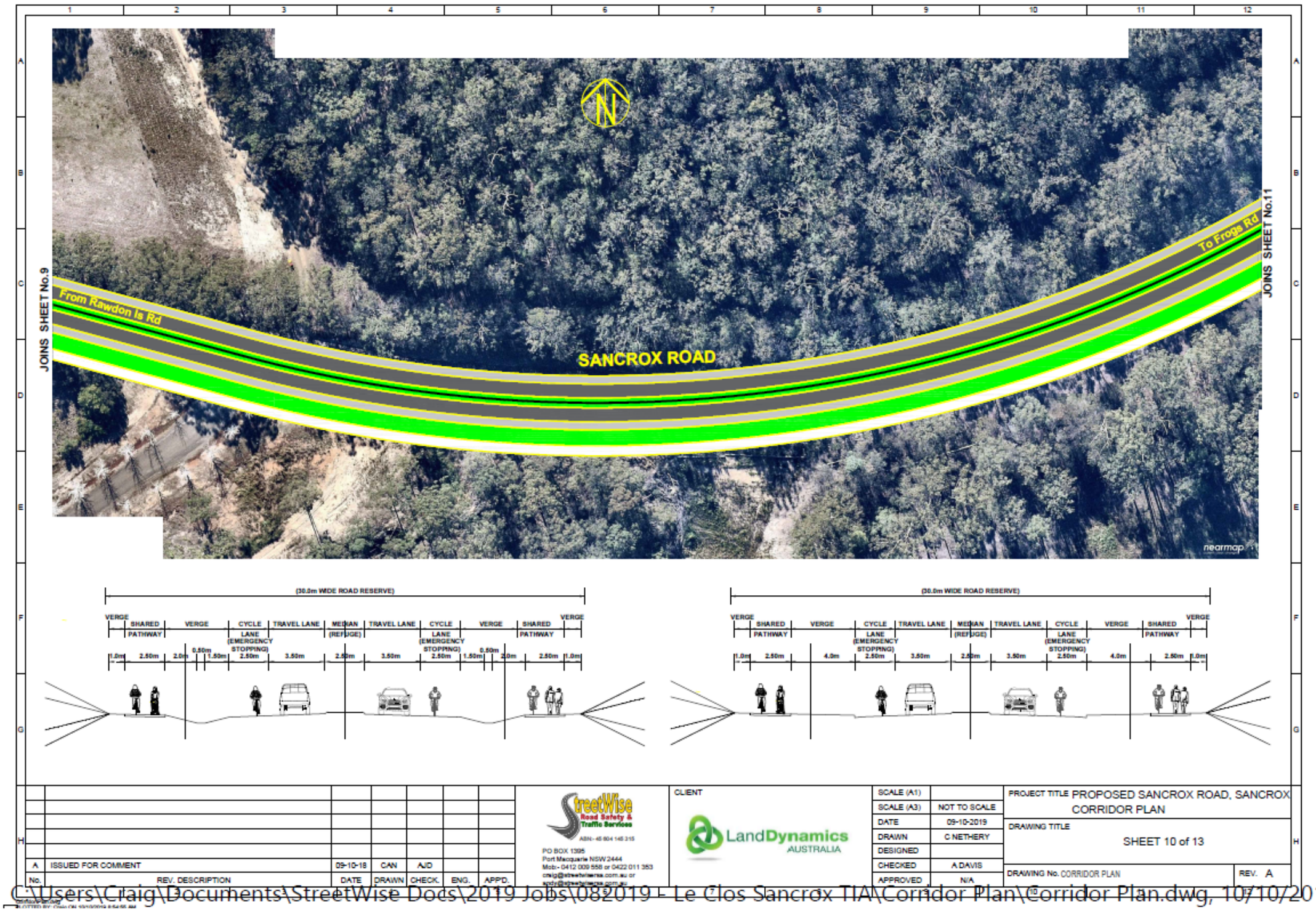
DRAWING TITLE
SHEET 8 of 13

DRAWING No. CORRIDOR PLAN REV. A

PLOTTED BY: Craig ON 10/10/2019 8:54:46 AM

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019


SANCROX ROAD
From Rawdon Is Rd
To Frogs Rd
JOINS SHEET No.8
SHEET No.10
(30.0m WIDE ROAD RESERVE)
VERGE
SHARED PATHWAY
VERGE
CYCLE LANE (EMERGENCY STOPPING)
TRAVEL LANE
MEDIAN (REFUGE)
TRAVEL LANE
CYCLE LANE (EMERGENCY STOPPING)
VERGE
SHARED PATHWAY
VERGE
1.0m 2.50m 2.0m 0.50m 1.50m 2.50m 3.50m 2.50m 3.50m 2.50m 1.50m 0.50m 2.0m 2.50m 1.0m
(30.0m WIDE ROAD RESERVE)
VERGE
SHARED PATHWAY
VERGE
CYCLE LANE (EMERGENCY STOPPING)
TRAVEL LANE
MEDIAN (REFUGE)
TRAVEL LANE
CYCLE LANE (EMERGENCY STOPPING)
VERGE
SHARED PATHWAY
VERGE
1.0m 2.50m 4.0m 2.50m 3.50m 2.50m 3.50m 2.50m 4.0m 2.50m 1.0m
A ISSUED FOR COMMENT 09-10-18 CAN AJD
No. REV. DESCRIPTION DATE DRAWN CHECK. ENG. APPD.
StreetWise Road Safety & Traffic Services
ABN: 46 604 145 215
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiserse.com.au or
apdy@streetwiserse.com.au
CLIENT
LandDynamics AUSTRALIA
SCALE (A1)
SCALE (A3) NOT TO SCALE
DATE 09-10-2019
DRAWN C NETHERY
DESIGNED
CHECKED A DAVIS
APPROVED N/A
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX CORRIDOR PLAN
DRAWING TITLE SHEET 9 of 13
DRAWING No. CORRIDOR PLAN
REV. A
C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:54:51 AM



No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APP'D.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 46 804 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwisewise.com.au or
andy@streetwisewise.com.au

CLIENT
LandDynamics AUSTRALIA

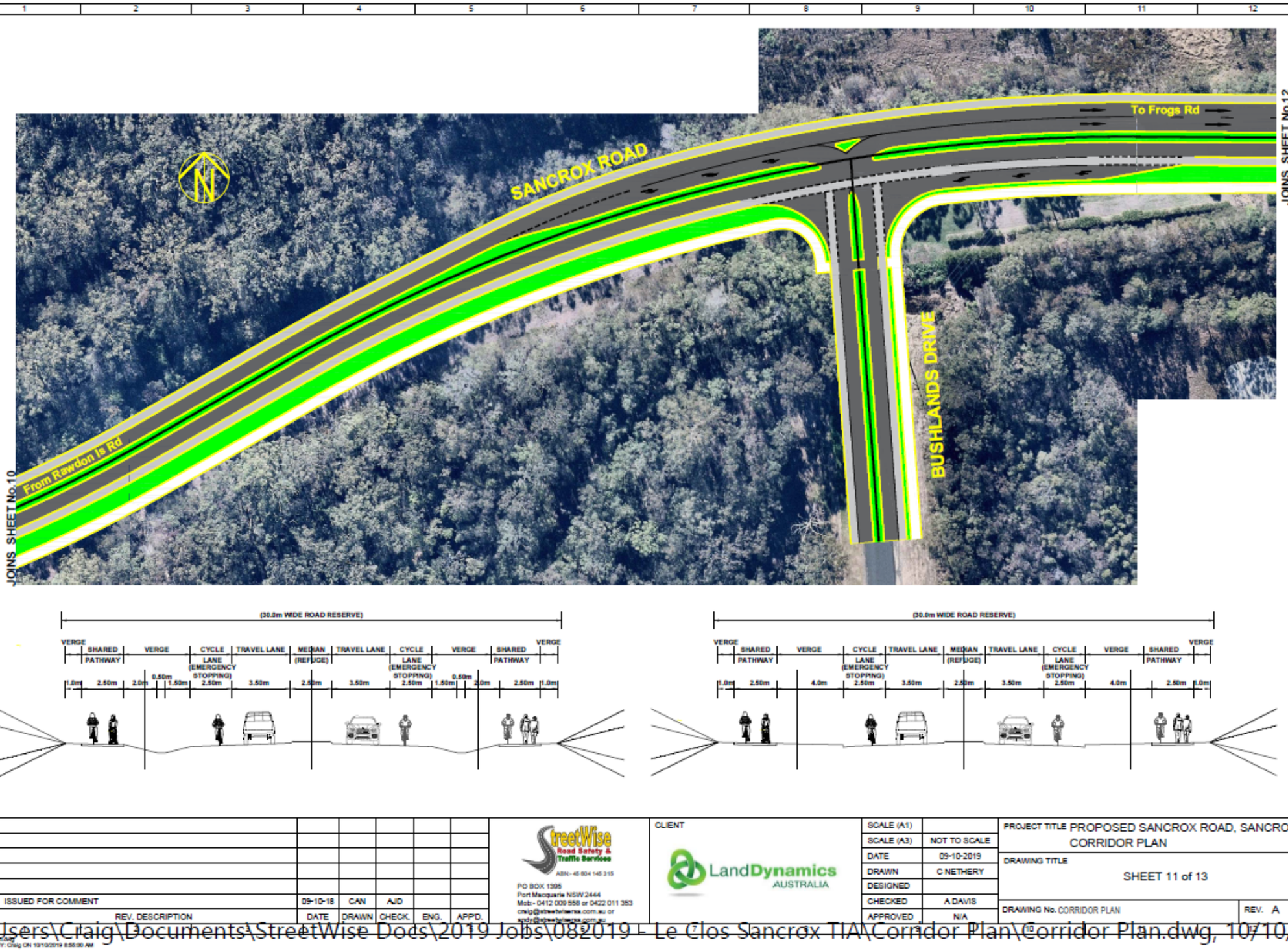
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 10 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019



No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APPD.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseroadsafety.com.au or
andy@streetwiseroadsafety.com.au

CLIENT
LandDynamics AUSTRALIA

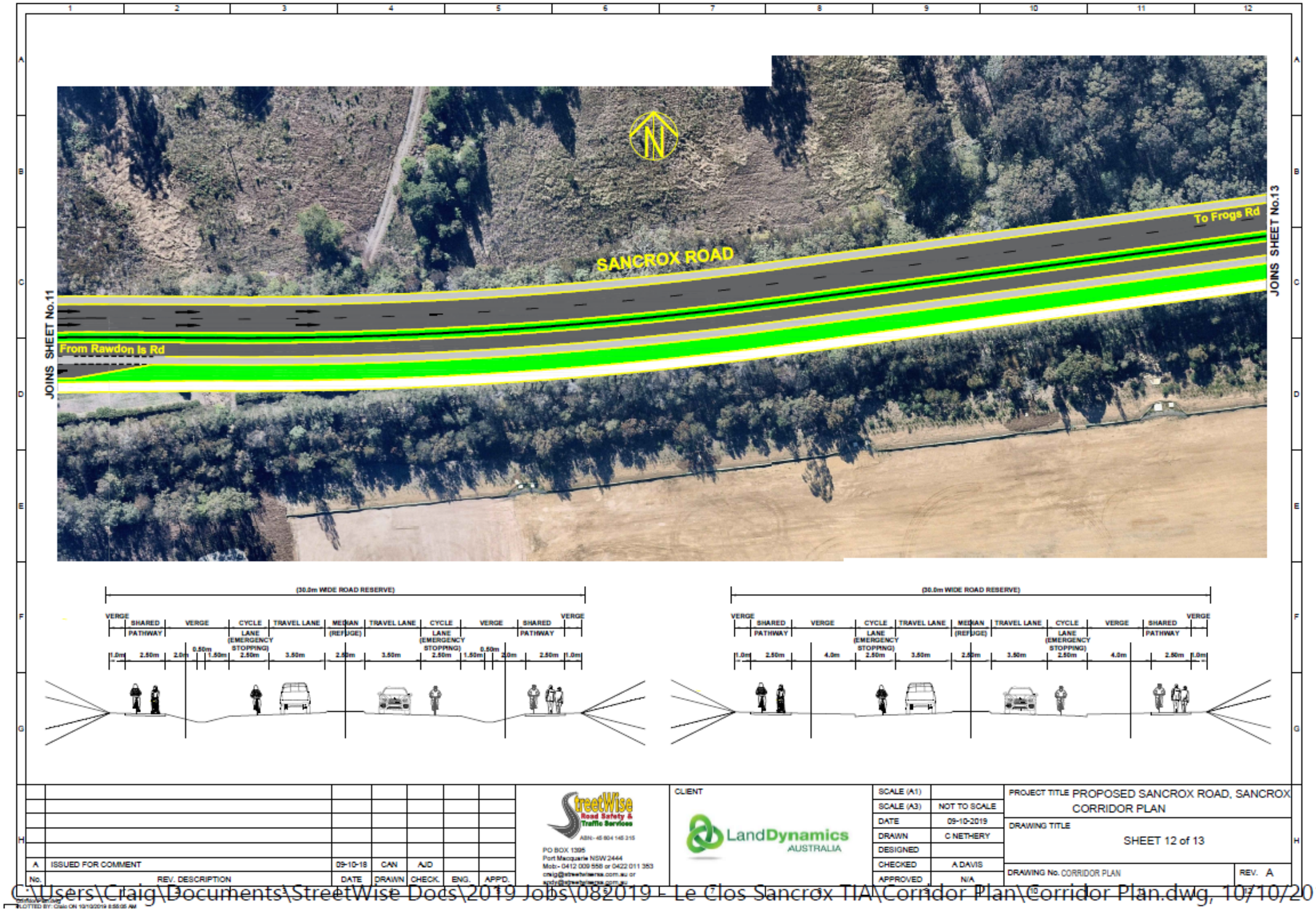
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 11 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:55:00 AM



No.	REV. DESCRIPTION	DATE	DRAWN	CHECK.	ENG.	APP'D.
A	ISSUED FOR COMMENT	09-10-18	CAN	AJD		

StreetWise Road Safety & Traffic Services
ABN:- 46 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiserisk.com.au or andy@streetwiserisk.com.au

CLIENT
LandDynamics AUSTRALIA

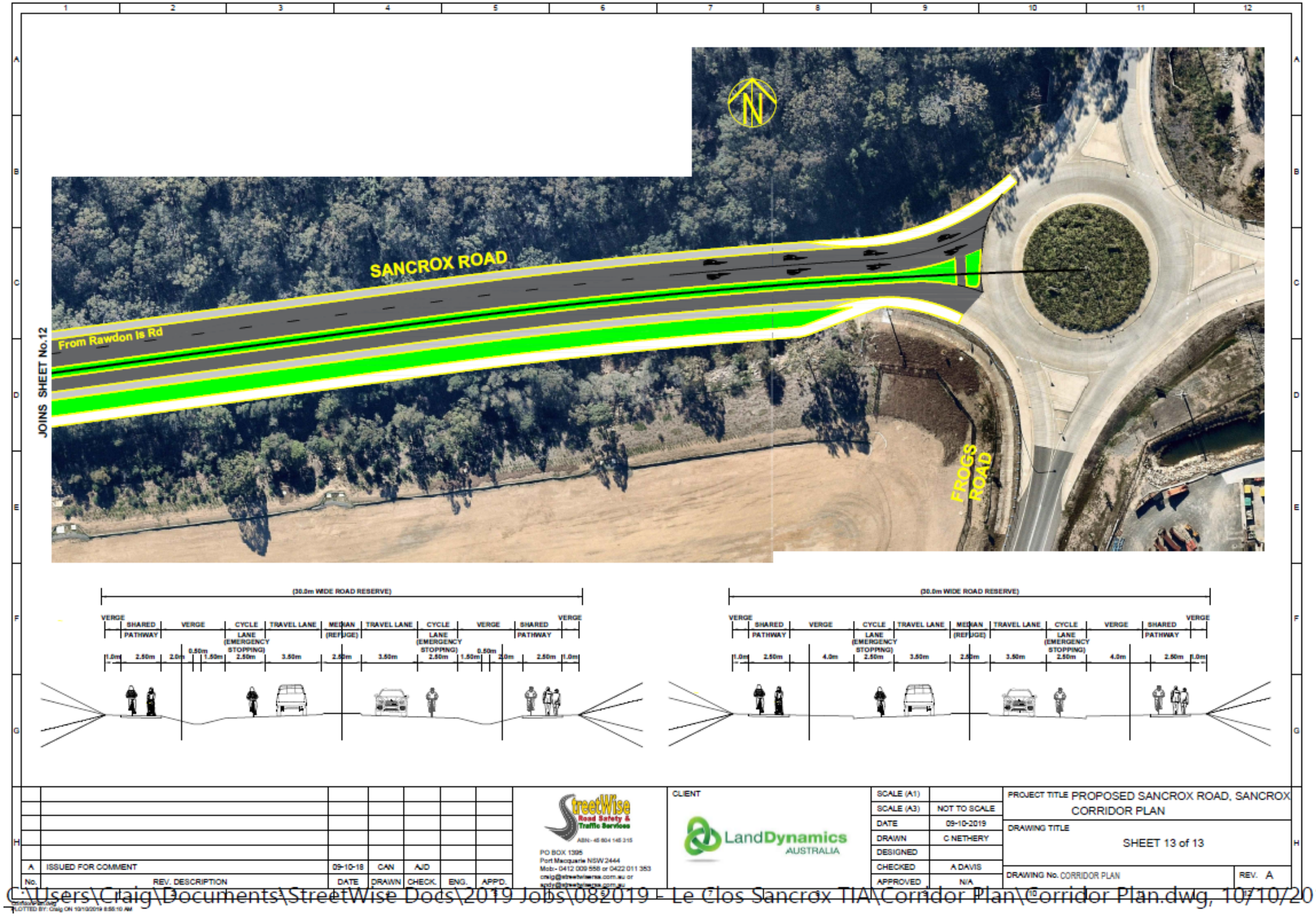
SCALE (A1)	
SCALE (A3)	NOT TO SCALE
DATE	09-10-2019
DRAWN	C NETHERY
DESIGNED	
CHECKED	A DAVIS
APPROVED	N/A

PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN

DRAWING TITLE
SHEET 12 of 13

DRAWING No. CORRIDOR PLAN REV. A

C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019


SANCROX ROAD
From Rawdon Is Rd
JOINS SHEET No.12
FROGS ROAD
(30.0m WIDE ROAD RESERVE)
VERGE
SHARED PATHWAY
CYCLE LANE (EMERGENCY STOPPING)
TRAVEL LANE
MEDIAN (REFUGE)
1.0m 2.50m 2.0m 0.50m 1.50m 2.50m 3.50m 2.50m 3.50m 2.50m 1.50m 0.50m 2.0m 2.50m 1.0m
(30.0m WIDE ROAD RESERVE)
1.0m 2.50m 4.0m 2.50m 3.50m 2.50m 3.50m 2.50m 4.0m 2.50m 1.0m
A ISSUED FOR COMMENT 09-10-19 CAN AJD
No. REV. DESCRIPTION DATE DRAWN CHECK. ENG. APPD.
StreetWise Road Safety & Traffic Services
ABN:- 46 604 145 215
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 or 0422 011 353
craig@streetwiseservices.com.au or
andy@streetwiseservices.com.au
CLIENT
LandDynamics AUSTRALIA
SCALE (A1)
SCALE (A3) NOT TO SCALE
DATE 09-10-2019
DRAWN C NETHERY
DESIGNED
CHECKED A DAVIS
APPROVED N/A
PROJECT TITLE PROPOSED SANCROX ROAD, SANCROX
CORRIDOR PLAN
DRAWING TITLE
SHEET 13 of 13
DRAWING No. CORRIDOR PLAN
REV. A
C:\Users\Craig\Documents\StreetWise Docs\2019 Jobs\082019 - Le Clos Sancrox TIA\Corridor Plan\Corridor Plan.dwg, 10/10/2019
PLOTTED BY: Craig ON 10/10/2019 8:58:10 AM

100mm AT ORIGINAL SIZE

LEGEND

- SEWER LINE & MANHOLE
- SEWER RISING MAIN
- MAJOR CONTOURS (10m) & LABEL
- MINOR CONTOURS (2m)
- EXISTING RIDGE LINE
- EXISTING GULLY
- SITE BOUNDARY
- SEWER CATCHMENT AREA (COLOUR VARIES)

ADOPTED YIELD PER Ha = 11.1 LOTS

PUMP STATION
WEST 1128 LOTS
EAST 1370 LOTS
TOTAL 2498 LOTS

ROAD
ISLAND
SANCROX
RAWDON
QUARRY
DRIVE
ROAD
HIGHWAY
FROGS
PACIFIC
BUSHLAND

132 LOTS 11.9 Ha
113 LOTS 10.2 Ha
121 LOTS 10.9 Ha
97 LOTS 8.8 Ha
125 LOTS 11.3 Ha
97 LOTS 8.8 Ha
225 LOTS 20.3 Ha
173 LOTS 15.6 Ha
75 LOTS 6.8 Ha
227 LOTS 20.5 Ha
80 LOTS 7.2 Ha
228 LOTS 20.6 Ha
157 LOTS 14.1 Ha
92 LOTS 8.3 Ha
82 LOTS 7.4 Ha
61 LOTS 5.5 Ha
121 LOTS 10.9 Ha
94 LOTS 8.5 Ha
34 LOTS 3.1 Ha
54 LOTS 4.9 Ha
21 LOTS 1.9 Ha
31 LOTS 2.8 Ha
58 LOTS 5.2 Ha
41 LOTS 3.7 Ha
136 LOTS 12.3 Ha

SEW I.L. 5.99
SEW I.L. 5.49
SEW I.L. 4.49
SEW I.L. 3.99
EXISTING SEWER MANHOLE I.L.3.49

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELODGEMENT	17.10.19	T.F	J.R.O.		

SCALES:
0 50 100 200 300
Full Size 1:5000 ; Half Size 1:10000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS SANCROX

DRAWING TITLE:
OVERALL SEWER STRATEGY

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	2000	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\5. SEWER STRATEGY\20191016_5295 SEWER STRATEGY PLAN.DWG PLOTTED BY: TOM PLOT DATE: 17/10/2019 12:57:15 PM

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

4
DP785611

5
DP791197

ROAD

SANCROX

DETENTION BASIN

DETENTION BASIN

VILLAGE CENTRE

ROAD NO. 7 (20.5M)

ROAD NO. 1 (22M WIDE)

ROAD NO. 5 (15M)

ROAD NO. 4 (16M)

ROAD NO. 6 (20.5M)

ROAD NO. 2 (30M WIDE)

(20.5M)

ROAD NO. 1 (22M WIDE)

ROAD NO. 8 (20.5M)

ROAD NO. 3 (20M WIDE PERIMETER)

ROAD NO. 10 (16M)

ROAD NO. 9 (16M)

C 30 (16M

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	STORMWATER LAYOUT	18.10.19	T.F	J.R.O		

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS, SANCROX

DRAWING TITLE:
STORMWATER CONCEPT LAYOUT PLAN
SHEET 1 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	3000	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\8. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:05 PM

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

ROAD

SANCROX

VILLAGE CENTRE

DETENTION BASIN

ROAD NO. 25 (16M)

ROAD NO. 2 (30M WIDE)

(20.5M)

ROAD NO. 1 (22M WIDE)

(16M)

CUL DE SAC 25

ROAD NO. 26 (16M)

ROAD NO. 27 (20M)

CUL DE SAC 30 (16M)

ROAD NO. 10 (16M)

ROAD NO. 13 (16.0M)

ROAD NO. 11 (20.5M)

ROAD NO. 12 (20.5M)

ROAD NO. 14 (16.0M)

HILLTOP PARK

PERIMETER ROAD NO. 24 (20.5M)

ROAD NO. 28 (16M)

RD NO. 29

ROAD NO. 15 (30M)

ROAD NO. 15 (30M)

EXISITING DAM

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	STORMWATER LAYOUT	18.10.19	T.F	J.R.O		

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS, SANCROX

DRAWING TITLE:
STORMWATER CONCEPT LAYOUT PLAN
SHEET 2 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	3001	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\6. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:13 PM

EXISITING DAM

ROAD NO. 15 (30M)

ROAD NO. 16 (20.5M)

CUL DE SAC 23 (16M)

ROAD NO. 2 (30M WIDE)

ROAD NO. 17 (20.5M)

RD NO. 18 (16M)

ROAD NO. 22 (16M)

ROAD NO. 20 (20.5M)

ROAD NO. 19 (16M)

ROAD NO. 21 (16M)

ROAD NO. 3 (20M WIDE PERIMETER)

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	STORMWATER LAYOUT	18.10.19	T.F	J.R.O		

SCALES: 0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS, SANCROX

DRAWING TITLE: STORMWATER CONCEPT LAYOUT PLAN SHEET 3 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	3002	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\8. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:21 PM

100mm AT ORIGINAL SIZE

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

4
DP785611

5
DP791197

ROAD

SANCROX

DETENTION BASIN

DETENTION BASIN

VILLAGE CENTRE

ROAD NO. 7 (20.5M)

ROAD NO. 1 (22M WIDE)

ROAD NO. 4 (16M)

ROAD NO. 5 (15M)

ROAD NO. 6 (20.5M)

ROAD NO. 1 (22M WIDE)

(20.5M)

ROAD NO. 8 (20.5M)

ROAD NO. 2 (30M WIDE)

ROAD NO. 3 (20M WIDE PERIMETER)

ROAD NO. 10 (16M)

ROAD NO. 9 (16M)

30 (16M

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	SEWER LAYOUT	18.10.19	T.F	J.R.O		

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS, SANCROX

DRAWING TITLE:
SEWER CONCEPT LAYOUT PLAN
SHEET 1 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	4000	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\6. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:32 PM

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

ROAD
SANCROX
VILLAGE CENTRE
DETENTION BASIN
ROAD NO. 25 (16M)
CUL DE SAC 25 (16M)
ROAD NO. 26 (16M)
ROAD NO. 27 (20M)
CUL DE SAC 30 (16M)
ROAD NO. 2 (30M WIDE)
(20.5M)
ROAD NO. 1 (22M WIDE)
ROAD NO. 10 (16M)
ROAD NO. 11 (20.5M)
ROAD NO. 12 (20.5M)
ROAD NO. 13 (16.0M)
ROAD NO. 14 (16.0M)
ROAD NO. 15 (30M)
ROAD NO. 15 (30M)
HILLTOP PARK
ROAD NO. 28 (16M)
RD NO. 29
PERIMETER ROAD NO. 24 (20.5M)
EXISITING DAM

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	SEWER LAYOUT	18.10.19	T.F	J.R.O		

SCALES: 0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS, SANCROX

DRAWING TITLE:
SEWER CONCEPT LAYOUT PLAN
SHEET 2 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	4001	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\6. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:42 PM

100mm AT ORIGINAL SIZE

EXISITING DAM

ROAD NO. 15 (30M)

ROAD NO. 16 (20.5M)

ROAD NO. 17 (20.5M)

CUL DE SAC 23 (16M)

ROAD NO. 2 (30M WIDE)

ROAD NO. 22 (16M)

ROAD NO. 20 (20.5M)

RD NO. 18 (16M)

ROAD NO. 19 (16M)

ROAD NO. 21 (16M)

ROAD NO. 3 (20M WIDE PERIMETER)

LEGEND

- PROPOSED SEWER LINE
- PROPOSED DRAINAGE LINE
- MAJOR CONTOURS (10m)
- MINOR CONTOURS (2m)
- PROPOSED GULLY
- PROPOSED SURFACE CUT-OFF DRAIN
- SITE BOUNDARY
- PROPOSED DETENTION BASIN

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	SEWER LAYOUT	18.10.19	T.F	J.R.O		

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

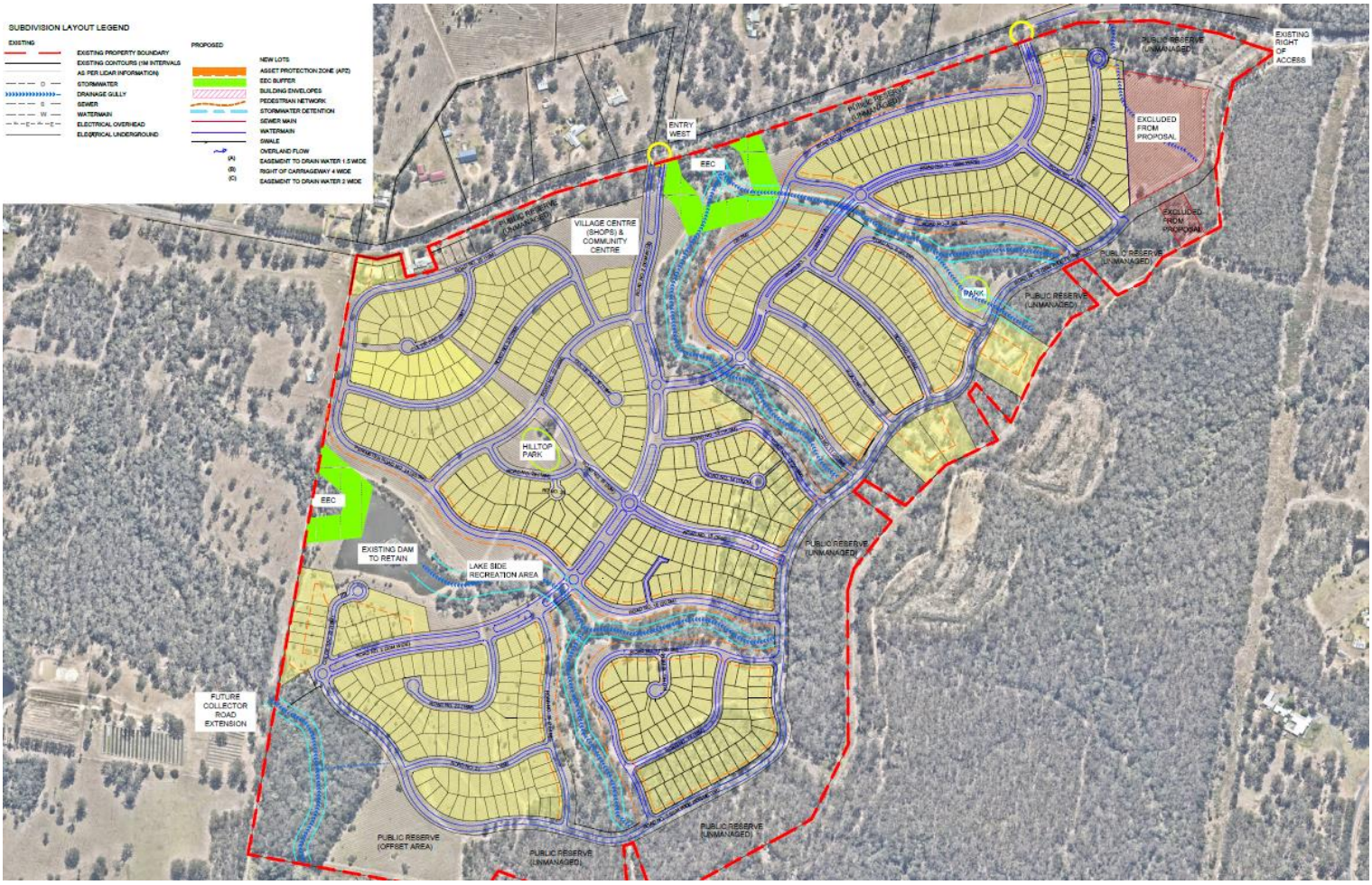
PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS, SANCROX

DRAWING TITLE:
SEWER CONCEPT LAYOUT PLAN
SHEET 3 OF 3

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	4002	A

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\6. SERVICES PLAN\20191017_5295 SERVICES PLAN.DWG PLOTTED BY: TOM PLOT DATE: 18/10/2019 2:55:51 PM



STORMWATER MANAGEMENT PLAN

Le Clos Sancrox – Sancrox Road, Sancrox

On Behalf of

LCS Estates Pty Ltd

Land Dynamics Australia

October 2019

Document No. 5295-SW-RPT01

Document History

Revision / Issue Record

Revision	Document Type	Reviewed by	Approved by	Date Issued
A	Report	M.J.S.	M.J.S.	21.10.2019

Distribution Record

Recipient	Revision No. / Quantity Issued				
	A	B	C	D	E
Port Macquarie-Hastings Council	1				
LCS Estates Pty Ltd	1				

DRAFT

Copyright

Land Dynamics Australia has produced this document in accordance with instructions from The LCS Estate Pty Ltd for its use only. The concepts and information contained in this document are copyright of Land Dynamics Australia.

Use or copying of this document in whole or in part without written permission of Land Dynamics Australia constitutes an infringement of copyright.

Land Dynamics Australia does not warrant this document is definitive and free from error and does not accept liability for any loss caused, or arising from, reliance upon the information provided herein.

Land Dynamics Australia
ABN 63 137 881 942
77 Lord Street
Port Macquarie NSW 2444
(PO Box 2459, Port Macquarie NSW 2444)
Telephone – 02 6583 2677
reception@ldynamics.com.au

CONTENTS

1.0 EXECUTIVE SUMMARY 3
2.0 INTRODUCTION 4
3.0 EXISTING SITE CHARACTERISTICS 4
3.1 Site Description 4
3.2 Property Description and Area 5
3.3 Existing Land Use 5
3.4 Existing Topography and Site Drainage 5
4.0 PROPOSED DEVELOPMENT 5
5.0 STORMWATER QUANTITY MANAGEMENT 6
5.1 Existing Topography and Catchments 6
5.2 Proposed Discharge Characteristics 7
5.3 Flooding 8
5.4 Hydrology 10
5.5 DRAINS Analysis 10
5.6 RAFTS Methodology 12
5.7 DRAINS Results – Unmitigated Scenario 13
5.8 DRAINS Results – Mitigated Scenario 14
5.9 Detention Basin Details 16
6.0 STORMWATER QUALITY MANAGEMENT 18
6.1 Environmental Values and Water Quality Objectives 18
6.2 Proposed Stormwater Treatment Devices 19
6.2.1 Bioretention System 19
6.3 Modelling Approach (MUSIC) 20
6.3.1 Source Nodes 20
6.3.2 Bioretention Basin Properties 20
7.0 CONCLUSION 24
Appendix A – Hastings River Flood Map 25
Appendix B – Engineering Calculations 27
***Figure: 20% AEP Mitigated Results – Drains (Rafts)* 27**
***Figure: 5% AEP Mitigated Results – Drains (Rafts)* 28**
***Figure: 1% AEP Mitigated Results – Drains (Rafts)* 29**
***Figure: Music Results* 30**
Appendix C – Engineering Drawings 31

DRAFT

1.0 EXECUTIVE SUMMARY

Land Dynamics has been engaged by LCS Estate Pty Ltd to prepare a Stormwater Management Plan (SMP) accompany a Planning Proposal to amend the existing land use and a Development Application (DA) for the modified residential subdivision layout on the lots registered in DP776681, Sancrox Road, Sancrox.

This report demonstrates the development will be constructed and operated generally in accordance with the Water Sensitive Urban Design (WSUD), requirements of Port Macquarie-Hastings Council (PMHC) and best management practices.

In this document are assessments for three primary areas:

- Stormwater Quantity (Hydrology & Detention Sizing)
- Flooding
- Stormwater Quality (Water Sensitive Urban Design)

A hydrologic analysis was undertaken to assess rainfall runoff generated within the pre-developed area and the post developed area. Results show that the overall development will increase flows from pre-developed state as elaborated in Section 5.7. The flow difference will be managed by number of stormwater detention basins to maintain peak outflow to the downstream properties.

Proposed detention basins have been sized to mitigate flows for 20%, 5% and 1% AEP storm events. Pre-developed and post-developed flow comparisons are attached in Appendix B.

Stormwater quality assessment was undertaken to design the preliminary treatment train to meet the Water Quality objectives and PMHC quality requirements. Refer to 6.0 for details. The proposed treatment train consists of number of roadside vegetated swales and end-of-line detention/bioretention basins that allow for treated stormwater discharge. Preliminary detention/bioretention basin design details provided in section 6.3.2.

DRAFT

2.0 INTRODUCTION

This Stormwater Management Plan identifies the stormwater quantity and quality management measures required for the proposed residential subdivision lot layout on the landholdings registered in DP776681, Sancrox Road, Sancrox, which is within the jurisdiction of Port Macquarie - Hastings Council.

The preliminary development layout used for the assessment is presented in Appendix C.

3.0 EXISTING SITE CHARACTERISTICS

3.1 Site Description

The subject site is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and forms part of the Greater Sancrox Area, as identified by Council. The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox. The plan below in Figure 1 details the extent of the boundaries of the properties included.

The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. Le Clos Sancrox Road located in the southeast side of the site.

The site is relatively cleared, with vegetation in fingers through the site and around the edges. However, catchment areas located upstream of the Le Clos Sancrox Road (perimeter road) are covered by dense vegetation. Several drainage lines dissect the site falling towards Sancrox Rd.

An aerial photo is provided in Figure 3-1 below.

Figure 3-1 Site Aerial Photo (Source: Six Maps)

3.2 Property Description and Area

The development is proposed to be undertaken within the parcels of land registered in DP776681 known as Le Clos Sancrox, with a total area of approximately 105 hectares.

3.3 Existing Land Use

The site is currently zoned RU1 Primary Production under the LEP 2011. The is currently used primarily as grazing field for cattle with a few rural residential dwellings.

3.4 Existing Topography and Site Drainage

The site generally grades towards the north and crosses the Sancrox Road through existing culvert under. Part of the site slopes towards the west. A number of watercourses traverse the site from the upper areas down towards the dam and northern boundary in the central area of the site. Upstream part of the catchment is steep with an average slope of 10% to 15%. However, lower part of the catchment adjacent to the becomes flatter with an average slope of 1% to 5%.

Stormwater runoff from the site flows towards Haydons Creek in the north and finally connects to the Hastings River adjacent to Lot 9 DP 286585.

4.0 PROPOSED DEVELOPMENT

The proposed development incorporates 683 residential lots and 1 lot for village enter and community facility. Refer to Figure 4 below for the proposed development layout.

DRAFT

Figure 4 Proposed Development Layout

5.0 STORMWATER QUANTITY MANAGEMENT

5.1 Existing Topography and Catchments

A number of watercourses traverse the site from the upper areas down towards the dam and northern boundary in the central area of the site. The site generally grades towards the north and crosses the Sancrox Road via existing culvert. Part of the site slopes towards the west.

See Figure 5-1 below for existing catchment

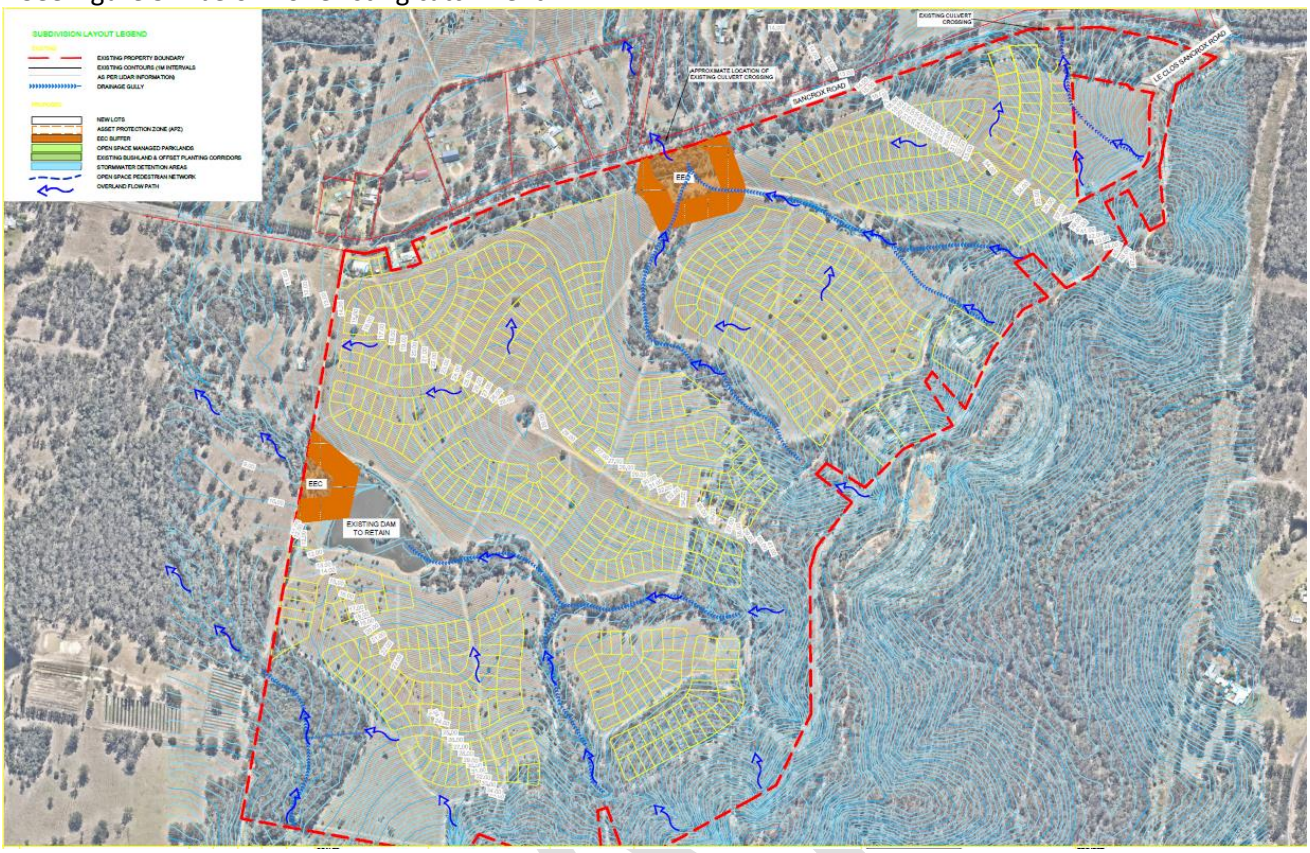


Figure 5-1 Existing Contour and Overland Flow path

5.2 Proposed Discharge Characteristics

For the proposed scenario, the site will retain its existing point of discharge. The flows from upstream catchments will be conveyed through the proposed site in a similar manner to existing via sheet flow through the site with no obstruction from the development. The discharge from the development will be detained and treated prior to release via a detention/bioretention basin to ensure non-worsening of downstream flows to safeguard downstream waterways in terms of both stormwater quantity and meeting quality targets. Refer to proposed catchment boundaries shown in Figure 5-2.

DRAFT

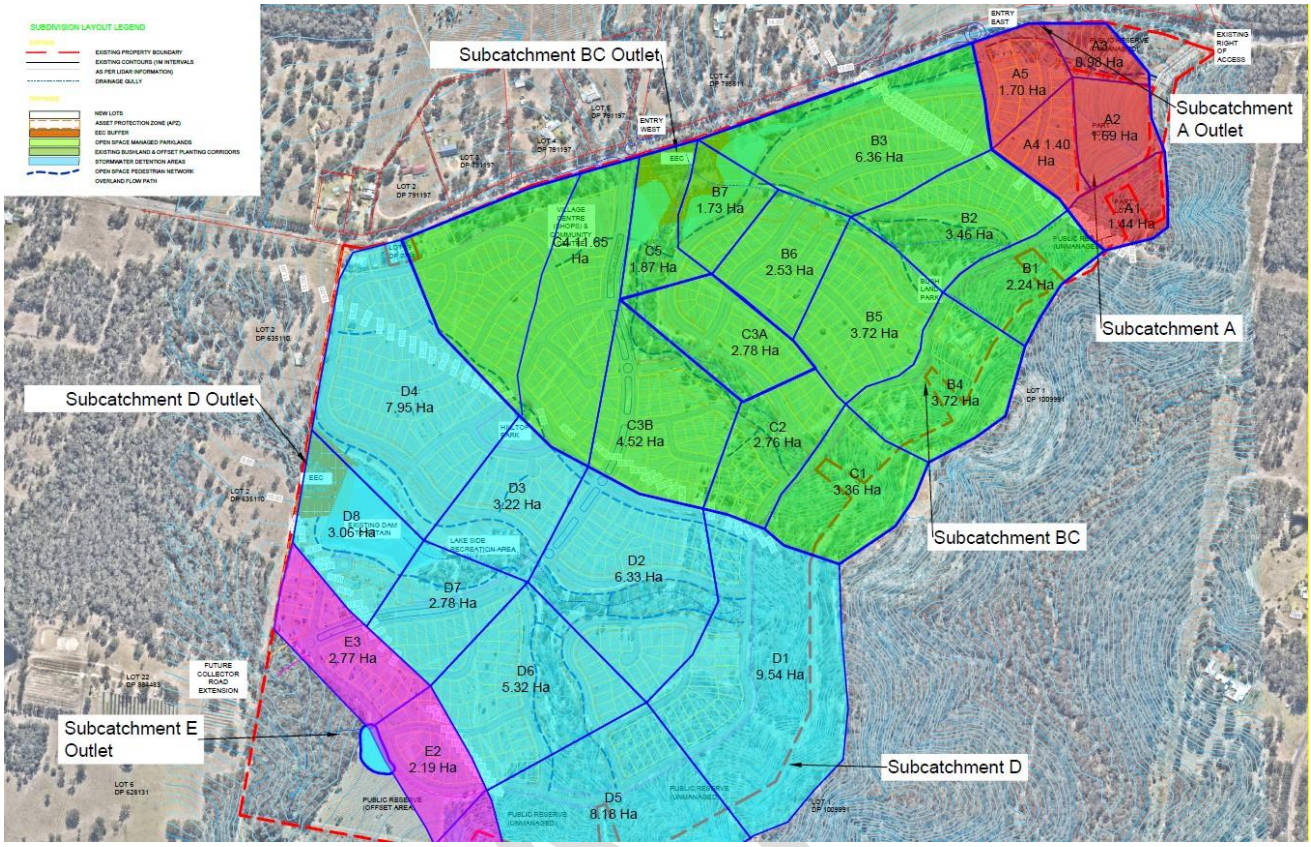


Figure 5-2 Proposed Catchment Boundaries

5.3 Flooding

The proposed site is within the Hastings River catchment. Port Macquarie Hastings Council (PMHC) completed Hastings River Flood Study Update in September 2018. Flood study results shows that this site is not within the flood prone area. The development area is not located within the 1% AEP and PMF flood extent. The Finished Floor Levels are to be confirmed during detailed design with confirmation of flood levels by Council.

Figure 5-3-1 shows 1% Flood Extent (without climate change) and Figure 5-3-2 depicts the flood extent in PMF plus 0.4m Tidal event

The Hastings River flood maps are attached in Appendix A.

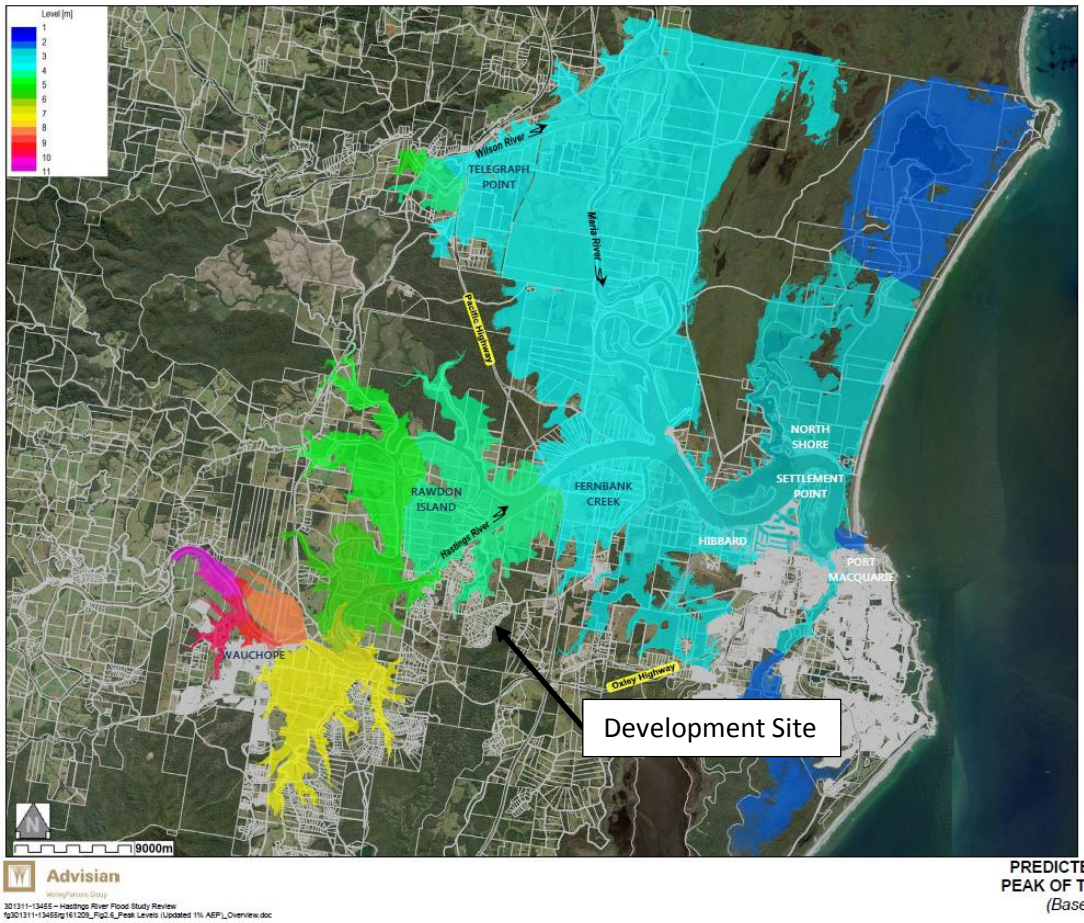
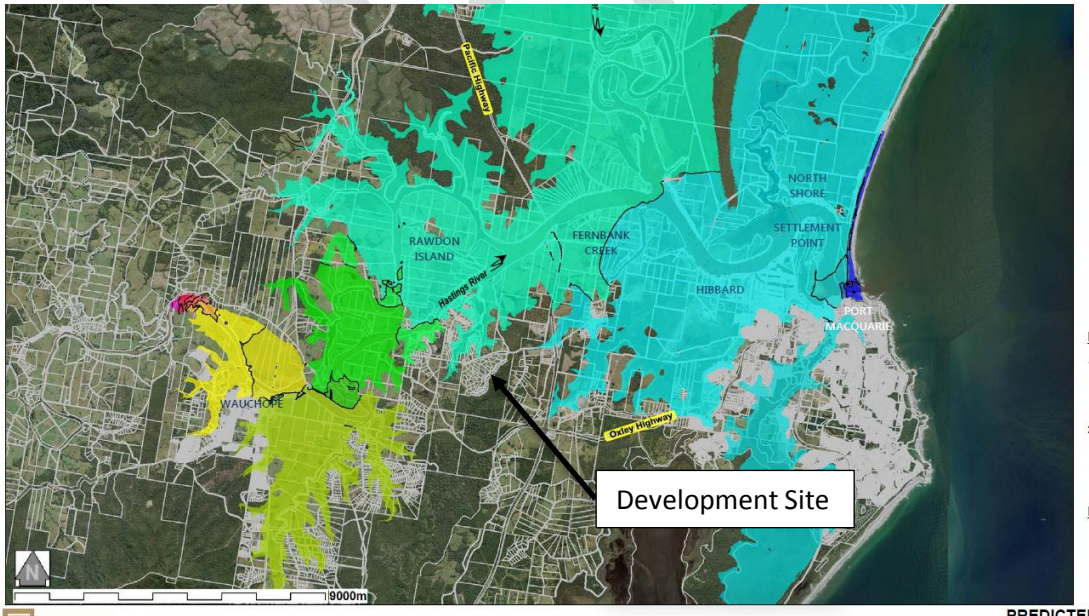


FIGURE 2.6

PREDICTED FLOOD LEVELS AT THE PEAK OF THE 1% AEP FLOOD EVENT
(Based on Updated RMA-2 Model)

Figure 5-3-1 1% AEP Flood Extent



NOTES:

1. Climate Change Scenario 5 is based on simulation of the Probable Maximum Flood (PMF) with a 0.4 metre increase in Tide Levels
2. Climate Change modelling (*Scenario 1 to 5*) have been completed using the Updated RMA-2 model.

LEGEND:

1 metre Contours

PREDICTED FLOOD LEVELS AT THE PEAK OF CLIMATE CHANGE SCENARIO 5
(PMF +0.4m Tide)
[Overview]

Figure 5-3-2 PMF+0.4m Tide Flood Extent

5.4 Hydrology

A hydrological assessment was undertaken, using Intensity Frequency Duration and rainfall data in accordance with ARR2016 temporal pattern which was derived from ARR Data Hub and from Bureau of Meteorology respectively. ARR2016 data was extracted from data huon 23rd of September 2019.

The site has been assessed under three scenarios:

- Existing Scenario – the site in its current state;
- Developed Unmitigated Scenario – the site is developed excluding stormwater detention;
- Mitigated Scenario – the site is developed including stormwater detention.

5.5 DRAINS Analysis

The DRAINS/RAFTS model has been developed which consists of a three separate model that incorporates nodes representing areas for existing and developed case scenarios. The DRAINS program performs design and analysis calculations for urban stormwater drainage systems and models the flood behaviour of rural and urban catchments. DRAINS displays the components of a drainage system as “objects”, and presents information about these and the results of calculations pictorially. DRAINS has many applications, from sizing of single drainage pipes to complex analyses of large, established pipe drainage systems and river basins.

Figure 5-5 below shows the DRAINS/XP-RAFTS model configuration.

DRAFT

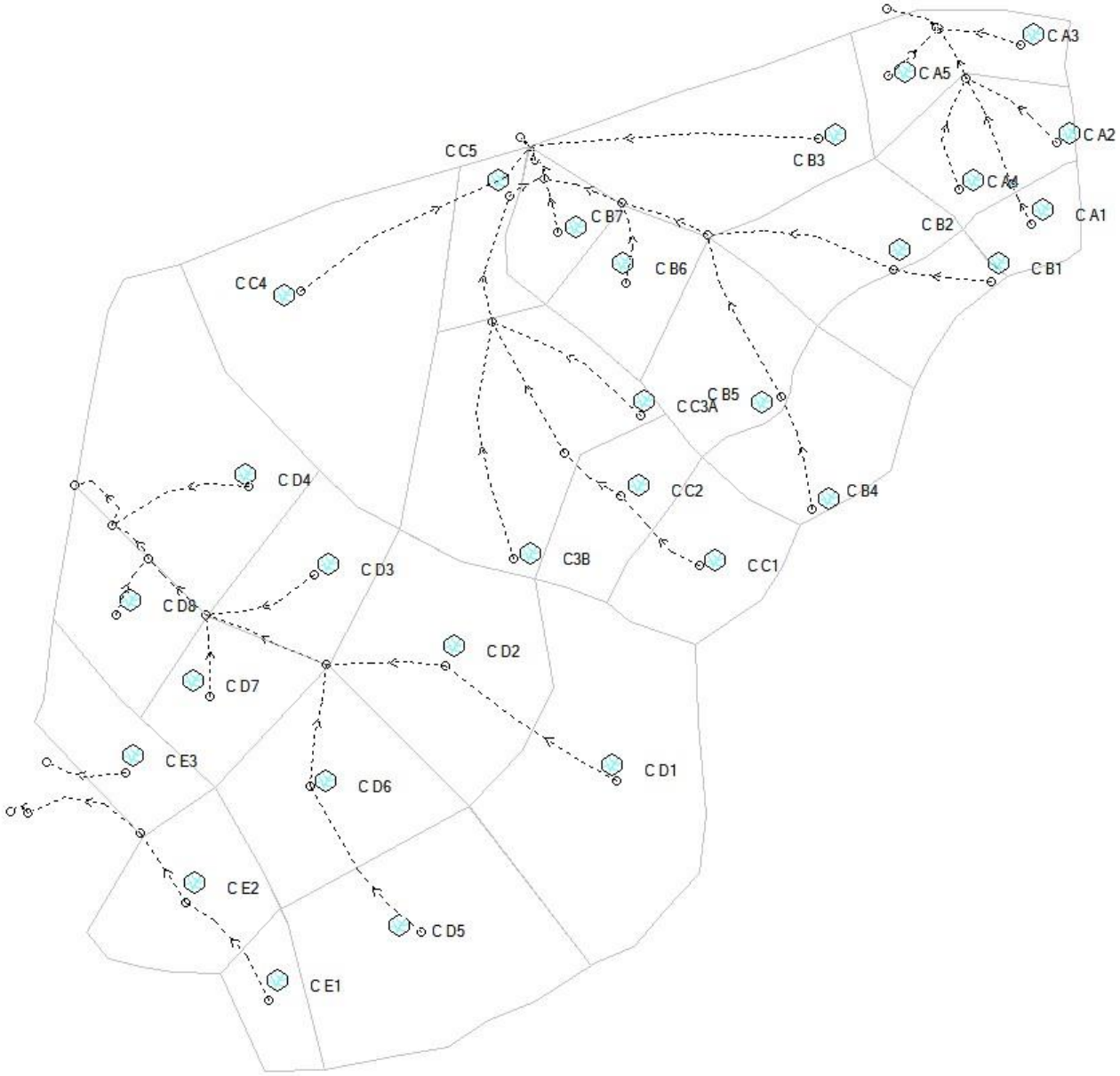


Figure 5-5 DRAINS (RAFTS) Model (Existing and Unmitigated Developed Scenarios)

5.6 RAFTS Methodology

The existing site and developed site was modelled as lumped sub-catchments with the extent catchments. This allows for an accurate representation of Manning's roughness coefficients for each area. The upstream external catchments have been modelled as lump catchments with consideration of the existing characteristics.

PERN values:

The PERN parameter within RAFTS is a unit-less empirical parameter used to describe the roughness value of individual catchment areas, and is considered somewhat similar to the Manning's 'n' value.

The RAFTS PERN values adopted are shown below in table 5-6-1

Table 5-6-1 PERN values

Table B-2 PERN Values Adopted

PERN Value	Description
0.02	Impervious Area
0.035	Urban Pervious Area
0.05	Rural Pastures
0.12	Forested Catchments

The sub-catchments were delineated based on the above regions, and a single PERN value generated based on the relative areas of each of the above within the sub-catchment.

Table 5-6-2 below summarises the existing catchment parameters used to assess the existing stormwater flows generated from each sub-catchment.

Table 5-6-2 Existing Catchment Parameters

Pre developed Scenario					
Catchment	**Area (Ha)**	**% Impervious**	**% Pervious**	**Slope%**	**PERN**
A1	1.44	**0**	100	17.1	0.05
A2	1.69	**0**	100	10.5	0.025
A3	0.98	**0**	100	9.6	0.05
A4	1.4	**0**	100	10.6	0.025
A5	1.7	**0**	100	10.3	0.025
B1	2.24	**0**	100	10.4	0.05
B2	3.46	**0**	100	4.7	0.025
B3	6.36	**0**	100	5.8	0.025
B4	3.72	**0**	100	15.9	0.05
B5	3.72	**0**	100	6	0.025
B6	2.53	**0**	100	8.2	0.025
B7	1.73	**0**	100	4.1	0.025
C1	3.36	**0**	100	15.3	0.05

C2	2.76	**0**	100	4.3	0.05
C3A	7.3	**0**	100	6.7	0.025
C3B	4.52	**0**	100	8.6	0.025
C4	11.65	**0**	100	4.9	0.025
C5	1.87	**0**	100	2.4	0.03
D1	9.54	**0**	100	12.5	0.08
D2	6.33	**0**	100	3.4	0.03
D3	3.22	**0**	100	5.6	0.04
D4	7.95	**0**	100	6.5	0.03
D5	8.18	**0**	100	13.1	0.08
D6	5.32	**0**	100	5.6	0.03
D7	2.78	**0**	100	5.2	0.04
D8	3.06	**0**	100	3.6	0.05
E1	1.83	**0**	100	23.7	0.05
E2	2.19	**0**	100	8.2	0.025
E3	2.77	**0**	100	5.9	0.025

The RAFTS Method was used to determine discharge flow rates of each catchment for standard 5%, 20% and 1% AEP event, from 10-min to 6-hour durations.

5.7 DRAINS Results – Unmitigated Scenario

Table 5-7-1 below summarises the stormwater flows generated from each sub-catchment due to the proposed development.

Table 5-7-1 Existing Catchment Parameters

Post Developed Scenario					
Catchment	**Area (Ha)**	**% Impervious**	**% Pervious**	**Slope%**	**PERN**
A1	1.44	5	95	17.1	0.05
A2	1.69	60	40	10.5	0.015
A3	0.98	0	100	9.6	0.05
A4	1.4	60	40	10.6	0.015
A5	1.7	50	50	10.3	0.015
B1	2.24	10	90	10.4	0.05
B2	3.46	60	40	4.7	0.015
B3	6.36	42	58	5.8	0.02
B4	3.72	10	90	15.9	0.05
B5	3.72	60	40	6	0.015
B6	2.53	60	40	8.2	0.015
B7	1.73	30	70	4.1	0.015
C1	3.36	10	90	15.3	0.05
C2	2.76	40	60	4.3	0.02
C3	7.3	40	60	8.6	0.02

C4	11.65	70	30	4.9	0.015
C5	1.87	10	90	3.2	0.025
D1	9.54	21	79	12.5	0.04
D2	6.33	50	50	3.4	0.02
D3	3.22	50	50	5.6	0.02
D4	7.95	60	40	6.5	0.015
D5	8.18	10	90	13.1	0.07
D6	5.32	50	50	5.6	0.02
D7	2.78	40	60	5.2	0.02
D8	3.06	40	60	3.6	0.03
E1	1.83	0	100	23.7	0.05
E2	2.19	60	40	8.2	0.015
E3	2.77	60	40	5.9	0.015

A summary of the results is provided in Table 5-7-2 below.

Table 5-7-2 Discharge Summary from DRAINS Analysis (Existing site and Unmitigated Developed site)

Catchment	Scenario	Peak Flow Rate for Average Recurrence Interval (m^3/s)		
		20% AEP	5% AEP	1% AEP
Sub-catchment A (Outlet)	Existing	1.91	2.82	3.88
	Developed	2.31	3.59	4.79
Sub-catchment BC (Outlet)	Existing	10	14.6	20
	Developed	12.7	17.3	23.9
Sub-catchment D (Outlet)	Existing	7.46	10.8	15.2
	Developed	9.91	13.9	19.1
Sub-catchment E (Outlet)	Existing	1.77	2.55	3.6
	Developed	2.35	3.39	4.67

The results in Table 5-7 shows that the proposed development increases the peak flows from the site, indicating that there is a need for stormwater detention. Hence, to satisfy council requirements, further hydraulic and hydrological assessment is necessary.

5.8 DRAINS Results – Mitigated Scenario

Based on the results for the existing and unmitigated developed scenarios, stormwater detention basins was modelled as part of the mitigated scenario to detain and manage discharge flows from the site to ensure non-worsening of downstream conditions. See mitigated scenario DRAINS model configuration in Figure 5-8 below:

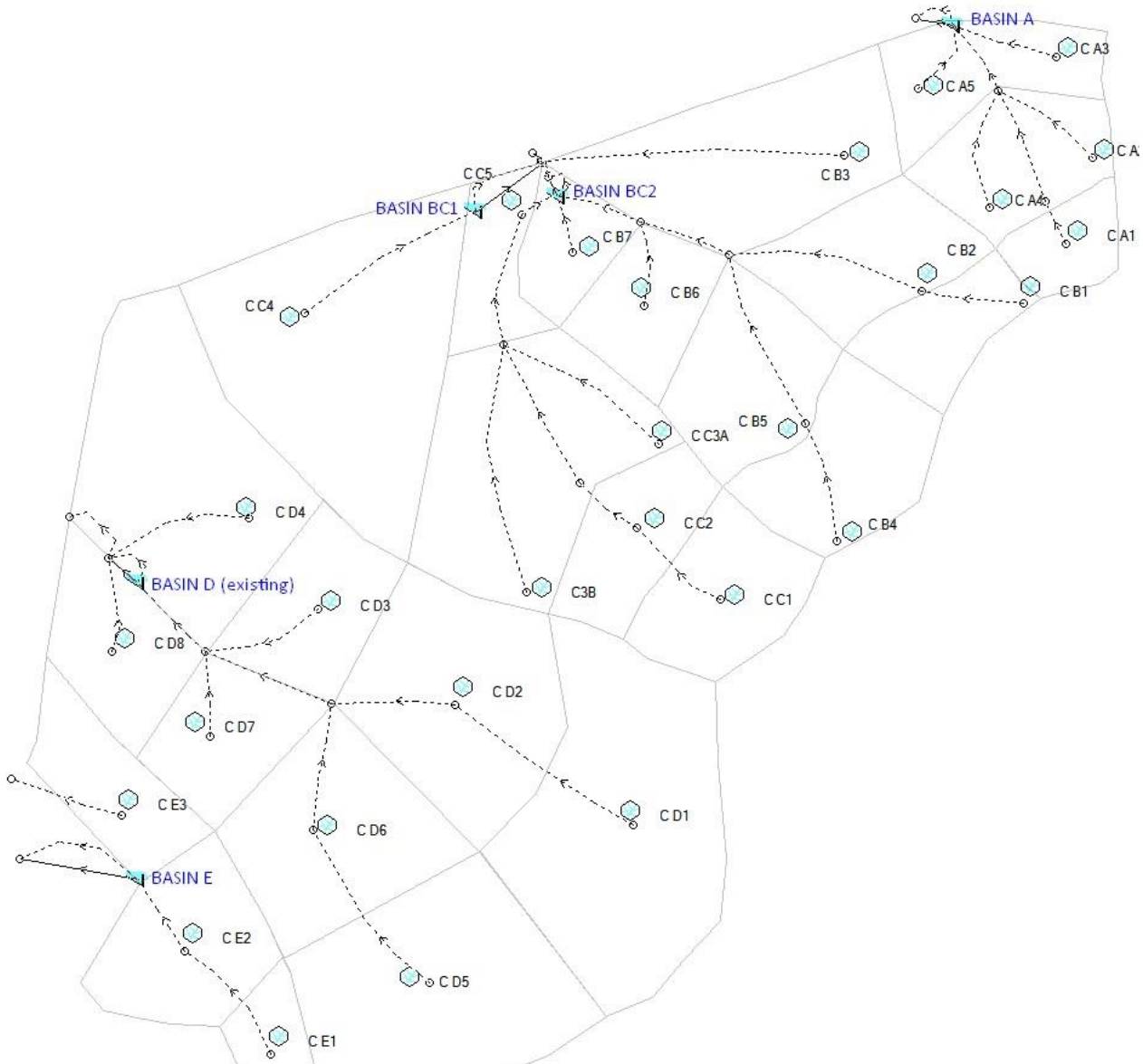


Figure 5-8 DRAINS/RAFTS Model (Mitigated Developed Scenarios)

The results seen in Table 5-8 below are from the DRAINS model which summarizes the peak discharge rates for each identified critical storm across the assessed AEP range at the assessment point for the catchments, in a mitigated scenario. The results show the proposed development can be satisfactorily attenuated to meet non-worsening criteria.

Table 5-8 Discharge Summary from DRAINS Analysis (Existing site and Mitigated Developed site)

Catchment	Scenario	Peak Flow Rate for Average Recurrence Interval (m^3/s)		
		20% AEP	5% AEP	1% AEP
Subcatchment A (Outlet)	Existing	1.91	2.82	3.88
	Developed	2.31	3.59	4.79
	Mitigated	1.47	2.12	3.5
Subcatchment BC (Outlet)	Existing	10	14.6	20
	Developed	12.7	17.3	23.9
	Mitigated	4.85	6.31	9.73
Subcatchment D (Outlet)	Existing	7.46	10.8	15.2
	Developed	9.91	13.9	19.1
	Mitigated	4.33	5.88	8.53
Subcatchment E (Outlet)	Existing	1.77	2.55	3.6
	Developed	2.35	3.39	4.67
	Mitigated	1.99	2.67	3.44

5.9 Detention Basin Details

To mitigate increase of the stormwater runoff due to the additional impervious areas, detentions basins proposed for each subcatchments prior to the final discharge. Figure 5-9-1 shows a concept stormwater plan with the preliminary location of the detention basins.

DRAFT

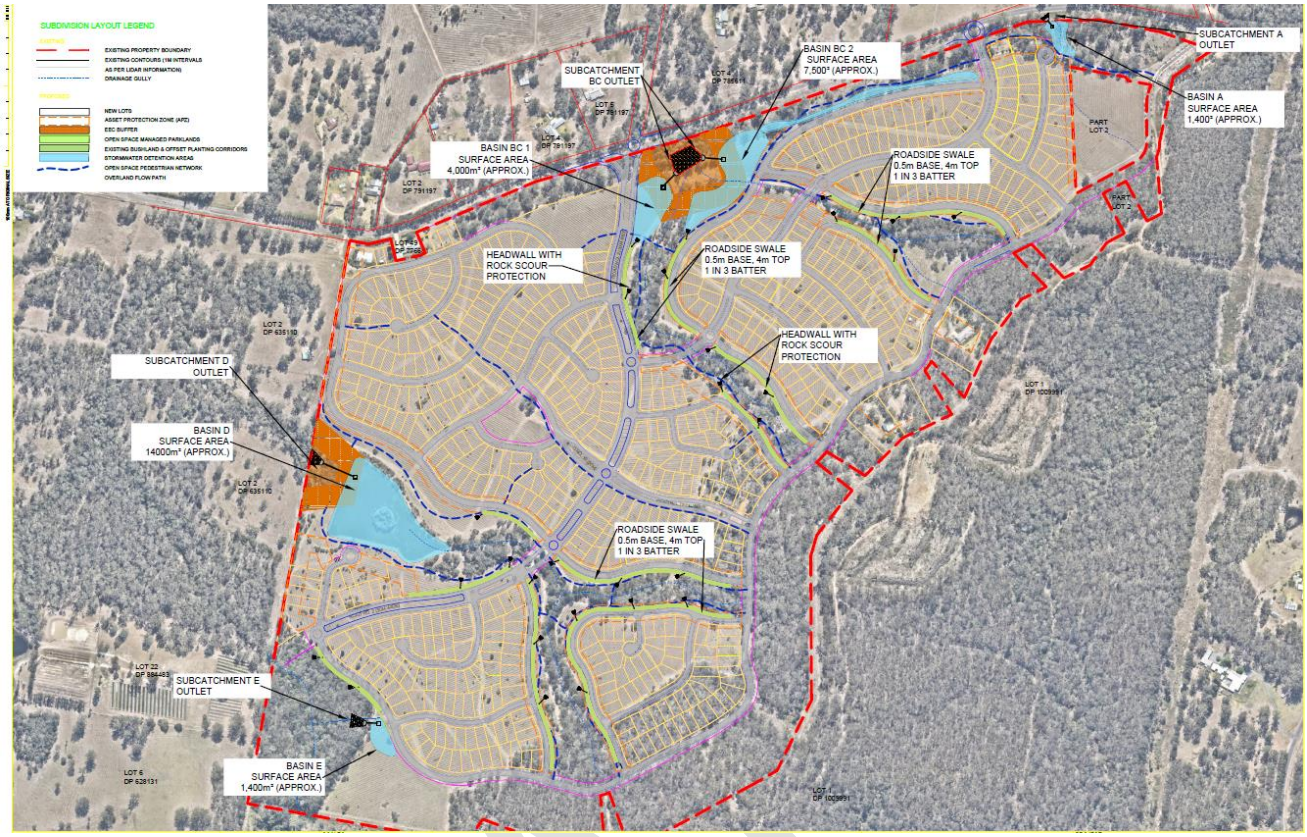


Figure 5-9-1- Concept stormwater plan with detention basin location

The properties of the detention basin are summarized in Table 5-9.

Table 5-9 Stormwater Detention Basin Details

Outlet	EXISTING CONDITION 1%AEP FLOW m3/s	POST DEV - UNMITIGATED 1% AEP FLOW m3/s	POST DEV - MITIGATED 1% AEP FLOW m3/s	DETENTION BASIN Surface Area m2	Maximum Depth, m
A	3.88	4.79	3.5	1400	1.5
BC	20	23.9	9.73	11500	2
D	15.2	19.1	8.53	14000	2
E1	3.6	4.67	3.44	1400	1.5

The hydraulic investigation and runoff-routing exercise has demonstrated that the proposed development increases stormwater discharge off site. The incorporation of a detention basins in the mitigated scenario demonstrates that flows can be controlled and managed to ensure non-worsening of the proposed development.

6.0 STORMWATER QUALITY MANAGEMENT

6.1 Environmental Values and Water Quality Objectives

To prevent degradation of Port Macquarie waterways, ecologically sustainable development principles have been embraced and regulated by PMHC. The core principles of Water Sensitive Urban Design (WSUD) are to:

- Protect natural ecosystems;
- Integrate stormwater treatment into the urban landscape;
- Protect water quality;
- Reduce runoff and peak flows; and
- Add value while minimizing development costs.

With these principles in mind, this stormwater management plan aims to:

1. Identify the water quality and quantity objectives and performance criteria;
2. Estimate the pollutant loads; and
3. Detail within the management plan, strategies aimed at achieving the required objectives.

Water quality objectives during both the construction and operational phases of a development are presented within PMHC guidelines and are detailed in this section of this report.

Water quality parameters and the proposed limits applicable for this development have been selected in accordance with the PMHC Stormwater Management Guidelines Table D7.7 as show in Table 6-1below:

Table 6-1 PMHC Stormwater Treatment Pollutant Reduction Targets

Pollutant	Objective
Suspended Solids (SS)	80% retention of average annual load
Total Phosphorus (TP)	45% retention of average annual load
Total Nitrogen (TN)	45% retention of average annual load
Litter	100% retention of litter greater than 5mm for flows up to 3month ARI peak flow

DRAFT

6.2 Proposed Stormwater Treatment Devices

WSUD aims to minimize the impact of a development on the natural water cycle by reducing the export of pollutants, sediments and nutrients from the site into the natural watercourse. In order to treat the stormwater runoff from the site, various treatment devices can be used throughout the development area; and these concepts can be integrated into the overall design of the road layouts, road cross sections, stormwater layouts and water supply reticulation systems. Stormwater from the development will follow a specially designed stormwater quality treatment train prior to discharge from the site, which will ensure compliance with the water quality objectives.

It is proposed that road side swales and bioretention basins is implemented to provide water quality treatment to the abovementioned standards for the site. Details of the location and preliminary design of the proposed bioretention basin are presented in the Engineering Drawings in Appendix C of this report.

6.2.1 Bioretention System

A bioretention area is a vegetated region where runoff is filtered through a filter media layer (e.g. sandy loam) as it percolates downwards to receiving underlying reticulation. Specific vegetation is to be incorporated into the landscaping of bioretention areas which effectively reduce nutrient loads.

A typical section is also presented in Figure 6-2-1 with further standard details.

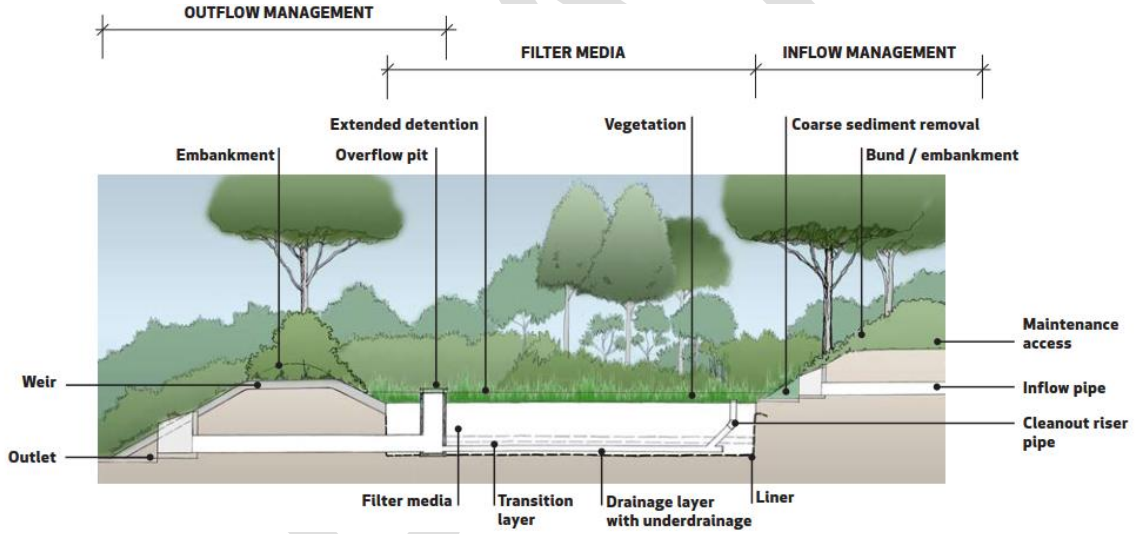


Figure 6-2-1 Example of Urban Bioretention Basin

6.3 Modelling Approach (MUSIC)

Modelling of the site was undertaken using the 'Model for Urban Stormwater Improvement Conceptualization (MUSIC) as promoted by the PMHC. The development was modelled using the split catchment approach. An appropriate type of land use was applied to all surface types within the developed catchments; where individual treatment devices were assigned the relevant modelling treatment parameters. Consequently, a treatment train was established for the site, ensuring that water discharging from the site adheres to the specified Water Quality Objectives.

Meteorological data for link input into MUSIC was obtained from the derived data for PMHC Coastal area. The catchment parameters of the MUSIC modelling are specified within the PMHC Guidelines – D7 Stormwater Management and have been modelled as such.

6.3.1 Source Nodes

The pollutant source node parameter inputs into the MUSIC model were determined using the NSW MUSIC Modelling Guidelines (August 2015), specifically Tables 5-6 and 5-7 for rural and residential surface types.

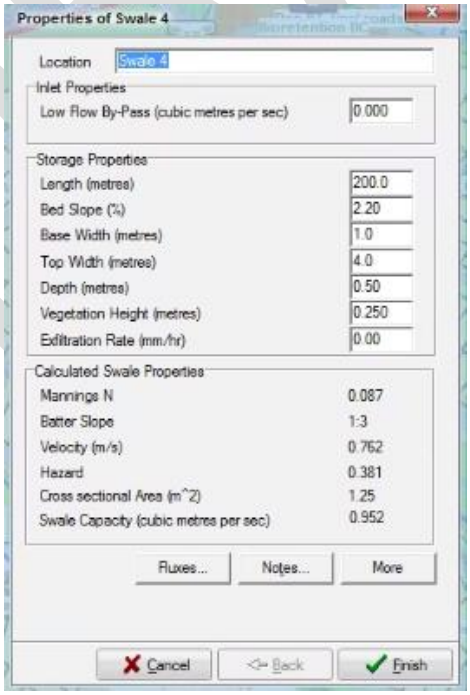
For the existing catchment, lumped catchment has been used for the areas with dense vegetation and rural agricultural land.

Developed catchment parameters were based on catchment details shown in table 5-7-1

6.3.2 Bioretention Basin Properties

Parameters used for the bioretention basin modelling have been summarized in Table 6-3-2 below:

Figure 6-3-2 Typical Details of Roadside Swale Properties



DRAFT

Table 6-3-2-1 Summary of Proposed Bioretention Basin A:

Parameter	Values
Minimum Filter Area (m²)	100
Extended Detention Depth (m)	0.2
Minimum Filter Media Depth (m)	0.3
Saturated Hydraulic Conductivity (mm/hour)	100
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media (mg/kg)	50

Table 6-3-2-2 Summary of Proposed Bioretention Basin BC 1:

Parameter	Values
Minimum Filter Area (m²)	252
Extended Detention Depth (m)	0.3
Minimum Filter Media Depth (m)	0.5
Saturated Hydraulic Conductivity (mm/hour)	100
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media (mg/kg)	55

Table 6-3-2-3 Summary of Proposed Bioretention Basin BC 2:

Parameter	Values
Minimum Filter Area (m²)	450
Extended Detention Depth (m)	0.2
Minimum Filter Media Depth (m)	0.5
Saturated Hydraulic Conductivity (mm/hour)	100
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media (mg/kg)	55

Table 6-3-2-4 Summary of Proposed Basin D (existing Pond):

Parameter	Values
Surface Area (m²)	14,000
Extended Detention Depth (m)	1
Permanent Pool Volume	2000
Weir Crest Length (m)	8

DRAFT

Table 6-3-2-5 Summary of Proposed Bioretention Basin E

Parameter	Values
Minimum Filter Area (m²)	100
Extended Detention Depth (m)	0.2
Minimum Filter Media Depth (m)	0.5
Saturated Hydraulic Conductivity (mm/hour)	100
TN Content of Filter Media (mg/kg)	800
Orthophosphate Content of Filter Media (mg/kg)	55

6.3.3 MUSIC Model Layout and Results

The developed site has been modelled in accordance with a detailed sub-catchment regime to ensure the entire site meets pollutant reduction objectives. Refer to Figure 6-3-3 below for the modelled MUSIC layout.

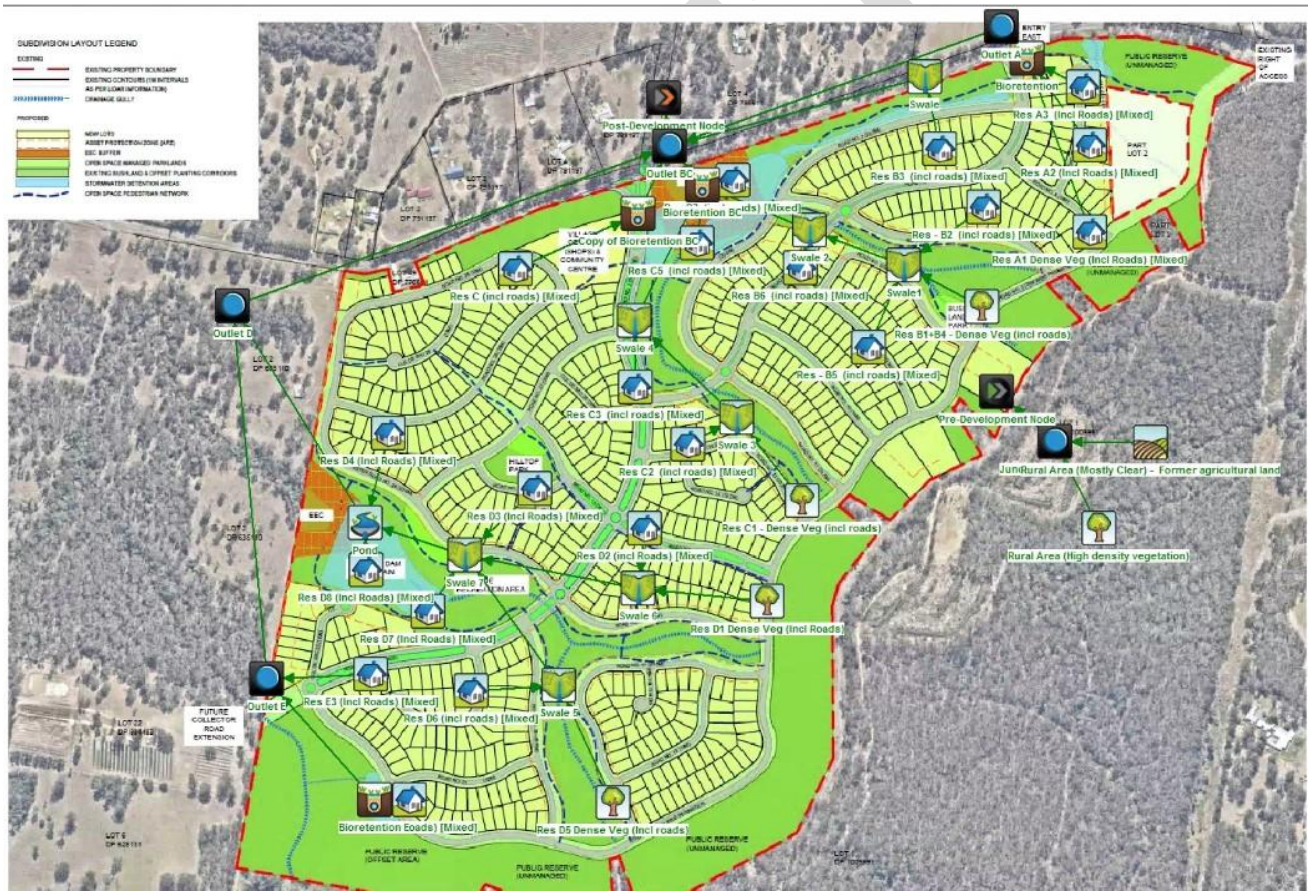
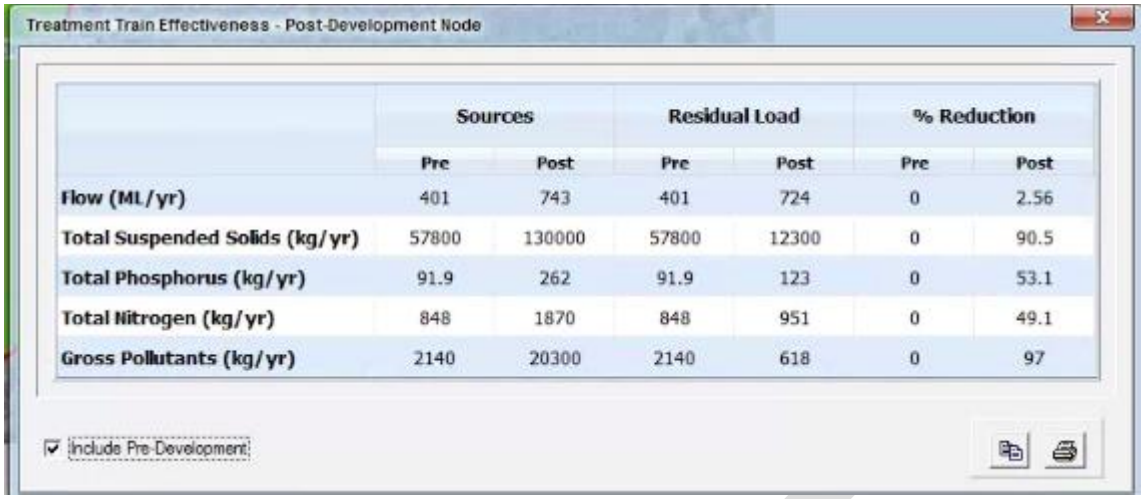


Figure 6-3-3 MUSIC Model Layout

The results in Table 6-3-3 below summarize site pollutant reductions achieved from the mitigated site over the 10-year modelling period, as compared to the nominated load reduction targets. The MUSIC results below show that the proposed stormwater treatment devices will improve the discharging stormwater quality as such the development's runoff meets the nominated load reduction targets set by PMHC. Refer to Appendix B for MUSIC results summary.

Table 6-3-3 Bioretention Pollutant Reduction Results


Treatment Train Effectiveness - Post-Development Node

	Sources		Residual Load		% Reduction	
	Pre	Post	Pre	Post	Pre	Post
Flow (ML/yr)	401	743	401	724	0	2.56
Total Suspended Solids (kg/yr)	57800	130000	57800	12300	0	90.5
Total Phosphorus (kg/yr)	91.9	262	91.9	123	0	53.1
Total Nitrogen (kg/yr)	848	1870	848	951	0	49.1
Gross Pollutants (kg/yr)	2140	20300	2140	618	0	97

Include Pre-Development

DRAFT

7.0 CONCLUSION

This Stormwater Management Plan (SMP) has been prepared to provide a design proposal and guide to the stormwater quantity and quality management techniques for the site.

The three primary objectives of this SMP have been to ensure that:

- Suitable measures are incorporated in the development to ensure that there are no adverse impacts to downstream receiving waterways, property or infrastructure resulting from any increase to peak discharging stormwater flow rates.

- Details of a proposed stormwater quality treatment train are provided to ensure discharge of stormwater from the site is of adequate quality standards to comply with the requirements of PMHC.

The analysis presented in this report shows that the development overall will increase flows from the undeveloped state. However, this increase will be managed by diverting overland runoff into a specifically designed stormwater detention basin. The proposed measures will ensure no adverse impacts to downstream receiving waterways, properties or infrastructure is achieved.

The site will maintain existing major flow paths and its existing north and western boundary point of discharge, which will convey flows towards Haydons Creek.

A stormwater quality assessment is provided which demonstrates that a specially tailored treatment train will be required in order to meet the pollutant removal targets of PMHC during the operational phase of the proposed development.

To achieve the measures necessary for the two objectives, a number of roadside swales and detention/bioretention basins have been designed for the development. See Appendix C for preliminary details of the adopted stormwater mitigation and management measures.

DRAFT

Appendix A – Hastings River Flood Map

Source: Hasting River Flood Study Update – Advisian September 2018

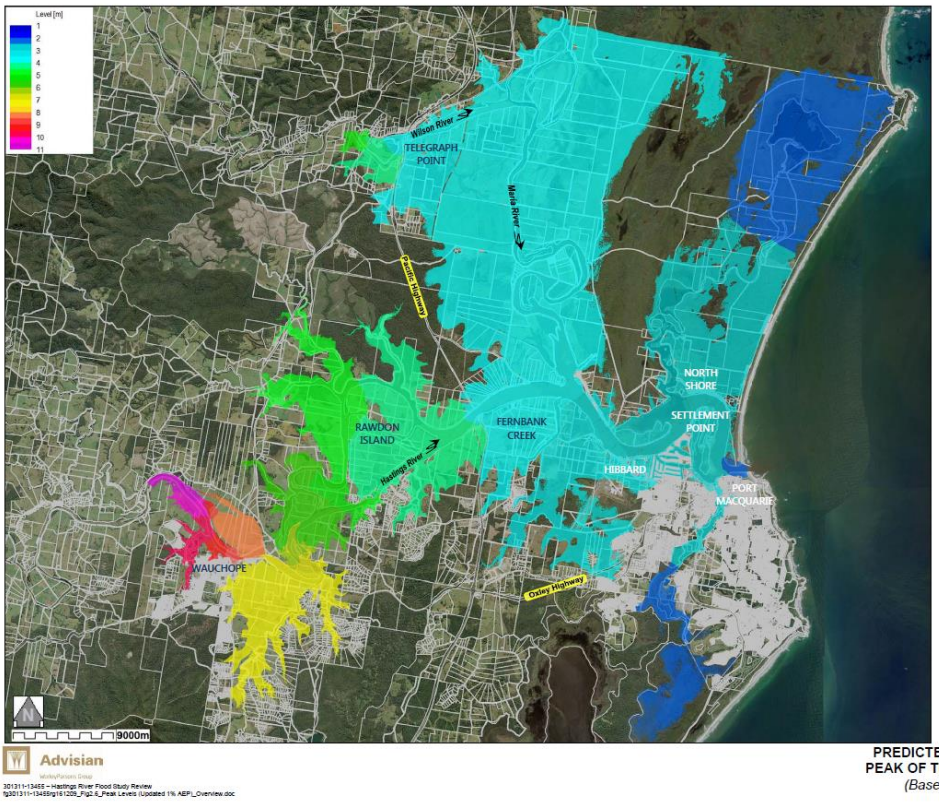


Figure: 1% AEP Flood Level

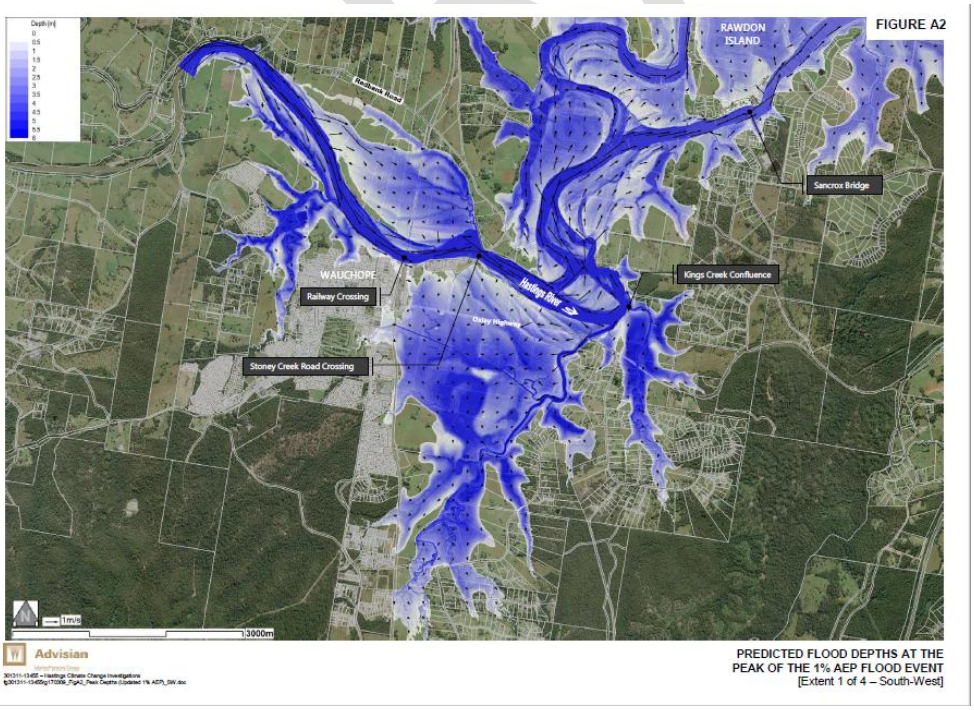


Figure: 1% AEP Flood Depth

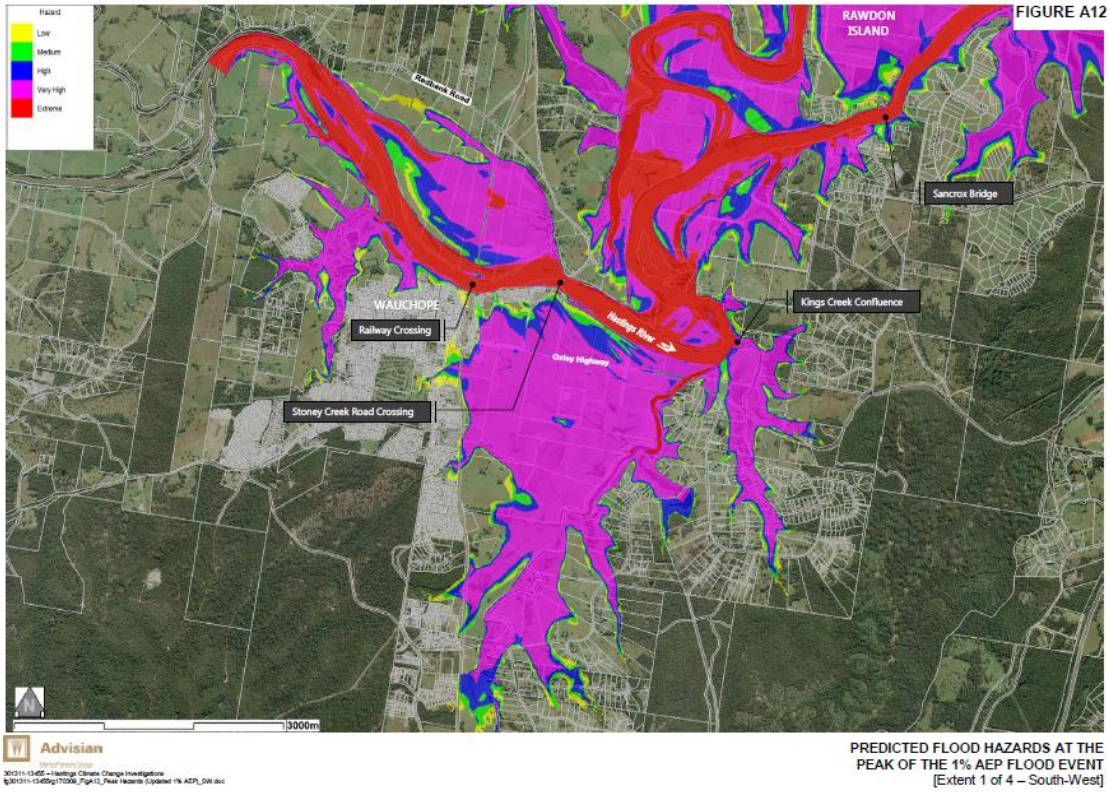


Figure: 1% AEP Flood Hazard

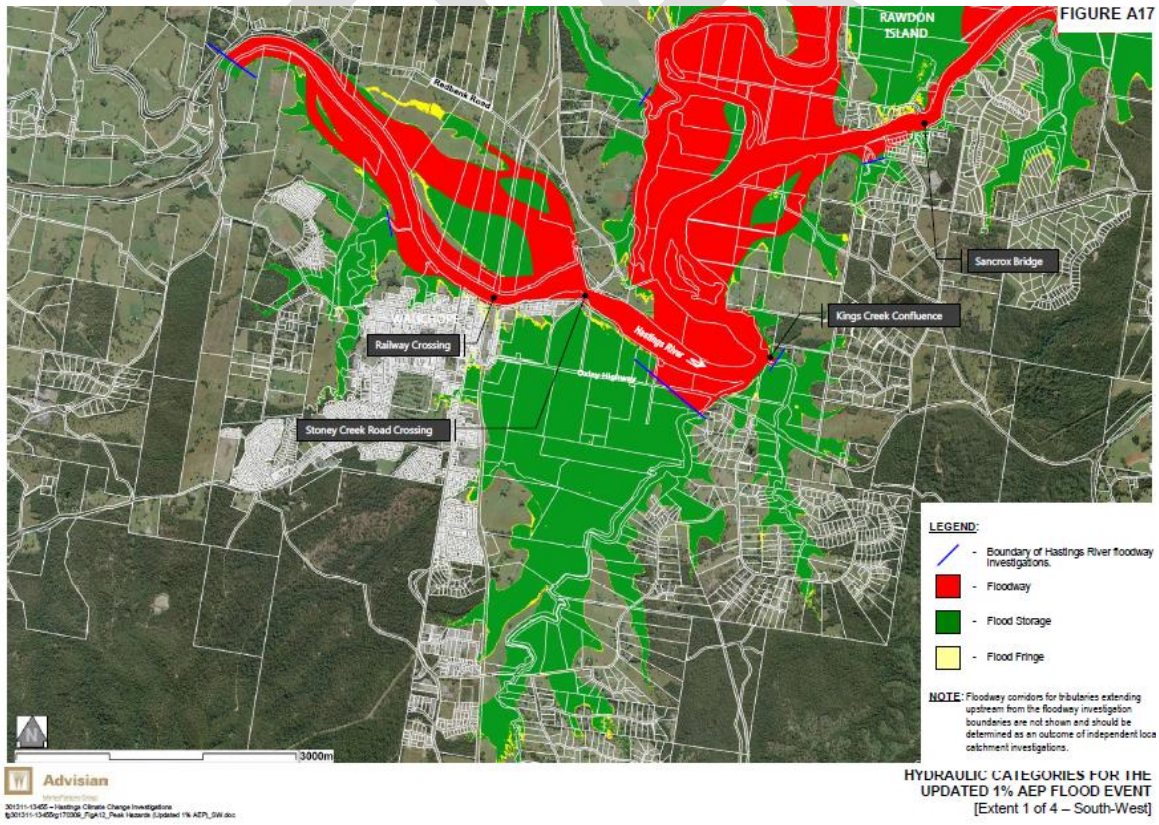


Figure: 1% AEP Flood – Hydraulic Category

Appendix B – Engineering Calculations

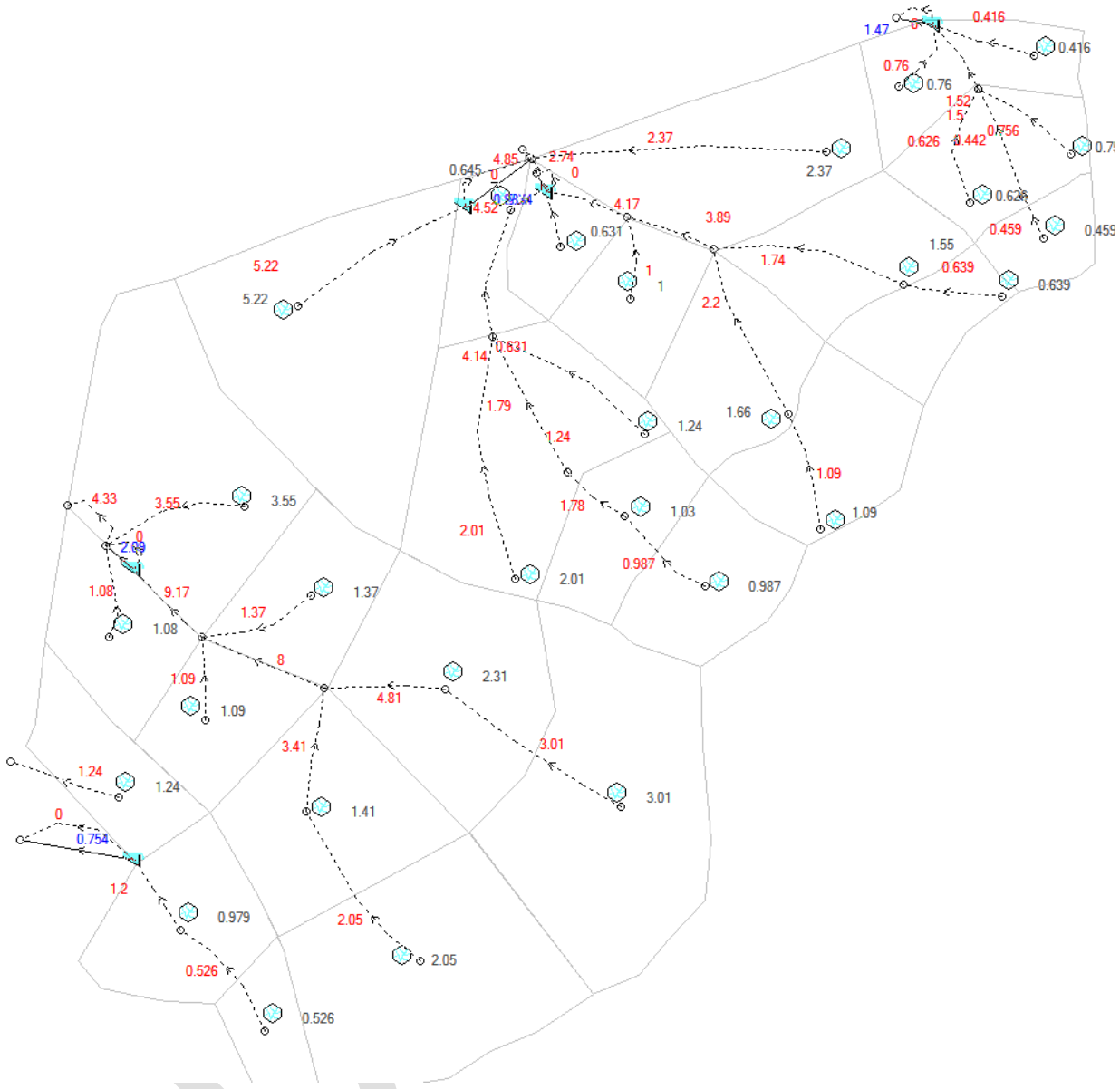


Figure: 20% AEP Mitigated Results – Drains (Rafts)

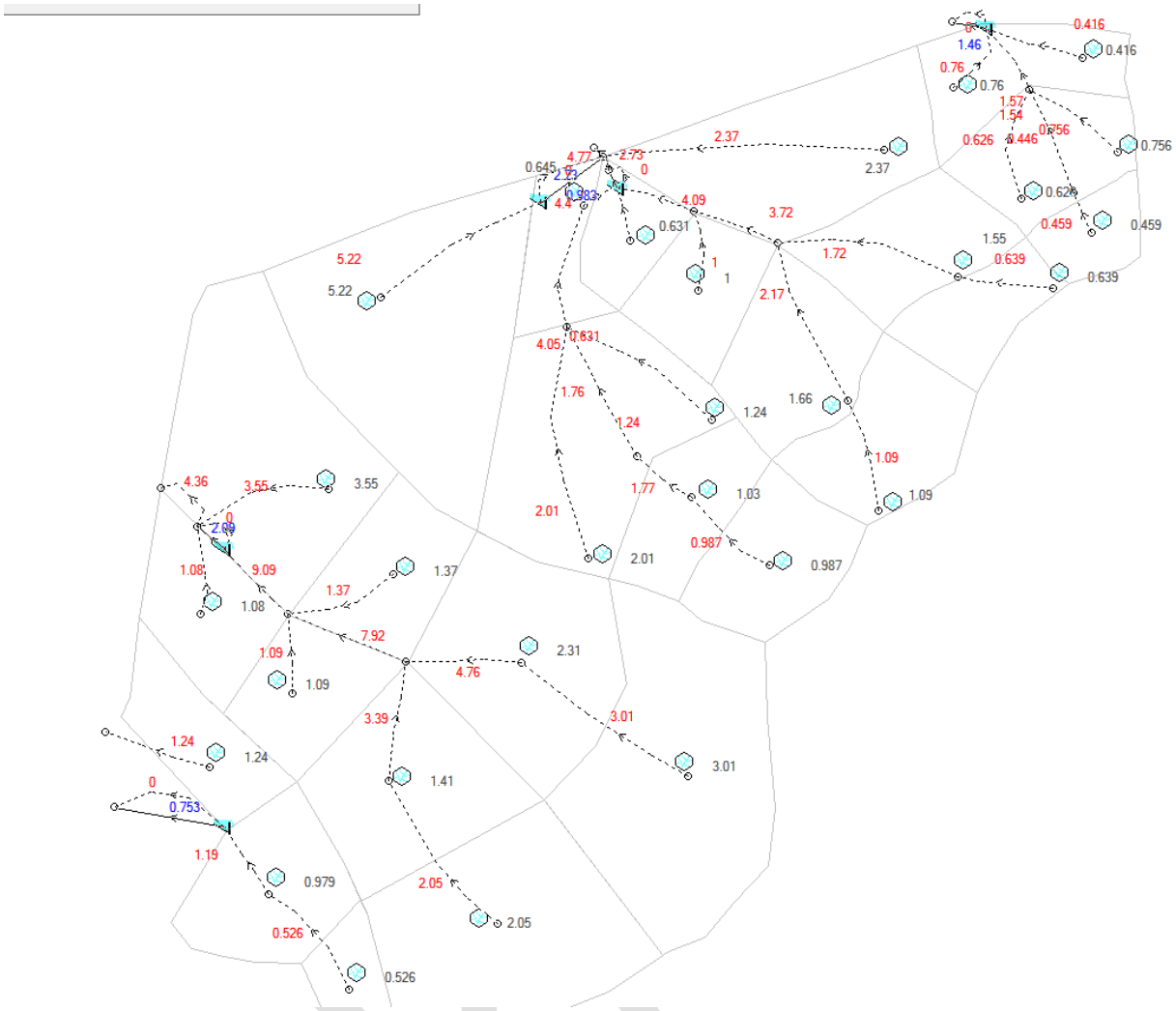


Figure: 5% AEP Mitigated Results – Drains (Rafts)

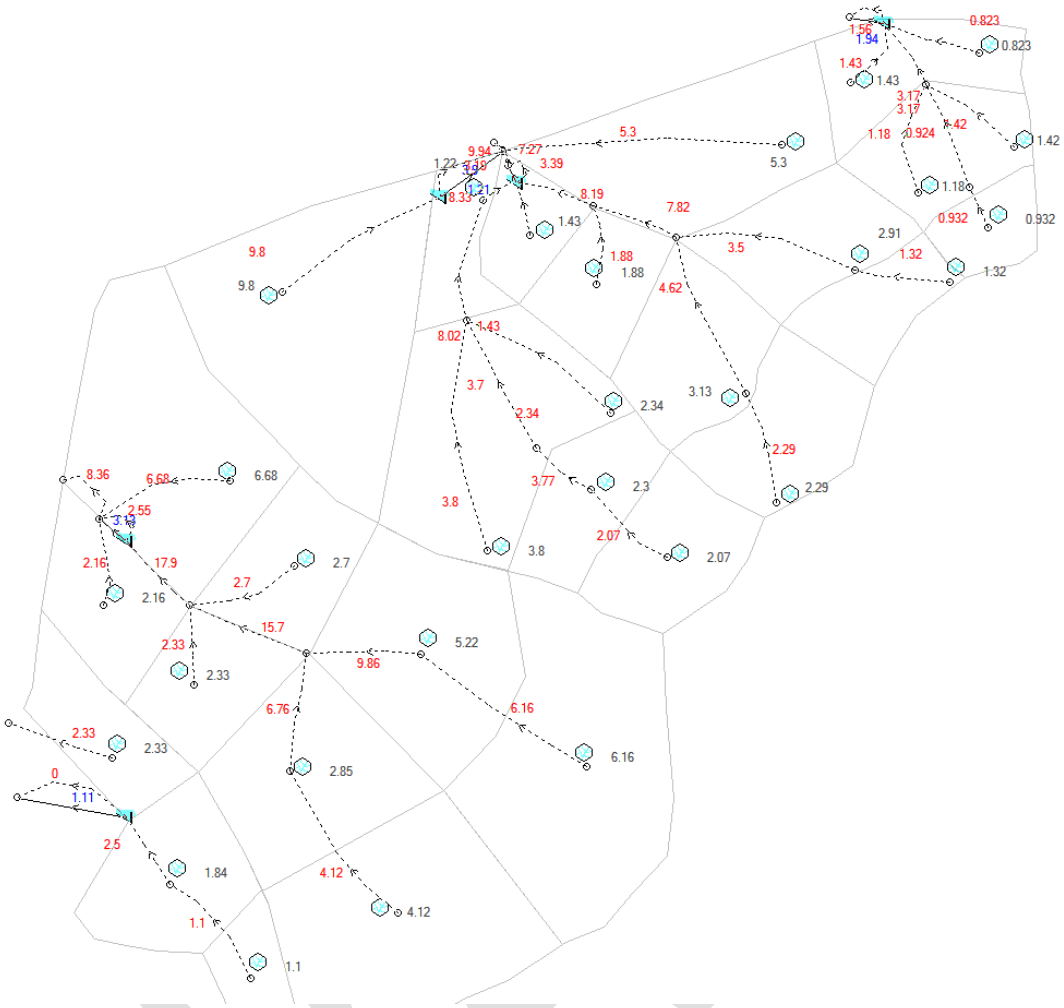


Figure: 1% AEP Mitigated Results – Drains (Rafts)

MUSIC MODEL RESULTS

	Sources	Residual Load	% Reduction
Flow (ML/yr)	743	724	2.5
Total Suspended Solids (kg/yr)	130000	12300	90.5
Total Phosphorus (kg/yr)	262	123	53.1
Total Nitrogen (kg/yr)	1870	951	49.2
Gross Pollutants (kg/yr)	20300	618	97

Figure: Music Results

DRAFT

Appendix C – Engineering Drawings

DRAFT

100mm AT ORIGINAL SIZE

SUBDIVISION LAYOUT LEGEND

EXISTING

- EXISTING PROPERTY BOUNDARY
- EXISTING CONTOURS (1M INTERVALS AS PER LIDAR INFORMATION)
- DRAINAGE GULLY

PROPOSED

- NEW LOTS
- ASSET PROTECTION ZONE (APZ)
- EEC BUFFER
- OPEN SPACE MANAGED PARKLANDS
- EXISTING BUSHLAND & OFFSET PLANTING CORRIDORS
- STORMWATER DETENTION AREAS
- OPEN SPACE PEDESTRIAN NETWORK
- OVERLAND FLOW PATH

SUBCATCHMENT A OUTLET

BASIN A SURFACE AREA 1,400² (APPROX.)

BASIN BC 2 SURFACE AREA 7,500² (APPROX.)

SUBCATCHMENT BC OUTLET

BASIN BC 1 SURFACE AREA 4,000m² (APPROX.)

ROADSIDE SWALE 0.5m BASE, 4m TOP 1 IN 3 BATTER

HEADWALL WITH ROCK SCOUR PROTECTION

SUBCATCHMENT D OUTLET

BASIN D SURFACE AREA 14000m² (APPROX.)

SUBCATCHMENT E OUTLET

BASIN E SURFACE AREA 1,400m² (APPROX.)

LOT 4 DP 785611

LOT 5 DP 791197

LOT 4 DP 791197

LOT 2 DP 791197

LOT 49 DP 776641

LOT 2 DP 635110

LOT 2 DP 635110

LOT 22 DP 884483

LOT 6 DP 628131

PART LOT 2

PART LOT 2

LOT 1 DP 1009991

LOT 1 DP 1009991

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY LAYOUT FOR REVIEW	30.08.19	CM	CM		
B	REVISED LAYOUT FOR CONSULTANTS	18.09.19	CM	CM		
C	REVISED LAYOUT FOR CONSULTANTS	13.10.19	CM	CM		
D	PRELODGEMENT	18.10.19	CM	CM	GB	

SCALES: 0 25 50 100 150
Full Size 1:2500 ; Half Size 1:5000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS - RESIDENTIAL ESTATE
DRAWING TITLE: CONCEPT STORMWATER PLAN

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	S001	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_21.10.19 (SW).DWG PLOTTED BY: USER.1904 PLOT DATE: 21/10/2019 4:52:30 PM

LCS Estates Pty Ltd

Stage 1 Site Contamination Assessment

Proposed Residential Rezoning

Le Clos, Sancrox Road, Sancrox

Report No. RGS20821.1-AD

27 September 2019

REGIONAL GEOTECHNICAL SOLUTIONS

REGIONAL GEOTECHNICAL SOLUTIONS

Manning-Great Lakes
Port Macquarie
Coffs Harbour

RGS20821.1-AD

27 September 2019

LCS Estates Pty Ltd
c-/ Land Dynamics Australia
PO Box 2459
PORT MACQUARIE NSW 2444

Attention: Graham Burns

Dear Graham,

RE: Proposed Residential Rezoning – Le Clos, Sancrox Road, Sancrox
Stage 1 Site Contamination Assessment

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a Stage 1 Site Contamination Assessment for the proposed residential rezoning of Lot No's 1 to 51 (excluding Lot No 49) DP776681 at Le Clos, Sancrox Road, Sancrox. The 50 lots are currently zoned RU1 – Primary Production.

The assessment found the site to be appropriate for the proposed residential development from a site contamination perspective provided the recommendations and advice of this report are adopted.

The assessment was prepared by Tim Morris, B. Appl Science (Geology). A Statement of Experience for Environmental Assessments is presented in Appendix B.

If you have any questions regarding this project, please contact the undersigned.

For and on behalf of **Regional Geotechnical Solutions Pty Ltd**

Prepared by

Tim Morris

Associate Engineering Geologist

Reviewed by

Andrew Hills

Senior Environmental Engineer

Table of Contents

1 INTRODUCTION 1
2 GUIDELINES AND ASSESSMENT CRITERIA 1
3 METHODOLOGY 2
4 SITE SETTING AND HISTORY 2
4.1 Site Description 2
4.2 Historical Aerial Photography 3
4.3 NSW EPA Records 4
4.4 Lot Zoning 4
4.5 Geology 4
4.6 Groundwater 5
4.7 Site Observations 5
4.8 Site History Summary 6
5 SITE CONTAMINATION ASSESSMENT 6
5.1 Conceptual Site Model 6
5.2 Field Work 7
5.3 Laboratory Testing 7
5.4 Quality Control 8
5.5 Analysis Results 8
6 ASSESSMENT AND CONCLUSIONS REGARDING SITE CONTAMINATION 9
6.1 Summary 9
6.2 Conclusion 9
7 LIMITATIONS 9

Figures

Figure 1 Investigation Location Plan
Figure 2 Historical Aerial Photograph (1997)

Appendices

Appendix A Laboratory Test Result Sheets
Appendix B Statement of Experience

1 INTRODUCTION

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a Stage 1 Site Contamination Assessment for the proposed residential rezoning of Lot No's 1 to 51 (excluding Lot No 49) DP776681 at Le Clos, Sancrox Road, Sancrox. The 50 lots are currently zoned RU1 – Primary Production.

The existing lots include areas of cleared farmland and some areas of thick vegetation. In addition, the following features are visible on available satellite imagery:

- Residential dwellings are present on Lot No's 9, 13, 44 and 49. Lot No. 49 is not part of the assessment. Access to Lot No's 9, 13 and 44 was not permitted as part of the assessment;
- A large farm shed is present in Lot No. 50;
- A small farm shed is present in Lot No. 45;
- Several unnamed intermittent tributaries of Haydon's Creek flow across the site, towards the north west; and
- A large farm dam approximately 1.4ha in area is present in Lot No. 52, located near the centre of the proposed rezoning area. Lot No. 52 is excluded from the assessment.

The purpose of the work described herein was to assess the suitability of the site for residential land use with respect to the presence of site contamination resulting from past land use and activities, as well as providing discussions and recommendations regarding

- Identification of Areas of Concern and Chemicals of Concern;
- Undertake limited targeted sampling and analysis at the selected Areas of Concern to allow some preliminary analysis of the presence of contamination;
- Evaluation of test results against industry accepted criteria for the intended landuse;
- Conclusions regarding the presence of contamination at the site and its potential impacts on the proposed residential landuse; and
- The requirement for remediation, further investigation, or ongoing management of site contamination.

The work was commissioned by Graham Burns on behalf of Land Dynamics Pty Ltd and was undertaken in accordance with proposal number RGS20821.1-AA dated 26 April 2019.

2 GUIDELINES AND ASSESSMENT CRITERIA

The assessment was aimed at fulfilling the requirements of a Stage 1 Contaminated Site Assessment in accordance with NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites (2011)*.

To evaluate results and for guidance on assessment requirements, the assessment adopted the guidelines provided in the *National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013)*. The NEPM document provides a range of guidelines for assessment of contaminants for various land use scenarios. The proposed landuse is residential and as such comparison with the NEPM guideline values for Residential A landuse was considered appropriate. In accordance with the NEPM guideline the following criteria were adopted for this assessment:

- Health Investigation Levels (HILs) for Residential land use were used to assess the potential human health impact of heavy metals and PAH;

- Health Screening Levels (HSLs) for coarse textured (sand) or fine textured (silt and clay) soils on a Residential site were adopted as appropriate for the soils encountered to assess the potential human health impact of petroleum hydrocarbons and BTEX compounds;
- Ecological Investigation Levels (EILs) for Residential land use were used for evaluation of the potential ecological / environmental impact of heavy metals and PAH;
- Ecological Screening Levels (ESLs) for coarse textured (sand) soils or fine textured (silt and clay) soils on a Residential land use site were adopted as appropriate for the soils encountered, to assess the potential ecological / environmental impact of petroleum hydrocarbons and BTEX compounds.

In accordance with NEPM 2013, exceedance of the criteria does not necessarily deem that remediation is required, but is a trigger for further assessment of the extent of contamination and associated risks. The adopted criteria are presented in the results summary table in Appendix C.

3 METHODOLOGY

In accordance with the relevant sections of the *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013*), the assessment involved the following process:

- A brief study of site history, with the aim of identifying past activities on or near the site that might have the potential to cause contamination;
- Site walkover to assess visible surface conditions and identify any evidence of contamination, or past activities that may cause contamination;
- Review of available recent and historical aerial photography for the last 50 years to identify visible evidence of potential contamination or potentially contaminating activities;
- Search of government records of groundwater use in the area;
- Using the above information, the site was characterised into Areas of Concern, in which the potential for contamination has been identified, and Chemicals of Concern were nominated that might be associated with those activities; and
- Based on the results of the site history study, judgemental sampling at selected locations was undertaken to assist in identifying potential contamination and assessing the requirement for further investigation or site management with regard to contamination.

4 SITE SETTING AND HISTORY

4.1 Site Description

The site is located to the south of Sancrox Road in an area of gently to moderately undulating topography where it is situated on the upper to lower slopes of several low ridgelines as shown in Figure 1.

A satellite image that shows the location of the site and the site setting is reproduced below.

***Plate 1**: Satellite image dated 2012 obtained from the NSW Government 'Six Maps 'website that illustrates the site location and setting. The approximate boundaries of the site comprising Lot No's 1 to 51 (excluding Lot No. 49) DP776681 at Le Clos, Sancrox are outlined in red.*

4.2 Historical Aerial Photography

Aerial photographs of the site were purchased from the NSW Land and Property Management Authority and reviewed to assist in identifying past land uses that may contribute to site contamination. The results of the review are summarised in Table 1.

Table 1- Aerial Photograph Summary

Year	*Lot No's 1 to 51 (excluding Lot No. 49) DP776681*	Surrounding Land
1979	Site does not appear to be disturbed and is thickly vegetated by bushland.	Thick bushland is located to the east and south. To the north and west of the site there is some cleared farmland.
1997	The site is mostly cleared with rows of grape vines visible on raised planting beds. A large dam is located on the western boundary and a shed is present in the north western corner (Lot 50).	Cleared farmland to the north. A dwelling is located next to shed in Lot 49. Small quarry (?) present to south east of Lot No. 13
2009 (Google Earth)	Grapevines are no longer present, although the raised planting beds are still visible. Le Clos Sancrox Road is present near south east boundary (= Lot 51). Dwellings are present in Lot No's 9, 13, 44	No significant change.
2019 (Google Earth)	Small farm shed is present in Lot 23 from 2016. A small farm shed was visible in Lot 45 between 2011 and 2018.	Some cleared land to the south.

4.3 NSW EPA Records

A check with the NSW EPA website (www.epa.nsw.gov.au) revealed that no notices have been issued on the site under the Contaminated Land Management Act (1997).

4.4 Lot Zoning

The lots are currently zoned RU1 – Primary Production.

4.5 Geology

The site is situated in an area underlain by the Byabarra Beds that can include lithic sandstone, mudstone, tuff and limestone.

The Port Macquarie 1:25,000 Coastal Quaternary Geology Sheet indicates alluvial / colluvial fan and valley fill is present in the alluvial depressions associated with the intermittent drainage lines and can include clay, silt, fluvial sand and gravel.

4.6 Groundwater

A groundwater bore search on the Water NSW website indicates that there are no licensed groundwater bores within 500m of the site boundary.

Regional groundwater flow direction typically follows topographic slopes, which for this site would be towards the north west.

4.7 Site Observations

Fieldwork was undertaken on 7 July 2019. Observations made during the site visit are summarised below:

- A gravel access track on a raised fill embankment was present in Lot 51 along the western boundary;
- Building materials from possible timber weather station were present in Lot 17;
- Rows of raised planting beds were present across the site where previous vineyard activities had occurred;
- Existing buildings included a large metal farm shed on a concrete slab in Lot 50 and a small farm shed in Lot 23. A gravel hard stand surface surrounded by a locked security fence was present around the hard stand area and it was therefore not accessible for the assessment. Two cars were parked on the hard stand at the time of the assessment. Building debris from the shed including metal roofing was present on the gravel hardstand surface; and
- Vegetation comprised pasture grasses with scattered trees in the areas previously used as vineyards. Thick vegetation was present in the drainage lines and along the southern boundary.

Typical site photographs are presented below.

Looking north west at raised planting beds for vineyards which have since been removed.

TP7 - Looking east at metal shed located in Lot 50

TP3 - Looking north at gravel access track on raised fill embankment in Lot 51.

TP13 - Culvert located in drainage line that that passes under Le Clos Sancrox Road in Lot 23.

4.8 Site History Summary

Based on available data the chronological development of the site was undertaken as summarised below:

- Aerial photographs indicate the site was cleared between 1979 and 1997 and the vineyards, dam in Lot 52, fill embankment in Lot 51 and metal shed in Lot 50 constructed in the same period;
- The fill embankment in Lot 51 may have been constructed from material won from the dam excavation;
- Aerial photographs indicate the vineyards were removed between 1997 and 2009;
- Dwellings were constructed in Lot No's 9, 13 and 44 between 1997 and 2009. Access to these lots was restricted; and
- A small farm shed was constructed in Lot No. 45 after 2011 and then demolished prior to 2018;
- A small farm shed was constructed in Lot 23 between 2016 and 2017.

5 SITE CONTAMINATION ASSESSMENT

5.1 Conceptual Site Model

Based on the site observations and knowledge obtained about site activities as outlined above, potential Areas of Concern and Chemicals of Concern were identified for the assessment as outlined in Table 2.

Table 2: Conceptual Site Model

Area of Concern	Mode of Potential Contamination	Chemicals of Concern	Targeted Sampling Location
AEC1: Soils in vicinity of sheds	Potential spillage of chemicals from containers including cleaning fluids/ fuel/oils, herbicide/ pesticide	Heavy Metals, TPH, BTEX, PAH, OC/OPP, asbestos	TP7, TP8, TP9
AEC2: Gravel hardstand	Leakage of fuels/oils from parked vehicles	Heavy Metals, TPH, BTEX, PAH	TP3, TP8
AEC3: Fill material	Imported fill of unknown origin (Possibly site won material from dam excavation)	Heavy Metals, TPH, BTEX, PAH, OC/OPP, asbestos	TP2, TP3, TP4
AEC4: Vineyards	Spraying of herbicide and pesticide	Heavy Metals, OC/OPP	TP1, TP5, TP6, TP9, TP10, TP11, TP12, TP13, TP14, TP15
Heavy Metals - Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc *BTEX - Benzene, Toluene, Ethylbenzene and Xylene* *TPH - Total Petroleum Hydrocarbons* *PAH – Polycyclic Aromatic Hydrocarbons* *OC/OPP – Organochlorine and Organophophorus Pesticides*			

5.2 Field Work

Field work for the assessment was undertaken on 9 July 2019. Fieldwork included:

- Site walkover to assess visible surface conditions and identify any evidence of contamination, or past activities that may cause contamination;
- 15 shallow test pits undertaken by hand tools, logged and sampled by an Engineering Geologist; and
- Test pit locations were based on professional judgement with consideration of the site history and visible site features.

The locations of the test pits are shown on Figure 1. They were obtained on site by measurement relative to existing site features

Soil samples were taken from selected depths using disposable gloves and hand tools which were decontaminated between sampling points using Decon90 detergent and deionised water. The samples were collected in acid-rinsed 250mL glass jars and placed in an ice-chilled cooler box.

5.3 Laboratory Testing

Samples were transported under chain-of-custody conditions to a NATA accredited specialist chemical testing laboratory, to be tested for the following suite of contaminants:

- Polycyclic Aromatic Hydrocarbons (PAH)

- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX)
- Organochlorine Pesticides (OC/OPs)
- Heavy metals (arsenic, cadmium, chromium, cobalt, copper, lead, mercury, and zinc)
- Presence of asbestos.

The results are presented in Appendix A. A summary table of the results comparing them to the adopted guidelines outlined in Section 2 is also presented in Appendix A.

5.4 Quality Control

Samples were obtained using industry accepted protocols for sample treatment, preservation, and equipment decontamination. A duplicate of TP6 (0.2 - 0.3m) was submitted to the laboratory for analysis as TP6B (0.2 – 0.3m). Results of the duplicate analysis indicated heavy metal concentrations correlated well between the samples.

In addition to the field QC procedures, the laboratory conducted internal quality control testing including surrogates, blanks, and laboratory duplicate samples. The results are presented with the laboratory test results in Appendix A.

On the basis of the results of the field and laboratory quality control procedures and testing the data is considered to reasonably represent the concentrations of contaminants in the soils at the sample locations at the time of sampling and the results can be adopted for this assessment.

5.5 Analysis Results

An appraisal of the laboratory test results presented in Appendix A is provided below with reference to the adopted soil investigation and screening levels discussed in Section 2.

- Concentrations of heavy metals were above detection, but were below adopted health investigation criteria for a residential site;
- Concentrations of Total Recoverable Hydrocarbon (TRH) were above detection in two samples (TP5, 0-0.1m & TP13 0 – 0.1m), but were below adopted health investigation criteria for a residential site;
- Concentrations of PAH hydrocarbons were below laboratory detection in all samples analysed;
- Concentrations of BTEX and PCB contaminants were below laboratory detection in all samples analysed;
- Concentrations of herbicide/pesticide contaminants were below laboratory detection in all samples analysed; and
- Asbestos was not detected in the four soil samples submitted.

6 ASSESSMENT AND CONCLUSIONS REGARDING SITE CONTAMINATION

A Stage 1 Site Contamination Assessment was undertaken to assess all past and present potentially contaminating activities and contamination types and evaluate the property's suitability for residential use.

6.1 Summary

Based on the results outlined in this report the following points and recommendations are made:

- Considering the age of the sheds present on site in Lot 50 and Lot 23 there is the potential for asbestos type building materials to have been used in their construction. Prior to site demolition works a hazardous material inspection should therefore be undertaken to determine if hazardous materials including asbestos are present;
- Where asbestos containing material is present an Asbestos Management Plan will require preparation by a person with management or control of the workplace and should be prepared with reference to the relevant SafeWork Australia's Code of Practices for asbestos management and removal to an appropriately licensed waste management facility;
- Containers of various chemicals (oils, fuels and the like) present within the sheds should be disposed of in accordance with Council and NSW EPA requirements prior to demolition works;
- A site walkover should be undertaken by a suitably qualified person following demolition of existing buildings and removal of concrete slabs and hardstand areas to assess for potential contamination of the underlying soils once they are exposed; and
- A fill embankment was located in Lot 51 along the western boundary and rows of fill mounds from previous vineyard activities are located across the site. Should any existing fill require removal off-site, it will require assessment for a Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 in accordance with the Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – the Excavated Natural Material (ENM) Order 2014.

6.2 Conclusion

Based on the results obtained in this investigation the site is considered suitable for the proposed residential land use with regard to the presence of soil contamination provided the recommendations and advice of this report are adopted, and site preparation works are conducted in accordance with appropriate site management protocols and legislative requirements.

7 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted environmental design practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

If site conditions encountered during construction vary from those discussed in this report, or, if potentially contaminated soils that contain foreign materials, or, soils with strong odours are

encountered during future works then Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.

If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

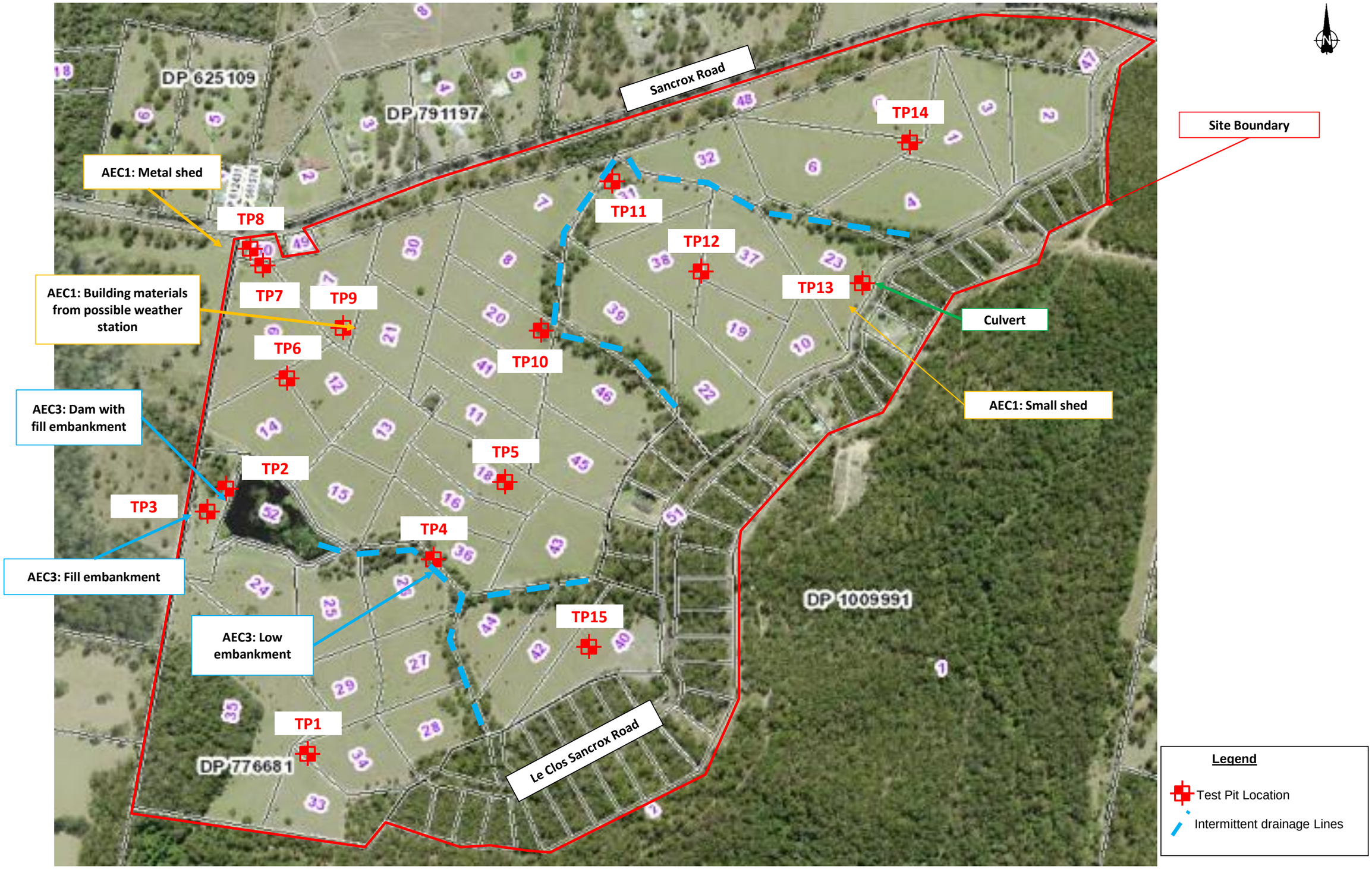
For and on behalf of

Regional Geotechnical Solutions Pty Ltd

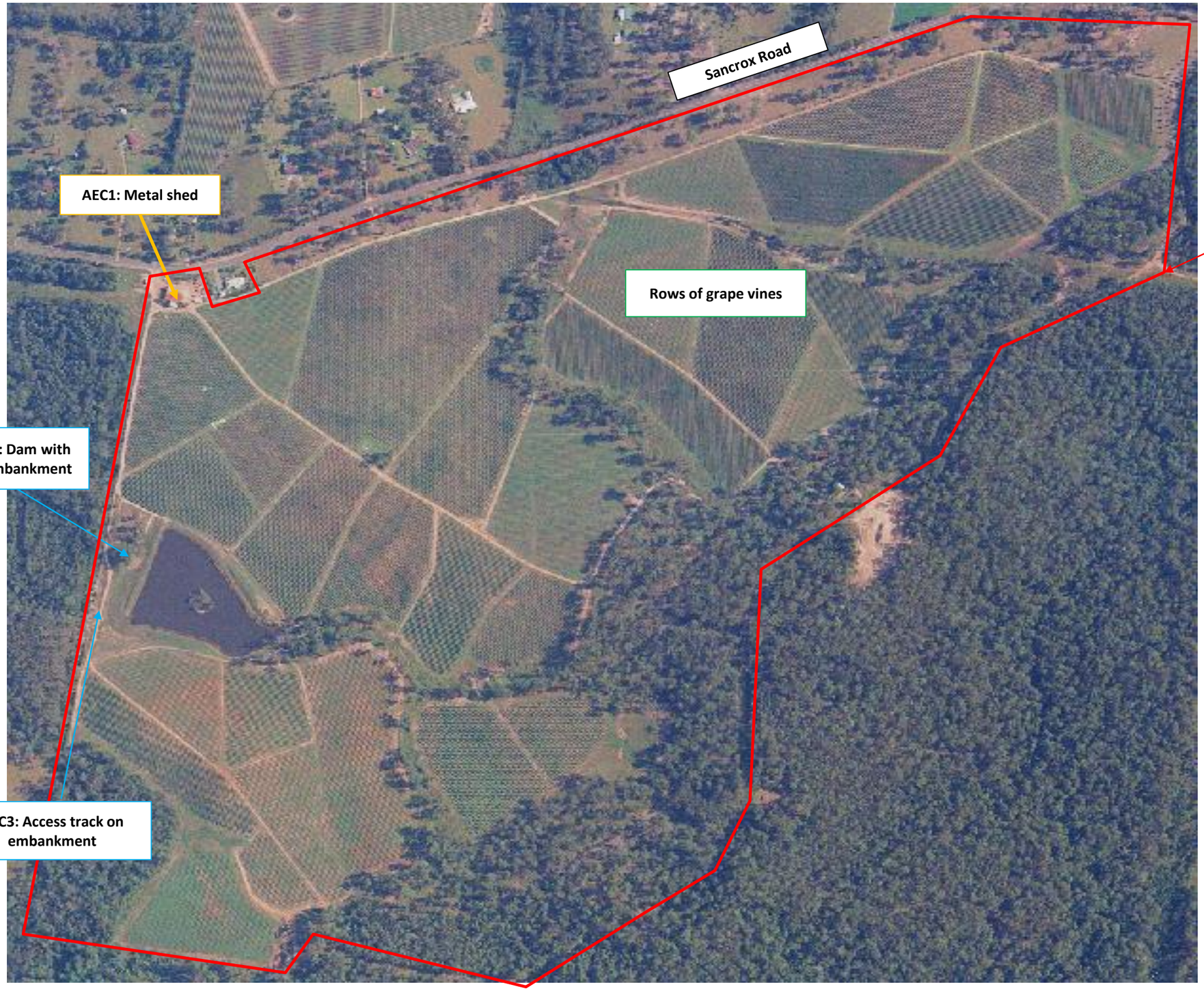
Tim Morris

Associate Engineering Geologist

Figures



REGIONAL GEOTECHNICAL SOLUTIONS	Client:	LAND DYNAMICS PTY LTD	Job No.	RGS20821.1
	Project:	PROPOSED REZONING	Drawn By:	GC
			Scale:	NTS
		LE CLOS SANCROX ROAD, SANCROX	Date:	12-Sep-19
	Title:	INVESTIGATION LOCATION PLAN	Figure No.	1



REGIONAL GEOTECHNICAL SOLUTIONS

Client:	LAND DYNAMICS PTY LTD	Job No.	RGS20821.1
Project:	PROPOSED REZONING	Drawn By:	GC
		Scale:	NTS
	LE CLOS SANCROX ROAD, SANCROX	Date:	12-Sep-19
Title:	1997 AERIAL PHOTOGRAPH	Figure No.	**2**

Appendix A

Laboratory Test Results

REGIONAL GEOTECHNICAL SOLUTIONS

Client: Land Dynamics
Job No. RGS20821.1
Project: Proposed Rezoning
Location: Le Clos, Sancrox Road. Sancrox

Comparison of Contamination Analysis Results with Adopted Investigation Levels (Results in mg/kg)

SAMPLE	DEPTH	Material	Asbestos Presence	TOTAL RECOVERABLE HYDROCARBONS					PAH		DDT+DDE	Aldrin	PCB	BTEX		Heavy Metals							
	(m)			C6-C10	C10-C16	C16-C34	C34-C40	TOTAL	Total	b-a-p (TEQ)	Pesticides	Pesticides		Sum	Napthalene	As	Cd	Cr (total)	Cu	Pb	Ni	Zn	Hg
TP1	0.0 - 0.1	Topsoil	----	----	----	----	----	----	----	----	----	----	----	----	----	6	<0.4	21	14	10	<5	10	<0..1
TP2	0.0 - 0.1	Topsoil	----	----	----	----	----	----	----	----	----	----	----	----	----	2.6	<0.4	11	13	9.6	15	55	<0..1
TP3	0.0 - 0.1	Fill	----	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	12	<0.4	14	19	9.2	7.8	83	<0..1
TP4	0 - 0.1	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	13	<0.4	22	14	9.7	6.5	61	<0..1
TP5	0 - 0.1	Fill	----	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	12	<0.4	11	5.2	8.1	<5	12	<0..1
TP5	0.3 - 0.4	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	14	<0.4	10	<5	9.8	<5	6.1	<0..1
TP6	0.2 - 0.3	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	<2	<0.4	9.6	<5	5.7	<5	<5	<0..1
Duplicate TP6B	0.2 - 0.3	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	5	<0.4	15	<5	8.1	<5	<5	<0..1
TP7	0 - 0.1	Fill	No	<20	<50	170	<100	170	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	5.8	0.6	12	19	15	5	230	1.1
TP8	0 - 0.1	Fill	No	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	8.7	<0.4	22	31	17	9.3	130	<0..1
TP9	0 - 0.1	Natural	No	----	----	----	----	----	----	----	----	----	----	----	----	10	<0.4	19	7.4	14	<0.1	<5	<0..1
TP10	0 - 0.1	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	2.6	<0.4	10	5.5	7.4	<5	14	<0..1
TP11	0.25 - 0.35	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	2.8	<0.4	12	<5	8.5	<5	10	<0..1
TP13	0 - 0.1	Natural	----	<20	<50	110	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	7.9	<0.4	16	13	15	7.6	39	<0..1
TP14	0 - 0.1	Fill	No	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	9.7	<0.4	1	9.4	14	<5	7.6	<0..1
TP14	0.4 - 0.5	Natural	----	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	14	<0.4	14	<5	16	<5	5	<0..1
TP15	0 - 0.1	Fill	----	<20	<50	<100	<100	<100	<0.5	0.6	<0.05	<0.05	<0.1	<0.2	<1	10	<0.4	40	27	20	6.9	34	<0..1
TP15	0.3 - 0.4	Natural	----	----	----	----	----	----	----	----	----	----	----	----	----	4.9	<0.4	36	17	16	8.4	41	<0..1
CRITERIA (NEPM 2013)																							
Health Investigation Level (HIL):*			*0.001% (w/w)*						*300*	*3*	*240*	*6*				*100*	*20*	*100#*	*600*	*300*	*400*	*7400*	*40*
*Health Screening Level (HSL)***				*45*	*110*																		
*Ecological Screening Level (ESL)****				*180*	*120*	*300*	*2800*																
Ecological Investigation Level (EIL)@															*170*	*100*							

CRITERIA:

* Health Based Investigation Levels for Residential A (NEPM 2013)

** Health Screening Level (F2) for residential land use and fine grained soil (clay), 0 - 1m depth

*** Ecological Screening Level for residential land use

@ Ecological Investigation Level - aged (>2 years) for residential landuse

Chromium VI

Speciation testing confirmed only Chromium III present

Denotes concentration exceeds health based guideline for Residential A site

Denotes concentration exceeds ecological guideline for Residential A site

Denotes concentration exceeds health and ecological based guideline for Residential A site

Regional Geotechnical Solutions
44 Bent Street
Wingham
NSW 2429

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Tim Morris**

Report **665040-S**
Project name PROPOSED REZONING
Project ID RGS20821.1
Received Date Jul 10, 2019

Client Sample ID			**TP1 0-0.1**	**TP2 0.1-0.2**	**TP3 0-0.5**	**TP4 0-0.1**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Jl13477**	**S19-Jl13478**	**S19-Jl13479**	**S19-Jl13480**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	< 20	-
TRH C10-C14	20	mg/kg	-	-	< 20	-
TRH C15-C28	50	mg/kg	-	-	< 50	-
TRH C29-C36	50	mg/kg	-	-	< 50	-
TRH C10-36 (Total)	50	mg/kg	-	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	-	< 0.1	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	-	83	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
TRH >C10-C16	50	mg/kg	-	-	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	< 50	-
TRH >C16-C34	100	mg/kg	-	-	< 100	-
TRH >C34-C40	100	mg/kg	-	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	1.2	-
Acenaphthene	0.5	mg/kg	-	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	-	< 0.5	-
Anthracene	0.5	mg/kg	-	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	-	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Chrysene	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			TP1 0-0.1	TP2 0.1-0.2	TP3 0-0.5	TP4 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13477	S19-Jl13478	S19-Jl13479	S19-Jl13480
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	< 0.5	-
Fluoranthene	0.5	mg/kg	-	-	< 0.5	-
Fluorene	0.5	mg/kg	-	-	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	< 0.5	-
Naphthalene	0.5	mg/kg	-	-	< 0.5	-
Phenanthrene	0.5	mg/kg	-	-	< 0.5	-
Pyrene	0.5	mg/kg	-	-	< 0.5	-
Total PAH*	0.5	mg/kg	-	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	-	104	-
p-Terphenyl-d14 (surr.)	1	%	-	-	106	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	-	< 0.05	-
a-BHC	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
b-BHC	0.05	mg/kg	-	-	< 0.05	-
d-BHC	0.05	mg/kg	-	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	-	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.2	mg/kg	-	-	< 0.2	-
Toxaphene	1	mg/kg	-	-	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	-	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	-	< 0.2	-
Dibutylchlorendate (surr.)	1	%	-	-	99	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	101	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Bolstar	0.2	mg/kg	-	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	-	< 0.2	-
Coumaphos	2	mg/kg	-	-	< 2	-
Demeton-S	0.2	mg/kg	-	-	< 0.2	-
Demeton-O	0.2	mg/kg	-	-	< 0.2	-
Diazinon	0.2	mg/kg	-	-	< 0.2	-
Dichlorvos	0.2	mg/kg	-	-	< 0.2	-

Client Sample ID			TP1 0-0.1	TP2 0.1-0.2	TP3 0-0.5	TP4 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13477	S19-Jl13478	S19-Jl13479	S19-Jl13480
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	-	-	< 0.2	-
Disulfoton	0.2	mg/kg	-	-	< 0.2	-
EPN	0.2	mg/kg	-	-	< 0.2	-
Ethion	0.2	mg/kg	-	-	< 0.2	-
Ethoprop	0.2	mg/kg	-	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	-	< 0.2	-
Fenitrothion	0.2	mg/kg	-	-	< 0.2	-
Fensulfothion	0.2	mg/kg	-	-	< 0.2	-
Fenthion	0.2	mg/kg	-	-	< 0.2	-
Malathion	0.2	mg/kg	-	-	< 0.2	-
Merphos	0.2	mg/kg	-	-	< 0.2	-
Methyl parathion	0.2	mg/kg	-	-	< 0.2	-
Mevinphos	0.2	mg/kg	-	-	< 0.2	-
Monocrotophos	2	mg/kg	-	-	< 2	-
Naled	0.2	mg/kg	-	-	< 0.2	-
Omethoate	2	mg/kg	-	-	< 2	-
Phorate	0.2	mg/kg	-	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	-	< 0.2	-
Pyrazophos	0.2	mg/kg	-	-	< 0.2	-
Ronnel	0.2	mg/kg	-	-	< 0.2	-
Terbufos	0.2	mg/kg	-	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	-	< 0.2	-
Tokuthion	0.2	mg/kg	-	-	< 0.2	-
Trichloronate	0.2	mg/kg	-	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	-	99	-
Heavy Metals						
Arsenic	2	mg/kg	6.0	2.6	12	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	21	11	14	22
Copper	5	mg/kg	14	13	19	14
Lead	5	mg/kg	10	9.6	9.2	9.7
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	15	7.8	6.5
Zinc	5	mg/kg	10	55	83	61
% Moisture	1	%	19	20	4.5	25

Client Sample ID			TP5 0-0.1	TP5 0.3-0.4	TP6 0.2-0.3	TP6B 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13481	S19-Jl13482	S19-Jl13483	S19-Jl13484
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	< 20	-	-	-
TRH C15-C28	50	mg/kg	< 50	-	-	-
TRH C29-C36	50	mg/kg	< 50	-	-	-
TRH C10-36 (Total)	50	mg/kg	< 50	-	-	-

Client Sample ID			TP5 0-0.1	TP5 0.3-0.4	TP6 0.2-0.3	TP6B 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13481	S19-Jl13482	S19-Jl13483	S19-Jl13484
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	112	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	< 100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	98	-	-	-
p-Terphenyl-d14 (surr.)	1	%	100	-	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	-	-
a-BHC	0.05	mg/kg	< 0.05	-	-	-
Aldrin	0.05	mg/kg	< 0.05	-	-	-
b-BHC	0.05	mg/kg	< 0.05	-	-	-
d-BHC	0.05	mg/kg	< 0.05	-	-	-
Dieldrin	0.05	mg/kg	< 0.05	-	-	-

Client Sample ID			TP5 0-0.1	TP5 0.3-0.4	TP6 0.2-0.3	TP6B 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13481	S19-Jl13482	S19-Jl13483	S19-Jl13484
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endosulfan I	0.05	mg/kg	< 0.05	-	-	-
Endosulfan II	0.05	mg/kg	< 0.05	-	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	-	-
Endrin	0.05	mg/kg	< 0.05	-	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-	-	-
Endrin ketone	0.05	mg/kg	< 0.05	-	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-	-	-
Heptachlor	0.05	mg/kg	< 0.05	-	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	-	-
Methoxychlor	0.2	mg/kg	< 0.2	-	-	-
Toxaphene	1	mg/kg	< 1	-	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	-	-	-
Dibutylchlorendate (surr.)	1	%	112	-	-	-
Tetrachloro-m-xylene (surr.)	1	%	117	-	-	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Bolstar	0.2	mg/kg	< 0.2	-	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	-	-
Coumaphos	2	mg/kg	< 2	-	-	-
Demeton-S	0.2	mg/kg	< 0.2	-	-	-
Demeton-O	0.2	mg/kg	< 0.2	-	-	-
Diazinon	0.2	mg/kg	< 0.2	-	-	-
Dichlorvos	0.2	mg/kg	< 0.2	-	-	-
Dimethoate	0.2	mg/kg	< 0.2	-	-	-
Disulfoton	0.2	mg/kg	< 0.2	-	-	-
EPN	0.2	mg/kg	< 0.2	-	-	-
Ethion	0.2	mg/kg	< 0.2	-	-	-
Ethoprop	0.2	mg/kg	< 0.2	-	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	-	-
Fenitrothion	0.2	mg/kg	< 0.2	-	-	-
Fensulfothion	0.2	mg/kg	< 0.2	-	-	-
Fenthion	0.2	mg/kg	< 0.2	-	-	-
Malathion	0.2	mg/kg	< 0.2	-	-	-
Merphos	0.2	mg/kg	< 0.2	-	-	-
Methyl parathion	0.2	mg/kg	< 0.2	-	-	-
Mevinphos	0.2	mg/kg	< 0.2	-	-	-
Monocrotophos	2	mg/kg	< 2	-	-	-
Naled	0.2	mg/kg	< 0.2	-	-	-
Omethoate	2	mg/kg	< 2	-	-	-
Phorate	0.2	mg/kg	< 0.2	-	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	-	-
Pyrazophos	0.2	mg/kg	< 0.2	-	-	-
Ronnel	0.2	mg/kg	< 0.2	-	-	-

Client Sample ID			TP5 0-0.1	TP5 0.3-0.4	TP6 0.2-0.3	TP6B 0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13481	S19-Jl13482	S19-Jl13483	S19-Jl13484
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Terbufos	0.2	mg/kg	< 0.2	-	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	-	-
Tokuthion	0.2	mg/kg	< 0.2	-	-	-
Trichloronate	0.2	mg/kg	< 0.2	-	-	-
Triphenylphosphate (surr.)	1	%	92	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	12	14	< 2	5.0
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	10	9.6	15
Copper	5	mg/kg	5.2	< 5	< 5	< 5
Lead	5	mg/kg	8.1	9.8	5.7	8.1
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	12	6.1	< 5	< 5
% Moisture	1	%	18	16	9.0	11

Client Sample ID			TP7 0-0.1	TP8 0-0.1	TP9 0-0.1	TP10 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13485	S19-Jl13486	S19-Jl13487	S19-Jl13488
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	23	< 20	-	-
TRH C15-C28	50	mg/kg	99	< 50	-	-
TRH C29-C36	50	mg/kg	100	< 50	-	-
TRH C10-36 (Total)	50	mg/kg	222	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	107	105	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	170	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	170	< 100	-	-

Client Sample ID			TP7 0-0.1	TP8 0-0.1	TP9 0-0.1	TP10 0-0.1
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S19-Jl13485**	**S19-Jl13486**	**S19-Jl13487**	**S19-Jl13488**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	107	109	-	-
p-Terphenyl-d14 (surr.)	1	%	106	109	-	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	-	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	-	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	-	-
a-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
b-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
d-BHC	0.05	mg/kg	< 0.05	< 0.05	-	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	-	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	-	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	-	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	-	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	-	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	-	-
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	-	-
Toxaphene	1	mg/kg	< 1	< 1	-	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	-	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	< 0.2	-	-
Dibutylchlorendate (surr.)	1	%	102	95	-	-
Tetrachloro-m-xylene (surr.)	1	%	120	114	-	-

Client Sample ID			TP7 0-0.1	TP8 0-0.1	TP9 0-0.1	TP10 0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13485	S19-Jl13486	S19-Jl13487	S19-Jl13488
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	-	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Coumaphos	2	mg/kg	< 2	< 2	-	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	-	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	-	-
Diazinon	0.2	mg/kg	< 0.2	< 0.2	-	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	-	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	-	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	-	-
EPN	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	-	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	-	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	-	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	-	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Monocrotophos	2	mg/kg	< 2	< 2	-	-
Naled	0.2	mg/kg	< 0.2	< 0.2	-	-
Omethoate	2	mg/kg	< 2	< 2	-	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	-	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	-	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	-	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	-	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	-	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	-	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	-	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	-	-
Triphenylphosphate (surr.)	1	%	96	98	-	-
Heavy Metals						
Arsenic	2	mg/kg	5.8	8.7	10	2.6
Cadmium	0.4	mg/kg	0.6	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	22	19	10
Copper	5	mg/kg	19	31	7.4	5.5
Lead	5	mg/kg	15	17	14	7.4
Mercury	0.1	mg/kg	1.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.0	9.3	< 5	< 5
Zinc	5	mg/kg	230	130	21	14
% Moisture	1	%	38	17	25	21

Client Sample ID			TP11 0.25-0.35	TP13 0-0.1	TP14 0-0.1	TP14 0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13489	S19-Jl13490	S19-Jl13491	S19-Jl13492
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	-	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	-	66	< 50	< 50
TRH C29-C36	50	mg/kg	-	63	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	-	129	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	110	108	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	-	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	110	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	110	< 100	< 100
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	105	104	105
p-Terphenyl-d14 (surr.)	1	%	-	105	102	104

Client Sample ID			TP11 0.25-0.35	TP13 0-0.1	TP14 0-0.1	TP14 0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13489	S19-Jl13490	S19-Jl13491	S19-Jl13492
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	-	< 1	< 1	< 1
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	< 0.2
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.2	< 0.2	< 0.2
Dibutylchlorendate (surr.)	1	%	-	118	117	117
Tetrachloro-m-xylene (surr.)	1	%	-	115	117	118
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	-	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2

Client Sample ID			TP11 0.25-0.35	TP13 0-0.1	TP14 0-0.1	TP14 0.4-0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13489	S19-Jl13490	S19-Jl13491	S19-Jl13492
Date Sampled			Not Provided	Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	-	< 2	< 2	< 2
Naled	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	-	< 2	< 2	< 2
Phorate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	-	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	-	90	95	97
Heavy Metals						
Arsenic	2	mg/kg	2.8	7.9	9.7	14
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	12	16	11	14
Copper	5	mg/kg	< 5	13	9.4	< 5
Lead	5	mg/kg	8.5	15	14	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	7.6	< 5	< 5
Zinc	5	mg/kg	10	39	7.6	5.0
% Moisture	1	%	20	22	19	22

Client Sample ID			TP15 0-0.1	TP15 0.3-0.4
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13493	S19-Jl13494
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	-
TRH C10-C14	20	mg/kg	< 20	-
TRH C15-C28	50	mg/kg	< 50	-
TRH C29-C36	50	mg/kg	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-
BTEX				
Benzene	0.1	mg/kg	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	105	-

Client Sample ID			TP15 0-0.1	TP15 0.3-0.4
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13493	S19-Jl13494
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	-
TRH C6-C10	20	mg/kg	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-
TRH >C10-C16	50	mg/kg	< 50	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	106	-
p-Terphenyl-d14 (surr.)	1	%	106	-
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-
a-BHC	0.05	mg/kg	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-
b-BHC	0.05	mg/kg	< 0.05	-
d-BHC	0.05	mg/kg	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-
g-BHC (Lindane)	0.05	mg/kg	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-

Client Sample ID			TP15 0-0.1	TP15 0.3-0.4
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13493	S19-Jl13494
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
Heptachlor epoxide	0.05	mg/kg	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-
Methoxychlor	0.2	mg/kg	< 0.2	-
Toxaphene	1	mg/kg	< 1	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.2	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.2	-
Dibutylchlorendate (surr.)	1	%	117	-
Tetrachloro-m-xylene (surr.)	1	%	117	-
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-
Coumaphos	2	mg/kg	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	-
EPN	0.2	mg/kg	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	-
Monocrotophos	2	mg/kg	< 2	-
Naled	0.2	mg/kg	< 0.2	-
Omethoate	2	mg/kg	< 2	-
Phorate	0.2	mg/kg	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	-
Triphenylphosphate (surr.)	1	%	96	-

Client Sample ID			TP15 0-0.1	TP15 0.3-0.4
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S19-Jl13493	S19-Jl13494
Date Sampled			Not Provided	Not Provided
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	10	4.9
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	40	36
Copper	5	mg/kg	27	17
Lead	5	mg/kg	20	16
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	6.9	8.4
Zinc	5	mg/kg	34	41
% Moisture	1	%	18	19

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2150 VOCs in Soils Liquid and other Aqueous Matrices			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Jul 12, 2019	
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Organochlorine Pesticides	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Jul 12, 2019	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Metals M8	Sydney	Jul 12, 2019	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Jul 10, 2019	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Regional Geotechnical Solutions
Address: 44 Bent Street
Wingham
NSW 2429

Project Name: PROPOSED REZONING
Project ID: RGS20821.1

Order No.:
Report #: 665040
Phone: (02) 65535641
Fax:

Received: Jul 10, 2019 2:40 PM
Due: Jul 17, 2019
Priority: 5 Day
Contact Name: Tim Morris

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B10
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	TP1 0-0.1	Not Provided		Soil	S19-Jl13477			X		X	
2	TP2 0.1-0.2	Not Provided		Soil	S19-Jl13478			X		X	
3	TP3 0-0.5	Not Provided		Soil	S19-Jl13479				X	X	X
4	TP4 0-0.1	Not Provided		Soil	S19-Jl13480			X		X	
5	TP5 0-0.1	Not Provided		Soil	S19-Jl13481				X	X	X
6	TP5 0.3-0.4	Not Provided		Soil	S19-Jl13482			X		X	
7	TP6 0.2-0.3	Not Provided		Soil	S19-Jl13483			X		X	
8	TP6B 0.2-0.3	Not Provided		Soil	S19-Jl13484			X		X	
9	TP7 0-0.1	Not Provided		Soil	S19-Jl13485	X			X	X	X

eurofins | mgt

ABN – 50 005 085 521
e.mail : EnviroSales@eurofins.com
web : www.eurofins.com.au

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Perth
2/91 Leach Highway
Kewdale WA 6105
Phone : +61 8 9251 9600
NATA # 1261
Site # 23736

Company Name: Regional Geotechnical Solutions
Address: 44 Bent Street
Wingham
NSW 2429

Project Name: PROPOSED REZONING
Project ID: RGS20821.1

Order No.:
Report #: 665040
Phone: (02) 65535641
Fax:

Received: Jul 10, 2019 2:40 PM
Due: Jul 17, 2019
Priority: 5 Day
Contact Name: Tim Morris

Eurofins | mgt Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - AS4964	HOLD	Metals M8	Eurofins | mgt Suite B14	Moisture Set	Eurofins | mgt Suite B10
Melbourne Laboratory - NATA Site # 1254 & 14271											
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794											
Perth Laboratory - NATA Site # 23736											
10	TP8 0-0.1	Not Provided		Soil	S19-Jl13486	X			X	X	X
11	TP9 0-0.1	Not Provided		Soil	S19-Jl13487	X		X		X	
12	TP10 0-0.1	Not Provided		Soil	S19-Jl13488			X		X	
13	TP11 0.25-0.35	Not Provided		Soil	S19-Jl13489			X		X	
14	TP13 0-0.1	Not Provided		Soil	S19-Jl13490				X	X	X
15	TP14 0-0.1	Not Provided		Soil	S19-Jl13491				X	X	X
16	TP14 0.4-0.5	Not Provided		Soil	S19-Jl13492	X			X	X	X
17	TP15 0-0.1	Not Provided		Soil	S19-Jl13493				X	X	X
18	TP15 0.3-0.4	Not Provided		Soil	S19-Jl13494			X		X	
19	TP12 0.1-0.2	Not Provided		Soil	S19-Jl13495		X				
Test Counts						4	1	10	8	18	8

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	86			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	101			70-130	Pass	
Toluene	%	101			70-130	Pass	
Ethylbenzene	%	103			70-130	Pass	
m&p-Xylenes	%	102			70-130	Pass	
o-Xylene	%	101			70-130	Pass	
Xylenes - Total	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	116			70-130	Pass	
TRH C6-C10	%	95			70-130	Pass	
TRH >C10-C16	%	81			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	105			70-130	Pass	
Acenaphthylene	%	102			70-130	Pass	
Anthracene	%	104			70-130	Pass	
Benz(a)anthracene	%	94			70-130	Pass	
Benzo(a)pyrene	%	95			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g.h.i)perylene	%	95			70-130	Pass	
Benzo(k)fluoranthene	%	103			70-130	Pass	
Chrysene	%	103			70-130	Pass	
Dibenz(a.h)anthracene	%	100			70-130	Pass	
Fluoranthene	%	100			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	101			70-130	Pass	
Naphthalene	%	104			70-130	Pass	
Phenanthrene	%	103			70-130	Pass	
Pyrene	%	102			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	80			70-130	Pass	
4.4'-DDD	%	88			70-130	Pass	
4.4'-DDE	%	81			70-130	Pass	
4.4'-DDT	%	79			70-130	Pass	
a-BHC	%	81			70-130	Pass	
Aldrin	%	79			70-130	Pass	
b-BHC	%	73			70-130	Pass	
d-BHC	%	81			70-130	Pass	
Dieldrin	%	80			70-130	Pass	
Endosulfan I	%	78			70-130	Pass	
Endosulfan II	%	75			70-130	Pass	
Endosulfan sulphate	%	81			70-130	Pass	
Endrin	%	78			70-130	Pass	
Endrin aldehyde	%	73			70-130	Pass	
Endrin ketone	%	74			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
g-BHC (Lindane)	%	80			70-130	Pass	
Heptachlor	%	77			70-130	Pass	
Heptachlor epoxide	%	81			70-130	Pass	
Hexachlorobenzene	%	79			70-130	Pass	
Methoxychlor	%	72			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	125			70-130	Pass	
Dimethoate	%	117			70-130	Pass	
Ethion	%	113			70-130	Pass	
Fenitrothion	%	98			70-130	Pass	
Methyl parathion	%	109			70-130	Pass	
Mevinphos	%	114			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	114			70-130	Pass	
Cadmium	%	103			70-130	Pass	
Chromium	%	106			70-130	Pass	
Copper	%	99			70-130	Pass	
Lead	%	104			70-130	Pass	
Mercury	%	107			70-130	Pass	
Nickel	%	100			70-130	Pass	
Zinc	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S19-Jl13478	CP	%	91			70-130	Pass	
Cadmium	S19-Jl13478	CP	%	100			70-130	Pass	
Chromium	S19-Jl13478	CP	%	109			70-130	Pass	
Copper	S19-Jl13478	CP	%	92			70-130	Pass	
Lead	S19-Jl13478	CP	%	99			70-130	Pass	
Mercury	S19-Jl13478	CP	%	113			70-130	Pass	
Nickel	S19-Jl13478	CP	%	100			70-130	Pass	
Zinc	S19-Jl13478	CP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S19-Jl19147	NCP	%	91			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S19-Jl19147	NCP	%	88			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S19-Jl21245	NCP	%	122			70-130	Pass	
Acenaphthylene	S19-Jl21245	NCP	%	123			70-130	Pass	
Anthracene	S19-Jl21245	NCP	%	118			70-130	Pass	
Benz(a)anthracene	S19-Jl21245	NCP	%	112			70-130	Pass	
Chrysene	S19-Jl21245	NCP	%	108			70-130	Pass	
Fluoranthene	S19-Jl21245	NCP	%	123			70-130	Pass	
Fluorene	S19-Jl21245	NCP	%	127			70-130	Pass	
Naphthalene	S19-Jl21245	NCP	%	110			70-130	Pass	
Phenanthrene	S19-Jl21245	NCP	%	116			70-130	Pass	
Pyrene	S19-Jl21245	NCP	%	124			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dimethoate	S19-Jl21245	NCP	%	84			70-130	Pass	
Ethion	S19-Jl21245	NCP	%	118			70-130	Pass	
Fenitrothion	S19-Jl21245	NCP	%	104			70-130	Pass	
Methyl parathion	S19-Jl21245	NCP	%	116			70-130	Pass	
Mevinphos	S19-Jl21245	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S19-Jl13481	CP	%	84			70-130	Pass	
4.4'-DDD	S19-Jl13481	CP	%	102			70-130	Pass	
4.4'-DDE	S19-Jl13481	CP	%	76			70-130	Pass	
4.4'-DDT	S19-Jl13481	CP	%	73			70-130	Pass	
a-BHC	S19-Jl13481	CP	%	86			70-130	Pass	
Aldrin	S19-Jl13481	CP	%	85			70-130	Pass	
b-BHC	S19-Jl13481	CP	%	73			70-130	Pass	
d-BHC	S19-Jl13481	CP	%	80			70-130	Pass	
Dieldrin	S19-Jl13481	CP	%	80			70-130	Pass	
Endosulfan I	S19-Jl13481	CP	%	84			70-130	Pass	
Endosulfan II	S19-Jl13481	CP	%	78			70-130	Pass	
Endosulfan sulphate	S19-Jl13481	CP	%	79			70-130	Pass	
Endrin	S19-Jl13481	CP	%	74			70-130	Pass	
Endrin aldehyde	S19-Jl13481	CP	%	74			70-130	Pass	
Endrin ketone	S19-Jl13481	CP	%	79			70-130	Pass	
g-BHC (Lindane)	S19-Jl13481	CP	%	82			70-130	Pass	
Heptachlor	S19-Jl13481	CP	%	78			70-130	Pass	
Heptachlor epoxide	S19-Jl13481	CP	%	84			70-130	Pass	
Hexachlorobenzene	S19-Jl13481	CP	%	79			70-130	Pass	
Methoxychlor	S19-Jl13481	CP	%	73			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S19-Jl13492	CP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S19-Jl13492	CP	%	90			70-130	Pass	
Toluene	S19-Jl13492	CP	%	94			70-130	Pass	
Ethylbenzene	S19-Jl13492	CP	%	95			70-130	Pass	
m&p-Xylenes	S19-Jl13492	CP	%	92			70-130	Pass	
o-Xylene	S19-Jl13492	CP	%	93			70-130	Pass	
Xylenes - Total	S19-Jl13492	CP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S19-Jl13492	CP	%	86			70-130	Pass	
TRH C6-C10	S19-Jl13492	CP	%	87			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S19-Jl13477	CP	mg/kg	6.0	6.1	2.0	30%	Pass	
Cadmium	S19-Jl13477	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S19-Jl13477	CP	mg/kg	21	20	3.0	30%	Pass	
Copper	S19-Jl13477	CP	mg/kg	14	13	10	30%	Pass	
Lead	S19-Jl13477	CP	mg/kg	10	9.5	6.0	30%	Pass	
Mercury	S19-Jl13477	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S19-Jl13477	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S19-Jl13477	CP	mg/kg	10	9.3	9.0	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S19-Jl18039	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S19-Jl18039	NCP	mg/kg	2.4	2.4	3.0	30%	Pass	
Anthracene	S19-Jl18039	NCP	mg/kg	2.9	2.9	<1	30%	Pass	
Benz(a)anthracene	S19-Jl18039	NCP	mg/kg	2.8	3.0	6.0	30%	Pass	
Benzo(a)pyrene	S19-Jl18039	NCP	mg/kg	2.4	2.7	9.0	30%	Pass	
Benzo(b&j)fluoranthene	S19-Jl18039	NCP	mg/kg	2.5	2.4	2.0	30%	Pass	
Benzo(g.h.i)perylene	S19-Jl18039	NCP	mg/kg	2.0	2.1	7.0	30%	Pass	
Benzo(k)fluoranthene	S19-Jl18039	NCP	mg/kg	2.1	2.8	28	30%	Pass	
Chrysene	S19-Jl18039	NCP	mg/kg	2.8	2.9	4.0	30%	Pass	
Dibenz(a.h)anthracene	S19-Jl18039	NCP	mg/kg	0.7	0.8	6.0	30%	Pass	
Fluoranthene	S19-Jl18039	NCP	mg/kg	5.2	5.4	4.0	30%	Pass	
Fluorene	S19-Jl18039	NCP	mg/kg	2.1	2.1	3.0	30%	Pass	
Indeno(1.2.3-cd)pyrene	S19-Jl18039	NCP	mg/kg	1.8	1.9	6.0	30%	Pass	
Naphthalene	S19-Jl18039	NCP	mg/kg	2.0	1.2	47	30%	Fail	Q15
Phenanthrene	S19-Jl18039	NCP	mg/kg	5.4	5.7	6.0	30%	Pass	
Pyrene	S19-Jl18039	NCP	mg/kg	5.9	6.2	5.0	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S19-Jl10386	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S19-Jl10386	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S19-Jl10386	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S19-Jl10386	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Jl13479	CP	%	4.5	5.1	13	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S19-Jl13481	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S19-Jl13481	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S19-Jl13481	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S19-Jl13481	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S19-Jl13486	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S19-Jl13486	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S19-Jl13486	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S19-Jl13486	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S19-Jl13486	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S19-Jl13486	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S19-Jl13489	CP	%	20	19	4.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S19-Jl13491	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S19-Jl13491	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S19-Jl13491	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S19-Jl13491	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S19-Jl13491	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S19-Jl13491	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S19-Jl13491	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S19-Jl13491	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S19-Jl13491	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Andrew Black	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
Gabriele Cordero	Senior Analyst-Metal (NSW)
Nibha Vaidya	Senior Analyst-Asbestos (NSW)

Glenn Jackson

General Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please click here.

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Appendix B

Statement of Experience

REGIONAL GEOTECHNICAL SOLUTIONS

Manning-Great Lakes
Port Macquarie
Coffs Harbour

Contaminated Land Assessment – Statement of Experience

Report Author

Tim Morris - Associate Engineering Geologist

Date of Birth: 16 February 1972

Education & Affiliations

Bachelor of Applied Science (Honours, Geology) – University of Technology, Sydney

Graduate Certificate of Engineering Science - (Geotechnical) University of NSW

Summary

Tim worked in England from 2000 to 2002 as a Site Engineer on a range of geotechnical and environmental projects. From 2002 to 2006 he was the Acid Sulfate Soils Project Officer with Kempsey Shire Council. He then worked with the Coffey Group from 2006 to 2010 as an Engineering Geologist, working on geotechnical and environmental projects including roads, site investigations, site contamination assessments, construction and urban developments. During this time he was based out of the Port Macquarie office where he coordinated geotechnical and environmental projects and was the Port Macquarie Office Manager prior to leaving the company.

In 2010 he joined Regional Geotechnical Solutions, a consulting firm focused on providing high quality geotechnical consulting services to regional centres. He currently works on a broad range of geotechnical projects including site contamination assessments, pavement design, slope stability, and geotechnical foundation investigations.

Contamination Assessments – Previous Experience

Recent site contamination assessments completed by Tim for RGS on similar contamination assessment projects are summarised in Table 1.

Table 1 – Summary of Site Contamination Assessments

Job Number	Project	Location
RGS20494.1	Stage 1 and Stage 2 Contamination Assessment – Oxley Beach	Port Macquarie
RGS20578.1	Stage 1 Contamination Assessment – Proposed College, Kempsey Airport	Aldavilla
RGS00975.1	Stage 1 and Stage 2 Contamination Assessment – Proposed Daycare, 226 Oxley Highway	Port Macquarie

Birpai Local Aboriginal Land Council

Aboriginal Cultural Heritage Assessment

Lots 1-52 DP 776681

Sancrox Road

Sancrox

Prepared by

Birpai Local Aboriginal Land Council

In response to a

Proposed rezoning proposal by Land Dynamics

PO Box 876 Port Macquarie NSW 2444 Tel: 02 65849066 Email: birpailalc@midcoast.com.au

Table of Contents

1. **Introduction** 3
2. Investigator and Contributors 4
3. Previous Archaeological work 4
4. Landscape context 5
General Coastal character & predictive model 5
Local Aboriginal History 6
Location of the site 6
6 Site Survey & Results 6
Sampling Strategy 6
Survey Coverage 6
7. Results of Survey of 4 July 2019 7
Analysis & Discussion 7
Recommendation 7

1. Introduction

The subject land is located at Sancrox Road Sancrox and includes a number of lots in DP 76681. The land is approximately 90 ha and is located just over 10km west of the Port Macquarie CBD.

The Land is currently zoned as rural.

Port Macquarie Hastings Council's Development Control Plan states the following under Objective 8:

Objective 8 Development Provision 8.1'. This provisions states that *"Prior to any... clearing works... an inspection of the proposed development site is to be undertaken by an Aboriginal Cultural Sites Officer from the local Aboriginal Land Council and a report on the site inspection is to be obtained*

The objectives of this Inspection and report are:

- To identify whether the subject land contains objects or artefacts that are culturally relevant to the Birpai people.
- To determine if any potential harm on Aboriginal Cultural heritage would be likely to occur from the proposed development.
- To make recommendations to be included in the application to Hastings Council.

This report has been prepared for Land Dynamics for the proposed rezoning. It is not to be used for any other purpose

2. Investigator and Contributors

The Site Investigations have been undertaken by:

Mr. Jason Holten, Sites Officer of the Birpai Local Aboriginal Land Council

The site investigator has significant local experience in carrying out site survey investigations and regularly undertakes Sites works in the Port Macquarie area. Mr. Holten has a wealth of knowledge of Aboriginal Culture and Heritage in the local area.

3. Previous Archaeological work

A previous Aboriginal Heritage Assessment for the area was carried out by RPS in April 2012 for the developers.

A Development Control Plan exists for the site that requires an Officer from the Local Aboriginal Land Council inspect the site and provide a report prior to any clearing taking place.

4. Landscape context

General Coastal character & predictive model

The results of reviews of archaeological investigations to date indicate that rocky shore, sandy beach, estuarine and hinterland environments were typically utilised by Aboriginal groups. The densest and most diverse archaeological remains are generally found along the coast where food resources were richer. Reliance on estuarine and adjacent hinterland areas was probably sporadic, possibly using freshwater swamps as a primary resource.

A large proportion of recorded sites indicate they have been found on flat terrain, predominantly in coastal heath, along estuarine stream banks, some woodland and dry sclerophyll eucalypt forest and in subtropical rainforest. Less commonly, sites are also found in undulating to hilly terrain either in dry sclerophyll eucalypt forest. Even less so in steep rugged terrain.

There is a greater likelihood of the existence and discovery of Aboriginal sites into the coastal plain. Particularly the crests and basal slopes of low spurlines that extend into and are situated adjacent to flood prone valley floors.

Stone artefacts may occur as open artefact scatters and isolated finds. Midden deposits may occur subsurface on former beach ridges and other alluvial or colluvial deposits which fringe valley floors. Including the former shoreline of the marine embayment and subsequent estuary which formed following the last sea level rise at around 6000 years BP.

Open artefact scatters (or campsites) are considered more likely to occur on relatively flat terrain, well-drained and not too distant from sources of freshwater or along the crests of low ridgelines.

Scarred trees may occur wherever old-growth trees remain. Potential locations include road reserves, remnant riparian vegetation on farmlands, and isolated trees within the state forests.

Prehistoric burial sites are most likely to be found in locally elevated landforms with a relatively deep profile of soft sediments of in the deposits of midden sites.

Local Aboriginal History

Before European settlement, Aboriginal people roamed the area and used the land to hunt and gather food. Aboriginal ties to the land can be identified with the significant sites in and around the Port Macquarie area with some sites recorded, including burial sites at the Town Green in the CBD.

Location of the site

The subject land is located approximately 10km west of the Port Macquarie CBD. The site is generally surrounded by rural residential land to the North and rural land to the South and East

On site is still partially vegetated with a significant number of established trees and heavily grassed.

6 Site Survey & Results

Sampling Strategy

The sampling strategy is to attend the property by vehicle and undertake intensive walking inspection of the part of the site likely to be impacted upon by the proposed rezoning and future industrial lots.

In a landscape context, this area is consistent with the landscape unit "crests and basal slopes of low spurlines that extend into and are situated adjacent to flood prone valley floors". In this context intensive walking survey of the area is considered the most appropriate survey strategy.

The site survey was undertaken on 4 July 2019 by Mr Jason Holten, Senior Site Officer of Birpai Local Aboriginal Land Council and Donna Clarke from Land Dynamics.

Survey Coverage

On 4 July 2019 exposure and visibility across the site is described as generally good.

No text excavations were considered necessary and were not undertaken.

7. Results of Survey of 4 July 2019

After a lot of walking over the area the senior site officer, Mr Jason Holten noted that in some areas there had been a lot of disturbance over the years, with the removal of trees and stumps from the site and movement of topsoil, however other areas appeared relatively undisturbed. It was difficult to fully access the whole site due to the thickness of the undergrowth.

Mr Holten, Senior Sites Officer who attended the property and undertook the survey concluded that no evidence of Aboriginal activity was located on Lots 1-52 DP 776681, however it is recommended that a sites officer be present when clearing or excavation commences.

A Search of the AHIMS database did not find a record of any known Aboriginal Sites on the subject land.

Analysis & Discussion

Consultation with local Aboriginal peoples with a relationship to the area revealed no knowledge of occupation or cultural heritage associations with the subject land.

No site recording is required as there are no material traces, evidence or expressed knowledge of Aboriginal land use of the site.

The proposed clearing of lot 100 DP 1228060 is not considered likely to impact upon or have any significance for the local Aboriginal community and their cultural heritage.

The assessing site officers can see no reason why the proposal cannot continue.

Recommendation

Based on the Site Inspection and other investigation, there is no reason from an Aboriginal Cultural and Heritage perspective that this rezoning cannot proceed, subject to the following:

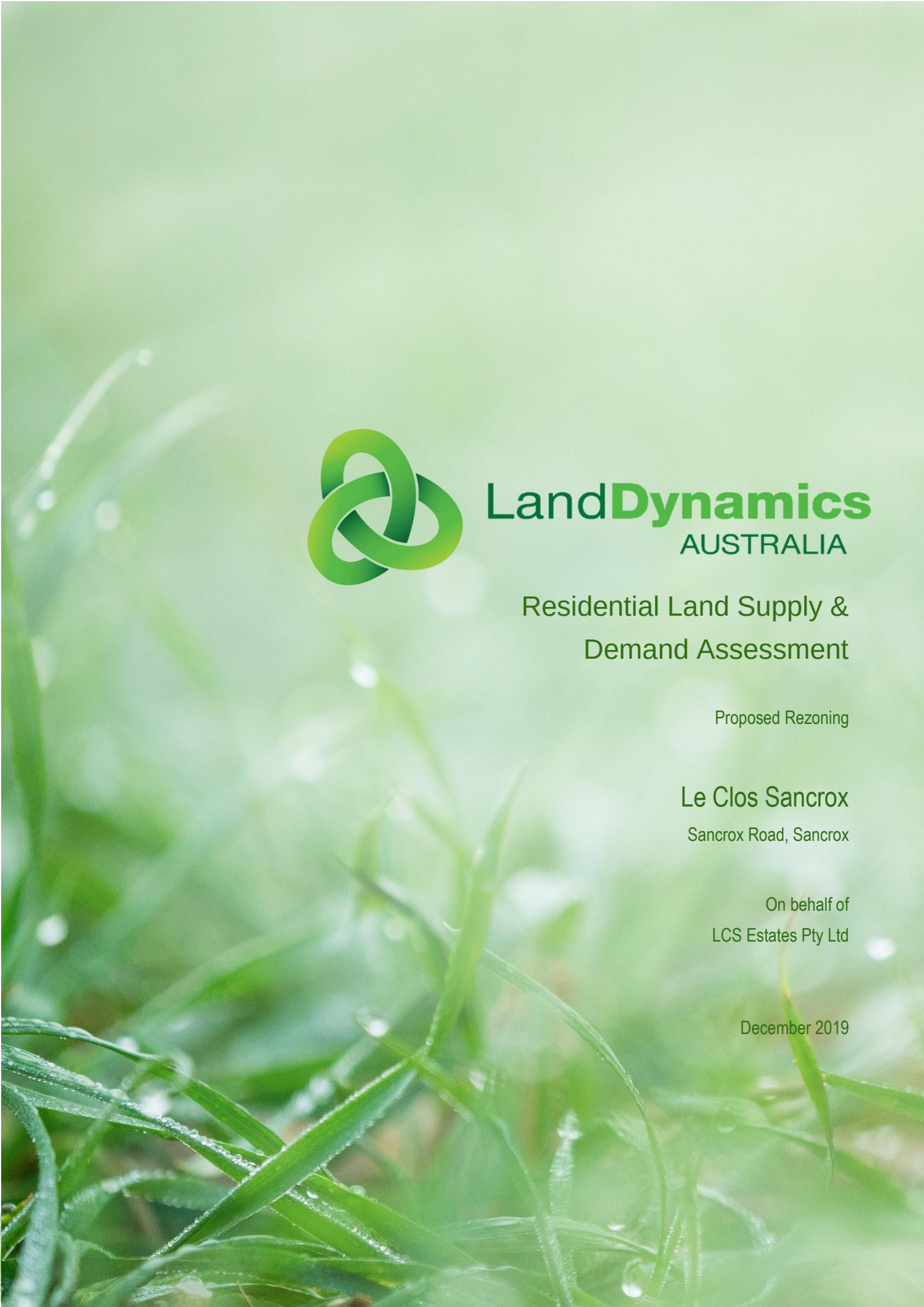
1. An Aboriginal Sites officer be present when excavation or clearing commences
2. At such time as development site works start, should any artefacts be turned up or located, Birpai LALC Aboriginal Site officers are to be contacted immediately and work on site stopped pending further assessment.

Signed

8/8/19.

Mr David Carroll

CEO - Birpai Local Aboriginal Land Council
PO Box 876 Port Macquarie NSW 2444 Tel: 02 65849066 Email: birpailalc@midcoast.com.au



LandDynamics
AUSTRALIA

Residential Land Supply & Demand Assessment

Proposed Rezoning

Le Clos Sancrox

Sancrox Road, Sancrox

On behalf of
LCS Estates Pty Ltd

December 2019

Prepared for:

LCS Estates Pty Ltd

Prepared By:

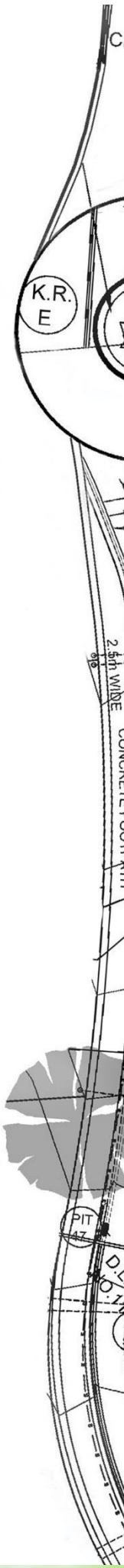
Land Dynamics Australia

77 Lord Street Port Macquarie NSW 2444 – PO Box 2459 Port Macquarie NSW 2444

T: 02 6583 2677 E: pm@ldynamics.com.au

www.ldynamics.com.au

	Name	Date
Prepared By	Donna Clarke	10/12/19
Checked By	Graham Burns	10/12/19



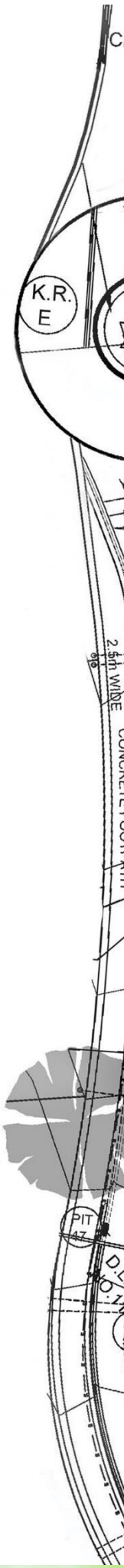
Disclaimer

This report was prepared in accordance with the scope of works set out in correspondence between the client and Land Dynamics Australia. To the best of Land Dynamics Australia's knowledge, the report presented herein accurately reflects the Client's intentions when the report was printed. However, it is recognised that conditions of approval at time of consent, post development application modification of the proposals design, and the influence of unanticipated future events may modify the outcomes described in this report.

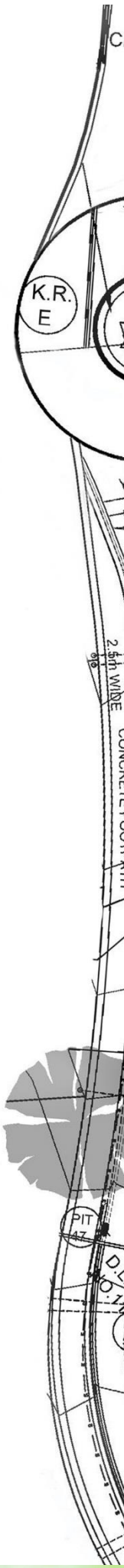
Land Dynamics Australia used information and documentation provided by external persons, companies and authority. Whilst checks were completed by Land Dynamics Australia to ensure that this information and/or documentation was accurate, it has been taken on good faith and has not been independently verified. It is therefore advised that all information and conclusions presented in this report apply to the subject land at the time of assessment, and the subject proposal only.

Contents

BACKGROUND 5
1. INTRODUCTION 5
1.1 Scope of report 5
1.2 Purpose 5
1.3 Approach 6
1.4 Reports Reviewed 6
2. REGIONAL, LOCALITY & SITE CONTEXT 7
2.1 Port Macquarie Hastings: Regional Context 7
2.2 Sancrox: Locality Context 7
2.3 Le Clos Sancrox: Site Context 7
3. STRATEGIC & STATUTORY PLANNING FRAMEWORK 9
3.1 Strategic: Regional 9
North Coast Regional Plan 9
Regionally Significant Farmland 9
3.2 Strategic: Local 9
Port Macquarie Hastings Urban Growth Management Strategy 2011-2031 9
Greater Sancrox Structure Plan 2015 10
4. PROPOSED DEVELOPMENT 10
5. SUPPLY OF GENERAL RESIDENTIAL ZONED LAND 12
5.1 Supply analysis of R1 General Residential zoned land 12
Phase 1 – Classification of Land Parcels 12
Phase 2 – Constraints Analysis 14
Phase 3 – Estimation of Development Potential for Residential Land 14
6. ECONOMIC PROFILE 16
6.1 Port Macquarie Hastings Economy Profile 16
7. RESIDENTIAL LAND SUPPLY ANALYSIS 17
7.1 Residential Land Supply 17
7.2 Residential Land Demand 19
Historical Population Growth 19
Population Projections 20
Building Approvals 21
Subdivision Approvals 23
Current Land for Sale in Sancrox 23
Current Land for Sale – Wider Area 24



Previous Review 26
Age Cohorts 28
Employment 28
Planned Growth 28
Overall Assessment of Demand 28
7.3 Years of Supply 29
8. CONCLUSION & KEY FINDINGS 30



BACKGROUND

Land Dynamics was engaged by LCS Estate Pty Ltd to prepare a Land Supply & Demand Assessment to support and inform a Planning Proposal for land known as Le Clos, in the locality of Sancrox in the Port Macquarie Hastings Local Government Area (LGA). This report considers the adequacy of land supply at Sancrox.

The Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance.

The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and
- Business - approx. 1 ha of commercially zoned land.

Indicative layouts have been included in this report but are subject to change prior to lodgement of the Development Application.

1. INTRODUCTION

The following report is a residential land supply and demand assessment of Sancrox located in the Local Government area of Port Macquarie Hastings and includes:

- the identification of historical and current residential lot construction activity by supply type and location;
- identification of all zoned and unzoned major residential land supply stocks including estimates of lot yields on a project by project basis;
- examination of the future residential demand;
- presentation of potential future demand scenarios; and
- estimation of the years of supply of undeveloped broad hectare and major infill residential land stocks.

The assessment provides a robust and transparent assessment of the supply and demand for residential land across the Port Macquarie Hastings region. Where appropriate, comparisons to other regional Mid North Coast municipalities/urban centres are provided to further inform the relative 'state of play". In addition, the information will be of assistance to other related planning processes such as infrastructure and service planning.

1.1 Scope of report

Land Dynamics was engaged by LCS Estates Pty Ltd to prepare a Land Supply & Demand Assessment to support and inform a Planning Proposal for land known as Le Clos, in the locality of Sancrox in the Port Macquarie Hastings Local Government Area (LGA). This Land Supply & Demand Assessment addresses the following:

- Stage 1: Land supply and demand analysis for residential.
- Stage 2: Assessment of expansion options for residential.
- Stage 3: Preparation of masterplans for expansion options for residential, and commercial land.

1.2 Purpose

The monitoring of land supply is a key tool to assist in the management and development of growth across the Mid North Coast. The primary purpose of monitoring residential land supply is to improve the management of rural and urban growth by ensuring that council, public utilities, government and the development industry have access to

up-to-date and accurate information on residential land availability, development trends, new growth fronts, and their implications for planning and infrastructure investment.

The following report provides accurate, consistent and updated intelligence on residential land supply, demand and consumption. This in turn assists decision-makers in:

- maintaining an adequate supply of residential land for future housing purposes;
- providing information to underpin strategic planning in rural and urban centres;
- linking land use with infrastructure and service planning and provision; and
- taking early action to address potential land supply shortfalls and infrastructure constraints.

1.3 Approach

The following details the methodology undertaken to assess the supply of and demand for residential land in Port Macquarie Hastings local government area.

A land supply assessment of existing and available residential zoned land was conducted for the Sancrox area and the areas release areas of Port Macquarie. This was based on a desktop analysis of an aerial image and street observations, which focused on existing residentially zoned land within the current locality. The calculated/theoretical land supply, has been further considered in context of the number of dwelling allotments which could be created. These figures have then been assessed against the projected demand for new dwellings based on the projected population and household growth through to 2036.

1.4 Reports Reviewed

In preparing this report the following documents, reports and materials have been considered and taken into account:

- Review of the Urban Growth Management Report 2017-2036
- Review of the Greater Sancrox Structure Plan 2014 – 2034 (2015)
- Consideration of recent population growth in Sancrox and Greater Port Macquarie and the future outlook for population growth
- Translation of population growth to dwelling demand
- Review of the current status of land supply at Sancrox
- Consideration of additional matters relevant to the efficient and orderly management of residential land supply and the maintenance of a competitive housing market.
- Port Macquarie Hastings LEP 2011
- Port Macquarie Hastings Development Control Plan 2013
- Greater Sancrox Structure Plan 2014 – 2034 (2015), PMHC
- Towards 2030 Community Strategic Plan, PMHC
- North Coast Regional Plan 2036, PMHC
- Urban Growth Management Strategy, PMHC
- Economic Development Strategy, PMHC
- Mid North Coast Housing & Land Monitor (2016), Department of Planning and Environment
- Mid North Coast Residential Submarket Analysis (2014), Department of Planning and Environment
- Australian Bureau of Statistics, 2011 & 2016 Census Data

2. REGIONAL, LOCALITY & SITE CONTEXT

2.1 Port Macquarie Hastings: Regional Context

The Port Macquarie-Hastings region covers an area of 3,686 square kilometres and is located midway between Sydney and Brisbane; 420 kilometres north of Sydney and 510 kilometres south of Brisbane. The area is bisected north to south by the North Coast Rail Line and the Pacific Highway which connects Sydney and Brisbane.

2.2 Sancrox: Locality Context

Sancrox is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and the Greater Sancrox Area (GSA). The GSA is located approximately 6.4km north east of the Wauchope town centre and 13km west of the Port Macquarie town centre and contains a land area of approximately 1,400 hectares (ha). The region is bound by the Oxley Highway to the south, the Pacific Highway to east and rural lands to the west and the Hastings River to the north. The predominate land use is rural, including agriculture and rural-residential. In general, lot sizes range between 1 to 10ha, with only four lots greater than 50 ha. The majority of small land parcels are located in the areas off Rawdon Island Road and Sancrox Road.

2.3 Le Clos Sancrox: Site Context

The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox. The plan below in Figure 1 details the extent of the boundaries of the properties included and Figure 2 provides the context of Le Clos Sancrox with respect to the greater Sancrox Area, Wauchope and Port Macquarie.

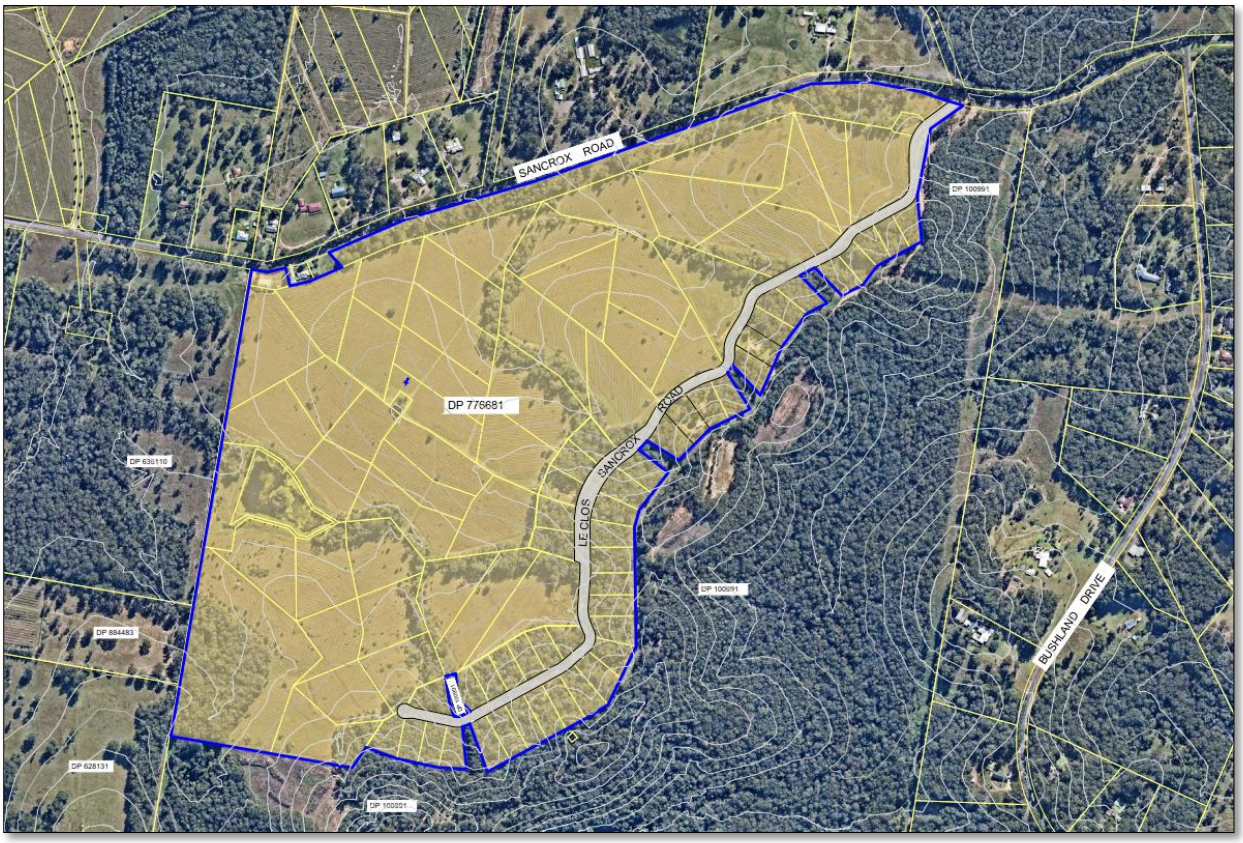


Figure 1 – Proposed Development Area Highlighted Yellow

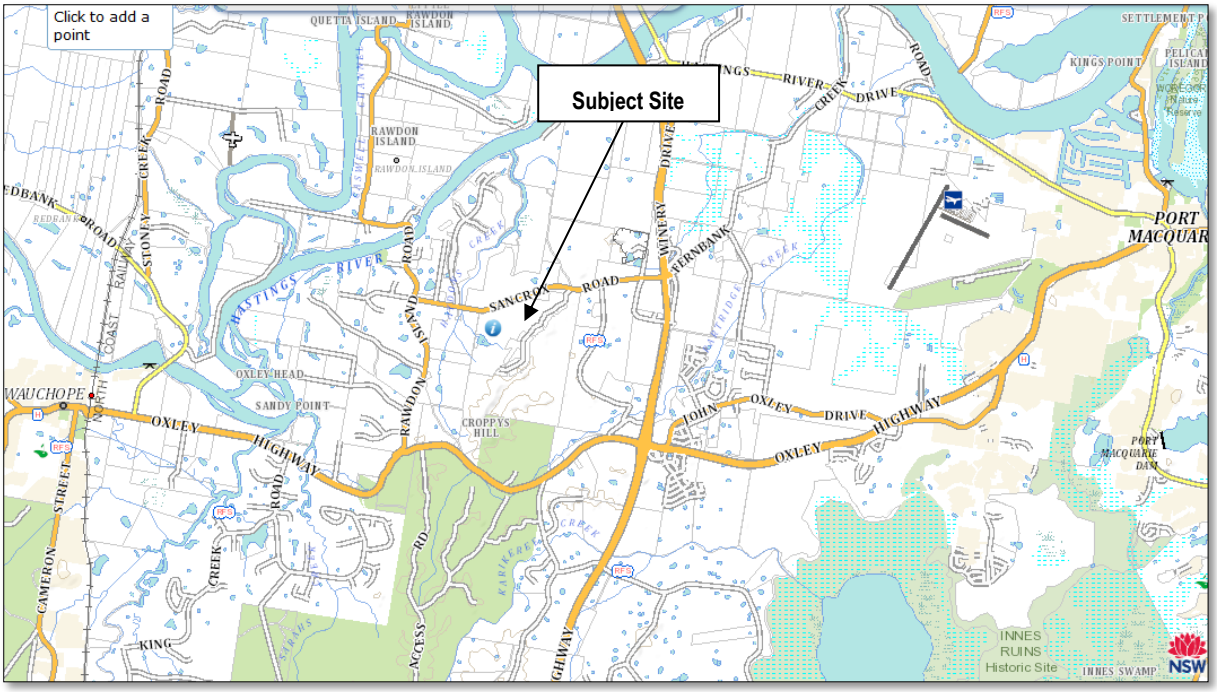


Figure 2 - Contextual Location of the subject land (source: www.sixmaps.nsw.gov.au)

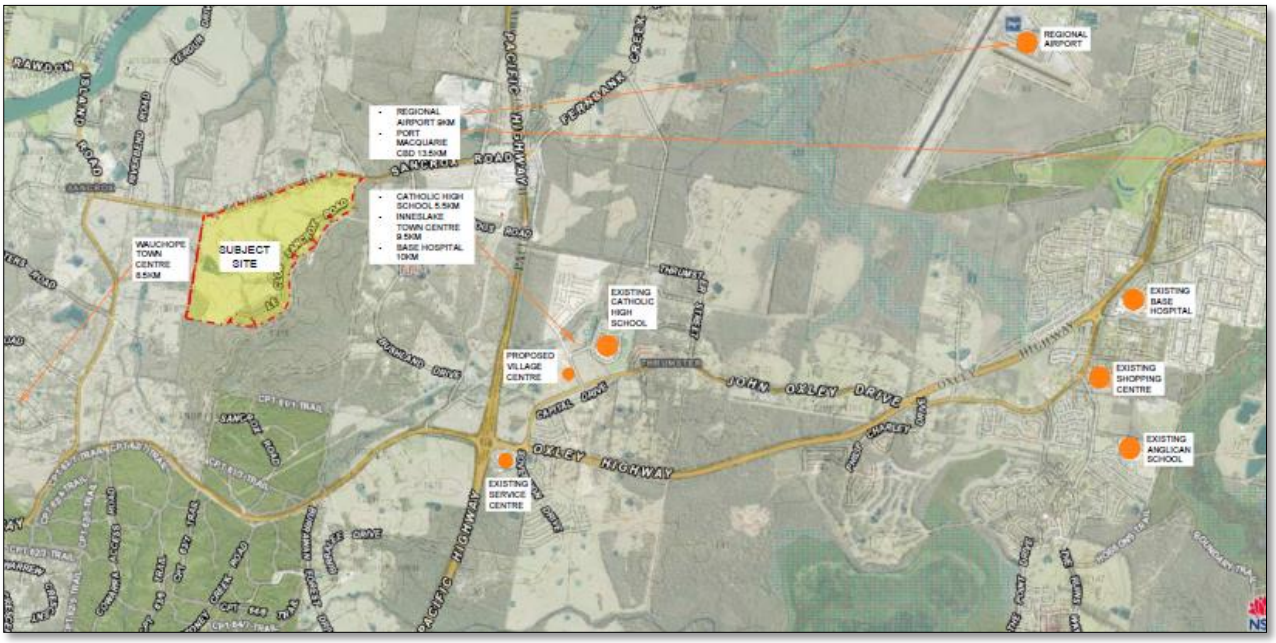


Figure 3 - Broadscale Analysis Extract

Le Clos Sancrox is part of the previous wider Cassegrain vineyards. To the north of the site is Verdun Estate which was also part of the previous vineyard land and has recently been rezoned by Council to large lot residential. To the north is a range of rural-residential dwellings and an animal boarding and breeding establishment. To the north-east of the site is Sancrox Quarry and further along Sancrox Road is Expressway Spares, which is part of a future industrial land investigations area. The site is generally surrounded by rural land, noting that extensive clearing has occurred on the land to the east recently.

The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. The site is relatively cleared, with vegetation in fingers through the site and around the edges. A number of drainage lines dissect the site falling towards Sancrox Rd.

The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this Planning proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the Moratorium issue.

The site and surrounding area has been subject of extensive Structure Planning in 2015, which was delayed pending Council's Urban Growth Management Strategy and the change in strategy from rural-residential to residential zoning of the area.

The site has been identified as areas subject to Outline Planning in Council's Urban Growth Management Strategy. Rezoning the land is considered the most suitable and transparent way of achieving the objectives of this proposal.

The area of Sancrox is the logical next area for development, with Area 13 planning ceasing at the highway. This area of Thrumster is developing at a steady rate, with a good take up of land by purchasers.

The site is well located with easy access to the existing universities, schools, hospitals, shopping and other services and facilities within Port Macquarie and Wauchope.

3. STRATEGIC & STATUTORY PLANNING FRAMEWORK

3.1 Strategic: Regional

North Coast Regional Plan

North Coast Regional Plan 2036 has been prepared to guide land use planning priorities and decisions to 2036 and has identified "*The regional cities of Tweed Heads, Lismore, Coffs Harbour and Port Macquarie are the primary growth anchors, delivering new jobs, and more diverse housing as well as high quality essential services*".

North Coast Settlement Planning Guidelines 2019 have been reviewed to provide a framework to ensure adequate supply of housing is provided to meet the population needs. In reviewing, the constraints planning has been undertaken and areas of high environmental value have been excluded. The guidelines indicates that ""*Future settlement, where permitted by the regional strategies and outside the agreed growth areas, must be located to minimise environmental impacts and be sustainable. Such settlement must satisfy the sustainability criteria contained in Appendix 1 of the Regional Strategies*." Refer to Planning Proposal for detailed assessment against the criteria.

Regionally Significant Farmland

The site is not identified as regionally significant farmland.

3.2 Strategic: Local

Port Macquarie Hastings Urban Growth Management Strategy 2011-2031

Within the previous UGMS 2010-2031, the re-subdivision of the Le Clos farms at Sancrox was mentioned heavily, with immediate timing for investigations which was indicated as commencing in 2010/11.

The recently adopted UGMS 2017-2036, as exhibited did not support investigations at Sancrox, however as a result of public interest, with a large number of submissions to the exhibited documents from landowners of Le Clos Sancrox, the UGMS was amended prior to adoption and Le Clos Sancrox included in the Structure Plan for Sancrox in the adopted UGMS 2017-2036.

The report to Council on 20 June 2018 was detailed with respect to Le Clos Sancrox, as touched on above and indicated that Council could support investigation areas outside of the urban growth boundary in the Regional Plan, such as Le Clos Sancrox. The adopted UGMS includes Le Clos Sancrox as part of Outline Plan areas, which Le Clos Sancrox is located within.

The resolutions of Council, with the latest being 20 February 2019, required immediate commencement of Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS, and to invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.

Greater Sancrox Structure Plan 2015

In reviewing the Greater Sancrox Structure Plan Issues Paper dated October 2011, it is stated that "*a review of the Le Clos Sancrox subdivision has been identified by Council as a key element in planning for the Sancrox area*" and Le Clos Sancrox is identified on the maps within the document as "*possible future development precincts, coinciding with areas of lower ecological constraint*".

The Structure Planning work did occur to satisfy a key objective of the UGMS in force at that time and was reported to Council for adoption in 2015 and delayed pending the revised UGMS.

Rezoning of the land was invited over 13 years ago, Structure Planning had commenced and finalised in 2015 and the latest UGMS 2017-2036 indicated outline planning could occur on this site. It is acknowledged that a substantial amount of work has been undertaken by Council is the Greater Sancrox Structure Plan, which would assist in progressing the Outline Planning for Le Clos Sancrox. The Structure Plan identifies Le Clos Sancrox as a priority.

4. PROPOSED DEVELOPMENT

For the purposes of this Land Supply & Demand Assessment, both the proposed zonings and the indicative layout plan have been considered to provide greater certainty as to the expected development following rezoning.

The Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance.

The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and
- Business - approx. 1 ha of commercially zoned land.

Indicative layouts have been included in this report but are subject to change prior to lodgement of the Development Application.

An opportunity has been identified for a school to be accommodated within the development and these discussions will continue whilst the land is zoned. An educational establishment is a permitted land use in the R1 General Residential zone.

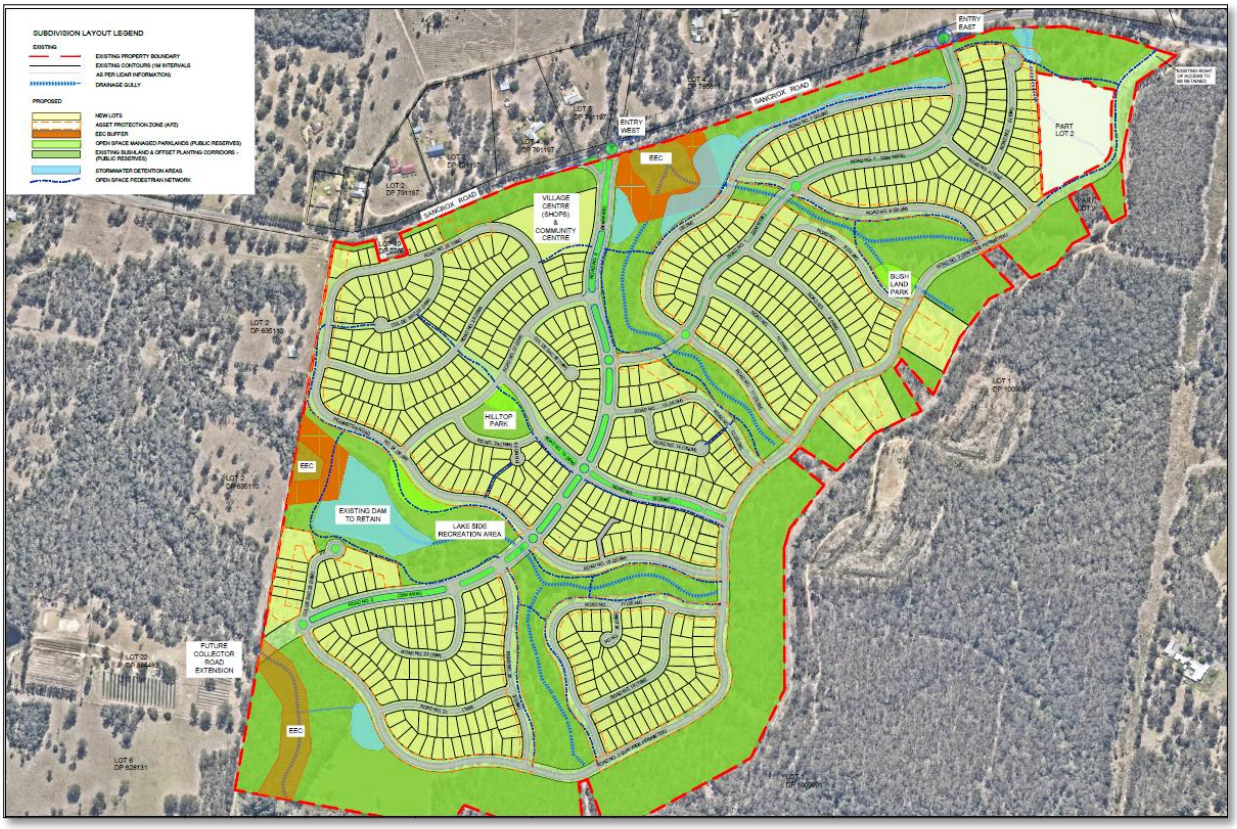


Figure 4 - Subdivision Concept Layout

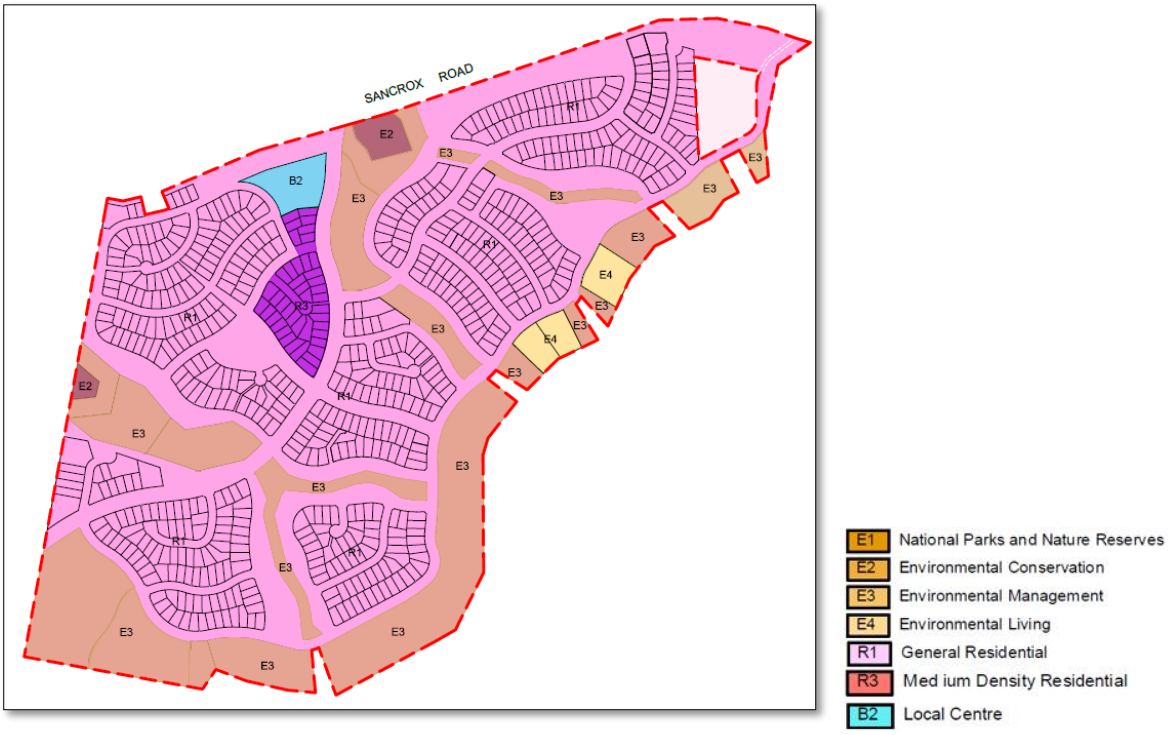


Figure 5 – Proposed Zoning

5. SUPPLY OF GENERAL RESIDENTIAL ZONED LAND

5.1 Supply analysis of R1 General Residential zoned land

The following three phases of analysis were applied to the supply of R1 General Residential land:

- Phase 1 – Classification of Land Parcels
- Phase 2 – Constraints Analysis
- Phase 3 – Estimation of Development Potential for Residential Land

Phase 1 – Classification of Land Parcels

Data on land parcels was obtained from Council's LEP maps. Below are extracts of the two relevant LEP maps. Stars have been identified where there is knowledge of the environmental constraints on residentially zoned land. A current aerial photograph is also provided of the area.

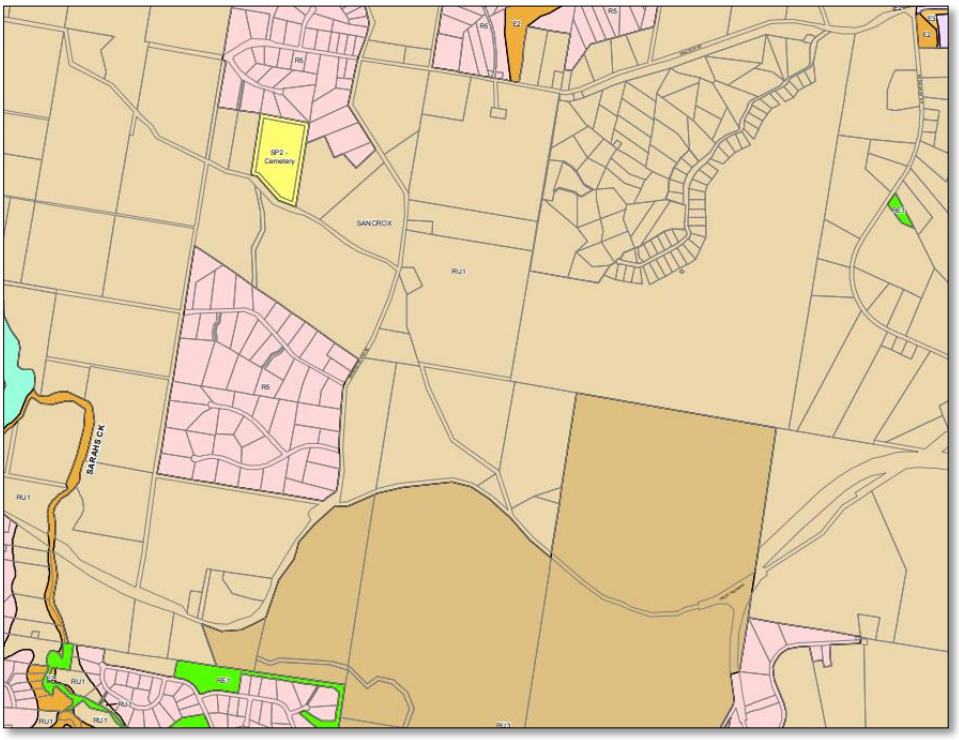


Figure 6 - Map 13B LEP Extract – Includes Le Clos Sancrox

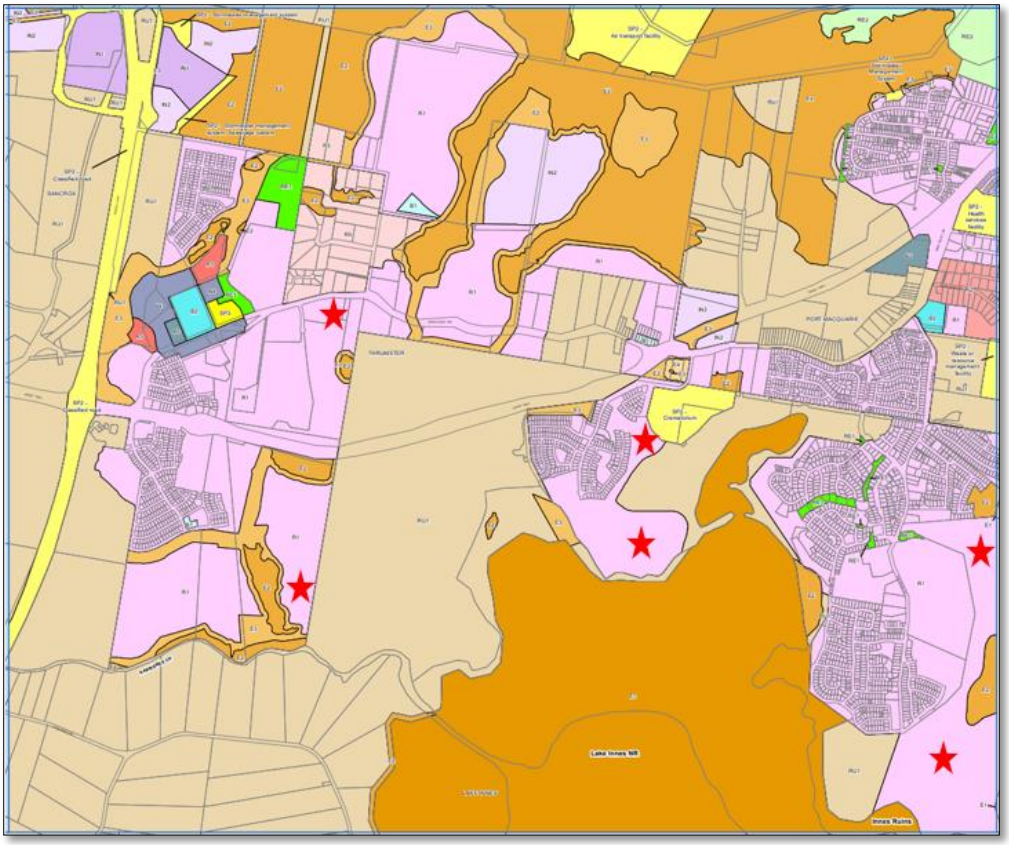


Figure 7 - Map 13D LEP Extract – With Stars identifying Residentially Zoned Land which is Constrained

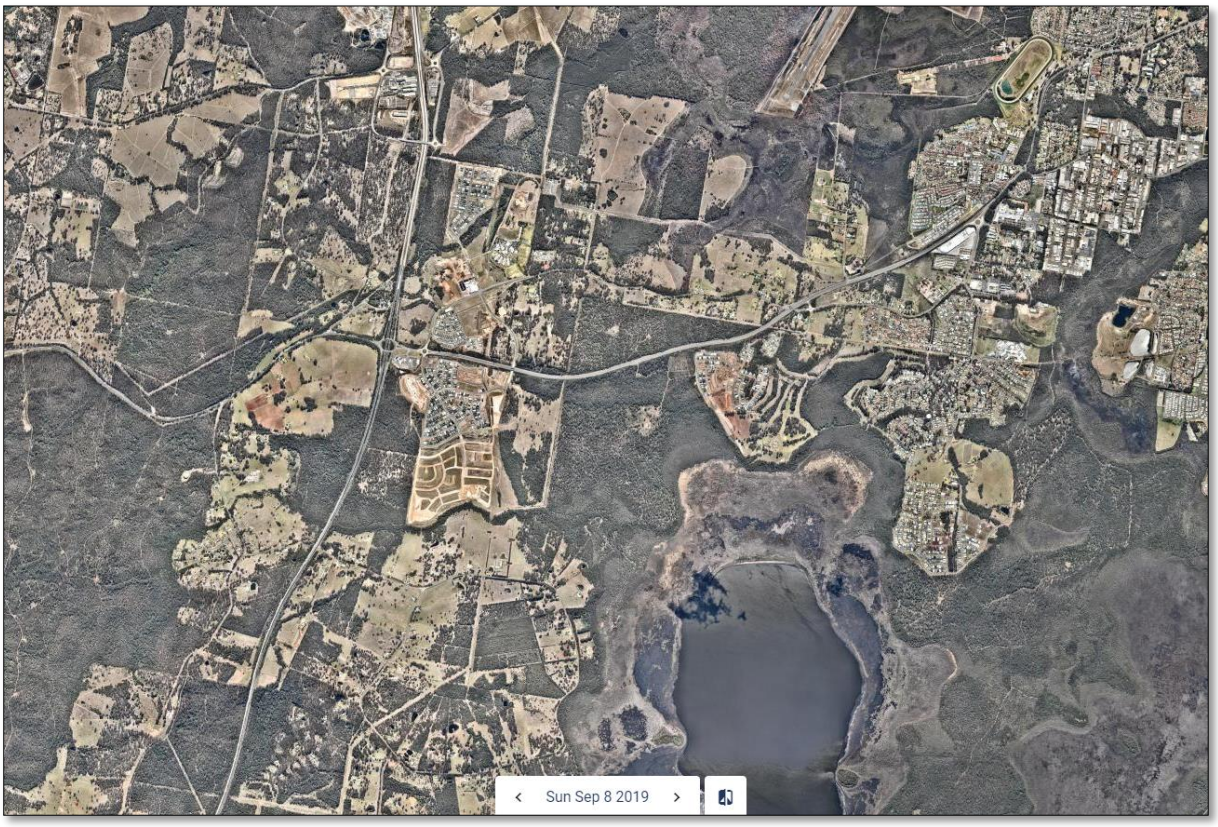


Figure 8 - Aerial Photograph which Clearly Shows Vegetation on these Identified Areas

Phase 2 – Constraints Analysis

The land identified above generally by stars is considered from a desktop analysis to have significant constraints that are likely to make development of the land impractical or unfeasible from an ecological perspective, having regard to the change in legislation to the Biodiversity Conservation Act, 2016. The Act embodies the principles to avoid, minimise and offset in that order of priority, when considering impacts assessed under the Act. The areas indicated by the Stars are all heavily vegetated and the principles of avoid and minimise are likely to have significant impact on the yield in these areas, before any consideration of the offset provisions of the Act. The costs associated with the offset provisions, if or when they are applied, will also place significant constraints on the yield. In addition further constraints also relate to bushfire controls, which are exacerbated where there are large areas of vegetation.

In considering the available residential land zone to meet the land supply targets identified by Council, the areas indicated by the Stars on the plan may result in no lots being developed in that area, or at the best a limited number only. Council has indicated in feedback from the pre-lodgement meeting that all residential zoned land identified as Undeveloped Urban within the Urban Growth Area Boundary of the UGMS needs to be considered as residential land supply. This however is not a true and accurate representation of land supply in the area given the issues noted above, and as can be demonstrated at developments such as Ascot Park where large areas of the property that are zoned residential R1, have been excluded from being developed due to environmental constraints.

Phase 3 – Estimation of Development Potential for Residential Land

Within the Port Macquarie to Thrumster corridor, Council has explored opportunities for release areas. There is potential for infill development and small site specific Planning Proposals in order to achieve a marginal increase in residential land supply.

The UGMS has identified areas at Sancrox as having potential for residential land. The figure below identifies the land area of the three areas in Sancrox, being a total of 591.9ha. Based on an average density of 10 dwellings per hectare, without detailed consideration of the constraints of the area, could potentially yield 5919 dwellings.

Figure 10 below identifies the Outline Planning Areas within the broader area between Thrumster and Wauchope. The discussions undertaken since March 2019 with Council officers indicated that the planning being undertaken as part of this site specific planning proposal should have regard to the outlined areas in close proximity of the site, as detailed in Figure 9, and not the broader area.

It is noted that Le Clos Sancrox has a site area of approx. 86.82ha and yields approx. 650 lots. Le Clos Sancrox is a relatively unconstrained site, however once the ecological and bushfire constraints, as well as the infrastructure including roads and services is provided, the estimated lot yield of 868 lots based on an average density of 10 dwellings per hectare is not achieved. This equates to 7.4 dwellings per hectare.

A desktop review of the other areas identified orange below, appear to indicate that they contain greater areas of vegetation and likely to therefore be subject to additional constraints than Le Clos. In this regard, it is not expected that the density of 7.4 dwellings per hectare achieved at Le Clos Sancrox would be achieved elsewhere in the investigation area. Therefore, the land availability at Le Clos Sancrox is important to assist in achieving the area wide targets.

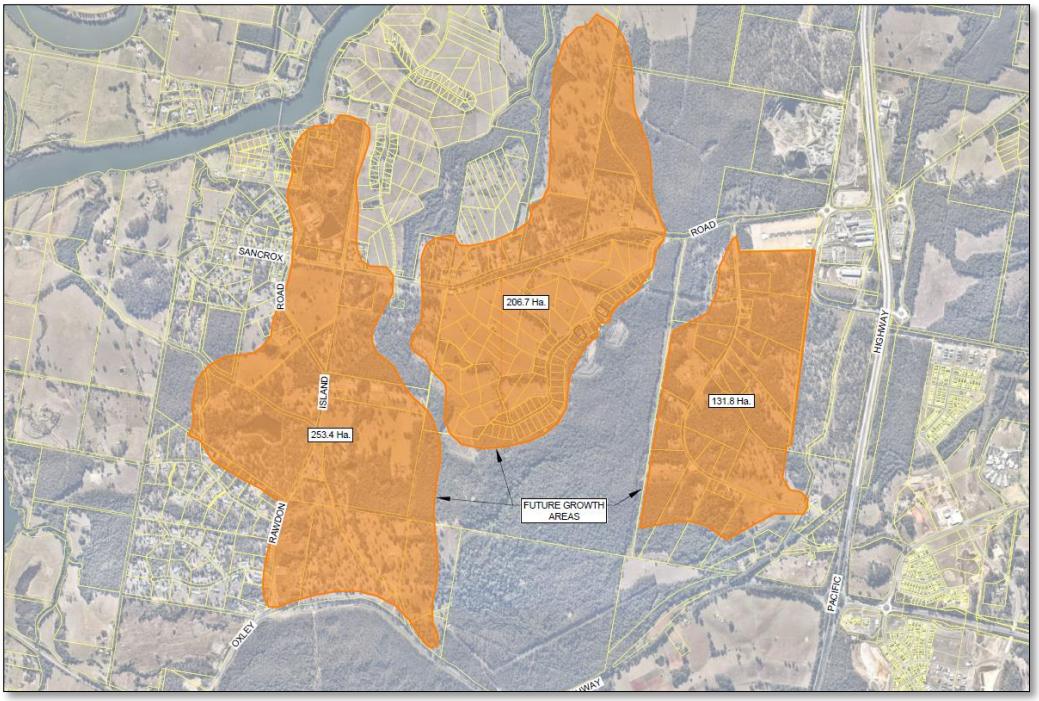


Figure 9 - Areas of Outline Precincts in UGMS

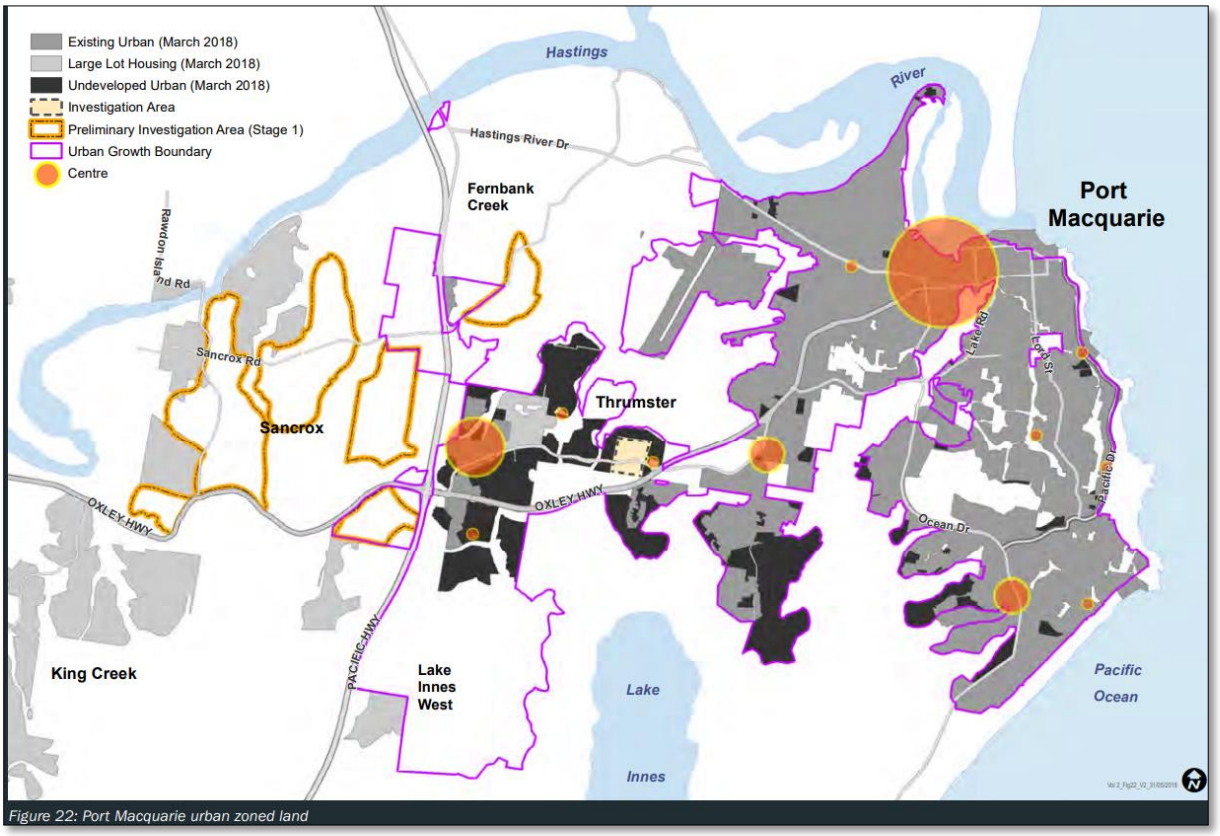


Figure 10 - UGMS Outline Plan Areas Identified yellow (source: www.pmhc.nsw.gov.au)

6. ECONOMIC PROFILE

6.1 Port Macquarie Hastings Economy Profile

Port Macquarie Hastings LGA is a long established community with regional centre status, with a population over 83,000, over 29,000 jobs and a gross regional product worth $5.028 billion. The regional status comes from its broad-based public and private business sectors, coupled with a dynamic retail and commercial district. Port Macquarie and surrounding areas has also been a thriving centre of tourism for many years.

Greater Port Macquarie has a $6 billion local economy and is a net exporter and PMHC Economy profile indicates that "*We sell more products and services to customers outside of the LGA (approx. $2.09 billion) than we import ($1.67 billion). This is considered to be an outstanding performance for a regional economy.*"

The number of employed people in the Port Macquarie-Hastings Council area has increased by 2,030 between 2011 and 2016. The largest changes in the jobs held by the resident population between 2011 and 2016 (see figures below) in Port Macquarie-Hastings Council area were for those employed in:

- Health Care and Social Assistance (+778 persons)
- Construction (+624 persons)
- Education and Training (+473 persons)

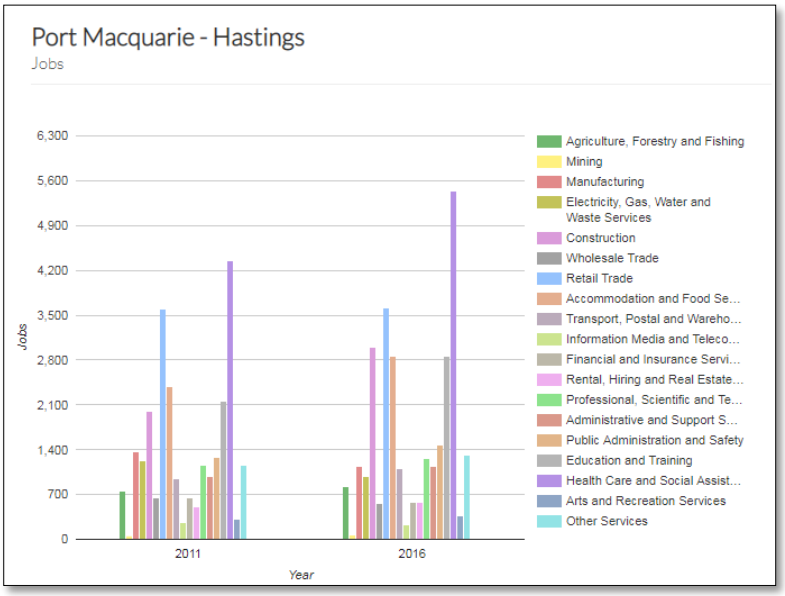


Figure 11 - Industry Employment Sector data for Port Macquarie Hastings. Source: ABS 2016, complied in economyprofile.com

The employment data presented above represents the number of people employed by businesses/organisations in each of the industry sectors in the Port Macquarie Hastings region. The employment data presented is destination of work data; no inference is made as to where people in a defined region reside.

An analysis of industry sector for employment held by the population in Port Macquarie-Hastings LGA in 2016 shows the three most popular industry sectors were, Health Care and Social Assistance (5,192 people or 17.5%), Retail Trade (3,424 people or 11.5%) and Construction (3,153 people or 10.6%). These three industries employed 39.7% of the total employed resident population. In comparison, Regional NSW employed 14.4% in Health Care and Social Assistance; 10.3% in Retail Trade; and 8.7% in Construction (see Figure 11).

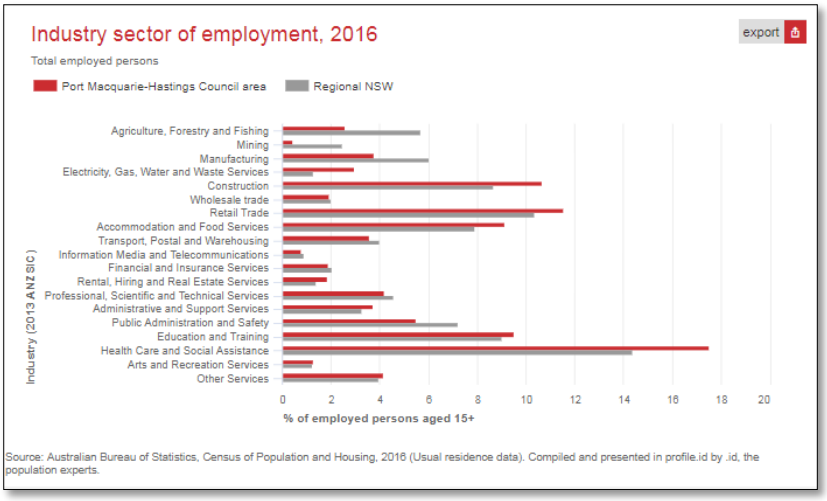


Figure 12 - Industry sector of employ 2016 (comparison with Regional NSW). Source: ABS, compiled in profile.id

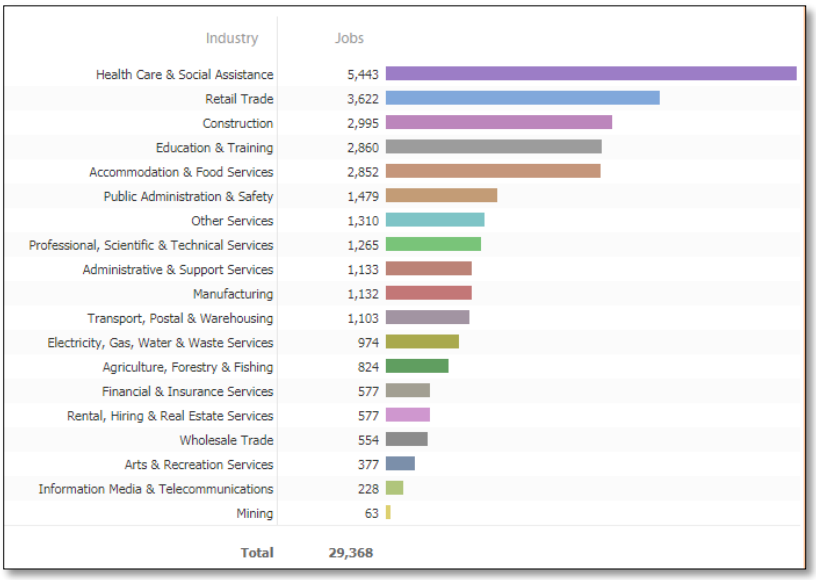


Figure 13 – Employment by Industry (Source: Latest REMPLAN data incorporating Australian Bureau of Statistics' (ABS) 2016 Census Place of Work Employment Data, 2015 / 2016 National Input Output Tables and June 2018 Gross State Product).

The data presented above represents the number of people employed by industry sectors in the Port Macquarie region in 2016. It is estimated that 29,368 people work in Port Macquarie – Hastings and of this 2,995 or 10.20% work in the Construction industry.

7. RESIDENTIAL LAND SUPPLY ANALYSIS

7.1 Residential Land Supply

Within the Port Macquarie Hastings region growth is directed towards the west due to natural constraints such as National Parks, flood-prone land and Pacific Ocean.

With an identified demand of 10,000 dwellings by 2036, applying this ratio to Port Macquarie Hastings LGA means that it needs to supply an average 500 dwellings each year. The UGMS further states "*in 2017, we have over 1,000 hectares of undeveloped residential land, with capacity for around 9,000 new dwellings*" as shown in Figure

13. Although the UGMS does not mention Sancrox as a main area for new residential development, the locality is identified as a new residential investigation area with options for growth (see Figure 14).

The UGMS identifies if development continues westward to accommodation future population growth, then residential areas for long term growth could be depleted by 2070 in and around Port Macquarie. However, options do exist for further growth at Sancrox. The Urban Growth Management Strategy states that further options for growth exist at Fernbank Creek, Sancrox and at Lake Innes Drive and resolutions of Council support this. The planning is to have commenced for this area under the UGMS timing and this Planning Proposal is consistent with that timing.

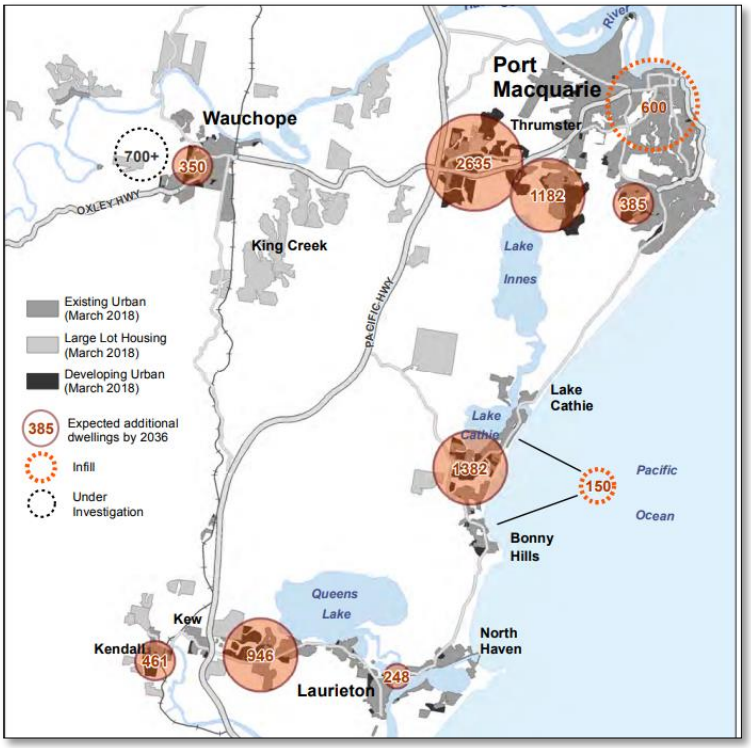


Figure 14 - potential dwelling yield estimates (2017) in key areas of housing supply (Source: UGMS pg 13)

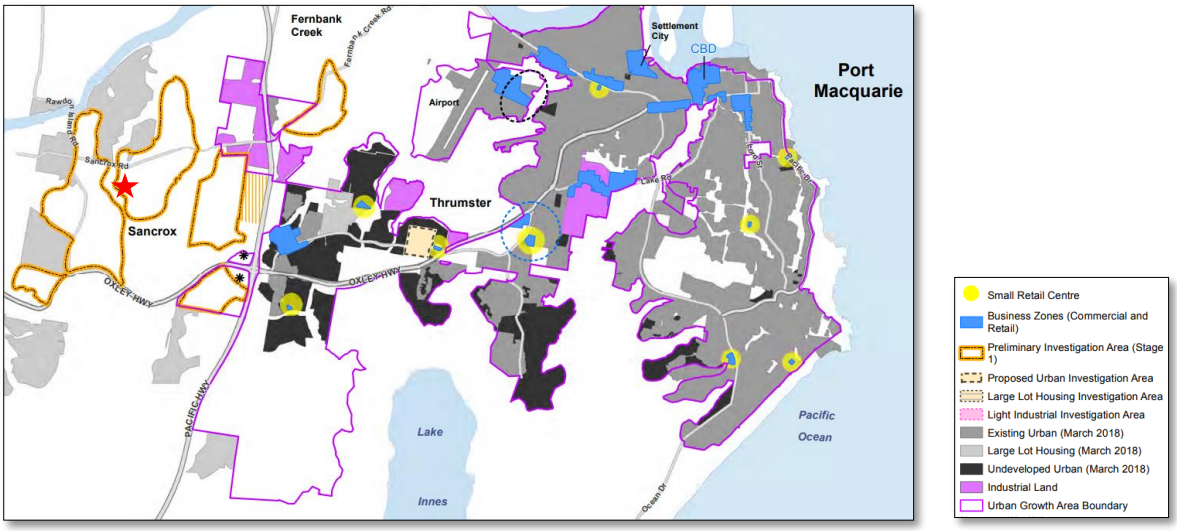


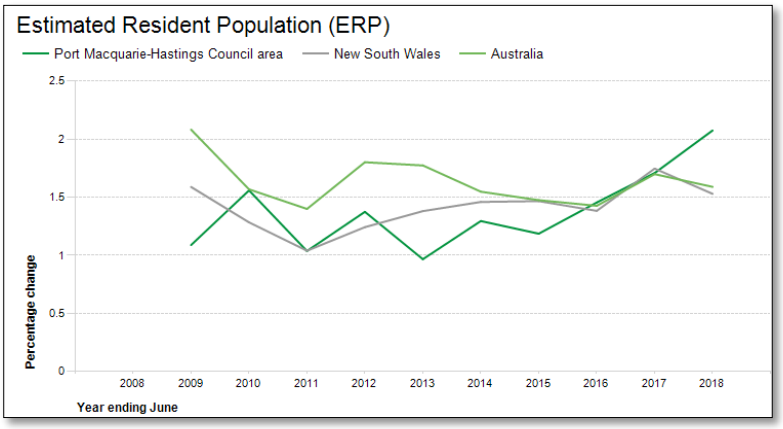
Figure 15 – Site identified by Red Star - UGMS Summary Map (Source: UGMS Pg. 33)

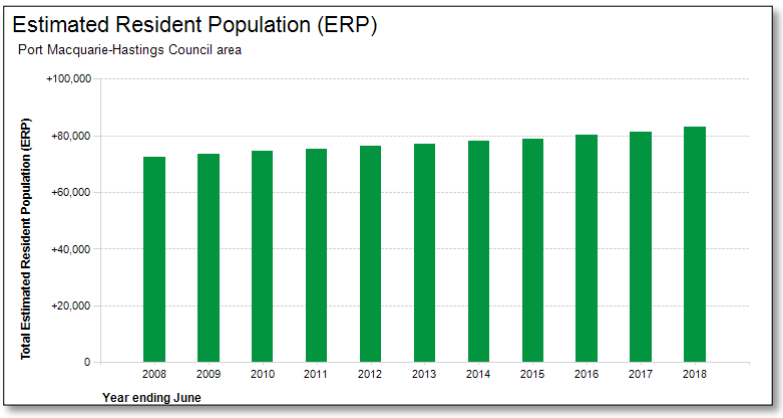
There is no denying that whilst Sancrox was identified for planning, given its later inclusion into the UGMS post exhibition, the population figures were not updated or Sancrox included in the projections.

7.2 Residential Land Demand

Historical Population Growth

Port Macquarie-Hastings Council area had an Estimated Resident Population (ERP) of 83,131 as of the 30 June 2018. The ERP is the official population of the area updated annually by the Australian Bureau of Statistics and is reassessed every Census. The chart and table, prepared by *.id - the population experts* shows the last 10 years ERP for Port Macquarie-Hastings Council area, the state and Australia, with percentage comparisons. The figures below indicate a growing population for the local government area.





Annual change in Estimated Resident Population (ERP) export reset

	Port Macquarie-Hastings Council area			New South Wales			Australia		
Year (ending June 30)	Number	Change in number	Change in percent	Number	Change in number	Change in percent	Number	Change in number	Change in percent
2018	83,131	+1,690	+2.08	7,988,241	+120,305	+1.53	24,992,860	+391,000	+1.59
2017	81,441	+1,368	+1.71	7,867,936	+135,078	+1.75	24,601,860	+410,953	+1.70
2016	80,073	+1,148	+1.45	7,732,858	+105,440	+1.38	24,190,907	+340,123	+1.43
2015	78,925	+925	+1.19	7,627,418	+110,223	+1.47	23,850,784	+346,646	+1.47
2014	78,000	+997	+1.29	7,517,195	+108,113	+1.46	23,504,138	+358,237	+1.55
2013	77,003	+737	+0.97	7,409,082	+100,877	+1.38	23,145,901	+403,426	+1.77
2012	76,266	+1,034	+1.37	7,308,205	+89,676	+1.24	22,742,475	+402,451	+1.80
2011	75,232	+772	+1.04	7,218,529	+74,237	+1.04	22,340,024	+308,274	+1.40
2010	74,460	+1,143	+1.56	7,144,292	+90,537	+1.28	22,031,750	+340,097	+1.57
2009	73,317	+789	+1.09	7,053,755	+110,294	+1.59	21,691,653	+442,454	+2.08
2008	72,528	--	--	6,943,461	--	--	21,249,199	--	--

Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented in economy.id by .id, the population experts.

Figure 16 – Estimated Resident Population Tables (source: https://economy.id.com.au/port-macquarie-hastings/population)

Population Projections

As mentioned in the UGMS "*population growth drives the need for new dwellings, jobs, community facility and services*". The challenge is to "*provide sufficient land for new growth so that land can be developed in an efficient and affordable way, while ensuring we maintain our natural amenity and local character*".

Based on research, Port Macquarie population will reach 47,202 by the end of June 2019. Projection calculation is based on the average growth rate of 1.59% over the last eight years since 2011. It is believed using the recent years' figures (see table below) will make the estimation more accurate.

Over the last eight years of Port Macquarie's population, overall the growth rate is very strong and consistent ranging from 1.13% to 2.20%, adding around 469 to 964 people each year to the overall population. If you compare the 2011 and 2016 census figures, the growth rate is only 8% over a 5 year period, grown by 3,323 people. The reasons contribute to the strong population growth is that employment rate and birth rate are strong over the years. The growth is aligned with the national population growth.

Population projections for Port Macquarie, as indicated in the UGMS, across the LGA may increase from 80,000 in 2017 to 103,000 by 2036. This is an increase of 23,000 people, which averages out to an annual increase of 1,210 people.

Year	Population	Growth Rate
2011	41,491	n/a
2012	41,960	1.13%
2013	42,490	1.26%
2014	43,065	1.35%
2015	43,850	1.82%
2016	44,814	2.20%
2017	45,620	1.80%
2018	46,447	1.81%

Building Approvals

Port Macquarie-Hastings area's building approvals are used as a leading indicator of the general level of residential development, economic activity, employment and investment. Residential building activity depends on many factors varying with the state of the economy including interest rates, availability of mortgage funds, government spending, and business investment. Large financial changes or shocks, such as the Global Financial Crisis of 2008/09 can be observed in the data. However, the number of building approvals can fluctuate substantially from year to year simply as a result of the short-term nature of many construction projects, and the cyclical nature of the industry. (source: profile.idcommunity.com.au).

The building approval data for residential buildings in the Port Macquarie-Hastings LGA in the financial year 2018-19 was 685, with 453 being houses and 232 being other, (see Figure 16 below). Although the overall approvals have increased by 18, the approvals for houses have decreased by 98 in the FY 2017-18.

The residential buildings approvals data is illustrated in the chart below, along with the building approval values.

Port Macquarie-Hastings Council area	Number			Annual change		
Year (ending June 30)	Houses	Other	Total	Houses	Other	Total
2018-19 Jun FYTD	453	232	685	--	--	--
2017-18	551	116	667	+55	-100	-45
2016-17	496	216	712	+20	+60	+80
2015-16	476	156	632	+60	+6	+66
2014-15	416	150	566	+101	+59	+160
2013-14	315	91	406	+14	+34	+48
2012-13	301	57	358	+45	+1	+46
2011-12	256	56	312	+14	-94	-80
2010-11	242	150	392	-8	-81	-89
2009-10	250	231	481	-30	+177	+147
2008-09	280	54	334	-65	-56	-121
2007-08	345	110	455	+14	-15	-1
2006-07	331	125	456	-15	-106	-121
2005-06	346	231	577	-90	-34	-124
2004-05	436	265	701	-101	-43	-144
2003-04	537	308	845	+3	-50	-47
2002-03	534	358	892	-6	+187	+181
2001-02	540	171	711	--	--	--

Figure 17 – Residential Building Approvals data in Port Macquarie-Hastings LGA (Source ABS complied in profile.id)

Figure 18 –Number of Building Approvals in Port Macquarie-Hastings LGA (source ABS complied in profile.id)

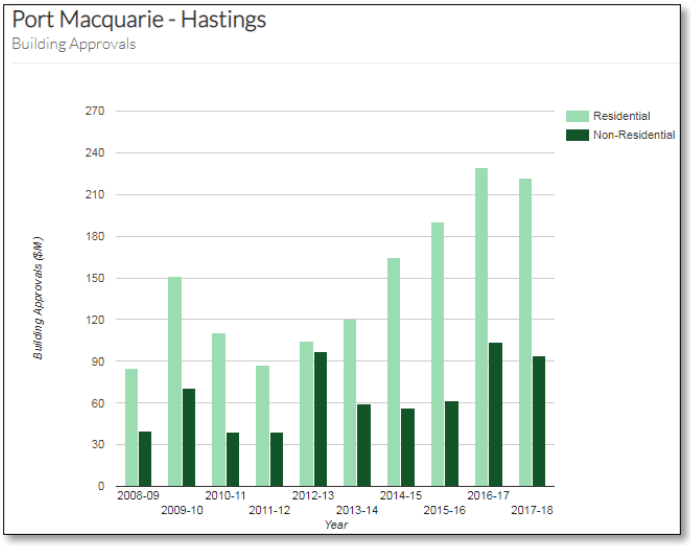


Figure 19 - Value of Building Approvals in Port Macquarie Hastings LGA. (Source: ABS, complied in economyprofile 2018)

The Building approvals data in the above table relates to the number and value of residential and non-residential building approvals, from information provided by approving authorities. Statistics of building work approved are compiled from:

- permits issued by Port Macquarie Hastings local government and other principal certifying authorities;
- contracts let or day labour work authorised by commonwealth, state, semi-government and local government authorities; and
- major building approvals in areas not subject to normal administrative approval e.g. building on remote mine sites.

The data above is sourced from the ABS monthly Building Approvals (BAPS) collection which consists of data relating to residential and non-residential building work above certain value limits that have been approved within the reference month. It includes building approvals that are comprised of the following activities:

- construction of new buildings
- alterations and additions to existing buildings
- approved non-structural renovation and refurbishment work
- approved installation of integral building fixtures.

Residential Buildings: contain one or more dwellings, intended for the provision of long term accommodation. Examples include: detached houses, townhouses, flats, cottages and weekenders. Ancillary outbuildings not containing dwellings built to existing residential buildings, such as garden sheds, gazebos and free standing garages, are treated as residential buildings.

Non-Residential Buildings: where significant non-residential functions are contained in a building, such as shops, hotel/motel rooms, or offices, the building is classified as non-residential. This may, for example, occur where a dwelling is attached to, or enclosed within, a non-residential building

Subdivision Approvals

A report was submitted to Council on 21 August 2019 which included statistics of development applications, including subdivisions. This report included the following table which summarises the type of DA and the value of work.

Value of Works DA	Apr-19	May-19	Jun-19	Total to date 2018 - 2019	Total 2017-2018	Total 2016 -2017
Ancillary DA	$2,212,870	$448,901	$264,086	$8,630,779	$8,649,369	$5,416,321
Ancillary CDC	$56,650	$476,159	$403,270	$4,461,919	$5,750,178	$1,559,611
Commercial DA	$19,695,148	$119,950	$14,238,200	$50,335,092	$17,415,409	$12,710,871
Commercial CDC	$0	$0	$100,000	$1,015,474	$2,380,814	$4,007,057
Community DA	$27,374,600	$2,049,500	$0	$36,258,032	$13,111,186	$1,851,000
Community CDC	$0	$0	$0	$345,078	$692,872	$330,000
Industrial DA	$1,750,000	$95,000	$1,077,400	$18,414,595	$13,919,469	$7,176,750
Industrial CDC	$200,000	$139,000	$0	$8,187,481	$757,727	$503,000
Residential DA	$22,348,156	$23,733,514	$9,759,822	$227,592,925	$266,406,644	$190,943,031
Residential CDC	$2,220,884	$3,155,510	$2,096,657	$37,815,194	$51,975,736	$37,712,396
Rural DA	$210,000	$304,000	$1,284,240	$9,693,549	$9,718,464	$7,635,746
Rural CDC	$0	$0	$0	$1,145,009	$1,638,082	$1,237,092
Subdivision DA	$27,642,000	$90,000	$680,000	$30,759,000	$18,137,000	$26,708,500
Tourist DA	$600,000	$68,400	$100,000	$3,395,692	$14,777,822	$1,711,860
Tourist CDC	$0	$0	$0	$0	$1,225,000	$690,000
Total	$104,310,308	$30,679,934	$30,003,675	$438,049,819	$426,555,772	$300,193,235

Figure 20 – Summary of Type of Development Applications & Value (source: www.pmhc.nsw.gov.au)

The report also states "*The following table outlines the estimated value of works per development type approved during the quarter along with the year to date value and value of the preceding 2 years. The 2018-2019 value of $438 million has surpassed the $426 million in 2017-2018. This result reinforces the confidence in the development sector and does not point toward any significant slow-down.*"

The table clearly shows a significant increase in Subdivision DA's from 2017-2018 being $18,137,000 to 2018-2019 being $30,759,000.

A key factor to note with respect to subdivisions in the local government area is that under the now repealed Part 3A of the Environmental Planning & Assessment Act, 1979, coastal subdivisions were granted approval by the State Government. This occurred on a large scale in the LGA around 2009. Many of these consent have been in place for a large number of years and have only been constructed and available in the market in recent years and continuing currently.

A further consideration relates to the large amount of land zoned for residential purposes, but being highly constrained due to ecological value and unlikely to result in approval being granted for subdivision. This skews some of the housing projections undertaken by Council as part of the UGMS.

Current Land for Sale in Sancrox

A review of land for sale in Sancrox on 15/10/19 identifies there are only 4 parcels of land available for purchase, all of which are indicated as being under offer.

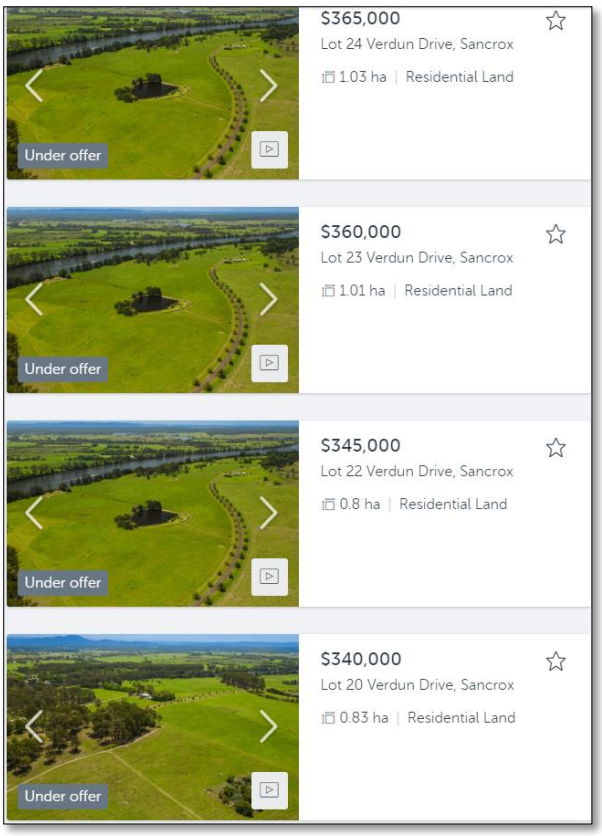


Figure 21 – Current land sales in Sancrox (source: www.realestate.com.au)

Only three dwellings were available for purchase. Both the land and dwellings for sale in Sancrox are a different form of residential land from that proposed in the indicative layout, with the proposed lots to be standards 450m² sized lots in a R1 General Residential zoning, rather than rural-residential land.

Current Land for Sale – Wider Area

A wider search of land for sale is shown in the image below, with no land available for purchase in the nearby Thrumster area.

The map highlights a large gap in the area between Wauchope and Ascot Park for land. It should be noted that Ascot Park is nearing its final stage and land supply will be exhausted.

Sovereign Hills land release is located to the east of the Pacific Highway in the area identified as having no sales. It is noted that Sovereign Hills manages land sales through their website and display village, with 20 lots available on the website as at 10/12/19. The total Sovereign Hills development will provide 2,400 lots in total at completion, based on the information on their website.

The figure below is a comparison of the Sovereign Hills sales plan and a recent Near Map image, which indicates the residential subdivision is well advance, with the Heritage stage to the south now being completed, with approx. 400 lots.

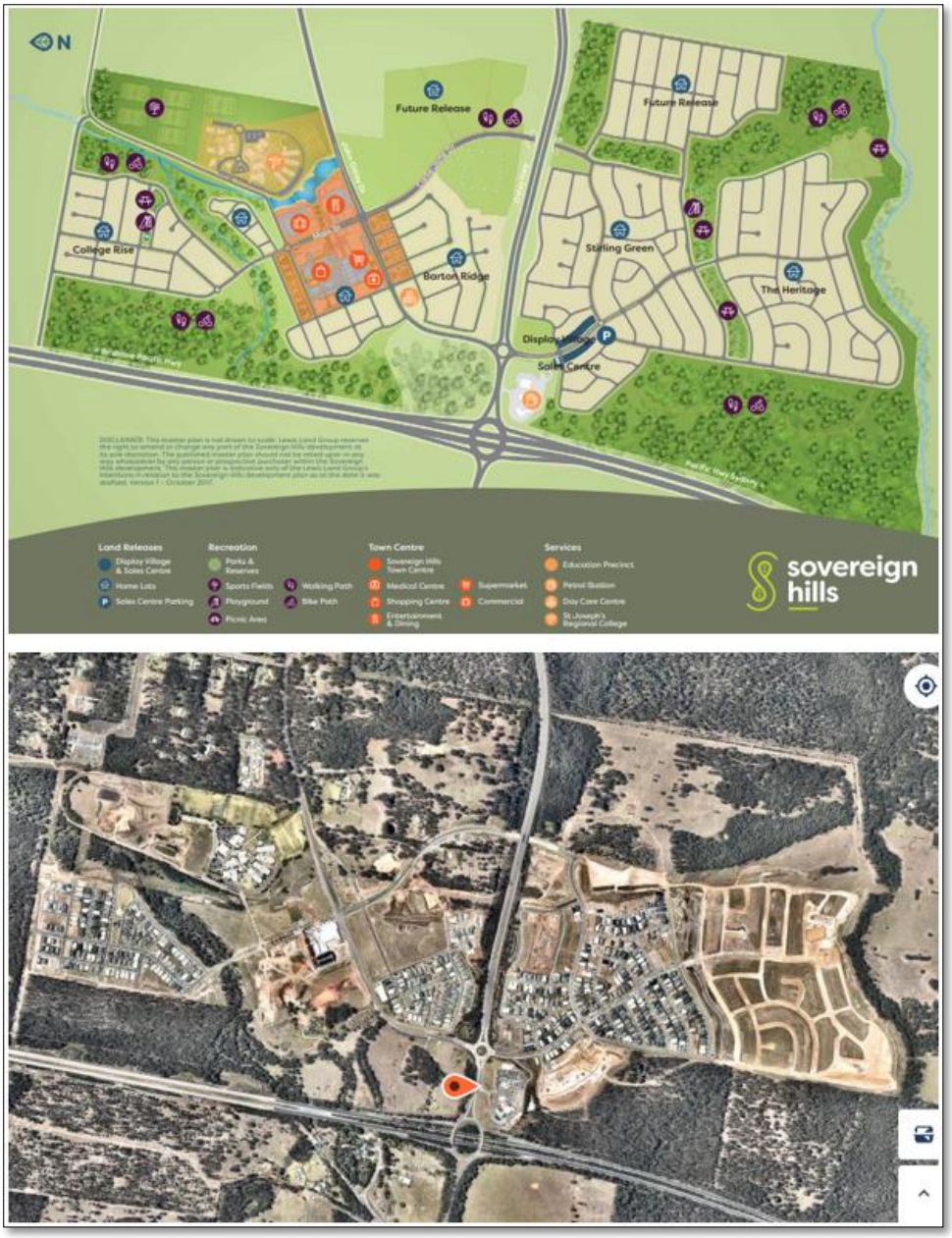


Figure 22 - Sovereign Hills development and recent Aerial Image (source: sovereignhills.com.au and www.nearmap.com)

The image below identifies a good supply of land at Lake Cathie, which correlates with the subdivisions which were granted consent under Part 3A of the Act and only now been developed some 10 years later.

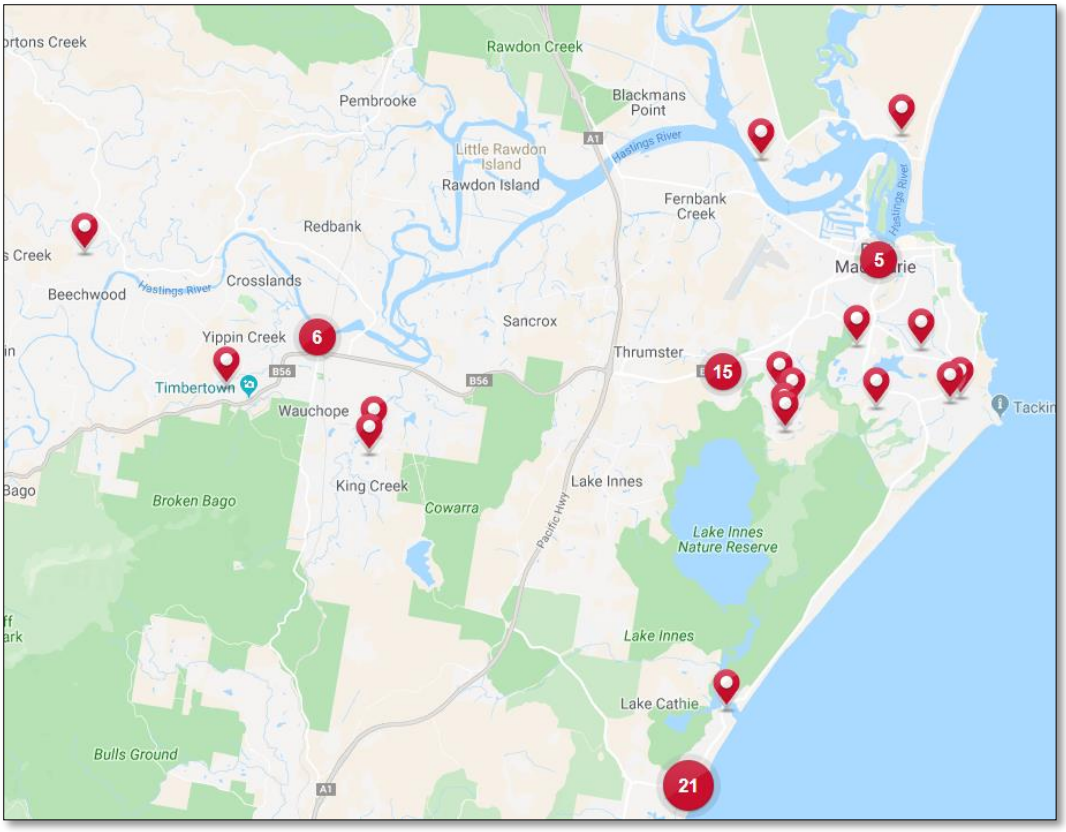


Figure 23 - Land for Sale in Wider Area (source: www.realestate.com.au) dated 15/10/2019

Previous Review

A document titled Mid North Coast Residential Submarket Analysis was prepared by MacroPlanDimasi for the Department of Planning & Environment, August 2014. Below is an extract of the Port Macquarie region. Many of the assumptions and trends remain applicable today.

REGION	SUPPLY	DEMAND	POPULATION, AGE & INCOME	HOUSE PRICES AND RENTALS	HOUSING TYPES REQUIRED
PORT MACQUARIE - HASTINGS	The Port Macquarie-Hastings LGA falls within the Hastings-Macleay subregion under the Mid North Coast Regional Strategy (2009). The MNCRS identified the need of an additional 18,300 new dwellings by 2031 for the subregion. In the LGA, total dwelling approvals has remained relatively stable. Since 2007, approximately 418 dwellings have been approved p.a. – the highest of any MNC LGA. Future dwelling growth is anticipated to eventuate through a combination of urban consolidation of existing centres and the release of land in identified release areas. The majority of future supply is expected to come from three locations – Thrumster, to the west of the Port Macquarie town centre, Lake Cathie/Bonny Hills and at Camden Haven. Collectively, these locations have an estimated capacity of 7,500 dwellings. A substantial proportion of new dwellings are also expected to materialise within the Port Macquarie – Wauchope corridor.	Housing demand within the Port Macquarie-Hastings LGA is strong, accentuated by strong dwelling approvals and robust population growth. Growth in household composition over the five years to 2011 has largely come from lone person households, while growth in family and couple family with no children households has also been strong. House sales have contracted in recent years; however remain high in comparison to other MNC LGA's. Our examination of house sales data for 2013 has revealed that the majority of sales have occurred within the Port Macquarie-Hastings – Central submarket, accounting for 65% of sales.	The Estimated Resident Population (ERP) for Port Macquarie-Hastings is 75,232 (2011). The latest DP&E estimates predict that the population will grow by 20.7% to 90,800 people by 2031, at an average annual growth rate of 0.9% over the forecast period. Future population growth in Port Macquarie-Hastings is expected to be greatest within its aged population, although all age cohorts are expected to experience a gain in population. At present, persons aged over 65 represent 25% of the region's population; however this proportion is expected to increase to 33% by 2031. Working residents are skewed towards lower income earners, with persons in the higher income bracket accounting for 10% of total. Low income earners are most pronounced in downsizer and retiree age cohorts.	A substantial shift in house price distribution has occurred within the Port Macquarie-Hastings LGA, reflective of increased demand. Over the five years to 2007, 67% of house sales were priced below $350,000, however in the five years to 2013, the majority of sales were priced above $350,000. House sales during 2013 were skewed towards the medium value range with 50% of sales between $350,000 and $550,000. Port Macquarie-Hastings – Central submarket presents as the most expensive submarket in the LGA, with 14% of sales priced above $550,000. Port Macquarie-Hastings – Regional is the most affordable residential submarket, with 85% of sales being priced below $350,000. Over the five years to 2014, rental growth averaged 6.4% per annum for detached houses, with the growth most pronounced within the Port Macquarie-Hastings – Regional submarket (7.8%) Apartment rental growth was lower, averaging 3.1% per annum over the 2009-2014 period.	The continued ageing of the Port Macquarie-Hastings population, along with predicted growth in other age cohorts – both within a context of deteriorating affordability conditions - accentuates the need for a more diverse housing supply across the LGA. Retirees are expected to have the greatest influence on the LGA's housing demand. In this environment, retirement living products in close proximity to key services will provide an important housing choice.

Figure 24 – Extract Mid North Coast Residential Submarket Analysis prepared by MacroPlanDimasi

Age Cohorts

The market has a diverse range in the Port Macquarie region, including:

- First Home Buyers
- Upgraders
- Downsizers
- Retirees

Having regard to the population of the Port Macquarie region, there is a strong demand in all areas of the market and age cohorts.

Employment

There is a strong correlation between employment availability, population growth and housing demand.

Planned Growth

This assessment is based on our full understanding of the significant growth that will occur in Port Macquarie over the next 20 years, and of the ecological values that exist on some land parcels which are already zoned for residential or identified for investigation purposes, which pose some barriers to development on these parcels.

It is fundamental to think beyond the next few years to avoid development occurring in an ad-hoc manner or even resulting in an insufficient supply of suitably zoned, unconstrained land. The UGMS determines that there is 20 years' supply of vacant zoned residential land in the area. However, there is no discussion about whether all this land is suitable for residential development. For example, our experience shows that there are residential parcels of land across the municipality, which are heavily constrained for residential development due to their ecological values. The land at Ascot Park and the land in the investigation area west of Rainbow Beach are two examples of such land. These parcels will have been included in Council's density calculations although it is certain that the zoned allocation of dwellings will not be realised. If this heavily constrained land is taken out of the calculations, we would question the sufficiency of the supply.

Fragmented ownerships are an added constraint to development, impacting on the overall connectedness of the Port Macquarie-Hastings community and often resulting in ad-hoc and disjointed growth outcomes.

A strategic planning approach has been taken in this Planning Proposal for Le Clos Sancrox to be holistic in its consideration for the future demands for land, infrastructure, retail and commercial (without compromising our natural assets and environmental values).

UGMS acknowledges the natural constraints to development to the North and South of Port Macquarie. Therefore, there is a natural constraint to development in those directions and the demand for new housing will be westwards to Sancrox.

Overall Assessment of Demand

Both past (building approvals) and future (population projection) trends indicate an annual demand of around 526 dwellings per year. The overall assessment of demand, as mentioned in the UGMS, is for 10,000 dwellings by 2036. Based on a rough calculation of 526 dwellings being approved over the next 17 years (until 2036), there will be a marginal shortfall of the target. Council's current projections have not taken account of land release in Sancrox and Le Clos Sancrox will contribute approx. 650 lots to meeting this target.

Based on the above average rate of approvals of 526 dwelling per annum for 17 years, leads to a total of 8,942 dwellings being approved. This falls short of the predicted 10,000 dwellings required by an amount of 1,058

dwellings. The current Le Clos Sancrox proposal is for 680 lots, which will assist in meeting the shortfall indicated above in the predicted demand.

A key factor to note with respect to subdivisions in the local government area is that under the now repealed Part 3A of the Environmental Planning & Assessment Act, 1979, coastal subdivisions were granted approval by the State Government. This occurred on a large scale in the LGA around 2009. Many of these consent have been in place for a large number of years and only have been constructed and available in the market in recent years and continuing currently. This however will dry up in the coming years and there is a need to commence the rezoning process now for future areas of housing given the length of time to undertake a rezoning.

Subdivisions are usually staged over a number of years and do not provide this instant boost of land into the economy at one time. Further, land release is often market driven.

A further consideration relates to a large amount of land zoned for residential purposes but being highly constrained due to ecological value and unlikely to result in approval being granted for subdivision. This skews some of the housing projections undertaken by Council as part of the UGMS.

The relative ease of extending services and roads and the lack of available land in Sancrox, the identified land is suitable for rezoning ahead of Council's Structure Plan for the wider area. This additional land will reduce the demand on existing housing and lot stock.

7.3 Years of Supply

With an increase of 1200 people into the region every year there is clearly a need for future residential growth areas.

Port Macquarie, Lake Cathie/Bonny Hills and near Kew in the Camden Haven collectively have the capacity to provide an 18 year housing supply based on current take up and projected demand. The UGMS states, in 2017 the estimated residential supply ready for development to provide a range of housing choice was:

- 16.4 years in Port Macquarie
- 19.7 years in Lake Cathie/Bonny Hills
- Over 30 years in the Camden Haven, and
- 10 years in Wauchope (increasing to around 30 years once planning for the Yippin Creek area has been completed).

Yet it is acknowledged to accommodate future project growth areas of potential long term growth around Port Macquarie could be exhausted by 2070, as demonstrated in Figure 25.

The Planning Proposal does not add significantly to the supply, with 680 residential lots in total. Approx. 500 dwellings per year are provided in the LGA based on recent building approval data, which equates to an additional year of land supply for the LGA. This would be absorbed in the current UGMS figures given the areas within the current residential zoning that are significantly constrained and unlikely to be developed, as discussed in the land supply and demand report. Noting that development of this size is generally staged, the supply of the 650 lots would occur over a number of years (estimated to be 50 per stage based on our experience of other local subdivisions), full development of the site could be 10-15 years away.

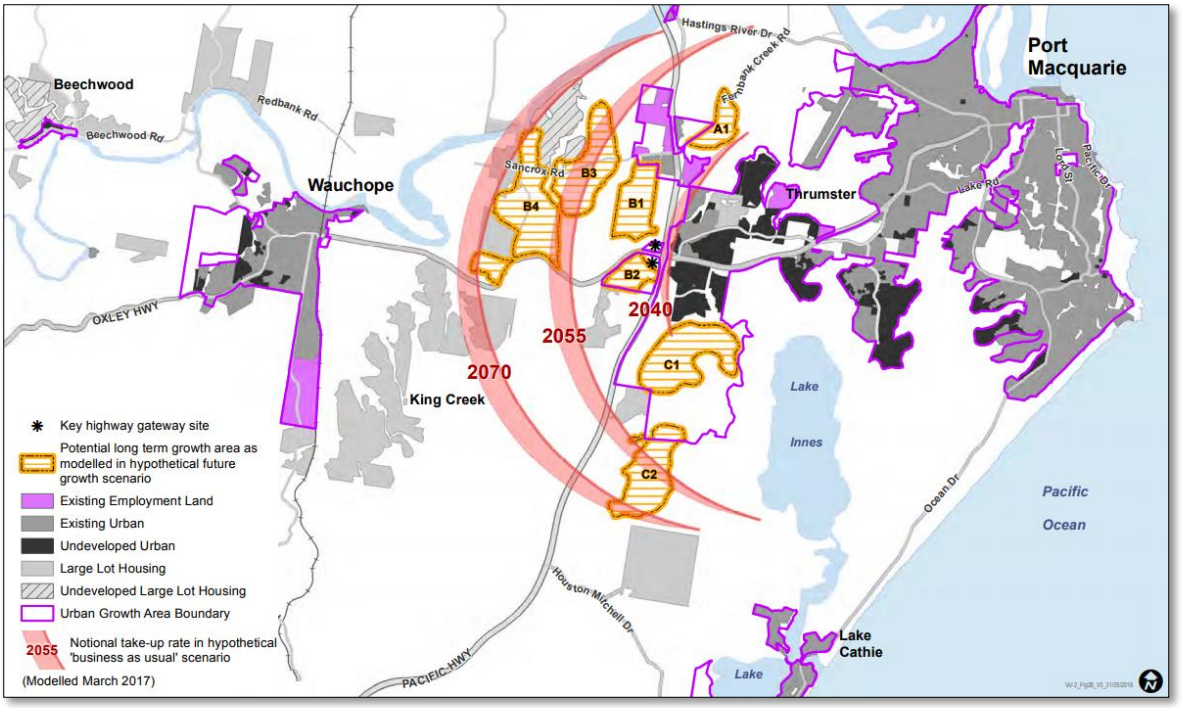


Figure 25 - Hypothetical limits to long term growth Port Macquarie Hastings. Source: UGMS pg. 15

8. CONCLUSION & KEY FINDINGS

This report has considered the future growth of Sancrox, the impact of population growth on dwelling demand (and hence lot demand), the adequacy of land presently zoned or identified for development at Sancrox and the broader state of supply and demand in the Port Macquarie Hastings area.

The key conclusions and findings are:

- Sancrox is an important growth area in the context of the Port Macquarie Hastings market and is identified as an residential investigate area.
- A key factor to note that coastal subdivisions were granted approval by the State Government on a large scale in the LGA around 2009. Many of these consent have been in place for a large number of years and only have been constructed and available in the market in recent years and continuing currently. This however will dry up in the coming years and there is a need to commence the rezoning process now for future areas of housing given the length of time to undertake a rezoning.
- Subdivisions are usually staged over a number of years and do not provide this instant boost of land into the economy at one time. Noting that development of this size is generally staged, the supply of the 650 lots would occur over a number of years (estimated to be 50 per stage based on our experience of other local subdivisions), full development of the site could be 10-15 years away. Further, land release is often market driven.
- A further consideration relates to a large amount of land zoned for residential purposes but being highly constrained due to ecological value and unlikely to result in approval being granted for subdivision. This skews some of the housing projections undertaken by Council as part of the UGMS.
- The relative ease of extending services and roads and the lack of available land in Sancrox, the identified land is suitable for rezoning ahead of Council's Structure Plan for the wider area. This additional land will reduce the demand on existing housing and lot stock.

LandDynamics
AUSTRALIA

Social Impact Assessment

Proposed Rezoning

Le Clos Sancrox

Sancrox Road, Sancrox

On behalf of

LCS Estates Pty Ltd

December 2019

Prepared for:

LCS Estates Pty Ltd

Prepared By:

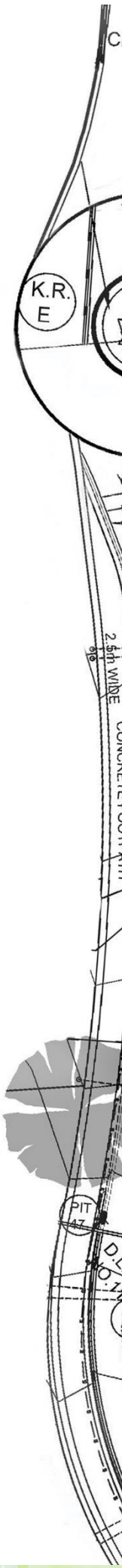
Land Dynamics Australia

77 Lord Street Port Macquarie NSW 2444 – PO Box 2459 Port Macquarie NSW 2444

T: 02 6583 2677 E: pm@ldynamics.com.au

www.ldynamics.com.au

	Name	Date
Prepared By	Donna Clarke	10/12/19
Checked By	Graham Burns	10/12/19



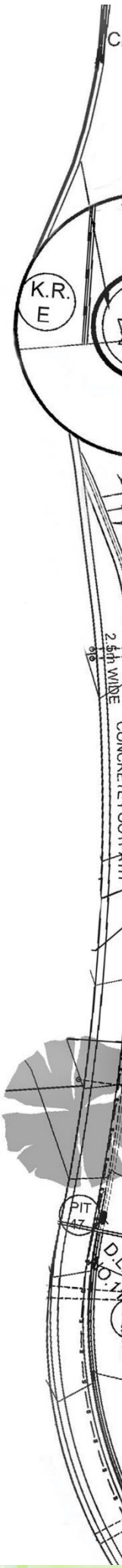
Disclaimer

This report was prepared in accordance with the scope of works set out in correspondence between the client and Land Dynamics Australia. To the best of Land Dynamics Australia's knowledge, the report presented herein accurately reflects the Client's intentions when the report was printed. However, it is recognised that conditions of approval at time of consent, post development application modification of the proposals design, and the influence of unanticipated future events may modify the outcomes described in this report.

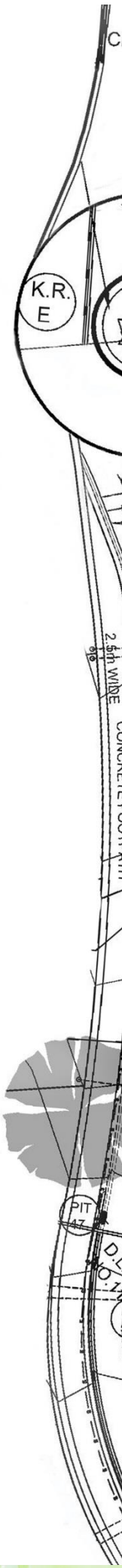
Land Dynamics Australia used information and documentation provided by external persons, companies and authority. Whilst checks were completed by Land Dynamics Australia to ensure that this information and/or documentation was accurate, it has been taken on good faith and has not been independently verified. It is therefore advised that all information and conclusions presented in this report apply to the subject land at the time of assessment, and the subject proposal only.

Table of Contents

1. EXECUTIVE SUMMARY 5
Background 5
Purpose 5
The Proposal 5
Subject Site 6
2. INTRODUCTION 6
What is an SIA? 6
Assessment Methodology 6
3. REGIONAL AND LOCAL CONTEXT 7
Site Context 7
Existing Conditions / Land Uses 11
Surrounding Character 11
Existing Vehicular Access 11
Public Transport 11
4. THE PROPOSED DEVELOPMENT 14
5. STRATEGIC POLICY CONTEXT 15
Environmental Planning & Assessment Act, 1979 16
Strategies 16
Urban Growth Management Strategy 16
Greater Sancrox Structure Planning (2015) 17
State Environmental Planning Policies 18
Local Government 18
Port Macquarie Hastings Local Environmental Plan 2011 18
Port Macquarie Hastings Development Control Plan 2013 19
6. COMMUNITY PROFILE 19
Study Area 19
Sancrox Overview 19
Sancrox (SSC) Population Analysis 20
Sancrox Services & Facilities / Local Amenities 29
Social and Support (Community) Opportunities 31
Summary of Key Findings 32
7. COMMUNITY ENGAGEMENT 33
Consultation Outcomes 33
Sancrox Community Consultation Feedback 33
Summary of Survey Results 36
Greater Sancrox Structure Plan 37
8. IMPACT ANALYSIS 37



8.1 Positive Social Impact 37
8.2 Negative Social Impacts 38
8.4 Managing Impacts & Net Benefits to Community 38
9. CONCLUSION 39
10. REFERENCE MATERIAL AND DATA 40
ATTACHMENT A 41



1. EXECUTIVE SUMMARY

Background

Land Dynamics was engaged by LCS Estate Pty Ltd to prepare a Social Impact Assessment (SIA) to support and inform a Planning Proposal for land known as Le Clos, in the locality of Sancrox in the Port Macquarie Hastings Local Government Area (LGA). The information contained within and findings of the SIA will be used and updated to accompany the Development Application which will be lodged concurrently or shortly after rezoning. The key issues identified during the community consultation and the recommended mitigations are summarised in the conclusion of this report. It is acknowledged that formal exhibition of the Planning Proposal will occur post Gateway determination and this provides further opportunity for the community to provide feedback.

Purpose

The purpose of this SIA is to assess the potential social impacts (positive, negative and neutral) resulting from the proposal on the exiting population and incoming residents, and mitigation measures that should be applied to enhance or address these. These will be high level recommendations given it relates to a rezoning Planning Proposal.

A Social Impact Assessment is required to predict and address the social impacts of the development or land use change, be it positive or negative. This report represents a Social Impact Assessment (SIA) in accordance with the requirements of Council's Social Impact Assessment Policy 2009 and the provisions of Section 4.15 of the Environmental Planning and Assessment Act 1979. This SIA provides an in-depth analysis of social impacts for the proposal and where any significant impacts are likely to occur. Effective engagement has been undertaken with those individuals and groups potentially affected, and addresses the impacts identified. Consultation with the community, comprised adjoining Sancrox residents & nearby business owners and was essential to understand the impacts, both positive and negative, of the future land use / development in order to prepare this SIA.

This report provides the following information:

- Identification of the scope of the assessment, including description of the site and surrounding area;
- Community /Social Profile;
- Formulation and examination of social impacts;
- Description of the overall net community benefit;
- Community engagement;
- Monitoring and review methodology.

The preparation of this SIA was undertaken in consultation with officers from Port Macquarie - Hastings Council. This report should be read in conjunction with the Planning Proposal and accompanying Appendices.

The Proposal

The Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance. The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and

- Business - approx. 1 ha of commercially zoned land.

Indicative layouts have been included in this report but are subject to change prior to lodgement of the Development Application and the SIA will be update accordingly.

Subject Site

The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox. The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. The site is relatively cleared, with vegetation in fingers through the site and around the edges. A number of drainage lines dissect the site falling towards Sancrox Rd. Le Clos Sancrox is part of the previous wider Cassegrain vineyards and has a valid development consent in place being DA 50/87 issued on 8 April 1987 subject to conditions, for the creation of 46 rural home site and viticulture allotments and support allotments.

The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this Planning proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the Moratorium issue.

Refer to the Background section of the Planning Proposal for extensive details of the history of the site.

2. INTRODUCTION

What is an SIA?

Social Impact Assessment (SIA) is a method for predicting and assessing the social consequences of a proposed action or initiative on affected groups of people and on their way of life, life chances, health, culture and capacity to sustain thee. This SIA has been completed in accordance with requirements of the Section 4.15 of the Environmental Planning and Assessment Act, 1979 and Council's Social Impact Policy. Social impact assessment is a method for predicting and assessing the consequences of a proposed action or initiative before a decision is made, to assist in providing better outcomes from decisions. A social impact assessment may give rise to recommendations for mitigation if the proposed change proceed.

Assessment Methodology

This study has been undertaken using the following methodology.

- Site visit and photos
- Documentation review of the local, regional and state planning policy and strategy
- Demographic analysis
- Review of community consultation
- Analysis of the social impacts
- Impact assessment
- Conclusion

Table 1 below represents the key steps and tasks which have been undertaken as part of this SIA.

Stage	Key Steps
1	▪ Site and locality assessment. This included a site visit and inspection of the surrounding area, to assess the local context, identify potential impact receptors and understand the scale of the proposed change to the locality. ▪ Review of the proposed development.
2	▪ Documentation review – review of documents relating to the proposed development including technical reports and various policy. ▪ Infrastructure audit – review of other relevant nearby facilities and land uses. ▪ Demographic analysis – identification of the current and future population community profiles.
3	▪ Description and analysis of how key stakeholders are likely to be affected. ▪ A review of the community consultation that was undertaken to determine the community values and concerns.
4	▪ Assessment of the impacts. ▪ Identification of the significance and likelihood of impacts.
5	▪ Identification of appropriate management and mitigation measures to inform the future development.

3. REGIONAL AND LOCAL CONTEXT

Site Context

The subject site is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and forms part of the Greater Sancrox Area, as identified by Council. The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox. The plan below in Figure 1 details the extent of the boundaries of the properties included and Figure 2 provides the context of Le Clos Sancrox with respect to the greater Sancrox Area, Wauchope and Port Macquarie.

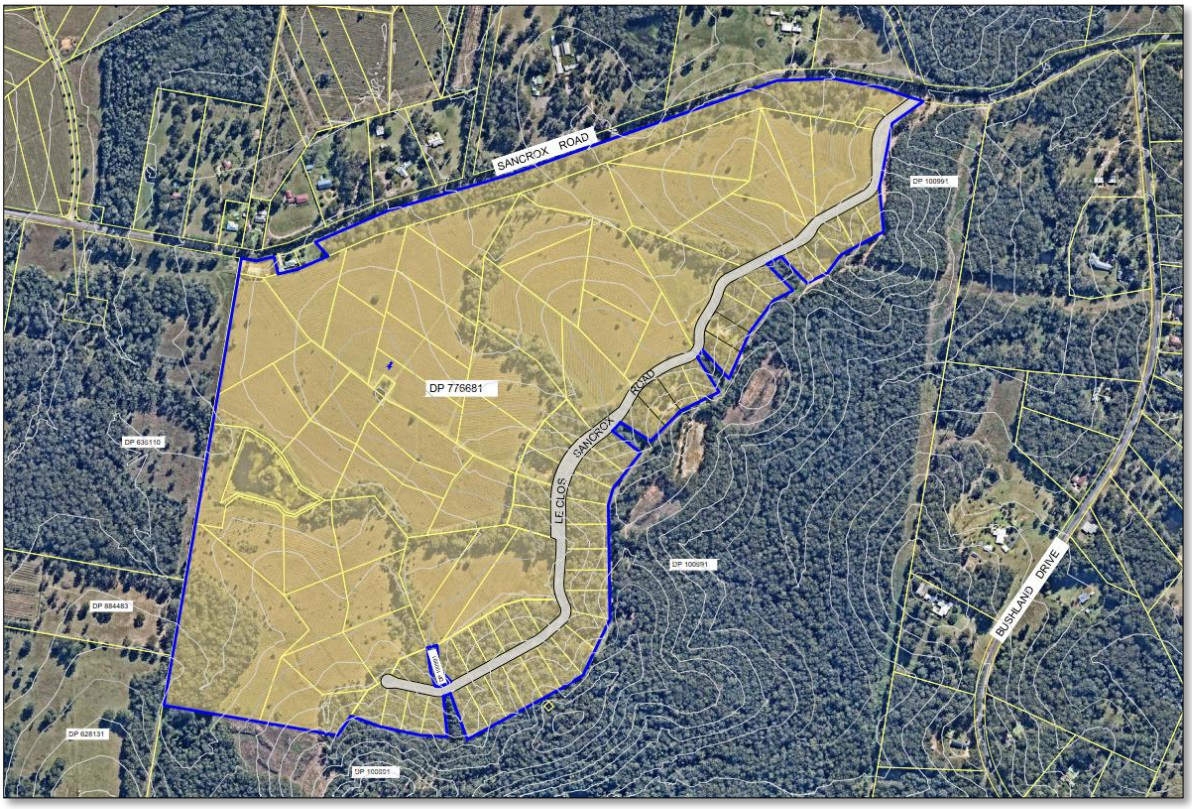


Figure 1 – Location of Extent of Le Clos Sancrox Highlighted Yellow (source: www.sixmaps.nsw.gov.au)

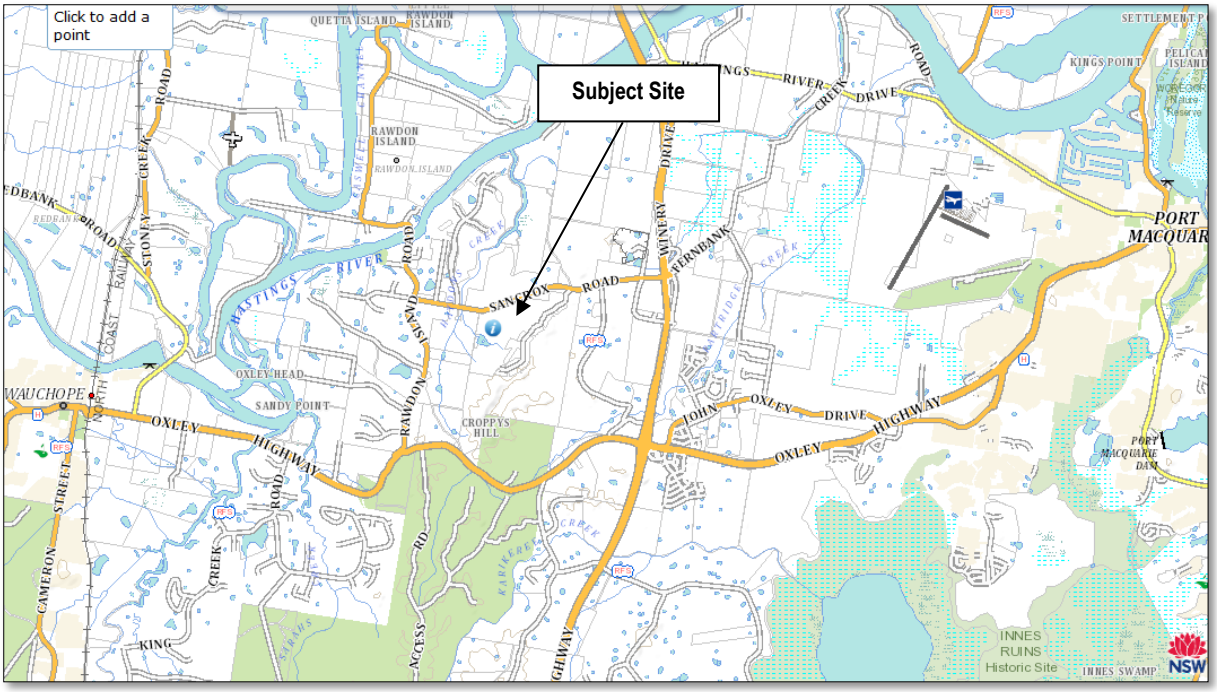


Figure 2 - Contextual Location of the subject land (source: www.sixmaps.nsw.gov.au)

Figure 3 - Close Up Aerial Map of the subject land (source: www.nearmap.com)

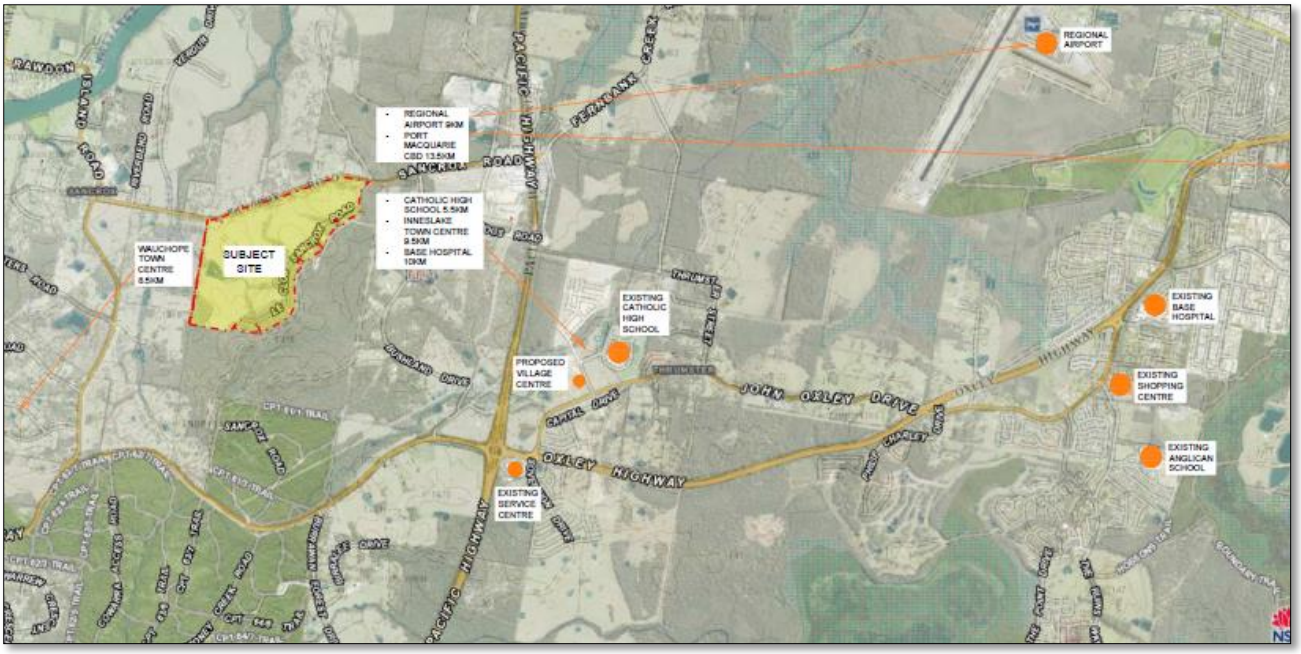


Figure 4 - Broadscale Analysis Extract

Le Clos Sancrox is part of the previous wider Cassegrain vineyards. To the north of the site is Verdun Estate which was also part of the previous vineyard land and has recently been rezoned by Council to large lot residential. To the north is a range of rural-residential dwellings and an animal boarding and breeding establishment. To the north-east of the site is Sancrox Quarry and further along Sancrox Road is Expressway Spares, which is part of a future industrial land investigations area. The site is generally surrounded by rural land, noting that extensive clearing has occurred on the land to the east recently.

The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. The site is relatively cleared, with vegetation in fingers through the site and around the edges. A number of drainage lines dissect the site falling towards Sancrox Rd. The Greater Sancrox Area is located approximately 6.4km north east of the Wauchope town centre and 13km west of the Port Macquarie town centre and contains a land area of approximately 1,400 hectares. The region is bound by the Oxley Highway to the south, the Pacific Highway to east and rural lands to the west and the Hastings River to the north. The predominate land use is rural, including agriculture and rural-residential. In general, lot sizes range between 1 to 10ha, with only four lots greater than 50 ha. The majority of small land parcels are located in the areas off Rawdon Island Road and Sancrox Road.

The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this Planning proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the Moratorium issue.

The site and surrounding area has been subject of extensive Structure Planning in 2015, which was delayed pending Council's Urban Growth Management Strategy and the change in strategy from rural-residential to residential zoning of the area. The site has been identified as areas subject to Outline Planning in Council's Urban Growth Management Strategy. Rezoning the land is considered the most suitable and transparent way of achieving the objectives of this proposal. The area of Sancrox is the logical next area for development, with Area 13 planning ceasing at the highway. This area of Thrumster is developing at a steady rate, with a good take up of land by purchasers.

Below are photographs of the site, with additional photographs contained within the Planning Proposal document.

Figure 5 – Photographs of the Site

The site is well located with easy access to the existing universities, schools, hospitals, shopping and other services and facilities within Port Macquarie and Wauchope.

Existing Conditions / Land Uses

The site is currently zoned RU1 Primary Production under the LEP 2011, as too is immediately surrounding land. The site includes the following features:

- Storage building in north-west corner.
- Le Clos Sancrox Road along the eastern boundary.
- 46 residential building blocks with frontage to Le Clos Sancrox Road.
- 46 bush blocks, each connected to a residential building block.
- 3 dwellings on residential building blocks.
- Previous viticulture infrastructure and small outbuildings associated with the rural use of the land.
- The remainder of the site not containing dwellings is primarily cleared and currently utilised for grazing of cattle.

Surrounding Character

The surrounding area is characterised as rural residential along with a mix of hobby farm land, which has evolved with the failed viticulture in the immediate area. To the east and south is a large parcel of land which is heavily treed and has recently approved for a four lot subdivision.

Existing Vehicular Access

Le Clos has access to the Pacific Highway north and south via Sancrox Road onto the upgraded intersection. This intersection provides numerous opportunities for accessing Port Macquarie.

Oxley Highway to the south is accessed from the site via Rawdon Island Road and allows for easy access to King Creek and Wauchope. The intersection of Rawdon Island Road and Oxley Highway has recently been upgraded.

The site has a road along the eastern boundary, being Le Clos Sancrox Road.

Public Transport

A Bus transport service is provided with Busways to Sancrox, which provides connection from Sancrox to Wauchope and Port Macquarie.

Route: 335W

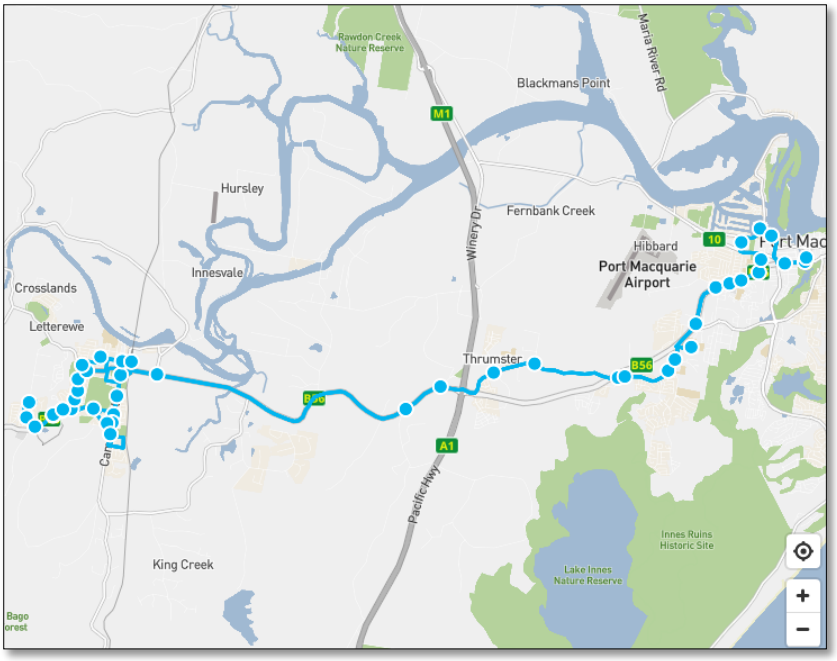


Figure 6 – Existing Busways Route Plan

335W Port Macquarie to Wauchope

Valid from: 01 Jan 2018

Creation date: 23 July 2019
NOTE: Information is correct on date of download.

Monday to Friday									
Day Restrictions			S	H				S	H
Hayward St at Keena La, Port Macquarie	-	-	07:46	07:56	09:24	11:24	13:24	14:24	14:24
Settlement City Shopping Centre, Port Macquarie	06:12	07:02	07:55	08:05	09:37	11:37	13:37	14:37	14:37
Oxley Hwy at Widderson St, Port Macquarie	06:18	07:08	08:01	08:11	09:43	11:43	13:43	14:43	14:43
Port Macquarie Base Hospital, Port Macquarie	06:22	07:12	08:05	08:15	09:47	11:47	13:47	14:47	14:47
John Oxley Dr before Philip Charley Dr, Port Macquarie	06:25	07:15	08:08	08:18	09:51	11:51	13:51	14:51	14:51
John Oxley Dr after Carlie Jane Dr, Thrumster	06:29	07:19	08:12	08:22	09:55	11:55	13:55	14:55	14:55
Wauchope Station, Wauchope	–	–	08:20	08:30	–	12:05	14:05	15:05	15:05
Cameron St opp Young St, Wauchope	06:38	07:28	08:21	08:31	10:06	12:06	14:06	15:06	15:06
Fairmont Dr Ellenborough Cl, Wauchope	06:42	07:32	08:25	08:35	–	12:10	–	15:13	15:10
Colonial Cct at Homestead Dr, Wauchope	06:49	07:41	08:34	08:44	10:14	12:18	14:14	15:21	15:18
Fairmont Dr Ellenborough Cl, Wauchope	–	–	–	–	10:22	–	14:22	–	–
Cameron St opp Young St, Wauchope	–	–	–	–	10:28	–	–	–	–
Wauchope RSL, Young St, Wauchope	06:58	07:52	08:55	08:55	-	12:28	14:28	15:38	15:28

Monday to Friday				
Hayward St at Keena La, Port Macquarie	15:24	16:24	17:24	
Settlement City Shopping Centre, Port Macquarie	15:37	16:37	17:37	
Oxley Hwy at Widderson St, Port Macquarie	15:43	16:43	17:43	
Port Macquarie Base Hospital, Port Macquarie	15:47	16:48	17:48	
John Oxley Dr before Philip Charley Dr, Port Macquarie	15:51	16:52	17:52	
John Oxley Dr after Carlie Jane Dr, Thrumster	15:55	16:57	17:57	
Wauchope Station, Wauchope	16:05	17:07	18:07	
Cameron St opp Young St, Wauchope	16:06	17:08	18:08	
Fairmont Dr Ellenborough Cl, Wauchope	16:10	–	18:13	
Colonial Cct at Homestead Dr, Wauchope	16:18	17:18	18:24	
Fairmont Dr Ellenborough Cl, Wauchope	–	17:29	–	
Cameron St opp Young St, Wauchope	–	17:35	–	
Wauchope RSL, Young St, Wauchope	16:28	-	18:35	

Saturday				
Hayward St at Keena La, Port Macquarie	07:24	09:24	13:24	16:24
Settlement City Shopping Centre, Port Macquarie	07:37	09:37	13:37	16:37
Oxley Hwy at Widderson St, Port Macquarie	07:43	09:43	13:43	16:43
Port Macquarie Base Hospital, Port Macquarie	07:47	09:47	13:47	16:47
John Oxley Dr before Philip Charley Dr, Port Macquarie	07:51	09:51	13:51	16:51
John Oxley Dr after Carlie Jane Dr, Thrumster	07:55	09:55	13:55	16:55
Wauchope Station, Wauchope	08:05	10:05	14:05	17:05
Cameron St opp Young St, Wauchope	08:06	10:06	14:06	17:06
Fairmont Dr Ellenborough Cl, Wauchope	08:10	10:10	14:10	17:10
Colonial Cct at Homestead Dr, Wauchope	08:18	10:18	14:18	17:18
Wauchope RSL, Young St, Wauchope	08:28	10:28	14:28	17:28

Sunday & Public Holidays	♿	♿
Hayward St at Keena La, Port Macquarie	09:17	15:17
Settlement City Shopping Centre, Port Macquarie	09:50	15:50
Oxley Hwy at Widderson St, Port Macquarie	09:56	15:56
Port Macquarie Base Hospital, Port Macquarie	10:00	16:00
John Oxley Dr before Philip Charley Dr, Port Macquarie	10:04	16:04
John Oxley Dr after Carlie Jane Dr, Thrumster	10:08	16:08
Wauchope Station, Wauchope	10:18	16:18
Cameron St opp Young St, Wauchope	10:19	16:19
Fairmont Dr Ellenborough Cl, Wauchope	10:23	16:23
Colonial Cct at Homestead Dr, Wauchope	10:31	16:31
Wauchope RSL, Young St, Wauchope	10:41	16:41

335W Wauchope to Port Macquarie

Monday to Friday					♿		♿	♿	♿
Day Restrictions			S	H				S	H
Wauchope RSL, Young St, Wauchope	06:38	07:28	08:21	08:31	10:06	12:06	14:06	15:06	15:06
Fairmont Dr Ellenborough Cl, Wauchope	06:42	07:32	08:25	08:35	–	12:10	–	15:13	15:10
Colonial Cct at Homestead Dr, Wauchope	06:49	07:41	08:33	08:44	10:14	12:18	14:14	15:21	15:18
Fairmont Dr Ellenborough Cl, Wauchope	–	–	–	08:51	10:22	–	14:22	–	–
Wauchope RSL, Young St, Wauchope	06:58	07:52	08:43	08:55	10:28	12:28	14:28	15:38	15:28
Wauchope Station, Wauchope	–	–	08:45	–	10:30	–	14:30	15:40	15:30
John Oxley Dr before Chancellor Dr, Thrumster	07:10	08:06	08:56	09:09	10:41	12:41	14:41	15:51	15:41
John Oxley Dr after Philip Charley Dr, Port Macquarie	07:13	08:09	08:59	09:12	10:44	12:44	14:44	15:54	15:44
Oxley Hwy after Widderson St, Port Macquarie	07:20	08:19	09:08	09:22	10:53	12:53	14:53	16:03	15:53
Hayward St after Horton St, Port Macquarie	07:42	08:42	09:25	09:42	11:12	13:12	15:12	16:18	16:12

Monday to Friday		♿	♿
Wauchope RSL, Young St, Wauchope	16:06	17:08	18:08
Fairmont Dr Ellenborough Cl, Wauchope	16:10	–	18:13
Colonial Cct at Homestead Dr, Wauchope	16:18	17:18	18:24
Fairmont Dr Ellenborough Cl, Wauchope	–	17:29	–
Wauchope RSL, Young St, Wauchope	16:28	17:35	18:35
John Oxley Dr before Chancellor Dr, Thrumster	16:41	17:47	18:47
John Oxley Dr after Philip Charley Dr, Port Macquarie	16:44	17:50	18:50
Oxley Hwy after Widderson St, Port Macquarie	16:53	17:56	18:56
Hayward St after Horton St, Port Macquarie	17:12	18:12	19:21

Saturday		♿	♿	♿
Wauchope RSL, Young St, Wauchope	08:06	10:06	14:06	17:06
Fairmont Dr Ellenborough Cl, Wauchope	08:10	10:10	14:10	17:10
Colonial Cct at Homestead Dr, Wauchope	08:18	10:18	14:18	17:18
Wauchope RSL, Young St, Wauchope	08:28	10:28	14:28	17:28
Wauchope Station, Wauchope	–	10:30	14:30	–
John Oxley Dr before Chancellor Dr, Thrumster	08:41	10:41	14:41	17:41
John Oxley Dr after Philip Charley Dr, Port Macquarie	08:44	10:44	14:44	17:44
Oxley Hwy after Widderson St, Port Macquarie	08:53	10:53	14:53	17:53
Hayward St after Horton St, Port Macquarie	09:12	11:12	15:12	18:12

Sunday & Public Holidays	♿	♿
Wauchope RSL, Young St, Wauchope	10:19	16:19
Fairmont Dr Ellenborough Cl, Wauchope	10:23	16:23
Colonial Cct at Homestead Dr, Wauchope	10:31	16:31
Wauchope RSL, Young St, Wauchope	10:41	16:41
Wauchope Station, Wauchope	10:43	–
John Oxley Dr before Chancellor Dr, Thrumster	10:54	16:54
John Oxley Dr after Philip Charley Dr, Port Macquarie	10:57	16:57
Oxley Hwy after Widderson St, Port Macquarie	11:06	17:06
Hayward St after Horton St, Port Macquarie	11:23	17:27

Figure 7 – Route 335W Busways Timetable (source: Busways)

Above is the bus timetable for Route 335W Service Port Macquarie to Wauchope via Sancrox.

Whilst the service does not currently run along Sancrox Road, the service is available for the wider area in the current undeveloped state. The proposed concept layout includes provision for future bus networks, as well as the proposed road, cycle and pedestrian network throughout the Le Clos Sancrox development. Sancrox Road a Collector Road and provision has been made within the draft layout for Collector Roads through the site, with bus stops. Previous discussions with Busways indicates that bus routes will be planned once the development is underway and the customers are in the area to utilise the service.

Business

To the north of the site is an animal boarding and breeding establishment known as “Pet Park”, which operates along with a dwelling on the site.

Further to the east is an industrial zone which contained Expressway Spares and other light industrial or business uses. To the north-east of the site is Sancrox Quarry.

Abundance Lifestyle & Garden (Café) and Billabong Zoo are both popular local businesses in vicinity of the site.

4. THE PROPOSED DEVELOPMENT

For the purposes of this Social Impact Assessment, both the proposed zonings and the indicative layout plan have been considered to provide greater certainty as to the expected development following rezoning.

The Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance.

The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and
- Business - approx. 1 ha of commercially zoned land.

An opportunity has been identified for a school to be accommodated within the development and these discussions will continue whilst the land is zoned. An educational establishment is a permitted land use in the R1 General Residential zone.

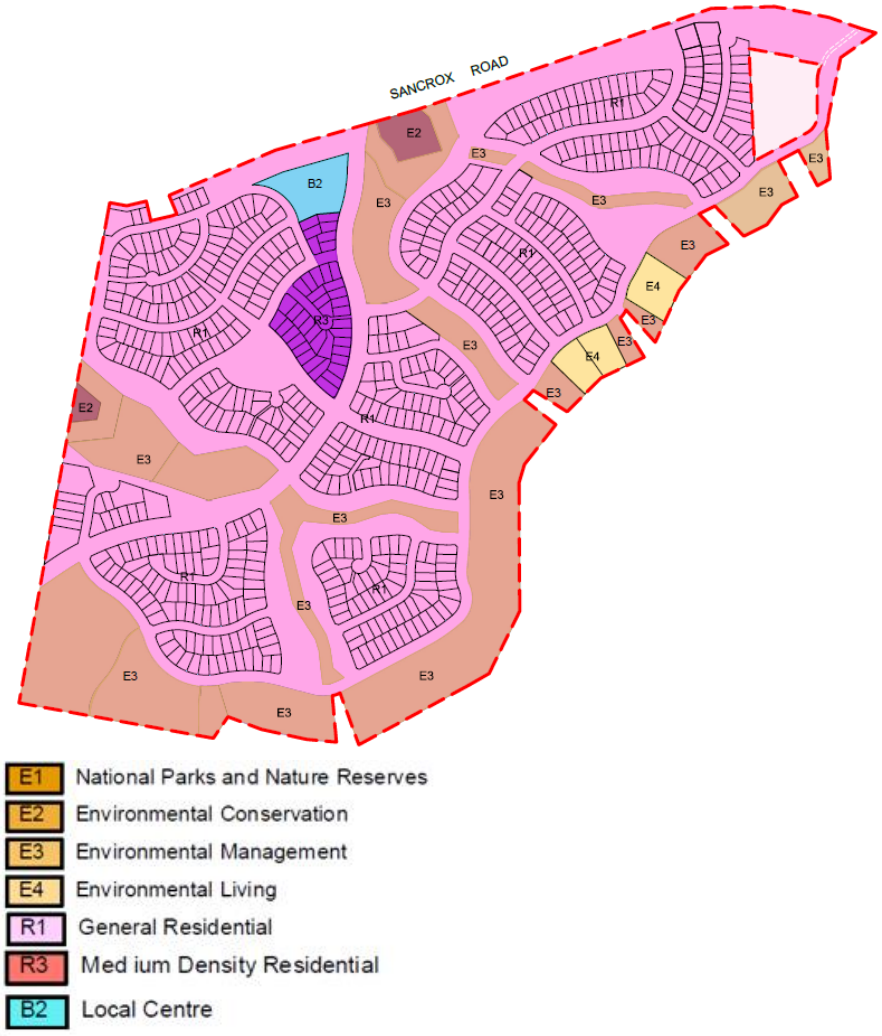


Figure 8 – Proposed Zoning

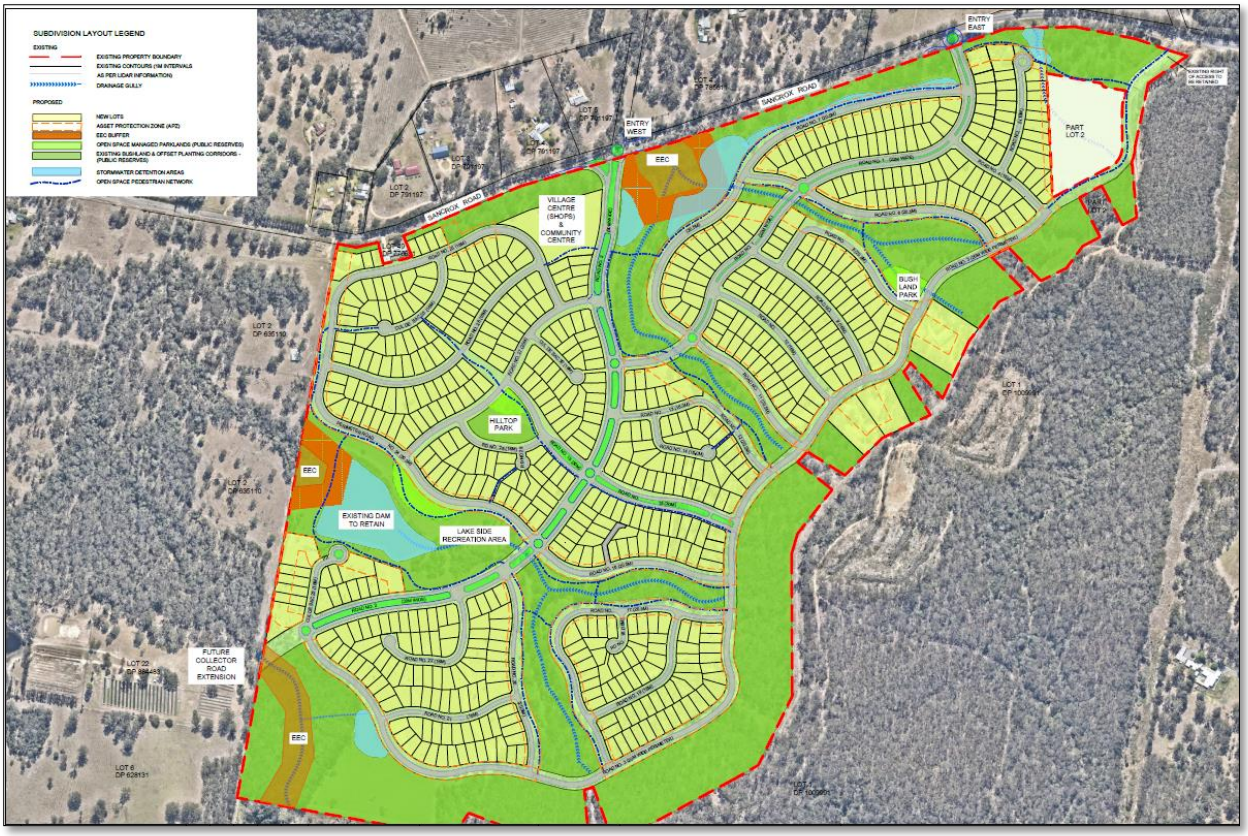


Figure 9 - Subdivision Concept Layout

Vehicle access to the site will be via two new intersections off Sancrox Road, as shown above.

The proposed western vehicle entrance will be a Collector Road standard and will provide connection to the western boundary, which allows for future expansion at the time of development of the adjoining land. The Collector Road will also make provision for bus stops and the round-about at the western boundary will allow for bus turn around until such time as the road is extended.

A network of pedestrian and cycle pathways will be constructed along the roads.

A Traffic Assessment is an Appendix to the Planning Proposal.

Essential infrastructure currently available to the subject site is water, electricity and telecommunications. A number of the services may need to be upgraded to ensure capacity is met and preliminary investigations and discussions with Council and other service providers have indicated extension of services is possible and the site is unconstrained in relation to servicing.

Vegetation retention and landscape design has been considered in the layout, as well as the Design Guidelines which have been prepared for the development and are an appendix to the Planning Proposal.

5. STRATEGIC POLICY CONTEXT

This section provides a summary of the key policy documents and guidelines relevant to the Subject Site and the proposed development. Many of the policy findings and directions are of key interest to this study and have been considered in the impact assessment outlined in Section 8 below.

Environmental Planning & Assessment Act, 1979

The Environmental Planning & Assessment Act, 1979 and Environmental Planning & Assessment Regulation 2000 establishes the framework for the assessment and approval of development in NSW. The proposal represents 'local development' under the EP&A Act which requires development consent.

Strategies

Urban Growth Management Strategy

Within the previous UGMS 2010-2031, the re-subdivision of the Le Clos farms at Sancrox was mentioned heavily, with immediate timing for investigations which was indicated as commencing in 2010/11.

The recently adopted UGMS 2017-2036, as exhibited did not support investigations at Sancrox, however as a result of public interest, with a large number of submissions to the exhibited documents from landowners of Le Clos Sancrox, the UGMS was amended prior to adoption and Le Clos Sancrox included in the Structure Plan for Sancrox in the adopted UGMS 2017-2036.

The report to Council on 20 June 2018 was detailed with respect to Le Clos Sancrox, as touched on above and indicated that Council could support investigation areas outside of the urban growth boundary in the Regional Plan, such as Le Clos Sancrox, and that Outline plans are to be prepared and submitted to the Department prior to rezoning. The adopted UGMS includes Le Clos Sancrox as part of Outline Plan areas, which Le Clos Sancrox is located within.

The resolutions of Council, with the latest being 20 February 2019, required immediate commencement of Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS, and to invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.

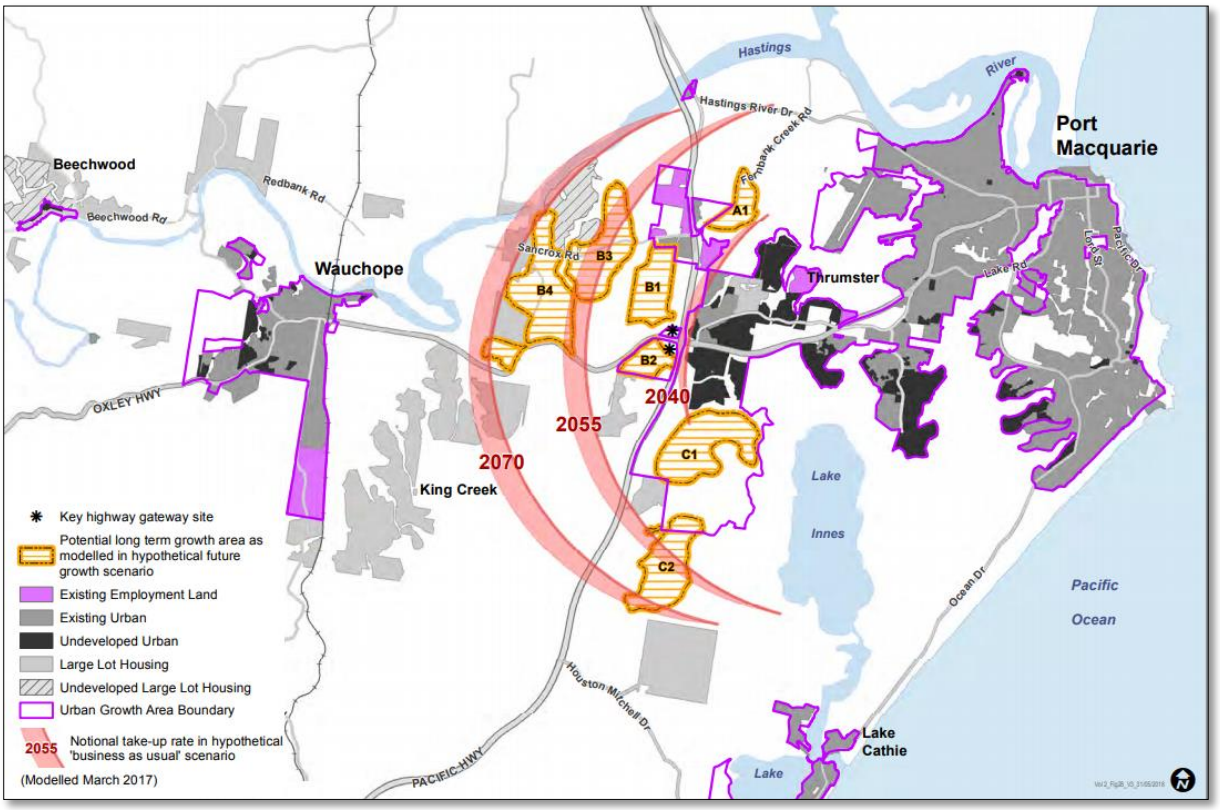


Figure 10 - Hypothetical limits to long term growth – Port Macquarie. Source: UGMS 2017-2036

Greater Sancrox Structure Planning (2015)

In reviewing the Greater Sancrox Structure Plan Issues Paper dated October 2011, it is stated that "*a review of the Le Clos Sancrox subdivision has been identified by Council as a key element in planning for the Sancrox area*" and Le Clos Sancrox is identified on the maps within the document as "*possible future development precincts, coinciding with areas of lower ecological constraint"*.

The Structure Planning work did occur to satisfy a key objective of the UGMS in force at that time and was reported to Council for adoption in 2015 and delayed pending the revised UGMS.

Rezoning of the land was invited over 13 years ago, Structure Planning had commenced and finalised in 2015 and the latest UGMS 2017-2036 indicated outline planning could occur on this site.

It is acknowledged that a substantial amount of work has been undertaken by Council is the Greater Sancrox Structure Plan, which would assist in progressing the Outline Planning for Le Clos Sancrox.

The study area is shown below and Le Clos Sancrox is identified as the majority of Sector 5. An extract from the Structure Plan regrading Sector 5 is included which identifies Le Clos Sancrox as a priority.

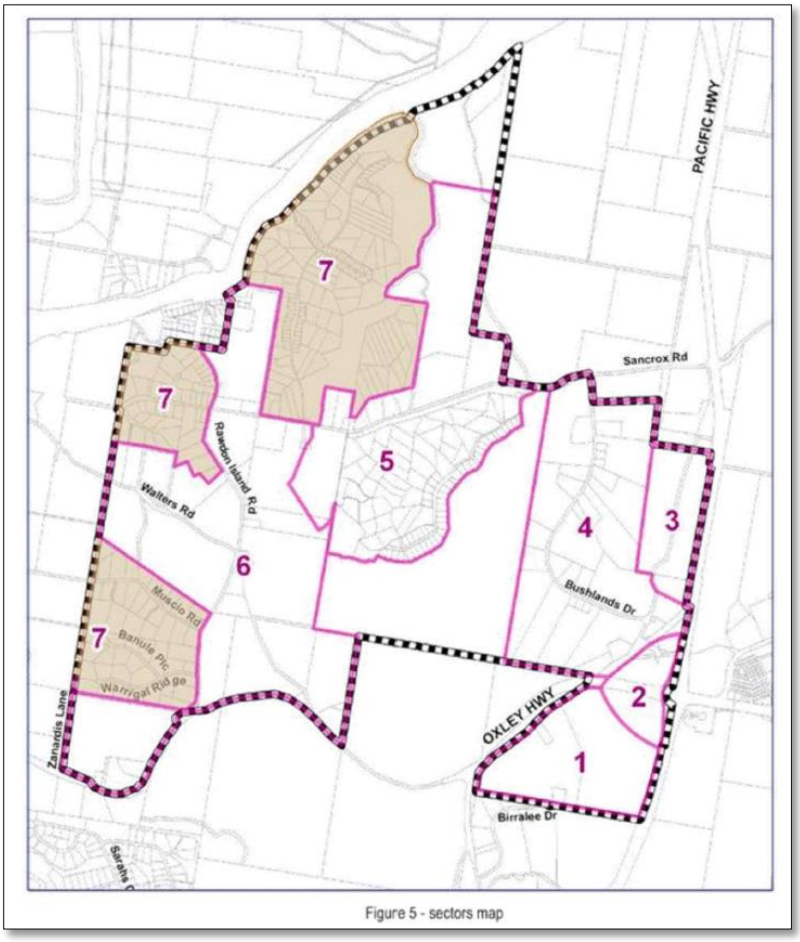


Figure 11 - Study Area (source: Greater Sancrox Structure Plan)

Sector 5 - Central GSA

Sector 5 contains the existing Le Clos Sancrox subdivision and adjoining properties to the north. It also includes a small part of the adjoining property to the west due to the likely reliance on part of that property for access from the Le Clos land.

The Le Clos subdivision has been subject to a moratorium on development because the inadequate size of the existing lots to meet current standards for effluent disposal and bushfire protection when constructing a dwelling. It is proposed that Council resolve this situation as a priority, if possible, having regard to other co-ordination issues in the GSA.

Key issues in preparing a planning proposal for this sector will include:

- the status of the area following the MNCRS and UGMS reviews
- the current poor standard of Sancrox Road
- the need to extend proposed water supply services to the sector
- the provision of co-ordinated road and stormwater infrastructure
- buffer requirements to protect the continued operation of Sancrox quarry
- achievement of the environmental principles described in this Structure Plan, including the retention of existing levels of vegetation cover and co-ordination of suitable environmental offsets for any proposed vegetation clearing
- the potential impact of the proposal on the Rawdon Island Road/Oxley Highway intersection
- bushfire protection.

Investigations for sector 5 could commence in the short-term. The timing of investigations for the sector will depend on the willingness of landowners for the majority of the area, to participate in co-ordinated planning to address the above issues.

Figure 12 – Sector 5 (source: Greater Sancrox Structure Plan)

State Environmental Planning Policies

The Planning Proposal considers the relevant State Environmental Planning Policies including:

- SEPP No. 44 – Koala Habitat Protection
- SEPP (Coastal Management) 2018
- SEPP (Primary Production and Rural Development) 2019
- SEPP No. 55—Remediation of Land
- SEPP (Infrastructure) 2007

The Development Application will be prepared in accordance with these policies.

Local Government

Port Macquarie Hastings Local Environmental Plan 2011

The Planning Proposal addresses the existing and proposed zoning and associated controls under Port Macquarie Hasting LEP 2011, which has the broad function of controlling development throughout the region and provides details on which land uses are permissible and prohibited within each zone. The LEP makes provision for a range of dwelling types and lifestyles in a number of zones, within the urban areas of the towns and villages.

The Planning Proposal includes rezoning of from RU1 Primary Production to:

- R1 General Residential,
- R3 Medium Density,
- B2 Local Centre,
- E2 Environmental Conservation,
- E3 Environmental Management, and
- E4 Environmental Living.

Port Macquarie Hastings Development Control Plan 2013

The role of the Port Macquarie Hastings DCP 2010 is to identify Council's expectations for the future growth/ Although the DCP is not a statutory environmental planning instrument it must be taken into consideration during the assessment process.

Council recognises that every new development impact on and changes the existing environment and so each development proposal must demonstrate a positive contribution, either directly or indirectly, to the objectives and intended outcomes of the Plan.

Development Control Plan 2013 requires the preparation of a Social Impact Assessment for subdivisions of greater than 50 lots / dwellings.

Council's Social Impact Policy 2009 sets out that a full Social Impact Assessment is required, which is to be prepared in accord with that Policy.

6. COMMUNITY PROFILE

This section provides an overview of the socio-economic characteristics of the study area to better understand the underlying and emerging social needs of the community and potential social impacts of the proposed development.

Study Area

The traditional owners of the land are the Birpai Aboriginal people.

The study area is located in statistical area Port Macquarie Hastings Local Government Area.

The analysis uses data from the 2016 Australian Census of Housing and Population as compiled by the Australian Bureau of Statistics (ABS).

For the purpose of this analysis, the area has been defined using Sancrox (State Suburb) (SSC) as defined by the 2016 Australian Census of Housing and Population (ABS). The area is outlined in the figure below. To provide context and highlight the uniqueness of the location, comparisons are made against NSW and Australia as a whole as defined by the 2016 Australian Census of Housing and Population (ABS).

Sancrox Overview

Le Clos Sancrox is located within the locality of Sancrox in the Port Macquarie-Hastings Local Government Area, on the Mid North Coast of NSW, approximately 420 kilometres north of Sydney, and 510 kilometres south of Brisbane. Based on the 2016 Census figures, the population of Sancrox was 572, of this 50.1% were male and 49.9% and Aboriginal and/or Torres Strait Islander people made up 1.2% of the population. The median age for the area was 46 years old. Children aged 0 - 14 years made up 18.4% of the population and people aged 65 years and over made up 19.1% of the population. The median weekly personal income for people aged 15 years and over in Sancrox was $682.

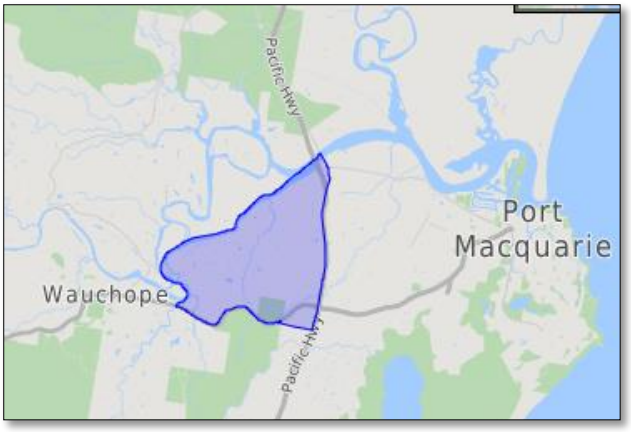


Figure 13 – Profile map (source: ABS, 2019 MapData Services)

Sancrox (SSC) Population Analysis

The statistics and data used to analyse the population trends in the study area have been gathered using the 2016 Australian Bureau of Statistic Census of Population and Housing data. Key statistics are show in graphs and tables.

The total population for Sancrox (State Suburb) in 2016 was 572 and the wider Port Macquarie Hastings area was 78,539. Council's Profile state: "*The Port Macquarie - Hastings Council area Estimated Resident Population for 2018 is 83,131, with a population density of 0.23 persons per hectare*." Council ID Profile for Kings Creek – Sancrox – Lake Innes – Thrumster states: "*The 2018 Estimated Resident Population for Kings Creek - Sancrox - Lake Innes - Thrumster is 4,008, with a population density of 0.25 persons per hectare*." This region has an area of 158km² and is bounded by the Hastings River in the north, the locality of Port Macquarie and the Pacific Ocean in the east, the locality of Lake Cathie, Cowarra Creek and the locality of Herons Creek in the south, and Wauchope in the west.

The age and sex structure of the population highlights the level of demand required for essential services and facilities necessary for a community. The age-sex pyramid (below) is a demographic tool which shows patterns of change in the age structure and sex ratio of an area over time; and should be used in conjunction with Household Types and Dwelling Types information to build up a picture of who is living in the area and how it is changing over time.

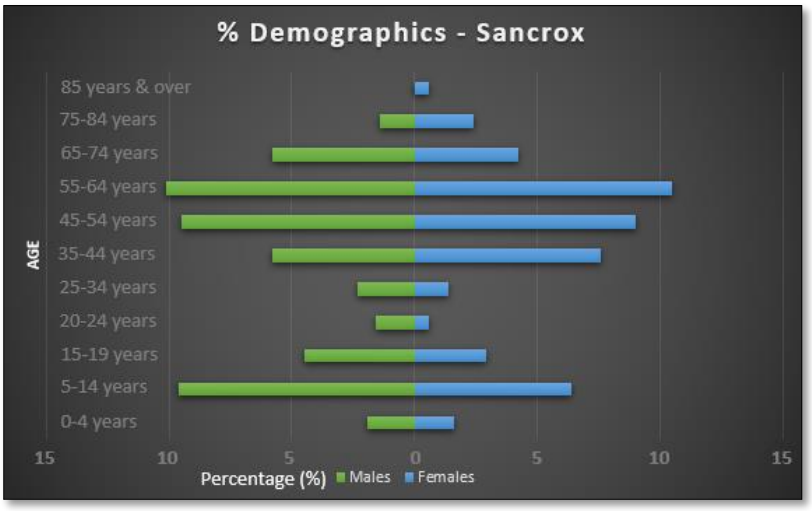


Figure 14 – Age Sex Pyramid Table of Sancrox (Source: profile.id.com.au)

The population graph below demonstrates over a six year period a steady growth in the region.

Analysis of Sancrox (state suburb) profile indicates a large proportion (24.5%) of people in the younger group age of 0 – 19 and also in the older age group of 60+ (27%). There are slightly more males (50.1%) than females (49.9%). Aboriginal and/or Torres Strait Islander people made up 1.2% of the population which reflects similar to New South Wales and Australia as a whole. The median age of people in the Sancrox area (SCC) was 46 years.

People ***Persons count based on place of usual residence on Census night***	**Sancrox**	**%**	**New South Wales**	**%**	**Australia**	**%**
Median age	46	-	38	-	38	-
0-4 years	25	4.3	465,135	6.2	1,464,779	6.3
5-9 years	35	6.1	478,184	6.4	1,502,646	6.4
10-14 years	46	8.0	443,009	5.9	1,397,183	6.0
15-19 years	35	6.1	448,425	6.0	1,421,595	6.1
20-24 years	23	4.0	489,673	6.5	1,566,793	6.7
25-29 years	28	4.9	527,161	7.0	1,664,602	7.1
30-34 years	27	4.7	540,360	7.2	1,703,847	7.3
35-39 years	19	3.3	540,360	7.2	1,703,847	7.3
40-44 years	39	6.8	503,469	6.7	1,583,257	6.8
45-49 years	39	6.8	492,440	6.6	1,581,455	6.8
50-54 years	44	7.7	485,546	6.5	1,523,551	6.5
55-59 years	60	10.4	469,726	6.3	1,454,332	6.2
60-64 years	45	7.8	420,044	5.6	1,299,397	5.6
65-69 years	40	7.0	384,470	5.1	1,188,999	5.1
70-74 years	40	7.0	292,556	3.9	887,716	3.8
75-79 years	17	3.0	217,308	2.9	652,657	2.8
80-84 years	10	1.7	155,806	2.1	460,549	2.0
85 years and over	3	0.5	167,506	2.2	486,842	2.1

Overall, within the population of people aged 15 years and over 61.9% were married, and 12.9% were separated, divorced and widowed, while 25.2% were never married. In comparison, the married percentage with NSW is 48.7% and 48.1% overall in Australia.

The below graph illustrates a consistency in population growth over the various age groups during a 5 year period 2013 – 2017 for the Port Macquarie Hastings Area. The largest growth in age structure in the study area between 2013 – 2017 was in the age group 65 – 74 year olds (1% increase); and a 1% decrease in persons 35 - 44. The average growth in the area over the 5 years has been 0.5%.

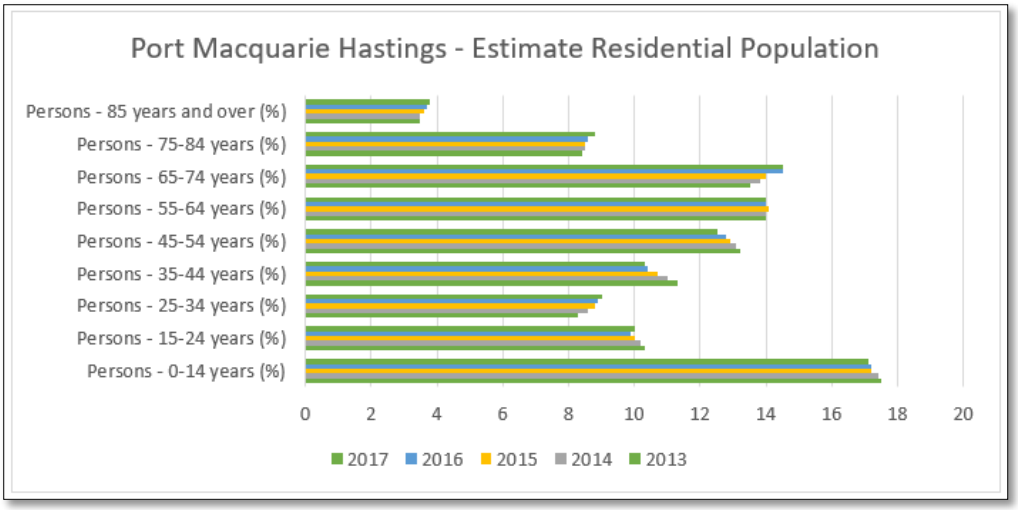


Figure 15 – Population data for 2013 – 2017 in the Port Macquarie Hastings region.

These statistics suggest that whilst Port Macquarie enjoys a greater proportion of the middle working age people, there is a trend towards higher proportions of older adults and seniors citizens.

Density

Population density is the average number of persons per hectare for the Port Macquarie-Hastings region. It is calculated by dividing the population of a geographic region by its land area, measured in this case in hectares. Density figures can be misleading as land included in the calculation may not be used for habitation. Such as, airports, shopping precincts, national parks, industrial estates and so on and are included in the land area even though few, if any actual people live there. As a result, areas with large amounts of residential housing will have higher densities than those where the majority of land is used for industry or open space etc.

In 2016, the population density in Port Macquarie-Hastings area was 0.21 per hectare. This figure was higher compared to Regional NSW, which had a population density of 0.03 persons per hectare (this includes very large areas of non-residential land). It is important to note that this varied across the Council area.

The 2018 Estimated Resident Population for Kings Creek - Sancrox - Lake Innes - Thrumster is 4,008, with a population density of 0.25 persons per hectare. Population density for Sancrox overall is not recorded.

Education

Educational attainment is considered an indicator of socio-economic status, together with occupation, employment and income data. Combined, this data provides an overall evaluation of economic opportunities and the and the socio-economic status of a suburb/region. For individuals, the level of educational qualifications held was a large effect on employment opportunities and future income levels.

Overall, 17.3% of the population hold a tertiary qualification (being a bachelor's degree level and above), with a large percentage (33.9%) of people holding a Certificate Level and/or Advanced Diploma or Diploma. While 11.2% reported having completed Year 12 as their highest level of educational attainment. 32.6% of people were attending an educational institution; of these, 25.9% were in primary school, 21.6% in secondary school and 13.5% in a tertiary or technical institution.

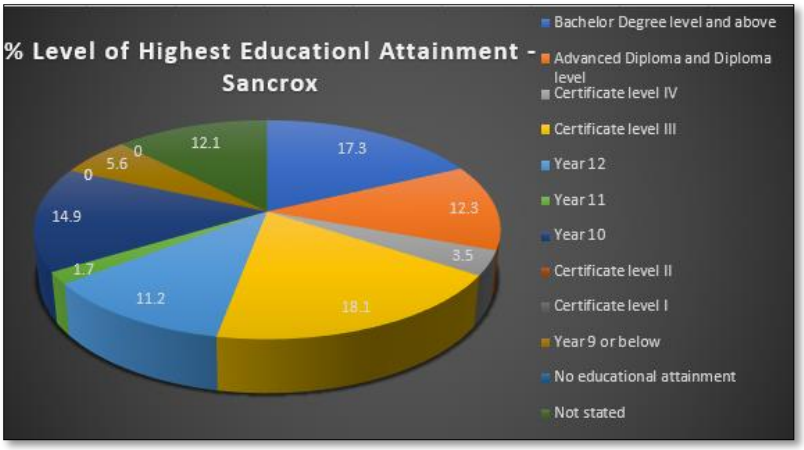


Figure 16 – Education Attainment graph for Sancrox (source: ABS Data)

Level of highest educational attainment *People ages 15 years and over*	**Sancrox**	**%**	**New South Wales**	**%**	**Australia**	**%**
Bachelor Degree level and above	80	17.3	1,424,716	23.4	4,181,406	22.0
Advanced Diploma and Diploma Level	57	12.3	543,142	8.9	1,687,893	8.9
Certificate level IV	16	3.5	167,947	2.8	551,767	2.9
Certificate level III	84	18.1	730,498	12.0	2,442,203	12.8
Year 12	52	11.2	930,654	15.3	2,994,097	15.7
Year 11	8	1.7	203,574	3.3	941,531	4.9
Year 10	69	14.9	702,178	11.5	2,054,331	10.8
Certificate level II	0	0.0	4,849	0.1	13,454	0.1
Certificate level I	0	0.0	625	0.0	2,176	0.0
Year 9 or below	26	5.6	513,209	8.4	1,529,897	8.0
No educational attainment	0	0.0	54,870	0.9	145,844	0.8
Not stated	56	12.1	627,465	10.3	1,974,794	10.4

Cultural & language diversity

The most common ancestries in Sancrox (State Suburbs) were Australian 31.8%, English 31.0%, Scottish 10.5%, Irish 8.0% and German 2.6%, with 83.0% of people born in Australia. The most common countries of birth was England 2.8% and New Zealand 1.8%. In general, 68.9% of people had both parents born in Australia and 11.2% of people had both parents born overseas. While 90.8% of people only spoke English at home, other languages included Thai 1.2% and Hungarian 0.5%.

The most common responses for religion in Sancrox were Catholic 24.9%, Anglican 24.7%, No Religion, so described 24.4%, Not stated 11.7% and Uniting Church 3.6%; with Christianity was the largest religious group reported overall (69.2%).

Ancestry, top responses	Sancrox	%	New South Wales	%	Australia	%
English	247	31.0	2,302,481	23.3	7,852,224	25.0
Australian	254	31.8	2,261,062	22.9	7,298,243	23.3
Irish	64	8.0	741,671	7.5	2,388,058	7.6
Scottish	84	10.5	587,052	5.9	2,023,470	6.4
German	21	2.6	236,143	2.4	982,226	3.1

Country of Birth	Sancrox	%	New South Wales	%	Australia	%
Australia	468	83.0	4,899,090	65.5	15,614,835	66.7
Other top responses						
England	16	2.8	226,564	3.0	907,570	3.9
New Zealand	10	1.8	117,136	1.6	518,466	2.2
France	3	0.5	11,540	0.2	31,120	0.1
Netherlands	3	0.5	16,900	0.2	70,172	0.3
Canada	3	0.5	13,290	0.2	43,053	0.2

Employment, Occupation, Industry of employment

Types of employment throughout a suburb can be an essential indicator of the socio-economic status of the population, regardless of whether people are employed full-time or part-time, or are unemployed. Employment status is often associated with factors of age structure, opportunities and education.

Overall, Sancrox labour force constitutes 295 people who reported being in the labour force, of these 54.9% were employed full time, 36.6% were employed part-time and 3.1% were unemployed. Of employed people 14.7% worked 1 to 15 hours, 9.7% worked 16 to 24 hours and 40.6% worked 40 hours or more.

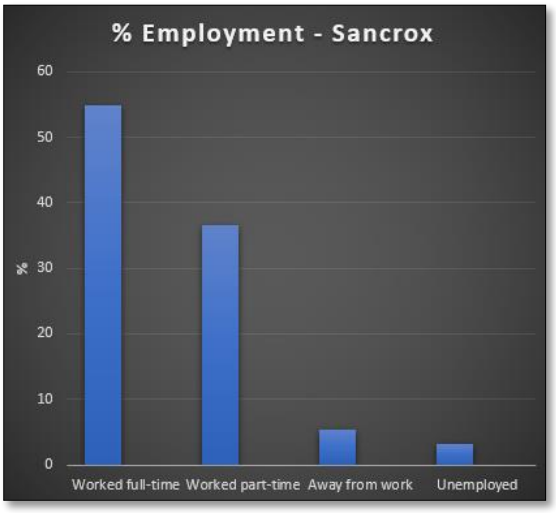


Figure 17 – Employment data graph for Sancrox (source: ABS Data)

Employment	Sancrox	%	New South Wales	%	Australia	%
Worked full-time	162	54.9	2,134,521	59.2	6,623,065	57.7
Worked part-time	108	36.6	1,071,151	29.7	3,491,503	30.4
Away from work	16	5.4	174,654	4.8	569,276	5.0
Unemployed	9	3.1	225,546	6.3	787,452	6.9

The most common occupations included Professionals 20.7%, Technicians and Trades Workers 15.2%, Managers 14.9%, Clerical and Administrative Workers 14.9%, and Community and Personal Service Workers 13.8%. Of the employed people in Sancrox (State Suburbs), 5.9% worked in Primary Education. Other major industries of employment included Hospitals (except Psychiatric Hospitals) 5.4%, Child Care Services 4.9%, Secondary Education 4.4% and Other Social Assistance Services 4.4%.

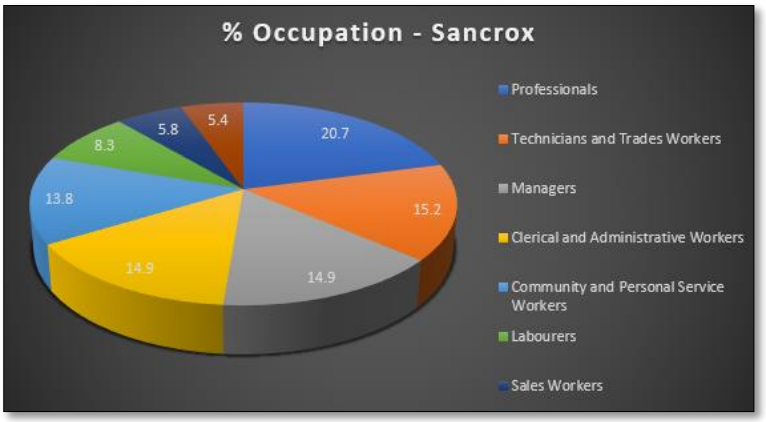


Figure 18 – Occupation graph for Sancrox (source: ABS Data)

Occupation	Sancrox	%	New South Wales	%	Australia	%
Professionals	57	20.7	798,126	23.6	2,370,966	22.2
Technicians and Trades Workers	42	15.2	429,239	12.7	1,447,414	13.5
Managers	41	14.9	456,084	13.5	1,390,047	13.0
Clerical & Administrative Workers	41	14.9	467,977	13.8	1,449,681	13.6
Community & Personal Service Workers	38	13.8	350,261	10.4	1,157,003	10.8
Labourers	23	8.3	297,887	8.8	1,011,520	9.5
Sales Workers	16	5.8	311,414	9.2	1,000,955	9.4
Machinery Operators & Drivers	15	5.4	206,839	6.1	670,106	6.3

Median Weekly Incomes

The income of a household is a vital indicator of the socio-economic status of an area and assist to analysis the economic opportunities in conjunction with other data such as Occupation and Education Attainment.

The median weekly personal income for people aged 15 years and over in Sancrox was $682.

In comparison, NSW and overall Australia was very similar in medium weekly incomes, however the Family and Household income was slightly lower in Sancrox.

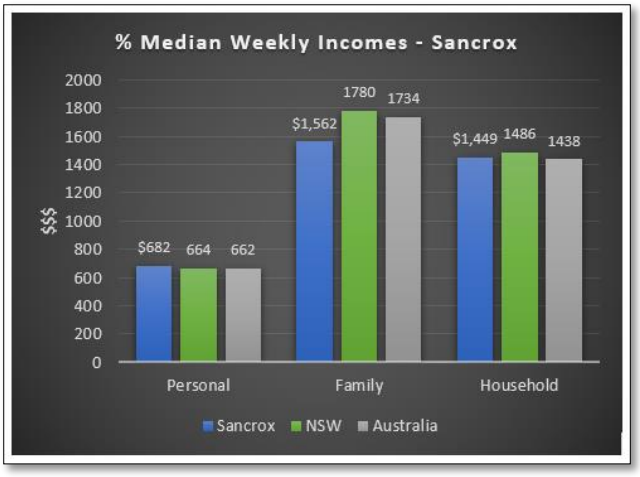


Figure 19 – Median Weekly Incomes graph for Sancrox (source: ABS Data)

Median Weekly Incomes *People aged 15 years and over*	**Sancrox**	**%**	**New South Wales**	**%**	**Australia**	**%**
Personal	682	-	664	-	662	-
Family	1,562	-	1,780	-	1,734	-
Household	1,449	-	1,486	-	1,438	-

Travel to Work

In Sancrox the most common methods of travel to work for employed people were: Car, as driver 73.3%, Car, as passenger 6.2% and Walked only 3.7%. Other common responses were Worked at home 3.3% and Truck 2.9%. On the day, 0.0% of employed people used public transport (bus) as at least one of their methods of travel to work and 79.5% used car (either as driver or as passenger). In comparison, NSW and overall Australia was very similar with the exception of Car, as driver being over 10% greater.

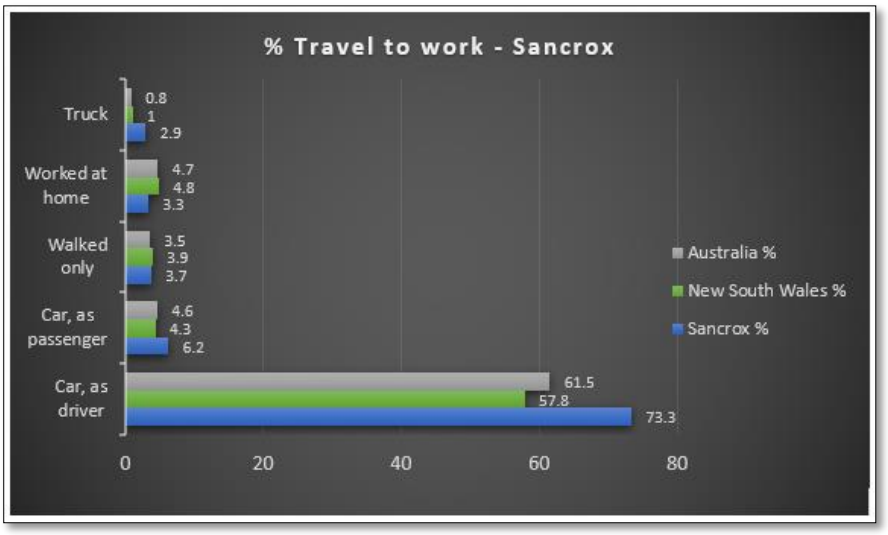


Figure 20 – Data Travel to work graph for Sancrox (source: ABS Data)

Travel to Work, top responses *Employed People aged 15 years and over*	Sancrox %	New South Wales %	Australia %
Car, as driver	73.3	57.8	61.5
Car as passenger	6.2	4.3	4.6
Walked only	3.7	3.9	3.5
Worked at Home	3.3	4.8	4.7
Truck	2.9	1.0	0.8

Families – family composition, employment status of couple families

The structure of Family Composition is an indicator of the residential function and role of an area. This structure generally provides insights for local government into the level of demand for facilities and services required for the community.

The analysis of family composition revealed a larger proportion of couple families without children (53.0%), followed by couple families with children (38.6%) and 8.4% were one parent families. In comparison to NSW, Couple family without children was substantially higher in Sancrox which suggests the population of the area is more empty nesters and or those wanting a rural lifestyle.

Of single parents 33.3% were male and 66.7% were female. Of couple families with children, 27.8% had both partners employed full-time, 9.7% had both employed part-time and 15.3% had one employed full-time and the other part-time.

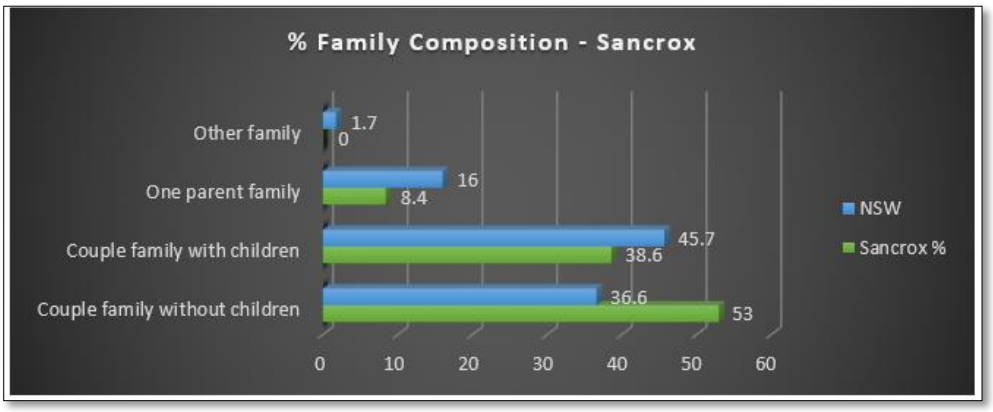


Figure 21 – Family Composition Graph for Sancrox (Source: ABS Data)

Family Composition	Sancrox	%	New South Wales	%	Australia	%
Couple family without children	88	53	709,524	36.6	2,291,987	37.8
Couple Family with children	64	38.6	887,358	45.7	2,716,224	44.7
One Parent Family	14	8.4	310,906	16.0	959,543	15.8
Other Family	0	0	32,438	1.7	102,559	1.7

Dwelling - Structure, Tenure, Household Composition, Number of Motor Vehicles

The Port Macquarie Hastings local government area has grown substantially over the last 10-15 years and many of the older style housing stocks have undergone renovation and transformation. Dwelling stock now comprise 73.4% separate houses, 13.1% semidetached or townhouses, 10.7% flat or apartment and 2.3% being other

dwellings, with 89.6% occupied private dwelling and only 10.4% being unoccupied private dwelling. In comparison, of occupied private dwellings in Sancrox, 94.2% were separate houses, 2.6% were semi-detached, row or terrace houses, townhouses etc, 1.6% were flat or apartments and 0.0% were other dwellings.

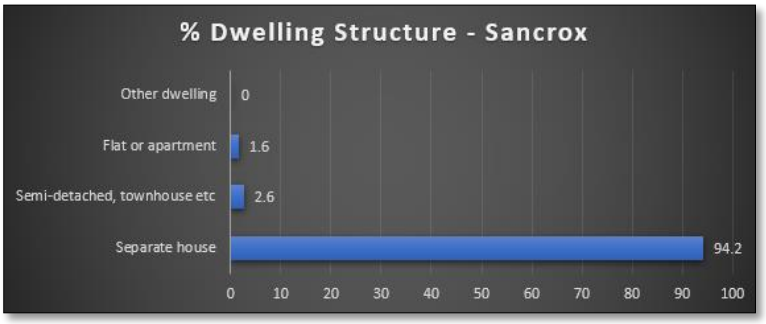


Figure 22 – Dwelling Structure graph for Sancrox (source: ABS Data)

Dwelling Structure	Sancrox	%	New South Wales	%	Australia	%
Separate house	180	94.2	1,729,820	66.4	6,041,788	72.9
Semi-detached, row or terrace house, townhouse etc	5	2.6	317,453	12.2	1,055,016	12.7
Flat or apartment	3	1.6	519,390	19.9	1,087,434	13.1
Other dwelling	0	0.0	23,580	0.9	64,425	0.8

Occupied private dwellings in Sancrox consisted of 92.7% and 7.3% unoccupied private dwellings. These were similar to NSW with 90.1% and 88.8% in Australia overall with occupied dwellings.

Of the occupied private dwellings 49.5% were owned outright, 34.4% were owned with a mortgage and 16.1% were rented (known as Tenure). Dwelling count with Sancrox households, 81.4% were family households, 17.0% were single person households and 1.5% were group households.

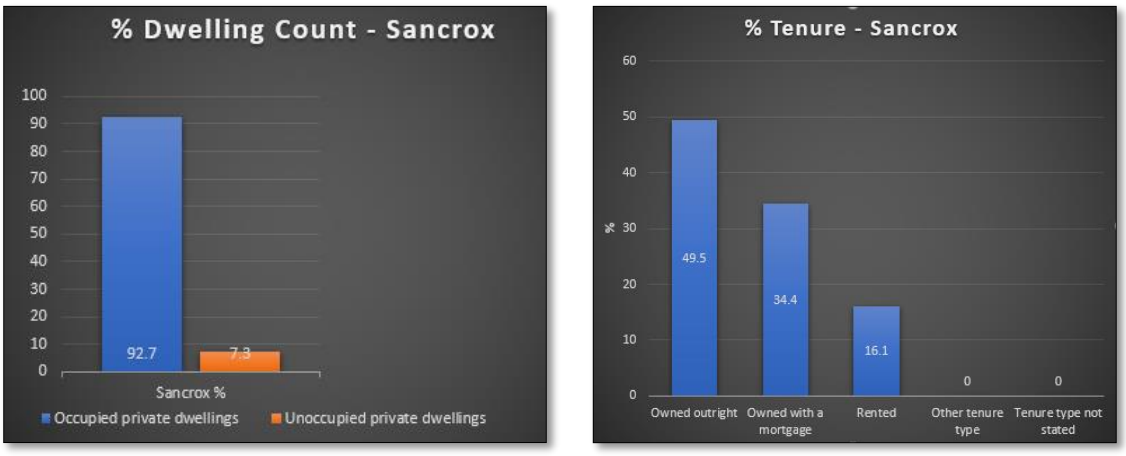


Figure 23 – Dwelling Count & Tenure Graph for Sancrox (Source: ABS Data)

Dwelling Count	Sancrox	%	New South Wales	%	Australia	%
Occupied private dwellings	191	92.7	2,604,320	90.1	8,286,073	88.8
Unoccupied private dwellings	15	7.3	284,741	9.9	1,039,874	11.2

Tenure *Occupied private dwellings*	Sancrox	%	New South Wales	%	Australia	%
Owned outright	13,010	42.2	839,665	32.2	2,565,695	31.0
Owned with a mortgage	8,159	26.4	840,004	32.3	2,855,222	34.5
Rented	8,160	26.4	826,922	31.8	2,561,302	30.9
Other tenure type	577	1.9	23,968	0.9	78,994	1.0
Tenure type not stated	956	3.1	73,763	2.8	224,869	2.7

In Sancrox 20.6% of occupied private dwellings had one registered motor vehicle garaged or parked at their address, 41.8% had two registered motor vehicles and 35.4% had three or more registered motor vehicles.

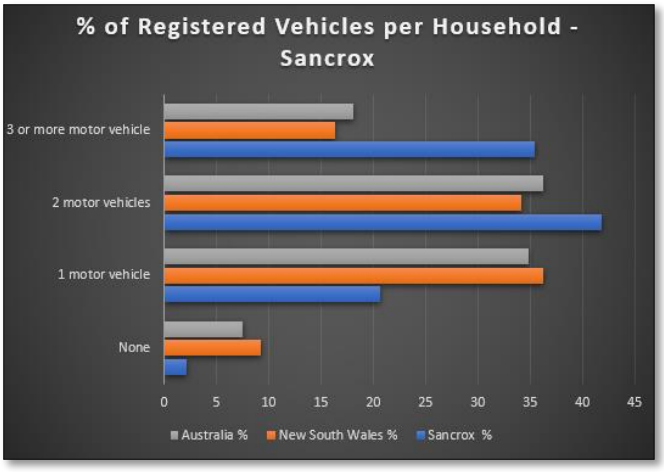


Figure 24 – Registered Vehicles Graph for Sancrox (Source: ABS Data)

Number of registered motor vehicles	Sancrox	%	New South Wales	%	Australia	%
None	4	2.1	239,625	9.2	623,829	7.5
1 motor vehicle	39	20.6	946,159	36.3	2,881,485	34.8
2 motor vehicles	79	41.8	887,849	34.1	2,999,184	36.2
3 or more vehicles	67	35.4	435,053	16.7	1,496,382	18.1
Number of motor vehicles not stated	0	0.0	95,623	3.7	285,197	3.4

Sancrox Services & Facilities / Local Amenities

In considering the adequacy of existing services and facilities in Sancrox area to provide for the needs of new residential area it is relevant to consider what particular services and facilities are available and also what impacts the subdivision may have on these services and facilities.

Numerous services and facilities are available within the Sancrox area (and/or close proximity). These include:

- Abundance Lifestyle & Garden (Café)
- HF Hand Constructors
- Port Bus Charters, Tours & Rentals Pty
- Billabong Zoo: Koala & Wildlife Park
- Pets Park Kennels
- Hanson Construction Materials Pty Ltd
- Cassegrain Wines

Other services within proximity include the following:

Shops:

- Circle of Friends (5.22km) – Gift Shop
- Elements of Design (5.27km) – Ladies Wear, Retail
- Street Smart Clothing (5.28km) – Menswear, Retail
- MidCoast Uniform Solutions (5.28km) – Ladies Wear, Retail
- Three Little Birds (5.29km) – Gift Shop
- ecoWild! Health Food & Organics (5.3km) – Health Food & Organic Products From Nature
- Hastings Co-op Department Store Wauchope (5.31km) – Department Stores
- Hastings Co-op SUPA IGA Liquor Wauchope (5.34km) – Supermarkets & Grocery Stores
- Wauchope One Stop $2 Plus Shop (5.36km) – Discount Stores
- Class-ique (5.36km) – Ladies Wear, Retail
- Gorgeous Fun Paper & Giftware (5.37km) – Gift Shop
- Bargains Galore (5.39km) – Discount Stores
- Design A Candy (5.58km) – Confectionery & Lolly Shop
- Bago Store (5.6km) – Food &/or General Stores
- SPAR (5.96km) – Food &/or General Stores
- Two Worlds Café & Kids Play Centre (5.56km) – Café

Takeaway:

- Wauchope Seafoods (5.26km)
- Fuzzy Ducks Café (5.33km)
- Top Takeaway (5.39km)
- Wauchope Charcoal Chicken Land (5.39km)
- Country Kitchen (6.39km)

Banks:

- Commonwealth Bank (5.39km)
- NAB (5.4km)

National Parks/State Parks:

- Breckenridge Farmstay (7.2km)
- Bago Bluff National Park (27.5km)

Social and Support (Community) Opportunities

Some of the social opportunities available within proximity of Sancrox include the following.

Clubs, Pubs, other:

- Wauchope R.S.L Club (5.18km)
- Hastings Hotel (5.24km)
- Star Hotel Wauchope (5.27km)
- Lions Club of Wauchope (6km)
- Bago Tavern (7.44km)

Recreation:

- Sancrox Reserve
- Evolution Tennis Academy (5.09km)
- Five Star Fitness (5.56km)
- Wauchope memorial Olympic Pool (9.6km)
- Lank Bain Park (12.0km)

Schools:

- St Josephs Primary School (5.52km)
- Wauchope Primary School (5.52km)
- TG's Child Care Wauchope (5.38km)
- Wauchope Pre-School Kindergarten Inc. (6.01km)
- Riverbreeze Pre-School & Child Care Centre (6.9km)
- Timbertown Pre-School & Long Day Care Centre (7.21km)
- Blooming Kids Early Learning & Long Day Care Centre (8.12km)
- Newman Senior Technical College (8.28km)
- St Columba Anglican School (8.91km)
- Westport High School (10.3km)
- St Joseph's Regional College (10.47km)

Churches:

- Wauchope Seventh-day Adventist Church (3.95km)
- Anglican Church of Australia (5.36km)
- Catholic Church (5.52km)
- Uniting Church in Australia (5.65km)

Doctors:

- Hutton C W (5.12km)
- Gayle Kee (5.37km)
- Hastings Medical Centre (5.56km)
- Campbell Street Surgery (5.65km)

- Schuetz B (6.11km)

Hospitals:

- Wauchope Health Campus (5.82km)
- Wauchope District Memorial Hospital (5.82km)

Accommodation:

- Hastings Hotel Wauchope (5.24km)
- Star Hotel Wauchope (5.27km)
- Wauchope Motel (5.73km)
- Timbertown Resort & Motel (7.08km)
- Breckenridge Farmstay (7.2km)

Summary of Key Findings

- The subject site is located in the locality of Sancrox Suburb of the Government Area of Port Macquarie Hastings.
- The median age is 46 with the working population (aged 15-64) being 65.8%, this is marginally higher than NSW and Australia as a whole at 38 years of age.
- Sancrox area is characterised by a low proportion of people aged over 65 (19.2%) compared to NSW (16.2%) and Australia (15.8%) and a lower proportion of people under 30 (33.4%).
- Data indicates a drop in the age group of 20-39, being 16.9% of the population, compared to NSW with 27.4% and Australia overall with 27.8% of the population.
- Family households were the dominate household composition with a large number of family households being couples without children (53% of family households).
- The most common methods of travel to work for employed people was Car, as driver 73.3%.
- Of unpaid work, a high proportion of the population did unpaid domestic work (75.6%), while NSW had 67.7% and Australia 69%.
- The average people per household was 2.6.
- The median weekly household income $1449.
- Median weekly rent $220.
- Average motor vehicles per dwelling 2.3.
- Dwelling diversity in Sancrox is limited with separate houses comprising 94.2% of overall housing stock.

Sancrox would not be considered a diverse and multi-cultural area with the majority of its population born in Australia, and only a small percentage of households having non-English speaking background. Catholic Religion affiliation was the top response of religion within the population.

Sancrox residents have a high level of education, with the majority having tertiary attainment. This has a large bearing on employment opportunities, with more than half the population being employed full-time as a result. The most prevalent occupation type of residents is professionals, followed by Technicians and Trades workers.

7. COMMUNITY ENGAGEMENT

Consultation Outcomes

The Applicant has completed community engagement which they have response to in the Planning Proposal. The objective was to gather feedback from the community and other affected stakeholders to inform the development of its new planning proposal.

Sancrox Community Consultation Feedback

A number of community consultation methods were conducted by Land Dynamics Australia. Two methods were employed, these being:

- Print Communication (hard copy survey)
- Electronic Engagement (survey via Survey Monkey).

A copy of the print communication information is included at Attachment A. The information included a cover letter requesting community feedback on the proposed development, preliminary design, location and a survey.

The community was notified of the survey via:

- Letterbox drop to local residential adjacent to the site; (9 August 2019).
- Online Survey.
- Email

The following residents and local businesses received a copy of the survey.

Address	Survey Distribution	Received Y/N
296 Sancrox Road	Letter Box	
284 Sancrox Road	Letter Box	
282 Sancrox Road	Letter Box	
274 Sancrox Road	Letter Box	Yes (Survey Monkey)
260 Sancrox Road	Letter Box	
258 Sancrox Road	Letter Box	
244 Sancrox Road	Letter Box	
236 Sancrox Road	Letter Box	Yes (Survey Monkey)
204 Sancrox Road	Letter Box	Yes (email)
162 Sancrox Road	Letter Box	
Lot 2, DP 574308 – Hanson Construction	Email – Stephen.kenworthy@hanson.com.au	Yes (email)
Lot 2, DP635110 – Terrance John O'Connor	Email	
Lot 22, DP 884483, 164 Rawdon Island Road – Darren John Burton	Under door – no letter box	
Lot 1, DP1009991, 1418 Oxley Highway, Sancrox	Via Email – 3 Sons Investments Pty Ltd. C/- King & Campbell, Scott Marchant.	
Billabong Zoo	Via Email info@billabongzoo.com.au	

Abundance Café	Via Email sales@abundance.net.au	
Expressway Spares	Via Email sales@expressway.com.au	Yes (email)
Port Bus Charters, Tours and Rentals	Via Email admin@portbus.com.au	
HF Hand Constructers -	Via Email info@hfhand.com.au	
Pets Park Kennels	Via Email info@petsparkkennels.com.au	Yes (email)
RFS – Sancrox Thrumster Fire Station, 164 Bushland Drive	Via Email Strfb10@tpg.com.au	
234 Bushland Drive	Via Email parick.cassegrain@expressway.com.au	Yes (email)

The survey asked opinion questions relevant to the proposed development. The questions being:

1. What is your initial response to the proposed development? For example, are there additional land uses that should be incorporated into the current rezoning proposal?
2. Are you aware of the Moratorium applied to Le Clos Sancrox landowners 12 years ago which restricted dwellings being approved, despite a valid development consent on the site?
3. How best can the proposed rezoning proponent and future residents engage with and actively support the existing Sancrox community including existing groups and organizations?
4. Are there any specific land uses or community facilities or uses which you see as being in need for Sancrox which could be incorporated into the proposal?
5. How long have you lived in the area?
6. The proponent is consulting with all the residents in close proximity of the site, local community groups and business representatives. Can you think of anyone in particular that may be interested to hear of the proposed development and who may like to contribute to the initial consultation stage of the proposed development or ongoing discussions?
7. Do you perceive any issues which may arise from the proposed rezoning and development?
8. Do you have any other questions or comments to make in relation to the proposed re-zoning and do you support the rezoning and development of Le Clos Sancrox?
9. Would you like to be involved in ongoing discussions regarding the proposed rezoning? If yes, please confirm your preferred contact details (Name, Address, Email or Phone).

The consultation project team consisted of:

- Donna Clarke – Town Planner
- Nicole Gillan – Town Planner

A total of nine (9) responses were received to the print communication and online survey.

- 5 via Email
- 3 via Survey Monkey
- 1 via Australia Post

When asked:

- What is your initial response to the proposed development?
    - 6 - fully support the proposed development

  - 1 - negative response
  - 1 - open minded (both positives & negatives)
  - 1 – no response to question

- Are you aware of the Moratorium applied to Le Clos Sancrox
  - 8 replied Yes, with 3 stating unfair to land owners; and
  - 1 replied No

- How best can the proposed rezoning proponent and future residents engage with and actively support the existing Sancrox community including existing groups and organizations
  - Quickly developing; progressing development as soon as possible; development to proceed as soon as possible
  - Lots of promotion and advertising; Keep the local community fully informed; community meetings
  - Supporting the community

- Are there any specific land uses or community facilities or uses which you see as being in need for Sancrox which could be incorporated into the proposal?
  - 2 replied No
  - Community parkland and recreational space; Integrating a bike way within whole Sancrox; open space for children's playgrounds
  - land for a future school and other facilities; maintaining the current lifestyle of the area by creating larger block sizes

- How long have you lived in the area?
  - 2 replied 4 – 5 years
  - 1 replied 18 years
  - 5 replied 20 + years; including 2 respondents 55 years
  - 1 with no reply

- Can you think of anyone in particular that may be interested to hear of the proposed development and who may like to contribute
  - Employees of local businesses (ie Expressway Spares)
  - Lewis Land Group
  - 3 replied No
  - 1 with no reply

- Do you perceive any issues which may arise from the proposed rezoning and development
  - 3 replied Traffic, however overpass has addressed this issue
  - 1 Traffic safety & movement
  - Noise from barking dogs
  - Drainage and flow of water to the northern side of Sancrox Road (flooding)
  - Sewerage & transport

- No effects to current quarry operation and any planned future expansion
- 1 replied No

- Do you have any other questions or comments
  - 4 replied No comment
  - 1 Support the rezoning
  - As long as everyone is aware that the boarding kennels have been operational for 36 years. We will continue to operate
  - I do not support this style of development. I believe a solely rural residential style development without senior living or schooling facilities as these do not fit with the current feel of the Sancrox area.
  - Where has the idea of a school site come from PMHC/Department of School Education?
  - 1 with no reply

- Do you support the rezoning and development of Le Clos Sancrox
  - 5 replied Yes
  - 1 replied No
  - 1 with no reply

- Would you like to be involved in ongoing discussions
  - 2 replied No
  - 7 replied Yes

Summary of Survey Results

A total of 11 local Sancrox residents & local business were invited to participate in the survey. The businesses approached are mentioned above. Nine (9) completed the survey. The respondents were:

Address	Survey Distribution	Received Y/N
274 Sancrox Road	Letter Box	Yes (Survey Monkey)
236 Sancrox Road	Letter Box	Yes (Survey Monkey)
204 Sancrox Road (known also as Pets Park Kennels)	Letter Box and Via Email info@petsparkkennels.com.au	Yes (email)
Lot 2, DP 574308 – Hanson Construction	Email – Stephen.kenworthy@hanson.com.au	Yes (email)
Expressway Spares	Via Email sales@expressway.com.au	Yes (email)
234 Bushland Drive	Via Email parick.cassegrain@expressway.com.au	Yes (email)
Other: Andrew Driver (via Email) Mervyn Bourke (via Australia Post - address not identified) Unknown (via Survey Monkey) Unknown (via Email)		Yes

The main concerns regarding the proposed development were:

- Traffic
- Noise
- Drainage, sewerage
- Transport

Greater Sancrox Structure Plan

The Structure Plan is a framework to guide future planning and development for the Sancrox area and provide a level of overall co-ordination, particularly in relation to land use, environmental management and infrastructure to accommodate future development. As part of the preparation of the Greater Sancrox Structure Plan, community consultation was undertaken, as detailed below.

1.4 Stakeholder consultation

State government and landowners

The *GSA Issues Paper* was presented to State government representatives and landowners for feedback early in the planning process in October 2011.

Reference group

A Reference Group was formed in early 2012 and has been involved throughout preparation of the Structure Plan. Representatives were made up from Council staff, landowners, local development industry and State government agencies - NSW Department of Planning and Environment (DP&E), NSW Roads and Maritime Services (RMS) and NSW Office of Environment and Heritage (OEH).

Council staff meet with the Group several times to identify challenges and opportunities. The outcomes of these meetings and feedback from Group members helped to inform the development of the Structure Plan. Information updates were provided on the PMHC website for all interested persons throughout.

Figure 25 – Structure Plan Stakeholder Consultation (source: Greater Sancrox Structure Plan)

Members of Le Clos Sancrox landowners, as well surrounding landowners and businesses have been involved in the consultation since 2012.

8. IMPACT ANALYSIS

This Chapter details the potential social and economic impacts of the proposed development and mitigation measures designed to minimise negative impacts and maximise positive impacts. This is based on the analysis from the previous chapters.

A number of potential positive and negative social impacts have been identified in this SIA.

Many impacts will be staged due to the likely staging of the development due to its size.

8.1 Positive Social Impact

1. Provision of much needed 'reasonably priced' housing in the Sancrox area;
2. Development site is easily accessible to the highway, Wauchope and Port Macquarie, for commercial, recreation and community services, as well as local Sancrox Reserve and local cafe.
3. Increased economic and social benefits to local businesses from new population;
4. Enrichment of the local community by supporting a diversity of population;
5. Provision of housing stock diversity in Sancrox, consistent with previous Structure Planning;
6. Short Term Construction Opportunities;
7. Long Term Local Employment Opportunities in the local centre;

8. Provision of new services for the area including retail / commercial, parks and walking and cycling networks;
9. Improved existing services in the area, including road upgrades, bus stops and formalising of drainage.

8.2 Negative Social Impacts

1. Impacts on existing social cohesion of the existing community;
2. Risk perception within the existing community (as identified from the community survey);
3. Increased concentration of people in close proximity to each other and other local residents;
4. Increased traffic and impact on road safety in local area;
5. Impact on the existing character/identity of the local area; and
6. Acoustic Impacts for the new residents from the existing animal boarding establishment and the quarry.

8.4 Managing Impacts & Net Benefits to Community

This SIA aims to analyse and manage the intended and unintended social consequences, both positive and negative, of the proposed development. However, this can only occur at a high level; with the rezoning. Further consultation will occur with the exhibition of the Planning Proposal, as well as with the Development Application once lodged.

The initial response was overall supportive of the rezoning, with the exception of concerns raised with respect to the existing animal boarding establishment and the quarry operations. In response to these concerns, the concept layout plan has been amended to increase the vegetated buffer to Sancrox Road and to provide substantial setback of any proposed lots in the vicinity of the animal boarding establishment and the quarry.

The initial acoustic review does not raise issues with respect to the proposed zoning and concept plan with respect to acoustic impacts. At the time of a Development Application, this can be explored in more detail and measures such as fencing or construction standards for dwellings can be recommended.

Urban Design Guidelines have been developed to establish its own character for public spaces and streetscapes ensuring that it ties in with the natural surrounding environment. It is intended to enhance the visual amenity and urban design quality of the estate while providing a broad array of interconnecting public spaces and facilities that benefit all landowners and visitors to the precinct. This will ensure that the character of the area is respected and the new character is established with a strong focus on natural materials such as timber and native species are generally recommended to maintain the bushland feel of Sancrox.

The proposed concept layout provides for large areas of open space in order to prevent development which is a concentration of people in close proximity to each other and other local residents. The resulting design creates precincts connected by bushland, parks, pathways and cycleways, which creates a liveable community.

The traffic upgrades recommended in the traffic assessment will significantly improve Sancrox Road and has been designed to withstand the wider planning which Council is undertaking. This will be a benefit for the existing community and addresses traffic and road safety concerns.

The net benefit to the community in allowing a rezoning which provides for a new residential local or neighbourhood centre within Le Clos Sancrox residential development is the key contribution to provision of a liveable community. The overall development, and wider Sancrox area, makes provision for walkability, public transport, public open space and employment, whilst respecting the environment. The business component, even on the small scale proposed, is a key factor for creating a complete liveable, sustainable and healthy community. This benefit will be experienced beyond Le Clos Sancrox and is expected to inform the wider planning and provide for connections via roads, pathways and cycleways, as indicated on our plans and specialist reports provided for the Planning Proposal.

It is envisaged that the proposed business component of the development will eb utilised by the existing and future residents in the wider community for day to day conveniences.

The traffic upgrades will assist with existing concerns identified by the surrounding properties and will increase the safety of Sancrox Road.

The landscape mounding and vegetation corridors along Sancrox Road will assist with ameliorating potential impacts from the animal boarding establishment and the quarry.

The new estate along a Collector Road will encourage the bus company to provide services to Sancrox Road, which is a positive outcome. The road upgrades and the overall concept design increases the transport options, shops, employment, recreational, social and education facilities for the existing and proposed residents. This also assists greatly with the social cohesion of the proposed residents into the local community.

9. CONCLUSION

This report has assessed the potential positive and negative social impacts arising from the Planning Proposal to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance. The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and
- Business - approx. 1 ha of commercially zoned land.

It is concluded that negative impacts associated with the proposed rezoning ton allow for the subdivision can be mitigated as part of the development application design and assessment process, as well as through appropriate ongoing site management and as part of a refinement of certain aspects of the site design.

This Social Impact Assessment has sought to identify any issues relating to the rezoning and corresponding subdivision. Further consultation with the exhibition of the Planning Proposal will allow for any other issues to be identified, with the response to the revised changed to the zoning and concept layout expected to have addressed the main concerns identified in this consultation. Overall, the negative impacts of the proposed development can be successfully managed with the implementation of measures in the detail with the Development Application.

The net benefit to the community from the proposed Planning Proposal to allow the Le Clos Sancrox residential and neighbourhood business development is the key contribution to provision of a liveable community.

In keeping with the strategies, development of Le Clos Sancrox and the wider Sancrox area, along with the identified continued population growth, further strengthens the need for proposed residential land and associated business land and a local or neighbourhood centre.

Overall, a positive social impact is envisaged as a result of the Planning Proposal.

10. REFERENCE MATERIAL AND DATA

The socio economic data used in this report has been extracted from the ABS database and includes the most recently released ABS data issued 2011 & 2016.

Other reference documents include:

- "Urban Growth Management Strategy 2017 -2036", Port Macquarie
- "Social Impact Assessment guidelines" dated September 2017, Department of Planning & Environment
- "Social Impact Assessment Policy" dated 25 February 2009, Port Macquarie Hastings Council
- "Greater Sancrox Structure Plan 2014-2034" dated February 2015, Port Macquarie Hastings Council

ATTACHMENT A

LE CLOS SANCROX COMMUNITY SURVEY

COMMUNITY FEEDBACK REQUEST

Land Dynamics have been engaged to prepare a Social Impact Assessment for a proposed rezoning for low density residential purposes and associated uses at the site known as Le Clos Sancrox.

As a resident living in close proximity to the site, your views and opinions are important, and you are encouraged to participate. Results and comments from this survey will form part of the Social Impact Assessment which has been requested by Port Macquarie Hastings Council.

A feedback survey is attached for you to return to Land Dynamics by post or alternatively you may prefer to email us or complete the online survey.

Your initial feedback is requested by 19 August 2019.

Le Clos Sancrox was previously approved as a vineyard with dwelling lots and comprises approximately 50 owners. It is located on the southern side of Sancrox Road.

Le Clos Sancrox has been subject of a Moratorium imposed by Council 12 years ago which restricted issuing of approvals for dwellings on the lots.

Proposal to Include:

- Masterplanned Community
- Residential Uses
- Complementary Uses could include a school, seniors housing and a small village centre.
- Parks, bushland, waterways, pathways & cycleways.

COMPLETE YOUR SURVEY BY 19 AUGUST 2019

LE CLOS SANCROX COMMUNITY SURVEY

The Survey

This survey has been prepared on behalf of the applicant for a Planning Proposal to rezone the site, based on a resolution of Port Macquarie Hastings Council on 20 February 2019. The information will also be used in the preparation of the Development Application for the overall subdivision of the site which is proposed to occur concurrently to the rezoning. Results and comments from this survey will form part of the Social Impact Assessment which has been requested by Port Macquarie Hastings Council.

The Proposed Development

The proposal is for a site specific rezoning of Le Clos Sancrox and Development Application.

The Site

The development site comprises an existing approved vineyard estate established in the 1980's known as Le Clos Sancrox. The estate is located on the southern side of Sancrox Road and comprises building blocks, each attached to a corresponding viticulture plot.

The Proponent

LCS Estate Pty Ltd is a collective and coordinated legal entity formed by the landowners of Le Clos Sancrox.

Our reasons for community engagement now?

Port Macquarie Hastings Council requires that a Social Impact Assessment be prepared to assess and consider the proposed rezoning, and which includes identification of any likely impacts associated with the development and mitigations to those impacts, if relevant. The Social Impact Assessment will form part of the documentation submitted to Council.

All early engagement on this project with Land Dynamics is voluntary. Council will separately notify all identified relevant stakeholders once a Planning Proposal or Development Application has been lodged with them. Any interested person can make a submission to Council during the Council's formal public notification period.

Please return your response by

19 August 2019 to:

By Mail: Land Dynamics Australia,
PO BOX 2459
Port Macquarie NSW 2444

By Email: PM@ldynamics.com.au

Online: https://www.surveymonkey.com/r/HFMMN72

1. What is your initial response to the proposed development? For example, are there additional land uses that should be incorporated into the current rezoning proposal?

_____
_____
_____
_____
_____

2. Are you aware of the Moratorium applied to Le Clos Sancrox landowners 12 years ago which restricted dwellings being approved, despite a valid development consent on the site?

_____
_____
_____
_____
_____

3. How best can the proposed rezoning proponent and future residents engage with and actively support the existing Sancrox community including existing groups and organisations?

_____
_____
_____
_____
_____

4. Are there any specific land uses or community facilities or uses which you see as being in need for Sancrox which could be incorporated into the proposal?

_____
_____
_____
_____
_____

5. How long have you lived in the area?

_____
_____
_____

6. The proponent is consulting with all the residents in close proximity of the site, local community groups and business representatives. Can you think of anyone in particular that may be interested to hear of the proposed development and who may like to contribute to the initial consultation stage of the proposed development or ongoing discussions?

_____
_____
_____
_____
_____

7. Do you perceive any issues which may arise from the proposed rezoning and development?

_____
_____
_____
_____
_____

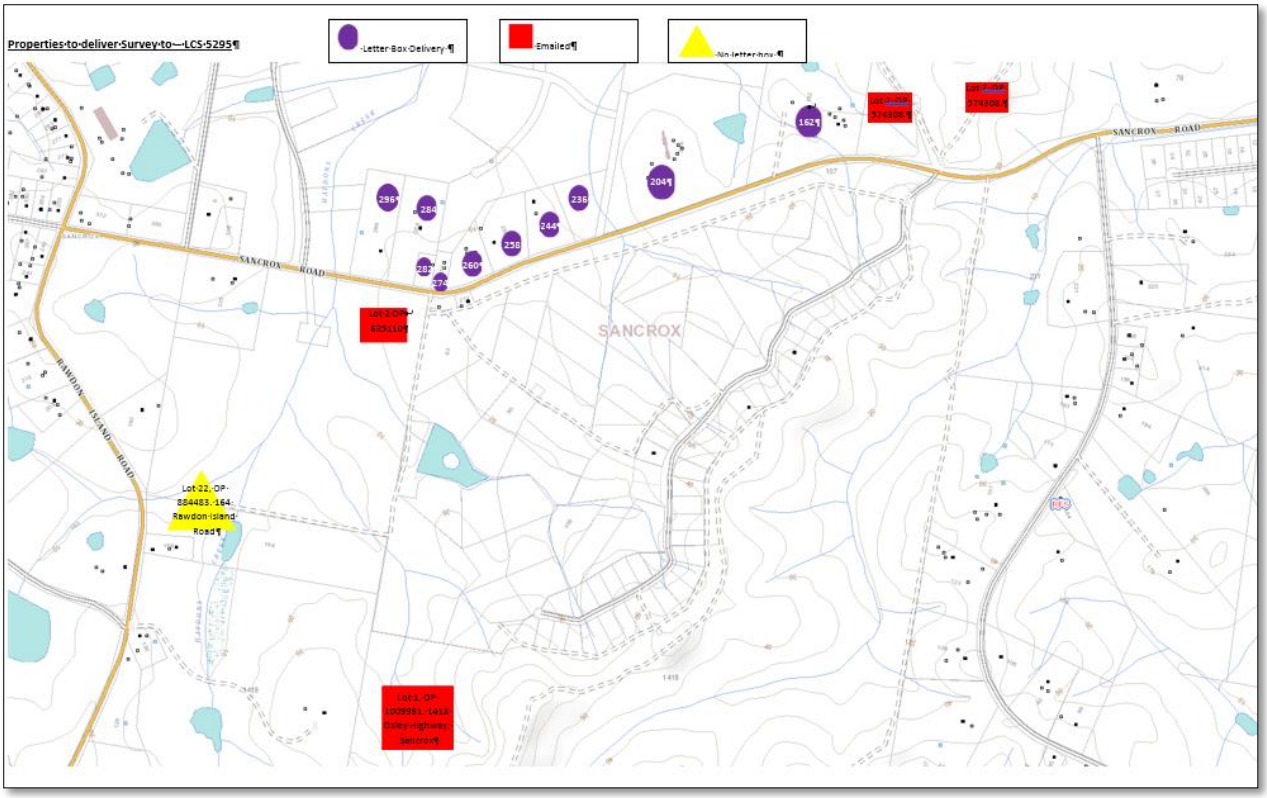
8. Do you have any other questions or comments to make in relation to the proposed rezoning and do you support the rezoning and development of Le Clos Sancrox?

_____
_____
_____
_____
_____

9. Would you like to be involved in ongoing discussion regarding the proposed rezoning? If Yes, please confirm your preferred contact details (Name, Address, Email or Phone).

_____
_____
_____
_____
_____

Thank you for your feedback!



Location of survey delivery and method

LandDynamics
AUSTRALIA

Economic Impact Assessment

Proposed Rezoning

Le Clos Sancrox

Sancrox Road, Sancrox

On behalf of
LCS Estates Pty Ltd

December 2019

Prepared for:

LCS Estates Pty Ltd

Prepared By:

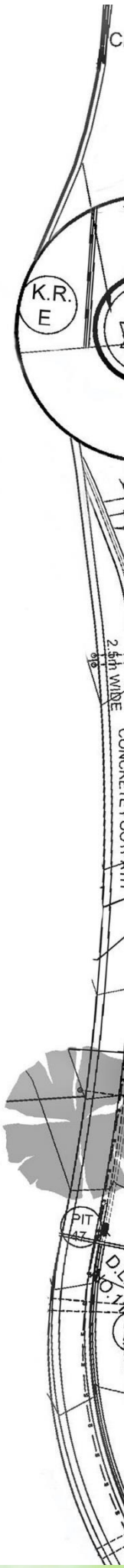
Land Dynamics Australia

77 Lord Street Port Macquarie NSW 2444 – PO Box 2459 Port Macquarie NSW 2444

T: 02 6583 2677 E: pm@ldynamics.com.au

www.ldynamics.com.au

	Name	Date
Prepared By	Donna Clarke	10/12/19
Checked By	Graham Burns	10/12/19



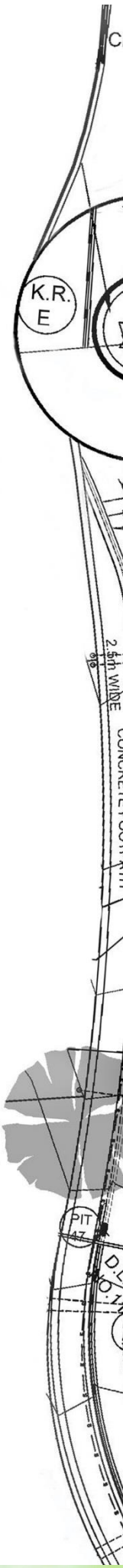
Disclaimer

This report was prepared in accordance with the scope of works set out in correspondence between the client and Land Dynamics Australia. To the best of Land Dynamics Australia's knowledge, the report presented herein accurately reflects the Client's intentions when the report was printed. However, it is recognised that conditions of approval at time of consent, post development application modification of the proposals design, and the influence of unanticipated future events may modify the outcomes described in this report.

Land Dynamics Australia used information and documentation provided by external persons, companies and authority. Whilst checks were completed by Land Dynamics Australia to ensure that this information and/or documentation was accurate, it has been taken on good faith and has not been independently verified. It is therefore advised that all information and conclusions presented in this report apply to the subject land at the time of assessment, and the subject proposal only.

Contents

1. EXECUTIVE SUMMARY 4
1.1 Background 4
1.2 Purpose 4
1.3 The Proposal 4
1.4 Approach & Reports Reviewed 6
2. REGIONAL, LOCALITY & SITE CONTEXT 7
2.1 Port Macquarie Hastings: Regional Context 7
2.2 Sancrox: Locality Context 7
2.3 Le Clos Sancrox: Site Context 8
3. EXISTING RETAIL HIERARCHY & PLANNING 12
4. LIKELY USERS & NEED 15
5. IMPACTS ON BUSINESS HIERARCHY 16
6. POPULATION GROWTH & ECONOMIC DEVELOPMENT 16
6.1 North Coast Regional Plan 2036 16
6.2 Urban Growth Management Strategy 2017-2036 16
6.3 Greater Sancrox Structure Plan 2015 20
7. ECONOMIC PROFILE 21
7.1 Port Macquarie Hastings Economy Profile 21
8. ECONOMIC ANALYSIS 23
8.1 Overall Assessment of Demand 23
8.2 Justification for Demand 24
8.3 Years of Housing Supply & Population Growth 24
9. ALTERNATE SITES 26
10. COMMUNITY BENEFITS 26
10.1 Positive Impact 26
10.2 Negative Impact 26
10.3 Managing Impacts 27
11. COMMUNITY BENEFITS 27
12. KEY FINDINGS 27
13. CONCLUSION 28



1. EXECUTIVE SUMMARY

1.1 Background

Land Dynamics was engaged by LCS Estate Pty Ltd to prepare an Economic Impact Assessment to support and inform a Planning Proposal for land known as Le Clos, in the locality of Sancrox in the Port Macquarie Hastings Local Government Area (LGA). This report considers the impact of the proposed B2 Local Centre (or alternate business zoning as deemed acceptable by Council) land at Sancrox. The information contained within and findings of the Economic Impact Assessment will be used and updated to accompany the Development Application which will be lodged concurrently or shortly after rezoning.

Any reference to proposed B2 Local Centre could be substituted with an alternate business zoning as deemed acceptable by Council for the purposes of this report.

1.2 Purpose

The primary purpose of this report is to ensure that the proposed B2 Local centre zoning does not impact upon the existing retail / commercial hierarchy of the Port Macquarie area and to demonstrate that there is a need for the business zoned land in Sancrox.

The following report is an Economic Impact Assessment relating to the addition of 1ha of B2 Local Centre land within Sancrox. The assessment:

- The identification of the existing retail / commercial hierarchy.
- Examination of any expected impact from the proposed B2 zoning.
- Examination of the future residential demand to support the B2 zoning.
- The need for the proposed B2 zoning and appropriateness of its location.
- Community benefits.

The preparation of this Economic Impact Assessment was undertaken in consultation with officers from Port Macquarie - Hastings Council.

This report should be read in conjunction with the Planning Proposal and accompanying Appendices, including the draft subdivision concept layout.

1.3 The Proposal

The Planning Proposal seeks to amend the Port Macquarie Hastings Local Environmental Plan 2011 to rezone the subject land to enable development for residential purposes; development for local business purposes; and to conserve areas of environmental significance. The Planning Proposal includes rezoning of from RU1 Primary Production to:

- R1 General Residential,
- R3 Medium Density,
- B2 Local Centre,
- E2 Environmental Conservation,
- E3 Environmental Management, and
- E4 Environmental Living.

The Development Application, which will be lodged concurrently or shortly after rezoning, is expected to include:

- Residential – approx.638 lots in R1 zoned land (73.2 ha), 42 lots in R3 zoned land (2.3 ha) and 3 lots in E4 land (existing dwellings on 1.5ha); and
- Business - approx. 1 ha of commercially zoned land.

Indicative layouts have been included in this report but are subject to change prior to lodgement of the Development Application. The proposed B2 land is proposed to be located on Sancrox Road, as shown below.

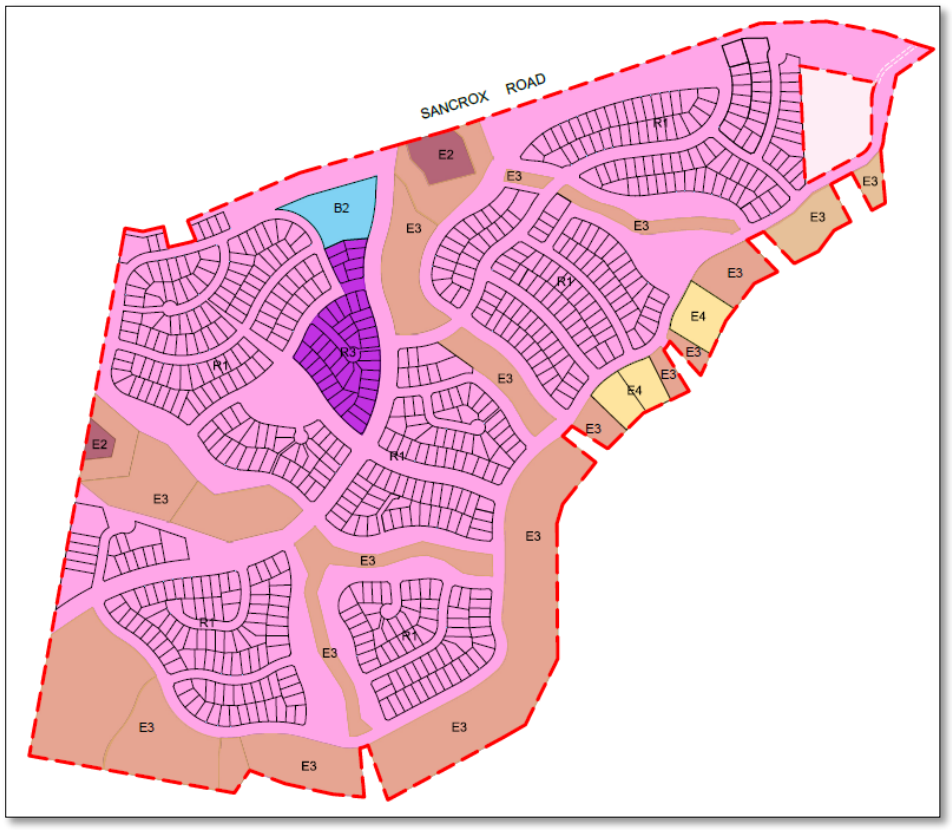


Figure 1 – Proposed Zoning

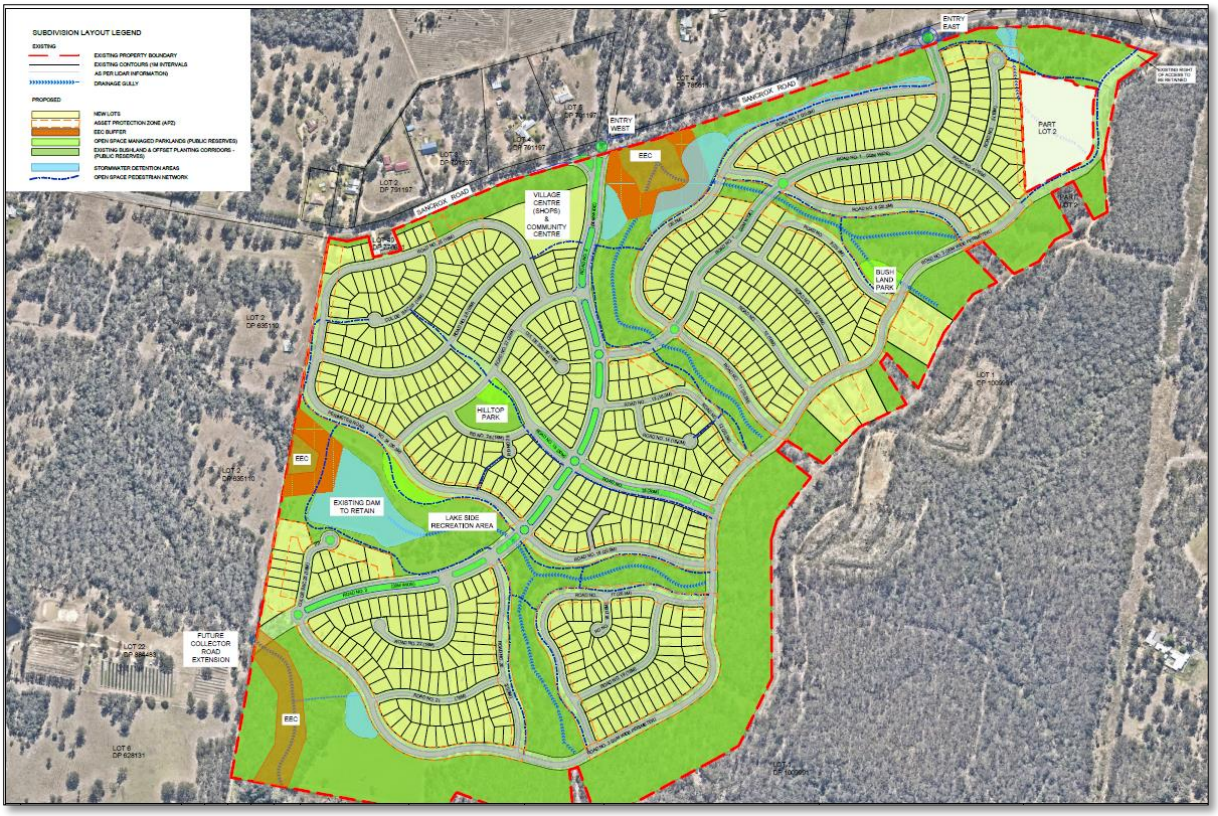


Figure 2 - Subdivision Concept Layout

Vehicle access to the site will be via two new intersections off Sancrox Road, as shown above.

The proposed western vehicle entrance will be a Collector Road standard and will provide connection to the western boundary, which allows for future expansion at the time of development of the adjoining land. The Collector Road will also make provision for bus stops and the round-about at the western boundary will allow for bus turn around until such time as the road is extended.

A network of pedestrian and cycle pathways will be constructed along the roads and a Traffic Assessment is an Appendix to the Planning Proposal, which details road and intersections, as well as bus stops, pathways and cycleways.

Essential infrastructure currently available to the subject site is water, electricity and telecommunications. A number of the services may need to be upgraded to ensure capacity is met and preliminary investigations and discussions with Council and other service providers have indicated extension of services is possible and the site is unconstrained in relation to servicing.

Vegetation retention and landscape design has been considered in the layout, as well as the Landscape and Design Guidelines which have been prepared for the development and are an appendix to the Planning Proposal.

1.4 Approach & Reports Reviewed

In preparing this report the following approach has been undertaken:

- Review of the Urban Growth Management Report 2017-2036
- Review of the Greater Sancrox Structure Plan 2014 – 2034 (dated 2015 but not adopted)
- Consideration of recent population growth in Sancrox and Greater Port Macquarie and the future outlook for population growth
- Translation of population growth to dwelling demand

- Review of the current status of land supply at Sancrox
- Consideration of additional matters relevant to the efficient and orderly management of residential land supply and the maintenance of a competitive housing market.

In preparing this report the following documents, reports and materials have been considered and taken into account:

- Port Macquarie Hastings LEP 2011
- Port Macquarie Hastings Development Control Plan 2013
- Greater Sancrox Structure Plan 2014 – 2034 (2015), PMHC
- Towards 2030 Community Strategic Plan, PMHC
- North Coast Regional Plan 2036, PMHC
- Urban Growth Management Strategy, PMHC
- Economic Development Strategy, PMHC
- Mid North Coast Housing & Land Monitor (2016), Department of Planning and Environment
- Mid North Coast Residential Submarket Analysis (2014), Department of Planning and Environment
- Australian Bureau of Statistics, 2011 & 2016 Census Data
- Port Macquarie Hastings Retail Strategy Review, Hill PDA, 2015

This study has been undertaken using the following methodology.

- Review of the proposed subdivision concept plan
- Site visit and photos
- Documentation review of the local, regional and state planning policy and strategy
- Demographic analysis including review of draft social impact assessment and draft supply and demand assessment
- Impact assessment
- Conclusion

2. REGIONAL, LOCALITY & SITE CONTEXT

2.1 Port Macquarie Hastings: Regional Context

The Port Macquarie-Hastings region covers an area of 3,686 square kilometres and is located midway between Sydney and Brisbane; 420 kilometres north of Sydney and 510 kilometres south of Brisbane. The area is bisected north to south by the North Coast Rail Line and the Pacific Highway which connects Sydney and Brisbane.

2.2 Sancrox: Locality Context

Sancrox is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and the Greater Sancrox Area (GSA). The GSA is located approximately 6.4km north east of the Wauchope town centre and 13km west of the Port Macquarie town centre and contains a land area of approximately 1,400 hectares (ha). The region is bound by the Oxley Highway to the south, the Pacific Highway to east and rural lands to the west and the Hastings River to the north. The predominate land use is rural, including agriculture and rural-residential. In general, lot sizes range between 1 to 10ha, with only four lots greater than 50 ha. The majority of small land parcels are located in the areas off Rawdon Island Road and Sancrox Road.

2.3 Le Clos Sancrox: Site Context

The subject site is located on the Mid North Coast within the Port Macquarie-Hastings local government area, and forms part of the Greater Sancrox Area, as identified by Council. The subject land comprises a number of landholdings and is collectively known as Le Clos Sancrox. The plan below in Figure 3 details the extent of the boundaries of the properties included and Figure 6 provides the context of Le Clos Sancrox with respect to the greater Sancrox Area, Wauchope and Port Macquarie.

Le Clos Sancrox is part of the previous wider Cassegrain vineyards. To the north of the site is Verdun Estate which was also part of the previous vineyard land and has recently been rezoned by Council to large lot residential. To the north is a range of rural-residential dwellings and an animal boarding and breeding establishment. To the north-east of the site is Sancrox Quarry and further along Sancrox Road is Expressway Spares, which is part of a future industrial land investigations area. The site is generally surrounded by rural land, noting that extensive clearing has occurred on the land to the east recently.

The site is located on the southern side of Sancrox Road, approximately 1.3km from the Pacific Highway to the east, which links with Brisbane to the north and Sydney to the south. Sancrox Road also links to Port Macquarie to the east and Wauchope to the west. The site is relatively cleared, with vegetation in fingers through the site and around the edges. A number of drainage lines dissect the site falling towards Sancrox Rd.

The Greater Sancrox Area is located approximately 6.4km north east of the Wauchope town centre and 13km west of the Port Macquarie town centre and contains a land area of approximately 1,400 hectares. The region is bound by the Oxley Highway to the south, the Pacific Highway to east and rural lands to the west and the Hastings River to the north. The predominate land use is rural, including agriculture and rural-residential. In general, lot sizes range between 1 to 10ha, with only four lots greater than 50 ha. The majority of small land parcels are located in the areas off Rawdon Island Road and Sancrox Road.

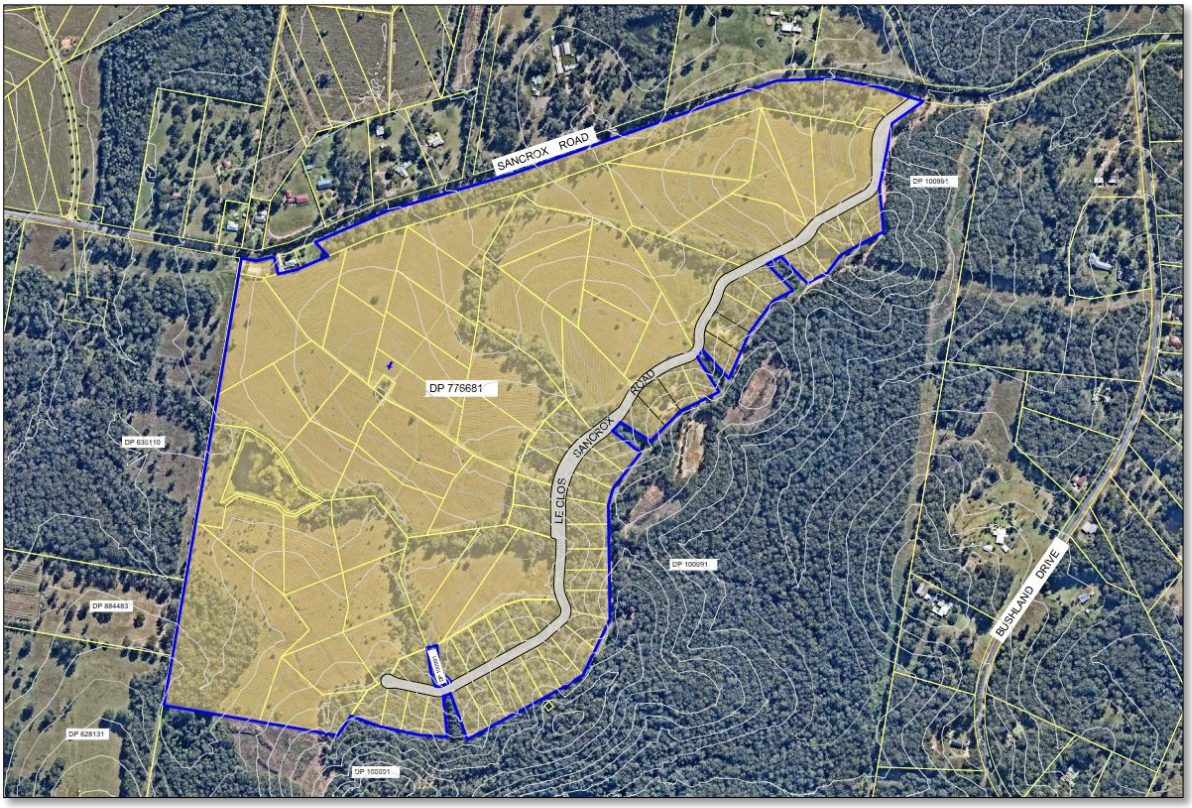


Figure 3 – Location of Extent of Le Clos Sancrox Highlighted Yellow (source: www.sixmaps.nsw.gov.au)

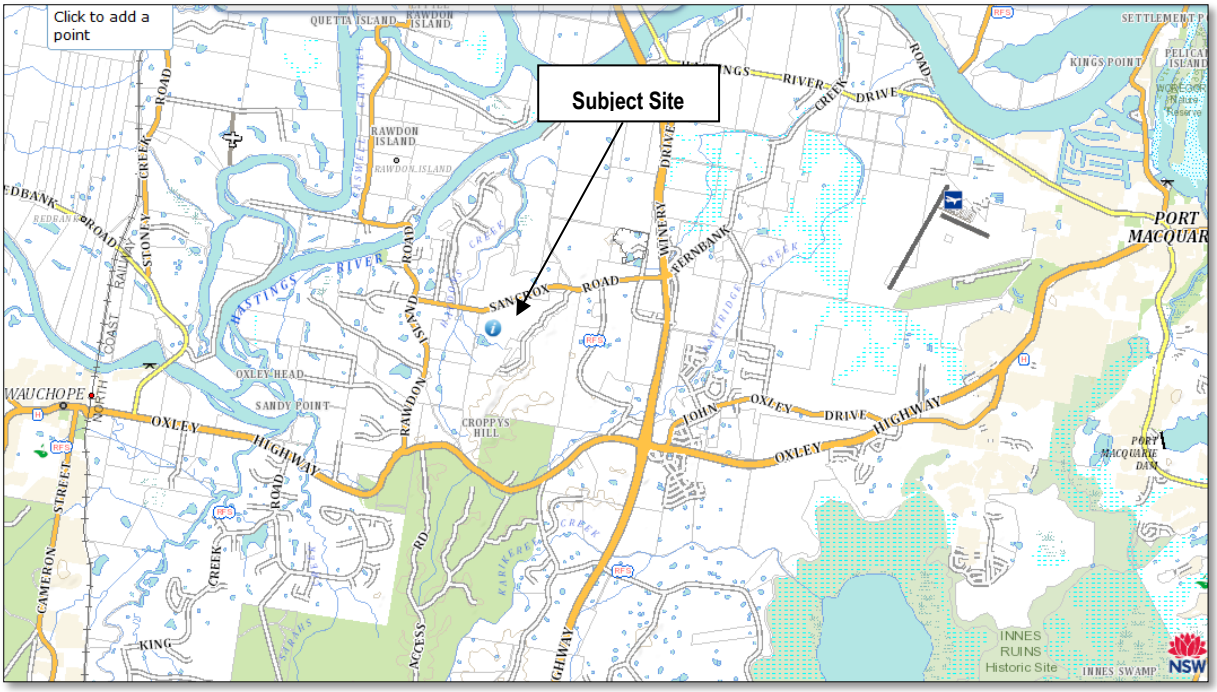


Figure 4 - Contextual Location of the subject land (source: www.sixmaps.nsw.gov.au)

Figure 5 - Close Up Aerial Map of the subject land (source: www.nearmap.com)

The subject site is subject of a Moratorium of development on the site, which will be resolved by way of this Planning Proposal. Council has resolved to proceed with a site specific Planning Proposal for the subject site in parallel with the wider Outline Planning for the Fernbank Creek – Sancrox area. The planning undertaken as part of this Planning proposal will inform the greater area planning, whilst allowing the development of the site to occur earlier to resolve the Moratorium issue.

The site and surrounding area has been subject of extensive Structure Planning in 2015, which was delayed pending Council's Urban Growth Management Strategy and the change in strategy from rural-residential to residential zoning of the area.

The site has been identified as areas subject to Outline Planning in Council's Urban Growth Management Strategy. Rezoning the land is considered the most suitable and transparent way of achieving the objectives of this proposal.

The area of Sancrox is the logical next area for development, with Area 13 planning ceasing at the highway. This area of Thrumster is developing at a steady rate, with a good take up of land by purchasers.

The site is well located with easy access to the existing universities, schools, hospitals, shopping and other services and facilities within Port Macquarie and Wauchope.

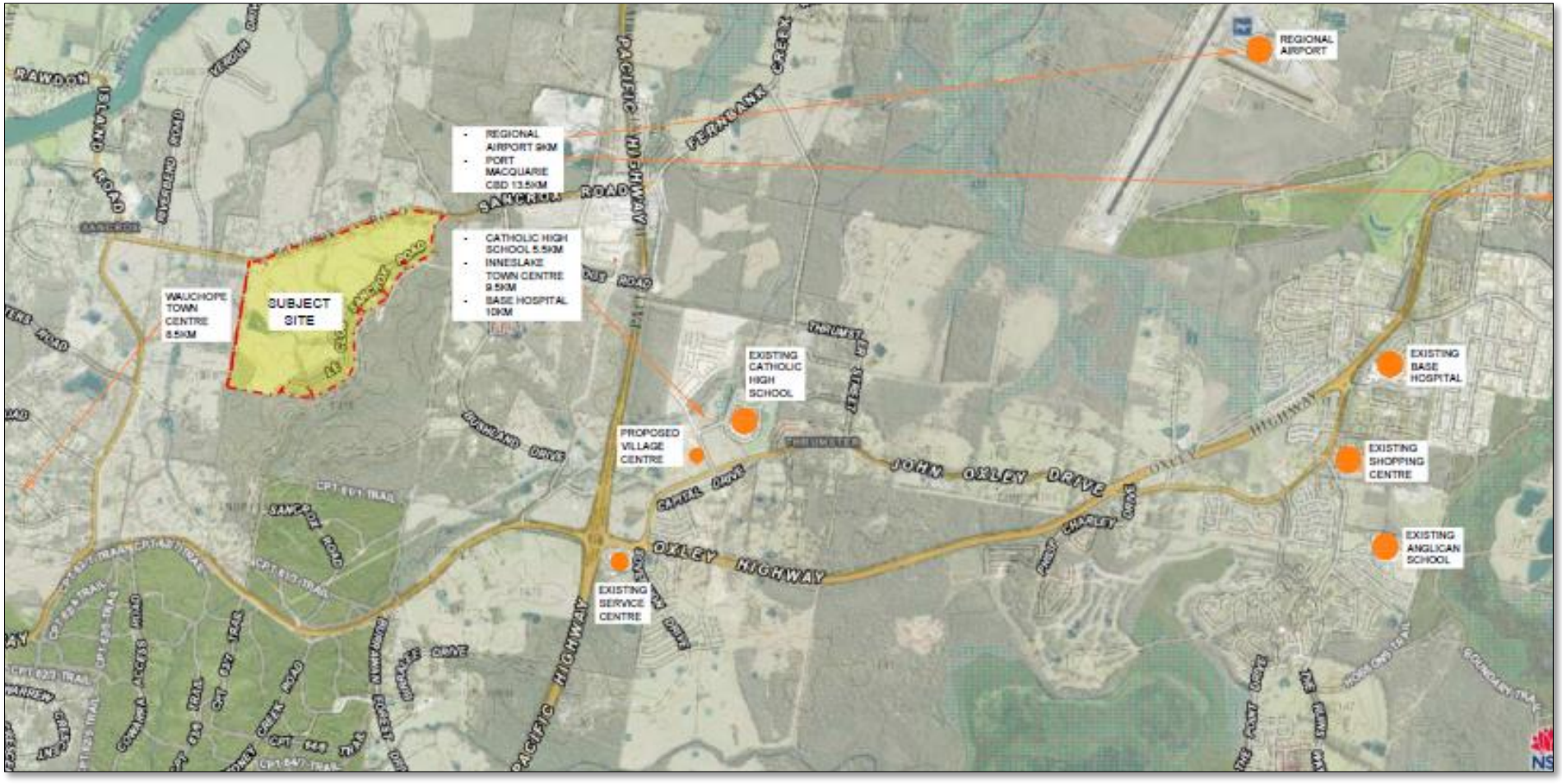


Figure 6 - Broadscale Analysis Extract

3. EXISTING RETAIL HIERARCHY & PLANNING

The Regional Plan indicates that new commercial precincts, outside of centres, should be appropriately sized and of scale relative to the area they will be servicing, and demonstrate how they will deliver positive social and economic benefits for the wider community and maintain the strength of the regional economy.

Council's Urban Growth Management Strategy 2017-2036 states:

> *"Port Macquarie is expected to accommodate about 63% of all new population growth in the local government area to 2036. In total, Port Macquarie's population is expected to grow from 48,870 in 2016 to 66,000 in 2036. Generally, this means between 700 and 800 new residents each year."*

Figures 5 and 6 below are extracts from Council's Urban Growth Management Strategy and indicates the existing retail and business hierarchy, noting that Port Macquarie CBD is the main centre.

The subject site is located in the vicinity of the star indicated on the figure.

It is important to note the following with respect to the site distance from these identified existing centres:

- **Main Centre / Regional -** Horton St in Port Macquarie's CBD is 13.5km / 20 minutes' drive by car from the site.
- **Town Centre** – Wauchope is 8.5km / 11 minutes' drive by car from the site, Sovereign Place at Thrumster is 7.5km / 8 minutes' drive by car from the site, and Laurieton is 37km / 29 minutes' drive by car from the site.
- **Neighbourhood Centre** – Lighthouse is 21km / 21 minutes' drive by car from the site, and Lake Innes is 13km / 12 minutes' drive by car from the site.
- **Local Convenience Centre** – Waniora is 19km / 19 minutes' drive by car from the site, Shelly Beach is 19km / 20 minutes' drive by car from the site, and Watonga is 21km / 22 minutes' drive by car from the site.

Looking at Figure 7 below, it is clear that there is un-serviced area with respect to neighbourhood centres in this area, in the area between Wauchope and Thrumster / Lake Innes / Port Macquarie.

The Social Impact Assessment outlines details of the services and facilities are available within the Sancrox area (and/or close proximity), which also highlights the absence of local or neighbourhood centres in the area.

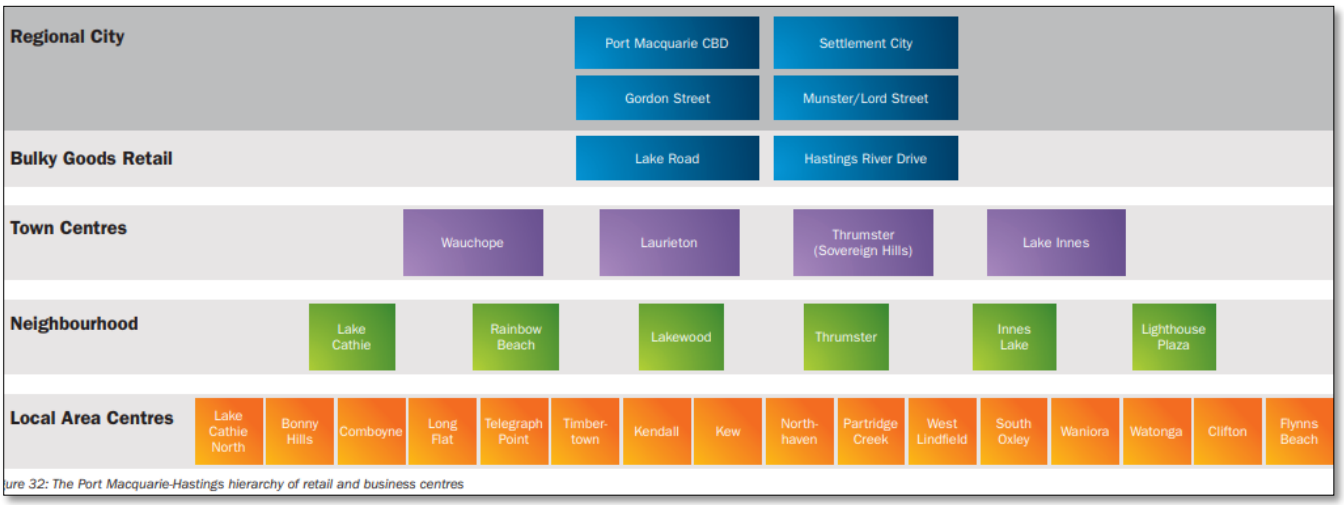


Figure 7 - Extract UGMS Retail Hierarchy and Business Centres Figure 32 (source: www.pmhc.nsw.gov.au)

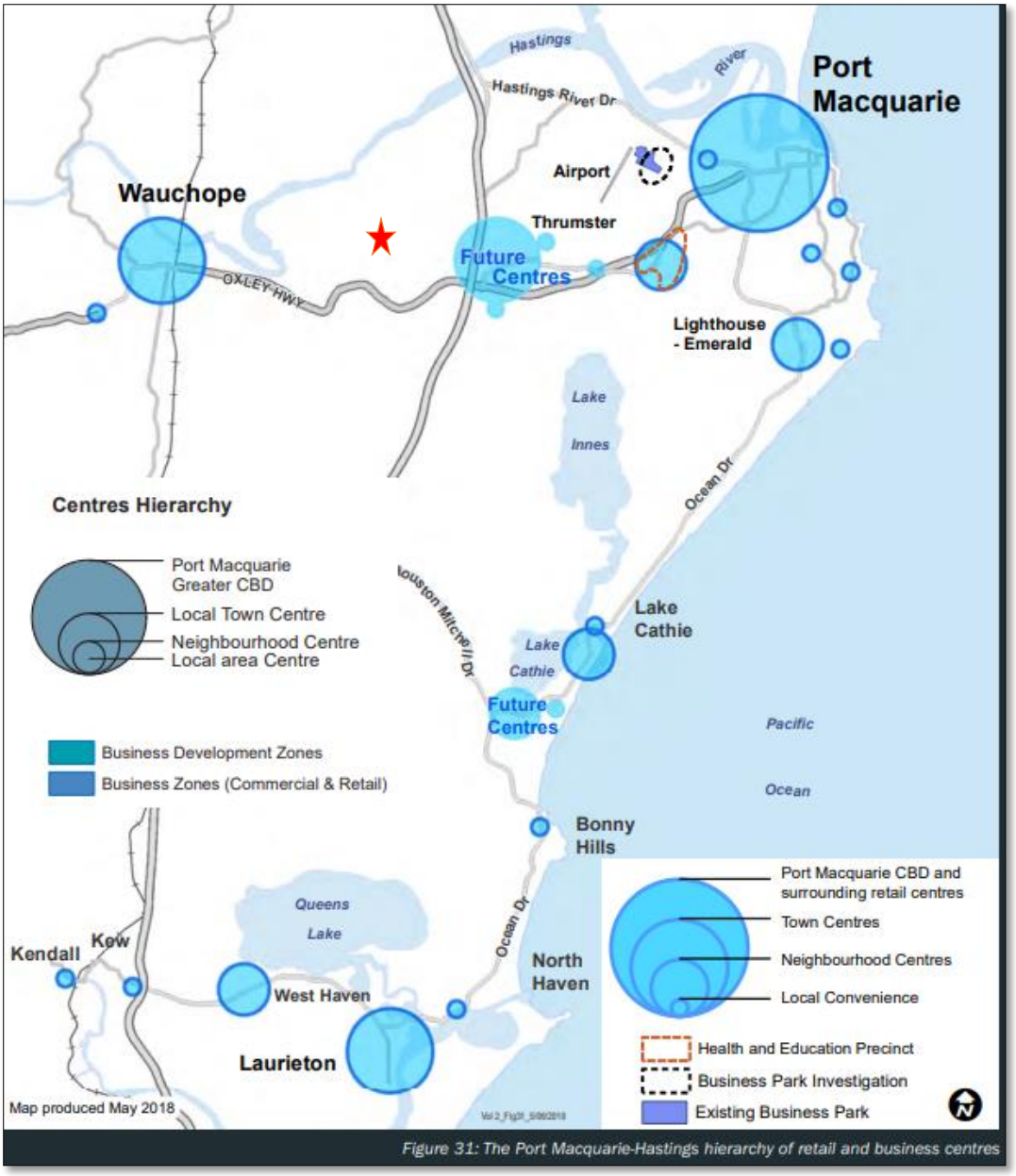


Figure 8 – Extract UGMS Retail Hierarchy and Business Centres Figure 31 (source: www.pmhc.nsw.gov.au)

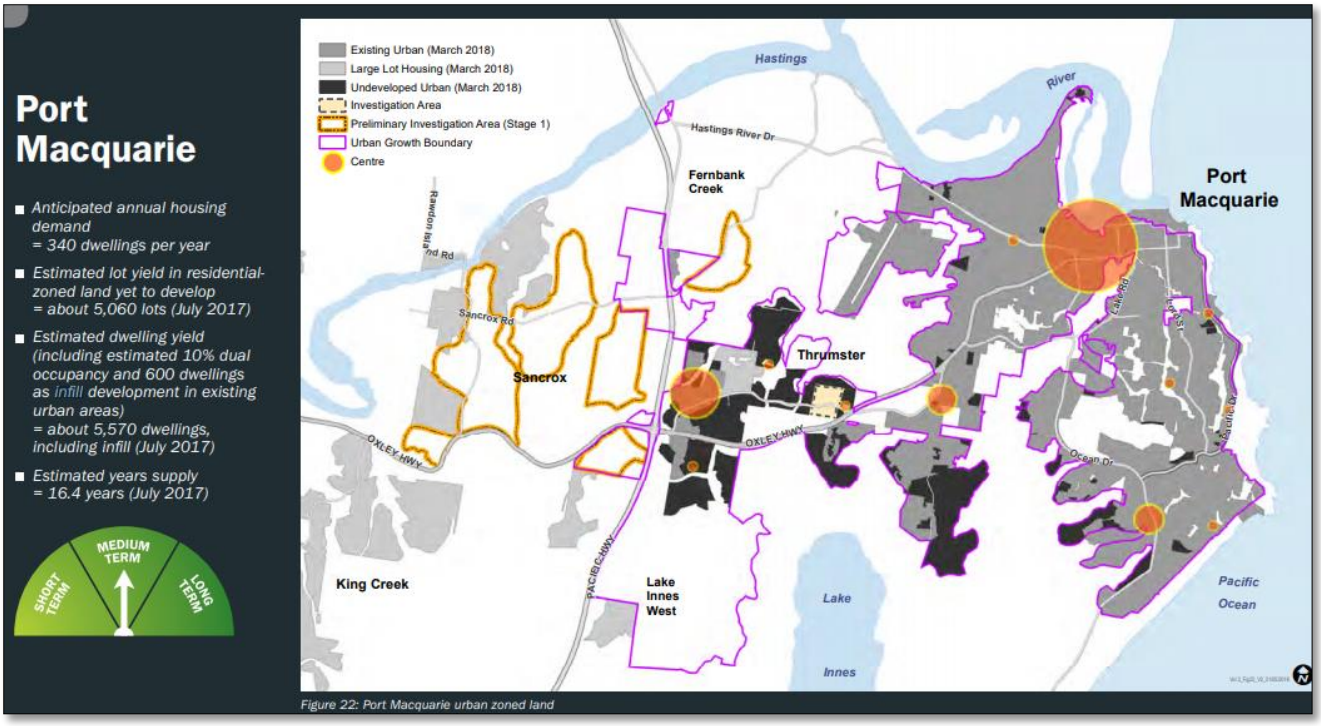


Figure 9 - Extract UGMS Housing Demand Figure 22 (source: www.pmhc.nsw.gov.au)

Figure 9 above identified future development urban areas by way of the yellow circles, with the subject site centrally located in this area.

The LEP map 13B which includes the subject site and surrounding area does not identify and business zones. Therefore, any other businesses operating in this southern area of Port Macquarie in accordance with the limited uses under the residential zoning or existing use rights. The current zoning maps does not allow for any increase in business zoned land, despite the expected level of growth in population in this area projected into the future.

It is key to note that the proposed B2 zoning varies from the main centre of Port Macquarie and due to the size, location and likely nature, is not in competition.

Council has been progressing planning of large scale business precincts including the Airport and Health & Education, however these are not directly comparable with this proposal and those proposals have the ability to significantly alter the business hierarchy and economic characteristics and trends for the wider area. This subject rezoning is proposed to fill a gap identified in the existing hierarchy at local / neighbourhood level, to service residential estates which have emerged and grown in recent years.

Having regard to the absence of existing local and neighbourhood centres in the immediate vicinity reiterates that a new centre in Sancrox is needed.

Within the previous UGMS 2010-2031, the re-subdivision of the Le Clos farms at Sancrox was mentioned heavily, with immediate timing for investigations which was indicated as commencing in 2010/11.

The recently adopted UGMS 2017-2036, as exhibited did not support investigations at Sancrox, however as a result of public interest, with a large number of submissions to the exhibited documents from landowners of Le Clos Sancrox, the UGMS was amended prior to adoption and Le Clos Sancrox included in the Structure Plan for Sancrox in the adopted UGMS 2017-2036.

The report to Council on 20 June 2018 was detailed with respect to Le Clos Sancrox, as touched on above and indicated that Council could support investigation areas outside of the urban growth boundary in the Regional Plan,

such as Le Clos Sancrox, and that Outline plans are to be prepared and submitted to the Department prior to rezoning. The adopted UGMS includes Le Clos Sancrox as part of Outline Plan areas, which Le Clos Sancrox is located within.

The resolutions of Council, with the latest being 20 February 2019, required immediate commencement of Stage 1 planning to prepare an Outline Plan for Sancrox-Fernbank Creek as detailed in the UGMS, and to invite the Le Clos Sancrox landowners to submit a planning proposal in parallel with Stage 1 planning in order to assist in informing the planning process.

North Coast Regional Plan 2036 has been prepared to guide land use planning priorities and decisions to 2036 and has identified "*The regional cities of Tweed Heads, Lismore, Coffs Harbour and Port Macquarie are the primary growth anchors, delivering new jobs, and more diverse housing as well as high quality essential services*".

In response to the need for additional housing stock identified in the Regional Strategy, this site is a prime opportunity to accommodate additional housing without adverse environmental impacts or loss of agricultural land given this site has not been utilized as a vineyard for approximately 30 years. The use of cleared land adopts the sustainable land use principles, rather than utilizing land which is currently used for agricultural purposes or contains ecological features.

4. LIKELY USERS & NEED

Figure 5 above and the distances indicates above indicates a lack of business, commercial or retail centres for the current and future residents of Sancrox and surrounding areas. There is a strong market demand for local centre in this area.

These residents have no neighbour centre within walking distance, or close by, with the closure of the local shop in 2013. The closest facilities are Wauchope Town centre or Lake Innes Coles and specialty shops, which are both larger centres. Wauchope is 8.5km / 11 minutes' drive by car from the site and Lake Innes is 13km / 12 minutes' drive by car from the site.

There is a strong demand from the existing and future residents for this low scale neighbourhood centre. It is expected that employees within the business / enterprise estate to the east may also utilise the village centre for their day to day needs.

There is opportunity for commercial use of this site to appeal to a range of the sector including primarily:

- Residents of Sancrox and nearby estates, which may include standard residential, medium density, seniors living.
- Future residents following wider investigations.
- Users of the nearby Sancrox Reserve.
- Employees within the business / enterprise estate to the east (Expressway Spares etc)
- Small businesses who do not need space in the CBD, in a variety of forms including retail, office space, medical centre, take away food or café etc.
- School community (if the school discussions progress for location within the site).
- Users of services such as child care centre which are commonly located in residential areas.

The site is accessed via existing road infrastructure via private vehicle, bus services and bicycles, or a combination. Sancrox Road is expected to be upgraded as part of the development of the area and as shown on the indicative layout plan, a new intersection is proposed off Sancrox Road, adjacent to the B2 zoned land. The subdivision

concept also provides for excellent pedestrian and cycling network throughout the proposed estate. The connectivity of the site cannot be ignored when considering the likely users of this land.

Given the forecasted growth for the region and the increase in population continuing to arrive in Sancrox, there is a clear need to provide additional local commercial or retail services for their day to day needs, as well as providing employment opportunities. The proposed neighbourhood centre is small in scale, appropriate for the proposed residential estate of Sancrox.

The village centre will have synergy with other sues which could be contained within residential areas such as school or child care centre and would also provide facilities and services for other forms of residential accommodation including seniors living.

5. IMPACTS ON BUSINESS HIERARCHY

Given the small scale of the proposed B2 Centre zone with a total land area of 1 ha a direct conflict with user of the Port Macquarie CBD would not be expected, nor with the established local and neighbourhood centres given their distance from the site and also the size of those facilities being larger and in the instance of the developing Thrumster town centre, housing a supermarket. This planned 25,000m² town centre with retail, commercial and leisure offer, schooling and childcare, recreational facilities, and parklands, has just opened Stage 1 called "Sovereign Place" on 22 November 2019. Stage 1 is, 5,200m² in size and includes IGA, speciality shops, food, service and homewares retailers.

The opportunities for the development of this site would be expected to respond to the needs of the users identified above and as such it would be expected that small scale retail uses, café, office space, medical centre and the like would be accommodated in a future development. The day to day needs of the residents could be met such as milk and bread, a cup of coffee or as discussed above, storage areas.

6. POPULATION GROWTH & ECONOMIC DEVELOPMENT

6.1 North Coast Regional Plan 2036

North Coast Regional Plan 2036 has been prepared to guide land use planning priorities and decisions to 2036 and has identified "*The regional cities of Tweed Heads, Lismore, Coffs Harbour and Port Macquarie are the primary growth anchors, delivering new jobs, and more diverse housing as well as high quality essential services*".

In response to the need for additional housing stock identified in the Regional Strategy, this site is a prime opportunity to accommodate additional housing without adverse environmental impacts or loss of agricultural land given this site has not been utilized as a vineyard for approximately 30 years. The use of cleared land adopts the sustainable land use principles, rather than utilizing land which is currently used for agricultural purposes or contains ecological features.

Port Macquarie-Hastings current population of 79,905 at 2016 is projected to increase by 11,595 people to 91,500 by 2031 under the 2016 NSW State and Local Government Area Population and Household Projections (Main Series) produced by the NSW Planning and Environment. This will add a further 6,100 households and an estimated 9,295 additional vehicles by 2031.

6.2 Urban Growth Management Strategy 2017-2036

Population growth is identified in Figure 21 of the UGMS which indicates that this area of Sancrox and surrounds is expected to accommodate 385 additional dwellings by 2036, yet no additional local or neighbourhood

commercial centres were identified in this area. Hence, there is a demand for the local business zoned land in the Sancrox area.

Having regard to the identied challenges in the UGMS to accommodate the desired population growth, which includes targeted infill development, the subject site is prime for infill development given its lack of constraints with respect to ecology, heritage or servicing and is located within an existing residential area.

Part 4 of the UGMS states:

> *"The goal for Economic Development in this Strategy is:*
>
> *A prosperous and diversified economy*
>
> *Our population is forecast to continue to grow at an average rate of around 1,200 additional residents every year to 2036. This will inevitably create opportunities for new jobs to service a growing population."*

The UGMS also identified growth in the business sector to respond to the population increase, with growth at all levels of the hierarchy.

The proposed local centre would address a gap in the lower end of the hierarchy being local and neighbourhood centres with respect to the existing location of centres, whilst meeting the principles and servicing the current and expected continued population increase. The closest centre is the recently opened Sovereign Place at Thrumster, which is considerably larger than proposed by this rezoning, being 25,000m² in size (at completion), compared to 10,000m². The previous Sancrox corner shop closed down a few years ago and left this gap for the existing residents.

Employment opportunities both on-going and during construction would be an additional benefit, which is important in the Port Macquarie area where employment is often difficult.

The UGMS contains the following planning principles for economic development and employment, which are aimed at generating the right conditions to provide opportunities for economic growth in the Port Macquarie-Hastings area:

> *"**PRINCIPLE 1***
>
> ***Business Centres***
>
> *Plan for retail growth within the established hierarchy of business centres in the Port Macquarie-Hastings to ensure that the scale of development in each centre is appropriate for the catchment population that it is intended to serve.*
>
> ***PRINCIPLE 2***
>
> ***Port Macquarie CBD***
>
> *Maintain and enhance the role of the Port Macquarie CBD as a primary multifunctional business centre in the North Coast region and the primary business centre in the Port Macquarie-Hastings.*
>
> ***PRINCIPLE 3***
>
> ***Bulky goods retail***
>
> *Retain opportunities for bulky goods retail in retail centres and in Business Development zones based on projected demand.*
>
> ***PRINCIPLE 4***
>
> ***Health services and education precincts***
>
> *Establish well-planned, multi-functional health services and education precincts, including opportunities for complementary uses, to drive future growth and innovation in the health and education sectors and to expand the diversity of the local economy.*

PRINCIPLE 5

Connectivity

Promote connectivity between employment centres, accessibility for the users of business and employment areas and take advantage of freight and transport networks.

PRINCIPLE 6

Industry

Provide a generous supply of industrial land to cater for a range of industry types to meet the forecast needs of the Port Macquarie-Hastings community to 2036.

PRINCIPLE 7

Tourism

Promote opportunities for large-scale tourism in prime tourism development areas in Port Macquarie and for a range of small to medium scale sustainable tourism in other areas."

Principle 1 in particular is relevant and it has been demonstrated that the expected population growth from Le Clos Sancrox, as well as the remainder of Sancrox in the future planning, is sufficient to service the proposed B2 Local Centre. Further, this population growth in Sancrox was not anticipated at the time of Thrumster retail planning and as such, there is unlikely to be a reduction in users to the developing Thrumster Town Centre. This centre is of a considerably larger scale and is more of a destination rather than a convenience, as the proposed zone would be envisaged to function.

The impact upon the larger retail centres of Port Macquarie and Wauchope and the emerging Thrumster town centre, is not expected as they will provide a different function to a small neighbourhood / local centre.

Having regard to the future planning identified in the UGMS as shown in Figure 9 above, this B2 zone would be centrally located and easily accessible via Sancrox Road and the future Collector Road being made provision for within the draft layout, to provide further connection to the east and onto the north.

The UGMS states:

> *"One of the main aims in this Strategy is to ensure that we have a range of high quality centres, providing convenient shopping and business opportunities for residents and for visitors to the Port Macquarie Hastings. We want to create vibrant places for local communities, that are enjoyable and memorable to visit, well connected (e.g. by public transport) and with room for growth to cater for our growing population."*

The proposed local centre responds to this aim and will compliment the existing retail and business centres and provide for the existing population and anticipated populations, in a location which is well connected by existing and proposed infrastructure, which includes provision for future bus networks, as well as the proposed road, cycle and pedestrian network throughout the Le Clos Sancrox development. Sancrox Road a Collector Road and provision has been made within the draft layout for Collector Roads through the site, with bus stops. The indicative Corridor Layout Plans accompanying the Planning Proposal clearly indicate the provision of bus stops, cycleways and pedestrian paths along Sancrox Road and within the development to ensure the site integrates into the wider planning or the area and allows for the future residents within and external to Le Clos to easily access the business land. Previous discussions with Busways indicates that bus routes will be planned once the development is underway and the customers are in the area to utilise the service.

Local centres will always be popular with residents in particular forb day to day conveniences who do mot wish to go into the larger centres for just one or two items such as milk and bread and do not require the main street shops and facilities. The proposed centre will have a point of difference from other retail centres.

The UGMS discussed retail and commercial growth and states:

> *"With an additional 23,000 people predicted to reside in the Port Macquarie Hastings by 2036 and growth in retail spend per capita conservatively estimated at 1%, resident spend is forecast to grow significantly during the 20 year period of this Strategy. Demand for retail floorspace is forecast to increase for all categories of retail including food and groceries, take away food, apparel, homewares and manchester, bulky goods and meals in pubs, clubs and restaurants. The predicted demand for retail floor space in the Port Macquarie-Hastings is forecast to grow from approximately 197,000m2 Gross Floor Area (GFA) in 2016 to a projected 274,000m2 GFA in 2036, including demand for specialised retail premises (bulky goods) stores."*

The UGMS identifies industrial economic growth along the western side of the Pacific Highway, but not retail land and in particular not related to local or neighbourhood centres. The figure below clearly identifies Thrumster town centre as the closest retail centre, which is greater in hierarchy than the proposed local centre.

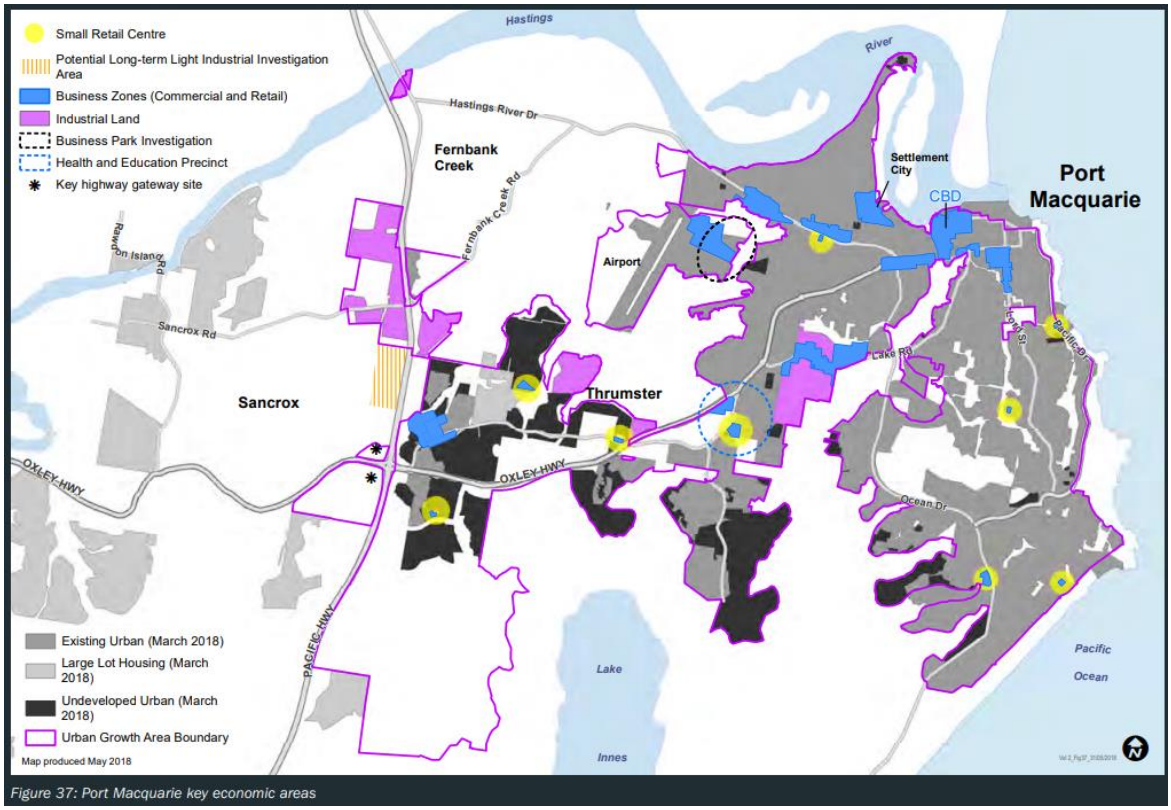


Figure 37: Port Macquarie key economic areas

Figure 10 - Extract UGMS Port Macquarie Key Economic Areas Figure 37 (source: www.pmhc.nsw.gov.au)

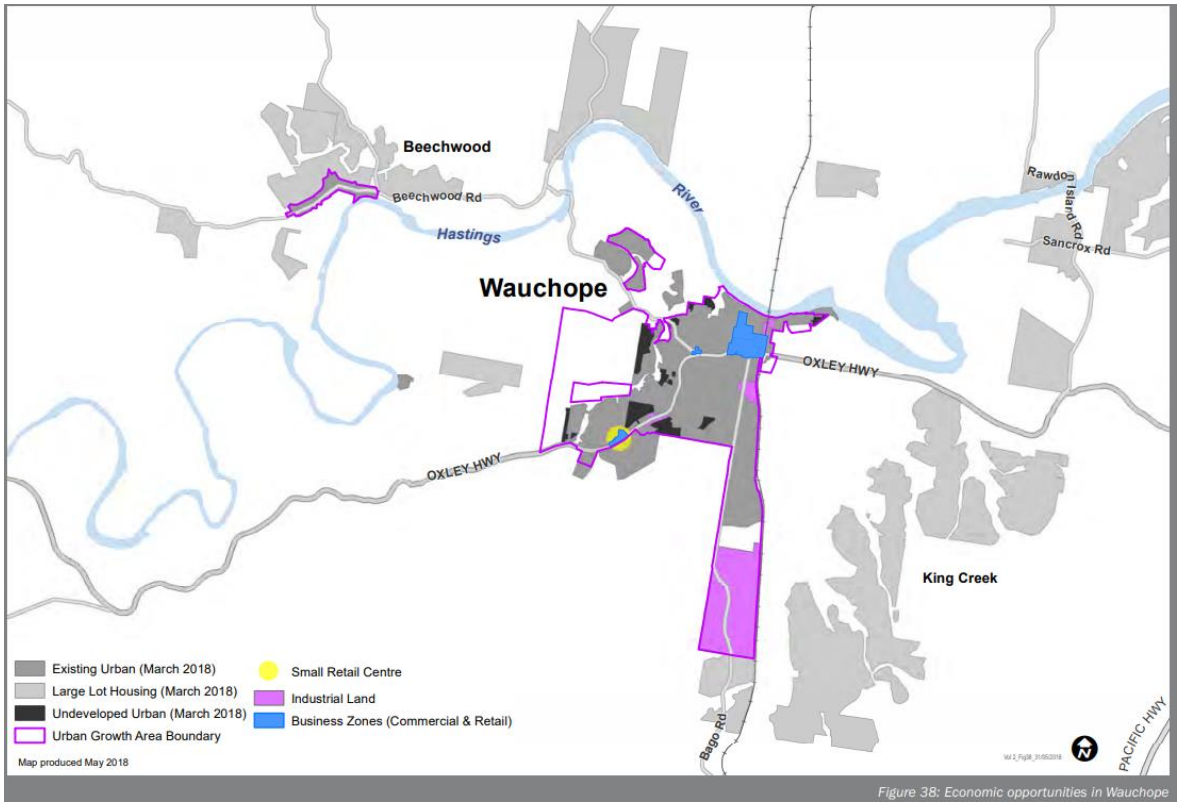


Figure 11 - Extract UGMS Wauchope Key Economic Areas Figure 38 (source: www.pmhc.nsw.gov.au)

The UGMS indicates that Council will continue to consider site specific requests to amend zones and other planning controls, which can be considered independently, without any significant impact on Council's overall planning for urban growth.

6.3 Greater Sancrox Structure Plan 2015

In reviewing the Greater Sancrox Structure Plan Issues Paper dated October 2011, it is stated that "*a review of the Le Clos Sancrox subdivision has been identified by Council as a key element in planning for the Sancrox area*" and Le Clos Sancrox is identified on the maps within the document as "*possible future development precincts, coinciding with areas of lower ecological constraint*".

The Structure Planning work did occur to satisfy a key objective of the UGMS in force at that time and was reported to Council for adoption in 2015 and delayed pending the revised UGMS.

Rezoning of the land was invited over 13 years ago, Structure Planning had commenced and finalised in 2015 and the latest UGMS 2017-2036 indicated outline planning could occur on this site.

It is acknowledged that a substantial amount of work has been undertaken by Council is the Greater Sancrox Structure Plan, which would assist in progressing the Outline Planning for Le Clos Sancrox.

The study area is shown below and Le Clos Sancrox is identified as the majority of Sector 5. An extract from the Structure Plan regrading Sector 5 is included which identifies Le Clos Sancrox as a priority.

The Structure Plan provided limited commentary regarding business conveniences in the area and it acknowledges that there are no neighbourhood or local conveniences for residences, with the general store closing in 2013.

With exception of the King Creek convenience store located at the Oxley Highway/King Creek Road intersection to the west, the nearest shopping facilities are at Wauchope. A general store on Rawdon Island Road, which once serviced the Sancrox area, closed in early 2013. A nursery/café on Sancrox Road, which has been operating for almost two years, has become a popular meeting place for locals and visitors alike.

Figure 12 - Extract from Structure Plan – Business Conveniences (source: www.pmhc.nsw.gov.au)

The Structure Plan also identifies the need for buffers from employment land to existing and future residents in order to avoid future land use conflict. There is ample room available within the B2 zone to incorporate landscape buffers and fencing to the nearby future residential lots to ensure a suitable relationship between the two land uses. Discussions are also advancing regarding the location of a school adjacent to the village centre which would also be complimentary land use.

The Structure Plan did identify future business uses at the intersection of the Pacific Highway and Oxley Highway, on the western side and identified as gateway sites, which are now being advanced by way of a separate Planning Proposal for a service centre. These business uses will be utilised primarily by travellers, rather than the locals who need day to day conveniences. The Structure Plan stated:

- **Employment/industrial**

Council has investigated and rezoned land for industrial development in the Sancrox and Fernbank Park Employment Precincts to the north and north-east of the GSA. These two estates have a collective area of almost 85 to 90 ha in addition to existing industrial areas in the LGA. As a result, there is an estimated supply of vacant industrial land of more than 20 years and the investigation and rezoning of the future employment land in the GSA has not been proposed in the UGMS, being consideration of the area in a Structure Plan.

The future employment land within the GSA was identified in the UGMS (*p68*) due to the site's location adjacent to the Pacific Highway and existing industrial development. It was proposed to investigate the future of the area and the gateway sites in the GSA to provide a framework for compatible land use in the long-term. Development opportunities at the intersection of the Pacific Highway and Oxley Highway may include a highway service centre and tourism uses. The relationship with adjoining uses will be a key consideration.

Council will monitor the take up of industrial land and will review the status of the future employment area in review of the UGMS.

Figure 13 - Extract from Structure Plan – Employment /Industrial (source: www.pmhc.nsw.gov.au)

The proposed village centre and corresponding B2 zone is centrally located in the wider Sancrox precinct and whilst it will be developed as part of the Le Clos Sancrox development, is intended for the existing and future residents of the wider Sancrox area and is easily accessible from Sancrox Road and is adjacent to a new intersection.

7. ECONOMIC PROFILE

7.1 Port Macquarie Hastings Economy Profile

Port Macquarie Hastings LGA is a long established community with regional centre status, with a population over 83,000, over 29,000 jobs and a gross regional product worth $5.028 billion. The regional status comes from its broad-based public and private business sectors, coupled with a dynamic retail and commercial district. Port Macquarie and surrounding areas has also been a thriving centre of tourism for many years.

Greater Port Macquarie has a $6 billion local economy and is a net exporter. "*We sell more products and services to customers outside of the LGA (approx. $2.09 billion) than we import ($1.67 billion). This is considered to be an outstanding performance for a regional economy.*" Source: PMHC Economy profile

The Port Macquarie-Hastings Council area has an increased by 2,030 between 2011 and 2016 for number of employed people.

The largest changes in the jobs held by the resident population between 2011 and 2016 in Port Macquarie-Hastings Council area were for those employed in:

- Health Care and Social Assistance (+778 persons)
- Construction (+624 persons)
- Education and Training (+473 persons)

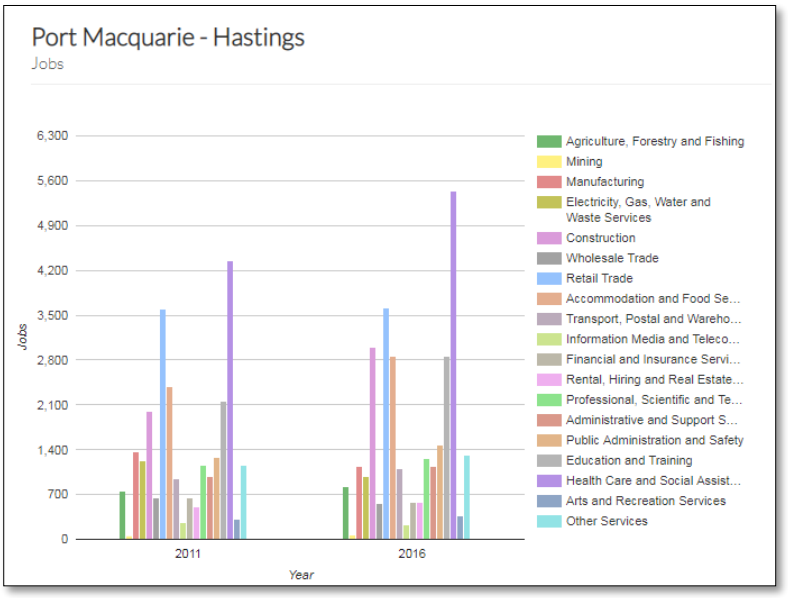


Figure 14 - Industry Employment Sector data for Port Macquarie Hastings. Source: ABS 2016, complied in economyprofile.com

The employment data presented above represents the number of people employed by businesses/organisations in each of the industry sectors in the Port Macquarie Hastings region. The employment data presented is destination of work data; no inference is made as to where people in a defined region reside.

An analysis of industry sector for employment held by the population in Port Macquarie-Hastings LGA in 2016 shows the three most popular industry sectors were, Health Care and Social Assistance (5,192 people or 17.5%), Retail Trade (3,424 people or 11.5%) and Construction (3,153 people or 10.6%). These three industries employed 39.7% of the total employed resident population. In comparison, Regional NSW employed 14.4% in Health Care and Social Assistance; 10.3% in Retail Trade; and 8.7% in Construction.

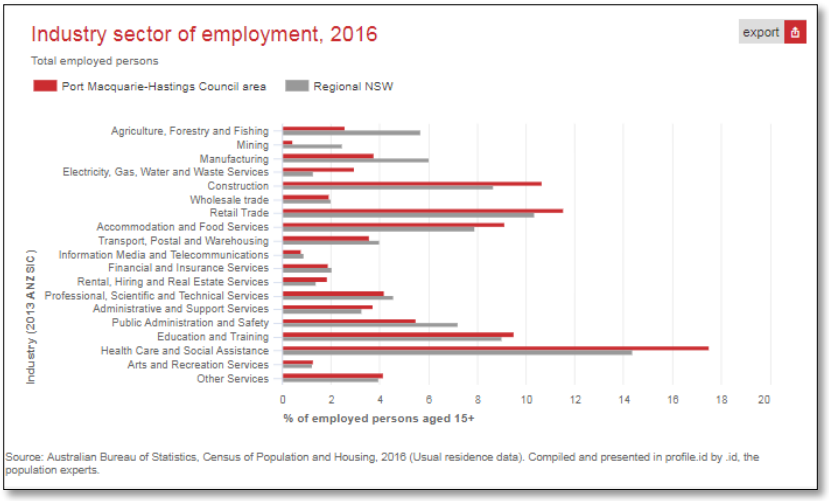


Figure 15 - Industry sector of employ 2016 (comparison with Regional NSW). Source: ABS, compiled in profile.id

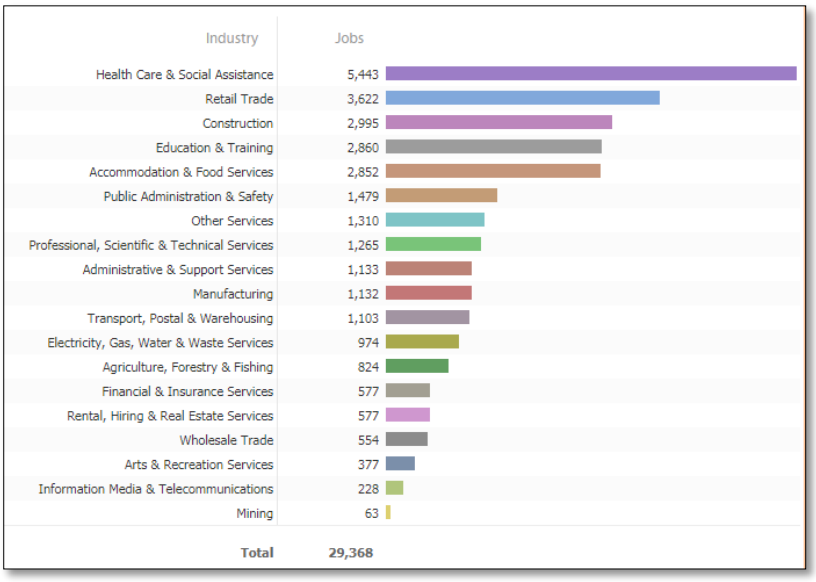


Figure 16 - Latest REMPLAN data incorporating Australian Bureau of Statistics (ABS) 2016 Census Place of Work Employment Data, 2015 / 2016 National Input Output Tables and June 2018 Gross State Product.

The data presented above represents the number of people employed by industry sectors in the Port Macquarie region in 2016. It is estimated that 29,368 people work in Port Macquarie – Hastings and of this 2,995 or 10.20% work in the Construction industry.

8. ECONOMIC ANALYSIS

8.1 Overall Assessment of Demand

Both past (building approvals) and future (population projection) trends indicate an annual demand of around 526 dwellings per year. The overall assessment of demand, as mentioned in the UGMS, is for 10,000 dwellings by 2036. The recent growth in Port Macquarie is expected to continue given the good facilities provided, the lifestyle and education, as well as the recent expansion of the tertiary education sector. The UGMS looks to expand and

grow the health and education precinct and the airport precincts, which will ensure the continued growth of the Port Macquarie area and the need for housing and corresponding local and neighbourhood centres.

8.2 Justification for Demand

There is a clearly identifiable demand for the additional business floorspace (approx. 10,000m² in ground area) within a B2 zone or alternate indicated by Council. The existing centres in proximity to the site, primarily being Thrumster (Sovereign Place) and Wauchope, are of considerably larger sizes and are destination based centres. The future residents of the Le Clos Sancrox subdivision does not have a neighbourhood centre in close proximity to buy the daily conveniences such as bread, milk or newspaper and do not other small scale facilities within walking distance, such as a café or take away. These features, in particular being within walking distance, are major attractors for people to move into the area as it reduces the reliability on cars and allows for the residents to interact to a higher extent, which is beneficial from a social and economic perspective.

Sancrox previously boosted a corner store and since its closure in recent years has left the residents of the wider Sancrox area without a convenience. Further, Sancrox Reserve is an attractor in its own right and users of the reserve would benefit significantly with having a nearby small centre to visit.

A review of Council's retail hierarchy does not reveal any smaller sized centres in the vicinity of this site, whether existing or proposed. As such, there is no existing available floor space within the area, and this rezoning would create the demand for additional floor space (due to both existing residents and proposed development) to justify the need for the location of and the size of the proposed B2 zone. Given its central location and that Le Clos Sancrox is progressing first, it is ideal to provide a local or neighbourhood centre to service not just the site and existing residents, but also other potential urban investigation areas within the Sancrox and Fernbank Creek area as detailed within the UGMS (subject to investigation).

A review of the larger facilities within proximity of the site being Wauchope Town centre and Sovereign Place, revealed the following vacancy for retail / commercial premises as at 10/12/19:

- Wauchope – 10 premises
- Sovereign Hills – Stage 1 – minimal vacancies and expressions of interest being sought for next stage.

These figures indicate that there is not a lot of vacancy being experienced in the nearby town centres. Notwithstanding this, the type of commercial users likely to be attracted to the proposal centre will vary given it is of a smaller scale and will service the residents rather than the wider area as a town centre does.

8.3 Years of Housing Supply & Population Growth

With an increase of 1200 people into the region every year there is clearly a need for future residential growth areas.

Based on the UGMS, Port Macquarie, Lake Cathie/Bonny Hills and near Kew in the Camden Haven collectively have the capacity to provide an 18 year housing supply based on current take up and projected demand. The UGMS states, in 2017 the estimated residential supply ready for development to provide a range of housing choice was:

- 16.4 years in Port Macquarie
- 19.7 years in Lake Cathie/Bonny Hills
- Over 30 years in the Camden Haven, and
- 10 years in Wauchope (increasing to around 30 years once planning for the Yippin Creek area has been completed).

The UGMS acknowledges to accommodate future project growth areas of potential long term growth around Port Macquarie could be exhausted by 2070, as demonstrated in the figure below.

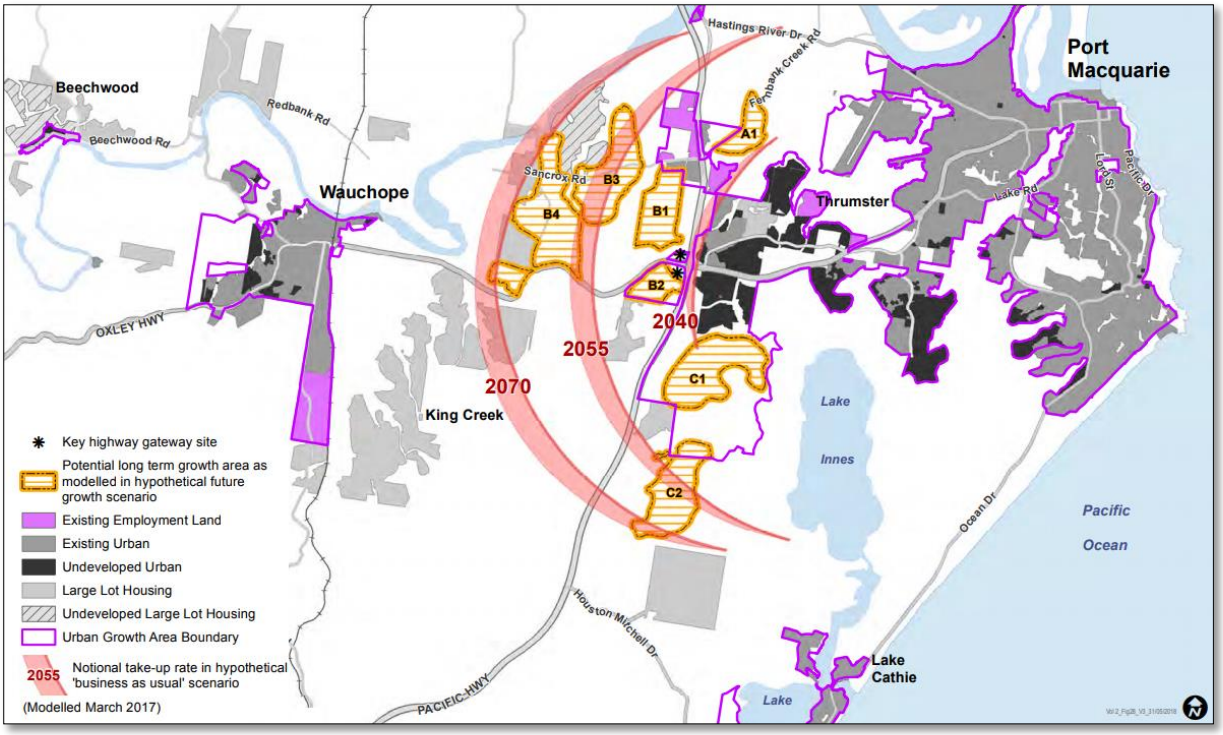


Figure 17 - Hypothetical limits to long term growth Port Macquarie Hastings. Source: UGMS pg. 15

There is a long standing issue in the Port Macquarie local government area whereby current residentially zoned land is so highly constrained from an ecological viewpoint, that it may never be developed. As such, the figures are incorrect and the land supply is in fact considerably less than the figures indicated above. This expected to worsen given the Biodiversity Conservation Act 2016, which requires avoid, minimise and offset principles to be implemented when developing land with ecological value, resulting in reduced developable areas. This can clearly be seen in areas of Innes Lake, which has been zoned R1 for many years but is heavily vegetated and unlikely to be feasible for development under the new legalisation or economically when considering the cost of credits.

A further trend noticed in the wider Port Macquarie area relates to land being rezoned and held by the landowner for a number of years to increase value, rather than being developed at the time of rezoning. This was clearly seen in Lake Cathie where a large residentially zoned parcel within Area 14 owned by a single entity enjoyed a residential zoning prior to 2001 however to date no development of this land has taken place until recently. This land could inadvertently 'regulate the supply' through the lack of competition in the market. If the aforementioned parcel had been omitted from the residentially zoned land then the future land supply horizon was identifed as being relatively short (~5 to 8 years), rather than 22 years as indicated by Council.

This skewing of the availability for residential land and the population statistics incorrectly provides an indication that development at Sancrox will not be needed in the short term and that the corresponding local centre should also be delayed. However, the reality is entirely different and the demand for housing supply to meet the demand targets in both the UGMS and Regional Plan, requires the necessary planning to occur now.

Given this anticipated residential growth, with some 680 lots in Le Clos Sancrox alone, there is a strong need for a local centre to be provided.

9. ALTERNATE SITES

Consideration has been given to locating the B2 Local Centre zone elsewhere within the Sancrox area, however the wider planning is occurring behind this site specific Planning Proposal. As such, the timing for provision of the facility would be unknown and could be delayed. It is a far superior outcome to incorporate the B2 zone into the overall development of Le Clos Sancrox so that it is in close proximity for the incoming residents and the school (if progresses). The location on Sancrox Road and adjacent to the proposed intersection allows for the existing residents in Sancrox to also utilise the facilities.

The proposed centre's location and commercial performance should not impact upon the viability and function of nearby town and regional centres, but rather will meet an identified need for the existing and expanding residents.

10. COMMUNITY BENEFITS

10.1 Positive Impact

The following positive impacts have been identified in terms of economic impacts:

- The retail hierarchy of Port Macquarie and surrounds will be complimented, with the addition of a smaller local or neighbourhood centre not currently accommodated within the area between Thrumster Town Centre and Wauchope Town Centre.
- The location provides for easy vehicular access from proposed western vehicle entrance.
- The Collector Road proposed and upgrade of Sancrox Rd will also make provision for bus stops and a network of pedestrian and cycle pathways will be constructed along the roads and throughout the development and will provide pedestrian and cycle connections outside of the site.
- The subject site is centrally located in the identified future development urban areas by way of the yellow circles within the UGMS.
- The proposed business zone allows for an increase in business zoned land, which is necessary given the expected level of growth in population in this area projected into the future.
- The gap for the existing residents from the closure of the previous Sancrox corner shop will be rectified for daily conveniences.
- Business land being provided within the first development in the wider area allows for this facility to be in place before the full development potential is achieved, providing instant services for the residents as they move into the area.

10.2 Negative Impact

The following negative impacts have been identified in terms of economic impacts:

- Potential impacts upon existing retail centres in the wider locality.
- Loss of land for housing.
- The population for the wider area being longer than expected and the business land may be slow to develop.
- Amenity impacts from the business use adjoining residential uses.

10.3 Managing Impacts

In order to manage the positive and negative impacts identified above, the following measures could be considered for incorporation into the future development application, with many already incorporated into the draft plans:

- Locate the business zoned land near Sancrox Road.
- Provide the business development before the final stage of Le Clos Sancrox.
- Provide good pedestrian and cycle connections to the business land.
- Provide bus stops near the business land.
- Locate medium density adjacent to the business land.
- Provide screening and landscaping in the design of the business development to reduce amenity impacts to the residents.
- Promote the centre to the existing residents within the wider Sancrox area as well as residents of Le Clos Sancrox.

11. COMMUNITY BENEFITS

The net benefit to the community in providing a local or neighbourhood centre within Le Clos Sancrox residential development is the key contribution to provision of a liveable community. The overall development, and wider Sancrox area, makes provision for walkability, public transport, public open space and employment, whilst respecting the environment. The business component, even on the small scale proposed, is a key factor for creating a complete liveable, sustainable and healthy community. This benefit will be experienced beyond Le Clos Sancrox and is expected to inform the wider planning and provide for connections via roads, pathways and cycleways, as indicated on our plans and specialist reports provided for the Planning Proposal.

The economic injection will be experienced by the businesses who operate from the proposed business land and the location and connections ensure easy access.

12. KEY FINDINGS

Below is a summary of the key findings of this Economic Impact Assessment:

- There is unlikely to be an adverse impact upon the retail hierarchy of Port Macquarie given the small scale proposed.
- There is a strong need for a neighbourhood or local centre between Thrumster and Wauchope and the proposed zoning addresses a shortfall of the lower end of the hierarchy since the closure of Sancrox corner store.
- The local or neighbourhood centre will service existing residents, as well as the new population from Le Clos Sancrox and the remainder of the Sancrox area once developed.
- The potential economic impact will not threaten the viability or level of service presently enjoyed by residents and visitors, but will enhance the overall level of service by providing a facility not presently available in the region. Any potential impacts are likely to be in the short term and would be made good through the provision of a new local centre.

- Will reduce car dependency due to its planned integration into the development of the new Le Clos Sancrox estate with good connectivity for walking and cycling and public transport.
- The net benefit to the community in providing a local or neighbourhood centre within Le Clos Sancrox residential development is the key contribution to provision of a liveable community.
- There will be an economic injection will be experienced by the businesses who operate from the proposed business land and the location and connections ensure easy access.

13. CONCLUSION

In most instances, business zoned land is determined at the time of the overall zoning of a growth area and the population would follow. However, in this instance, there is already a demand established from the recent residential growth of Sancrox and neighbouring estates. The development of a new state in Sancrox contributes significantly to the need for business in this area to provide for the day to day conveniences of the existing and proposed residents and visitors and nearby workers.

In keeping with the strategies, development of Le Clos Sancrox and the wider Sancrox area, along with the identified continued population growth, further strengthens the need for business land and a local or neighbourhood centre.

The business growth within Wauchope and Thrumster has considerable need and the subject site is identified as a prime location to accommodate the ever increasing demand and given that Le Clos Sancrox is emerging as the first development within the area.

144 Oxley Island Road
Oxley Island NSW 2430
P: 61 (2) 6553 2577
E: info@matrixthornton.com.au
W: www.matrixthornton.com.au
ABN: 61 002 929 857
Structural ▸ Civil ▸ Mechanical ▸ Acoustic

MIXED USE DEVELOPMENT

LE CLOS SANCROX

NOISE ASSESSMENT FOR PLANNING PROPOSAL AND ASSOCIATED DA

Report No.	M19131.01 (Revision 1)
Site:	Le Clos Sancrox Road, SANCROX
Prepared by:	Philip Thornton BE(UNSW) MIEAust CPEng NER Acoustic Consultant Matrix Thornton Consulting Engineers
Date:	10 December 2019

SUMMARY

This report discusses acoustic aspects of the proposed mixed-use development at Le Clos Sancrox.

Concerning noise from industrial and transport facilities external to the site:

- Noise from the Quarry and other industrial noise sources do not impose a serious constraint to planning of lots.
- Noise from the proposed high-speed railway is low risk.
- Traffic noise is predicted to comply with assessment criteria at existing and future residences.
- Design of a school may need to consider transportation noise into the school, depending on location.

CONTENTS

1 INTRODUCTION 3

2 DESCRIPTION OF THE DEVELOPMENT 3

3 TRAFFIC NOISE 5

3.1 TRAFFIC NOISE ASSESSMENT CRITERIA 5
3.2 EXISTING TRAFFIC NOISE INTO THE SITE 6
3.3 TRAFFIC NOISE GENERATED BY THE DEVELOPMENT 6

4 NOISE INTO THE SITE 8

4.1 ANIMAL BOARDING 8
4.2 HIGH SPEED RAIL 8
4.3 QUARRY NOISE 9
4.4 ORONTES CLOSE INDUSTRIAL SUBDIVISION 11

5 PLANNING OPTIONS FOR A SCHOOL 11

5.1 INDUSTRIAL NOISE 11
5.2 TRAFFIC NOISE 11
5.3 HIGH SPEED RAIL 11

6 CONCLUSION 12

APPENDIX A: GLOSSARY OF ACOUSTIC TERMS 14

APPENDIX B: SANCROX QUARRY AND RECEPTORS 15

FIGURES

FIGURE 2-1 PLAN OF PROPOSED DEVELOPMENT 4
FIGURE 2-2 SITE CONTEXT 5
FIGURE 4-1 HIGH SPEED RAIL PROPOSED ALIGNMENT (NORTH TO LEFT) 8
FIGURE 4-2 LOCATION OF QUARRY AND RECEPTORS IN QUARRY NIA 10

TABLES

TABLE 3-1 *RNP* CRITERIA FOR TRAFFIC NOISE DUE TO LAND USE DEVELOPMENT 6
TABLE 3-2 TRAFFIC MODELLING ASSUMPTIONS 7
TABLE 3-3 PREDICTED TRAFFIC NOISE LEVELS 7
TABLE 4-1 PREDICTED NOISE LEVELS FROM QUARRY 10

1 INTRODUCTION

The report concerns the proposed mixed-use development called Le Clos Sancrox at Sancrox. Council have requested a noise assessment of the development.

This report discusses noise issues and shows that none of those issues could result in significant noise impact to the development, or noise impact from the development to existing properties nearby.

2 DESCRIPTION OF THE DEVELOPMENT

Figure 2-1 shows a preliminary plan of the proposal. Residential lots are laid out on local roads feeding onto a collector road leading to Sancrox Road.

The site context is shown on Figure 2-2 which shows the aspects discussed below.

To the North:

> Currently this is rural-residential and an animal boarding and breeding establishment. This area is likely be rezoned as part of the wider planning been undertaken by Council. The development provides a large treed area separating the development from Sancrox Road and existing residences north of Sancrox Road.
>
> There is an existing quarry to the north-east. It is understood the Quarry may expand in the future. As no progress has been made on any proposed expansion since 2015, and no further information concerning this is available, a large area in the north-east corner has been left undeveloped. This will provide a buffer to the quarry. This will also provide a buffer to the potential development of a high-speed rail east of the development.

To the West:

> Currently rural / grazing etc. This area is likely be rezoned as part of the wider planning being undertaken by Council. There are large separations to the development due to ecology, bushfire and new roads.

To the South & East

> This is one large parcel of land which has currently been approved for a 4-lot subdivision. Heavily treed and in all of Council's planning to date, has identified this as an ecological corridor.

Figure 2-1 Plan of Proposed Development

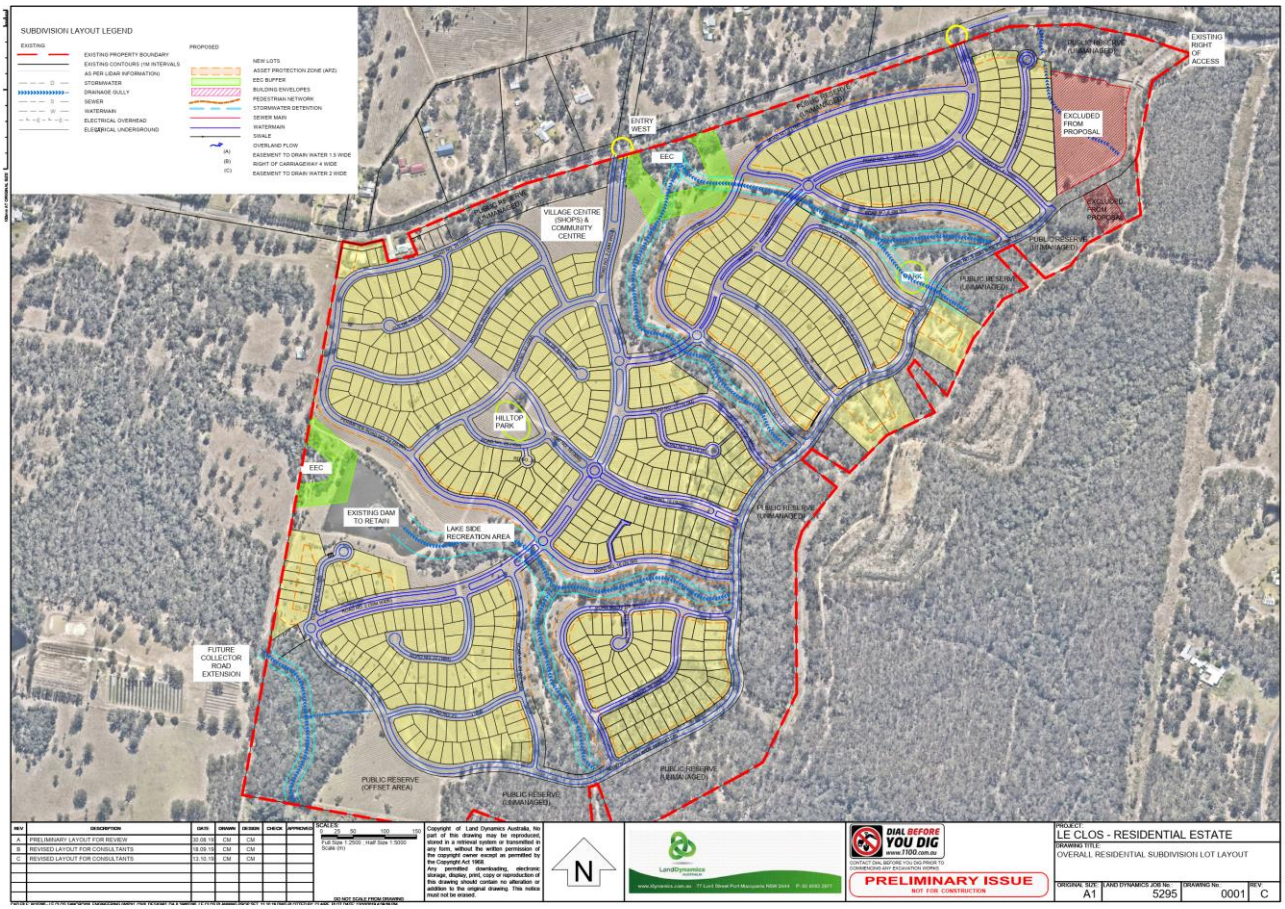


Figure 2-2 Site Context

3 TRAFFIC NOISE

3.1 TRAFFIC NOISE ASSESSMENT CRITERIA

The EPA's Road Noise Policy (RNP) sets out criteria for assessment of noise from vehicles on public roads. The RNP sets out noise criteria for 'arterial', 'sub-arterial' and 'local roads'. The assessment criteria are listed in Table 3-1.

The criteria are the same for existing residences affected by traffic from the development, and for new residences in the development affected by "self – generated" traffic – that is the houses in the development will be affected by traffic noise generated by other houses in the development.

Most of the roads in the development would be considered local roads. The main collector road of the development, as well as Sancrox Road, could be considered sub–arterial roads for noise assessment.

For the existing residences affected by noise from sub-arterial roads (that is the houses north of the development) the *relative increase criteria* also state that the total traffic noise level increase should not be more than 12dBA.

Where predicted noise levels exceed the project-specific noise criteria, an assessment of all feasible and reasonable mitigation options should be considered. The RNP states that an increase of up to 2dB represents a minor impact that is considered barely perceptible to the average person.

Road Category	**Assessment Criteria – dBA**	
	Day (7am-10pm)	**Night** (10pm-7am)
Freeway / arterial / sub-arterial roads	$L_{Aeq15hr}$, 60 (external)	$L_{Aeq,9hr}$ 55 (external)
Local Roads	L_{Aeq1hr}, 55 (external)	$L_{Aeq,1hr}$ 50 (external)

Table 3-1 *RNP* Criteria for Traffic Noise due to Land Use Development

3.2 EXISTING TRAFFIC NOISE INTO THE SITE

Concerning existing traffic noise, the nearest road that carries a significant amount of traffic is the Pacific Highway, approximately 1500 m from the site. At that distance, noise from the Pacific Highway will be below the noise guidelines from the New South Wales Road Noise Policy (RNP).

3.3 TRAFFIC NOISE GENERATED BY THE DEVELOPMENT

The development itself will generate traffic. The report *High Level Traffic Impact Assessment as part of an overall Planning Proposal DP 776 681 Sancrox Road, Sancrox (Known as Le Clos)* by Streetwise (July 2019) gives existing and predicted traffic volumes.

The traffic report focuses on peak hour, however as Sancrox Road is considered a sub-arterial road, the overall daily traffic volumes are required. Typically, peak hour volumes are 10% of daily volumes, and 85% of the daily volume occurs during the daytime period.

The traffic report gives the predicted daily generation of the site as 10,519 trips. Based on these assumptions, the estimated existing and future (with development) daily volumes are as given in Table 3-2. The table also gives the traffic modelling assumptions concerning heavy vehicles, speed and road surface. It is assumed that Sancrox Road will be redeveloped, and that the future road surface will be upgraded from a chip seal to Dense Graded Asphaltic Concrete.

Traffic noise was modelled using the Calculation of Road Traffic Noise (CoRTN) method. The results for existing and future residences are given in Table 3-3.

In the tables, the periods labelled "future" relate to the future time when the development is hundred percent complete.

Period	Traffic volumes, vehicles per day		Heavy vehicles, %	Speed, km/h	Road Surface
	Day (7am-10pm)	Night (10pm-7am)			
Existing	850 vehicles	150 vehicles	5%	70	Chipseal
Future	8941 vehicles	1577 vehicles	2%	70	Dense Grade Asphaltic Concrete

Table 3-2 Traffic modelling assumptions

Receptor	Period	Noise Levels	
		Day (7am-10pm) $L_{Aeq,15hr}$	Night (10pm-7am) L,Aeq,9hr dBA
North of Sancrox Road (40m setback)	Existing	51	46
	Future	59	54
Within Development, south of Sancrox Road (nominal 50m setback)	Future	58	53

Table 3-3 Predicted Traffic Noise Levels

For the existing residences north of Sancrox Road noise is predicted to increase by 8 dBA due to the development. Based on the assumptions given, modelling shows the future noise level to be 59 dBA daytime and 54 dBA night time. These levels are 1 dBA below the assessment criteria, and the 8dBA increase is less than the 12dBA recommended by the relative increase criterion.

For the future residences at the development site, the predicted levels are 58 dBA daytime and 53 dBA night time. These are 2 dBA below the assessment criteria. It is noted that there is scope to provide some noise mitigation in the form of mounds between the road and the residences if required. Based on the modelling, no further mitigation would be required to meet the base assessment criteria, and that there is a 2 dBA buffer to allow for traffic growth from further development in the area.

4 NOISE INTO THE SITE

4.1 ANIMAL BOARDING

Across the site to the north is an existing animal boarding Business (Pets Park Kennels). There is potential for noise from the kennel to be audible from the site. It would be reasonable for the kennel business to be concerned that new residential developments could be annoyed by noise from the kennel and approach Council with noise complaints.

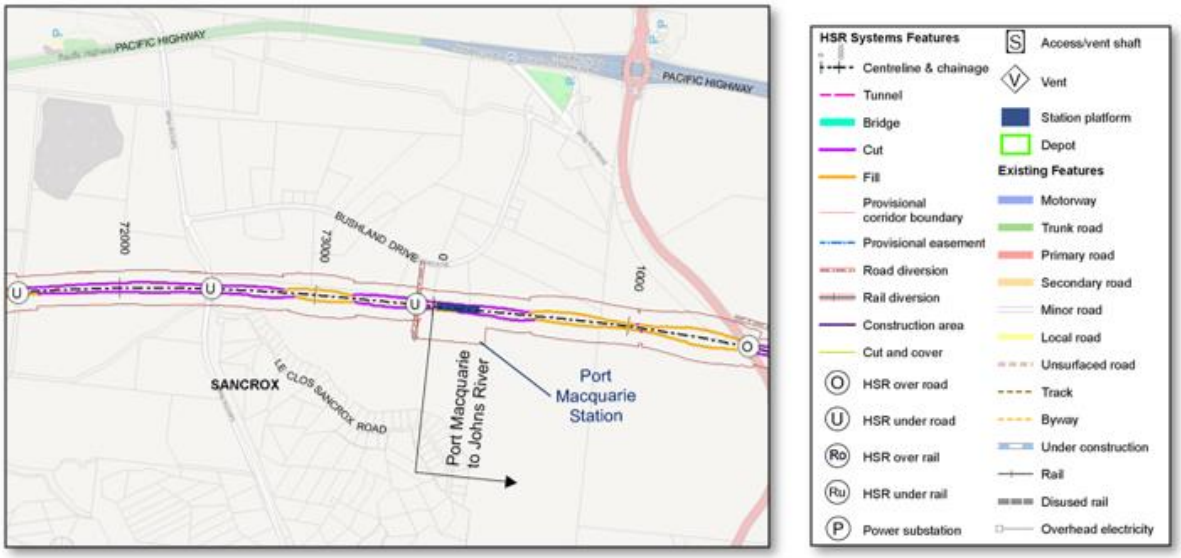
The existing nearest residential neighbour is approximately 200 m from the kennel. In the preliminary design of the development, the nearest residential components are also approximately 200 m from the kennel. If the kennel noise to existing residential neighbours meets the target levels of the New South Wales Noise Policy for Industry, then it will also comply with those targets at future residences.

4.2 HIGH SPEED RAIL

There is a proposal for high-speed rail (HSR) development joining Sydney and Brisbane. The proposed alignment of the track passes the site and is shown on Figure 4-1. The future residences closest to the rail line in the north east of the site would be approximately 150 m from the alignment.

The area at the north east of the site has deliberately been left undeveloped in part to act as a buffer to noise emission from the Quarry and the HSR.

Figure 4-1 High Speed Rail Proposed Alignment (North to left)



The High-Speed Rail Study, Phase 2 Report discussed noise emission from the HSR. It discussed the appropriate noise goal of 60 dBA for daytime noise emission from trains, and set distances from the track alignment where the HSR noise would be below this guideline (called the offset distance). The summary of noise emission findings is contained in Table 3 – 5 of the report, reproduced below. The table shows that to be fully compliant in a rural area, the residences would need to be at least 230 m from the rail alignment.

This assumes no reduction in noise level from noise walls or railway cuttings. With a noise mound of 2 m, the offset is reduced to 70 m. Rail cuttings serve the same acoustic purpose as a noise mound.

As the proposed alignment passes the site it goes through sections of cuttings and fill, the offset distance in this case would be somewhere between 70 and 230 m. As seen in Figure 4-1, the length of track impacting on the site is approximately 50% cutting and 50% fill. Assuming that cuttings are at least 2 m deep, this would lead to a reduction of approximately 3 dBA, implying an offset distance of 150 m.

The nearest residences in the proposal are 150m from the alignment. Based on the above assumptions, it is probable that noise will comply at all proposed lots. Given that it is extremely unlikely that the HSR proposal will ever proceed, and the separation of at least 150 m from the alignment, we consider it a low risk that the Le Clos Sancrox development would need to include any specific noise mitigation measures against emissions of the HSR should it proceed.

Table 3-5 Noise compliance offset distances

Scenario	Compliance offset distance
Rural area	230 m
Transition area with 2 m mounding	70 m
Transition area with 3 m mounding	51 m
Urban area with 2 m noise wall, 7 m from track centreline	25 m
Urban area with 2 m noise wall, 4 m from track centreline	21 m
Urban area on viaduct with 2 m noise barrier	21 m

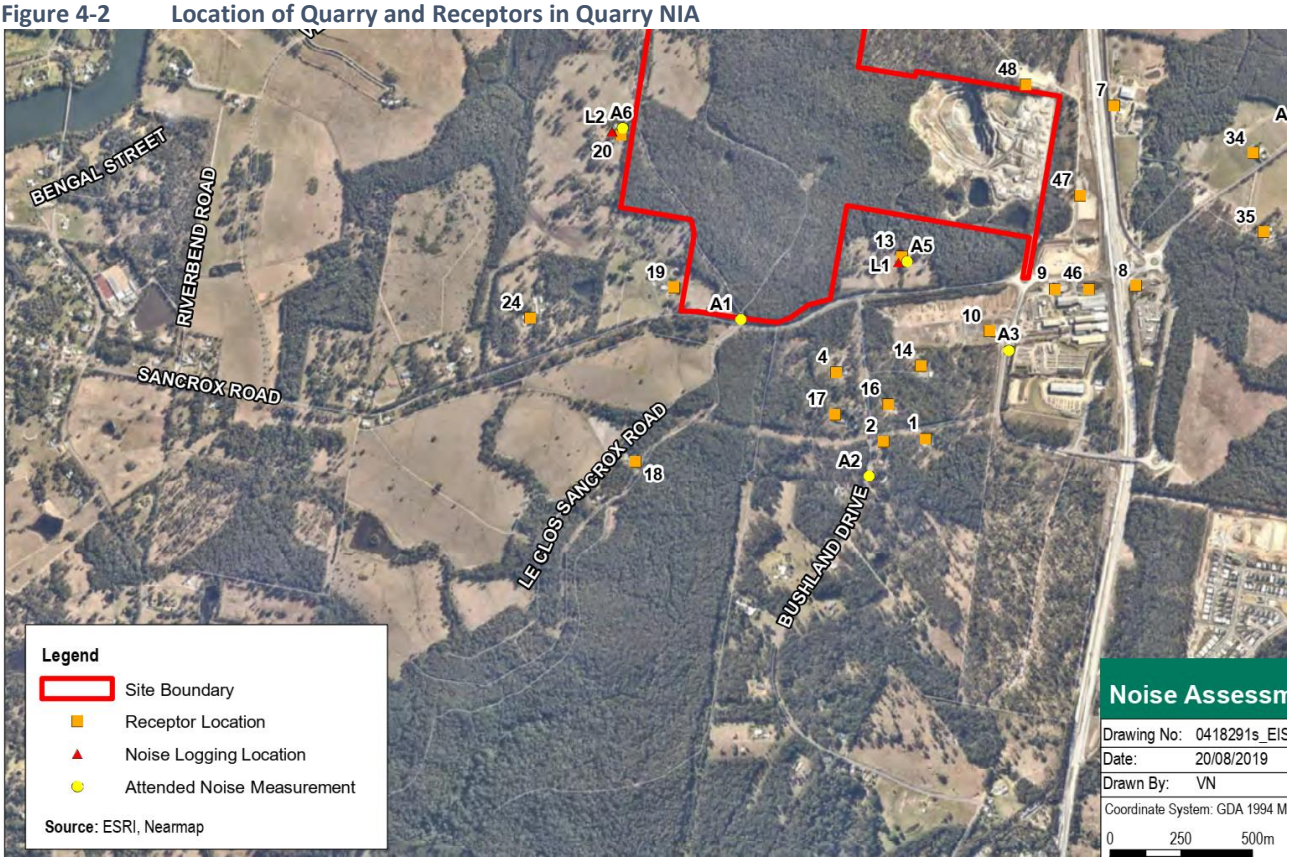
Note 1: Rural areas have been assumed to comprise predominantly single storey receivers (e.g. dwelling, office, school).
Note 2: Urban areas have been assumed to comprise predominantly two storey receivers.
Note 3: Viaduct has been assumed to be predominantly elevated, resulting in a similar height as a second storey receiver.

4.3 QUARRY NOISE

There is an existing quarry to the north-east. The quarry has proposed an expansion and a noise assessment has been published as *Sancrox Quarry Expansion Noise and Vibration Impact Assessment*, August 2019 by ERM (The Quarry NIA). Figure 4-2 shows part of Figure F1 .3 from the Quarry NIA (the full figure is included in Appendix B). This shows the location of the Quarry in relation to the Le Clos Sancrox site. The Quarry NIA assessed noise at residential premises surrounding the Le Clos Sancrox site. The most affected residences are denoted Receptor 18, 19 and 24.

Receptor 18 is located between the Quarry noise sources and the Le Clos Sancrox site. If the Quarry noise complies with appropriate limits at Receptor 18, it will also comply on the Le Clos Sancrox site. Receptors 19 and 24 are at a distance from the Quarry roughly equivalent to the centre of the Le Clos Sancrox site and would reasonably representative of the noise level to be expected on the site.

Figure 4-2 Location of Quarry and Receptors in Quarry NIA



Location	RBL (Day/Evening/Night)	Noise Trigger Levels (Day/Evening/Night)	Predicted Noise Level, Final Stage, NW Wind
Receptor 18	36/36/33	41/41/38	27
Receptor 19	36/36/33	41/41/38	33
Receptor 14	36/36/33	41/41/38	32
Le Clos Sancrox site	36/36/33	41/41/38	< 32

Table 4-1 Predicted Noise Levels from Quarry

The Quarry NIA further notes that maximum noise levels during night time operation will not cause sleep disturbance events at Receptor 19, and that noise and vibration from blasting are within the appropriate limits at Receptor 19. Therefore, maximum noise at night, and noise and vibration from blasting will be within appropriate limits at all locations within the Le Clos Sancrox site.

A large area in the north-east corner has been left undeveloped. This will provide a buffer to the quarry, though based on the Quarry NIA noise predictions, this is not necessary acoustically.

4.4 ORONTES CLOSE INDUSTRIAL SUBDIVISION

This industrial subdivision is approximately 600 m from the north-east corner of the site. The north-east corner of the site includes environmental buffers, and has been embellished to create an ecological corridor, which further increases the distance to the future residential dwellings.

There are many residences between the site and the industrial subdivision. Any noise emission from that subdivision would manifest first at one of the closer residences.

5 PLANNING OPTIONS FOR A SCHOOL

Some options for planning of the site include a school. While no site has been proposed, one of the likely options is in the North East corner of the site.

5.1 INDUSTRIAL NOISE

The most stringent guidelines for noise into school from the INP is that industrial noise level in classrooms should be below 35 dBA. If the classroom had open windows for ventilation, there would typically be a 10 dB reduction in noise from outside to inside. Therefore an appropriate target for industrial noise is 45 dBA outside the classrooms. From the Quarry NIA the industrial noise trigger level for daytime has been set at 38 dBA for residences. Therefore, any industrial noise source at the site which meets the requirements for residences will also meet the noise requirements for schools.

The predicted noise levels from the quarry (see Section 4.3) given in the Quarry NIA are significantly below the trigger levels in the INP.

5.2 TRAFFIC NOISE

The New South Wales Road Noise Policy (RNP) recommends traffic noise levels below $L_{Aeq,1hr}$ 40 dBA in classrooms, corresponding to the level of approximately 50 dBA outside the classrooms. The level of $L_{Aeq,15hr}$ 55 dBA is recommended for playgrounds.

As noted in Section 3, the predicted future level of traffic noise into the site, at a setback of 50 m from Sancrox Road is all 58 dBA.

While the predicted levels are above the recommendations of the RNP, simple design measures can be incorporated into the school to mitigate traffic noise to appropriate levels.

5.3 HIGH SPEED RAIL

Noise guidelines are given in the New South Wales Rail Infrastructure Noise Guideline (RING).

For playgrounds the noise guideline is similar to that for residences (60dBA), hence any playgrounds would ideally be offset from the railway line by more than 230m (See Section 4.2).

For classrooms the noise guideline is 40dBA internal, corresponding to 50 dBA external. School buildings located within approximately 1000 m of the HSR would require consideration of acoustics to mitigate railway noise. In general, appropriate levels in classrooms would be achieved by closing windows, hence appropriate design of classroom ventilation would need to be considered.

All areas of the Le Clos Sancrox site further than the offset distance of 230m from the HSR are considered suitable for location of the school. Depending on the layout of the school and the final alignment of the HSR some buildings may require acoustic treatment, principally including consideration of appropriate ventilation so that windows facing the HSR may be kept closed.

6 CONCLUSION

This report discussed acoustic aspects of the proposed mixed-use development at Le Clos Sancrox.

Concerning traffic noise:

- Noise from existing significant roads will comply at the development due to the large distance. The site is approximately 1500 m from the Pacific Highway.
- Traffic noise generated by the development on Sancrox Road is expected to comply at existing Receptors. Those existing residences are generally setback 40 m from the road.
- Traffic noise generated by the development is expected to comply at future Receptors within the development itself.
- If the school is located on site, traffic noise into the school should be assessed. Depending on the location of the school, minor noise mitigation is may be required.

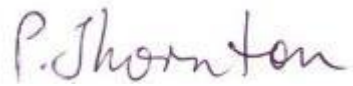
Concerning noise from industrial facilities external to the site:

- The Sancrox Quarry S Assessment was used to show that noise from the Quarry will comply with appropriate noise trigger levels at all locations and all times. Noise from blasting and vibration will also comply.

- Noise from the existing kennel north of the site may be audible at some lots. It is recommended that noise from the kennel be assessed and if mitigation is necessary and agreement be reached with the operator of the kennel.

Concerning noise from the proposed High Speed Rail:

- Given that the distance from the alignment to the nearest proposed lots, and that the railway line may be in cut at this location, it is probable that noise from the railway will comply with guidelines at residential lots.
- HSR noise to a school, particularly if the school is located in the north-east corner of the site, may need to be considered. While noise to playgrounds will generally be satisfactory, noise to classrooms may require closed windows and therefore consideration of ventilation.

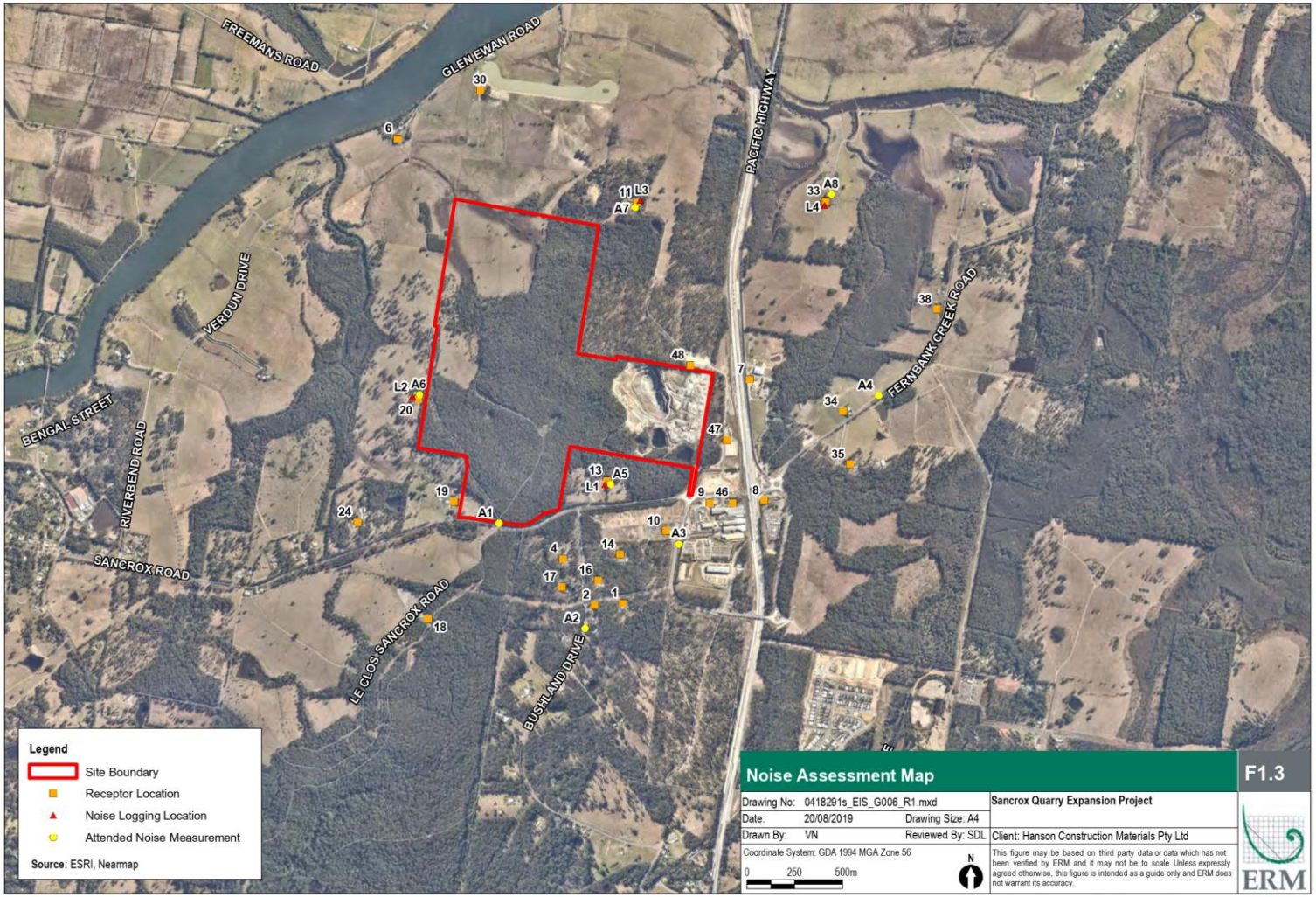


Philip Thornton BE(UNSW) MIEAust CPEng NER
Acoustic Consultant
Chartered Professional Engineer

APPENDIX A: GLOSSARY OF ACOUSTIC TERMS

Assessment Period	The period in a day over which assessments are made.
dB(A)	Unit of sound level in A-weighted decibels. The A-weighting approximates the sensitivity of the human ear by filtering these frequencies. The dB(A) measurement is considered representative of average human hearing.
L_{Aeq}	The A-weighted equivalent continuous sound pressure level, used to quantify the average noise level over a time period.
L_{A10}	The A-weighted sound pressure level exceeded for 10% of the measurement period. It is usually used as the descriptor for intrusive noise level.
L_{A90}	The A-weighted sound pressure level exceeded for 90% of the measurement period. It is usually used as the descriptor for background noise level.
$L_{Aeq15min}$	Refers to the A-weighted energy averaged equivalent noise level over a 15 minute time period.
L_{Cpeak}	The highest instantaneous C-weighted sound pressure level over the measurement period. It is usually used for high impulsive noise.
L_{Amax}	The maximum A-weighted sound pressure level for the measurement period.
Loudness	A 3dB(A) change in sound pressure level is just noticeable or perceptible to the average human ear; a 5dB(A) increase is quite noticeable and a 10dB(A) increase is typically perceived as a doubling in loudness.
RBL	The overall single figure background level representing the assessment period over the whole monitoring period. For the short-term method of assessment, the RBL is the measured $L_{A90, 15min}$ value, or where a number of measurements have been made, the lowest $L_{A90, 15min}$ value.

APPENDIX B: SANCROX QUARRY AND RECEPTORS



100mm AT ORIGINAL SIZE

SUBDIVISION LAYOUT LEGEND

EXISTING

- EXISTING PROPERTY BOUNDARY
- EXISTING CONTOURS (1M INTERVALS AS PER LIDAR INFORMATION)
- DRAINAGE GULLY

PROPOSED

- NEW LOTS
- ASSET PROTECTION ZONE (APZ)
- EEC BUFFER
- OPEN SPACE MANAGED PARKLANDS (PUBLIC RESERVES)
- EXISTING BUSHLAND & OFFSET PLANTING CORRIDORS - (PUBLIC RESERVES)
- STORMWATER DETENTION AREAS
- OPEN SPACE PEDESTRIAN NETWORK

ENTRY EAST
ENTRY WEST
SANCROX ROAD
EXISTING RIGHT OF ACCESS TO BE RETAINED
LOT 4 DP 785611
LOT 5 DP 791197
LOT 4 DP 791197
LOT 3 DP 791197
LOT 2 DP 791197
LOT 49 DP 776641
LOT 2 DP 635110
LOT 2 DP 635110
LOT 22 DP 884483
LOT 6 DP 628131
LOT 1 DP 1009991
LOT 1 DP 1009991
PART LOT 2
PART LOT 2
PART LOT 2
VILLAGE CENTRE (SHOPS) & COMMUNITY CENTRE
PUBLIC RECREATION AREA
BUSH LAND PARK
LAKE SIDE RECREATION AREA & PARKLAND
EXISTING DAM TO RETAIN
FUTURE COLLECTOR ROAD EXTENSION
EEC
EEC
ROAD NO. 1 (22M WIDE)
ROAD NO. 2 (30M WIDE)
ROAD NO. 3 (20M WIDE PERIMETER)
ROAD NO. 4 (16M)
ROAD NO. 5 (16M)
ROAD NO. 6 (20.5M)
ROAD NO. 7 (20.5M)
ROAD NO. 8 (16M)
ROAD NO. 9 (16M)
ROAD NO. 10 (16M)
ROAD NO. 11 (20.5M)
ROAD NO. 12 (16M)
ROAD NO. 13 (16M)
ROAD NO. 14 (16M)
ROAD NO. 15 (20M)
ROAD NO. 16 (20.5M)
ROAD NO. 17 (20.5M)
ROAD NO. 18 (16M)
ROAD NO. 19 (16M)
ROAD NO. 20 (16M)
ROAD NO. 21 (16M)
ROAD NO. 22 (16M)
CUL DE SAC 23 (16M)
CUL DE SAC 25 (16M)
ROAD NO. 25 (16M)
ROAD NO. 26 (16M)
ROAD NO. 27 (20M)
CUL DE SAC 30 (16M)
RD NO. 28 (15M)
RD NO. 29
PERIMETER ROAD NO. 24 (20.5M)

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY LAYOUT FOR REVIEW	30.08.19	CM	CM		
B	REVISED LAYOUT FOR CONSULTANTS	18.09.19	CM	CM		
C	REVISED LAYOUT FOR CONSULTANTS	13.10.19	CM	CM		
D	PRELODGEMENT	18.10.19	CM	CM	GB	
E	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
F	PLANNING PROPOSAL	11.02.20	CM	CM		
G	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 25 50 100 150
Full Size 1:2500 ; Half Size 1:5000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
OVERALL RESIDENTIAL SUBDIVISION - LOT LAYOUT

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0001	G

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 3:35:08 PM

100mm AT ORIGINAL SIZE

REFER TO DETAIL SHEET 003

REFER TO DETAIL SHEET 005

REFER TO DETAIL SHEET 004

REFER TO DETAIL SHEET 006

LOT 4 DP 785611

LOT 5 DP 791197

LOT 4 DP 791197

LOT 3 DP 791197

LOT 2 DP 791197

LOT 49 DP 776647

LOT 2 DP 635110

LOT 22 DP 884483

LOT 6 DP 628131

LOT 1 DP 1009991

PART LOT 2

PART LOT 2

PART LOT 2

ROAD NO. 2 (30M WIDE)

ROAD NO. 25 (16M)

ROAD NO. 7 (20.5M)

ROAD NO. 6 (20.5M)

ROAD NO. 5 (20M WIDE PERIMETER)

ROAD NO. 4 (16M)

ROAD NO. 3 (16M)

ROAD NO. 11 (20.5M)

ROAD NO. 13 (16.0M)

ROAD NO. 14 (16.0M)

ROAD NO. 15 (16M)

ROAD NO. 16 (20.5M)

ROAD NO. 17 (20.5M)

ROAD NO. 18 (16M)

ROAD NO. 19 (16M)

ROAD NO. 20 (20M WIDE PERIMETER)

ROAD NO. 21 (16M)

ROAD NO. 22 (16M)

CUL DE SAC 25 (16M)

CUL DE SAC 30 (16M)

CUL DE SAC 27 (16M)

RD NO. 28 (16M)

RD NO. 29 (16M)

PERIMETER ROAD NO. 24 (20.5M)

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
B	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 25 50 100 150
Full Size 1:2500 ; Half Size 1:5000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS - RESIDENTIAL ESTATE

DRAWING TITLE:
OVERALL RESIDENTIAL SUBDIVISION
DETAIL SHEET LAYOUT

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0002	B

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 5:26:11 PM

100mm AT ORIGINAL SIZE

ENTRY
EAST

LOT 4
DP 785611

SANCROX ROAD

EEC

PART
LOT 2

ROAD NO. 7 (20.5M)

ROAD NO. 1 (22M WIDE)

ROAD NO. 5 (15M)

ROAD NO. 4 (16M)

ROAD NO. 6 (20.5M)

ROAD NO. 1 (20.5M)

ROAD NO. 8 (20.5M)

ROAD NO. 9 (16M)

ROAD NO. 3 (20M WIDE PERIMETER)

BUSH
LAND
PARK

PART
LOT 2

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	FOR REVIEW	30.08.19	CM	CM		
B	PRELODGEMENT	16.10.19	CM	CM		
C	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
D	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT:
LE CLOS SUBDIVISION

DRAWING TITLE:
DETAIL LOT LAYOUT - NORTH EAST PORTION

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0003	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 5:26:24 PM

100mm AT ORIGINAL SIZE

ROAD NO. 10 (16M)
ROAD NO. 9 (16M)
ROAD NO. 11 (20.5M)
ROAD NO. 12 (20.5M)
ROAD NO. 13 (16.0M)
ROAD NO. 14 (16.0M)
15 (30M)

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	FOR REVIEW	30.08.19	CM	CM		
B	PRELODGEMENT	18.10.19	CM	CM		
C	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
D	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS SUBDIVISION
DRAWING TITLE: DETAIL LOT LAYOUT - SOUTH EAST PORTION

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0004	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 5:26:32 PM

100mm AT ORIGINAL SIZE

SANCROX ROAD

EEC

VILLAGE CENTRE (SHOPS) & COMMUNITY CENTRE

679 9156.1m²

PUBLIC RECREATION AREA

ROAD NO. 2 (80M WIDE)

ROAD NO. 25 (16M)

CUL DE SAC 25 (16M)

ROAD NO. 26 (16M)

ROAD NO. 27 (20M)

CUL DE SAC 30 (16M)

ROAD NO. 29

RD NO. 28 (15M)

ROAD NO. 15 (30M)

ROAD NO. 13 (16.0M)

ROAD NO. 14 (16.0M)

ROAD NO. 12 (20.5M)

PERIMETER ROAD NO. 24 (20.5M)

EEC

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	FOR REVIEW	30.08.19	CM	CM		
B	PRELODGEMENT	18.10.19	CM	CM		
C	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
D	PLANNING PROPOSAL RESUBMISSION	3.02.20	CM	CM	DC	GB

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS RESIDENTIAL ESTATE
DRAWING TITLE: DETAIL LOT LAYOUT - NORTH WEST PORTION

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0005	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 5:26:47 PM

EEC

EXISTING DAM TO RETAIN

LAKE SIDE RECREATION AREA & PARKLAND

ROAD NO. 15 (30M)

ROAD NO. 16 (20.5M)

ROAD NO. 17 (20.5M)

ROAD NO. 18 (16M)

RD NO. 19 (16M)

ROAD NO. 20 (20.5M)

ROAD NO. 21 (16M)

ROAD NO. 22 (16M)

ROAD NO. 2 (30M WIDE)

CUL DE SAC 23 (16M)

ROAD NO. 3 (20M WIDE PERIMETER)

100mm AT ORIGINAL SIZE

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	FOR REVIEW	30.08.19	CM	CM		
B	PRELODGEMENT	18.10.19	CM	CM		
C	PLANNING PROPOSAL SUBMISSION	9.12.19	CM	CM	DC	GB
D	PLANNING PROPOSAL RESUBMISSION	3.02.21	CM	CM	DC	GB

SCALES:
0 10 20 40 60
Full Size 1:1000 ; Half Size 1:2000
Scale (m)

DO NOT SCALE FROM DRAWING

Copyright of Land Dynamics Australia, No part of this drawing may be reproduced, stored in a retrieval system or transmitted in any form, without the written permission of the copyright owner except as permitted by the Copyright Act 1968.
Any permitted downloading, electronic storage, display, print, copy or reproduction of this drawing should contain no alteration or addition to the original drawing. This notice must not be erased.

N

LandDynamics AUSTRALIA
www.ldynamics.com.au 77 Lord Street Port Macquarie NSW 2444 P: 02 6583 2677

DIAL BEFORE YOU DIG www.1100.com.au
CONTACT DIAL BEFORE YOU DIG PRIOR TO COMMENCING ANY EXCAVATION WORKS

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

PROJECT: LE CLOS RESIDENTIAL ESTATE
DRAWING TITLE: DETAIL LOT LAYOUT - SOUTH WEST PORTION

ORIGINAL SIZE:	LAND DYNAMICS JOB No.:	DRAWING No.:	REV:
A1	5295	0006	D

CAD FILE: W:\5295 - LE CLOS SANCROX\8. ENGINEERING (WIP)\1. CIVIL DESIGN\2. DA & S96\5295_LE CLOS PLANNING PROP SET_REV G_25.01.21.DWG PLOTTED BY: CLAIRE PLOT DATE: 3/02/2021 5:27:03 PM

Le Clos Design Philosophy

Le Clos at Sancrox is the latest premium estate on the Mid North Coast of NSW. Situated at Sancrox and set within a bushland & semi-rural setting, this estate offers affordable living close to all facilities within the Port Macquarie and Wauchope precinct.

Le Clos aims to establish its own character – for homes, their gardens and in the way homes relate to the street, public spaces and tie in with the natural environment.

To retain the value of your investment these design guidelines have been prepared with the intention of ensuring a higher than average level of design in both the streetscape, dwellings and private gardens without the imposition of adding additional cost.

Purpose of Design Guidelines

The purpose of the Le Clos Design Guidelines is twofold.

1. To guide the design requirements within the public realm i.e. including street furniture, materials used, planting themes, maintenance standards
2. to outline design standards of individual houses and their private landscapes by ensuring their integration into the defined character of Le Clos. The guidelines are necessary to ensure that all residential development provides a high quality living environment and provides a high standard of design. In essence these guidelines will maintain, protect and enhance your most valuable asset.

DRAFT

The Approval Process

These guidelines have been written in the form of a Checklist. These guidelines will assist your discussions with your architect or builder and to help gain development approval for your home.

Your home must also meet Australian Standards, requirements of the Building Code of Australia, relevant legislation of the Port Macquarie Hastings Council LEP and DCP along with other relevant legislation relating to homes and neighbouring properties.

Steps to Approval and Construction

The following steps will need to be taken to achieve the necessary approvals and statutory approvals to build your house at Le Clos.

STEP 1	Review Port Macquarie Hastings Council DCP (or complying development) and LEP requirements, Le Clos Design Guideline requirements and the 88B Instrument in your Sales Contract
STEP 2	Submit home and landscape design plans, material and colour selections, Le Clos guideline checklist and application forms to the Le Clos Design Co-coordinator for approval.
STEP 3	Submit Development/Complying Development Application and Construction Certificate to the relevant approval authority/certifier.
STEP 4	Commence construction according to approved plans within 18months of the settlement of your land

The Design Guidelines

DESIGN ELEMENT	DESIGN GUIDELINES	COMPLIANCE (tick to confirm)
Building Setbacks		
	• Building setbacks to the primary road frontage shall be 4.5m from the front property boundary as per PMHC DCP 2011	
	• Varied front setbacks are encouraged resulting in an interesting, articulated façade and streetscape	
	• To downplay the visual dominance of the garage and its impact the garage is to be setback from the building frontage. PMHC DCP 2011 requires minimum garage setbacks but an increased setback is encouraged	
Fencing		
Front Fencing	• Fencing is not permitted to front boundaries or side boundaries in front of the building alignment. Front fencing is not permitted to the boundary on corner splays	
	• Hedging or screen planting is encouraged	
Interalotment Fencing	• All interalotment boundary fencing is to be 1.8m high alternate lapped and capped timber fencing. This fencing shall only commence at the building alignment line	
Fencing to Corner Lots	• Fencing to secondary frontages is not encouraged. If required for security or privacy purposes then a setback of 1m is required from the boundary which is stepped every 6m at a minimum.	
	• Landscaping is required to the street side of the fence.	
	• The fence is to have a minimum of 40% transparency. Approved fencing types include painted or stained timber slat, or powder coated aluminum slats with timber or rendered upright posts or columns.	
	• Colourbond or similar fencing is not permitted	

DRAFT

Retaining Walls		
	• Retaining walls are not permitted to the front boundary but are to be setback a minimum of 1.0 metre.	
	• Planting is encouraged to soften retaining walls	
	• Retaining walls to be a maximum of 900mm high	
Driveways		
Driveway Crossovers	• Vehicle crossovers (between road kerb and lot boundary) are not to exceed 3.5m in width	
Driveway Materials	• Driveway materials are to include unit paving. exposed aggregate and coloured and stenciled concrete.	
	• Plain concrete is not permitted	
Building Form		
	• All building designs are to address the streetscape and open space reserves	
	• Buildings on corner lots are to address both street frontages	
Design elements	• Buildings are to have well designed elements including:- - a well defined sense of entry with the main entry being clearly recognisable from the street; - the building is to be well proportioned and articulated including any upper storeys (suggested that maximum unarticulated façade length is 5m with a minimum step of 450mm); - incorporates front verandahs, balconies and decks - repetitious or similar facades and colour schemes are discouraged where they can be immediately seen together	
Building materials	• A mixture of external materials and elements is encouraged	
	• Facebrick is to be no more than 30% of the total façade facing the street	
	• Where masonry is proposed for two story dwellings the upper story is to incorporate lightweight materials	
Building colours	• Variations in colour and hue are encouraged	
	• Colour schemes are to be submitted as part of the approval process	
	• Bold colours are only acceptable as minor elements	

DRAFT

Garages		
	• Garages are to be setback a minimum 1.0m from the front building line	
	• Triple garages or greater are not permitted	
	• Carports are not permitted	
	• Ancillary storage of boats, caravans or additional vehicles must not be visible from the street.	
Roof Form		
Roof Overhangs & Eaves	• Roof overhangs and eaves must be a design features of all homes. • Eaves must project a minimum of 450mm from the building face to provide adequate shelter from the sun and wind-driven rain	
Roof Shape and Pitch	• For skillion roofs a minimum pitch of 10 degrees is required; for hip roofs a minimum 22 degrees is required	
Roof Materials	• Roofs must be colourbond or flat roof tiling.	
	• Highly reflective materials are to be avoided	
External Elements		
Roof mounted fixtures	• Fixtures such as television antennae, satellite dishes, air-conditioning units and solar hot water storage devices must not be visible from the street or open space reserves	
	• Solar panels must be integrated into the roof form	
Hot water systems	• Must be screened from the street and open space reserves	
Air Conditioning	• Air conditioning and heat pump systems must be located to reduce noise to neighbours	
	• Must be screened from the street and open space reserves	
Rainwater tanks	• Must be screened from the street and open space reserves	
	• Colour of the tank must be integrated with the colour scheme of the dwelling	
Garbage Bins	• Must be screened from the street and open space reserves	
Clothes Drying	• Must be screened from the street and open space reserves	
Storage Sheds	• Are not to be located in front gardens	
	• Will not obstruct neighbours views	
Landscape Design		
	• At least 50% of the front garden area is to comprise planted and mulched garden beds. The balance can comprise turf, feature paving, decorative gravel	

DRAFT

	• Landscape features to compliment the home are encouraged e.g. water features, sculptures	
	• Plant at least two small/ medium trees within the front garden	
	• Retaining walls are to be set back a min 1.0m from front boundary with materials selected to compliment the house	

DRAFT

Medium Density Developments

Medium Density developments in the form of Residential Flat Buildings will also require compliance with the Apartment Design Guide, which provides design criteria and general guidance to satisfy the principles within SEPP 65 (State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development).

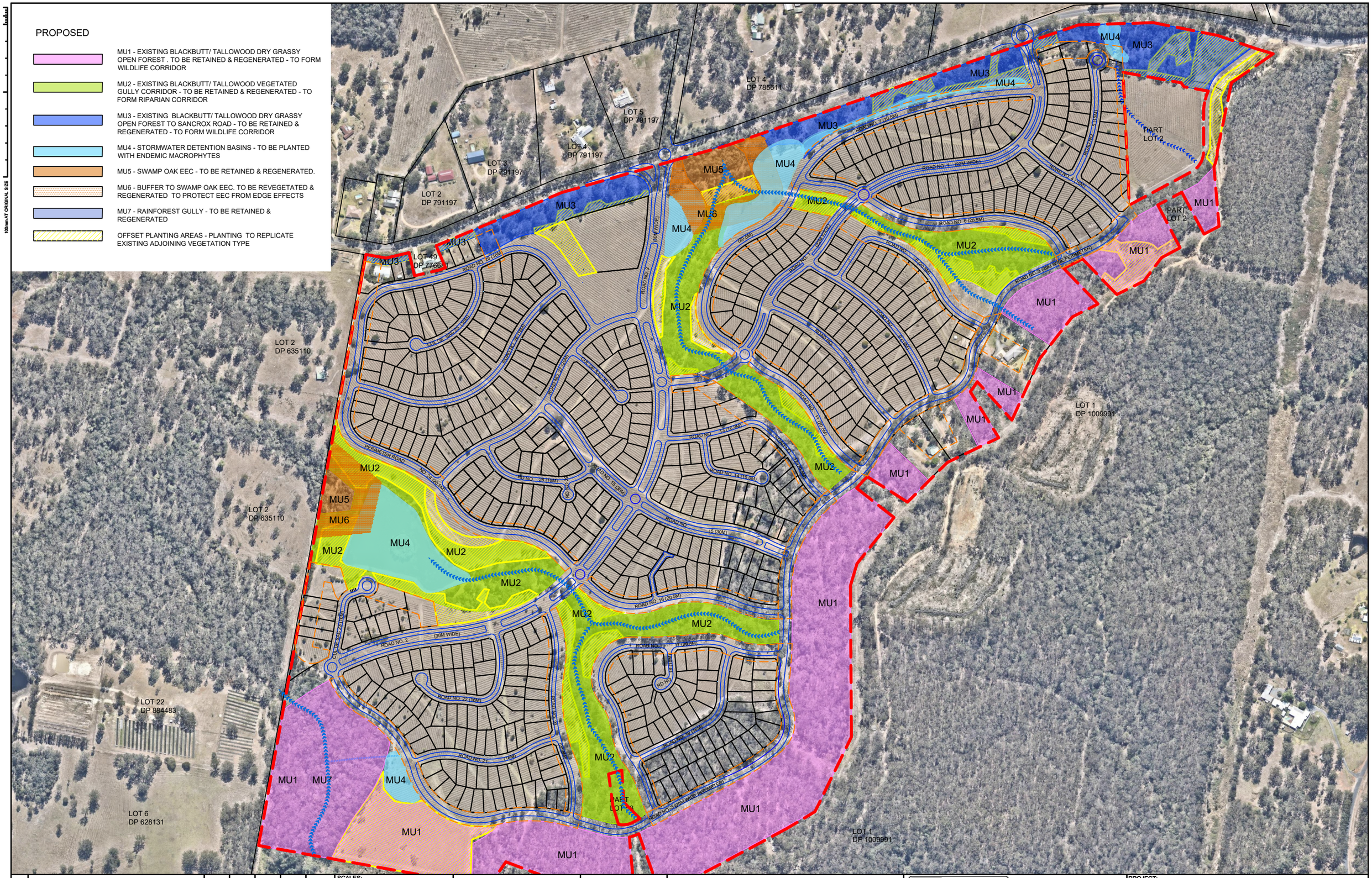
The requirements within these Building Design Guidelines must still be achieved for increased densities to achieve a consistent character for Le Clos, with the Apartment Design Guide prevailing where there is an inconsistency

Residential flat buildings and townhouses to be setback from the street to allow landscaping to soften & enhance the streetscape character of the precinct

100mm AT ORIGINAL SIZE

PROPOSED

- MU1 - EXISTING BLACKBUTT/ TALLOWOOD DRY GRASSY OPEN FOREST . TO BE RETAINED & REGENERATED - TO FORM WILDLIFE CORRIDOR
- MU2 - EXISTING BLACKBUTT/ TALLOWOOD VEGETATED GULLY CORRIDOR - TO BE RETAINED & REGENERATED - TO FORM RIPARIAN CORRIDOR
- MU3 - EXISTING BLACKBUTT/ TALLOWOOD DRY GRASSY OPEN FOREST TO SANCROX ROAD - TO BE RETAINED & REGENERATED - TO FORM WILDLIFE CORRIDOR
- MU4 - STORMWATER DETENTION BASINS - TO BE PLANTED WITH ENDEMIC MACROPHYTES
- MU5 - SWAMP OAK EEC - TO BE RETAINED & REGENERATED.
- MU6 - BUFFER TO SWAMP OAK EEC. TO BE REVEGETATED & REGENERATED TO PROTECT EEC FROM EDGE EFFECTS
- MU7 - RAINFOREST GULLY - TO BE RETAINED & REGENERATED
- OFFSET PLANTING AREAS - PLANTING TO REPLICATE EXISTING ADJOINING VEGETATION TYPE



10 December 2019

Job No.5295

The General Manager

Port Macquarie Hastings Council

Corner Lord and Burrawan Street

PORT MACQUARIE NSW 2444

Attention: Melissa Watkins / Vanessa Penfold

Dear Melissa & Vanessa,

Re: Voluntary Planning Agreement Request – Planning Proposal – Le Clos Sancrox

Further to early discussions held with Peter Cameron, Council's then Manager – Strategic Planning, we wish to initiate and investigate through the Voluntary planning Agreement process, the ability to meet developer contributions requirements by way of construction or upgrade of Sancrox Road.

We also note that a Sewer Pump Station and rising main will be required to serve not only this development but will cater for other land in the Sancrox area.

Both matters are to form part of negotiations for the VPA.

We have previously requested to meet to determine the Heads of Agreement and look forward to doing so in the near future.

We feel that there is the opportunity for a Sancrox specific material public benefit in a VPA in lieu of standard contributions.

Yours faithfully

Graham Burns

Director – Land Dynamics Australia

COORDINATED LEGAL ENTITY (CLE)- FORMED BY LE CLOS SANCROX LOT OWNERS (LCSLO)

Port Macquarie Hasting Council (PMHC) met on 19th September 2018 to consider 'Stage 1' (Outline) Planning investigations for rezoning for Sancrox and Fernbank Creek areas in 2018/19. Resolution 12.03 required the Le Clos Sancrox Lot Owners (LCSLO) to submit a Precinct rezoning and DA proposal in parallel with the "Stage 1" outline plans of the PMHC Planning staff, PROVIDED ONLY that LCSLO re-organize to act as one Coordinated Legal Entity (CLE) in all interactions with Council.

At Meetings conducted 12th and 20th November 2018 the LCSLO have resolved to reorganize as a CLE via a Deed of Participation and Power of Attorney in Representatives to negotiate on their behalf. The LCSLO have also committed to consolidating their land holding on the occurrence of a "Significant" event and to provide funding for necessary legal and planning action.

This report outlines the process followed for CLE formation, the actions arising and stakeholder expectations created as a consequence.

The Process for Formation of the LCSLO's CLE

Contents

Formation of the Le Clos Sancrox Lot Owners (LCSLO) Coordinated Legal Entity (CLE) 2

Considerations – The PMHC Meeting of 19th September 2018 Item 12.03 2

First Response by LCSLO Representatives 2

The CLE Proposal for LCSLO Consideration 2

The Outcome from "Town Hall" Meetings 3

Concurrent Actions Arising 3

Expectation Created 4

Appendix 1 – Resolution PMHC 19 September Item 12.03 5

Appendix 2 – Minutes of Meeting Representatives and PMHC held 03/01/2019 6

Appendix 3 – The Participation Deed and Power of Attorney 8

Formation of the Le Clos Sancrox Lot Owners (LCSLO) Coordinated Legal Entity (CLE)

Considerations – The PMHC Meeting of 19th September 2018 Item 12.03

Points 1, 2, 3, 4 and 6 of Port Macquarie Hastings Council (PMHC) Resolution 12.3 of 19th September impacting Le Clos Sancrox Landowner's (LCSLO) land (refer Appendix 1) required:

1. The General Manager to commence Stage 1 Planning for the Fernbank Creek and Sancrox areas in 2018/19.
2. The General Manager to review planning for the West Lindfield deferred land in 2018/19, potentially to supplement the supply of residential land in the short term.
3. Confirmation from LCSLO that landowners can act as one CLE (Coordinated Legal Entity).
4. Subject to confirmation of 3, that the Council invite the LCSLO to submit a proposal which can be considered by Council in parallel with their outline planning
6. The submission of an update report to the February 2019 meeting.

First Response by LCSLO Representatives

In response to the PMHC Resolution 12.03 of 19th September 2018 the representative group:

1. Contacted Solicitors Moin, Morris and Schafer and requested they provide an advice in respect of the requirement for a landowner CLE.
2. Requested Land Dynamics Australia (LDA) to provide a likely cost estimate for a response to any "in parallel" planning exercise.
3. Developed a **proposal** for Lot Owner consideration based upon the Moin, Morris Schaefer and LDA advice, and
4. Set up for "Town Hall" type meetings to be conducted in Sydney 12th November 2018 and Port Macquarie 20th November 2018 for discussion and decision making.

The CLE Proposal for LCSLO Consideration

The CLE proposal that LCSLO were asked to consider was:

1. Agreement to prepare and sign a Deed of Participation, and a Power of Attorney, which includes a commitment to transfer land into a new entity (with ownership based on Valuation prices) at the occurrence of a 'Significant Event'
2. The 'Significant Event' to be a committed buyer(s), for either some or all the land, at rezoned / DA approved prices.
3. Agreement to construct a Budget to cover costs of planning for rezoning / DA and ways to fund.
4. Agreement to top up the Contribution Account reserve to cover costs of Solicitors, administration, contingencies etc.
5. When appropriate, the formation of a best ownership structure (new entity) to house Land for Stage 2 (and thereafter) development, and
6. Upon the occurrence of a 'Significant Event' the transfer of all existing Lots into one consolidated Lot owned by the new entity, possibly with Sub-lots, and a staged DA enabling development on each of the possible Sub-lots as market conditions dictate

The Outcome from "Town Hall" Meetings

The objective of the 'Town Hall' meetings was an agreement by all 51 Lot Owners to act as a CLE collective.

The Sydney meeting recognized that there would not be enough time to develop and sign off all necessary documentation both to formalize the proposal and exactly meet Points 3 and 6 of the PMHC resolution by the February 2019 PMHC meeting. As an interim solution Fred Chilton and John Allen (both Le Clos Sancrox Lot owners with legal qualifications) prepared a meetings resolution document which meeting participants were asked to sign. Following the Sydney meeting the Chilton/ Allen document was presented to the Port Macquarie meeting participants and as well on forwarded to any LCSLO not able to attend either meeting, for consideration and sign off as appropriate.

The Chilton/ Allen document stated:

We the under signed agree to the proposed action outlined at meeting on the 12th November 2018, and to Maurice Driscoll, Jim Wade, Tania Magon and Jodie Chapman being our representatives in dealing with Port Macquarie Hasting Council.

By 19th December 2018 there was a sign off on the Chilton/ Allen document by Lot Owner of 49 of the 51 Lots. By 29th January 2019 all issues with one of the Lot owners who had not signed had been resolved while the other has agreed to sell their Lot to existing Lot Owners and the sale process is in hand. The new owners of the 51st Lot are in full agreement with the Chilton/ Allen document.

Therefore, as at the date of this report the Objective of all 51 Lot Owners acting as a CLE collective has been achieved.

Concurrent Actions Arising

The concurrent actions taken since November 2018 are as follows:

1. In December 2018 the Council was informed of the outcome of the Town Hall meetings, initially by phone with follow up correspondence.
2. On 3rd January 2019 a meeting was held with the PMHC Director of Strategy and Growth and PMHC Planning staff, refer minutes attached as Appendix 2
3. In December 2018 Moin Morris and Schafer prepared a first draft Deed of Participation and Power of Attorney. Since then there have been six drafts and reviews by Representatives leading to the draft 7. This draft, Version 7, has been distributed to all Lot Owners for review and signing if approved. Version 7 is attached to this report, refer Appendix 3.
4. Questions raised in respect only of 3 of the provisions of the version 7 Deed have been answered to the satisfaction of respondents. Therefore, the Solicitor has been instructed to proceed with the Deed of Participation and Power of Attorney sign off process.
5. As has been discussed with PMHC planning staff over the past 13 months, confirmation has been provided to the owners of the 3 Lots upon which houses have been constructed that the part A of their land title will be excluded from the LCSLO collective action, but the part B of their land title will be included.
6. A formal budget in respect of the LDA Planning Costs is awaiting feedback from PMHC in respect of the planning work and reports required. Once that feedback is made available

LCSLO Representatives will establish the initial Planning contribution required to fund LDA's "in parallel" involvement with PMHC Stage 1 Planning for the 'Outline Plan' for Sancrox and Fernbank Creek areas in 2018/19.

7. This report was prepared in response to a request made at the meeting as per 2 above (and Appendix 2) that LCSLO Representatives provide a report for the Council as to the process followed to form the CLE.

Expectation Created

The heightened level of LCSLO interaction since September 2018 leading to the formation of the CLE has both renewed enthusiasm within the Lot Owner group for development of their land and as well created a new set of expectations. For example, as identified in Appendix 2, LCSLO are now asking 'why not' in respect of:

1. The goal of Le Clos Sancrox Land rezoned and a DA Approved within 2 years?
2. An acceptance of an offer of assistance to PMHC by LDA (e.g. with mapping) to help Council in any way possible to progress the Outline Plan preparation and ensure the in parallel development of a Le Clos Sancrox proposal remains on track for 2018/19?
3. The PMHC Project plan providing the required investigations/studies and opportunities for input by Le Clos landowner representatives? (This will enable the CLE to develop a Planning Budget and arrange for funding by LCSLO).
4. Correction of the error in part 4 of Council's Sep 2018 resolution (i.e. correcting to reference part 1 instead of part 2)?
5. An immediate 'go ahead' with Items 1 and 4 of Resolution 12.03 of 19th September 2018?
6. The setting of milestone events and deadline dates for both the Le Clos Sancrox proposal development and PMHC Outline Planning for Sancrox and Fernbank areas? (The LCSLO have noted that this was an approach taken by PMHC at both the June and September 2018 Meetings).
7. The setting up of report back requirements to ensure both Le Clos Sancrox and PMHC planning processes remain on track. (i.e. a provision in any February 2019 meeting resolution similar to that of item 6 of Resolution 12.03 of 19th September 2018)?

Appendix 1 – Resolution PMHC 19 September Item 12.03

12.03 STRATEGIC LAND USE PLANNING - FERNBANK CREEK AND SANCROX

Councillor Levido declared a Non-Pecuniary, Significant Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 06:41pm.

Councillor Griffiths declared a Pecuniary Interest in this matter and left the room and was out of sight during the Council's consideration, the time being 06:41pm.

Mr Maurice Driscoll, Le Clos Sancrox Lot Owners, addressed Council in opposition of the recommendation and answered questions from Councillors.

Mr Graham Burns, Land Dynamics Australia, addressed Council in opposition of the recommendation and answered questions from Councillors.

RESOLVED: Hawkins/Turner

That Council:

1. Request that the General Manager commence Stage 1 planning for the Fernbank Creek and Sancrox areas in 2018/19.
2. Request that the General Manager commence a review of planning for the West Lindfield deferred land in 2018/19, to potentially supplement the supply of residential land in the short term.
3. Write to the Le Clos Sancrox landowner representatives seeking confirmation from the landowner group that the landowners can act as one coordinated legal entity.
4. Subject to confirmation of 3 above, invite the landowner group to submit a proposal which can be considered by Council in parallel with, but not before completion of the preparation of the Outline Plan in 2 above.
5. Note the additional resource requirements as a result of recommendations 1 to 4 above and allow the General Manager to resource this increased program appropriately.
6. Submit an update report on all the above actions to the February, 2019 meeting of council

CARRIED: 6/0
FOR: Alley, Dixon, Hawkins, Intemann, Pinson and Turner
AGAINST: Nil

Councillor Griffiths returned to the meeting, the time being 07:02pm.

Councillor Levido returned to the meeting, the time being 07:02pm.

Councillor Alley left the meeting, the time being 07:05pm.

Councillor Alley returned to the meeting, the time being 07:06pm.

Appendix 2 – Minutes of Meeting Representatives and PMHC held 03/01/2019

From: Sandra Bush

To: Maurice Driscoll

Cc: Jeffery Sharp; Carina Gregory; Graham Burns; Donna Clarke

Subject: RE: Sancrox & Fernbank Creek Outline Plan - Le Clos Sancrox landowner representatives meeting 3 Jan 2019

Date: Tuesday, 8 January 2019 9:56:23 AM

Attachments:

Hi Maurice,

Thanks for your latest email. The suggested changes to the meeting notes are agreed (shown in blue) and the revised notes are below for your records:

The key points discussed at your meeting with Jeffery Sharp, Carina Gregory and myself on 3 January 2019 are as follows:

- Maurice provided an update on the consultation that has occurred with Le Clos landowners since Council's Sep 2018 resolution and advised that a Draft Deed and Power of Attorney have been prepared for endorsement by the landowners to create a co- ordinated legal entity. All of the landowners are in agreement, with the exception of two owners with properties on the periphery of the Estate. Jeffery recommended that the Draft Deed include details of the two properties that will not form part of the Deed. Maurice agreed.

- Details of the landowner consultation and copy of the draft documentation to be provided by Maurice for inclusion in the Feb 2019 report. To meet the agenda reporting deadline the documentation is to be submitted by COB 7/2/19. Jeffery noted that the Feb 2019 report will provide an update on the actions taken in response to the Sep 2018 resolution. The report will also need to address an error in part 4 of Council's Sep 2018 resolution (i.e. reference to part 2 instead of part 1).

- Maurice asked for clarification on part 4 of the Sep 2018 resolution and, in particular, what work will be required by Land Dynamics so that project milestones and costs can be estimated. Graham Burns added an anticipation that the planning instruments for Le Clos Sancrox land could be kept straightforward. Graham's input, discussed and noted, was:
    - A road link to the west to Rawdon Island Road
    - The sewer pump station already identified by PMHC on unformed Public Road leading to Geoff Freeman's land
    - Updates to previous planning reports
    - Environmental considerations recently undertaken updated
    - Enquiry by design for community consultation

  Jeffery noted that detail of the planning process, the required investigations/studies and opportunities for input by Le Clos landowner representatives will be provided following completion of a project plan.

- Graham requested clarification on the timing for the Outline Plan preparation. Sandra advised that the Sep 2018 report suggests a timeframe of 18 months to 2 years. Graham suggested a

scheduling goal ought direct Council and LDA/LCSLO planning action. He proposed that the Goal be: "Le Clos Sancrox land Rezoning and DA within 2 years". Jeffery noted that whilst this was the goal, it might not be achieved.

- Graham also wanted to know if a planning proposal to rezone the Le Clos land could be prepared ahead of the Outline Plan. Sandra advised that endorsement of the Outline Plan by the Department of Planning and Environment will be required prior to any rezoning as the land is not mapped in the urban growth area boundary of the Regional Strategy.

- Donna asked if the requirement for an Outline Plan is a new approach by State Government/Council. Sandra advised that the same approach was taken for Areas 13, 14 and 15. The only difference is that once the Outline Plan is prepared, precincts will be identified for detailed rezoning investigations in stages due to the extent of the land involved. As noted in the Sep 2018 Council report, precincts are likely to be identified "based on land supply, infrastructure sequencing, the planning issues that need to be addressed, and the willingness of landowners to cooperate to achieve the intended outcomes."

- Graham was particularly interested in resource requirements and timing and therefore offered assistance from Land Dynamics (e.g. mapping) to help Council in any way possible to progress the Outline Plan preparation.

Kind regards,

Sandra Bush

Senior Strategic Planner Strategy & Growth

p (02) 6581 8025

REFER TO NEXT PAGE

LE CLOS SANCROX DEVELOPMENT

PARTICIPATION DEED

DRAFT

MOIN
MORRIS
SCHAEFER

111 Faulkner Street, Armidale
PO Box 1226, Armidale NSW 2350
T 02 6772 4899
F 02 6772 5611
www.moin.com.au

Suite 3, 128 William Street, Port Macquarie
PO Box 2293, Port Macquarie NSW 2444
T 02 6772 4899
F 02 6772 5611

Contents

1. Definitions 4
2. Appointment 6
3. Provision of the services 7
4. Funding the Project & the Budget 7
5. Representative's Indemnity 8
6. Access to site 8
7. Work health and safety & risk 8
8. Liability for costs & taxes 8
9. Meetings and Resolutions of the Owners 8
10. Resolutions by email 9
11. Dismissing or appointing Representatives 10
12. Prohibited dealings & activities 10
13. Reports 10
14. Identification of Potential Purchaser for some or all of Land. 10
15. The entity 11
16. Value of Land 11
17. Mortgages 11
18. Management of the Project vested in the Representatives 12
19. Decision making by the Representatives 12
20. Related party dealings 12
21. Parties warranties 12
22. Commercial feasibility 13
23. Power of attorney 14
24. Exit & assignment 14
25. Death or Impairment 14
26. Sunset 14
27. Termination 14
28. Confidentiality 15
29. Independent Advice 15
30. Insurance 15
31. No assignment by Representatives 15
32. Subcontracting 15
33. Consents 16
34. Dispute resolution 16
35. Notices 16
36. Relationship of the parties 17
37. Variation 17

DRAFT

38. Counterparts 17
39. GST 17
40. Costs of this Deed 17
SCHEDULE 1 18
SCHEDULE 2 – Owners names 21
SCHEDULE 3 – ACCESSION DEED 22
SCHEDULE 4 – Budget 24
SCHEDULE 5 – Enduring power of attorney 25

THIS DEED dated day of 2019

BETWEEN The representatives set out in Schedule 1 (**Representatives**)

AND The Owners set out in Schedule 2 (**Owners**)

BACKGROUND

A. The Owners each own one or more Lots in the Le Clos Sancrox development at Sancrox Road, Port Macquarie New South Wales, which together form the Land. Each Owner wishes to sell their Lot but recognises that the Land must be dealt with as one parcel and rezoned by the Council prior to it being saleable at an attractive price.

B. Council have indicated that they would prefer to deal with one party representing all of the Owners rather than each Owner individually. It would also be more practical for the Owners to appoint representatives to act on their behalf for selling the Land once is its rezoned.

C. Each Owner recognises the need to co-operate and work together in harmony to achieve the goal referred to in Recital A.

D. The Owners have agreed to appoint the Representatives as their attorneys and representatives for the purpose of:

(a) making an application to Council to rezone the land; and

(b) attempt to identify a property developer or other interested purchaser for all or part of the rezoned Land and when identified

(c) submit a Development Application to Council to enable the re-organisation of existing lots to form new Lots to hold existing lots on which dwellings are located, Lots which have been identified as having potential purchasers and at least one other Lot holding the remainder of the Land

(d) upon approval by Owners to set up a legal entity to effect and finalise any sales and hold any remainder Lot(s).

E. This Deed sets out the terms of that appointment.

AGREEMENT

1. Definitions

1.1 In this Deed:

(a) **Council** means the Port Macquarie-Hastings Council;

(b) **Budget** means the budget for the Project as set out in Schedule 4 or as amended by an Ordinary Resolution;

(c) **Commencement Date** means the date set out in Schedule 1;

(d) **Land** means the land set out in Schedule 1;

(e) **Lot/s** means the lots forming the Land as set out in Schedule 1;

(f) **Moin Morris Schaefer** means the legal firm trading under that name the proprietor of which is Moin Morris Schaefer Pty Ltd;

(g) **Ordinary Resolution** means a resolution of more than 50% of the Owners in accordance with clause 9;

(h) **Ownership Percentage** means the percentage allocated to each Lot as set out in the 5th column of Annexure 1A which corresponds to the documents previously communicated to and accepted by the owners;

(i) **Owner** means the registered proprietor or proprietors for the time being of any Lot;

(j) **Project Account** means the bank account identified in Schedule 1;

(k) **Project** means the development and consolidation of the Land and the marketing and sale of the Land pursuant to this Deed;

(l) **Project Costs** means all costs properly incurred by the Representatives in advancing the Project and includes taxes if assessed on the Representatives in respect of the Land and any claims in any forum against the Representatives acting in accordance with the terms of this deed;

(m) **Project Proceeds** means all assets and income of the Project and includes:

(i) Owners' contributions;

(ii) the sale proceeds for the Land or any part of it; and

(iii) any other income of the Project;

net of Project Costs;

(n) **Related Party** means in relation to a Representative or an Owner:

(i) a relative or spouse or de facto spouse;

(ii) a friend or associate;

(iii) an entity controlled by them; and

(iv) an entity, partnership or trust in which they have shares or any interest including as beneficiary under a discretionary trust;

(o) **Related Party Dealing** means a contract or financial arrangement with a Related Party;

(p) **Resolution** means an Ordinary or Special Resolution as the case may be;

(q) **Sale Contract** includes a contract of sale, a put and/or call option agreement, a right of first refusal or any other contractual or deed document whereby a 3rd party obtains a right to purchase the Land or part of it;

(r) **Services** means the services provided by the Representatives to the Owners under this Deed as more fully described in Schedule 1;

(s) **Special Resolution** means a resolution of 75% or more of the Owners in accordance with clause 9;

(t) **Sunset Date** means the date set out in Schedule 1;

1.2 **Interpretation**

(a) This Deed is governed by the laws of New South Wales and the parties submit to the non-exclusive jurisdiction of the courts of that state.

(b) In the interpretation of this Deed:

(i) References to legislation or provisions of legislation include changes or re-enactments of the legislation and statutory instruments and regulations issued under the legislation;

(ii) Words denoting the singular include the plural and vice versa, words denoting individuals or persons include bodies corporate and vice versa, references to documents or Deeds also mean those documents or Deeds as changed, novated or replaced, and words denoting one gender include all genders;

(iii) Grammatical forms of defined words or phrases have corresponding meanings;

(iv) Parties must perform their obligations on the dates and times fixed by reference to the capital city of New South Wales;

(v) Reference to an amount of money is a reference to the amount in the lawful currency of the Commonwealth of Australia;

(vi) If the day on or by which anything is to be done is a Saturday, a Sunday or a public holiday in the place in which it is to be done, then it must be done on the next business day;

(vii) References to a party as a singular includes reference to all persons which make up that party;

(viii) References to a party are intended to bind their executors, administrators and permitted transferees; and

(ix) Obligations under this Deed affecting more than one party bind them jointly and each of them severally.

2. Appointment

2.1 The Owners appoint the Representatives to provide the Services in accordance with the provisions of this Deed.

2.2 The Representatives accept their appointment and agree collectively and individually to perform the Services in accordance with the provisions of this Deed.

2.3 In order for the Representatives to effectively and appropriately carry out their duties and obligations under this Deed each Owner must:

(a) provide to the Representatives on signing of this Deed as an attachment the following details:

i. the Lot number that they own;

ii. their full names;

iii. their full residential address;

iv. their telephone number;

v. their email address (for the service of notices and reports under this Deed; and

vi. their mortgagee details (if applicable) including the bank's address.

(b) ensure that if any of their details change they notify the Representatives by email of the change or changes to those details.

2.4 The Representatives promise to keep the details received pursuant to clause 2.3 confidential and only use the details for a purpose associated with this Deed and the Project.

3. Provision of the services

3.1 The Representatives will:

(a) Act in all matters promptly, diligently and honestly and exercise all due care, skill and attention in providing the Services;

(b) Ensure that the Services are rendered in compliance with any relevant laws, codes, standards and regulations; and

(c) Comply with all legal requirements as may from time to time apply to the provision of the Services.

4. Funding the Project & the Budget

4.1 It is not anticipated that the Representatives will borrow money on behalf of the Owners but instead all funding will be contributed by the Owners in advance.

4.2 Owners must contribute their share of the Budget to the Project Account according to their Ownership Percentage.

4.3 The Owners may alter the Budget by Special Resolution, and if increased, Owners must contribute their share of the increased Budget to the Project Account.

4.4 The parties intend that all costs of the Project will be paid from the Budget held in the Project Account so that Owners are not required to make multiple separate payments to suppliers or creditors. If the Representatives

consider more funds are necessary than the Budget allows, they must make a request to the Owners to increase the Budget. Therefore, the Representatives must only exceed the Budget (i.e. spend their own funds) in exigent circumstances where a failure to do so may jeopardise the Project.

4.5 Any income arising from the Project or the Land (e.g. rent or lease fees) must be promptly deposited into the Project Account.

4.6 The Representatives may not borrow money on behalf of the Owners except by authority of a Special Resolution.

4.7 For the avoidance of doubt, all funds held in the Project Account are held as attorney for all of the Owners as tenants in common in the proportions determined in accordance with the Owners' Ownership Percentages.

4.8 Funds in the Project Account must only be spent on the Project.

4.9 If an Owner fails to comply with their obligations to contribute to the Budget, or to the Representative's indemnity, the Representatives may offset against such debt any payment of Project Proceeds to such Owner.

5. Representative's Indemnity

5.1 The Owners jointly and severally indemnify the Representatives from and against all Project Costs.

5.2 The Owners jointly and severally acknowledge and agree that as long as the Representatives act in good faith and in accordance with the terms of this Deed then no claims of any nature whatsoever can be brought against them by any Owner.

6. Access to site

The Owners consent to the Representatives, their agents and contractors, accessing and traversing the Land and doing all things necessary on the Land to complete the Project.

7. Work health and safety & risk

The Representatives will ensure that they and any of their contractors or agents comply with the requirements of all relevant work health and safety legislation or regulations in relation to the provision of the Services.

8. Liability for costs & taxes

8.1 The Owners are each independently responsible for any taxes assessed on them in relation to the Land, this Project or this Deed.

8.2 Each party is responsible for their own costs in relation to the administration, accounting costs and legal costs of their respective entities, except as otherwise provided in this Deed.

8.3 The Owners are responsible for usual ownership costs of the Land including rates and insurance.

9. Meetings and Resolutions of the Owners

9.1 The Owners can call a meeting of the Owners by any 5 or more Owners giving written request to the Representatives. The Representatives then must call a meeting to be held within 21 days and give notice of the meeting to all Owners. If the Representatives fail to call the meeting within 7 days, those Owners who made the request may call the meeting and give notice to all Owners. All costs of the meeting are Project Costs.

9.2 The Representatives may call a meeting and give notice.

9.3 The notice of meeting must include:

(a) the date, time and place of the meeting; and

(b) the text (and associated documents, if any) of any Resolutions to be put to the Owners.

9.4 Notwithstanding clause 9.3, an Owner or the Representatives may at a meeting propose a Resolution which was not included in the notice of meeting.

9.5 The Owners at the meeting must first elect by poll a person to chair the meeting.

9.6 Each Owner has 1 vote. For the avoidance of doubt where there is more than one registered proprietor of a Lot then the Owners of that Lot collectively only have one vote.

9.7 On a show of hands, the chair's decision is conclusive evidence of the result of the vote. The chair's decision on any matter of procedure is final.

9.8 A Resolution may be passed by the Owners:

(a) voting on a show of hands or poll at an Owners meeting, provided that for determining whether a vote is passed, Owners who have not attended the meeting or voted by email or proxy are taken to have abstained from the vote; or

(b) in accordance with clause 10.

9.9 A poll must be held if 5 or more Owners request.

9.10 An Owner may appoint another person (including an Owner) as their proxy for a meeting. There is no specified form for the appointment of a proxy, but it must be in writing, and must state how the proxy must vote on proposed Resolutions. A proxy may not speak at the meeting. The proxy must vote in accordance with the proxy form, and may vote on a show of hands or in a poll. A proxy who is also an Owner, may vote as the Owner and also as proxy for another Owner.

9.11 Meetings may be held by use of technology and persons attending by technology may participate in a poll by directing the chair how they wish to vote.

10. Resolutions by email

10.1 A Resolution of any kind may be passed by email as follows:

(a) a proposed Resolution must be supported by at least 5 Owners (unless the Resolution is proposed by the Representatives, in which case no supporters are required);

(b) the proposer of the resolution must email the proposed Resolution to the Representatives, nominating the 5 supporters, and the Representatives must as soon as possible forward the Resolution to
all Owners, including in such email:

(i) the text and relevant documents (if any) for the proposed Resolution;

(ii) a statement that the Owners have a specified number of days (minimum of 3 days) to respond and vote on the Resolution (**voting period**); and

(iii) a copy of this clause 10;

(c) Owners may reply to the email and vote on the Resolution within the voting period;

(d) emails or votes outside the voting period are not counted; and

(e) the Representatives will at the conclusion of the voting period, notify the Owners of the outcome of the Resolution.

10.2 In communicating with the Owners the Representatives must use the email address as provided to them by the Owners pursuant to clause 2.3.

10.3 An Owner may authorise another person (e.g. their solicitor, accountant or a real estate agent) to communicate their votes on Resolutions on their behalf.

10.4 A failure to:

(a) receive notice of a proposed Resolution or meeting; or

(b) to vote or reply to an email from the Representatives or Owners;

because of internet or hardware failure by an Owner does not invalidate the results of the Resolution or meeting.

11. Dismissing or appointing Representatives

The Owners may dismiss a Representative or Representatives, or appoint a Representative or Representatives, by an Ordinary Resolution.

12. Prohibited dealings & activities

The Owners or appointed representatives or occupiers of a Lot must not enter into any act or dealing in relation to the Land which frustrates or hinders the Project without the prior agreement of the Representatives. Examples of prohibited acts or dealings may include:

(a) selling a Lot or any part of the Land other than in accordance with this Deed;

(b) leasing a Lot;

(c) mortgaging a lot after the date of this Deed;

(d) registering a caveat over a Lot without approval of an Ordinary Resolution;

(e) dumping or abandoning rubbish or anything else on the Land;

(f) constructing anything on the Land; or

(g) doing anything which may discourage a purchaser of the Land or delay a Council approval.

13. Reports

The Representatives must provide to the Owners the reports set out in Schedule 1.

14. Identification of Potential Purchaser for some or all of Land.

14.1 The owners authorise the Representatives to seek purchasers for some or all of the Land.

14.2 If purchasers are identified the Representatives shall propose a Special Resolution to seek the Owners approval for the sale.

14.3 If the Owners approve the Resolution, the Representatives shall do all that is necessary to ensure that the sale can proceed including:

(a) Finalising any rezoning necessary;

(b) Set up a legal entity in accordance with clause 15 which will consolidate the Land and effect the sale to the potential purchaser identified;

(c) Submitting to, and seeking to obtain, any necessary Development Applications to Council to create the Lots necessary to affect the sale and produce the other Lot or Lots from the remainder of the land.

15. The entity

15.1 If the Representatives determine at any time, including but not limited to the circumstances set out in clause 14, that the Project may be best advanced by the creation of a new legal entity, or use of an entity previously created by the Representatives, to hold the Land, then they may propose this to the Owners.

15.2 If the Owners by way of Special Resolution approve the creation of a new legal entity or use of a previously created entity to hold the Land, then each Owner must comply with the terms of the Special Resolution.

15.3 In any entity approved in accordance with clause 15.1, each Owner will have an interest (ie shareholding) in that entity in proportion to their Ownership Percentage. To avoid doubt, if an entity that has been previously created by the Representatives is used to hold the Land then they must ensure that their shareholding in that entity is reflective of their Ownership Percentage.

15.4 The Representatives with be the initial directors of the new entity until a Special General Meeting is called to endorse or elect other directors.

15.5 To avoid doubt:

(a) The Representatives may have previously set up a legal entity for ease of administration of the Project and in which case they would each be directors and shareholders of that entity;

(b) the Special Resolution referred to in this clause may contain provisions dealing with among other things, time frames regarding transfer of lots to the approved entity and the transfer could be of nominal consideration.

16. Value of Land

The Representatives will engage a registered valuer to determine the total value of the Land at the time of consolidation and will inform the Owners once the valuation has been received.

17. Mortgages

17.1 The Owners acknowledge the Project will be simpler and more efficient if there are as few as possible mortgages registered over the Lots. The Owners agree to use their best endeavours to pay out and discharge any mortgages secured over their Lots as soon as possible after the Commencement Date.

17.2 The Owners must not during the Project:

(a) grant any charges or mortgages of any kind over their Lots; or

(b) cause or allow the registration of any mortgage over their Lots.

18. Management of the Project vested in the Representatives

18.1 The Owners have appointed the Representatives to carry out the Project and the Owners may not interfere in the management of the Project except to the extent allowed by this Deed.

18.2 The Owners are not entitled to direct the Representatives on any matter, except by Special Resolution or as otherwise authorised by this Deed.

18.3 The Owners primary source of information for the Project will be the Reports. However, the Representatives will respond promptly to all reasonable requests for information relating to the Project.

18.4 The Owners are entitled to information which is expressed to be confidential as the Representatives are entering into agreements on behalf of the Owners, unless confidentiality is required by law.

18.5 The Owners acknowledge that the Representatives may alter the Project after the date of this Deed if necessary to improve the marketability or profitability of the Project. The Representatives may alter such things as:

(a) the timing of the Project (but not the Sunset Date or payment timeframes under this Deed);

(b) shape or other characteristics of the consolidated lot or lots; or

(c) other aspects of the Project.

18.6 The Representatives will notify the Owners of all major alterations to the Project in the Reports.

19. Decision making by the Representatives

19.1 The Representatives must act unanimously wherever possible.

19.2 If the Representatives cannot agree on a unanimous basis, they can act by majority to make a decision, and such decision will bind the Representatives and the Owners.

20. Related party dealings

The Representatives must obtain the approval of a Special Resolution prior to entering into a Related Party Dealing.

21. Parties warranties

21.1 The Representatives severally warrant at all times during the term of this Deed that:

(a) they will act in good faith in relation to their management of the Project and their dealings with Owners and third parties;

(b) they are not in default of any professional obligations from any professional society or organisation;

(c) they are not banned from being a director of a company by the Australian Securities and Investments Commission and have not been censured by any other government department or authority;

(d) they are solvent and not a bankrupt or a former bankrupt,

(e) there are no present claims demands or legal proceedings against them; and

(f) they do not expect to become insolvent during the Project.

21.2 The Owners severally warrant at all times during the term of this Deed that:

(a) each Owner owns the Land legally and beneficially and is able to provide their Lot for the purposes of this Deed;

(b) no other party has any claim on the Land or any rights to the Land which might hinder or prevent the development of the Land or the purposes of the Project except as disclosed on the title at the Commencement Date;

(c) they will at all times use their best endeavours to keep their lots neat and tidy and free from rubbish; and

(d) the Owner is solvent and there is no reason to expect the Owner will not be solvent for the term of this Deed.

21.3 If an Owner owns their Lot/s as trustee, the Owner warrants at all times during the term of this Deed that:

(a) it has entered into this Deed in its capacity as a trustee of the trust which owns the Lot/s, but also in their personal capacity;

(b) it is not aware of any action to remove it or any other joint Trustee as trustee of the trust;

(c) it has power under the trust deed to enter into and perform its obligations under this Deed;

(d) it is not in default under the trust deed, the trust has not been terminated and no vesting of the trust's property has occurred and it is not aware of any action proposed to terminate, or vest the property of, the trust; and

(e) the trust's property has not been resettled, set aside or transferred to any other trust.

21.4 Each of the Owners and Representatives agree to immediately notify the other parties to this deed if any of the warranties become false or misleading and will provide full disclosure to the other parties under this Deed.

22. Commercial feasibility

21.5 Each party is responsible for its own due diligence and analysis of the commercial and economic feasibility of the Project and their obligations under this Deed. No party may rely on any forecasts, budgets, studies, targets or sales figures (**Outcome Representations**) represented by another before or after this Deed is entered into. Each party acknowledges that any such Outcome Representations which were made by one party to another:

(a) should not be relied upon;

(b) are an aspirational goal subject to the variabilities and vicissitudes of property development; and

(c) may not be achieved.

23. Power of attorney

23.1 The Owners will appoint the Representatives as their enduring attorneys using the form of document found in Schedule 5 within 60 days of the Commencement Date. An Owner which is a body corporate will appoint the Representatives as its attorney using a general power of attorney but otherwise on the same terms as the form of document found in Schedule 5.

23.2 The appointment is irrevocable except upon termination or expiry of this Deed.

23.3 The Owners agree not to revoke the appointment of the Representatives as their attorneys outside the terms of this Deed.

23.4 An Owner will be in breach of this Deed if they revoke an appointment of the Representatives as attorney, or purport to do so, outside the terms of this Deed.

24. Exit & assignment

24.1 The Owners acknowledge that for the Project to achieve the highest financial result for all Owners, the Land must be treated as a single parcel. Therefore, an Owner who wishes to exit may be causing financial detriment to the remaining Owners if they do exit. For this purpose, each Owner acknowledges that they have limited rights to exit this Deed.

24.2 An Owner may exit this Deed by selling their Lot/s to another Owner.

24.3 An Owner may only sell their interest in their Lot/s to a person who is not party to this Deed if they cause the purchaser, prior to settlement of the sale of the Lot/s to:

(a) enter into the Accession Deed in Schedule 3; and

(b) appoint the Representatives as their attorneys pursuant to the enduring power of attorney in Schedule 5.

25. Death or Impairment

24.4 In the event of death or permanent disability of a party to this Deed, the legal personal representative and/or successor in title of the deceased/incapacitated Owner shall be bound to complete this Deed.

24.5 The enduring attorney of an incapacitated Owner, or the executor or administrator of a deceased Owner, may vote on resolutions and otherwise enjoy the rights and obligations of the Owner they represent under this Deed.

24.6 In the event of death of an Owner, their appointment of the Representatives as attorneys will lapse. Therefore, the executor or administrator of the deceased must promptly sign any Sale Contract or titles document presented to them in accordance with this Deed and or enter into a power of attorney appointing the Representatives pursuant to the enduring power of attorney in Schedule 5.

26. Sunset

This Deed will expire on the Sunset Date, unless extended prior to the Sunset Date by a Special Resolution.

27. Termination

27.1 The Owners may terminate this Deed by a Special Resolution, provided that the Resolution must nominate the effective date of the termination.

27.2 Upon termination or expiry of this Deed:

(a) the Representatives will have no authority to act on behalf of the Owners, except to the minimum extent necessary to finalise any arrangements under this Deed; and

(b) the Representatives will as soon as possible distribute the Project Proceeds to the Owners in accordance with Ownership Percentages.

28. Confidentiality

28.1 The parties promise on behalf of themselves and their financial, legal and other advisors that they will keep confidential and not divulge either directly or indirectly to any person any information relating to the Project which is of a confidential nature or which is not otherwise in the public domain, including the terms of this Deed, save to the extent that the disclosure may be required by statute or may reasonably be required for the purpose of enabling the parties to fulfil their respective obligations under this Deed or as may otherwise be required by law.

28.2 The operation of this provision will continue beyond the expiration or termination of this Deed.

29. Independent Advice

Each party is encouraged to, and is responsible for obtaining their own independent advice as to:

(a) their legal rights and obligations under this Deed; and

(b) the financial and taxation consequences of entering into this Deed.

30. Insurance

30.1 The Representatives will after a new entity is formed obtain public liability insurance over the Land with a policy amount of at least $20,000,000.

30.2 The Representatives will cause the names of the Owners to be noted on any public liability insurance obtained by the new entity.

30.3 Each Owner acknowledges that not having their own public liability insurance over their Lot carries with it risks of being sued if an accident occurred on their land.

30.4 The Representatives make no warranty that the public liability insurance policy that the new entity will obtain will indemnify any or all Owners against any risk or event that may occur on their Lots during the term of the Project or this Deed.

30.5 For abundant caution the Representatives recommend that all Owners keep and maintain public liability insurance over their Lots until such time as they no longer own it.

31. No assignment by Representatives

Representatives must not assign their interest under this Deed.

32. Subcontracting

The Representatives may engage subcontractors as they determine appropriate to perform any of their obligations under this Deed.

33. Consents

It is anticipated that Representatives will be able to act as attorneys for the Owners and sign all necessary documents on their behalf. However, if required by Council or any other authority or government department, the Owners will promptly and thoroughly provide their assistance as necessary to advance the Project and this may include using the Power of Attorney, signing as applicant, or consenting to development applications and any other applications for government approvals, licences, permits or the like.

34. Dispute resolution

33.1 Unless a party has complied with this clause, that party may not commence court proceedings relating to any dispute arising from this Deed or the Project, except where that party seeks urgent interlocutory relief.

33.2 Any party claiming that a dispute has arisen under this Deed between any of the parties to the Deed shall be given written notice to the other party designating as its representative in negotiations relating to the dispute, a person with authority to settle the dispute and the other party shall promptly give notice in writing to the first mentioned party designating as its representative in negotiations relating to the dispute a person with similar authority.

33.3 The designated persons shall, within 10 days of the last designation required by clause 34.2 following whatever investigations each deems appropriate, seek to resolve the dispute.

33.4 If the dispute is not resolved within the following 10 days, (or within such further period as the representatives may agree is appropriate) the parties shall within a further 10 days (or within such further period as the representatives may agree is appropriate) seek to agree on a process for resolving the whole or part of the dispute through means of mediation (using a person nominated by the President for the time being of the Law Society of New South Wales as the mediator) and on the procedure and timetable as nominated by the said mediator.

33.5 The parties acknowledge that the purposes of any exchange of information or documents or the making of any offer of settlement pursuant to this clause is to settle the dispute between the parties. No party may use any information or documents obtained through the dispute resolution process established by this clause for any purpose other than in an attempt to settle a dispute.

33.6 After the expiration of the time established or agreed by this clause or Deed on a dispute resolution process, any party which has complied with the provisions of this clause may then refer the dispute to arbitration or commence court proceedings.

33.7 Neither party may publish any disparaging comment or remark in relation to the other, unless the processes of this clause 34 have been fully exhausted. For the avoidance of doubt, this subclause 34.7 does not authorise defamation or limit any party's rights to respond to disparaging comments or remarks after the processes of this clause have been followed.

35. Notices

34.1 All notices between Representatives and Owners must be delivered by email but may also be concurrently delivered in any of the ways set out below:

(a) Delivered personally; or

(b) Posted to their address when it will be treated as having been received on the third business day after posting; or

(c) Sent by email to their email address when it will be treated as received when it enters the recipient's information system.

34.2 The Representatives' email address for notices is set out in Schedule 1.

34.3 The Owner's email address for notices is as provided to the Representatives in accordance with clause 2.3.

36. Relationship of the parties

The parties acknowledge that this Deed is intended as the appointment of Representatives and not any other relationship and, in particular, not the relationship of employer and employee, or the relationship of partnership. The Representatives are authorised to bind the Owner only to the extent expressed in this Deed.

37. Variation

An amendment or variation to this Deed is not effective unless it is in writing and signed by the parties, provided that a number of clauses of this Deed allow variation of the terms by a resolution of the Owners.

38. Counterparts

This Deed may be executed in any number of counterparts each of which will be an original but such counterparts together will constitute one and the same instrument and the date of the Deed will be the date on which it is executed by the last party.

39. GST

38.1 For the purposes of this Clause:

(a) GST means any tax imposed on the supply of goods or services which is imposed or assessed under GST Law.

(b) GST Law - means A New Tax System (Goods and Services Tax) Act 1999 (as amended) and all related or replacement or amending legislation or regulations which provides for a broad-based consumption tax on the supply of Goods and Services which becomes operative in respect of the provisions of this Deed.

38.2 Any entity set up by the Representatives will be registered for GST.

38.3 If any supply made under or in relation to this Deed is subject to GST, the parties agree that the amount payable for any supply shall include the GST.

38.4 Each party agrees to do all things, including providing invoices, that may be necessary to assist the other parties to claim an input tax credit, set off, rebate or refund in relation to any GST payable under this Deed.

40. Costs of this Deed

39.1 The preparation of this Deed and related documents will be a Project Cost.

39.2 The Owners' costs in reviewing or negotiating this Deed and related documents are their own costs.

SCHEDULE 1

Commencement Date	20 December 2018
Sunset Date	The 3rd anniversary of the Commencement Date
The Land	Lots:
Project Account details	Bank: BSB: Acc:

Reports

The Representatives will provide the Owners with a quarterly report of the progress of the Project. The report will include:

- an update of the progress of rezoning and/or consolidating the Land;
- an update on the signing of any material contracts relating to the Project;
- an update of any purchase offers or negotiations (excepting negotiations being conducted on a commercial-in-confidence basis);
- report on Project Costs, the current bank account balance for the Budget Bank Account, and a copy of the current Project Account bank statement;
- any financial statements prepared by the Project Accountants which have not yet been provided to the Owners; and
- copies of all Resolutions passed since the last quarterly report.

The quarterly reports will be provided on or before the following dates each year:

- 1 February, 1 May, 1 August, 1 November

Representatives details

Representative's full name	email & Telephone number

The Services:

The Representatives will provide the following services:

- Cause the Land to be rezoned and if necessary put in place a mechanism to consolidate it;
- Liaise with Council and other authorities and any other person deemed appropriate in relation to the rezoning and consolidation of the Land;
- Identify Potential Purchasers for all or parts of the land
- Any other service incidental to achieving and/or advancing the Project.

SCHEDULE 1A

Lot No.	Land component of lot value	Value of Council contribution held	Total current value of Lot	% of total
1	$30,020	$44,541	$74,561	1.85
2	$41,060	$44,541	$85,601	2.12
3	$29,680	$44,541	$74,221	1.84
4	$49,432	$44,541	$93,973	2.33
5	$47,630	$44,541	$92,171	2.29
6	$50,212	$44,541	$94,753	2.35
7	$36,908	$44,541	$81,449	2.02
8	$37,284	$44,541	$81,825	2.03
9	$44,340	$0	$44,340	1.10
10	$26,988	$44,541	$71,529	1.77
11	$32,142	$44,541	$76,683	1.90
12	$31,338	$44,541	$75,879	1.88
13	$20,740	$0	$20,740	0.51
14	$43,282	$44,541	$87,823	2.18
15	$34,360	$44,541	$78,901	1.96
16	$28,888	$44,541	$73,429	1.82
17	$36,926	$44,541	$81,467	2.02
18	$32,320	$44,541	$76,861	1.91
19	$31,856	$44,541	$76,397	1.90
20	$37,488	$44,541	$82,029	2.04
21	$34,652	$44,541	$79,193	1.97
22	$40,788	$44,541	$85,329	2.12
23	$46,656	$44,541	$91,197	2.26
24	$40,076	$44,541	$84,617	2.10
25	$38,688	$44,541	$83,229	2.07
26	$37,524	$44,541	$82,065	2.04
27	$33,920	$44,541	$78,461	1.95
28	$33,640	$44,541	$78,181	1.94
29	$30,260	$44,541	$74,801	1.86
30	$34,860	$44,541	$79,401	1.97
31	$35,928	$44,541	$80,469	2.00
32	$34,820	$44,541	$79,361	1.97
33	$38,296	$44,541	$82,837	2.06
34	$33,002	$44,541	$77,543	1.92
35	$137,110	$44,541	$181,651	4.51
36	$38,276	$44,541	$82,817	2.05
37	$42,904	$44,541	$87,445	2.17
38	$39,492	$44,541	$84,033	2.09
39	$49,310	$44,541	$93,851	2.33
40	$42,528	$44,541	$87,069	2.16
41	$33,512	$44,541	$78,053	1.94
42	$40,468	$44,541	$85,009	2.11
43	$41,778	$44,541	$86,319	2.14
44	$27,540	$0	$27,540	0.68
45	$36,376	$44,541	$80,917	2.01
46	$50,356	$44,541	$94,897	2.35
47	$3,350	$44,541	$47,891	1.19
48	$109,140	$0	$109,140	2.71
50	$4,636	$0	$4,636	0.12
51	$108,080	$0	$108,080	2.68
52	$29,420	$0	$29,420	0.73
Total	**$2,070,280**	**$1,959,817**	**$4,030,084**	**100.00**

SCHEDULE 2 – Owners names

Name of each owner

SCHEDULE 3 – ACCESSION DEED

Deed of accession

This **deed of accession** is dated [*date*]

Between:
[*names of parties to the Participants Deed*] (**Parties**)
And:
[*name of new owner* ([*ACN*]) of [*address*] (**New Owner**),

in relation to the Participation Deed dated [*specify date of Participation Deed*] (**Participation Deed**).

OPERATIVE PROVISIONS

A [insert new owner] (**Acceding Party**) confirms it has been given a copy of the Participants Deed.

B The Acceding Party covenants with the parties to the Participation Deed (whether original or by accession) to observe, perform and be bound by the terms of the Participation Deed to the intent and effect that the Acceding Party is taken from the date on which the Acceding Party is registered as an Owner of a Lot to be a party to the Participation Deed.

C It is agreed that a word or words commencing with a capital letter in this Deed will have the same meaning as that word when used with capital letters in the Participation Deed.

D This deed is governed by the laws of NSW.

DRAFT

Execution page

EXECUTED AS A DEED

SIGNED SEALED & DELIVERED)
BY)
in the presence of:

.....
Signature of witness

.....
Print name of witness

.....
Signature

SIGNED SEALED & DELIVERED)
BY)
in the presence of:

.....
Signature of witness

.....
Print name of witness

.....
Signature

SIGNED SEALED & DELIVERED)
BY)
in the presence of:

.....
Signature of witness

.....
Print name of witness

.....
Signature

SCHEDULE 4 – Budget

SCHEDULE 5 – Enduring power of attorney

ENDURING POWER OF ATTORNEY

Background Information

A general power of attorney is a legal document that allows you (the principal) to nominate one or more persons (referred to as attorneys) to act on your behalf. A general power of attorney gives the attorney the authority, if you choose, to manage your legal and financial affairs, including buying and selling real estate, shares and other assets for you, operating your bank accounts, and spending money on your behalf.

A general power of attorney ceases if you lose your mental capacity after its execution. If you wish the power of attorney to continue if you lose your mental capacity, use the enduring power of attorney prescribed form. An attorney under a general power of attorney cannot make decisions about your lifestyle or health. These decisions can only be made by a guardian (whether an enduring guardian appointed by you or a guardian appointed by the Civil and Administrative Tribunal or the Supreme Court).

You may set whatever conditions and limitations on your attorney that you choose. An attorney must always act in your best interest. If your attorney does not follow your directions or does not act in your best interest, you should revoke the power of attorney. You or someone on your behalf should inform the attorney of the revocation, preferably in writing. The attorney must then immediately cease to act as your attorney. If anyone else, such as a bank, has been advised about the power of attorney, that person or entity should also be informed of the revocation.

The Important information set out at the end of this form includes notes to assist in completing this form and more fully explains the role and responsibilities of an attorney.

1. Appointment of attorney by the principal

I, participant name of participant address, appoint:

- **Attorney 1** of Attorney 1 Address
- **Attorney 2** of Attorney 2 Address
- **Attorney 3** of Attorney 3 Address
- **Attorney 4** of Attorney 4 Address

to be my attorneys. Any 3 of my attorneys may act together, or the attorneys may act jointly.

2. Powers

My attorney may exercise the authority conferred on my attorney by Part 2 of the Powers of Attorney Act 2003 to do anything on my behalf I may lawfully authorise an attorney to do.

I give this power of attorney with the intention that it will continue to be effective if I lack the capacity through loss of mental capacity after its execution.

Additional powers

[Optional – Delete or edit as required]

~~(a) I authorise my attorney to give reasonable gifts as provided by section 11(2) of the Powers of Attorney Act 2003.~~

~~(b) I authorise my attorney to confer benefits on the attorney to meet their reasonable living and medical expenses as provided by section 12(2) of the Powers of Attorney Act 2003.~~

~~(c) I authorise my attorney to confer benefits on of to meet their reasonable living and medical expenses as provided by section 13(2) of the Powers of Attorney Act 2003.~~

3. Conditions and limitations

I place the following limits and/or conditions on the authority of my attorneys:

[Optional – Delete or edit as required.]

The attorneys' authority under this power of attorney is limited to any of the following matters relating to the land that I own described as Lot ___ in Deposited Plan ____ being all of the land in folio identifier _____ (**Land**):

(a) making applications for and obtaining any government approvals, licences or permits necessary for or conducive to

  (i) consolidating the Land;

  (ii) developing the Land; or

  (iii) rezoning the Land;

(b) dealing with surveyors, town planners engineers and other consultants, professionals or tradespersons in relation to the Land;

(c) liaising and dealing with other developers or builders in relation to the Land;

(d) liaising and dealing with mortgagees for the Land on my behalf;

(e) for the marketing of the Land, including retaining and dealing with real estate agents;

(f) negotiating and signing contracts for the sale of the Land;

(g) signing transfers or other NSW Land Registry Services documents relating to the Land; and

(h) anything incidental to the above or contemplated by the Participation Deed entered into on or about the date of this document between the Principal and the attorneys.

[You can limit the attorney's power to only carry out certain tasks. For example, you can specify that the attorney may only act to sell your house, or that the attorney can only act to deal with your shares. You can also place any conditions on how those tasks are to be carried out. For example, you can require that the attorney must submit accounts to a nominated accountant every year for audit. If you do not want to have any conditions or limitations placed on your attorney, write "NIL".]

4. Commencement

This power of attorney operates once the attorneys have accepted their appointment by signing this document.

5. Signing by principal to give effect to the appointment of the attorney

SIGNED by **participant name**)
on the day of)
2019 in the presence of:)

_____
Principal's signature

_____
Prescribed witness's signature

_____
Prescribed witness's name

_____
Prescribed witness's address

6. Certificate under section 19 of the Powers of Attorney Act 2003

I solicitor,

of

certify the following:

(a) I explained the effect of this power of attorney to the principal before it was signed;

(b) The principal appeared to understand the effect of this power of attorney;

(c) I am a prescribed witness;

(d) I am not an attorney under this power of attorney; and

(e) I have witnessed the signature of this power of attorney by the principal.

_____

Dated: of 2019

Qualification:

[Prescribed witness includes an Australian legal practitioner or a Registrar of the Local Court; a Licensed Conveyancer, NSW Trustee and Guardian employee or trustee company employee who has successfully completed a course of study approved by the Minister; a Legal Practitioner qualified in a country other than Australia who is instructed and employed independently of any legal practitioner appointed as an attorney under this power of attorney.]

7. Acceptance by attorney

(a) I accept that I must always act in the principal's best interests.

(b) I accept that as attorney I must keep my own money and property separate from the principal's money and property.

(c) I accept that I should keep reasonable accounts and records of the principal's money and property.

(d) I accept that, unless expressly authorised, I cannot gain a benefit from being an attorney.

(e) I accept that I must act honestly in all matters concerning the principal's legal and financial affairs.

Failure to do any of the above may incur civil and/or criminal penalties.

_____

Attorney 1

Dated:

8. Acceptance by attorney

(a) I accept that I must always act in the principal's best interests.

(b) I accept that as attorney I must keep my own money and property separate from the principal's money and property.

(c) I accept that I should keep reasonable accounts and records of the principal's money and property.

(d) I accept that, unless expressly authorised, I cannot gain a benefit from being an attorney.

(e) I accept that I must act honestly in all matters concerning the principal's legal and financial affairs.

Failure to do any of the above may incur civil and/or criminal penalties.

_____

Attorney 2

Dated:

9. Acceptance by attorney

(a) I accept that I must always act in the principal's best interests.

(b) I accept that as attorney I must keep my own money and property separate from the principal's money and property.

(c) I accept that I should keep reasonable accounts and records of the principal's money and property.

(d) I accept that, unless expressly authorised, I cannot gain a benefit from being an attorney.

(e) I accept that I must act honestly in all matters concerning the principal's legal and financial affairs.

Failure to do any of the above may incur civil and/or criminal penalties.

_____

Attorney 3

Dated:

10. Acceptance by attorney

(f) I accept that I must always act in the principal's best interests.

(g) I accept that as attorney I must keep my own money and property separate from the principal's money and property.

(h) I accept that I should keep reasonable accounts and records of the principal's money and property.

(i) I accept that, unless expressly authorised, I cannot gain a benefit from being an attorney.

(j) I accept that I must act honestly in all matters concerning the principal's legal and financial affairs.

Failure to do any of the above may incur civil and/or criminal penalties.

_____

Attorney 4

Dated:

NSW LRS OFFICE USE ONLY

IMPORTANT INFORMATION

- A power of attorney is an important and powerful legal document. You should get legal advice before you sign it.

- It is important that you trust the person you are appointing as attorney to make financial decisions on your behalf. Your attorney must be over 18 years old and must not be bankrupt or insolvent. If your financial affairs are complicated, you should appoint an attorney who has the skills to deal with complex financial arrangements.

- A power of attorney cannot be used for health or lifestyle decisions. You should appoint an enduring guardian under the Guardianship Act 1987 if you want a particular person to make these decisions. For further information, contact the New South Wales Civil and Administrative Tribunal or New South Wales Trustee and Guardian.

- Clause 2 of the power of attorney contains powers which will permit your attorney to use your money and assets for the attorney or anyone else as provided. You should only include those provisions in clause 2 if you want your attorney to have those powers.

- This power of attorney is for use in New South Wales only. If you need a power of attorney for interstate or overseas, you may need to make a power of attorney under their laws. The laws of some other states and territories in Australia may give effect to this power of attorney. However, you should not assume this will be the case. You should confirm whether the laws of the state or territory concerned will in fact recognise this power of attorney.

- Your attorney must keep the attorney's own money and property separate from your money and property, unless you are joint owners, or operate joint bank accounts. Your attorney should keep reasonable accounts and records about your money and property. The cost of providing and maintaining these records by the attorney may be recoverable from you.

- If your attorney is signing certain documents that affect real estate, the power of attorney must be registered at NSW Land Registry Services. Please contact NSW LRS on 1300 052 637 to see whether the power of attorney must be registered.

- An attorney must always act in your best interest. If your attorney does not follow your directions or does not act in your best interest, you should consider revoking the power of attorney. You will only be able to do so whilst you retain your mental capacity. If you revoke the power of attorney you should notify the attorney, preferably in writing, that they are no longer your attorney. The attorney must stop acting immediately once they have knowledge of the revocation.

- This power of attorney does not automatically revoke earlier powers of attorney made by you. If you have made an earlier power of attorney that you do not want to continue, you must revoke the earlier power of attorney. It is advisable that you notify the attorney, preferably in writing, of the revocation, if you have not already done so. You should also give notice of the revocation to anyone who is aware of the earlier power of attorney, such as a bank.

NOTES FOR COMPLETION

Joint attorneys

If you appoint more than one attorney, you should indicate whether the attorneys are to act jointly or jointly and severally. Attorneys who are appointed jointly are only able to act and make decisions together.

Attorneys who are appointed jointly and severally – that is, together or separately – are able to act and make decisions independently of each other. However, you can specify that a simple majority, if you appoint 3 or more attorneys, must agree before they can act.

Substitute attorney/s

If you appoint a substitute attorney, the substitute attorney will only have authority to act as your attorney if the first appointed attorney dies, resigns or vacates their position.

You can specify for whom the substitute is to act – for example, if you appoint A and B as attorneys and X and Y as substitutes, you can specify that X takes A's place if A vacates office.

Attorney vacates office

Section 5 of the Powers of Attorney Act 2003 states that there is a vacancy in the office of attorney if the attorney dies, resigns, becomes bankrupt, loses mental capacity or the authority to act is revoked.

If you have appointed a substitute attorney, it may be helpful that some sort of documentation evidencing the vacation of the original attorney is attached to this power of attorney when that vacancy happens. This will assist to satisfy a third party that the substitute attorney is entitled to act for you.

Further information

For information on powers of attorney, the attorney's duties and registration, contact NSW Land Registry Services www.nswlrs.com.au, the New South Wales Trustee and Guardian www.tag.nsw.gov.au, a solicitor or a trustee company.

The New South Wales Government's Planning Ahead Tools website www.planningaheadtools.com.au provides up-to-date information and resources about powers of attorney, enduring guardianship, wills and advanced care planning.

Execution pages

SIGNED AS AN DEED

EXECUTED BY in accordance with s127(1) of the Corporations Act:))	
.....	.....
Director	Director
Name:	Name:

SIGNED BY in the presence of:))	
	.....
.....	Signature
Signature of witness	
.....	
Print name of witness	

SIGNED BY in the presence of:))	
	.....
.....	Signature
Signature of witness	
.....	
Print name of witness	