

(FUTURE) PUBLIC EXHIBITION DATES

(Start) to (Finish)

Planning Proposal - Airport Business Park

Draft Port Macquarie-Hastings LEP 2011

*(Amendment No *)*

Ccl ref: PP2015-3.1

DP&E ref: *

Date: 5 July 2019

V1: Section 3.33 version



PORT MACQUARIE
HASTINGS
C O U N C I L

Planning Proposal status (for this copy)

Stage	Version Date (blank until achieved)
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(Amendment No *)

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Adoption of the Planning Proposal

1. For initial Gateway determination

This Planning Proposal was endorsed on 18 July 2019 by the undersigned Council delegate:

Signed: 

Name: Peter Cameron

Position: Group Manager Strategic Land Use Planning

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

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Executive Summary

Planning Proposal

This is a Planning Proposal in relation to a potential Business Park zoning at the Port Macquarie Airport. In addition, it proposes to implement the outcomes of the Port Macquarie Airport and surrounding lands Biodiversity Certification Assessment approved by the NSW Minister for the Environment on 7 September 2018.

What is a Planning Proposal?

The preparation of a Planning Proposal is the first step in making an amendment to the *Port Macquarie-Hastings Local Environmental Plan (LEP) 2011*. A Planning Proposal is a document that explains the intended effect and justification for the proposed amendment. Under the *Environmental Planning and Assessment Act 1979*, Council must prepare and submit a Planning Proposal to the Department of Planning, Industry and Environment for consideration of an amendment to the *Port Macquarie-Hastings LEP 2011*.

This Planning Proposal is set out in the manner required by the State government and it contains information required by the State government when Councils prepare changes to their LEPs.

What is the intent of this Planning Proposal?

The intent of this Planning Proposal is to amend the *Port Macquarie-Hastings LEP 2011* in relation to planning controls for a proposed Business Park zoning on Council-owned land at the Port Macquarie Airport, including zone extent, lot size, height of buildings, floor space ratios and permitted uses.

In addition, the Planning Proposal seeks to implement the Biodiversity Certification Assessment outcomes approved by the NSW Minister on 7 September 2018 for the Environment for the Port Macquarie Airport and surrounding lands.

Any questions, contact:

Sandra Bush on telephone 6581 8025 or email sandra.bush@pmhc.nsw.gov.au

Background

Council Meeting November 2018

At the Ordinary Council Meeting held on 21 November 2018, Council considered a report on a proposed expansion of the existing B7 Business Park zone at Port Macquarie Airport. This initiative is consistent with the *Port Macquarie Urban Growth Management Strategy 2017-2036* and the *North Coast Regional Plan 2036*. The November 2018 Council report and Meeting minutes are at **Appendix A**.

Following Council's resolution, the proponent King and Campbell Pty Ltd, was invited to submit the basis for a Planning Proposal to meet the requirements of the Department of Planning and Environment's *A Guide to Preparing Planning Proposals 2018*.

The proponent's Planning Proposal request (at **Appendix B**) was submitted on 4 June 2019 and has been assessed by Council's Development & Environment Division to inform the content of this Planning Proposal by Council, as the Planning Proposal Authority.

Planning Proposal

This Planning Proposal has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* and the NSW Department of Planning and Environment's *A guide to preparing planning proposals 2018* and *A guide to preparing local environmental plans 2018*.

It explains the intended effects of a proposed amendment to the *Port Macquarie-Hastings Local Environmental Plan 2011* (LEP 2011) to:

- Permit a reconfiguration and expansion of existing B7 Business Park zone on Council-owned land on the eastern side of Boundary at the Port Macquarie Airport, as shown in Part 4 Figure 2 of this proposal.
- Rezone the current B7 Business Park zone on the western side of Boundary Street to SP2 Infrastructure (Air transport facility). This land includes currently undeveloped B7 land and land within the B7 zone occupied by Airport related uses, as shown in Part 4 Figure 2 of this proposal.
- Apply planning controls to the Newman Senior Technical College which falls within the existing B7 Business Park zone on the western side of Boundary Street.
- Rezone Council's Airport and adjoining Thrumster lands to reflect the Biodiversity Certification Assessment outcomes approved by the NSW Minister for the Environment on 7 September 2018, and
- Identify all land in the LGA that has been biodiversity certified.

The Site

Figure 1 shows the site included in the proponent's Planning Proposal request. It covers an area of approximately 760 hectares and includes the Port Macquarie Airport and Council's Thrumster

lands, together with a small area of Crown Land impacted by the Airport Obstacle Limitation Surface.

It falls within a larger area that has undergone a Biodiversity Certification Assessment approved by the Minister for the Environment on 7 September 2018. The total area covered by the Biodiversity Certification Assessment, which is shown edged white in Figure 1.

Areas within the site referred to in this Planning Proposal as 'Airport Business Park', 'Airport Lands' and 'Thrumster Lands' are shown on Figure 1 and shaded blue, yellow and red, respectively.

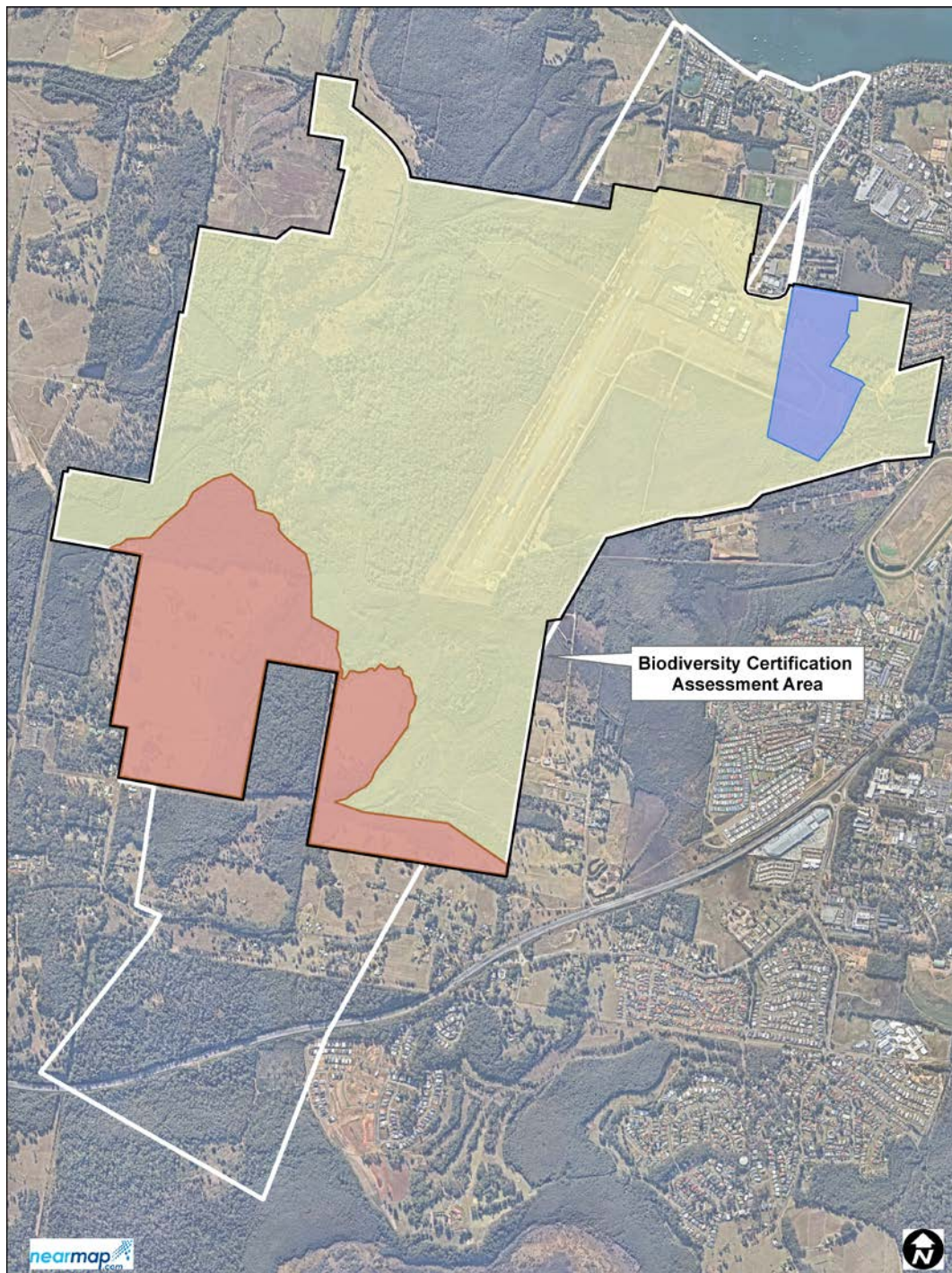


Figure 1: Subject Site

Council roles & responsibilities

For context and transparency, the roles and responsibilities of Council in relation to this Planning Proposal are as follows:

- **PMHC Airport** - Landowner and proponent seeking a rezoning, represented by King and Campbell Pty Ltd
- **Development & Environment Division** - Provides advice to Council as the 'Planning Proposal Authority' to assess the Planning Proposal and determine the appropriate content of any Planning Proposal and related planning documents
- **Elected Council** - As the 'Planning Proposal Authority' (PPA) Council is responsible for the Planning Proposal, the quality of the information provided in support of the proposal and its referral for Gateway determination.

The PPA is responsible for ensuring that the level of detail in the Planning Proposal document is sufficient to respond to the statutory requirements of the *Environmental Planning and Assessment Act 1979* and related guidelines. The PPA must ensure the information is accurate, current and sufficient for issuing a Gateway Determination and detailed enough for the purposes of consulting with government agencies and the general community.

Probity review

In recognition that Council has a role as Airport operator, landowner and planning proposal authority in this matter, Council's D&E Division has engaged Cardno (NSW/ACT) Pty Ltd to independently review the planning process and provide probity reports and recommendations on the statutory procedures involved in preparing a Planning Proposal for a proposed Airport Business Park rezoning.

The Preliminary Probity report (at **Appendix C**) covered the period from 16 March 2016 to 7 November 2018 and concluded that Cardno had not observed or detected evidence of partiality, bias or probity issues of concern in the planning process leading up to the presentation of the 21 November 2018 report to Council.

A Final Probity report will review Council's processes for a Business Park Planning Proposal against the ICAC guideline. In particular, the report will address whether or not there are any probity issues of concern in relation to the exhibition and assessment processes involved in this Planning Proposal and the final recommendations to Council.

Part 1 - Objectives or Intended Outcomes

The objectives and intended outcomes of this Planning Proposal are:

- To provide for a reconfigured and expanded Business Park area (23.75 ha) east of Boundary Street, as shown in Part 4 Figure 2 of this proposal, to reflect the importance of the Port Macquarie Airport as a regional hub.
- To consolidate existing airport infrastructure with future airside and general aviation land uses generally west of Boundary Street, as shown in Part 4 Figure 2 of this proposal.
- To rezone the Airport Lands and Thrumster Lands to reflect the Biodiversity Certification Assessment and Strategy outcomes for clearing and conservation of native vegetation within the Port Macquarie Airport and adjoining Council-owned Thrumster lands.
- To identify all land in the locality that is subject to the Port Macquarie Airport and surrounding lands Biodiversity Certification Assessment and Strategy.
- To apply lot size and height of buildings controls to the Newman Senior Technical College site, for consistency with the proposed Airport Business Park lands.

Part 2 - Explanation of Provisions

The following **Land Zone Map amendments** to the Port Macquarie-Hastings LEP 2011 are proposed to achieve the intended outcomes:

- Zone B7 Business Park to 19.1 hectares (ha) of land on the eastern side of Boundary Street, as shown in Part 4 Figure 2 of this proposal. When combined with the existing 4.65 ha of Zone B7 on the western side of Boundary Street, the reconfigured Business Park will have a total area of 23.75 ha, resulting in an overall increase of 10.45 ha of Zone B7 compared to the existing situation.
- Zone SP2 Infrastructure (Air transport facility) to the Airport Lands:
 - required to be cleared to satisfy Commonwealth Government Civil Aviation Safety Authority (CASA) Code 4C aerodrome standards for the OLS, and
 - generally west of Boundary Street (as shown in Part 4 Figure 2 of this proposal), to incorporate existing airport infrastructure with future airside and general aviation uses. This includes 17 ha of existing Zone B7, of which 8.4 ha is currently occupied by Airport related uses.
- Zone E2 Environmental Conservation to the Biodiversity Certified conservation lands within the Airport and Thrumster Lands (i.e. future Biobank Site). This includes areas identified for clearing and or conservation cropping adjacent to the Airport runway and areas identified for essential infrastructure (i.e. roads, fire trails, services corridors), as permitted by the Biodiversity Certification Assessment approval.
- Zone E3 Environmental Management to the northern extent of the Partridge Creek Residential Precinct in Thrumster to reflect the intended use of this land for Asset Protection Zones and public open space, consistent with existing zoning in the Thrumster Urban Release Area.

The following **Land Use Table amendments** are also proposed:

- Strengthen the B7 zone objectives to confirm the strategic intent of the proposed Business Park and recognise its place in the retail hierarchy for the region. The proposed changes are shown in red text:
 - 1 Objectives of zone
 - To provide a range of office and light industrial uses, *within large scale/format developments.*
 - To encourage employment opportunities.
 - To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.
 - *To create business park employment opportunities within large scale/format developments that are of a high visual quality and that will respect the natural environment within which they are located.*
 - To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for subregional functions and service delivery.
- Revise permitted land uses in the B7 zone to ensure that the proposed Business Park will support a range of land uses that are consistent with the zone objectives, as follows:

Delete permitted uses:

- Landscaping material supplies
- Plant nurseries
- Takeaway food and drink premises
- Timber yards

Include additional permitted uses:

- + Food and drink premises
- + Self-storage units

Delete prohibited uses:

- Electricity generating works
- Function centres, and
- Industrial training facilities

In addition, the following changes are proposed:

- Amendments to the Lot Size, Floor Space Ratio and Height of Buildings Maps for the proposed B7 zone to permit:
 - A minimum lot size of 2,000sqm to encourage large scale/format developments consistent with the revised Zone B7 objectives
 - A maximum floor space ratio of 0.65:1 to ensure consistency with the traffic studies undertaken in support of the Airport Business Park, and
 - A maximum building height of 11.5m to support the desired outcome for large scale/format developments.
- Amendments to the Lot Size and Height of Buildings Maps applying to the existing zoned B7 Newman Senior Technical College site to permit a minimum lot size of 2,000sqm and maximum building height of 11.5m, for consistency with the proposed B7 Business Park area.
- Amendments to the Lot Size Map applying to the Airport Lands and Thrumster Lands to permit a minimum lot size of 40 ha for the Zone E2 and Zone E3 environmental lands.
- Inclusion of an additional clause to Part 7 'Additional local provisions' and creation of a Biodiversity Certified Land Map to identify all land that is subject to the Port Macquarie Airport and surrounding lands Biodiversity Certification Assessment approved on 7 September 2018.

See **Part 4** for proposed map changes.

Note: Consultation will be required with the Department of Planning, Industry and Environment to determine technical mapping requirements for the proposed Biodiversity Certified Land Map.

Part 3 – Justification

In accordance with the Department of Planning, Industry and Environment's *A guide to preparing planning proposals*, this Part provides a response to the following matters:

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

Section A – Need for the Planning Proposal

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

Yes. As discussed in Section B, the proposal is consistent with the *North Coast Regional Plan 2036* and Council's *Port Macquarie-Hastings Urban Growth Management Strategy 2017-2036* which has been endorsed by the Department.

With respect to the proposed Business Park, this has resulted in an assessment of all land within the Airport Precinct Investigation area against planning criteria to determine which areas of the precinct should be prioritised for detailed rezoning investigations, as reported to the November 2018 Ordinary Council Meeting.

The precinct investigation area included the existing B7 Business Park zone and adjoining Council land to the south and east together with privately owned land to the north, with frontage to Boundary Street. The proposed Business Park area was selected as the preferred site to provide for an expanded Business Park area at the Airport.

Additionally, the *Port Macquarie Airport and surrounding lands Biodiversity Certification Assessment and Strategy*, approved on 7 September 2018, provides a strategic approach to ongoing operational, development and biodiversity issues related to the Port Macquarie Airport, particularly the new and more extensive Airport obstacle limitation requirements required by the Civil Aviation Safety Authority. The Assessment and Strategy also includes land owned by private parties to the north and south of the Airport on which vegetation conservation and clearing is required due to Airport operations.

This Planning Proposal has been informed by a rezoning request lodged by King and Campbell Pty Ltd on 4 June 2019 on behalf of the Port Macquarie-Hastings Council Airport. As background to and in support of the request, the proponent submitted a body of information that includes the following:

- Economic Impact Assessments
- Traffic Impact Assessments
- Biodiversity Certification
- Aboriginal Archaeology Assessment
- Geotechnical Assessments
- Sewerage Services Strategy
- Stormwater Management Strategy
- Water Supply Infrastructure Strategy

The majority of this work was completed to inform the proposed Business Park site selection process, as reported to Council in November 2018.

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

Yes. The area proposed for Business Park is currently zoned part SP2 Infrastructure (Air transport facility) and E2 Environmental Conservation. For the site to be developed for Business Park purposes, it needs to be appropriately zoned.

The proposed rezoning of the remaining Airport Land and Thrumster Land is not essential in ensuring the outcomes of the approved Airport and surrounding lands Biodiversity Certification Assessment. However, rezoning this land as proposed to reflect the Biodiversity Certification is preferred to reflect the future use of this land.

Section B - Relationship to strategic planning framework

3. Is the Planning Proposal consistent with the objectives and actions of the North Coast Regional Plan 2036?

In terms of the proposed Business Park rezoning, the *Regional Plan City Map for Port Macquarie* identifies the existing Airport Business Park as 'Business Centre'. Proposed Business Park zoning outside this area is mapped as 'Investigation Area – Employment Land'.

Action 6.1 of the Regional Plan recommends that in planning for economic growth around airports, Councils consider new infrastructure needs and introduce planning controls that encourage clusters of related activity. Also recommended is the need to promote new job opportunities that complement existing employment nodes around airport precincts, and the need to deliver infrastructure and coordinate the most appropriate staging and sequencing of development (Action 7.1).

The proposed retention of the SP2 zone for Airport related uses west of Boundary Street and consolidation of B7 Business Park uses east of Boundary Street, recognises the close linkage between the existing and proposed Airport lands and the current and future Airport operations.

Direction 6 of the Regional Plan requires that new commercial precincts, outside of centres, be of an appropriate size and scale relative to the area they will be servicing to deliver positive social and economic benefits for the wider community and maintain the strength of the regional economy. This matter is discussed in more detail under Question 4 below in context of the centres hierarchy.

The proposed LEP amendments to reflect the approved Airport and surrounding lands Biodiversity Certification Assessment and Strategy is consistent with Action 2.1 which requires that development focus on areas of least biodiversity sensitivity and implement the 'avoid, minimise, offset' hierarchy to biodiversity, including areas of high environmental value.

4. Is the Planning Proposal consistent with Council's Community Strategic Plan and Urban Growth Management Strategy?

Towards 2030 Community Strategic Plan

The Planning Proposal satisfies the key strategies of this Plan for both 'business and industry' and 'natural and built environment' in that it will:

- Provide for employment lands in close proximity to a transport hub
- Attract investment to a location that is well serviced and connected to the greater Port Macquarie area
- Provide for effective management and maintenance of urban infrastructure and services
- Facilitate development that is compatible with the natural and built environment
- Provide for the effective integration of transport systems, and
- Restore and protect natural areas, consistent with the approved Biodiversity Certification of the Port Macquarie Airport and surrounding lands.

Port Macquarie-Hastings Urban Growth Management Strategy (UGMS) 2017-2036

Planning for the development of an expanded Business Park at the Port Macquarie Airport to create opportunities for technology and airport related businesses, is listed as a priority economic development action in the UGMS (Action 15).

A key aim in the UGMS is to maintain the primacy of the Port Macquarie CBD and the existing hierarchy of centres in the Port Macquarie-Hastings region. Office uses are particularly important to the vibrancy, function and attractiveness of the CBD as a Regional City. Council will also focus on opportunities for office uses associated with the establishment of an expanded Business Park at the Airport and in the proposed Health and Education Precinct.

Consistent with the Regional Plan (Direction 6), new commercial precincts outside of centres are required to be of an appropriate size to maintain the strength of the regional economy. The UGMS requires that Council review detailed economic assessments as part of investigations for proposed Business zones to ensure that a balanced approach to supply and demand is achieved.

In order to assess the appropriate level of opportunity for office space at the Airport, Council's D&E Division commissioned Hill PDA consultants to provide advice on the relationship between a proposed Airport Business Park expansion and the existing hierarchy of business centres in the Port Macquarie-Hastings.

The 2016 Hill PDA report (at **Attachment 1**) is based on a survey of floor space and assessment of employment trends and population forecasts, as well as modelling of low and medium growth scenarios to project business park office space demand and land requirements for the Port Macquarie-Hastings LGA to 2036. In a subsequent 2017 report (at **Attachment 2**) Hill PDA has concluded that from a centres hierarchy perspective, the maximum amount of B7 Business Park land that can be recommended in the expanded Airport Business Park is 20 ha gross developable land.

In addition, the proponent has commissioned Gillespie Economics and Augusta consultants to consider the opportunity for commercial development at the Airport Business Park. Both of these reports (at **Attachments 3 & 4**), together with the Hill PDA assessments, conclude that there are significant commercial development opportunities in the proposed Business Park.

This Planning Proposal seeks to reinforce the unique location and characteristics of the proposed B7 Airport Business Park, while ensuring that potential impacts on the centres hierarchy are mitigated through:

- Amended B7 Business Park zone objectives to place additional emphasis on large-scale floorplate development
- Changes to the land uses permitted with consent in the B7 zone to ensure that the precinct functions as a Business Park, different to a town centre
- A minimum 2,000sqm lot size which is larger than that typically provided in other commercial and industrial zones (i.e. 1,000sqm), and

- A maximum 0.65:1 Floor Space Ratio (FSR) for development of the Business Park lands to ensure that future traffic generation is within the capacity of the road network, noting that the proponent's hypothetical development scenario used to inform traffic modelling for the Airport Business Park site selection process is based on a maximum FSR of 0.7:1.

The scale of the Business Park has been considered by Council's D&E Division and having regard to the revised permitted uses, strengthened B7 zone objectives and proposed lot sizes and floor space ratio controls, it is considered that the proposed 23.75 ha of B7 zoning at the Airport is unlikely to result in significant economic impacts on the centres hierarchy.

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

An assessment of consistency with State Environmental Planning Policies (SEPPs) of relevance is provided below.

<i>SEPP</i>	<i>Consistent</i>	<i>Reason for inconsistency or comment</i>
No 44 Koala Habitat Protection	Yes	<i>Encourages the conservation and management of natural vegetation areas that provide habitat for Koalas to ensure permanent free-living populations will be maintained over their present range. Council's cannot approve development in an area affected by the policy without an investigation of core Koala habitat.</i> The Port Macquarie Airport and surrounding lands Biocertification Assessment determined that the Koala was one of five species that will be impacted by the land that is certified. Species credits were determined and the number of species credits generated by the proposed conservation measures were found to be deficient for the Koala (323 credits). The Biocertification has resulted in a 444.17 ha offset area, which provides for a 301.88 ha of Koala habitat. Council has committed to the purchase of an additional 40 to 50 ha off-site for the retirement of the 323 Koala species credits.
No 55 - Remediation of Land	Unsure	<i>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.</i> The proponent's Planning Proposal request advises that all operational lands associated with the Airport will be zoned SP2 Infrastructure. Land areas that are not currently used by the Airport do not have a land use history that would indicate future contamination issues. The proposed Business Park site is identified in Council's Contaminated Land Register. A preliminary contaminated land investigation and report will be required in accordance with SEPP 55 to support the Planning Proposal. Council's <i>Contaminated Land Policy 2017</i> requires that a suitably qualified and practising contaminated land practitioner undertake the assessment.
Infrastructure 2007	Yes	<i>The aim of this Policy is to facilitate the effective delivery of infrastructure across the State.</i> This Policy is relevant to the future infrastructure (roads, sewerage systems, stormwater management systems, water supply systems)

SEPP	Consistent	Reason for inconsistency or comment
		required for the proposed Airport Business Park, the Airport Lands and the Thrumster Lands. Hastings River Drive is a classified road, with access to the Airport Lands and the proposed Airport Business Park via Boundary Street, which is greater than 90m in distance to its connection with Hastings River Drive. Therefore clause 104 of the SEPP will only apply to the future development types listed in Column 2 at Schedule 3 to the SEPP. These development types will require consultation with the NSW Roads and Maritime Services as part of the development approval process. The development of sewerage, water and stormwater infrastructure to service the Airport Lands, Thrumster Lands and proposed Airport Business Park Lands is able to be carried out by or on behalf of Council in any zone under SEPP Infrastructure. The site includes a number of existing fire trails and future fire trails, both of which have been included in the biodiversity process as cleared lands.
State and Regional Development 2011	Yes	<i>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.</i> Development with a capital investment value of more than \$30 million is declared as regionally significant development and 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 reported to the Regional Planning Panel for determination.
Coastal Management 2018	Yes	<i>The aim of this Policy is to promote an integrated and coordinated approach to land use planning in the coastal zone.</i> A large extent of the site is mapped as either Coastal Wetlands or Proximity Area for Coastal Wetlands. Part 2 Division 1 is relevant for any works within this mapped area and with the exception of environmental protection works, all development will be declared designated development for the purposes of the Act. Under SEPP (Infrastructure) 2007, Part 1 Clause 8(4) and (5) (relationship to other environmental planning instruments) confirms that emergency works or routine maintenance works that can be carried out without consent, or is exempt development, are not declared designated development for the purpose of the Act. Additionally, the maintenance of existing fire trails will not be declared a designated development.
Primary Production and Rural Development 2019	Yes	<i>The aims of the Policy are to facilitate the orderly economic use and development of lands for primary production.</i> Existing RU1 Primary Production zoned lands are proposed to be zoned E2 Environmental Conservation, consistent with the approved Biodiversity Assessment and Strategy.

Is the Planning Proposal consistent with applicable Ministerial Directions?

An assessment of consistency with Ministerial Directions of relevance is below.

1. Employment and Resources

S9.1 Direction	Consistent	Reason for inconsistency or comment
No 1.1 Business and Industrial Zones	No	<i>The objectives of this direction are to:</i> <i>(a) encourage employment growth in suitable locations,</i> <i>(b) protect employment land in business and industrial zones, and</i> <i>(c) support the viability of identified centres.</i> The Planning Proposal is inconsistent with this Direction because it is proposed to alter the location of the existing B7 Business Park lands. In this regard, there is currently 25.54 ha of B7 Business Park zoning at the Port Macquarie Airport, of which 13.3 ha is undeveloped. It is proposed to: – rezone 17.04 ha of the existing B7 Business Park on the western side of Boundary Street to SP2 Instructure (Air transport facility). This land is currently occupied by Airport related uses, and – rezone 19.1 ha of land on the eastern side of Boundary Street to B7 Business Park. Combined with the existing 4.65 ha of land area on the eastern side of Boundary Street that is currently zoned B7, the overall footprint of the B7 Business Park will be 23.75ha. The relationship to other commercial centres has been considered by Hill PDA consultants, as discussed under Section B Q4 of this proposal. The inconsistency of the proposal with this direction is justified on the basis that planning for an expanded Business Park at the Port Macquarie Airport to create opportunities for technology and airport related business is a key action of the <i>Port Macquarie-Hastings Urban Growth Management Strategy 2017-2036</i> (Action 15).
No 1.2 - Rural Zones	Yes	<i>The objective of this direction is to protect the agricultural production value of rural land.</i> A small area of land is proposed to be rezoned from RU1 to E2. This land area is isolated and through the Biodiversity Certification is included in the Biobank site.
No - 1.5 Rural Lands	No	<i>This direction aims to protect the agricultural production value of rural land and to facilitate the orderly and economic development of rural lands for rural and related purposes.</i> As noted above, a small area of existing RU1 zoned land is proposed to be rezoned to E2. This inconsistency is justified on the basis that this land is included as part of the Biobank site identified in the Airport and surrounding lands Biodiversity Certification Assessment and Strategy approved by the NSW Minister for the Environment on 7 September 2018.

2. Environment and Heritage

S9.1 Direction	Consistent	Reason for inconsistency or comment
No 2.1 - Environmental Protection Zones	Yes	<i>The objective of this direction is to protect and conserve environmentally sensitive areas.</i> All lands that are either zoned E2 or are proposed to be zoned E2 under this Planning Proposal have undergone assessment as part of the Airport and surrounding lands Biodiversity Certification Assessment and Strategy.
No 2.2 - Coastal Management	Yes	<i>The objective of this direction is to protect and manage coastal areas of NSW.</i> The lands proposed to be rezoned in this Planning Proposal include lands that are mapped under this as either Coastal Wetlands or Proximity Area for Coastal Wetlands. Future development within the mapped Coastal Wetlands will be either Designated Development or exempt (existing fire trails).
No 2.3 - Heritage Conservation	Unsure	<i>The objective of this direction is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.</i> The Proponent has submitted correspondence from the Birapi Local Aboriginal Land Council (Attachment 5) advising that an inspection of the site has been undertaken in relation to the proposed B7 area and no artefacts of significance were found. Consultation on this matter will be required with the NSW Office of Environment and Heritage following the issue of a Gateway Determination.

3. Housing, Infrastructure and Urban Development

S9.1 Direction	Consistent	Reason for inconsistency or comment
No 3.1 - Residential zones	No	<i>The objectives of this direction are:</i> (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 (c) to minimise the impact of residential development on the environment and resource lands. This Planning Proposal will rezone R1 Residential zoned lands to partly E2 Environmental Conservation and partly E3 Environmental Management. The inconsistency of the proposal with this Direction is justified on the basis that these lands have been included in the Biodiversity Certification Assessment and Strategy.
No 3.5 - Development near Regulated Airports and	Yes	<i>The objectives of this direction are:</i> (a) to ensure the effective and safe operation of regulated airports and defence airfields;

Defence Airfields		(b) to ensure that their operation is not compromised by development that constitutes an obstruction, hazard or potential hazard to aircraft flying in the vicinity; and (c) to ensure development, if situated on noise sensitive land, incorporates appropriate mitigation measures so that the development is not adversely affected by aircraft noise. This Planning Proposal supports the airport operator's (PMHC Airport) rationale for undertaking the Biodiversity Certification process, which will ensure an on-going strategic and sustainable approach to the management and offsetting of any environmental impacts associated with the long-term operation and future development of essential infrastructure related to Airport operations, including the proposed the Airport Business Park. The proposed Business Park zone is not expected to conflict with future Airport operations. Following the issue of a Gateway Determination and in accordance with this Direction, consultation will occur with the Civil Aviation Safety Authority in relation to the proposal.
No 3.6 - Shooting Ranges	Yes	The objectives are: (a) to maintain appropriate levels of public safety and amenity when rezoning land adjacent to an existing shooting range, (b) to reduce land use conflict arising between existing shooting ranges and rezoning of adjacent land, (c) to identify issues that must be addressed when giving consideration to rezoning land adjacent to an existing shooting range. The Port Macquarie shooting range adjoins the site to the south and is zoned RE2 Private Recreation. An area of existing E2 zoned lands within the site separates the range from the proposed Airport Business Park. An E2 zone buffer will be retained between the range and the proposed Business Park, ensuring that more intensive land uses cannot be approved adjacent the range. This separation distance will also ensure minimal impact from potential noise. Additionally the land uses that will be permitted in the B7 Business Park zone are not considered noise sensitive receivers. Following the issue of a Gateway Determination, consultation regarding this aspect of the proposal will occur with the NSW Police Firearms Registry as the relevant range licensing body.

4. Hazard and Risk

S9.1 Direction	Consistent	Reason for inconsistency or comment
No 4.1 - Acid Sulfate Soils	Yes	The objective of this direction is to avoid significant adverse environmental impacts from the use of land that has a probability of containing acid sulfate soils. The proposed Business Park area includes lands mapped as Classes 2, 3 and 5 Acid Sulfate Soils (ASS). Groundwater assessments completed on behalf of the proponent by Regional Geotechnical Solutions in October 2015 and November 2017 (at Attachment 6) to inform the development potential of the

		proposed Business Park land, confirmed the presence of both Actual and Potential ASS. An ASS Management Plan will be required prior to any on-site works where groundwater will be present. The proponent's Planning Proposal request also notes that a proposed Low-Pressure Sewerage Scheme will minimise potential issues associated with the Actual and Potential ASS, as deep excavation will not be required.
No 4.3 Flood Prone Land	No	<i>The objectives of this direction are:</i> <i>(a) to ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and</i> <i>(b) to ensure that the provisions of an LEP on flood prone land is commensurate with flood hazard and includes consideration of the potential flood impacts both on and off the subject land.</i> The site (including the existing extent of Boundary Street) is identified on the Flood Planning Map of the PMHLEP 2011. An area of approximately 6,000sqm of the proposed B7 lands is identified within the mapped Flood Planning Area, being the 1:100 ARI plus 0.5m freeboard. The remaining proposed B7 lands are identified within the mapped Level of Probable Maximum Flood. Council's <i>Hastings River Flood Study 2018</i> nominates a 1:100 ARI of 3.17m AHD for the Airport precinct. The proposed rezoning from SP2 Infrastructure (Air transport facility) and E2 Environmental Conservation to B7 Business Park is inconsistent with clause (5) of this Direction. This inconsistency can be justified on the basis of the following: – The <i>Port Macquarie-Hastings Flood Policy 2018</i> is consistent with the principles and guidelines included in the <i>Floodplain Development Manual 2005</i>. – Council's Flood Policy requires a flood planning level of FPL2 (with 25% of ground floor to be FPL3) for all commercial development (FPL2 = 100 year ARI Flood level + Climate Change, no freeboard), FPL3 = 100 year ARI Flood level + Climate Change + 500mm freeboard). – The future permissible uses within the proposed Airport Business Park are not of a type that will require consideration under clause 7.4 of the PMH LEP 2011 (Level of Probable Maximum Flood); and – The quantity of fill required to comply with Council's Flood Policy equates to approximately 1,500m³ and given the footprint of the total land area of the proposed B7 zone and the location of the proposed Business Park on the fringe of the flood prone land, can be considered to be of minor significance. Council is currently preparing detailed concept design to upgrade Boundary Street to 1 in 20-year flood immunity. Council is also currently investigating flood free road access options to link the Port Macquarie Airport and the Oxley Highway which may improve the

		standard of flood free access to the Airport and proposed Business Park in the future. The footprint of the proposed 23.75 ha gross area of B7 Business Park zone provides opportunities to link with potential flood free road access options to the south (as an extension of Boundary Street) and to the south east to Lady Nelson Drive. These future road access options have been included in the lands subject to Biodiversity Certification. The lands subject to Biodiversity Certification also include a potential road link to The Binnacle (east of the proposed Business Park) which may be used as flood free access to the Airport Lands and the Business Park Lands as required. The existing road access via Boundary Street to the proposed Business Park will provide guaranteed access to the Business Park and notwithstanding that this road is below the 1:100 year flood level, it will provide a reasonable standard of access to the Business Park given the nature of the land uses permitted.
No 4.4 - Planning for Bushfire Protection	Unsure	<i>The objectives of this direction are 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 to encourage sound management of bush fire prone areas.</i> The existing vegetated areas within the proposed Business Park area are mapped as bushfire prone land. This vegetation has been Biodiversity Certified and will be cleared as development occurs. The proponent's Planning Proposal request notes that future development of the Business Park will need to provide adequate Asset Protection Zones to the Biobank lands (i.e. future E2 zones to the east & south) and to rural land adjoining to the north. As required by this Direction, consultation on this matter will occur with the Commissioner of the NSW Rural Fire Service following receipt of a Gateway Determination and prior to public exhibition of the Planning Proposal.

5. Regional Planning

S9.1 Direction	Consistent	Reason for inconsistency or comment
5.10 - Implementation of Regional Plans	Yes	<i>The objective of this direction is to give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans.</i> The proposed Airport Business Park is consistent with the strategic directions of the <i>North Coast Regional Plan 2036</i> to promote new job opportunities that complement airport precincts. The proposal also identifies areas of environmental significance to be zoned for conservation in accordance with the approved Biodiversity Certification Assessment and Strategy.

6. Local Plan Making

S9.1 Direction	Consistent	Reason for inconsistency or comment
No 6.1 - Approval and Referral Requirements	Yes	<i>The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.</i> This Planning Proposal will not introduce any additional requirements for concurrence with other Government agencies.
6.2 - Reserving Land for Public Purposes	Yes	<i>The objective of this direction is to discourage unnecessarily restrictive site-specific planning controls.</i> This Planning Proposal will rezone an area zoned RE1 Public Recreation to E2 Environmental Conservation. This land was included in the biodiversity conservation lands (future Biobank site) in the Biodiversity Certification Assessment and Strategy.

Section C - Environmental, social and economic impact

6. 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?

Biodiversity impacts associated with the proposed rezoning of the Airport Lands, Thrumster Lands and Business Park Area have been addressed in the Airport and surrounding lands Biodiversity Certification Assessment and Strategy approved by the Minister for the Environment on 7 September 2018.

7. Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?

Stormwater

The proponent's Stormwater Management Plan in support of the proposed Business Park (**Attachment 7**) recommends a stormwater treatment train approach, primarily using bio-retention basins/swales centrally located within the proposed road network. The concept has been assessed by Council's Transport and Stormwater Network Section and is considered to provide a satisfactory response to stormwater management issues to support a Planning Proposal.

8. How has the Planning Proposal adequately addressed any social and economic effects?

Visual amenity

Due to the significance of the proposed Business Park and its location at an important gateway entry to the Port Macquarie-Hastings, draft development control plan provisions are proposed to be prepared in consultation with the proponent, to guide future development of the Airport Business Park with the aim of facilitating higher amenity office and commercial uses.

The proposed development controls will provide detailed guidance for future development of the precinct, including (but not limited to) policy for streetscape and building form, building setbacks, landform, vehicle access, and landscaping, having regard to the operational requirements of the Airport and the gateway status of the precinct.

It is intended that the draft development controls be concurrently exhibited with this Planning Proposal.

Section D - State and Commonwealth interests

9. Is there adequate public infrastructure for the Planning Proposal?

Road Infrastructure Capacity

In the absence of any certainty regarding a future alternative road access, it is assumed that all access to the proposed Business Park will be via Boundary Street.

In the lead up to the site selection process, the proponent commissioned a Traffic Engineering report by TPS Group (June 2016) at **Attachment 8**, to address traffic planning for development of the Airport Precinct Investigation Area for Business Park purposes.

Based on an indicative Hastings River Drive/Boundary Street intersection design prepared by Council's Transport and Stormwater Network (T&SN) Section, TPS Group 'reverse engineered' their traffic modelling to determine the future capacity of the intersection. TPS also estimated the

amount of land in the investigation area that could be developed for Business Park, using the existing road network.

The TPS Group report modelled traffic generation assuming a hypothetical Business Park mix of uses across the total investigation area and concluded that the intersection, with a modified lane arrangement, would be capable of accommodating 100% of the proposed Business Park development traffic in 2030 (i.e. approx. 20,000 vehicles/day).

Council's Transport and Stormwater Network (T&SN) Section reviewed the TPS Group report and concluded that the TPS Group land use scenarios did not meet all of Council's normal Level of Service and Degree of Saturation targets. Council's T&SN modelling concluded that a maximum 50% of the investigation area (i.e. 20.5 ha) could be developed for Business Park, until such time as a secondary access to the Port Macquarie Airport becomes available.

The proponent engaged SLR consultants to peer review the TPS Group report and Council's T&SN review of that report. The SLR review (at **Attachment 9**) agreed with TPS Group's conclusion that the full Business Park development can be catered for at 2030 with a modified lane arrangement for the Hastings River Drive/Boundary Street intersection.

After reviewing the SLR report and noting that the constraining factor is the capacity of the intersection, Council's T&SN restated their earlier conclusion that the proposed upgraded intersection would have capacity to provide for 50% (i.e. 20.5ha) of the investigation area for Business Park development.

The proponent's Planning Proposal request concludes that the proposed rezoning of an expanded Airport Business Park footprint to 23.75 ha is not likely to have unacceptable impacts on the capacity of existing road infrastructure.

King and Campbell, note that the proposed Airport Business Park footprint (23.75 ha) will result in an estimated 16.03 ha of net developable land, which represents 58% of the net developable area modelled by TPS Group. King and Campbell note that this represents a 14% increase in the net developable area that will ultimately be achieved at the Airport Business Park and consider this a minor increase to the footprint and traffic volumes accepted by T&SN for the proposed Airport Business Park.

The Planning Proposal request notes that the proposed maximum Floor Space Ratio of 0.65:1 is less than that assumed for the traffic modelling (i.e. 0.7:1). This represents a 2% reduction in modelled traffic volumes.

Also noted is that the traffic modelling undertaken of the 2030 performance of the Hastings River Drive/Boundary Street intersection is a model of a long-term outcome. There are many parameters in the broader road network (e.g. decisions with respect to other road & intersection upgrades & development rates across the LGA) that will also impact the performance of the intersection and therefore, the results of the future modelling. Various traffic engineering parameters are inputs into the modelling of the future performance of the intersection.

Having regard to the above, Council's T&SN has accepted that on balance, the impact of a 14% increase in the footprint of net developable B7 zone is within the accuracy limits that can be expected to be achieved with the modelling of the future traffic outcomes.

Road infrastructure funding

The TPS Group and SLR reports together with Council's T&SN Section review of these reports recognise that development of the proposed Business Park, together with an assumed doubling of traffic generated by existing land uses in the area, will require upgrading of the Hastings River

Drive/Boundary Street intersection and improvements to Boundary Street. These works are currently not listed in Council's future works program.

The Planning Proposal request acknowledges that in the absence of a local roads contribution plan, it is anticipated that the intersection improvements will be specified as a condition of development consent for the establishment of the Airport Business Park, including details of a proposed trigger for these works. King and Campbell expect that apportionment of the share of the costs of the intersection works between the Business Park and other development would be negotiated through a Works in Kind Agreement at that time.

The D&E Division assessment is that an upgrade of Boundary Street is a fundamental requirement for the proposed Business Park, which will generate a significant proportion of demand for the upgrade. In this case, Council cannot enter into a Planning Agreement to obtain a commitment in relation to road upgrades. Any sale of the Council owned Business Park land could be contingent upon a Planning Agreement to demonstrate to the community, that the development of Council owned land has been treated in the same way as any other proposed development.

In addition, it is proposed that Council's D&E Division prepare a draft Section 9.11 Contributions Plan to enable collection of developer contributions towards road infrastructure required to service the proposed Airport Business Park. The draft Plan will identify the level of developer contributions applicable to road and intersection works to accommodate future development of the proposed Business Park area overtime and can be referenced in any future Planning Agreements. The proposed Contributions Plan will need to be in place prior to development of the Business Park but need not delay the proposed referral of a Planning Proposal to the Department of Planning, Industry and Environment for a Gateway Determination.

Sewerage

The proponent's Planning Proposal request presents two options for sewerage infrastructure (at **Attachment 10**), being a conventional gravity sewerage scheme and a low-pressure sewerage scheme. These options have been assessed by Council's Water and Sewer Section and are considered to adequately demonstrate that it will be possible to service the proposed Business Park land in the future. A decision on which option to progress will be determined at the later Development Application stage.

Water supply

The Port Macquarie Airport and existing developed Business Park lands are currently serviced by reticulated water supply. Based on modelling undertaken by Council's Water and Sewer section and assuming preliminary densities provided by the proponent, the proposed Business Park can be serviced by water supply subject to augmentation of connection from the Oxley Highway ultimately linking to the existing infrastructure in Boundary Street.

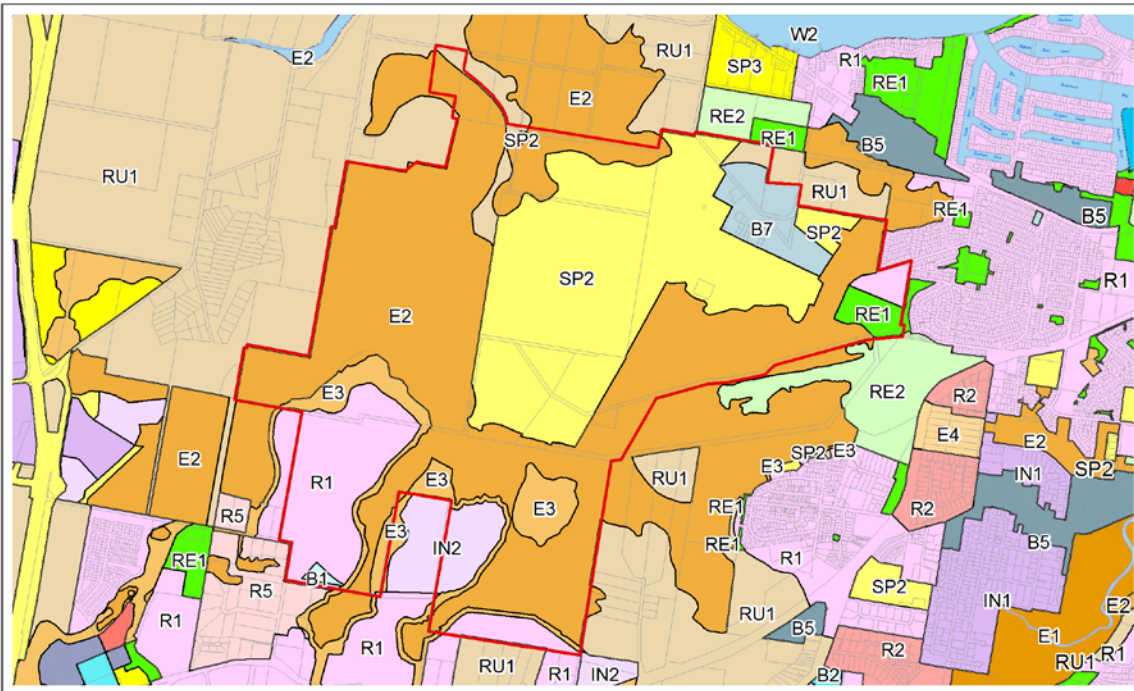
10. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

The Department of Planning, Industry and Environment's Gateway Determination will specify requirements for consultation on the Planning Proposal with State and Commonwealth Government agencies. It is expected that consultation would occur with NSW Roads and Maritime Services, NSW Rural Fire Service, Office of Environment and Heritage, Birpai Local Aboriginal Land Council, NSW Department of Primary Industries, Crown Lands, Civil Aviation Authority and NSW Police.

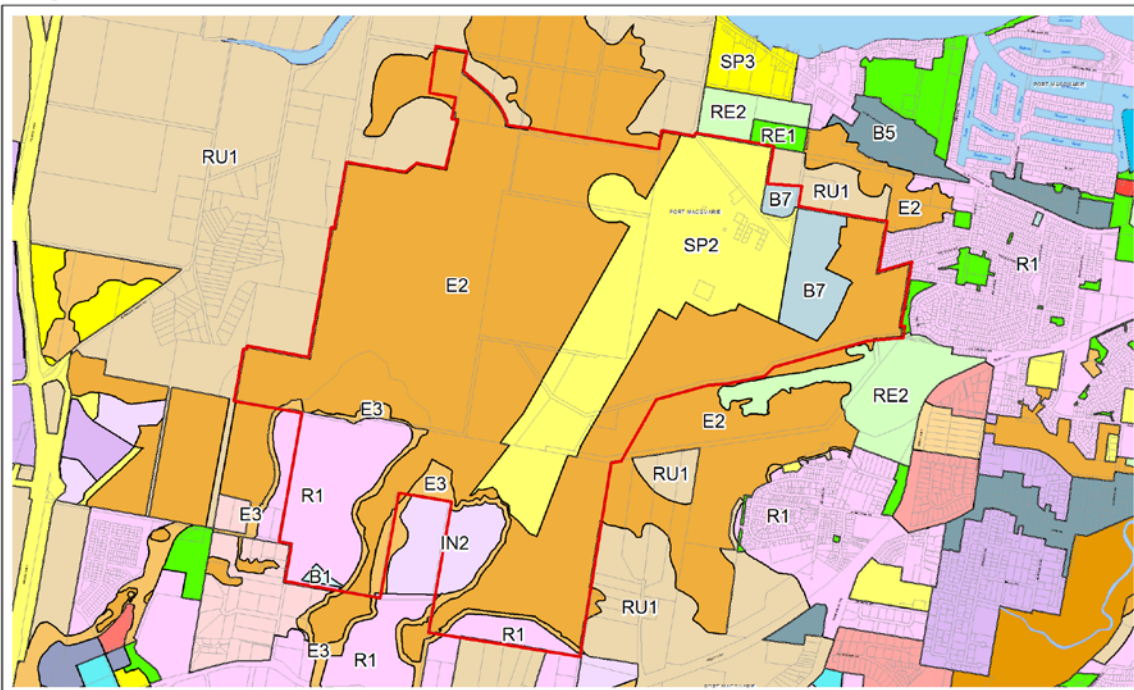
Part 4 – Mapping

Proposed map amendments, as described in **Part 2** of this Planning Proposal are shown below.

Current



Proposed

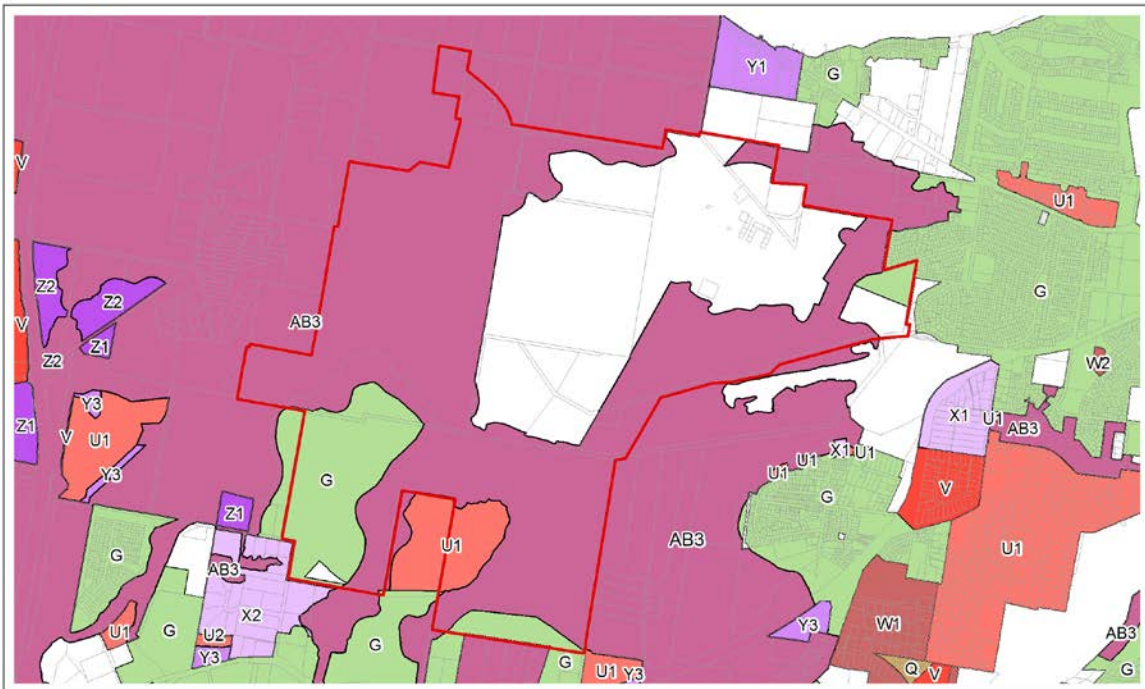


Zone Codes

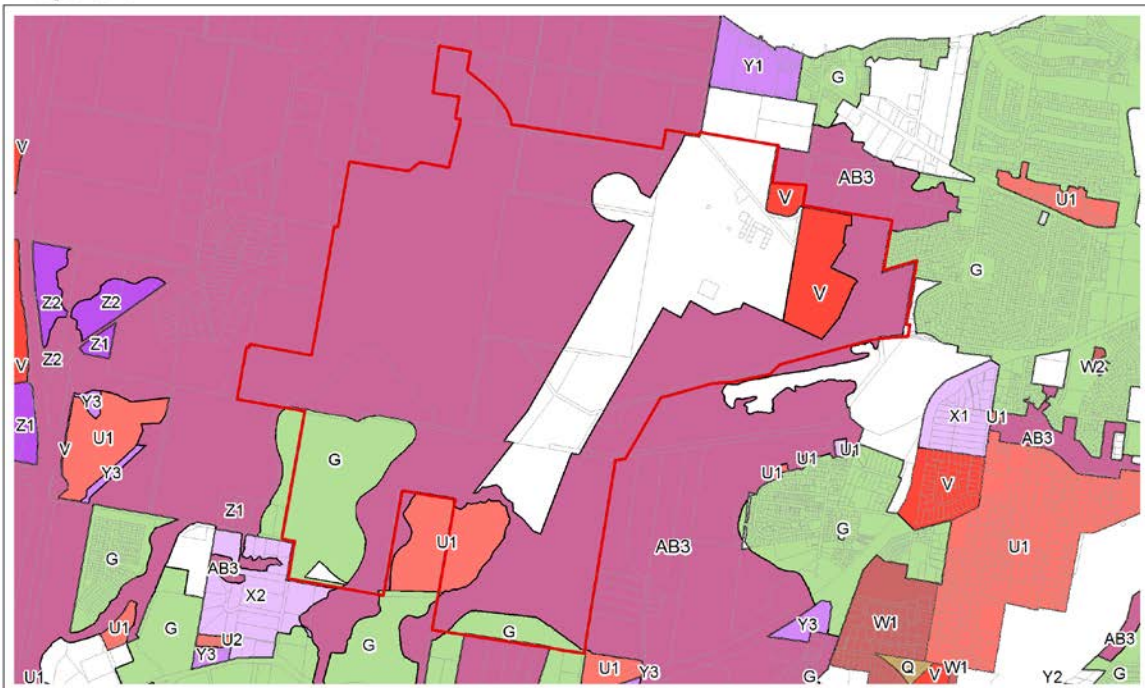
B1 Neighbourhood Centre	E3 Environmental Management	RU1 Primary Production
B7 Business Park	IN2 Light Industrial	SP2 Infrastructure
E2 Environmental Conservation	R1 General Residential	

Figure 2: Existing & proposed Land Zone

Current



Proposed



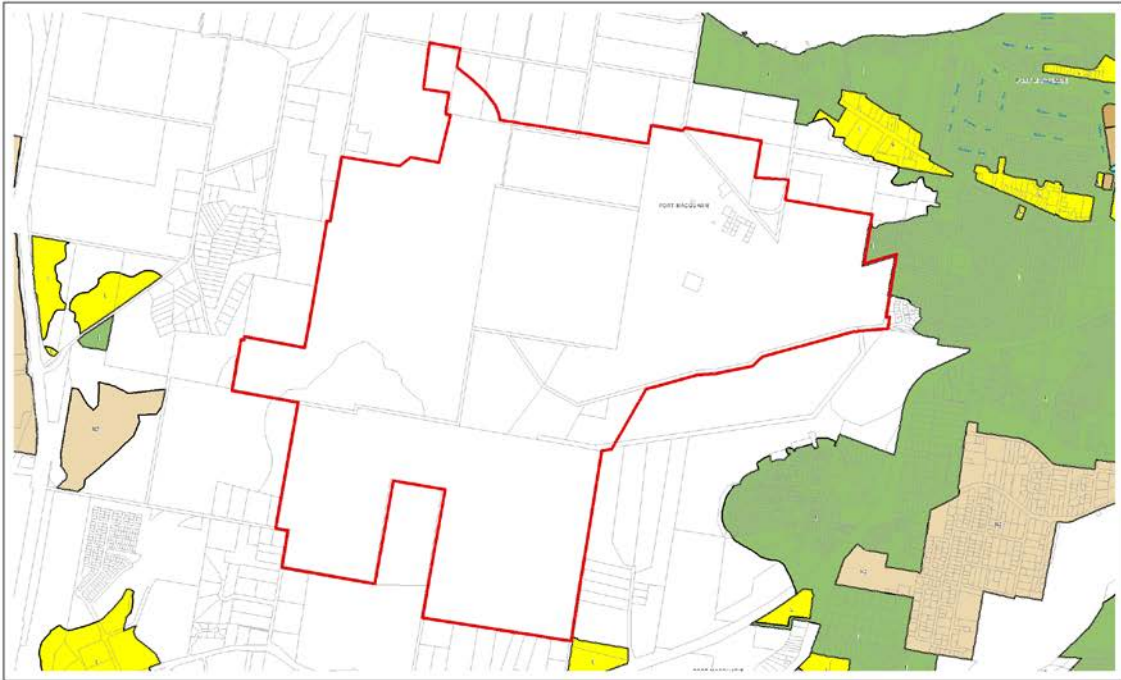
Minimum Lot Size

V	2000 sqm	U1	1000 sqm
G	450 sqm		
AB3	40 ha		
Blank	- no maximum		

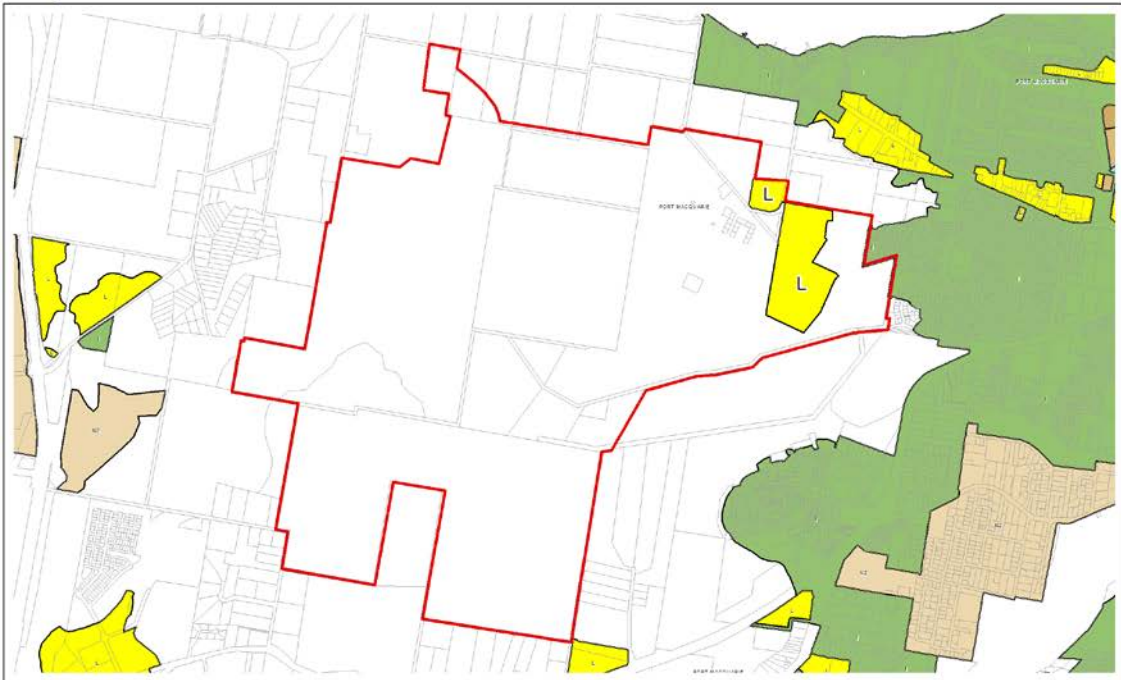
Refer to LEP Text for definition of Maximum lot size

Figure 3: Existing & proposed Lot Size

Current



Proposed



Maximum height of buildings

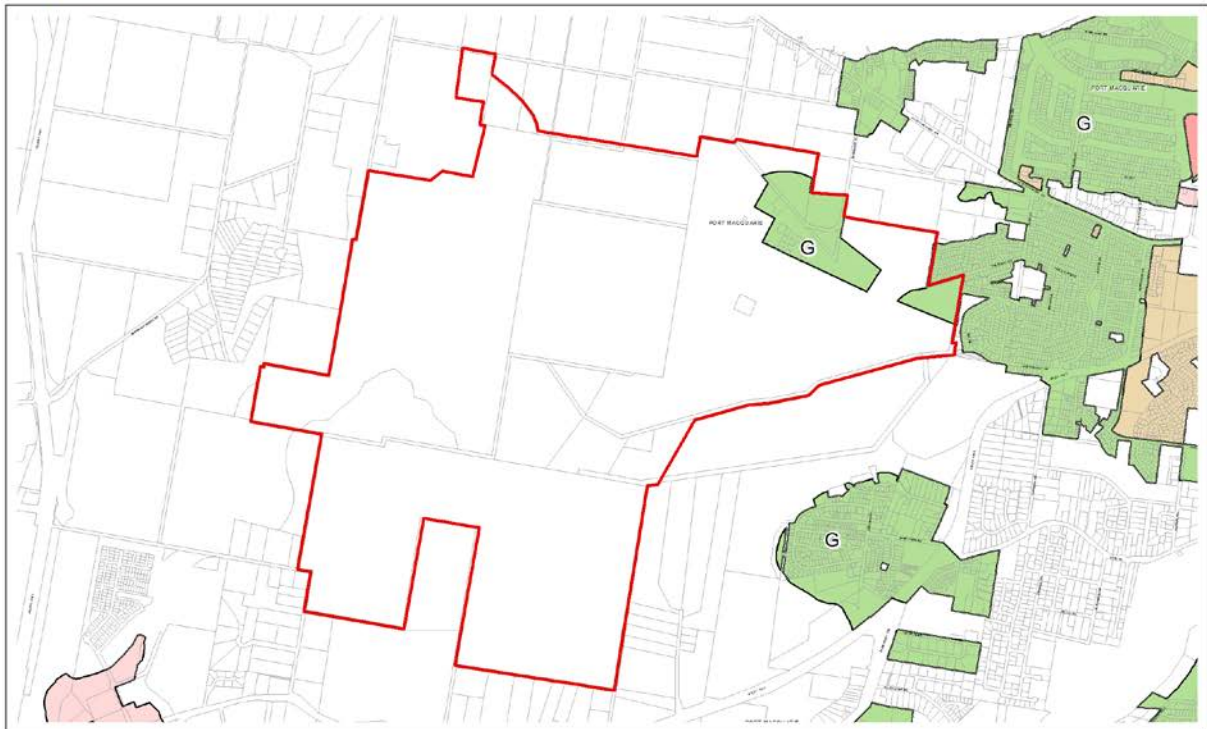
 L 11.5m

Blank - no maximum

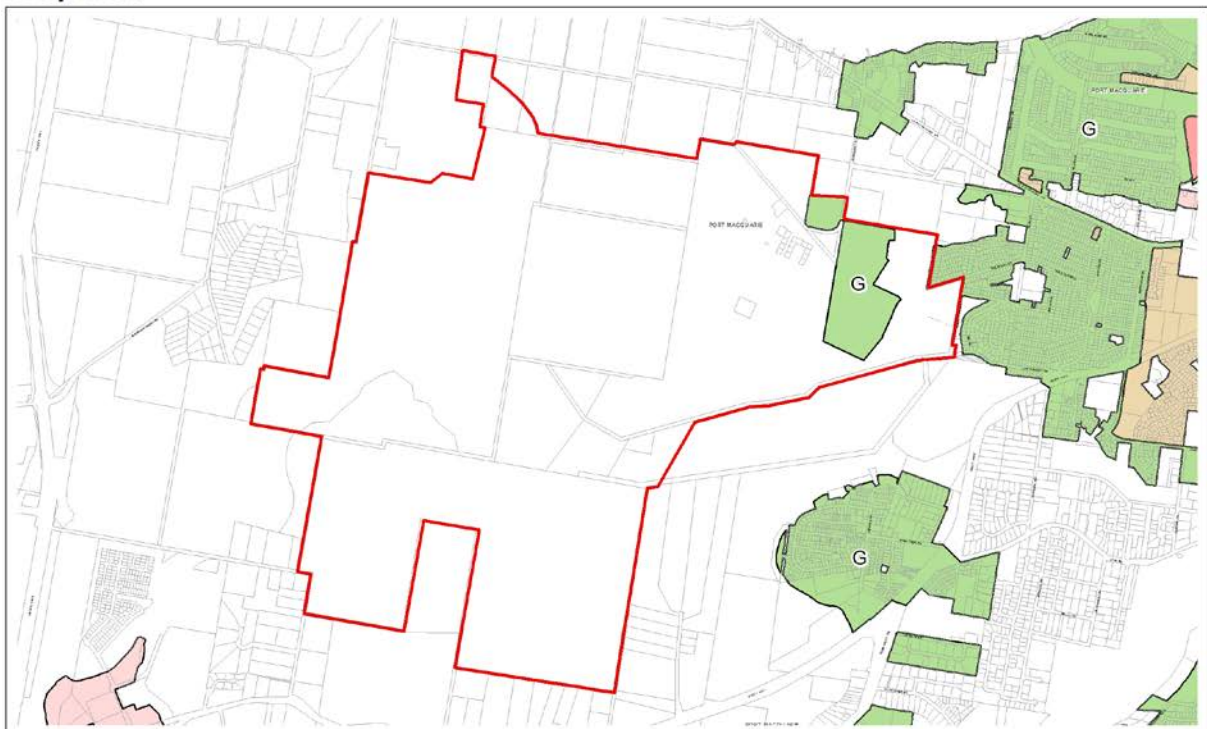
Refer to LEP Text for definition of
Maximum building height

Figure 4: Existing & proposed Height of Buildings

Current



Proposed



Maximum Floor Space Ratio (n:1)

G 0.65

Refer to LEP Text for definition of Floor space ratio

Blank - no maximum

Figure 5: Existing & proposed Floor Space Ratio

As noted in Part 2, it is also proposed to prepare a Biodiversity Certified Land Map to identify all land that has been biodiversity certified. The proposed map will identify all land affected by red and green shading on the map below. Consultation will be required with the Department of Planning, Industry and Environment to determine technical mapping requirements for the proposed Biodiversity Certified Land Map.

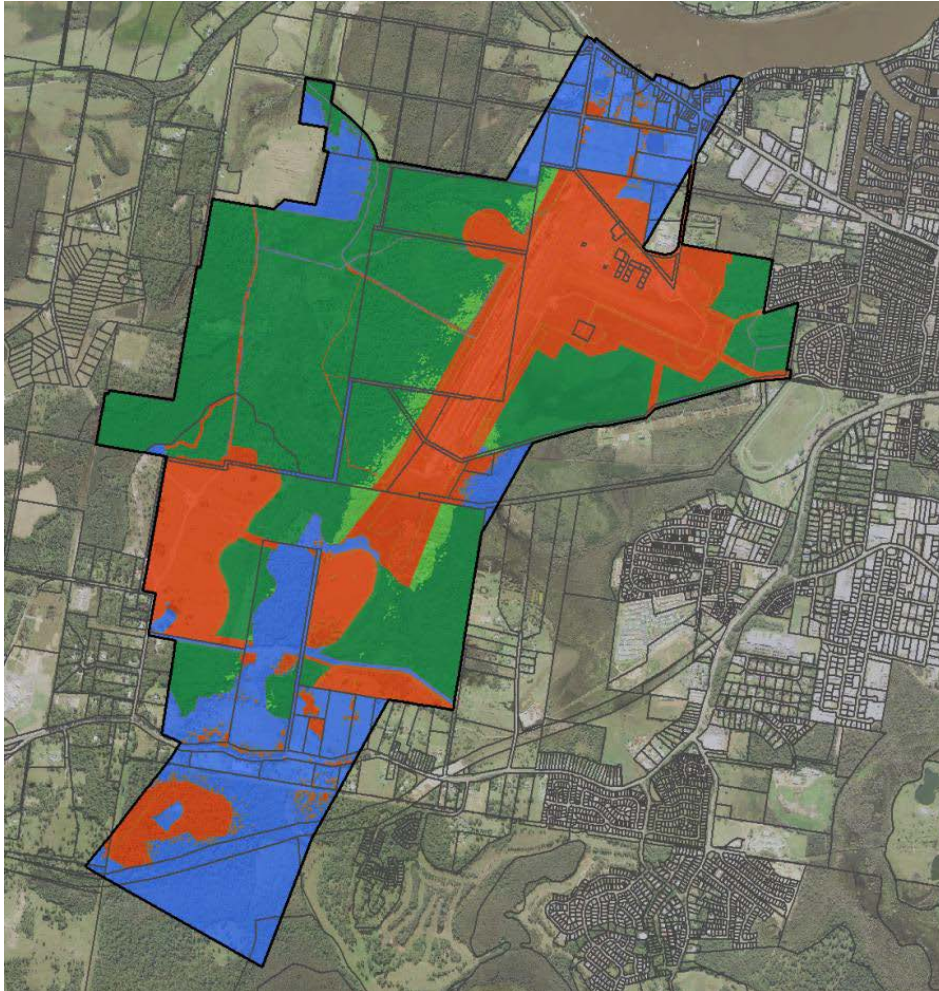


Figure 6: Biodiversity Certification Assessment Area

Part 5 – Community Consultation

The proposal is not considered to be a low impact proposal and therefore, a 28-day public exhibition period is nominated.

Public consultation is intended in accordance with the Gateway Determination and normal requirements of the *Environmental Planning and Assessment Act 1979*. Council is not requesting plan-making delegations for the Planning Proposal. Therefore, all exhibition material will need to be endorsed by the Department of Planning, Industry and Environment ahead of the public exhibition period.

The consultation and public exhibition will include notification in a locally circulating newspaper, notification on Council's website and written notification to affected and all adjoining landowners. This includes writing to the three adjoining landowners within the Airport Precinct Investigation Area, advising of the Planning Proposal and inviting submissions as part of the public exhibition process.

It is proposed that during the public exhibition, Council will undertake further engagement with representatives of Newman Senior Technical College regarding the lot size and height of buildings controls proposed for the College site.

In accordance with the recommendations of Cardno's Preliminary Probity Report, Council will also invite submissions from Mr John Jeayes and Lewis Land Group for Sovereign Hills Project (represented by GEM Planning). This will ensure that any actual or perceived overlapping and/or outstanding issues can be considered and addressed prior to a decision being made on the Planning Proposal.

For the purposes of the public exhibition, a *Statement of Council Interest* will be included in the Planning Proposal, consistent with the Department of Planning Industry and Environment's *Best Practice Guideline - LEPs and Council Land 1997*.

It is proposed that the draft Airport Business Park development control provisions be reported to Council for endorsement, prior to being concurrently exhibited with the Planning Proposal.

Part 6 – Project Timeline

The Gateway Determination will specify the timeframe in which this Planning Proposal is to be completed. The project timeline below is based on anticipated dates and timeframes, noting that there can be unexpected delays.

Given the direct interest of Council as both the landowner and the proponent in respect of the proposal, Council is not seeking delegation from the Department of Planning, Industry and Environment to be the local plan-making authority for the Planning Proposal.

Planning Proposal process outline	Anticipated Timeframe
Commencement (date of Gateway determination)	Aug 2019
Timeframe for completion of required additional information (as required by Gateway Determination)	Aug/Sep 2019
Timeframe for government agency consultation (as required by Gateway Determination)	Sep/Oct 2019
Public exhibition period	Nov/Dec 2019
Timeframe for consideration of submissions	Jan 2020
Timeframe for the consideration of a proposal post exhibition	Feb 2020
Date of submission to the Department to finalise the LEP	Feb 2020
Date the Department will make the plan	Mar/Apr 2020

Appendix A – Report to Council & Meeting Minutes 21 November 2018

Item: 12.09

**Subject: AIRPORT PRECINCT INVESTIGATION AREA - SITE SELECTION
FOR PROPOSED BUSINESS PARK**

Presented by: Development and Environment, Melissa Watkins

Alignment with Delivery Program

4.5.1 Carry out strategic planning to manage population growth and provide for co-ordinated urban development.

RECOMMENDATION

That Council:

- 1. Note the assessment in this report which confirms that the Council owned land within the Port Macquarie Airport Precinct Investigation Area, as shown in Attachment 15, is the most suitable land to supply 20.5 hectares of gross developable Business Park zoning in the Airport Precinct Investigation Area.**
- 2. Receive a further report to the February 2019 Council meeting in respect of a Planning Proposal for the Council owned land as identified in 1 above.**
- 3. Advise landowners within the Airport Precinct Investigation Area of the outcome of this decision.**

Executive Summary

This report provides an assessment of a proposed rezoning of land known as the Airport Precinct Investigation Area which includes land adjoining the Port Macquarie Airport in Council ownership and other land in private ownership adjoining Boundary Street. Investigations for expansion of the existing Airport Business Park are listed as a key action in the *Port Macquarie-Hastings Urban Growth Management Strategy 2011–2031*.

In recognition that Council has a role as Airport operator, landowner and planning authority in this matter, Council's Development and Environment Division commissioned Cardno (NSW/ACT) to independently review the planning process and prepare probity reports and recommendations in relation to the land use planning statutory process regarding the Airport Business Park Planning Proposal.

Key issues in assessing a proposed rezoning of the land include the capacity of existing road infrastructure to service an expanded Business Park at the Airport and the impact of the proposal on other business centres in the Local Government Area.

From a traffic and centres hierarchy perspective, it is considered that a maximum 50% of the investigation area (i.e. 20.5 ha) can be rezoned for Business Park uses until such time a secondary access to the Port Macquarie Airport becomes available and there is further economic expansion opportunities within the centres hierarchy.

Council's Strategic Land Use Planning staff have developed planning criteria to assess the capability and suitability of land within the Airport Precinct Investigation Area to arrive at a conclusion as to where the 20.5 ha of Business Park land should be located. The assessment of the criteria indicates that the Council Airport property has a number of clear advantages that distinguish it from the other sites in the investigation area.

Consequently, it is recommended that the Council owned land within the Airport Precinct Investigation Area be confirmed as the most suitable land to supply 20.5 ha of gross developable Business Park zoning in the Airport Precinct.

If the recommended approach is adopted by Council, the next step is to undertake more detailed consultation regarding configuration of zones and content of Local Environmental Plan changes (Planning Proposal) based generally on the concept submitted for Council by King and Campbell (at **Attachment 15**). A further report is proposed to be presented to Council in February 2019, subject to the outcomes of that consultation.

In general terms, subject to further consultation in relation to zone boundaries, it is expected that the Planning Proposal would result in a reconfiguration of the existing B7 Business Park and SP2 Infrastructure - Air transport facility zones on the Council land.

Based on the concept prepared for Council by King and Campbell, this should result in:

- An increase in the amount of undeveloped B7 Business Park zone from 13.3ha at present to 20.5ha
- A shift in the location of the B7 Business Park zone further away from Airport operations, and
- A change in zone to SP2 Infrastructure - Air transport facility for areas nearer the Airport which will permit uses that are ordinarily ancillary and incidental to Airport operations.

Land Ownership/Proponents

There are four landowners in the Airport Precinct Investigation Area, as follows:

- Port Macquarie-Hastings Council
- JW Missen, Kingswood Estates Pty Ltd and FL & LE Wilkins
- BW & KE Gilson
- KD Ireland.

As discussed in this report, two of these landowners, Port Macquarie-Hastings Council and JW Missen, Kingswood Estates Pty Ltd and FL & LE Wilkins, are seeking a rezoning of their properties for Business Park purposes.

Discussion

This report is presented in four parts:

- Part 1: Background
- Part 2: Key issues
- Part 3: Planning criteria
- Part 4: Conclusions and options

The report has been prepared by Council's Development and Environment (D&E) Division with input from Council's Transport and Stormwater Network (T&SN), Water and Sewer, and Environment sections, noting that Council's Airport is a landowner and stakeholder in the process. The roles and responsibilities of Council in this process are as follows:

- Elected Council - consider D&E assessment and determine the most suitable land for a proposed Business Park zoning within the Airport Precinct Investigation Area
- PMHC Airport – landowner and proponent seeking a land rezoning
- D&E - assess and make recommendations on rezoning
- T&SN – traffic assessment and advice
- Water & sewer – water and sewer assessment and advice
- Environment – flooding and biodiversity assessment and advice.

An organisational restructure of Council came into effect on 1 May 2017 which included the transfer of the Strategic Land Use Planning function from the Development and Environment Division to the new Strategy and Growth Division. The Strategic Planning team is responsible for Council's strategic land use planning responsibilities associated with the Airport Business Park Planning Proposal.

In addition to Strategic Land Use Planning, the new Strategy and Growth Division includes Council's Economic Development, Community and Place, and Assets functions. The Assets section has responsibility for Council's land in the Airport Precinct Investigation Area, as an asset.

To avoid any real or perceived conflict of interest, the Strategic Land Use Planning team has continued to report to Council's Director of Development and Environment and will continue to do so in relation to the Planning Proposal for the Airport precinct, as was the case prior to the restructure.

PART 1: BACKGROUND

The Port Macquarie Airport is owned and operated by Port Macquarie-Hastings Council. The existing operations include a small number of airport related businesses in a B7 Business Park zone, which adjoins the Airport fronting Boundary Street. Council's Corporate Performance Division manages/operates the Airport.

In 2006, Council commissioned the preparation of an Industrial Land Strategy for the Port Macquarie-Hastings local government area by AEC Group. An investigation area was identified at the Airport in the *Port Macquarie-Hastings Industrial Land Strategy 2007 (ILS)*. The aim being to provide a *"large dedicated site close to the urban area of Port Macquarie to accommodate future local services growth,*

accommodate any transferred demand from the rezoning of industrial areas to commercial, and to accommodate emerging business technology park style development."

The investigation area included land in Council ownership and other land in private ownership adjoining Boundary Street. In February 2006 Luke and Company consultants lodged an application on behalf of one of the private landowners (Missen), seeking a rezoning for industrial purposes. Assessment of the application was deferred pending completion of the ILS.

Following adoption of the ILS, Council resolved in August 2007 to prepare a draft local environmental plan to initiate a rezoning of the Airport Precinct Investigation Area for industrial purposes and to prepare a Structure Plan for the existing zoned 4(t) Industrial Technology land adjacent to the Airport (now zoned B7 Business Park).

Following notification of the proposal, the former Department of Planning advised on 11 November 2007 that whilst there was in principle support for additional industrial/business technology development at the Airport, a rezoning was premature as Council's review of the Airport Master Plan was incomplete. Also the Department questioned the need for additional industrial land having regard to the stock of existing, undeveloped Zone 4(t) land in the locality. Consequently, a rezoning was not able to be progressed.

Council proceeded with the preparation of a Masterplan for the Airport between 2008 and 2010. Council also commissioned reports by HillPDA in relation to retail and industrial supply and demand in 2010 as a precursor to the preparation of the Port Macquarie-Hastings Urban Growth Management Strategy. HillPDA identified the Airport Precinct Investigation Area as a major new site for business technology and local services growth.

The investigation area was subsequently included in the *Mid North Coast Regional Strategy 2009* and in the *Port Macquarie-Hastings Urban Growth Management Strategy 2011* (UGMS). The Regional Strategy highlighted the precinct as a regional priority for more detailed investigations, as discussed in this report. The UGMS identified the key issues to be addressed during planning investigations for rezoning and proposed the preparation of a Structure Plan for the investigation area.

In 2011 Council's D&E Division commenced the preparation of a Structure Plan in consultation with the affected landowners. The investigations included an ecological report by Biolink Pty Ltd and internal consultation with Council infrastructure managers and staff.

A Discussion Paper was prepared in 2012 by D&E that provided a summary of the key planning issues and identified a number of issues requiring more detailed investigation. In 2013 preliminary geotechnical investigations were undertaken for part of the investigation area to determine likely landfill requirements. This related to the flood prone parts of the investigation area and in particular to the privately owned land in the north.

In 2014, investigations were put on hold pending a review of the *Port Macquarie Airport Master Plan* and preliminary investigation into the feasibility of a north-south secondary road link to the Airport, between Hastings River Drive and the Oxley Highway. The Airport Master Plan relates principally to Airport operations and

includes consideration of new Civil Aviation Safety Authority (CASA) Obstacle Limitations Surface (OLS) requirements.

In May 2015, landowners in the investigation area were asked whether they wished to proceed with the preparation of a Planning Proposal for their land. Two parties (PMHC Airport & Missen) expressed an interest and indicated that they would commence more detailed investigations to support a rezoning. Council's D&E Division retained responsibility for the preparation of a Planning Proposal for the Airport Business Park Investigation Area.

In recognition that Council has a role as Airport operator, landowner and planning authority in this matter, Council D&E engaged Cardno (NSW/ACT) to independently review the planning process and prepare probity reports and recommendations in relation to the land use planning statutory processes for the preparation of a Planning Proposal in relation to the proposed Airport Business Park.

A preliminary probity report at **Attachment 1** and as discussed in more detail under 'Planning & Policy Implications', addresses whether there are any probity issues of concern in the process leading up to and including this report to Council. A final probity report will be provided to Council after any exhibition of a Planning Proposal, to address whether there are any probity issues of concern in the exhibition and review process and in relation to the final recommendations to Council.

PMHC Airport engaged King and Campbell Pty Ltd to co-ordinate the investigations for Council's land. Detailed investigations have included the preparation of a Biodiversity Certification (BioCertification) Assessment and Strategy for Council owned land around the Airport.

The BioCertification Assessment and Strategy, which was approved by the NSW Minister for the Environment on 7 September 2018, includes allowance for expansion of the existing Airport Business Park over Council's land, should this be the outcome of a Planning Proposal. The BioCertification process aims to provide an option for larger-scale development and biodiversity conservation offset (i.e. at a more strategic level). In this case, the BioCertification has been applied to all of Council's Airport and nearby Thrumster lands. This means that Council is able to submit an application for development and conservation outcomes, provided they are consistent with the approved BioCertification Strategy.

As detailed in D&E's report to the 10 August 2016 Ordinary Council Meeting, six (6) submissions were received to the public exhibition of the BioCertification Assessment and Strategy. Two of these, from John Jeayes and GEM Planning Projects, raised concerns about the BioCertification process and also foreshadowed planning process and probity issues. A copy of these submissions is included here as **Attachment 2** and the key issues raised with respect to the Business Park proposal, are addressed in this report.

King and Campbell for PMHC Airport, has also commissioned traffic modelling, sewer, water and stormwater concept proposals, a geotechnical assessment and an Aboriginal heritage assessment to inform the preparation of a Planning Proposal for Council's land.

Land Dynamics has been engaged to coordinate detailed investigations for the Missen property. Staff from Council D&E, T&SN, Water and Sewer and Environment

met with Land Dynamics in August 2015, February 2016 and May 2016 regarding the key issues for the preparation of a Planning Proposal for the Airport Precinct Investigation Area. A threatened species assessment in relation to the Wallum Froglet has been submitted for the Missen property, in addition to a concept plan showing sewer, water and stormwater servicing for the site.

Council D&E engaged HillPDA in August 2016 to provide advice regarding the relationship between the proposed expansion of the Airport Business Park and the existing hierarchy of business centres in the Port Macquarie-Hastings Local Government Area (LGA). That report has been reviewed by landowners in the Airport precinct and Council D&E has sought further clarification from HillPDA, as discussed in this report.

The conclusions and recommendations in this report are based on the combined information and consultations since 2007, as summarised above.

The Airport Precinct investigation area

The Airport Precinct investigation area includes the existing B7 Business Park zone and adjoining Council land to the south and east and privately owned land to the north, generally having frontage to Boundary Street. The extent of the investigation area is shown in Figure 1.



Figure 1: Airport Precinct Investigation Area

Existing precinct land uses include:

- General aviation facilities comprising two u-shaped cul-de-sac aprons which provide access to adjacent aircraft hangar facilities. The hangars are used for aircraft associated with both business and recreational activities.
- Newman Senior Technical College located on a 3.8 ha site with frontage to Boundary Street. The college is a senior secondary school (students in Years 11 & 12) that provides vocational education and training.

- A dwelling adjoining Newman College to the north.
- Former crayfish farm located on a 4 ha private property on the eastern side of Boundary Street. The crayfish farm no longer operates, however the site has been developed for a series of elongated freshwater ponds that cover the majority of the land. This property also contains a dwelling.

The Airport Precinct Investigation Area incorporates a range of zones under the *Port Macquarie-Hastings Local Environmental Plan 2011*, as follows:

- B7 Business Park over the existing General Aviation Facilities, Newman Senior Technical College and other Council-owned land in Boundary Street
- SP2 Infrastructure Air transport facility over Council land to the north and south of the B7 land
- RU1 Primary Production over the existing dwellings and vacant rural land in Boundary Street, and
- E2 Environmental Conservation over the remainder of the investigation area.

The distribution of existing land use zones is shown in Figure 2.

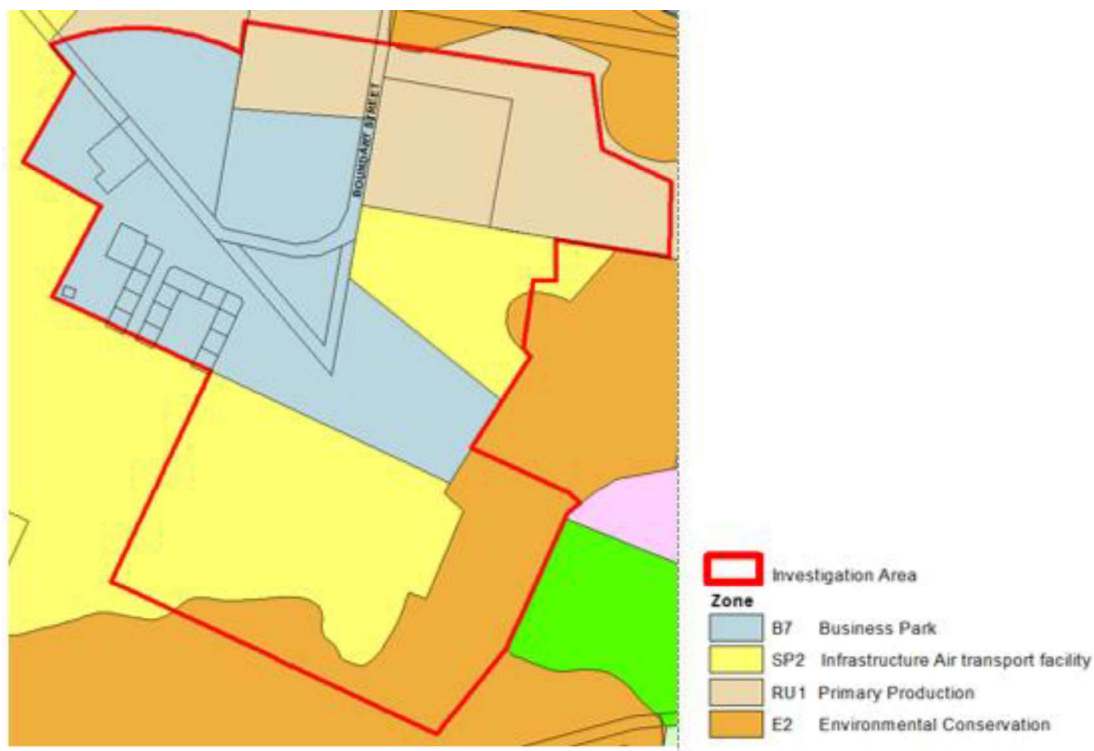


Figure 2: Existing Land Use Zoning

Strategic Land Use Planning Context

North Coast Regional Plan 2036

The Regional Plan identifies the Port Macquarie Airport as one of five busiest airports in regional NSW and maps the Airport precinct as an investigation area for

employment lands, adjoining the part of Council's land that is already zoned B7 Business Park.

In planning for economic growth around airports, the Regional Plan recommends that Councils consider new infrastructure needs and introduce planning controls that encourage clusters of related activity (Action 6.1). Also recommended is the need to promote new job opportunities that complement existing employment nodes around airport precincts, and to deliver infrastructure and coordinate the most appropriate staging and sequencing of development (Action 7.1).

Recognised as important gateways for business, tourism and personal travel, as well as high-value freight, Action 10.1 of the Plan requires the delivery of Airport precinct plans for Ballina-Byron, Lismore, Coffs Harbour and Port Macquarie that capitalise on opportunities to diversity and maximise the potential of value-adding industries close to Airports.

Port Macquarie-Hastings Urban Growth Management Strategy 2011-2031

The 2011-2031 UGMS has been used as a key strategic document in determining priorities in consultation with landowners as described in this report.

The rationale for retail and business development in the UGMS is based on the Department of Planning and Environment's *Settlement Planning Guidelines 2007* for the North Coast, as applicable to the Port Macquarie-Hastings area. The key principles are summarised below:

- To provide a wide range of quality shopping opportunities and commercial experiences for consumers in a hierarchy of viable retail centres consistent in scale with existing towns and villages and centrally located within each community.
- To provide for further growth in retail and commercial space to meet growth demand generated by population and household growth.
- To protect and enhance the integrity and function of existing centres, and to improve the amenity and vitality of centres as focal points for the Port Macquarie-Hastings community.
- To integrate planning for commercial uses within transport, public domain and infrastructure opportunities.
- Fragmentation and out-of-centre retailing should be resisted unless compelling reasons exist in order to maintain the healthy retail and service functioning of particular centres in the region.
- To identify opportunities for bulky goods style retailing in accessible locations in or near commercial centres and restrict this form of retailing in industrial zones.

The UGMS identifies the Airport Precinct for investigation to provide for service industry and business park industrial uses, in accordance with the 2007 *Port Macquarie-Hastings Industrial Strategy* and for a range of aviation related uses. The Strategy recommends that these investigations consider links and opportunities associated with the expected future operations of the Airport.

The aim is to reinforce the Airport Precinct as a significant gateway to Port Macquarie and to ensure that future development is compatible with further Airport operations, including height, lighting and other potential impacts.

Port Macquarie-Hastings Urban Growth Management Strategy 2017-2036

The UGMS 2017-2036 was adopted by Council on 20 June 2018. The Strategy is not yet endorsed by the NSW Department of Planning and Environment. Essentially it maintains the same principles as the 2011-2031 UGMS.

Port Macquarie Airport Master Plan 2010 & Addendum Report 2013

The Port Macquarie Airport is owned and operated by Port Macquarie-Hastings Council and is the fifth largest regional airport in NSW (by passengers) with approximately 230,000 passenger movements per annum. A doubling of passenger numbers is forecast to approximately 450,000 passengers per annum by 2030.

The *Port Macquarie Airport Master Plan 2010* and *Port Macquarie Airport Master Plan Addendum Report 2013* (i.e. Airport Master Plan) sets out a 20-year vision for the Airport and provides the framework and strategic direction to guide the future development to underpin the region's economic development and tourism potential. Priority objectives are:

- To provide adequate infrastructure and facilities to meet forecast demand for future regular public transport airline operations, and
- To provide opportunity for commercial property development to promote employment opportunities, facilitate economic development, and support the long-term financial viability and sustainability of the Airport business.

The Master Plan identifies areas required for the ongoing operation and development of the Airport consistent with aviation demand forecasts and compliance with CASA requirements for full Code 4C aerodrome standards. This includes widening the runway and associated OLS from 150 to 300 metres (m) and the extension and/or relocation of critical aviation-related infrastructure and facilities, subject to detailed investigation and planning approval.

The Master Plan also identifies potential areas to the north and east of the existing Airport facilities for non-aviation uses, including a proposed Business Park and Airport related accommodation/hotel development, subject to detailed investigation and rezoning.

The Airport Master Plan concept for the potential long-term development of the Airport lands is at **Attachment 3**.

PART 2: KEY ISSUES

Having considered the background to the Airport Business Park investigations, the following part of this report looks at the key issues to be addressed in any Planning Proposal to rezone additional land for Business use. These issues need to be addressed by Council to comply with State planning legislation and Council's strategic planning policy position, as described in the UGMS.

The key issues are:

- A. the Centres Hierarchy in the Port Macquarie-Hastings LGA and amount of zoned land
- B. the capacity of existing road infrastructure
- C. secondary access options to the Airport.

These issues are discussed below.

A. Centres Hierarchy in the Port Macquarie-Hastings LGA

Council's adopted centres hierarchy, as outlined in Table 1 below, assists in understanding the functions of the commercial centres in the Port Macquarie-Hastings LGA and the relationship between the centres.

Table 1: Port Macquarie-Hastings Centres Hierarchy

Classification	Centres	Characteristics
Port Macquarie CBD	Town Centre Settlement City Gordon Street	The principle centre in the LGA and broader region for business services, administrative services and government functions.
Town Centres	Wauchope Laurieton	Plays a significant role in providing commercial services to residents in the LGA.
Large Villages	Lakewood Lake Innes Lake Cathie Lighthouse Plaza Bonny Hills* Thrumster*	Typically provides a small range of services to meet the daily and occasionally, weekly needs of the local catchment.
Small Villages	North Haven Kew Kendall Lighthouse Beach Flynn's Beach Waniora Parkway Bonny Hills Clifton	Generally provides only day-to-day, or occasionally weekly needs to service a small catchment.

* Future Centre.

The centres hierarchy is important because it has a major influence on guiding public and private investment in the LGA and it helps to protect the integrity and viability of existing centres. The relationship between the Airport Business Park and other centres is primarily related to opportunities for new office space because the B7 zone does not permit retail premises.

In order to assess the appropriate level of opportunity for office space at the Airport, Council D&E commissioned HillPDA consultants to provide advice regarding the relationship between the proposed expansion of the Airport Business Park and the existing hierarchy of business centres in the Port Macquarie-Hastings LGA. As noted in the Background section of this report, this included consideration of a submission from GEM Planning consultants for Sovereign Hills, received as part of the Biodiversity Certification exhibition.

The submission suggested that Council has a vested interest in applying for BioCertification of the Airport and Thrumster lands and in particular, raised concerns about the extent of Council's ownership, the lack of land use planning controls

applying to the existing B7 Business Park area compared to other business areas in the LGA, and the potential impact of the proposed Business Park expansion on other commercial centres.

As part of the brief, HillPDA were also asked to consider zone options for the Airport precinct. The B7 Business Park zone provides for a variety of light industrial uses, including high technology industries and also encourages development of strategically located out-of-centre sites through the permissibility of office premises.

Based on an assessment of employment trends and population forecasts, HillPDA modelled low and medium growth scenarios to project business park office space demand and land requirements for the Port Macquarie-Hastings LGA to 2036.

Consideration was also given to three of the six business zones in the *Port Macquarie-Hastings Local Environmental Plan 2011* (i.e. B4 Mixed Use, B5 Business Development & B7 Business Park) to assess the most appropriate zoning to apply to the Airport Precinct Investigation Area.

HillPDA noted that recent demand for office floor space in the Port Macquarie-Hastings LGA has been low. The majority of this demand has been associated with the medical sector around the Port Macquarie Base and the Private Hospitals. Other demand has mostly been for smaller office premises in the Port Macquarie CBD. Nationally, there is a trend towards office-based activities in Business Parks and towards clustering/agglomeration of like businesses, such as freight distribution through regional Airports.

HillPDA's assessment (at **Attachments 4 & 6**) has included a review of a report prepared by Gillespie Economics on behalf of PMHC Airport (at **Attachment 5**).

In summary, the following key points and conclusions have been made by HillPDA in relation to the Airport precinct:

- Overall, the demand for stand-alone office floor space in the Port Macquarie-Hastings LGA to 2036 is projected to be between approximately 61,000 sqm to 85,000 sqm. A significant component of this floor space provision will be in the CBD areas of Port Macquarie, Wauchope, Laurieton and Thrumster.
- Assuming CBD capture rates of 80%, this additional demand translates into approximately 3 ha and 4.2 ha of absolute net developable land being required for out-of-centre Business Park style office space. A lower capture rate in the commercial centres of 60% would result in a demand for up to 8.5 ha of land being required for Business Park office space.

The Gillespie Economics review for PMHC Airport was critical of the HillPDA assessment in that it did not make an adjustment to the 'business as usual' forecast for commercial office space and industrial land demand, having regard to the significant level of investment at the Airport from all levels of government. The review suggests that Airport investment will drive inward investment and relocation of businesses could be informed by consideration of other upgraded regional Airports and their surrounding developments.

HillPDA note that there are always examples where the introduction of a 'base' industry can stimulate jobs and economic growth either temporarily or in the long-

term (e.g. a new mine). However, Airports are not really a 'base' industry but transport infrastructure, required to support other industries.

HillPDA has suggested two different options for Council's consideration:

- **Option 1** is to rezone 10 hectares net developable land (i.e. 15 ha gross) for Business Park uses at the Airport precinct, noting that the disadvantage with this option is that it restricts the scenario of a significant rapid development of the precinct unless there is rezoning of further land.
- **Option 2** is to rezone up to 20 hectares gross developable land for Business Park uses. The advantage of this option is that it provides economies of scale up to the capacity of the current road network.

HillPDA have recommended option 2, noting that this option is unlikely to threaten the viability of the centres hierarchy because as identified in the 2016 HillPDA assessment, the only 'white collar' industry in the LGA to have shown significant interest in commercial space over the past decade or two has been health. This industry, as well as several others (such as real estate services, etc.) is population based and would therefore express a stronger interest in the Port Macquarie CBD, other commercial centres and the hospital precinct, rather than the Airport. Recognising that achieving a perfect forecast for employment lands is increasingly difficult the longer the planning horizon, it is preferable to err on the side of extra supply for Business Park uses in the Airport precinct to ensure that the local economy can respond rapidly to new and emerging opportunities, where required.

Option 2 from the HillPDA report quotes 20 ha, however as shown on p4 of the report that option is in fact based on the capacity of the road network which is 20.5 ha. On this basis Council D&E has assumed that option 2 is up to 20.5 ha.

Therefore, from a centres hierarchy perspective, the maximum amount of B7 Business Park land that can be recommended in the expanded Airport Business Park is 20.5 ha gross developable land. In Part 3 of this report, the most appropriate location for this 20.5 ha is considered in more detail.

B. Road infrastructure

PMHC Airport through King and Campbell, commissioned the preparation of a Traffic Engineering Report by TPS Group to address traffic planning for an expanded Business Park at the Airport Precinct. In the absence of any certainty regarding a future alternative road access, Council D&E and T&SN has assumed, for the purpose of transport planning, that all access to the Airport and proposed Business Park precinct will be via Boundary Street.

An initial TPS Group report (Dec 2015) at **Attachment 7**, was prepared based on assumptions by TPS Group regarding land use types, density and traffic generation. The report modelled traffic generation for existing development and growth of the Airport and other development on Boundary Street, plus growth of the proposed Business Park precinct at various stages of completion (i.e. 30%, 50%, 70% & 100%). A number of design options were presented for upgrade of the Hastings River Drive and Boundary Street intersection, with conclusions by TPS Group for each, based on projected traffic volumes to 2030.

Council T&SN reviewed the TPS Group report (review at **Attachment 8**) and in summary, advised that:

- The larger upgrade options for the Hastings River Drive/Boundary Street intersection are unrealistic. There are limits on the potential to expand the size of the intersection given existing land uses and having regard to the capacity of the adjoining road network. For e.g. even a minor upgrade would involve significant land acquisition of adjoining properties.
- Minor upgrades of the intersection, although costly, are realistic and suitable for accommodating increased traffic in the precinct, and
- A secondary access to the Airport cannot be seen as a given.

T&SN prepared an intersection layout considered to be indicative of the maximum size feasible for the Hastings River Drive/Boundary Street intersection. The indicative layout was based on compatibility with the adjoining road network and the maximum level of land acquisition likely to be acceptable to the community.

It was suggested to TPS Group that they “reverse engineer” their modelling based on the indicative design to determine the future capacity of the intersection with more certainty and from that, estimate the amount of land that could be realistically developed for Business Park development in the Airport precinct.

A revised TPS Group report (June 2016) at **Attachment 9**, modelled traffic generation assuming a hypothetical Business Park mix of uses across the precinct. TPS Group concluded that the intersection would be capable of providing for approximately 75% of the overall Business Park development in 2030, or approximately an additional 15,000 vehicles per day (vpd). It was also concluded that the intersection would be capable of providing for all Business Park development traffic in 2030, i.e. 20,000 vpd, if the left turn lane in the east approach were extended from 35m to 60m.

Traffic modelling is highly sensitive to input assumptions, particularly in peak periods on congested networks. Therefore, when the road network is operating at or near capacity, a minor change in modelling input parameters can have a significant impact on model outputs. Council’s T&SN section review of the revised TPS Group report (review at **Attachment 10**) identified that several of the agreed input values/modelling parameters provided by T&SN had been adjusted and that this resulted in a cumulative effect on the modelling outcomes. T&SN found that the TPS Group 100% and 75% land use scenarios still did not meet all of Council’s normal Level of Service and Degree of Saturation targets. These are commonly used parameters to assess the operating performance of a road network.

T&SN have recommended from a traffic perspective that a maximum of 50% of the Business Park investigation area be rezoned until such time a secondary access to the Port Macquarie Airport becomes available. This proportion equates to 20.5 ha of gross developable area.

In response to T&SN’s recommendation PMHC Airport has submitted a peer review of both the TPS Group report (June 2016) and the review of that report by Council T&SN (Sep 2016). A copy of the resulting SLR Consulting Australia Pty Ltd report is at **Attachment 11**. In brief, SLR support the assumptions used by TPS Group in the Sidra modelling and agree with the conclusion that the full Business Park

development can be catered for at 2030 with the modified lane arrangement for the Hastings River Drive/Boundary Street intersection, as outlined in the TPS Group report.

T&SN reviewed the SLR report (see review at **Attachment 12**) and advised that no new information has been presented that would provide adequate justification to alter T&SN's prior advice.

It is therefore assumed for the purpose of this report that up to 20.5 ha of gross developable B7 land can be accommodated through an upgraded intersection at Hastings River Drive and Boundary Street.

C. Secondary access options

Council T&SN is currently investigating secondary access options to provide flood free access to the Airport. At this stage there is no certainty that a secondary access will be feasible and therefore, Council D&E is not able to demonstrate for the purpose of a Planning Proposal that there is adequate public infrastructure for more than 20.5 ha of gross developable Zone B7 land.

King and Campbell for PMHC Airport argue that in order to maximise the potential for affordable employment land it is important that infrastructure is planned and implemented for the full footprint of the proposed Airport Business Park expansion (i.e. up to 41ha). They argue that a partial zoning will not provide the certainty required to implement the long term infrastructure planning, including future road links to/from the Airport and that there are sound planning, infrastructure and economic development grounds to include the full footprint of the Business Park precinct in a Planning Proposal.

King and Campbell propose that a legal mechanism be established, in conjunction with a Planning Proposal and the preparation of Section 94 and Section 64 Contributions Plans under the *Environmental Planning and Assessment Act 1979* and *Local Government Act 1993* respectively, to rezone the full footprint of the Airport Precinct Investigation Area. They consider that this will provide Council with the ability to stage the release of land in the precinct for future development and propose that the terms of the legal mechanism, including the associated timeframes for the staging of development, be negotiated between the relevant parties.

King and Campbell suggest that this is a similar approach to that applied by Council to rezone the Warlters Street Schools site to B3 Commercial Core in 2010. In that instance, the planning agreement entered into between Council and the Catholic Church restricted development of the B3 land to agreed timeframes which had been determined in an economic impact assessment report.

There are no examples in Council's planning for growth in the past 10 years in which land has been zoned where essential infrastructure needs may not be able to be met. In the cited case of the Warlters Street land, the planning agreement related to the timing of development based on forecast land demand and nothing else. All other infrastructure was able to be provided.

The potential economic importance of the Airport Business Park is acknowledged in accordance with local and regional strategic planning. However, in this case, the Hastings River Drive/Boundary Street intersection has absolute limits as the only

access point to the proposed Business Park expansion and there is currently no clear evidence that alternative access arrangements can be physically provided in the future, including a secondary road link.

The proposed use of a legal mechanism to stage land release is therefore not appropriate as it does not guarantee that a secondary road link can be provided to the Oxley Highway. It is not appropriate to zone land that may not be able to be serviced with road infrastructure until satisfactory arrangements for that infrastructure are in place.

On this basis, the maximum amount of B7 Business Park land that can be recommended is 20.5 ha gross developable land, based on the traffic assessment discussed in Part 2B above.

PART 3: PLANNING CRITERIA

Based on the assessment of key issues in Part 2, it is considered that Council can support an expansion of the Airport Business Park up to 20.5 ha. The question is: *Where should this 20.5 ha of B7 land be located?*

To assist in determining the relative merit of land in the Investigation Area for rezoning, five planning criteria have been applied to evaluate the potential Business Park sites within the Airport Precinct, as follows:

1. Existing planning provisions applying to the land and the relationship to future Airport operations
2. Capacity to limit or address potential environmental constraints
3. Co-ordination with other land in the Precinct, e.g. access arrangements
4. Capacity to deliver necessary infrastructure, including improvements to major transport corridors, and
5. Capacity to deliver affordable employment land to facilitate market choice.

These criteria are based on planning principles for industry in the UGMS, which are:

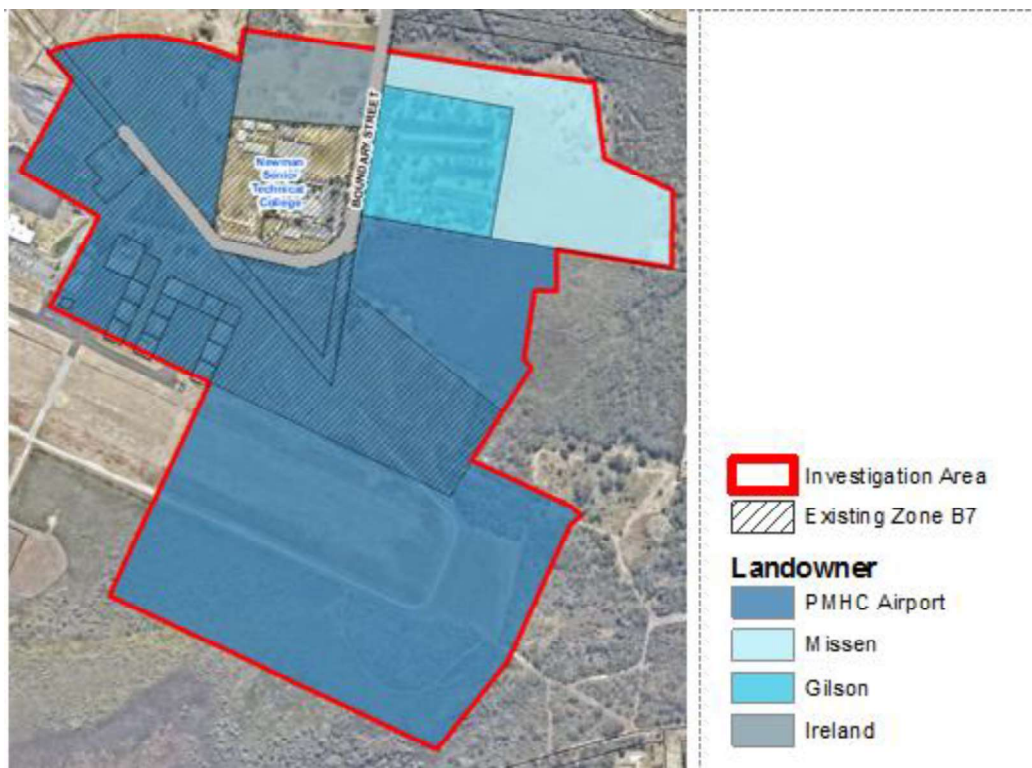
- *To provide opportunities for a range of industrial development types, in a variety of locations, generally in close proximity to urban centres and services, to service the needs of a growing population and export markets.*
- *To provide sufficient zoned industrial land to facilitate market choice, maintain affordability, and allow for expected loss of yield due to constraints.*
- *To provide industrial land to service market demand on land that is appropriate located with regard to:*
 - *the proposed urban settlement pattern (i.e. settlement areas, markets, transport & access),*
 - *environmental constraints, and*
 - *cost effective provision of urban services and infrastructure.*

Council D&E have used the planning criteria to assess the capability and suitability of land within the Airport Precinct Investigation Area to arrive at a conclusion as to where the 20.5 ha of B7 land should be located. Capability considerations relate to the physical attributes of the land and the risks of degradation associated with the

proposed Business Park use. Suitability considerations include other factors such as economics, infrastructure requirements, conflicting and complementary land uses and the planning policy framework.

The planning criteria have been circulated to precinct landowners and submissions invited to help inform this assessment. Submissions addressing the criteria have been received from King and Campbell for PMHC Airport and from Land Dynamics for Missen. Copies of the landowners' submissions are at **Attachments 13** and **14**, respectively and the key points raised are discussed in the assessment below.

All land within the Airport Precinct has been assessed against the planning criteria to determine which areas of the precinct should be prioritised for detailed rezoning investigations. Land ownership in the Investigation Area is shown below.



Criterion No. 1

Existing planning provisions applying to the land and the relationship to future Airport operations

- PMHC Airport land

The PMHC Airport property is the largest site in the Investigation Area (approx. 48 ha) and is currently zoned partly B7 Business Park, partly SP2 Airport Infrastructure and partly E2 Environmental Conservation.

King and Campbell have submitted a rezoning concept plan on behalf of PMHC Airport (**Attachment 15**), which takes into account the footprint of the existing B7 Business Park zone, the *Port Macquarie Airport Master Plan* and existing operations of the Port Macquarie Airport.

The concept plan shows a southerly extension of Boundary Street and potential for future secondary flood free access to the Oxley Highway. It proposes that all Council owned land on the western side of Boundary Street be rezoned to SP2 Airport Infrastructure for use in conjunction with Airport operations and that all Council owned land on the eastern side of Boundary Street be rezoned to B7 Business Park.

In summary, the submission:

- Notes that there is currently 25.53 ha of B7 Business Park zoned land within the PMHC Airport investigation area, of which 13.3 ha is undeveloped.
- Proposes to rezone 17.04 ha of the existing B7 zoned land on the western side of Boundary Street to SP2 Airport Infrastructure. This area includes 8.39 ha of B7 land occupied by Airport related uses and 8.65 ha of undeveloped B7 land.
- Proposes to rezone additional land on the eastern side of Boundary Street (19.1 ha) to B7, over and above the existing B7 zoned land on the eastern side of Boundary Street (4.65 ha), taking the overall proposed B7 footprint on Council owned land to 23.75 ha in area.

King and Campbell also note that their concept recognises the close linkage between the PMHC Airport land on the western side of Boundary Street and the current and future Airport operations and suggests that this land is more appropriately zoned SP2 Airport Infrastructure given its close proximity to Airport operations.

- Missen land

The Missen property has a total area of 12.75 ha and is currently zoned partly RU1 Primary Production and partly E2 Environmental Conservation. Land Dynamics have submitted a development concept on behalf of Missen (**Attachment 16**) that proposes a footprint of approximately 4.2 ha within the Investigation Area for either Zone IN1 General Industrial, or Zone B7 Business Park.

The submission from Land Dynamics does not specifically address the relationship to existing or future Airport operations. Development of the Missen property could take place without any direct impact on Airport operations.

- Gilson land

The Gilson property comprises an area of approximately 4 ha and is currently zoned RU1 Primary Production. The land has a frontage of approximately 200m to Boundary Street that provides opportunities for access off Boundary Street without any direct impact on Airport operations.

- Ireland land

The Ireland property is currently zoned RU1 and has a total area of 4.3 ha, of which approximately 2.5 ha falls within the Airport Precinct Investigation Area. Located on the eastern side of Boundary Street, the land adjoins Newman College to the north and PMHC Airport airside land to west. The site has access off Boundary Street, with no direct impact on Airport operations.

Comment:

The PMHC Airport land has the greatest potential for direct integration between landside and airside activities. It also contains a significant amount (13.3 ha) of existing undeveloped Zone B7 land which is proposed to be relocated as part of the expanded B7 Business Park zone.

King and Campbell's proposal of retaining Airport related uses east of Boundary Street and consolidating Business Park uses west of Boundary Street is generally consistent with the *Port Macquarie Airport Master Plan*. Accordingly, it is considered that the consolidation of Zone SP2 land on the western side of Boundary Street is reasonable and reflective of the appropriate use of this land.

Therefore in terms of Criterion No. 1, it is considered that the PMHC Airport land provides the most logical location for an expansion of the existing B7 Business Park zone, followed by the Gilson, Ireland and Missen properties in order of land suitability, due to proximity to Boundary Street and existing B7 zoned land.

Criterion No. 2***Capacity to limit or address potential environmental constraints***

- PMHC Airport land

Large parts of the PMHC Airport land are unconstrained in terms of biodiversity impacts. Environmental impacts associated with rezoning and developing the land have been addressed in the approved Biodiversity Certification Assessment and Strategy for the Port Macquarie Airport and surrounding land.

The flooding constraints relating to the 1:100 year flood do not apply to the PMHC Airport land. Only minor filling will be required to achieve flood planning levels on the fringe areas in the north and south of the site, in accordance with the *Port Macquarie-Hastings Flood Policy 2015*.

- Missen land

The eastern area of the development footprint proposed by Land Dynamics has previously been mapped by Biolink Pty Ltd as being affected by medium level Wallum Froglet activity. In support of a rezoning Land Dynamics have submitted a *Threatened Species Seven Part Test Assessment* report.

The assessment report concludes that removing the potential non-breeding Wallum Froglet habitat for the proposed footprint will have a negative impact by reducing connectivity between two local populations. Recommended mitigation measures include retaining a link with new breeding habitat approximately 100m wide in the east of the site and allowing rehabilitation to structured forest, together with effective stormwater treatment, as the Wallum Froglet species is sensitive to water quality.

Council's Environmental staff have reviewed the assessment report and advised that they are generally supportive of the proposed footprint, subject to an assessment of other relevant matters identified by Biolink and not addressed in the Seven Part Test Assessment (i.e. native vegetation loss, hollow-bearing trees, environmental buffer requirements & habitat to the Little Bent-Winged Bat & Koala food trees). Details

about how it is intended to secure and manage the residue environmental lands as offset will also be required to support a rezoning.

During a meeting with Council staff on 16 February 2016, Land Dynamics advised that the landowner is not willing to commission any further ecological work to progress a rezoning. It was suggested that the initial ecological assessment report submitted with the landowner's initial rezoning application and based on an earlier concept, would suffice. Council staff recommended that the 2005 assessment report, together with the work completed by Biolink Pty Ltd in 2012, be consolidated and updated to address current State government requirements to support a Planning Proposal.

The Missen property is subject to flooding from the local catchment and the Hastings River in a 1:100 year flood. As such, any proposed development is to have regard to the *Port Macquarie-Hastings Flood Policy 2015* including the permitted development areas in Figure 2 of the policy, as shown below.



Council's Environment section has advised that the blue hatched area is an absolute minimum as flood storage which is required to manage the local Clifton Drive catchment and is considered to have no practical development potential.

As the proposed footprint for the Missen property extends into the blue hatched area, a detailed Flood Study and modelling will be required to support a rezoning to demonstrate that the encroachment will not raise the flood level by more than 10mm or change the velocity of flows.

For development to meet flood planning levels, the proposed footprint will need to be filled to a height of 3.7m AHD. As there is no source of fill on the site, all fill will need to be imported. In correspondence dated 23 July 2015, Land Dynamics estimated that 146,993m³ of fill (based on an earlier but similar concept plan) will be required to achieve the flood planning level. This volume equates to approximately 2,670 truck and dog movements.

To confirm how much of the property needs to be stripped off before filling can occur (i.e. existing soil may not be able to take compaction) and to consider the likely impacts on groundwater, a geotechnical assessment will be required to support a Planning Proposal to rezone the land. A detailed estimate of total fill volumes to assess total truck movements and anticipated impact on the road network would be required at the subsequent development assessment stage.

- Gilson land

There are no known ecological constraints on the Gilson property, which has previously been used for aquaculture. However, the land is subject to flooding and fill requirements, as discussed for the Missen property above.

- Ireland land

The Ireland property is mostly cleared but does contain a hollow bearing tree previously identified by Biolink, which would need to be assessed and managed as part of any Planning Proposal.

Development of the property will also require fill due to flooding. A moratorium presently exists on filling the land in this location, pending finalisation of the Hibbard Floodway Investigation, which is currently underway. Following a decision on the final floodway alignment through Hibbard West, the moratorium may be lifted.

Comment

In terms of biodiversity, the normal principle is to avoid impacts where possible, mitigate impacts on-site where it is not possible to avoid, and offset impacts elsewhere if it is not possible to avoid or mitigate impacts on-site. On this basis, the parts of the study area most capable for development in terms of biodiversity are:

- a) The central cleared parts of the PMHC Airport property, and
- b) The Gilson, Missen and Ireland properties.

As noted above, there are some knowledge gaps in relation to biodiversity constraints relating to the Missen and Ireland properties, including details about how it is intended to secure and manage residue environmental lands. The impacts on biodiversity and offsetting arrangements for development on the PMHC Airport property are known through the approved Biodiversity Certification Assessment and Strategy.

In relation to flooding, the PMHC Airport land is considered preferable as the proposed Zone B7 area is located above the predicted 1:100 year flood level. The PMHC Airport land does not require extensive fill, as required for the other landholdings, involving a large number of truck movements, impacts on the road network, detailed monitoring regarding fill suitability and quality and, in the case of the Ireland and Missen properties, an assessment of impacts on flood flows and storage in surrounding areas.

In conclusion regarding environmental constraints, the most logical location for an expansion of the existing B7 zone is considered to be the PMHC Airport property, followed by the Gilson; Missen and then Ireland properties, in order of land capability.

Criterion No. 3***Co-ordination with other land in the precinct, e.g. access arrangements***

- PMHC Airport land

The concept plan for the PMHC Airport land shows the potential for coordinated access to existing and proposed future development to the north and west via Boundary Street. Access options are also provided via future road links to the south (as an extension of Boundary Street), to the south-east (to Lady Nelson Drive) and to the east (to The Binnacle), subject to further detailed investigation. These potential links have also been included in the Biodiversity Certification of Council's land.

The King and Campbell submission notes that the proposal for PMHC Airport provides a major intersection Gateway to the Port Macquarie Airport and associated uses and potential to link to the adjoining northern lands in the Investigation Area in the future.

- Missen land

The Land Dynamics concept shows a battle-axe access via the property's 100m frontage off Boundary Street adjacent to the northern boundary of the adjoining Gilson site. Land Dynamics have suggested that vehicle access is also available along the northern portion of the site via an existing road reserve with potential linkages to Hastings River Drive.

Access along the currently unformed road reserve and connection to Hughes Place, as an alternative or additional connection to the Airport Precinct, has previously been considered and dismissed due to ecological impacts (i.e. the road would cross State Environmental Planning Policy Coastal Management 2018 wetland & Endangered Ecological Communities) and the likely transfer of traffic congestion to the Hughes Place intersection. It has therefore been assumed by Council D&E and T&SN staff for the purpose of transport planning, that all access to the Airport and proposed Business Park Precinct will be via Boundary Street.

The internal road layout shown on the Land Dynamics concept provides for connectivity to PMHC Airport's concept road network to the south. The cul-de-sac access in the east of the Missen footprint is not considered to be suitable to service light industrial or large floorplate campus style Business Park development. A loop or perimeter road, which would also address issues relating to bushfire hazard, stormwater run-off and environmental edge effects, would be required as part of any proposed development.

The concept road layout does not provide for any future integration with the adjoining Gilson property to the east. Land Dynamics suggest that it is not necessary for the Missen and Gilson lands to be developed together, with both enjoying road frontage to Boundary Street, and with both properties being of adequate size and shape to accommodate development in their own right, subject to a variation of Council's environmental buffer requirements for the Missen land.

One the key ingredients in creating a successful Business Park for the Airport Precinct is to ensure that future development occurs in a coordinated and strategically sound way that will enhance the function, amenity and overall integration of development within the Precinct. If the Missen property is to be included as part of

a future B7 zone, there should be coordination of subdivision layout and internal road design to cater for a range of light industrial and large floorplate Business Park uses, in addition to enhanced connectivity to other businesses in the Precinct.

Coordination is also desirable in relation to filling and the delivery of service infrastructure to the Missen and Gilson sites.

- Gilson land

The Gilson property has a regular shape and a 200m frontage to Boundary Street. This land has potential to act as a key gateway site on the northern approach to the precinct and could be developed in isolation. However, it provides only 4 ha of potential B7 land and coordination with adjoining property would also be a key issue, as discussed for the Missen land above.

- Ireland land

The Ireland property is relatively small but has direct access to Boundary Street and may provide an opportunity for connections to Newman College in the future.

Comment

In terms of Criterion No. 3, all properties within the Investigation Area have access to Boundary Street and could be coordinated to provide linkages to surrounding properties and existing land uses in the precinct. The PMHC Airport land also provides opportunities for potential linkages to the south and east of the Airport which may assist in achieving flood free access to the Airport and important connections from an economic development perspective.

The PMHC Airport land has potential to provide 20.5 ha of B7 land and is therefore considered to be suitable in terms of coordination issues, followed by the Gilson, Ireland and Missen properties, in order of preference. The Missen property is considered to be the least suitable site due to its battle-axe frontage, irregular shape for potential development and more complex relationship with surrounding properties in the current development concept.

Criterion No. 4

Capacity to deliver necessary infrastructure, including improvements to major transport corridors

- PMHC Airport land

The King and Campbell submission notes that the Biodiversity Certification Assessment and Strategy includes three potential future road links to the south, the south-east and to the east. Each of these potential future road links will provide flood free access to the Airport. They will also provide an important major north-south linkage between Hastings River Drive, the Oxley Highway and the Port Macquarie CBD.

As discussed in Part 2C of this report, Council T&SN is currently undertaking preliminary investigations for a secondary access link to the Airport. At this stage however, no certainty exists that the required road infrastructure to serve more than 20.5 ha of gross developable B7 Business Park land can be provided at any point in the future. However, the PMHC Airport proposal does make provision for partial

construction of a future road network that may incorporate a secondary access, or accesses, in the future.

King and Campbell has previously submitted a Stormwater Management Plan (SMP) to support a rezoning of the PMHC Airport land. The SMP considers potential impacts on stormwater quality and quantity and recommends implementation of a stormwater treatment train approach, primarily using bio-retention basins/swales centrally located within the proposed road network. A maintenance plan has been formulated as part of the SMP to assist in the establishment and continued operation of the proposed stormwater treatment infrastructure, including recommendations on species selection and maintenance intervals.

This stormwater concept has been assessed by Council T&SN and is considered to provide a satisfactory response to stormwater management issues to support a Planning Proposal.

The Port Macquarie Airport and existing developed Business Park lands are currently serviced by reticulated water supply. The Airport Precinct can be serviced by water supply subject to augmentation of a connection from the Oxley Highway around the northern edge of the racecourse in Lady Nelson Drive.

Based on modelling undertaken by Council's Water and Sewer and assuming preliminary densities provided by King and Campbell, the design provides for a 250mm water main from the Oxley Highway to the eastern perimeter of the PMHC Airport land, reducing to 200mm and connecting to an existing 150mm main in Boundary Street, with 150mm mains providing internal reticulation and connecting through to the existing supply points in Boundary Street. The design incorporates water supply security to the proposed PMHC Airport land, as well as to the remaining lands in the Investigation Area from two directions. This is considered to be satisfactory to support a Planning Proposal.

A Sewer Strategy prepared by King and Campbell for PMHC Airport provides for two sewer pump stations at a depth of approximately 5m. The Strategy is reflective of proposed staging to make the most of the initial sewer pump station in Boundary Street, with a second sewer pump station required in the south as part of stage two. The strategy also makes provision for an additional pump station or filling at the time of developing the northern investigation lands, subject to rezoning.

A Geotechnical Assessment report prepared for PMHC Airport by RGS consultants, has identified that there will be construction issues relating to depth of excavation, high water table, existence of the coffee rock and potential and actual acid sulphate soils. More detailed geotechnical assessment will be required at the subsequent development assessment stage to inform the final design for sewerage infrastructure. The Assessment report also recommended that an Acid Sulfate Soils Management Plan be prepared as part of the approval process associated with the construction of the proposed Sewer Pump Stations and the reticulated sewerage infrastructure.

Site specific development control provisions will require that future Development Applications include detailed investigation of geotechnical conditions and groundwater levels to assess any limitations for development and associated infrastructure construction.

- Missen land

The submission from Land Dynamics notes that preliminary concept plans have previously been submitted showing sewer, water supply and stormwater infrastructure to service the proposed development footprint for the Missen property.

The water supply concept indicates that the property is dependent on both a connection via PMHC Airport's adjoining land to the south and from Boundary Street. The sewer concept shows a connection to a proposed Sewer Pump Station on the adjacent Ireland property. Council's Water and Sewer section requires that major infrastructure (i.e. sewerage pumping stations) in flood prone areas be located above the 1:100 year flood level.

The stormwater concept indicates a series of pipes and a vegetated swale to direct stormwater drainage into one of three bio-retention basins proposed in the east and north of the property. Council T&SN has advised that it would be preferable to combine the proposed two easternmost bio-retention basins into one facility to minimise the future maintenance liability for Council as the owner of stormwater infrastructure.

Council T&SN has also advised that as the adjoining Gilson property is subject to overland flooding from Boundary Street, consideration will need to be given to capturing and diverting this runoff either through or around the proposed Missen footprint, if developed ahead of the adjoining Gilson land.

As noted under consideration to Criterion No 2, the Wallum Froglet species is sensitive to water quality. Council's Environment section has advised that stormwater infrastructure is to be designed to either discharge into non-Wallum Froglet habitat (preferred), or discharge into Wallum Froglet habitat using a pH treatment train to ensure pH water quality matches the natural variation currently experienced in this habitat. The latter option may require larger than normal stormwater treatment area with the provision of Swamp Forest vegetation to achieve a corrected pH prior to discharge.

Detailed strategies for sewer servicing, water supply and stormwater management will be required to support a Planning Proposal for the Missen land. There will be staging and sequencing issues to be addressed if infrastructure is to be provided across multiple landowners/properties.

- Gilson and Ireland lands

The same principles and conclusions as outlined for the Missen property above apply regarding sewer servicing, water supply and stormwater management for any rezoning of the Gilson and Ireland lands.

Comment:

Future development within the Airport Precinct Investigation Area will depend on the extension of infrastructure, particularly water and sewer and upgrade of Boundary Street. The PMHC Airport concept provides potential for partial construction of a future road network that may incorporate a secondary access or accesses to the Oxley Highway in the future. The sewer, water and stormwater concepts provided on behalf of PMHC Airport and Missen indicate that all land within the investigation area is able to be serviced but staging and sequencing will be important considerations.

Therefore in terms of Criterion No. 4, the PMHC Airport land is considered to be the most suitable, followed by the Missen, Gilson and Ireland lands, in no particular order of preference.

Criterion No. 5***Capacity to deliver affordable employment land to facilitate market choice.***

- PMHC Airport land

Key issues relating to the affordability of the employment land relate to the cost of the delivery of infrastructure including:

- Boundary Street road infrastructure improvements
- Reticulated sewerage services
- Reticulated water supply services, and
- Catchment based stormwater drainage management facilities.

Based on the 20.5 ha of gross developable land that can be supported and given that servicing the PMHC Airport land does not require extensive fill, it is considered that this site is more likely to provide affordable employment land. The land also has the benefit of being able to provide 20.5 ha within one ownership, providing greater certainty regarding development costs.

- Missen, Gilson and Ireland lands

As discussed under Criterion No. 2, the Missen, Gilson and Ireland lands require significant volumes of fill to create a platform suitable for development. Although Council has requested supporting information regarding these costs, a great deal of uncertainty remains about the feasibility of the filling works and the costs involved, including funding towards damage to Council's road network.

Comment

It is expected that the cost of developing flood prone land will be greater due to the fact that these properties require extensive fill prior to development. In terms of criterion No. 5, the PMHC Airport land is considered suitable to deliver affordable employment land and to facilitate market choice, followed by the Gilson, Ireland and Missen properties, in no particular order of preference.

PART 4: CONCLUSIONS AND OPTIONS

The assessment of the potential sites against the evaluation criteria indicates that the PMHC Airport property is the most capable and suitable land to supply 20.5 ha of gross developable Business Park zoning in the precinct. This land has a number of clear advantages that distinguish it from the other sites as follows:

- Ability to incorporate existing undeveloped Zone B7 land into the footprint.
- Close proximity and linkages to the current and future Airport operations.
- Large site area in one ownership providing clear opportunities to accommodate large footprint Business Park development.
- Availability of flood free land avoiding the need for significant filling works.

- Ecological issues associated with rezoning and future development have already been addressed through the biodiversity certification process.
- Potential for partial construction of a future road network that may incorporate a secondary access or accesses to the Oxley Highway in the future.

Further consultation with PMHC Airport on the gross development area forming the basis of a Planning Proposal will be required, but on balance the assessment of the planning criteria indicates that the PMHC Airport land is the most viable option to provide for future Business Park lands in the precinct.

The remaining lands have some reasonable potential and will be worthwhile investigating in the longer term if a future secondary link road access becomes available and take up of the Business Park indicates that this is warranted from a strategic land use planning perspective.

Options

The following options are available to Council:

1. Not identify any land for the preparation of a Planning Proposal.
2. Defer consideration of a Planning Proposal pending further work.
3. Proceed as recommended.
4. Proceed with the preparation of a Planning Proposal for alternative land.

Having regard to the extensive work undertaken to date, including lengthy consultation with landowners and their representatives, option 3 is the preferred option.

Community Engagement & Internal Consultation

As detailed in the 'Background' section of this report, there has been significant consultation with precinct landowners concerning land use planning for the Airport investigation area. The landowners have been notified of this matter being reported to Council.

Internal consultation in relation to this matter has also occurred with managers and staff of Council's Transport and Stormwater Network, Water and Sewer, Environment, and Contribution Planning teams.

If resolved by Council as recommended, the next step is to undertake more detailed consultation regarding configuration of zones and content of Local Environmental Plan (Planning Proposal) changes based generally on the concept submitted for Council by King and Campbell (at Attachment 15). A further report is proposed to be presented to Council in February 2019, subject to the outcomes of that consultation.

Planning & Policy Implications

The proposal to rezone land within the Airport Precinct investigation area for Business Park development, as discussed in this report, is consistent with the *North Coast Regional Plan 2036* and the former 2011-2031 and adopted 2017-2036 *Port Macquarie-Hastings Urban Growth Management Strategy*.

Under the *Port Macquarie-Hastings Local Environmental Plan 2011* the B7 Business Park zone allows office premises as well as light industrial uses. This use of the zone is a response to the changing nature of manufacturing, industry and business services in NSW and is considered appropriate, based on the assessment of the centres hierarchy, to optimise the future employment generating potential of the Airport precinct.

In preparing a Planning Proposal to rezone the proposed business park lands, consideration will be given to amending associated development standards (i.e. floor space ratio, height of buildings & lot size). A review of the Zone B7 Land Use Table will also occur to ensure that the uses listed as Permitted with consent are consistent with the main intent of the zoning.

Furthermore, development control plan provisions will need to be prepared to provide detailed guidance for future development of the precinct. High quality urban design and landscaping (having regard to operational requirements of the Airport) that contributes to the creation of an attractive streetscape and amenity, is intended to reflect the significant gateway status of the precinct. The provisions will also seek to minimise the environmental impacts of Business Park development.

Council is committed to ensuring a clear and transparent process for land use decision-making. Therefore, Cardno (NSW/ACT) Pty Ltd were engaged by Council D&E to undertake an independent review of Council's planning processes relating to the preparation of a Planning Proposal for the proposed Airport Precinct Investigation Area.

Cardno's Preliminary Probity review report (at Attachment 1) covers the period from 16 March 2016 to 7 November 2018 and considers whether the relevant planning processes have been followed and undertaken by the Council, and in particular the activities and tasks completed by Council D&E, in an unbiased way.

As part of this review and as detailed in the report, Cardno undertook a range of tasks, including:

- sighting documents, reports, technical studies, consultancy briefs, Councillor briefing material and meeting minutes
- confirming the confidentiality of sensitive information and internal file security arrangements
- reviewing Council D&E planning criteria for site assessment, and
- observing meetings between Council D&E and landowners.

In short, the report concludes that Cardno has not observed or detected evidence of partiality, bias or probity issues of concern in the planning process leading up to the presentation of this report to Council.

If Council resolves as recommended, a final Probity report by Cardno will review the processes involved in the preparation and public exhibition of a Planning Proposal for the Airport Precinct Business Park.

Financial & Economic Implications

Based on the economic assessment attached to this report (Hill PDA reports Attachments 4 & 6), there are no significant economic impacts expected on the

existing and proposed hierarchy of business centres in the Port Macquarie-Hastings in rezoning up to 20.5 ha of land within the Airport Precinct Investigation Area.

The cost of servicing Business Park development in the precinct and the risk associated with the upfront funding of servicing will be significant. The major infrastructure costs that will require a resolution relate to road infrastructure, sewer servicing, water supply and stormwater.

There is currently work being undertaken on Boundary Street by Council and further work is possible (e.g. in relation to secondary access roads to the Airport). Infrastructure requirements would need to be assessed and resolved in conjunction with any future Development Application for subdivision/development of the proposed Business Park lands.

Attachments

- 1[View](#). Preliminary Probity Review report Nov 2017
- 2[View](#). GEM Planning and J Jeayes submissions
- 3[View](#). Airport Master Plan concept
- 4[View](#). HillPDA assessment Nov 2016
- 5[View](#). Gillespie Economics Review
- 6[View](#). HillPDA review of Gillespie review
- 7[View](#). TPS Group traffic report Dec 2015
- 8[View](#). TSN review of 2015 traffic report
- 9[View](#). TPS Group traffic report Jun 2016
- 10[View](#). TSN review of 2016 traffic report
- 11[View](#). SLR peer review
- 12[View](#). TSN review of SLR report
- 13[View](#). King and Campbell submission to planning criteria
- 14[View](#). Land Dynamics submission to planning criteria
- 15[View](#). King and Campbell rezoning concept
- 16[View](#). Land Dynamics development concept

12.07 PLANNING PROPOSAL: LOT 14 DP 240042 PIONEER STREET, NORTH HAVEN - CONSIDERATION OF SUBMISSIONS

Mr Anthony Thorne, King & Campbell Pty Ltd, representing landowners Robert & Neil Tate, addressed Council in support of the recommendation.

RESOLVED: Intemann/Hawkins

That Council:

1. As a result of the consideration of submissions, amend the Planning Proposal as outlined in the report to extend the area of E2 Environmental Conservation zoned land in the southern part of the site to protect habitat for the Squirrel Glider.
2. Subject to approval under Item 1 above, take the necessary steps under section 3.35 and 3.36 of the Environmental Planning and Assessment Act 1979 (the Act) to finalise Local Environmental Plan 2011 (Amendment No 25).
3. Delegate authority to the Director Strategy and Growth to make any minor amendments to the Planning Proposal in finalising the Local Environmental Plan.
4. Notify all persons who lodged submissions and provide information of the meeting outcome.

CARRIED: 8/0

FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido and Pinson

AGAINST: Nil

12.09 AIRPORT PRECINCT INVESTIGATION AREA - SITE SELECTION FOR PROPOSED BUSINESS PARK

Councillor Cusato declared a Pecuniary Interest in this item, left the room and was out of sight during the Council's consideration, the time being 7.12pm.

Mr Anthony Thorne, King & Campbell Pty Ltd, representing Council as the owner of the Port Macquarie Airport, addressed Council in support of the recommendation.

RESOLVED: Levido/Hawkins

That Council:

1. Notes the assessment in this report and confirms that the Council owned land within the Port Macquarie Airport Precinct Investigation Area, as shown coloured light brown in Attachment 15, is the most suitable land to supply 23.75 hectares of gross developable Business Park zoning in the Airport Precinct Investigation Area.
2. Receive a further report to the February 2019 Council meeting in respect of a Planning Proposal for the Council owned land as identified in 1 above.
3. Advise landowners within the Airport Precinct Investigation Area of the outcome of this decision.

CARRIED: 7/0

FOR: Alley, Dixon, Griffiths, Hawkins, Intemann, Levido and Pinson

AGAINST: Nil

Councillor Cusato returned to the meeting, the time being 07:24pm.

09.01 STATUS OF REPORTS FROM COUNCIL RESOLUTIONS

Councillor Hawkins left the meeting, the time being 07:25pm.

RESOLVED: Griffiths/Intemann

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

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Griffiths, Intemann, Levido and Pinson
AGAINST: Nil

09.02 REQUEST FOR LEAVE OF ABSENCE - MAYOR PETA PINSON

RESOLVED: Dixon/Alley

That Council:

1. Grant leave of absence for Mayor Peta Pinson for the period 21 February to 17 March 2019 inclusive.
2. Note that in accordance with Section 231(3) of the Local Government Act, the Deputy Mayor will perform all duties of the Mayor during this period.
3. Allocate the Mayoral allowance to the Deputy Mayor during this period in accordance with Section 249(5) of the Local Government Act.

CARRIED: 7/0
FOR: Alley, Cusato, Dixon, Griffiths, Intemann, Levido and Pinson
AGAINST: Nil

09.03 NOTICE OF MOTION - COUNCILLOR PORTFOLIO PROTOCOL

Councillor Hawkins returned to the meeting, the time being 07:27pm.

RESOLVED: Intemann/Alley

That Council:

1. Request the General Manager amend the Councillor Portfolio Protocol to remove participation by the Mayor, as per the Mayor's recent request.
2. Request the General Manager table the amended Councillor Portfolio Protocol at the December 2018 Ordinary Council Meeting for consideration.

CARRIED: 7/1
FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Pinson
AGAINST: Griffiths

Appendix B – Proponent’s Planning Proposal Request

Planning Proposal
Port Macquarie Airport Lands,
Airport Business Park and
Thrumster Area 13 Urban Release Area
Port Macquarie

Prepared for:

Port Macquarie-Hastings Council

Prepared by:

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Date: May, 2019

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Appendix A – Site Context Plan – King & Campbell

Appendix B – Proposed Zone Plan – King & Campbell

Appendix C – Economic Impact Analyses:

Attachment 1 - Hill PDA Land Use Assessment, November 2016;

Attachment 2 - Gillespie Economics Review of Hill PDA Demand Forecasts for Port Macquarie Airport Business Park 24042017;

Attachment 3 – Airport Business Park – Supplementary Strategic Property Advice from Augusta 2017; and

Attachment 4 – Hill PDA Review of Submissions from King and Campbell, July 2017.

Appendix D – Traffic Studies and Reviews

Attachment 1 - TPS Report, 27 June 2016 TPS31 RF16;

Attachment 2 – Concept subdivision layout showing hypothetical development scenario;

Attachment 3 – PMHC TSN Review of TPS Report, September 2016;

Attachment 4 – SLR Peer Review 620.11821-R01-v2.0;

Attachment 5 – K&C 5271_115_Planning Response;

Attachment 6 – 5271P_Development Areas_20170428; and

Attachment 7 – Item 12.09 Agenda 21 November 2018.

Appendix E – Biodiversity Certification – Office of Environment and Heritage

Appendix F – Aboriginal Heritage Assessment - Birpai Local Aboriginal Land Council

Appendix G – Geotechnical Assessment – Regional Geotechnical Solutions

Appendix H – Concept Sewer Strategy – King & Campbell

Appendix I – Concept Stormwater Management Plan – King & Campbell

Appendix J – Port Macquarie Airport Masterplan Addendum Report

Appendix K – Independent Review - Cardno

[Appendix L – Strategic Context and Summary of the Key Issues identified in the report to the PMHC Meeting of 21 November, 2018](#)

SECTION 1 – EXECUTIVE SUMMARY

1.1 Introduction

This Planning Proposal has been prepared to support a proposed amendment to the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011) with respect to the Port Macquarie Airport Lands, the Port Macquarie Airport Business Park and the Council owned lands within the Thrumster Area 13 Urban Release Area, Port Macquarie, as identified on Exhibit 1.

SECTION 1 provides an executive summary, including relevant background information to the site with respect to the key issues. A detailed review of the strategic context and key issues identified in the report to the PMHC Meeting of 21 November, 2018 is provided at Appendix L.

SECTION 2 is the Planning Proposal. Section 2 is consistent 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 2016* and *A guide to preparing local environmental plans 2016*. Section 2. The Planning Proposal provides for the following:

PART 1 – Objectives or intended outcomes

PART 2 – Explanation of provisions

PART 3 – Justification

Section A – Need for the planning proposal

Section B – Relationship to strategic planning framework

Section C – Environmental, social and economic impact

Section D – State and Commonwealth interests

PART 4 – Mapping

PART 5 – Community consultation

PART 6 – Project timeline

1.2 The Site

This Planning Proposal relates to lands that are owned by Port Macquarie-Hastings Council, and also includes a small area of Crown Land that is impacted by the Airport OLS (*the site*).

The land to which the Planning Proposal applies (*the site*) is identified on Exhibit 1 and includes:

1. The Port Macquarie Airport Lands (Airport Lands), including lands impacted by the CASA Code 4C aerodrome standards for the Airport OLS and the Conservation Lands (future Biobank site) that have been established through the *Order conferring biodiversity certification – Port Macquarie Airport and surrounding land*;
2. The Port Macquarie Airport Business Park (ABP); and
3. Council's landholdings within the Thrumster Area 13 Urban Release Area (Area 13 URA).

This Planning Proposal is underpinned by the *Order conferring biodiversity certification – Port Macquarie Airport and surrounding land*, as published in the NSW Government Gazette of 7 September, 2018 (see Appendix E for the Order).

The Port Macquarie Hastings Council (PMHC) rationale for undertaking the biodiversity certification is to ensure an on-going strategic and sustainable approach to the management and offsetting of any environmental impacts associated with the long-term operation and future development of essential infrastructure related to *the site*.

The site for the purposes of this Planning Proposal represents a footprint of approximately 759.7 ha, or 74% of the lands that were assessed for biodiversity certification. The *Biodiversity Certification Assessment Area* (BCAA) in context with *the site* is illustrated on the site context plan at Appendix A.

The biodiversity certification results in the biodiversity issues associated with this Planning Proposal and subsequent Development Applications for the Airport Lands, the ABP and the Area 13 URA having already been assessed and offset.

1.2.1 Exhibit Plan Set

The following exhibit set identifies the lands the subject of this Planning Proposal in the following manner:

Exhibit 1 – Identification of lands the subject of this Planning Proposal:

This plan shows the boundary of the Planning Proposal and identifies the following lands:

- Port Macquarie Airport Lands (including lands impacted by the CASA Code 4C aerodrome standards for the Airport OLS and the Conservation Lands (future Biobank site) that have been established through the Order conferring biodiversity certification – Port Macquarie Airport and surrounding land);
- Port Macquarie Airport Business Park; and
- Thrumster Area 13 Urban Release Area.

Exhibit 2 – Existing zoning and context:

This plan shows the existing zones that apply to the lands the subject of this Planning Proposal together with the boundaries of the three (3) land areas.

Exhibit 3 – Proposed zoning and context:

This plan shows the proposed zones that will apply to the lands the subject of this Planning Proposal, including the following additional information that has been used to inform the proposed zones:

- The relevant Obstacle Limitation Surface (OLS) that applies to the airport operations; and
- The areas identified for conservation cropping to meet the OLS, where single trees will be selectively pruned (canopy), poisoned to prevent regrowth and retained as a stag for fauna habitat.

1.3 Strategic Intent of Planning Proposal

This Planning Proposal continues PMHC's strategic long term approach to planning for certainty with respect to:

1. The on-going operations of the existing Port Macquarie Airport (Airport Lands) in compliance with the CASA Code 4C aerodrome standards for the Airport OLS and the strategic objective to protect the existing airport infrastructure and ensure future airside and general aviation land uses;
2. The on-going protection and management of the Conservation Lands (future Biobank site) that have been established through the *Order conferring biodiversity certification – Port Macquarie Airport and surrounding land*, as published in the NSW Government Gazette of 7 September, 2018 (see Appendix E for the Order);
3. The development of an Airport Business Park (eastern side of Boundary Street) with a total gross land area of 23.75 ha to facilitate compatible and complementary development adjacent the Port Macquarie Airport as envisaged by the Airport Master Plan (refer Appendix G), achieving a long-term objective of ensuring the future supply of employment lands for the Port Macquarie Regional City, consistent with the North Coast Regional Plan 2036 ;
4. The planning of infrastructure services required to support the future development of the Port Macquarie Airport, the Airport Business Park and surrounding lands; and
5. The future residential and industrial development of the Council owned lands within the Thrumster Area 13 Urban Release Area (Area 13 URA) with respect to biodiversity issues.

1.4 Consultation and Probity

Cardno Pty Ltd was engaged by PMHC to prepare an independent review of the planning process undertaken by Council in relation to this Planning Proposal. A copy of the Preliminary Planning Process Review is included at Appendix K.

With respect to the ABP this Planning Proposal provides justification for the inclusion of 23.75 ha of gross land area within the B7 Business Park zoning. Additionally, this will include consideration of key issues raised in the PMHC staff report to the Council meeting on 21 November, 2018 in relation to:

- (Impacts on) Centres Hierarchy in Port Macquarie Hastings LGA;
- Traffic impacts; and
- Secondary access options to the Airport.

The strategic context applicable to these three (3) key issues is detailed at Appendix L.

1.5 Council Meeting of 21 November, 2018 and the Airport Business Park

At its meeting of 21 November, 2018, Port Macquarie Hastings Council resolved the following with respect to Item 12.09 – *Airport Precinct Investigation Area – Site Selection for Proposed Business Park*:

RESOLVED: Levido/Hawkins

That Council:

1. *Notes the assessment in this report and confirms that the Council owned land within the Port Macquarie Airport Precinct Investigation Area, as shown coloured light brown in Attachment 15, is the most suitable land to supply 23.75 ha of gross developable Business Park zoning in the Airport Precinct Investigation Area.*
2. *Receive a further report to the February 2019 Council meeting in respect of a Planning Proposal for the Council owned land as identified in 1 above.*
3. *Advise landowners within the Airport Precinct Investigation Area of the outcome of this decision.*

CARRIED: 7/0

FOR: Alley, Dixon, Griffiths, Hawkins, Intemann, Levido and Pinson

AGAINST: nil

The [staff](#) report to the Council meeting had recommended a gross area of 20.5 ha of land be rezoned to Business Park B7, based on the capacity of the existing road network [determined by](#) PMHC Transport & Stormwater Network (PMHC TSN). The recommendation was contained in [TSN's](#) review (refer Attachment 3 at Appendix D) of the future traffic modelling undertaken by TPS in their Traffic Engineering Report dated June 2016 (refer Attachment 1 at Appendix D).

Hill PDA (refer Attachment 4 at Appendix C) confirmed that the 20.5ha option, which was based on the estimated capacity of the existing road network including the intersection at Boundary Street and Hastings River Drive, is not likely to threaten the viability of existing commercial centres.

The resolution by Council recognised that the proposed 23.75ha Airport Business Park (i.e.; an additional 3.25ha) is similarly able to be absorbed into the capacity of the existing road network and is not likely to threaten the viability of existing commercial centres, noting the long-term (20+ years) context of this Planning Proposal.

This Planning Proposal will result in the implementation of the PMHC resolution on 21 November, 2018 by:

- Rezoning 19.1 ha of land on the eastern side of Boundary Street to B7 Business Park. When combined with the existing 4.65 ha of the land on the eastern side of Boundary Street that is already zoned B7 Business Park, the overall footprint of the B7 Business Park zone will be a gross area of 23.75 ha (refer Attachment 6 at Appendix D); and
- Rezoning 17.04 ha of the current B7 Business Park zone on the western side of Boundary Street to SP2 Airport Infrastructure. This includes 8.65 ha of currently undeveloped B7 land and 8.39 ha of land within the B7 zone that is occupied by Airport related uses (refer Attachment 6 at Appendix D)

The proposed B7 Business Park zone will result in an overall gross increase of 10.45 ha of undeveloped B7 land compared to the existing land areas.

Appendix L of this Planning Proposal provides the detailed justification, on both traffic/road network and economic impact grounds, for supporting the rezoning to create 23.75ha of gross developable ABP. A summary of this justification is provided below:

1.5.1 Traffic and Road Network justification

The capacity of the road infrastructure has been the subject of three reports, including TPS June 2016, PMHC TSN September 2016 and SLR Peer Review April 2017 (see Appendix D). The reports contrast various models and assumptions and recommend gross development areas ranging from 20.5 ha to 41.85 ha.

Based on the various traffic modelling and impact advice and the reviews of that work contained in Appendix D, the proposed rezoning of the revised ABP Footprint to 23.75 ha of gross land area can be supported as it is not likely to have unacceptable impacts on the capacity of existing road infrastructure.

This conclusion was confirmed following consideration of the following:

- The proposed gross area of the B7 Business Park zoning assessed in the initial TPS June 2016 report has been reduced from 41.85 ha (28.99 ha PMHC landholding and 12.86 ha other landowners) to the revised ABP Footprint of 23.75 ha on the PMHC landholding (the subject of this PP).
- The revised ABP Footprint (23.75ha gross) will result in the potential for 16.03 ha of net developable land. This represents 58% of the net developable area that was modelled by TPS (refer Attachment 1, Appendix D), which considered a larger net developable area of 27.58 ha.
- The net 16.03ha of developable area is well within the modelling undertaken by TPS (27.58 ha), where it was established that the upgraded intersection at Hastings River Drive and Boundary Street can cater for a net developable area of 20.6ha.

(note – modelling to achieve a net developable area of 20.6 ha was based on PMHC's preferred Base Saturation Flow Rate of 1800 tcu/hr and Peak Hour Factor 95%).

- The difference between 20.5ha recommended by PMHC TSN and the proposed 23.75 ha of gross B7 zone represents a 14% increase in the net developable area that will ultimately be achieved at the ABP. The Planning Proposal will result in a net developable area of 20.6ha and PMHC TSN had recommended a net developable area of 13.84 ha.

The proposed 23.75 ha of gross B7 zone is therefore well within the degree of accuracy that can be expected from long term traffic modelling of this nature, noting that:

- The 23.75 ha gross area is well within the footprint of the Airport Business Park that is able to be serviced by the modified Hastings River Drive and Boundary Street intersection as modelled by TPS and SLR;
- The differences in gross and net areas is considered to be a minor increase in footprint (and therefore traffic volumes) at the Planning Proposal stage of the Airport Business Park;
- The minor increase in gross area is supported by a reduction of the maximum Floor Space Ratio (FSR) from 0.7:1 to 0.65:1. This represents a further 2% reduction in the traffic volumes modelled by TPS. SLR and PMHC TSN;

- The traffic modelling undertaken of the 2030 performance of the Hastings River Drive and Boundary Street intersection is a model of a long-term outcome. There are many parameters in the broader road network (e.g. decisions with respect to other road and intersection upgrades and development rates across the LGA) that will also impact the performance of the intersection and therefore the results of the future modelling;
- The various reports and reviews outline the traffic engineering parameters that are inputs into the modelling of the future performance of the intersection. It is considered that the impact of a 14% increase in the footprint of the net developable B7 zone is within the accuracy limits that can be expected to be achieved with the modelling of the future traffic outcomes;
- The 14% increase in the footprint of the land proposed to be rezoned for B7 Business Park purposes may result in improvements to the Hastings River Drive and Boundary Street intersection being required to be implemented in a shorter timeframe than otherwise would have applied.
- The TPS, SLR, PMHC and TSN traffic assessments have all identified the required improvements to the Hastings River Drive / Boundary Street intersection to cater for the traffic generated by the proposed ABP and doubling of traffic generated by existing uses. The Major Roads Contribution Plan 2006 includes provision for a roundabout at the intersection. These planned works were replaced by the existing signalised intersection.

In the absence of a local roads contribution plan applicable to the intersection works, it is anticipated and acknowledged that the implementation of the identified intersection improvements will be included in a condition of development consent as part of the determination of a future development application for the establishment of the Airport Business Park. The condition of development consent will include details of the proposed trigger for the intersection improvement works. Apportionment of the sharing of the costs of the intersection works between the ABP and other developments would be expected to be negotiated through a works in kind agreement at that time.

- The 23.75 ha gross area of proposed B7 Business Park land abuts Conservation Lands (as per the Biodiversity Certification of the Airport and surrounding lands) on its southern and eastern boundaries thereby ensuring that further expansion of Business Park within the Airport Lands on the eastern side of Boundary Street cannot be undertaken.

1.5.2 Economic justification

PMHC have previously principally relied on advice from HillPDA with respect to the review of potential economic impacts.

HillPDA have in their advice dated 5 July 2017 (refer Attachment 4 at Appendix C) confirmed that provided the capacity of the existing road network is not exceeded, 20.5ha (gross zoned area) of B7 land is justified as it will not threaten the viability of existing commercial centres.

20.5ha gross zoned area of B7 land equates to 13.85ha net developable area of B7 zoned lands (i.e.; the development capacity).

As outlined above, TPS and SLR have confirmed the existing road network has capacity for development of 20.6 ha (net developable area) of B7 zoned land based on agreed incremental improvements to the existing Hastings River Drive / Boundary Street intersection.

This Planning Proposal proposes 23.75ha gross zoned area of B7 land which equates to 16.03ha net developable area of B7 zoned land (i.e.; the development capacity).

The proposed 23.75ha gross zoned area of B7 land is therefore well within the capacity of the existing road network determined by TPS and SLR.

Port Macquarie Airport have obtained further economic impact advice from Gillespie Economics and Augusta (refer Attachments 2 and 3 at Appendix C).

Gillespie Economics and Augusta have both highlighted the unique characteristics of the ABP, noting:

- The on-going investment in the Airport as a catalyst to attract new investment and business;
- The trend towards business park developments clustering at universities, airports and hospitals and along transport corridors;
- The stimulation of jobs not normally located in the CBD;
- The potential for the ABP to complement other existing and future business precincts.

HillPDA in their review of Gillespie Economics (refer Attachment 4 Appendix C) have also concluded as follows:

If Gillespie Economics proves to be correct in its forecast of airport stimulating jobs then many of these businesses would not locate in the CBD anyway. These are businesses that rely more on proximity to the airport (and perhaps also the Pacific Highway) rather than proximity to the population base. There is some risk that they would locate outside the LGA altogether if space was not available (refer Attachment 4 at Appendix C - Hill PDA, July 2017).

This Planning Proposal seeks to reinforce the unique characteristics of the proposed ABP highlighted in the Gillespie and Augusta reports while ensuring potential impacts on existing commercial centres are mitigated through:

- Changes to the objectives of the B7 Business Park zone to place additional emphasis on large-scale/format developments; and
- Changes to the uses permitted with development consent to remove landscaping material supplies, plant nurseries and timber yards;
- Changes to the uses permitted/prohibited, to permit food and drink premises, self-storage units, electricity generating works, function centres and industrial training facilities;
- Larger minimum lot size provisions (minimum 2,000 m²) than typically provided in other commercial and industrial zones (typically minimum 1,000 m²); and
- Reduction of the maximum Floor Space Ratio (FSR) to 0.65:1. Commercial zones with an 11.5 m building height limit typically have a FSR of 1:1 outside CBD areas, e.g. Grant Street and Lord Street. The maximum FSR of 0.7:1 has been reduced to 0.65:1 to ensure floor areas generated do not exceed that determined in hypothetical development scenarios used to inform traffic and economic impact assessments.

It is considered that the planning controls proposed in the LEP emphasise the unique location and characteristics of the Airport Business Park. These planning controls considered in conjunction with the specialist economic impact advice outlined above provide certainty to confirm the 23.75ha footprint of B7 zoned land in the Airport Business Park will not threaten existing commercial centres.

1.6 Summary of Proposed LEP Amendments

The intended outcomes within *the site* are proposed to be achieved by making the following changes to the Port Macquarie-Hastings Local Environmental Plan 2011 (LEP 2011):

1.6.1 Airport Lands

- Amendment to the LEP 2011 Land Zoning Map to apply an SP2 – Air transport facility zoning to the *Airport Lands* that are required to be cleared to satisfy the CASA Code 4C aerodrome standards for the Obstacle Limitation Surface (OLS);
- Amendment to the LEP 2011 Land Zoning Map to apply an SP2 – Air transport facility zoning to the *Airport Lands* generally west of Boundary Street that will include existing airport infrastructure and future airside and general aviation land uses;
- Amendment to the LEP 2011 Land Zoning Map to apply an E2 Environmental Conservation zone to all land areas within the Conservation Lands (future Biobank Site);
- Amendment to the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the *Threatened Species Conservation Act 1995*:

7.17 *Port Macquarie Airport and surrounding lands*

(1) *The objectives of this clause are as follows:*

- (a) *to identify land that has been conferred for biodiversity certification under section 126 H of the Threatened Species Conservation Act 1995*
- (b) *to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified;*

(2) This clause applies to:

(a) land that is shown as “Certified Land” on the Biodiversity Certification Land Map.

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:

(a) is consistent with the Order conferring biodiversity certification – Port Macquarie Airport and surrounding lands (NSW Government Gazette No. 87 of 7 September 2018).

- Amendment to the LEP 2011 Schedule 1 to provide for the following additional permitted use:

12. Use of certain land at Port Macquarie Airport, Boundary Street, Port Macquarie

1) This clause applies to land at Port Macquarie Airport, Boundary Street, Port Macquarie being Lot 25 DP 1123026, Lot 239 DP 754434, Lot 238 DP 754434, Lot 1 DP 1034982, Lot 1 DP 1087368, Lot 7325 DP 1184893, Lot 335 DP 754434, Lot 14 DP 1139180 shown as Item 12 on the Additional Permitted Uses Map.

2) Development for the purposes of vegetation clearing and/or conservation cropping of vegetation is permitted to the extent specified within the ‘Order conferring biodiversity certification – Port Macquarie Airport and surrounding lands’, as published in the NSW Government Gazette No. 87 of 7 September 2018.

1.6.2 Airport Business Park

- Amendment to the LEP 2011 Land Zoning Map to apply a B7 Business Park zoning to the lands to the east of Boundary Street, which will ultimately provide for an *Airport Business Park* of 23.75 ha (gross area);

- Amendment to the LEP 2011 Land Use Table, to amend the objectives for the B7 Business Park zone, to confirm the strategic intent of the business park and to recognise its place within the retail hierarchy for the broader LGA, as follows (changes shown in red);
 - *To provide a range of office and light industrial uses, within large scale/format developments.*
 - *To encourage employment opportunities.*
 - *To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.*
 - *To create business park employment opportunities within large scale/format developments that are of a high visual quality and that will respect the natural environment within which they are located.*
 - *To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for sub regional functions and service delivery.*
- Amendment to the LEP 2011 Land Use Table, to amend the uses that will be permitted with consent in a B7 Business Park zone, to ensure that the zone will support a range of uses that are consistent with the zone objectives and also consistent with the retail hierarchy for the broader LGA, including:
 1. Deleting the following permitted uses:
 - *Landscaping material supplies;*
 - *Plant nurseries;*
 - *Takeaway food and drink premises; and*
 - *Timber yards.*
 2. Including the following additional permitted uses:
 - *Food and drink premises; and*
 - *Self-storage units.*

3. Deleting the following prohibited uses:

- *Electricity generating works;*
- *Function centres; and*
- *Industrial training facility.*
- Amendment to the LEP 2011 Lot Size Map to allow a minimum lot size of 2,000 m² for lands within the *Airport Business Park*, to encourage large scale/format developments that are consistent with the zone objectives;
- Amendment to the LEP 2011 Floor Space Ratio Map to allow a maximum FSR of 0.65:1, to ensure consistency with the traffic studies undertaken in support of the *Airport Business Park*; and
- Amendment to the LEP 2011 Height of Building Map to allow a maximum building height of 11.5m for lands within the identified *Airport Business Park*, to support the desired outcomes for large scale/format developments.

1.6.3 Area 13 URA

- Amendment to the LEP 2011 Land Zoning Map to apply an E2 Environmental Conservation zoning to the northern extent of the Partridge Creek Residential Precinct within the Area 13 URA to support its inclusion within the Conservation Lands (future Biobank Site); and
- Amendment to the LEP 2011 Land Zoning Map to apply an E3 Environmental Management zoning to lands adjacent the Partridge Creek Residential Precinct (R1 zone) within the Area 13 URA to support its intended use for Asset Protection Zones and public open space (consistent with the existing zones within the Area 13 URA).

1.7 Supporting documentation

This Planning Proposal relies, in part, on previous technical and specialist information provided to PMHC with respect to the proposed Business Park. These specialist studies have been undertaken by Council in its capacity as the consent authority (PMHC Planning) or in its capacity as the landowner (PMHC Airport) and include:

Economic Impact Assessments (Appendix C)

The *Economic Impact Assessments* prepared by Hill PDA, the review of the Hill PDA report prepared by Gillespie Economics, the Strategic Review prepared by Augusta Group and the review of the Gillespie Economics Report by Hill PDA have been reviewed to address the potential Economic Impacts of the future development of the Business Park the subject of this Planning Proposal.

Traffic Impact Assessments (Appendix D)

The *Traffic Impact Assessments* undertaken by TPS related to the broader Airport Investigation Area. The results of these assessments have been reviewed in the context with Council's resolution of 21 November, 2018, to include the reduced footprint of PMHC owned land only. The review of the Traffic Impact Assessments also includes consideration of the Peer Review of the TPS Report undertaken by SLR and the review comments provided by PMHC's Traffic & Stormwater Drainage section.

Biodiversity Certification (Appendix E)

The site falls within a larger land area that is subject to the *Order conferring biodiversity certification – Port Macquarie Airport and surrounding land* as published in the NSW Government Gazette of 7 September, 2018 (see Appendix E for the *Order* and Exhibits 1-3 for the land area).

The *Biodiversity Certification Assessment Area* (BCAA) represents a total land area of 1,024.48 ha. The biodiversity certification will permanently protect and manage for conservation 444.17 ha (43% of the BCAA) of Council owned operational land, some currently private land within the BCAA and an additional 40 – 50 ha off-site off-set areas to provide additional protection for the koala.

The site for the purposes of this Planning Proposal represents a footprint of approximately 759.7 ha, or 74% of the BCAA. The conservation areas that will be zoned E2 Environmental Conservation under this Planning Proposal will be registered as a Biobank Site under Part 7A of the TSC Act within 12 months of the Minister conferring Biocertification. This will provide in perpetuity conservation protection and management on the land title.

Aboriginal Archaeology Assessment (Appendix F)

The Aboriginal sites officer for the Birpai Local Aboriginal Land Council has inspected the site and by correspondence of 25 November, 2015, has confirmed that no artefacts were observed. The Birpai LALC recommends that should any artefact be uncovered during excavations works, all works should cease and the LALC should be contacted.

Geotechnical Assessments (Appendix G)

The Geotechnical Assessment reports prepared by RGS has been included to address the relevant geotechnical issues that will apply to the future development of the Airport Business Park with respect to underground services.

Sewerage Services Strategy (Appendix H)

A Sewerage Services Strategy based on gravity sewer infrastructure was submitted to PMHC in November 2015. An alternate Sewerage Services Strategy based on low pressure sewer infrastructure is included with this Planning Proposal. PMHC have in more recent times implemented low pressure sewer reticulation on the North Shore and have in meetings since November 2015 indicated a willingness to consider a low pressure sewer system for the Airport Business Park.

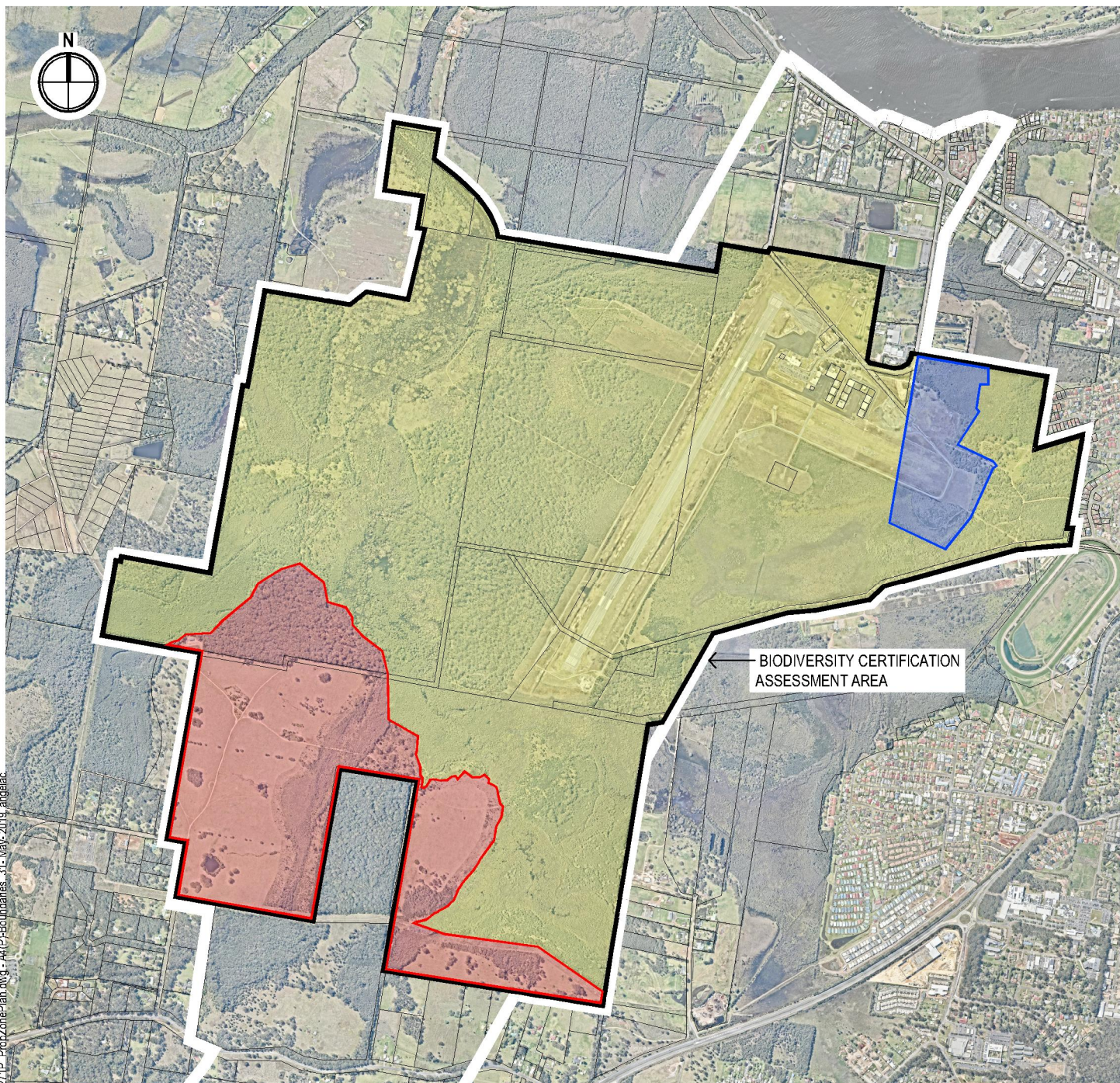
Stormwater Management (Appendix I)

A Stormwater Management Plan for the Airport Business Park was submitted to PMHC in November 2015. PMHC stormwater drainage section have provided comments on that Stormwater Management Plan and a response to those comments was forwarded to Council on 27 November 2015. The Stormwater Management Plan has now been reviewed to take into account the comments provided by PMHC and the changes to the extent of the proposed Business Park since the production of the original report. The revised Stormwater Management Plan (2019) is included with this Planning Proposal.

Water Supply Infrastructure

This Planning Proposal relies on the Water Supply advice provided by PMHC as the Water Authority with respect to the future water supply reticulation for the Airport Business Park with the trunk watermain link to be from the Oxley Highway.

K+C REF: 015271_Airport21_Planning/AirportRe zoning_2019/Proposed Zone Plan/5271P_PropZonePlan.dwg - A4(P)Boundaries_31-May-2019_angelac



LEGEND

-  BOUNDARY OF PLANNING PROPOSAL AREA
-  PORT MACQUARIE AIRPORT LANDS
(includes lands impacted by the CASA Code 4C aerodrome standards for the Airport OLS and the **Conservation Lands** (future Biobank site) that have been established through the Order conferring biodiversity certification - Port Macquarie Airport and surrounding land)
-  PORT MACQUARIE AIRPORT BUSINESS PARK
-  THRUMSTER AREA 13 URBAN RELEASE AREA - PMHCLAND
-  CADASTRE

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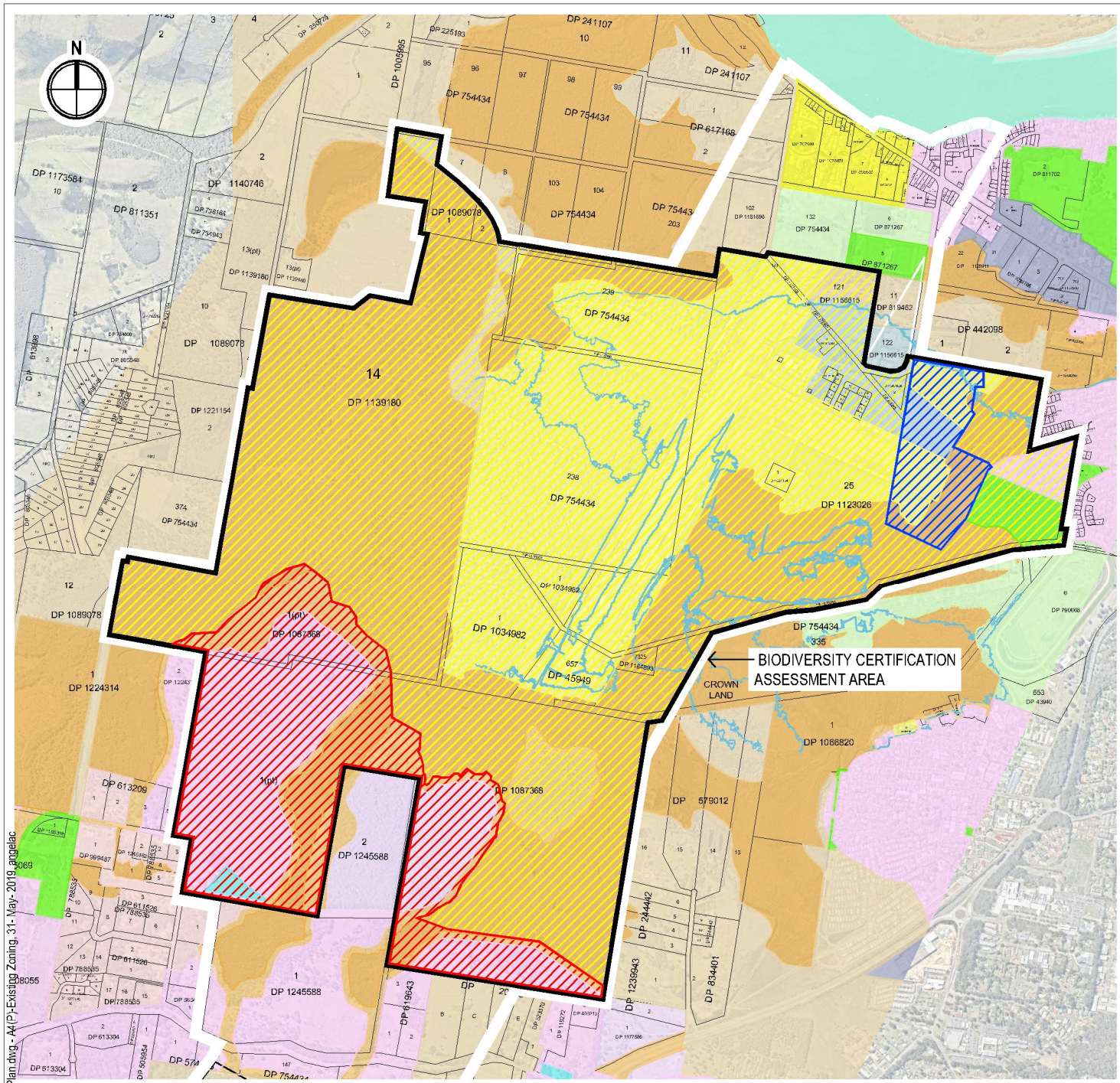
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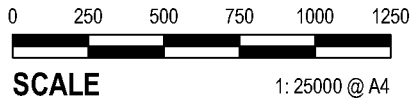
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A	08.03.2019	ISSUE FOR REVIEW	AJC	DA NO: -	TITLE:				
				DESIGNED: K+C	PROJECT:	PORT MACQUARIE AIRPORT LANDS BOUNDARY STREET PORT MACQUARIE			
				DRAWN: AJC					
				CHECKED: -	CLIENT:	PORT MACQUARIE HASTINGS COUNCIL			
				DATUM: AHD					
						DRAWING NO:	SHEET:	REV:	
						5271P_PropZonePlan	01	A	



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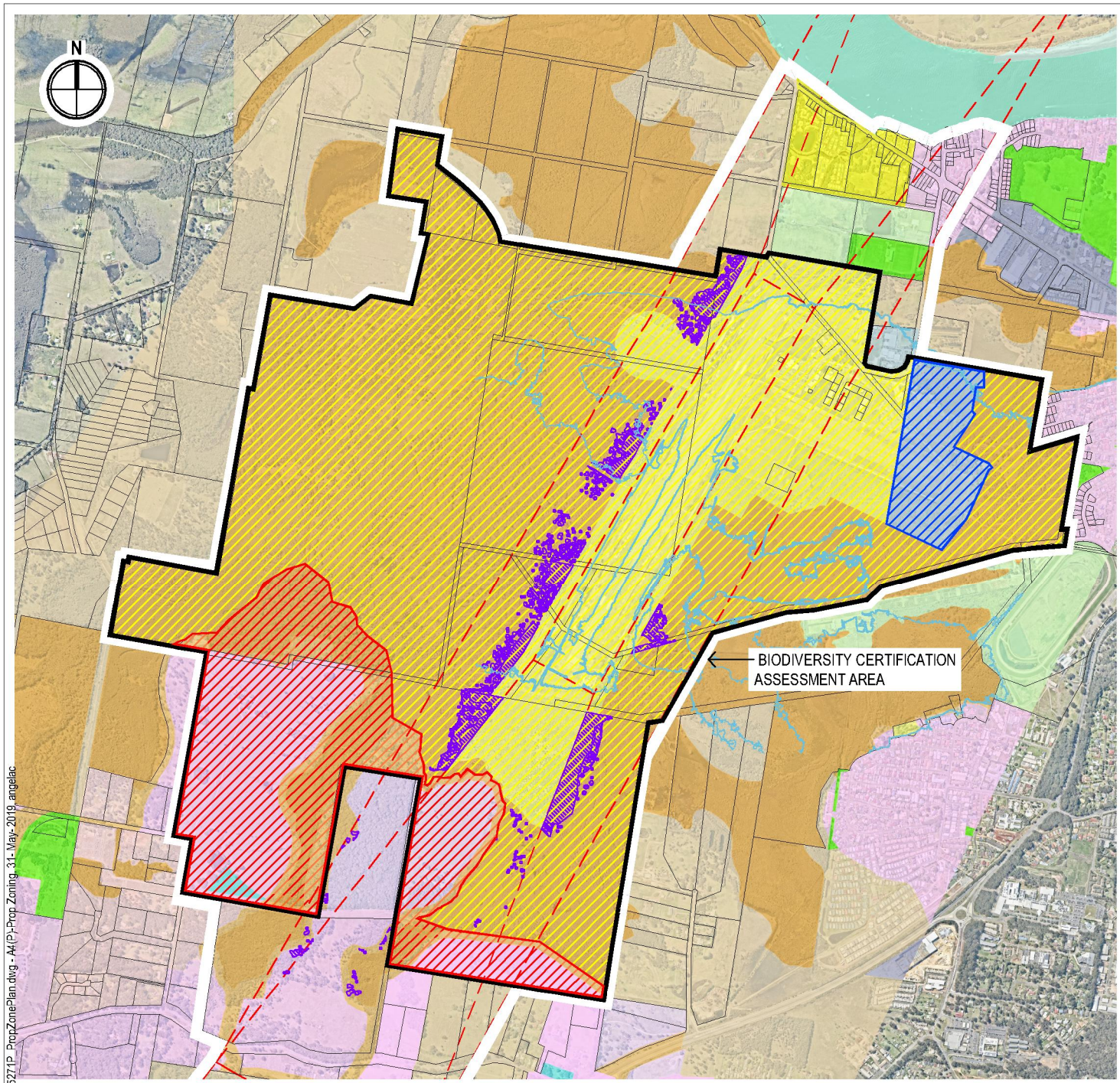
LEGEND

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|--|---|--|-----------------------------|
| | BOUNDARY OF PLANNING PROPOSAL AREA | | IN2 - LIGHT INDUSTRIAL |
| | PORT MACQUARIE AIRPORT LANDS | | R1 - GENERAL RESIDENTIAL |
| | PORT MACQUARIE AIRPORT BUSINESS PARK | | RU1 - PRIMARY PRODUCTION |
| | THRUMSTER AREA 13 URBAN RELEASE AREA - PMHC LAND | | SP2 - INFRASTRUCTURE |
| | CADASTRE | | SP3 - TOURIST |
| | 1:100 ARI - 3.17m AHD (2018 HASTINGS RIVER FLOOD STUDY) | | RE1 - PUBLIC RECREATION |
| | B2 - LOCAL CENTRE | | RE2 - PRIVATE RECREATION |
| | B4 - MIXED USE | | W2 - RECREATIONAL WATERWAYS |
| | B7 - BUSINESS PARK | | |
| | E2 - ENVIRONMENTAL CONSERVATION | | |
| | E3 - ENVIRONMENTAL MANAGEMENT | | |



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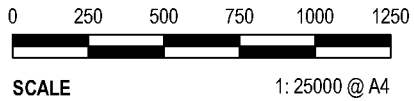
 KING + CAMPBELL King & Campbell Pty Ltd www.kingcampbell.com.au A: PO Box 243 Port Macquarie NSW 2444 T: 02 6586 2555 F: 02 6583 4064 E: info@kingcampbell.com.au	REV. A	DATE 29.05.2019	DESCRIPTION ISSUED TO CLIENT FOR REVIEW	BY AJC	PROJECT: 5271	DRAWING TITLE: EXHIBIT 2 - EXISTING ZONING AND CONTEXT
					DANO: -	
					DESIGNED: K+C	PROJECT: PORT MACQUARIE AIRPORT LANDS BOUNDARY STREET PORT MACQUARIE
					DRAWN: AJC	
					CHECKED: -	
					DATUM: AHD	CLIENT: PORT MACQUARIE HASTINGS COUNCIL
						DRAWING NO: 5271P_PMC_BasePlan
						SHEET: 02
						REV: A



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LEGEND

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| | BOUNDARY OF PLANNING PROPOSAL AREA | | E2 - ENVIRONMENTAL CONSERVATION |
| | PORT MACQUARIE AIRPORT LANDS | | E3 - ENVIRONMENTAL MANAGEMENT |
| | PORT MACQUARIE AIRPORT BUSINESS PARK | | IN2 - LIGHT INDUSTRIAL |
| | THRUMSTER AREA 13 URBAN RELEASE AREA - PMHC LAND | | R1 - GENERAL RESIDENTIAL |
| | CADASTRE | | RE1 - PUBLIC RECREATION |
| | AIRPORT OLS | | RE2 - PRIVATE RECREATION |
| | 1:100 ARI - 3.17m AHD (2018 HASTINGS RIVER FLOOD STUDY) | | RU1 - PRIMARY PRODUCTION |
| | CONSERVATION CROPPING (AS PER ORDER AT APPENDIX E) | | SP2 - INFRASTRUCTURE |
| | B2 - LOCAL CENTRE | | SP3 - TOURIST |
| | B4 - MIXED USE | | W2 - RECREATIONAL WATERWAYS |
| | B7 - BUSINESS PARK | | |



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	A	08.03.2019	ISSUE FOR REVIEW	AJC	DRAWING: -		
	B	14.05.2019	FLOOD PLANNING LEVEL	MW	DESIGNED: K+C	PROJECT: PORT MACQUARIE AIRPORT LANDS BOUNDARY STREET PORT MACQUARIE	
	C	29.05.2019	ISSUED TO CLIENT FOR REVIEW	AJC	DRAWN: AJC	CLIENT: PORT MACQUARIE HASTINGS COUNCIL	
				CHECKED: -	DRAWING NO: 5271P_PropZonePlan	SHEET: 03	REV: C
				DATUM: AHD			

SECTION 2 - PLANNING PROPOSAL

Summary of Planning Proposal

This is a Planning Proposal prepared under Section 3.33 of the Environmental Planning and Assessment Act, 1979, in accordance with the Department of Planning and Environment's *A guide to preparing planning proposals 2016* and *A guide to preparing local environmental plans 2016*.

The Planning Proposal is in relation to a proposed amendment to Port Macquarie-Hastings Local Environmental Plan (PMHLEP) 2011, as set out below:

Proposal	Rezoning of land
Property details	Port Macquarie Airport, Airport Business Park and Council owned lands with the Thrumster Area 13 URA (see below for real property description of all properties that comprise these land areas).
Current land zones within the site	Part SP2 Infrastructure, part R1 General Residential, part B2 Local Centre, part B7 Business Park, part E2 Environmental Conservation, part E3 Environmental Management, part RE1 Public Recreation and part RU1 Primary Production
Proposed land zones	Zones to be expanded include - SP2 Infrastructure, B7 Business Park, E2 Environmental Conservation and E3 Environmental Management
Applicant details	Port Macquarie Hastings Council
Land owner	Port Macquarie Hastings Council

This Planning Proposal explains the intended effects of a proposed amendment to the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011), which will provide strategic certainty for:

1. The on-going operations of the existing Port Macquarie Airport (Airport Lands) in compliance with the CASA Code 4C aerodrome standards for the Airport OLS and the strategic objective to protect the existing airport infrastructure and ensure future airside and general aviation land uses;

2. The on-going protection and management of the Conservation Lands (future Biobank site) that have been established through the *Order conferring biodiversity certification – Port Macquarie Airport and surrounding land*, as published in the NSW Government Gazette of 7 September, 2018 (see Appendix E for the Order);
3. The development of an Airport Business Park (eastern side of Boundary Street) with a total gross land area of 23.75 ha to facilitate compatible and complementary development adjacent the Port Macquarie Airport as envisaged by the Airport Master Plan (refer Appendix G), achieving a long-term objective of ensuring the future supply of employment lands for the Port Macquarie Regional City, consistent with the North Coast Regional Plan 2036 ;
4. The planning of infrastructure services required to support the future development of the Port Macquarie Airport, the Airport Business Park and surrounding lands; and
5. The future residential and industrial development of the Council owned lands within the Thrumster Area 13 Urban Release Area (Area 13 URA) with respect to biodiversity issues.

The Site

This Planning Proposal relates to lands that are owned by Port Macquarie-Hastings Council, and also includes a small area of Crown Land that is impacted by the OLS (*the site*).

The site includes three (3) areas within the boundary of the Planning Proposal, being the Port Macquarie Airport Lands, the Port Macquarie Airport Business Park and the Thrumster Area 13 Urban Release Area. These areas are identified on Exhibit 1.

The site falls within a larger land area that has undergone a Biocertification assessment in accordance with the Biocertification Assessment Methodology (BCAM). Appendix E includes an extract from the Government Gazette, confirming that the Minister has conferred biodiversity certification on the lands that includes *the site*.

The site for the purposes of this Planning Proposal represents a footprint of approximately 759.7 ha, or 74% of the lands that were assessed for biodiversity certification. The *Biodiversity Certification Assessment Area* (BCAA) in context with *the site* is illustrated on the site context plan at Appendix A.

The land parcels the subject of this Planning Proposal includes:

- Lot 14 DP 1139180;
- Lot 1 and 2 DP 1089078;
- Lot 238 and 239 DP 754434;
- Lot 121 DP 1156615;
- Lot 25 DP 1123026;
- Lot 1 DP 1034982;
- Lot 657 DP 45949;
- Lot 1 DP 1087368;
- Lot 103 DP 1127168 (closed road);
- Lot 104 DP 1173567 (closed road);
- Lot 3 DP 813358;
- Lot 1 DP 242345 (closed road);
- Lot 2 DP 547484;
- Lot 1 DP 827134;
- Lot 4 DP 115306 (closed road);
- Lot 1 DP 1025083 (closed road);
- Lot 2 DP 1025083 (closed road);
- Lot 335 DP 754434 (Crown Land);
- Lot 7325 DP 1184893 (Crown Land);
- Lots 1 and 2 DP 1071193 (lease);
- Lots 5 to 14 SDO 813358 (lease),
- Lots 15 and 16 DP 848479 (lease);
- Lot 22 DP 877448 (lease);
- Lot 24 DP 1123026 (lease).

PART 1 - Objectives or Intended Outcomes

The intended outcomes of this Planning Proposal are;

1. To ensure that the future management of the biocertified lands will support the on-going operations of the Airport Lands with respect to the Airport Facilities and CASA Code 4C aerodrome standards for the Obstacle Limitation Surface (OLS);
2. To ensure the proposed LEP Amendment supports the permanent management and protection of the Conservation Lands established through the biodiversity certification;
3. To permit uses that are appropriate, compatible and complementary to the existing Airport on lands identified as the *Airport Business Park (ABP)*;
4. To ensure the future development within the ABP is carried out in a manner that will integrate and support the primary function of the airport use, particularly with respect to:
 - a. Management of future traffic and future road infrastructure upgrades;
 - b. Extension of reticulated water supply and sewerage services to the ABP and the Airport Lands; and
 - c. Management of future stormwater drainage.
5. To facilitate future industrial and residential development within Thrumster Area 13 Urban Release Area that is consistent with the biodiversity certification with respect to the biocertified and conservation lands; and
6. To ensure all future development can be managed to ensure minimal impact on the natural and surrounding environment.

This Planning Proposal will result in zonings that:

- More appropriately reflect the importance of Port Macquarie Airport as a regional hub;
- Facilitate the establishment of the Airport Business Park to be complementary and supportive of the Port Macquarie Airport;
- Support the permanent management and protection of the Conservation Lands; and
- Ensure future development of Council owned land in the Thrumster Area 13 Urban Release Area is consistent with the outcomes of the biodiversity certification.

PART 2 – Explanation of Provisions

2.1 Summary

The intended outcomes within *the site* are proposed to be achieved by making the following changes to the Port Macquarie-Hastings Local Environmental Plan 2011 (LEP 2011):

Airport Lands:

- Amendment to the LEP 2011 Land Zoning Map to apply an SP2 – Air transport facility zoning to the *Airport Lands* that are required to be cleared to satisfy the CASA Code 4C aerodrome standards for the Obstacle Limitation Surface (OLS);
- Amendment to the LEP 2011 Land Zoning Map to apply an SP2 – Air transport facility zoning to the *Airport Lands* generally west of Boundary Street that will include existing airport infrastructure and future airside and general aviation land uses;
- Amendment to the LEP 2011 Land Zoning Map to apply an E2 Environmental Conservation zone to all land areas within the Conservation Lands (future Biobank Site);
- Amendment to the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the *Threatened Species Conservation Act 1995*:

7.17 *Port Macquarie Airport and surrounding lands*

(1) The objectives of this clause are as follows:

- (a) to identify land that has been conferred for biodiversity certification under section 126 H of the Threatened Species Conservation Act 1995*
- (b) to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified;*

(2) This clause applies to:

- (a) land that is shown as “Certified Land” on the Biodiversity Certification Land Map.*

(3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:

- (a) is consistent with the Order conferring biodiversity certification – Port Macquarie Airport and surrounding lands (NSW Government Gazette No. 87 of 7 September 2018).*

- Amendment to the LEP 2011 Schedule 1 to provide for the following additional permitted use:

12. Use of certain land at Port Macquarie Airport, Boundary Street, Port Macquarie

1) This clause applies to land at Port Macquarie Airport, Boundary Street, Port Macquarie being Lot 25 DP 1123026, Lot 239 DP 754434, Lot 238 DP 754434, Lot 1 DP 1034982, Lot 1 DP 1087368, Lot 7325 DP 1184893, Lot 335 DP 754434, Lot 14 DP 1139180 shown as Item 12 on the Additional Permitted Uses Map.

2) Development for the purposes of vegetation clearing and/or conservation cropping of vegetation is permitted to the extent specified within the ‘Order conferring biodiversity certification – Port Macquarie Airport and surrounding lands’, as published in the NSW Government Gazette No. 87 of 7 September 2018.

Airport Business Park:

- Amendment to the LEP 2011 Land Zoning Map to apply a B7 Business Park zoning to the lands to the east of Boundary Street, which will ultimately provide for an *Airport Business Park* of 23.75 ha (gross area);
- Amendment to the LEP 2011 Land Use Table, to amend the objectives for the B7 Business Park zone, to confirm the strategic intent of the business park and to recognise its place within the retail hierarchy for the broader LGA, as follows (changes shown in red);
 - *To provide a range of office and light industrial uses, within large scale/format developments.*
 - *To encourage employment opportunities.*
 - *To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.*
 - *To create business park employment opportunities within large scale/format developments that are of a high visual quality and that will respect the natural environment within which they are located.*
 - *To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for sub regional functions and service delivery.*
- Amendment to the LEP 2011 Land Use Table, to amend the uses that will be permitted with consent in a B7 Business Park zone, to ensure that the zone will support a range of uses that are consistent with the zone objectives and also consistent with the retail hierarchy for the broader LGA, including:
 1. Deleting the following permitted uses:
 - *Landscaping material supplies;*
 - *Plant nurseries;*
 - *Takeaway food and drink premises; and*
 - *Timber yards.*

2. Including the following additional permitted uses:

- *Food and drink premises; and*
- *Self-storage units.*

3. Deleting the following prohibited uses:

- *Electricity generating works;*
 - *Function centres; and*
 - *Industrial training facility.*
- Amendment to the LEP 2011 Lot Size Map to allow a minimum lot size of 2,000 m² for lands within the *Airport Business Park*, to encourage large scale/format developments that are consistent with the zone objectives;
 - Amendment to the LEP 2011 Floor Space Ratio Map to allow a maximum FSR of 0.65:1, to ensure consistency with the traffic studies undertaken in support of the *Airport Business Park*; and
 - Amendment to the LEP 2011 Height of Building Map to allow a maximum building height of 11.5m for lands within the identified *Airport Business Park*, to support the desired outcomes for large scale/format developments.

Area 13 URA:

- Amendment to the LEP 2011 Land Zoning Map to apply an E2 Environmental Conservation zoning to the northern extent of the Partridge Creek Residential Precinct within the Area 13 URA to support its inclusion within the Conservation Lands (future Biobank Site); and
- Amendment to the LEP 2011 Land Zoning Map to apply an E3 Environmental Management zoning to lands adjacent the Partridge Creek Residential Precinct (R1 zone) within the Area 13 URA to support its intended use for Asset Protection Zones and public open space (consistent with the existing zones within the Area 13 URA).

The rationale for the above provisions is set out in Sections 2.2 to 2.4 below.

2.2 Airport Lands

Airport Lands		
Location	Existing zone	Proposed zone
a. Existing and future airside and general aviation land uses (western side of Boundary Street)	B7 (17.03 ha) SP2 (7.69 ha) E2 (1.03 ha)	SP2
b. Existing airport infrastructure (runway, apron, weather station)	Part E2 Part SP2	SP2
Comments The existing zones that apply to the Airport Lands on the western side of Boundary Street do not all currently reflect the purpose for which the lands are used. These lands are in close proximity to the airport and are capable of providing direct access to the airport apron. An SP2 zone for this area will ensure that all future uses will be for the purpose shown on the Land Zoning Map (air transport facility), including uses that are incidental or ancillary to this purpose. All lands identified within the proposed SP2 footprint are subject to the <i>Order conferring biodiversity certification – Port Macquarie and surrounding land</i> (see Appendix E). The existing airport infrastructure, which includes runway, apron and weather station (located generally west and south of the lands referred to in point a above), will be included in the SP2 zone. These lands have also been biodiversity certified.		
c. Obstacle Surface Limitation (as it applies to the eastern and western edges of existing runway strip)	E2	SP2
Comments The revised CASA code for a 4C aerodrome standard requirements for the OLS have determined that a 54m width on both the western and eastern edges of the runway strip is required to be managed. A 54m clearing area allows maximum operational certainty and efficiency for ongoing airport operations whilst reducing ongoing operational expenses associated with the need to re-crop areas every 2-3 years due to rapid regrowth of vegetation. The Biocertification process has certified this width for vegetation removal as <i>cleared lands</i> and accordingly an SP2 zone has been applied. An E2 zone will apply to areas affected by the OLS that are outside this 54m wide land area. The biodiversity certification confirms that <i>conservation cropping</i> within the E2 zone to meet the requirements of the OLS has been assessed and offset as part of the biocertification (see point f below for further discussion on this matter). A Schedule 1 Additional Permitted Use is proposed to provide for the conservation cropping within the E2 zone in this location.		
d. Obstacle Surface Limitation (as it applies to the southern edge of existing runway)	Part E3 and part E2	SP2
Comments In accordance with the revised CASA code for a 4C aerodrome standard that the airport must satisfy and the new OLS requirements, the land area to the south of the existing runway must be cleared for safety. This land area of 16.77ha has been assessed as part of the Biocertification process as <i>cleared lands</i>. The Biocertification assessment noted that whilst the vegetation must be removed, the landform could still retain characteristics of the <i>Coastal freshwater meadows and forblands of lagoons and wetlands</i>.		

Airport Lands		
Location	Existing zone	Proposed zone
On the basis that this land area is critical to the on-going function of the airport for safety, the land will be zoned SP2. Vegetation will be removed and no fill or landform modification will be undertaken, thereby retaining the ground water characteristics of the <i>Coastal freshwater meadows and forblands of lagoons and wetlands</i> .		
e. Future services corridors, roads and existing and future fire trails	Part E2, part E3, part SP2, part R1, part RE1 and part RU1	E2 (within the Conservation Lands)
Comments These lands include the areas identified for future construction of essential sewerage services and future road and services connections to the east, south-east and south of the ABP. These lands are included in the biodiversity certification and assessed as <i>cleared lands</i>. This Planning Proposal will amend the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the <i>Threatened Species Conservation Act 1995</i>. An objective of the clause is to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified.		
f. Conservation Lands	Part E2, part RE1, part R1, part E3 and part SP2	E2, (including a <i>Schedule 1 Additional Permitted Use</i>)
Comments – All lands that are <u>not</u> identified at points a to e above (and are <u>not</u> identified as Area 13 lands and Airport Business Park lands below), comprise the Conservation Lands and will be zoned E2. The Biocertification assessment has identified an area of approximately 20.9ha within the Conservation Lands that will require modification (selective tree cropping) to comply with the requirements of the Obstacle Limitation Surface. These areas have been assessed and offset as part of the biodiversity certification process and identified as <i>conservation cropping</i> land. The <i>conservation cropping</i> area includes lands where there are occasional trees that may require management, however complete clearing works are not required. Individual trees will be pruned and subsequently poisoned to prevent re-growth. The Biocertification assessment recommends that the resultant dead tree (stag) should be left in-situ to provide fauna habitat. A <i>Schedule 1 Additional Permitted Use</i> is proposed to provide for the conservation cropping within the future E2 zone in this location.		

2.3 Airport Business Park (ABP)

2.3.1 Proposed Land Zoning Map amendment

The proposed B7 Business Park zone that will apply to the lands to the east of Boundary Street has been developed following assessments of potential economic and traffic impacts undertaken on behalf of PMHC.

As set out at Section 2.2 above, the lands to the west of Boundary Street will form part of the Airport Lands and zoned *SP2 (Air transport facility)* in recognition of their proximity to the current airport operations.

The following is noted with respect to the proposed ABP:

- There is currently 25.53 ha of land zoned B7 Business Park at the Port Macquarie Airport. 13.3 ha of that land is currently undeveloped.
- This Planning Proposal will rezone 17.04 ha of the current B7 Business Park zone on the western side of Boundary Street to SP2 Infrastructure (Air transport facility). This includes 8.65 ha of currently undeveloped B7 land and 8.39 ha of land within the B7 zone that is occupied by Airport related uses.
- This Planning Proposal will rezone an additional 19.1 ha of land on the eastern side of Boundary Street to B7 Business Park. When combined with the existing 4.65 ha of the land already zoned B7 Business Park on the eastern side of Boundary Street, the overall footprint of the B7 Business Park zone will be a gross area of 23.75 ha.
- The proposed B7 Business Park zone will ultimately result in the production of approximately 16.03 ha of net developable area within that zone.

All lands that will be rezoned to B7 have been biodiversity certified.

The biodiversity certification also includes the potential future road links to the south (as an extension of Boundary Street), to the south-east (to Lady Nelson Drive) and to the east (to The Binnacle).

This Planning Proposal will amend the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the *Threatened Species Conservation Act 1995*. An objective of the clause is to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified.

This Planning Proposal provides for the following zone amendments within the 23.75 ha future *Airport Business Park*:

Airport Business Park:		
Existing zone	Proposed zone	Area (ha)
B7	Retain B7	4.65
SP2	B7	11.26
E2	B7	7.84
	Total area of ABP	23.75

The proposed B7 Business Park zoning that will apply to all lands within the identified ABP is consistent with the identified actions within the *North Coast Regional Plan 2036*, being to facilitate economic activity around industry anchors such as health, education and airport facilities through introducing planning controls that encourages clusters of related activity.

2.3.2 Proposed Land Use Table amendment

This Planning Proposal includes an amendment to the LEP 2011 Land Use Table for the B7 Business Park zone. The intent is to ensure that the zone will permit uses that are appropriate for the objectives of the Airport Business Park and to also reflect the position of the ABP in the retail hierarchy for the broader LGA.

The existing objectives for the B7 zone are proposed to be modified to support the intent of the Airport Business Park and to establish the matters that are important considerations for future development within the B7 zone.

This Planning Proposal therefore proposes the following amendments to the Land Use Table:

	Existing B7 Business Park zone	Proposed amendments to the B7 zone (shown in red text)
1. Objectives	- To provide a range of office and light industrial uses. -To encourage employment opportunities. - To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. - To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for sub regional functions and service delivery.	- To provide a range of office and light industrial uses, within large scale/format developments. -To encourage employment opportunities. - To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area. -To create business park employment opportunities within large scale/format developments that are of a high visual quality and that will respect the natural environment within which they are located. - To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for sub regional functions and service delivery.
2. Permitted with consent	Nil	Nil
3. Permitted with consent	Centre-based child care facilities; Garden centres; Hardware and building supplies; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Office premises; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Take away food and drink premises; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4 (Note – mandated uses shown in green shade)	Centre-based child care facilities; food and drink premises Garden centres; Hardware and building supplies; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Office premises; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Self-storage units; Take-away food and drink premises; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
4. Prohibited	Agriculture; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Funeral homes; Heavy industrial storage establishments; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industrial training facilities; Industries; Marinas; Mooring pens; Open cut	Agriculture; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Funeral homes; Heavy industrial storage establishments; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industrial training facilities; Industries; Marinas; Mooring pens; Open cut

	Existing B7 Business Park zone	Proposed amendments to the B7 zone (shown in red text)
	mining; Recreation areas; Registered clubs; Research stations; Residential accommodation; Retail premises; Rural industries; Sewerage systems; Sex services premises; Tourist and visitor accommodation; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities	mining; Recreation areas; Registered clubs; Research stations; Residential accommodation; Retail premises; Rural industries; Sewerage systems; Sex services premises; Timber yards; Tourist and visitor accommodation; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities

2.3.3 Proposed amendment to the LEP 2011 Lot Size Map

This Planning Proposal provides for an amendment to the LEP 2011 Lot Size Map to provide a minimum lot size of 2,000 m² for lands within the Airport Business Park.

The intent of this development standard is to ensure that future development is of a suitably large scale/format, which will enable a range of office premises tenants to be housed within a single building and will ensure consistency with the objectives for the B7 zone. A further consideration is the findings of the groundwater modelling, which will likely require all future parking within the ABP to be at grade.

Accordingly, a 40m wide x 50m site will encourage a building with a minimum frontage of 20m to the street and will also provide for a typical carpark module of 18m in width.

2.3.4 Proposed amendment to the LEP 2011 Floor Space Ratio Map

This Planning Proposal provides for an amendment to the LEP 2011 Floor Space Ratio Map to allow a maximum FSR of 0.65:1 for lands within the Airport Business Park (ABP).

The proposed 0.65:1 development standard has been adopted to ensure the future traffic generated by the ABP is within the capacity of the existing road network noting that the hypothetical development scenario prepared to inform the modelling of future traffic volumes generated by the ABP was based on a maximum FSR of 0.7:1.

In combination with the minimum lot size development standard and future at-grade parking, this FSR will support a built form outcome of future three-storey development with a frontage of approximately 20m to the street.

2.3.5 Proposed amendment to the LEP 2011 Height of Building Map

This Planning Proposal provides for an amendment to the LEP 2011 Height of Building Map to allow a maximum building height of 11.5m for lands within the Airport Business Park.

The intent of this development standard is to support the objectives for the ABP, through encouraging a single two - three storey building that is suitable for either a single large scale tenancy or for a grouping of multiple smaller scale tenancies. The 11.5m height of building development standard is consistent with either employment zone located outside core retail centres, e.g.; Macquarie Business Park.

In combination with the minimum lot size development standard, the maximum FSR development standard and future at-grade parking, this FSR will support a built form outcome of a future three-storey development with a frontage of approximately 20m to the street.

2.4 Thrumster Area 13 lands

Thrumster Area 13 URA		
Location	Existing zone	Proposed zone
a. Northern extent of the Partridge Creek Residential Neighbourhood (north of Crown road).	Part R1, Part E2 and Part E3	Part E3 and Part E2
Comments – The land immediately to the north of an existing east-west crown road is identified within the DCP 2013 for future residential development. However the option for a future road link to the north that would service this residentially zoned land has been abandoned by Council. Additionally, this area is vegetated and includes core Koala habitat under the Area 13 Koala Plan of Management. The biodiversity certification has nominated the area that is proposed to be zoned E2 as part of the Biobank site. The proposed E3 zone is in recognition of the requirement for future bushfire Asset Protection Zones for adjoining residential development to the south of the crown road and a neighbourhood park, as set out in the DCP 2013. The application of an E3 zone in this location is consistent with the existing zones that apply to future APZs within the Area 13 URA. Future services corridors (sewer) and future and existing fire trails been assessed for vegetation removal/modification under the biodiversity certification and accordingly do not form part of the Biobank site. To remove any ambiguity for their future use this Planning Proposal will amend the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the Threatened Species Conservation Act 1995. An objective of the clause is to allow development for essential infrastructure, including roads and services, fire trails and sewerage services on the lands that have been identified as certified.		

Thrumster Area 13 URA		
Location	Existing zone	Proposed zone
The existing zones that currently apply to the northern extent of the Partridge Creek Residential Neighbourhood (north of Crown road) together with the existing and future services corridors and fire trails are illustrated on the image below:  The proposed zones that will apply to the northern extent of the Partridge Creek Residential Neighbourhood (north of Crown road) together with the existing and future services corridors and fire trails are illustrated on the image below: 		

PART 3 - Justification

Section A – Need for the planning proposal

Q1. Is the planning proposal a result of any strategic study or report?

The site, including the Airport Lands, the Airport Business Park and the Area 13 URA, has been subject of numerous strategic studies and reports. The recently completed biodiversity certification will now ensure a strategic and sustainable approach to the management of any environmental impacts associated with achieving the future development that is envisaged by the strategic studies undertaken within *the site*.

The Airport Business Park and Airport Lands:

The *Airport Business Park* is an Employment Investigation Area that was initially identified in Council's 2007 Industrial Land Strategy, with the Port Macquarie Airport Master Plan adopted by Council in 2010, addendum to the Master Plan adopted in December 2013 and the UGMS in December 2010. The ABP is currently identified within the North Coast Regional Plan 2036 as part *Business Centre* and part *Investigation Area – Employment Land* and within the *Growth Area Boundary* of the PMHC Urban Growth Management Strategy 2017–2036 (UGMS).

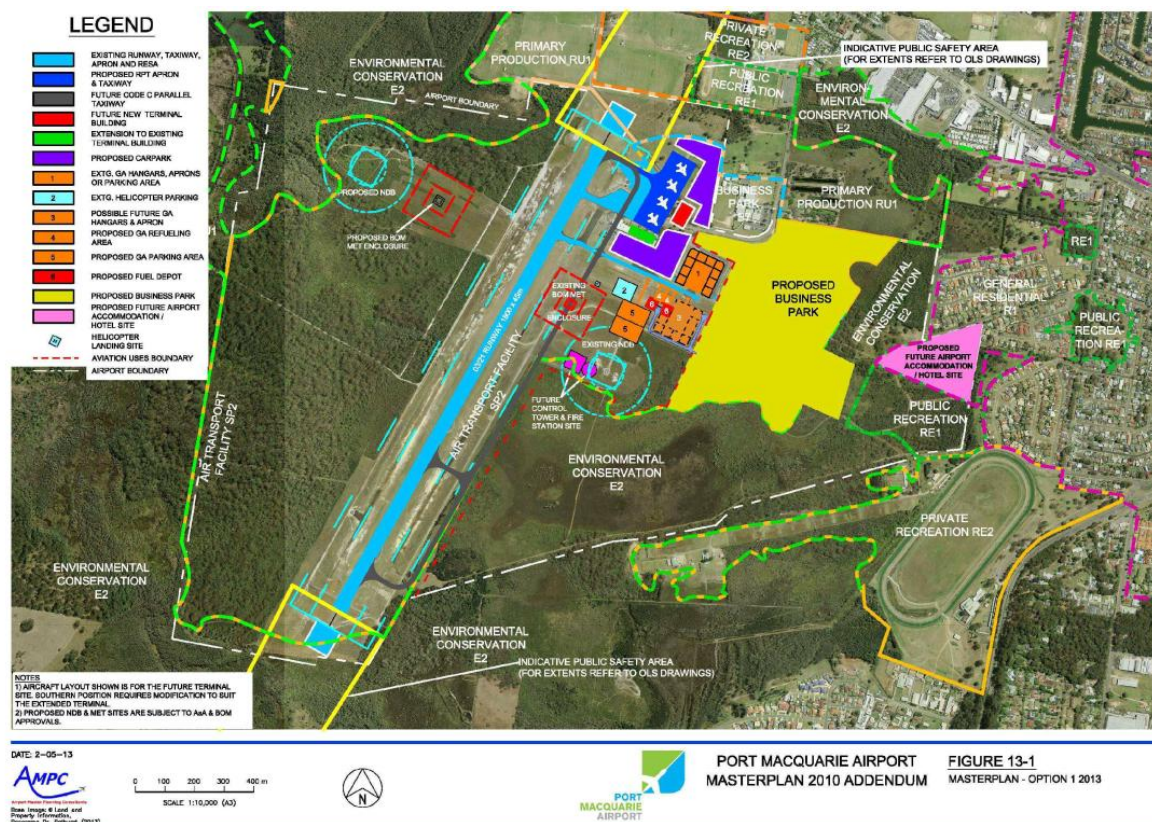
The *Airport Business Park* is identified as a key action in the UGMS and recognises its continued expansion under the Port Macquarie Airport Master Plan and the opportunities for business technology, aviation-related businesses and service industry. The UGMS confirms that ...*Council will undertake planning for an expansion of the ABP to build on the key role of the Airport as a regional hub and transport gateway. The aim is to create opportunity for a technology and campus style business park, aviation related uses and service industry.*



(Source: UGMS 2018, p.23)

The Port Macquarie Airport Master Plan presents a 20 year vision of the Airport site and considers the requirements for future airline operations, general aviation activities and commercial property development opportunities and provides the framework and strategic direction to guide the future development of the Airport to underpin the region's economic development and tourism potential. The lands identified in this Masterplan as being part of the existing Airport operations at the time (2013) are shown on the extract below.

The Master Plan identified areas within the Airport Lands that could be set aside for non-aviation uses as part of the ABP. At the time (2013) approximately 28 ha of land east of the runway was identified for further investigation.



(Source: Port Macquarie Airport Master Plan, Figure 13.1 Option 1 2013)

The Port Macquarie Airport Master Plan also identifies the operational requirements for a Regional Airport to comply with the relevant standards determined by the Civil Aviation Safety Authority (CASA). The airport is now required to meet Code 4C aerodrome standards, including the widening of the existing runway and changes to the OLS. The purpose of the 2013 addendum to the Airport Master Plan was to identify the various issues, constraints and potential future development options to comply with the Code 4C aerodrome standards.

In order to meet Code 4C, vegetation clearing and/or modification is required. Council engaged Eco Logical Australia Pty Ltd to:-

- Undertake a Biodiversity Certification Assessment of the Port Macquarie Airport Master Plan and the Port Macquarie - Hastings Council owned land within the Thrumster Area 13 Urban Release Area; and
- Prepare a Biocertification Strategy in accordance with the Biocertification Assessment Methodology (BCAM).

These overarching strategic plans and reports are now supported by the site specific specialist reports that have been undertaken to support this Planning Proposal, including, economic, transport and servicing aspects associated with the development of the ABP.

The Thrumster Area 13 Lands

The Council owned land within the Thrumster Area 13 Urban Release Area includes the neighbourhoods identified as Partridge Creek Residential, Partridge Creek Industrial and West Lindfield. These lands are currently zoned part R1 General Residential, part IN2 Light Industrial, part B2 Local Centre, Part E2 Environmental Conservation and part E3 Environmental Management.

The future development of these neighbourhoods, including their associated connecting roads, APZs, easements for services and constraints were included in the biodiversity certification. The required vegetation clearing/modification associated with their development will be offset by the *Conservation Lands*, being the proposed E2 zones included in this Planning Proposal.

Q2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

This Planning Proposal explains the intended effects of a proposed amendment to the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011), which will provide a strategic and sustainable approach to the:

- on-going operational requirements of the Airport Lands as required by the revised CASA code for a 4C aerodrome standard;
- development of the Airport Business Park;
- development of the Thrumster Area 13 Urban Release Area; and
- the permanent management and protection of the Conservation Lands (Biobank Site).

All lands the subject of this Planning Proposal are within the footprint of the land included in the biodiversity certification.

This process has ensured that the ecological issues associated with development within the site have already been addressed. The biodiversity certification will permanently protect and manage for conservation the biodiversity conservation lands containing 444.17ha of council lands.

The site specific investigations carried out to date support the zone amendments and this Planning Proposal will allow appropriate development that will manage environmental hazards. The site is capable of connection to existing water and sewerage services without significant costs.

This Planning Proposal is the best way to achieve the intended outcomes.

Section B – Relationship to strategic planning framework

Q3. Is the Planning Proposal consistent with the objectives and actions of the North Coast Regional Plan 2036 (NCRP)

The North Coast Regional Plan 2036 (NCRP) identifies that the Port Macquarie aviation precinct should be an economic and employment priority, which should be built upon to achieve the desired outcomes of the Plan. In relation to the specific goals and directions of the Plan, the following is noted:

Goal 1: The most stunning environment in NSW

Direction 1: Deliver environmentally sustainable growth

The Planning Proposal is consistent with the actions for this direction as:

- The *Airport Business Park* is within the mapped *Investigation Area – Employment Land* identified by the NCRP, in a location that can sustain additional development and servicing is not a constraint to its development;
- The *Airport Business Park*, the *Airport Lands*, the Partridge Creek Residential and Industrial lands and the West Lindfield Residential lands are within the footprint of the land subject to biodiversity certification. Accordingly, the biodiversity considerations with future development within these areas have been assessed and offset; and
- At the local level, the *Airport Lands* and the *Airport Business Park* lands are identified within the Growth Area Boundary shown in the PMHC Urban Growth Management Strategy 2017–2036 (UGMS 2018). The *Airport Business Park* is recognised as a key action in this strategy, with its expansion to be investigated within year 1.

Direction 2: Enhance biodiversity, coastal and aquatic habitats and water catchments

The Planning Proposal is consistent with the actions for this direction as:

- Development will only be undertaken on areas that have been biocertified; and
- Biodiversity certification has resulted in the permanent management and protection of 444.17ha of Conservation Lands (future Biobank site).

Direction 3: Manage natural hazards and climate change

The Planning Proposal is consistent with the actions for this direction as:

- Site specific specialist studies have confirmed that development can be undertaken that will ensure minimal impact on the environment and downstream environments.

Direction 4: Promote renewable energy opportunities

The Planning Proposal is consistent with the actions for this direction as:

- The Planning Proposal will provide for additional employment lands within an area that is already serviced and/or can be augmented with minimal impact on the environment.

Goal 2: A thriving, interconnected economy

Direction 6: Develop successful centres of employment

The Planning Proposal is consistent with the actions for this direction as:

- The Planning Proposal will provide for additional employment lands that are centred around an industry anchor (airport), enabling a cluster of related activities; and
- The proposed future development for employment purposes will not impact on existing or future sensitive receivers.

Direction 7: Coordinate the growth of regional cities

The Planning Proposal is consistent with the actions for this direction as:

- The North Coast Regional Strategy identifies Port Macquarie as a Regional City. The Planning Proposal will promote employment growth and job opportunities within a nominated employment investigation area adjoining an existing employment hub (Port Macquarie Airport);
- The future development can be serviced and is well located to existing transport infrastructure and
- The proposed Airport Business Park will support the ongoing development of the Port Macquarie Airport as a key driver for regional growth, economic development and employment.

Direction 9: Strengthen regionally significant transport corridors

The Planning Proposal is consistent with the actions for this direction as:

- Additional employment lands will be provided adjacent the primary transport connection of Port Macquarie Airport.

Direction 10: Facilitate air, rail and public transport infrastructure

The Planning Proposal is consistent with the actions for this direction as:

- The Airport Business Park will provide for value-adding industries in close proximity to the Port Macquarie Airport.

Goal 3: Vibrant and engaged communities

Direction 16: Collaborate and partner with Aboriginal communities

The Planning Proposal is consistent with the actions for this direction as:

- Consultation with the Birpai Local Aboriginal Land Council was undertaken as part of the Master Planning for the Airport Business Park and the November 2015 assessment found that there were unlikely to be any aboriginal artefacts present on the lands the subject of this Planning Proposal.

Direction 21: Coordinate local infrastructure delivery

The Planning Proposal is consistent with the actions for this direction as:

- The site is well located to utilise existing servicing provisions that have been, or can be augmented, for the existing land uses, thereby maximising the cost-effective and efficient use of infrastructure; and
- The development of the Airport Business Park will provide the opportunity and increased momentum for improved road access and reticulated sewerage services to the Port Macquarie Airport.

Q4. Is the Planning Proposal consistent with Council's Local Strategies?

Towards 2030 Community Strategic Plan

The Towards Community Strategic Plan (CSP) is an overarching 10 year plan prepared by Council and the community and is based on community priorities. It enables Council to coordinate its funding priorities, activities and services.

The Planning Proposal satisfies the key strategies of this Plan for both *business and industry* and *natural and built environment*. The Planning Proposal will:

- Provide for employment lands in close proximity to a transport hub;
- Attract investment to a location that is well serviced and connected to the greater Port Macquarie area;
- Attract investment to create jobs;
- Provide for effective management and maintenance of urban infrastructure and services;
- Assist in minimising the impact of natural events (bushfires), through appropriate mitigation measures;
- Facilitate development that is compatible with the natural and built environment;
- Provide for the effective integration of transport systems; and
- Restore and protect natural areas, consistent with the biodiversity certification of the Port Macquarie Airport and surrounding lands.

Urban Growth Management Strategy 2017 – 2036

The *Airport Business Park* is recognised as a key action in the UGMS 2018 and recognises its continued expansion under the Port Macquarie Airport Master Plan and the opportunities for business technology, aviation-related businesses and service industry. The UGMS 2018 confirms that *...Council will undertake planning for an expansion of the ABP to build on the key role of the Airport as a regional hub and transport gateway. The aim is to create opportunity for a technology and campus style business park, aviation related uses and service industry.*

Economic Development Strategy 2017-2021

The purpose of this Strategy is to nurture economic development and growth within the LGA through ensuring alignment with Council's key strategic documents. The Strategy has adopted an *Economic Development Mission ...to lead, create and proactively support an environment that stimulates sustainable industry, business and investment growth.*

Strategic Objectives 5 and 18 are relevant to this Planning Proposal:

Objective 5 – *Ensure appropriately zoned land and precinct planning to encourage business investment and the development of new industries.*

Objective 18 – *Support the growth of the Port Macquarie Airport precinct*

The Planning Proposal will assist in achieving the actions for these objectives through:

- Providing for expansion opportunities in close proximity to the Port Macquarie Airport; and
- Supporting the Key Actions identified in the Urban Growth Management Strategy through progressing expansion opportunities within the Airport Precinct.

Q5. Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

An assessment of consistency with State Environmental Planning Policies (SEPPs) of relevance is below.

SEPP	Consistent	Reason for inconsistency/consistency
44 Koala Habitat Protection	Yes	Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The Biocertification assessment noted that two(2) Koala Plans of Management apply to the land area within the Biodiversity Certification Assessment Area (BCAA), including: KPoM (GHD 2010), prepared in support for the cropping activities undertaken within the Airport Lands to date; and The Area 13 KPoM (Biolink 2008), prepared in support for the Thrumster Area 13 Urban Release Area. The Biocertification assessment determined that the Koala was one of five species that will be impacted by the land that is certified. Species credits were determined and the number of

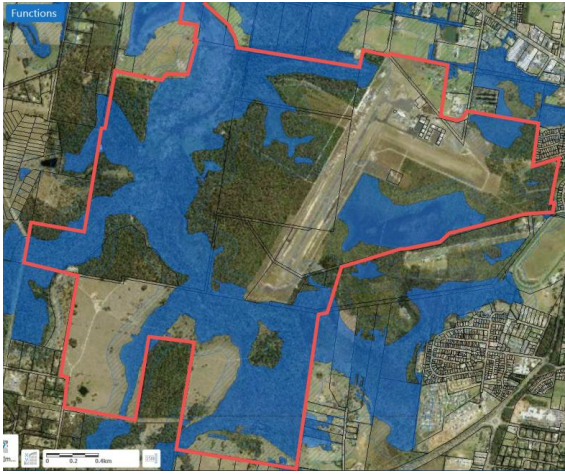
SEPP	Consistent	Reason for inconsistency/consistency
		species credits generated by the proposed conservation measures were found to be deficient for the Koala (323 credits). The Biocertification process will result in a 444.17 ha offset area, which provides for a 301.88 ha of Koala habitat. PMHC has committed to the purchase of an additional 40-50 ha off-site for the retirement for the 323 Koala species credits.
55 Remediation of Land	Yes	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. All operational lands associated with the Airport will be zoned SP2 Infrastructure. Land areas that are not currently used by the Airport do not have a landuse history that would indicate future contamination issues.
Infrastructure 2007	Yes	The aim of this Policy is to facilitate the effective delivery of infrastructure across the State This Policy is relevant to the Airport operations, the future infrastructure (roads, sewerage systems, stormwater management systems, water supply systems) required for the ABP, the Airport Lands and Area 13 URA, the on-going management of existing fire trails and the future traffic generating development within the Airport Lands and the ABP. <u>Airport Lands</u> Part 3 Division 1 sets out the uses that are permitted without consent and permitted with consent in relation to an Air transport facility. This clause will allow a range of uses within the Airport Lands, the subject of this Planning Proposal, if considered ancillary to an air transport use, including; (a) passenger transport facilities, (b) facilities for the receipt, forwarding or storage of freight, (c) hangars for aircraft storage or maintenance, (d) commercial premises, (e) industries, (f) recreation areas, recreation facilities (indoor) or recreation facilities (outdoor), (g) residential accommodation, (h) tourist and visitor accommodation. <u>Sewerage systems</u> Part 3 Division 18 sets out the circumstances where development for the purpose of water industry infrastructure or a sewerage reticulation system can be carried out. The Division also defines prescribed zones and prescribed circumstances.

SEPP	Consistent	Reason for inconsistency/consistency
		The SP2 zone associated with the Airport is a prescribed zone, however the E2 zone within which services will be required is not identified as a prescribed zone. If development consists of the construction of water industry infrastructure or the works are carried out by or on behalf of a public authority, it is recognised as a prescribed circumstance. Having regard to these definitions the following clauses will be relevant to the future sewer infrastructure: <i>(2) Development for the purpose of sewage treatment plants or biosolids treatment facilities may be carried out without consent on land in a prescribed zone in the prescribed circumstances.</i> <i>(2A) In any other circumstances, development for the purpose of sewage treatment plants or biosolids treatment facilities may be carried out with consent on land in a prescribed zone.</i> <i>(3) Development for the purpose of water recycling facilities may be carried out without consent on land in a prescribed zone in the prescribed circumstances.</i> <i>(3A) In any other circumstances, development for the purpose of water recycling facilities may be carried out with consent if:</i> <i>(a) the land on which the development is carried out is in a prescribed zone, or</i> <i>(b) the development is ancillary to an existing land use.</i> <i>(3B) Development for the purpose of sewage reticulation systems may be carried out without consent on any land in the prescribed circumstances.</i> <i>(3C) In any other circumstances, development for the purpose of sewage reticulation systems may be carried out with consent on any land.</i> The site is partially mapped as Coastal Wetland and Part 1 Clause 8 of this Policy is relevant. This clause confirms that if there is any inconsistency between a provision of this Policy and clauses 10, 11 and 19 of State Environmental Planning Policy (Coastal Management) 2018, then the Coastal Policy will prevail. Under the Coastal Policy, any works within areas mapped as Coastal Wetland is declared to be designated development for the purposes of the Act (see Coastal Policy below). Notwithstanding, pursuant to Part 1 Clause 8(4) and (5) of this Policy (relationship to other environmental planning instruments), development for the purpose of emergency works and routine maintenance works is not declared designated development for the purpose of the Act:

SEPP	Consistent	Reason for inconsistency/consistency
		<i>(4) A provision of this Policy that permits development for the purpose of emergency works or routine maintenance works to be carried out without consent, or that provides that development for that purpose is exempt development, prevails over clauses 10 and 11 of State Environmental Planning Policy (Coastal Management) 2018 to the extent of any inconsistency, but only if any adverse effect on the land concerned is restricted to the minimum possible to allow the works to be carried out.</i> <i>(5) For the avoidance of doubt, development to which subclause (3) or (4) applies is not declared designated development for the purposes of the Act.</i> <u>Stormwater management systems</u> Part 3 Division 20 sets out that stormwater management systems, if carried out by or on behalf of a public authority, is permitted without consent on <u>any land</u>. If not undertaken by or on behalf of a public authority the works will require consent. This Division also sets out the works that are exempt development, which includes emergency works and routine maintenance works. The site is partially mapped as Coastal Wetland and Part 1 Clause 8 of this Policy is relevant. This clause confirms that if there is any inconsistency between a provision of this Policy and clauses 10, 11 and 19 of State Environmental Planning Policy (Coastal Management) 2018, then the Coastal Policy will prevail. Notwithstanding, pursuant to Part 1 Clause 8(4) and (5) of this Policy (relationship to other environmental planning instruments), development for the purpose of emergency works and routine maintenance works is not declared designated development for the purpose of the Act: <i>(4) A provision of this Policy that permits development for the purpose of emergency works or routine maintenance works to be carried out without consent, or that provides that development for that purpose is exempt development, prevails over clauses 10 and 11 of State Environmental Planning Policy (Coastal Management) 2018 to the extent of any inconsistency, but only if any adverse effect on the land concerned is restricted to the minimum possible to allow the works to be carried out.</i> <i>(5) For the avoidance of doubt, development to which subclause (3) or (4) applies is not declared designated development for the purposes of the Act.</i> <u>Water supply</u>

SEPP	Consistent	Reason for inconsistency/consistency
		Part 3 Division 24 sets out that water reticulation systems, if carried out by or on behalf of a public authority, is permitted without consent on <u>any land</u>. If not undertaken by or on behalf of a public authority the works will require consent. This Division also sets out the works that are exempt development, which includes emergency works and routine maintenance works. The site is partially mapped as Coastal Wetland and Part 1 Clause 8 of this Policy is relevant. This clause confirms that if there is any inconsistency between a provision of this Policy and clauses 10, 11 and 19 of State Environmental Planning Policy (Coastal Management) 2018, then the Coastal Policy will prevail. Notwithstanding, pursuant to Part 1 Clause 8(4) and (5) of the Policy (relationship to other environmental planning instruments), development for the purpose of emergency works and routine maintenance works is not declared designated development for the purpose of the Act: <i>(4) A provision of this Policy that permits development for the purpose of emergency works or routine maintenance works to be carried out without consent, or that provides that development for that purpose is exempt development, prevails over clauses 10 and 11 of State Environmental Planning Policy (Coastal Management) 2018 to the extent of any inconsistency, but only if any adverse effect on the land concerned is restricted to the minimum possible to allow the works to be carried out.</i> <i>(5) For the avoidance of doubt, development to which subclause (3) or (4) applies is not declared designated development for the purposes of the Act.</i> <u>Fire trails</u> The site includes a number of existing fire trails and future fire trails, both of which have been included in the biodiversity process as cleared lands. Part 3 Clause 48A sets out the following exempt provisions for existing fire trails that are not mapped as Coastal Wetlands: <i>(1) Development for any of the following purposes is exempt development if the development complies with clause 20 and is consistent with the applicable bush fire management plan or the direction or agreement relating to the applicable designated fire trail:</i> <i>(a) maintaining fire trails, or installing or maintaining gates and associated structures on such trails, if the development is consistent with the Fire Trail Standards and does not result in any change in the alignment of fire trails,</i>

SEPP	Consistent	Reason for inconsistency/consistency
		<i>(b) maintaining asset protection zones or installing or maintaining gates and associated structures on such zones, if the development is consistent with the NSW Rural Fire Service's publication Standards for Asset Protection Zones published on the website of the NSW Rural Fire Service and does not result in any change in the alignment of asset protection zones.</i> Part 3 Clause 48B sets out the following exempt provisions for existing fire trails that are mapped as Coastal Wetlands: <i>(3) Development for the purpose of maintaining a fire trail may be carried out by a public authority without consent on land to which this clause applies if:</i> <i>(a) the development is consistent with the applicable bush fire management plan or any direction or agreement relating to the applicable fire trail, and</i> <i>(b) the development complies with the Fire Trail Standards, and</i> <i>(c) the development does not involve the use of fire, the widening of a fire trail, any clearing of vegetation (other than of regrowth on a fire trail) or any excavation.</i> <u>Traffic generating development</u> Hastings River Drive (HRD) is a classified road, with access to the Airport Lands and the ABP via Boundary Street which is greater than 90m in distance to its connection with HRD. Therefore clause 104 of the Policy will only apply to the future development types listed in Column 2 at Schedule 3 to the Policy. These development types will require consultation with the RMS as part of the approval process.
Rural Lands 2008	Yes	The aim of this policy is to facilitate the orderly and economic use and development of rural lands for rural and related purposes. The SEPP contains a number of 'Rural Planning Principles' that must be considered in preparing any planning proposals affecting rural land. A small extent of existing isolated RU1 Primary Production zoned lands will be rezoned to E2 Environmental Conservation, this being consistent with the biodiversity certification.
State and Regional Development 2011	Yes	The aims of this Policy are to identify development that is State significant development, State significant infrastructure, critical State significant infrastructure and regionally significant development. Development with a capital investment value greater than \$5m (Council related development) is declared to be regionally significant development that must be determined by the Regional

SEPP	Consistent	Reason for inconsistency/consistency
		Planning Panel. The future DA for the Airport Lands, Area 13 and the ABP will be required to be cognisant of this requirement should the value of works exceed \$5m.
Coastal Management 2018	Yes	The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone. The lands the subject of this Planning Proposal are shown within the red line on the coastal map image below.  This mapping confirms that a large extent of the site is mapped as either Coastal Wetlands or Proximity Area for Coastal Wetlands. Part 2 Division 1 is relevant for any works within this mapped area and with the exception of environmental protection works, all development will be declared designated development for the purposes of the Act. As noted under SEPP (Infrastructure) 2007, Part 1 Clause 8(4) and (5) (relationship to other environmental planning instruments) confirms that emergency works or routine maintenance works that can be carried out without consent, or is exempt development, these works are not declared designated development for the purpose of the Act Additionally, the maintenance of existing fire trails will not be declared a designated development.

Q6. Is the Planning Proposal consistent with applicable Ministerial Directions (s.9.1 directions)?

An assessment of consistency with Ministerial Directions of relevance is below (as of 2 April, 2018).

Relevant Section 9.1 Direction	Consistent	Reason for inconsistency/consistency
1. Employment and Resources		
1.1 Business and Industrial Zones	Yes – consistent with the objectives	There is currently 25.53 ha of land zoned B7 Business Park at the Port Macquarie Airport, where 13.3 ha of that land is currently undeveloped. This Planning Proposal will - rezone 17.04 ha of the current B7 Business Park zone on the western side of Boundary Street to SP2 Air transport facility. This 17.04 ha land area is currently occupied by Airport related uses (employment uses); and - rezone 19.1 ha of land on the eastern side of Boundary Street to B7 Business Park. Combined with the existing 4.65 ha of land area on the eastern side of Boundary Street that is zoned B7, the overall footprint of the B7 Business Park will be a gross area of 23.75ha (16.03 ha of net developable area). The Airport Business Park is recognised as a key action in Council's UGMS 2018, which recognises its continued expansion under the Port Macquarie Airport Master Plan and opportunities for business technology, aviation-related businesses and service industry.
1.2 - Rural Zones	Yes – consistent with the objectives	A small area of land is proposed to be rezoned from RU1 to E2. This land area is isolated and through the biodiversity certification is to be included in the Biobank site.
1.4 - Rural Lands	Yes – consistent with the objectives	As above
2. Environment and Heritage		
2.1 – Environment protection zones	yes	All lands that are either zoned E2 or are proposed to be zoned E2 under this Planning Proposal have undergone assessment as part of the biodiversity certification.
2.2 – Coastal Management	Yes	The lands the subject of this Planning Proposal includes lands that are mapped under the SEPP (Coastal Management) 2018 as either <i>Coastal Wetlands</i> or <i>Proximity Area for Coastal Wetlands</i> . Future development within the mapped Coastal Wetlands will be either Designated Development or exempt (existing fire trails).
2.3 - Heritage Conservation	Yes	The Birpai Local Aboriginal Land Council has been consulted and a site inspection conducted. The LALC have confirmed that it is unlikely that the site contains artefacts of significance to the Birpai LALC.

Relevant Section 9.1 Direction	Consistent	Reason for inconsistency/consistency
3. Housing, Infrastructure and Urban Development		
3.1 – Residential zones	Yes	This Planning Proposal will rezone R1 zoned lands to E2, on the basis that these lands are vegetated and have been included in the biodiversity conservation lands.
3.4 - Integrating Land Use and Transport	Yes	This Planning Proposal will not impact access, transport, car travel, public transport or the movement of freight.
3.5 – Development near Regulated Airports and Defence Airfields	Yes	This Planning Proposal supports the airport operators (PMHC Airport) rationale for undertaking the biodiversity certification process, which will ensure an on-going strategic and sustainable approach to the management and offsetting of any environmental impacts associated with the long-term operation and future development of essential infrastructure related to the Airport (including the Airport Business Park).
3.6 – Shooting Ranges	Yes	The Port Macquarie shooting range adjoins the site to the south and is zoned RE2 Private Recreation. An area of existing E2 zoned lands within the site separates the range from the proposed ABP. This Planning Proposal will retain an E2 zone buffer between the range and the proposed ABP, ensuring that more intensive land uses cannot be approved adjacent the range. This separation distance will also ensure minimal impact from potential noise. Additionally the land uses that will be permitted in the B7 Business Park zone are not considered noise sensitive receivers.
4. Hazard and Risk		
4.1 – Hazard and Risk	Yes	The site includes lands mapped as Class 2, 3 and 5 on the Acid Sulfate Soils Maps of the PMH LEP 2011. Groundwater assessments have been undertaken by Regional Geotechnical Solutions (29 October, 2015 and 16 November 2017) to inform the future development potential of the site and a copy of each report is attached at Appendix G. The assessments confirmed both Actual and Potential ASS are present and accordingly, An Acid Sulfate Soils Management Plan (ASSMP) will be required prior to onsite works where groundwater will be present. The preferred sewerage scheme (Low Pressure Sewerage Scheme) will minimise potential issues associated with the Actual and Potential ASS as deep excavation will not be required.
4.3 – Flood Prone Land	Yes – consistent with Clause (9)	The site (including the existing extent of Boundary Street) is identified on the Flood Planning Map of the PMHLEP 2011. An area of approximately 6,000m ² of the proposed B7 lands is identified within the mapped Flood Planning Area, being the 1:100 ARI plus 0.5m freeboard. The remaining proposed B7 lands are identified within the mapped Level of Probable Maximum Flood.

Relevant Section 9.1 Direction	Consistent	Reason for inconsistency/consistency
		The 2018 Hastings River Flood Study, adopted by PMHC in December, 2018, nominates a 1:100 ARI of 3.17m AHD for the airport precinct. The proposed rezoning from SP2 Infrastructure and E2 Environmental Conservation to B7 Business Park is inconsistent with clause (5) of this Direction. However, pursuant to clause (9) this inconsistency can be justified on the basis of the following: - Following preparation of the <i>Hastings River Floodplain Risk Management Study (2012)</i> and the <i>Hastings River Flood Study (2017)</i>, Council has adopted the <i>Port Macquarie-Hastings Flood Policy (2018)</i>. These studies and policy are consistent with the principles and guidelines included in the <i>Floodplain Development Manual 2005</i>; - The <i>PMHC Flood Policy (2018)</i> requires a flood planning level of FPL2 (with 25% of ground floor to be FPL3) for all commercial development (FPL2 = 100 year ARI Flood level + Climate Change (no freeboard), FPL3 = 100 year ARI Flood level + Climate Change + 500mm freeboard); - The future permissible uses within the proposed ABP are not of a type that will require consideration under clause 7.4 of the PMH LEP 2011 (Level of Probable Maximum Flood); and - The quantity of fill required to comply with the <i>PMHC Flood Policy (2018)</i> equates to approximately 1,500m³ and given the footprint of the total land area of the proposed B7 zone and the location of the ABP on the fringe of the flood prone land, can be considered to be of minor significance. PMHC is currently preparing detailed concept design to upgrade Boundary Street to 1 in 20 year flood immunity. Upon completion of the detailed design it is anticipated the Boundary Street upgrade works will be included in future application for government funding. PMHC is currently investigating flood free road access options to link the Port Macquarie Airport and the Oxley Highway. The community engagement process is currently underway for the Port Macquarie Orbital Road, which includes options for the future primary flood free access to the Port Macquarie Airport. The footprint of the proposed 23.75 ha gross area of B7 Business Park zone provides opportunities to link with potential flood free road access options to the south (as an extension of Boundary Street) and to the south east to Lady Nelson Drive. These future

Relevant Section 9.1 Direction	Consistent	Reason for inconsistency/consistency
		road access options have been included in the lands subject to Biodiversity Certification. The construction of a flood free secondary access road to the Port Macquarie Airport and other existing development on Boundary Street including the future Airport Business Park will provide a new north-south link between the Oxley Highway and Hastings River Drive which is considered to be an important regional road improvement. The lands subject to biodiversity certification also include a potential road link to The Binnacle (east of the ABP) which may be used as flood free access to the Airport Lands and the ABP as required.
4.4 - Planning for Bushfire Protection	Yes – consistent with the objectives	The existing vegetated areas within the area identified for the future ABP are identified as bushfire prone. This vegetation has been bio-certified and will be removed as development within the ABP occurs. Future development will be required to consider the buffer areas to the biobank lands (future E2 zones to the east and south) and the rural zoned property to the north. All required APZ's and edge roads will be required to be provided within the B7 zoned lands, ensuring consistency with the relevant version of the Planning for Bushfire Protection..
5. Regional Planning		
5.10 - Implementation of Regional Strategies	Yes	The Airport Business Park is identified within the North Coast Regional Plan 2036 as part Business Centre and part Investigation Area – Employment Land.
6. Local Plan Making		
6.1 - Approval and Referral Requirements	Yes	This Planning Proposal will not introduce any additional requirements for concurrence with other State Government agencies.
6.2 – Reserving Land for Public Purposes	Yes	This Planning Proposal will rezone an area zoned RE1 Public Recreation to E2 Environmental Conservation. This land was included in the biodiversity conservation lands (future Biobank site) by the biodiversity certification.

Section C – Environmental, social and economic impact

- Q7. 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?

Ecology:

PMHC Airport engaged Ecological Australia to undertake a Biodiversity Certification Assessment and prepare a Biocertification Strategy in accordance with the Biocertification Assessment Methodology. Two reports have been prepared by Eco-Logical Australia with respect to this certification process:

- a. *Port Macquarie Airport Master Plan and Port Macquarie - Hastings Council owned land within the Thrumster Area 13 Urban Release Area - Biodiversity Certification Assessment Report & Biocertification Strategy Application to Minister*, Eco Logical Australia, 24 October, 2016; and
- b. *Port Macquarie Airport Master Plan implementation and vegetation clearing on Council owned land in the Thrumster Urban Release Area - EPBC Preliminary Documentation Assessment Report*, Eco Logical Australia, 9 November, 2018

The site falls within the land area that has undergone biodiversity certification (see Exhibit 1) and accordingly, this process will result in the biodiversity impacts associated with future development within *the site* having already been assessed and offset.

The purpose of the Ecological Australia assessments and strategy was to obtain Biodiversity Certification of:

- The land required for the ongoing operational use of the existing airport (maintenance of the runway strip and associated obstacle limitation surface (OLS));
- The land affected by the existing and expanded Obstacle Limitation Surface (OLS) and the extension and/or relocation of critical aviation related infrastructure and facilities in accordance with the revised CASA aerodrome standards;
- Future residential and light industrial development in the Partridge Creek Residential, Partridge Creek Industrial, and West Lindfield neighbourhoods of the Thrumster Urban Release Area, and their associated roads, Asset Protection Zones (APZs), easements and fire trails; and

- Future employment and airport related accommodation facilities within the Airport Business Park precinct and the establishment of flood-free road access to the airport consistent with the Airport Master Plan.

The *Biodiversity Certification Assessment Area* (BCAA) represents a total land area of 1,024.48 ha. The biodiversity certification will permanently protect and manage for conservation 444.17 ha (43% of the BCAA) of Council owned operational land and some currently private land within the BCAA and an additional 40 – 50 ha off-site off-set areas to provide additional protection for the koala.

The 444.17 ha of biodiversity conservation lands within the BCAA includes:

- 221.99 ha of the three red flag EECs;
- 111.24 ha of SEPP 14 Wetlands;
- 26.70 ha of riparian buffers; and
- 8.77 and 61.78 ha of state and regional biodiversity links.

The site for the purposes of this Planning Proposal represents a footprint of approximately 759.7 ha, or 74% of the BCAA. The conservation areas that will be zoned E2 Environmental Conservation under this Planning Proposal will be registered as a Biobank Site under Part 7A of the TSC Act within 12 months of the Minister conferring Biocertification (see Appendix E for Order). This will provide in perpetuity conservation protection and management on the land title.

The biodiversity assessment included consideration of the following vegetation works that will be undertaken on the lands that are included in this Planning Proposal:

- Clearing of vegetation for the widening (and ongoing maintenance) of the existing Code 3C 150m wide runway strip to a code 4C 300m wide runway strip;
- Ongoing establishment and maintenance of existing Code 3C 2% OLS at each end of runway 03/21 (150m approach and 180m take-off surfaces), which includes clearing and lopping of vegetation on land within and surrounding the airport property;
- Widening and ongoing maintenance of existing Code 3C 2% OLS at each end of runway 03/21 to comply with CASA Code 4C aerodrome standards which includes clearing and lopping of vegetation on land within and surrounding the airport property

- Potential future development/extension and/or relocation of critical aviation related infrastructure and facilities within the aviation uses precinct of the Airport to comply with CASA Code 4C aerodrome standards and cater for forecast growth in air services and passenger numbers, including (though not limited to) a potential new Regular Public Transport (RPT) apron, passenger terminal building and car parking, and a future parallel taxiway to the east of the runway;
- Clearing of native vegetation for the establishment of an Airport Business Park (new employment lands);
- Clearing of native vegetation for the establishment of flood free road access to the existing Airport between the Oxley Highway and Hastings River Drive via Port Macquarie Airport and the Airport Business Park and an upgrade to Boundary Street (the current access road to the Airport).
- Clearing of native vegetation to allow future residential and light industrial development on Council owned land within the Partridge Creek Residential, Partridge Creek Industrial, and West Lindfield neighbourhoods of the Thrumster Urban Release Area and establishment of associated roads and Asset Protection Zones (APZs). Future development would provide for a village centre, residential areas of up to 820 lots (700 in Partridge Creek and 120 in West Linfield) bordered by environmental lands, conventional residential development, and an employment hub containing a diverse range of employment generating uses for the Thrumster Urban Release Area; and
- Clearing of vegetation to allow the establishment of water and sewer easements to meet expected future needs of the Thrumster Urban Release Area and fire trails within the conservation areas to aid in strategic fire and conservation management.

The biodiversity assessment makes a number of recommendations with respect to *the site* and these recommendations have been used to inform the zone amendments within this Planning Proposal, including:

Location and impact	Recommendation from Biocertification process
1. Clearing of vegetation for the widening (and ongoing maintenance) of the existing Code 3C 150m wide runway strip to a code 4C 300m wide runway strip	An OLS clearing boundary of 54 m have been identified rather than the full extent of the OLS boundary. A 54m clearing area allows maximum operational certainty and efficiency in ongoing airport operations whilst reducing ongoing operational expenses associated with the need to re-crop areas every 2-3 years due to rapid regrowth of vegetation 20.9 ha has been identified outside of this corridor within land proposed for conservation measures for selective tree cropping, and only if required. This area is labelled as conservation cropping and includes area where there are occasional trees that may require management based on predicted growth models and where vegetation does not require complete clearing. Only single trees will be pruned and subsequently poisoned to prevent regrowth. These trees will be left in-situ to provide fauna habitat (stags) and pruned material will not be removed from site to minimise indirect impacts and other disturbances Where clearing is proposed east and west of the runway, as is the case with vegetation management in the existing OLS boundary, vegetation will not be cleared to bare earth but to a managed native ground cover, similar to an urban asset protection zone. These areas will retain biodiversity values and act as buffers to retained vegetation, reducing indirect impacts
Comment This Planning Proposal includes an amendment to zone the 54m wide clearing areas to SP2. The additional 20.9 ha outside this corridor that are affected by the OLS (to east and west) will be zoned E2 Environmental Conservation. The biodiversity certification has assessed and offset the impact of this activity and future approvals for vegetation modification can rely on their certification. This Planning Proposal provides for an amendment to the LEP 2011 Schedule 1, to provide for an additional permitted use on nominated lands within the site for the purposes of vegetation clearing and/or conservation cropping to the extent specified within the biodiversity certification.	
2. Ongoing establishment and maintenance of existing Code 3C 2% OLS at each end of runway 03/21 (150m approach and 180m take-off surfaces), which includes clearing and lopping of vegetation on land within and surrounding the airport property; and	The area of Paperbark swamp forest of the coastal lowlands of the North Coast at the southern end of the runway (16.77 ha) is proposed to be managed to permanently remove the trees only but retain the characteristics of the Coastal freshwater meadows and forblands of lagoons and wetlands. This is an EEC and will maintain water quality and functioning of the SEPP14 wetland, whilst avoiding attracting water birds that pose a risk to aviation operations. Where possible, some trees will be retained in the area south of the

Location and impact	Recommendation from Biocertification process
<i>Widening and ongoing maintenance of existing Code 3C 2% OLS at each end of runway 03/21 to comply with CASA Code 4C aerodrome standards which includes clearing and lopping of vegetation on land within and surrounding the airport property</i>	<i>runway, and glider poles and ropes will be installed to maintain a link between conserved vegetation. The resulting vegetation structure will continue to provide habitat for NSW listed threatened species including Eastern Chestnut Mouse, Wallum Froglet, Grass Owl and other species</i>
Comment This Planning Proposal includes an amendment to zone this 16.77 ha area to SP2. The land area is critical to the on-going function of the Airport Lands and the required extent of vegetation modification is not appropriate for an environmental zone. The certification process has included the area as a <i>cleared area</i> and appropriate offset for this clearing action is included in the vegetation impact calculations.	
3. <i>Clearing of native vegetation for the establishment of an Airport Business Park (new employment lands); and</i> <i>Clearing of native vegetation for the establishment of flood free road access to the existing Airport between the Oxley Highway and Hastings River Drive via Port Macquarie Airport and the Airport Business Park and an upgrade to Boundary Street (the current access road to the Airport).</i>	The Biocertification process has included all lands identified for the future ABP and road connections as <i>cleared lands</i>.
Comment This Planning Proposal will amend the zone of the 23.75 ha of land within the Airport Business Park to B7. This Planning Proposal will amend the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the <i>Threatened Species Conservation Act 1995</i>. An objective of the clause is to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified. Generally the required APZs for the future Area 13 development are located in the existing E3 zones. This Planning Proposal will retain these zones.	
4. <i>Clearing of native vegetation to allow future residential and light industrial development on Council owned land within the Partridge Creek Residential, Partridge Creek Industrial, and West Lindfield neighbourhoods of the Thrumster Urban Release Area and establishment of associated roads and Asset Protection Zones (APZs). Future development would provide for a village centre, residential areas of up to 820 lots (700 in</i>	<i>Thrumster URA - Of the 118.50 ha of impact vegetation proposed in the action, only 10.08 ha (including APZs) is as a result of clearing on Council owned land in the Thrumster URA and this impact area includes two road corridors that have allowed up to 50m of clearing. The final clearance width is likely to be only 15-20m wide.</i> <i>Bush Fire Asset Protection Zones (APZs) have been included in vegetation impact calculations, however will retain some trees that will provide foraging resources</i>

Location and impact	Recommendation from Biocertification process
<i>Partridge Creek and 120 in West Lindfield) bordered by environmental lands, conventional residential development, and an employment hub containing a diverse range of employment generating uses for the Thrumster Urban Release Area; and</i> <i>Clearing of vegetation to allow the establishment of water and sewer easements to meet expected future needs of the Thrumster Urban Release Area and fire trails within the conservation areas to aid in strategic fire and conservation management.</i>	<i>for Koala, Swift Parrot and Grey-headed Flying-fox and reduce/buffer indirect impacts to adjacent conservation lands</i>
Comment This Planning Proposal retains the existing E3 zone for the future APZs within the Area 13 URA, where the required vegetation modification has been included in the biodiversity certification. The existing and future fire trails will retain the zone within which they are located, noting that the vegetation works associated with their maintenance/creation has been assessed and offset in the biodiversity certification. Where future service corridors are required through the conservation lands (E2 zone) this Planning Proposal will amend the LEP 2011 to introduce a new clause 7.17 and supporting map that will identify the land that has been conferred for biodiversity certification under section 126 H of the <i>Threatened Species Conservation Act 1995</i>. An objective of the clause is to allow development for essential infrastructure, including roads, fire trails and sewerage services on the lands that have been identified as certified.	

Q8. Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?

Groundwater and Stormwater Management Plan:

The following geotechnical assessments have been undertaken to inform the rezoning process for the Airport Business Park (see Appendix G):

- *Geotechnical Assessment*, Regional Geotechnical Solutions (October 2015); and
- *Groundwater Assessment – Factual Report*, Regional Geotechnical Solutions (16 November 2017)

The initial assessment (October 2015) was prepared to assist with the development of the Stormwater Management Plan (SMP) at Appendix I for the Airport Business Park (ABP) and to also provide an overview of the existing geotechnical conditions with particular reference to excavation activities and groundwater conditions for a proposed sewer reticulation system.

The November 2017 assessment provides the findings from the monitoring sites during the monitoring period and the ground level responses to rainfall. This monitoring was also used to inform further development of the SMP.

The observations contained within the November 2017 assessment support the October 2015 observations, where the long term groundwater levels were highly variable and ranged from 0.05 – 0.9m depths due to localised perched aquifers above indurated sand aquitard layers.

The observations confirmed that excavations within the ABP to construct conventional sewer and stormwater drainage infrastructure and bio-retention systems will likely intersect the existing indurated sand layers. This will result in the connection of the upper and lower aquifers and subsequent modification to the water table within the development envelope.

Therefore the proposed SMP, with bio-retention swales and basins with a permanent submerged zone as a feature of their design for stormwater treatment, will establish and regulate groundwater levels at levels close to the existing upper aquifer levels, which will support the maintenance of groundwater levels in their vicinity.

Additionally, the implementation of bio-retention basins at the development edge will assist to maintain existing water levels within the adjoining lands.

The adoption of bio-retention systems within the development with submerged zones close to the surface will assist to maintain consistent groundwater levels post construction. Connection between the surface aquifers and rainfall will also be retained through the use of these bio-retention systems.

The attached SMP also assessed the impact of the proposed development of an ABP on stormwater quantity and stormwater quality utilising the DRAINS and MUSIC programs.

Water quality - The assessment compared the existing conditions to proposed conditions and the change to water quality from source to outlet. The proposed development has been designed to implement the treatment train approach to ensure outflows from the development mimic existing conditions, and have been afforded suitable stormwater quality treatment to meet the stated water quality objectives.

The SMP also recommends that the future allotments be required to provide a gross pollutant capture device (Gross Pollutant Trap, Litter Screen or Litter Baskets or similar) prior to the point of connection with the Council trunk drainage system, to ensure that the stormwater swales are adequately protected and are not impacted by silt/sediment or gross pollutants and litter.

Water quantity - The landform at the outlet being part of the floodplain of the Hastings River was considered a mitigating factor for stormwater quantity outflows. The impact of higher flows when considering the large surface area results in negligible increases to water levels within the wetlands. The SMP concludes that stormwater detention is not required in this instance.

Flooding:

The site (including the existing extent of Boundary Street) is identified on the Flood Planning Map of the PMHLEP 2011. An area of approximately 6,000m² of the proposed B7 lands is identified within the mapped Flood Planning Area, being the 1:100 ARI plus 0.5m freeboard. The remaining proposed B7 lands are above the Flood Planning Area but identified within the mapped Level of Probable Maximum Flood.

The 2018 Hastings River Flood Study, adopted by PMHC in December, 2018, nominates a 1:100 ARI of 3.17m AHD for the airport precinct.

The PMHC Flood Policy (2018) requires a flood planning level of FPL2 (with 25% of ground floor to be FPL3) for all commercial development (FPL2 = 100 year ARI Flood level + Climate Change (no freeboard), FPL3 = 100 year ARI Flood level + Climate Change + 500mm freeboard). The quantity of fill required to comply with the PMHC Flood Policy (2018) equates to approximately 1,500m³ and given the footprint of the total land area of the proposed B7 zone and the location of the ABP on the fringe of the flood prone land, can be considered to be of minor significance.

Additionally the future permissible uses within the proposed ABP are not of a type that will require consideration under clause 7.4 of the PMH LEP 2011 (Level of Probable Maximum Flood).

PMHC is currently preparing detailed concept design to upgrade Boundary Street to 1 in 20 year flood immunity. Upon completion of the detailed design it is anticipated the Boundary Street upgrade works will be included in future application for government funding.

PMHC is currently investigating flood free road access options to link the Port Macquarie Airport and the Oxley Highway. The community engagement process is currently underway for the Port Macquarie Orbital Road, which includes options for the future primary flood free access to the Port Macquarie Airport.

The footprint of the proposed 23.75 ha gross area of B7 Business Park zone provides opportunities to link with potential flood free road access options to the south (as an extension of Boundary Street) and to the south east to Lady Nelson Drive. These future road access options have been included in the lands subject to Biodiversity Certification.

The construction of a flood free secondary access road to the Port Macquarie Airport and other existing development on Boundary Street including the future Airport Business Park will provide a new north-south link between the Oxley Highway and Hastings River Drive which is considered to be an important regional road improvement.

The lands subject to biodiversity certification also include a potential road link to The Binnacle (east of the ABP) which may be used as flood free access to the Airport Lands and the ABP.

Q9. Has the Planning Proposal adequately addressed any social and economic effects?

Economic:

PMHC have previously principally relied on advice from HillPDA with respect to the review of potential economic impacts.

HillPDA have in their advice dated 5 July 2017 (refer Attachment 4 at Appendix C) confirmed that provided the capacity of the existing road network is not exceeded, 20.5ha (gross zoned area) of B7 land is justified as it will not threaten the viability of existing commercial centres.

20.5ha gross zoned area of B7 land equates to 13.85ha net developable area of B7 zoned lands (i.e.; the development capacity).

As outlined in Appendix L, TPS and SLR have confirmed the existing road network has capacity for development of 20.6 ha (net developable area) of B7 zoned land based on agreed incremental improvements to the existing Hastings River Drive / Boundary Street intersection.

This Planning Proposal proposes 23.75ha gross zoned area of B7 land which equates to 16.03ha net developable area of B7 zoned land (i.e.; the development capacity).

The proposed 23.75ha gross zoned area of B7 land is therefore well within the capacity of the existing road network determined by TPS and SLR.

Port Macquarie Airport have obtained further economic impact advice from Gillespie Economics and Augusta (refer Attachments 2 and 3 at Appendix C).

Gillespie Economics and Augusta have both highlighted the unique characteristics of the ABP, noting:

- The on-going investment in the Airport as a catalyst to attract new investment and business;
- The trend towards business park developments clustering at universities, airports and hospitals and along transport corridors;
- The stimulation of jobs not normally located in the CBD;
- The role of the Airport as a key driver for regional growth, economic development and employment which is not necessarily a consequence of population growth. (Augusta, 2011/Gillespie Economics,2017);
- The potential for the ABP to complement other existing and future business precincts; and
- Biodiversity Certification of the Port Macquarie Airport and surrounding lands is a key enabling action for the establishment of the Airport Business Park (Augusta, 2017). The footprint of the 23.75 ha proposed to be rezoned for Business Park purposes is within the footprint of the land that has received Biodiversity Certification by the state government in September 2018.

HillPDA in their review of Gillespie Economics (refer Attachment 4 Appendix C) have also concluded as follows:

If Gillespie Economics proves to be correct in its forecast of airport stimulating jobs then many of these businesses would not locate in the CBD anyway. These are businesses that rely more on proximity to the airport (and perhaps also the Pacific Highway) rather than proximity to the population base. There is some risk that they would locate outside the LGA altogether if space was not available (refer Attachment 4 at Appendix C - Hill PDA, July 2017).

This Planning Proposal seeks to reinforce the unique characteristics of the proposed ABP highlighted in the Gillespie and Augusta reports while ensuring potential impacts on existing commercial centres are mitigated through:

- Changes to the objectives of the B7 Business Park zone to place additional emphasis on large-scale/format developments; and
- Changes to the uses permitted with development consent to remove landscaping material supplies, plant nurseries and timber yards;
- Changes to the uses permitted/prohibited, to permit food and drink premises, self-storage units, electricity generating works, function centres and industrial training facilities;
- Larger minimum lot size provisions (minimum 2,000 m²) than typically provided in other commercial and industrial zones (typically minimum 1,000 m²); and
- Reduction of the maximum Floor Space Ratio (FSR) to 0.65:1. Commercial zones with an 11.5 m building height limit typically have a FSR of 1:1 outside CBD areas, e.g. Grant Street and Lord Street. The maximum FSR of 0.7:1 has been reduced to 0.65:1 to ensure floor areas generated do not exceed that determined in hypothetical development scenarios used to inform traffic and economic impact assessments.

It is considered that the planning controls proposed in the LEP emphasise the unique location and characteristics of the Airport Business Park. These planning controls considered in conjunction with the specialist economic impact advice outlined above provide certainty to confirm the 23.75ha footprint of B7 zoned land in the Airport Business Park will not threaten existing commercial centres.

Aboriginal Archaeology:

The Aboriginal sites officer for the Birpai Local Aboriginal Land Council has inspected the site and by correspondence of 25 November, 2015 (see Appendix F), has confirmed that no artefacts were observed. The Birpai LALC recommends that should any artefact be uncovered during excavations works, all works should cease and the LALC should be contacted.

Section D – State and Commonwealth interests

Q10. Is there adequate public infrastructure for the Planning Proposal?

Road network:

Currently industrial and commercial developments do not pay section 7.11 (Section 94) Contributions towards Arterial Roads. Accordingly the future development application for the subdivision to establish the ABP will not attract developer contributions under the current adopted contribution plans of the Council.

Subsequent development applications for industrial and commercial development within the ABP will be subject to Section 7.12 (Section 94A) levies of 1% of the overall cost of the proposed development. The trigger for the payment of these Section 7.12 levies is prior to the issuing of the construction certificate.

The Major Roads Contribution Plan 2006 includes provision for a roundabout at the intersection. These planned works were replaced by the existing signalised intersection.

Unless PMHC resolve to prepare a local roads contribution plan for the Airport Precinct (i.e. it would need to levy not only the Airport Business Park but also any other new traffic generating development in the area), there is no trigger currently available to Council to require the developer of the ABP to make monetary developer contributions to road infrastructure upgrades.

Boundary Street is recognised in a range of forums (PMHC, Chamber of Commerce, EDSG, and Port Macquarie Tourism Board) as one of the gateways to Port Macquarie and that its current condition is unacceptable as a Gateway to Port Macquarie.

PMHC is currently preparing detailed design for the upgrade of Boundary Street. The final design will be informed by the Hibbard Precinct Flood Study, which is currently on public exhibition.

It is anticipated that once the detailed design for the upgrade of Boundary Street is completed PMHC will seek funding for those works from all levels of government. This will occur as part of the need to upgrade the only access to the Port Macquarie Airport in its role as a Gateway to Port Macquarie and will occur with or without the development of the proposed ABP.

The traffic Impact assessments undertaken to date have confirmed that there is not a road capacity issue with respect to Boundary Street generated by the development of the ABP.

The road infrastructure identified that the ABP will need to contribute towards is the incremental upgrade of the Hastings River Drive and Boundary Street intersection.

The TPS, SLR, PMHC and TSN traffic assessments have all identified the required improvements to the Hastings River Drive / Boundary Street intersection to cater for the traffic generated by the proposed ABP and doubling of traffic generated by existing uses.

In the absence of a local roads contribution plan applicable to the intersection works, it is anticipated and acknowledged that the implementation of the identified intersection improvements will be included in a condition of development consent as part of the determination of a future development application for the establishment of the Airport Business Park. The condition of development consent will include details of the proposed trigger for the intersection improvement works. Apportionment of the sharing of the costs of the intersection works between the ABP and other developments will typically be negotiated through a works in kind agreement at that time.

Sewerage:

This Planning Proposal is accompanied by two (2) options for sewerage infrastructure; a *conventional gravity sewerage scheme* and a *low pressure sewerage scheme* (LPSS).

The options have been informed by the geotechnical assessments undertaken by Regional Geotechnical Solutions (RGS) (see Appendix G), including:

- *Geotechnical Assessment*, RGS (October 2015); and
- *Groundwater Assessment – Factual Report*, RGS (16 November 2017)

The initial assessment (October 2015) was prepared to assist with the development of the Stormwater Management Plan (SMP) at Appendix I for the Airport Business Park (ABP) and to provide an overview of the existing geotechnical conditions with particular reference to excavation activities and groundwater conditions for a proposed sewer reticulation system.

The November 2017 assessment provides the findings from the monitoring sites during the monitoring period and the ground level responses to rainfall. This monitoring was also used to inform the SMP.

The observations contained within the November 2017 assessment support the October 2015 observations, where the long term groundwater levels were highly variable and ranged from 0.05 – 0.9m depths due to localised perched aquifers above indurated sand aquitard layers.

The observations confirmed that excavations within the ABP to construct conventional sewer and stormwater drainage infrastructure and bio-retention systems will likely intersect the existing indurated sand layers. This will result in the connection of the upper and lower aquifers and subsequent modification to the water table within the development envelope.

1. Conventional Gravity Sewerage Scheme

The initial design for a conventional gravity system has been based on several assumptions, including:

- Exact loading details are unknown as the exact mix of development is still being finalised however 15ET per gross hectare has been adopted (for the Airport Business Park) in consultation with Council staff;
- Existing loading details have been obtained for the Port Macquarie Airport and these have been used for the airport and general aviation lands (Airport Lands). This loading has been used to estimate a loading of 1 ET per gross hectare of Airport Lands;
- A minimum grading of 1% generally was adopted. It is recognised that under detailed design this could potentially be reduced however given the uncertainty of achieving 15ET/ha it was decided to be conservative for the initial design;
- A minimum invert level of RL0.0m at each pump station was adopted as the lowest IL for the gravity sewer. This equates to depths around 4-4.5m for the gravity sewer system and a pump station well depth of 5-5.5m;
- A well size and depth of 2.4m diameter with 1m control volume has been adopted to provide some flexibility with respect to possible depths of the pump stations;
- The Geotechnical Assessment prepared by RGS identified that there will be construction issues relating to depth of excavation, high water table, existence of the coffee rock and potential and actual acid sulphate soils. Future Development Applications will require more detailed geotechnical assessment to inform the final design for the sewerage infrastructure;
- The Geotechnical Assessment has recommended that an Acid Sulfate Soils Management Plan will be required to be prepared as part of the approval process associated with the construction of a Sewer Pump Stations and the reticulated sewerage infrastructure;
- The preparation of this Sewerage Strategy has also considered the

possibility of connecting Newman College to the new sewer system to provide early flows to the system. (note - this will require agreement with Newman College).

- A preliminary layout and grading which confirmed that a Conventional Sewerage System approach is achievable with the following details:
 - o Two sewer pump stations. The first of these will service Stage 1 of the Airport Business Park and provide for Newman Collage, the existing Airport Terminal and the existing General Aviation area.
 - o The second pump station will service Stage 2, providing for the southern area of the Airport Business Park and the expansion to the General Aviation lands
- The Sewer Rising Main from the proposed Stage 1 Sewer Pump Station will connect to SPS23 in Hastings River Drive. It has been confirmed with Council that the scheme will need to discharge to the collecting manhole for SPS23 as there is no capacity within the existing gravity system along Hastings River Drive.
- Initial sizing for the sewer rising main has determined that a 150mm rising main will be required for the Airport Business Park. It was determined that a 100mm interim sewer rising main would service approximately 12ha or Stage 1 of the development if installed. It was determined that there was no merit in using the existing rising main from Newman Collage based on its small diameter (65mm).

2. Low Pressure Sewerage Scheme (LPSS)

A pressure sewer system consists of a series of positive displacement grinder pumps moving finely ground effluent material along a network of small diameter polyethylene pipes. Each property within the system has a below ground pump station. The waste water is delivered to the station by traditional gravity methods; this is then ground into a fine slurry and pumped under a low pressure through a network of polyethylene pipes. Due to the velocities of pressure sewer smaller pipe sizes are used and only a minimum cover over the pipeline is required and they follow the contours of the land.

LPSS's are located in areas where occupied properties use a pump to move wastewater from the dwelling to a small diameter pressure reticulation system. Wastewater then flows to a larger pumping station or gravity wastewater system. A LPSS is generally used in areas where a conventional gravity system is not a viable servicing option due to flat, wet, rocky, hilly terrain or environmentally sensitive areas.

Equipment required for LPSS generally consist the following infrastructure:

- Small diameter pressure reticulation pipes – these pipes are usually located in the street. Wastewater flows under pressure to a larger pumping station or gravity wastewater system.
- A sewer lateral and a boundary assembly kit - every property within a pressure sewer area requires this infrastructure, which the water service authority owns and maintains.
- On-property equipment including a collection tank, pump and alarm control panel - Every property connecting to the LPSS requires this equipment.

For industrial, commercial and publicly owned property the LPSS equipment is generally owned and maintained by the property owner. This can be with a commercial agreement between the owner and water service authority if appropriate.

The Geotechnical Assessment prepared by RGS identified that there will likely be construction issues for conventional gravity sewer relating to the depth of excavation, high water table, existence of the coffee rock and potential and actual acid sulphate soils. The use of a LPSS will minimise the impact of these on the design and construction of the sewerage scheme.

It is considered feasible to have a pressure sewer main from the Airport Lands and Airport Business Park to SPS23. This would need to be confirmed during the development application and detailed development design stage.

Water Supply:

This Planning Proposal relies on the Water Supply advice provided by PMHC with respect to the future water supply reticulation for the Airport Business Park. New reticulation is expected to be supplied from the Oxley Highway ultimately linking to the existing infrastructure in Boundary Street. Preliminary reviewed densities indicate a 250mm potable watermain will be required.

- Q11. What are the views of state and Commonwealth public authorities consulted in accordance with the Gateway determination?

Should the proposal be supported, the Department of Planning and Environment's gateway determination will specify consultation requirements.

Consultation with State agencies is expected to occur with the NSW Office of Environment and Heritage, the NSW Rural Fire Service and the relevant electricity and telecommunications providers.

PART 4 - Mapping

Proposed map amendments to PMHLEP 2011 are described in Part 2 of this Planning Proposal.

The proposed Zone plan is provided at Appendix B.

PART 5 - Community consultation

It is proposed to undertake community consultation for 28 days including notification in a local newspaper and written notification to adjoining landowners. In addition, the exhibition material will be available on Council's website and at the Port Macquarie Administration building for the duration.

In addition to the public exhibition of the Planning Proposal, it is noted that:

1. The Biodiversity Certification Assessment of the Biocertification Strategy was publicly exhibited in May to June 2016;
2. The Draft Environmental Protection Biodiversity Act Preliminary Documentation Assessment Report for the Port Macquarie Airport Master Plan Implementation and Vegetation Clearing on Council owned land in the Thrumster Urban Release Area was publicly exhibited from 13 December, 2018 to 14 February, 2019; and
3. The Port Macquarie Airport Master Plan 2010 has undergone community and stakeholder consultation since 2009 and the Addendum Report (October 2013) was placed on public exhibition from 4th October to 1st November 2013.

PART 6 - Project timeline

This project timeline is based on anticipated dates and timeframes, as outlined below:

Anticipated dates	2019							
	May	June	July	August	September	October	November	December
Commencement (date of Gateway determination)			X					
Timeframe for the completion of required additional information				X				
Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)				X		X		
Commencement and completion dates for public exhibition period					X			
Dates for public hearing (if required)								
Timeframe for consideration of submissions						X		
Timeframe for the consideration of a proposal post exhibition							X	
Date of submission to the department to finalise the LEP							X	
Date Council will make the plan (if delegated)								X
Date Council will forward to the department for notification.								X

Appendix C – Preliminary Probity Review Report



Our Ref: 810160122:SA
Contact: Scott Anson

7 November 2018

Port Macquarie Hastings Council
17 Burrawan Street
Port Macquarie NSW 2244

Attention: Sandra Bush (Senior Strategic Planner)

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Dear Sandra,

**PORT MACQUARIE AIRPORT PRECINCT INVESTIGATION AREA – SITE
SELECTION FOR PROPOSED BUSINESS PARK, PRELIMINARY PLANNING
PROCESS REVIEW**

1 Introduction

Cardno (NSW/ACT) Pty Ltd (Cardno) has been engaged by Port Macquarie Hastings Council (Council) to prepare an independent review of the planning process undertaken by the Council, relating to the preparation of a Planning Proposal for the Port Macquarie Airport Business Park. The investigation area includes land owned by Council.

This report provides an opinion and conclusions based on the observations and work performed. The services provided and work performed were in accordance with Council's letter of engagement and cover the period from 16 March 2016 to the date of this preliminary report, 7 November 2018. This preliminary report is limited to the planning process that has been undertaken and the planning reports and recommendations presented to Council during the specified period. This report considers the relevant NSW planning legislation, processes and guidelines, together with the NSW ICAC Probity Principles. This report is not a merit review of the Council's planning for the Airport Investigation Area. A copy of Council's letter of engagement to Cardno is attached.

Cardno's planning process review team has no prior involvement with the investigation area, land owners or surrounding developments. Cardno is not aware of any conflict of interest that would preclude the Cardno planning team from undertaking this planning process review.

This preliminary planning process review was primarily conducted by Scott Anson, Technical Director – Planning, Cardno Northern NSW. Scott is a Registered Planner (#4156) and is bound by the Planning Institute of Australia (PIA) Code of Professional Conduct (<https://www.planning.org.au/documents/item/6014>). Scott commenced with Cardno in January 2017 and has over 23 years experience working with NSW legislation including the *Environmental Planning and Assessment Act 1979*, *NSW Local Government Act 1993* and related legislation and regulations. Scott has no prior engagements working with or on behalf of Council.

Scott has been assisted by Natasha Wells, Senior Planner - Cardno Northern NSW who has over 15 years professional planning experience. Natasha has been involved in this planning process review since March 2016. Between March 2016 and October 2016 the review was conducted by Renae Gifford and Keith Blackmore. Renae and Keith ceased working at Cardno in 2016. Natasha concluded working at Cardno in 2017.

Cardno advises that Cardno engineering staff have been engaged by Council to prepare an engineering design for Boundary Road, Port Macquarie. This planning review is a separate and discrete engagement prepared by the planning team at Cardno Northern NSW. This preliminary report has been peer reviewed by the Cardno Sydney planning team located in St Leonards.

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2 The Planning Proposal

This engagement involves a review of the planning process followed by Council for the preparation of a planning proposal for the investigation area comprising Council and private owned land. Cardno notes that Council has a role as land owner and airport operator. Council is a planning authority under the *Environmental Planning and Assessment Act 1979*. Council is also a roads authority under the *Roads Act 1993*.

The Department of Planning and Environment's *Local Environmental Plans – A guide to preparing local environmental plans* 2016 defines a *planning proposal* as a document that explains the intended effect of the proposed Local Environmental Plan (LEP) and provides the justification for making the plan under the Environmental Planning and Assessment Act 1979, s.3.33(1) [Previously s.55(1)]. The level of detailed required in a Planning Proposal should be proportionate to the complexity of the proposed amendment. The Planning Proposal should contain enough information to identify relevant environmental, social, economic and other site specific considerations. The scope of key issues should be identified in the initial Planning Proposal that is submitted for a Gateway determination. The Gateway determination process assesses the strategic merit of the proposal. The Gateway assessment is undertaken by the Department of Planning and Environment. If the Planning Proposal proceeds, the determination may specify further investigations, public and agency consultation and timing requirements to be met prior to the plan being made. As noted, further detailed investigations may be undertaken and included in the Planning Proposal after the Gateway determination is issued. When preparing and considering a Planning Proposal Council should consider whether they will be seeking an Authorisation to make the plan under delegation or request the Department to be the Responsible Planning Authority (RPA).

3 Purpose of Independent Planning Process Review

The purpose of this preliminary review is to provide an independent assessment of Council's planning process for the Airport Business Park Planning Proposal. This review considers whether the relevant planning processes have been followed and undertaken by the Council, in particular the activities and tasks undertaken by Council's Development and Environment Division (D&E), have been conducted in an unbiased way. The objectives of the review are:

- (a) To review the planning process that has been undertaken to date in relation to the Airport Business Park investigation area
- (b) To review the draft reports to Council in relation to planning proposals for the Council and Missen properties within the Airport Business Park investigation area,
- (c) To prepare independent probity reports regarding the planning process and recommendations and any partiality or bias that may be evident as a result of the probity review,
- (d) In relation to a) to c) above, to answer the question: ***Has Council fulfilled its role as planning authority in a fair and unbiased manner, notwithstanding the ownership of land by Council within the Airport Business Park Investigation Area?***
- (e) To make any necessary recommendations to Council as a consequence of the above review (Port Macquarie Hasting Council Consultancy Brief RFQ 16-20 February 2016).

In respect to point (b) Cardno has considered the planning processes Council has applied to all land situated within the investigation area.

3.1 Preliminary planning process review

This preliminary planning process review covers the period of Cardno's engagement from 16 March 2016 to the date of this report 7 November 2018.

Cardno has undertaken a preliminary planning process review having regard to the provisions of the:

- NSW *Environmental Planning and Assessment Act 1979*, primarily covered under Section 3.33 (Previously Section 55);

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- *Planning Proposals – A guide to preparing planning proposals* 2016; and
- *Local Environmental Plans – A guide to preparing local environmental plans* 2016

These guidelines are issued by the Department of Planning and Environment.

Cardno has also considered the provisions of the *NSW Local Government Act 1993* relating to code of conduct of councillors, staff, delegates and administrators as this relates to dealings with affected land owners and the general public (refer Port Macquarie Hastings Code of Conduct and Port Macquarie Hastings Council Code of Meeting Practice). Cardno has been guided by the core principles (where applicable) contained in the NSW Independent Commission Against Corruption publication *Probity and Probity Advising - Guidelines for Managing Public Projects* 2005, including:

- *Accountability of the participants and transparency of the process;*
- *Fairness, impartiality and honesty in carrying out the process;*
- *Management of actual, potential and perceived conflicts of interest;*
- *Maintenance of confidentiality and security of documentation and information; and*
- *Attaining best possible value for money under the prevailing circumstances.*

3.2 Work Performed

Cardno undertook the following tasks in order to form a conclusion on the tasks undertaken by Council's Development and Environment Division in relation to the planning process, land owner consultation and consideration of technical studies as part of the preparatory work for the Airport Business Park Planning Proposal. For this preliminary report a sampling approach targeting key issues and/or process milestones was adopted. The relevant records are identified below.

3.2.1 Inception meeting, site inspection and background information

Cardno's Senior Planner Keith Blackmore attended the inception meeting and site inspection with Council's Development and Environment. For the period prior to Cardno's engagement in 16 March 2016, Cardno has relied on the provision of records comprising documents, reports, studies and minutes provided by Council.

3.2.2 Records Management

In respect to the confidentiality of sensitive information and internal file security arrangements, Council's Team Leader Information and Data has attested that only Strategic Land Use Planning staff have permissions to access the relevant Council Planning Proposal file(s). Council's Electronic Document Management System (HP TRIM) came into effect at Council in July 2012. Cardno has requested and received a summary of access controls applied to relevant Council planning proposal files within the Port Macquarie-Hastings Council's HP TRIM systems. On 20 September 2017 Council's Records Manager Team Leader confirmed that "no access has been provided to the Commercial Business Services group (of which airport staff are a subset) belonging to the Corporate Performance Division". The relevant records include:

- DD032.2015.00000003.001 PP2015 – 3.1 PMQ Airport Precinct rezoning – PMHC land 54723
- DD032.2015.00000003.004 PP2015 – 3.4 PMQ Airport Precinct Expansion Impact Assessment 2491
- DD032.2015.00000003.005 PP2015 – 3.5 PMQ Airport Precinct Probity Review 2491

3.2.3 Biocertification issues

Cardno has identified and sighted Council meeting minutes relating to items considering the Biocertification matter. Cardno notes that Cllrs Besseling and Cusato declared interests on 16 December 2015, 10 August 2016 and 19 October 2016. The other record identified by Cardno involves the initial consideration by Council of *Tender T-14-09 for the Biodiversity Certification Assessment and Strategy, Port Macquarie Airport* to select the consultant to undertake this work. Cardno notes that this item and resolution involved a Council administrative process and allocation of Council funds only. Cllr Besseling participated in the meeting and Cr Cusato was an apology. At time of writing this preliminary report, Cardno notes that Cr Besseling is no longer a Councillor at Port Macquarie Hastings Council.

Cardno has sighted the Council's bio-certification documentation submitted to the NSW Minister for the Environment. This documentation includes two (2) public submissions from Mr John Jeayes and Lewis Land Group for Sovereign Hill Project/GEM Planning. These submissions foreshadow potential probity issues concerning Council as a planning authority and as a land owner. Cardno contacted Mr Jeayes on 21 September 2016 confirming Cardno was undertaking an independent review of the Planning Proposal process undertaken by Council.

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The opportunity to scrutinise these specific issues and concerns and the overall merit of the Planning Proposal will be during the public consultation phase following Gateway determination. The Department of Planning and Environment determines if the planning proposal can proceed to community and agency consultation.

Cardno notes that the planning proposal for the Airport Business Park relies on approval of the bio-certification package by the Minister for the Environment. Cardno notes that conflicts of interest were declared and recorded for this item in the Council meeting minutes on 10 June 2016.

The Minister for the Environment is solely responsible for approving or refusing the bio-certification package submitted by Council. Cardno has sighted:

- The Office of Environment and Heritage (OEH) written advice to Council dated 17 August 2018
- Executed Biocertification documents signed in Port Macquarie and dated 3 September 2018
- Extract from NSW Government Gazette No 87 and Order dated 7 September 2018 pp 5856-5865 giving effect to the Biocertification arrangements
- Council Report *Port Macquarie Airport and surrounding lands – Biodiversity Conservation Agreement* and Minutes dated 19 September 2018

Cardno notes that it was open to Mr Jeayes, Lewis Land Group and any other stakeholder to make representations direct to the Minister for the Environment on the biocertification matter.

3.2.4 Review planning criteria

Council's D&E provided draft planning criteria on 18 October 2016. Cardno notes that planning criteria were prepared in advance by Council's D&E in the event that the extent of the area to be rezoned needs to be limited in size or staged over time.

Cardno's response dated 3 November 2016 concluded that the Draft Planning Criteria are generally in line with the adopted Urban Growth Management Strategy. Cardno notes from a probity perspective that the criteria is not land owner centric and is generally consistent with adopted reports and strategies from 2007 to present, including the Industrial Lands Strategy, Urban Growth Management Strategy, Midcoast Regional Strategy and North Coast Regional Strategy.

3.2.5 Review meetings

Port Macquarie Airport Business Park – Planning Update Councillor Briefing by Peter Cameron/Duncan Clarke on 30 November 2016

Cardno was not present at the Councillor briefing on 30 November 2016. Council's Group Manager Strategic Land Use Planning verbally advised Cardno that Council staff representatives for the Port Macquarie Airport business enterprise left the room and were not present for the duration of the briefing. Cardno notes that this advice is consistent with Port Macquarie Hastings Council Meeting Code of Practice, Section 8.11.2, relating to matters involving a Council business enterprise.

Cardno has sighted the briefing material provided to Councillors on 30 November 2016. Cardno notes:

- > Indicative area identified for potential rezoning illustrates different options covering part private owners and part Council land.
- > Presentation references Department of Planning advice circa November 2007 outlining key issues to be addressed in a planning proposal
- > Next steps includes D&E meeting with all affected landowners; and
- > Future report to Council on planning proposal noting proposal is subject to bio-certification package.

3.2.5.1 Landowner meetings with Council Development & Environment Division

Cardno observed meetings between Council's D&E and land owners conducted on 24 March 2017. This review included sighting the meeting agenda (including meeting purpose) prior to release to landowners. Cardno has sighted meeting minutes issued to participants.

The first meeting involved Council's D&E and representatives of the Port Macquarie Airport (Corporate and Organisational Services [COS] Division as per Port Macquarie Hastings Council organisation structure pre 1 May 2017). The second meeting involved Council's D&E and representatives of the private land owners

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adjoining the airport. Land owner Missen represented by consultant Land Dynamics. Land owners Gilson and Ireland were invited but did not attend.

In the interests of transparency, Cardno directly advised land owners that Cardno is engaged by Council for the engineering design of Boundary Road. This engineering design work is separate to this planning process review and involves different Cardno staff.

Cardno observed that the D&E acted consistently with the meetings terms of reference. No conflicts of interest were raised by each participant at each meeting. Cardno notes that affected land owners had an opportunity to read the key project information and preliminary findings of technical reports and make submissions to D&E. An extension of time was granted to all land owners to make a submission to D&E. Cardno sighted letters submitted by Port Macquarie Airport (COS) and Missen.

No issues were raised by the land owners with Cardno concerning the conduct of the meeting by Council's D&E or the contents of the record of meeting.

3.2.6 Land Economics Assessment

Cardno has reviewed the reports prepared by Hill PDA in 2010, 2016 and supplementary advice provided to Council's D&E Division in 2017 in response to a peer review by Gillespie Economics. Cardno notes the quantum of land identified for rezoning within the Airport Business Park investigation area has been reviewed and increased from around 10 hectares initially to 20 hectares in the current report.

In response to a clarification raised by a landowner concerning amount of land that could be supported to be rezoned on economic impact grounds, Council's D&E circulated the consultant brief to all adjoining landowners in attendance for their information. Cardno observes that the brief outlines study objectives, provides background information and invites the consideration and analysis of different options consistent with sound land economic planning practice. Cardno notes that Council's D&E Division has sought clarification and advice from Hill PDA over an extended timeframe in response to issues raised by the Department of Planning and Environment. The merits and economic justification will be considered as part of the Gateway determination and assessment of the planning proposal by the Department of Planning and Environment.

3.2.7 Council Restructure

Cardno notes the Council organisational restructure combining strategic planning and asset functions within the same Division effective from 1 May 2017. Council's Group Manager Strategic Land Use Planning confirmed in an email dated 29 May 2017 that the Strategic Land Use Planning team will continue to report to the Director Development & Environment on all matters relating to the Airport Business Park planning proposal for the duration of the process.

3.2.8 Road network capacity

A key issue identified early in the Planning Proposal process involved the capacity of the existing local road network. Cardno notes that Council's traffic unit initially identified information deficiencies in the traffic study. Council's traffic unit has recommended that the area to be rezoned is limited in size to reflect the existing traffic capacity. Cardno has reviewed and observed numerous exchanges on the merits of the Planning Proposal on traffic management grounds during the period 16 March 2016 to 7 November 2018. Cardno notes that Council's traffic unit has maintained a consistent position throughout the planning process and this is reflected in a maximum gross developable area of 20.5 ha reflected in the current Council report which aligns with Council's traffic unit's assessment of road infrastructure capacities.

3.2.9 Landowner information request

Council's D&E sought clarification from Cardno on 10 April 2017 concerning a request from Council's airport land owner and operator dated 6 April 2017. The request was to obtain internal Council traffic modelling (SIDRA) information supporting a recommendation to limit the area able to be rezoned based on existing traffic capacity.

The purpose of the land owner request was to enable a peer review of the internal traffic modelling to be conducted. Cardno's response considered internal email communications provided by Council's D&E between 6 April to 10 April 2017. Cardno advised that usual practice is to not release information of this nature, unless Council is compelled to do so, as part of legal proceedings or the *Government Information Public Access Act (GIPA) Act 2009*.

Cardno notes that Council's D&E declined to release the requested information and the landowner subsequently obtained an independent peer review of the original traffic report. Cardno also notes that

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Council's traffic unit continues to maintain a limit on the area able to be rezoned based on existing available local road network traffic capacity.

3.2.10 Preliminary Report

This preliminary report considers whether there are any issues of concern in the process leading up to and including the report to Council. This report considers the inception meeting, planning criteria and key interactions and meetings with landowners outlined above. Council provided a draft Council report on 18 August 2017. Cardno and Council's D&E conducted a telephone conference on 25 August 2017 to discuss the report and identify any issues requiring further clarification. On 7 September 2017 Cardno provided a written response to Council's D&E on the draft Council report. Following Biocertification approval being granted by the Minister for the Environment, Council's D&E provided a revised draft Council report to Cardno on 28 September 2018. Council D&E staff provided an information briefing to Councillors on 24 October 2018. Cardno was not present at that briefing. Council's D&E provided an email to Cardno including the presentation provided to Councillors. Cardno is advised that no conflicts of interest were declared by Councillors or Council D&E staff present at the Councillor information briefing on 24 October 2018. Council's D&E provided a further revised draft report to Cardno on 26 October 2018. The revised Council report is proposed for the 21 November 2018 Council meeting. The current Council report proposes:

- a revised target date for a report back to Council on a planning proposal (now February 2019)
- additional text at the end of the Executive Summary to confirm/clarify the proposed net increase in B7 Business Park zone
- a summary of the Preliminary Probity Review key conclusions; and
- Advising land owners within the Airport Precinct Investigation Area of the Council decision

3.2.11 Final Report

The final planning process review report will address whether there are any issues of concern in the exhibition and review process and the final recommendations submitted to Council. The preparation of the final report will consider the requirements and timeframes contained in the Gateway determination issued by the Department of Planning and Environment. The final report will primarily focus on the public exhibition process and Council's response to public submissions.

4 Conclusion – Preliminary Planning Process Review

Cardno have carried out an independent review of Council's management and execution of the planning process for the subject project based on the requirements of:

- NSW *Environmental Planning and Assessment Act 1979*, primarily covered under Section 3.33 (Previously Section 55);
- *Planning Proposals – A guide to preparing planning proposals* Department of Planning and Environment 2016;
- *Local Environmental Plans – A guide to preparing local environmental plans* Department of Planning and Environment 2016; and
- the NSW Independent Commission Against Corruption publication *Probity and Probity Advising - Guidelines for Managing Public Projects* 2005

Cardno has not observed or detected evidence of partiality, bias or probity issues of concern in the planning process leading up to the Airport Precinct Investigation Area – Site selection for proposed Business Park report provided to Cardno on 28 September 2018 and settled by Council's D&E on 7 November 2018.

Cardno is satisfied that the planning processes and associated tasks are consistent with the principles and review protocol described in the terms of engagement and outlined in this preliminary report.

No significant issues or unresolved concerns of a probity nature were raised by land owners with Cardno during the period 16 March 2016 to 7 November 2018.

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Cardno has based this conclusion upon the activities described in the Work Performed section above and undertaken between 16 March 2017, the date of engagement and the date of this preliminary report, 7 November 2018.

Cardno is satisfied that Council has satisfactorily responded to initial issues and points of clarifications raised by Cardno in respect to *Airport Precinct Investigation Area – Site selection for proposed Business Park prepared by Port Macquarie Hastings Council Development & Environment*. Cardno makes the following observations:

4.1 General

The purpose of this initial review is to test general understanding and consider the report in the context of general land use planning practice. This review is limited to clarifications only. This review is not a review of the planning merits and does not provide planning advice to the Council.

4.2 Biocertification

Cardno notes that the NSW Minister for the Environment granted biocertification approval for the Airport and Thrumpter lands which took effect on 7 September 2018 pursuant to an Order published in the NSW Government Gazette No 87. Cardno also notes the protracted timeframes associated with the biocertification statutory process leading up to a decision.

4.3 Technical Reports

Cardno has sighted the brief provided by Council to Hill PDA and notes that the brief has been previously circulated to adjoining land owners for information. Cardno notes that land owners have had the opportunity to review the Hill PDA report. Cardno notes that land owners Missen (represented by Land Dynamics), Gilson, Ireland and Port Macquarie Airport (represented by King & Campbell) were provided with the opportunity to review other documents. These documents included the traffic review summary prepared by Council's Transport and Stormwater Network (T&SN) Section study and the planning criteria prepared by Council's Strategic Land Use Planning section as part of the 24 March 2017 land owner meeting agenda.

4.4 Quantum of land proposed to be rezoned

Cardno notes that Council D&E has settled on an area of 20.5ha as the recommended area to be rezoned. Council D&E have advised this is based on the capacity of the road network having regard to the report and land economic advice provided to Council's D&E unit prepared by Hill PDA.

4.5 Urban Growth Management Strategy 2011

Council has confirmed that the Urban Growth Management Strategy (UGMS) circa 2011 is the current reference document. Cardno notes that UGMS 2017-2036 was adopted by Council on 20 June 2018 and is pending endorsement by NSW Department of Planning and Environment.

4.6 Relevant Planning Authority

The Council planning proposal report should clearly identify the relevant Planning Authority overseeing this planning proposal.

Cardno notes that the Planning Proposal will be subject to further oversight by the NSW Department of Planning and Environment as part of Gateway determination process under the provisions of the *Environmental Planning and Assessment Act 1979*. The requirements of the Gateway determination process, including public exhibition, will be the focus of the final planning process review report. The following recommendations are presented for Council's consideration.

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5 Recommendations

That Council:

1. Note *Port Macquarie Airport Precinct Investigation Area – Site selection for proposed Business Park, Preliminary Planning Process Review Report* prepared by Cardno (NSW/ACT) dated 7 November 2018;
2. Demonstrate adequate information has been prepared to proceed to Gateway determination. This is to include a preliminary planning proposal summary statement, generally consistent with the Department of Planning's planning proposal information checklist (DPE 2016) outlining:
 - a. Objectives and intended outcome
 - b. Mapping (including current and proposed zones)
 - c. Community consultation to be undertaken (including agencies to be consulted)
 - d. Explanation of planning provisions
 - e. Justification and the process for implementation (including compliance assessment against relevant Section 9.1 (Previously Section 117 direction/s);
3. Voluntarily include a draft *Statement of Council Interest* to accompany public exhibition as part of planning proposal Gateway determination consistent with *Best Practice Guidelines – LEP's and Council Land 1997* (Note: *This guideline, although dated and not mandatory, is still considered a common industry reference*);
4. Subject to the planning proposal proceeding to public exhibition (post Gateway determination), Council's D&E write to Mr John Jeayes, Lewis Land Group for Sovereign Hills Project (represented by GEM Planning), Land owner Missen (represented by Urban Dynamics) and any other potentially effected land owners and stakeholders, alerting them and inviting them to make a submission on the Planning Proposal as part of the public exhibition process. This will ensure that any actual or perceived overlapping and/or outstanding issues can be considered and addressed prior to the Local Environmental Plan being made, notified and published on the NSW legislation website (www.legislation.nsw.gov.au); and
5. Maintain separate internal reporting on this matter via the Director Development & Environment for the duration of the Planning Proposal process.

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If Council has any questions concerning the content of this preliminary report, please do not hesitate to contact Scott Anson, Technical Director – Planning on 02 4940 5517 or email scott.anson@cardno.com.au

Yours sincerely,

A handwritten signature in black ink, appearing to be "SA", followed by a period.

Scott Anson

Technical Director

for Cardno

Direct Line: +61 2 4940 5517

Email: scott.anson@cardno.com.au

Enc:

1. NSW ICAC Probity Principles
2. Council brief dated February 2016

cc: Deb Sutherland, Principal & Senior Town Planning Specialist, Cardno Sydney (St Leonards)

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Attachments

1. NSW ICAC Probity Principles

Accountability of the participants and transparency of the process

Accountability and Transparency are related concepts. Accountability involves agencies being able to justify the use of public resources to an appropriate authority by allocating and taking responsibility for past and expected performance. This includes aligning the decision-making process with the appropriate delegated authority, and keeping adequate records that will leave an auditable trail. Transparency refers to the preparedness to open a project and its processes to scrutiny and possible criticism. This also involves providing reasons for all decisions that are taken and the provision of appropriate information to relevant stakeholders.

Fairness, impartiality and honesty

Individuals and organisations involved in preparing and submitting proposals are entitled to expect impartial treatment at every stage of the process. If they do not consider the process to be fair, impartial and honest they may withhold valuable ideas or be deterred from bidding in the future. Any form of bias, whether driven by personal interests or not, could jeopardise the integrity of the project. Procedures that include multiple person panels, independent members and observers mitigate this risk.

Management of Conflicts of Interest

A conflict of interest is a conflict between the public duty and private interests of a public official where the public official has private interests which could improperly influence their official duties and responsibilities. The community and potential tenderers have a right to expect that public officials will make decisions that are not influenced by private interests. Similarly, when the private sector is engaged to perform public sector duties, there is an obligation to ensure that conflicts of interest are disclosed and effectively managed. Perceived or potential conflicts of interest can be as damaging as actual conflicts, and procedures should be implemented to mitigate the effect.

Maintenance of confidentiality and ensuring security

Although accountability and transparency are fundamental to the work of public sector organisations and public officials, there is some information that needs to be kept confidential, at least for a specified period of time, in order to protect the integrity of the process and give tenderers the confidence to do business with government. This information can include the content of proposals, intellectual property and tenderers' pricing and profit structures. Importantly, much of the information relating to the project needs to be kept confidential up to the point where a contract is executed with the successful tenderer. However, once this has happened, government guidelines require that certain information be released, consistent with the fundamental principles of public sector accountability and transparency, as discussed above. Procedures must be implemented to ensure that no unauthorised release of confidential information occurs.

Attaining value for money

This is demonstrated by the use of an open competitive environment in which the market is tested regularly, and tenderers can make attractive, innovative proposals with the confidence that they will be assessed on their merits. Value-for-Money is not necessarily achieved by accepting the lowest available price. The process should include: the evaluation of non-price criteria (such as the quality of the goods or services offered, the experience and past performance of the providers, the financial strength of the companies, the differing risk factors, the quality of the personnel, etc.); cost-benefit analysis against a target outcome or budget; the assessment of the total cost over the proposed life of the project; and, where appropriate, whether the outcome is best achieved by the Private Sector, using a Public Sector Comparator. Lapses in probity may lead to one or more parties obtaining unreasonable financial gains at the expense of the public interest.

Procedures should include a comparison of the non-price and price criteria on a weighted basis, with both the criteria and the weighting between price and non-price criteria declared in the Information Memorandum.

NSW Independent Commission Against Corruption, Probity and Probity Advising - Guidelines for Managing Public Projects 2005

<http://ict-industry-reports.com.au/wp-content/uploads/sites/4/2013/10/2005-Guidelines-for-Probity-in-Public-Sector-Projects-ICAC-Nov-2005.pdf>

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Attachments

2. Council brief dated February 2016



CONSULTANCY BRIEF

**RFQ-16-20 Airport Business Park Planning Proposal
Probity Review**

Proposals due by 4 March 2016

Addressed to:

The General Manager
Port Macquarie-Hastings Council
PO Box 84
PORT MACQUARIE NSW 2444

Council's ref: PP2015 - 3.1
PP2015 - 3.2

Enquiries: Peter Cameron

T: 02 6581 8110

E: peter.cameron@pmhc.nsw.gov.au

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1. INTRODUCTION / BACKGROUND

The Port Macquarie Airport is owned and operated by Port Macquarie-Hastings Council. The existing operations include a small number of airport related

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businesses in a B7 Business Park zone, which adjoins the Airport fronting Boundary Street. The Airport and business operations are managed by Council's Corporate and Organisational Services Division (COS).

In 2007, Council commissioned the preparation of an Industrial Land Strategy for the Port Macquarie-Hastings local government area by AEC Group. The Strategy identified the need for a *"large dedicated site close to the urban area of Port Macquarie to accommodate future local services growth, accommodate any transferred demand from the rezoning of industrial areas to commercial, and to accommodate emerging business technology park style development"*.

An investigation area was identified by AEC Group for the Airport to expand on the existing business zone. The investigation area, which is shown in Figure 1 below, includes land owned by Council and other parties adjoining Boundary Street. The Council owned land includes the former east west grass runway of the Port Macquarie Airport, which is no longer required for airport operations.

The investigation area was subsequently included in the Mid North Coast Regional Strategy (2009) and in the Port Macquarie-Hastings Urban Growth Management Strategy (UGMS) in 2011. The UGMS identifies the key issues to be addressed during investigations and proposes the preparation of a structure plan for the investigation area.

Investigations had been undertaken by Council's Development & Environment Division (D&E) towards preparation of a Structure Plan, in consultation with the affected landowners. The investigations included an ecological report by Biolink Pty Ltd and internal consultation with Council infrastructure managers.

A Discussion Paper was prepared in 2012 by D&E, which provided a summary of the key planning issues and identified a number of issues requiring more detailed investigation. Preliminary geotechnical investigations were undertaken for part of the investigation area in 2013 to determine likely landfill requirements. This related to the flood prone parts of the Investigation area, and particularly to the land owned by Missen.

In 2014, investigations were put on hold pending a review of the Port Macquarie Airport Master Plan and further investigation into a north south link road. The Airport Master Plan relates principally to Airport operations such as new CASA Obstacle Limitations Surface (OLS) requirements.

In May 2015, landowners in the investigation area were asked whether they wished to proceed with the preparation of a planning proposal for their land. Two parties (COS and Missen) expressed an interest and indicated that they would commence more detailed investigations.

King & Campbell Pty Ltd has been engaged by COS to coordinate investigations into the proposed Business Park expansion. Detailed investigations have included the preparation of a Biocertification Assessment for the Council owned land surrounding the Airport and nearby at Thrumster, with the aim of providing satisfactory offsets for the loss of vegetation associated with Airport operations (OLS requirements) and the proposed business park expansion.

The draft Biocertification Assessment was reported to Council in December 2015 and has been lodged with the NSW Office of Environment and Heritage prior to proposed public exhibition. The Biocertification does not depend on any zone changes but does allow for expansion of the Airport Business Park, should this be the outcome of Council's planning investigations.

Traffic modelling has been undertaken by TPS Group for COS as well as water, sewer and stormwater concepts, geotechnical assessment and an Aboriginal

Heritage assessment, to form the basis for a planning proposal.

Land Dynamics has been engaged to coordinate more detailed investigations for the Missen property. A seven part test in relation to the Wallum Froglet has been prepared by Naturecall and submitted by Land Dynamics for Council review. Council's D&E Division met with Land Dynamics in February 2016 in relation to the preparation of a planning proposal for the Missen property.

Reports in relation to planning proposals for the Council land and Missen land are expected to be presented to Council in 2016, following review of ongoing investigations. Council's D&E Division will be responsible for the preparation of the planning proposals for the Airport Business Park Investigation Area.

Council has a role as Airport operator, landowner and planning authority in this matter. Given the potential for perceived conflict of interest, it is proposed that Council engage a suitably qualified professional to prepare a probity report.

The purpose of this brief is to describe the proposed probity report, which will focus on the process that has been undertaken and the planning recommendations to Council.

2. STUDY OBJECTIVES

- a) To review the planning process that has been undertaken to date in relation to the Airport Business Park investigation area
- b) To review the draft reports to Council in relation to planning proposals for the Council and Missen properties within the Airport Business Park investigation area,
- c) To prepare independent probity reports regarding the planning process and recommendations and any partiality or bias that may be evident as a result of the probity review,
- d) In relation to a) to c) above, to answer the question: ***Has Council fulfilled its role as planning authority in a fair and unbiased manner, notwithstanding the ownership of land by Council within the Airport Business Park Investigation Area?***
- e) To make any necessary recommendations to Council as a consequence of the above review.

3. STUDY SITE

The Airport Business Park Investigation Area is shown in Figure 1 below.

[illegible]

4. SCOPE OF WORK

- a) Inception meeting: An initial site visit and inception meeting with Council's D&E Division will be held to familiarise the successful consultant with the study area and to provide relevant historical documentation for review by the consultant.
- b) Review planning criteria: Council's D&E Division will produce draft planning criteria to prioritise areas for rezoning in the event that the extent of development needs to be limited or where development needs to be staged or sequenced. It is proposed that the successful consultant will provide an independent review of these draft planning criteria.
- c) Review meetings: It is not expected that the consultant will need to meet with all parties in undertaking the probity review. However, it is possible that an issue may be raised and that the probity consultant may need to take part in a meeting or meetings to address the issue in the probity reports. Where meetings are necessary, they will be organised by the Project Manager.
- d) Preliminary report: A preliminary probity report will be prepared by the successful consultant for inclusion in a report to Council regarding the proposed preparation of planning proposals for the Airport Business Park investigation area. The preliminary probity report will address whether there are any probity issues of concern in the process leading up to and including the report to Council at that time.
- e) Final report: A final probity report will be prepared by the successful consultant for inclusion in a report to Council following exhibition and review of planning proposals for the Airport Business Park investigation area. The final probity report will address whether there are any probity issues of concern in the exhibition and review process and in relation to the final recommendations to Council.

Note: The probity reports are intended to focus on any relevant probity issues and not on the merit of Council's planning for the Airport Investigation Area. For example, it is not intended that the consultant provide a critique of proposed stormwater management systems, even if the consultant believes that the proposed system is not the best approach. However, if there is a significant difference in the standards applied by Council in relation to its own land, then this is potential probity issue for inclusion in the consultant's reports.

It is intended that any planning proposal for Council land will clearly and transparently describe Council's position as landowner in accordance with the Department of Planning & Environment Best Practice Guideline (1997) LEPs and Council Land.

5. ADDITIONAL INFORMATION

Council will provide all relevant planning documents, which may be required as background information for the peer review.

All data supplied by Council remains subject to copyright vested in Council or the data supplier who has licensed use of the data to Council. At the completion of the project, no digital copies of the data supplied by Council are to be retained by the consultant.

Council will provide authority to enter land, under the *Environmental Planning and Assessment Act 1979*, where necessary for the purposes of this project. The consultant is to comply with Council's Policy, Procedure and written instructions before entering private property for the purposes of gathering information and survey.

6. ADMINISTRATION AND REPORTING

6.1 Administration

The Project Manager is Council's Group Manager Strategic Land Use Planning, Peter Cameron, telephone (02) 65818110, email peter.cameron@pmhc.nsw.gov.au

The Project Director is Council's Director Development and Environment, Matt Rogers, telephone (02) 65818626, matt.rogers@pmhc.nsw.gov.au

6.2 Timing

Proposals are to be submitted to Council by 5pm on 4 March 2016. It is expected that the successful consultant will be notified by 14 March 2016.

It is not possible to predict the timing of the reports to Council as this depends in part on the submission of information by or on behalf of the landowners in the Airport Business Park Investigation Area.

At the time of preparation of this brief it is expected that the preliminary probity report may be required by the end of April 2016 in conjunction with the preparation of a report to Council's ordinary meeting on 18 May 2016.

It is anticipated that the final probity report from the successful consultant may be required for inclusion with a report to Council's ordinary meeting on 20 July 2016.

Council's Project manager will ensure that the successful consult is kept up to date regarding the planning process and any changes to the above timeframes.

6.3 Reports - written

The consultant is required to forward to Council:

- a digital copy of the preliminary report,
- a digital copy of the final report

preferably in an A4 format.

6.4 Reports - mapping

Council's D&E Division will assist with the preparation of any necessary mapping, should the need arise for any mapping associated with the consultant's report.

The mapping is to be included in the digital reports described in 6.3 above.

7. CONSULTANCY PROPOSAL

The proposal to undertake this Study is to include:

1. Outline of the consultant's understanding of Council's requirements for this project.
2. Description of the approach to the project including methodology

3. Outline of a project plan, covering timetable and milestones,
4. Curriculum Vitae of the consultancy team who will be directly involved in this project, and details of similar work undertaken recently.
5. Consultancy fee, including:
 - a. the basis for charges and costs separately identified and estimated; any uncertainty regarding attendance at meetings can be addressed by including a proposed additional lump sum fee for attendance at meetings, including any associated disbursements.
 - b. the total cost for the project as a lump sum, including GST;
6. Details of insurance cover;
7. ABN number and confirmation that the consultant is registered to collect GST

8. CONSULTANT SELECTION CRITERIA

The criteria for the selection of the consultant are:

1. The independence of the consultant.
2. The quality and depth of the consultant's demonstrated experience in the field, as relevant to the project.
3. The proposed approach, methodology and deliverables.
4. The consultant's capability and capacity to deliver quality outputs in accordance with the project objectives.
5. The project timetable.
6. Consultancy costs and value for money.

9. CONDITIONS OF ENGAGEMENT

9.1 General Conditions of Engagement

The tasks as identified in the brief are based on Council's assessment of the project. The consultant may suggest any amendments required to achieve the project objectives during the course of the work.

Council must first endorse any proposed departure from the agreed project tasks before proceeding.

9.2 Termination

The consultants' commission to carry out the Study may be subject to termination due to non-performance or inability to meet set deadlines. Letter of such termination, which will be final and not subject to further correspondence, will inform the consultant.

9.3 Insurance

Certificates of currency from all parties undertaking the work (including sub consultants) for

- Workers Compensation Insurance (where applicable)
- Motor Vehicle Insurance
- Public Liability Insurances
- Professional Indemnity Insurance

shall be submitted to Council within one week of Council's letter commissioning the consultant to undertake the work, and in any case before commencement of the work.

Public Liability Insurance shall note the interest of Council. The Principal Consultant shall ensure that any sub consultants or other persons engaged by the Principal Consultant to assist in the study carry insurances listed above and on request shall provide certificates of currency to Council.

Where, in the carrying out of the work, access to private property is required, the consultant shall indemnify Council and the owner of the private property against claims by third parties for personal injury or property damage to the extent that the injury or damage is caused by the negligent act or omission of the Consultant its employees or its sub consultants. Such indemnity shall accompany the certificates of currency.

9.4 Confidentiality

Investigations and reports will remain confidential unless, or until released by Port Macquarie-Hastings Council.

Where any matter within the report relates to private property, the consultant shall provide, when requested by a landowner, a copy of the specific information relating only to the particular private property to the landowner and advise Council of any such provision.

Where as a result of carrying out the study, the consultant, or any sub-consultant, obtains information regarding any matter not related to the study, the information shall not be used or disseminated elsewhere.

9.5 Ownership and Copyright

Ownership and copyright at all times shall be vested in the Council and any distribution whether for money or otherwise of the project should only be with the authority of the Council. Details of the content and progress of the project shall be confidential and shall not be made available to any third party without the authority of Council.

Council will have complete ownership of the content of the studies and plans and the reproduction and/or distribution of these documents in part or full, is prohibited without Council permission.

Council may permit the consultant to utilise information gained in the course of the project for the purpose of conference or educational papers or other publications provided that these are appropriately acknowledged and that confidentiality is respected.

9.6 Conflict of Interest

The consultant shall inform Council immediately of any matter connected with this project, which could give rise to an actual or potential conflict of interest. This information will be treated as confidential.

9.7 Certification

All final documents prepared by the consultant must be signed by the Project Director nominated in the consulting proposal to certify that they have been prepared by competent professional staff, checked for accuracy and comply with relevant regulations and the requirements of the Brief.

9.8 Corrections

Any error, ambiguity or deficiency, which becomes apparent during the

course of the project, shall be referred to the consultant for correction or clarification. The consultant shall not be entitled to an additional fee where the correction or clarification arises from a fault of the consultant.

The content of the report is the responsibility of the consultant and may not be amended without the agreement of the consultant.

9.9 Payment and Costs

Upon submission of the draft report, the consultant may lodge a claim for payment for 50% of the total agreed cost, with a further claim for payment totalling 90% of the total agreed cost, being lodged with submission of the final reports. The Council shall not be obligated to make any payment unless it is satisfied that the work satisfies the requirements of the brief.

Council will retain 10% of the total consultancy fee, until acceptance of the final report and a final claim on completion of the whole of the project, as set out in the Scope of Work.

The consultant shall be responsible for all his/her own costs for travel, accommodation and any other expenses.

Council's preference is to do business with consultants who have an Australian Business Number. If the consultant cannot quote an ABN, withholding tax will be deducted.

Council will pay GST in addition to the agreed fees where the consultant supplies an ABN and confirms they are registered for the GST.

9.10 Business Ethics

Council's Statement of Business Ethics is at **Appendix 1**. The Statement outlines the ethical standards of behaviour that Council expects from Council staff, plus all suppliers, contractors and consultants and gives instruction to both Council staff and consultants on how to report any breaches of this Statement of Business Ethics. The consultant will be required to sign a declaration that states that they have read and understand the content and meaning of the Statement of Business Ethics prior to commencement.

9.11 Acceptance of Conditions

Written confirmation of acceptance of the commission for the project, in accordance with the conditions of engagement, is required before work commences.

10. Appendix 1 – Statement of Business Ethics

VP45209_suppliers statement of business ethics & declaration - sept 2006.doc



Statement of Business Ethics

Purpose of this document

This Statement of Business Ethics is intended to provide a clear understanding of mutual obligation. It helps set the ethical ground rules for all business dealings between Port Macquarie-Hastings Council and Suppliers. It applies to all Suppliers. Suppliers are deemed as providers of goods and services and include wholesalers, tenderers, contractors and consultants.

The Statement of Business Ethics defines Council's ethical standards and establishes Council's expectation that all Suppliers will meet these standards. It also provides businesses dealing with Council with a degree of understanding of what to expect in such dealings.

This Statement aligns to Council's core values, primarily through the value of 'Openness and Accountability'. In keeping with this value, Council will endeavour to behave with integrity, transparency and fairness at all times.

This Statement of Business Ethics also explains what the consequences are for Staff, Councillors and Suppliers of not complying with the requirements of this statement.

What is the impact of Business Ethics?

ICAC Advice

It should be noted that the Independent Commission Against Corruption (ICAC) in NSW defines those people employed by Council as consultants or contractors to be "public officials". When employed by Council, consultants & contractors are subject to the jurisdiction of ICAC and are considered to be "public officials" for the purpose of the ICAC act.

In addition, any individual can be found corrupt by the ICAC (even if they are not a public official) if they try to improperly influence a public official or Council's honest or impartial exercise of its official functions.

Further information relating to the ICAC Act is readily available to all Suppliers (including Suppliers, contractors and consultants) at the ICAC web site – www.icac.nsw.gov.au and copies of all relevant Council policies are also available at any time.

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Impact for Suppliers

By aligning business practices with Council's ethical expectations, Suppliers can expect to:

- Compete for business on an even playing field
- Establish practices, which put them in good stead in competing for works with other public sector agencies.

If Suppliers to Council do not comply with this statement, then the consequences may be as follows:

- Formal investigation for corruption or other offences
- Possible loss of work
- Termination of contracts
- Damage to reputation
- Loss of rights (such as loss of operating or trade licences etc).

Impact for Council Staff

If Council Staff do not comply with this statement, then the consequences may be as follows:

- Formal investigation
- Disciplinary action
- Dismissal
- Potential criminal charges.

How to Comply

Suppliers

General requirement

Council requires all those with whom it deals in the provision of goods and services to observe the following principles:

- Act fairly, ethically and honestly in all dealings with Council
- Not to disclose confidential Council information
- Not to exert pressure nor influence on Council Staff that may cause them to waiver from Council's *Code of Conduct*
- To abide by relevant legislative processes and industry codes of practice in all procurement dealings
- To have respect for the obligation of Council Staff to act in accordance with this Statement of Business Ethics
- Commit to not offer Council Staff inducements or incentives such as money, gifts, benefits, entertainment or employment opportunities
- Ensure that all sub-contractors and other people employed by the supplier are aware of this statement and the consequences of breaching it.

Communication requirement

As a general principle, all communication with Suppliers to Council should be *clear, direct & accountable*. Suppliers also have an obligation to ensure that their communication with Council abides by the above three principles, in order to minimise the risk of inappropriate influences being brought to bear on the business relationship.

There will be times where some communication needs to be strictly confidential for commercial-in-confidence or other reasons. This however should not preclude proper accountability and both parties should be able to explain the reasons for instituting specific communication protocols or keeping some communication confidential.

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Public perception of inappropriate influence can be extremely damaging to the reputation of both parties, even if nothing has occurred. Therefore it is in the best interests of both parties to ensure that formal communication processes are observed at all times and that all communication supports Council's core values of integrity, transparency and fairness.

Signed Declaration

This Statement of Business Ethics will form part of any formal tendering and/or contractual process for Council and all Suppliers/Tenderers will be asked to submit a signed declaration stating that they have read and fully understood the contents of this full statement in relation to dealing with Council.

What happens if I think there is a breach?

If you are concerned about a possible breach of this statement, or about any conduct that could involve fraud, corrupt conduct, maladministration or serious and substantial waste of public funds, please contact Council's General Manager, or one of Council's Directors. Please be aware that if you do approach a Council Director with such a report, it is a requirement of ICAC that the Director must inform the General Manager immediately.

It should also be noted that once the General Manager is made aware of a possible breach as described above, that it is incumbent upon him or her to report this directly to the ICAC. For Council staff, please refer to Council's policy titled "Corruption, Maladministration & Serious Substantial Wastage - Reporting Of (C23)" for more information on the processes that you are required to follow in the case of a possible breach of this statement.

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**STATUTORY DECLARATION ON
STATEMENT OF BUSINESS ETHICS DECLARATION**

The Supplier must complete and submit this form with signed contract. All submitted information will be treated as confidential

I, _____ (Print name),

Of _____ (Supplier Organisation),

Do hereby solemnly declare and affirm the following:

1. I hold the position of _____, and am duly authorised by the supplier organisation to lawfully proclaim the following and, after having made due inquiry believe the following to be accurate to the best of my knowledge.
2. The Supplier and the Supplier's representatives has read and fully understand the contents and meaning of the Port Macquarie-Hastings Council Statement of Business Ethics as included as part of these contractual documents.
3. The Supplier and the Supplier's representatives agree to be bound by the standards of ethical behaviour as detailed in the Port Macquarie-Hastings Council Statement of Business Ethics and will not exert pressure nor influence Council staff that may cause them to waiver from Council's *Code of Conduct*.
4. The Supplier and the Supplier's representatives agree to have respect for the obligation of Council Staff to act in accordance with the Statement of Business Ethics.

I make this solemn declaration as to the matter aforesaid, according to the law in this behalf made, and subject to the punishment by law provided for any wilfully false statement in any such declaration.

Signature of Supplier: _____

Subscribed and declared at: _____

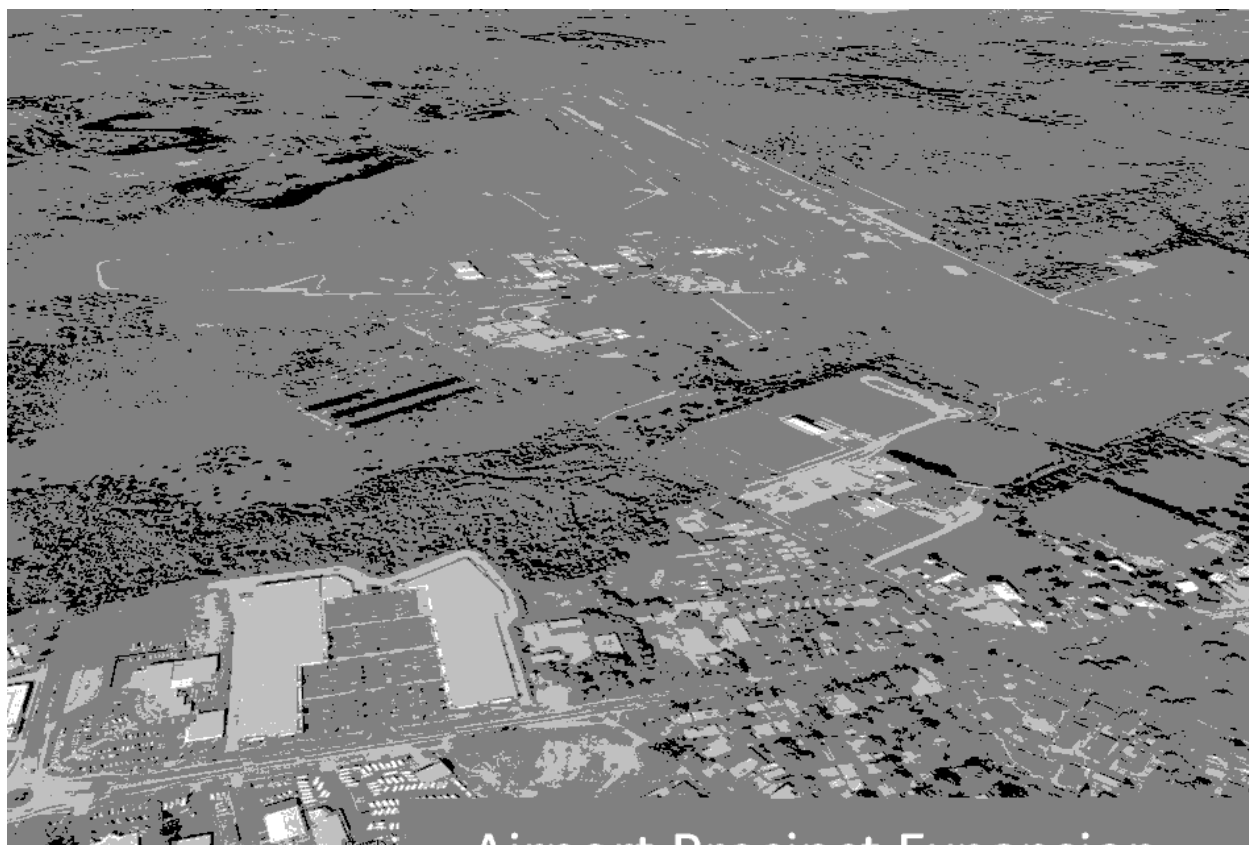
This: _____ **Day of** _____ (Year) _____

Before me: _____ (Print name)

Witness: _____ (Signature)

(Justice of the Peace or authorised person)

Attachment 1 - Hill PDA report 2016



e: NSW Globe and Google Earth

Airport Precinct Expansion - Land Use Assessment

Prepared for Port Macquarie Hastings Council

November 2016

HillPDA
CONSULTING

Airport Precinct Expansion - Land Use Assessment

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This document is for discussion purposes only unless signed and dated by a Principal of HillPDA.

Reviewed by:



Dated 30 November 2016

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Airport Precinct Expansion - Land Use Assessment

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LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
CBD	Central Business District
DCP	Development Control Plan
DP&E	NSW Department of Planning and Environment
FSR	Floor Space Ratio
GDP	Gross Domestic Product
GFA	Gross Floor Area
GLA	Gross Lettable Area
Ha	Hectares
JTW	Journey to Work
LEP	Local Environmental Plan
LGA	Local Government Area
MB	Mesh Block
MAT	Moving Annual Turnover
NLA	Net Lettable Area
NWGC	North West Growth Centre
PCA	Property Council of Australia
PTA	Primary Trade Area
SEPP	State Environmental Planning Policy
SCN	Shopping Centre News
SIA	Social Impact Assessment
SA1	Statistical Area Level 1
SA2	Statistical Area Level 2
SA3	Statistical Area Level 3
SA4	Statistical Area Level 4
SD	Statistical Division
SLA	Statistical Local Area
Sqm	Square metre
STA	Secondary Trade Area
SWGC	South West Growth Centre
TDC	Transport Data Centre
TTA	Tertiary Trade Area
TZ	Travel Zone

EXECUTIVE SUMMARY

This report provides an assessment of the demand for land uses likely to occupy business park facilities in Port Macquarie-Hastings LGA over the period to 2036.

The report finds that demand for office space in Port Macquarie has been relatively muted over the last six years. The largest component of demand has originated from the medical sector. This demand has clustered around the Port Macquarie Base Hospital and to a lesser extent the Port Macquarie Private Hospital on Lake Road. Growth in the healthcare sector is likely to continue given the continued population ageing projected for Port Macquarie-Hastings LGA.

The office floorspace demand that has occurred has been for smaller premises in the CBD. There are a limited number of large floorplate commercial office space occupiers in Port Macquarie at the present time.

The 2015 HillPDA review of the Port Macquarie-Hastings Industrial Land Strategy (ILS) identified that apart from aviation related uses, the airport site is appropriate for high technology and campus style business park development.

Office construction trends suggest new office supply in the local market area of Port Macquarie Hastings has been limited over the past 6 years with relatively little new office supply. The medical sector has seen new developments and a component of these can be allocated to the office market. This has occurred at a time of strong growth in the residential sector and growth in the number of older persons in Port Macquarie Hastings LGA.

Analysis of employment data suggests stand-alone office space has increased from about 89,000 sqm in 2006 to about 101,000 in 2016.

It is considered that a significant component of future commercial floorspace demand will be meeting the needs of the growing population of Port Macquarie-Hastings, and these population serving industries (as opposed to base industries) are more likely to locate in the Port Macquarie CBD and the town centres than in "out-of-centre" business park style premises.

Under a medium growth scenario it is estimated that Port Macquarie will accommodate 4.1% of the regional NSW office market by 2036, up from 2.9% in 2016. 83,700 sqm more stand-alone office space would be required. 39% of the working aged population would have white collar jobs by 2036. Assuming 80% of this demand is located in

CBD areas, then around 4.2 ha is required to accommodate the demand for out-of-centre office space (assuming FSR of 0.4:1).

Under a lower growth scenario, it is estimated that an additional 60,800 SQM of office floor space will be required to 2036. This level of office floorspace demand would mean that 38% of the working age population would have white collar jobs. Accounting for 80% of this demand to be located in CBD areas would require a net developable area of 3.0 ha to be provided to accommodate the demand for office space.

The demand for land outside the CBD areas of Port Macquarie Hastings to meet office employment needs is projected to lead to a net developable land requirement of between 3.0 and 4.2 ha. However this range would double if the CBD areas capture a lower rate, say 60% of office space demand. It is recommended around 10 hectares of land at the airport be zoned B7 to accommodate this demand.

Council could consider the staging of development on the Airport Precinct Land in order to overcome any concern around a glut of supply of B7 Zoned development land adversely impacting the prospect of retaining commercial office occupiers in Port Macquarie CBD. The take up of development opportunities on the airport land should be reviewed periodically – say every five years.

There is expected to be demand over the period to 2036 for between 39ha to 67ha of land for additional services industry employment over the period to 2036. The majority of this land is expected to be required in Thrumster and Sancroix-Lake Innes and as such, provision of industrial zoned land at the airport land would not cater for this additional land requirement. If demand for light industrial land exceeds that identified in the 2015 Industrial Lands Review, the B7 zone can accommodate light industrial uses with consent.

1 INTRODUCTION

The expansion of the Port Macquarie airport precinct includes a key site (known as the 'Airport Precinct Employment Lands') for service industry and business park industrial uses. The additional land proposed for development could lend itself to the introduction of higher technology, freight, logistics and aviation affiliated industries, to underpin the Airport's regional role in ongoing economic development of Port Macquarie - Hastings LGA and the Mid North Coast. Development of the land could also ensure the Airport Precinct acts as a significant gateway to Port Macquarie. However, it is important for Council to ensure that future development is compatible with future airport operations, and that development of the precinct does not negatively impact the future prospects of the Port Macquarie CBD and the existing hierarchy of centres within Port Macquarie-Hastings LGA.

It is noted although the B7 Business Park zone has been in place over 5 years, there are no Development Control Provisions in place for the Airport Precinct. A Business Park precinct would typically have a location specific Precinct Plan. This assessment has been undertaken to understand the supply and demand for land uses and to determine the appropriate planning controls for the precinct.

In addition to the quantum of land that should be rezoned for development, it is required that Council consider the zone options available for the Airport Precinct, noting that the B7 Business Park zoning precludes industrial uses other than light industrial.

It is also noted that one of the priority objectives of the airport Master Plan 2010 is to provide opportunity for commercial property development to promote employment opportunities, facilitate economic development, and support the long-term financial viability and sustainability of the Airport business.

In the preparation of this assessment HillPDA has reviewed a number of background documents to understand the context of employment and industrial lands within the Port Macquarie - Hastings LGA.

Documents reviewed included:

- PMQ Airport Master Plan 2010
- PMQ Airport Master Plan 2010 - Addendum report
- -PMH Urban Growth Management Strategy 2011-2031
- PMH Industrial Land Strategy Review 2015

- PMH Centres Strategy Review 2015
- PMQ Airport Precinct Traffic Study 2016
- PMQ Airport and Surrounding Land Biodiversity Certification Assessment and Strategy
- Area 13 Thrumster Development Control Plan.

Some land uses permissible under the B7 Business park zone are also (under the Port Macquarie Local Environmental Plan 2011 (LEP)) permissible land uses with the B5 Business Development Zone and the B4 Mixed Use Zone.

The B7 Zone

The B7 Business Park zone objectives are to provide a range of office and light industrial uses, employment opportunities, meet the day to day needs of works in the area and to ensure that development does not conflict with the hierarchy of business and retail centres. Although the B7 zone generally prohibits Retail Premises, it permits uses typically used as an anchor for bulky goods retail (e.g. Garden Centres, Hardware and Building Supplies and Plant Nurseries).

The B7 Business Park is not identified as one of the “identified specialty centres” for large footprint premises such as bulky goods premises. However, the B7 zone permits a relatively wide range of uses including Office Premises also Light industry as well as Garden Centres, Hardware and Building Supplies, Plant Nurseries, Timber Yards and Vehicle Sales or Hire Premises, Amusement Centres, Entertainment Facilities, Service Stations and Wholesale Supplies).

There is no requirement for the uses that occur in Office Premises permitted within the zone to be related to technology, aviation or light industrial development in the precinct. As such, there may be concern that uses that would in future be able to occur at the Airport Precinct business park, may be in competition with comparable business uses in Port Macquarie CBD.

The objectives of the zone and the permitted and restricted uses are shown in

Airport Precinct Expansion - Land Use Assessment

Table 1 below. Currently height or minimum lot size controls apply to the existing B7 Business Park zone at the Airport while FSR controls in the B7 zone allow a maximum of 0.65:1.

Airport Precinct Expansion - Land Use Assessment

Table 1 - Zone B7 Business Park: Uses and Objectives

Zone B7 Business Park	
Objectives	To provide a range of office and light industrial uses.
	To encourage employment opportunities.
	To enable other land uses that provides facilities or services to meet the day to day needs of workers in the area.
	To ensure that development does not conflict with the hierarchy of business and retail centres in the Port Macquarie-Hastings region and the role of the Greater Port Macquarie Central Business District as the focal point for subregional functions and service delivery.
Permitted without consent	Nil
Permitted with consent	Child care centres; Garden centres; Hardware and building supplies; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Office premises; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Take away food and drink premises; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited	Agriculture; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Funeral homes; Heavy industrial storage establishments; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industrial retail outlets; Industrial training facilities; Industries; Marinas; Mooring pens; Open cut mining; Recreation areas; Registered clubs; Research stations; Residential accommodation; Retail premises; Rural industries; Sewerage systems; Sex services premises; Tourist and visitor accommodation; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Veterinary hospitals; Waste or resource management facilities; Water recreation structures; Wharf or boating facilities

Source: Port Macquarie-Hastings Local Environmental Plan 2011

The SP2 Air Transport Facility zone of the airport permits development that is ordinarily incidental or ancillary to an Air Transport Facility. This zone is being considered for use on land which will accommodate uses directly related to Airport operations.

Airport Precinct Expansion - Land Use Assessment

The B4 Zone

Council have also indicated that B4 zoning may be appropriate for the Airport land. The objectives of the zone and the permitted and restricted uses are shown in Table 2 below.

Table 2 - Zone B4 Mixed Use: Uses and Objectives

Zone B4 Mixed Use	
Objectives	To provide a mixture of compatible land uses.
	To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
	To ensure that new developments make a positive contribution to the public domain and streetscape.
Permitted without consent	Home Occupations
Permitted with consent	Boarding houses; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; High technology industries; Home industries; Hostels; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Residential flat buildings; Respite day care centres; Restricted premises; Roads; Seniors housing; Shop top housing; Any other development not specified in item 2 or 4
Prohibited	Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Car parks; Caravan parks; Cemeteries; Crematoria; Eco-tourist facilities; Electricity generating works; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home occupations (sex services); Industrial training facilities; Industries; Marinas; Mooring pens; Mortuaries; Open cut mining; Research stations; Residential accommodation; Rural industries; Sewerage systems; Sex services premises; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Waste or resource management facilities; Wharf or boating facilities

Source: Port Macquarie-Hastings Local Environmental Plan 2011

The B5 Zone

B5 zoning may also be appropriate zoning for the Airport land. The objectives of the zone and the permitted and restricted uses are shown in Table 3 below.

Table 3 - Zone B5 Business Development: Uses and Objectives

Zone B5 Business Development	
Objectives	To enable a mix of business and warehouse uses, and bulky goods premises that require a large floor area, in locations that are close to, and that support the viability of, centres.
	To minimise conflict between land uses within the zone and with adjoining zones.
	To ensure that new developments make a positive contribution to the public domain and streetscape.
Permitted without consent	Nil
Permitted with consent	Bulky goods premises; Child care centres; Food and drink premises; Garden centres; Hardware and building supplies; Kiosks; Landscaping material supplies; Light industries; Neighbourhood shops; Passenger transport facilities; Plant nurseries; Respite day care centres; Roads; Self storage units; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4
Prohibited	Advertising structures; Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat building and repair facilities; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Correctional centres; Crematoria; Eco-tourist facilities; Electricity generating works; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Freight transport facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations; Home occupations (sex services); Industrial training facilities; Industries; Marinas; Mooring pens; Open cut mining; Port facilities; Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Sewerage systems; Sex services premises; Storage premises; Tourist and visitor accommodation; Transport depots; Truck depots; Vehicle body repair workshops; Waste or resource management facilities; Water supply systems; Wharf or boating facilities

Source: Port Macquarie-Hastings Local Environmental Plan 2011

Airport Precinct Expansion - Land Use Assessment

The report provides an overview of broad economic, social and development trends to provide context of the land use and development conditions in Port Macquarie Hastings. The following section of the report describes Current economic conditions, economic and social trends, and major trends in key land use sectors.

HillPDA - together with Council, has undertaken an assessment of the amount of commercial floorspace in use within the LGA. These are presented in Section 3.

Floorspace projections have been made based on recent development trends. These projections and land use implications are provided in Section 4. Industrial land projections are shown in Section 5.

2 THE CHANGING NATURE OF THE ECONOMY

This section of the report reviews broad economic, social and development trends in order to provide context for better understanding land use and development conditions in Port Macquarie Hastings. The section is structured as follows:

- Current economic conditions;
- Economic and social trends; and
- Trends in key land use sectors.

Current Economic Context

The Australian economy continues to perform positively despite economic challenges. Key features are as follows.

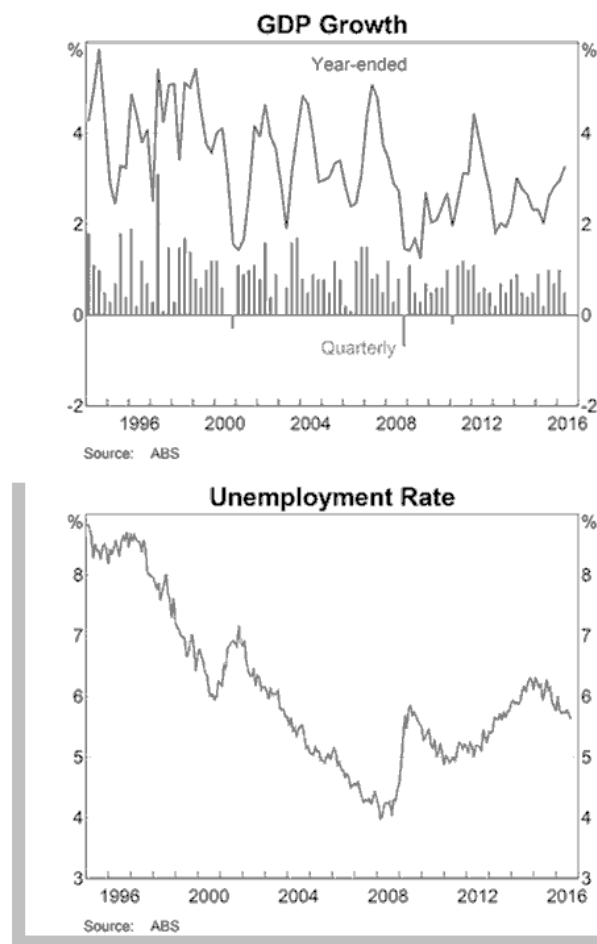
- Gross Domestic Product has been increasing at a moderate rate for an extended period.
- Unemployment has been trending up since 2010, following a sharp rise during the GFC, with around 700,000 people now being unemployed nationally.
- Rising unemployment, falling wage growth and uncertain international conditions has resulted in a period of sustained low interest rates.
- The low interest rate environment has helped fuel the most recent upswing in house prices, from mid-2013. Indications suggest the market in Port Macquarie may be nearing the top of the current market cycle.
- The rising housing market has facilitated growth in housing approvals and construction, including significant growth in medium and high density housing in capital cities.
- The low interest rate climate has not yet translated into strong growth in the retail sector, which has been experiencing tough conditions over the past five years or so.
- Consumer sentiment has dipped in the context of rising unemployment and low wages growth. Households have increased savings at the expense of retail spending. However the recent growth in house prices may flow through to increased consumer sentiment and retail spending in the future.
- The Australian dollar has until recently been at high levels, which has helped keep inflation low by increasing the purchasing power of Australian consumers for imported goods, but this

environment has contributed to tough trading conditions for exporters. The climate for exporters is now improving.

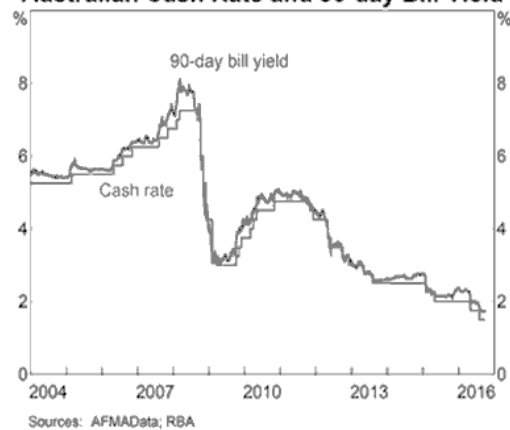
- Over the past decade the Australian economy was boosted by rapid mining investment. The mining sector has tapered off and other sectors of the economy, particularly in cities, have taken up the slack. Manufacturing for example may be boosted by the lower Australian dollar and switch of capital away from mining in years to come.

Selected economic charts from the Reserve Bank of Australia are shown below.

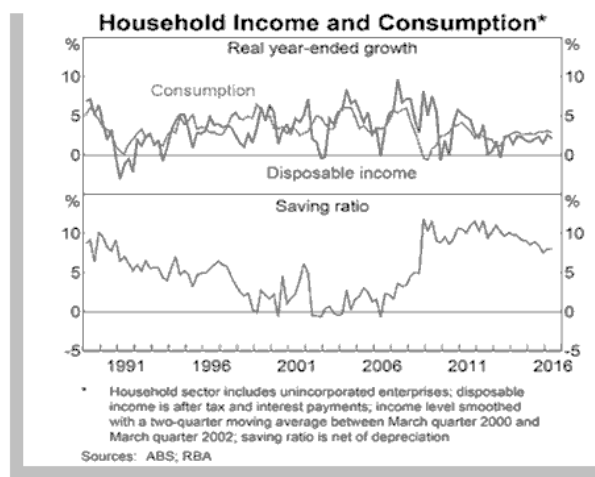
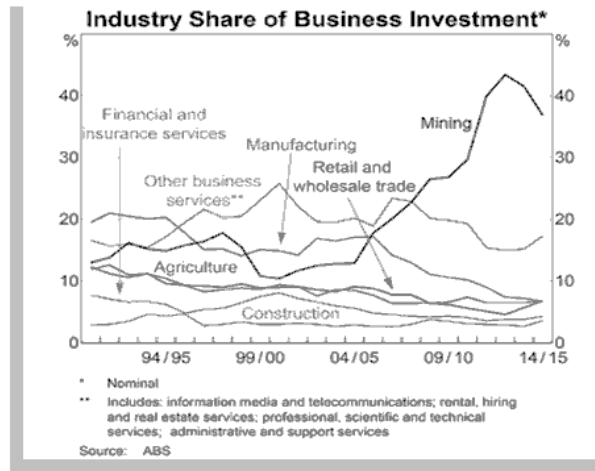
Figure 1 - Reserve Bank of Australia Economic Charts



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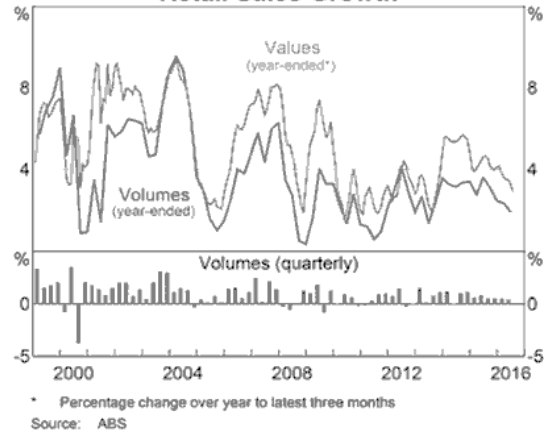
**Australian Cash Rate and 90-day Bill Yield**

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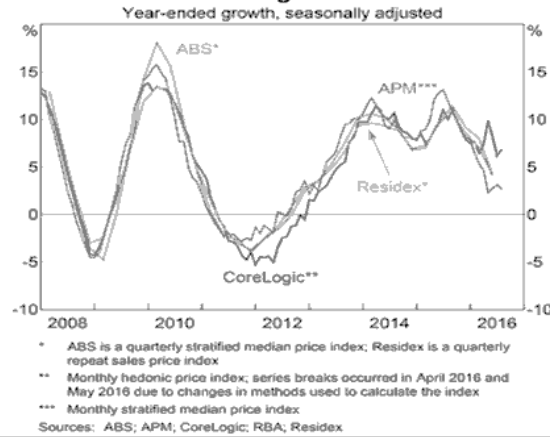


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Retail Sales Growth



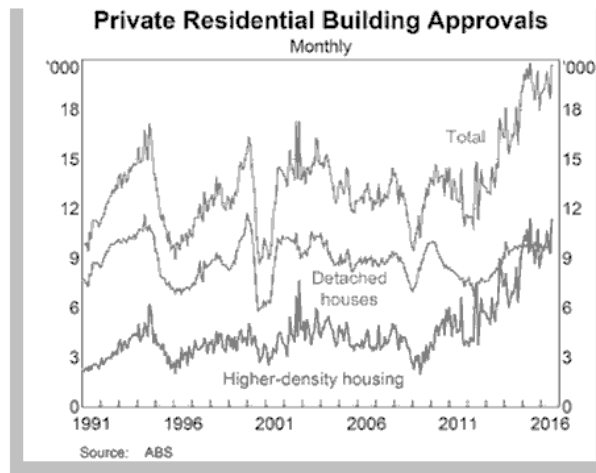
Housing Prices



Housing Loan Approvals



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Source: Reserve Bank of Australia (2016) The Australian Economy and Financial Markets Chart Pack January 2016

Economic and Social Trends

Longer term structural conditions and trends which impact on the Port Macquarie economy are noted below.

Structural Economic Change

Structural economic change refers to the long term shift of the economy towards growth in service sectors of the economy and in part away from secondary (manufacturing) and most primary sectors (agriculture, fishing, forestry and mining) in terms of jobs. This has been driven by globalisation of economy activity. It also refers to the organisation of businesses, which have generally become specialised via use of greater outsourcing of non-core business functions.

Investment activity and jobs growth in service sectors have driven demand in regional cities such as Port Macquarie. This trend and changing structure of the economy in NSW regional towns has occurred over a number of decades. The extent to which this trend is expected to continue is uncertain. This is particularly true where regional centres serve a significant rural hinterland and consequently play a role in providing services and administrative functions to a population significantly beyond that contained either within the LGA or indeed the broader region.

Ageing of Population

Ageing of the population has been a long term trend in Australia and this is expected to accelerate as the 'baby boomer' generation moves

into retirement age. In recent years, increases in fertility rates and growth in the migration intake has balanced the population composition marginally but population ageing is expected to continue. This is expected to decrease labour force participation rates in the future, which may impact on economic growth unless productivity increases.

Office Space Trends

Economic changes to industry and technology has resulted in a significant shift in the location of office-based activities towards business park developments. The limited availability of suitable sites and higher land prices in both metropolitan centres and major regional centres has influenced the growth of non-CBD office at times, while a significant proportion of the growth in non-CBD office markets reflects underlying demand trends for non-CBD space and other benefits it offers tenants, including accessibility and amenity. In inner urban areas buildings have evolved from being predominantly warehousing to office.

Business parks are now recognised as being highly successful formats in metropolitan and regional centres. Consistent across these parks are the following key characteristics:

- They are predominantly office parks with a component of warehousing (closely aligned to the changing nature of industry and manufacturing), and in some cases a component of research and development and high-technology uses;
- Apart from providing A-grade or similar grade commercial space, often with cheaper rent than CBD locations, business parks enable purpose designed buildings and plenty of on-site car parking;
- The provision of on-site amenities that attract large corporations, such as recreation and open space facilities,
- They hold a sense of prestige which is a further factor that attracts large businesses. Tenants sign up with a business park in part for its marketable image. There is typically a preference for estates located away from industrial areas;
- Business parks enable large corporations to custom build their headquarters, providing them with their own standalone identity, which typically cannot be achieved in a centre of mixed tenants; and

- They have flexible floor plates and cheaper ground rent, which allows warehousing and office space to be integrated.

Another trend is growth in the number and type of small businesses in the economy, associated with growth in skilled workers and service sectors of the economy. This has generated demand for a range of new property types including small offices, home offices and low cost space for start-ups and creative industries.

Clustering and Agglomeration

Agglomeration or clustering is the phenomenon whereby firms from the same industry gather together in close proximity. It is particularly evident in industries such as health care but also banking, research and development, the automotive industry, home building and manufacturing. By clustering, businesses benefit from things such as:

- A pool of expertise and skilled workers;
- Access to component suppliers;
- Information channels both formal (e.g. recognised industry associations) and informal (e.g. social networking with colleagues);
- Increased innovation and service sophistication;
- The ability to specialise and use other services to complement business activity; and
- A larger available customer and supplier market.

Consumers also benefit from the economic effect of agglomeration through better access to choice and lower prices as a result of price competition. The NSW State Government recognises the economic importance of agglomeration and the need to cluster businesses in "strategic centres".

Modern high-tech clusters often gather around universities where access to research and academic specialists is easier. Silicon Valley is near Stanford University (United States of America) for example and similar local high-tech clusters are gathered around Macquarie University at North Ryde.

Agglomeration in Australian cities has led to the creation of new business park developments and industrial zones along new transport corridors. Many businesses have relocated to these complexes to 'co-locate' their administration and warehouse needs. A mix of light industrial/commercial uses is seen as a legitimate need

that would not be practical or economical in an established commercial centre with higher land values and smaller land parcels.

Apart from universities other major catalysts are airports and hospitals.

Agglomeration in some sectors - notably in hospital and health services - is more evident than in many other industries. A primary reason for this is that face-to-face encounters are imperative for medical care and procedures. Health is an industry where information flows cannot easily be performed remotely due to the need for specialist consultants/surgeons and complex/expensive equipment. Whilst there has been considerable growth in remote information exchange, due largely to advances in information technology, this has complemented rather than substituted face-to-face encounters. Clustering of health related business is evident in locations in Port Macquarie Hastings - including the Lake Road cluster, and around the Base Hospital

While freight distribution through airports accounts for a relatively small proportion of total Australian freight distribution, it is a key component of the logistics and freight distribution network particularly for goods with higher value to weight ratios. In addition to rapid growth of passenger travel in recent decades, air logistics has grown considerably and is a major driver of economic development. Air logistics comprises air cargo, air express and their supporting services. The types of businesses that locate near airports comprise those with time-critical manufacturing and distribution, entertainment, tourism, corporate offices and businesses that require long-distance connectivity. These types of uses and businesses may seek opportunities in the Port Macquarie-Hastings area on land around or close to the airport. Typical commercial uses based around airport lands will require large floor plates and significant car parking provision.

There are short to long term opportunities for commercial development in Port Macquarie brought about by key improvements in infrastructure. These include:

- The airport and growth in aviation traffic, and expansion of operating from Port Macquarie airport;
- The new Charles Sturt University (CSU) campus;
- The Base Hospital and the Port Macquarie Private Hospital; and
- The upgrade of the Pacific Highway.

Locations identified for potential commercial uses in Port Macquarie include the airport, the Gordon Street / Grant Street mixed use zone, Lord Street and Grant Street, the Hospital / CSU Precinct and the Thrumster town centre.

Employment Changes

Jobs in Port Macquarie-Hastings increased to over 23,000 in 2011 - a 3.9% increase on the 2006 figure, equivalent to an annual growth rate of 0.8%. The data indicate that the largest sector in terms of jobs in Port Macquarie-Hastings is in healthcare. This is an industry which has seen significant growth - over 25% - over the five year period, and which has in part been driven by the changing demographic structure of the Port Macquarie population. The population of the town is growing, and the retired population is accounting for a significant component of this population growth. This brings both opportunities and challenges for businesses in the region. Increased demand for healthcare has led to the growth of the sector, which is likely to continue with the Charles Sturt University and hospital development.

Administrative and support services also saw strong jobs growth but remained relatively underrepresented in terms of the proportion of total jobs, compared to the proportion of jobs in the sector state-wide.

Office based sectors that experienced significant growth in Port Macquarie from 2006-2011 include the following:

- Administrative and support services: 36%;
- Health care and social assistance: 27%;
- Professional, scientific and technical services: 11%; and
- Public administration and safety: 7%.

Office based sectors that saw a decline in jobs over the period included:

- Rental hiring and real estate services at -11.4%; and
- Arts and recreation services.

The location quotients for Port Macquarie Hastings are shown in Figure 2, together with the absolute size in employment and growth in the industry sector over the period 2006-2011. Jobs in mining are not shown in Figure 2 due to the scale of growth that occurred at 55% over the period- as the sector remains relatively insignificant in

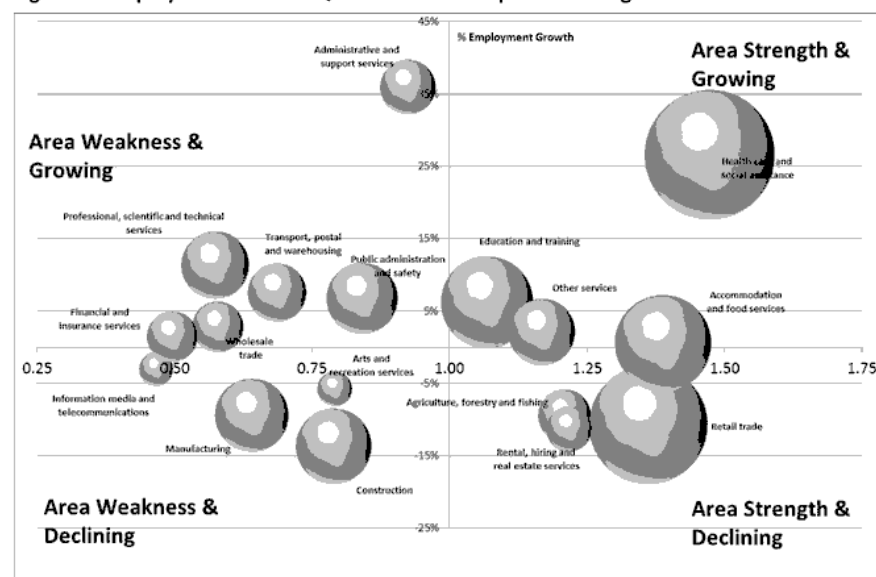
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total employment terms, accounting for just 0.2% of all jobs in the LGA, compared to 1% of jobs in NSW. Electricity, Gas, Water and Waste Services are also not shown on the chart, owing to the location quotient of 4.9. The sector has seen significant growth and would be shown in the top right quadrant of the chart, albeit with a relatively small number of total employees in the sector.

Figure 2 can be interpreted as follows:

- The bottom right part of this chart indicates specialised but slow or negative growth;
- The top right part of the chart indicates specialised and growing;
- The left part of the chart indicates non-specialised in the location and either growing or otherwise; and
- The size of the bubble reflects size of the industry in the study area.

Figure 2 - Employment location Quotient Port Macquarie-Hastings 2006-2011



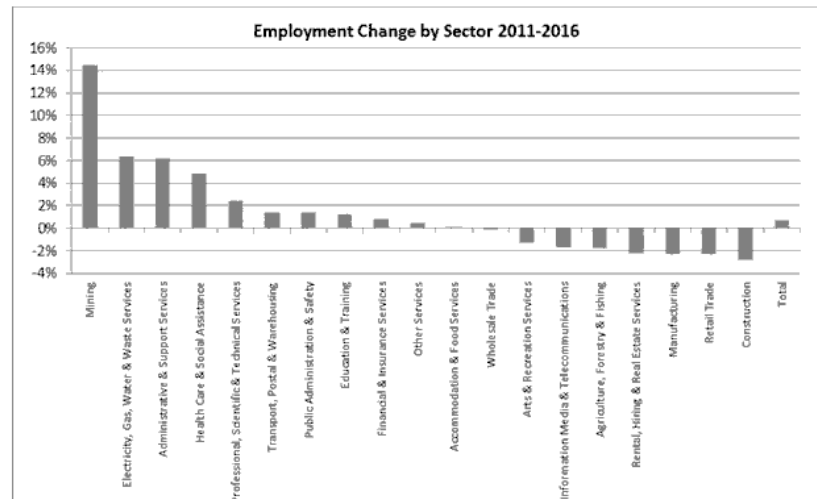
Source: Australian Bureau of Statistics, 2006 & 2011 Censuses of Population and Housing

Manufacturing jobs declined by nearly 10% over the period, a decline only exceeded in absolute terms by that seen in the retail and the construction sectors. The share of total jobs fell from 6.3% to 5.5% reflecting a broader national trend.

Employment by sector data from REMPLAN in 2016 suggest the changes noted in the economic structure and employment by

industry sectors across the LGA have continued. Employment change by sector over the period is shown in Figure 3

Figure 3 - Employment Growth By Sector 2011-2016



Industrial Trends

The advance of modern technologies in particular has been changing the methods of manufacturing production and the pattern of world trading. The global economy today consists of more sophisticated linkages between businesses which are designed to enable the efficient sharing of information and the delivery of goods through a global supply chain.

Globalisation and the free movement of people, goods and services have increased the amount of competition and resulted in a decline in the proportion of jobs within manufacturing industries.

The role of manufacturing in Australia has by necessity moved up the value chain. Successive waves of restructuring and job shedding over a number of decades has seen the sector move from being labour intensive to capital and knowledge intensive. Manufacturing firms are increasingly employing more professional and technical services staff and utilising more office and research and development space in facilities. Successful modern manufacturing enterprises are as much involved in administrative and commercial activities as in physical production. Those manufacturing sub-sectors that produce more basic products and face strongest competition from overseas have declined in relative importance.

Non-food manufacturing in Australia has declined considerably over the past four decades. In 1975 it contributed 14.8% to GDP¹. In 2012 its contribution represented only 5.8% of total GDP. In 1976 the Non-Food Manufacturing Sector in Australia employed 954,000 workers which comprised 17.7% of total employed persons. By 2011 this declined to 709,000 and the proportion of the total working population has decreased to 7.2%².

Despite the declines in employment, the demand for industrial lands for transport and storage related industries have shown strong growth.

Industrial floorspace used primarily for transport and storage, particularly those with low inventory turnover, are gravitating to inexpensive land and low cost buildings.

Large-scale transport, storage and warehousing sector (or logistics) have locational needs that are determined by efficient supply chains, access to customers and suppliers, land availability and main road access. This describes firms that have specific land and infrastructure needs and potentially buffer distance requirements from residential or other sensitive land uses.

Old Industrial locations next to CBDs and major centres and waterfront areas have been replaced over time by higher valued land uses, which include residential and other employment uses.

Transport and storage uses (which are typically low level employment generating industries) are increasingly unnecessary in close proximity to major centres and reflect an increasing underutilisation of resources with low economic performance. Areas like Sancro, which are away from residential and commercial centres but close to main roads, provide a better alternative for such uses.

A further important consideration is the need to accommodate land uses which are sometimes deemed not compatible in business and/or residential zones (and in other cases may not be viable due to added land cost). These uses include entertainment facilities (such as ten pin bowling and laser tag) as well as sex services, places of public worship and the like. Industrial zones provide a buffer for these land uses away from more sensitive residential areas and even commercial centres.

¹ ABS 5206.0 Australian National Accounts

² ABS Census 2011 and 1976 (excluding not stated or inadequately described)

3 ANALYSIS OF COMMERCIAL FLOORSPACE AND LAND SUPPLY

This chapter provides a description of the supply of commercial and employment zoned land (including land zoned B, and B7) by the major centres and precincts within Port Macquarie. The role of each centre is identified as well as the principle land uses in each centre.

The floorspace survey undertaken determined there was approximately 148,000 SQM of commercial floorspace in the major commercial centres of Port Macquarie-Hastings. The floorspace by broad category is shown in the table below.

Table 4 - Floorspace by Category Port Macquarie-Hastings 2016

LOCATION	Financial	Govt	Medical	General	Vacant	Legal	Travel	Real Estate	Total
Port Macquarie CBD	12,032	4,790	5,452	14,915	4,609	4,645	460	3,250	50,152
Wauchope	1,288	650	731	2,134	0	130	717	1,655	7,305
Laurieton	1,572	250	4,347	656	600	491	332	1,140	9,388
Lake Rd Medical	0	0	10,942	0	0	0	0	0	10,942
Buller & Gordon, Gore St	3,310	1,255	4,255	8,720	1,085	635	0	855	20,115
Base Hospital	0	5,340	36,700	0	0	0	0	0	42,040
Lord Street, Grant Street	0	2,350	2,600	2,465	720	250	0	0	8,785
Total	18,202	14,385	65,027	28,890	7,014	6,151	1,509	6,900	148,477

Source: HillPDA, Port Macquarie Hastings Council 2016

Port Macquarie CBD

The Port Macquarie CBD is the main business, retail and service centre for the broader LGA and for the mid-north coast region. The centre also services as a significant tourism destination. The economy is broad based with public sector and services and private businesses. Accordingly, general commercial is the largest floorspace user in Port Macquarie CBD, accounting for 30% of commercial floorspace. Government uses and medical uses account for around 10% of floorspace in the centre,

Lake Road Medical

The Lake Road Medical precinct is to the south-west of Port Macquarie CBD. Port Macquarie Private Hospital provides an anchor for a cluster of medical services and consulting facilities.

Lord Street and Grant Street

South east of Gordon Street, the Lord Street precinct comprises just under 9,000 sqm of office floorspace. This total is made up of small scale medical uses, (including physio and dental), the former Charles Sturt University campus, ABC Mid-North, government services, municipal buildings. The precinct also includes small scale retail, including food and drink, and a component of residential / mixed use premises.

Port Macquarie Base Hospital

To the South West of Lake Road the Port Macquarie Base Hospital which expanded in 2011 consists of over 42,000 square metres of floorspace. The majority of this space (36,700 sqm) - is categorised as medical floorspace, with the remainder identified as floorspace occupied by government and education at the PMQ Shared Health & Education Campus.

Buller Street / Gore Street /Gordon Street

Located between Port Macquarie CBD and Settlement City, the Buller Street area is home to Essential Energy, occupying around 4,200 square metres of commercial space between Buller Street and Waugh Street. Otherwise, medical uses account for the largest component of floorspace in the area (21% of total floorspace) while financial services also account for a significant proportion owing to the presence of State Super Financial Services at 40 Gordon Street.

Wauchope CBD

Wauchope CBD is 20km west of Port Macquarie CBD. The CBD is focused on the retail sector, with professional and businesses services - including finance, real estate - providing the bulk of commercial office floorspace demand. While the population of the surrounding area has grown significantly owing to subdivisions, the demand for commercial floorspace is reported to have remained stable over recent years.

Laurieton

Laurieton is 40 km south of Port Macquarie along Pacific Highway or 33km south along Ocean Drive. The Laurieton precinct plays a local service function role for local residents and the southern part of Port

Macquarie-Hastings LGA. The centre serves a wider catchment of just over 16,000 in the Bonny Hills region - although the population is noted as being significantly older than nationally with a median age of over 52 years compared to 37 years old nationally, with a consequent impact on labour force participation rates. The centre comprises around 9,400 of commercial floorspace, with the majority centred on medical uses.

Additional locations: Thrumster

Council envisages development in Thrumster will accommodate up to 10,000 residents and up to 2,000 jobs in commercial, retail, high tech and light industries. Under the PMHLEP 2011, Light industrial uses are permissible in the Town Centre, Mixed-use, Business and Industrial zones.

The original concept plans for the Thrumster Town Centre show potential business technology and education precincts, which – zoned B2 - Local Centre (approx. 5.5ha) and B4- Mixed Use (approx. 15.5ha). These zones are generally suitable for office development while also allowing for residential uses. The extent to which commercial office space development occurs in Thrumster will be influenced by the relative feasibility of development of alternative land use classes, including residential and retail development. B5 zoned land is also provided within the Thrumster Town Centre precinct and permits bulky goods and light industrial uses amongst others, however commercial premises are prohibited in the B5 zone.

Additional locations: Port Macquarie Airport

The Port Macquarie Airport Business Park precinct comprises 25.5ha of land around 5km north-west of Port Macquarie CBD along Hastings River Drive. The precinct was converted to zone B7 Business Park with the introduction of Port Macquarie-Hastings Port Macquarie-Hastings Local Environmental Plan 2011 in February 2011 and development in the area includes a new senior Technical Tertiary College on land fronting Boundary Street in the north eastern sector of the precinct. Other land uses in the area have remained relatively unchanged over the last 10 years with occupiers mainly including aircraft related industries (e.g. scenic flights, learn-to-fly, car hire, general aviation hangars etc.).

Developable land supply in the existing Business Park has been revised down from 9.6ha to an estimated 5.6ha as a result of

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Council's purchase of Lot 121 DP1156615 (on the northern alignment of Tuffins Land, next to Newman College, 4.03ha zoned B7) for runway extension and airport operations.

At the end of 2013 Council completed a \$21 million infrastructure upgrade at the Airport to underpin the region's future growth, economic development and tourism potential. The upgraded runway provides the capability for larger aircraft to use the airport. The upgrade was the 1st stage of the implementation of the Airport Master Plan.

The advantages of the Airport Precinct for further development include:

- proximity to Port Macquarie CBD and its broader urban area;
- proximity to Hastings River Drive and the Airport operations itself; and
- The availability of relatively flat, vacant, unconstrained land ready for development.

Any surrounding development must not interfere with Airport Operational requirements.

Additional locations: CSU/John Oxley Drive Precinct

The CSU / John Oxley Drive Precinct is under investigation by Council in accordance with the 2011 Urban Growth Management Strategy. The UGMS proposes to 'Establish an expanded tertiary education precinct or precincts'.

4 DEMAND FOR COMMERCIAL LAND

This Section investigates the demand for commercial employment land within Port Macquarie-Hastings. Commercial floorspace and office employment generating land uses can be located in town centres, business parks, and, in the following zones; industrial lands, special use zones, rural lands, commercial uses are permitted where ancillary and incidental to an approved use rather than as stand-alone. Commercial floorspace can, in a minority of cases, be located in residential areas. The growth or decline of office based employment in these areas will have an impact on the extent of land required and the appropriate form of planning controls that need to be applied in the LGA.

Method for Estimating Demand for Employment Floorspace

Two methods are used for providing demand estimates for employment floorspace:

- The first method estimates future office demand based on extrapolation of trends in office construction activity over the recent years; and
- The second method projects jobs by type in Port Macquarie Hastings using population - office based employment ratios and converts office based jobs to floorspace demand.

The results are considered against other information shown in this report (i.e. property market position and trends) to identify potential future demand for commercial space in Port Macquarie-Hastings area over the long term.

Development Trends and Projections - 1st Method

Table 5 below shows trends in office construction by value converted into finished office space. This suggests new office supply in the local market area has been relatively limited since 2011. The projects which were identified as having commenced, being under construction, or with a firm construction start date, amount to less than \$300,000 of activity in commercial office, which on investigation, related to the construction of a temporary sales office for a residential development project at Sovereign Hills

Owing to the size of the medical sector in Port Macquarie Hastings, there has been significantly more development in medical premises,

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which account for nearly \$100 million in value of projects started, under construction or completed.

Table 5 - Development In Port Macquarie-Hastings LGA 2011-2016

Category	Construction Value 2011-2016	Total Floorspace 2011-2016 (SQM)	Annual Floorspace (SQM)
Industrial	\$7,515,000	8,640	1,440
Medical	\$99,424,000	19,773	3,296
Retail / Showroom	\$2,220,000	700	117
Commercial	\$278,000	0	0
Infrastructure	\$3,982,000	0	0
Storage	\$1,376,000	2,500	417
Total	\$114,795,000	31,613	5,269

Source: CordellConnect, HillPDA

Council have provided alternative data relating to the development of commercial floorspace that has been developed in the LGA. In a number of these developments commercial elements accounted for a proportion of the total development. In these instances, HillPDA have provided a broad estimate of the commercial component of the total development value. These developments are shown in Table 6 with an estimated total of around \$18.4 million over the 11 year period.

Table 6 – Commercial Development In Port Macquarie-Hastings LGA 2005-2016

Property	Approved	Total Value of Development	Notes	Estimated Value Commercial Component
20-22 Clarence St, PMQ	5/03/2013	\$2.84M	ground floor retail, 1st floor offices	\$2,840,000
23 Clarence St, PMQ	17/06/2009	\$300,000	ground floor retail, 1st floor offices	\$300,000
75-77 Clarence St, PMQ	18/07/2005	\$2M	3 storey commercial building, restaurant occupies 50% of ground floor	\$1,666,667
102 - 104 Horton St, PMQ	20/04/2015	\$450,000		\$450,000
10 Hayward St, PMQ	16/12/2015	\$440,000	2-storey addition to existing commercial premises - under construction	\$440,000
132 Gordon St, PMQ	3/01/2007	\$1,542,996	development occurs over Lots 1 & 3 DP 163643	\$1,542,996
147 Gordon St, PMQ	7/06/2007	\$1.127M		\$1,127,000

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Property	Approved	Total Value of Development	Notes	Estimated Value Commercial Component
27 & 35 Grant St, PMQ	2/06/2005	\$6M	Change of use to educational establishment approved for No 27 Grant St on 9/1/2012 under DA2011/687	\$6,000,000
63 Lord St, PMQ	18/04/2012	\$2M	50% of 1st floor offices	\$1,000,000
66 Lord St, PMQ	23/08/2005	\$2.5M	2-storey commercial building subdivided into 7 strata lots on 31/3/10. Two lots approved in 2010 for change of use to non-commercial (i.e. medical centre & education establishment).	\$2,500,000
89 Lord St, PMQ	29/04/2015	\$256,000	Part demolition of existing office premises & construction of new office premises	256,000
243 High St, Wauchope	1/04/2009	\$970,000	7 shops (725 sqm) + 3 commercial premises (250 sqm) - under construction. Development over Lot 3 DP 260095 & Lot 41 DP 806715	\$242,500
Total				\$18,365,163

Source: Port Macquarie Hastings Council

In terms of mooted or planned projects, the bulk of this proposed / planned development pipeline (\$7.25M in value) relates to retail development projects. No commercial developments are in the planning pipeline.

Table 7 - Planned or Mooted Development in Port Macquarie-Hastings LGA

Category	Construction Value Mooted	Total Floorspace Mooted (SQM)
Industrial	\$1,865,000	2,070
Medical	\$550,000	700
Showroom / Retail	\$7,250,000	2,941
Commercial	\$0	0
Storage	\$700,000	334
Replacement / refurbishment	\$4,650,000	838
Total	\$15,015,000	6,883

Source: CordellConnect, HillPDA

The data highlights the 'lumpy' nature of office investment in the market area. While the low demand and limited development could prevail for some time, pent up demand may result in the development of major projects that do not follow past trends in a

linear fashion. On this basis the trends data should be interpreted with care and an alternate method of estimating demand for additional office space based on job growth is undertaken below.

However, if the trends observed over the last six years continue, Port Macquarie-Hastings would not be expected to see any significant commercial office floorspace development.

Any development that does occur would be expected in the centre of Port Macquarie, and to a lesser extent Wauchope and Laurieton.

Jobs Based Trends and Projections: 2nd Method

Another method for estimating potential future office activity and demand is via assessment of employment conditions and trends and extrapolating trends into the future based on observed growth rates.

The method is based on assessing the potential for office based employment in Regional NSW and estimating the share of activity that may be accommodated in the Port Macquarie-Hastings LGA. The regional share is then apportioned to the study area.

The broader regional assessment is undertaken because as noted above, local area trends may not be reliable in all circumstances and be dependent on local factors that can impact the market on a short-term basis - for example the loss of a major employer impacting on jobs growth across sectors, and releasing a significant quantity of commercial space onto a local market.

The first step in this method is to review jobs by industry sector and occupation. The data for Regional NSW and Port Macquarie-Hastings as at 2011 are shown below.

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Table 8 - Profile of Jobs in Regional NSW, 2011

2011	Regional NSW								Total
	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers	
A Agriculture, Forestry and Fishing	38,063	1,004	2,261	133	2,068	295	1,928	9,150	54,903
B Mining	1,485	2,153	5,639	77	1,275	45	1,004	706	21,430
C Manufacturing	9,907	5,505	23,267	682	7,507	3,597	11,213	15,401	77,079
D Electricity, Gas, Water and Waste Services	1,338	1,953	4,640	57	2,714	249	1,693	1,107	13,746
E Construction	6,314	1,828	24,256	107	7,277	751	6,000	7,862	54,390
F Wholesale Trade	4,621	1,671	2,747	93	4,260	5,748	3,683	2,767	25,590
G Retail Trade	18,161	2,702	7,879	1,048	6,720	51,141	3,102	9,462	110,215
H Accommodation and Food Services	13,457	491	9,637	20,838	3,675	7,816	1,258	17,875	75,047
I Transport, Postal and Warehousing	3,416	1,071	1,817	405	7,836	1,323	17,247	1,823	34,939
J Information Media and Telecommunications	999	2,528	1,328	45	1,535	1,435	154	320	8,344
K Financial and Insurance Services	2,939	4,547	89	98	11,660	707	58	112	20,310
L Rental, Hiring and Real Estate Services	1,458	772	547	95	3,055	6,627	502	599	13,756
M Professional, Scientific and Technical Services	2,859	19,358	5,501	200	11,683	483	327	801	41,207
N Administrative and Support Services	1,514	2,681	1,874	2,007	3,318	411	691	9,112	21,608
O Public Administration and Safety	5,796	10,945	6,400	13,044	16,359	478	3519	4,162	60,703
P Education and Training	5,518	51,569	2,398	11,465	9,725	195	289	1,916	83,176
Q Health Care and Social Assistance	5,190	48,008	4,662	41,804	17,167	445	924	6,999	125,199
R Arts and Recreation Services	1,460	1,890	1,510	3,054	1,125	355	271	1,219	10,885
S Other Services	1,950	2,234	19,816	3,810	4,101	551	827	3,289	36,578
Total	126,445	163,010	126,368	99,154	123,060	92,656	63,730	94,682	889,105

Source: Derived from 2011 and 2006 ABS Census of Population and Housing

Table 9 - Profile of Jobs in Port Macquarie-Hastings, 2011

2011	Port Macquarie-Hastings								Total
	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers	
A Agriculture, Forestry and Fishing	430	26	14	6	22	5	20	117	640
B Mining	5	3	1	0	9	0	19	3	43
C Manufacturing	205	50	451	14	149	81	159	167	1,276
D Electricity, Gas, Water and Waste Services	189	253	169	1	410	10	45	29	1,109
E Construction	203	35	593	0	192	21	122	183	1,349
F Wholesale Trade	132	22	80	5	96	128	87	59	609
G Retail Trade	530	62	218	33	213	1,903	111	284	3,354
H Accommodation and Food Services	410	14	306	588	133	235	25	500	2,211
I Transport, Postal and Warehousing	71	24	33	12	200	28	403	31	802
J Information Media and Telecommunications	26	85	37	0	39	50	0	15	252
K Financial and Insurance Services	102	143	8	0	321	15	0	7	596
L Rental, Hiring and Real Estate Services	50	19	10	5	99	274	3	12	472
M Professional, Scientific and Technical Services	57	492	138	0	360	13	5	10	1,075
N Administrative and Support Services	47	82	46	64	110	17	11	334	711
O Public Administration and Safety	82	178	113	205	447	9	54	94	1,182
P Education and Training	114	1,332	35	276	225	3	0	33	2,018
Q Health Care and Social Assistance	151	1,580	147	1,317	626	11	28	178	4,047
R Arts and Recreation Services	40	32	49	73	39	13	5	26	277
S Other Services	43	66	568	114	115	16	13	102	1,037
Total	2,887	4,507	3,019	2,716	3,805	2,832	1,110	2,184	23,060

Source: Derived from 2011 and 2006 ABS Census of Population and Housing

The data shows that a large share of jobs located within Port Macquarie Hasting are Managerial, Technician or Community and Personal Service Worker occupations and many of these are in two main industry sectors: Education and Training and Health Care and Social Assistance. Another significant proportion of the workforce is

Professional occupations and many of these are in three industry sectors: Professional, Scientific and Technical Services, Education and Training and Health Care and Social Assistance. Sales jobs in Retail Trade are also significant in Port Macquarie.

Trends between 1991 and 2011 were examined. The jobs were allocated to either 'office based' or 'non-office based' to derive an estimate of office jobs and trends in such jobs.

Office jobs were converted to office floorspace using a ratio of 17.5 sqm per job. This is based on earlier HillPDA data that shows typical office density ratios being at around 20 in suburban areas and around 15 sqm per job in strong market areas. While there may be significant variation within the LGA of office density and occupation ratios, further research would be required to determine an exact figure. In this instance, an average is used.

Office based employment is further segmented into:

- Stand-alone office space, being strata office units or office buildings; and
- Ancillary office space associated with other land uses such as hospitals, schools, factories and shops.

This method provides an estimate of total stand-alone office space in 1991 and 2011. The data for regional NSW and Port Macquarie-Hastings are shown below.

The estimates for Port Macquarie-Hastings shows demand for stand-alone office space increasing from about 47,000 sqm in 1991 to about 78,000 sqm in 2011. The share of jobs based in offices in Port Macquarie-Hastings was 36% in 2011; marginally higher than the 1991 share of 34%.

Table 10 - Office Trends in Port Macquarie-Hastings, 1991-2011

	1991	2011
Jobs	15,953	23,060
Office Based Jobs	5,381	8,229
Percent	0.337	0.357
Office Floor space	94,160	156,251
Stand Alone Office	47,080	78,125

Source: HillPDA 2016 derived from 1991 and 2011 ABS Census

The table below shows Port Macquarie's share of jobs and office jobs (and hence office floorspace) in 1991 and 2011. The Port Macquarie Hastings share of regional NSW office jobs and floorspace increased

between 1991 and 2011; from 1.99% of regional office based floorspace to 2.68%.

Table 11 - Port Macquarie Share of Total Jobs and Office Jobs in the Regional NSW, 1991 and 2011

	1991		2011	
	Jobs	Office Based Jobs and Floor Space	Jobs	Office Based Jobs and Floor Space
Total share	1.89%	1.99%	2.59%	2.68%

Source: HillPDA 2016, from 2006 and 2011 ABS Census

Using an annual average rate of change in the share of office based jobs in Port Macquarie between 1991 and 2011, projections for the NSW regions' key metrics were made - stand-alone office space, office floorspace, office based jobs and total jobs.

This suggests that office based jobs will continue to become more important over time, accounting for 39.4% of total jobs by 2036.

Overall, this method suggests regional NSW will have around 1.34M jobs by 2036, with about 0.53M being office based jobs. This finding was compared to NSW Department of Planning age cohort projections to 2036. This data source suggests regional NSW will have around 1.95M persons of working age (nominally 15 to 64) by 2036, and as such the employment projections appear plausible.

Medium Growth Scenario

The next step in the method is to apportion regional stand-alone office demand to Port Macquarie. This is done on a reducing share basis from 1991 and 2011 as observed and extrapolated to 2036. Under a medium growth scenario, this approach suggests Port Macquarie will accommodate 4.1% of the region's office market by 2036 (up from 2.7% in 2011) and require in the region of 188,000 sqm of stand-alone commercial office floorspace.

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Table 12 - Regional Job and Office Projections with Port Macquarie - Hastings Apportionment, 2006-2036

Year	Total Jobs in Regional NSW	Office to Total Job Ratio	Total Office Based Jobs in Regional NSW	Port Macquarie Share of Regional NSW Office Market	Required Stand Alone Office Floor Space in Port Macquarie	SQM Land Requirement at 0.4 FSR	HA Equivalent
2006	990,460	35.4%	350,634	2.6%	78,880	197,200	19.7
2011	1,056,842	35.9%	379,604	2.7%	88,911	222,276	22.2
2016	1,118,470	36.6%	409,207	2.9%	104,228	260,569	26.1
2021	1,183,691	37.3%	441,119	3.2%	122,183	305,459	30.5
2026	1,233,509	38.0%	468,229	3.4%	141,037	352,591	35.3
2031	1,285,424	38.7%	497,005	3.7%	162,799	406,997	40.7
2036	1,339,524	39.4%	527,550	4.1%	187,919	469,797	47.0
Change 2016-36					83,691	209,228	20.9
Avg/ann 2016-36					4,185	10,461	1.0

Source: HillPDA and ABS

The required increase in office space would be almost 84,000 SQM between 2016 and 2036 – an annual average rate of 4,200 SQM. If this floorspace demand were to be accommodated in an out of centre location, such as a business park or campus office environment, based on a FSR of 0.4:1 the required land area (absolute net developable area) is 20.9 hectares as shown in the table below.

Table 13 - Land Requirement Based on Medium Growth Scenario Floorspace Demand Projections 2016-2036

Year	Additional Required Hectares from 2016
2021	4.5
2026	9.2
2031	14.6
2036	20.9

Source: HillPDA estimate based on FSR of 0.4:1

Low Growth Scenario

A low growth scenario has been modelled in which the share of regional NSW office floorspace accommodated by Port Macquarie Hastings grows at a rate below the historic trend line for the next 20 years. This scenario assumes that the rate of change in the share of regional NSW office based jobs apportioned to Port Macquarie Hastings grows at around 0.5% over the period to 2036.

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Table 14 - Regional Job and Office Projections with Port Macquarie - Hastings Apportionment, 2006-2036 – Low Growth Scenario

Year	Total Jobs in Regional NSW	Office to Total Job Ratio	Total Office Based Jobs in Regional NSW	Port Macquarie Share of Regional NSW Office Market	Required Stand Alone Office Floor Space in Port Macquarie	SQM Land Requirement at 0.4 FSR	HA Equivalent
2006	990,460	35.4%	350,634	2.6%	78,880	197,200	19.7
2011	1,056,842	35.9%	379,604	2.7%	88,911	222,276	22.2
2016	1,118,470	36.6%	409,207	2.8%	101,175	252,938	25.3
2021	1,183,691	37.3%	441,119	3.0%	115,132	287,829	28.8
2026	1,233,509	38.0%	468,229	3.1%	129,005	322,512	32.3
2031	1,285,424	38.7%	497,005	3.3%	144,549	361,374	36.1
2036	1,339,524	39.4%	527,550	3.5%	161,967	404,918	40.5
Change 2016-2036					60,792	151,980	15.2
Avg/ann 2016-2036					3,040	7,599	0.8

Source: HillPDA and ABS

Under the low forecast Port Macquarie-Hastings will accommodate 3.5% of the region's office market by 2036 and require in the region of 162,000 sqm of stand-alone commercial office floorspace. This equates to an additional 61,000 SQM – or an average of 3,040 SQM of stand-alone office floorspace every year.

If this floorspace were to be provided in an out-of-centre location such as a business park or campus office environment, based on a FSR of 0.4:1 the LGA will need around 15 hectares of absolute net developable land to 2036.

Table 15 - Land Requirement Based on Low Growth Scenario Floorspace Demand Projections 2016-2036

Year	Additional Required Hectares from 2016
2021	3.5
2026	7.0
2031	10.8
2036	15.2

Source: HillPDA estimate based on FSR of 0.4:1

Distribution of Demand

The main focus of the provision of office based demand forecasts is to assess the net change in the future to provide a guide to the long term take up of space. Under a medium growth or a lower growth scenario, it is considered that a significant component of future commercial floorspace demand will be likely to meet the needs of the growing population of Port Macquarie-Hastings. Population serving

industries are more likely to locate in the CBD than in business park style premises.

Using a benchmark of 80% of office market demand accommodated in the CBD locations of Port Macquarie-Hastings, between 12,000 to 17,000 sqm of stand-alone commercial floorspace will be required outside of CBD locations. At an FSR of 0.4:1, this results in a net developable land requirement of between **3ha** and **4.2ha**. The appropriate zoning of land to meet this requirement could be accommodated at the Airport Precinct, given that the Port Macquarie CBD is relatively constrained for business park style development.

Constraints CBD include:

- Lack of large sites with contiguous office floorspace potential;
- Infrastructure congestion; and
- Competition from alternative land uses, including residential and retail land uses.

Other locations that may accommodate campus style commercial floorspace include the CSU precinct and Thrumster. Of these, Thrumster would be expected to provide a neighbourhood centre role rather than a business park environment.

Summary

Office construction trends suggest new office supply in the local market area Port Macquarie Hastings has been limited over the past 6 years with limited new office supply. The medical sector has seen new developments and a component of these can be allocated to the office market. This has occurred at a time of strong growth in the residential sector and growth in the aged population in Port Macquarie and across the LGA.

Future take up of office floorspace in Port Macquarie Hastings is contingent on development being realised over time. While recent past property market trends provide a guide to possibilities in the future, they may be unreliable over a very long term outlook period due to cycles in the property market and structural changes in the economy and underlying demographic characteristics of regions.

A method to test long term needs or demand is via long term economic and employment projections. This approach provides an order of magnitude guide to future demand for jobs, office based jobs and office floorspace.

Analysis of employment data suggests stand-alone office space has increased from about 89,000 sqm in 2006 to about 101,000 in 2016.

Under a medium growth scenario it is estimated that Port Macquarie will accommodate 4.1% of the regional NSW office market by 2036, up from 2.9% in 2016. 84,700 sqm more stand-alone office space would be required taking up almost 21 hectares of absolute developable land. 39% of the working aged population would have white collar jobs by 2036.

Under the lower growth scenario, it is estimated that an additional 60,800 SQM of office floor space will be required to from 2016 to 2036 which will require 15 hectares of absolute net developable land at a 0.4:1 FSR. This level of office floorspace demand would mean that 38% of the working age population would have white collar jobs.

Demand for stand-alone office floorspace by 2036 is expected to be between 61,000 and 85,000 sqm. Assuming CBD capture rates of 80%, this level of stand-alone office demand will require from 3 hectares to 4.2 hectares of absolute net developable land. Assuming lower CBD capture rates of 60% would result in demand for up to eight and half hectares of land being required for business park style office space. In order to ensure an adequate supply of land we recommend at least 10 hectares of land be appropriately zoned to accommodate out-of-centre office floorspace in Port Macquarie-Hastings.

5 DEMAND FOR INDUSTRIAL LAND

The Mid-North Coast Regional Strategy identifies Port Macquarie – along with Coffs Harbour - as requiring substantial industrial land to support future employment growth.³ The Strategy notes that “local land use planning will be required to ensure that opportunities exist for a range of industrial development types, including light, general, heavy, transport and business technology industries, to service the needs of the growing population and export markets”.

There is expected to be an excess of supply if the land currently under investigation is released for development. HillPDA concludes that land is being released beyond projected market demand in the short term to provide for the best economic outcomes and an efficient economy. There are 530ha of industrial zoned land in Port Macquarie-Hastings LGA, of which around 245ha of land is developed and 285ha is zoned and vacant. If Herons Creek - which is constrained - is excluded, there are around 210ha of vacant suitable industrial land available to the market.

The HillPDA review of the Industrial Land strategy identified that there were three sites in the planning stages of investigation and possible future rezoning. These included the Airport which will add around 10 hectares of developable land, Area 14 (Lake Cathie), which will add around 4 hectares of developable land and the John Oxley Drive and Oxley Highway area that could potentially add a further 8 hectares. This would bring the total developable area to around 232ha.

The Port Macquarie-Hastings LGA will demand an additional 78ha to 135ha of industrial land to 2036 indicating there is sufficient current supply to meet demand to 2036.

For the longer term, additional land may be required in order to ensure that future industrial land, beyond 2036, is continued to be made available. Such land needs to be sufficient to:

- Facilitate market choice;
- Maintain affordability;
- Allow for expected loss of yield in some areas due to constraints; and
- Be located appropriately in relation to urban growth and market preference.

³ MNCRS; 2009, p.24

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An area of priority investigation noted in the 2015 review of Industrial lands was the airport precinct, noting the requirement to accommodate business technology, local services growth and airport related industries. The review noted that available land at the airport is appropriate for a range of aviation related uses including - couriers, freight, logistics, services relating to airport, manufacturing, light aircraft manufacture, aircraft maintenance and repairs, search and rescue, aerial surveillance, aircraft instrument/electrical installation, charter operations, aircraft restoration, flight training, petrol/fuelling, skydiving operations, helicopter operations and emergency services.

Various parcels of land at the airport have been identified in the Port Macquarie Airport Master Plan 2010 as "Zone SP2 Infrastructure – Air transport facility" and have been reserved as potentially suitable for possible future airport infrastructure and facilities, including terminal buildings, parking facilities, emergency services, etc.

Local Service Industrial Demand

In the Industrial Land Review, HillPDA calculated projected total local service industrial demand based on population forecasts. These projections are presented in the table below.

Table 16 - Additional Local Service Industrial Land Demand by Location to 2036 (hectares)

Precinct	Low Participation	High Participation	Full Participation
Camden Haven	3.0	4.2	5.3
Flynns Beach	-	-	-
Kings Creek - Sancroft - Lake Innes	5.9	8.1	10.1
Lake Cathie - Bonny Hills	5.7	7.9	9.9
Lighthouse Beach - Greenmeadows	1.7	2.3	2.9
Port Macquarie - Innes Pen	1.2	1.6	2.1
Rural North	2.7	3.7	4.7
Rural West – South	1.6	2.1	2.7
Shelly Beach - Bellevue Hill	0.9	1.2	1.5
Area 13 (Thrumster)	12.2	16.8	21.0
Town Beach – CBD	1.0	1.4	1.7
Wauchope	2.8	3.8	4.8
Westport	0.4	0.6	0.7
Total	39.0	53.8	67.4

Source: Hill PDA 2015

The table above indicates Port Macquarie-Hastings will require an additional 39ha to 67ha of local service industrial land to cater for demand to 2036. This demand is a component of total industrial land demand in the LGA.

6 RECOMMENDATIONS

Recommendations for the study area are documented below.

Planning Policy

To maintain and further develop Port Macquarie's role and purpose into the future, land use controls will need to be managed to ensure that appropriate uses are balanced across the centre and the viability of businesses in the Commercial core are maintained.

A mix of land uses in the Port Macquarie CBD is preferable into the future. The function of the CBD is largely retail and in recent years commercial development has been limited. To encourage commercial activity in the CBD, zoning at the airport must not detract from the activities at the CBD.

Office Development Requirements

Office use across Port Macquarie CBD is an important activity that contributes to the vibrancy of the centre, supports retail activity during weekdays and provides diversity in local employment opportunities. Port Macquarie plays a role as the regional hub for business services, administrative services and government functions. However, while there has been significant development in the medical sector owing to the Base Hospital development and the Port Macquarie Private Hospital, there has not been significant commercial office development activity in the LGA over the last six years.

Growth based on longer term trends suggest that demand will be strong - however the longer term trend incorporates a period of significant structural adjustment and a period of significant growth in Port Macquarie's role as a regional service centre. Projections based on shorter term trends indicate a slower rate of growth in demand for commercial floorspace in Port Macquarie-Hastings LGA.

Consultation with local real estate agencies indicated that demand for new commercial development in Port Macquarie other than for medical premises has not been particularly strong. It is possible that the provision of a significant quantum of land for commercial development outside of Port Macquarie CBD may have an impact on the potential for future commercial development within the commercial core. However, as there are limited opportunities for large floorplate office developments within the CBD. The typical

occupiers of business park B7 space may not necessarily seek CBD based alternative accommodation options if business park facilities are not available - rather seeking alternative locations where accommodation needs can be met. These might include opportunities outside of the Port Macquarie-Hastings LGA area.

Further, the 2015 HillPDA review of the Port Macquarie-Hastings Industrial Land Strategy identified that apart from aviation related uses, the site (at the airport) is appropriate for high technology and campus style business park development.

A judgement is required to determine whether the airport site is the most suitable location for this type of commercial development or whether other locations in Port Macquarie Hastings LGA are better suited to this role. The Port Macquarie CBD is relatively constrained for campus style or business park commercial office development while alternative locations, such as Thrumster would be expected to be more focused on providing a local town centre role as opposed to a campus style business park environment. Particularly when considering that the B4 mixed use zone provision at Thrumster - while permitting (with consent) office premises - also allows for residential development in a number of formats, including shop top housing, residential flat developments, multi-dwelling housing and seniors housing.

The analysis on commercial floorspace and land requirements to provide for the commercial floorspace projections provides an order of magnitude guide to guide planning decision making. A significant component of the required floorspace provision will be in the CBD areas of Port Macquarie, Wauchope, Laurieton and Thrumster going forward. Businesses occupying commercial floorspace in the CBD in order to serve local populations and businesses are expected to continue to locate in CBD areas notwithstanding the availability of commercial floorspace elsewhere in the LGA.

Projecting the demand for commercial floorspace that is not driven by local resident population and business demands for services depends on a range of factors. Not all businesses require a CBD location, and those seeking lower rent options with parking provision for all employees may opt to locate in out of town centre business park locations. Forecasts in this analysis have adopted a benchmark target figure of 80% of expected demand for stand-alone office floorspace in Port Macquarie Hastings to be accommodated in the existing CBD areas of Port Macquarie Hastings. The actual proportion may be more or less than 80%. This figure has been adopted to

provide an order of magnitude guide to the potential level of demand that might occur. The analysis has determined that between 3 ha and 4.2 ha of absolute net developable land will be required to meet demand for stand-alone office floorspace over the period to 2036 and that land at the airport is appropriate for this type of development.

Given the variability in the proportion of demand that may occur in out of town office locations relative to CBD office locations, a range of capture rates for commercial centres should be considered. A lower capture rate in the commercial centres of say 60% would result in a demand for up to eight and half hectares of land being required for business park style office space. In the interests of cost effectiveness it is preferable to ensure an adequate supply of land and hence we recommend at least 10 hectares of land be zoned to accommodate out-of-centre office floorspace.

Council could consider the staging of development on the Airport Precinct Land in order to overcome any concerns over a glut of business development adversely impacting the prospect of retaining commercial office users in Port Macquarie and to ensure that existing infrastructure capacity is not exceeded.

It is recommended that the take-up of development opportunities on land zoned at the airport is reviewed on a periodic basis – for example at five year intervals – to determine whether the quantity of land set aside for office uses is sufficient to meet the needs of occupiers. If demand for office space is strong, then the rezoning of additional land could be brought forward or investigated further. The periodic review would also provide opportunities to assess the strength of demand for office space in Port Macquarie CBD and to maintain an appropriate balance between protecting the longer term commercial viability and success of the CBD and enabling businesses that require larger office floorplates in business park type premises to establish in Port Macquarie Hastings.

Service Industry Development Requirements

In addition to the requirement for provision of commercial office land in Port Macquarie-Hastings, there is a need for identification of appropriate locations for service industry employment land. HillPDA have projected demand for service industry land requirements over the period to 2036. These projections show between 39ha and 67ha of land will be required for additional services industry employment over

the period to 2036. The majority of this land – 21 ha and 10 ha – would be required in the Thrumster and Sancrox-Lake Innes areas. The HillPDA Review (2015) identified that there were opportunities to provide additional light and general service industrial lands to cater for employment opportunities in Thrumster, Lake Cathie/Bonny Hills, and Kew/Lakewood and as such, additional land would not be required at the airport precinct in order to cater for the additional industrial land requirement. Despite this, the current B7 zoning allows for light industrial development with consent.

While the 2015 Industrial Review identified the Airport land as a large dedicated site close to the urban area of Port Macquarie with potential to accommodate future local services growth, and to accommodate the transferred demand from any future rezoning of existing industrial areas to commercial, the existing and future opportunities at Thrumster, Lake Cathie Bonny Hills and Sancrox mitigate the need to provide additional land for service industry at the airport in the medium term.

This is after taking into account the shortcomings of industrially zoned land at Herons Creek and Bago Road in Wauchope. These areas are not well located to provide for demand generated in Port Macquarie.

The transition of existing industrially zoned land in the Lake Road industrial precinct to other land uses and the potential displacement of industry could be accommodated at Sancrox. Sancrox is well located in terms of access to the Pacific Highway, while further provision of light industrial land nearer Port Macquarie at Lindfield Park Road and Partridge Creek in the Thrumster release area could accommodate displaced industry. It is not considered likely that land zoned for services industry will be required at the Airport. However should demand for service industry uses be in excess of that projected in the 2015 HillPDA Industrial Lands review, appropriately zoned land could be used for light industry and service industry requirements at the airport.

Appropriate Zoning for the Airport Precinct

Zoning to be considered at the airport includes B7 Business Park, B4 Mixed Use and B5 Business Development. Tourist zoning was considered as potential for tourism accommodation may be a factor that attracts business to locate near the airport: however office premises are not a permitted use in the SP3 zone and therefore such

zoning would not meet the demand requirements for commercial office space in Port Macquarie Hastings.

The B4 Zone allows for office development and for light industrial uses – which are permitted with consent through virtue of not being included in the prohibited uses for the zone, Tourist accommodation – in the form of hotels or motels are also permitted in B4. B4 also allows for residential uses. This may not be appropriate at the Airport land given the infrastructure constraints (the requirement for future development of the Airport Link Road), and may compromise the ability of developers to provide large scale office development in campus style premises. In addition, permitting retail to develop at the airport land may play a role in undermining the existing retail hierarchy in Port Macquarie Hastings.

Offices are also permitted in the B5 zone. Light industry is identified as permitted with consent. The zone provides for employment generating uses such as offices, warehouses, retail and bulky goods premises. The zone is generally applied in locations that are close to and support the viability of centres. Provision of bulky goods premises at the Airport land may undermine the existing retail hierarchy in Port Macquarie Hastings.

It is recommended that around 10 hectares of land at the airport be zoned B7. While B7 zoning does not permit tourist accommodation, there is significant provision of tourist accommodation options in Port Macquarie CBD. If it is deemed necessary, further appropriate zoning could be provided within the Airport land to accommodate hotel development. This could be SP3 Zone. The B7 zone does allow for office development, and also for light industrial land use activities should demand for these uses be in excess of that projected in the 2015 HillPDA Industrial Lands review. Further, residential accommodation is not permitted in the B7 zone.

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Attachment 2 - Hill PDA report 2017



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5 July 2017

Dear Peter

**Subject: Port Macquarie Airport Precinct Expansion -
Review of Submission from King and Campbell**

HillPDA was commissioned by Port Macquarie Hastings Council (PMHC) Strategic Land Use Planning to prepare a review of the submission from King + Campbell in relation to the Port Macquarie Regional Airport Business Park. King + Campbell represent PMHC as the owner and operator of the Port Macquarie Airport (PMHC Airport). As part of the submission, King + Campbell had Gillespie Economics review the HillPDA report titled "Land Use Assessment of the Proposed Airport Precinct Expansion" (2016). The 2016 HillPDA study was commissioned by PMHC Strategic Land Use Planning to provide a forecast of demand for business park floor space and zoned land.

The 2016 HillPDA report

The 2016 HillPDA report projected demand based on a combination of trend extrapolation, employment trends and population forecasts. It concluded that only 4-5 hectares of land is likely to be taken up for business-park uses at the airport under a medium growth scenario to 2036. However this demand could easily double under a higher growth scenario and/or higher rate of total LGA "white collar" jobs being captured at the airport. At least 10 hectares of land was recommended for rezoning (Page 42).

The HillPDA report also concluded that 10 hectares of business park at the airport would not undermine the commercial centres hierarchy given that around 60% of future "white collar" jobs would locate in Port Macquarie CBD and other centres.



The Gillespie Submission

The Gillespie review of the HillPDA study was critical in that the HillPDA methodology was not aspirational. It assumed 'business as usual' rather than investment driven / airport related. The Gillespie review was critical of the HillPDA study in that it did not make an adjustment to the "business as usual" forecast due to the significant level of investment at the airport from all levels of government. The report states that the airport has "potential to be a catalyst to attract new investment and business into the region." Finally it states "the airport is seen by PMHC as a key driver for regional growth, economic development and employment' (Augusta Properties Pty Ltd, p. 5) and hence demand for rezoned land is driven by the airport development NOT a consequence of population growth".

Before considering this issue it is important to note that the Gillespie submission did not address the commercial centres hierarchy.

Planning Considerations

There are several factors which I will address here. Before discussing the points for and against, it is clear that planning should support jobs and economic growth. The objects of the NSW Planning and Environment Act include "the promotion of orderly and economic use of land". Hence all things being equal it is better to zone more land for employment uses rather than not enough. Planning for the Airport Business Park is also consistent with the Mid-North Coast Regional Strategy.

Economic Growth Considerations

In support of the Gillespie argument there are always examples where the introduction of a "base" industry can stimulate jobs and economic growth either temporarily or in the long-term. A good example is a new mine. People do chase jobs or job opportunities. During the mining boom new mines in the Hunter Valley and Mid-western regions of NSW certainly stimulated jobs which then stimulated population growth and demand for more housing and urban services. There are multiplier impacts, both production and consumption induced, that can result in significant growth in the local or regional economy.

That said there are a few counter claims that should be raised. Firstly airports are not really a base industry. Airports are transport



infrastructure required to support other industries. The demand to fly people and cargo is generated from other industries – whether it is in mining, tourism, agriculture, etc. “Build an airport and they will come” is not necessarily true – although an airport could improve demand as a result of improved accessibility.

Examples of Other Regional Airports

There are many cases where local governments have been a little optimistic with their predictions about airports attracting other businesses.

As an example Dubbo has 96 hectares of industrial zoned land north of the airport but to date there has been no development of this land¹. There are a few transport businesses located immediately to the south of the airport. Dubbo has more flights with around 10 to 11 arrivals and 10 to 11 departures each day compared to Port Macquarie 7 flights in and 7 flights out. Mining has been a big stimulus to Dubbo resulting in a need to fly workers in and out.

Coffs Harbour accommodates a similar number of flights with around 10-11 arrivals and 10-11 departures each day. Yet it has little to show in the way of an “airpark”. There is a small innovation or technology park with a number of tenants but this has its nexus relationship with the education sector (rather than the airport). There are several transport related industries but these are found in the industrial area some 5km from the airport rather than adjacent to the airport.

Wagga Wagga has a similar number of flights with 2 from Melbourne and 8-9 from Sydney through the day. The main industry next to the airport is the RAAF base. There is a masterplan for the airport with plans to accommodate a diverse range of commercial and industrial businesses, education and research institutions and aviation support.

Overall the evidence that regional airports stimulate significant interest in a business park is a little weak. It’s likely that other factors (not just the airport) would be involved for a business park near a regional airport to be successful.

¹ Dubbo City Regional Airport Masterplan 2015



Planning Options

We understand that if more than 20 hectares of business park were absorbed in the market and developed it is likely that access via Hastings River Drive will begin to exceed the capacity of the road network until such time as the road from Oxley Highway is constructed. Therefore no more than 20 hectares can be rezoned until the link road is constructed.

This leaves two options for Council to consider:

- Option 1 is to rezone no more than 10 hectares for business park uses. The disadvantage with this option is that it restricts the scenario of a significant or rapid development of the airport unless there is rezoning of further land.
- Option 2 is to rezone no more than 20 hectares to B7 for business park uses. If proven that the market absorbs the land at a faster rate than expected (and hence appropriately zoned land depletes quicker than expected) then the new road could be constructed earlier subject to funding. This is the option that we recommend.

The Centres Hierarchy

Option 2 is not likely to threaten the viability of commercial centres. The main reason was identified in the 2016 HillPDA study. The only "white collar" industry in the LGA to have shown significant interest in commercial space over the past decade or two has been health. This industry, as well as several others (such as real estate services, etc), is population based and would therefore express a stronger interest in Port Macquarie CBD, other commercial centres and the hospital precinct rather than the airport.

If Gillespie Economics proves to be correct in its forecast of the airport stimulating jobs then many of these businesses would not locate in the CBD anyway. These are businesses that rely more on proximity to the airport (and perhaps also the Pacific Highway) rather than proximity to the population base. There is some risk that they would locate outside the LGA altogether if space was not available. This risk was identified in the 2016 HillPDA study.

**Light Industry**

In relation to light industry Council's Employment Lands Strategy prepared by HillPDA noted that industrial land was not needed at the airport due to sufficient supply in the LGA. Nevertheless the airport would be an attractive location for many businesses – not just because of the airport but because of the site's proximity to the Port Macquarie urban area relative to Sancro, Thrumster and Wauchope. We note that the majority of people live east of the airport and that there are very few remaining sites to develop in the Lake Road and Hastings River Drive industrial areas. Therefore there is the opportunity to rezone part of the developable area for light industry without exceeding the road capacity.

Sincerely

A handwritten signature in black ink, appearing to read "Adrian Hack".

ADRIAN HACK

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Attachment 3 - Gillespie Economics Review 2017

Port Macquarie Airport Business Park Investigation Review of Demand Forecasts

Prepared for Port Macquarie Hastings Council

By



Gillespie Economics
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24 April 2017

Disclaimer

All surveys, forecasts, projections, findings and recommendations made in this report are made in good faith on the basis of information available at the time; and achievement of objectives, projections or forecasts set out in this report will depend among other things on the actions of the NSW Government and their agents, over which we have no control. Notwithstanding anything contained therein, neither Gillespie Economics nor its servants or agents will, except as the law may require, be liable for any loss or other consequences arising out of the project.

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1.0 INTRODUCTION

King and Campbell Pty Ltd, on behalf of Port Macquarie Hastings Council as the owner of the Port Macquarie Airport (PMHC Airport), has prepared a preliminary zoning plan as part of the proposed establishment of the Port Macquarie Regional Airport Business Park.

Port Macquarie-Hastings Council as the Planning Authority (PMHC Planning) engaged Hill PDA to undertake a land use assessment of the proposed Airport Business Park to understand the supply and demand for land uses and determine the appropriate planning controls for the precinct (Hill PDA, 2016).

PMHC Airport has engaged Gillespie Economics to undertake a review of the Hill PDA assessment and prepare a brief report commenting on the Hill PDA methodology and its application to the Airport Business Park, including a consideration of potential competition with the CBD.

This review has regard to some of the relevant planning context which is summarised in Section 2.

2.0 PLANNING CONTEXT

2.1 North Coast Regional Plan 2017

The North Coast Regional Plan 2017 (NSW Department of Planning and Environment, 2017) identifies airports as centres of employment.

Action 6.1 is "Facilitate economic activity around industry anchors such as health, education and airport facilities by considering new infrastructure needs and introducing planning controls that encourage clusters of related activity

The North Coast Regional Plan (p. 28) identifies that *"Regional cities also have employment, health, education and airport precincts that are capable of promoting employment growth for the entire North Coast."* Action 7.1 arising from this is to *"promote new job opportunities that complement existing employment nodes around existing education, health and airport precincts."*

Figure 8 in the North Coast Regional Plan identifies land around the Port Macquarie Airport as "Investigation Area - Employment Lands".

Direction 10: Facilitate Air, Rail and public transport infrastructure identifies that *"Airports are important gateways for business, tourism and personal travel, as well as high-value freight. Airport precinct plans will be developed to investigate opportunities for compatible and complementary air transport-related industry and business uses on land adjoining airports. The development of retail and bulky -goods uses should be avoided in these areas."* Action 10.1 is to *"deliver airport precinct plans for Ballina-Byron, Lismore, Coffs Harbour and Port Macquarie that capitalise on opportunities to diversify and maximise the potential of value-adding industries close to airports."*

The North Coast Regional Plan (p. 88) defines Employment Nodes as *"Land use clusters that **leverage** and support intensification of economic activity in and around key employment anchors like hospitals, universities and airports."*

2.2 Port Macquarie Hastings Urban Growth Management Strategy 2010

The Port Macquarie-Hastings Urban Growth Management Strategy (UGMS) 2010 identifies that *"the current economic development strategy is to surround certain distinct infrastructure opportunities with superior business settings, in turn supported by high quality industry and business development programs, to grow an increasingly diversified, high value adding, wealth creating, small business base. It is focussed on the development of clusters or aggregations of related activities, which result in a concentration of like-minded firms utilising a common resource and achieving synergies as a consequence."* One of these is the Airport precinct where *"It is proposed to investigate part of the existing east-west grass runway and other land to the east of the airport, including land along Boundary St, to determine the suitability of this areas for service industry and business park industrial uses. There is also potentially synergies aviation related uses , including couriers, airfreight, logistics, services relating to airport, manufacturing, light aircraft manufacture, aircraft maintenance and repairs, search and rescue, aerial surveillance, aircraft instrument/electrical installation, charter operations, aircraft restoration, flying training, petro/fuelling, skydiving operations, helicopter operations, and emergency services. Land use planning investigations are proposed for the Airport Precinct as discussed in Section 5.3.4c) of this Strategy."*

The UGMS 2010 (Table 5.3.2), which draws on the Port Macquarie - Hastings Industrial Land Strategy Review 2010 (Hill PDA 2015), forecasts demand for 10ha of industrial land at the Airport Precinct.

2.3 Port Macquarie Hastings Industrial Land Strategy Review 2015

The Port Macquarie Hastings Industrial Land Strategy Review 2015 (Hill PDA 2015) has been prepared to inform the current review of the UGMS being undertaken by Council.

Section 3 of the report addresses the changing nature of industry including off-based trends toward business park developments, clustering and agglomeration along transport corridors, universities, airports and hospitals.

Table 14 identifies estimated developmental land area at the Airport Precinct of 10ha, with a B7 Business Park Zoning.

2.4 Port Macquarie Airport Master Plan 2010 Addendum Report

The Port Macquarie Airport Master Plan 2010 Addendum Report outlines plans for upgrading of the Port Macquarie Airport. This is being progressively implemented.

In 2012-13 / 2013-14 Port Macquarie airport received a \$20.5m upgrade of the airside infrastructure (runway etc). An additional \$7.5m is committed over 2016-17 / 2017-18 for the proposed upgrade of the passenger terminal building. This is in addition to a \$12.2m investment in 2007-08 to upgrade the airport to cater for the introduction of VA jet services and \$1M in 2008-09 to provide for the introduction of checked baggage security screening services. Overall, \$41m has been spent / committed (by all 3 levels of government) to upgrade Port Macquarie Airport as a key component of the regional transport network and to underpin the region's growth, economic development and tourism potential.

3.0 PRELIMINARY ZONING PLAN FOR THE AIRPORT PRECINCT

The preliminary zoning plan for the Airport Precinct prepared by King and Campbell for Council is for:

- 23.75 ha of proposed B7 zoned land;
- 25.76 ha of SP2 (infrastructure - air transport facility) zoned land; and
- 7.73 ha of B7 investigation land.

This includes rezoning 17.04 ha of land currently zoned B7 to SP2.

4.0 HILL PDA AIRPORT PRECINCT EXPANSION - LAND USE ASSESSMENT

Hill PDA (2016) undertook a land use assessment of the proposed Airport Precinct Expansion to understand the supply and demand for land uses and determine the appropriate planning controls for the precinct (PDA, 2016).

Two approaches were used to examine demand for commercial land:

1. extrapolation of trends in office construction activity over recent years.
2. projection of jobs by type and then use of populations-office based employment ratios to convert office based jobs to floor space demand. Key steps and assumptions in this approach are outlined below:
 - identification of employment trends between 1991 and 2011 at a 19 sector level of aggregation;
 - allocation of jobs between office based (stand alone office space and ancillary office space) or non-office based;
 - office jobs were converted to office floor space using a ratio of 17.5 sqm per job;
 - used annual average rate of change in the share of office based jobs in the LGA between 1991 and 2011 and extrapolated them to 2036;
 - apportioned regional stand-alone office demand to Port Macquarie - medium growth scenario and low growth scenario;
 - assumed that 80% of the increased office demand would be needed to service the needs of the growing population and be located in the CBD rather than business style premises. Found that 12,000 to 17,000 sqm of stand-alone commercial floorspace would be required outside of CBD locations;
 - estimated the absolute net development land that would be needed outside the CBD assuming a FSR of 0.4:1 - 3 to 4.2 ha;
 - assuming a lower CBD capture rate of 60% then demand for outer CBD office space would be about 8.5ha.

In order to ensure an adequate supply of land Hill PDA (2016) recommended at least 10 ha of land be appropriately zoned to accommodate out of centre office floorspace in Port Macquarie - Hastings.

Hill PDA (2016) identified that there is sufficient current supply of industrial land to meet demand to 2036, including local service industrial demand. Hill PDA (2016) identified that potential rezoning at the Airport will add around 10 ha of developable land.

Hill PDA (2016) recommended that:

- around 10 ha of land at the airport be zoned B7 to accommodate future demand for out-of centre office floorspace;
- Council consider the staging of development on the Airport Precinct land in order to overcome any concerns over a glut of business development adversely impacting the prospect of retaining commercial office users in Port Macquarie and to ensure that existing infrastructure capacity is not exceeded.

Hill PDA (2016) found that additional land would not be required at the airport precinct in order to cater for the forecast demand for service industry land.

5.0 REVIEW OF HILL PDA AIRPORT PRECINCT EXPANSION - LAND USE ASSESSMENT

5.1 Forecast Demand for Commercial Office Space

Hill PDA (2016) focus on the supply and demand for commercial office space using:

- extrapolation of past office development; and
- population projections, employment and floor space ratios and numerous assumptions.

Its recommendation for around 10 ha of land at the airport to be zoned B7 to accommodate future demand for out-of centre office floorspace, repeats its same finding in the Port Macquarie Hastings Industrial Land Strategy Review in 2010 (Hill PDA 2010), which was carried through to the Port Macquarie Hastings UGMS 2010, and the same finding in the Port Macquarie Hastings Industrial Land Strategy Review 2015 (Hill PDA 2015).

While the generic approach to forecasting may be suitable for normal business as usual projections of broad demand for commercial office space, it is questionable whether such a general approach provides a sound basis for decision-making in relation to the Port Macquarie Hastings Airport Precinct.

Firstly, general office space projections may not be representative of the specific types of activities that may benefit from rezoning at the airport. As identified in Hill PDA (2016, p. 23), *"the types of business that locate near airports comprise those with time critical manufacturing and distribution, entertainment, tourism, corporate offices and business that require long distance connectivity. These types of uses and businesses may seek opportunities in the Port Macquarie Hastings area on land around or close to the airport. Typical commercial uses based around airport lands will required large floor plates and significant car parking."* What is relevant is demand for a specific type of commercial office space. This was not addressed by Hill PDA.

Secondly, generic business as usual forecasting does not have regard to the implications of the recent \$21M investment in the airport and the proposed future investment. This is evidenced by Hill PDA's unchanged finding over time for 10 ha of land at the airport to be zoned for industrial/office uses. The \$21M investment in the airport and the proposed future investment has had no impact on forecast demand. However, the airport investment is not a business as usual event but an expansion of critical infrastructure that has the potential to be a **catalyst** to attract new investment and business into the region. As identified by (Aurecon 2011, p. 11), *"The Airport Precinct business park will seek to attract new inward investment opportunities to the region and businesses that will either have a close association with airport activity or be likely to receive a competitive advantage by being located in close proximity to an airport."* *"It is envisaged that the Airport upgrade project will be the **catalyst** for the successful development of the proposed Airport Precinct business park, with a high-performing regional airport being a critical factor to the long-term attractiveness of the region to investors."* (Aurecon 2011, p. 11). Consequently, demand forecasts at the Airport cannot be considered in isolation of the recent and future investment in the airport.

Thirdly, the generic business as usual forecasting was population driven and implicitly assumes that demand for commercial floorspace generally and at the airport precinct is driven by demand from the growing population. However, *"The airport is seen by PMHC as a key **driver** for regional growth, economic development and employment"* (Augusta Properties Pty Ltd, p. 5) and hence demand for rezoned land is driven by the airport development NOT a consequence of population growth. The airport precinct is likely to be attractive for industries that obtain a benefit from being located in close proximity to the airport,

many of which may be basic industries (i.e. those exporting from the region) rather than local service industries driven by local population growth. The potential is therefore for the development of the airport to attract business from other regions, including Sydney, because of lower rents and greater amenity while still enjoying proximity to a suitably scaled airport.

In this context, forecasting of demand for office and industry in the Port Macquarie Airport Precinct may be considered at least partially separate and additional to normal business as usual demand. The extent that the airport investment will drive inward investment and relocation of businesses could be informed by consideration of other upgraded regional airports and their surrounding developments.

5.2 Forecast Demand for Industrial Land

Hill PDA (2016) briefly examines demand for industrial land in the region and concludes that there is sufficient industrial land to meet demand to 2032 and so additional industrial zoned land at the airport precinct would not be required.

The consideration of demand for industrial land doesn't specifically address potential demand for uses that would be located in the proposed SP2 zone at the airport, but seem more related to uses that may be located in B7 zoned land.

Again, the projection of demand for industrial land is generic business as usual forecasting that does not distinguish between specific types (or location) of industrial activity that may benefit from rezoning at the airport, does not have regard to implications of the recent \$21M investment in the airport and the proposed future investment, and is largely focused on service industries driven by local population growth rather than demand that may be **driven** by the airport investment.

In relation to the first point, it is noted that Augusta (2011, p. 36) identified that it did not consider that the UGMS 2010 that predicts an overall excess of supply over demand of industrial land accurately reflect the situation for the Airport Business Precinct, because *"a well presented, serviced and accessible business precinct at the airport is only properly compared to other centrally located (and appropriately presented) industrial land. It is not appropriate to compare this to industrial land at Wauchope, Camden Haven or other locations remote from the Port Macquarie town centre."* Augusta (2011, p. 36) concluded that *"Therefore it would appear that market(s) and location(s) with which the Airport Business Precinct should most properly be compared appear likely to be in a situation of undersupply going forward, and not oversupply."*

5.3 Competition with the CBD

The proposed B7 zoning at the Airport Precinct allows for office uses. Hill PDA (2016) raises the issue of potential competition with the Port Macquarie CBD, and potential for development at the airport to adversely impact the prospect of retaining commercial office users in Port Macquarie.

However, these concerns would appear to be misplaced. Businesses locate where it is most beneficial for their profitability taking into account a range of supply e.g. labour availability and costs, land availability and costs, energy costs, transport costs and community/amenity factors, and demand factors e.g. customer accessibility, image etc. CBD locations offer agglomeration economies for some businesses and advantages re: customer accessibility etc. Other locations offer advantages to other types of businesses.

As identified by Hill PDA (2016, p. 21), *"Economic changes to industry and technology has resulted in a*

significant shift in the location of office-based activities towards business park developments." These can offer different attributes to CBD locations including cheaper rents, plentiful car parking, open space and onsite amenities etc. (Hill PDA, 2106). The types of businesses that locate near airports typically require large floor plates and significant car parking (Hill PDA 2016). These are not the types of businesses that tend to locate in the CBD and *"there are a limited number of large floorplate commercial office space occupiers in Port Macquarie at the present time"* (Hill PDA 2016, p. 6) and *"limited opportunities for large floorplate office developments within the CBD"* (Hill PDA 2016, p. 45).

Potential occupiers of B7 zoned land at Port Macquarie *"may not necessarily seek CBD based alternative accommodation options if business park facilities are not available - rather seeking alternative locations where accommodation needs can be met. This might include opportunities outside of the Port Macquarie-Hastings LGA area"* (Hill PDA, 2016, p. 46).

Furthermore, overly prescriptive office space policy that serves to reduce competition can provide territorial monopoly rents to owners of office space and mitigates against the process whereby competition between locations ensures strong investment in refurbishment and expansion - and hence a process of continuous evolution and upgrading of office facilities to meet community requirements (BIS Shrapnel 1999).

6.0 SUMMARY/CONCLUSION

The North Coast Regional Plan identifies the importance of airports as employment hubs and that these precincts are capable of promoting employment growth for the entire North Coast. Airports can be a key driver of, and catalyst for, regional growth

Hill PDA (2016) focus on the supply and demand for commercial office space using:

- extrapolation of past office development; and
- population projections, employment and floor space ratios and numerous assumptions.

While the generic approach to forecasting may be suitable for normal business as usual projections of broad demand for commercial office space, it is questionable whether such a general approach provides a sound basis for decision-making in relation to the Port Macquarie Hastings Airport Precinct.

Firstly, general office space projections may not be representative of the specific types of activities that may benefit from rezoning at the airport. What is relevant is demand for a specific type of commercial office space. This was not addressed by Hill PDA

Secondly, generic business as usual forecasting does not have regard to the implications of the recent \$21M investment in the airport and the proposed future investment. The \$21M investment in the airport and the proposed future investment has had no impact on forecast demand by HillPDA. However, the airport investment is not a business as usual event but an expansion of critical infrastructure that has the potential to be a **catalyst** to attract new investment and business into the region. Consequently, demand forecasts at the Airport cannot be considered in isolation of the recent and future investment in the airport.

Thirdly, the generic business as usual forecasting was population driven and implicitly assumes that demand for commercial floorspace generally and at the airport precinct is driven by demand from the growing population. However, "*The airport is seen by PMHC as a key **driver** for regional growth, economic development and employment*" (Augusta Properties Pty Ltd, p. 5) and hence demand for rezoned land is driven by the airport development NOT a consequence of population growth.

Finally, generic business as usual forecasting does not specifically address the changing nature of industry and the trends toward business park developments, clustering and agglomeration along transport corridors, universities, airports and hospitals.

7.0 REFERENCES

Augusta Properties Pty Ltd (2011) *Port Macquarie Airport Business Precinct Preliminary Analysis Strategic Property Advice To Port Macquarie – Hastings Council*, Port Macquarie Hastings Council, Port Macquarie.

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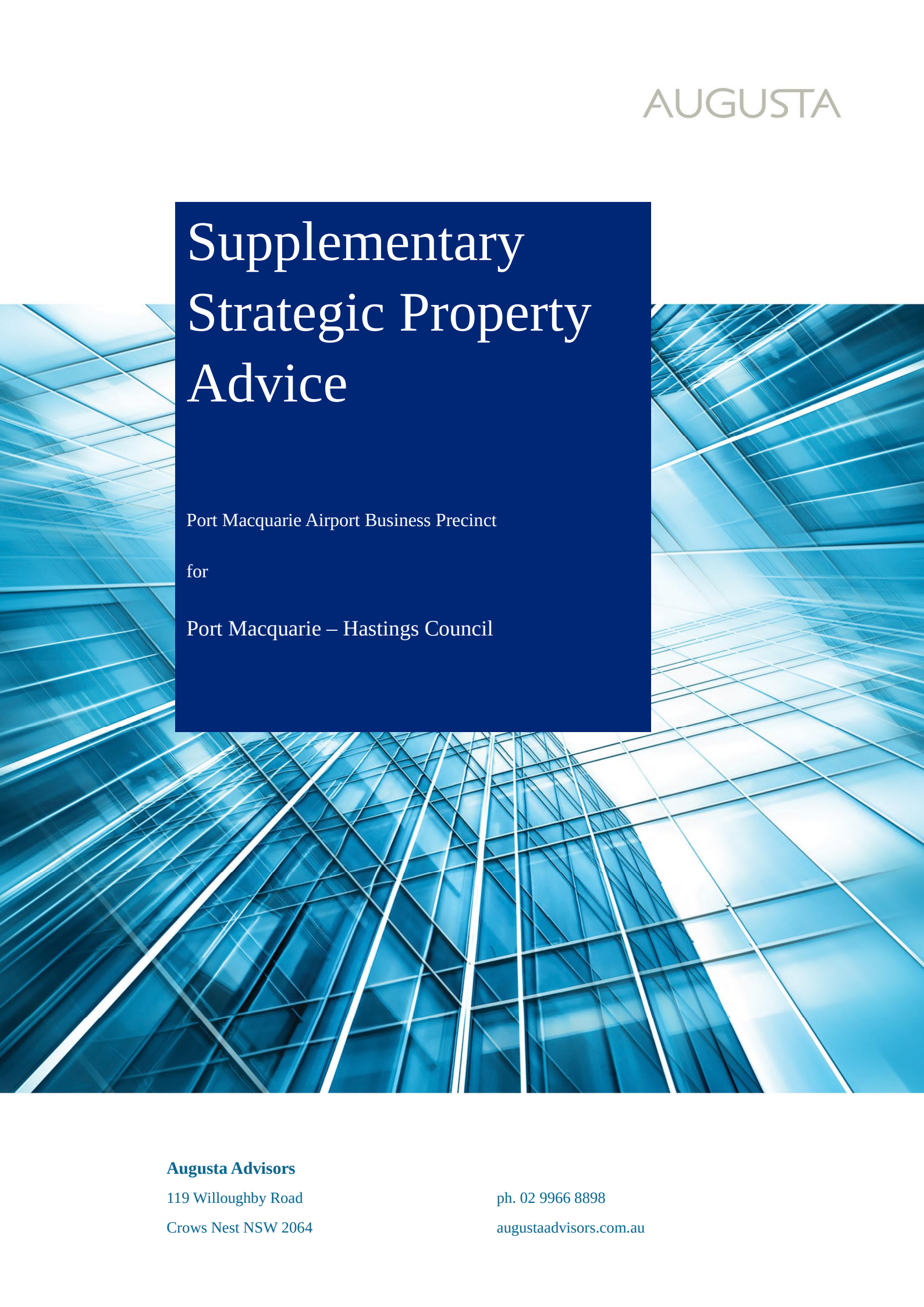
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Attachment 4 - Augusta Report 2017



AUGUSTA

Supplementary Strategic Property Advice

Port Macquarie Airport Business Precinct

for

Port Macquarie – Hastings Council

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EXECUTIVE SUMMARY

The Port Macquarie-Hastings region, the regional city of Port Macquarie, Council and the airport have achieved substantial progress since the initial Augusta report was submitted in April 2011, as summarized below.

Regional Vision and Opportunity

The NSW Government has recognized Port Macquarie as one of four regional cities of the NSW North Coast. These will be the major focus for employment, housing and investment over the next 20 years and beyond.

Council's vision for the Port Macquarie Hastings community over this period, as expressed in the draft Urban Growth Management Strategy 2017-2036, is "A sustainable high quality of life for all". A key requirement to achieve this vision is to deliver economic development and employment to create a prosperous and diversified economy.

Airport Contribution

The development of the Port Macquarie Airport is considered a key enabler of growth opportunities for Port Macquarie including tourism and other industry sectors. The airport has been upgraded to accommodate 180-seat Code 4C jet aircraft (i.e. A320 and B737-8). The Airport Master Plan provides for continued expansion of airport facilities and projects passenger numbers to double by 2036.

Airports are recognised for their ability to generate economic activity. The NSW Government North Coast Regional Plan confirms that the Port Macquarie Airport can be a key driver of, and catalyst for regional growth.

Airport Business Park (ABP) Contribution

The NSW Government also promotes and supports the concept that airport precinct plans must be developed to investigate opportunities for compatible and complementary air transport-related industry and business uses on land adjoining airports. This is a logical extension of, and creates leverage for, the benefits the airport can deliver to the region.

It is proposed to build on the key role of the airport as a regional hub and transport gateway by creating the opportunity for a campus-style business park for technology, aviation-related and service industries, to deliver high value jobs.

Enabling Actions for ABP

- Bio-Certification Assessment & Application

A Biodiversity Certification Assessment and Strategy submission dated October 2016 has been made for Port Macquarie Airport and surrounding lands. Once approved this will provide a 'pre-approved' mechanism for dealing with the ecological issues associated with the implementation of the Airport Master Plan and compliance with CASA standards. It also paves the way for the adoption of the Planning Proposal, the initiation of associated services amplification and development of flood-free road access to Port Macquarie Airport and surrounding land.

- Planning Proposal

A Planning Proposal (rezoning application) is currently being considered by Council's strategic planners. The Planning Proposal was prepared taking into account the Airport Master Plan, airport operations, environmental considerations and economic and traffic impacts.

The adoption by PMHC of the Planning Proposal enables PMHC to facilitate delivery of a significant parcel of well situated employment land (237,500 m²) at the Port Macquarie Airport Business Park and the opportunity to attract new high value businesses and employers to the region.

- Other Reports

Since completion of the initial report submitted by Augusta in April 2011 PMHC has produced or commissioned the following additional Council and consultant reports:

- Airport Master Plan Addendum – December 2013.
- Bio-Certification – Assessment & Application – Port Macquarie Airport and Surrounding Land – October 2016.
- PMHC Strategic Planning (PMHC Planning) for the Port Macquarie Airport Business Park.
- PSA Gap Infrastructure Analysis – October 2014
- Traffic & Parking Systems Group Report – June 2016.
- GHD Airport Precinct Traffic Study – April 2016
- King + Campbell Landowners Planning Response – April 2017.
- Hill PDA Report – Airport Precinct Expansion – Land Use Assessment – November 2016.
- Gillespie Economics - Review of Hill PDA Report – April 2017.
- PMHC Economic Development Strategy – May 2017.

Constraints

- Ecological

The existing vegetation surrounding the airport includes areas identified as coastal wetlands potentially containing endangered ecological communities and/or threatened species.

The Biodiversity Certification Assessment and Strategy provides a response to the ecological issues associated with the implementation of the Airport Master Plan and compliance with CASA standards. An application has also been made under the Federal Government Environment Protection and Biodiversity Protection Act.

- Services

To realize the potential of affordable employment land at the Airport Business Park it is important that relevant services infrastructure is planned and costed for implementation, including:

- Reticulated sewerage services to support the ABP and Airport Precinct.
- Reticulated water supply services to service the proposed Business Park.
- Catchment based stormwater drainage management facilities.
- Reticulated power supply.
- Reticulated telecommunications services including phone and National Broadband Network connection.

- Flood Free Road Access

The lack of flood free road access is a major constraint on the operation of the airport, the ability for the airport to deliver benefits to the region and to the establishment of an airport business park. It also inhibits and potentially prevents NSW and Federal assistance being provided in the event of the most likely natural disaster to affect Port Macquarie – flooding.

The provision of a new flood-free access also provides the opportunity to achieve connectivity of the airport to the regional road network while also providing relief to current and projected traffic load by the development of the secondary road access and/or connection to an orbital road network.

Opportunity

Port Macquarie's opportunity is to take a major step towards achieving its community vision by attracting high value business and jobs at low cost by undertaking key actions which are in any event required for other reasons.

Provision of flood free access to the airport is a requirement in its own right, but, once provided, it will be a 'game changer' for the ability of the airport to deliver benefits to the city and region by attracting high value employment opportunities and delivering economic prosperity.

It will strategically locate Port Macquarie Airport and the Airport Business Park with respect to all current business precincts and proposed activity within Port Macquarie. This will enable both Port Macquarie airport and Port Macquarie Airport Business Park to achieve their potential as a specialised high value regional business and employment hub and transport gateway.

The creation of the APB represents a unique strategic opportunity to complete and complement the existing business precincts in Port Macquarie. This statement is especially relevant to the connection of the airport and the ABP to the orbital road system that optimizes connectivity and facilitates highly efficient transport of personnel, goods and materials into and out of the Port Macquarie region.

The central location of Port Macquarie Airport and the ABP within the Port Macquarie network of business precincts and represents a highly efficient application of infrastructure that benefits the entire region. Consequently, the ABP is not a competing interest but rather a compliment to existing business precincts, other development sites and existing commercial and industrial zoned land elsewhere in the PMHC Local Government Area.

Get 'Shovel Ready'

On approval of the Bio-Certification and Assessment application by the NSW Minister for the Environment and adoption of the Planning Proposal for Port Macquarie Airport and ABP, and with road and services upgrades planned and costed, PMHC achieves a status of 'shovel ready' and positions itself to move very quickly to lobby both NSW and Federal Government for all possible grants to upgrade and amplify services and flood-free access roads to Port Macquarie Airport and the ABP.

'Shovel ready' status is the most compelling indication to new business, developers and investors that Port Macquarie is ready and open for business to attract new high value industries to move to the region.

Attract Grants

The current political environment is unusually positive for the prospects to attract grants. The NSW Government's commitment in 2017-18 is to spend \$22.3 billion, including major infrastructure projects and programs to realise opportunities for economic growth and provide for regional centres and associated communities. The Federal Government has already demonstrated support by its substantial contribution to the airport upgrade.

Specifically, the \$7.5m funding for the funding for the Port Macquarie Airport Terminal upgrade comprised the following contributions as a current and demonstrable example of NSW and Federal Government funding availability for infrastructure projects;

- \$5.0m in NSW Government funding through the Restart NSW Regional Tourism Infrastructure Fund.
- \$1.25m in Australian Government Funding through the Community Development Grants Program.
- \$1.25m PMHC contribution from the Port Macquarie Airport Reserve.

The development of valuable regional infrastructure, including airports and airport associated business parks, is fully consistent with all Federal and NSW Government strategies currently in place.

Flood free road access is the key enabling factor. Senior PMHC Executives have advised that both the NSW Government and Roads and Maritime Services have expressed initial support and interest in the funding of additional major infrastructure projects relevant to Port Macquarie Airport and associated roads and services amplification.

Attract Occupants

Once 'shovel ready' and with a commitment to deliver flood free road access confirmed, the upgraded Port Macquarie Airport and Airport Business Park becomes a strategic and unique offering to attract new government and non-government business to the Port Macquarie–Hastings region.

The proposed Airport Business Park should be promoted to attract aviation, hi-tech and service businesses drawn to the Airport, and to the new linkages between the airport and the other business precincts in the city and the region.

Low Cost/High Value Strategy

This is a low cost/high value strategy. The entire vision can be coordinated and budgeted by PMHC very early in planning and development phase for the Airport Business Precinct. PMHC has already made substantial progress with the upgrade to Port Macquarie Airport, which is planned to continue in 2018 with the proposed upgrade of the Terminal facility for a further \$7.5m.

PMHC has also already prepared and lodged the Bio-certification Application and the Planning Proposal. Attraction of grants for the provision of flood free road access would be the catalyst and 'game changer' for the airport to maximise its contribution to the region. The ABP would be positioned to attract interest from occupants and developers, who will contribute to funding delivery of the services infrastructure.

PMHC has already achieved significant progress in the early planning and costing of major infrastructure and services upgrade required to create the ABP. Whilst these costs are substantial they represent a normal part of the development process of a new business precinct/estate and routinely precede major development costs and contributions by developers and occupants.

Therefore at this point there is no need to lock in a funding model because the strategy minimises ongoing costs.

Opportunity Cost

A failure by PMHC to fully embrace this opportunity and assume a "do nothing" option may result in the loss of new and emerging industries, not attracted to the Port Macquarie Hastings Region because of its lack of infrastructure and connectivity. These businesses and the jobs they create will be attracted to competing regional cities.

The worst possible outcome for PMHC is for future council elected representatives and officers to look back in 20-30 year and regret the loss of this major opportunity to advance the Port Macquarie region in its position and status within New South Wales.

Recommendation

Port Macquarie-Hastings Council is in a unique position to take a long-term view to maximize the benefits to the regional city of Port Macquarie from Port Macquarie Airport and the Airport Business Park.

Importantly, the upgrade to Port Macquarie Airport, the improvements to infrastructure, the upgrade to access, linkage to orbital road network and the creation and development of the Airport Business Park does not constitute competition with other interests or developments within the Port Macquarie region. The unique business nature and central location of the airport and ABP within the region means this opportunity is more accurately to complement and benefit other existing and future business precincts.

To achieve this benefit Council must assume ownership of the vision and take all necessary decisions to position Port Macquarie Airport and the Airport Business Park to deliver leveraged benefits to the region. Initially these important decisions include:

- Bio-Certification Assessment approved.
- Planning Proposal approved in full.
- Complete infrastructure and planning costings. Update developer contributions plans.
- Once the initial critical components are completed PMHC can capitalize of the external opportunities provided by the following sectors:
 - NSW Government funding
 - Federal Government funding
 - Property market, occupants and developers
 - Aviation related businesses.
- Attract occupants from both the private and government sectors.
- Obtain specific Development Consents and other approvals as required in response to the attraction of occupants.

Importantly until such time that these matters are completed there is no need for PHMC to commit to a specific funding model.

The scope and contents of this supplementary report is specifically restricted to the PMHC-owned land component of the Airport Business Park.

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METHODOLOGY

The scope provided by PMHC for this supplementary report is attached as Annexure 1. The subject matter of this supplementary report is restricted to the PMHC-owned land component of the Airport Business Park.

Representatives of Augusta Advisors attended an extensive series of meetings in Port Macquarie on Thursday 14 September 2017 with the following parties to update all available data and information relevant to the preparation of this supplementary report:

- Senior Council staff
- Port Macquarie Airport Advisory Group
- Port Macquarie Airport management
- Independent consultants to PMHC
- Real estate agents

A copy of the agenda for Thursday 14 September 2017 is attached as Annexure 2.

During the preparation of this supplementary report the following documents and information has been reviewed and selected parts included to support recommendations contained herein;

- Airport Master Plan Addendum 2013
- NSW Governments North Coast Regional Plan 2036
- Port Macquarie-Hastings Council Towards 2030 Community Strategic Plan
- Port Macquarie-Hastings Council Economic Development Strategy – May 2017
- PMHC 2017-2036 Draft Urban Grown Management Strategy
- Shape of the Future – Port Macquarie-Hastings Council – 2017
- Traffic & Parking Systems Group Report – June 2016
- King + Campbell Planning Response – April 2017
- Hill PDA Report – Airport Precinct Expansion – Land Use Assessment – November 2016
- Gillespie Economics Peer Review of Hill PDA Report – April 2017
- PSA Consulting – Port Macquarie-Hastings Gap Infrastructure Analysis – October 2014
- GHD – Port Macquarie-Hastings Council – Port Macquarie Airport Precinct Study – April 2016
- PMHC Assessment by IPART under 2015 Fit For Future review

THE VISION

The Regional Opportunity

THE COMMUNITY VISION FOR THE PORT MACQUARIE-HASTINGS IS: 'A SUSTAINABLE HIGH QUALITY LIFE FOR ALL'

- PMHC DRAFT URBAN GROWTH MANAGEMENT STRATEGY
2017-2036

The North Coast is forecast to continue to be the number one tourist destination within regional NSW.

Over the next 20 years, almost 77 per cent of population growth on the North Coast will be in the four regional cities of Port Macquarie, Coffs Harbour, Tweed Heads and Lismore. Port Macquarie-Hastings is expected to grow, on average, by around 1,200 people per year over that period.

There are opportunities for Port Macquarie to deliver greater housing choice, more jobs and services, and vibrant precincts that suit the needs of the growing and changing population forecast by the NSW Government.

A key requirement is to deliver economic development and employment to create a prosperous and diversified economy. This will be facilitated by the completion of strategic infrastructure to attract business opportunities that in turn stimulate population growth, employment opportunities and the economic prosperity.

"THE 2017-2021 ECONOMIC DEVELOPMENT STRATEGY HAS BEEN DEVELOPED TO POSITION THE PORT MACQUARIE HASTINGS REGION AS A PLACE WHERE PEOPLE WANT TO LIVE, LEARN, WORK, PLAY AND INVEST."

- CRAIG SWIFT-MCNAIR – GENERAL MANAGER
– PMHC 2017

Port Macquarie is a strong city with a distinctive character. Port Macquarie is developing inter-regional and cross-border links, growing farming and tourism sectors, high-quality infrastructure assets and a series of unique business and community environments.

Leveraging these assets will grow jobs and the economy over the longer term. PMHC can build relationships across communities within the region by leveraging their longstanding social and economic associations and the increasing connectivity between the regional centres and between business centres within Port Macquarie.

Enhancing the social, economic and transport links between cities and centres, adjoining regions and with South East Queensland is also forecast to develop new markets and increase job opportunities for the Port Macquarie region.

This strategy of linking Port Macquarie to other capital cities and markets also applies to Melbourne and is enabled by the upgrade of Port Macquarie Airport to accommodate 180-seat Code 4C jet aircraft and the airport's strategy to secure direct flights to Melbourne.

Continued infrastructure delivery will be required to support the growth of the region's communities and economy.

Airport Contribution to City and Region

Airports are important gateways for business, tourism and personal travel, as well as high-value freight. The Port Macquarie Airport is a core component of the regional transport infrastructure.

The Port Macquarie Airport provided gateway access to the region for 225,000 passengers per year (2016-17). This figure has doubled over the past 10 years and is forecast to double again over the next 20 years.

The airport is seen by PMHC and the NSW Government as a "key driver" for regional growth, economic development and employment. Council updated its Master Plan for the airport in 2013 to cater for and facilitate that growth and maximise regional benefits.

"AIRPORTS CAN BE A KEY DRIVER OF, AND CATALYST FOR REGIONAL GROWTH"

- NORTH COAST REGIONAL PLAN 2017

The Airport Masterplan Addendum 2013 sets out the strategic direction of the airport including land use of airport land. It confirms the priority objectives for Port Macquarie Airport as follows:

- "to provide adequate infrastructure and facilities to meet the forecast demand for future regular public transport (RPT) airline operations.
- "to provide opportunity for commercial property development to promote employment opportunities, facilitate economic development, and support the long-term financial viability and sustainability of the Airport business."

The Airport Masterplan addendum 2013 seeks to maximise economic development opportunities of airport related economic development by the progressive upgrading on the Airport and the creation of the Airport Business park.

Employment generating development at the Airport is expected to provide a significant economic driver in the Port Macquarie region.

The Port Macquarie Airport's upgraded ability to accept B737 / A320 aircraft also presents a strategic opportunity for air freight transportation.

The upgraded Port Macquarie Airport connects the region to the wider world. It will provide greater access to new markets and economic opportunities in adjoining regions, including not only the important and rapid growth in South East Queensland but also emerging markets throughout Asia. It is also important to note that the Port Macquarie Airport is located close to rural producers in the Taree and Kempsey areas who now have the opportunity to freight high value perishable produce to previously untapped markets in Asia.

Making the most of this access will underpin a vibrant economy that will deliver homes, jobs and infrastructure for the region's communities.

Opportunities for Port Macquarie-Hastings are provided by region-shaping infrastructure like the upgrade and expansion of Port Macquarie Airport.

ABP is a Logical Extension to Maximize Regional Benefit

The ABP is a logical extension of, and creates greater leverage for, the benefits that the airport can deliver to the city and the region. Airport related business activity has an established track record in Australia and overseas. The four examples investigated in Augusta's original report were Newcastle, Sydney Metro (Bankstown), Coffs Harbour and Jandakot, although many other examples exist.

“THE AIRPORT INVESTMENT IS NOT A “BUSINESS AS USUAL” EVENT BUT AN EXPANSION OF CRITICAL INFRASTRUCTURE THAT HAS THE POTENTIAL TO BE A CATALYST TO ATTRACT NEW INVESTMENT AND BUSINESS INTO THE REGION”

- GILLESPIE ECONOMICS REPORT – APRIL 2017

The NSW Government promotes and supports the concept that airport precinct plans should be developed to investigate opportunities for compatible and complementary air transport-related industry and business uses on land adjoining airports.

Development of infrastructure and transport are widely accepted as major stimuli of a diverse range of business activities in emerging regional centres such as Port Macquarie.

Leveraging and maximising the social and economic links being delivered by the Port Macquarie Airport upgrade to city of Port Macquarie and its region will provide Port Macquarie-based businesses and population with access to new markets and offer current and future residents greater choice in where to live and work.

The Port Macquarie Airport Business Park is a logical extension and affordable opportunity to develop land to attract new business opportunities to the Port Macquarie region resulting from the largely government funded upgrade to the airport and a means by which PMHC can achieve its Mission Statement as contained in the Airport Master Plan Addendum 2013.

The generic approach to business forecasting adopted in the Hill PDA Report 2016 may be suitable for normal "business as usual" projections of broad demand for commercial office space, but is questionable regarding decision-making in relation to the Port Macquarie Hastings Airport Precinct.

It does not have adequate regard to the implications of the recent \$21m investment in the airport and the current investment of a \$7.5m upgrade to the Port Macquarie Airport Terminal Facilities. PMHC capital expenditure on upgrading the airport and facilities has totalled over \$40m over the past 10 years. Any demand forecasts at the Airport cannot be considered in isolation from the recent and future investment in the airport.

General commercial business projections may not be representative of the specific types of activities that may benefit from rezoning at Port Macquarie Airport and the creation of the Airport Business Park. Forward looking projections for demand at the ABP based on historical demand in other traditional areas is unlikely to be appropriate.

Furthermore, generic "business as usual" forecasting does not specifically address the changing nature of industry and the trends toward business park developments, clustering and agglomeration adjacent to airports.

The creation of the APB represents a strategic opportunity to complete and complement the existing business precincts in Port Macquarie. This statement is especially relevant to the connection of the airport and the ABP to the orbital road system that will optimize connectivity and facilitate highly efficient transport of personnel, goods and materials into and out of the Port Macquarie region.

The central location of Port Macquarie Airport and the ABP within the Port Macquarie network of business precincts represents a highly efficient application of infrastructure that benefits the entire region. Consequently, the ABP is not a competing interest but rather a compliment to existing business precincts, other developments sites and existing commercial and industrial zoned land elsewhere in the PMHC Local Government Area.

Opportunity Cost of Not Upgrading Airport and Airport Business Park

At a Federal and NSW Government level, Port Macquarie is designated as a Regional City together with Coffs Harbour, Lismore and Tweed Heads.

Port Macquarie is often compared to Coffs Harbour. Both Cities are of a similar size and population and both are serviced by modern airports and are also linked by rail connection and the Pacific Highway.

Port Macquarie and Coffs Harbour are almost identical in terms of the following categories;

- Population
- Major Services;
 - Linked to both Sydney and Brisbane by Pacific Highway
 - Linked to both Sydney and Brisbane by North-South rail network
 - Medical Centre
 - Tertiary Education Centre
 - Commercial Centre
 - Industrial Centre
- Port Macquarie is located 400 kilometres from Sydney
- Coffs Harbour is located 390 kilometres from Brisbane

Failure to capitalize on the upgrade to Port Macquarie Airport and the establishment of the proposed Airport Business Park to contribute to the regional opportunity for Port Macquarie may result in the following;

- Failure to attract future business trends and opportunities for the Port Macquarie region
- Failure to embrace both the NSW and Federal Governments' vision for the NSW North Coast and its regional cities
- Failure to attract valuable NSW and Federal Funding for major infrastructure projects considered vital for the region
- Loss of strategic ground to Coffs Harbour and other regional centres in the competition to secure business activity, services and quality of life and community for the inhabitants of Port Macquarie
- Loss of high value industries and jobs

Port Macquarie Airport Master Plan Addendum 2013

Following completion of the Stage 1A airside infrastructure upgrade in 2013, PMHC has recently reviewed and updated the Master Plan by way of an Addendum Report dated December 2013 which identifies future development required to:

- Continue to comply with Civil Aviation Safety Authority (CASA) aerodrome standards;
- Cater for forecast growth in airline (RPT) services and passenger numbers;
- Cater for demand for future general aviation (GA) activities;
- Provide opportunity for commercial property development; and
- Promote the establishment of flood-free road access to the Airport

The updated Port Macquarie Airport Master Plan presents a 20-year vision for the Airport site and provides the framework and strategic direction to guide the future development of the Airport to underpin the Port Macquarie region's growth, economic development and tourism potential.

The two principal initiatives within the Airport Master Plan addendum 2013 are to upgrade the airport infrastructure, to meet the increased passenger demand and to create an airport business precinct to promote economic development and employment, and to support the financial viability of the airport.

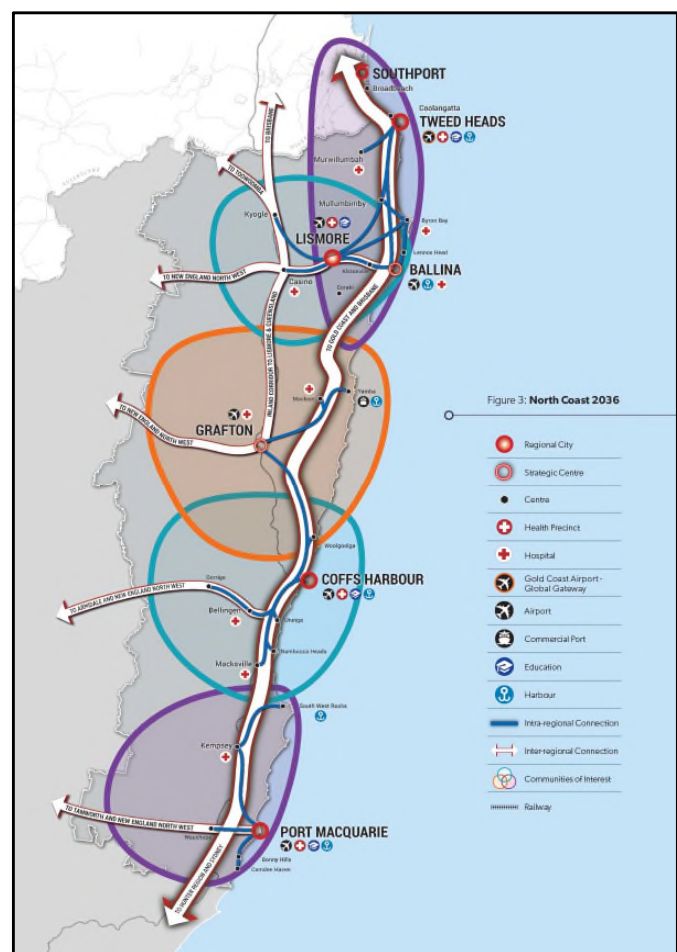
**PORT MACQUARIE-HASTING COUNCIL'S VISION FOR
THE AIRPORT IS TO BE THE PREMIER GATEWAY TO THE
NSW MID NORTH COAST**

The Mission Statement for the Airport is to continue to grow the Airport's contribution to the regional economy by promoting a range of competitive airline services that underpin the region's business and tourism industries, and by establishing an airport precinct business park to attract new employment and inward investment opportunities to the region.

CONTEXT

Since the initial Augusta report in April 2011 there has been substantial progress in relation to the Port Macquarie-Hastings region, the regional city of Port Macquarie, Port Macquarie-Hastings Council, Port Macquarie Airport and the Port Macquarie Airport Business Park. A summary of that progress and issues arising is as follows:

Regional Progress



NSW GOVERNMENT VISION FOR THE NSW NORTH COAST
DEPICTING REGIONAL CENTRES & ASSOCIATED SERVICES

The natural features of Port Macquarie, its location on the East Coast between Sydney and Brisbane, together with the population growth and economic development that have been achieved in recent years have contributed to its significance within New South Wales and its recognition as a regional city by the New South Wales Government.

Those distinguishing economic developments are listed below to reinforce their importance in the recognition of Port Macquarie as a regional city:

- 5th largest regional airport in NSW (behind Sydney, Newcastle, Ballina and Coffs Harbour)
- Located on the major North-South road link between Sydney and Brisbane
- Located close to the major North-South rail link between Sydney and Brisbane (at Wauchope)
- A centre for medical excellence
- Tertiary education centre
- A strong and attractive commercial centre
- Appropriately provided for industrial and employment lands
- A centre for cultural activities

**“THE NSW GOVERNMENT VISION FOR THE NORTH
COAST IS A NETWORK OF STRONGER CITIES AND
REGIONAL CENTRES”**

- NSW NORTH COAST 2036 REGIONAL PLAN- 2017

Increased connectivity is building stronger partnerships and collaboration across communities of interest that will drive future prosperity for each region of the NSW North Coast and specifically for the Port Macquarie region.

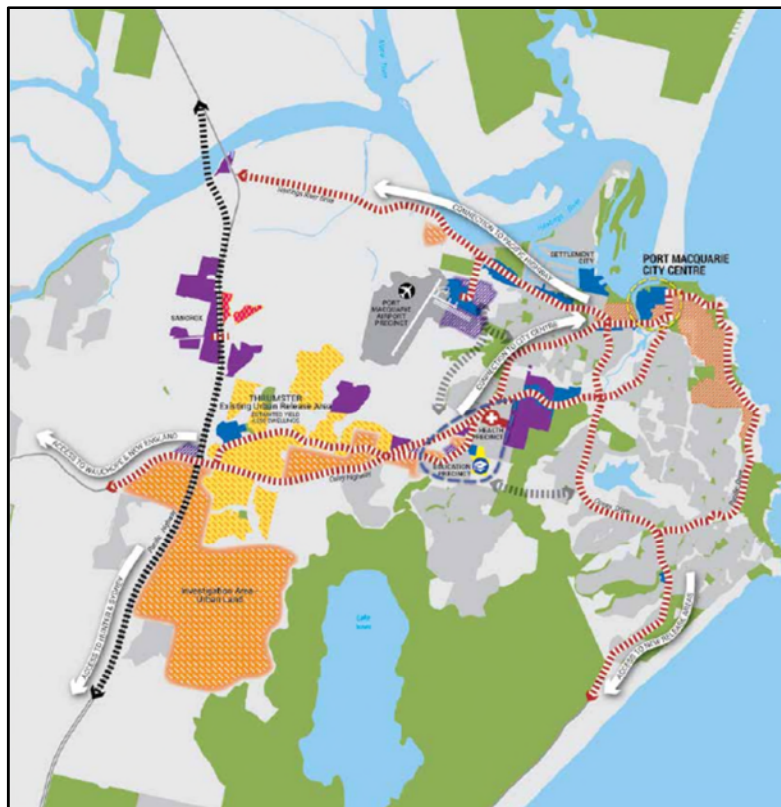
The Pacific Highway upgrade is one of the largest and most important projects ever undertaken in Australia. By 2020, approximately \$15 billion will have been invested to deliver a four-lane divided highway through the North Coast, from Newcastle to Queensland.

**CONNECTIVITY IS CONSIDERED A KEY COMPONENT OF
PORT MACQUARIE’S FUTURE AND CONTINUED SUCCESS**

The focus for the future of the Port Macquarie region is to harness new opportunities that arise from the improved travel safety, reduced travel times, improved transport efficiency and lower freight transport costs, and most importantly, the development of new markets and business activities generated by the highway upgrade and by increased air transport into or out of Port Macquarie Airport.

To capitalise on these opportunities, PMHC needs to continue with strategic initiatives for the investment and development of major infrastructure projects within the Port Macquarie region, including Port Macquarie Airport and the Airport Business Park, to attract and support economic growth, new business activities and continued and forecast increases in population.

The increased tourism and market access being provided by the upgraded Port Macquarie Airport will enable PMHC to deliver housing, jobs, tourism and recreation activities that maximise the opportunities provided by the projected population growth of South East Queensland to more than five million people by 2041.



CONFIRMATION OF FUTURE TRANSPORT CONNECTION
ROUTES –NORTH COAST REGIONAL PLAN 2036 – NOTE
ADDITIONAL PROPOSED CONNECTIONS BETWEEN
EXISTING HIGHWAYS AND PORT MACQUARIE AIRPORT.

Airport Progress

In December 2013 Port Macquarie-Hastings Council completed a \$2m million airside infrastructure upgrade at Port Macquarie Airport to underpin the region's future growth, economic development and tourism potential.

The upgrade marks a significant milestone for the Airport and the Port Macquarie regional community, with the upgraded runway now providing the capability for up to 180-seat B737 / A320 aircraft for the first time in the Airport's 60-year history.

The project was supported by \$15m in funding assistance from the Australian Government.

The upgrade represents the stage 1A of the implementation of the Airport Master Plan, and involved the upgrade of the airside facilities (runway, taxiway and RPT apron), including:

- strengthening, extending (by 110m to south) and widening the existing main runway 03/21 to 1800 metres long x 45 metres wide;
- expansion of the existing regular public transport (RPT) apron (located in front of the terminal building) to provide additional parking positions for larger aircraft, including a new taxiway connection to the main runway;
- relocation of the helicopter landing and parking area, and general aviation (GA) aircraft parking area; and
- provision of associated infrastructure / facilities (e.g. runway, taxiway and apron lighting, other visual aids, drainage, line marking etc.

The Port Macquarie Airport provided gateway access to the region for 225,000 passengers per year (2016-17). This figure has doubled over the past 10 years and is forecast to double again over the next 20 years.



PORT MACQUARIE AIRPORT TERMINAL CONCEPT PLAN
– 28 JULY 2017

Funding has been confirmed for a \$7.5m upgrade to the airport terminal building. The current terminal building was constructed in 1994, and the upgrade is required to cater for increased passenger numbers, to improve the standard of current facilities, and provide an improved airport experience that is consistent with other regional airports, and supports Port Macquarie's standing as a tourist destination of choice.

The upgrade will double the existing floor space, increase the service capability and provide a more contemporary, comfortable and efficient facility for passengers and other airport visitors.

New amenities will be provided and there will be significant changes to enable 'back of house' operations to function more efficiently, further improving the customer experience. Additional elements include new air conditioning, baggage reclaim services and retail facilities. The electrical supply will also be upgraded and a new reticulated sewer system installed.

Notably, the upgrade to the terminal building follows a 'strategic concept' that was developed in late 2016 to support grant applications.

A fundamental and severe compromise to the upgrade to Port Macquarie Airport and its connectivity to the Port Macquarie city centre, other business centres and to other major transport links is the absence of flood-free access and the poor condition of the existing entry to the airport via Boundary Street.

Port Macquarie- Hastings Council Progress

Since April 2011 the following progress and relevant documentation has been completed by or in relation to Port Macquarie-Hastings Council:

- i. Designation of Port Macquarie as a Regional City by the NSW Government
- ii. Inclusion and relevance of Port Macquarie contained within the NSW Government's North Coast Regional Plan 2036
- iii. PMHC production of Towards 2030 Community Strategic Plan
"The Community Strategic Plan (CSP) is an overarching 10-year plan that is prepared by Council and the community based on community priorities. It enables Council to coordinate its funding priorities, activities and services"
- iv. PMHC production of DRAFT Urban Growth Management Strategy 2017-2036
- v. PMHC production of DRAFT Area Wide Traffic Study and Orbital Road Planning
- vi. PMHC Economic Development Strategy 2017-2021

"The 2017-2021 Economic Development Strategy has been developed to position the Port Macquarie Hastings region as a place where people want to live, learn, work, play and invest.

– Craig Swift-McNair – General Manager PMHC 2017

- vii. PMHC assessment by IPART as a stand-alone council under the 2015 Fit for the Future review

"Port Macquarie-Hastings Council has demonstrated that it has undertaken a large number of reviews and implemented numerous strategies to improve its financial position, with the additional Fit for the Future strategies expected to materialise additional cost savings and operational/service delivery efficiencies"

viii. Relevant recent NSW State Government Announcements:

"We are committed to funding infrastructure projects that make regional locations more attractive places to live, work and travel. This upgrade to Port Macquarie Airport will create more opportunities for investment in the Port Macquarie region and boost the local economy,"
- Ms Leslie Williams – NSW Member for Port Macquarie and Parliamentary Secretary for Rural and Regional Health – October 2017

Airport Business Park Progress

Since its initial report in 2011, Augusta has noted that the following progress has been made in relation to the establishment of the Airport Business Park:

- Resolution of Environmental issues by lodgement of Bio-Certification – Assessment & Application – Port Macquarie Airport and Surrounding Land – December 2015.

The Biodiversity Certification Assessment and Strategy submission to the NSW Government for Port Macquarie Airport provides an appropriate and tactical response to the ecological issues associated with the implementation of the Airport Master Plan and compliance with CASA standards. It also paves the way for the adoption of the Planning Proposal and initiation of associated services amplification and development of flood-free road access to Port Macquarie Airport and surrounding land.

The Biocertification process will result in the environmental issues associated with the Planning Proposal and the subsequent Development Applications for the Business Park having already been resolved or pre-approved.

We understand the application is currently with the Minister's office for final approval.

In parallel an application has also been made to the Federal Government Environmental Protection and Biodiversity Conservation Act.

- Lodgement of Planning Proposal for adoption by Port Macquarie-Hastings Council.

A Planning Proposal (rezoning application) is currently being considered by Council's strategic planners. The Planning Proposal was prepared taking into account the Airport Master Plan, airport operations, environmental considerations and economic and traffic impacts.

The adoption by PMHC of the Planning Proposal enables PMHC to facilitate delivery of affordable employment land at the Port Macquarie Airport Business Park and the opportunity to attract new high value businesses and employers to the region.

- Key issues relating to the ABP remain for PMHC to resolve:
 - Road infrastructure improvements and provision of flood free road access.
 - Planning and costing for delivery of water, sewer and stormwater services.
- Further Reports
 - Airport Master Plan Addendum – December 2013.
 - Bio-Certification – Assessment & Application – Port Macquarie Airport and Surrounding Land – December 2015.
 - PMHC Strategic Planning (PMHC Planning) for the Port Macquarie Airport Business Park.
 - PSA Gap Infrastructure Analysis – October 2014.
 - Traffic & Parking Systems Group Report – June 2016.
 - GHD Airport Precinct Traffic Study – April 2016.
 - King + Campbell Planning Response – April 2017.
 - Hill PDA Report – Airport Precinct Expansion – Land Use Assessment – November 2016.
 - Gillespie Economics - Review of Hill PDA Report – April 2017.

The GHD and PSA Analyses are detailed infrastructure and Traffic studies specific to the impact of Port Macquarie Airport and Airport Business Park on the region and specifically on the area surrounding Port Macquarie Airport.

Both TPS, Hill PDA and King + Campbell reviews have highlighted additional issues for consideration by PMHC;

- The demand and profile of potential occupants at the Airport Business Park.
- Traffic issues arising from the Planning Proposal.
- Services amplification required for Airport and ABP.

Both King + Campbell and Gillespie Economics reports are supportive of the Planning Proposal, the positive effect of the Bio-Certification Assessment and Application and the proposed Airport Business Park.

PMHC has completed significant analyses of the impact of the Airport upgrade and the establishment of the Airport Business Park on the Port Macquarie region and the immediate surrounds of the specialist Airport Business Precinct.

The multiple analyses and peer group reviews form the basis of a highly professional and detailed business case for PMHC to support the Planning Proposal and to establish the Port Macquarie Airport Business Park.

NSW Government – Political Climate for Regional Funding

The NSW Government's published position is supportive of development of Regional Cities on the NSW North Coast. The NSW Government 2017-18 Budget continues the record program with capital spend of \$72.7 billion in the four years to 2020-21. The NSW Government's commitment in 2017-18 is \$22.3 billion. This includes major infrastructure projects and programs to realise opportunities for economic growth and provide for local communities.

The NSW Government is investing an additional \$1.3 billion in regional infrastructure to support growing regional centres, activate local economies and improve services in communities, through the new Regional Growth Fund.

As part of the Regional Growth Fund, funding will be made available through the Growing Local Economies fund over four years to turbocharge new regional economic opportunities and enliven local economies.

Examples of the appetite and commitment by the NSW Government to the support and funding of NSW regional infrastructure projects are the funding secured by PMHC to the Stage 1A upgrade of Port Macquarie Airport and the further upgrade of the Port Macquarie Airport terminal in 2018.

**“WE ARE COMMITTED TO FUNDING INFRASTRUCTURE
PROJECTS THAT MAKE REGIONAL LOCATIONS MORE
ATTRACTIVE PLACES TO LIVE, WORK AND TRAVEL.
THIS UPGRADE WILL CREATE MORE OPPORTUNITIES
FOR INVESTMENT IN THE PORT MACQUARIE REGION
AND BOOST THE LOCAL ECONOMY,”**

**- NSW MEMBER FOR PORT MACQUARIE, LESLIE
WILLIAMS, 5 OCTOBER 2017**

Specifically, the \$7.5m funding for the funding for the Port Macquarie Airport Terminal Upgrade comprised the following contributions as a current and demonstrable example of NSW & Federal Government funding availability for infrastructure projects;

- \$5m in NSW Government funding through the Restart NSW Regional Tourism Infrastructure Fund
- \$1.25m in Australian Government Funding through the Community Development Grants Program
- \$1.25m PMHC contribution from the Port Macquarie Airport Reserve

Federal Government – Funding for Regional Development

The Federal Government is similarly supportive of regional development. Federal Government funding is available for approved infrastructure projects from many Australian Government departments including:

- Department of Infrastructure and Regional Development
- Regional Development Australia (RDA) is an Australian Government initiative that brings together all levels of government to enhance the development of Australia's regions. A national network of RDA committees has been established to achieve this objective.

The Federal Government has already demonstrated support by its substantial contributions of \$15m to the airport upgrade and \$1.25m for the terminal upgrade.

We note a comment made by PMHC's General Manager at the initial meetings on 14 September that Council's senior management has had success in creating stronger relationships with both local NSW and Federal Members of Parliament.

The availability of funding for major regional capital projects will continue to be subject to the approval of a detailed and robust business case which will be enhanced by our key recommendations for the Port Macquarie Airport and ABP to be "shovel ready".

OPPORTUNITY

Vision for Airport/ ABP Contribution to Regional Benefit

The vision for the Port Macquarie-Hastings community as expressed on the draft Urban Growth Management Strategy 2017-2036 is “a sustainable high quality life for all”.

The mission expressed in the Airport Master Plan Update of 2013 is to continue to grow the Airport's contribution to the regional economy by promoting a range of competitive airline services that underpin the region's business and tourism industries, and by establishing an airport precinct business park to attract new employment and inward investment opportunities to the region.

Port Macquarie's opportunity is to take a major step towards achieving its community vision by attracting high value business and jobs at an affordable cost by taking actions which need to be undertaken in any case.

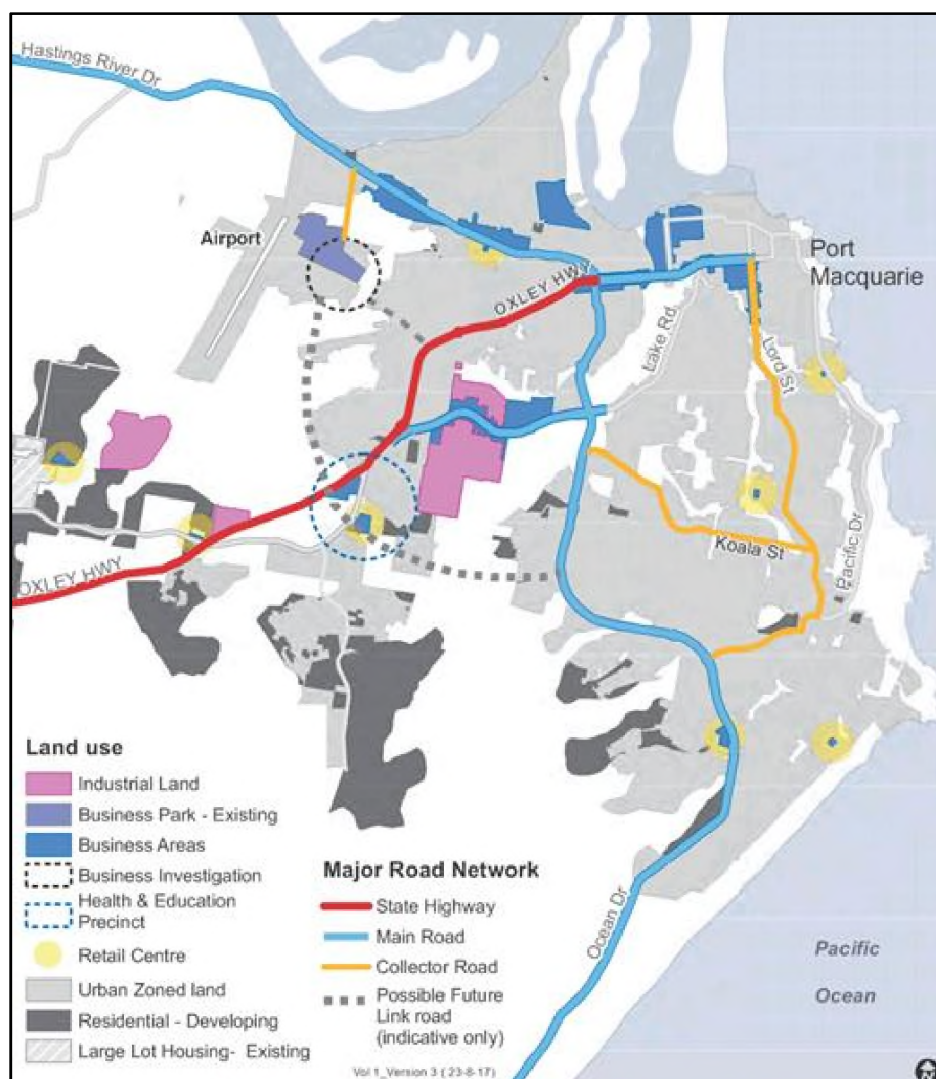
Provision of flood free road access to the airport is a requirement in its own right but, once provided, it will be a 'game changer' for the ability of the airport to deliver benefits to the city and region by attracting high value employment opportunities and delivering economic prosperity.

It will strategically locate Port Macquarie Airport and the Airport Business Park with respect to all current business precincts and proposed activity within Port Macquarie. This will enable the airport and ABP to achieve their potential as a specialised high value regional business and employment hub and transport gateway.

The creation of the APB represents a unique strategic opportunity to complete and complement the existing business precincts in Port Macquarie. This statement is especially relevant to the connection of the airport and the ABP to the orbital road system that optimizes connectivity and facilitates highly efficient transport of personnel, goods and materials between business precincts and into and out of the Port Macquarie region.

The central location of Port Macquarie Airport and the ABP within the Port Macquarie network of business precincts and represents a highly efficient application of infrastructure that benefits the entire region. Consequently, the ABP is not a competing interest but rather a compliment and benefit to existing business precincts or other developments sites and existing commercial and industrial zoned land elsewhere in the PMHC Local Government Area.

Linkages to Other Specialist Precincts



PMHC URBAN GROWTH MANAGEMENT STRATEGY 2017-36

The above extract from the PMHC Urban Growth Management Strategy 2017-36 shows the potential new road linkages to the airport and clearly demonstrates how these links strategically position the airport at the centre of the current and future areas of business and commercial activities including the town centre, the Lake Road industrial precinct and the health and education precinct. This is consistent with the recommendations of the Augusta Advisors Report dated 2011.

We see no reason to change our previous observation that the smooth and efficient connection of the various business precincts is critical for growth and the attraction of new investors and businesses to the Port Macquarie region and maximizes the ability of Port Macquarie Airport and Airport Business Park to contribute to the region.

“SUCH A NETWORK OF LINKAGES PLACES THE AIRPORT AND THE AIRPORT BUSINESS PRECINCT AT THE CENTRE OF VIRTUALLY ALL CURRENT AND PROPOSED ACTIVITY WITHIN PORT MACQUARIE. THIS WILL DRIVE BENEFITS TO THE AIRPORT AND THE OTHER LINKED PRECINCTS”

- AUGUSTA- APRIL 2011

The upgraded airport also connects the city and region to the wider world. It provides greater access to new markets and economic opportunities in adjoining regions, the rapid growth of South East Queensland and emerging markets in Asia.

The establishment of a second road access which provides 1:100 year flood free access to the airport is considered fundamental to the linkage of all business precincts and creates a major attraction to new business investment into the Port Macquarie-Hastings Region.

Need for Flood Free Road Access

Flood free road access to the airport is a requirement irrespective of the Airport Business Park. As well as being flood affected the Boundary Street access to Port Macquarie Airport is currently sub-standard and does not provide appropriate arrival/exit from the Airport to the Town Centre or other precincts. This access is already the subject of traffic studies and costing analyses within PMHC and will form a part of the detailed business case required to secure further government grant support for this infrastructure.

Options for improved road access to the airport as indicated in the graphic on the previous page are:

- Boundary Street Upgrade - Council officers estimate that Boundary Street will require approximately \$20m of civil engineering upgrades to achieve flood free access but only to 1:20 year standard.
- East-West Link to Lady Nelson Drive – adjoining land owner consultation will be required with Port Macquarie Racecourse but not Port Macquarie Rifle Range, which is not expected to be impacted by the Lady Nelson Drive Option.
- North-South Link to Oxley Highway – achievable subject to approval of Bio-certification Assessment and satisfactory consultation with relevant adjoining land owners.

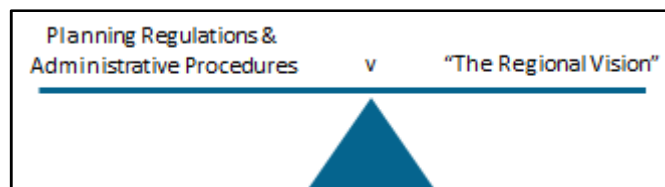
Both the East-West Link to Lady Nelson Drive and the North-South Link to Oxley Highway present the opportunity to upgrade permanent road access to Port Macquarie Airport ensuring 1:100 year flood free road access and also bring significant broader benefits to the regional road network.

In addition to the necessity to provide flood free road access, a secondary access to the airport is also considered mandatory for multiple emergency services reasons, not least of which is bushfire emergency access and egress.

Flood free access is considered critical for NSW Government and Federal Government disaster relief.

“Do Nothing” Option and Potential Cost to Region

Council representatives and staff are all confronted by a similar question: Do they embrace the opportunity for the airport and ABP to make substantial contribution to achieving the regional vision or give weight to vested and competing interests? If the latter is the case then a “do nothing” option is a real possibility.



The “do nothing” option, whether by design or consequence of frustration by allowing planning regulations and administrative procedures to delay implementation of the above stated regional vision may see Port Macquarie slip from its current position and lose valuable ground to competing regional cities on the North Coast and other competing locations in relation to the following key factors of economic growth and community wellbeing;

- Population growth
- Construction of new homes
- Attraction of new businesses
- Attraction of high value jobs
- Attraction of increased tourism visitors

A failure by PMHC to fully embrace the above vision and assume a “do nothing” option may result in the loss of new and emerging industries, not being attracted to the Port Macquarie Hastings region because of its lack of infrastructure and connectivity.

The planning and development concept in front of PMHC represents a once in a generation opportunity to contribute to the Port Macquarie region and establish its emerging relevance to the commerce and population of not only the North Coast but within the context of NSW as whole, the East Coast of Australia and its future connection to emerging markets in foreign countries.

The freehold land that is currently available strategically located adjacent to the upgraded Port Macquarie Airport is a rare and unique opportunity not often replicated in major regional cities of Australia. This unique convergence of factors is considered to be a major attraction to high value business operators associated with aviation, connectivity to the other business precincts locally, high technology and connection to domestic and foreign markets.

As stated elsewhere it is important to note the establishment of ABP under these circumstances is not competition but is rather a complementary benefit to the other existing and potential business areas in the PMHC LGA, because it will attract new high value business and employment that would otherwise not come to the Port Macquarie Hastings region.

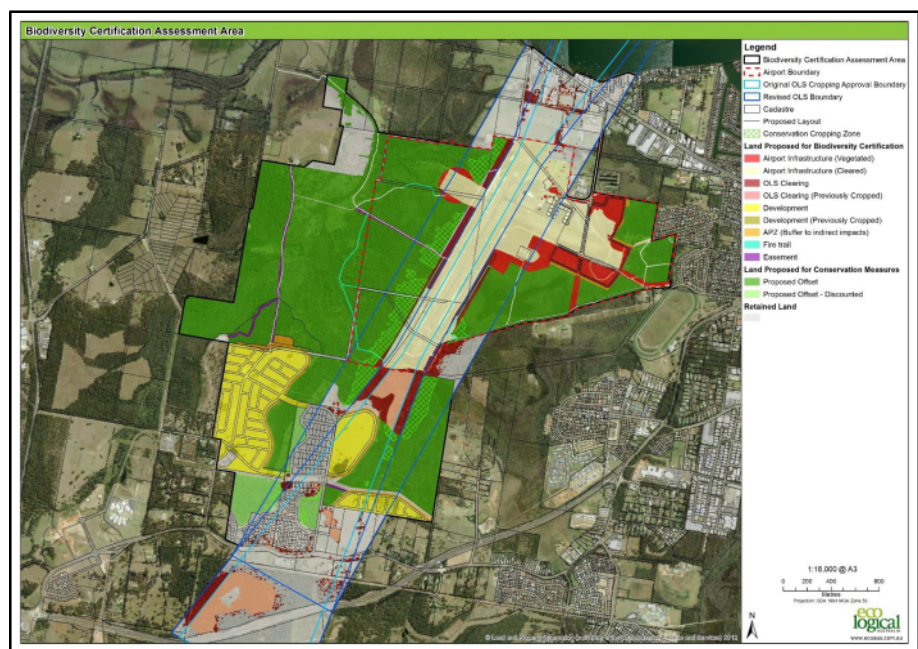
The worst possible outcome for PMHC is for future council elected representatives and officers to look back in 20-30 years and regret the loss of this major opportunity to advance the Port Macquarie region in its position and status within New South Wales.

DEVELOPMENT CONSTRAINTS

Environmental Issues

The existing vegetation surrounding the airport includes areas identified as coastal wetlands potentially containing endangered ecological communities and/or threatened species.

The Biodiversity Certification Assessment and Strategy provides a proposed response to the ecological issues associated with the implementation of the Airport Master Plan and compliance with CASA standards.



BIODIVERSITY CERTIFICATION ASSESSMENT AREA

The proposal for Biodiversity Certification relates to Council owned land around the Airport, including land zoned for residential and light industrial development in the Partridge Creek Industrial and West Lindfield neighbourhoods of the adjoining Thrumster Urban Release Area.

The proposal also relates to privately owned land to the south of the Airport on which vegetation is required to be cleared due to the Obstacle Limitation Surface (OLS) for airport operations.

Refer to the Australian Government EPBC Act Referral/Preliminary Documentation referral process.

Biodiversity certification provides greater certainty for Council, for the future operation of Port Macquarie Airport and compliance with CASA standards, new business occupants, the developer/investor and the community, as the impacts of development to biodiversity values are identified and the offset measures agreed up-front as part of the process.

The planning proposal is expected to rezone land within the BCCA to reflect areas identified for Airport development, including widening the runway and OLS, providing for a potential Airport Business Park and conserving available biodiversity offset areas.

Once Biocertification has been conferred on the subject lands, future development applications for the development of the Business Park within the Port Macquarie Airport landholding will no longer be required to assess impacts to biodiversity values as these will have already been addressed by the Minister and the in-perpetuity management of the Conservation Lands.

The Biocertification application is currently being considered by the Minister for Environment.

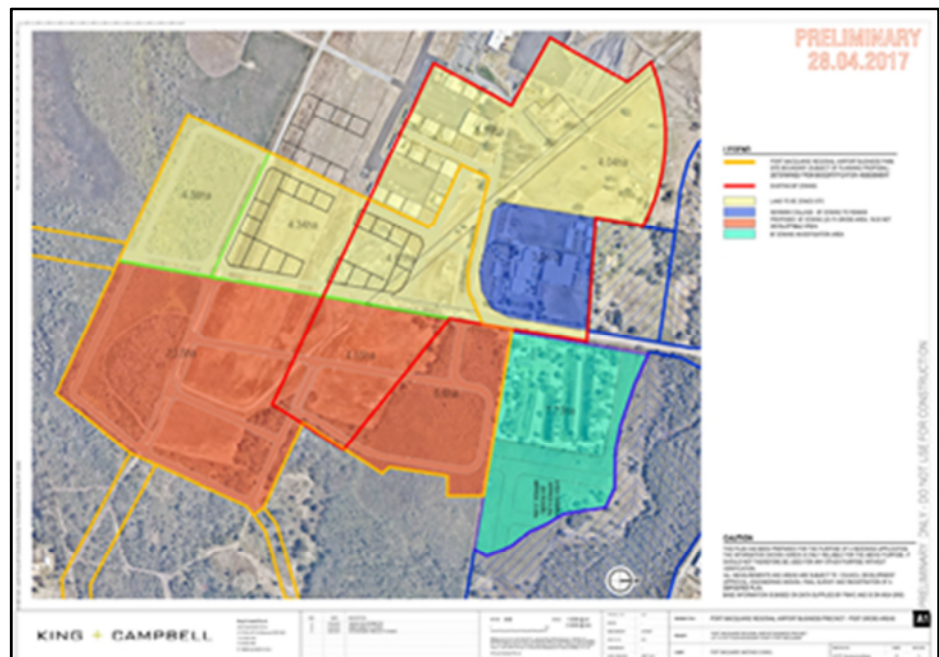
The Biocertification process is with the NSW Government. In parallel a referral has been made under the Federal Government Environment Protection and Biodiversity Conservation Act.

Existing Zoning/ Planning Constraints (Addressed by Planning Proposal)

Not having sufficient land which is appropriately zoned for occupation by the new high value businesses which ABP seeks to attract is a significant disincentive for them to consider Port Macquarie as a location. If not already in place the rezoning (i.e. Planning Proposal) process has considerable cost, time and risk implications, which new occupants, investors or developers would not wish to bear. The Airport Business Park represents the opportunity to provide appropriately zoned land directly adjacent to the Port Macquarie Airport to attract new high value businesses.

This is further emphasized by the concept of clustering/aggregation of symbiotic business activities that are the subject of case studies referred to in the original Augusta Advisors Report dated April 2011 and elsewhere in this supplementary report.

Those type of high value businesses will not be attracted to similarly zoned land remote from the Airport "cluster" and are therefore classified as non-competing with typical industrial/commercial activities elsewhere in Port Macquarie.



AIRPORT BUSINESS PARK PROPOSED ZONING
- KING + CAMPBELL – APRIL 2017

A Planning Proposal is currently being considered by Council's strategic planners. The Planning Proposal was prepared taking into account the Airport Master Plan, airport operators, environmental considerations and economic traffic impacts. The Planning Proposal for the Airport Business Park (237,500m²) is wholly within the footprint of the land contained in the Biocertification Assessment.

The Biocertification process will result in the environmental issues associated with the Planning Proposal and the subsequent Development Applications for the Business Park having already been resolved.

To maximise the potential for affordable employment land it is important that relevant infrastructure is planned for implementation for the full footprint of the proposed Port Macquarie Airport Business Park.

**“A PARTIAL ZONING DOES NOT PROVIDE THE CERTAINTY
REQUIRED TO IMPLEMENT THE LONG-TERM INFRASTRUCTURE
PLANNING, INCLUDING POTENTIALLY THE ADOPTION OF LOCAL
SECTION 94 AND SECTION 64 CONTRIBUTION PLANS, TO
ESTABLISH EQUITABLE FUNDING ARRANGEMENTS BETWEEN
INVESTORS, LANDOWNERS AND PMHC”**

– KING + CAMPBELL – PLANNING RESPONSE – APRIL 2017

In recognition of the long-term nature of the development of the Airport Business Park and to provide additional certainty with respect to issues raised by the Strategic Planning and regulatory arm of PMHC with respect to economic issues and traffic, it is proposed that a legal mechanism be established, in conjunction with the Planning Proposal for the overall footprint of the Airport Business Park to allow for the staged development of the ABP over a 20-30-year period.

This will provide PMHC Planning with the ability to stage the release of the land within the Port Macquarie Airport Business Park as and when Government Funding is secured, connectivity via new roads is completed along with services amplifications.

This approach allows PMHC Planning to proceed with the planning for future upgrades of roads and services for the full footprint of the ABP, while reducing the potential economic impacts associated with the overall development of the land by the staging of the release of the land for development. The staging mechanism also allows PMHC to balance the release of land within the ABP with the amplification of infrastructure and the associated demand for roads and other services.

This approach will allow the essential infrastructure planning and the associated local and regional contribution plans to be completed in conjunction with the Planning Proposal for the full footprint of the future Port Macquarie Airport Business Park.

Flood Free Access

A major remaining obstacle to the future of both Port Macquarie Airport and Airport Business Park development is the lack of appropriate flood free road access and efficient transports links between the regional city of Port Macquarie, Port Macquarie Airport and both the Pacific Highway and major rail links.

The lack of flood free road access is a major constraint on the operation of the airport, the ability for the airport to deliver benefits to the region and to the establishment of an airport business park. It also prevents NSW and Federal Government assistance being provided in the event of the most likely natural disaster to affect Port Macquarie – flooding.



FLOOD PLAN: PORT MACQUARIE AIRPORT PRECINCT

In the event of a major flood, Port Macquarie Airport can maintain aviation activities but cannot transfer flood relief goods and services or deliver or evacuate people or medical evacuees due to the lack of 1:100-year flood-free access.

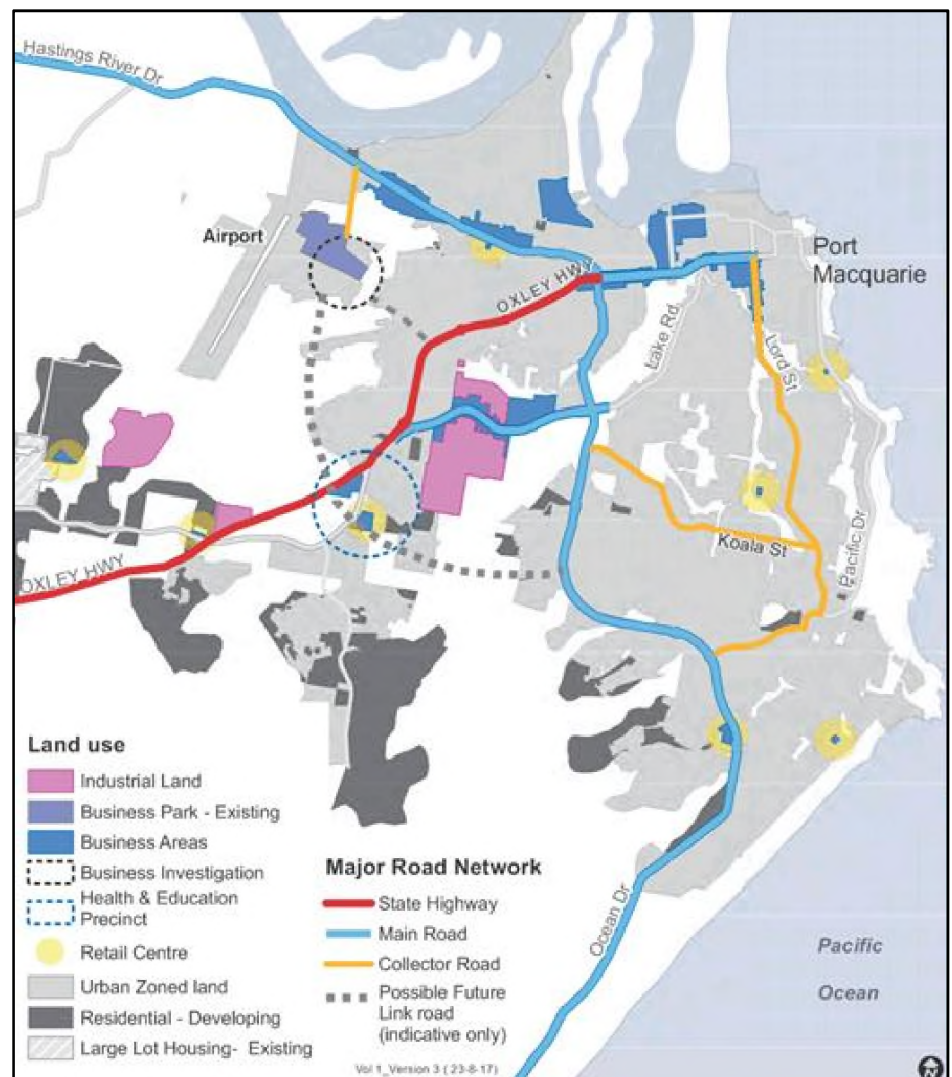
Interviews with local real estate agents indicate that flood free access will be a major issue with potential occupants at ABP. A prudent business decision maker is unlikely to accept a risk of their premises being isolated by flooding.

In addition to the necessity to provide flood free road access to Port Macquarie Airport, a secondary access to the airport is also considered mandatory for multiple emergency services reasons, not least of which is bushfire emergency access and egress.

A long-term solution to the provision of flood free access to Port Macquarie Airport and the Airport Business Park will be a necessary inclusion in any application for either NSW Government or Federal Government grant funding.

SERVICES AND INFRASTRUCTURE AMPLIFICATION

Roads



PMHC URBAN GROWTH MANAGEMENT STRATEGY 2017-36

The existing sole access to Port Macquarie Airport, Boundary Street, is depicted above as a yellow Collector Road. Two alternate access roads are also depicted as follows:

- East West Link to Lady Nelson Drive – above 1:100-year flood level
- North-South Link to Oxley Highway - above 1:100-year flood level

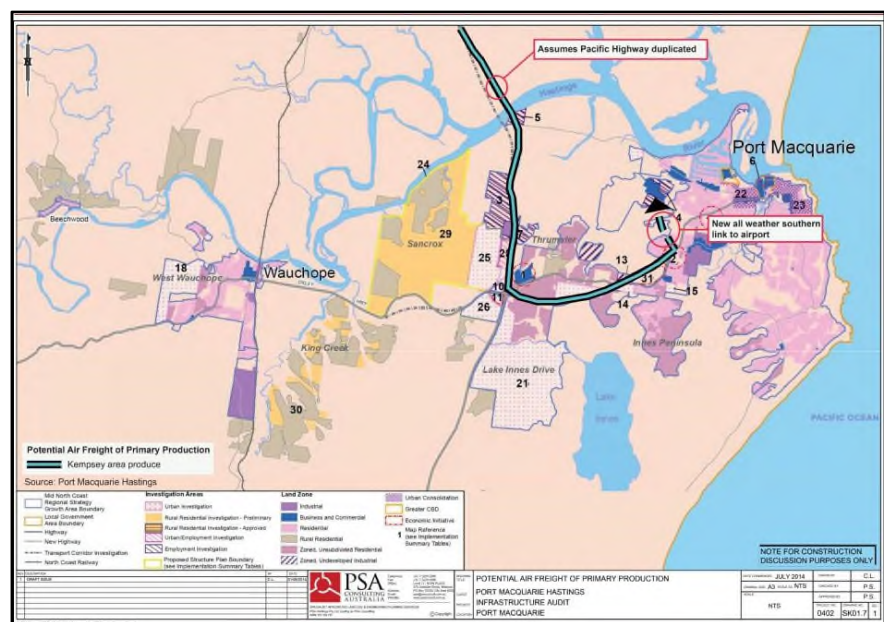
The primary regional connections supporting the Port Macquarie-Hastings economy are provided by the Pacific Highway (main north-south corridor), Oxley Highway (main east-west corridor), Hastings River Drive, Ocean Drive, Lake Road and John Oxley Drive.

These roads play an important role in supporting the local economy and provide connections to highways into, out of and around the region.

An effective and functioning road network linking areas of economic activity is a foundational component to the Port Macquarie - Hastings regional economy. Transport networks need to expand to facilitate development of new residential and employment growth areas. This should not be at the expense of ensuring the existing transport network is managed so that traffic congestion does not start to impinge on the economic prosperity of the region.

We have previously referred to the desirability of connecting the airport with the other business precincts.

"The Biocertification Assessment (relevant to PMHC owned land only) will allow development of the potential future road links that will ensure PMHC's capacity to deliver flood free transport corridor(s) to the Port Macquarie Airport, being one the key gateways to the designated Regional City of Port Macquarie" – King + Campbell – April 2017.



THE ABOVE FIGURE HIGHLIGHTS THE POTENTIAL EFFICIENCY OF A FAST AND EFFICIENT SOUTHERN ACCESS TO THE AIRPORT VIA THE OXLEY HIGHWAY

As noted, the provision of a new southern access to the airport from Oxley Highway would benefit freight movements where certainty of travel time is of the essence.

As mentioned earlier, options for improved road access to the airport are:

- Boundary Street Upgrade - Council officers estimate that Boundary Street will require approximately \$20m of civil engineering upgrades to achieve flood free access but only to 1:20 year standard.

- East-West Link to Oxley Highway (via Lady Nelson Drive) – This link is only achievable by the approval of the Biocertification Assessment and consultation with adjoining landowners may be required.
- North-South Link to Oxley Highway – achievable subject to approval of Bio-certification Assessment and satisfactory consultation with adjoining landowners.

Both the East-West Link to Lady Nelson Drive and the North-South Link to Oxley Drive present the opportunity to upgrade permanent access to Port Macquarie Airport and ensure 1:100 Year Flood Free access.

This is considered critical for NSW Government and Federal Government disaster relief and State and Federal Government Grants to assist with the proposed development program to the Port Macquarie Airport and Airport Business Park.

Assuming there will be a nexus between occupants of that business park and the other business precincts within the region, it would seem logical that an efficient and flood-free access to Port Macquarie Airport and, ABP be developed to complement the existing transport system and complete an orbital road system.

It is understood that Council staff are currently reviewing the requirements of the Airport and ABP as a part of their overall traffic planning studies.

Services

The status of the existing services infrastructure at the airport is only adequate to support current operations. However, for expanded airport operations and for development of the airport business precinct additional services infrastructure is required.

The provision of adequate services is a fundamental requirement to the success of any development project. This includes provision of adequate power, water, sewer, stormwater, telecommunications and other amenities specific to the needs of the occupants.

However, at this point it is only required that the services infrastructure be planned and costed. Planning and costing of the services is an important component of the ABP becoming 'shovel ready' to take advantage of external opportunities that arise from government funding and/or the property market. It is envisaged that the cost of delivering the services will be largely funded from those sources.

- Sewer

The airport is yet to be connected to this system. Any future development of the precincts will require extension and upgrade of the mains sewer system and reticulation to cater for the expected demand.

On 14 September 2017 Augusta was advised of the following in relation to PMHC forecasting in relation to Sewer installation:

- A design proposal for the inclusion of Sewer connection to the Port Macquarie Airport and Airport Business Park is in the PMHC Development Services Plan.

The proposed sewer connection design is proposed as a combination of the following elements:

- Rising main
- Gravity system
- Pressure system

Major design Issues currently under review and consideration are also listed below:

- Dewatering
- 350/550 mm line proposed
- Pumping Stations
- Rising Main (2 off) - 2 x 1.5 km length
- Estimated Cost - \$3m approx
- Completion horizon: 2-3 years

Full Design Concept and High-Level Budget Analysis will be required to support any NSW Government funding application.

- Power

Essential Energy has indicated that if the new electricity feed is installed as part of the airport upgrade works, there will be enough capacity in the system for both the airport upgrade and also development of the surrounding business precincts. Essential Energy has already installed an 11Kv underground power supply main along the Airport boundary.



- Water

The current mains water supply which services the airport is insufficient for future expansion of the airport and its surrounding development precincts. Preliminary assessments undertaken by Council suggests upgrade of the mains water system via supply feeds coming from both Hastings River Drive and Lady Nelson Drive with varying supply pipe feeds ranging from 250mm, 200mm and 150mm.

On 14 September 2017 Augusta was advised by PMHC officers that PMHC was forecasting an extension and amplification water supply to Port Macquarie Airport and environs by the installation of 250/150 CWS line. This service is forecast to be completed within 3 years or by December 2020. The benefit of this amplification of water services will provide additional benefits to both Port Macquarie Airport and the ABP as follows:

- Provision of adequate services for all future development in the airport precinct.
- Significant confidence for prospective investors and high value business operators attracted to the ABP.



- Telecommunications

Reticulated telecommunications services including phone and National Broadband Network connection. This service is considered fundamental to the attraction of Technology/aviation based occupants and investors.

The importance of access to high quality (speed coverage and reliability) telecommunications is well recognised as an important driver in economic growth and development. This importance is recognised at all levels of government particularly at a Federal level with the commitment to the National Broadband Network.

Improved access to telecommunications will drive and support the growth of all existing and emerging industries in Port Macquarie – Hastings region.

Funding

Obtaining funding to undertake necessary works is an obvious constraint to development of the ABP.

Augusta's original report of April 2011 suggested a range of scenarios for the staged development of the Airport Business Park that assumed a self-funding model with Council taking a developer position in relation to subdivision and sale of the land. That model assumed Council takes responsibility for delivery of new/upgraded road access and services infrastructure and recovers those costs through the sale of subdivided land.

In light of the current positive environment for NSW and Federal Government funding of regional infrastructure projects, and after consultation with Port Macquarie-Hastings Council senior staff and others in September 2017, Augusta has amended its advice in relation to the suggested implementation to reflect a 'shovel ready' strategy as summarized by the following milestones:

- Obtain Bio-Certification to resolve all potential environmental issues.
- Obtain approval for Planning Proposal for the full footprint of the proposed Port Macquarie Airport Business Park.
- Finalise planning and costing for required infrastructure.
- Update Contribution Plan to provide for development based contributions to infrastructure upgrades.
- Obtain Federal and NSW Government funding for major infrastructure components including;
 - Improved road connections including 1:100-year flood-free access and connectivity to other business precincts.
 - Amplification of services to support Airport Business Park.
- Announce and market Port Macquarie Airport Business Park as a certain outcome with all current and future infrastructure completed or programmed with Federal and/or NSW Government funding secured. Obtain interest from occupants, developers and investors.
- Obtain DAs and other approvals as required by the commitment of occupants, developers and investors.

It should be noted that securing funding for a second flood free road access is a key 'game changing' outcome for the ABP. However, in relation to the case to be made to secure this funding, the ABP is a fortunate by-product which leverages the benefit that the funding delivers. The main underlying reason is to provide a second flood free road access to the airport itself, which has its own compelling case.

The additional funding required to get the ABP to 'shovel ready' status is minimal by comparison, with a significant portion already having been expended on the airport upgrade and on preparation of the Biodiversity Certification Application and the Planning Proposal.

MARKET FACTORS

Current Local Demand

On 14 September 2017 Augusta representatives, together with Jason Doyle of Port Macquarie-Hastings Council, met separately with each of the following real estate agency representatives/principals to obtain an update on current market activity and demand:

- Garry Krestensen - Laing & Simmons
- Graeme Garrett - Raine & Horne Commercial
- Debbie Moore - Debbie Moore Real Estate

In summary their combined view was that there would be current demand for land or for new rental premises if the ABP was available today. This would be overflow demand from the Lake Road precinct which is approaching full capacity. Demand for land was indicated at 1-2,000m² with current pricing of \$300+/m² p.a. net. Demand for rental space was indicated as being for small industrial units of 100-300m² at a rent of \$110+/m² p.a. net. There is little current demand for office space.

Other comments reflective of the general commercial real estate market and not specifically directed at the PMHC vision for the ABP included:

- The Airport Business Park is an acceptable location.
- Quick and easy road access to highways is a high priority amongst tenants and owner/occupiers. Upgraded road access to ABP would be required.
- Freehold land tenure is highly desirable.
- Ownership of a strata industrial unit is a preferred investment model for the self-managed super funds of small business owners.
- Multi-unit strata titled developments are in demand by developer/investors and syndicates. 30-40 strata units is the typical investment size sought by developer/investors.
- The most common tenants/owner occupiers are from the business, technology and professional services sectors.

Future High Value Businesses

Future high value businesses and the high value jobs they create can reasonably be expected to seek to locate at an established (or at least 'shovel ready') ABP, arising from the following sources.

- Opportunities will be generated from the airport upgrade itself as usage of the airport by more and large aircraft and more passengers increases in relation to the following activities:
 - Passenger related (RPT)
 - retail
 - parking
 - car hire
 - accommodation
 - tourism
 - Airport usage (RPT)
 - maintenance
 - catering
 - repairs
 - refuelling
 - Air Freight
 - handling
 - forwarding
 - consignment
- As indicated in our original report the proximity, and connectivity, of the ABP to other business precincts and activities can be expected to generate demand by occupants.



PMHC URBAN GROWTH MANAGEMENT STRATEGY 2017-36

“SUCH A NETWORK OF LINKAGES PLACES THE AIRPORT AND THE AIRPORT BUSINESS PRECINCT AT THE CENTRE OF VIRTUALLY ALL CURRENT AND PROPOSED ACTIVITY WITHIN PORT MACQUARIE. THIS WILL DRIVE BENEFITS TO THE AIRPORT AND THE OTHER LINKED PRECINCTS” -

AUGUSTA ADVISORS – APRIL 2011

Examples previously suggested of potential synergistic benefits accruing from the airport precinct integrating in a cooperative manner with other precincts could include the following:

- | | |
|--------------------|--|
| Tertiary education | <ul style="list-style-type: none"> – Access for students and staff – Overseas students and their specific requirements – Flight training – Aeronautical studies – Ancillary location for research, etc. – On the job training for electrical, mechanical and other engineering studies |
| Medical | <ul style="list-style-type: none"> – Air ambulance – Patient transfer – Staff, patient and family travel – Blood, organ, medicine transport – Ancillary location – Aviation medicine support |



FROM PORT MACQUARIE HASTINGS INFRASTRUCTURE GAP ANALYSIS, PSA, OCTOBER 2014

- Also, as indicated in the draft UGMS 2017-2036, there will be demand for new office floorspace in out-of-centre locations, including the proposed business hub at Port Macquarie Airport. This is consistent with a trend in major cities and regional centres, which has seen a shift in the location of office based activities into business park developments. These are predominantly office parks with a component of warehousing and in some cases research and development and high technology uses. Businesses are attracted to the amenity business parks offer and often benefit from the clustering of similar businesses (e.g. healthcare or research and development), usually around a core activity such as a hospital or airport.
- Finally, we continue to be of the opinion that making freehold general aviation land available can create a real point of difference and competitive advantage for Port Macquarie Airport and ABP.

Few if any east coast regional airports offer freehold aviation land for general aviation businesses. The opportunity to purchase freehold aviation land is likely to attract and retain general aviation businesses such as aircraft repair and maintenance, manufacturing and sales, and high net worth individual aircraft hangars.

While the provision of freehold GA land should be a consideration its inclusion should be subject to the completion of a comprehensive business case and risk assessment of all options including freehold and leasehold land tenure. This business case and risk assessment study can also consider CASA regulations, potential future changes thereof and the operational requirements and future land requirements of Port Macquarie Airport.

Council should consider engaging with the NSW Government and relevant departments to develop a regional inward investment strategy to attract new high value businesses and employers to the region. The strategy should aim to target government as well as non-government organisations.

It is also advised that additional specific research into demand trends for specialist high value aviation-associated and other businesses is recommended with focus into cluster developments adjacent to airports to better identify likely users/owners and tenant driven needs so that marketing and public relations announcements can be more accurately targeted to potential occupants.

The Risk of Compromising the Future with Current Demand

There is a risk of compromising the ability of the ABP to attract future high value occupants by catering to existing demand. Existing demand is essentially overflow from the Lake Road precinct so catering for that would establish that style of 'industrial area' development at ABP, which is not the environment that high value business would wish to be in.

This would negatively impact upon the opportunity for the ABP to build on the key role of the airport as a regional hub and transport gateway, to deliver benefits to the city and region by the attraction of high value jobs. This overflow industrial demand from Lake Road can be satisfied elsewhere, for example at Sancro, Fernbank Creek, Thrumster or Lindfield Park.

The detailed concept for the ABP should place a high priority on the infrastructure and development aesthetics of the ABP and its significance as the point of arrival for both business and tourist consumers and its perception as the "gateway" to the Port Macquarie-Hastings region.

The creation of the APB represents a strategic opportunity to complete and complement the existing business precincts in Port Macquarie. This statement is especially relevant to the connection of the airport and the ABP to the orbital road system that optimizes connectivity and facilitates highly efficient transport of personnel, goods and materials between business precincts and into and out of the Port Macquarie region.

The central location of Port Macquarie Airport and the ABP within the Port Macquarie network of business precincts represents a highly efficient application of infrastructure that benefits the entire region. Consequently, the ABP is not a competing interest but rather a compliment to existing business precincts, other development sites and existing commercial and industrial zoned land elsewhere in the PMHC Local Government Area.

Importantly, the revised funding approach adopted in this supplementary advice means that it is not necessary to cater to existing demand as a means of obtaining early sales to self-fund development of the ABP. Initial government grants can be supported later by developer contributions, underpinned by the attraction of high value businesses.

IMPORTANTLY, THE REVISED FUNDING APPROACH
ADOPTED IN THIS SUPPLEMENTARY ADVICE MEANS
THAT IT IS NOT NECESSARY TO CATER TO EXISTING
DEMAND AS A MEANS OF OBTAINING EARLY SALES TO
SELF-FUND DEVELOPMENT OF THE ABP.

LESSONS LEARNED FROM CLUSTER DEVELOPMENTS

There are hundreds of examples of successful and unsuccessful business clustering attempts. Below is a list of internationally accepted best-practice action points, extracted from the following document, that are relevant to the Port Macquarie ABP attracting a cluster of high value businesses over time.

Reference: Guidelines for Cluster Developments: A handbook for Practitioners – Maxwell Stamp PLC – June 2013

Based on the accepted criteria listed below, it can be seen that Port Macquarie ABP is well positioned to achieve success.

1. Provide a focus for attracting investment.

This is provided by the upgraded airport, efficient linkages to other business precincts and the region, and by the lifestyle advantages of Port Macquarie-Hastings. The ABP providing (at least) 'shovel ready' status underpins the focus.

2. Focus on building your brand.

The most successful clusters result in a brand that identifies a place with quality, establishes customer loyalty and becomes a prime destination. Regions can support branding through their marketing efforts and state publications. Famous brands are common in agriculture, food and drink with, for example, French champagne, Scotch whisky, Belgian chocolates, Parma ham, etc. – all globally recognised clusters.

3. Create local structures.

Clusters are predominantly a local activity, and for development initiatives to be sustainable they should be driven by local organisations. PMHC has already taken this position.

4. Early political support helps.

PMHC has provided / is providing this, with NSW and Federal Government support.

5. But private sector leadership must follow.

Leadership needs to move as soon as possible from the initial politicians, to the private sector. Clustering should not be positioned as a 'government initiative'. Well respected business leaders need to visibly take charge as soon as possible.

6. Focus on facilitation - not more analysis.

A key role in stimulating the development clusters is the availability of a cluster facilitator. What is needed is a relationship builder within a community, not a researcher/analyst. Skill focus should be on facilitation and dialogue skills, not administrative ones. In this case the cluster facilitator is PMHC and Port Macquarie Airport.

7. Move early into action – look for “low hanging” fruit.

A clustering initiative needs to be action orientated, holding the commitment of stakeholders through generating early benefits. Aim initially for small modest benefits (the low hanging fruit) focusing on aspects that offer early, low-risk results, without substantial effort. For Port Macquarie ABP the airport upgrade (with upgraded road access to follow) provides ample evidence of early action.

8. Build for the long term.

For the Port Macquarie ABP this suggests that focussing on the attraction of high value businesses, and not catering to existing local demand, is the correct way to proceed.

9. Build a cluster portfolio.

Successful local economies are not completely dependent on just one or two clusters for growth and job creation. It is good practice to develop a portfolio of initiatives which generate benefits for a large number of cluster stakeholders, and ensuring that not all eggs are held in one basket. For Port Macquarie Airport and the ABP this is achieved by links to the other business precincts and to the wider region.

10. Both high tech and low tech.

Politicians often see clustering initiatives as only being applicable to high tech activities. However, a true knowledge-driven economy is not restricted to a few glamorous operations, but a basket of them with varying degrees of technology intensity. Inclusion of General Aviation associated operations are an example of this criteria at the ABP.

11. Market sector focus.

If the cluster boundary is taken too broadly, as 'light manufacturing' rather than 'processed foods', for example, then the initiatives that emerge are likely to be too generic to have much impact. For ABP work still needs to be done to identify and communicate with specific groups of potential high value business occupants.

12. Geographic focus.

The geographic boundaries of a cluster often do not coincide with political boundaries. Often economic development professionals see value with cross-border cooperation, but their political masters less so. Port Macquarie's ABP will be seeking to attract occupants from outside the region/LGA.

13. Bring additional resources to the table.

In the early stages additional resources are important to gaining private sector attention. This could include funding from government agencies, public utilities, funding/allocation of resources from private sector organisations. For Port Macquarie ABP the strategy of getting 'shovel ready' and then seeking further government funding is highly aligned with this action point.

14. Connect to universities and technology institutes: key sources of knowledge.

Tertiary institutions internationally are emerging from a narrow role of learning institutions, to a broader role serving as technology generators, and generators of new companies. They are offering specialised training for SMEs, providing technology transfer, and also acting as the neutral catalyst in bringing the diverse stakeholders in a local cluster together to establish areas of collaborative engagement. For Port Macquarie ABP the proposed linkage with the education precinct addresses this item.

15. Build media coverage – use integrated marketing communications strategy.

For the Port Macquarie ABP this has already occurred with coverage of the airport upgrade and, recently, coverage of the terminal upgrade. A strategy should be developed to continually build on this as further developments and milestones occur (e.g. funding of a second road access). This should merge with and become part of a marketing strategy once the ABP is 'shovel ready' and therefore ready to market to prospective occupants, developers and investors.

Case Studies

Additionally we have considered the other business park/cluster locations referenced in the PMHC scoping document in relation to this supplementary advice. These are the airport based developments at Bankstown, Coffs Harbour, Newcastle and Jandakot airports and non airport clusters at Macquarie Park, Pyrmont and Ultimo, Westmead and the Australian Technology Park. Unsurprisingly the airport based developments appear more relevant to PMHC Airport and the ABP.

1. Bankstown Airport NSW (Parcel freight and niche passenger aviation centre)

Sydney Metro Airport Bankstown is located within the Bankstown Local Government Area approximately 26km south west of the Sydney CBD and 17km from Sydney Airport. It has proximity to the Bankstown CBD (5km) and Liverpool CBD (6km).

The site occupies an area of approximately 313.3ha. While the area to the north of the site is primarily residential, the Airport sits within the broader central west Sydney industrial and commercial zone, and remains the only large developable parcel of land within the region.

Sydney Metro Airport Bankstown is well located with respect to key population and economic growth areas in Bankstown, Fairfield, Parramatta and Liverpool. The Airport has convenient access to major arterial roads including the M5 and M7 to the south, Henry Lawson Drive to the west and the Hume Highway to the north. The site has an extensive internal road network.

The goal of Bankstown Airport is to meet the current general aviation, parcel freight and niche passenger aviation needs of Sydney and develop the aviation and property assets to maintain maximum sustainable value.

Relevant experience from Bankstown Airport includes:

- Complete property development business plans early which include comprehensive environmental and geotechnical analysis of development sites.
- Release available land as early as possible to provide funding for subsequent infrastructure development and further land release. Subsequent branding campaigns must be supported by infrastructure expenditure.
- General aviation development can be attracted to regional airports by offering lower operating costs and freehold land.

2. Coffs Harbour Airport NSW (Regional airport of NSW North Coast and non specific development of adjacent lands)

43 hectares of land at Coffs Harbour Airport is designated for development as a new industrial estate. The concept is to transform the vacant land at the northern end of Coffs Harbour Airport into the new 100 lot, industrial estate for the regional city. 18 of the proposed 100 lots are reserved for existing businesses in the area.

CHCC has prepared a mixed land use plan for the Coffs Harbour Airport precinct. The proposed estate will eventually include a mix of aviation related industry, other industry, businesses and residential development.

Relevant experience from Coffs Harbour Airport includes:

- Early planning must include comprehensive reviews of environmental and geotechnical limitations.
- Passenger growth will depend on airline capacity and the relationships developed with airline management.
- Non aviation development on airport is best supported by a regional approach with supporting infrastructure links.
- Expenditure on infrastructure for aviation development should be linked to projected growth.

3. Newcastle Airport NSW (Major commercial airport with strong allegiance to Australian Defence Force and aerospace industry)

Newcastle Airport is on the southern boundary of Williamstown Royal Australian Air Force (RAAF) Military Base, 20 km north of Newcastle. The airport is jointly owned by Newcastle City Council and Port Stephens Council, and managed by Newcastle Airport Limited (NAL). The airport shares the RAAF Base runway.

The Williamstown Aerospace Centre (WAC) was established to create, enhance and facilitate commercial activities in the land adjoining RAAF Base Williamstown and Newcastle Airport.

WAC includes the Newcastle Airport Precinct and 120 hectares of industrial and business land. It will provide first class facilities and a variety of infrastructure solutions to meet the needs of individual organisations of any size or requirement.

Set on three hectares of land located at the entrance to Newcastle Airport and just two minutes from the entrance to the RAAF Base Williamstown, 1 Technology Place is the first stage of the Williamstown Aerospace Centre. The commercial campus-style tech park includes commercial offices, and technical and light industrial spaces for lease.

Three buildings have now been completed, with a fully let 2,000m² fourth building currently under construction. All buildings have been designed and build to Defence zone level security requirements. The estate boasts the 95 room Mercure Hotel (Newcastle Airport) and a conference centre with substantial seminar and meeting room facilities at the heart of the estate.

Relevant experience from Newcastle Airport includes:

- Develop a strong brand and work with State and Local government business and tourism organisations to promote airport as a destination for business development.
- Retain control of the property development activities with appropriate external advisers.
- Creative use of existing infrastructure, followed by capital expenditure on aviation infrastructure to match activity growth.

4. Jandakot Airport WA (Flight training campus)

Jandakot Airport is located 16km south of the City of Perth and 13km east of the Port of Fremantle. The airport's 622-hectare site is within the boundary of the City of Cockburn.

Jandakot Airport is the main general aviation airport in Perth, and is one of the busiest airports in Australia in terms of aircraft movements. The airport operates 24 hours a day, 7 days a week. It provides facilities for tourism, pilot and aviation training, general aviation, services to resource and pastoral sectors and emergency services.

The development of the mixed business precincts over the past seven years has attracted leading-edge firms to the airport site. JAH's vision is to successfully develop and manage Jandakot Airport as a strategically significant aviation hub with a supporting business campus. There are also more than 30 aviation support businesses located at Jandakot, providing services such as aircraft repairs and maintenance, avionics, painting and detailing.

Jandakot Airport has a significant role as a major training base for both local and international pilots.

Relevant experience from Jandakot Airport includes:

- Environmental limitations should be identified early and included in business planning.
- Non aviation development is an integral part of the development of the airport and is essential to create revenue streams for subsequent growth.
- Expenditure on aviation development should be linked to growth projections.
- General aviation development can include both leasehold and freehold sites.

5. Macquarie Park (Technological and innovation, highly connected, multi-modal transport hub)

Macquarie Park is currently the second largest commercial office region in New South Wales after Sydney CBD and North Sydney, and is on track to becoming the nation's fourth largest CBD (behind Sydney, Melbourne and Brisbane) by 2030.

Located just 12km north-west of the CBD, the area has quickly become Sydney's second largest business district and already hosts a range of corporations in industries including telecommunications, technology, pharmaceutical and electronics. Some of the growing list of corporations who call the area home include Microsoft, Sony, Optus, Johnson & Johnson and Goodman-Fielder.

With its leading-edge infrastructure, Macquarie Park is a highly connected technological and multi modal transport hub.

Macquarie Park is recognised as a 'specialist centre' under the NSW Government's Metropolitan Strategy for Greater Sydney, and forms an integral part of Sydney's Global Economic Corridor due to the types of businesses in the area and the GDP it produces.

Macquarie Park's steady growth and fast-evolving infrastructure are underpinned by its commitment to innovation and focus on the future. These factors have seen it become a magnet for industry leaders and global giants, and are now forging the way for further growth.

6. Australian Technology Park (High tech and biotechnology spin off hub)

The Australian Technology Park is a business, research and technology centre in Eveleigh, an inner-city suburb of Sydney, New South Wales. It is located about 3 km south of the Sydney CBD, adjacent to Redfern railway station, spread over 13.9 hectares of land.

Australian Technology Park primarily houses start-up hi-tech companies, especially biotech firms, and spin-offs from university research.

The primary intent of the park is for researchers to be located alongside companies with the capital and expertise to commercialise research discoveries.

Today, the site has 100 resident firms providing over 5,500 jobs and research positions, and is part of the local community - providing local jobs, support for community programs and high-quality campus services.

7. Pyrmont-Ultimo Cluster Development (Within the City of Sydney, digital industries hub)

The City of Sydney, and specifically in the Inner West of Sydney, is home to a number of industry clusters either linked by supply chains or by competitive complementarities.

Pyrmont-Ultimo is renowned as a Digital industries hub. According to statistics, digital businesses within the Pyrmont-Ultimo have employed an extra 3023 staff working in information and communications technology (ICT) companies in the five years from 2007 which is an increase of 252 per cent.

Ultimo in particular is heralded as the largest concentration of IT start-ups in Australia, boasting more than 150 'Silicon Valley-style' start-up businesses sharing working space.

Pyrmont-Ultimo is also home to many significant not-for-profits and change-making organisations, including Vibewire, WWF Australia, Barnardos and Pyrmont Cares.

It is a leading technology and creative hub with clusters of media agencies, IT, and digital creative, together with leading iconic brands including Network 10, Channel 7, Google, Accenture, Mirvac, Fairfax, Tabcorp, NOVA DMG Radio, Macquarie Radio, American Express, OMD, Toga Group, Medina, and Shine Productions.

8. Westmead (University and medical campus)

The Westmead precinct is one of the largest health, education, research and training precincts in Australia and a key provider of jobs for the greater Parramatta and western Sydney region.

Spanning 75 hectares, the Westmead precinct comprises over 400,000 m² of high-end health-related developments, including four major hospitals, three world-leading medical research institutes, two university campuses and the largest research-intensive pathology service in NSW.

Westmead is a flagship for highly specialised and integrated health, research, education and innovation and a major lever for economic stimulus.

CRITICAL SUCCESS FACTORS

Alignment of Interests

The long-term growth of Port Macquarie Airport is critical to the overall prosperity and growth of the Port Macquarie region relative to the three other regional cities of the NSW North Coast.

The continuing upgrade of Port Macquarie Airport and completion of an orbital road system providing connections with the other business precincts gives rise to the secondary development of the Airport Business Park and represents an alignment of the interests and strategic initiatives of the following authorities:

- Port Macquarie-Hastings Council
- NSW Government
- Federal Government
- NSW Roads & Maritime Services
- NSW State Emergency Services & NSW Flood Relief Plans

The alignment of these interests enables the success of the ABP, particularly with respect to the provision and funding of a second flood free road access to the airport, which will be a 'game changer' to the commercial prospects of the ABP.

Documents published by NSW Government and PMHC in relation to regional development of the NSW North Coast and Port Macquarie LGA include:

- NSW Government North Coast Regional Plan 2036
- Port Macquarie-Hastings Council Towards 2030 Community Strategic Plan
- Port Macquarie-Hastings Council Economic Development Strategy – May 2017
- PMHC Draft Urban Growth Management Strategy 2017-2036
- Shape of the Future – Port Macquarie-Hastings Council - 2017

The above NSW Government documents encourage regional development of infrastructure and airport hubs as a means of attracting and promoting new business opportunities to attract population growth and quality of life in regional NSW.

Similarly, the PMHC documents confirm to its constituents and potential investors in the region the continued commitment and adherence to NSW Government initiatives and support for regional development in the Port Macquarie region.

Ownership of the Vision and Opportunity by PMHC



Since April 2011 PMHC has achieved significant progress towards implementation of its vision for the upgraded Port Macquarie Airport and the development of an adjacent Airport Business Park.

In the intervening period of 6½ years PMHC has commissioned numerous consultant reports and analyses to support the appropriate economic and business case rigour to warrant the unconditional support of the initiative by Port Macquarie-Hastings Council and its constituents.

PMHC has an opportunity to attract high value jobs and achieve its community vision at a low cost by undertaking actions which need to be done anyway. Provision of flood free road access to the airport is necessary on its own right but once provided will be a 'game changer' for the ability of the airport and the ABP to deliver benefits to the city and the region. This is a high value/low cost strategy and a unique opportunity.

Key milestones to take advantage of the opportunity are approval of the Biocertification Application and approval of the Planning Proposal for the full footprint of the ABP. There is some opposition to the ABP by vested development interests which is potentially impacting and delaying the administrative procedures of, for example, assessment of the Planning Proposal. For the benefit of the overall precinct, and as an alternative approach, PMHC would encourage other properties in the immediate vicinity to become part of the ABP, provided that they are able to meet their own environmental constraints.

In order to overcome these impediments and take advantage of the opportunity so that the community's vision can be achieved it is highly desirable that councillors and staff take ownership of the vision and recognise and embrace the opportunity.

Need to Achieve 'Shovel Ready' Status

Provision of a second flood free road access and provision of upgraded services infrastructure are critical success factors for the ABP, as identified in our original report. That report adopted a methodology for PMHC to proceed with the development of the Port Macquarie Airport Business Park by self-funding and staged development scenarios.

At that time the Bio-Certification Application and Planning Proposal processes had not commenced, let alone be completed and submitted for approval.

In response to these developments, and to the current environment for government funding of regional infrastructure, and after discussions with senior PMHC staff, Augusta has amended its recommendation to reflect a lower risk 'shovel ready' strategy summarised by the achievement of the following milestones:

- Obtain Bio-Certification to resolve all potential environmental issues.
- Obtain approval of the Planning Proposal for the full footprint of Port Macquarie Airport Business Park.
- Undertake planning and costing for the preferred second road access and services upgrades.
- Update developer contribution plans.
- PMHC will then be in a position to take advantage of the current government funding environment to seek Federal & NSW Government Funding for major infrastructure components including:
 - Completion of Port Macquarie Airport Upgrade to 4C capability
 - Undertake second road connection including 1:100-year flood-free access and connectivity to other Business Precincts
 - Amplification of services to support the Airport Business Park
- Obtain development consents and other specific approvals as required.

No Specific Funding Model Required to Initiate Vision

As stated elsewhere in this report PMHC will need to develop detailed costings and plan for the required infrastructure and services upgrades required for the ABP.

Additionally, PMHC will need to update its contribution plans to provide for development based contributions to infrastructure upgrades.

The funding model for the ABP needs to remain flexible to accurately plan and budget for the ABP and required infrastructure and receive governmental grant funding when and as secured, later to be supplemented by developer contributions underpinned by the attraction of high value businesses.

For these reasons, and because of the platform already established by the airport upgrade and the Biocertification and Planning Proposal processes, there is no specific funding model currently required to initiate the vision of ABP's contribution to the region.

IMPLEMENTATION STRATEGY

As an update of its initial report of April 2011 and in order to reflect progress since then and current circumstances, Augusta has amended its recommended implementation strategy, as summarised by the following critical milestones:

'Shovel Ready'

- Obtain approval for Bio-Certification Assessment.
- Obtain approval for Planning Proposal over full ABP footprint over full ABP footprint.
- Complete necessary planning and costing for all required Infrastructure including services and second road access, and review contribution plans.

This is a relatively low-cost activity as much of this work is complete or substantially progressed.

Secure Grants – Federal and NSW Government

Prepare the PMHC business case(s) supported by relevant consultant reports and costing analyses to secure further NSW and Federal Government funding for these major regional infrastructure projects.

NSW and Federal Government support reduces the financial burden on Port Macquarie-Hastings Council.

Construct Secondary Road Access

Construction of a second flood free road access is the 'game changer' for the Port Macquarie Airport and ABP and their ability to deliver benefits to the region. The beneficial effect will be maximised if the second flood free road access is connected to the Orbital Road Network.

This project is a major benefit for the entire Port Macquarie- Hastings Council region and ensures connectivity of the Airport and Airport Business Park to all other business precincts to the wider region.

The principle benefit of this project is the provision of a 1:100-year flood free road access to Port Macquarie Airport to properly connect it to the city, the region and to other major transportation links including the Pacific Highway and the North-South rail network. This also ensures access to State and Federal Government assistance and access for State Emergency Services during crisis and natural disaster.

However, as a by-product, it also provides the same benefits to ABP. Occupants, investors and/or developers need relevant assurances that the necessary infrastructure is planned for construction, subject only to the timing of Federal or NSW Government funding.

Subsequent confirmation of occupant demand will enable a understanding of the required distribution and timing of services and enable creation of a staged development program.

Attract Occupants

The suggested strategy of 'shovel ready' is devised to provide adequate assurance to prospective investors and new businesses to commit to the Port Macquarie region and specifically to the Airport Business Park.

Amplification of Services

The delivery of services amplification can be staged to suit identified demand as and when targeted occupants pre-commit.

Update contribution plans to facilitate developer funding/contribution for ABP infrastructure.

Specific Approvals

Obtain specific Development Consent and other approvals as required, in response to attraction of occupants.

ANNEXURES

- 1 PMHC Scope for Upgrade of Augusta Advisors Report
- 2 Agenda for Augusta Advisors Site Visit and inspection dated 14 September 2017
- 3 Update on Market Information obtained from Port Macquarie Real Estate Agents
– 14 September 2017

1. PMHC SCOPE FOR UPGRADE OF AUGUSTA ADVISORS REPORT

14th July 2017

Strategic Advice - Airport Business Park

Background:

As detailed in the *Port Macquarie Airport Master Plan 2010 Addendum Report*, a priority objective of Council for the Airport is to provide opportunities for land development within the airport property that promote employment opportunities, facilitate economic development, and support the long-term financial viability and sustainability of the airport.

Council recognises the role of Port Macquarie Airport as a catalyst for aggregating economic development drivers in the region. Council also recognises the changing nature of industry, and the trend toward business park developments clustering and aggregating around transport corridors, universities, airports and hospitals.

Council has identified an area of approximately 23.75 ha of land owned by Council within the Master Plan area that is adjacent to the airport, relatively flat and readily developable, and potentially ideally suited to a cluster style Airport Business Park development.

Requirement:

In order to review the strategic importance of Council's airport lands as a development site, Council requires an update and recalibration of the original strategic property advice provided by Augusta Properties to Council in 2011 for the development of an Airport Business Precinct. This strategic advice will be used to inform the manner and extent in which the site may be developed into the future; to support future successful clustering of industry; and to ensure that staging options appropriately compliment infrastructure development requirements.

Scope:

1. **Vision** - confirmation of Airport Business Precinct vision, with reference to the Airport Master Plan
2. **Airport Progress** - review of recent developments and current works in progress relating to Port Macquarie Airport, including:
 - a. Completion of \$20.5m Airport runway upgrade to cater for Code 4C medium jet aircraft;
 - b. Receipt of approval to proceed with a \$7.5m airport terminal building upgrade including funding by Federal and State governments and Council;
 - c. Lodgement to the Minister for Environment of an application for the Biodiversity Certification (biocertification) of the Airport Lands, including the Airport's operational OLS (obstacle limitation surfaces), the proposed Airport Business Park, and the corridors for future road linkages to the airport and business park. The biocertification of the Airport Lands will mean that a consent authority will not have to take biodiversity issues into consideration when assessing future development applications.
 - d. Current proposal for rezoning of subject land for appropriate future development (*attached*);
 - e. Ongoing improvements to Airport passenger numbers.
3. **Council Progress** - review of recent developments, current works in progress, and key planning documents relating to Port Macquarie-Hastings Council, including:

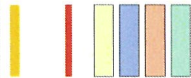
- a. Designation of Port Macquarie as a Regional City by the NSW Government;
 - b. NSW Government's North Coast Regional Plan 2036;
 - c. Council's Towards 2030 Community Strategic Plan;
 - d. Council's draft Urban Growth Management Strategy;
 - e. Council's draft Area Wide Traffic Study and orbital road planning;
 - f. Council's assessment by IPART as a stand-alone council under the 2015 Fit for the Future review;
 - g. Relevant State Government announcements.
4. **Site Factors** - review of the opportunities and constraints associated with the site, including environmental considerations and infrastructure staging options.
5. **Strategic Viability** - review of project viability, in a strategic context, with reference to the vision (item 1), Airport progress (Item 2), Council progress (Item 3), and existing site factors (Item 4).
6. **Market Factors** - commentary on relevant market demand factors including industry type, tenure, and site requirements.
7. **Cluster Developments** - provision of lessons learned, assessments for developments that act as a cluster of interconnected businesses, suppliers and institutions (including Macquarie Park, Pyrmont and Ultimo, Westmead, and Australian Technology Park) and airport based cluster developments such as Bankstown, Coffs Harbour, Newcastle and Jandakot airports (noting there may be other relevant case studies).
8. **Critical Success Factors** – assessment of the critical success factors for the successful development of an Airport Business Park (with reference to access requirements, upgraded services, value capture by Council, and staging recommendations).



Out of Scope:

1. **Update of Detailed Feasibilities** – this is expected to form part of a future scope of work.

LEGEND



PORT MACQUARIE REGIONAL AIRPORT BUSINESS PARK
SITE BOUNDARY (SUBJECT OF PLANNING PROPOSAL)
DETERMINED FROM BIOCERTIFICATION ASSESSMENT

EXISTING B7 ZONING

LAND TO BE ZONED SP2

NEWMAN COLLEGE - B7 ZONING TO REMAIN
PROPOSED B7 ZONING (2375 GROSS AREA, 16.03 NET
DEVELOPABLE AREA)

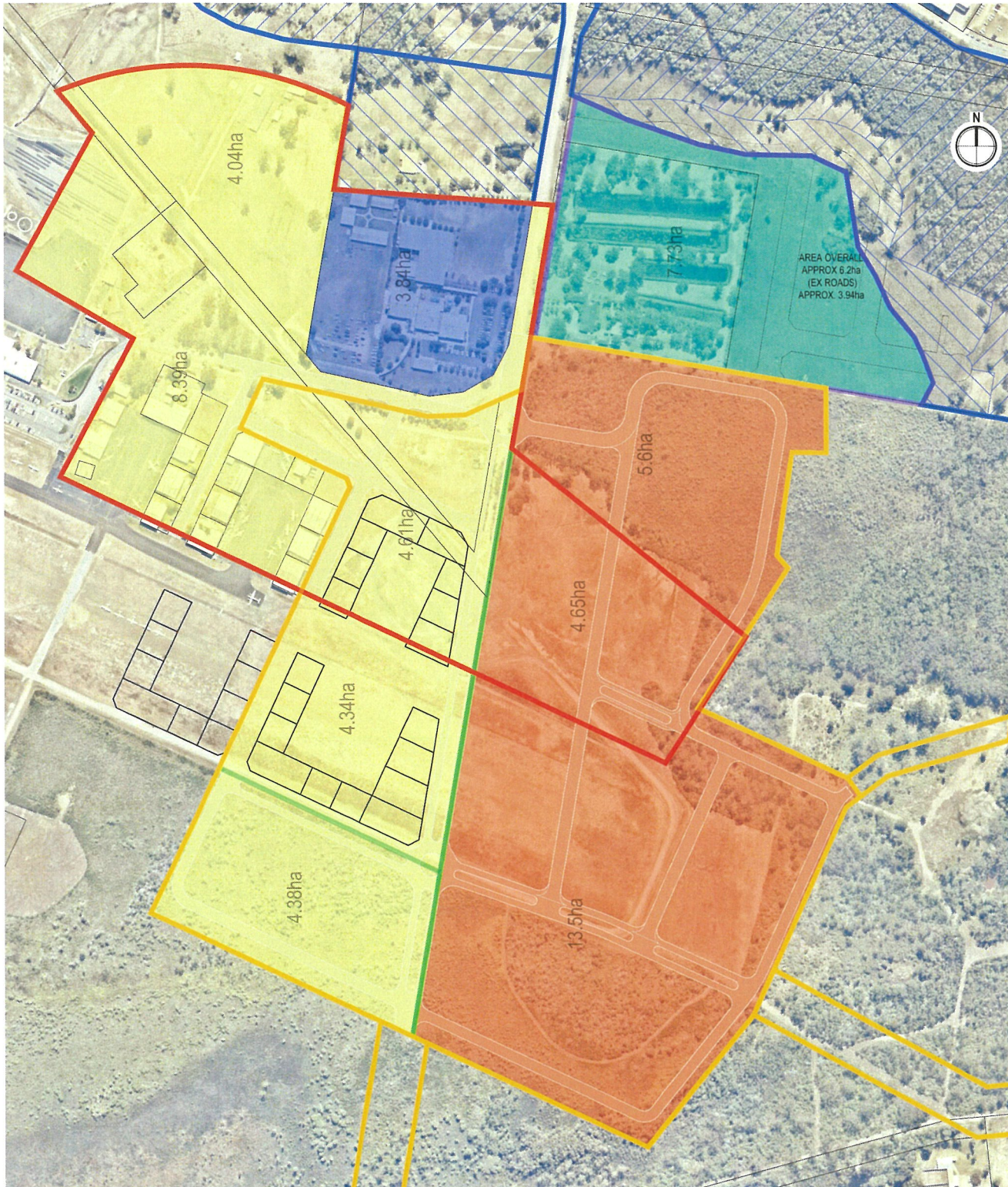
B7 ZONING INVESTIGATION AREA

CAUTION

THIS PLAN HAS BEEN PREPARED FOR THE PURPOSE OF A REZONING APPLICATION.
THE INFORMATION SHOWN HEREIN IS ONLY RELIABLE FOR THE ABOVE PURPOSE. IT
SHOULD NOT BE USED FOR ANY OTHER PURPOSE WITHOUT
VERIFICATION.

ALL MEASUREMENTS AND AREAS ARE SUBJECT TO COUNCIL DEVELOPMENT
APPROVAL, ENGINEERING DESIGN, FINAL SURVEY AND REGISTRATION OF A
DEPOSITED PLAN.

BASE INFORMATION IS BASED ON DATA SUPPLIED BY PMHC AND IS ON MGA GRID.



DRAWING TITLE		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT - POST GROSS AREAS		A1	
PROJECT		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT 10725 DUFFY ROAD, PORT MACQUARIE		REVISIONS	
CLIENT		PORT MACQUARIE LIVINGSTONE COUNCIL		SHEET	
DATE CREATED		SEPT 2015		31	
PROJECT NO		10725 DUFFY ROAD, PORT MACQUARIE		DRAWING NO	
DESIGNED BY		A1		SHEET	
CHECKED BY		A1		REVISIONS	
DATE CREATED		SEPT 2015		31	
SCALE		1:2000 @ A1 1:4000 @ A3		DRAWING NO	
SCALE		1:2000 @ A1 1:4000 @ A3		SHEET	
DATE		28.04.2017		REVISIONS	
DATE		28.04.2017		31	
DESCRIPTION		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT AREA ADDED TO LEGEND SITE BOUNDARY (SUBJECT OF PLANNING PROPOSAL)		DRAWING NO	
DESCRIPTION		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT AREA ADDED TO LEGEND SITE BOUNDARY (SUBJECT OF PLANNING PROPOSAL)		SHEET	
DESCRIPTION		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT AREA ADDED TO LEGEND SITE BOUNDARY (SUBJECT OF PLANNING PROPOSAL)		REVISIONS	
DESCRIPTION		PORT MACQUARIE REGIONAL AIRPORT BUSINESS PRECINCT AREA ADDED TO LEGEND SITE BOUNDARY (SUBJECT OF PLANNING PROPOSAL)		31	

**2. AGENDA FOR AUGUSTA ADVISORS SITE VISIT AND INSPECTION
DATED 14 SEPTEMBER 2017**

Port Macquarie Airport Business Precinct – Site Visit by Augusta Advisors

Agenda - Thursday 14th September 2017

Augusta Advisors – Martin Hillier – Director
 – Ross Norton – Senior Consultant
 Organiser – Jason Doyle – Group Manager Assets & Property Investment

0830 – 0900 Function Room	Kick-Off Cr Justin Levido – Chair Airport Advisory Group Brian Tierney – Member Airport Advisory Group Tony Thorne – King & Campbell Rebecca Olsen – Director, Corporate Performance Ashley Grummitt - Group Manager Commercial Business Units Gayleen Burley - Business Enterprise Manager - Airport ▪ Welcome & Review of Scope (Jason) ▪ Setting the Scene including Council Direction & Intent (Justin, Brian) ▪ Airport Progress post 2011 (Ashley, Gayleen) ▪ Planning Proposal Progress & Status (Tony, Ashley)
0900 – 1000 Blue Room*	Planning Proposal In Detail Brian Tierney – Member Airport Advisory Group Tony Thorne – King & Campbell ▪ Land Use Proposal ▪ Planning Opportunities & Constraints ▪ Biocertification Assessment ▪ Infrastructure Inputs Planning Proposal Principles ▪ Development Trends ▪ Clusters
1000 – 1100 Blue Room*	Transport Infrastructure Duncan Clarke – Group Manager Transport & Stormwater Network Cameron Hawkins - Engineering Planning Manager ▪ Existing Road Infrastructure & Constraints ▪ Future Planning – Boundary St, Secondary Access ▪ Strategic Planning - Areawide Traffic Study, Orbital Road
1100 - 1115	<i>Drive to Airport</i>
1115 – 1215 Port Macquarie Airport	Ashley Grummitt - Group Manager Commercial Business Units Gayleen Burley - Business Enterprise Manager - Airport Doug Page - Airport Operations Co-ordinator Airport Site Tour ▪ View Airport Infrastructure & Facilities ▪ View Airport Business Park Landholding Airport Operations ▪ Runway Upgrade ▪ Proposed Airport Terminal Upgrade ▪ Passenger Numbers and Trends
1215 - 1230	<i>Drive to CBD</i>
1230 – 1330	<i>Working Lunch</i>
1330 – 1400 Laing & Simmons Cnr Clarence and Murray St	Industrial & Commercial Property - Market Review Garry Krestensen - Laing & Simmons ▪ Demand and Supply Factors ▪ Airport Business Precinct Considerations ▪ Market Commentary
1400 – 1430 Raine & Horne Commercial 3/136 William St	Industrial & Commercial Property - Market Review Luke Horton - Raine & Horne Commercial ▪ Demand and Supply Factors ▪ Airport Business Precinct Considerations ▪ Market Commentary
1430 – 1500	Industrial & Commercial Property - Market Review

Debbie Moore Real Estate Lord St	Debbie Moore - Debbie Moore Real Estate ▪ Demand and Supply Factors ▪ Airport Business Precinct Considerations ▪ Market Commentary
1500 – 1530 Green Room	Water & Sewer Infrastructure Luke Moane – Acting Water & Sewer Planning Manager ▪ Existing Water & Sewer Infrastructure & Constraints ▪ Future Planning & Implications
1530 – 1615 Green Room	Strategic Land Use Planning Inputs Peter Cameron – Group Manager Strategic Land Use Planning Sandra Bush – Senior Strategic Planner ▪ Urban Growth Management Strategy ▪ Economic Development Precincts ▪ Population and Growth Considerations Economic Development Inputs Liesa Davies – Group Manager Economic Development & Communications ▪ Economic Drivers ▪ Business Trends & Opportunities
1615	<i>Drive to Airport</i>

3. UPDATE ON MARKET INFORMATION OBTAINED FROM PORT MACQUARIE REAL ESTATE AGENTS – 14 SEPTEMBER 2017

Garry Krestensen & Chris Koch - Laing & Simmons

Airport Business Park	Satisfactory-preferred location subject to business type and land price
Land Tenure	Freehold is imperative for SMSF owners/investors
Demand	Significant demand for 50-150 m ² industrial units Medium-Large Size Industrial Units – Low demand Commercial Space – Low Demand
Lake Road Industrial Estate	100% leased @ \$100-\$150/m ²
Horton Street Commercial	100% leased at \$300-\$400/m ²

Graeme Garrett - Raine & Horne Commercial

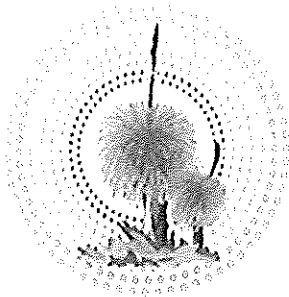
Airport Business Park - SP2 Zoning	Business-Technology focus Generally smaller footprint users. 1,000 m ² would be consider a large occupant
Airport Business Park – B7 Zoning	150-200 m ² is the “sweet spot” for the Light Industrial office /warehouse market Strong demand for smaller strata-units of 80-100 m ²
Super Lots	Typical development being sought 30-40 strata-titled units
General	No serviced land available for industrial development
SMSF Demand	1,000 m ² -4,000 m ² with strong tenant on secure lease is in high demand

Commercial Demand	No change in commercial Lease rates in 15 years
Industrial Demand	20% increase in Industrial Lease rates in 2 years 2015-2017
Industrial Vacancy	Estimated at 2-3%

Debbie Moore - Debbie Moore Real Estate;

SP2 Zoning	Aviation related new industries attracted to Airport Business Park
B7 Zoning	Light Industrial and Professional Services Users Access to Airport is a high priority and major attraction for Owner/Occupiers and tenants
Demand	High for small service industries 1,000 -2,00 m ² users are just starting to emerge in the Port Macquarie region Government tenants are starting to be attracted to regional NSW Centres
Land Sub-division	1,000 – 2,000 m ² minimum Lot size 50% site coverage Suggested FSR 1:1
Comparable Land Pricing	\$310-\$320/m ² - Lake Road Industrial Precinct \$310/m ² - Uralla Road Industrial Precinct \$350/m ² Merrigal Road

Attachment 5 - Birapi Local Aboriginal Land Council Advice



Birpai Local Aboriginal Land Council

King and Campbell Surveyors
PO Box 243
Port Macquarie NSW 2444

25 November 2015

On the 20/11/15 a survey was conducted with Tony Thorne and myself at the Port Macquarie Airport Expansion site. Upon inspection, the level of ground cover was low and had recently been mowed, however visibility was good. I walked the boundary of the site and found two oyster shell midden sites 15 to 20 metres east of the Port Parachute landing site. I declare these two sites to be of European heritage [and not to be of Aboriginal heritage]. I believe that it is unlikely any Aboriginal artifacts will be uncovered on the project site as per the NSW National Parks and Wildlife Service (NPWS) act 1974 if any artifacts are uncovered during excavation of the site a stop work occurs and a local Aboriginal site officer be contacted at the Birpai Local Aboriginal Land Council. We look forward to seeing the project completed.

Yours in unity,

FILE COPY

Jason Holten.

Attachment 6 - Groundwater Assessment Reports

King & Campbell

Port Macquarie Airport Business Park

Geotechnical Assessment – Final Report

Report No. RGS20421.1-AB

29 October 2015

REGIONAL
GEOTECHNICAL SOLUTIONS





Manning-Great Lakes

Port Macquarie

Coffs Harbour

RGS20421.1-AB

29 October 2015

King & Campbell Pty Ltd
PO Box 243
PORT MACQUARIE NSW 2444

Attention: Tony Thorne

Dear Tony,

RE: Port Macquarie Airport Business Park
Geotechnical Assessment – Final Report

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a geotechnical assessment for the proposed Port Macquarie Airport Business Park.

Surface and subsurface conditions at the site are presented in the attached report along with a discussion on excavation and groundwater conditions.

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

A handwritten signature in black ink, appearing to read 'Tim Morris', is written over a light blue horizontal line.

Tim Morris

Senior Engineering Geologist



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Figures

Figure 1 Investigation Location Plan

Appendices

- Appendix A Results of Field Investigations
- Appendix B Results of Laboratory Testing
- Appendix C Infiltration Testing Results



1 INTRODUCTION

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a geotechnical assessment for the proposed Port Macquarie Airport Business Park.

The geotechnical assessment is required to provide information to assist with the development of a Stormwater Management Plan at the site and provide an overview of geotechnical conditions present, in particular with regards to excavation and groundwater conditions for proposed sewer pump stations and service trenches.

The site is located in an area of gently undulating topography and is centred on a broad sand dune that grades down to poorly drained aeolian sand plains. The site is mostly cleared with some areas of thick heath vegetation to the north and south.

The purpose of the work described herein was to address the following:

- A geotechnical model of the site that includes general foundation conditions and the depth of the soil profiles;
- Excavation conditions;
- General recommendations on management of construction and drainage at the site from a geotechnical perspective;
- The presence of Acid Sulfate Soils and the need for an Acid Sulfate Soil Management Plan;
- Presence of groundwater;
- Provide soil permeability values for soil types at nominated locations;
- Summary of initial round of water quality monitoring results and comparison with ANZECC guidelines.

The work was commissioned by Tony Thorne of King & Campbell Pty Ltd.

2 FIELD WORK

Field work for the assessment was undertaken on 18 and 22 September 2015 and was based on the supplied drawing titled "5271P_SewerGravityOption_Staged". Fieldwork included:

- Observation of site and surrounding features relevant to the geotechnical conditions of the site;
- Four boreholes undertaken by a track mounted drilling rig using geo-probe push tube techniques, logged and sampled by an Engineering Geologist. SPT testing was undertaken at regular intervals for the deep boreholes near the proposed sewer pump stations;
- Installation of groundwater monitoring wells in each borehole. The wells were constructed with slotted 50mm diameter PVC screen in the nominated groundwater body and extended to the surface with 50mm PVC casing. The boreholes were backfilled with graded sand to the top of the screen and sealed with bentonite pellets and concrete. The



wells were finished off with a protective steel monument approximately 0.7m high and secured with a padlock;

- Twelve test pits excavated by backhoe, logged and sampled by an Engineering Geologist.

Engineering logs of the boreholes and test pits are presented in Appendix A. The locations of the boreholes are shown on Figure 1. They were obtained on site by measurement relative to existing site features. Coordinates for each investigation location were recorded by hand held GPS and are shown on the logs. Reduced levels at the investigation locations were estimated from the supplied drawing and are shown on the logs.

3 LABORATORY TESTING

Samples retrieved during field work for the current geotechnical assessment were returned to a NATA registered laboratory for testing which included:

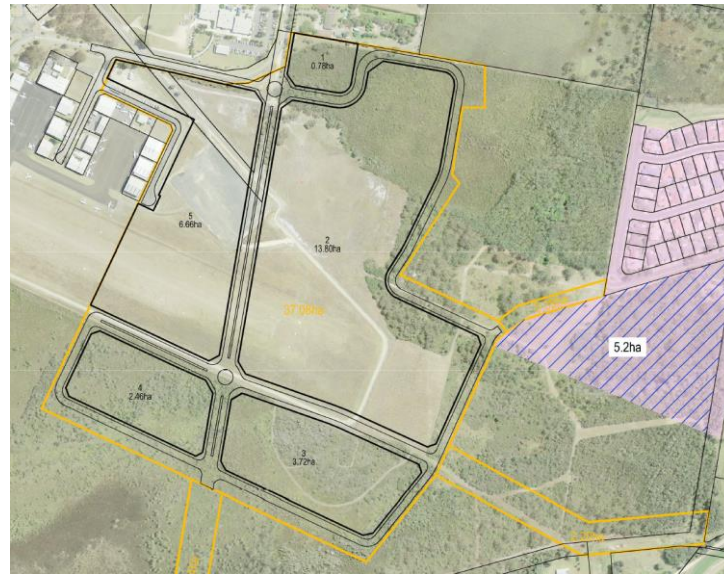
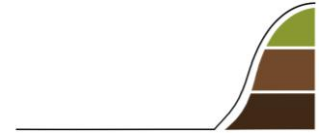
- Acid Sulfate Soil Screening Test;
- Detailed CRS analysis to detect oxidisable sulphur and acid generating potential;
- Soil aggressivity analysis for buried steel and concrete;
- Water quality parameters including pH, EC, turbidity, Total Nitrogen/ Phosphorous/ Suspended Solids.

4 SITE CONDITIONS

4.1 Surface conditions

The site is located in an area of gently undulating topography and is centred on a broad east west orientated sand dune that has surface elevations in the order 5.5mAHD and has been modified by earthworks to form a grassed runway. The sand dune slopes grade gently down to the north and south with surface angles of less than 1° towards aeolian sand plains that are poorly drained.

An image of the site is reproduced below.



Proposed Airport Business Park (outlined in black), located to the south east of the existing airport. A disused grass runway is located in the centre of proposed business park.

Vegetation comprised low grass maintained by slashing in the centre of the site with areas of thick heath vegetation to the north and south that graded into swamp vegetation near the site boundaries. Peat soils were exposed in the access tracks in the low lying areas. A large gravel hardstand area is present in the centre of the site, adjacent to the existing runway.

Drainage of the site is via a combination of overland flow and surface infiltration. Surface water was observed pooling in the low lying areas in the north and south of the site and in some sections of the various access trails as shown in Figure 1.

A selection of images of the site is presented below.



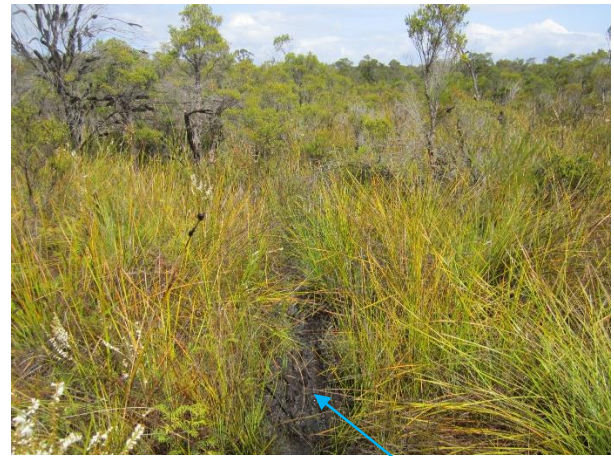
Grassed runway area in centre of site



Grass access track adjacent to runway area. Water pooling in wheel tracks.



Surface water in poorly drained area on northern site boundary. Peat soils exposed by service trenching works.



Swamp vegetation and surface water in poorly drained area near southern site boundary.

4.2 Subsurface conditions

Reference to the 1:25,000 Port Macquarie Coastal Quaternary Geology Sheet indicates the site is centred on a Pleistocene aeolian sand dune that grades down onto Pleistocene back-barrier sand plains to the north and south.

Reference to the Port Macquarie 1:25,000 Acid Sulfate Soil (ASS) Risk Map indicates the site is an aeolian sand plain with no known occurrence of ASS. However, RGS has previously encountered Potential ASS underlying Pleistocene sand deposits in the local area.

The investigations encountered a variable soil profile as summarised in Tables 1 and 2.



Table 1: Summary of Geotechnical Units

Geotechnical Unit	Material	Material Description
UNIT 1A	FILL - GRAVEL	Sandy GRAVEL, fine to coarse
UNIT 1B	FILL - SAND	SAND, fine to medium, grey, trace silt
UNIT 2A	TOPSOIL	SAND, fine to medium, grey, trace silt, organic fines and roots
UNIT 2B	TOPSOIL / PEAT	Silty SAND, fine to medium, black, with organic fines and root matter.
UNIT 3A	AEOLIAN	SAND, fine to medium grained, pale grey/ white, trace grey/ brown mottling. Test pit walls typically collapsed in the aeolian sand profile.
UNIT 3B	AEOLIAN - INDURATED	SAND, fine to medium, brown/ dark brown/ black /yellow, weakly to moderately cemented, dense to very dense, organic odour
UNIT 4	MARINE	SAND, fine to coarse, grey/ brown, trace shell fragments
UNIT 5	RESIDUAL	CLAY, high plasticity, white, very stiff to hard



Table 2: Summary of Subsurface Conditions

Investigation	RL (m)	Depth to Base of Material Layer (m)											
		Unit 1A Gravel Fill	Unit 1B Sand Fill	Unit 2A Topsoil	Unit 2B Peat	Unit 3A Aeolian	Unit 3B Aeolian Indurated	Unit 3A Aeolian (2 nd)	Unit 3B Aeolian Indurated (2 nd)	Unit 3A Aeolian (3 rd)	Unit 4 Marine	Unit 5 Residual	Ground water
BH1	4.3	--	--	0.1	--	1.2	3.7	--	--	≥ 5.5	≥ 5.5	--	0.8
BH2	5.0	--	--	--	0.15	1.1	3.4	--	--	5.4	5.4	≥ 5.45	0.4
BH3	4.0	--	--	0.2	--	0.5	≥ 1.4	--	--	--	--	--	0.4
BH4	4.1	--	--	--	0.15	0.7	≥ 1.5	--	--	--	--	--	0.3
TP1	5.0	--	--	0.2	0.3	1.3	1.5	≥ 1.6*	--	--	--	--	1.3
TP2	5.0	--	--	0.1	--	0.4	0.6	1.1	1.3	≥ 2.0*	--	--	1.1
TP3	5.0	--	0.8	0.9	--	1.7	≥ 2.2*	--	--	--	--	--	1.5, 2.2
TP4	5.5	0.3	--	0.4	--	0.7	0.85	1.5	≥ 2.0*	--	--	--	1.6
TP5	5.2	--	--	0.15	--	1.4	≥ 2.3*	--	--	--	--	--	1.4
TP6	4.2	--	--	0.15	--	--	0.4	0.9	≥ 1.7*	--	--	--	0.1, 0.6, 1.2
TP7	5.0	--	--	0.3	--	--	0.6	1.4	≥ 2.0*	--	--	--	1.2
TP8	5.7	--	--	0.3	--	0.7	0.9	1.7	≥ 2.0*	--	--	--	1.6

Table Notes: -- Material not encountered
 ≥ Base of material layer not encountered

* Test pit abandoned due to walls collapsing



Table 2: Summary of Subsurface Conditions (Continued)

Investigation	RL (m)	Depth to Base of Material Layer (m)											
		Unit 1A Gravel Fill	Unit 1B Sand Fill	Unit 2A Topsoil	Unit 2B Peat	Unit 3A Aeolian	Unit 3B Aeolian Indurated	Unit 3A Aeolian (2 nd)	Unit 3B Aeolian Indurated (2 nd)	Unit 3A Aeolian (3 rd)	Unit 4 Marine	Unit 5 Residual	Ground water
TP9	5.7	--	--	0.2	--	1.4	≥ 1.7*	--	--	--	--	--	1.1
TP10	4.5	--	--	0.1	--	0.5	1.6	≥ 2.0*	--	--	--	--	1.3
TP11	5.0	--	--	0.15	--	0.9	≥ 1.5*	--	--	--	--	--	0.8
TP12	4.5	--	--	0.1	--	0.3	0.6	1.4	2.1	≥ 2.3*	--	--	1.3

Table Notes: -- Material not encountered
 ≥ Base of material layer not encountered

* Test pit abandoned due to walls collapsing



Groundwater was encountered at the depths shown in Table 2. It should be noted that fluctuations in groundwater levels can occur as a result of seasonal variations, temperature, rainfall and other similar factors, the influence of which may not have been apparent at the time of the assessment.

5 DISCUSSION

5.1 Subsurface Profile

The soil profiles encountered typically comprised aeolian sands with up to two distinct zones of weakly to moderately cemented, dense to very dense, indurated sand, referred to locally as coffee rock, to depths of up to 3.7m. Based on previous experience in the area, indurated sand profiles are typically variable in their degree of cementing and their horizontal and vertical extents. Marine sands were encountered in the deeper boreholes below the indurated sand horizons from 3.7m. Residual clay soils were encountered in one location, BH2 at 5.45m.

Examples of excavated profiles are presented below.



TP2 – Typical profile with aeolian sands, overlying a thin upper indurated sand horizon, overlying more aeolian sands where the test pit is collapsing due to water inflow occurring above a lower indurated sand layer.



TP6 – Test pit near southern boundary. Perched water table inflow occurring in peat horizon above shallow indurated sand horizon. Water inflow also occurring above deeper indurated sand horizon.

5.2 Groundwater Conditions

Groundwater depths were variable and included shallow perched water tables above the peat and indurated sand horizons. Groundwater inflow from up to three water tables / aquifers were observed in the test pit profiles and were separated by the indurated sand horizons which act as aquitards. Details of water inflow are shown on the attached engineering logs. Future works that require excavation of service trenches, or similar, through indurated sand horizons are likely to result in changes to the local hydrology, including the potential drainage of shallow perched groundwater tables.



The surface water bodies observed pooling near the northern and southern boundaries of the site as shown in Figure 1 are considered to represent a shallow, perched groundwater table overlying the upper indurated sand profile that daylights as the surface elevation grades down. The perched water tables are anticipated to vary rapidly in height in response to rainfall. Groundwater levels encountered during the drilling investigation (22/9/15) which was undertaken four days after the test pitting (18/9/15) were observed to be approximately 300mm higher following approximately 43mm of rainfall between 18 to 20 September.

Groundwater monitoring wells were installed at four locations to allow monitoring of groundwater levels in response to rainfall. A brief summary of groundwater levels observed since the installation of the wells is presented in Table 3.

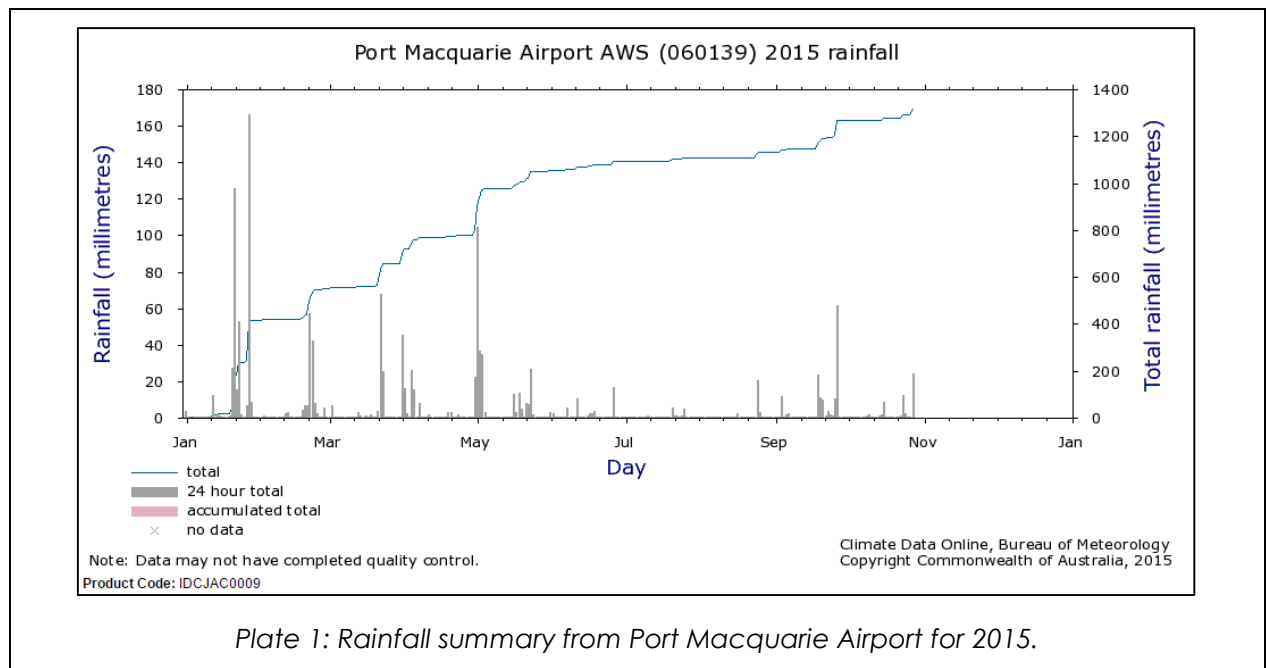
Table 3: Groundwater Monitoring Observations

	BH1	BH2**	BH3	BH4
<i>Surface RL*</i>	4.3	5.0	4.0	4.1
Groundwater inflow depth (m) 26/9/15	0.8	0.4	0.4	0.3
Groundwater RL (26/9/15)	3.5	4.6	3.6	3.8
Groundwater depth (m) 1/10/15	0.5	0.9	0.05	0.4
Groundwater RL (1/10/15)	3.8	4.1	3.95	3.7

**Estimated Surface RL based on contours shown on supplied plan*

***BH2 installed in lower groundwater horizon*

Rainfall data from Port Macquarie Airport for 2015 is presented in Plate 1 and indicates low rainfall conditions occurred through winter and spring with an isolated rainfall event of 61mm on 26 September 2015.



As noted previously fluctuations in groundwater levels can occur as a result of seasonal variations, temperature, rainfall and other similar factors. The use of data loggers installed in monitoring wells to collect water level data would allow a more accurate assessment of groundwater responses to rainfall events over a longer time period.

5.3 Permeability

Sand soils typically have a permeability coefficient (k) in the order of 1×10^{-5} to 10^{-2} m/s, however, this can vary depending on depth of the existing groundwater table, depth to aquitard (such as coffee rock) or aquiclude, soil moisture content and other environmental factors.

Falling head infiltration testing was undertaken to assess permeability conditions adjacent to BH2 at on 22 September 2015. Groundwater was present at 0.4m following rainfall over the preceding days. The results of the testing are presented in Appendix C and indicate a calculated permeability coefficient (k) of 5×10^{-5} m/s. This is lower than the indicative value provided above which is likely to be due to the shallow water table that was present.

5.4 Excavation Conditions

Taking into account the materials likely to be encountered it is expected that excavations could be achievable using excavator bucket to at least the depths achieved in the test pit excavations. Slow digging may be encountered in very dense indurated sand horizons, depending on the depth and width of excavation. Excavations in sand profiles will collapse below the water table.



Excavations in sand profiles are potentially unstable and will therefore require shoring when the excavations are below the water table. Dewatering is also likely to be required to allow excavation below the water table. Groundwater levels will fluctuate in response to climatic conditions and may be higher than the levels encountered during fieldwork.

Dewatering below trench routes could be undertaken by installing horizontal dewatering systems prior to trench excavation. Where possible, service installation should be kept as high as is practicable to minimise the extent of dewatering required. Dewatering may require approval from the NSW Department of Water. Water being discharged during pumping may also be acidic and have high sulfate/iron concentrations that will require appropriate management.

Entry into unsupported trenches deeper than 1.0m should be avoided and appropriate signage and barricading should be installed around all open excavations. Excavation design should take into account maximum batter angle and setback requirements for vehicle traffic as detailed in the Excavation Work Code of Practice (Safe Work Australia – 2014).

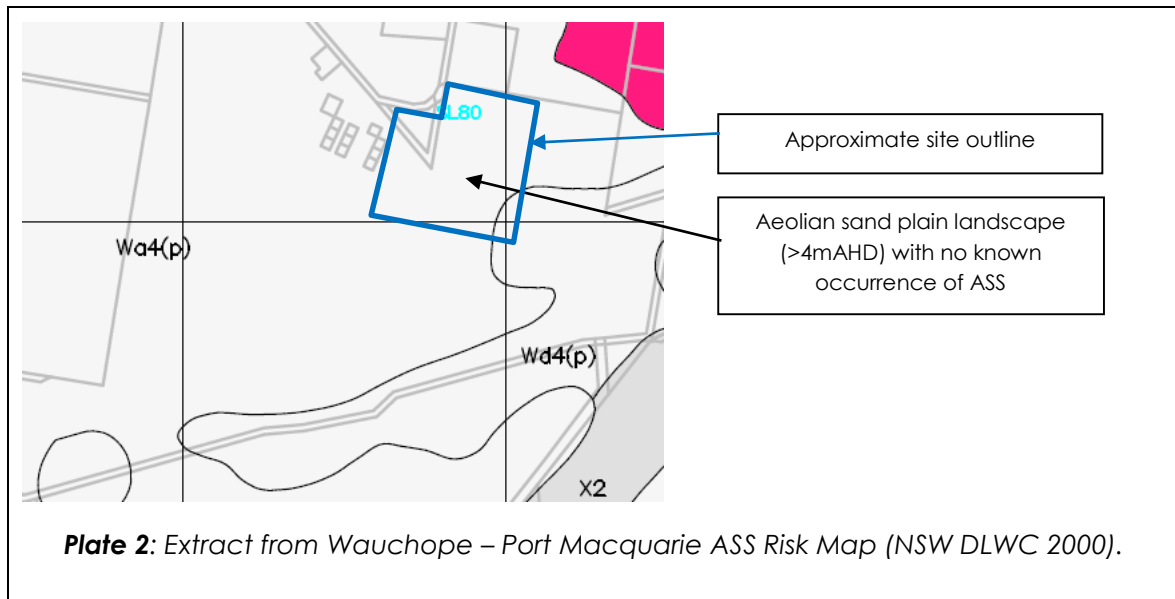
Dewatering and management of excavated materials will need to take into account the potential presence of Potential or Actual Acid Sulfate Soils. This is discussed further in Section 6.

6 ACID SULFATE SOILS

6.1 Presence of ASS

Acid Sulfate Soils (ASS) produce sulphuric acid when exposed to oxygen due to the presence of iron sulphides in the form of pyrite within the soil matrix. These soils form when iron-rich sediments are deposited in saltwater or brackish water environments. Prior to oxidation, these pyritic soils are referred to as Potential ASS. ASS that have produced acid as a result of oxidation are referred to as Actual ASS. They typically occur in natural, low-lying coastal depositional environments below approximately 5m AHD. In the field ASS are generally identified as alluvial or estuarine soils or bottom sediments in creeks and estuaries.

Reference to the Wauchope - Port Macquarie ASS Risk Map presented in Plate 2, indicates there is no known occurrence of ASS at the site. However, as noted previously, RGS has identified Potential ASS in similar aeolian landscapes where ASS was shown not to occur on the Risk Map.



6.2 Assessment Methodology

The ASS Manual details the minimum number of sample locations required for ASS assessment. The purpose of the current investigation was to undertake a preliminary assessment of the presence of ASS and sampling was therefore restricted to the two deep boreholes undertaken in the vicinity of the proposed sewer pump stations as shown in Figure 1.

6.3 Laboratory Testing

Samples obtained were submitted to the NATA accredited Environmental Analysis Laboratory (EAL) and screened for the presence of ASS. The results are presented in Appendix B and indicate the following:

- The pH of the samples in distilled water ranged from 4.0 to 5.51. A pH value of less than 4 in this test is considered indicative of Actual ASS;
- The samples showed varying effervescent reactions following the addition of hydrogen peroxide and pH values after oxidation ranged from 2.01 to 4.96. Samples with an oxidised pH value of less than 3 in this test which is considered indicative of Potential ASS.

Two samples were subsequently submitted for detailed chromium reducible sulphur (CrS) analysis. The results, presented in Appendix B, confirm that the sample from BH1 (3.5 – 4.0m) is an Actual ASS with traces of pyrite also present and that the sample from BH2 (4.0 – 5.0m) is a Potential ASS.



6.4 ASS Assessment Summary

The detailed laboratory testing results indicate that Actual and Potential ASS are present in the marine sands (Unit 4) within the vicinity of the proposed sewer pump station excavations and that the total acidity concentrations exceed the ASSMAC Action Criteria (ASS Manual 1996) of 18 moles H⁺/tonne for coarse grained soils. An Acid Sulfate Soils Management Plan (ASSMP) will therefore be required for the proposed works.

The ASS are present within the marine sands underlying the indurated sand profile. Based on the results obtained, a liming rate of between 4.3 and 9 kg CaCO₃/tonne dry weight was calculated for neutralisation of the ASS material, which includes a 1.5 safety factor. Further assessment will therefore be required for any sewer trenching works that will disturb the marine sands (Unit 4) to assist in the preparation of an ASS Management Plan. The Plan will also need to take into account any potential changes to the groundwater table(s) that occur in association with the works.

7 SOIL AGGRESSIVITY

Two samples from the boreholes undertaken in the vicinity of the proposed sewer pump stations were submitted to a NATA accredited laboratory for chemical analysis. The results are presented in Appendix B.

In accordance with the aggressivity and exposure classifications provided in AS2159-2009 the soils would be considered severely aggressive to concrete at BH2 and moderately aggressive in BH1.

8 WATER ANALYSIS

Water was collected from the four groundwater monitoring wells and two surface water bodies. The sample locations are shown on Figure 1. The collected samples were submitted to a NATA accredited laboratory for analysis on a range of environmental parameters. The results are presented in Appendix B and selected results are summarised in Table 4.

Table 4: Summary of Laboratory Test Results

Location	pH	EC (dS/m)	Total Suspended Solids (mg/L)	Total Phosphorous (mg/L)	Total Nitrogen (mg/L)
BH1	4.49	0.147	357	0.02	0.29
BH2	4.98	0.136	36	0.01	0.59
BH3	5.04	0.094	978	0.06	0.92
BH4	5.35	0.154	11,015	0.13	2.56
WS-NB1	5.3	0.197	6	0.01	0.3
WS-NB2	4.96	0.123	7	0.01	0.35



The pH of the groundwater and surface water samples is weakly acidic. Water with a pH of <5.5 can be indicative of the presence of ASS, however, based on previous experience with coastal sand plain landscapes the surface waters are often acidic and this is typically due to organic acidity rather than the presence of ASS. The high Total Suspended Solids (TSS) values from the groundwater in the monitoring wells is associated with the presence of indurated sand horizons. When the indurated sands profiles are disturbed by drilling it results in silty fines settling within the water column, giving the water a brown colour and elevated TSS values.

9 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted geotechnical 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 significantly from those discussed in this report, 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

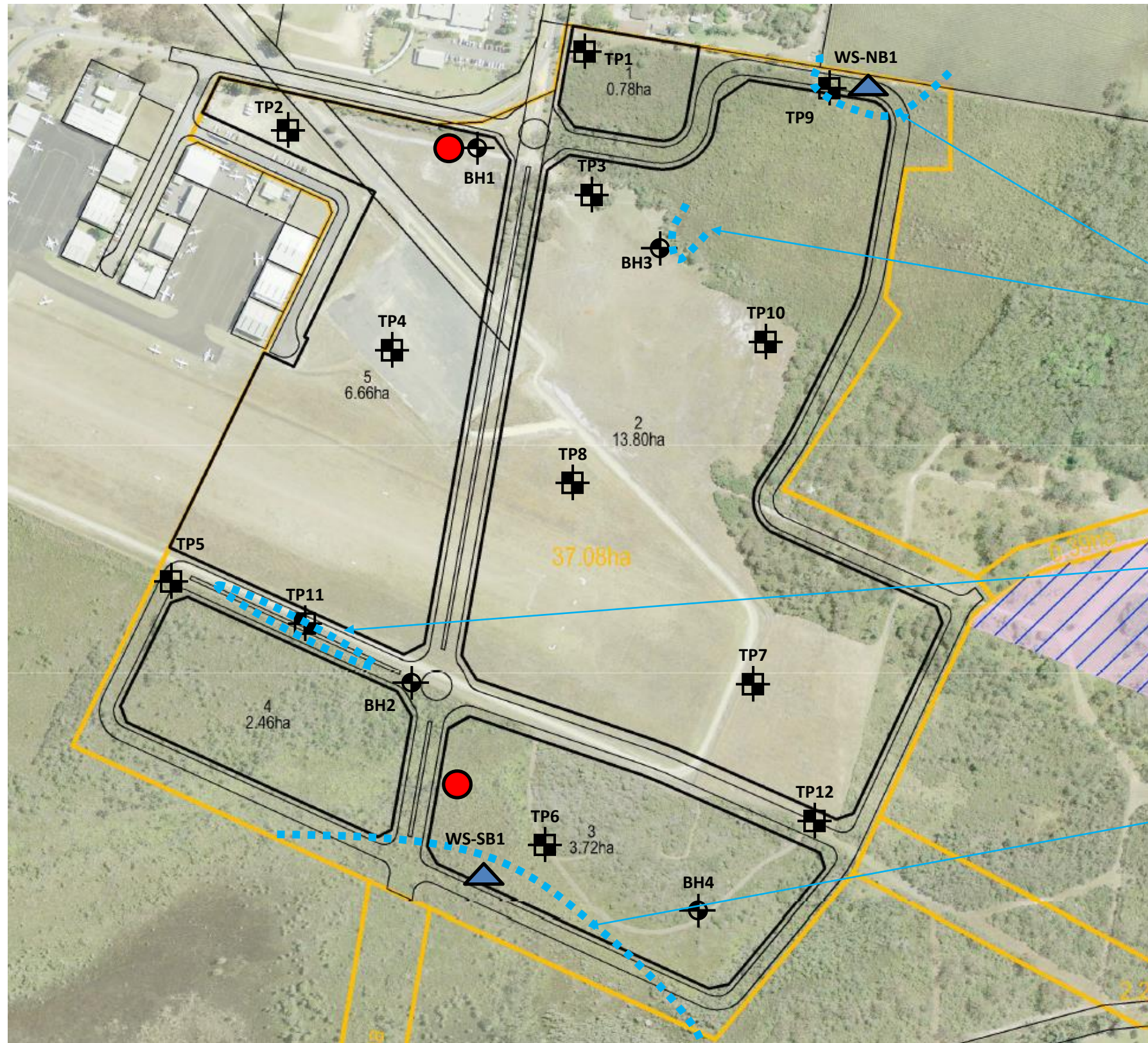
Regional Geotechnical Solutions Pty Ltd

Tim Morris

Senior Engineering Geologist



Figure



Surface water at time of fieldwork

Surface water pooling in peat soils in wheel tracks at time of fieldwork

Perched groundwater table daylighting at surface at time of fieldwork.

Legend	
	Borehole Location
	Test Pit Location
	Water Sample
	Proposed Pump Station

Based on supplied drawing titled "Port Macquarie Airport Employment Precinct"



Client	KING & CAMPBELL
Project:	PROPOSED BUSINESS PRECINCT PORT MACQUARIE AIRPORT
Title:	INVESTIGATION LOCATION PLAN

Job No.	RGS20421.1
Drawn By:	TLM
Date:	12-Oct-15
Drawing No.	Figure 1



Appendix A

Results of Field Investigations



ENGINEERING LOG - BOREHOLE

CLIENT: King & Campbell
PROJECT NAME: Airport Precinct

LOCATION: E487860 N6522525

BOREHOLE NO: **BH1**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/AY
DATE: 22/9/15

DRILL TYPE: Geoprobe - Tracked Rig
BOREHOLE DIAMETER: 75 mm

SURFACE RL: 4.3 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
Push Tube		1.00m SPT 5,10,15 N=25	4.0	0.10m		SP	TOPSOIL: SAND, fine to medium, dark grey, some grass roots, trace organic fines SAND: Fine to medium, pale grey/white	M				TOPSOIL AEOLIAN
				1.0		SP		M				
				3.0			SAND: Fine to medium, dark brown/dark grey/brown, weakly to moderately cemented					AEOLIAN - INDURATED
				2.0		SP		VD				2.20: Slow Penetration
				1.0			Grading to brown/pale brown, Sand, fine to coarse, non to weakly cemented	W	D			
		4.00m SPT 3,6,9 N=15	0.0	3.70m		SP	SAND: Fine to coarse, pale brown, some brown mottling, trace Gravel, fine to medium, subrounded, mixed origin in thin layers					MARINE
		5.00m SPT 2,5,6 N=11	-1.0	5.50m			Hole Terminated at 5.50 m					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - BOREHOLE

CLIENT: King & Campbell
PROJECT NAME: Airport Precinct

LOCATION: E487797 N6522091

BOREHOLE NO: **BH2**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/AY
DATE: 22/9/15

DRILL TYPE: Geoprobe - Tracked Rig
BOREHOLE DIAMETER: 75 mm

SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
Push Tube	▲	1.00m SPT 5,9,19 N=28	4.0	1.0		SM	0.15m TOPSOIL: SAND, fine to medium, dark grey with organic fines and grass roots	W				TOPSOIL/PEAT
						SP	SAND: Fine to medium, pale grey/white, trace grass roots	M				AEOLIAN
				2.0		SP	1.10m SAND: Fine to medium, dark brown/brown/black, variable weak to moderate cementing					AEOLIAN - INDURATED
				3.0		SP	Sand, fine to coarse, trace Gravel, fine to medium		VD			
Auger		2.50m SPT 18,31,R N=R	2.0	3.0		SP	Push tube refusal in indurated sand. Change to Auger	W				2.60: Borehole collapsing
Push Tube		4.00m SPT 2,4,6 N=10	1.0	4.0		SP	3.40m SAND: Fine to coarse, brown/pale brown, trace Gravel fine, subrounded/subangular, mixed origin		MD / D			MARINE
						SP	Trace Clay, low plasticity					
				5.0		SP	5.20m SAND: Fine to medium, dark grey/grey, trace Clay, low plasticity		VL			
		5.00m SPT 1,1,0 N=1	0.0	5.0		SP	5.40m SAND: Fine to medium, dark grey/grey, trace Clay, low plasticity					
						CH	5.45m CLAY: Medium plasticity, white with pale brown mottling, some Sand fine to medium. Sample in top of SPT shoe	M	H	HP	400	RESIDUAL SOIL
Hole Terminated at 5.45 m												

LEGEND:

Water

Water Level (Date and time shown)

Water Inflow

Water Outflow

Strata Changes

Gradational or transitional strata

Definitive or distinct strata change

Notes, Samples and Tests

U₅₀ 50mm Diameter tube sample

CBR Bulk sample for CBR testing

E Environmental sample (Glass jar, sealed and chilled on site)

ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)

B Bulk Sample

Field Tests

PID Photoionisation detector reading (ppm)

DCP(x-y) Dynamic penetrometer test (test depth interval shown)

HP Hand Penetrometer test (UCS kPa)

Consistency

VS Very Soft <25

S Soft 25 - 50

F Firm 50 - 100

St Stiff 100 - 200

VSt Very Stiff 200 - 400

H Hard >400

Fb Friable

Density

V Very Loose

L Loose

MD Medium Dense

D Dense

VD Very Dense

UCS (kPa)

<25

25 - 50

50 - 100

100 - 200

200 - 400

>400

Moisture Condition

D Dry

M Moist

W Wet

W_p Plastic Limit

W_L Liquid Limit

Density Index <15%

Density Index 15 - 35%

Density Index 35 - 65%

Density Index 65 - 85%

Density Index 85 - 100%



ENGINEERING LOG - BOREHOLE

CLIENT: King & Campbell
PROJECT NAME: Airport Precinct

LOCATION: E487958 N6621883

BOREHOLE NO: **BH4**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/AY
DATE: 22/9/15

DRILL TYPE: Geoprobe - Tracked Rig
BOREHOLE DIAMETER: 75 mm

SURFACE RL: 4.1 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
ADV			4.0	1.0		SM	0.15m TOPSOIL: SAND, fine to medium, black with organic fines and grass roots	M - W	Fb			TOPSOIL/PEAT
						SP	SAND: Fine to medium, white with yellow/orange mottling					AEOLIAN
						SP	0.70m SAND: Fine to medium, brown/dark brown, some orange mottling, non to weakly cemented					AEOLIAN - INDURATED
						SP	1.50m SAND: Fine to medium, brown/dark brown, some orange mottling, non to weakly cemented					AEOLIAN - INDURATED
							Hole Terminated at 1.50 m Borehole collapsing					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487941 N6522593

TEST PIT NO: **TP1**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	High water inflow					SP	TOPSOIL/SAND: Fine to medium grained, grey/pale grey, tree roots					TOPSOIL
						SM	Silty SAND: Dark brown, organic fines, trace Clay		Fb			PEAT
							SAND: Fine to medium grained, pale yellow with yellow/orange/brown mottling trace of weakly cemented Sand					AEOLIAN
			4.5	0.5		SP		M				
			4.0	1.0								COLLAPSING
			3.5	1.5		SP	SAND: Fine to medium grained, dark brown/black, weakly cemented	W	D			AEOLIAN INDURATED
						SP	SAND: Fine to medium grained, grey/brown					AEOLIAN
							Hole Terminated at 1.60 m Refusal					
			3.0	2.0								
			2.5	2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀	50mm Diameter tube sample	VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR	Bulk sample for CBR testing	S	Soft	25 - 50	M	Moist
Water Inflow		E	Environmental sample (Glass jar, sealed and chilled on site)	F	Firm	50 - 100	W	Wet
Water Outflow		ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)	St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B	Bulk Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID	Photoionisation detector reading (ppm)	Fb	Friable			
		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	Density	V	Very Loose	Density Index <15%	
		HP	Hand Penetrometer test (UCS kPa)	L	Loose		Density Index 15 - 35%	
				MD	Medium Dense		Density Index 35 - 65%	
				D	Dense		Density Index 65 - 85%	
				VD	Very Dense		Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487710 N6522527

TEST PIT NO: **TP2**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m
WIDTH: 0.5 m
SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	Moderate water inflow					SP	SAND: Fine to medium grained, grey/brown, trace Silt, some grass roots					TOPSOIL
						SP	SAND: Fine to medium grained, pale grey/white, variable boundary					AEOLIAN
			4.5	0.5		SP	SAND: Fine to medium, black/dark yellow, weakly cemented		MD - D			AEOLIAN - INDURATED
						SP	SAND: Fine to medium grained, pale grey/white	M				AEOLIAN
			4.0	1.0		SP	SAND: Fine to medium grained, black/dark brown, weakly to moderately cemented		D			AEOLIAN - INDURATED
						SP	SAND: Fine to medium grained, dark grey					AEOLIAN
			3.0	2.0			Hole Terminated at 2.00 m Refusal Test Pit collapsing					
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀	50mm Diameter tube sample	VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR	Bulk sample for CBR testing	S	Soft	25 - 50	M	Moist
Water Inflow		E	Environmental sample (Glass jar, sealed and chilled on site)	F	Firm	50 - 100	W	Wet
Water Outflow		ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)	St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B	Bulk Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID	Photoionisation detector reading (ppm)	Fb	Friable			
		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	Density	V	Very Loose	Density Index <15%	
		HP	Hand Penetrometer test (UCS kPa)	L	Loose		Density Index 15 - 35%	
				MD	Medium Dense		Density Index 35 - 65%	
				D	Dense		Density Index 65 - 85%	
				VD	Very Dense		Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487939 N6522496

TEST PIT NO: **TP3**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m
WIDTH: 0.5 m
SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	Minor inflow					SC	FILL: Silty SAND, fine to coarse grained, some Clay	M	Fb			TOPSOIL/FILL
				4.5	0.5	SP	FILL: SAND, fine to medium grained, pale grey with grey mottling					FILL
						SM	TOPSOIL: Silty SAND, fine to medium grained, black, some organic fines					TOPSOIL
				4.0	1.0	SP	SAND: Fine to medium grained, pale grey/white	M	D - VD			AEOLIAN
						SP	SAND: Fine to medium grained, pale brown with orange/brown mottling					AEOLIAN - INDURATED
				3.5	1.5	SP	SAND: Fine to medium grained, dark brown/black, weak to moderately cemented					
	moderately water inflow			3.0	2.0	SP						
				2.5	2.5		Hole Terminated at 2.20 m Hole abandoned, collapsing					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487764 N6522390

TEST PIT NO: **TP4**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.5 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket			5.0	0.5		GP	FILL: Sandy GRAVEL, fine to coarse grained, grey/brown, includes concrete fragments to 80mm	M	D			FILL
							0.30m					TOPSOIL
							0.40m					AEOLIAN
							0.70m					AEOLIAN - INDURATED
							0.85m					AEOLIAN
							1.50m					AEOLIAN - INDURATED
			4.5	1.0		SP	SAND: Fine to medium, orange/black/dark brown, some weak cementing, discontinuous, variable profile	M	D			
			4.0	1.5		SP	SAND: Fine to medium grained, pale grey with grey/brown mottling					
			3.5	2.0		SP	SAND: Fine to medium grained, dark brown/black, weakly to moderately cemented	W	D - VD			
			3.0	2.5			Hole Terminated at 2.00 m Hole abandoned, collapsing					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487597 N6522175

TEST PIT NO: **TP5**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.2 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	Moderate water inflow		5.0			SM	TOPSOIL: SAND, fine to medium grained, grey, some Silt					TOPSOIL
			0.5				SAND: Fine to medium grained, pale grey/white					AEOLIAN
			4.5			SP		M				
			1.0									
			4.0									
			1.5				SAND: Fine to medium grained, dark grey, grading to dark brown/black stained, grained with depth to moderately cemented		D			AEOLIAN - INDURATED
			3.5			SP		W				
			2.0						VD			
			3.0									
			2.5				Hole Terminated at 2.30 m Hole abandoned, collapsing					
			2.5									

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487895 N6521954

TEST PIT NO: TP6
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m
WIDTH: 0.5 m
SURFACE RL: 4.2 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket				4.0		SM	TOPSOIL: SAND, fine to medium grained, grey with organic fines, grass roots	W				TOPSOIL
						SP	SAND: Fine to medium grained, brown/orange/pale orange, stained/weakly indurated, some grass roots	M - W	D			AEOLIAN/INDURATED
				0.5			SAND: Fine to medium grained, pale yellow/white with yellow mottling					
				3.5		SP						WALLS COLLAPSING ORGANIC ODOUR
					1.0		SAND: Fine to medium grained, dark grey/dark brown/black, weakly to moderately cemented	W	VD			AEOLIAN INDURATED
			3.0		SP							1.50: Slow digging
			2.5				1.70m					
				2.0			Hole Terminated at 1.70 m Hole abandoned, collapsing					
			2.0									
				2.5								
			1.5									

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀	50mm Diameter tube sample	VS	Very Soft	<25	D	Dry
	Water Level (Date and time shown)	CBR	Bulk sample for CBR testing	S	Soft	25 - 50	M	Moist
	Water Inflow	E	Environmental sample (Glass jar, sealed and chilled on site)	F	Firm	50 - 100	W	Wet
	Water Outflow	ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)	St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B	Bulk Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
---	Gradational or transitional strata			H	Hard	>400		
---	Definitive or distinct strata change			Fb	Friable			
		Field Tests		Density				
		PID	Photoionisation detector reading (ppm)	V	Very Loose		Density Index <15%	
		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	L	Loose		Density Index 15 - 35%	
		HP	Hand Penetrometer test (UCS kPa)	MD	Medium Dense		Density Index 35 - 65%	
				D	Dense		Density Index 65 - 85%	
				VD	Very Dense		Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E488041 N6522077

TEST PIT NO: **TP7**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket			4.5	0.5		SP	TOPSOIL: SAND, fine to medium grained, grey, some Silt, grass roots	M	MD			TOPSOIL
							SAND: Fine to medium grained, pale orange/orange. black, weakly cemented					AEOLIAN - INDURATED
							SAND: Fine to medium grained, pale grey, trace grey mottling					AEOLIAN
							SAND: Fine to medium grained, dark brown/black, moderately cemented					MODERATELY WATER INFLOW ORGANIC ODOUR
							Hole Terminated at 2.00 m Hole abandoned, wall collapsing					AEOLIAN - INDURATED SLOW DIGGING
			3.0	2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25		D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50		M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100		W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200		W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400		W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400			
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable				
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)				L	Loose	Density Index 15 - 35%	
						MD	Medium Dense	Density Index 35 - 65%	
						D	Dense	Density Index 65 - 85%	
						VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487941 N6522243

TEST PIT NO: **TP8**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.7 m
DATUM: AHD

Drilling and Sampling				Material description and profile information				Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	
450mm toothed Bucket	High water inflow			5.5		SP	0.10m TOPSOIL: SAND, fine to medium grained, grey, some organic fines and roots SAND: Fine to medium grained, pale grey/white			TOPSOIL
				0.5		SP				AEOLIAN
				5.0			Variable profile			
				0.70m		SP				AEOLIAN - INDURATED
				0.90m		SP	SAND: Fine to medium grained, pale grey/brown with orange/dark brown staining, some discontinuous zones of weak cementing	M	MD - D	AEOLIAN DEPOSITS
				1.0			SAND: Fine to medium grained, pale grey, trace grey/dark grey mottling			COLLAPSING
				4.5		SP				
				1.5						
				4.0		SP	1.70m SAND: Fine to medium grained, dark brown/black/dark grey, weakly to moderately cemented	W	D	AEOLIAN - INDUREATED
				2.0			2.00m Hole Terminated at 2.00 m Hole abandoned			
				3.5						
				2.5						
				3.0						

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀	50mm Diameter tube sample	VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR	Bulk sample for CBR testing	S	Soft	25 - 50	M	Moist
Water Inflow		E	Environmental sample (Glass jar, sealed and chilled on site)	F	Firm	50 - 100	W	Wet
Water Outflow		ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)	St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B	Bulk Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata				H	Hard	>400		
Definitive or distinct strata change				Fb	Friable			
		Field Tests		Density				
		PID	Photoionisation detector reading (ppm)	V	Very Loose		Density Index <15%	
		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	L	Loose		Density Index 15 - 35%	
		HP	Hand Penetrometer test (UCS kPa)	MD	Medium Dense		Density Index 35 - 65%	
				D	Dense		Density Index 65 - 85%	
				VD	Very Dense		Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E488122 N6522572

TEST PIT NO: **TP9**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.7 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	Moderate water inflow		5.5			SP	TOPSOIL: Organic SAND, fine to medium, dark grey, grass roots	M - W				TOPSOIL
						SC	SAND: fine to medium grained, yellow, with some Clay, low plasticity, tree roots					AEOLIAN
			0.5				SAND: Fine to medium grained, pale brown with yellow/brown mottling	M				
			5.0									
			1.0			SP						
			4.5									
			1.5				SAND: Fine to medium grained, brown/dark brown, weak to moderately cemented	W				AEOLIAN - INDURATED
			4.0						D			

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E488085 N6522352

TEST PIT NO: **TP10**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 4.5 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket	Moderate water inflow						TOPSOIL: SAND, fine to medium grained, grey, trace Silty, grass roots SAND: Fine to medium, pale grey/white, trace roots					TOPSOIL
						SP						AEOLIAN
			4.0	0.5		SP	SAND: Fine to medium grained, grey/dark grey/brown, variable weak to non-cemented profile, staining present	M				AEOLIAN - VARIABLE INDURATION
			3.5	1.0		SP			MD			WALLS COLLAPSING
			3.0	1.5		SP	SAND: Fine to medium grained, dark brown/black, moderately cemented					AEOLIAN - INDURATED
			2.5	2.0		SP	SAND: Fine to medium grained, brown/pale brown with nodules of weakly cemented indurated Sand, brown/dark brown	W	D			AEOLIAN
							Hole Terminated at 2.00 m Refusal walls collapsing					
				2.0								
				2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E487664 N6522144

TEST PIT NO: **TP11**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m WIDTH: 0.5 m
SURFACE RL: 5.0 m
DATUM: AHD

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket				4.5		SP	TOPSOIL: SAND, fine to medium grained, grey, some organic fines, grass roots	M - W				TOPSOIL
							SAND: Fine to medium grained, pale grey/white	M				AEOLIAN DEPOSITS
								W				
							SAND: Fine to medium grained, dark grey/dark brown/black, moderately cemented	M	VD			AEOLIAN - INDURATED
			3.5	1.5			Hole Terminated at 1.50 m Hole abandoned, collapsing					
			3.0	2.0								
			2.5	2.5								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: King & Campbell
PROJECT NAME: Airport Business Precinct

LOCATION: E488114 N6521964

TEST PIT NO: **TP12**
PAGE: 1 OF 1
JOB NO: RGS20421.1
LOGGED BY: TLM/JM
DATE: 18/9/15

EQUIPMENT TYPE: Volvo Backhoe
TEST PIT LENGTH: 2.5 m
WIDTH: 0.5 m
SURFACE RL: 4.5 m
DATUM: AHD

Drilling and Sampling				Material description and profile information						Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
450mm toothed Bucket			4.0	0.10m		SP	TOPSOIL: SAND, fine to medium grained, grey with grass roots	M	D			TOPSOIL
				0.30m		SP	SAND: Fine to medium grained, pale grey/white					AEOLIAN
				0.60m		SP	SAND: Fine to medium grained, orange/brown/black, stained and variable weak cementing					AEOLIAN - INDURATED
				1.40m		SP	SAND: Fine to medium grained, pale grey with brown/black mottling					AEOLIAN
			3.5	1.0		SP	SAND: Fine to medium grained, dark brown/black weakly to moderately cemented	W	VD			MODERATE WATER INFLOW ORGANIC ODOUR AEOLIAN - INDURATED
			2.5	2.0		SP	SAND: Fine to medium grained, pale brown with grey/brown mottling					AEOLIAN
			2.0	2.30m		SP	Hole Terminated at 2.30 m Hole abandoned, collapsing					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400		
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%	
					MD	Medium Dense	Density Index 35 - 65%	
					D	Dense	Density Index 65 - 85%	
					VD	Very Dense	Density Index 85 - 100%	

MONITORING WELL DETAILS



Client: KING & CAMPBELL
Project: PROPOSED BUSINESS PARK
 PORT MACQUARIE AIRPORT
Location: Refer Figure 1
Logged By: TLM

BOREHOLE NUMBER: BH1
Job Number: RGS20420.1
Date: 22/09/2015

Drill Rig: Track Mounted Geoprobe		Surface RL:	
Hole diameter: 100		Datum:	

Drilling and Sampling								Observations
Method	Water	Well Details	Well Notes	Depth (m)		Refer separate log sheets for material description		
PUSH TUBE			Concrete Bentonite Screen PVC in gravel pack	0.4		SAND		TOPSOIL/FILL
				0.8		SAND		AEOLIAN
				1.0				
				1.5		SAND, weakly to moderately cemented		AEOLIAN - INDURATED
				2.0				
				2.5				
				3.0				
				3.5				
				3.8		SAND		MARINE
						Borehole continued to 5.5m		

LEGEND: Water Water Level (Date and time shown) Water Inflow Water Outflow Strata Changes Gradational or transitional change Definitive or distinct strata change		Notes, Samples and Tests U ₅₀ 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample (Glass jar, sealed and chilled on site) ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) B Bulk Sample PID Photoionisation detector reading DCP (x-y) Dynamic penetrometer test (test depth interval shown) VS Vane Shear test	<table border="1"> <tr> <th>Consistency</th> <th>UCS(kPa)</th> <th>Moisture Condition</th> </tr> <tr> <td>VS Very Soft</td> <td><25</td> <td>D Dry</td> </tr> <tr> <td>S Soft</td> <td>25 - 50</td> <td>M Moist</td> </tr> <tr> <td>F Firm</td> <td>50 - 100</td> <td>W Wet</td> </tr> <tr> <td>St Stiff</td> <td>100 - 200</td> <td>W_p Plastic Limit</td> </tr> <tr> <td>VSt Very Stiff</td> <td>200 - 400</td> <td>W_L Liquid Limit</td> </tr> <tr> <td>H Hard</td> <td>>400</td> <td></td> </tr> <tr> <td>Fb Friable</td> <td></td> <td></td> </tr> </table> <table border="1"> <tr> <th>Density</th> <th></th> <th></th> </tr> <tr> <td>VL Very Loose</td> <td>Density Index <15%</td> <td></td> </tr> <tr> <td>L Loose</td> <td>Density Index 15 - 35%</td> <td></td> </tr> <tr> <td>MD Medium Dense</td> <td>Density Index 35 - 65%</td> <td></td> </tr> <tr> <td>D Dense</td> <td>Density Index 65 - 85%</td> <td></td> </tr> <tr> <td>VD Very Dense</td> <td>Density Index 85 - 100%</td> <td></td> </tr> </table>	Consistency	UCS(kPa)	Moisture Condition	VS Very Soft	<25	D Dry	S Soft	25 - 50	M Moist	F Firm	50 - 100	W Wet	St Stiff	100 - 200	W _p Plastic Limit	VSt Very Stiff	200 - 400	W _L Liquid Limit	H Hard	>400		Fb Friable			Density			VL Very Loose	Density Index <15%		L Loose	Density Index 15 - 35%		MD Medium Dense	Density Index 35 - 65%		D Dense	Density Index 65 - 85%		VD Very Dense	Density Index 85 - 100%	
Consistency	UCS(kPa)	Moisture Condition																																											
VS Very Soft	<25	D Dry																																											
S Soft	25 - 50	M Moist																																											
F Firm	50 - 100	W Wet																																											
St Stiff	100 - 200	W _p Plastic Limit																																											
VSt Very Stiff	200 - 400	W _L Liquid Limit																																											
H Hard	>400																																												
Fb Friable																																													
Density																																													
VL Very Loose	Density Index <15%																																												
L Loose	Density Index 15 - 35%																																												
MD Medium Dense	Density Index 35 - 65%																																												
D Dense	Density Index 65 - 85%																																												
VD Very Dense	Density Index 85 - 100%																																												

REGIONAL
GEOTECHNICAL SOLUTIONS

BOREHOLE
NUMBER: **BH2**

Job Number: RGS20420.1

Date: **22/09/2015**

Drill Rig:		Track Mounted Geoprobe										Surface RL:							
Hole diameter:		100										Datum:							
Slope:																			
Drilling and Sampling																Observations			
Method	Water	Well Details	Well Notes	Depth (m)			Refer separate log sheets for material description												
PUSH TUBE ➡							Silty SAND						TOPSOIL/ PEAT						
							SAND						AEOLIAN						
					0.6														
					1.0														
					1.5		SAND, weakly to moderately cemented						AEOLIAN - INDURATED						
					2.0														
					2.5														
					3														
					3.2														
					3.5		SAND						MARINE						
				3.8															
				4															
				3.2															
				4.5															
				4.7															
				5			Borehole continued to 5.45m												
LEGEND:				Notes, Samples and Tests								Consistency				UCS(kPa)		Moisture Condition	
Water												VS				<25		D Dry	
▼ Water Level (Date and time shown)				U ₅₀ 50mm Diameter tube sample								S				25 - 50		M Moist	
➡ Water Inflow				CBR Bulk sample for CBR testing								F				50 - 100		W Wet	
⬅ Water Outflow				E Environmental sample (Glass jar, sealed and chilled on site)								St				100 - 200		W _p Plastic Limit	
				ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)								VSt				200 - 400		W _L Liquid Limit	
Strata Changes												H				>400			
-- Gradational or transitional change												Fb				Friable			
— Definitive or distinct strata change												Density				VL Very Loose		Density Index <15%	
				B Bulk Sample								L				Loose		Density Index 15 - 35%	
				PID Photoionisation detector reading								MD				Medium Dense		Density Index 35 - 65%	
				DCP (x-y) Dynamic penetrometer test (test depth interval shown)								D				Dense		Density Index 65 - 85%	
				VS Vane Shear test								VD				Very Dense		Density Index 85 - 100%	

REGIONAL
GEOTECHNICAL SOLUTIONS

BOREHOLE
NUMBER: BH3

Job Number: RGS20420.1

Date: 22/09/2015

Drill Rig:				Track Mounted Sonarprobe				Surface RL:													
Hole diameter:				100				Slope:													
								Datum:													
Drilling and Sampling												Observations									
Method	Water	Well Details	Well Notes	Depth (m)		Refer separate log sheets for material description															
PUSH TUBE						Concrete	0.4			Silty SAND					TOPSOIL/ PEAT						
									SAND					AEOLIAN							
									SAND, weakly to moderately cemented					AEOLIAN - INDURATED							
										</											

MONITORING WELL DETAILS



Client: KING & CAMPBELL
Project: PROPOSED BUSINESS PARK
 PORT MACQUARIE AIRPORT
Location: Refer Figure 1
Logged By: TLM

BOREHOLE NUMBER: BH4
Job Number: RGS20420.1
Date: 22/09/2015

Drill Rig: Track Mounted Geoprobe		Surface RL:	
Hole diameter: 100		Datum:	

Drilling and Sampling								Observations
Method	Water	Well Details	Well Notes	Depth (m)		Refer separate log sheets for material description		
PUSH TUBE →		Concrete		0.4		Silty SAND		TOPSOIL/ PEAT
		Blank PVC				SAND		AEOLIAN
		Gravel Pack		1.0		SAND, weakly cemented		AEOLIAN - INDURATED
		Screen PVC in gravel pack		1.1				
				1.5				
				2.0				
				2.5				
				3.0				
				3.5				
				3.8		SAND Borehole continued to 5.5m		MARINE

LEGEND: Water Water Level (Date and time shown) Water Inflow Water Outflow Strata Changes Gradational or transitional change Definitive or distinct strata change		Notes, Samples and Tests U ₅₀ 50mm Diameter tube sample CBR Bulk sample for CBR testing E Environmental sample (Glass jar, sealed and chilled on site) ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled) B Bulk Sample PID Photoionisation detector reading DCP (x-y) Dynamic penetrometer test (test depth interval shown) VS Vane Shear test	<table border="1"> <tr> <th>Consistency</th> <th>UCS(kPa)</th> <th>Moisture Condition</th> </tr> <tr> <td>VS Very Soft</td> <td><25</td> <td>D Dry</td> </tr> <tr> <td>S Soft</td> <td>25 - 50</td> <td>M Moist</td> </tr> <tr> <td>F Firm</td> <td>50 - 100</td> <td>W Wet</td> </tr> <tr> <td>St Stiff</td> <td>100 - 200</td> <td>W_p Plastic Limit</td> </tr> <tr> <td>VSt Very Stiff</td> <td>200 - 400</td> <td>W_L Liquid Limit</td> </tr> <tr> <td>H Hard</td> <td>>400</td> <td></td> </tr> <tr> <td>Fb Friable</td> <td></td> <td></td> </tr> </table> <table border="1"> <tr> <th>Density</th> <th></th> <th></th> </tr> <tr> <td>VL Very Loose</td> <td>Density Index <15%</td> <td></td> </tr> <tr> <td>L Loose</td> <td>Density Index 15 - 35%</td> <td></td> </tr> <tr> <td>MD Medium Dense</td> <td>Density Index 35 - 65%</td> <td></td> </tr> <tr> <td>D Dense</td> <td>Density Index 65 - 85%</td> <td></td> </tr> <tr> <td>VD Very Dense</td> <td>Density Index 85 - 100%</td> <td></td> </tr> </table>	Consistency	UCS(kPa)	Moisture Condition	VS Very Soft	<25	D Dry	S Soft	25 - 50	M Moist	F Firm	50 - 100	W Wet	St Stiff	100 - 200	W _p Plastic Limit	VSt Very Stiff	200 - 400	W _L Liquid Limit	H Hard	>400		Fb Friable			Density			VL Very Loose	Density Index <15%		L Loose	Density Index 15 - 35%		MD Medium Dense	Density Index 35 - 65%		D Dense	Density Index 65 - 85%		VD Very Dense	Density Index 85 - 100%	
Consistency	UCS(kPa)	Moisture Condition																																											
VS Very Soft	<25	D Dry																																											
S Soft	25 - 50	M Moist																																											
F Firm	50 - 100	W Wet																																											
St Stiff	100 - 200	W _p Plastic Limit																																											
VSt Very Stiff	200 - 400	W _L Liquid Limit																																											
H Hard	>400																																												
Fb Friable																																													
Density																																													
VL Very Loose	Density Index <15%																																												
L Loose	Density Index 15 - 35%																																												
MD Medium Dense	Density Index 35 - 65%																																												
D Dense	Density Index 65 - 85%																																												
VD Very Dense	Density Index 85 - 100%																																												



Appendix B

Laboratory Test Results

RESULTS OF ACID SULFATE SOIL ANALYSIS

5 samples supplied by Regional Geotechnical Solutions Pty Ltd on 2nd October, 2015 - Lab. Job No. E4924

Analysis requested by Tim Morris. **Your Project: RGS20421.1**

(44 Bent Street WINGHAM NSW 2429)

Sample Site	EAL lab code	TEXTURE (note 7)	MOISTURE CONTENT		FIELD/ LAB PEROXIDE SCREENING TECHNIQUE				TITRATABLE ACTUAL ACIDITY (TAA) (To pH 6.5)		REDUCED INORGANIC SULFUR (% chromium reducible S)		NET ACIDITY Chromium Suite mole H ⁺ /tonne	LIME CALCULATION Chromium Suite kg CaCO ₃ /tonne DW
			(% moisture of total wet weight)	(g moisture / g of oven dry soil)	Initial pH _F	pH _{Fox}	pH change	Reaction	pH _{KCl}	(mole H ⁺ /tonne)	(%Scr)	(mole H ⁺ /tonne)	(based on %Scr)	(includes 1.5 safety Factor when liming rate is +ve)
					water	peroxide								
Method Info.									(ACTUAL ACIDITY-Method 23)		(POTENTIAL ACIDITY-Method 22B)		note 5	note 4 and 6
BH1 3.5-4.0	E4924/1	Coarse	17.5	0.21	4.59	3.08	-1.51	Medium	4.74	43	0.023	14	57	4.3
BH1 4.0-4.5	E4924/2	Coarse	18.2	0.22	5.27	4.67	-0.60	Low	..	..	..	..	..	..
BH1 4.5-5.0	E4924/3	Coarse	18.2	0.22	5.51	4.96	-0.55	Low	..	..	..	..	..	..
BH2 4.0-5.0	E4924/4	Coarse	19.2	0.24	4.28	2.17	-2.11	Very High	4.77	38	0.131	82	120	9.0
BH2 5.2-5.4	E4924/5	Coarse	20.5	0.26	4.00	2.01	-1.99	Very High	..	..	..	..	..	..

NOTE:

- 1 - All analysis is Dry Weight (DW) - samples dried and ground immediately upon arrival (unless supplied dried and ground)
- 2 - Samples analysed by SPOCAS method 23 (ie Suspension Peroxide Oxidation Combined Acidity & sulfate) and 'Chromium Reducible Sulfur' technique (Scr - Method 22B)
- 3 - Methods from Ahern, CR, McElnea AE, Sullivan LA (2004). **Acid Sulfate Soils Laboratory Methods Guidelines**. QLD DNRME.
- 4 - Bulk Density is required for liming rate calculations per soil volume. Lab. Bulk Density is no longer applicable - field bulk density rings can be used and dried/ weighed in the laboratory.
- 5 - **ABA Equation: Net Acidity = Potential Sulfidic Acidity (ie. Scr_s or Sox) + Actual Acidity + Retained Acidity - measured ANC/FF (with FF currently defaulted to 1.5)**
- 6 - The neutralising requirement, lime calculation, includes a 1.5 safety margin for acid neutralisation (an increased safety factor may be required in some cases)
- 7 - For Texture: coarse = sands to loamy sands; medium = sandy loams to light clays; fine = medium to heavy clays and silty clays
- 8 - .. denotes not requested or required. '0' is used for ANC and Snag calcs if TAA pH <6.5 or >4.5
- 9 - SCREENING, CRS, TAA and ANC are NATA accredited but other SPOCAS segments are currently not NATA accredited
- 10- Results at or below detection limits are replaced with '0' for calculation purposes.
- 11 - **Projects that disturb >1000 tonnes of soil, the ≥0.03% S classification guideline would apply (refer to acid sulfate management guidelines).**
- 12 - Results refer to samples as received at the laboratory. This report is not to be reproduced except in full.

(Classification of potential acid sulfate material if: coarse Scr≥0.03%S or 19mole H⁺/t; medium Scr≥0.06%S or 37mole H⁺/t; fine Scr≥0.1%S or 62mole H⁺/t) - as per QUASSIT Guidelines



checked:
Graham Lancaster
Laboratory Manager

RESULTS OF SOIL ANALYSIS (Page 1 of 1)

5 samples supplied by Regional Geotechnical Solutions Pty Ltd on 2nd October, 2015 - Lab Job No. E4924

Analysis requested by Tim Morris. - **Your Project: RGS20421.1**

(44 Bent Street WINGHAM NSW 2429)

		Sample 1 BH1 3.5-4.0	Sample 4 BH2 4.0-5.0
	Method		
	<i>EAL job No.</i>	<i>E4924/1</i>	<i>E4924/4</i>
Moisture (%)	<i>inhouse</i>	18	19
Texture	<i>See note 2 below.</i>	Coarse	Coarse
Soil pH (1:5 water)	Rayment and Lyons 4A1	4.93	4.32
Soil Conductivity (1:5 water dS/m)	Rayment and Lyons 4B1	0.073	0.153
Soil Resistivity (ohm.mm)	** Calculation	136,986	65,359
Chloride (mg/kg)	** Water Extract- Rayment and Lyons 5A2b	34	35
Chloride (as %)	** Calculation	0.003	0.004
Sulfate (mg/kg)	** Water Extract-Apha 3120 ICPOES	606	883
Sulfate (as % SO₃)	** Calculation	0.049	0.071
Chloride / Sulfate Ratio	** calculation	0.1	0.0

Notes:

1. ppm = mg/Kg dried soil
2. For Texture: coarse = sands to loamy sands; medium = sandy loams to light clays; fine = medium to heavy clays and silty clays
3. All results as dry weight DW - soils were dried at 60oC for 48hrs prior to crushing and analysis.
4. For conductivity 1 dS/m = 1 mS/cm = 1000 μ S/cm
5. Methods from Rayment and Lyons. Soil Chemical Methods - Australasia
6. Based on Australian Standard AS: 159-1995
- 7 - Methods from Ahern, CR, McElnea AE , Sullivan LA (2004). *Acid Sulfate Soils Laboratory Methods Guidelines*. QLD DNRME.
8. ** denotes these test procedure or calculation are as yet not NATA accredited but quality control data is available



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

checked:
Graham Lancaster
Laboratory Manager

RESULTS OF WATER ANALYSIS (Page 1 of 1)

6 samples supplied by Regional Geotechnical Solutions Pty Ltd on the 2nd October, 2015 - Lab. Job No. E4925

Analysis requested by Tim Morris - **Your Project: RGS20421.1**

(44 Bent Street WINGHAM NSW 2429)

PARAMETER	METHODS REFERENCE	Sample 1 BH1	Sample 2 BH2	Sample 3 BH3	Sample 4 BH4	Sample 5 WS-NB1	Sample 6 WS-SB1
	<i>Job No.</i>	<i>E4925/1</i>	<i>E4925/2</i>	<i>E4925/3</i>	<i>E4925/4</i>	<i>E4925/5</i>	<i>E4925/6</i>
pH	APHA 4500-H ⁺ -B	4.49	4.98	5.04	5.35	5.30	4.96
CONDUCTIVITY (EC) (dS/m)	APHA 2510-B	0.147	0.136	0.094	0.154	0.197	0.123
TOTAL DISSOLVED SALTS (mg/L)	calculation using EC x 680	100	92	64	105	134	84
TOTAL SUSPENDED SOLIDS (mg/L)	GFC equiv. filter - APHA 2540-D	357	36	978	11,015	6	17
TOTAL PHOSPHORUS (mg/L P)	APHA 4500 P-H	0.02	0.01	0.06	0.13	0.01	0.01
ORTHOPHOSPHATE (mg/L P)	APHA 4500 P-G	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TOTAL NITROGEN (mg/L N)	APHA 4500 N-C	0.29	0.59	0.92	2.56	0.30	0.35
TOTAL KJELDAHL NITROGEN (mg/L N)	CALCULATION: TN - NO _x	0.17	0.58	0.92	2.55	0.30	0.35
NITRATE (mg/L N)	APHA 4500 NO ₃ ⁻ -F	0.113	<0.005	<0.005	<0.005	<0.005	<0.005
NITRITE (mg/L N)	APHA 4500 NO ₃ ⁻ -I	0.007	0.006	<0.001	<0.001	0.001	0.003
AMMONIA (mg/L N)	APHA 4500 NH ₃ -H	0.014	0.315	0.112	0.049	0.040	0.012

Notes:

- 1 mg/L (milligram per litre) = 1 ppm (part per million) = 1000 µg/L (micrograms per litre) = 1000 ppb (part per billion)
2. For conductivity - 1 dS/m = 1 mS/cm = 1000 µS/cm
3. Analysis performed according to APHA, 2012, "Standard Methods for the Examination of Water & Wastewater", 22nd Edition, except where stated otherwise.
4. Analysis conducted between sample arrival date and Report provision date



checked:
Graham Lancaster
Laboratory Manager

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



Appendix C

Infiltration Testing Results

FALLING HEAD INFILTRATION TEST - CASED HOLE

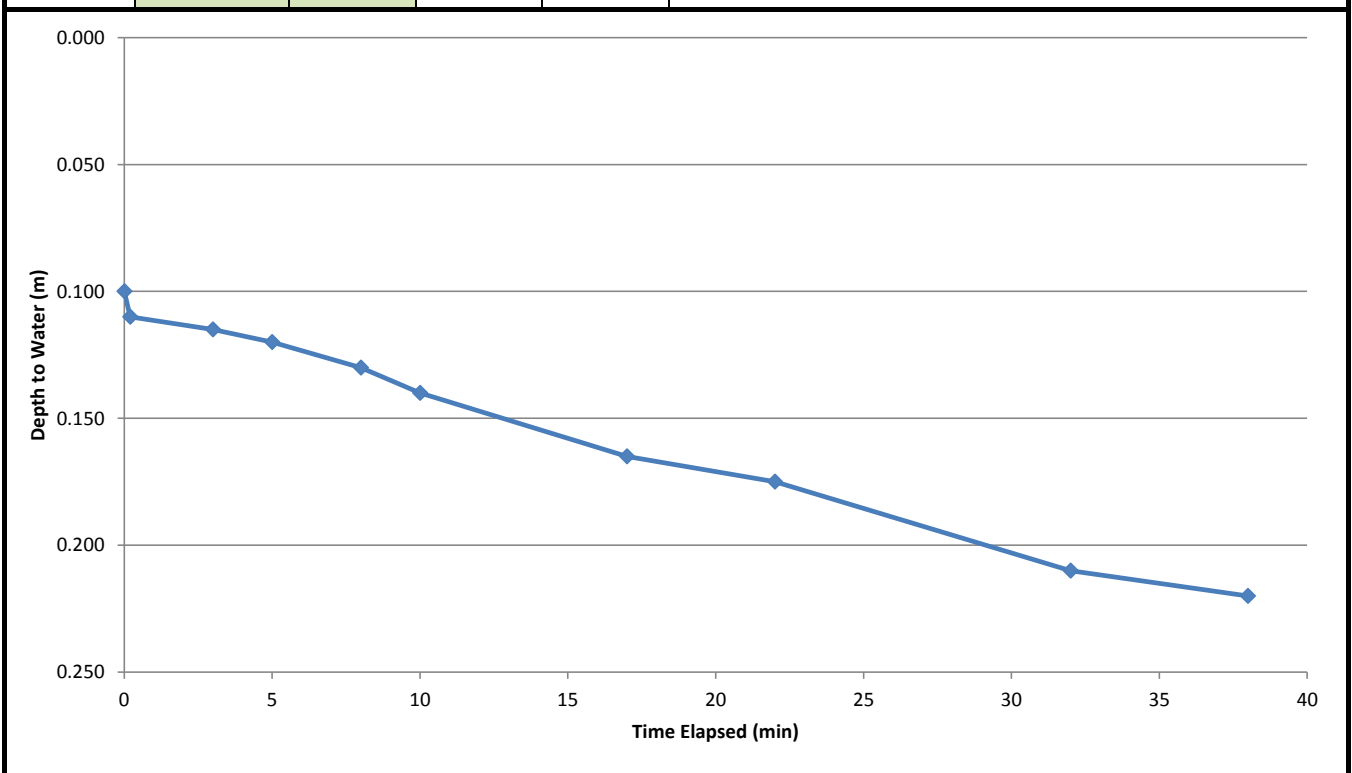
CLIENT: KING & CAMPBELL
PROJECT: PROPOSED BUSINESS PARK
LOCATION: PORT MACQUARIE AIRPORT

Job No.: RGS20421.1
Date: 22-Sep-15
By: TM



Test number:	BH2	Test Location:	Refer to Figure 1
Hole radius (m):	0.1	Surface RL:	5
Hole depth(m):	0.30	Casing stickup(m):	0.00
Depth to water table (m):	0.4	Water table RL(m)	4.7

Reading	Time elapsed (min)	Depth to water (m)	Height of water (m)	Calculations
1	0	0.100	0.20	
2	0.2	0.110	0.19	<u>Constant loss time period:</u> Reading 1: 2 Time 1: 0.2 Height 1: 0.190 Reading 2: 9 Time 2: 32 Height 2: 0.090
3	3	0.115	0.19	
4	5	0.120	0.18	Total time (min): 31.80
5	8	0.130	0.17	Total head loss (m): -0.100
6	10	0.140	0.16	In situ Permeability: $K = \frac{(Height\ 2 - Height\ 1)}{(Time\ 2 - Time1)}$ K= 5.24E-05 m/sec (x 10m/sec)
7	17	0.165	0.14	
8	22	0.175	0.13	
9	32	0.210	0.09	
10	38	0.220	0.08	
11	6			
12	7			
13	8			
14	9			
15	10			



King & Campbell

Port Macquarie Airport Business Park

Groundwater Assessment – Factual Report

Report No. RGS20421.1-AF

16 November 2017

REGIONAL
GEOTECHNICAL SOLUTIONS





Manning-Great Lakes

Port Macquarie

Coffs Harbour

RGS20421.1-AF

16 November 2017

King & Campbell Pty Ltd
PO Box 243
PORT MACQUARIE NSW 2444

Attention: Tony Thorne

Dear Tony,

RE: Port Macquarie Airport Business Park

Groundwater Assessment – Factual Report

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a groundwater assessment for the proposed Port Macquarie Airport Business Park.

Groundwater conditions at the site for the period July – December 2016, are presented in the attached report.

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

A handwritten signature in black ink, appearing to read 'Tim Morris', is written over a light blue horizontal line.

Tim Morris

Senior Engineering Geologist



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Graph 3	BH4: 13/5/2016 to 27/7/2016
Graph 4	BH1: 27/7/2016 to 25/12/2016
Graph 5	BH2: 27/7/2016 to 25/12/2016
Graph 6	BH4: 27/7/2016 to 25/12/2016
Graph 7	BOM: 2016 Accumulative Rainfall Data
Graph 8	BOM: 2016 Monthly Rainfall Data



1 INTRODUCTION

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a groundwater assessment for the proposed Port Macquarie Airport Business Park.

RGS has previously undertaken a geotechnical assessment at the site, refer Report RGS20421.1-AD, which should be read in conjunction with this assessment.

The purpose of the work described herein was to provide a summary of groundwater conditions that were present at the three monitoring sites during the monitoring period and the groundwater level responses to rainfall. This information will then assist with the development of a Stormwater Management Plan for the proposed development.

The work was commissioned by Tony Thorne of King & Campbell Pty Ltd.

2 FIELD WORK

Groundwater wells were initially installed on 22 September 2015 by a track mounted drilling rig using geo-probe push tube techniques, logged and sampled by an Engineering Geologist.

Groundwater monitoring wells were installed four boreholes. The wells were constructed with slotted 50mm diameter PVC screen in the identified groundwater body and extended to the surface with 50mm PVC casing. The boreholes were backfilled with graded sand to the top of the screen and sealed with bentonite pellets and concrete. The wells were finished off with a protective steel monument approximately 0.7m high and secured with a padlock.

Engineering logs of the boreholes are presented in Appendix A. The locations of the boreholes are shown on Figure 1. They were obtained on site by measurement relative to existing site features. Coordinates for each investigation location were recorded by hand held GPS and are shown on the logs. Reduced levels at the investigation locations were estimated from the supplied drawing and are shown on the logs.

Groundwater level data loggers were subsequently installed in three of the monitoring wells on the 13 May 2016. Data from the loggers was downloaded on 27 July 2016 and 12 May 2017. The well loggers have a memory capacity of approximately 150 days and the second period of data recording ceased on 25 December 2016.

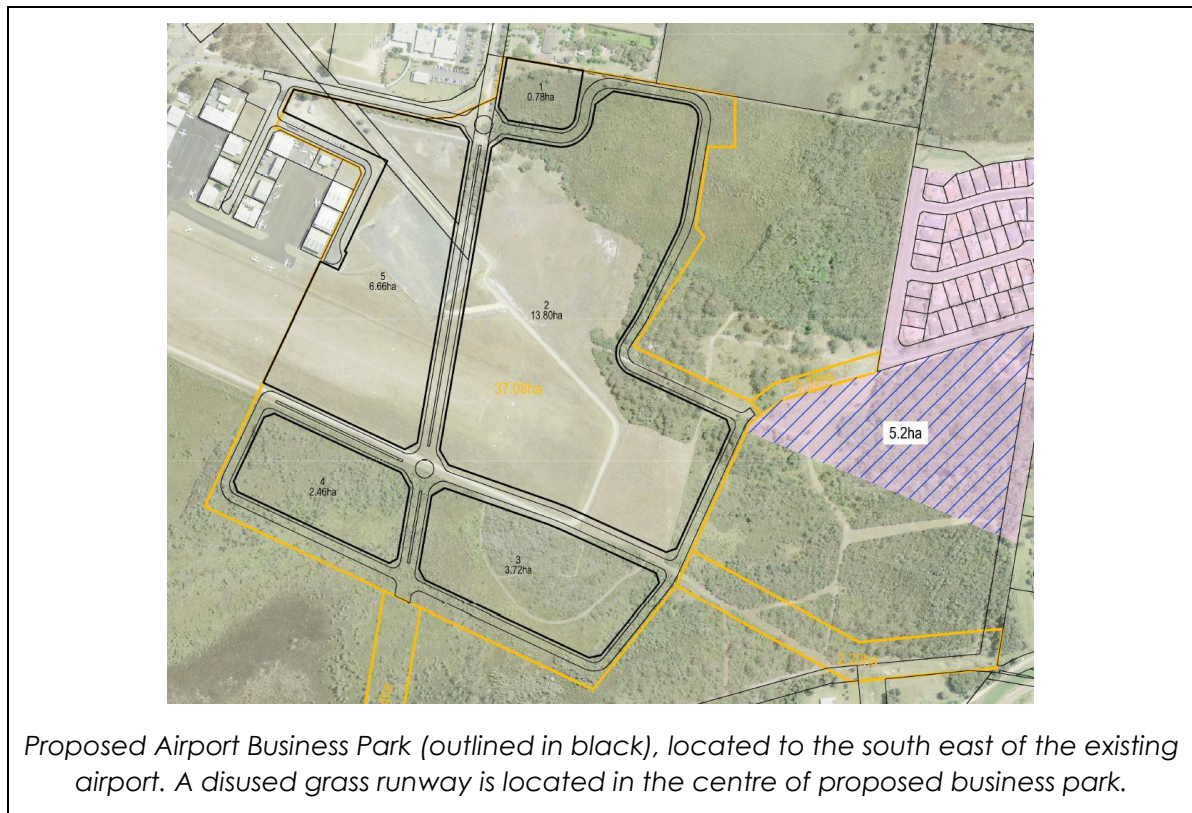
3 SITE CONDITIONS

3.1 Surface conditions

The site is located in an area of gently undulating topography and is centred on a broad east west orientated sand dune that has surface elevations in the order 5.5mAHD. The surface of the sand dune has been modified by earthworks to form an east – west orientated grassed runway. The sand dune slopes gently down to the north and south away from the runway with surface angles of less than 1° towards aeolian sand plains that are poorly drained.



An image of the site is reproduced below.



Vegetation comprised low grass maintained by slashing in the centre of the site near the former grass runway with areas of thick heath vegetation to the north and south that graded into swamp vegetation near the site boundaries. Peat soils were exposed in the access tracks in the low lying areas. A large gravel hardstand area is present in the centre of the site, adjacent to the existing runway.

Drainage of the site is via a combination of overland flow and surface infiltration. Surface water was observed pooling in the low lying areas in the north and south of the site and in some sections of the various access trails as shown in Figure 1.

A selection of images of the site is presented below.



18/9/2015 - Grassed runway area in centre of site



18/9/2015 - Grass access track on south side of grass runway. Water pooling in wheel tracks.



18/9/2015 - Surface water in poorly drained area on northern site boundary. Peat soils exposed by service trenching works.



18/9/2015 - Swamp vegetation and surface water pooling in poorly drained swamp near southern site boundary at BH4.

3.2 Subsurface conditions

Reference to the 1:25,000 Port Macquarie Coastal Quaternary Geology Sheet indicates the site is centred on a Pleistocene aeolian sand dune that grades down onto Pleistocene back-barrier sand plains to the north and south.

Reference to the Port Macquarie 1:25,000 Acid Sulfate Soil (ASS) Risk Map indicates the site is an aeolian sand plain with no known occurrence of ASS. However, RGS has previously encountered Potential ASS underlying Pleistocene sand deposits in the local area.

Refer Report RGS20421.1-AD for details of subsurface profiles encountered in previous investigations.



4 DISCUSSION

4.1 Subsurface Profile

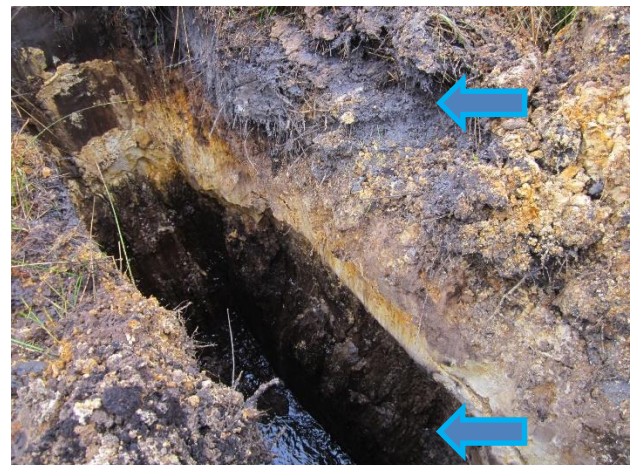
The soil profiles encountered in the original investigation typically comprised aeolian sands with up to two distinct zones of weakly to moderately cemented, dense to very dense, indurated sand, referred to locally as coffee rock, to depths of up to 3.7m. Indurated sand horizon can act as aquitards, preventing draining of groundwater, resulting in the formation of perched water tables.

Based on previous experience in the area, indurated sand profiles are typically variable in their degree of cementing and their horizontal and vertical extents. Marine sands were encountered in the deeper boreholes below the indurated sand horizons from 3.7m. Residual clay soils were encountered in one location, BH2 at 5.45m.

Examples of excavated profiles are presented below.



TP2 – Typical profile with aeolian sands, overlying a thin upper indurated sand horizon, overlying more aeolian sands. The test pit is collapsing due to water inflow occurring above a lower indurated sand layer (not visible).



TP6 – Located near southern boundary. Water inflow from perched water table in peat horizon above shallow indurated sand horizon. Water inflow also occurring above lower indurated sand horizon.

4.2 Groundwater Conditions

Groundwater depths encountered in the original investigation were variable and included shallow perched water tables above the peat and indurated sand horizons. Groundwater inflow from up to three distinct water tables / aquifers were observed in the test pit profiles and were separated by the indurated sand horizons which act as aquitards.

Surface water bodies were observed pooling near the northern and southern boundaries of the site on 22 September 2015 as shown in Figure 1 and are considered to represent a shallow, perched groundwater table that daylights as the surface elevation grades down and overlies a thin upper indurated sand profile. The perched water tables are anticipated to vary rapidly in height in



response to rainfall. Groundwater levels encountered during the drilling investigation (22/9/15) were observed to be approximately 300mm higher than when the test pitting was undertaken (18/9/15) following approximately 43mm of rainfall between 18 to 20 September.

Groundwater monitoring wells were installed at four locations to allow monitoring of groundwater levels in response to rainfall. A brief summary of groundwater levels observed at installation and final removal of the well loggers is presented in Table 1.

Table 1: Groundwater Monitoring Well Summary

Borehole	Surface Level* (RL m)	Groundwater Inflow at Installation 22/9/2015 (m)	Reduced Level of Water Table (RL m)	Groundwater Depth at 12/5/2017 (m)	Reduced Level of Water Table (RL m)
BH1	4.3	0.8	3.5	0.71	3.59
BH2	5.0	0.4	4.6	1.11	3.89
BH3	4.0	0.4	3.6	0.15	3.85
BH4	4.1	0.3	3.8	0.29	3.81

*Estimated Surface RL based on contours shown on supplied plan

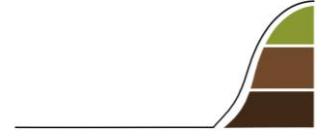
**BH2 cased off to 3.2m and installed in lower groundwater horizon below indurated sand

HOB0 groundwater well loggers were installed in monitoring wells at BH1, BH2 and BH4 in May 2016 and groundwater level data then collected from each of the wells continuously to 25 December 2016. Results are presented in Graphs 1 – 6.

In summary, the results indicate the shallow perched groundwater tables at BH1 and BH4 show a rapid response to rainfall events such as the one that occurred from 4 – 6 June 2016 comprising a total of 120.8mm over the three days. Groundwater levels in the low lying landscape at BH4 were subsequently recorded above the ground surface level for approximately one week, equivalent to approximately RL4m. The groundwater levels in BH2 which was installed in a lower groundwater body, below the overlying indurated sand horizon typically showed a more subdued response to rainfall events.

Rainfall data from Port Macquarie Airport Automated Weather Station (AWS) for 2016 is presented in Graph 7 and Graph 8. It shows generally low rainfall conditions occurred in spring and summer 2016, following rainfall events in winter on 4-6 June 2016 and 3 – 5 August 2016. Rainfall for 2016 was 1068mm which is below the 1317mm average rainfall for the Port Macquarie AWS.

Future works that require excavation of service trenches, or similar, through indurated sand horizons are likely to result in changes to the local hydrology, including the potential drainage of shallow perched groundwater tables. In addition, future earthworks such as placement of fill will be restricted following rainfall events that may result in a raised groundwater table and prevents placement and compaction of fill by heavy plant.



5 LIMITATIONS

The findings presented in the report and used as the basis for recommendations presented herein were obtained using normal, industry accepted geotechnical 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 significantly from those discussed in this report, 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

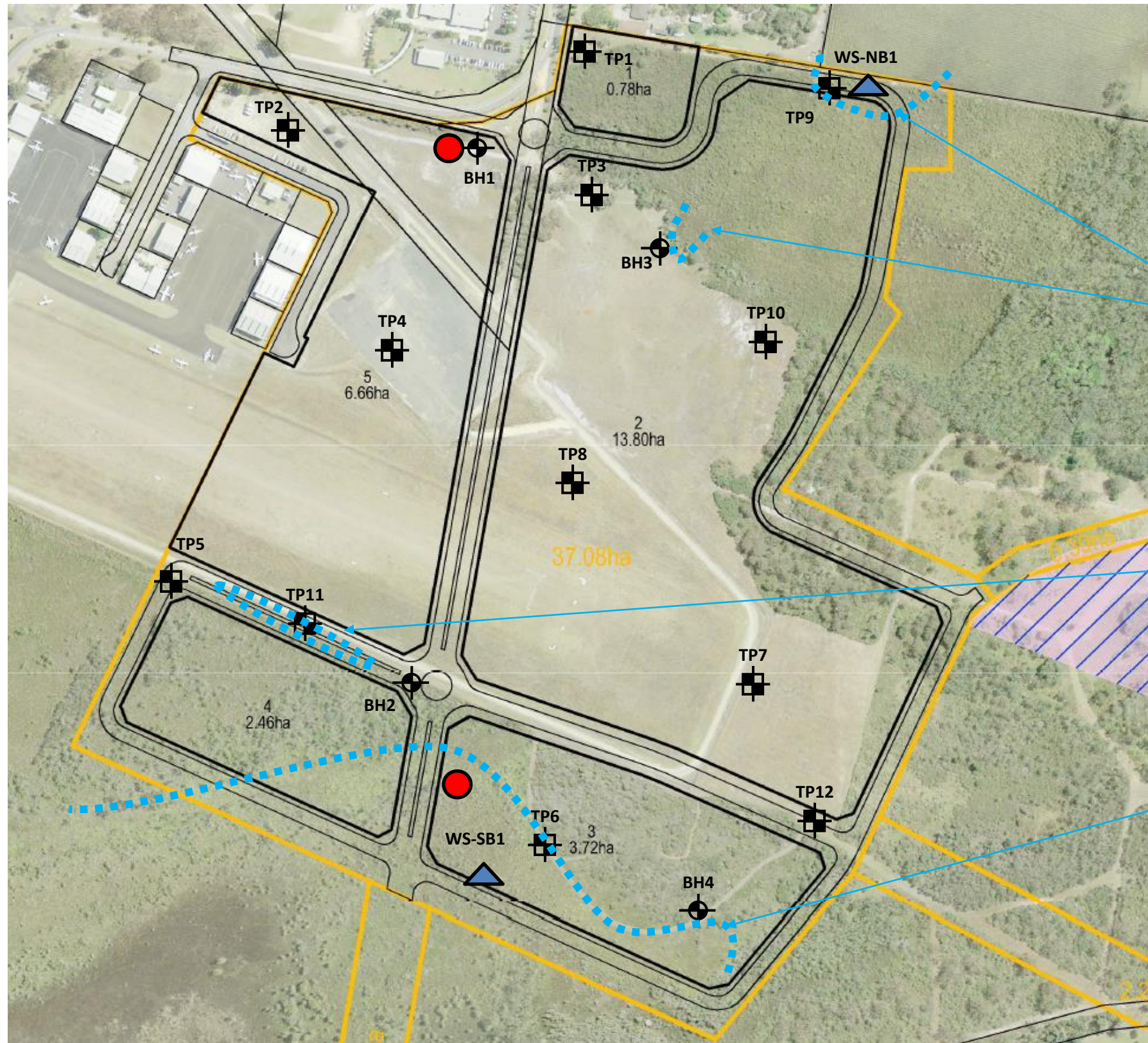
Regional Geotechnical Solutions Pty Ltd

Tim Morris

Senior Engineering Geologist



Figure



Surface water at time of fieldwork in September 2015

Surface water pooling in peat soils in wheel tracks at time of fieldwork in Sept 2015

Groundwater monitoring indicates inundation occurs following significant rainfall events at approximate RL4m contour, correlating with vegetation change

Legend	
	Borehole Location
	Test Pit Location
	Water Sample
	Proposed Pump Station

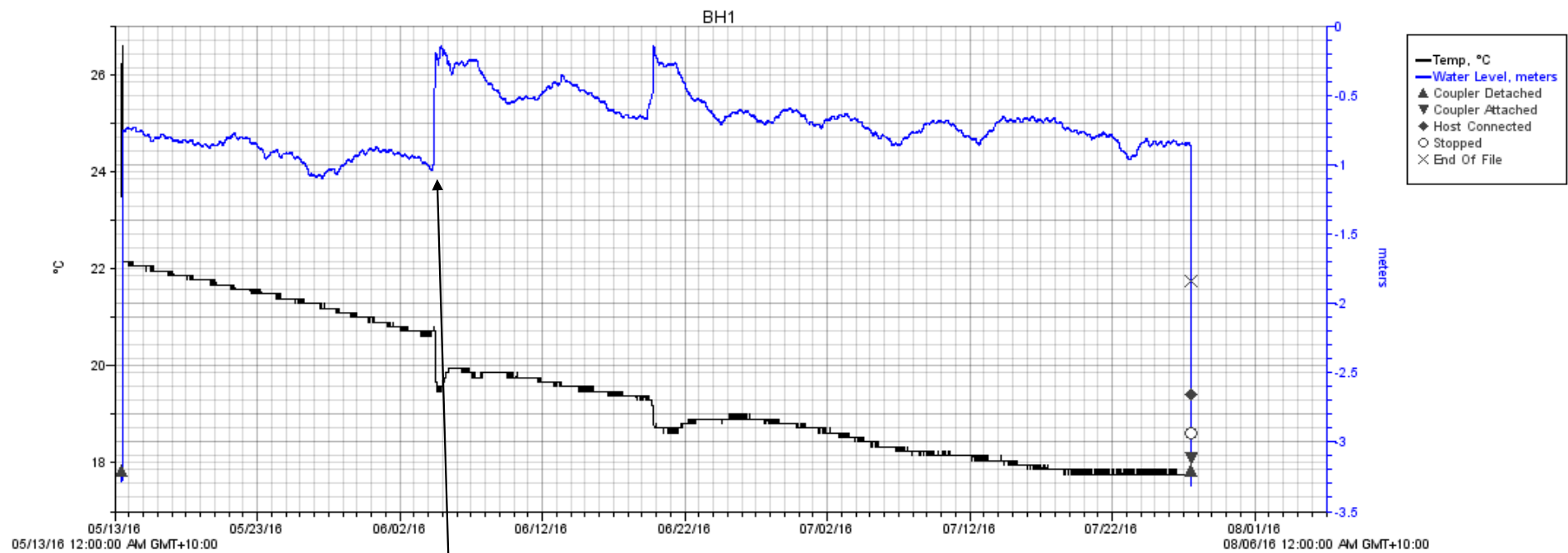
Based on supplied drawing titled "Port Macquarie Airport Employment Precinct"



Client	KING & CAMPBELL	Job No.	RGS20421.1
Project:	PROPOSED BUSINESS PRECINCT PORT MACQUARIE AIRPORT	Drawn By:	TLM
Title:	INVESTIGATION LOCATION PLAN	Date:	12-Oct-15
		Drawing No.	Figure 1



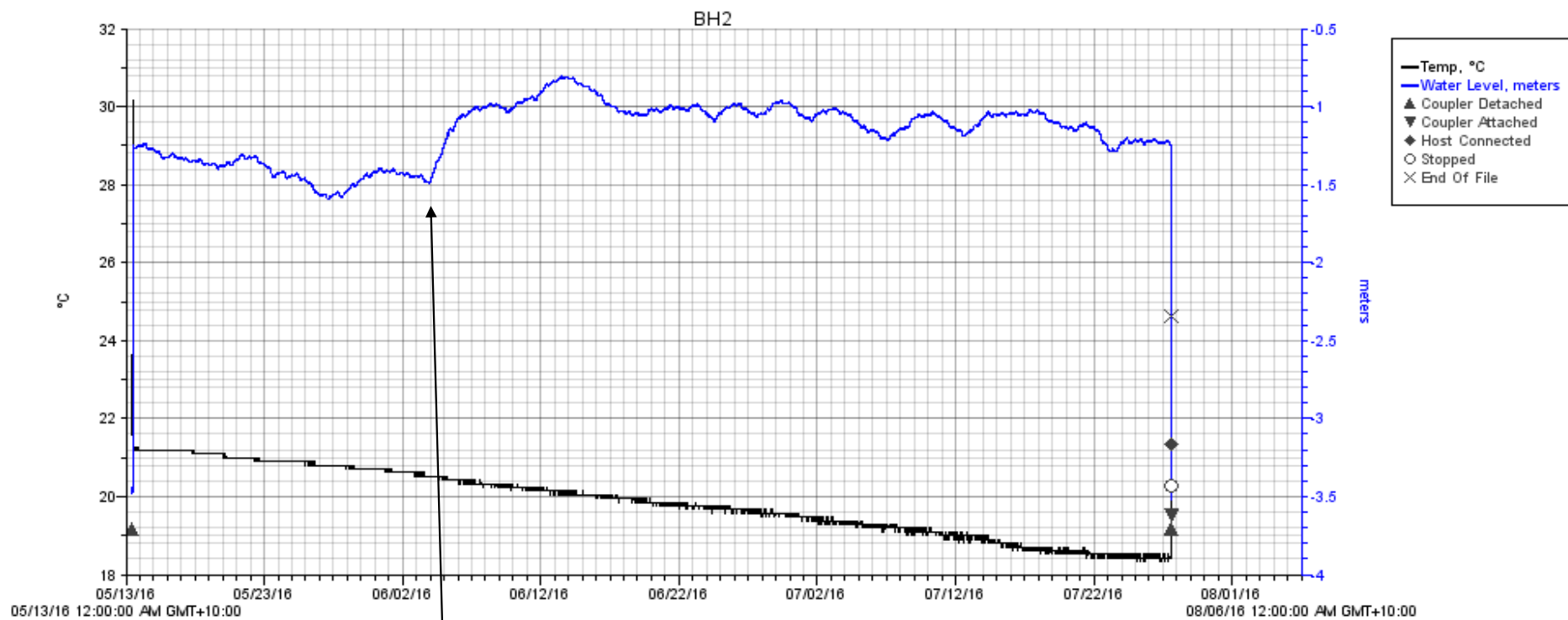
Graphs



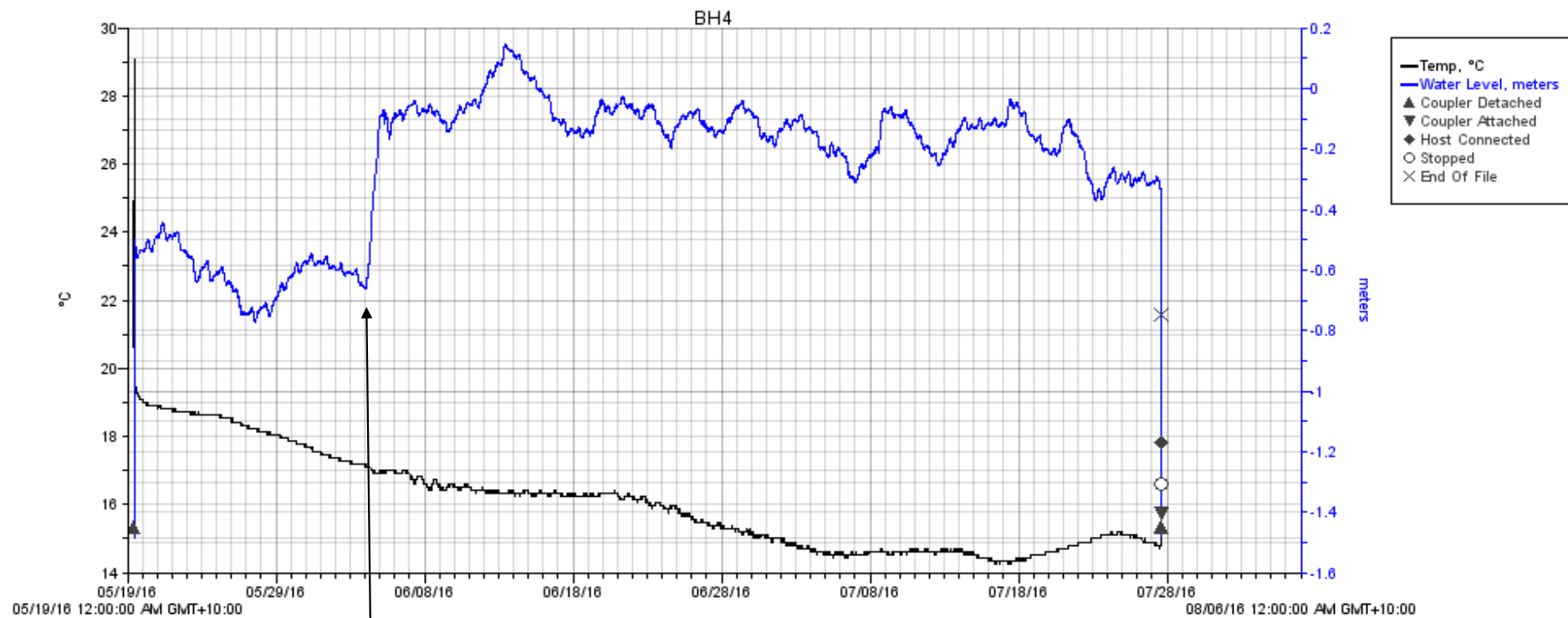
Rain event 4 - 6 June 2016 = 120.8mm



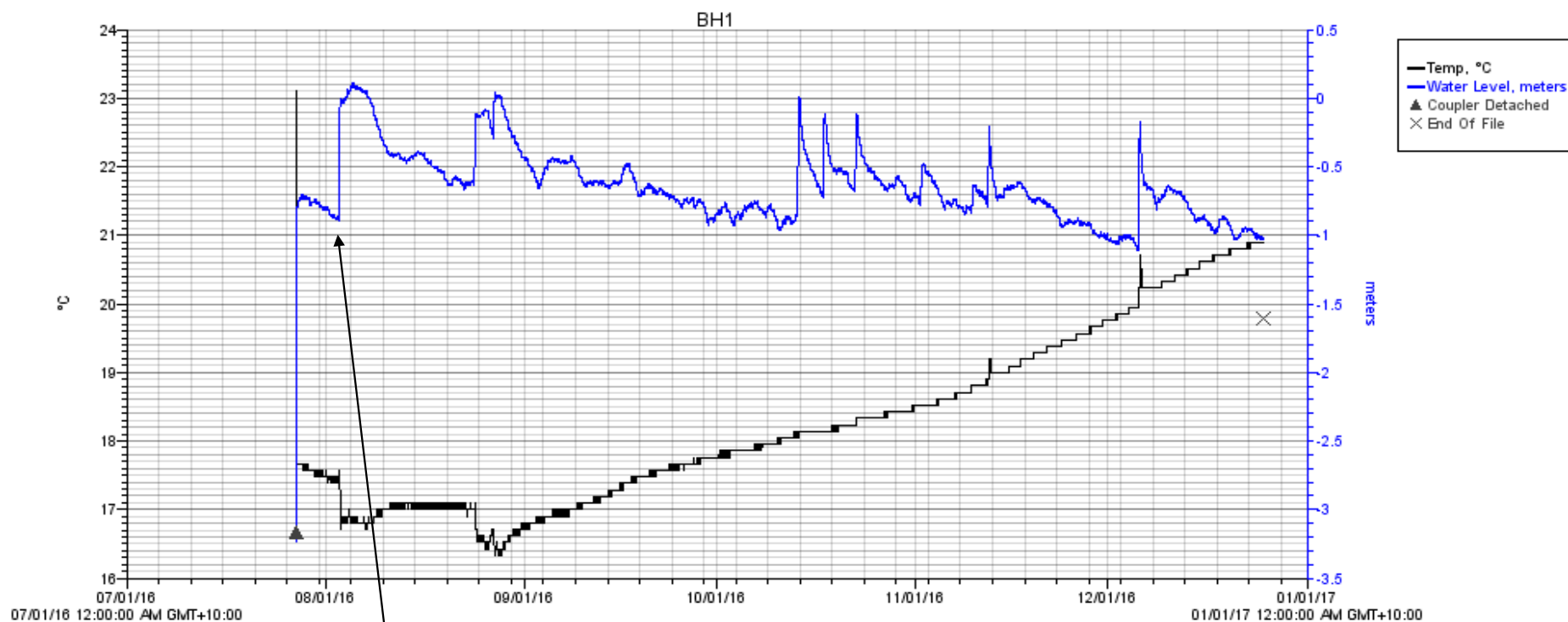
Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH1: 13/5/2016 to 27/7/2016	Drawing No.	Graph 1



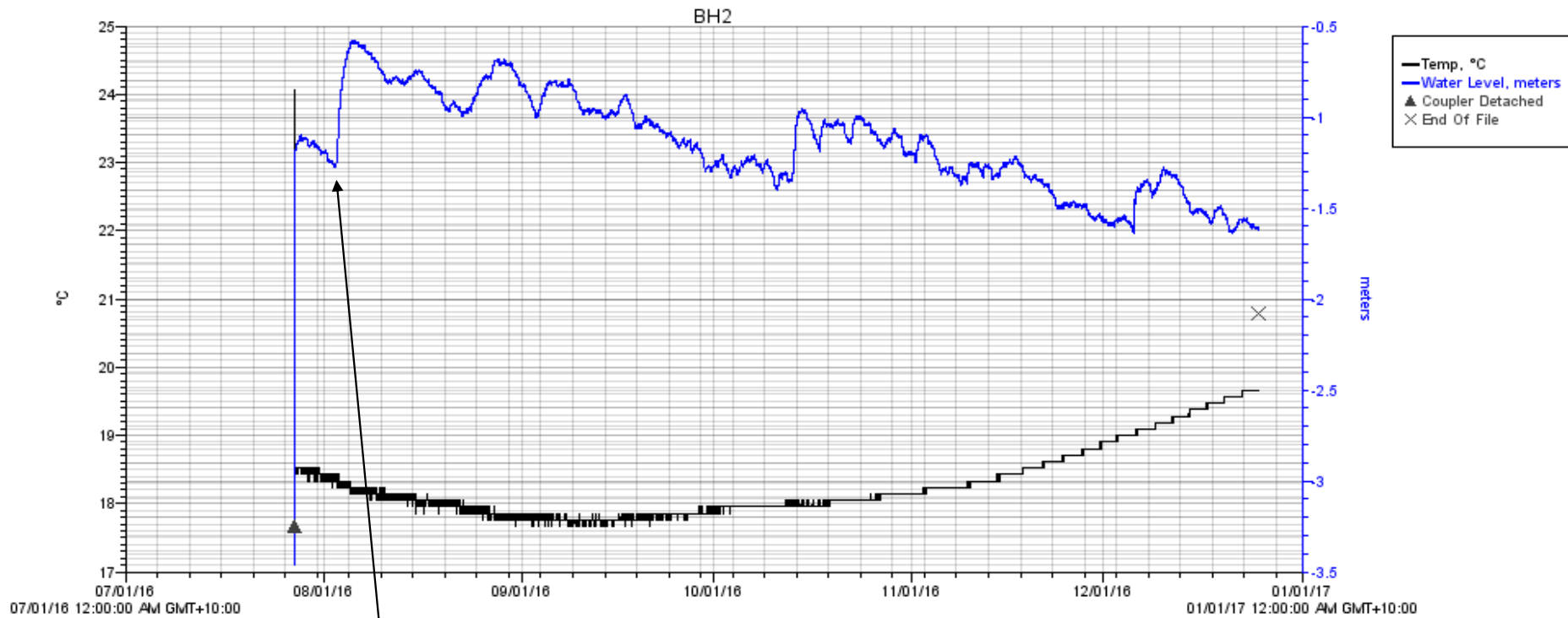
Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH2: 13/5/2016 to 27/7/2016	Drawing No.	Graph 2



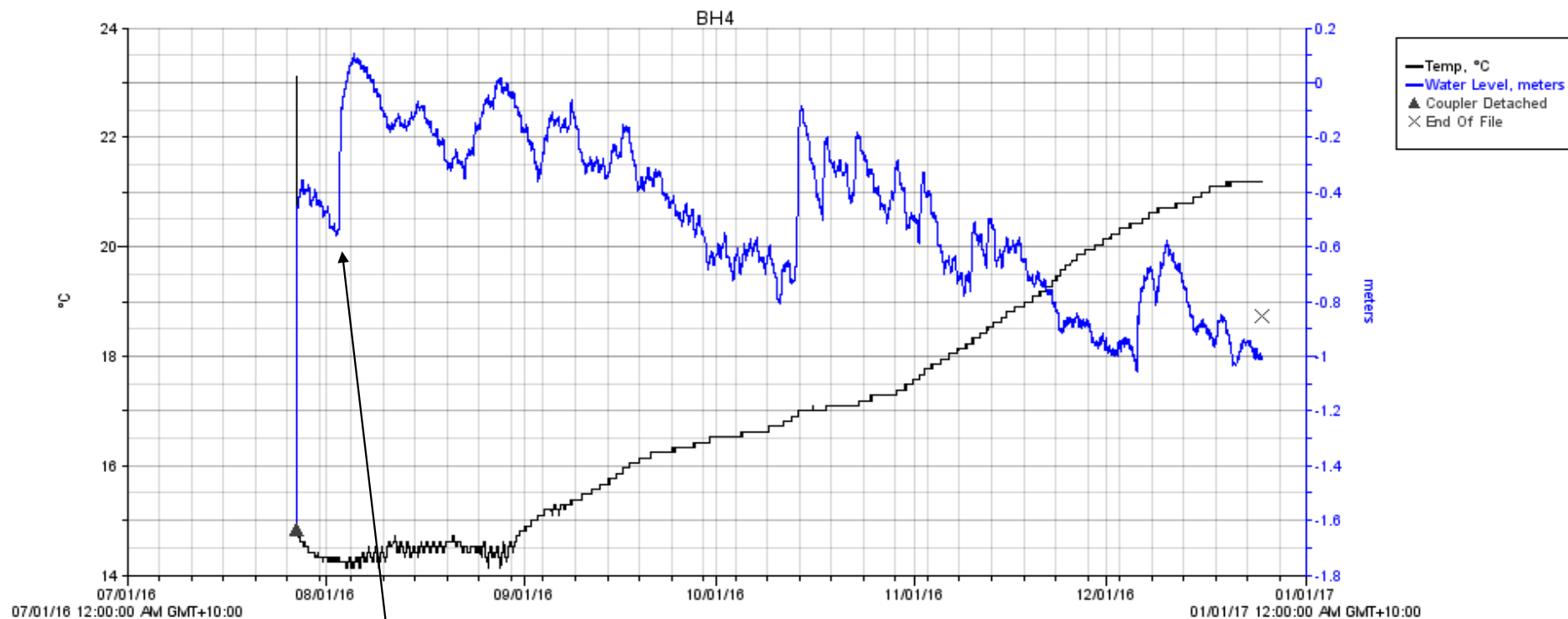
Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH4: 13/5/2016 to 27/7/2016	Drawing No.	Graph 4



Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH1: 27/7/2016 to 25/12/2016	Drawing No.	Graph 4

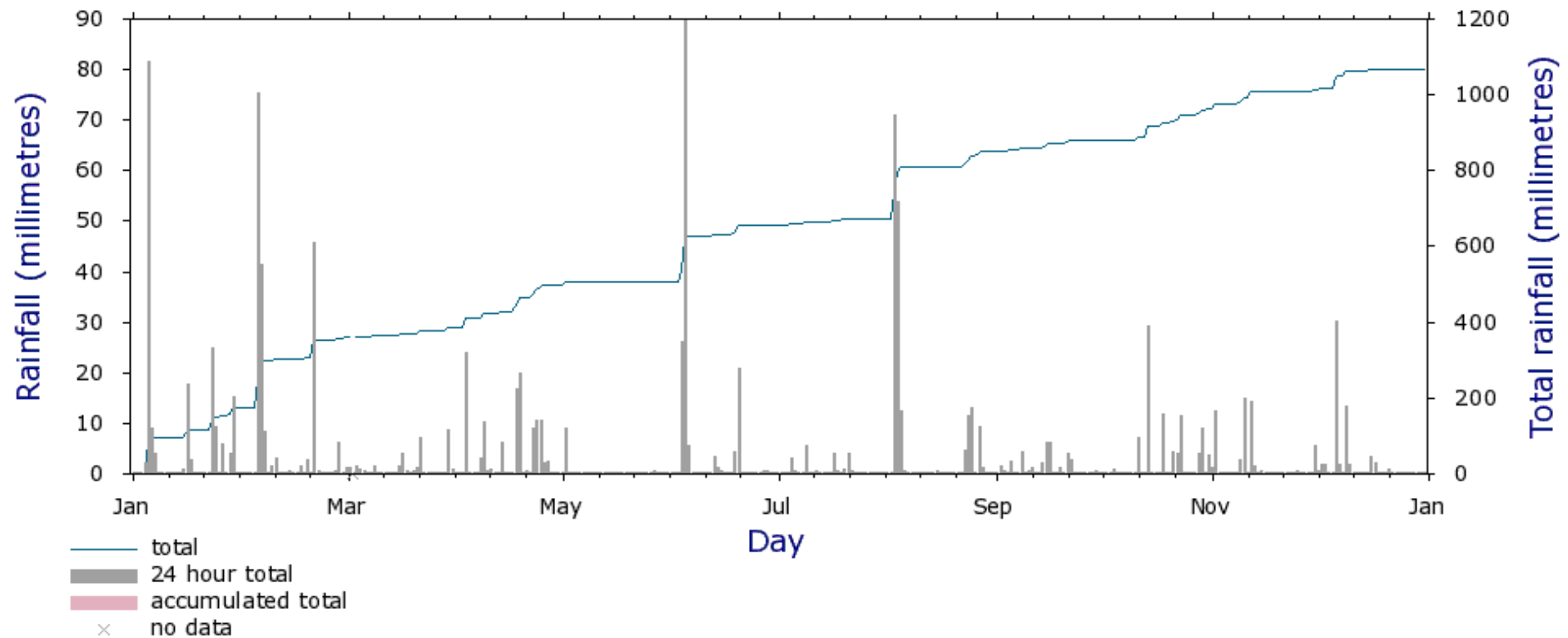


Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH2: 27/7/2016 to 25/12/2016	Drawing No.	Graph 5



Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	Water Level Below Surface (m)	Date:	13-Nov-17
Title:	BH4: 27/7/2016 to 25/12/2016	Drawing No.	Graph 6

Port Macquarie Airport AWS (060139) 2016 rainfall



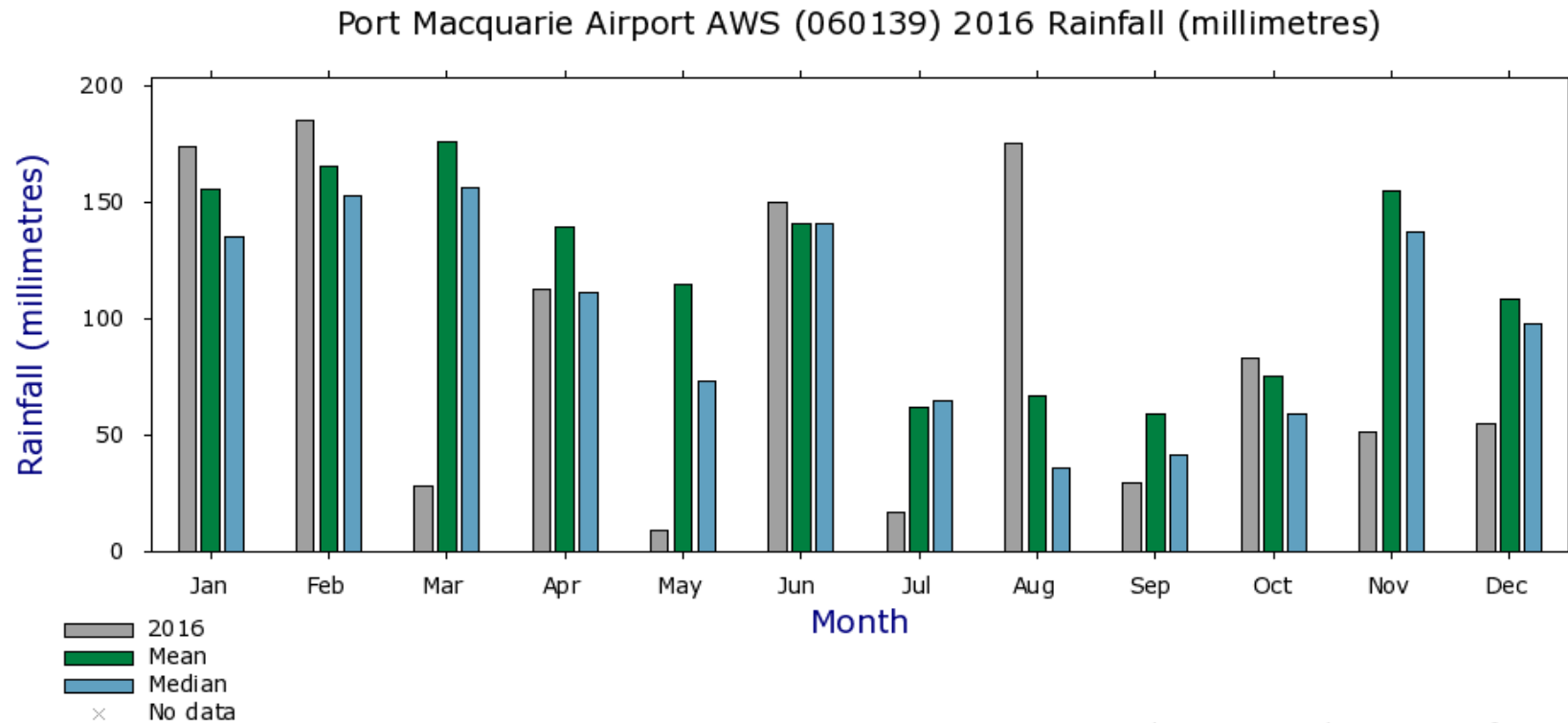
Climate Data Online, Bureau of Meteorology
Copyright Commonwealth of Australia, 2017

Note: Data may not have completed quality control.

2016 Rainfall Total = 1068.8m
Average Rainfall = 1317mm
Port Macquarie AWS (1995 - 2017)



Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT PORT MACQUARIE AWS	Drawn By:	TLM
Title:	2016 Accumulative Rainfall Data	Date:	13-Nov-17
		Drawing No.	Graph 7



Note: Data may not have completed quality control

Climate Data Online, Bureau of Meteorology
Copyright Commonwealth of Australia, 2017

2016 Rainfall Total = 1068.8mm
Average Rainfall = 1317mm
Port Macquarie AWS (1995 - 2017)



Client	KING & CAMPBELL PTY LTD	Job No.	RGS20421.1
Project:	PORT MACQUARIE AIRPORT PRECINCT	Drawn By:	TLM
	PORT MACQUARIE AWS	Date:	13-Nov-17
Title:	2016 Monthly Rainfall Data	Drawing No.	Graph 8

Attachment 7 - Concept Stormwater Management Plan



Concept Stormwater Management Plan
Port Macquarie Airport Lands and
Airport Business Park,
Port Macquarie

Prepared for:

Port Macquarie-Hastings Council

Prepared by:

King & Campbell Pty Ltd
1st Floor, Colonial Arcade
25-27 Hay Street
Port Macquarie
PO Box 243
Port Macquarie 2444
Ph: (02) 6586 2555
Fax: (02) 6583 4064
info@kingcampbell.com.au

Date: November 2015.
Updated: January 2019.

Executive Summary

This Stormwater Management Plan has been prepared in support of a Planning Proposal to amend the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011) for the Port Macquarie Airport Lands and Airport Business Park, in accordance with the resolution of Port Macquarie Hastings Council (PMHC) at its meeting of 21 November, 2018.

The Airport Lands (*the site*) includes existing and future development for general aviation uses to the west of Boundary Street and the Airport Business Park includes future development to the east of Boundary Street.

This Plan provides the relevant information necessary for Council to assess the stormwater management requirements of the proposed development and has been prepared in accordance with the requirements of the Port Macquarie Hastings Council's AUS-SPEC D5 and D7 specification (Table D7A-4 Stormwater Management Plan Requirements) and the requirements of relevant Australian Standards.

The site was assessed for its suitability for the proposed development in terms of servicing requirements and the ability to mitigate the impact of urbanisation on the existing stormwater cycle.

The assessment considered the stormwater management requirements of future development, including legal point of discharge, soils and groundwater impacts and the capacity of the land to cater for the stormwater needs and production of future development.

The assessment determined the necessary mitigation measures required to be implemented to ensure the development can be adequately serviced with design constraints and recommendations made within the relevant sections of this report.

The impact of the proposed development on stormwater quantity and stormwater quality was modelled in the DRAINS and MUSIC programs. The modelling compared the existing conditions to the proposed conditions and the change to water quality from source to outlet.

This SMP recommends the adoption of a treatment train approach incorporating gross pollutant removal and bio-retention facilities to protect the downstream environment.

Due to the location of the proposed development at the edge of the Hastings River floodplain, it is recommended that detention is not required due to the large areas of stormwater ponding available and the minimal impacts upon this area that the increased runoff from the future development may cause.

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Section 1

Introduction

This Stormwater Management Plan (SMP) has been prepared in support of a Planning Proposal to amend the Port Macquarie Hastings Local Environmental Plan 2011 (LEP 2011) for the Port Macquarie Airport Lands and Airport Business Park, in accordance with the resolution of Port Macquarie Hastings Council (PMHC) at its meeting of 21 November, 2018.

The Airport Lands (*the site*) includes existing and future development for general aviation uses to the west of Boundary Street and the Airport Business Park includes future development to the east of Boundary Street.

This SMP has been developed to determine an earthworks, site regrading and stormwater strategy to mitigate impact upon the downstream infrastructure, adjoining properties and receiving waters.

This SMP provides the relevant information necessary for Council to assess the stormwater management requirements of the proposed development and has been prepared in accordance with the requirements of the Port Macquarie Hastings Council's AUS-SPEC D5 and D7 specification (Table D7A-4 Stormwater Management Plan Requirements), and the requirements of relevant Australian Standards.

Section 2

Development Details

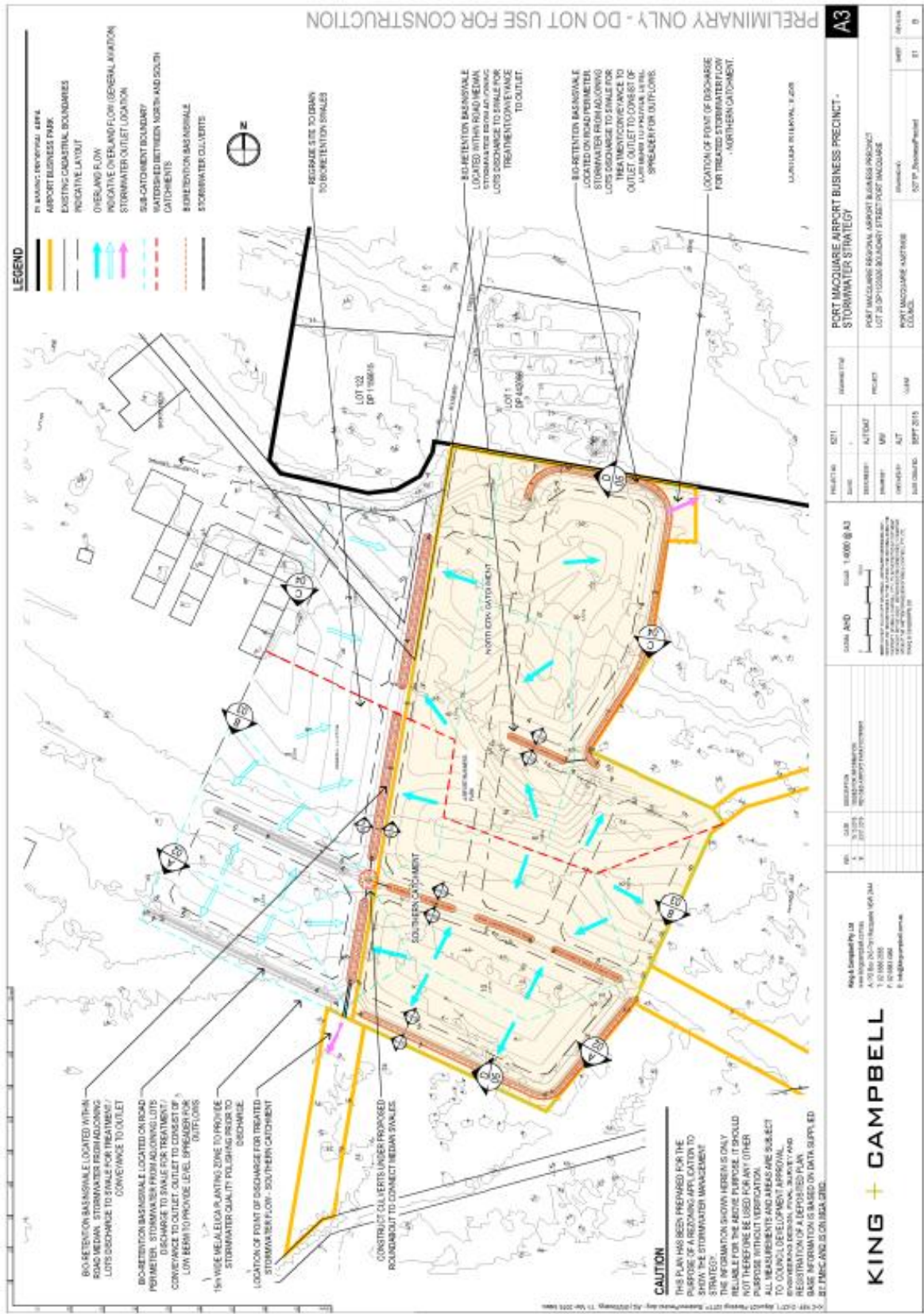


Figure 1 - Stormwater Management Plan

Section 3

Site Conditions

3.1 Location

The site is located within the Port Macquarie Hastings Local Government Area (PM-H LGA), on the western fringe of the town of Port Macquarie, within the Hastings River catchment on the north coast of New South Wales.

The site is bound by existing residential development to the east, environmental conservation zoned area to the south, existing airport development to the east and an education facility to the north.

3.2 Legal Point of Discharge

In accordance with established conventions in determining the lawful point of discharge, a point of discharge is considered *lawful* if it satisfies the following two point test¹:

- a. That the location of the discharge is under the lawful control of the local government or other statutory authority from whom permission to discharge has been received. This will include park, drainage or road reserve or stormwater drainage easement.
- b. That in discharging in that location, the discharge will not cause an actionable nuisance (i.e.; a nuisance for which the current or some future neighbouring proprietor may bring an action or claim for damages arising out of the nuisance). In general terms this implies no worsening as a result of the discharge.

The site includes 2 sub-catchments draining to the north east and south respectively. The discharge locations for each catchment are located wholly within the site and through the use of bio-filtration swales/basins and level spreader devices, outflows will be converted to overland sheet flow to natural drainage depressions.

Stormwater mitigation measures are proposed, including bio-filtration swales and basins, to ensure the impact of the expected discharges modelled within the context of the larger catchment system will not cause an actionable nuisance.

¹ Queensland Urban Drainage Manual – volume 1 second edition 2007 – pp 3-3 - http://www.derm.qld.gov.au/water/regulation/pdf/guidelines/flood_risk_management/qudm_3.pdf (Accessed 24 February 2012)

3.3 Topography

The site is located on generally flat terrain of the Hastings River floodplain and is dominated by a low dune forming a ridge running in an east-west direction. The low dune generally bisects the site into approximate equal north and south sub-catchments. Northern and southern slopes consist of low grades of less than 1%. The topography can be described as regular in nature, with long flat grades being typical within the site.

There are no defined natural watercourses within the site, with surface drainage consisting primarily of infiltration and sheet flow surface runoff.

It is proposed to modify the existing landform through the construction of bio-retention swales within road medians, to reduce filling requirements, and to provide at source stormwater treatment.

3.4 Soils

The existing site soils have been investigated through extensive borehole and soil samples undertaken by Regional Geotechnical Solutions (RGS). RGS confirms that the site is located on a Pleistocene sand dune, which grades to Pleistocene back-barrier sand plains. The site consists of Aeolian sands throughout. Soil profiles of silty sands and residual clay were also present. With reference to the Port Macquarie 1:25,000 Acid Sulphate Soil (ASS) Risk Map, RGS states there are no known occurrence of ASS within the soils.

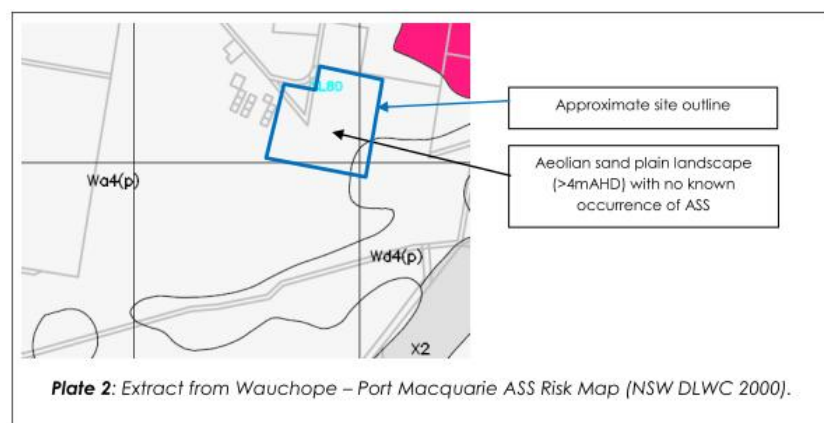


Figure 3 – Extract from Wauchope – Port Macquarie ASS Risk Map (NSW DLWC 2000)

3.5 Groundwater

Regional Geotechnical solutions (RGS) have undertaken groundwater investigation for the site, including;

- *Geotechnical Assessment*, (October 2015); and
- *Groundwater Assessment – Factual Report*, (16 November 2017).

The assessments confirm that the groundwater inflow is from three aquifer sources that are separated by sand horizons. RGS confirm groundwater was visible at various depths throughout the site, ranging from 0.05 – 0.9m depths. RGS also confirm that the sandy soils are a good indication of the presence of a shallow groundwater table.

The 2017 assessment included monitoring of groundwater conditions during the period from July to December 2016.

This assessment found that *groundwater depths encountered in the original investigation were variable and included shallow perched water tables above the peat and indurated sand horizons*. During test pit excavation activities groundwater was observed flowing into the excavation within these separate layers. It was further confirmed that *the...perched water tables are anticipated to vary rapidly in height in response to rainfall*.

The 2017 assessment concluded that *the results indicate the shallow perched groundwater tables at BH1 and BH4 [reflecting the shallower aquifers] show a rapid response to rainfall events such as the one that occurred from 4-6 June 2016 comprising a total of 120.8mm over the three days*. The assessment also noted that the groundwater was above the surface at these locations for approximately one (1) week following that event, before subsiding. The assessment therefore suggests a high connectivity between surface water/rainfall and the upper aquifers.

The groundwater modelling of the lower aquifer, separated from the upper aquifer by a layer of indurated sand, recorded a *more subdued response to rainfall events*.

The assessment further noted that excavation for service trenches may result in the linkage of the aquifers, which will likely result in changes in the local hydrology in the immediate area surrounding those works.

It is noted that the observations contained within the 2017 assessment supported the initial 2015 observations, where the long term groundwater levels were highly variable and ranged from 0.05 – 0.9m depths due to localised perched aquifers above indurated sand aquitard layers.

Accordingly, excavations within *the site* for the purposes of sewer, conventional stormwater drainage infrastructure and bio-retention systems will likely intersect the existing indurated sand layers. This will result in the connection of the upper and lower aquifers and subsequent modification to the water table within the development envelope.

Therefore the adoption of the bio-retention swales and basins, with a permanent submerged zone as a feature of their design, for stormwater treatment will establish and regulate groundwater levels at levels close to the existing upper aquifer levels and as such support the maintenance of groundwater levels in their vicinity.

Additionally, the implementation of bio-retention basins at the development edge will assist to maintain existing water levels within the adjoining lands. The adoption of bio-retention systems within the site with submerged zones close to the surface will assist to maintain consistent groundwater levels post construction. Connection between the surface aquifers and rainfall will also be retained through the use of these bio-retention systems.

Section 4

Water Quality

4.1 Site and Receiving Water Quality

All stormwater quality modelling for the site was undertaken in accordance with recommended procedures within *Chapter 13 – Modelling Urban Stormwater Management Systems* of ARQ 2006. Given the *highly non-linear* and *highly stochastic* characteristics involved in stormwater management systems, there is an obvious requirement for the use of sophisticated computer modelling packages to estimate the likely pollutant export from future development.

The computer software MUSIC Version 6.1 (Build 0.767) developed by eWater was utilised to determine the likely stormwater runoff quality for pre and post development scenarios.

Design parameters for the software were obtained and adopted from the Draft NSW MUSIC Modelling Guidelines (BMT WBM Pty Ltd, August 2010) along with local rainfall and evaporation parameters for the Port Macquarie area. (Port Macquarie Hastings Council, February 2004).

4.1.1 Northern Catchment

The northern catchment of the site discharges to the Hastings River via an existing area of Coastal Wetlands pursuant to SEPP (Coastal Management) 2018 and drainage channels extending between Boundary Street and Tuffins Lane.

The contributing catchment has been substantially modified via the development of existing airport infrastructure, with the clearing of trees and understorey vegetation, regular slashing and placement of suitable pavement base for aircraft movements.

4.1.2 Southern Catchment

The southern catchment of the site discharges to the Hastings River via an existing area of Coastal Wetlands pursuant to SEPP (Coastal Management) 2018 and onwards via a circuitous route to the south of the existing main airport runway before connecting to Partridge Creek.

Similarly to the northern catchment, the contributing catchment has been substantially modified with the development of existing airport infrastructure.

4.2 Water Quality of the Receiving Waters

For the purposes of water quality modelling and notwithstanding urbanisation and development that has occurred in the area, the receiving waters for all catchments of the site have been considered to be pristine, or unmodified ecosystems.

4.3 Pre Development Modelled Pollutant Loads

The site was modelled as two separate catchments, determined according to the existing landform and topography as well as consideration of the ultimate built form of the future development. The existing soils are considered to be generally sandy with layers of impermeable indurated sands, which allows for medium amounts of infiltration.

Results of the pre development modelling are as follows:-

Table 1 - Existing Condition Annual Export Loads (Western Catchments)

Sub Catchment	Flow (ML/yr)	Total Suspended Solids (kg/year)	Total Phosphorous (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutants (kg/yr)
N	128	19200	35	264	1250
S	150	25100	38.7	312	1460

4.4 Post Development Modelled Pollutant Loads

Port Macquarie Hastings Council (Port Macquarie Hastings Council, February 2004) specifies water quality objectives, sourced from the ARQ (Engineers Australia, National Committee for Water Engineering, 2007) document.

AUS-SPEC requires that *stormwater treatments shall be designed to meet the minimum level of pollutant load objective in accordance with Table D7.7.*

Table 2 - Extract from AUS-SPEC D7 - Table D7.7

Pollutant	Objective
Suspended Solids (SS)	80% retention of average annual load
Total Phosphorous (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 the 3 months ARI peak flow
Sediment	100% retention of sediment greater than 0.125mm for flows up to the 3 month ARI peak flow
Oil and Grease	No visible oils for flows up to the 3 month ARI peak flow

Additionally, the developed stormwater concentrations should be no worse than existing.

Results of stormwater quality modelling revealed that the critical nutrient was nitrogen. Sizing calculations for stormwater mitigation measures were therefore undertaken on the basis of achieving the stormwater reductions for this nutrient.

The following data was utilised within MUSIC to model the bio-retention basins:

Table 3 - Catchment and Treatment Data utilised in MUSIC

Sub-Catchment No.	Catchment Area (Ha)	Bio-retention Area (m ²)	Basin Area (m ²)	Basin Perimeter (m)
1	1.93	640	2000	520
2	2.85	360	1600	318
3	4.27	740	1950	375
4	5.88	750	2100	380
5	7.04	1750	4300	1035
6	3.68	143	690	145
7	4.77	475	1740	480
8	4.32	1020	3150	820
9	1.28	403	1140	206

Table 4 – Treatment Train Effectiveness and Water Quality Objective Compliance.

Parameter	Catchment	Source	Residual Load	% Retention	Water Quality Objective	Compliance?
Total Susp. Solids (kg/yr)	N	49800	1030	97.9	85%	✓
	S	54800	1530	97.2		✓
Total Phos. (kg/yr)	N	67.9	33.2	51.1	45%	✓
	S	84	32.2	61.6		✓
Total Nitrogen (kg/yr)	N	548	245	55.3	45%	✓
	S	648	306	52.7		✓
Gross Pollutants (kg/yr)	N	5500	0	100	90-100%	✓
	S	6430	0	100		✓

Table 5 - Comparison of Pre and Post Development Annual Loads

Parameter	Catchment	Pre Development	Post Development	Compliance?
Total Suspended Solids (kg/yr)	N	24800	1530	✓
	S	19200	1030	✓
Total Phosphorus (kg/yr)	N	39.8	32.2	✓
	S	35	33.2	✓
Total Nitrogen (kg/yr)	N	315	306	✓
	S	264	245	✓
Gross Pollutants (kg/yr)	N	1460	0	✓
	S	1250	0	✓

Therefore the pollutant outflow concentrations as reported by MUSIC modelling software comply with the relevant requirements of AUS-SPEC D7.

Appendix 1 of this report contains the graphical and numerical modelling parameters and output from the software.

4.5 Stormwater Discharge Quality Management Plan

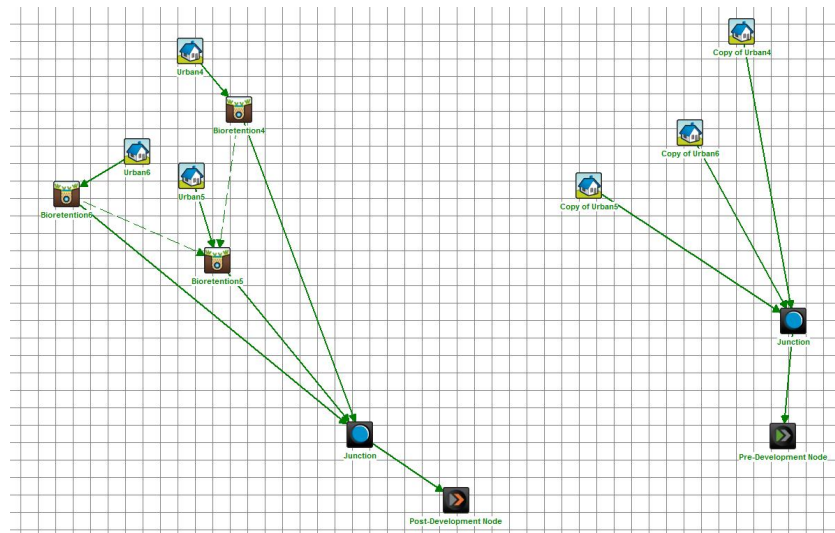


Figure 2 - Screenshot from MUSIC Software illustrating the proposed treatment train for the Northern Catchment.

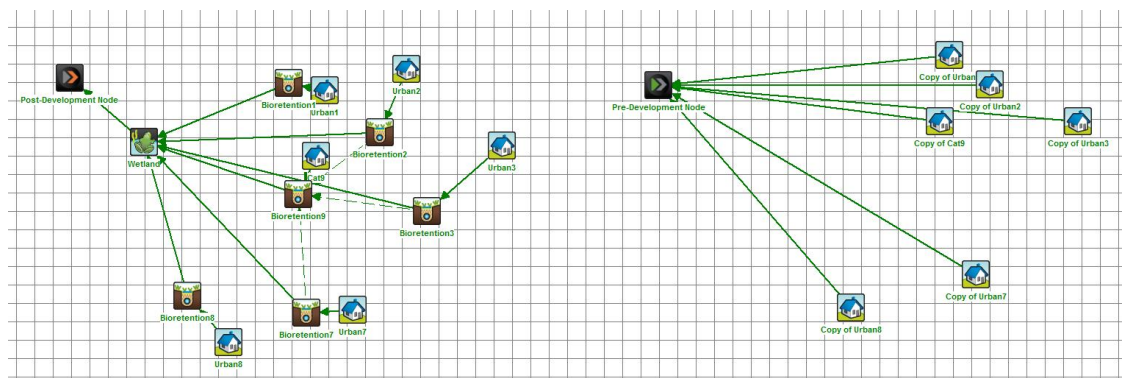


Figure 3 - Screen capture from MUSIC Software illustrating the proposed treatment train for the Southern Catchment

The treatment train includes:-

- Primary treatment via the use of bio-retention and water sensitive urban design.
 - o Bio-retention swales/basins
 - o Buffer Strips
 - o Gross Pollutant Traps (provided at boundary of each lot prior to discharge to street trunk drainage network)

- o Rainwater Tanks (rainwater reuse within each lot should be encouraged within each lot to reduce the volume of water discharge to the central swale system)
 - NOTE: It should be noted that in accordance with current Council preference, the effect of rainwater tanks on the performance of the treatment train have not been included as part of the MUSIC modelling process.
- o Constructed Wetland Outlet

Gross pollutant traps which should be required for each lot, are considered on their ability to capture litter only within the MUSIC model. Where there is potential for oils/grease to be produced by or released from the site, suitable measures should be employed to reduce the impact and prevent release from the site.

4.6 Outlet Structure and Design considerations

Outlet structures within the bio-retention basins have been modelled based on the expected configurations for each structure with a culvert or riser pit outlet for the minor storm and an overflow spillway (or multiple spillways in the case of the south western bio-retention basin). The detailed design process will consist of determining the site specific requirements to provide the appropriate stage-discharge required to comply with the modelling as performed for this application.

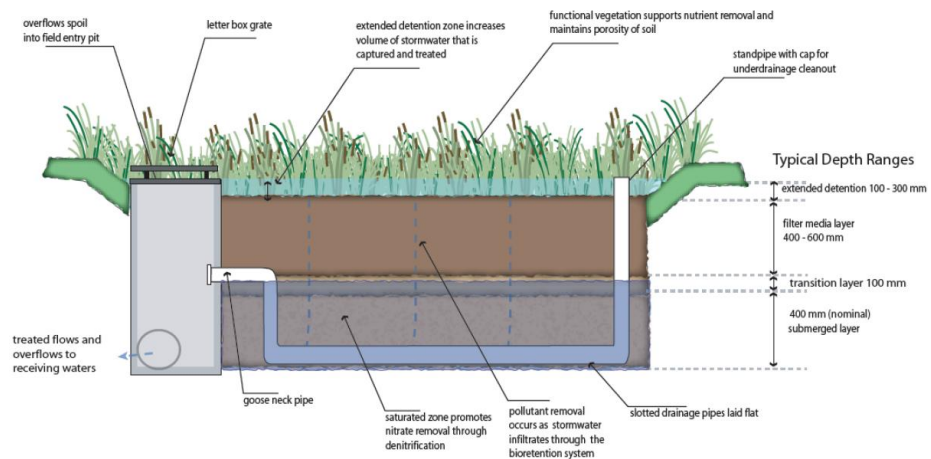


Figure 4 - Typical Bio retention Basin Minor Storm Outlet Configuration SOURCE: Townsville City Council WSUD Guidelines - Chapter 5.

In addition to the bio-retention basin outlet design, it is proposed to provide further stormwater quality facilities to provide final polishing of stormwater prior to discharge.

The southern catchment is reported to discharge to an area identified as habitat for the Wallum Froglet. The wallum froglet reportedly favours water that is slightly acidic. Water testing undertaken by *Regional*

Geotechnical Solutions (2015) indicate that surface water is slightly acidic, with measured pH of 4.96 within the Wallum Froglet habitat area.

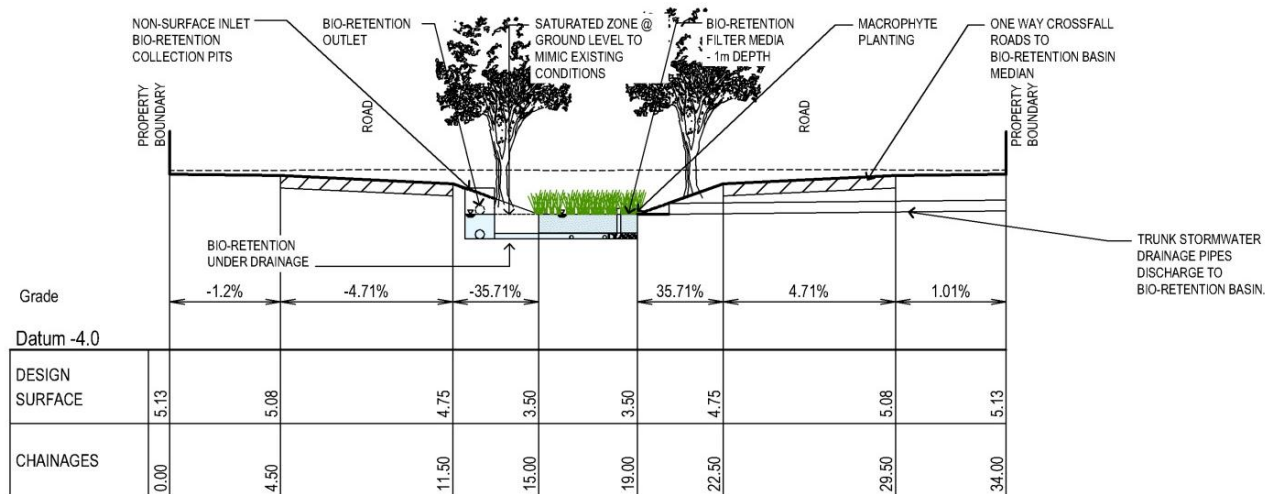
The report notes that:

Water with a pH of <5.5 can be indicative of the presence of ASS, however, based on previous experience with coastal sand plain landscapes, the surface waters are often acidic and this is due to organic acidity rather than the presence of ASS.

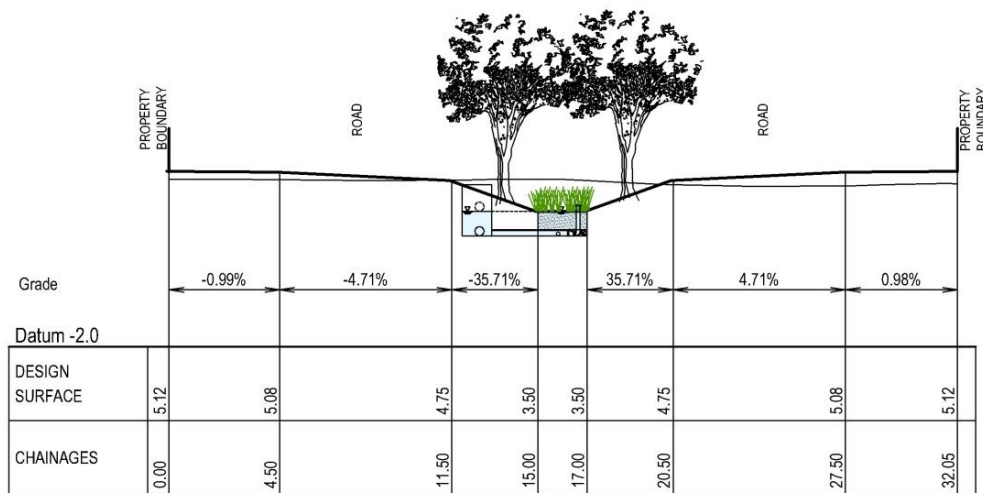
These acidic waters are often also caused by the presence of melaleuca forests within the wetlands as the source of the organic acidity. The discharges from bio-retention facilities typically report levels of pH close to neutral.

Recent observations of wallum froglet behaviour as part of the Tugun Bypass project suggest that the froglet is capable of colonising bio-retention basins as suitable habitat (SOURCE: <http://www.tmr.qld.gov.au/~media/Projects/T/Tugun%20Bypass%20project/Flora%20fauna/tugunbypassfrogmgtpplan.pdf>)

The above observations notwithstanding, it is proposed to provide a bunded melaleuca forest planting area downstream of the bio-retention basin outlet to provide additional treatment to lower the pH to a level more suited to the Wallum Froglet as detailed below.

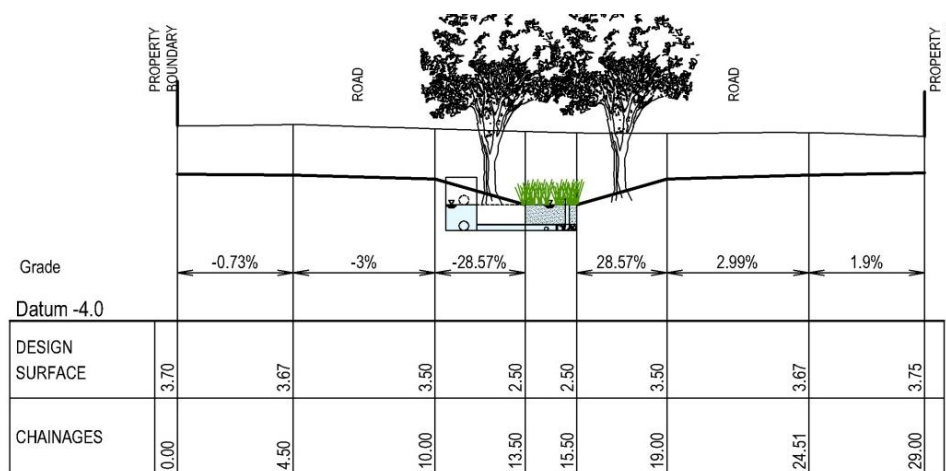


TYPICAL SECTION A

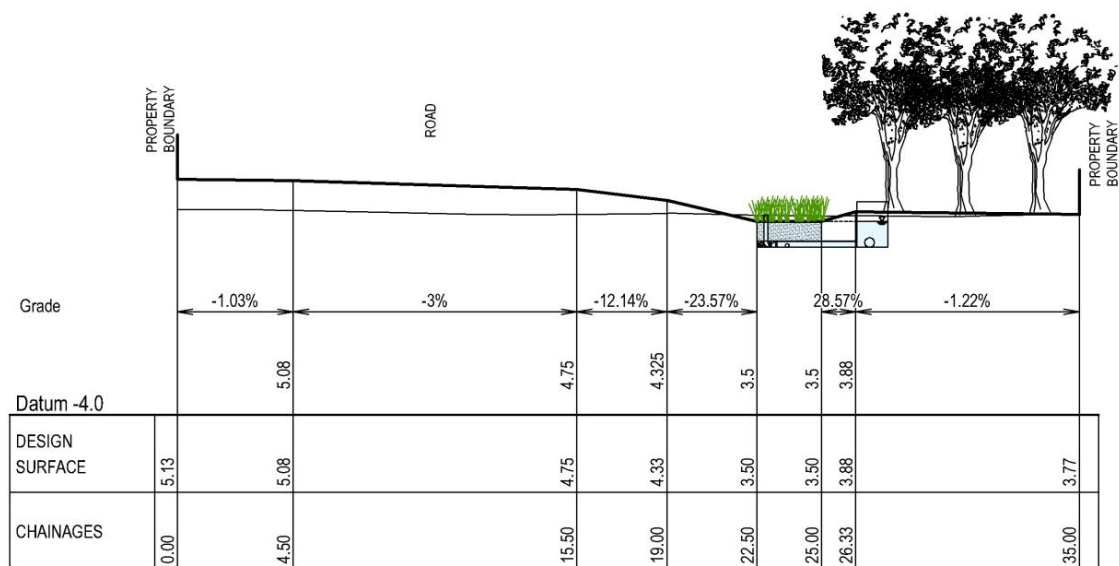


TYPICAL SECTION B

Figure 5 - Typical sections of bio-retention basins within road medians. refer to Stormwater Management Plan for section locations



TYPICAL SECTION C



TYPICAL SECTION D

Figure 6 - Typical Sections of bio-retention basins within road median and perimeter road basin, including melaleuca planting area (Typical Section D)

Section 5

Site Hydrology

5.1 Site Hydrology

For industrial subdivision development, the developed 1 in 100 year ARI storm is deemed to be the design storm for major events. Port Macquarie Hastings Council's AUS-SPEC D5 specification requires consideration of the impact upon downstream infrastructure and property in considering the most cost effective methods for management of stormwater discharges. (Port Macquarie Hastings Council, February 2004).

It has been presumed that all future internal roads shall be kerb and gutter. In combination of the natural site topography along with the site regrading for the construction of earthworks and drainage swales, all site stormwater can be drained to treatment structures and discharged to the receiving waters.

Detailed modelling of the site using the computer software package DRAINS has modelled the existing and developed catchments, considering the change in catchment areas as well as the change in imperviousness. The modelling demonstrates that the developed discharge although larger than the existing undeveloped condition at the point of discharge to the Hastings River Floodplain, can be adequately managed without significant impact.

The proposed provision of stormwater bio-retention basins/swales within the development results in the provision of some stormwater detention. Modelling of these proposed basins/swales suggest that whilst significant reductions in post development flows are likely, pre-development flow rates are not able to be achieved without significant areas of land being utilised as detention basins.

It is considered however that the cost of constructing such basins would greatly outweigh any likely benefits for downstream properties or likely infrastructure.

The location of the points of discharge to the fringes Hastings River floodplain for both northern and southern catchment, and the large storage areas provided by this type of landform results in increased flow rates causing minimal changes to existing flood levels.

The northern and southern catchments were modelled using DRAINS to determine the pre and post runoff volumes. The floodplain areas (and resulting ponded water area) was then estimated for both catchments. Detention provided by the proposed bio-retention basins were estimated, and subtracted from the runoff volume difference and the resulting maximum increase in stormwater ponding in the 1 in 100 year ARI was estimated.

The results of this modelling are provided below:-

Table 6 - Table showing calculations of maximum increase in water levels for floodplain area.

Catchment	Northern	Southern
Post Development Runoff Volume (m ³)	16474	19581
Pre Development Runoff Volume (m ³)	11214	13090
Detention Provided within Bio-retention Basins (m ³)	3000	4000
Runoff Volume Difference (m ³)	2260	2491
Floodplain Area (Ha)	20	50
Maximum Poned Water Level Increase (mm)	0.011	0.005

As is demonstrated within the above calculations, by considering the worst case scenario of a constrained outlet for the floodplain area, the resulting increases in ponded water levels are minimal. On this basis, it is considered that the provision of detention facilities would not be cost effective, and would be unlikely to provide any real benefit to the downstream catchments.



Figure 7 - Existing Ponding Area for Northern Catchment



Figure 8 - Existing Ponding Area for Southern Catchment

Therefore on the basis of the expected minimal modelled impacts on the adjoining land it is proposed that the development provide for basins for stormwater quality only, and that the provision of additional facilities specifically for detention is not warranted in this case.

5.2 System Layout – Central Swales in Road Corridors.

Due to the lack of grade within the site, the stormwater bio-retention swales within the road medians have been designed without longitudinal grade, as elongated pond areas. It is noted that further calculations will be required to support future Development Applications. Subsequently, careful design will be required at Construction Certificate stage to ensure that ponding depths in roadway areas are appropriate and manageable.

The width of swales within the road reserves will be a function of the runoff generated by the contributing catchments during design storm events, anticipated constraints to drainage such as intermediate drainage structures/culverts and outlets. Detailed modelling and design will determine the final required swale flow widths, and as such is it likely that the swales will progressively increase from their upstream end to the outlet. As such, cross sections shown on the concept plans should be noted to be indicative only and must not be used to define overall road reserve widths. The difference in widths between upstream and downstream ends of each swale may be substantial, therefore it is recommended that flexibility is included within any future DCP regarding required road reserve widths to cater for this.

It is anticipated that a variety of methods will be employed within the transition from the road edge and the stormwater swales, particularly the high traffic dual lane roads. It is anticipated that options such as wider carriageways, cycle ways, traffic barriers, bollards and other treatments are likely to be employed to prevent accidental vehicular entry to the stormwater swales.

The bio-retention swales/basins are to be designed to ensure that long term ponding of water does not occur which may lead to future issues with mosquitoes or ongoing vegetation maintenance issues. This is anticipated to include the design of the invert of the swales to be located above the long term submerged zone water level. Careful management will be required at the design stage to ensure that outlet levels and invert levels are designed to provide for this outcome.

Similarly to the above, the detailed designs will require consideration of the road pavement design, including subsoil drainage to ensure that future road pavements are not impacted by proposed swales. Sufficient vertical separation is proposed as part of the typical sections shown within Figure 5 and Figure 6 above. Site conditions at the time of construction may also require other methods such as drainage blankets or geofabrics to be considered and employed to ensure adequate protection for the road pavement.

The vegetation to be planted within the swales are to be selected on the basis of hardiness and water tolerance with low maintenance requirements, typical of those used within bio-retention systems. Given the potential for brackish flood waters to enter the system during Hastings River flood events, it is recommended that endemic native species from the adjoining heathlands be employed to vegetate the swales.

Section 6

Maintenance Operation Plan

- 61 Maintenance Operation Plan requirements for infrastructure and stormwater treatment devices.

The proposed landscape treatment associated with stormwater infiltration areas aims to be as functional and maintenance free as possible. The following initiatives are intended to ensure that ongoing maintenance is minimal:

- Use of locally and regionally endemic sedge and groundcover plants including
 - o Lomandra Longifolia (locally endemic)
 - o Lomandra Longifolia var. Katrinus (locally endemic)
 - o Dianella Caerulea (locally endemic)
 - o Juncas Usitatus (regionally endemic)
 - o Carex Appressa (regionally endemic)
 - o Isolepsis Nodosa (regionally endemic)
- Planting densities at high rates (5 to 6 plants per square metre)
- The use of pre-slit (for planting) jute matting to assist in moisture retention, suppress weed growth and provide erosion control Jute matting is a natural fibre which will break down completely after three to five years.
- All bio-retention areas are to be subject to a 12 month defects liability period commencing upon the release of the subdivision certificate.

Whilst the above initiations will minimise maintenance associated with landscape treatment of stormwater infiltration areas, some ongoing maintenance will be required. This can ideally be expected to be broadly as follows:-

- 2 to 3 years after installation – site maintenance on a quarterly basis to remove weeds and replant as required. Expected time for maintenance visits: ½ day for 2 workers every 3 months.
- 3 to 4 years after installation – site maintenance on a half yearly basis to remove weeds. Expected time for maintenance visits: ½ day for 2 workers every 3 months.
- 5 years onwards – general maintenance on an annual basis.

The proposed permanent stormwater management devices (bioretention basins) are to be contained within Drainage Reserves or road reservations to be dedicated to Council.

Bio-retention basins will require replacement of the upper layer of filter media material at regular intervals throughout their lifespan. When infiltration performance becomes degraded, the top sediment laden media will require removal and replacement with clean media, and topsoil and planting replaced on the surface. It is anticipated that this level of maintenance will not be required in less than a 10 – 20 year recurrence.

Section 7

Conclusion

The proposed development was assessed for its suitability for the proposed development in terms of mitigating the impact of urbanisation on the stormwater management.

The assessment considered the stormwater management requirements of the proposed development, including legal point of discharge, soils and groundwater impacts and the capacity of the land to cater to the stormwater treatment for the proposed development.

The impact of the proposed development on stormwater quantity and stormwater quality was modelled in the DRAINS and MUSIC programs, comparing existing conditions to proposed conditions, and the change to water quality from source to outlet. The proposed development has been designed to implement the treatment train approach to ensure outflows from the development mimic existing conditions, and have been afforded suitable stormwater quality treatment to meet the stated water quality objectives.

The provision of stormwater quality basins within the development will serve to provide some detention for smaller rainfall events, however will not in themselves provide sufficient detention to maintain post development discharge quantities to that existing.

The proposed stormwater swale network will require careful design calculations to determine the following:-

- Width of roadway corridor required to cater for the expected stormwater flows within the network. Any future DCP will require some flexibility within road corridor widths to accommodate this variation.
- Appropriate measures to prevent accidental vehicular entry into the central stormwater swales.
- Invert and Submerged zone parameters to prevent long term stormwater ponding to prevent mosquito issues.
- Vegetation selection to minimise maintenance requirements, tolerance of saturated soils, and periodic exposure to brackish water during flood events within the Hastings River. It is recommended that local endemic species be utilised wherever possible.
- Pavement design for the adjoining roads to ensure that sufficient vertical separation is provided between the saturated zone and pavement layers, as well as considering the judicious placement of drainage blankets in addition to subsoil drainage to ensure long term pavement viability.

It is recommended that future allotments be required to provide a gross pollutant capture device (Gross Pollutant Trap, Litter Screen or Litter Baskets or similar) prior to the point of connection with the Council trunk drainage system to ensure the stormwater swales are adequately protected, and are not impacted by silt/sediment or gross pollutants and litter. Where a proposed development is likely to produce/generate oil or grease within runoff from the site, it is recommended that the provision of suitable additional measures are mandated as part of any future DCP applicable to the site.

Although not considered as part of the stormwater quality modelling process in accordance with current PMHC preference, the provision of rainwater tanks within each individual allotment should be strongly encouraged as part of any future DCP for the area. The provision of rainwater tanks for on-site re-use will reduce the total volume of stormwater being discharged to the drainage swale network. The provision of the tanks will also assist to increase the overall performance of the stormwater treatment train and the quality of stormwater discharge from the site.

The landform at the outlet being part of the floodplain of the Hastings River was considered a mitigating factor however for stormwater quantity outflows. The impact of higher flows when considering the large surface area, results in negligible increases to water levels within the wetlands. It is therefore considered that stormwater detention is not required in this instance.

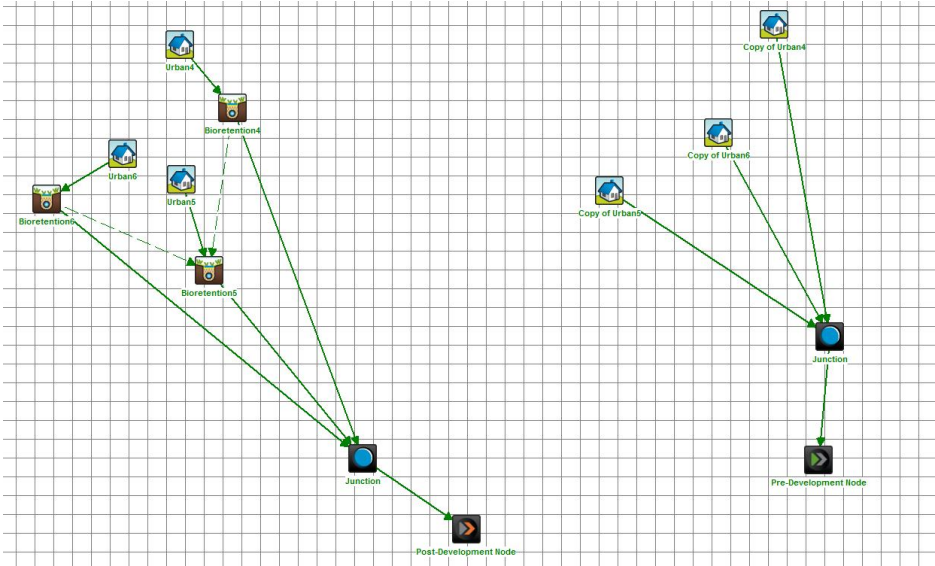
A maintenance plan has been formulated to assist in the establishment and continued operation of the proposed stormwater treatment infrastructure, including recommendations on species selection and maintenance intervals.

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APPENDIX TWCMP_1 – MUSIC STORMWATER QUALITY MODELS AND OUTPUTS

N Pre & Post Developed Catchment Model Layout



N Catchment MUSIC Summary Report

Source nodes						
Location	Urban4	Urban5	Urban6	Copy of Urban4	Copy of Urban6	Copy of Urban5
ID	1	4	6	9	10	12
Node Type	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode	UrbanSourceNode
Total Area (ha)	5.88	7.04	3.68	5.88	3.68	7.04
Area Impervious (ha)	5.26676865671642	6.30579104477612	3.32394626865672	0.568911940298508	0.369922388059702	0.734208955223881
Area Pervious (ha)	0.613231343283581	0.73420895522388	0.356053731343283	5.31108805970149	3.3100776119403	6.30579104477612
Field Capacity (mm)	99	99	99	99	99	99
Pervious Area Infiltration	180	180	180	180	180	180
Capacity coefficient - a						
Pervious Area Infiltration	3	3	3	3	3	3
Capacity exponent - b						
Impervious Area Rainfall	1	1	1	1	1	1
Threshold (mm/day)						
Pervious Area Soil Storage	119	119	119	119	119	119
Capacity (mm)						
Pervious Area Soil Initial	25	25	25	25	25	25
Storage (% of Capacity)						
Groundwater Initial Depth	10	10	10	10	10	10
(mm)						
Groundwater Daily Recharge	25	25	25	25	25	25
Rate (%)						

Groundwater Daily Baseflow Rate (%)	25	25	25	25	25	25
Groundwater Daily Deep Seepage Rate (%)	0	0	0	0	0	0
Stormflow Total Suspended Solids Mean (log mg/L)	2.15	2.15	2.15	2.15	2.15	2.15
Stormflow Total Suspended Solids Standard Deviation (log mg/L)	0.32	0.32	0.32	0.32	0.32	0.32
Stormflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0
Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Stormflow Total Phosphorus Standard Deviation (log mg/L)	0.25	0.25	0.25	0.25	0.25	0.25
Stormflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Phosphorus Serial Correlation	0	0	0	0	0	0
Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	0.3	0.3	0.3	0.3
Stormflow Total Nitrogen Standard Deviation (log mg/L)	0.19	0.19	0.19	0.19	0.19	0.19
Stormflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Stormflow Total Nitrogen Serial Correlation	0	0	0	0	0	0
Baseflow Total Suspended Solids Mean (log mg/L)	1.2	1.2	1.2	1.2	1.2	1.2
Baseflow Total Suspended Solids Standard Deviation (log mg/L)	0.17	0.17	0.17	0.17	0.17	0.17
Baseflow Total Suspended Solids Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Suspended Solids Serial Correlation	0	0	0	0	0	0
Baseflow Total Phosphorus Mean (log mg/L)	-0.85	-0.85	-0.85	-0.85	-0.85	-0.85
Baseflow Total Phosphorus Standard Deviation (log mg/L)	0.19	0.19	0.19	0.19	0.19	0.19
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	0.11	0.11	0.11	0.11	0.11	0.11
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.12	0.12	0.12	0.12	0.12	0.12
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0
Flow based constituent generation - enabled	Off	Off	Off	Off	Off	Off
Flow based constituent generation - flow file						
Flow based constituent generation - base flow column						
Flow based constituent generation - pervious flow						

column						
Flow based constituent						
generation - impervious flow						
column						
Flow based constituent						
generation - unit						
OUT - Mean Annual Flow (ML/yr)	89.2	107	55.8	45.3	28.4	54.3
OUT - TSS Mean Annual Load (kg/yr)	17.1E3	19.1E3	10.0E3	7.26E3	4.80E3	8.69E3
OUT - TP Mean Annual Load (kg/yr)	24.2	29.9	15.6	13.4	8.53	16.0
OUT - TN Mean Annual Load (kg/yr)	197	259	136	91.6	56.3	110
OUT - Gross Pollutant Mean Annual Load (kg/yr)	1.95E3	2.33E3	1.22E3	442	277	530
Rain In (ML/yr)	103.013	123.335	64.4708	103.013	64.4708	123.335
ET Loss (ML/yr)	13.7023	16.4055	8.57562	56.5948	35.4199	67.7597
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0
Baseflow Out (ML/yr)	0.645283	0.772584	0.403851	5.80755	3.63465	6.95325
Imp. Stormflow Out (ML/yr)	85.2052	102.014	53.3257	9.46724	5.92508	11.3349
Perv. Stormflow Out (ML/yr)	3.33815	3.99669	2.08918	30.0433	18.8026	35.9703
Total Stormflow Out (ML/yr)	88.5433	106.011	55.4149	39.5106	24.7277	47.3052
Total Outflow (ML/yr)	89.1886	106.784	55.8187	45.3181	28.3624	54.2584
Change in Soil Storage (ML/yr)	0.122251	0.146368	0.0765105	1.10025	0.688595	1.31731
TSS Baseflow Out (kg/yr)	11.7069	13.0669	6.83041	98.2216	61.8971	117.599
TSS Total Stormflow Out (kg/yr)	17130.1	19133.8	10001.7	7157.37	4739	8569.37
TSS Total Outflow (kg/yr)	17141.8	19146.8	10008.6	7255.59	4800.9	8686.97
TP Baseflow Out (kg/yr)	0.095801	0.121379	0.0634483	0.897168	0.548948	1.07416
TP Total Stormflow Out (kg/yr)	24.0706	29.8044	15.5796	12.4698	7.98058	14.9299
TP Total Outflow (kg/yr)	24.1664	29.9258	15.643	13.367	8.52953	16.004
TN Baseflow Out (kg/yr)	0.843401	1.0391	0.543168	7.49417	5.03135	8.97262
TN Total Stormflow Out (kg/yr)	196.5	258.256	134.997	84.0626	51.2964	100.646
TN Total Outflow (kg/yr)	197.343	259.295	135.541	91.5567	56.3277	109.619
GP Total Outflow (kg/yr)	1962.73	2349.94	1228.38	463.828	290.287	555.332

No Imported Data Source
nodes

USTM treatment nodes			
Location	Bioretention4	Bioretention5	Bioretention6
ID	2	5	7
Node Type	BioRetentionNodeV4	BioRetentionNodeV4	BioRetentionNodeV4
Lo-flow bypass rate (cum/sec)	0	0	0
Hi-flow bypass rate (cum/sec)	100	100	100
Inlet pond volume			
Area (sqm)	2100	4300	690
Initial Volume (m^3)			
Extended detention depth (m)	0.2	0.2	0.2
Number of Rainwater tanks			
Permanent Pool Volume (cubic metres)			
Proportion vegetated			
Equivalent Pipe Diameter (mm)			
Overflow weir width (m)	2	2	2
Notional Detention Time (hrs)			
Orifice Discharge Coefficient			

Weir Coefficient	1.7	1.7	1.7
Number of CSTR Cells	3	3	3
Total Suspended Solids - k (m/yr)	8000	8000	8000
Total Suspended Solids - C* (mg/L)	20	20	20
Total Suspended Solids - C** (mg/L)			
Total Phosphorus - k (m/yr)	6000	6000	6000
Total Phosphorus - C* (mg/L)	0.13	0.13	0.13
Total Phosphorus - C** (mg/L)			
Total Nitrogen - k (m/yr)	500	500	500
Total Nitrogen - C* (mg/L)	1.4	1.4	1.4
Total Nitrogen - C** (mg/L)			
Threshold Hydraulic Loading for C** (m/yr)			
Horizontal Flow Coefficient	3	3	3
Reuse Enabled	Off	Off	Off
Max drawdown height (m)			
Annual Demand Enabled	Off	Off	Off
Annual Demand Value (ML/year)			
Annual Demand Distribution			
Annual Demand Monthly Distribution: Jan			
Annual Demand Monthly Distribution: Feb			
Annual Demand Monthly Distribution: Mar			
Annual Demand Monthly Distribution: Apr			
Annual Demand Monthly Distribution: May			
Annual Demand Monthly Distribution: Jun			
Annual Demand Monthly Distribution: Jul			
Annual Demand Monthly Distribution: Aug			
Annual Demand Monthly Distribution: Sep			
Annual Demand Monthly Distribution: Oct			
Annual Demand Monthly Distribution: Nov			
Annual Demand Monthly Distribution: Dec			
Daily Demand Enabled	Off	Off	Off
Daily Demand Value (ML/day)			
Custom Demand Enabled	Off	Off	Off
Custom Demand Time Series File			
Custom Demand Time Series Units			
Filter area (sqm)	750	1750	143
Filter perimeter (m)	380	1035	145
Filter depth (m)	0.01	0.01	0.01
Filter Median Particle Diameter (mm)			
Saturated Hydraulic Conductivity (mm/hr)	100	100	100
Infiltration Media Porosity	0.35	0.35	0.35

Length (m)			
Bed slope			
Base Width (m)			
Top width (m)			
Vegetation height (m)			
Vegetation Type	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants
Total Nitrogen Content in Filter (mg/kg)	400	400	400
Orthophosphate Content in Filter (mg/kg)	35	35	35
Is Base Lined?	No	No	No
Is Underdrain Present?	Yes	Yes	Yes
Is Submerged Zone Present?	Yes	Yes	Yes
Submerged Zone Depth (m)	0.75	0.75	0.75
B for Media Soil Texture	13	13	13
Proportion of upstream impervious area treated			
Exfiltration Rate (mm/hr)	0.1	0.1	0.1
Evaporative Loss as % of PET	100	100	100
Depth in metres below the drain pipe			
TSS A Coefficient			
TSS B Coefficient			
TP A Coefficient			
TP B Coefficient			
TN A Coefficient			
TN B Coefficient			
Sfc	0.61	0.61	0.61
S*	0.37	0.37	0.37
Sw	0.11	0.11	0.11
Sh	0.05	0.05	0.05
Emax (m/day)	0.008	0.008	0.008
Ew (m/day)	0.001	0.001	0.001
IN - Mean Annual Flow (ML/yr)	89.2	107	55.8
IN - TSS Mean Annual Load (kg/yr)	17.1E3	19.2E3	10.0E3
IN - TP Mean Annual Load (kg/yr)	24.2	30.0	15.6
IN - TN Mean Annual Load (kg/yr)	197	261	136
IN - Gross Pollutant Mean Annual Load (kg/yr)	1.95E3	2.33E3	1.22E3
OUT - Mean Annual Flow (ML/yr)	87.0	102	55.3
OUT - TSS Mean Annual Load (kg/yr)	367	393	291
OUT - TP Mean Annual Load (kg/yr)	11.9	15.3	6.06
OUT - TN Mean Annual Load (kg/yr)	84.5	84.5	88.5
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0.00	0.00	0.00
Flow In (ML/yr)	89.1886	107.112	55.8187
ET Loss (ML/yr)	0.721801	1.74856	0.117201
Infiltration Loss (ML/yr)	1.39444	3.42055	0.44027
Low Flow Bypass Out (ML/yr)	0	0	0
High Flow Bypass Out (ML/yr)	0	0	0
Orifice / Filter Out (ML/yr)	87.0254	101.833	54.9239
Weir Out (ML/yr)	0	0	0.327923

Transfer Function Out (ML/yr)	0	0	0
Reuse Supplied (ML/yr)	0	0	0
Reuse Requested (ML/yr)	0	0	0
% Reuse Demand Met	0	0	0
% Load Reduction	2.42539	4.92811	1.01555
TSS Flow In (kg/yr)	17141.8	19166.9	10008.6
TSS ET Loss (kg/yr)	0	0	0
TSS Infiltration Loss (kg/yr)	6.65573	14.7451	3.02575
TSS Low Flow Bypass Out (kg/yr)	0	0	0
TSS High Flow Bypass Out (kg/yr)	0	0	0
TSS Orifice / Filter Out (kg/yr)	366.823	393.417	271.427
TSS Weir Out (kg/yr)	0	0	20.0389
TSS Transfer Function Out (kg/yr)	0	0	0
TSS Reuse Supplied (kg/yr)	0	0	0
TSS Reuse Requested (kg/yr)	0	0	0
TSS % Reuse Demand Met	0	0	0
TSS % Load Reduction	97.8601	97.9474	97.0878
TP Flow In (kg/yr)	24.1664	29.9678	15.643
TP ET Loss (kg/yr)	0	0	0
TP Infiltration Loss (kg/yr)	0.186672	0.473758	0.0545135
TP Low Flow Bypass Out (kg/yr)	0	0	0
TP High Flow Bypass Out (kg/yr)	0	0	0
TP Orifice / Filter Out (kg/yr)	11.8796	15.3285	6.02093
TP Weir Out (kg/yr)	0	0	0.0419925
TP Transfer Function Out (kg/yr)	0	0	0
TP Reuse Supplied (kg/yr)	0	0	0
TP Reuse Requested (kg/yr)	0	0	0
TP % Reuse Demand Met	0	0	0
TP % Load Reduction	50.8424	48.85	61.242
TN Flow In (kg/yr)	197.343	260.791	135.54
TN ET Loss (kg/yr)	0	0	0
TN Infiltration Loss (kg/yr)	1.38501	3.15635	0.548316
TN Low Flow Bypass Out (kg/yr)	0	0	0
TN High Flow Bypass Out (kg/yr)	0	0	0
TN Orifice / Filter Out (kg/yr)	84.4991	84.5174	87.0371
TN Weir Out (kg/yr)	0	0	1.49624
TN Transfer Function Out (kg/yr)	0	0	0
TN Reuse Supplied (kg/yr)	0	0	0
TN Reuse Requested (kg/yr)	0	0	0
TN % Reuse Demand Met	0	0	0
TN % Load Reduction	57.1817	67.5919	34.6813
GP Flow In (kg/yr)	1948.28	2332.63	1219.33
GP ET Loss (kg/yr)	0	0	0
GP Infiltration Loss (kg/yr)	0	0	0
GP Low Flow Bypass Out (kg/yr)	0	0	0
GP High Flow Bypass Out (kg/yr)	0	0	0
GP Orifice / Filter Out (kg/yr)	0	0	0
GP Weir Out (kg/yr)	0	0	0
GP Transfer Function Out (kg/yr)	0	0	0
GP Reuse Supplied (kg/yr)	0	0	0

GP Reuse Requested (kg/yr)	0	0	0
GP % Reuse Demand Met	0	0	0
GP % Load Reduction	100	100	100
PET Scaling Factor	2.1	2.1	2.1

No Generic treatment nodes

Other nodes				
Location	Junction	Post-Development Node	Junction	Pre-Development Node
ID	3	8	11	13
Node Type	JunctionNode	PostDevelopmentNode	JunctionNode	PreDevelopmentNode
IN - Mean Annual Flow (ML/yr)	244	244	128	128
IN - TSS Mean Annual Load (kg/yr)	1.03E3	1.03E3	20.7E3	20.7E3
IN - TP Mean Annual Load (kg/yr)	33.2	33.2	37.9	37.9
IN - TN Mean Annual Load (kg/yr)	256	256	258	258
IN - Gross Pollutant Mean Annual Load (kg/yr)	0.00	0.00	1.25E3	1.25E3
OUT - Mean Annual Flow (ML/yr)	244	0.00	128	0.00
OUT - TSS Mean Annual Load (kg/yr)	1.03E3	0.00	20.7E3	0.00
OUT - TP Mean Annual Load (kg/yr)	33.2	0.00	37.9	0.00
OUT - TN Mean Annual Load (kg/yr)	256	0.00	258	0.00
OUT - Gross Pollutant Mean Annual Load (kg/yr)	0.00	0.00	1.25E3	0.00
% Load Reduction	3.18	3.18	111E-15	111E-15
TSS % Load Reduction	97.8	97.8	123E-15	123E-15
TN % Load Reduction	56.8	56.8	-22.1E-15	-22.1E-15
TP % Load Reduction	52.3	52.3	75.0E-15	75.0E-15
GP % Load Reduction	100	100	36.4E-15	36.4E-15

Links														
Location	Drainage Link	Drainage Link	Drainage Link	Secondary Drainage Link	Drainage Link	Drainage Link	Drainage Link	Secondary Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link
Source node ID	1	4	2	2	5	6	7	7	9	10	3	12	11	
Target node ID	2	5	3	5	3	7	3	5	11	11	8	11	13	
Muskingum-Cunge Routing	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	
Muskingum K														
Muskingum theta														
IN - Mean Annual Flow (ML/yr)	89.2	107	87.0	0.00	102	55.8	54.9	0.328	45.3	28.4	244	54.3	128	
IN - TSS Mean Annual Load (kg/yr)	17.1E3	19.1E3	367	0.00	393	10.0E3	271	20.0	7.26E3	4.80E3	1.03E3	8.69E3	20.7E3	
IN - TP Mean Annual Load (kg/yr)	24.2	29.9	11.9	0.00	15.3	15.6	6.02	42.0E-3	13.4	8.53	33.2	16.0	37.9	
IN - TN Mean Annual Load (kg/yr)	197	259	84.5	0.00	84.5	136	87.0	1.50	91.6	56.3	256	110	258	
IN - Gross Pollutant Mean Annual Load (kg/yr)	1.95E3	2.33E3	0.00	0.00	0.00	1.22E3	0.00	0.00	442	277	0.00	530	1.25E3	
OUT - Mean Annual Flow (ML/yr)	89.2	107	87.0	0.00	102	55.8	54.9	0.328	45.3	28.4	244	54.3	128	
OUT - TSS Mean Annual Load (kg/yr)	17.1E3	19.1E3	367	0.00	393	10.0E3	271	20.0	7.26E3	4.80E3	1.03E3	8.69E3	20.7E3	
OUT - TP Mean Annual Load	24.2	29.9	11.9	0.00	15.3	15.6	6.02	42.0E-3	13.4	8.53	33.2	16.0	37.9	

(kg/yr)													
OUT - TN Mean Annual Load (kg/yr)	197	259	84.5	0.00	84.5	136	87.0	1.50	91.6	56.3	256	110	258
OUT - Gross Pollutant Mean Annual Load (kg/yr)	1.95E3	2.33E3	0.00	0.00	0.00	1.22E3	0.00	0.00	442	277	0.00	530	1.25E3

Catchment Details	
Catchment Name	5271 - Airport Rezone - North Pre and Post
Timestep	Day
Start Date	1/01/1972
End Date	31/12/1975
Rainfall Station	Coastal_MUSIC
ET Station	Coastal_MUSIC
Mean Annual Rainfall (mm)	1752
Mean Annual ET (mm)	1484

The figure consists of two network diagrams. The left diagram, titled 'Post-Development Node', shows a central 'Wetland' node (green tree icon) connected to several 'Bioretention' (brown barrel icon) and 'Urban' (blue house icon) nodes. The 'Wetland' node is connected to 'Bioretention1', 'Bioretention2', 'Bioretention3', 'Bioretention7', 'Bioretention8', and 'Bioretention9'. 'Bioretention1' is connected to 'Urban1'. 'Bioretention2' is connected to 'Urban2'. 'Bioretention3' is connected to 'Urban3'. 'Bioretention7' is connected to 'Urban7'. 'Bioretention8' is connected to 'Urban6'. 'Bioretention9' is connected to 'Cat9'. 'Cat9' is connected to 'Bioretention3'. 'Urban6' is connected to 'Bioretention8'. 'Urban7' is connected to 'Bioretention7'. 'Urban8' is connected to 'Bioretention8'. 'Urban9' is connected to 'Bioretention9'. The right diagram, titled 'Pre-Development Node', shows a central 'Pre-Development Node' (black square icon) connected to several 'Copy of Urban' nodes (blue house icon). The 'Pre-Development Node' is connected to 'Copy of Urban1', 'Copy of Urban2', 'Copy of Cat9', 'Copy of Urban3', 'Copy of Urban7', 'Copy of Urban8', and 'Copy of Urban9'. 'Copy of Urban1' is connected to 'Copy of Urban2'. 'Copy of Urban2' is connected to 'Copy of Cat9'. 'Copy of Cat9' is connected to 'Copy of Urban3'. 'Copy of Urban3' is connected to 'Copy of Urban7'. 'Copy of Urban7' is connected to 'Copy of Urban8'. 'Copy of Urban8' is connected to 'Copy of Urban9'.

[illegible]

[illegible]

Standard Deviation (log mg/L)												
Baseflow Total Phosphorus Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Phosphorus Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Total Nitrogen Mean (log mg/L)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Baseflow Total Nitrogen Standard Deviation (log mg/L)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Baseflow Total Nitrogen Estimation Method	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic	Stochastic
Baseflow Total Nitrogen Serial Correlation	0	0	0	0	0	0	0	0	0	0	0	0
Flow based constituent generation - enabled	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
Flow based constituent generation - flow file												
Flow based constituent generation - base flow column												
Flow based constituent generation - pervious flow column												
Flow based constituent generation - impervious flow column												
Flow based constituent generation - unit												
OUT - Mean	29.3	43.2	19.4	64.8	72.4	65.5	14.9	22.0	9.87	32.9	36.8	33.3

Annual Flow (ML/yr)												
OUT - TSS	4.71E3	7.42E3	3.55E3	11.3E3	13.2E3	12.2E3	2.77E3	3.00E3	1.35E3	5.34E3	6.84E3	6.20E3
Mean Annual Load (kg/yr)												
OUT - TP	8.42	11.0	5.67	18.0	21.1	20.2	4.32	6.15	2.76	7.79	10.7	9.67
Mean Annual Load (kg/yr)												
OUT - TN	65.2	97.3	43.9	138	163	146	34.8	43.4	19.5	72.5	86.1	77.9
Mean Annual Load (kg/yr)												
OUT - Gross Pollutant	639	944	424	1.41E3	1.58E3	1.43E3	145	214	96.3	321	359	325
Mean Annual Load (kg/yr)												
Rain In (ML/yr)	33.8122	49.9299	22.4247	74.8072	83.5668	75.6832	33.8122	49.9299	22.4247	74.8072	83.5668	75.6832
ET Loss (ML/yr)	4.49757	6.64145	2.98282	9.9505	11.1157	10.067	18.5762	27.4312	12.32	41.0986	45.9111	41.5799
Deep Seepage Loss (ML/yr)	0	0	0	0	0	0	0	0	0	0	0	0
Baseflow Out (ML/yr)	0.211802	0.312765	0.14047	0.468598	0.52347	0.474085	1.90622	2.81488	1.26423	4.21738	4.71123	4.26677
Imp. Stormflow Out (ML/yr)	27.967	41.2984	18.5481	61.8752	69.1205	62.5997	3.10745	4.58871	2.0609	6.87502	7.68006	6.95552
Perv. Stormflow Out (ML/yr)	1.09568	1.61798	0.726672	2.42413	2.70799	2.45252	9.86116	14.5618	6.54005	21.8172	24.3719	22.0727
Total Stormflow Out (ML/yr)	29.0627	42.9164	19.2748	64.2993	71.8285	65.0522	12.9686	19.1505	8.60094	28.6922	32.0519	29.0282
Total Outflow (ML/yr)	29.2745	43.2292	19.4152	64.7679	72.352	65.5263	14.8748	21.9654	9.86517	32.9096	36.7632	33.2949
Change in Soil Storage (ML/yr)	0.0401265	0.059254	0.0266123	0.0887773	0.0991725	0.0898168	0.361138	0.533287	0.239511	0.798994	0.892553	0.80835
TSS Baseflow Out (kg/yr)	3.46354	5.53113	2.40393	8.15439	8.9584	8.20894	31.1861	47.0439	21.1285	74.5829	77.0766	69.8053
TSS Total Stormflow Out (kg/yr)	4706.96	7411.74	3551.47	11295	13234.8	12159.8	2736.61	2957.64	1328.34	5260.82	6763.53	6125.46
TSS Total Outflow (kg/yr)	4710.42	7417.27	3553.88	11303.1	13243.7	12168	2767.79	3004.68	1349.47	5335.4	6840.61	6195.27
TP Baseflow Out (kg/yr)	0.0331078	0.0477145	0.0228668	0.076211	0.0852148	0.072571	0.281758	0.433692	0.194781	0.643393	0.696364	0.63067
TP Total Stormflow Out (kg/yr)	8.38365	10.9386	5.65005	17.8976	21.0553	20.1215	4.03974	5.71804	2.5681	7.14477	9.98422	9.04231
TP Total Outflow (kg/yr)	8.41675	10.9863	5.67291	17.9739	21.1405	20.1941	4.32149	6.15174	2.76288	7.78817	10.6806	9.67298
TN Baseflow Out (kg/yr)	0.283489	0.413997	0.187177	0.637995	0.697525	0.656089	2.57566	3.82482	1.71781	5.58243	6.36575	5.76521

TN Total Stormflow Out (kg/yr)	64.9057	96.8753	43.687	137.212	162.802	145.391	32.2487	39.613	17.7911	66.9134	79.7027	72.1836
TN Total Outflow (kg/yr)	65.1891	97.2893	43.8741	137.85	163.5	146.047	34.8243	43.4378	19.5089	72.4958	86.0685	77.9488
GP Total Outflow (kg/yr)	644.231	951.326	427.262	1425.32	1592.22	1442.01	152.243	224.815	100.969	336.828	376.269	340.772

No Imported
Data Source
nodes

USTM treatment nodes												
Location ID	Bioretention12	Bioretention24	Bioretention96	Bioretention38	Bioretention710	Bioretention812	Wetland14					
Node Type	BioRetentionNodeV4	BioRetentionNodeV4	BioRetentionNodeV4	BioRetentionNodeV4	BioRetentionNodeV4	BioRetentionNodeV4	WetlandNode					
Lo-flow bypass rate (cum/sec)	0	0	0	0	0	0	0					
Hi-flow bypass rate (cum/sec)	100	100	100	100	100	100	100					
Inlet pond volume								0				
Area (sqm)	2000	1600	1140	1950	1740	1140	2000					
Initial Volume (m^3)							20					
Extended detention depth (m)	0.2	0.2	0.2	0.2	0.2	0.2	0.2					
Number of Rainwater tanks												
Permanent Pool Volume (cubic metres)								20				
Proportion vegetated								0.5				
Equivalent Pipe Diameter (mm)								200				
Overflow weir width (m)	2	2	2	2	2	2	20					
Notional Detention Time (hrs)								2.67				
Orifice Discharge Coefficient								0.6				
Weir Coefficient	1.7	1.7	1.7	1.7	1.7	1.7	1.7					
Number of CSTR Cells	3	3	3	3	3	3	4					

Total Suspended Solids - k (m/yr)	8000	8000	8000	8000	8000	8000	1500
Total Suspended Solids - C* (mg/L)	20	20	20	20	20	20	6
Total Suspended Solids - C** (mg/L)							6
Total Phosphorus - k (m/yr)	6000	6000	6000	6000	6000	6000	1000
Total Phosphorus - C* (mg/L)	0.13	0.13	0.13	0.13	0.13	0.13	0.06
Total Phosphorus - C** (mg/L)							0.06
Total Nitrogen - k (m/yr)	500	500	500	500	500	500	150
Total Nitrogen - C* (mg/L)	1.4	1.4	1.4	1.4	1.4	1.4	1
Total Nitrogen - C** (mg/L)							1
Threshold Hydraulic Loading for C** (m/yr)							3500
Horizontal Flow Coefficient	3	3	3	3	3	3	
Reuse Enabled	Off	Off	Off	Off	Off	Off	Off
Max drawdown height (m)							
Annual Demand Enabled	Off	Off	Off	Off	Off	Off	Off
Annual Demand Value (ML/year)							
Annual Demand Distribution							
Annual Demand Monthly Distribution:							
Jan							
Annual Demand Monthly Distribution:							
Feb							

Annual Demand Monthly Distribution:							
Mar							
Annual Demand Monthly Distribution:							
Apr							
Annual Demand Monthly Distribution:							
May							
Annual Demand Monthly Distribution:							
Jun							
Annual Demand Monthly Distribution:							
Jul							
Annual Demand Monthly Distribution:							
Aug							
Annual Demand Monthly Distribution:							
Sep							
Annual Demand Monthly Distribution:							
Oct							
Annual Demand Monthly Distribution:							
Nov							
Annual Demand Monthly Distribution:							
Dec							
Daily Demand Enabled	Off	Off	Off	Off	Off	Off	Off
Daily Demand Value (ML/day)							
Custom Demand Enabled	Off	Off	Off	Off	Off	Off	Off
Custom Demand							

Time Series							
File							
Custom							
Demand							
Time Series							
Units							
Filter area (sqm)	640	360	403	740	475	403	
Filter perimeter (m)	520	320	206	375	480	206	
Filter depth (m)	0.01	0.01	0.01	0.01	0.01	0.01	
Filter Median Particle Diameter (mm)							
Saturated Hydraulic Conductivity (mm/hr)	100	100	100	100	100	100	
Infiltration Media Porosity	0.35	0.35	0.35	0.35	0.35	0.35	
Length (m)							
Bed slope							
Base Width (m)							
Top width (m)							
Vegetation height (m)							
Vegetation Type	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants	Vegetated with Effective Nutrient Removal Plants
Total Nitrogen Content in Filter (mg/kg)	500	500	600	500	500	500	
Orthophosphate Content in Filter (mg/kg)	40	40	40	40	40	40	
Is Base Lined?	No	No	No	No	No	No	
Is Underdrain Present?	Yes	Yes	Yes	Yes	Yes	Yes	
Is Submerged Zone Present?	Yes	Yes	Yes	Yes	Yes	Yes	
Submerged Zone Depth (m)	0.75	0.75	0.5	0.75	0.75	0.75	
B for Media Soil Texture	13	13	13	13	13	13	-9999
Proportion of upstream impervious							

area treated							
Exfiltration Rate (mm/hr)	0.1	0.1	0.1	0.1	0.1	0.1	0.05
Evaporative Loss as % of PET	100	100	100	100	100	100	125
Depth in metres below the drain pipe							
TSS A Coefficient							
TSS B Coefficient							
TP A Coefficient							
TP B Coefficient							
TN A Coefficient							
TN B Coefficient							
Sfc	0.61	0.61	0.61	0.61	0.61	0.61	
S*	0.37	0.37	0.37	0.37	0.37	0.37	
Sw	0.11	0.11	0.11	0.11	0.11	0.11	
Sh	0.05	0.05	0.05	0.05	0.05	0.05	
Emax (m/day)	0.008	0.008	0.008	0.008	0.008	0.008	
Ew (m/day)	0.001	0.001	0.001	0.001	0.001	0.001	
IN - Mean Annual Flow (ML/yr)	29.3	43.2	19.4	64.8	72.4	65.5	285
IN - TSS Mean Annual Load (kg/yr)	4.71E3	7.42E3	3.55E3	11.3E3	13.2E3	12.2E3	1.18E3
IN - TP Mean Annual Load (kg/yr)	8.42	11.0	5.67	18.0	21.1	20.2	45.3
IN - TN Mean Annual Load (kg/yr)	65.2	97.3	43.9	138	163	146	292
IN - Gross Pollutant Mean Annual Load (kg/yr)	639	944	424	1.41E3	1.58E3	1.43E3	0.00
OUT - Mean Annual Flow (ML/yr)	27.1	41.9	18.4	62.6	70.6	64.4	283
OUT - TSS Mean Annual Load (kg/yr)	102	176	69.9	250	303	279	1.53E3
OUT - TP Mean Annual Load (kg/yr)	4.80	6.64	2.62	10.4	10.9	9.83	32.2
OUT - TN Mean Annual Load (kg/yr)	21.5	44.2	16.4	57.4	79.5	72.8	311

Mean Annual Load (kg/yr)							
OUT - Gross	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pollutant Mean Annual Load (kg/yr)							
Flow In	29.2745	43.2292	19.4152	64.7679	72.3519	65.5263	285.005
(ML/yr)							
ET Loss	0.636841	0.345602	0.399517	0.727341	0.44982	0.38091	1.80959
(ML/yr)							
Infiltration	1.47556	0.923571	0.601727	1.35614	1.32001	0.763474	0.516837
Loss (ML/yr)							
Low Flow	0	0	0	0	0	0	0
Bypass Out (ML/yr)							
High Flow	0	0	0	0	0	0	0
Bypass Out (ML/yr)							
Orifice / Filter Out	27.1224	41.9378	18.3973	62.6385	70.5525	64.3561	161.923
(ML/yr)							
Weir Out	0	0	0	0	0	0	120.763
(ML/yr)							
Transfer	0	0	0	0	0	0	0
Function Out (ML/yr)							
Reuse	0	0	0	0	0	0	0
Supplied (ML/yr)							
Reuse	0	0	0	0	0	0	0
Requested (ML/yr)							
% Reuse	0	0	0	0	0	0	0
Demand Met							
% Load	7.35132	2.98724	5.24297	3.28784	2.48704	1.78588	0.81367
Reduction							
TSS Flow In	4710.42	7417.27	3553.88	11303.1	13243.7	12168	1180.34
(kg/yr)							
TSS ET	0	0	0	0	0	0	0
Loss (kg/yr)							
TSS	6.22362	4.57434	2.60232	6.117	6.55697	3.84763	5.50645
Infiltration Loss (kg/yr)							
TSS Low	0	0	0	0	0	0	0
Flow Bypass Out (kg/yr)							
TSS High	0	0	0	0	0	0	0
Flow Bypass Out (kg/yr)							
TSS Orifice / Filter Out	101.783	176.395	69.9235	250.453	302.67	279.114	1013.91
(kg/yr)							
TSS Weir	0	0	0	0	0	0	512.825
Out (kg/yr)							
TSS	0	0	0	0	0	0	0
Transfer Function Out (kg/yr)							
TSS Reuse	0	0	0	0	0	0	0
Supplied							

(kg/yr)							
TSS Reuse Requested	0	0	0	0	0	0	0
(kg/yr)							
TSS % Reuse Demand Met	0	0	0	0	0	0	0
TSS % Load Reduction	97.8392	97.6218	98.0325	97.7842	97.7146	97.7062	-29.3468
TP Flow In (kg/yr)	8.41675	10.9863	5.67291	17.9739	21.1405	20.1941	45.2735
TP ET Loss (kg/yr)	0	0	0	0	0	0	0
TP Infiltration Loss (kg/yr)	0.238322	0.143432	0.0807408	0.214428	0.203378	0.116609	0.0580738
TP Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0
TP High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0
TP Orifice / Filter Out (kg/yr)	4.79629	6.64334	2.62404	10.4464	10.9316	9.83167	13.5204
TP Weir Out (kg/yr)	0	0	0	0	0	0	18.7099
TP Transfer Function Out (kg/yr)	0	0	0	0	0	0	0
TP Reuse Supplied (kg/yr)	0	0	0	0	0	0	0
TP Reuse Requested (kg/yr)	0	0	0	0	0	0	0
TP % Reuse Demand Met	0	0	0	0	0	0	0
TP % Load Reduction	43.015	39.5305	53.7444	41.88	48.2905	51.3141	28.8098
TN Flow In (kg/yr)	65.1892	97.2892	43.8741	137.85	163.5	146.047	291.763
TN ET Loss (kg/yr)	0	0	0	0	0	0	0
TN Infiltration Loss (kg/yr)	1.42702	0.978526	0.63942	1.37304	1.41854	0.841774	0.914888
TN Low Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0
TN High Flow Bypass Out (kg/yr)	0	0	0	0	0	0	0
TN Orifice / Filter Out (kg/yr)	21.4642	44.1898	16.3608	57.3919	79.5398	72.8171	176.224
TN Weir Out (kg/yr)	0	0	0	0	0	0	134.455
TN Transfer Function Out (kg/yr)	0	0	0	0	0	0	0
TN Reuse	0	0	0	0	0	0	0

Supplied							
(kg/yr)							
TN Reuse	0	0	0	0	0	0	0
Requested							
(kg/yr)							
TN % Reuse	0	0	0	0	0	0	0
Demand Met							
TN % Load	67.074	54.5789	62.7097	58.3663	51.3516	50.1414	-6.48344
Reduction							
GP Flow In	639.486	944.318	424.115	1414.82	1580.49	1431.39	0
(kg/yr)							
GP ET Loss	0	0	0	0	0	0	0
(kg/yr)							
GP	0	0	0	0	0	0	0
Infiltration							
Loss (kg/yr)							
GP Low	0	0	0	0	0	0	0
Flow Bypass							
Out (kg/yr)							
GP High	0	0	0	0	0	0	0
Flow Bypass							
Out (kg/yr)							
GP Orifice /	0	0	0	0	0	0	0
Filter Out							
(kg/yr)							
GP Weir Out	0	0	0	0	0	0	0
(kg/yr)							
GP Transfer	0	0	0	0	0	0	0
Function Out							
(kg/yr)							
GP Reuse	0	0	0	0	0	0	0
Supplied							
(kg/yr)							
GP Reuse	0	0	0	0	0	0	0
Requested							
(kg/yr)							
GP % Reuse	0	0	0	0	0	0	0
Demand Met							
GP % Load	100	100	100	100	100	100	100
Reduction							
PET Scaling	2.1	2.1	2.1	2.1	2.1	2.1	
Factor							

No Generic
treatment
nodes

Other nodes		
Location	Pre-Development	Post-Development
	Node	Node
ID	13	15
Node Type	PreDevelopment	PostDevelopment
	Node	Node
IN - Mean	150	283
Annual Flow		
(ML/yr)		
IN - TSS	25.5E3	1.53E3
Mean		
Annual Load		
(kg/yr)		
IN - TP	41.4	32.2
Mean		

Annual Load (kg/yr)																						
IN - TN	334	311																				
Mean																						
Annual Load (kg/yr)																						
IN - Gross	1.46E3	0.00																				
Pollutant																						
Mean																						
Annual Load (kg/yr)																						
OUT - Mean	0.00	0.00																				
Annual Flow (ML/yr)																						
OUT - TSS	0.00	0.00																				
Mean																						
Annual Load (kg/yr)																						
OUT - TP	0.00	0.00																				
Mean																						
Annual Load (kg/yr)																						
OUT - TN	0.00	0.00																				
Mean																						
Annual Load (kg/yr)																						
OUT - Gross	0.00	0.00																				
Pollutant																						
Mean																						
Annual Load (kg/yr)																						
% Load	-57.0E-15	4.03																				
Reduction																						
TSS % Load	14.3E-15	97.1																				
Reduction																						
TN % Load	153E-15	52.5																				
Reduction																						
TP % Load	-17.2E-15	61.8																				
Reduction																						
GP % Load	-77.8E-15	100																				
Reduction																						
Links																						
Location	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Drainage Link	Secondary Drainage Link	Drainage Link	Drainage Link	Secondary Drainage Link	Drainage Link	Second ary Drainag e Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link	Draina ge Link
Source node ID	1	3	5	7	9	11	4	4	6	10	10	8	8	12	14	2	16	17	18	20	21	19
Target node ID	2	4	6	8	10	12	14	6	14	14	6	14	6	14	15	14	13	13	13	13	13	13
Muskingum-Cunge Routing	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed	Not Routed
Muskingum K																						
Muskingum theta																						
IN - Mean Annual Flow (ML/yr)	29.3	43.2	19.4	64.8	72.4	65.5	41.9	0.00	18.4	70.6	0.00	62.6	0.00	64.4	283	27.1	14.9	22.0	9.87	36.8	33.3	32.9
IN - TSS	4.71E3	7.42E3	3.55E3	11.3E3	13.2E3	12.2E3	176	0.00	69.9	303	0.00	250	0.00	279	1.53E3	102	2.77E3	3.00E3	1.35E3	6.84E3	6.20E3	5.34E3

Mean Annual Load (kg/yr)	IN - TP	8.42	11.0	5.67	18.0	21.1	20.2	6.64	0.00	2.62	10.9	0.00	10.4	0.00	9.83	32.2	4.80	4.32	6.15	2.76	10.7	9.67	7.79
Mean Annual Load (kg/yr)	IN - TN	65.2	97.3	43.9	138	163	146	44.2	0.00	16.4	79.5	0.00	57.4	0.00	72.8	311	21.5	34.8	43.4	19.5	86.1	77.9	72.5
Mean Annual Load (kg/yr)	IN - Gross Pollutant	639	944	424	1.41E3	1.58E3	1.43E3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145	214	96.3	359	325	321
Mean Annual Load (kg/yr)	OUT - Mean Annual Flow (ML/yr)	29.3	43.2	19.4	64.8	72.4	65.5	41.9	0.00	18.4	70.6	0.00	62.6	0.00	64.4	283	27.1	14.9	22.0	9.87	36.8	33.3	32.9
Mean Annual Load (kg/yr)	OUT - TSS	4.71E3	7.42E3	3.55E3	11.3E3	13.2E3	12.2E3	176	0.00	69.9	303	0.00	250	0.00	279	1.53E3	102	2.77E3	3.00E3	1.35E3	6.84E3	6.20E3	5.34E3
Mean Annual Load (kg/yr)	OUT - TP	8.42	11.0	5.67	18.0	21.1	20.2	6.64	0.00	2.62	10.9	0.00	10.4	0.00	9.83	32.2	4.80	4.32	6.15	2.76	10.7	9.67	7.79
Mean Annual Load (kg/yr)	OUT - TN	65.2	97.3	43.9	138	163	146	44.2	0.00	16.4	79.5	0.00	57.4	0.00	72.8	311	21.5	34.8	43.4	19.5	86.1	77.9	72.5
Mean Annual Load (kg/yr)	OUT - Gross Pollutant	639	944	424	1.41E3	1.58E3	1.43E3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	145	214	96.3	359	325	321
Catchment Details																							
Catchment Name	5271 - Airport Rezone - South Pre and Post																						
Timestep	Day																						
Start Date	1/01/1972																						
End Date	31/12/1975																						
Rainfall Station	Coastal_MUSIC																						
ET Station	Coastal_MUSIC																						
Mean Annual Rainfall (mm)	1752																						
Mean Annual ET (mm)	1484																						

Attachment 8 - TPS Group Traffic Report 2016



TPSGROUP™
Traffic & Parking Systems

**Tony Thorne
King & Campbell**

27th June 2016

Dear Tony,

**Port Macquarie Airport Business Park Development
Assessment of Operation of Hastings River Dr / Boundary St Intersection
Response to Council**

I refer to our most recent meeting with Council officers on Tuesday 31st May and your request for further advice regarding the above matter. I now submit the following assessments based on an intersection layout understood to be described in a report by GHD consultants titled "Port Macquarie Airport Precinct Traffic Study ("GHD Intersection Layout").

This report has also been prepared in the context of the following direction from Council officers.

*.... only **Scenario 2** (Upgrade of Hastings River Drive / Boundary Street intersection but no Secondary Access Road) will be the subject of further traffic analysis at this stage for informing the ongoing planning process.*

High quality access to Port Macquarie Airport is critical to the local economy. For the foreseeable future there will only be one access road to the Airport - Boundary Street via Hastings River Drive. Therefore the efficient operation of this route needs to be safeguarded. The performance of this route is primarily a function of the Hastings River Drive / Boundary Street intersection and therefore efficient operation of this intersection is critical and a good level of service is required.

The following sections of this response outline and comment on the assumptions used in the intersection assessment, results obtained from SIDRA 7.0 intersection analysis software and conclusions derived from the analyses.

1. The GHD Intersection Layout

The GHD Intersection Layout is shown in Fig 1.1.

This intersection has been used as the basis for this response.

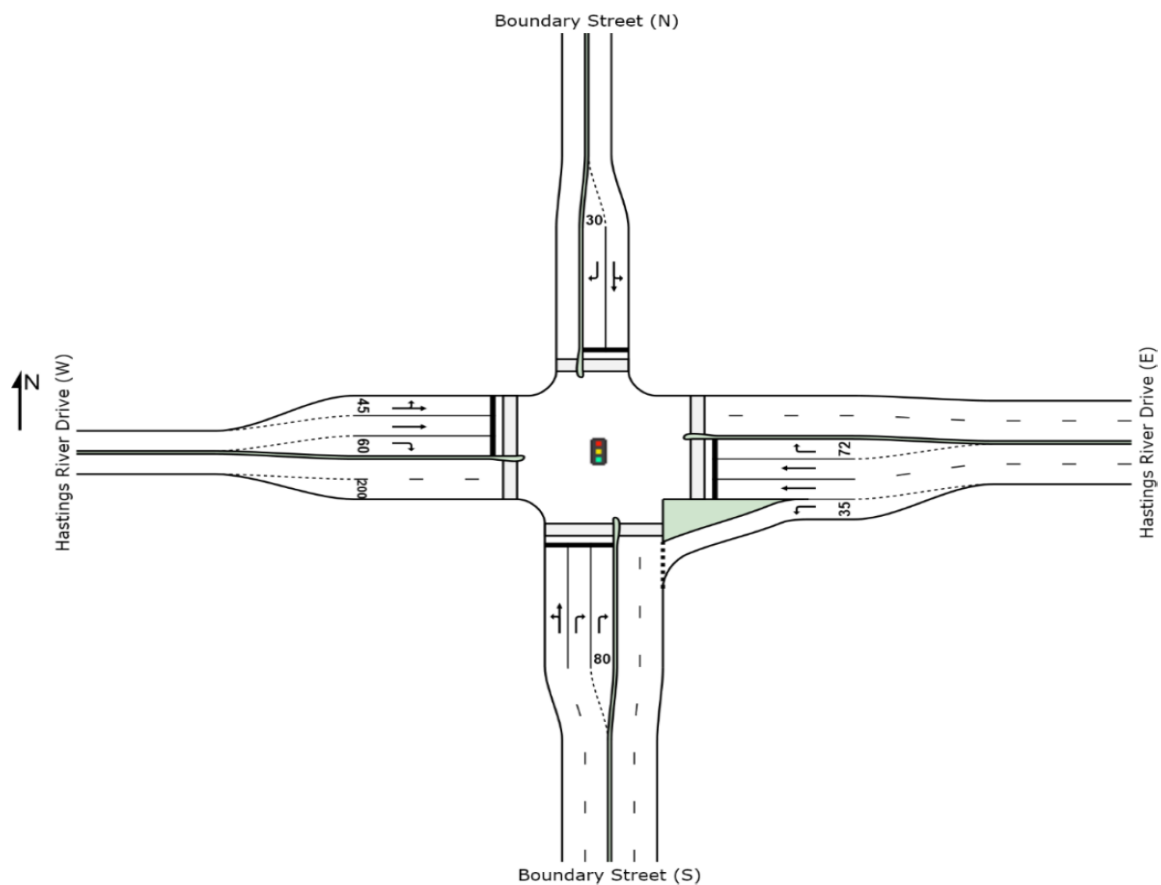


Fig 1.1 The GHD Intersection Layout

2. The Assumed Development

Table 2.1 shows the assumed development floor areas which were applied into making estimates of future development traffic generation and future traffic volumes at the subject intersection. These estimates were provided to TPS by King & Campbell.

Table 2.1
Assumed Future Development

Business Park Development Area	Land Area (Ha)	Yield	GFA	Type
Airport Land	19.54	50.00%	97700	Bus Park
Nissen, Gilson and Ireland Land	8.04	50.00%	40200	Bus Park
TOTAL	27.58		137900	

Existing Development Areas

Airport	Estimates are based on an assumption that these developments will generate 100% more traffic by 2030.
Newman College	
Sports Facilities	
Other Existing Development	

3. Estimated Future Traffic Generation

Traffic generation rates for “business park” have been based on the “regional average” rates reported by RMS in Technical Direction TDT 2013/04aGuide, an extract of which is shown below. These rates were adopted in view of the difficulty associated with making an accurate estimate of the likely future distribution of floorspace between industrial, warehouse, office, retailing etc..

Business parks and industrial estates

In 2012 eleven of these two types of sites were surveyed, four within the Sydney urban area, four within the Lower Hunter, one in the Illawarra and one in Dubbo. Summary vehicle trip generation rates were as follows:

Weekday Rates	Sydney Average	Sydney Range	Regional Average	Regional Range
AM peak (1 hour) vehicle trips per 100 m ² of GFA.	0.52	0.15-1.31	0.70	0.32-1.20
PM peak (1 hour) vehicle trips per 100 m ² of GFA.	0.56	0.16-1.50	0.78	0.39-1.30
Daily total vehicle trips	4.60	1.89-10.47	7.83	3.78-11.99

Note : Extract from RMS Technical Direction

Table 3.1 shows estimated future traffic generation associated with the anticipated Airport Business Park and other development in the subject area before 2030.

Table 3.1
Estimated Future Traffic Generation
in Area Serviced by Boundary Street south of Hastings River Drive

Business Park Development Area	Land Area (Ha)	Yield	GFA	Type	AM / 100	PM / 100	AM Peak Hour			PM Peak Hour		
							Total	In	Out	Total	In	Out
Airport Land	19.54	50.00%	97700	Bus Park	0.70	0.78	684	547	137	762	152	610
Nissen, Gilson and Ireland Land	8.04	50.00%	40200	Bus Park	0.70	0.78	281	225	56	314	63	251
Total	27.58		137900		0.70	0.78	965	772	193	1076	215	860

Existing Development Areas

Airport	Estimates are based on an assumption that these developments will generate 100% more traffic by 2030.	As Exists	As per Surveys	120	84	36	160	64	96
Newman College				80	44	36	35	5	30
Sports Facilities				0	0	0	80	35	45
Other Existing Development				50	45	5	50	40	10
Total				250	173	77	325	144	181

TOTAL							1215	945	270	1401	359	1041
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Note : The above estimates are based on an assumed peak hour directional split of 80:20.

The above estimates indicate an additional 1215 vehicle trips and 1401 vehicle trips in and out of the area via Boundary Street in the 2030 AM and PM peak hours respectively relative to vehicle movements in 2015.

Traffic surveys indicate that Boundary Street currently carries approximately 3,000 vehs/day to the immediate south of Hastings River Drive. The above estimates indicate that this traffic volume will increase to approximately 16,000 vehs/day by 2030 if all anticipated development shown in Table 2.1 occurs.

4. Assumed Distribution of Traffic to Hastings River Drive.

The distribution of traffic to/from east and west at Hastings River Drive has been a matter of discussion and agreement with Council officers some time ago. In summary, the following assumptions have been used to generate 2030 peak hour traffic volume estimates.

For Existing Road Network

80% to/from East of Boundary Street
20% to/from West of Boundary Street

Whilst TPS has adopted the above distribution we are of the view that the 80:20 distribution underestimates the likely 2030 distribution of future traffic to/ from west of Boundary Street, we are of the view that approximately 70% or more of traffic could be expected to travel to and from the east in 2030. This compares with approximately 82.5% in 2015.

Estimates indicate that the effect of assuming a 70% distribution of traffic to and from the east via Hastings River Drive (compared with 80%) is equivalent to approximately a 3% gain in intersection capacity.

5. Existing and Future 'Base' Traffic Volumes'

Recently surveyed traffic volumes have been previously reported to Council.

Surveyed AM (0800 – 0900) peak hour and PM (1615 – 1715) peak hour traffic volumes are shown in attachments and summarised below.

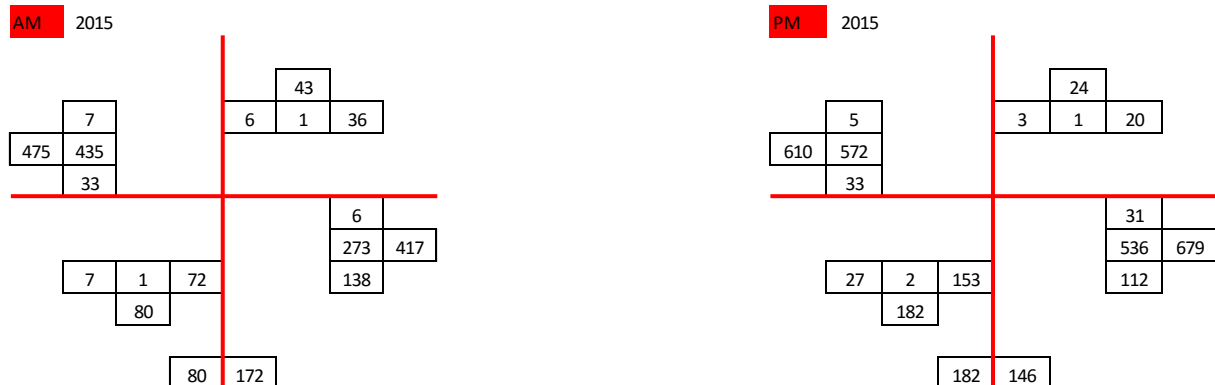


Fig 5.1 Surveyed AM and PM Peak Hour Traffic volumes (2015)

'Base' 2030 traffic volumes have been estimated based on an assumption that traffic volumes in Hastings River Drive (other than movements to and from Boundary Street) will grow at an annual linear rate equivalent to 2% of surveyed volumes in 2015.

6. Estimated Future (2030) Peak Hour Traffic Volumes

Figs 6.1 to 6.3 show estimated 2030 peak hour traffic volumes for the existing road network for each of the development scenarios investigated.

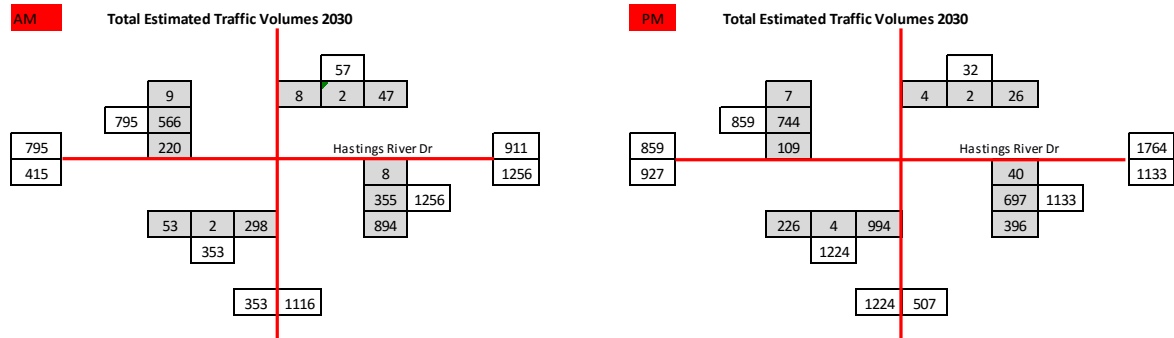


Fig 6.1 Existing Road Network - Estimated 2030 AM and PM Peak Hour Traffic volumes For All development described in Table 3.1

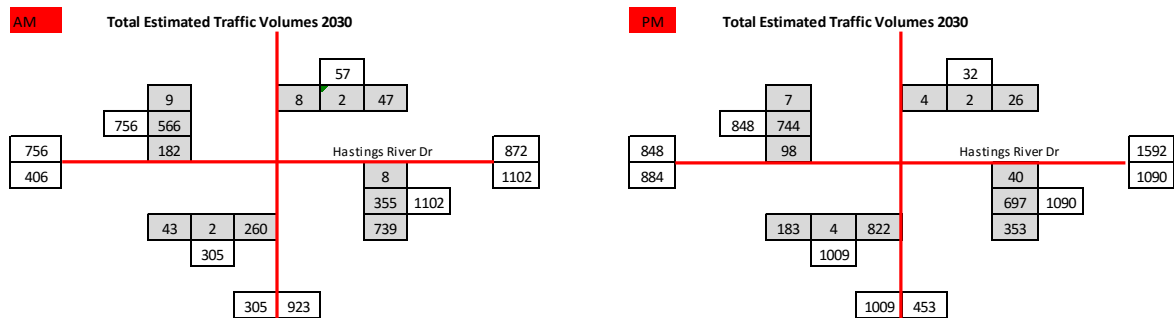


Fig 6.2 Existing Road Network - Estimated 2030 AM and PM Peak Hour Traffic volumes For 75% of Business Park Development described in Table 3.1

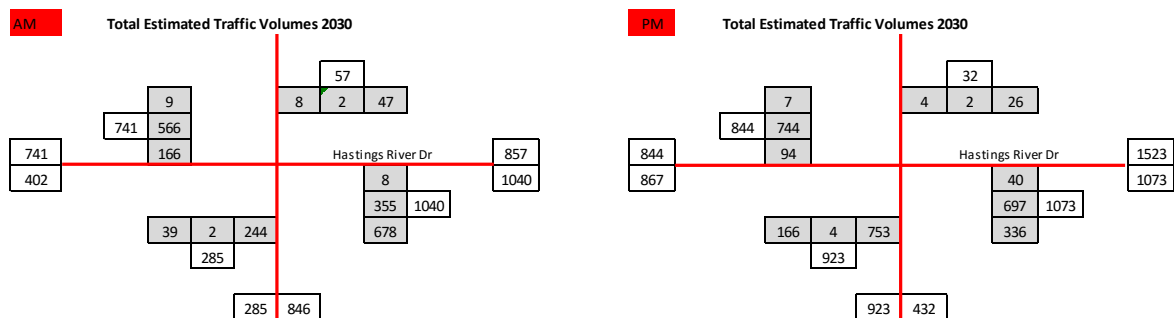


Fig 6.3 Existing Road Network - Estimated 2030 AM and PM Peak Hour Traffic volumes For 65% of Business Park development described in Table 3.1

7. Assumed Intersection Phasing & Cycle Times

TPS has adopted a cycle time of 120 seconds for all intersection performance estimates. This cycle time has been adopted because whilst it approaches the generally acknowledged maximum desirable cycle time of 150 seconds it also represents the desirable maximum from the perspective of motorist delay, pedestrian delay and the maintenance of lane capacities and vehicle platoons in signal systems.

Also, it was considered desirable to maintain cycle times and phase designs constant across all intersection analyses in order to allow a more concise comparison of the effects of varying intersection layouts and geometries.

The assumed phasing for all AM and PM peak hour estimates is shown below.

The operation of the intersection is very sensitive to pedestrian phase and clearance times due to the relatively low traffic demands on the north approach and the need to operate a double right turn from the south approach. TPS has assumed a pedestrian volume of 50 persons/hour across all approaches (as per SIDRA default) with staged pedestrian crosswalks across the east and west approaches. Minimum “walk” and clearance times for those crosswalks have been set to provide for “walk” beyond the median (12 sec) and clearance to or from the median (10 sec). The SIDRA analysis assumes that a pedestrian crosswalk phases will all activate in every signal cycle.

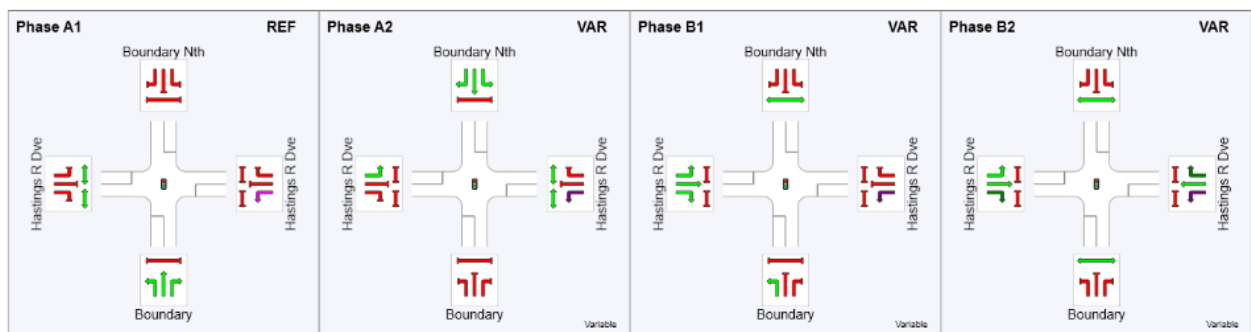


Fig 7.1 Assumed Signal Phasing

8. Assumptions in SIDRA Estimates - Comments

8.1 Saturation Flow and Peak Hour Factor

The estimates were undertaken using SIDRA 7.1 intersection analysis software with background assumptions based on Council's SIDRA Intersection User Guidelines (see attached) and TPS variations in order to demonstrate sensitivities to the assumptions. These key background assumptions were ;

- Base saturation flow rate (ie. lane capacities)
- Peak hour factor (ie. variations in flow rates within the peak hour)

TPS views regarding the appropriate quantities to adopt for the above factors and other Council requirements described in the Council Guidelines are as follows.

Base Saturation Flow Rate

The Council Guidelines specify that a rate of 1800 tcu/hr should be used in SIDRA analysis. This compares with a default rate in SIDRA software of 1950 tcu/hr for an operating environment of the type which will prevail at the subject intersection.

Saturation flow rate is not a constant and varies from as low as 1300tcu/hr up to 2300tcu/hr. This has significant consequences for the practicality of model "calibration" as discussed later in this section.

The following factors affect saturation flow rates.

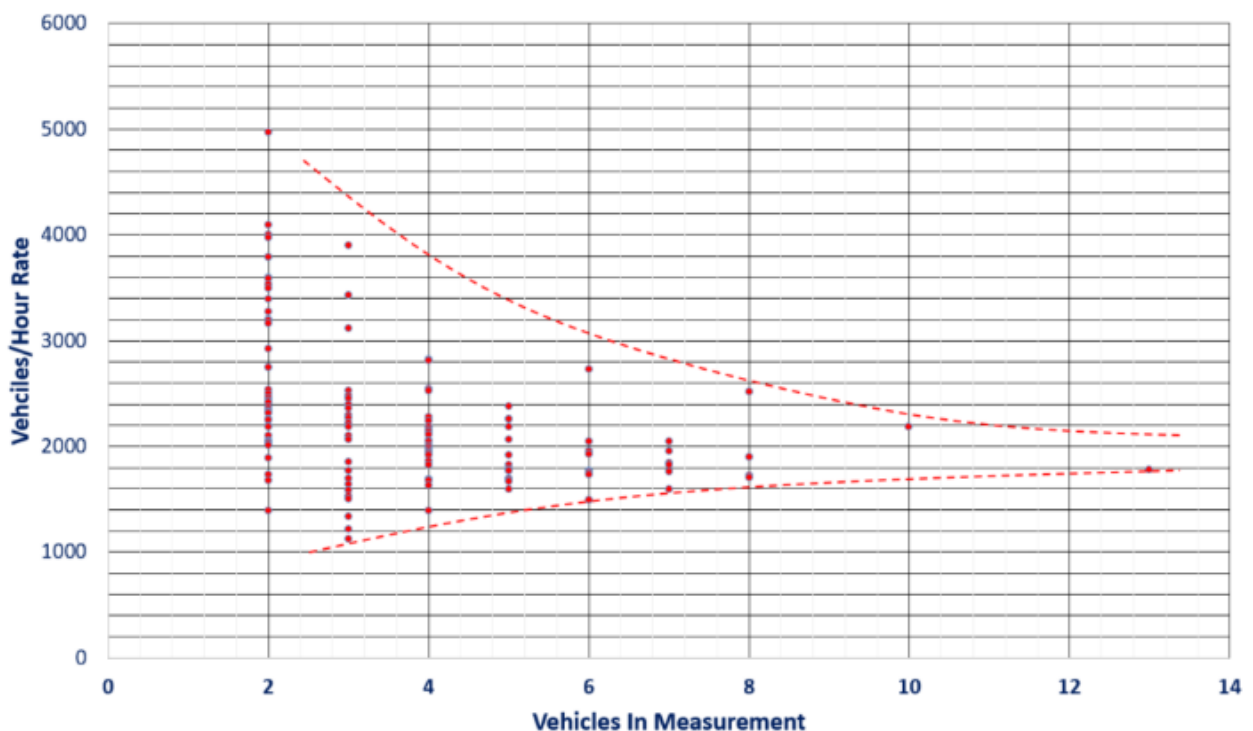
- The degree of intersection congestion – Motorists travel at shorter headways when driving in more congested circumstances. That is, saturation flow rate increases over time as congestion increases.
- The extent of signalisation in the road network – Saturation flow rates tend to be higher in networks where motorists are more familiar with driving in signalised road systems.
- The quality of the traffic environment – Higher quality intersection layouts yield higher saturation flow rates. Wider lanes, the elimination of 'trap' lanes, short lanes and merge lanes and improved downstream lane arrangements all serve to increase saturation flow rates. For example, saturation flow rates in the Middle East are very high (2100 tcu/hr) due to very high quality and expansive intersection layouts.
- The length of cycle and phase times – Very short and very long cycle and phase times tend to reduce saturation flow rates due to the effects of "start loss" and "stragglers". Generally, a cycle time of 120 seconds will maximise saturation flow rates provided phase times are relatively evenly distributed through the cycle.
- The quality of the vehicle fleet – Saturation flow rates have increased significantly over recent decades as the quality of cars have improved. For example, smaller vehicles with automatic gear boxes have allow motorists to respond quicker to signals and accelerate more quickly and more smoothly. (Saturation flow rates in USA have historically been lower than Australia due to larger vehicles).

In the past a saturation flow rate of 1800 tcu/hr was considered appropriate for most intersection assessments where an intersection was expected to be congested. In our view the higher SIDRA default rate of 1950tcu/hr is appropriate to use in the circumstances recognising that for Port Macquarie the probable changes in all the factors affecting saturation flow rates over the period to 2030 will have the effect to increase rates, including at the above intersection.

Surveys conducted by King & Campbell (under TPS direction) at the existing intersection reveal saturation flow rates which vary widely depending on the extent of queuing at the end of each red phase. The results from the surveys are shown in Fig 8.1. Whilst the surveys were limited in extent they provide evidence that current average saturation flow rates are at least 1800tcu/hr and are likely to increase in the period to 2030.

The “default” and other saturation flow rates which can be selected in the SIDRA software are based on experience and research. They are practical to achieve in certain operating environments for particular traffic engineering design qualities. TPS has little doubt that a base saturation flow rate of no less than 1950 tcu/hr is achievable and will apply to the subject intersection in 2030.

Fig 8.1
Surveyed Saturation Flow Rates - Existing HRD / Boundary St Intersection
(East, West and South Approaches)



Peak Hour Factor

The Council SIDRA Guidelines specify that a peak hour factor of 95% should be used in analysis. That is, an assumption that the average flow rate in the peak hour is 95% of the peak flow rate over say 15 minutes in the same hour. The effect of the peak hour factor in SIDRA is to simply multiply traffic volumes which are input to the model (eg. $\times 1/0.95=1.05$) and so provide an estimate of the operating character of the intersection for a 15 minute period, rather than to provide an estimate averaged across an hour.

Surveys in 2015 have identified that the peak hour factor at the subject intersection was 97% in the morning peak hour and 91% in the afternoon peak hour.

Peak hour factor reduces as congestion increases due to the “spreading of peak” which arises from traffic volumes approaching or exceeding intersection capacities. For example, in congested metropolitan areas of major capital cities the peak hour factor tends towards 100% as peak periods extend to 2 hours and more.

In view of the extensive period before 2030 and the expectation that the subject intersection will be congested, it is appropriate to adopt a peak hour factor approaching 100%.

However, a degree of saturation of 90% is considered to be an acceptable maximum operating condition because at that rate the intersection is able to respond to random flow fluctuations which occur across a peak hour. For example, if there were hypothetically no fluctuations in the flow rate over the peak hour then the intersection could technically operate at or near a degree of saturation of 100% without extensive queueing.

Notwithstanding the likelihood that the peak hour factor in 2030 at the subject intersection will approach 100%, we accept that there may continue to be traffic demand fluctuations in the peak hour if the subject intersection continues to be isolated from other intersection signals which would otherwise have the effect to ‘meter’ traffic flows and destroy randomness. Consequently, we support the application of a 95% peak hour factor in the interests of being conservative.

Calibration of the SIDRA Model

The Council SIDRA Guidelines specify that the SIDRA model should be “calibrated” which is a process whereby background assumptions in SIDRA are adjusted in order to make the model replicate existing intersection operations (eg. delays, queue lengths etc.). This “calibrated” model is then used as the basis for making estimates of future intersection operation. Saturation flow rate is one of the major variables used to “calibrate” the model.

TPS disagrees with a proposition that the SIDRA model should in this instance be “calibrated” because to do so would be to suggest that current operational characteristics such as saturation flow rates will be sustained into the long term future. It would also suggest that improvements in the engineering quality of the intersection are unable to be achieved. These situations will clearly not be the case.

That is not to suggest that SIDRA “calibration” is never appropriate. For example, SIDRA should be calibrated when it is being used to test the effect of relatively modest changes in intersection layout and signal operations etc. in the short and medium term. That is, when changes in the factors described under the earlier heading of “base saturation flow rate” such as traffic demands, intersection layout and signal operations etc. are not so significant as to cause changes in motorist behaviour and vehicle performance.

Nearly all aspects of the driving and physical intersection environment will be varied significantly in order to provide for future traffic demands at the location. Each of the engineering changes will in fact be aimed at ensuring that the effect of intersection deficiencies which affect saturation flow rate will be minimised. Consequently, it would be misleading to base estimates of future intersection operation on a calibration of existing driver behaviours and intersection operation.

If the intersection operating capacities etc. contained in SIDRA were not possible to achieve then they would not be contained in the SIDRA model options. Accordingly, TPS has relied on the strong reputation of SIDRA software, industry and TPS experience which supports that SIDRA software has the ability to represent the operating character of signalised intersections under the combined effects of significantly changed traffic demands, intersection configuration and signal arrangements.

The range of base saturation rates and peak hour factors applied into the analyses described in this report provide a sound opportunity to assess the probable operation of the intersection under various development scenarios and gauge the sensitivity of intersection operations to various assumptions in the model. Also, a concern for the accuracy of the SIDRA model needs to be viewed in the context of the potential for gross inaccuracy arising from the inability to accurately predict the nature and extent of development in 2030.

9. Estimated Intersection Operations

SIDRA estimates of future intersection operations are shown in Tables 9.1 to 9.3 for various intersection arrangements and assumptions regarding base saturation flow and peak hour factor.

All estimates are for the existing road network. That is, in the absence of any future alternative access road such as a new road link to and from south of the airport precinct.

Intersection options shown in the Tables are described in the next page in Figs 9.1 ad 9.2.

Table 9.1

Estimated Intersection Operations - Existing Road Network/Council SIDRA Parameters (1800tcu, 95% PHF)

Year	Intersection Option	Development Extent	Peak Hour	Intensification vph	Development vph	Total Additional vph	Degree of Saturation					Level of Service				
							N	S	E	W	Overall	N	S	E	W	Overall
2015	Existing	Existing	AM				0.16	0.34	0.35	0.35	0.35	D	E	B	B	C
			PM				0.13	0.71	0.75	0.44	0.75	E	E	C	B	C
2030	GHD Layout	All	AM	250	965	1215	0.25	0.57	0.86	0.41	0.86	E	D	D	B	C
			PM	325	1076	1401	0.14	1.10	1.09	0.99	1.10	E	F	F	E	F
2030	Above + Modified Sth App	All	AM	250	965	1215	0.25	0.57	0.86	0.41	0.81	E	D	C	B	C
			PM	325	1076	1401	0.14	0.99	1.02	0.89	1.02	E	E	E	D	E
2030	Above + Modified Sth App	All (70:30)	AM	250	965	1215										
			PM	325	1076	1401	0.13	0.94	0.96	0.78	0.96	E	E	D	C	D
2030	Above + Modified Sth App	65%	AM	250	627	877										
			PM	325	699	1024	0.14	0.91	0.89	0.78	0.91	E	E	D	C	D
2030	Above + Extended Left in East App	All	AM	250	965	1215	0.25	0.52	0.82	0.38	0.82	E	D	C	B	C
			PM	325	1076	1401	0.14	0.97	0.97	0.91	0.97	E	E	D	D	E
2030	Above + Extended Left in East App	75%	AM	250	724	974										
			PM	325	807	1132	0.14	0.91	0.89	0.78	0.91	E	E	D	C	D

Table 9.2

Estimated Intersection Operations - Existing Road Network / 1950tcu, 95% PHF

Year	Intersection Option	Development Extent	Peak Hour	Intensification vph	Development vph	Total Additional vph	Degree of Saturation					Level of Service				
							N	S	E	W	Overall	N	S	E	W	Overall
2015	Existing	Existing	AM				0.15	0.32	0.33	0.31	0.33	D	D	B	B	B
			PM				0.12	0.69	0.69	0.39	0.69	E	E	B	B	C
2030	GHD Layout	All	AM	250	965	1215	0.23	0.53	0.83	0.38	0.83	E	D	B	B	C
			PM	325	1076	1401	0.13	1.06	1.04	0.90	1.06	E	F	E	D	E
2030	Above + Modified Sth App	All	AM	250	965	1215	0.23	0.53	0.83	0.38	0.83	E	D	B	B	C
			PM	325	1076	1401	0.13	0.94	0.96	0.78	0.96	E	E	D	C	D
2030	Above + Modified Sth App	All (70:30)	AM	250	965	1215										
			PM	325	1076	1401	0.13	0.93	0.93	0.72	0.93	E	E	D	C	D
2030	Above + Modified Sth App	75%	AM	250	724	974										
			PM	325	807	1132	0.13	0.89	0.92	0.76	0.92	E	D	D	C	D
2030	Above + Extended Left in East App	All	AM	250	965	1215	0.23	0.48	0.81	0.35	0.81	E	D	B	B	C
			PM	325	1076	1401	0.13	0.91	0.90	0.81	0.91	E	D	D	D	D
2030	Above + Extended Left in East App	85%	AM	250	821	1071										
			PM	325	914	1239	0.13	0.84	0.83	0.76	0.84	E	D	C	C	D

Table 9.3

Estimated Intersection Operations - Existing Road Network / 1950tcu, 100% PHF

Year	Intersection Option	Development Extent	Peak Hour	Intensification vph	Development vph	Total Additional vph	Degree of Saturation					Level of Service				
							N	S	E	W	Overall	N	S	E	W	Overall
2015	Existing	Existing	AM				0.15	0.30	0.30	0.29	0.30	D	D	B	B	B
			PM				0.12	0.65	0.65	0.37	0.65	E	E	B	B	C
2030	GHD Layout	All	AM	250	965	1215	0.22	0.50	0.79	0.35	0.79	E	D	B	B	C
			PM	325	1076	1401	0.12	1.01	0.98	0.81	1.01	E	F	E	D	F
2030	Above + Modified Sth App	All	AM	250	965	1215	0.22	0.50	0.79	0.35	0.79	E	F	E	D	F
			PM	325	1076	1401	0.12	0.88	0.90	0.72	0.90	E	D	D	C	D
2030	Above + Extended Left in East App	All	AM	250	965	1215	0.22	0.45	0.76	0.33	0.76	E	D	B	B	C
			PM	325	1076	1401	0.12	0.86	0.81	0.74	0.86	E	D	C	C	D

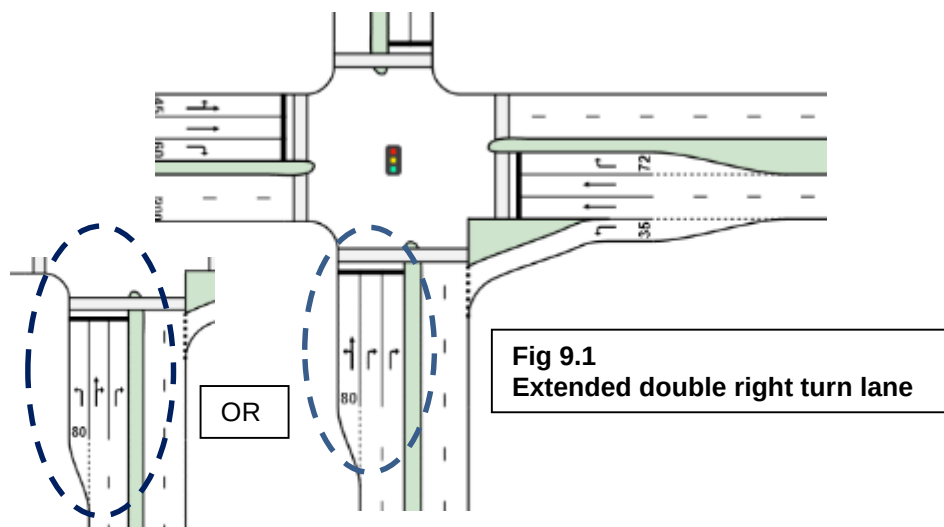
The estimates shown in Tables 9.1 to 9.3 are associated with the following three intersection options.

GHD Intersection Layout

As shown in Fig 1.1.

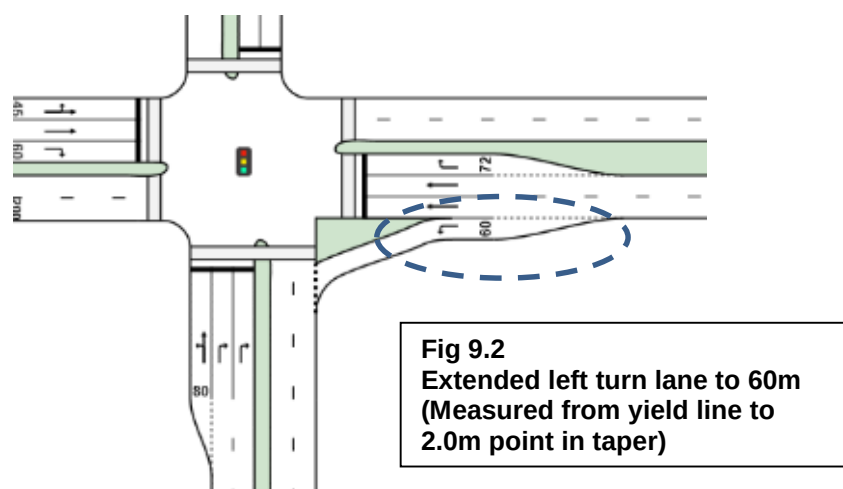
Above + Modified South Approach

The GHD intersection layout plus a change in the lane arrangement in the south approach to provide two extended right turn lanes as shown below. No additional land acquisition would be required.



Above + Extended Left in East Approach

The GHD intersection layout plus the above described change in the southern lane configuration plus an extension of the left turn lane in the eastern approach.



The estimates shown in Tables 9.1 to 9.3 indicate the following primary findings. These findings are based on maintaining movement degrees of saturation at or about 90%.

- The GHD intersection layout is not capable of servicing all the anticipated development in the area served by Boundary Street even under the more favourable set of intersection operating assumptions.
- Provided the GHD intersection layout includes the provision of two extended right turn lanes in the south approach as shown in Fig 9.1, the intersection would be capable of providing for 65% and 75% of overall Business Park development based on base saturation rates of 1800tcu/hr and 1950tcu/hr respectively together with an assumed 95% peak hour factor.
- If the assumed distribution of development traffic to and from the east at Hastings River Drive was to be 70% rather than 80%, then 2030 intersection capacity would effectively improve by approximately 3%.
- Based on a base flow saturation rate of 1950 tcu/hr and peak hour factors of 95% and 100%, the intersection would operate at or about a degree of saturation of 90% with all development provided that the southern and eastern approach were to be as shown in Fig 9.2. However, under the less conservative peak hour factor of 100% the subject intersection would not necessarily require the extension of the east approach left turn lane as shown in Fig 9.2, albeit that it would be desirable.
- If an operating level of service limit of Level C was to be required for the intersection, overall Business Park development would need to be restricted to approximately 75% of anticipated maximum development based on a base saturation flow rate of 1800 tcu/hr and peak hour factor of 95%. This increases to approximately 85% or slightly more of anticipated maximum development if a base saturation rate of 1950 tcu/hr is applied into the assessment.

10. Comments, Conclusions & Recommendations

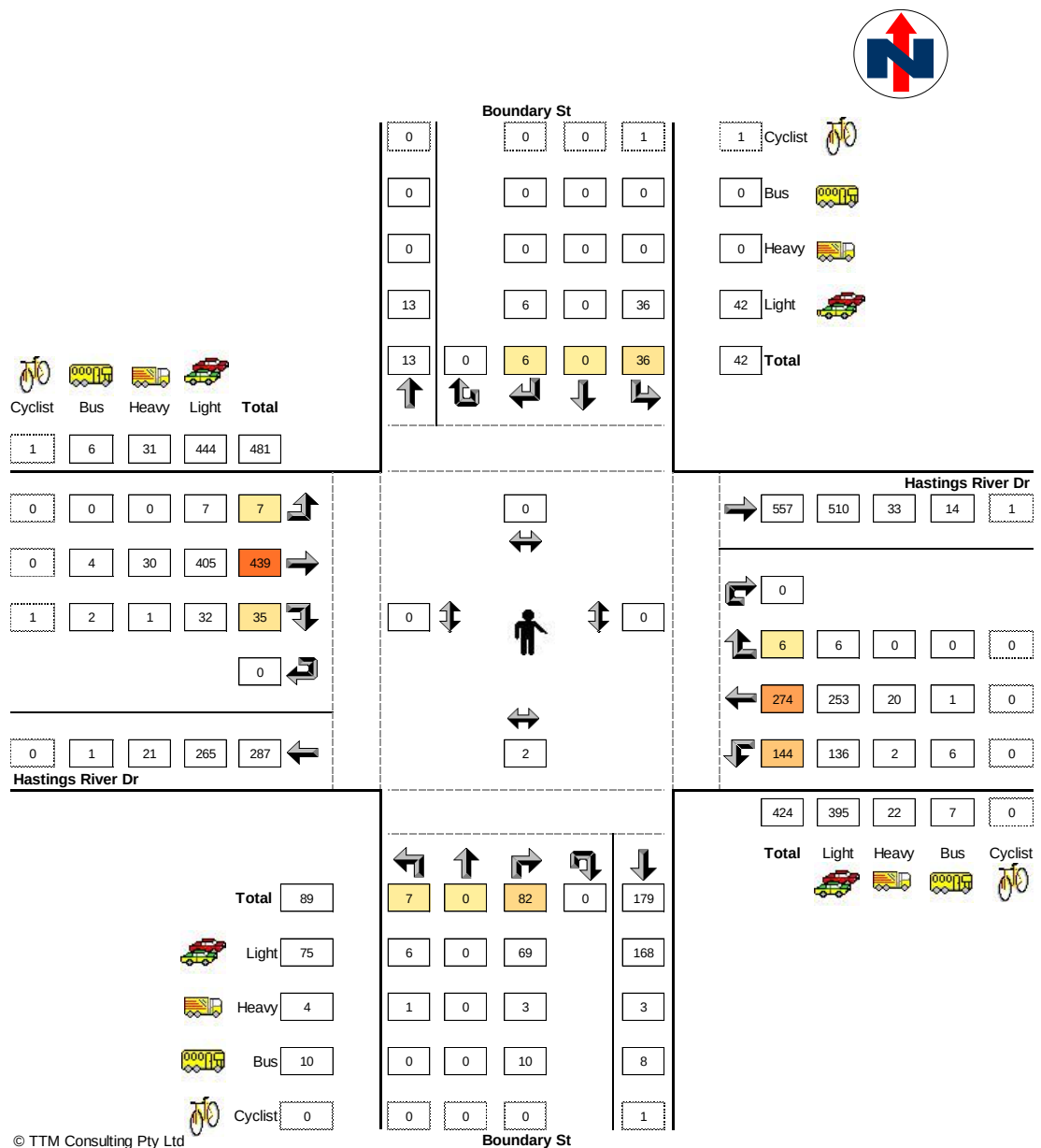
1. Estimates undertaken by TPS indicate that the GHD Intersection would function better if the lane arrangements in the south approach were to be as shown in Fig 9.1. The modified lane arrangement would contribute approximately an additional 5% of intersection capacity. The lane modification would only require a change in lane markings relative to those shown in the GHD Intersection provided to TPS by Council. Consequently, the following conclusions are based on the modified lane arrangements in the south approach as shown in Fig 9.1.
2. TPS has investigated intersection operations under a range of development intensities and technical assumptions. The following findings are based on technical assumptions proposed by Council officers and on an alternative set of assumptions preferred by TPS.
3. Whilst TPS agrees with Council officers that a Level of Service C limit is a desirable objective in intersection operation, TPS holds the view that the estimated degree of saturation (ie. volume to capacity ratio) is a far better measure of future intersection conditions. For example, as is evident for some movement shown in Tables 9.1 to 9.3, a movement can have a very low volume to capacity ratio whilst having a very low Level of Service due to the combined effects of a long cycle time and very short phase time. Whilst Tables 9.1 to 9.3 show estimated degrees of saturation and Levels of Service, the following conclusions are based solely on an objective to maintain the degree of saturation for intersection movements at or near 90%.
4. Base Saturation Flow Rate 1800 tcu/hr and Peak Hour Factor 95% as proposed by Council
 - a) The GHD Intersection will only be capable of providing for approximately 65% of overall Business Park development in 2030, or approximately an additional 13,000 vehs/day. That is, assuming that existing development served by Boundary Street expands to such an extent by 2030 as to double current development traffic generation.
 - b) However, if the left turn lane in the east approach is extended from 35m to 60m as shown in Fig 9.2, the intersection will be capable of providing for up to 75% of overall Business Park development in 2030, or 15,000 vehs/day of Business Park traffic.
5. Base Saturation Flow Rate 1950 tcu/hr and Peak Hour Factor 95% as preferred by TPS
 - a) The GHD Intersection will be capable of providing for approximately 75% of overall Business Park development in 2030, or approximately an additional 15,000 vehs/day. That is, assuming that existing development served by Boundary Street expands to such an extent by 2030 as to double current development traffic generation.
 - b) However, if the left turn lane in the east approach is extended from 35m to 60m as shown in Fig 9.2, the intersection will be capable of providing for all Business Park development traffic in 2030, or 20,000 vehs/day of Business Park traffic.

6. Based on all the assessments shown summarised in Tables 9.1 to 9.3, TPS concludes that the only intersection configuration which will provide a reasonable probability of providing for all Business Park development is one which includes two extended right turn lanes in the south approach and an extended left turn lane in the east approach as shown in Figs 9.1 and 9.2.
7. In the event that the above lane arrangement can be achieved within the GHD Intersection concept then TPS is of the view that Business Park development of the extent and type represented in Tables 2.1 and 3.1 of this report can be incorporated into the road network before 2030.

Glen Holdsworth
Specialist Transport / Traffic / Parking Engineer
Ref : TPS31RFI6



TTM Reference:	15SYD264	
Location:	Boundary St & Hastings River Dr	
Suburb:	Port Macquarie	
Date:	Thursday, 15 October 2015	
AM Peak:	0800-0900	
Weather:	Fine	www.ttmgroup.com.au





Attachment 9 - SLR Peer Review 2017

Port Macquarie Airport Business Precinct
Traffic Engineering Analysis and Peer Review

Report Number 620.11821-R01

27 April 2017

King & Campbell Pty Ltd
PO Box 243
PORT MACQUARIE NSW 2444

Version: v2.0

Port Macquarie Airport Business Precinct

Traffic Engineering Analysis and Peer Review

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

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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
620.11821-R01-v2.0	27 April 2017	Andrew Green	Kris Stone	Kris Stone
620.11821-R01-v1.0	24 April 2017	Andrew Green	Kris Stone	Kris Stone

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1 INTRODUCTION

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by King & Campbell Pty Ltd to undertake a traffic engineering analysis and peer review of the TPS Group (TPS) and Port Macquarie Hastings Council (Council) traffic analysis and reporting prepared in relation to the Planning Proposal for the proposed Port Macquarie Airport Business Park.

1. Port Macquarie Airport Business Park Development – TPS Group dated 27 June 2016
2. Proposed Airport Business Park Traffic Study TPS Rep 27/6/2016 – Port Macquarie Hastings Council dated 7 September 2016.

Both documents primarily relate to the future Hastings River Road / Boundary Street signalised intersection and its projected peak hour traffic operation subsequent to development of land for a Business Park use.

The TPS reporting makes certain assumptions in relation to traffic analysis that is then evaluated to determine the projected yield of Airport development that can be facilitated by an upgraded form of the subject intersection. The Council report raises queries in relation to a number of the TPS assumptions and suggests that the adoption of Council preferred analysis values, which in turn would facilitate less development without the provision of a second route.

The purpose of this peer review is to provide a third party review, analysis, and comment with respect to the two existing bodies of analysis and the adopted/recommended assumptions.

It is understood that the peer review will inform ongoing discussions regarding the rezoning of the proposed Airport Business Park. The subject assumptions are introduced and discussed in the following sections of this advice.

2 DISPUTED ASSUMPTIONS

2.1 Summary

Based on the assessment prepared by TPS and the review undertaken by Council, the disputed analysis assumptions can be summarised as follows:

- Calibration requirement
- Peak Flow Factor period
- Pedestrian crossings
- Basic Saturation Flow
- Cycle Time
- Performance criteria
- Land Use Scenario

The disputed assumptions are discussed individually in Sections 2.1 – 2.9, while the potential cumulative impact of each of the disputed assumptions is discussed in Section 2.10.

2.2 Calibration

The Council reporting suggests that calibration of the base year SIDRA model is warranted in accordance with the Council SIDRA Guidelines.

SLR is of the view that, in this instance, calibration of the base SIDRA model is not required. SIDRA calibration is primarily necessary when the program is being used to determine current or near current intersection performance or to evaluate minor alterations that would impact performance, i.e. phasing and/or minor layout revisions.

The purpose of the analysis prepared by TPS is to determine the long-term traffic capacity, and hence the permissible development yield threshold at the 2030 time horizon. The adoption of modified assumptions determined through a calibration of existing performance would have no merit in the assessment of performance at the 2030 horizon based on consideration of the following:

- Upgraded intersection layout that will improve any existing design deficiencies which may currently reduce or affect performance, i.e. constrained geometry and visibility
- Changes in Basic Saturation Flow that are projected in accordance with the discussion made in Section 2.5
- Advanced vehicle technology and improved driver behaviour that allows for less start loss and a higher saturation flow rate.

The SIDRA Intersection 7.0 User Guide itself suggests that all input parameters related to intersection geometry and driver behaviour are important for calibrating the traffic model to represent *particular* intersection and network conditions.

SLR accepts the engineering statements made within the TPS reporting which suggest the SIDRA calibration may be appropriate for other intersections and/or scenarios, such as more modest changes to intersection layout or phasing arrangement.

2.3 Peak Flow Factor and Period

TPS adopted a peak flow factor (PFF) of 0.95 for both peak hour assessment periods consistent with the requirements of the Council SIDRA Guidelines. The TPS reporting also notes that the adoption of a PFF of 1.00 may be appropriate when determining the threshold traffic performance at a longer-term planning horizon. SLR generally accepts this view, but suggests that 0.95 should be retained as a factor of safety.

TPS adopted a 15 minute Peak Flow Period (PFP). Council specifies a 30 minute (PFP).

SLR suggests that the adoption of either PFP parameter may be appropriate in certain conditions depending on the PFF. SIDRA specifies a 30 minute PFP while the highly regarded Highway Capacity Manual prepared by the Transportation Research Board specifies 15 minutes.

A review of the SIDRA models was undertaken to determine the effect of the PFP value. The preliminary results indicate that there was no difference in the reported Degree of Saturation measure between the two time periods. Delays and queues did increase when adopting the 30 minutes input value.

In the absence of any specific reason to alter the SIDRA input defaults, SLR generally adopts a 30 minute PFP; however, a review of SIDRA outputs suggests that the difference is minimal and not material to the evaluation of the development yield outcome when Degree of Saturation is adopted at the performance measure.

2.4 Pedestrian Crossings

TPS adopted a two-staged pedestrian crossing on the Hastings River Drive legs of the intersection. Council has stated the view that two-stage crossings are not appropriate based on safety grounds and the undesirability of having pedestrians waiting in the centre of the road.

The future intersection configuration will see three lanes in either direction on Hastings River Road at the intersection. This represents a significant crossing distance for pedestrians to navigate in one movement.

SLR is of the view that staged pedestrian crossings are appropriate in instances where traffic capacity and level of service needs to be prioritised over pedestrian movement. The Council ascertain that they "should only be an additional on ground provision to cater for those of low mobility who require far greater time periods to negotiate the crossing" is not explicitly shared by SLR. Whilst staged crossings are an appropriate solution in providing for low mobility users, this is not the only scenario where such a facility may be considered reasonable.

In this particular instance, pedestrian demands were surveyed as being between 2-4 movements during the AM and PM peak hours respectively. Accordingly, the implementation of a staged crossing is not viewed as impacting on a significant number of active travel users.

Furthermore, staged crossings need not be less safe when compared to a single stage crossing. The design of the facility should ensure that there is sufficient width for pedestrians and cyclists to store clear of traffic.

SLR suggests that the two staged crossing could be considered appropriate in this instance based on the limited impact on pedestrian users and the moderate-high benefit to traffic capacity.

2.5 Basic Saturation Flow

The basic saturation flow rate is an indication of the potential capacity of a road segment or intersection when operating under ideal conditions.

The TPS assessment considered a saturation flow rate of 1,950tcu/hour whereas the Council SIDRA Guideline specifies 1,800tcu/hour. Council's advice refers to Table 5.4.2 of the SIDRA User Guide which is reproduced for reference as Table 1.

SLR supports the TPS adoption of the 1,950tcu/hour basic saturation flow input variable.

Table 1 SIDRA INTERSECTION Basic Saturation Flows

Environment class (area type)	Definition	Basic saturation flow, s_0 (tcu/h)	
		Standard Left, Standard Right, New Zealand, New South Wales Software Setups	US HCM (Customary and Metric) Software Setups
1 (Ideal)	Near ideal conditions for free movement of vehicles on both approach and exit sides indicated by good intersection geometry, long distances to upstream and downstream intersections, good visibility, small numbers of pedestrians, and little interference due to loading and unloading of goods vehicles, buses or parking turnover.	1950	1900
2 (Average to Poor)	Average to poor conditions indicated by adequate to poor intersection geometry, usually closely-spaced intersection environment, possibly poor visibility, moderate to large numbers of pedestrians, and interference from standing vehicles, loading and unloading of goods vehicles, buses, parking turnover, and vehicles entering and leaving premises.	1800	1750

Source: SIDRA INTERSECTION 7 User Guide

The SIDRA specification suggests that a saturation flow rate of 1,800tcu/hour is appropriate in average to poor conditions characterised by:

- Adequate to poor intersection geometry
- Usually closely-spaced intersections
- Possibly poor visibility
- Moderate to large numbers of pedestrians; and
- Interference from standing vehicles, loading and unloading of goods vehicles, buses, parking turnover, and vehicles entering and leaving premises.

Whilst the existing intersection geometry results in a small deflection for through movements on Hastings River Road, it still allows for good visibility and would not result in a reduction of vehicle speeds through the intersection.

SLR suggests that many of these other poor features are also not present at the subject intersection. Accordingly, it is reasonable to assume that the intersection would facilitate a basic saturation flow that tended towards the 1,950 tcu/hour figure.

Furthermore, the proposed upgrading of the current intersection formation is likely to improve intersection geometry and visibility such that a higher saturation flow rate could be realised.

The Highway Capacity Manual (Transportation Research Board, 2000 & 2010) both prescribe an ideal saturation flow rate of 1,900 vehicles per hour per lane.

The SIDRA user guide provides additional commentary with respect to saturation flow rates, being:

The SIDRA INTERSECTION standard values of the basic saturation flow given in the above table (1950 and 1800 tcu/h) are based on work by Cuddon (1994). More recent research (Akçelik, Besley and Roper 1999, Akçelik and Besley 2002) indicated that higher saturation flows can be achieved at urban intersections, and on the basis of this research, basic saturation flows of 2100 and 1900 tcu/h may be appropriate for environment classes 1 and 2, respectively (higher saturation flows were observed at individual sites).

The Cuddon (1994) research referred to above as part of the SIDRA user guide incorporates the following table which documents the updated saturation flow rate values based on current research. Specifically, reference is made to the Good environment class where the suggested saturation flow increased from 1,850 to 1,950tcu/hr. Of equal importance was the inclusion of a new environmental class Very Good which indicates that saturation flows can exceed 2,000tcu/h in certain instances.

Table 2 Cuddon (1994) New Basic Saturation Flows

Environment Class	General Conditions	SIDRA Basic Saturation Flow (tcu/h)	New Basic Saturation Flow (tcu/h)	Increase (%)
5	Very Good	2000	2150	7.5
1	Good	1850	1950	5.4
2	Average	1700	1775	4.4
3*	Poor	1580	1625	2.8
4*	Very Poor	1440	1460	1.4

* Values for environment classes 3 and 4 were extrapolated from the other values.

Cuddon (1994) documents the following commentary with respect to the Table 8 results:

The increase in basic saturation flow may be attributed to improvements in vehicle performance and changes in driver behaviour caused by refinements in intersection design and lane layout practice. The effects of these alterations are more substantial at larger intersections where design standards have changed markedly since the late 1960's. At smaller intersections, space limitations have not enabled substantial improvements in intersection geometry so the increases in basic saturation flow are smaller.

The adoption of the 1,950tcu/hour basic saturation flow rate is considered reasonable and fit-for-purposes in this instance based on consideration of the material presented above in addition to the following:

- The purpose of the analysis is to evaluate the future operation of the intersection at a 2030 planning horizon and accordingly, an input capacity assumption that is representative of threshold performance is reasonable
- That given the 2030 horizon, it is reasonable to assume that the road network performance will be different, i.e. generally more congested, and that driver behaviour will be consistent with that expected of such congested networks, i.e. motorists travelling with shorter headways resulting in a higher saturation flow
- That the extent of signalisation in the road network will be higher and accordingly, user behaviour will be more familiar with negotiating signalised systems
- That the upgraded intersection formation will provide improvements to the geometry and visibility compared to the current situation
- That the vehicle fleet will have continued to improve and that higher saturation flows will be possible without impacting on safety given improvements in vehicle braking and acceleration.

2.6 Cycle Time

The TPS assessment adopted a cycle time of 120 seconds for the assessment of traffic operations at the 2030 time horizon. Council reporting suggests that the current 50-60 second cycle time should be retained at the 2030 horizon.

SLR suggests that a 120 second cycle time is a reasonable assumption with respect to assessing the 2030 traffic operations.

Longer cycle and phase times are typical of urban road networks and intersections. Longer intersection timings improve traffic capacity through a reduction in the proportion time that is lost to red signals, stop/start lag, and also improvements in route progression and co-ordination which is possible with longer phase times.

2.7 Performance Criteria

The TPS reporting adopts the Degree of Saturation (DOS) output measure for the evaluation of the SIDRA analysis results. Council suggests that Level of Service (LOS) should instead be adopted and that LOS C should not be exceeded.

The NSW RMS LOS method is based on delay whilst DOS is the ratio of demand to capacity.

SLR notes that both measures are important when evaluating the performance of intersection operations. It is suggested that LOS C is an unreasonable threshold to be adopted for assessment of long-term intersection capacity thresholds in this instance. LOS D is typical of urban road networks and intersections during the critical commuter AM and PM peak periods.

2.8 Land Use Scenario

The NSW RMS guideline states that Business Park developments typically include elements of industrial, manufacture, research, warehousing, office space, retail, commercial, refreshment and recreational activity.

The TPS report is based on the estimates of future development floor areas provided by King & Campbell. The attached Port Macquarie Regional Airport Business Park Land Use Scenario plan provides details of the estimated footprints of future potential office premises, factory, warehouse and retail/mixed uses within the proposed business park. In that regard, and noting that the Traffic Assessment is being undertaken at the Rezoning Stage, the TPS report has considered the specific land uses that form part of the hypothetical development of the business park.

SLR understands that the nature of the Development Application is such that the specific component land uses and yields that can be developed on specific sites within the Business Park are not defined. Accordingly, development may proceed as long as the individual site use accords with the permissible land uses that are prescribed as forming part of a Business Park.

The adoption of a single definitive land use mix/scenario would therefore only be an approximation of one possible land use outcome, much like the adoption of Business Park is an approximation. Individual development sites will be tenanted based on market forces and the land use mix/scenario will vary over time.

SLR is of the view that the adoption of a consolidated land use definition is appropriate in the situation of Business Park given the inherent variability in land use scenarios that can eventuate depending on market forces. The use of a single land use, and hence, a single generation rate can be considered a reasonable approach subject to the adoption of a representative traffic generation characteristics.

The adoption of individual land uses could result in an overestimation of the development trips as this would not factor in the possible reduction in vehicle trips that would likely result between the component land uses when they form part of a larger Business Park type precinct including internal trips and trip chaining.

2.9 Future Trip Generation

TPS adopted a traffic generation rate of 0.7 trips per 100m² GFA in the AM peak and 0.78 trips per 100m² GFA in the PM peak in accordance with the average regional rate identified in the NSW Government RMS Guide to Traffic Generating Developments.

SLR considers this to be an appropriate traffic generation rate for the unknown make up of a Business Park.

In addition to the trips generated by the proposed business park, the TPS assessment included provision for a doubling of the existing traffic currently generated by the existing Airport, Newman College, sports facilities and other existing development by 2030.

SLR considers that doubling the traffic associated with the existing uses provides a conservative assessment of the future trip generation of these land uses.

2.10 Cumulative Impacts of Disputed Assumptions

Whilst it is understood there is concern over the cumulative effects of assumptions used in the modelling, to simply adopt a mix of best and worst case assumptions would be poor practice and would not result in an assessment that reflects the likely future scenario.

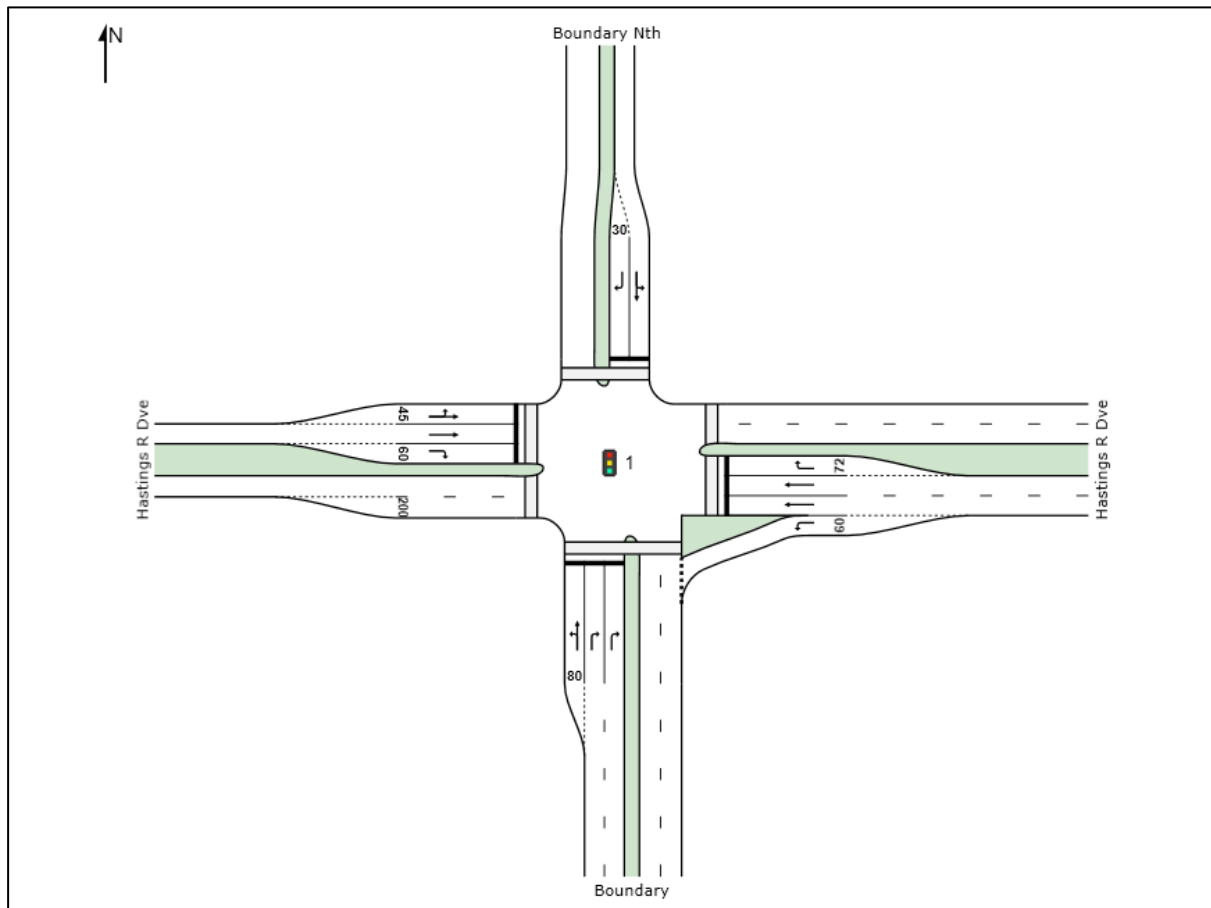
This peer review has considered the most appropriate assumptions for the proposed rezoning. The use of alternate assumptions may result in an over-engineered solution. Given that this application is only for rezoning of the subject land, at the time of future Development Applications, it may be appropriate to give further consideration to the ultimate land uses, and basic saturation flows and peak flow factors being experienced at the Hastings River Road / Boundary Street intersection.

3 TRAFFIC OPERATIONAL ASSESSMENT

3.1 Intersection Layout

The SLR intersection layout considered in the assessment is based on the TPS layout with extension of the left turn slip lane from Hastings River Drive (east) into Boundary Street (south) and changes to the movement designation on the Boundary Street (south) approach. The layout is reproduced in Figure 1 for reference.

Figure 1 Hastings River Road / Boundary Street Intersection – SIDRA Layout



3.2 Results

The TPS results for the 2030 assessment are reported in Table 7 when considering a Business Park land use definition, 1,950tcu/hour basic saturation flow, and a PFF of 100%.

Table 3 TPS Baseline SIDRA Assessment Results

	AM Peak	PM Peak
Degree of Saturation	0.76	0.86
95 th %ile Queue	110.5m	231.4m
Average Delay	23.6 sec	38.2 sec
LOS	C	D

For comparative purposes the subject intersection was assessed for the same land use scenario with the alternate basic saturation flow of 1,800tcu/hour and PFF of 95% to determine the cumulative impacts of a worse case. The SIDRA results are reported in Table 8.

Table 4 SIDRA Assessment Results – Alternate Assumptions

	AM Peak	PM Peak
Degree of Saturation	0.82	0.97
95 th %ile Queue	146.3m	306.2m
Average Delay	24.4 sec	55.8 sec
LOS	C	E

The Table 8 results indicate that the subject intersection cannot accommodate full development of the site area based on the alternate basic saturation flow and PFF assumptions. However, given that these values are based on a scenario that is unlikely to eventuate it is considered inappropriate to adopt them for the purpose of determine the future infrastructure required to support 100% development.

There are several factors that are more likely to eventuate and permit the full 100% development at 2030. These are as follows:

- Increased saturation flow rate up to 2,100tcu/hour which may eventuate on some turning lanes and is typical of some urban intersections with good geometry and aggressive driver behaviour
- Improvements to intersection phasing arrangements
- Refined land uses such that the ultimate trip generation is not realised or is based on a more detailed consideration of a possible reduction in external trips compared to the simple sum of the component land uses.

4 SUMMARY

SLR Consulting Australia Pty Ltd has been commissioned by King & Campbell Pty Ltd to undertake a traffic engineering analysis and peer review of the TPS Group and Port Macquarie Hastings Council traffic analysis and reporting prepared in relation to the Planning Proposal for the proposed Port Macquarie Airport Business Park.

The purpose of this peer review is to provide third party analysis and comment on the assumptions in dispute between both reports. It is understood that the peer review will inform ongoing discussions regarding the redevelopment of the Airport land.

A review of the disputed assumptions has found the following:

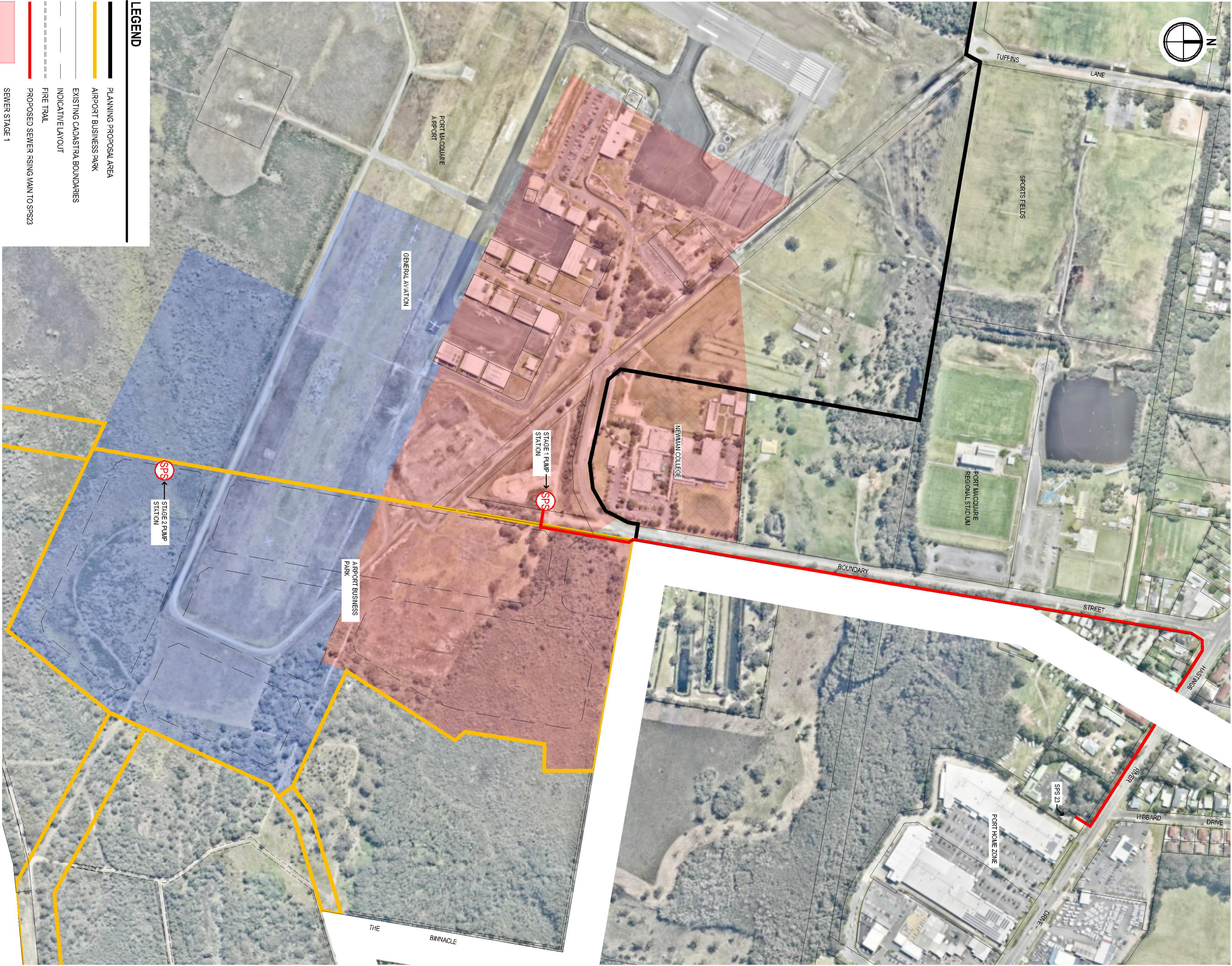
- Calibration of the baseline model is not required based on the assessment being for a 2030 planning horizon by which time current calibration measures would have little material significance
- Either a 30 minute or 15 min peak flow factor period is appropriate and the adoption of either does not affect the primary SIDRA output performance parameter being Degree of Saturation
- A two-stage pedestrian crossing on the Hastings River Drive legs of the intersection could be considered appropriate in this instance given the relative priority of vehicle capacity over pedestrian level of service. The safety of a two stage crossing would be subject to the achievability of appropriate centre median storage areas for pedestrians and also associated infrastructure including fencing etc if/as necessary
- A basic saturation flow rate of 1,950 tcu/hour is more likely to represent the future operating conditions. The 1,950 value is reasonable and itself is specified by SIDRA as a default. Lower values are noted as being appropriate only where there are limitations that may include parking, loading, high pedestrian volumes and closely spaces intersection; none of which are present at the subject intersection location
- A cycle time of 120 seconds is appropriate for the assessment of traffic operations at the longer-term 2030 horizon. Cycle lengths approximating this duration are typical of urban environments and constrained road networks as would be projected at 2030
- The TPS adoption of a single Business Park land use definition and the associated NSW RMS traffic generation rate is considered a reasonable approach
- Doubling of the traffic associated with the existing uses provides a conservative assessment of the future background trip generation

This peer review has considered the most appropriate assumptions for the proposed rezoning. The adoption of a mix of best and worst case assumptions would be poor practice and would not result in an assessment that reflects the likely future scenario.

Whilst the cumulative impacts of alternate assumptions would result in a different outcome, this approach is considered inappropriate given that these values are based on a scenario that is unlikely to eventuate.

SLR agrees with the TPS conclusion that the full business park development can be incorporated at 2030 in the event that the presented lane arrangement can be accommodated within the GHD concept.

Attachment 10 - Concept Sewerage Strategies



LEGEND

PLANNING PROPOSAL AREA

AIRPORT BUSINESS PARK

EXISTING CADASTRA BOUNDARIES

INDICATIVE LAYOUT

FIRE TRAIL

PROPOSED SEWER USING MAIN TO SPS23

SEWER STAGE 1

SEWER STAGE 2

NEWMAN COLLEGE - CONNECTING TO STAGE 1

K+C REF: O:\6271_Airport\21-Planning\AirportRe zoning_2019\Proposed Zone Plan\ 6271P_PropZonePlan.dwg - A3(P)-Sewer Strategy 1, 11- Mar- 2019, angelac

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DATE 07/02/2019

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DESIGNED BY: K+C

DRAWN BY: ALC

CHECKED BY: -

DATUM: AHD

CLIENT: PORT MACQUARIE HASTINGS COUNCIL

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SHEET: ****

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DRAWING NO. 5271P_PropZonePlan

SHEET: ****

REVISION: A



LEGEND

PLANNING PROPOSAL AREA

AIRPORT BUSINESS PARK

EXISTING CADASTRA BOUNDARIES

INDICATIVE LAYOUT

FIRE TRAIL

PROPOSED PRESSURE SEWER MAIN TO SPS23

AIRPORT BUSINESS PARK

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CADUT: AHD

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PORT MACQUARIE AIRPORT - SEWER STRATEGY - OPTION 2

LOW PRESSURE SEWERAGE SCHEME

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