Planning Proposal to amend the Gloucester Local Environmental Plan 2010

Gloucester River Run

Lot 2 DP 568113 and Lots 11 and 12 DP 193003
4571 The Bucketts Way South
Gloucester, NSW

Prepared by:

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Version	Purpose of Document	Author	Date
A	Submission to Council - seeking endorsement and Gateway Determination	VC - Peter Andrews & Associates Pty Ltd	1 November 2013
B	Submission to Council addressing requirements of Gateway Determination	VC - Peter Andrews + Associates Pty Ltd	8 September 2015
C	Submission to Council for Public Exhibition	VC - Peter Andrews + Associates Pty Ltd	10 March 2016
D	Amendments in response to public agency consultation - for Public Exhibition with Draft Planning Agreement	AK - Midcoast Council	July 2018

INTRODUCTION

This Planning Proposal has been prepared MidCoast Council in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* and the relevant Department of Planning and Environment (Department) Guidelines, including *A Guide to Preparing Local Environmental Plans* and *A Guide to Preparing Planning Proposals*.

The land subject to this planning proposal is located approximately 2.6 kilometres south of the Gloucester Town Centre on The Bucketts Way South, has an area of approximately 99 hectares and is currently zoned E3 Environmental Management.

The Planning Proposal seeks to rezone approximately 18.7 hectares of the site to R2 Low Density Residential zone and 8.81 hectares to E2 Environmental Conservation, with the remainder of the site remaining in the E3 Environmental Management zone.

The proposed residential release area has an anticipated minimum development yield of eighty (80) residential allotments.

The proposed rezoning will satisfy a number of environmental objectives through the preservation of high value ecological corridors, with certain land within the proposed E2 Environmental Conservation zone also identified as a biodiversity off-set. These lands would be protected in perpetuity by way of the rezoning and dedication to MidCoast Council, in accordance with the provisions of the Draft Planning Agreement that forms part of this Planning Proposal.

This Planning Proposal outlines the intended effect of and justification for the proposed amendments to Gloucester Local Environmental Plan 2010.

The proclamation of 12 May 2016 ratified the merger of the Local Government Areas of Gloucester Shire, Greater Taree and Great Lakes Council into Midcoast Council. Gloucester Local Environmental Plan 2010 still stands as a separate environmental planning instrument.

The Gateway Determination issued in 2014 gives Council authorisation to exercise delegations for this Planning Proposal.

SUBJECT SITE AND CONTEXT

Site Location and Regional Context

Figure 1 details the locality plan of the subject site.

The subject site is located approximately 2.6km to the south of the main township of Gloucester, New South Wales which lies in the Midcoast Council local government area. The site is located approximately 1 hour by vehicle from the closet major urban centre of Taree to the east via The Bucketts Way East and approximately 1 hour and 45 minutes from the Newcastle CBD via The Bucketts Way South.

Site Details

Figure 2 details the orthographic context and an aerial view of the site.

The subject site consists of Lot 2 DP 568113 and Lots 11 and 12 DP 193003. It has a total area of approximately 99 hectares.

With the exception of existing trees along the eastern boundary fronting Bucketts Way and the heavily vegetated riparian corridor located on the Gloucester River frontage, which forms the western property boundary, the land is largely cleared. The land slopes to the west and has views of the Bucketts Ranges.

Currently there is one dwelling on the site, located near the southern boundary and accessible via a 500 metre driveway from The Bucketts Way South. Several rural sheds also exist on the property. The site is currently utilised for dairy cattle farming and cropping of supplementary dairy cattle feed. A number of farm dams are also located on the land.

Existing Planning Controls

Figure 3 details the current zoning plan.

The land is currently zoned E3 Environmental Management under the provisions of the *Gloucester Local Environmental Plan 2010*. Land to the east is zoned R5 Large Lot Residential and IN1 General Industrial. The R5 Large Lot Residential land has a minimum lot size of 4,000 square metres. This area has been subdivided and homes constructed in the area.

Land to the south and west is also zoned E3 Environmental Management. Where land has an elevation typically over 170 metres in the Bucketts Ranges, the E2 Environmental Conservation Zone applies.

Land to the north of the site is zoned RE2 Private Recreation and has been developed for the purposes of a golf course, with the club house and associated facilities located in the SP1 Special Purposes zone.

The E3 Zone has no nominated floor space ratio map. The maximum building height of 7.5 metres that applies is the standard building height applied by the Gloucester LEP, outside of the town centre.

Contextual Analysis

Figure 4 details the Contextual Analysis.

The Gloucester Country Club, Gloucester Golf Course and Gloucester Country Lodge Motel are located to the north and north east of the site. Immediate surrounding land uses are predominantly rural in nature.

The rural nature of the site and surrounds are illustrated by the photographs provided in Figure 5.

Natural Hazards

Figure 6 details the Flood Mapping Analysis for the site.

The land is generally free of any natural hazards except that of river flooding due to the proximity of the Gloucester River, which forms the western property boundary of the site.

The BMT WBM Pty Ltd *Gloucester and Avon Rivers Flood Study* 2015 identifies both the 1 in 100 year, ie. 1% Annual Exceedance probability (AEP) flood and Probable Maximum Flood (PMF) at an approximate 1 in 200 year flood level for the site.

Topography

The eastern portion of the site is mildly undulated with a number of drainage paths incurring elevation changes. The majority of the site to the west comprises the Gloucester River floodplain where elevations decrease dramatically.

In general, there is a 20-30 metre elevation differential between the highest part of the site at the Bucketts Way South frontage and the lowest part of the site adjoining the Gloucester River.

Historical Context

In 2001, the land was the subject of an amendment to the then *Gloucester Local Environmental Plan 2000* enabling development for the purpose of housing for seniors or people with a disability, up to a maximum of 100 residential dwellings.

Development consent was subsequently issued on 19 March 2003 for a retirement village consisting of 100 dwellings, reception area, multi-use building and associated recreational facilities and infrastructure on the site.

Council proposed a roundabout on Bucketts Way South to accommodate the additional traffic generated by the proposal and contributions were received, towards the future construction of this roundabout.

Figure 1 – Locality Plan

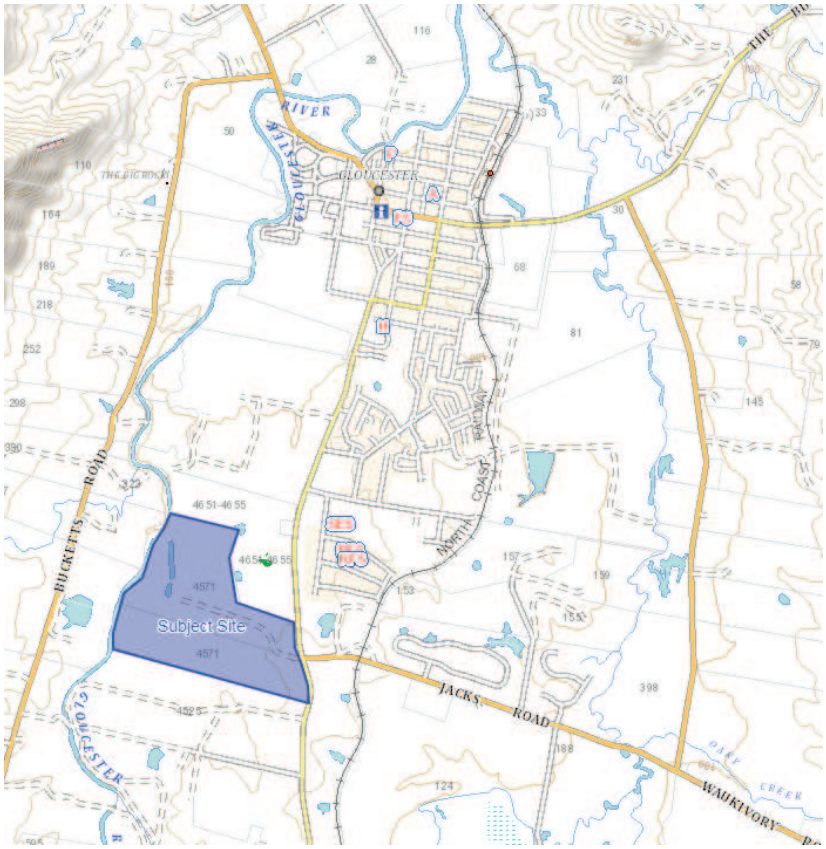


Figure 2 - Site Plan

Figure 3 – Existing Gloucester LEP 2010 Zone Plan

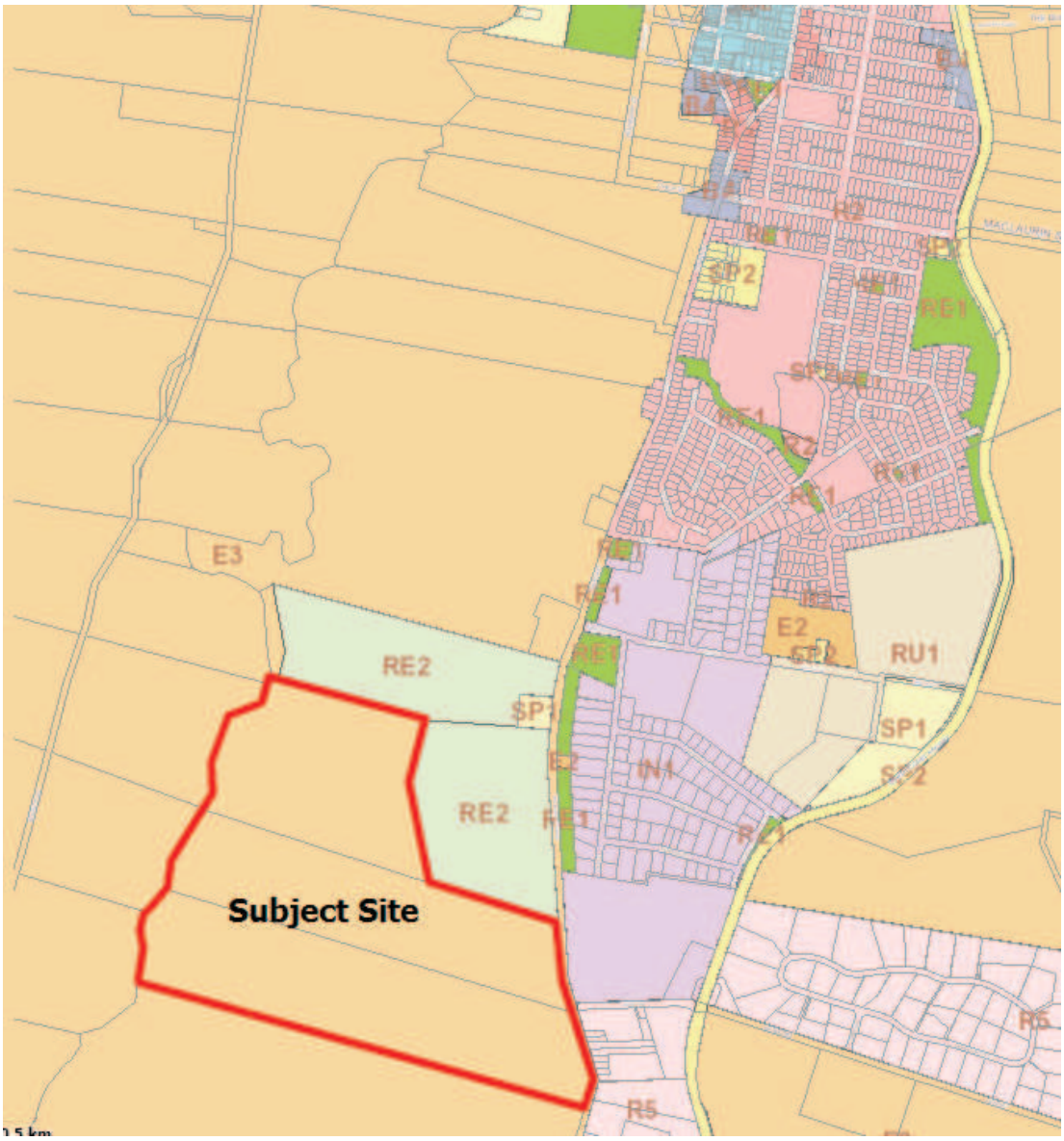


Figure 4 – Contextual Analysis

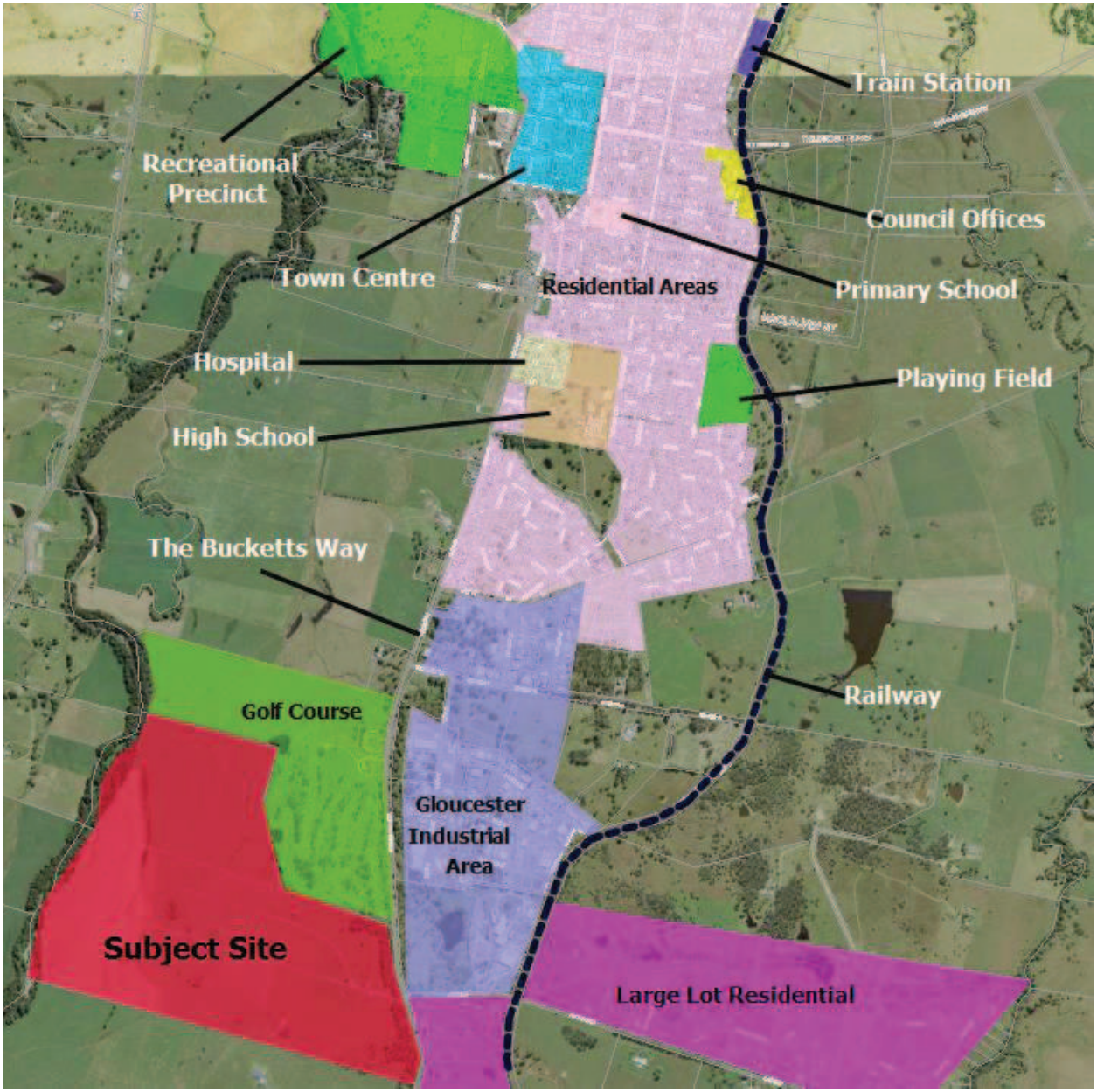


Figure 5 – Site Views

View west from driveway entrance toward existing dwelling

View south to vegetation along Bucketts Way South frontage

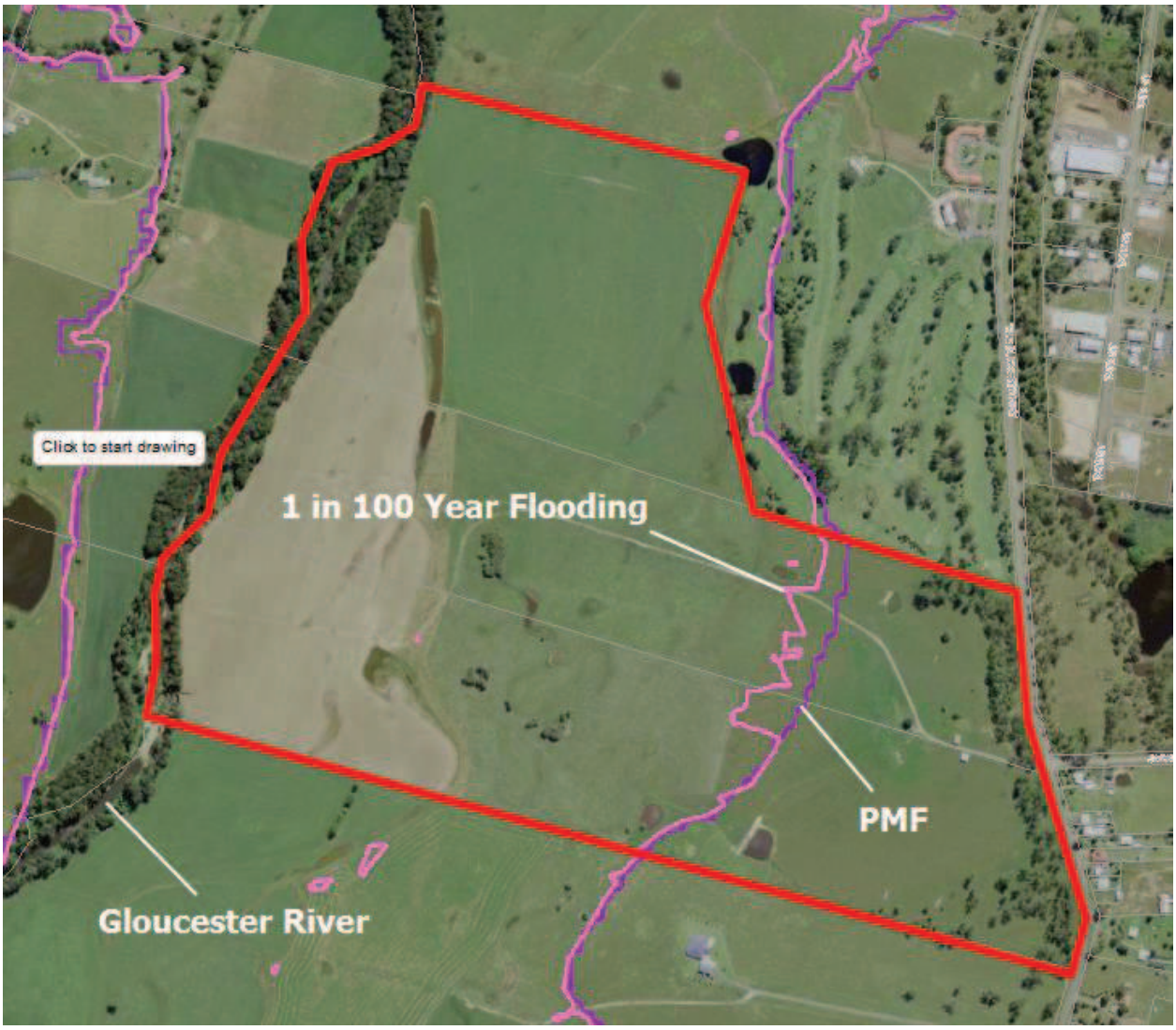
View north toward site vegetation adjacent to golf course

View west of existing dwelling and lower reaches of site

View north along The Bucketts Way South frontage

View to east toward vegetation on Bucketts Way South frontage

Figure 6 - Site Flooding Constraints



PART 1 - OBJECTIVES OR INTENDED OUTCOMES

(s.55(2)(a) A statement of the objectives or intended outcomes of the proposed instrument)

The objectives of the Planning Proposal are to:

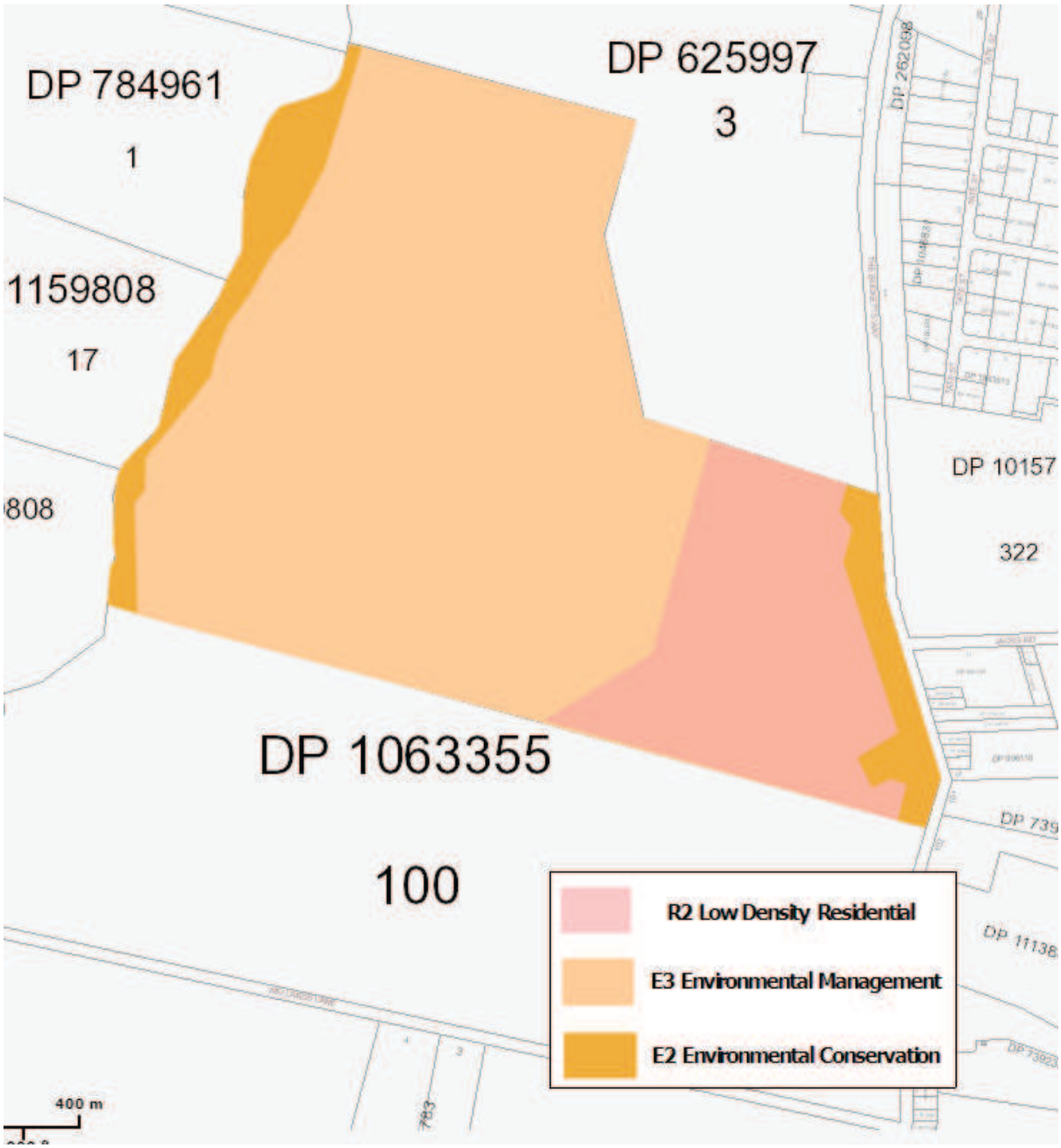
1. Rezone approximately 27.5 hectares of the site as follows:
    - 18.7 hectares, from the E3 Environmental Management Zone to R2 Low Density Residential;
    - 8.8 hectares of ecologically significant land from the E3 Environmental Management Zone to E2 Environmental Conservation Zone in two (2) sections: an ecological buffer to the Bucketts Way frontage of the site (3.5 hectares); and the riparian zone adjoining the Gloucester River at the rear of the site (5.3 hectares);
    - 71.4 hectares to be retained as environmental management lands in the E3 Environmental Management Zone.
2. Amend the minimum lot size map to decrease the minimum lot size from 100 hectares to 1,000 square metres over the R2 Low Density Residential rezoned land. Amend the minimum lot size map as necessary for the remainder of the site, to enable subdivision.
3. Amend the Floor Space Ratio Map to set a new floor space ratio of 0.5 over the R2 Low Density Residential rezoned land.

Figure 7 illustrates the proposed rezoning of the site.

The intended outcomes of the proposal are to enable:

- Subdivision of approximately 18.7 hectares of the land for low density residential purposes.
- Protection into perpetuity of environmentally sensitive lands via the subdivision and dedication of these lands to Council.

Figure 7 – Proposed Zone Plan (Gloucester LEP 2010)



PART 2 - EXPLANATION OF PROVISIONS

(s.55(2)(b) An explanation of the provisions that are to be included in the proposed instrument)

This proposal results in a residential zoned area which could cater for a minimum of 80 lots with a minimum lot size of 1000sqm.

The proposed R2 Low Density Residential zone is located outside of the 1 in 100 year flood level as shown in BMT WBM *Gloucester and Avon Rivers Flood Study* (2015) adopted by the former Gloucester Shire Council.

The objectives of the R2 Low Density Residential zone under the Gloucester Local Environmental Plan 2010 are:

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

The rezoning of the land to R2 Low Density Residential would incorporate all land uses currently permitted with consent in the R2 Zone including: Bed and breakfast accommodation; Boarding houses; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Exhibition homes; Flood mitigation works; Group homes; Home businesses; Home industries; Neighbourhood shops; Places of public worship; Recreation areas; Residential care facilities; Residential flat buildings; Respite day care centres; Schools; Secondary dwellings; Seniors housing.

An environmental buffer with a minimum width of 30 metres will be provided to The Bucketts Way South road frontage. A similar buffer will be provided over the existing riparian corridor adjacent to the Gloucester River. To ensure conservation of these high value environmental areas, these lands will be rezoned to E2 Environmental Conservation.

As part of the Proposal it has been negotiated that the land fronting The Bucketts Way South will also be dedicated to Council, subject to the terms of the Draft Planning Agreement, attached to this Planning Proposal.

The Draft Planning Agreement (PA) is accompanied by an Explanatory Note, dated 8 June 2018, which addresses the following matters:

- The dedication to Council, of the land adjoining The Bucketts Way South that is to be rezoned E2 Environmental Conservation;
- A Vegetation Management Plan (VMP) that provides for the management of vegetation in the E2 Zoned Land adjacent to the Bucketts Way South which includes (but not limited to) provisions for bio-diversity offsets and weed control.
- Provisions to ensure that at the time of subdivision or other development, certain infrastructure and design requirements are met, including the achievement of water quality objectives.

PART 3 - JUSTIFICATION

(s.55(2)(c) Justification for the objectives or intended outcomes and the process for their implementation)

Section A – Need for the Planning Proposal

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

Gloucester Shire Council Local Environmental Study 2006

The Gloucester Shire Council *Local Environmental Study 2006* identifies an optimum population of 8,000 to 10,000 persons serviced by the town of Gloucester and identifies that an additional 3,000 dwellings would be required in Gloucester and surrounds in the future. Approximately 2,300 of these dwellings will be required in the urban area, with the remainder located on rural residential or rural lifestyle lots near Gloucester. Most of these dwellings will be located on greenfield sites.

The Study concludes that a better mix of residential lot sizes and development types can achieve more efficient utilization of urban resources and can also provide opportunities for a variety of living styles. In particular, it finds that demand for lifestyle lots located in secluded areas, with views or waterway frontages still remains strong however the availability of such lots is limited.

Gloucester Shire Council Housing Development Strategy 2006

The subject site was identified in the *Residential Land Release 2005 to 2030 plus* map in the Gloucester Housing Development Strategy 2006 (prepared by Gloucester Shire Council) as existing vacant land with the potential for subdivision development.

Refer to Figure 8 for the extract of the Housing Development Strategy *Residential Land Release Map for 2005 – 2030 plus*.

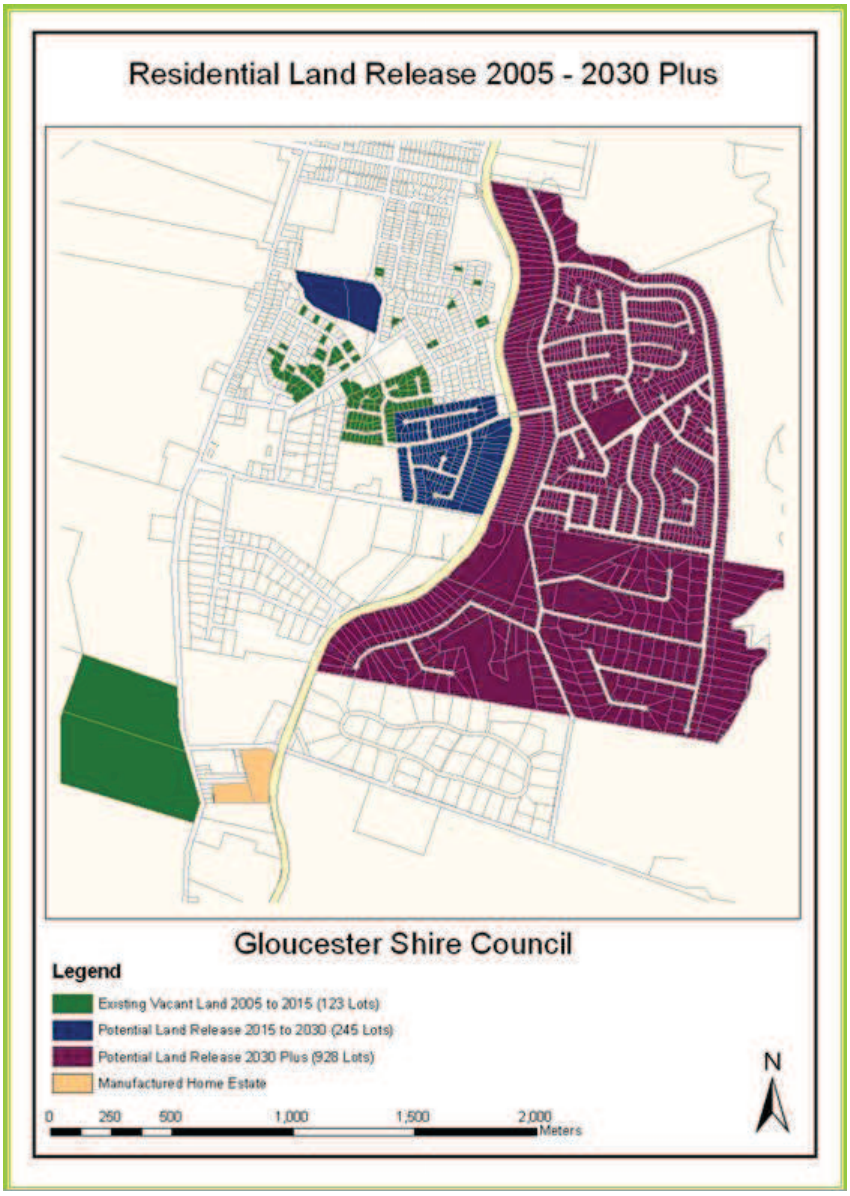
Development Employment Land & Commercial/Retail Strategy 2006

The Development Employment Land & Commercial/Retail Strategy: Business Study for the Gloucester CBD (prepared by Ratio Consultants) identifies that in the period 2011 – 2021, the population is projected to increase by a further 770 persons, or by approximately 15% over the entire decade. In the period 2021 – 2031, the population is projected to increase by a further 1,000 persons, or by approximately 16% over the ten-year period.

Additional housing and a range of housing will be required to meet the population growth.

Figure 8 – Map Gloucester Shire Council Housing Development Strategy 2006

Map 2 – Residential Land Release 2005 – 2030 Plus



Land Supply and Lot Size

The proposed residential zoned land will have a Minimum Lot Size of 1000sqm.

Analysis of market demand by P. Markey of GRE Real Estate (Appendix A) however indicates that there is a "gap" in the market between existing traditional residential lots of 600 – 800sqm to 1,500sqm lots, coupled with a market preference for lots greater than 800sqm for new homes.

This view is supported by Council in that many new homebuyers in Gloucester have a preference for lots larger than those currently available to enable space for storage of a caravan or boat without impacting on yard space. This applies to families and older couple/retirees. The preference is also for single storey living, which requires a larger footprint than two-storey housing.

The existing supply available to the market consists mainly of lots greater than 2,000sqm. Local real estate agents believe that these lots are less sought after because of property maintenance requirements.

The Gloucester Local Environmental Plan 2006 noted:

> *"Subdivision of Land*
>
> *There has been an increasing demand in Gloucester for residential and rural residential land. At current rates of development and sales, the existing land supply in the respective zones will be exhausted within a few years.*
>
> *A Local Strategy Statement, developed through a consultative process, has identified Gloucester's sustainable population at 12,000 persons. A land release strategy will be prepared to ensure that this population can be achieved in the long term in response to demand, environmental, economic and social constraints.*
>
> *Gloucester and the immediate surrounds will eventually need to provide accommodation for approximately 6,700 persons, involving up to 3,000 additional dwellings. There is some opportunity, with an active urban consolidation approach, to provide additional accommodation in the developed areas however most new dwelling will be on greenfield sites."*

The *Gloucester Shire Development Strategy 2014 – 2017* (Appendix B) indicates the potential for residential zoning of 140 lots with land parcel areas of 1000 square metres.

Critically, the proposed Minimum Lot Size of 1000sqm on the subject site will directly address these requirements.

It is also noted that the site also provides an opportunity for residential lots to be created directly adjacent to the Gloucester Golf Course. This may facilitate a new residential market within Gloucester whereby private agreements could allow some residents direct access to the golf course via a network of paths suitable for pedestrian and motorised golf carts.

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

The rezoning of land from E3 Environmental Management to a residential zone and associated amendments to the minimum lot size map within the Gloucester Local Environmental Plan 2010 are the only means of achieving the intended outcome of providing low density residential development on allotments with a minimum area of 1000sqm, in close proximity to the town centre.

The proposal will result in an area of approximately 18.7 hectares of the existing 99 hectare site being developed for residential purposes, while significant environmental areas will also being rezoned to environmental conservation and dedicated to a public authority, which will ensure its protection into perpetuity.

Therefore the rezoning of the land by way of a planning proposal and associated dedication via a planning agreement is the best mechanism of achieving these outcomes.

Section B – Relationship to Strategic Planning Framework

3.B.1 Is the Planning Proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

The Planning Proposal is considered to be generally consistent with the objectives and actions contained within the Hunter Regional Plan 2036. A summary of the Planning Proposal's consistency is provided in Appendix C of this Planning Proposal.

3. B.2 Is the Planning Proposal consistent with the local council's Community Strategic Plan, or other local strategic plan?

The Planning Proposal is considered to be consistent with the former Gloucester Council's Community Plan 2012-2022 which was a long term strategic plan for the Shire spanning a 10 year timeframe. It states that there is a need to rethink the design and development of housing in the coming years, to encourage people to stay connected with their community, while receiving the necessary support services.

There are currently 2,600 dwellings in the Shire and there is an expectation that an additional 500 homes will be constructed by 2022. These homes will mainly be located in housing estates near Gloucester township and in the corridor between Gloucester and Barrington village, as these areas are currently serviced by adequate infrastructure. The proposal will assist in providing additional housing options with similar access to services and facilities.

The Planning Proposal is also considered to be consistent with the MidCoast Community Strategic Plan 2030, particularly valuing O*ur Environment*:

Our natural environment is protected and enhanced, while we maintain our growing urban centres and manage our resources wisely.

The Midcoast Community Strategic Plan identifies that the community values the environment in which they live. In particular, Objective 9 states that *"the needs of our natural and built environments are balanced".* To achieve this, the Plan requires that: *"growth and new development complements our existing natural assets, cultural assets and heritage sites"*

A 3 year action of the 2018-2021 Delivery Program is to: *"Ensure that investigations for new growth areas identify natural assets and heritage sites and that development is excluded or impacts managed in these areas."*

A 1 year action of the 2018-2019 Operational Plan is to: *"Assess all relevant natural and heritage values in planning proposals for new release areas (i.e. Kolodong, The Northern Gateway, Myall River Downs, Gloucester River Run and Blueys Estate)"*

The Planning Proposal and accompanying Planning Agreement are therefore considered to be consistent with the requirements of the MidCoast Community Strategic Plan and Delivery/Operational Plans, as the rezoning will:

- add to the diversity of residential land and development options in the Gloucester locality;

- protect sensitive environmental lands into perpetuity; and
- ensure long-term economic, social and environmental benefits for the Gloucester community.

3.B.3 Is the Planning Proposal consistent with applicable state environmental planning policies?

The Planning Proposal is considered to be generally consistent with applicable state environmental planning policies. A summary of the Planning Proposal's consistency with applicable State Environmental Planning Policies is provided in Appendix D of this Planning Proposal.

3.B.4 Is the Planning Proposal consistent with applicable Ministerial Directions (s.117 directions)?

The Planning Proposal is considered to be generally consistent with applicable S.117 Ministerial Directions. A summary of the Planning Proposal's consistency with relevant s.117 Ministerial Directions is provided in Appendix E of this Planning Proposal.

Section C – Environmental, Social and Economic Impact

3.C.1 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 Report

GHD Pty Ltd (2017) has prepared and submitted a Biodiversity Report in support of the proposed rezoning, as required by the NSW Office of Environment and Heritage. The Biodiversity Report is included in Appendix F.

A summary of the Biodiversity Report (the *report*) is set-out below:

- The report aimed to evaluate the conservation significance of the biodiversity values of the subject site including the identification of known or likely occurrences of threatened species; describe and map the flora and fauna constraints and opportunities; and consider the likelihood of further ecological assessment requirements (pp. 1-2).

- The report consistently referred to a pre-determined 30-metre wide "*public recreation corridor*" fronting The Bucketts Way.

- The report considered the *Environmental Planning and Assessment Act 1979*, the *Threatened Species Conservation Act 1995*, the *Fisheries Management Act 1994*, *Noxious Weeds Act 1993*, SEPP44 - Koala Habitat Protection, SEPP 14 - Coastal Wetlands, SEPP26 - Littoral Rainforests, the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and local planning instruments.

- The report reviewed a range of ecological references pertaining to the subject site and wider locality, including the NSW Wildlife Atlas database.

- The report conducted a likelihood of occurrence assessment for threatened species.

- Flora field surveys were conducted using the BioBanking Assessment Methodology and involved vegetation survey and threatened flora species searches (10-person hours over 2-days in February 2017). No quadrants were sampled. The flora surveys recorded:

    - Forty-nine (49) plant species, comprising 23 native plant species and 26 exotic plant species

    - One (1) threatened plant species was tentatively identified (*Eucalyptus glaucina*). The report recommended additional sampling to provide for confirmation of this species (pg. 29)

    - Three (3) class 4 weeds were recorded (Mother of Millions, Prickly Pear, Fireweed)

    - Two (2) vegetation community types, namely:

        - 3.9-hectares of River flat Eucalypt Forest (EEC) (comprising Forest Red Gum/ Grey Box open forest) with an intact canopy, but highly modified lower

vegetation layers (ie. no shrub layer and mostly exotic groundcover layer). This community was considered to be a groundwater dependent ecosystem.

- Agricultural Land/ exotic Grassland.

- Fauna field surveys were conducted over 2 days on the 2nd and 3rd February 2017 and included fauna habitat assessment, hollow-bearing tree assessment, spotlighting (4-person hours), koala spot assessment technique (2 SATs), opportunistic bird surveys (3-person hours over 2-days), herpetofauna searches, ultrasonic bat call detection (1-night; 12-hours recording) and opportunistic observations. The subject site had experienced very dry conditions prior to the fauna field surveys. No trapping was conducted. The field surveys identified:

  - Twenty-seven (27) native fauna species
  - Two (2) fauna habitat types (exotic grassland and open forest)
  - The open forest habitat type contained potential foraging resources, 163 hollow-trees (of which only 48 are being retained in the E2 zone toward The Bucketts Way South frontage), shelter habitat including fallen logs and ephemeral aquatic habitats
  - Five (5) threatened fauna species (brush-tailed phascogale (previous record), squirrel glider (3 individuals observed), yellow-bellied sheathtail-bat, little bentwing-bat and eastern freetail-bat)
  - Thirteen (13) additional potential threatened fauna species (regent honeyeater, spotted harrier, red goshawk, powerful owl, grey-crowned babbler, large-eared pied bat, eastern bentwing-bat, koala, grey-headed flying-fox, greater broadnosed-bat,
  - Nearby koala records, including records adjacent to the subject site. The subject site is potential koala habitat as defined by SEPP44
  - Relatively low connectivity of the forest habitats of the site with proximal or nearby areas
  - The study recommended that trapping be conducted on the land to conclusively determine the presence of squirrel gliders (pg. 30)

  The report mapped areas of high ecological constraint, which included all 3.9-hectares of the open forest on the subject site (figure 8), and considered that this constrained area had values associated with: connectivity, EEC, threatened flora, potential koala habitat, threatened fauna, hollow-bearing trees and native vegetation). As mentioned, the proposed E2 zone toward The Bucketts Way South frontage protects only a portion of the mapped area of "*high ecological constraint*").

Ecological Assessment

Whilst part of the subject site has been chronically and intensively-disturbed as a consequence of historic and current agricultural production practices, there are areas of indisputably high ecological significance.

The Biodiversity Report prepared by GHD (2017) utilised limited flora and field survey methods and efforts (2-day surveys; no trapping, inadequate assessment, recommended further studies that have

not been actioned - confirmation of *Eucalyptus glaucina*, trapping studies, inadequate koala assessments, etc) and can only be reasonably considered a preliminary evaluation. It does however begin to identify the features of the land that are of high ecological significance. Such features warrant the protection afforded by appropriate zoning (E2) and the identification of mechanisms for active conservation. Such outcomes need to be incorporated into the planning proposal and its determination.

The land contains the following features of high ecological significance (conservation value):

- Habitat for at least five (5) threatened fauna species including a resident population of the squirrel glider, and
- Individuals (and habitat) for the tentatively-identified threatened plant species, *Eucalyptus glaucina*, and
- Habitat for an Endangered Ecological Community (River-flat Eucalypt Forest), and
- Potential koala habitat (as defined by SEPP44) and potentially important koala habitat areas based on nearby records, and
- Significant number of hollow-bearing trees (which are critical habitat furniture features for a range native fauna species, including threatened species), and
- Regionally-significant native vegetation community types, and
- Areas of local habitat connectivity including riparian vegetation along the Gloucester River and native forest/ woodland habitat that integrate with Gloucester golf course and vegetated areas east of The Bucketts Way and north of Jacks Road, and
- Areas of land that provide high ecosystem service provisions (such as riparian vegetation that protects water quality, native vegetation that provides for biodiversity, etc), and
- Areas of land that provide for landscape amenity

The constraints mapping in GHD (2017) biodiversity report, as indicated in Figure 8 (page 34) of the Report, illustrates the areas of high ecological constraint. However, whilst the ecological significance of some of these areas is not disputed, the areas identified in the GHD Pty Ltd constraints map (Figure 8 – page 34) are considered to be too expansive. Contrary to the GHD Pty Ltd Report it is also argued that the status of the vegetation community to the Bucketts Way South frontage of the site, at its closest point some 980 metres from the vegetation community associated with the Gloucester River to the west, and 20 metres high in elevation is highly unlikely that this vegetation community is river-flat eucalypt forest and hence classed as an Endangered Ecological Community.

Council on-site surveys have revealed that some areas identified as being in the constraints map were sparsely vegetated with minimal, if any ground cover. Consequently, this Planning Proposal seeks to rezone parts of the areas situated in the constraints map as residential and allow the removal of selected vegetation in favour of bio-diversity offsets. These will be discussed further in this report.

Concurrently, the area of the site adjacent to the Gloucester River with associated braided watercourses and floodplain billabongs in the west of the property is also an area of high ecological constraint (and value).

Grey-Crowned Babbler Retention Plan

The Parsons Brinckerhoff Grey-Crowned Babbler Retention Plan prepared for the Gloucester Shire Council in 2005 also applies for the site and is included in Appendix G. Figure 4.3 of the Plan (page 16) indicates the subject site as part of the Cemetery Road group. This observed group consists of up to 14 individuals. As part of the Recommendations of this plan the vegetation that occurs on the subject site that is identified for protection in the GHD Biodiversity Report is also identified for protection and rehabilitation for Grey Crowned Babbler habitat. The subject site would comprise a habitat corridor for Grey Crowned Babbler Habitat and enhance these linkages that have been identified.

Biodiversity Off-sets

The proposal, seeking to maximise the potential for access and lots immediately adjacent to the Gloucester Golf Course seeks a range of biodiversity off-sets to allow for the removal of vegetation in the areas identified in the GHD Biodiversity Report. The proposed R2 Low Density Residential Zone boundary will require the potential removal of a number of trees, possibly hollow bearing trees, in a number of locations.

The GHD Biodiversity Report indicates the constraints as it relates to areas of high ecological values over the site. The areas proposed to be included in the R2 Zone portions of the site that overlap the high ecological constraint areas are specifically located in the southern and northern portions of site in proximity to the Bucketts Way South frontage. It is these areas, particularly in the northern portion, where frontage to the Gloucester golf course is capitalised upon.

On site surveys taken by Council indicate the following is typical of these specific areas:

- Sparse open forest of Red Gum/ Grey Box open with limited connectivity;
- Red Gum/Grey box species with characteristics prone to limb drop as evidenced by piles of fallen branches over the site;
- Minimal ground cover;
- Limited to no mature or over-mature trees which are more characteristic of developing tree hollows and cavities.

It is considered that this vegetation be removed in favour of biodiversity off-sets that will be set into a Vegetation Management Plan (VMP) that will be approved by Council and included as part of the Draft Planning Agreement (PA) that accompanies this Planning Proposal.

To ensure that the environmental impacts are minimised a number of mitigation measures are included in the Vegetation Management Plan completed as a part of any future planning application, these include:

- Protection of the existing remnant native vegetation;
- Encourage regeneration of existing vegetation;
- Control invasive weeds;
- To minimise the impact of proposed development on the native vegetation;
- To perform monitoring and maintenance activities to ensure that implementation of the mitigation measures are adequate and a satisfactory restoration outcome is achieved.

Secondary measures associated with vegetation removal likely to occur as a part of the future development of the site include:

- Retention of Koala food tree species where possible;
- A replacement ratio of 1:1;
- Replacement trees to be of the same species as those they are replacing;
- The re-planting should be undertaken in the proposed public recreation land. If there is not sufficient land area within the public recreation land to accommodate all of the re-planting some may be provided as street trees within the subject site;
- Plantings should be placed irregularly within the proposed public recreation land to simulate a natural plant community; and
- Removal of the trees should be undertaken selectively with preference given to retaining trees of good growth form, Koala tree species and trees with potential to form hollows.

It is also noted that many trees will be preserved by future individual landholders in that the minimum lot size of 1,000 square metres proposed for the land will allow substantial opportunity for building envelopes which will not require any tree removal. Such trees may be retained for aesthetic values.

To ensure that these recommendations are satisfied the landowner has entered into negotiations with Council under Section 93F of the Environmental Planning & Assessment Act 1979. The purpose of the negotiations is to ensure that any future development of the subject site carries out the works identified above before ultimately dedicating the E2 zoned portion of the site to Council.

Conclusions

As a result of Bio-diversity considerations, the following conclusions have been made which have resulted in:

1. The proposed rezoning layout protects a reasonable extent of native vegetation, EEC and threatened species habitat along the eastern and western property boundaries of the land, in the proposed E2 Environmental Conservation Zone (Figure 1 in the report).
2. The Draft Planning Agreement (PA) includes a Vegetation Management Plan, being the mechanism for the long-term active protection and management of the E2 zoned area adjoining The Bucketts Way South; detailing the dedication of the land to Council for long-term management after initial restoration (weed control), enhancement (habitat furniture), protection (fencing) and biodiversity offsets (replanting) works are completed.

3.C.2 Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?

1. Landscape Character and Visual Impact

Strategic Landscape Character and Visual Impact Assessment

A strategic landscape character and visual impact assessment was undertaken by Peter Andrews & Associates Pty Ltd and is included in Appendix H. A summary is provided below.

The Bucketts are an important scenic attribute to Gloucester and contribute to the sense of place of the town and its surrounding rural landscape. The influence of the Bucketts and the associated river flats on the landscape character of the town and its setting is significant. It is a large geological feature and a dominant element in the landscape when viewed from within the town and all of its surrounding rural areas. These features are visible from the main roads accessing the town: Thunderbolts Way and The Bucketts Way. These are also important tourist routes.

The landscape character of the southern approach is likely to change as a result of:

- The existing approved development for seniors housing.
- Implementation of a Council's proposed pedestrian/cycleway.
- Ongoing development within of the Industrial Zone on the north east corner of the Jacks Road intersection.
- Ongoing development of the surrounding areas in the R5 Large Lot Rural Residential zone to more intensive rural residential subdivision than the existing subdivision pattern.

Visual Impact

In a strategic context, the proposal has minimal impact on view loss. The Bucketts Way is an important scenic tourist route. The most expansive views of the Bucketts occur south and north of the subject land. In a number of instances, these views include a much broader panorama taking in the Bucketts and the Mt Mograni Ranges.

There are a limited number of existing dwellings on the west side of The Bucketts Way South that are potentially impacted. The impacts are considered to be relatively minor since the topography will enable views over the dwellings to the Bucketts if the development proceeds.

Mitigating Measures for Visual and Landscape Impacts

The Bucketts Way is an important tourist route and in terms of landscape character and visual impact the proposal is likely to have relatively minor impacts in the context of the overall character and view along the Buckets Way corridor.

At present, the southern entry to the town is not well defined. A sign north of the Country Club designates the entry. Further south is a mixture of large lot residential dwellings transitioning to the intersection of Jacks Road and The Bucketts Way South gateway into large lot residential estates to the east. The Gloucester Industrial Estate is screened from the Bucketts Way South entrance by way of a 30 metre wide vegetated buffer in the RE1 Public Recreation Zone. Direct access to these industrial properties from The Bucketts Way South is prohibited and access is restricted to the primary entrance to the estate from Cemetery Road.

The Bucketts Way South and Church Street gateway to Gloucester is characterised by the elevations on both sides of the road. The western side of the road which commands views to the Bucketts Ranges falls way to the Gloucester River whilst the eastern side of the road generally rises. The result is that where development exists on the western side of The Bucketts Way South the Bucketts Ranges are still visible because the development is lower than the road elevation.

The treatment of the western side of The Bucketts Way South and possible impeding of views of The Bucketts Ranges by possible development is a significant challenge in which MidCoast Council must provide policy and/or strategic direction. It is considered the Planning Proposal is however acceptable, and will not adversely affect the landscape character of Gloucester.

Despite the above, mitigation measures will include:

- The retention and enhancement of the bio-diversity corridor along The Bucketts Way South frontage to be zoned E2 Environmental Conservation and be transferred to Council.
- The site specific development controls outlined in the Draft Planning Agreement (PA) require road design and/or landscape/fence treatment along the eastern and southern boundaries to minimise the impacts of rear yards and outbuildings on the southern approaches to the township.

2. European and Indigenous Heritage

Aboriginal Archaeological Assessment Report

Artefact Heritage prepared and submitted to Council an Aboriginal Archaeological Assessment Report in support of the proposed rezoning, as required by the NSW Office of Environment and Heritage. The Report is included in Appendix I. The Report was prepared in accordance with the following legislation and OEH guidelines:

- Code of practice for archaeological investigation of Aboriginal objects in New South Wales (2010).
- *Aboriginal cultural heritage consultation requirements for proponents (2010).*

The overview of findings

The overview of findings from the Report was that:

- No Aboriginal cultural, historical or aesthetic values were identified in the study area.
- No Aboriginal cultural objects, materials or places of likely archaeological sensitivity were identified in the study area.
- The study area has been assessed as being of low archaeological potential.

The Report indicates that no Aboriginal heritage constraints exist on the proposed development site and that that the rezoning can proceed with caution. However, following the principles of legislative, policy and procedural requirements, the report recommends that:

- excavation following the issue of a Development Consent and Construction certificate be monitored during roadway construction;
- In accordance with the *National Parks and Wildlife Act 1974,* if any unexpected Aboriginal objects are uncovered in the course of proposed works all activity should cease immediately and the OEH and Forster Aboriginal Land Council be notified.
- OEH and NSW Police are notified and work ceases immediately if human remains or suspected human remains are found.

3. Acoustic Assessment

The Gloucester Local Environmental Plan 2010 identifies the subject site within the High Impact Noise area on the Australian Noise Exposure Forecast Map. The objectives for development in areas subject to airport noise outlined in the Gloucester LEP are:

(a) to prevent certain noise sensitive developments from being located near the Gloucester Airport and its flight paths,

(b) to assist in minimising the impact of aircraft noise from that airport and its flight paths by requiring appropriate noise attenuation measures in noise sensitive buildings,

(c) to ensure that land use and development in the vicinity of that airport do not hinder or have any other adverse impact on the ongoing, safe and efficient operation of that airport.

The Gloucester LEP states that before granting development consent to development on land in the vicinity of that airport, the consent authority:

(a) must consider whether the development will result in an increase in the number of dwellings or people affected by aircraft noise, and

(b) must consider the location of the development in relation to the criteria set out in Table 2.1 (Building Site Acceptability Based on ANEF Zones) in AS 2021—2000, Acoustics—Aircraft noise intrusion—Building siting and construction, and

(c) in relation to the erection of a dwelling house on land that is in a high impact noise zone—must be satisfied that the development will meet AS 2021—2000, Acoustics—Aircraft noise intrusion—Building siting and construction, and

(d) in relation to the following types of development on land that is in a low impact noise zone—must consider whether the development will meet AS 2021—2000, Acoustics—Aircraft noise intrusion—Building siting and construction:

(i) business premises,

(ii) caravan parks,

(iii) child care centres,

(iv) community facilities,

(v) educational establishments,

(vi) hospitals,

(vii) light industries,

(viii) office premises,

(ix) places of public worship,

(x) residential accommodation,

(xi) retail premises.

An acoustic assessment for aircraft noise intrusion has been prepared addressing Australian Standard 2021:2015 Acoustics – Aircraft Noise Intrusion and is attached in Appendix J. This assessment concludes that the subject site and the proposed residential development are classified as acceptable and that no building attenuation would be required. Whilst it is not envisaged that the Gloucester aerodrome will be upgraded significantly in the future, the assessment also addresses

larger planes and determines that the subject site and proposed development would still be acceptable and not have a negative impact on any future upgrade plans.

3. Flooding

The BMT WBM Pty Ltd *Gloucester and Avon Rivers Flood Study*, completed in 2015, commissioned as a part of the Gloucester Water Study Project – a suite of independent reports examining water management issues in the Gloucester Region that was established through the signing of a Cooperation Agreement with AGL Energy in September 2013.

The former Gloucester Shire Council resolved to accept the flood study and its recommendations. The Flood Study is the first stage of flood planning in accordance with the NSW Floodplain Development Manual and the State Flood Prone Land Policy. Recently, MidCoast Council has received grant funding to complete a Floodplain Risk Management Plan which will adopt the recommendations of the flood study.

Due to the progress of the floodplain risk management process in Gloucester, the mapping identified in the flood study compendium is considered to be the flood planning level when considering land use applications. It is considered that Council has a legal responsibility to enforce its most recently known flood levels. For the purposes of flood planning, and in accord with the NSW flood planning guidelines the BMT WBM Pty Ltd Flood Study indicated both a 1 in 100 year, ie. 1% AEP, and a Probable Maximum Flood (PMF), ie. 0.5% AEP or 1 in 200 year flood.

The 1 in 100 year and PMF flood extant is shown in Figure 6.

It is indicated that no part of the proposed low density residential zone encroaches into the 1 in 100 year flood line. Whilst it is acknowledged that a portion of the area to be rezoned will fall into the PMF category this area would include appropriate measures to ensure dwellings and roads are above the flood hazard ensuring safety to future residents.

4. Contamination

As previously noted, the land was the subject of an enabling clause in the Gloucester Local Environmental Plan in 2001 to allow for seniors housing. Development Consent was issued in March 2003 for a 100 dwelling retirement village and ancillary land uses. Therefore it is considered that the land is suitable for residential development.

Since 2002 when the present owners acquired the whole parcel it has been leased. The area of river flats has been used for the growing of corn and winter supplement feed and the balance used to run dry milking cows. Fertilisers etc. have been used on the river flats in accordance with the lease but no activity has been carried out on the proposed development area other than the grazing of cattle.

A Statutory Declaration relating to the previous use of the land is included in Appendix K. It is considered that any contamination issues can be adequately addressed as part of the Development Application process.

3.C.3 Has the Planning Proposal adequately addressed any social and economic effects?

The Planning Proposal will provide a net community benefit, in particular in the provision of additional land for a diversity of allotments and housing close to jobs, with access to services and infrastructure; and the ongoing conservation of a large portion of the subject site.

Section D – State and Commonwealth Interests

3.D.1 Is there adequate public infrastructure for the planning Proposal?

1. Location

Gloucester Town Centre is located approximately 2.6km from the site to the north with direct access along The Bucketts Way. Gloucester Railway Station is located to the east of the Gloucester Town Centre within approximately five (5) kilometres of the subject site. Residents within the proposed development area will have access to existing school bus and other services where they are available. Public schools are located within Gloucester.

2. Electricity

Overhead electricity is available to the site.

3. Water and Sewerage

MidCoast Water, in correspondence dated 22 December 2015 advised that the proposed development can be serviced by an extension of the water and sewerage systems including:

- A new sewerage pump station to service the site, along with a rising main connecting to the existing sewer system.
- Sewer system upgrades of the existing system where the system receives the pumped flow from the new pump station.
- Water network upgrades, accounting for the position of the Jacks Road booster pump station.

4. Access and Road Infrastructure

The previous Section 94 Contributions Plan for Gloucester (Revised November 2010) refers to the subject rezoning for which two (2) items of public infrastructure are of importance to the subject proposal.

- A proposed roundabout within the new four (4) way intersection between Jack's Road, The Bucketts Way South and a new proposed road providing access to the subject site;
- A motorised wheelchair footpath from Hawdon Street to Jack's Road.

Section 94 Contributions have been collected to cater for this infrastructure since 2010. Notably, many of these funds have been accrued as a result of two (2) significant Large Lot Residential Subdivisions in Jacks Road to the east of the site.

The standard of works that will be required for these infrastructure components has not yet been finalised. It is noted however that that Council currently holds funds that have been contributed by development in the area toward the s94 Contributions Plan for these works. The current funds available as of April 2018 are as follows:

- Motorised Wheelchair Program - Jacks Road to Hawdon Street - Current Contribution balance of $12,137;
- Bucketts Way South/Jacks Road Roundabout - Current Contribution balance of $189,801.

It is deemed that the above infrastructure will be provided as part of a consequence of development of the site.

Council would continue to accrue both s94 Contributions from both further approved development in the vicinity toward such works, and from the development of the subject site. The Developer of the site may wish to enter into a further Planning Agreement with Council to off-set the costs of certain road and footpath infrastructure, but this may be determined in association with a Development Application.

3.D.2 What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway Determination?

Consultation has been undertaken with the following State and Commonwealth agencies:

- NSW Department of Industry (Division of Resources and Energy);
- NSW Office of Environment and Heritage;
- MidCoast Water;
- NSW Department of Primary Industries (Agriculture);
- Forster and Taree/Purfleet Aboriginal land Council's

A summary of the comments from each Public Agency is provided below.

NSW Department of Industry (Division of Resources and Energy)

Significant delays for the Planning Proposal have occurred due to the subject site being within the 2 kilometre residential exclusion and buffer zones incurred over Petroleum Exploration Licence 285 (PEL 285), commonly known as the Gloucester Gas project.

Concerns had been raised by the NSW Department of Industry (Division of Resources and Energy) toward the Planning Proposal's abilities to meet the requirements of Section 117 Direction 1.3, Mining, Petroleum Production and Extractive Industries, as the proposal may restrict the potential development of petroleum resources, which are of State significance, by permitting a land use that is likely to be incompatible with such development. This correspondence from 29 January 2016 is included in Appendix L, with the attached Exclusion Zone Map.

However, in 2016 the holder of PEL 285, AGL Upstream Investments Pty Ltd, decided not to proceed with the Gloucester Gas Project and consequently sold the licences back to the Minister responsible for mining, petroleum production and extractive industries.

The Department of Industry (Division of Resources and Energy) has therefore considered the significant change of circumstances and withdrawn the objection to the Planning Proposal. The correspondence dated 25 August 2016, is included in Appendix M.

NSW Office of Environment and Heritage

The NSW Office of Environment and Heritage (OEH) provided correspondence to this Planning Proposal identifying potential issues relating to biodiversity, flooding and Aboriginal cultural heritage.

In response the following investigations and provisions have been made:

- The preparation of Biodiversity Report from GHD Pty Ltd detailing areas of high ecological importance over the site.
- Inclusion of a significant portion of these ecologically significant areas in the proposed E2 Environmental Conservation Zone.
- A requirement for these areas to be managed and protected in accordance with a Draft Planning Agreement (PA) as bio-diversity offsets for the site.
- Reconfiguring of the residential zone boundary to be clear of the 1 in 100 year, ie. 1% AEP

Flood Line, identified in the BMT WBM Pty Ltd *Gloucester and Avon Rivers Flood Study* adopted by Council in 2015.

- The preparation of Aboriginal Cultural Report from Artefact Heritage which incorporated an archaeological and thematic study of the site and recommendations for the future protection of potential aboriginal heritage.

The most recent NSW OEH correspondence dated 27 July 2016 and 31 August 2017 is included in Appendix N and O.

NSW Department of Primary Industries (Agriculture)

The NSW Department of Primary Industries (Agriculture Division) did not object to the proposal but did recommend that agricultural industries in the vicinity be consulted.

The NSW Department of Primary Industries (Agriculture Division) correspondence is included in Appendix P.

MidCoast Water

Midcoast Water did not object to the proposal and indicated that reticulated water and sewerage services would be able to be provided to the site, subject to a local water and sewerage supply strategy.

The MidCoast Water correspondence is included in Appendix Q.

Forster and Taree/Purfleet Local Aboriginal Land Councils

Forster and Taree/Purfleet Local Aboriginal Land Councils have been approached for comment and input into the planning proposal however, no correspondence has been received to date.

It is noted that that the Forster Local Aboriginal Land Council, albeit an associate thereof, in addition to other groups and individuals, were identified as Registered Aboriginal Parties (RAP's) and consulted as part of the Artefact Heritage Aboriginal Cultural Heritage Study.

Further consultation with the Land Councils will be undertaken during public exhibition phase of the Planning Proposal.

PART 4 - MAPPING

(s.55(2)(d) Maps to be adopted by the proposed instrument)

As a result of the rezoning of the land, this Planning Proposal seeks to amend the Zoning Map Sheet within the *Gloucester Local Environmental Plan 2010*, referenced as follows:

- 3050_COM_LZN_009_020_20130529

The rezoning of the land also requires a change to a Minimum Lot Size Map, referenced as follows:

- 3050_COM_LSZ_009_020_20100517

A Floor Space Ratio Map will also require an amendment, referenced as follows:

- 3050_COM_FSR_009_020_20130509

PART 5 - COMMUNITY CONSULTATION

In accordance with Section 56(2)(c) and 57 of the *Environmental Planning and Assessment Act 1979* and the Gateway Determination, this Planning Proposal will be placed on public exhibition for a minimum of 28 days.

Council will also undertake the following:

- Notices in the local newspaper;
- Direct mail notification to potentially affected land owners;
- Direct mail notification to surrounding agricultural industries in accord with the NSW DPI letter dated 11 February 2016;
- Exhibition material and all relevant documents will be available at the MidCoast Council Gloucester District Office and the Gloucester Library;
- Exhibition material and all relevant documents will be available on Council's website; and
- Further consultation with the public agencies nominated in the Gateway Determination.

PART 6 - PROJECT TIMELINE

In accordance with the Department of Planning and Environment guidelines, the following timeline is provided, which includes the tasks deemed necessary for the making of this local environmental plan.

Task	Responsibility	Timeframe	Date (approximate)
Council resolution to support the Planning Proposal	Council	-	21 August 2013
Lodgement of Planning Proposal for Gateway Determination	Council	-	8 November 2013
Gateway Determination Issued	Minister for Planning	-	8 August 2014
Amendment to Planning Proposal as per Gateway Determination Conditions	Proponent	-	September 2015
Public Agency Consultation (OEH)	Council	-	3 December 2015
Gateway Alteration (extending time for completion to 15 February 2017)	Minister for Planning	-	11 March 2016
Preparation of Revised Planning Proposal and Draft Planning Agreement	Council/Council's legal consultant	15 months (from 15 February 2017)	June 2018
Report to Council with amended Planning Proposal and Draft Planning Agreement	Council		August 2018
Public exhibition of Planning Proposal	Council	1 month	September - October 2018
Report to Council	Council	2 months	November 2018
Lodgement of Planning Proposal (with any amendments as a result of submissions)	Council	2 months	December 2018
Making of local environmental plan	Minister for Planning	6 – 8 weeks	February 2019

Appendix A – Peter Markey correspondence dated 9 May 2018

Gloucester Retirement Village Pty Ltd
c/o Mr G. Slack

au.geoff.slack@gmail.com

RE: Marketplace Assessment of Vacant Building Blocks.

I note with some pleasure that your organisation is currently going through the process of rezoning your land for a residential subdivision on the edge of Gloucester Township.

If your application is successful I feel it will fill a gap which currently exists in the availability of land in the 800 square metre to 1500 square metre size range. Recent sales have shown there is a resistance to purchase blocks which are either too small or too big.

Gloucester Shire Council's "Reeves Estate" is a classic example of the diminished demand for blocks when they are too small. These blocks were predominantly 600 to 800 square metres in size and only 3 were sold in the 4 years from release. The balance were sold to a housing developer at a lower rate so that the Council could quit the blocks.

On the outskirts of town there are a multitude of acreage blocks, but they too have their limitations. The maintenance requirements of blocks upwards of 2,000 square metres limits the appeal to older residents or those who just don't have the time or inclination to spend hours on the mower.

I consider that there is a pent-up demand for your size blocks simply because they have not been available in the recent past. There are many who don't want any more than a reasonable area to place a house and shed with room for a decent yard which is not too hard to maintain.

The location close to the golf club will also attract the people who have time to take advantage of that facility. In the main these are older citizens, and so are not looking for larger lots of land.

The bank of land which is either currently available, or approved, consists mainly of large lots over 2,000 square metres. Looking to the future, this is the only area that will service what I believe to be the biggest demand in the short term.

Should your group be successful in the rezoning of this land, I feel you should progress as quickly as possible to market them. There are many prospective home buyers at present who are willing to invest a little more to buy a block and build rather than choose from houses currently available.

Gloucester is a town which has many smaller weatherboard cottages left over from a bygone era of timber milling, and so there are only a small number of modern homes on the market at any given time. This encourages more people to look at building rather than buying a home.

As previously stated, I am looking forward to this rezoning application becoming a reality and the resultant new development commencing in the near future.

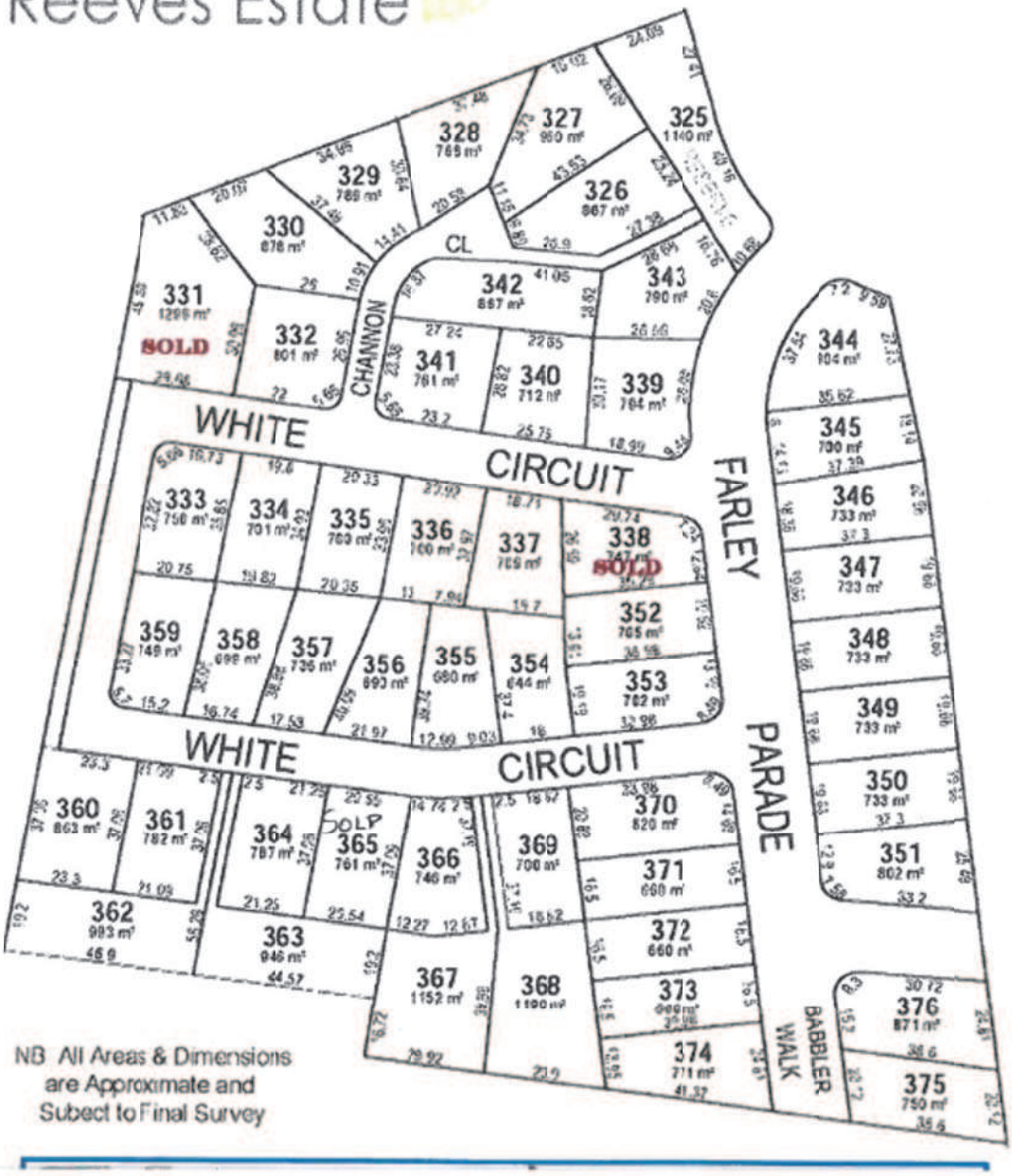
Yours faithfully,

Peter Markey

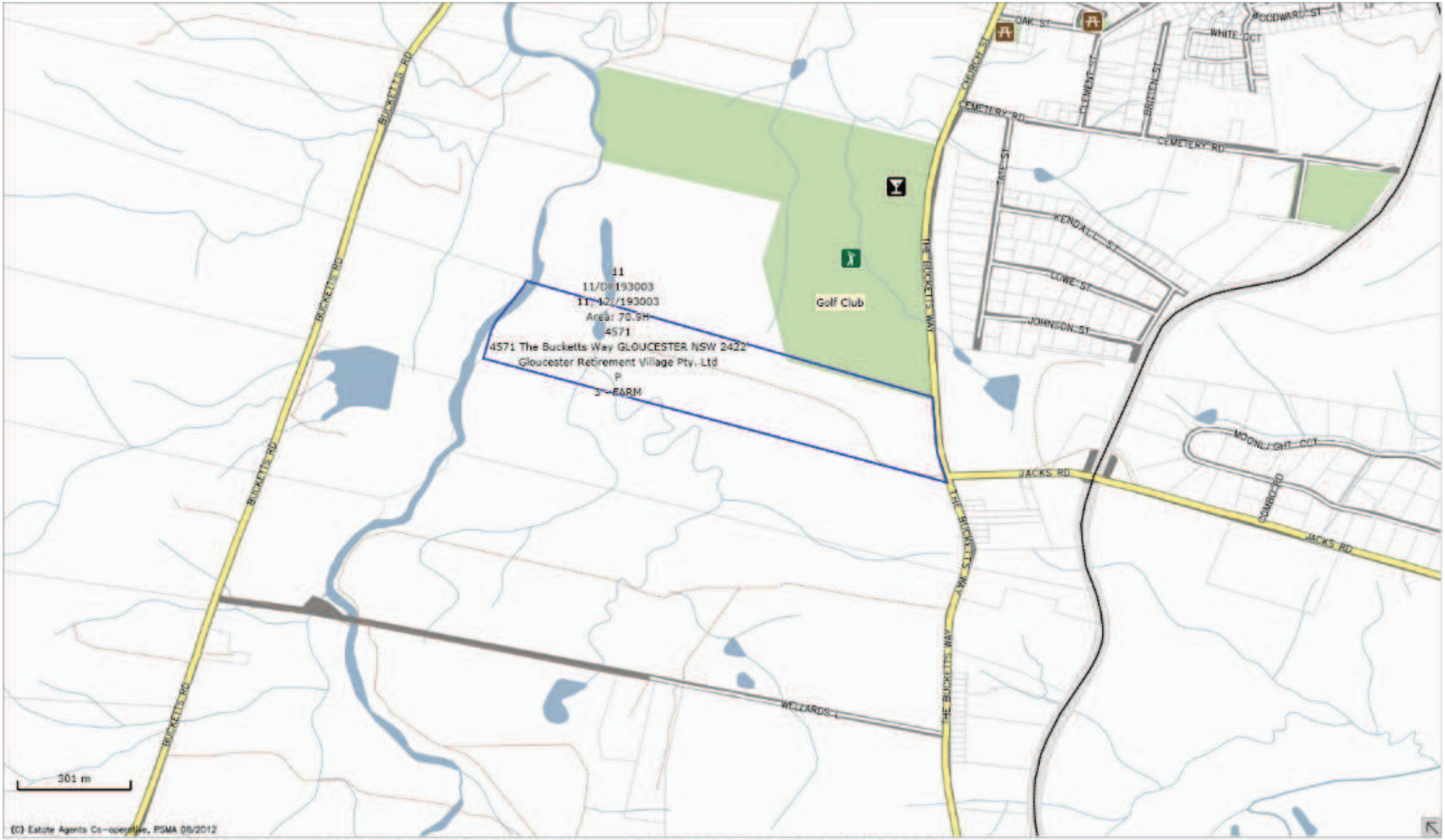
Attachments:

- Plan of Reeves Estate
- Locality plan of proposed estate
- Sales of lots < 800 sq mtrs (last 3 yrs)
- Sales of lots 801 – 1000 sq mtrs (last 3 yrs)
- Sales of lots > 1001 sq mtrs (last 3 yrs)

Reeves Estate



NB All Areas & Dimensions are Approximate and Subject to Final Survey

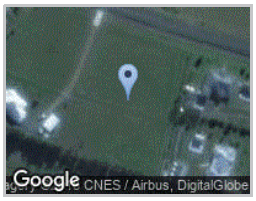


This information is obtained from various sources and cannot be guaranteed. You must make your own enquiries as to its accuracy.

Address Status Area Lot/Plan Type Council Last Sale Settlement Date

Property Information

Bowe & Lidbury
38 Church Street Gloucester 2422
Ph: (02) 6558 2008 Fax: (02) 6558 9557
Email: gloucester@bowelidbury.com.au
Web: http://www.bowelidbury.com.au

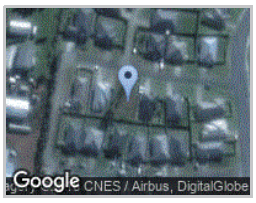


3 Moonlight Cct, GLOUCESTER NSW 2422

Sale Price:	$155,000	**Current Owner:**	Clarke, Clarke
Sale Date:	15/03/2018	**Previous Owner:**	Reid, Reid
Settlement Date:	24/04/2018	**Council:**	Mid Coast
Area Size:	4589.000M	**Zoning:**	Non Urban
Property Type:		**Prim. Purpose:**	RESIDENCE
Lot Plan:	282 / DP1186296	**Property Key:**	104995305
Title Description:	282/1186296	**Issue Date:**	30/04/2018

12 Ironbark Cl, GLOUCESTER NSW 2422

Sale Price:	$95,000	**Current Owner:**	Higgins, Higgins
Sale Date:	21/02/2018	**Previous Owner:**	Hawker, Cook
Settlement Date:	21/03/2018	**Council:**	Mid Coast
Area Size:	4188.000M	**Zoning:**	Non Urban
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	129 / DP1131393	**Property Key:**	104600563
Title Description:	129/1131393	**Issue Date:**	26/03/2018



7 White Cct, GLOUCESTER NSW 2422

Sale Price:	$55,000	**Current Owner:**	Martin Zaya Dadisho Nona
Sale Date:	25/01/2018	**Previous Owner:**	Hocking, Hocking
Settlement Date:	26/02/2018	**Council:**	Mid Coast
Area Size:	700.100M	**Zoning:**	Non Urban
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	335 / DP1158901	**Property Key:**	104711722
Title Description:	335/1158901	**Issue Date:**	23/04/2018

145 Mahogany Dr, GLOUCESTER NSW 2422

Sale Price:	$75,000	**Current Owner:**	Edwards, Birdsall
Sale Date:	22/12/2017	**Previous Owner:**	Avon River Estates Pty Ltd
Settlement Date:	26/02/2018	**Council:**	Mid Coast
Area Size:		**Zoning:**	Residential
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	145 / DP1239759	**Property Key:**	104987232
Title Description:	145/1239759	**Issue Date:**	05/03/2018

5 Ironbark Cl, GLOUCESTER NSW 2422

Sale Price:	$95,000	**Current Owner:**	Smith, Smith
Sale Date:	04/12/2017	**Previous Owner:**	Calais Investments Australia Pty Limited
Settlement Date:	19/12/2017	**Council:**	Gloucester
Area Size:	4059.000M	**Zoning:**	Non Urban
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	136 / DP1152297	**Property Key:**	104678611
Title Description:	136/1152297	**Issue Date:**	15/01/2018

Gloucester Ironbark Cl, GLOUCESTER NSW 2422

Sale Price:	$75,000	**Current Owner:**	House, House
Sale Date:	12/09/2017	**Previous Owner:**	Avon River Estates Pty Ltd
Settlement Date:	28/02/2018	**Council:**	Mid Coast
Area Size:		**Zoning:**	Residential
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	144 / DP1239759	**Property Key:**	104987231
Title Description:	144/1239759	**Issue Date:**	05/03/2018

Property Information

Bowe & Lidbury
38 Church Street Gloucester 2422
Ph: (02) 6558 2008 Fax: (02) 6558 9557
Email: gloucester@bowelidbury.com.au
Web: http://www.bowelidbury.com.au

0 Mahogany Dr, GLOUCESTER NSW 2422

Sale Price:	$90,000	**Current Owner:**	Martin
Sale Date:	25/08/2017	**Previous Owner:**	Avon River Estates Pty Ltd
Settlement Date:	26/02/2018	**Council:**	Mid Coast
Area Size:		**Zoning:**	Residential
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	143 / DP1239759	**Property Key:**	104987230
Title Description:	143/1239759	**Issue Date:**	05/03/2018

19 Moonlight Cct, GLOUCESTER NSW 2422

Sale Price:	$170,000	**Current Owner:**	Mansfield, Mansfield
Sale Date:	06/06/2017	**Previous Owner:**	Gosford Gateway Tyres Pty Limited
Settlement Date:	11/07/2017	**Council:**	Gloucester
Area Size:	1.101H	**Zoning:**	Non Urban
Property Type:		**Prim. Purpose:**	VACANT LAND
Lot Plan:	4 / DP1083992	**Property Key:**	104152117
Title Description:	4/1083992	**Issue Date:**	24/07/2017

Appendix B – Gloucester Shire Development Strategy 2014 - 2017

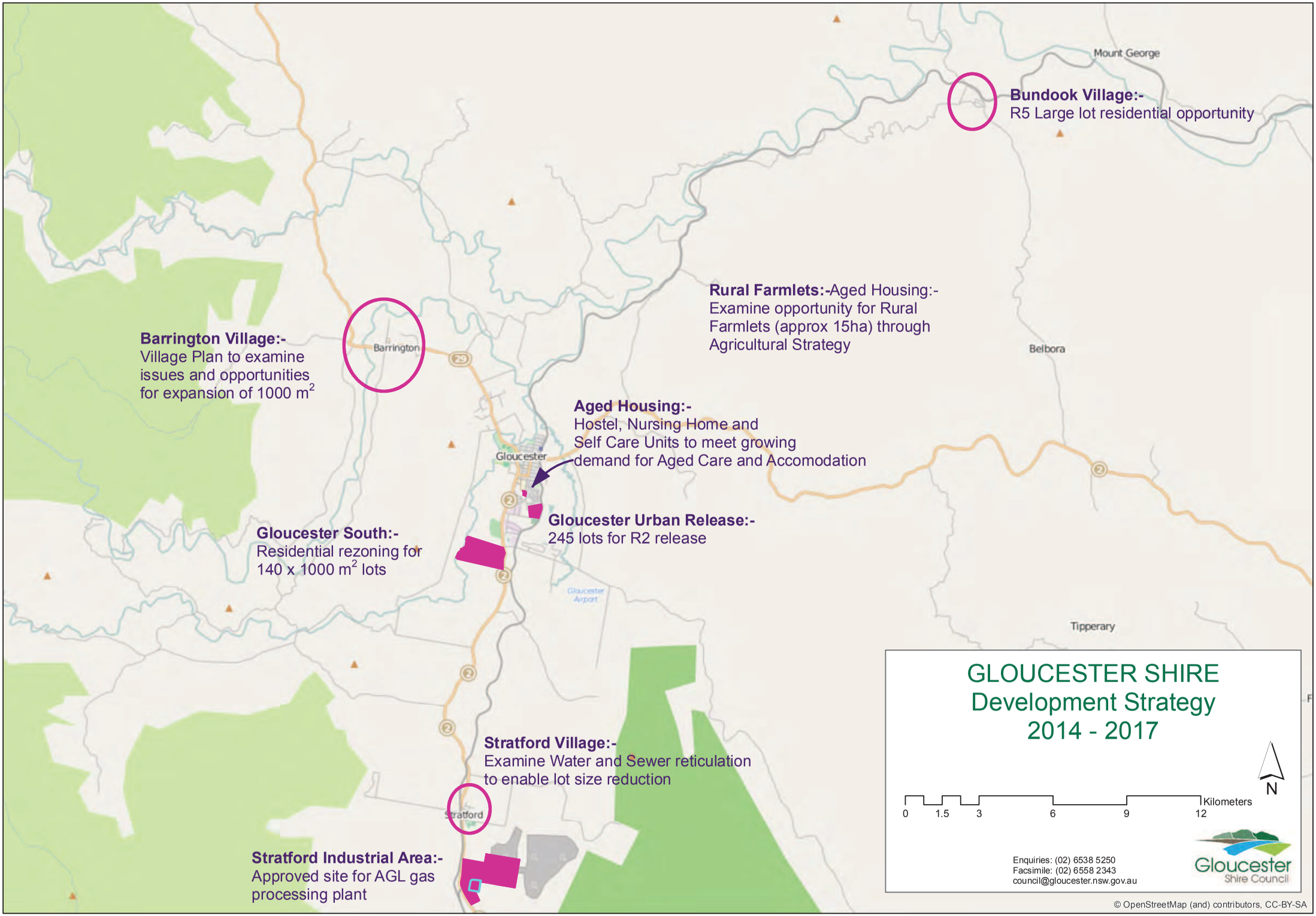
Gloucester Shire Council

Development Strategy 2014 – 2017

Gloucester Shire Council recognises the benefit of creating a broad range of opportunities for current and prospective residents coming to the area that will suit their needs.

It has been Council's intent to develop and implement a Conservation and Development Strategy for the Shire which would identify areas for environmental conservation purposes and areas where future development would be supported. This simple strategy is seeking to identify a number of future development opportunities which Council sees as providing new housing opportunities for both local population growth and people choosing to migrate to the area;

- **Rural Farmlets**– Council has developed an Agricultural Strategy which will identify the criteria for suitable agricultural areas (eg. access to tar sealed roads and town or village facilities). Lots of approximately 15 ha are envisaged.
- **Gloucester South residential** rezoning –lots of 1000 square metre minimum with scenic outlook over the Bucketts Ranges and adjacent to Gloucester Golf Club. These blocks will provide traditional "quarter acre" lot amenity suitable for rural town ship living purposes.
- **Barrington village** – this village is well located with outlook over the Barrington River floodplain and to the ranges beyond. The village includes a public school, public facilities such as a community hall and Rural Fire Service facilities and some limited retail facilities to support an expanded population. Reticulated water and sewer is available to the village.
- **Stratford village** – includes a public school, public facilities such as a community hall and Rural Fire Service facilities, sporting field, and some service retail facilities. The village does not have reticulated water and sewer and is based on large lots of 2000 m² minimum. It is Council intention to examine water and sewer reticulation to establish if further development of the village can be sustained.
- **Bundook village** – has potential for large lot residential development with a minimum lot size of 8000 m² based on a requirement to have aerated on-site wastewater disposal systems. The area has significant existing residential development but is limited in support facilities and services.
- **Aged housing** – Council has recognised the long-standing and increasing need for nursing home, hostel and self-care units for the ageing population. Negotiations are underway in an endeavour to construct such facilities on council owned land adjacent to the Gloucester High School.
- **Gloucester urban release** – in accordance with the 2006 Housing Needs Strategy, is an area of land suitable for approximately 245 lots adjacent to existing urban development and well located for facilities such as Gloucester High School.


Mount George
Bundook Village:-
R5 Large lot residential opportunity
Rural Farmlets:-Aged Housing:-
Examine opportunity for Rural
Farmlets (approx 15ha) through
Agricultural Strategy
Barrington Village:-
Village Plan to examine
issues and opportunities
for expansion of 1000 m2
Barrington
Belbora
Aged Housing:-
Hostel, Nursing Home and
Self Care Units to meet growing
demand for Aged Care and Accomodation
Gloucester
Gloucester Urban Release:-
245 lots for R2 release
Gloucester South:-
Residential rezoning for
140 x 1000 m2 lots
Gloucester
Airport
Tipperary
Stratford Village:-
Examine Water and Sewer reticulation
to enable lot size reduction
Stratford
Stratford Industrial Area:-
Approved site for AGL gas
processing plant
GLOUCESTER SHIRE
Development Strategy
2014 - 2017
N
0
1.5
3
6
9
12
Kilometers
Enquiries: (02) 6538 5250
Facsimile: (02) 6558 2343
council@gloucester.nsw.gov.au
Gloucester
Shire Council
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Appendix C – Consistency with Hunter Regional Plan Goals, Directions & Actions

Goal 1 – the leading regional economy in Australia	
Direction 10 – Protect and enhance agricultural productivity	
Action 10.1 Protect locations that can accommodate agricultural enterprises from incompatible development, and facilitate the supply chain, including infrastructure, distribution areas, processing facilities and research and development in local plans.	Minor inconsistency. The subject land is currently being used for extensive agricultural purposes and approximately one third of the 99 hectare site will be rezoned for residential and environmental conservation purposes. The remainder of the site (71 hectares) will however, continue to have the capacity for continued extensive agricultural practices.
Goal 2 – A biodiversity-rich natural environment	
Direction 14 – Protect and connect natural areas	
Action 14.1 Identify terrestrial and aquatic biodiversity values and protect areas of high environmental value to sustain the lifestyle, economic success and environmental health of the region.	Consistent. The proposed E2 Environmental Protection Zones proposed as part of this Planning Proposal reflect the identification of areas of high environmental value. In particular, the protection of a riparian corridor on the Gloucester River frontage and ecologically significant vegetation on The Bucketts Way South road frontage, the latter of which will also be dedicated to Council for protection into perpetuity.
Direction 15: Sustain water quality and security	
Action 15.7 Incorporate water-sensitive design into development that is likely to have an adverse impact on coastal water catchments, water quality and flows.	Consistent. The Draft Planning Agreement (PA) that has been prepared in association with this Planning Proposal will ensure that water sensitive urban design principles (WSUD) are incorporated into a future residential subdivision development of the site.
Goal 3 – Thriving communities	
Direction 17: Create healthy built environments through good design	
Action 17.3 Enhance the quality of neighbourhoods by integrating recreational walking and cycling networks into the design of new communities to encourage physical activity.	Consistent. The subject site is well located for any future development works to provide such connections. The former Gloucester Shire Council s94 Contribution Plan had been collecting funds for a motorised wheelchair footpath connecting Jacks Road and Hawdon Street to the north and as a consequence of a development over the site such extension of this footpath network will be considered.
Direction 18: Enhance access to recreational facilities and connect open space	
Action 18.2 Deliver connected biodiversity-rich corridors and open space areas for community enjoyment.	Consistent. The E2 Zoned corridors proposed as part of the subject rezoning will enhance and provide linkages to existing biodiversity corridors further to the east in Cemetery Road and along The Bucketts Way South.

Direction 19 – Identify and protect the region's heritage	
Action 19.1 Consult with the local Aboriginal communities to identify and protect heritage values to minimise the impact of urban growth and development, and to recognise their contribution to the character and landscape of the region.	Consistent. An Archaeological investigation of the site was undertaken as a result of public agency consultation. Additional consultation will be undertaken in accordance with the NSW OEH Guidelines during public exhibition of the planning proposal.
Goal 4 – Greater housing choice and jobs	
Direction 21: Create a compact settlement	
Action 21.1 Promote development that respects the landscape attributes and the character of the metropolitan area, towns and villages.	Consistent. The landscape and visual character assessment, attached to this Planning Proposal, addresses the impacts of the rezoning on the landscape features of Gloucester and its potential to impact important views and vistas.
Action 21.2 Focus development to create compact settlements in locations with established services and infrastructure, including the Maitland Corridor growth area; Newcastle–Lake Macquarie Western Corridor growth area; the emerging growth area around Cooranbong, Morriset and Wyee; and in existing towns and villages, and sites identified in an endorsed regional or local strategy.	Minor Inconsistency. While the proposal is located outside of the Gloucester town centre, it is in close proximity to existing large lot residential areas of the urban settlement. The proposal also provides a transition between surrounding rural allotments and urban allotments which exist within the main township of Gloucester.
Action 21.4 Create a well-planned, functional and compact settlement pattern that responds to settlement planning principles and does not encroach on sensitive land uses, including land subject to hazards, on drinking water catchments or on areas with high environmental values.	Consistent. The Rezoning encourages a well-planned, functional and compact settlement while identifying areas suitable for environmental conservation. The proposed residential portion of the site is free of natural hazards. The proposed minimum lot size enables the appropriate retention of mature trees over the site and the Draft Planning Agreement ensures the future development minimises adverse impacts on sensitive land and water resources.
Action 21.6 Provide greater housing choice by delivering diverse housing, lot types and sizes, including small-lot housing in infill and greenfield housing locations.	Consistent. The subject Planning Proposal seeks to provide a greater diversity of housing choice by seeking a minimum lot size of 1,000 square metres which caters for a new market demand in the Gloucester region.
Action 21.7 Promote new housing opportunities in urban areas to maximise the use of existing infrastructure	Minor inconsistency. The planning proposal is outside of the existing urban area, but is within the settlement catchment for Gloucester as identified in the Gloucester Development Strategy.
Direction 25 – Monitor housing and employment supply and demand	
Action 25.3 Sequence new greenfield urban development that makes efficient use of infrastructure networks and capacity.	Consistent. The development is located to maximise the use of existing services and infrastructure within the Gloucester locality.

Direction 26 – Deliver infrastructure to support growth and communities	
Action 26.1 Align land use and infrastructure planning to maximise the use and capacity of existing infrastructure and the efficiency of new infrastructure.	Consistent. The development is located to maximise the use of existing services and infrastructure within the Gloucester locality.
Action 26.5 Ensure growth is serviced by enabling and supporting infrastructure.	Consistent. The development is located to maximise the use of existing services and infrastructure within the Gloucester locality.

Appendix D – Consistency with State Environmental Planning Policies

State Environmental Planning Policy (SEPP)	Consistency
SEPP No 1 —Development Standards	The subject Planning Proposal generally complies with the aims of the SEPP.
SEPP No 14—Coastal Wetlands	Not applicable
SEPP No 19—Bushland in Urban Areas	Not applicable
SEPP No 21—Caravan Parks	Minor Inconsistency. The rezoning of approximately one third of the site from E3 Environmental Management to a combination of R2 Low Density Residential and E2 Environmental Conservation will reduce the area of land available for the development of caravan parks - permissible in the E3 zone on the subject site. However, the land is substantially flood affected; and in those areas to be rezoned for E2 Environmental Conservation, there would be limited potential for this activity due to its environmental sensitivity. Significant areas of E3 land exist within the Gloucester locality and the rezoning of 18.7 hectares for residential purposes is not considered to have a significant impact on the potential for this land use to occur, more broadly, in this location.
SEPP No 26—Littoral Rainforests	Not applicable
SEPP No 30—Intensive Agriculture	Not applicable
SEPP No 33—Hazardous and Offensive Development	Not applicable
SEPP No 36—Manufactured Home Estates	Minor Inconsistency. Caravan parks are permissible within the current E3 Environmental Management Zone. Therefore the subject site has the capacity to be developed for a Manufactured Home Estate in accordance with the provisions of Clause 6 of the SEPP. The rezoning of approximately one third of the site from E3 Environmental Management to a combination of R2 Low Density Residential and E2 Environmental Conservation will therefore also reduce the area of land available for the potential development of manufactured home estate. However, the land is substantially flood affected; and in those areas to be

State Environmental Planning Policy (SEPP)	Consistency
	rezoned for E2 Environmental Conservation, there would be limited potential for this activity due to its environmental sensitivity. Significant areas of E3 land exist within the Gloucester locality and the rezoning of 18.7 hectares for residential purposes is not considered to have a significant impact on the potential for this land use to occur, more broadly, in this location.
SEPP No 44—Koala Habitat Protection	Consistent. The subject Planning Proposal generally complies with the aims of the SEPP. Section 5.2.6 of the GHD Biodiversity Report (Appendix F) included 11 records of koalas within a 10km radius of the subject site. The subject Planning Proposal generally complies with the aims of the SEPP in that the areas identified in the GHD Pty Ltd Biodiversity Study which are of high ecological value, include a range of kola feed tree species which constitutes 'potential koala habitat', will be protected through the rezoning of these areas to E2 Environmental Conservation. Those trees which are potential koala tree species that are identified for removal will be replaced with koala food trees as part of the Vegetation Management Plan (VMP), as required by the Draft Planning Agreement (PA) which accompanies the Planning Proposal.
SEPP No 47—Moore Park Showground	Not applicable
SEPP No 50—Canal Estate Development	Not applicable
SEPP No 52—Farm Dams and Other Works in Land and Water Management Plan Areas	Not applicable
SEPP No 55—Remediation of Land	The subject Planning Proposal generally complies with the aims of the SEPP. No known uses have occurred on the land that may have incurred any site contamination.
SEPP No 62—Sustainable Aquaculture	Not applicable
SEPP No 64—Advertising and Signage	Not applicable
SEPP No 65—Design Quality of Residential	Not applicable

State Environmental Planning Policy (SEPP)	Consistency
Apartment Development	
SEPP No 70—Affordable Housing (Revised Schemes)	Not applicable
SEPP No 71—Coastal Protection	Not Applicable
SEPP (Affordable Rental Housing) 2009	Not applicable
SEPP (Building Sustainability Index: BASIX) 2004	Not applicable
SEPP (Exempt and Complying Development Codes) 2008	Consistent. The rezoning of approximately 18.7 hectares of the site from the E3 Environmental Management Zone to the R2 Low Density Residential Zone, will enable development under the SEPP (Exempt and Complying Development Codes) 2008 on those portions of the site.
SEPP (Housing for Seniors or People with a Disability) 2004	Consistent. Rezoning a portion of the site to urban purposes is consistent with the aims of the SEPP and facilitates development that will provide housing styles and choice for the ageing population of Gloucester.
SEPP (Infrastructure) 2007	The subject Planning Proposal generally complies with the aims of the SEPP.
SEPP (Integration and Repeals) 2016	Not applicable
SEPP (Kosciuszko National Park—Alpine Resorts) 2007	Not applicable
SEPP (Kurnell Peninsula) 1989	Not applicable
SEPP (Mining, Petroleum Production and Extractive	Consistent. The site currently overlays Petroleum Exploration Licence 285 (PEL 285) previously held by AGL Upstream Investments Pty Ltd. On 22 February 2011 the Planning Assessment Commission (PAC) approved an

State Environmental Planning Policy (SEPP)	Consistency
Industries) 2007	Application for the Stage 1 Gas Field Development Area and Central Processing Facility. This land was subsequently covered by Petroleum Production Licence Application (PPLA) 12. This PPLA was approximately 650 metres south-east of the subject site. Clause 9A of SEPP indicates that for Coal Seam Gas developments that exclusions apply for residential development in 2 kilometre buffer zones whereby such development may pose a risk to the CSG title holder and residents of those areas. In February 2016 AGL announced that it would not be proceeding with the Gloucester gas Project and has subsequently sold its leases back to the Minister for Industry (Resources and Energy). Decommissioning and rehabilitation of these sites has now been completed. Accordingly, it is considered that the subject Planning Proposal is considered consistent with the aims of the SEPP in that it will not detrimentally affect extractive or energy resources.
SEPP (Miscellaneous Consent Provisions) 2007	The subject Planning Proposal generally complies with the aims of the SEPP.
SEPP (Penrith Lakes Scheme) 1989	Not applicable
SEPP (Rural Lands) 2008	The SEPP lists eight (8) Rural Planning Principles *(a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas* The subject site and surrounding land have not been identified as state significant agricultural land or strategic agricultural land in the former Upper Hunter Strategic Land Use Plan. The subject site is currently vacant. A 100 dwelling retirement village was previously granted development consent on the subject land. The Gloucester Golf Club adjoins the site to the north and industrial zoned land and large lot residential lands are located to the east of the site. The Planning Proposal will result in the majority of the site, comprising the alluvial floodplain, being retained for agricultural purposes. The land is identified as potential future urban under Council's Residential Strategy *(b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State* The proposal recognises the importance of the surrounding area. A large portion of the site will retain its E3 Environmental Management zone which enables the continuation of extensive agricultural activities on the majority of the site. *(c) recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural*

State Environmental Planning Policy (SEPP)	Consistency
	land use and development The proposal incorporates residential dwellings close to the existing Gloucester Town Centre and will support the growth and sustainability of this rural centre. *(d) in planning for rural lands, to balance the social, economic and environmental interests of the community* The proposal provides housing choice within the Gloucester locality and reduces the pressure to subdivide viable agricultural land outside of the existing recognised urban settlement area. *(e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land* The proposal and associated planning agreement conserves a significant area of land, providing environmental buffers and protection of riparian lands and water resources. The proposed residential land is also located on the highest area of the site, outside of the 1:100 year flood level. *(f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities* The proposal provides additional housing choice in Gloucester in close proximity to employment opportunities and public infrastructure. *(g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing* The site is accessible from existing roads and is located approximately 2.6km south of the Gloucester Town Centre. *(h) ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General. 2008* The subject site has been identified as urban release land in the Gloucester Housing Development Strategy 2006.
SEPP (State and Regional Development) 2011	Not applicable
SEPP (State Significant Precincts) 2005	Not applicable
SEPP (Sydney Drinking Water Catchment) 2011	Not applicable

State Environmental Planning Policy (SEPP)	Consistency
SEPP (Sydney Region Growth Centres) 2006	Not applicable
SEPP (Three Ports) 2013	Not applicable
SEPP (Urban Renewal) 2010	Not applicable
SEPP (Western Sydney Employment Area) 2009	Not applicable
SEPP (Western Sydney Parklands) 2009	Not applicable

Appendix E – Consistency with S117 Ministerial Directions

No.	Direction	Consistency
Employment and Resources		
1.1	Business and Industrial Zones	N/A
1.2	Rural Zones	Minor Inconsistency. The subject Planning Proposal is inconsistent with this Direction as it will rezone 18.7 hectares of rural land to a residential zone. However, in accordance with Clause 5 of this Direction, the development of the subject site for residential purposes has been justified by the State Planning endorsed Gloucester Shire Council Housing Development Strategy 2006, which identified the site for urban expansion with the potential for subdivision development in 2005-2015.
1.3	Mining, Petroleum Production and Extractive Industries	Consistent. The subject Planning Proposal is consistent with this Direction in that that issues relating to the development of Coal Seam Gas known as the Gloucester Gas Project by AGL have been resolved. It is noted that the Development Application for the Rocky Hill open cut coal mine, to be located approximately 1 kilometre to the south-west of the subject site, has been recommended for refusal by the NSW Department of Planning. An appeal is currently before the Planning Assessment Commission (PAC).
1.4	Oyster Aquaculture	N/A
1.5	Rural Lands	Consistent. As discussed in Appendix B of this Report, the Planning Proposal is consistent with the provisions of the State Environmental Planning Policy (Rural Lands) 2008 and the Rural Subdivision Principles therein.
Environment and Heritage		

2.1	Environmental Protection Zones	Minor Inconsistency. The proposal does identify an area of approximately 18.7 hectares for rezoning from environmental to a residential zone. This is considered to be reasonable in this instance as over 70 hectares of the site will remain in an environmental zone and certain areas of high ecological sensitivity will also be rezoned for environmental conservation and dedicated to Council for protection in perpetuity. The development of the site will also be subject to the provisions of a planning agreement that requires the lodgement of a vegetation management plan and stormwater management plan to ensure the environment and water resources on and adjoining the site are not negatively impacted by the development.
2.2	Coastal Protection	N/A
2.3	Heritage Conservation Aims to conserve items and places of heritage significance and indigenous heritage significance	Consistent. Investigations have revealed there are no items of heritage significance or aboriginal cultural heritage have been identified on the subject site.
2.4	Recreation Vehicle Areas	N/A
2.5	Application of E2 and E3 Zones and Environmental Overlay in Far North Coast LEPs	N/A
Housing, Infrastructure and Urban Development		
3.1	Residential Zones	Consistent. The planning proposal will result in approximately 18.7 hectares of the site being rezoned for residential purposes. The land is services by existing infrastructure. The proposal does identify an area of approximately 18.7 hectares for rezoning from environmental to a residential zone. This is considered to be reasonable in this instance as over 70 hectares of the site will remain in an environmental zone and certain areas of high ecological sensitivity will also be rezoned for environmental conservation and dedicated to Council for protection in perpetuity. The development of the site will also be subject to the provisions of a planning agreement that requires the lodgement of a vegetation management plan and stormwater management plan to ensure the environment and water resources on and adjoining the site are not negatively impacted by the development.

3.2	Caravan Parks and Manufactured Home Estates	Minor Inconsistency. The current E3 Environmental Management Zone allows for Caravan parks with Development Consent under the provisions of the Gloucester LEP 2010. SEPP 36 provisions also allow for manufactured home estates on the site. The rezoning of part of the site to the R2 Low Density Residential Zone will prohibit the permissibility of caravan parks and manufactured home estates over that portion of the land. The inconsistency with this direction is considered justified in that there are significant areas in the Gloucester Region, capable of accommodating caravan parks as a permissible land use, including areas closer to the services and facilities of the Gloucester town centre.
3.3	Home Occupations	The subject Planning Proposal is consistent with this Direction. Home Occupations will continue to be permissible with consent on the land.
3.4	Integrating Land Use & Transport	The subject Planning Proposal is consistent with this Direction.
3.5	Development Near Licensed Aerodromes	The subject Planning Proposal is consistent with this Direction.
3.6	Shooting Ranges	N/A
Hazard & Risk		
4.1	Acid Sulfate Soils	N/A
4.2	Mine Subsidence and Unstable Land	N/A
4.3	Flood Prone Land	The subject Planning Proposal is consistent with this Direction. The proposed boundary of the R2 Low Density Residential Zone is located outside of the 1 in 100 year, ie. 1% AEP flood line as indicated in the BMT WBM Pty Ltd *Gloucester and Avon Rivers Flood Study* endorsed by the former Gloucester Shire Council in 2015.
4.4	Planning for Bushfire Protection	N/A
Regional Planning		

5.1	Revoked	
5.2	Sydney Drinking Water Catchments	N/A
5.3	Farmland of State and Regional Significance on the NSW Far North Coast	N/A
5.4	Commercial and Retail Development along the Pacific Highway, North Coast	N/A
5.5	Revoked	
5.6	Revoked	
5.7	Revoked	
5.8	Second Sydney Airport: Badgerys Creek	N/A
5.9	North West Rail Link Corridor Strategy	N/A
5.10	Implementation of Regional Plans	N/A
Local Plan Making		
6.1	Approval and Referral Requirements	The subject Planning Proposal is consistent with this Direction.
6.2	Reserving Land for Public Purposes	The subject Planning Proposal is consistent with this Direction. The Draft Planning Agreement (PA) that accompanies this Planning Proposal identifies the rezoning and dedication of environmentally sensitive lands to Council for public purposes.

6.3	Site Specific Provisions	N/A
Metropolitan Planning		
7.1	Implementation of the Metropolitan Plan for Sydney 2036	N/A

Appendix F – GHD Biodiversity Report June 2017

Gloucester River Run Pty. Ltd.

Bucketts Way Rezoning
Biodiversity Report

June 2017

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Appendices

1. Introduction

1.1 Overview

GHD Pty Ltd (GHD) was commissioned by Gloucester River Run Pty. Ltd. to prepare a Biodiversity Assessment Report for the subject site, being Lot 2 DP 568113 and Lots 11 and 12 DP 193003, 4571 Bucketts Way South, Gloucester. This Biodiversity Assessment Report specifically assesses and documents the occurrence of biodiversity values, with particular emphasis on threatened ecological communities, populations and species listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act) and *Fisheries Management Act 1994* (FM Act), and Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 The Proposal

The study area is located approximately 2.6 km south of the Gloucester Town Centre and within close proximity to employment lands, existing services and schools (Figure 1).

Gloucester River Run Pty. Ltd seeks the rezoning of part of the subject site, approximately 27 hectares, to R2 Low Density Residential to permit a residential subdivision, and approximately 1.7 hectares to R1 – public recreation, with the remainder of the study area (approximately 70 hectares) to remain E3 Environmental Management lands under the LEP.

An indicative masterplan has been prepared based on preliminary investigations of the site (refer Figure 2). This proposal results in a subdivision of 140 lots with a minimum lot area of 1,000 m^2. Two larger lots are proposed that incorporates the remainder of the landholdings zoned E3 Environmental Management. These two lots incorporate land zoned R2 Low Density Residential to permit a dwelling and the remainder of the parcel is to be zoned E3 Environmental Management. The Gloucester LEP does not permit a dwelling on E3 Environmental Zone unless it meets the minimum lot size requirements. This allows the land to be held in the one ownership and able to be managed accordingly. Additionally, a portion of the remnant vegetation along the eastern boundary of the subject site will be retained within the proposed RE -1 public recreation zone, which covers an area of 1.07 hectares.

1.3 Definitions

The following definitions used throughout this report relate to the proposal:

- The ‘subject site’ is defined as all areas that may be directly or indirectly impacted by the proposal, this includes the ‘development footprint’ which is all areas within the subject site that will be directly impacted by the proposal.
- The ‘study area’ is defined as the area contained within the site boundary (i.e. Lot 2 DP 568113 and Lots 11 and 12 DP 193003).
- The ‘locality’ is defined as all areas with a 10km radius of the subject site.

Throughout this document, the term ‘subject site’ is preferentially used so that both direct and indirect impacts of the proposal on ecological values can be comprehensively discussed.

1.4 Scope

The aim of this biodiversity assessment is to:

- Evaluate the conservation significance of the biodiversity values identified in the subject site, including identification of the known or likely occurrence of threatened biota listed under the TSC Act or Matters of National Environmental Significance (MNES) listed under the EPBC Act.

- Describe and map flora and fauna constraints and opportunities with respect to the proposed future use of the subject site.
- Assess the likelihood of the requirement for further survey, assessment and approvals under the NSW *Environmental Planning and Assessment Act* 1979 (EP&A Act) or EPBC Act (as relevant).

1.5 Limitations

This report: has been prepared by GHD for Gloucester River Run Pty. Ltd. and may only be used and relied on by Gloucester River Run Pty. Ltd. for the purpose agreed between GHD and the Gloucester River Run Pty. Ltd. as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Gloucester River Run Pty. Ltd. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

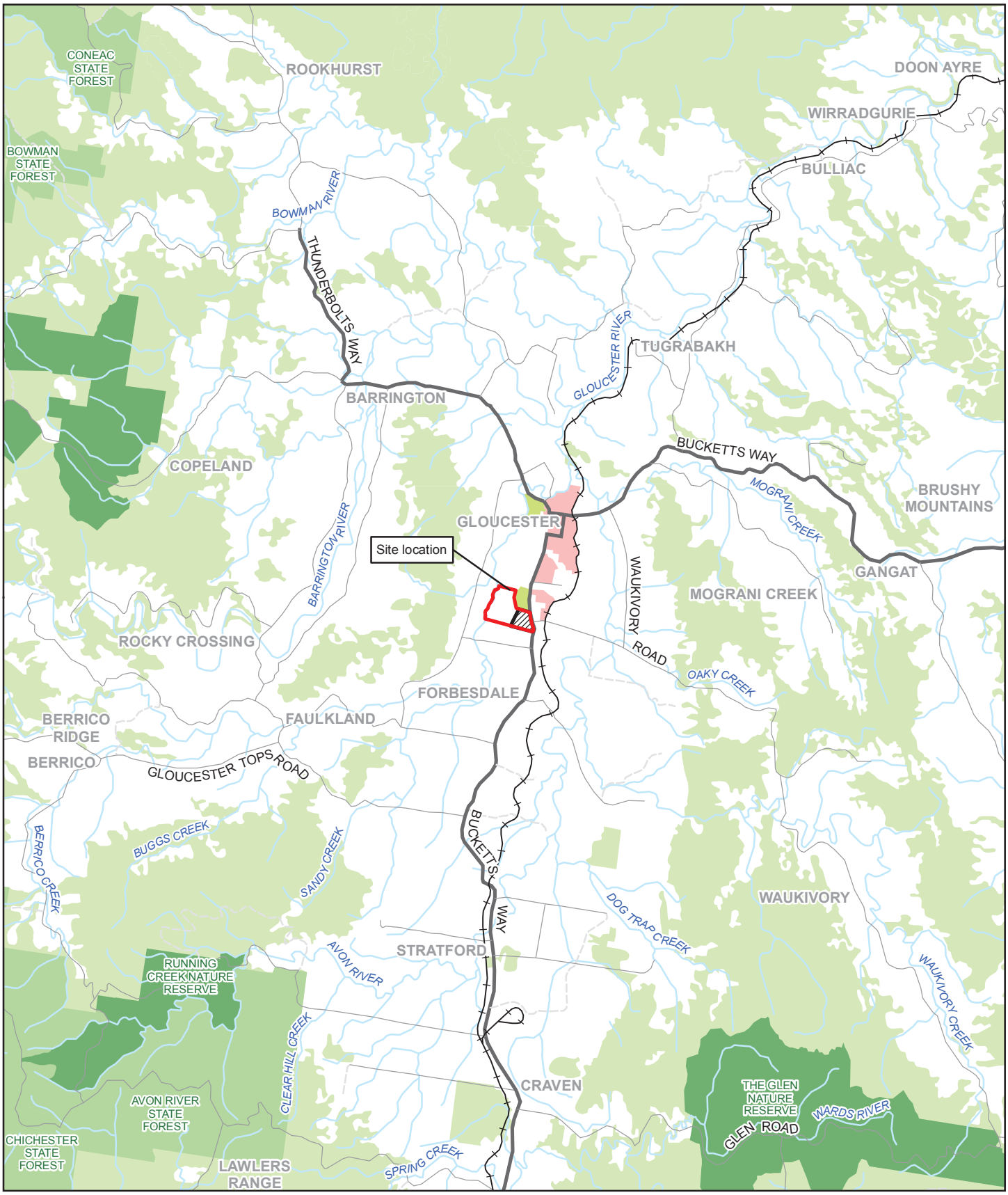
The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Gloucester River Run Pty. Ltd. and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Gloucester River Run Pty. Ltd. have specifically requested in a letter (15/05/2017) that this Biodiversity Assessment Report should not contain any discussion of potential impacts of the proposal or mitigation measures to ameliorate potential impacts on threatened biota. Gloucester River Run Pty. Ltd. have advised that they currently seek rezoning of the site and will address impacts to threatened biota in a separate report to be provided to council when they lodge a separate development application. GHD have complied with this request by issuing a report which does not address potential impacts of the proposal or mitigation measures to ameliorate such impacts. Having previously provided this information to Gloucester River Run Pty. Ltd., GHD therefore disclaims liability.



LEGEND

- Study area
- Subject site
- Railway
- Watercourse
- Built Up Area
- Recreation Area
- Forestry Reserve
- Nature Conservation Reserve
- Forest or shrub

Paper Size A4

0 0.5 1 2 3 4 5

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Peter Andrews and Associates
Bucketts Way Biodiversity Assessment

Job Number 2218749
Revision 0
Date 16 Jun 2017

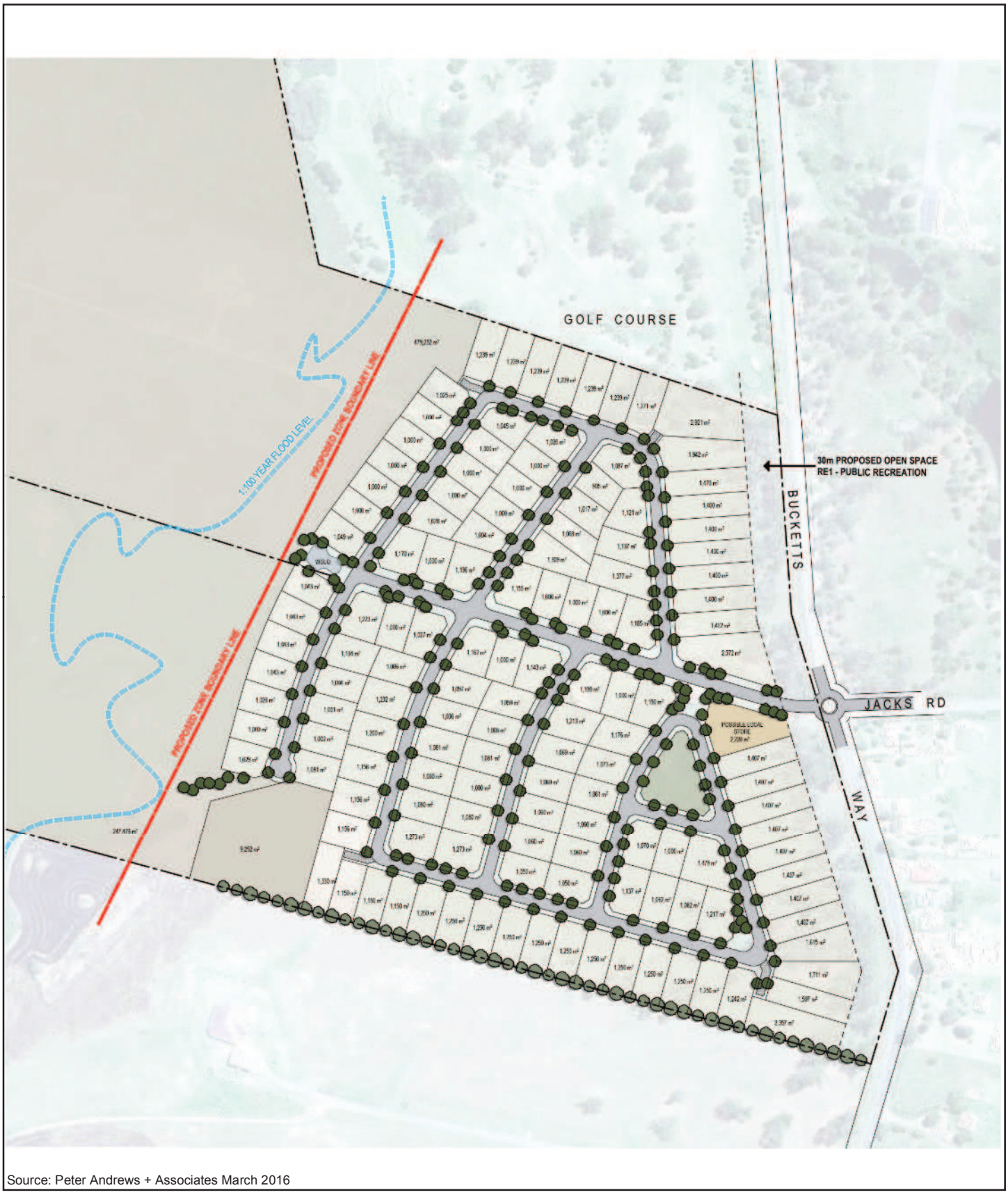
Site locality

Figure 1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\18749\GIS\Maps\Deliverables\BiodiversityAssessment\2218749_B001_Locality_0.mxd

Data source: Commonwealth of Australia (Geoscience Australia):250K Topographic Data Series 3, 2006. Created by: tmorton



Source: Peter Andrews + Associates March 2016

Paper Size A4

0 20 40 80 120 160

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Peter Andrews and Associates
Bucketts Way Biodiversity Assessment

Job Number	2218749
Revision	0
Date	16 Jun 2017

Masterplan

Figure 2

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

G:\22\18749\GIS\Maps\Deliverables\BiodiversityAssessment\2218749_B003_Masterplan_Layout_0.mxd

Data source: Peter Andrews + Asssociates: Masterplan layout, 2016. Created by: tmorton

2. Legislative context

2.1 NSW Legislation

2.1.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) forms the legal and policy platform for proposal assessment and approval in NSW and aims to 'encourage the proper management, development and conservation of natural and artificial resources'. All development in NSW is assessed in accordance with the provisions of the EP&A Act and EP&A Regulation 2000.

This study assesses the likelihood of threatened biota listed under the TSC Act occurring in the subject site.

2.1.2 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) provides legal status for biota of conservation significance in NSW. The Act aims to 'conserve biological diversity and promote ecologically sustainable development'. It provides for:

The listing of 'threatened species, populations and ecological communities', with endangered species, populations and communities listed under Schedule 1, 'critically endangered' species and communities listed under Schedule 1A, vulnerable species and communities listed under Schedule 2.

- The listing of 'Key Threatening Processes' (under Schedule 3).
- The preparation and implementation of Recovery Plans and Threat Abatement Plans.
- Requirements or otherwise for the preparation of a Species Impact Statement (SIS).

The TSC Act has been addressed in the current assessment through:

- Desktop review to determine the threatened species, populations or ecological communities that have been previously recorded within the locality of the site or have distributions that encompass the subject site and hence could occur subject to the habitats present.
- Targeted field surveys for threatened species, populations and ecological communities listed under the Act.
- Identification, assessment and mapping of EECs and threatened species (or their habitat) listed under the Act.

2.1.3 Fisheries Management Act 1994

The objects of the *Fisheries Management Act 1994* (FM Act) are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations.

One of the objectives of the FM Act is to 'conserve key fish habitats' which includes aquatic habitats that are important to the maintenance of fish populations generally and the survival and recovery of threatened aquatic species.

The FM Act has been addressed in the current assessment through undertaking:

- A desktop review to determine the threatened species, populations or ecological communities that have been previously recorded within the locality of the proposal and hence may occur subject to the habitats present.

- Identification and assessment of aquatic habitats identified within the subject site during terrestrial field surveys.

The proposal does not include any works within aquatic or marine habitat and no marine or aquatic habitat was identified within the subject site, consequently the FM Act has not been further considered in this assessment.

2.1.4 Noxious Weeds Act 1993

The Noxious Weeds Act 1993 (NW Act), provides for the declaration of noxious weeds by the Minister for Primary Industries. Noxious weeds may be considered noxious on a National, State, Regional or Local scale. All private landowners, occupiers, public authorities and Councils are required to control noxious weeds on their land under Part 3 Division 1 of the NW Act. This report has identified noxious weeds in the subject site and provides appropriate mitigation measures to minimise the potential introduction or spread of weeds as a result of the proposal.

2.2 State Planning Policies

2.2.1 State Environmental Planning Policy no. 44- Koala Habitat

State Environmental Planning Policy 44 (SEPP 44) aims to encourage the 'proper conservation and management of areas of natural vegetation that provide habitat for Koalas (*Phascolarctos cinereus*) to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline'.

Schedule 1 of SEPP No. 44 identifies areas of land that are classified as being 'Core Koala Habitat' or 'Potential Koala Habitat. They are defined as follows:

- Core Koala Habitat is an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.
- Potential Koala Habitat are areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15 per cent of the total number of trees in the upper or lower strata of the tree component.

Under SEPP 44, if core Koala habitat is to be impacted by a proposal, an approved Koala Plan of Management is required prior to approval of the proposed development. A discussion of koala habitat in the subject site is provided in Section 5.2.6.

2.2.2 State Environmental Planning Policy no. 14- Coastal Wetlands

State Environmental Planning Policy No. 14 – Coastal Wetlands (SEPP 14) aims to protect coastal wetlands in NSW. According to clause 7(1) of SEPP 14, *a person shall not:*

(a) clear that land,

(b) construct a levee on that land,

(c) drain that land, or

(d) fill that land,

except with the consent of the council and the concurrence of the Director.

No SEPP 14 wetlands were identified within or adjacent to the subject site during field surveys.

2.2.3 State Environmental Planning Policy no. 26- Littoral Rainforest

State Environmental Planning Policy No. 26 - Littoral Rainforest (SEPP 26) provides a mechanism for the consideration of applications for development that are likely to damage or destroy littoral rainforest areas with a view to the preservation of those areas in their natural state.

The proposed works would not directly or indirectly impact on littoral rainforest mapped under SEPP 26.

2.3 Commonwealth Legislation

2.3.1 Environment protection and Biodiversity Conservation Act 1999

The purpose of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to ensure that actions likely to cause a significant impact on Matters of National Environmental Significance (MNES) undergo an assessment and approval process. Under the EPBC Act, an action includes a proposal, undertaking or activity. An action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance' is deemed to be a 'controlled action' and may not be undertaken without prior approval from the Australian Government Minister for the Environment (the 'Minister').

The EPBC Act identifies MNES as:

- World heritage properties
- National heritage places
- Wetlands of international importance (Ramsar wetlands)
- Threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development.

Potential impacts on any MNES are subject to *Assessments of Significance* pursuant to the EPBC Act Significant Impact Guidelines (DEE, 2013). If a significant impact is considered likely, a referral under the EPBC Act must be submitted to the Minister. The potential for impacts to MNES have not been discussed in this report.

2.3.2 Local Environmental Planning Instruments

The proposal is located within the Mid-Coast Council local government area (LGA). Prior to council amalgamations in 2016, the subject site resided in the Gloucester LGA. As Mid-Coast Council is yet to collate a Local Environmental Plan, the Gloucester Local Environmental Plan 2010 (Gloucester LEP 2010) is referred to, and controls development of the subject site.

3. Existing environment

3.1 Location

The subject site is located south of Gloucester on the Bucketts Way within the Mid-Coast Council local government area (LGA), in the Upper Hunter region of NSW (Figure 1). The subject site occurs on the western side of Bucketts Way, opposite the junction of Jacks Road (Figure 3).

3.2 Regional context

Gloucester is a rural town with a population of over 2,000 people. It supports regional and rural services including dairy, cattle and agricultural farming. Land uses in Gloucester and around the subject site mainly consist of primary production, but also includes forestry, national parks and nature reserves, heavy industrial and residential development.

3.3 Geology, soils and topography

The subject site is located on gently undulating land, which has a downward slope toward the west. The soil profile consists of silty loam with clay and sandy clay loam. Reference to the Dungog 1:100,000 Geological Sheet (Map Sheet 9233) indicates that the subject site is located on Quaternary alluvium deposits of sand, silt and clay. The subject site is also located within the Gloucester Coal Measures geological unit, which is characterised by coal seam methane reservoirs and coal (Geoscience Australia, 2017).

3.4 Hydrology

The subject site occurs in the catchment of the Gloucester River which is located approximately 1 km west of the subject site and flows to the north, adjoining the Barrington River approximately 2 km north of Gloucester (Figure 1). A small ephemeral agricultural dam also occurs within the subject site, which was dry during the field survey.

LEGEND

- Study area
- Subject site
- Public recreation corridor

Paper Size A4

0 75 150 300 450 600

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Bucketts Way Biodiversity Assessment

Job Number	2218749
Revision	0
Date	16 Jun 2017

Proposal context

Figure 3

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G:\22\18749\GIS\Maps\Deliverables\BiodiversityAssessment\2218749_B002_LandscapeContext_0.mxd

Data source: Commonwealth of Australia (Geoscience Australia):250K Topographic Data Series 3, 2006. LPI: Aerial imagery, 2015. Created by: tmorton

4. Methods

4.1 Desktop assessment

A desktop assessment was undertaken to identify threatened flora and fauna species, populations and ecological communities listed under the TSC Act, FM Act, and MNES listed under the EPBC Act that may be affected by the proposal. Database records pertaining to the study area and locality were reviewed prior to field surveys and included:

- Ecological advice letter for Gloucester South Lot 11 and 12 DP193003, prepared by RPS, 2015.
- Grey-crowned Babbler Retention Plan – Gloucester Shire Council (Parsons Brinckerhoff, 2005).
- The Commonwealth Department of the Environment and Energy (DEE) Protected Matters Search Tool (PMST), for all MNES online database selected for a 10 km radius of the subject site, database queried on 27 January 2017 (DEE, 2017a).
- DEE online species profiles and threats database (DEE 2017b).
- Office of Environment and Heritage (OEH) Wildlife Atlas database (licensed) for records of threatened species, populations and threatened ecological communities listed under the TSC Act that have been recorded within the locality (OEH 2017a), data supplied by OEH on 27 January 2017.
- Office of Environment and heritage (OEH) vegetation data portal (now decommissioned). This data was used to examine the local vegetation mapping (particularly the vegetation along the western boundary of Lot 2 DP 568113 in response to a request by the proponent following the field assessment.
- OEH threatened biota profiles for descriptions of the distribution and habitat requirements of threatened biota (OEH 2017b). This resource was used to identify the suite of threatened biota that could potentially be affected by the Proposal and to inform habitat assessments.
- DPI - Threatened and protected species records viewer- (DPI 2017a).
- DPI - Listed threatened species, populations and communities (DPI 2017b).
- DPI - NSW Weedwise - Mid-Coast Local Government areas (DPI 2017c).

4.1.1 Likelihood of occurrence of threatened biota

Following collation of database records and species and community profiles a ‘likelihood of occurrence’ assessment was prepared with reference to the broad habitats contained within the subject site. This was further refined following field surveys, as described below. The likelihood of threatened and migratory biota occurring in the subject site was assessed based on the presence of records from the locality since 1980, species distribution and habitat preferences, and the suitability of potential habitat present in the subject site. The results of this assessment are provided in Appendix A. Table 4-1 provides a key to the likelihood of occurrence in the subject site of threatened biota known or likely to occur in the locality.

Table 4-1 Key to likelihood of occurrence for threatened species

Scale	Description
Known	Species known to occur within the site (e.g. breeding and foraging habitat; foraging habitat; movement corridors). Detected on or immediately adjacent to the site.
High	Presence of high value suitable habitat (e.g. breeding or foraging habitat; important movement corridors). Not detected.
Moderated	Presence of medium value suitable habitat (e.g. disturbed breeding conditions; constrained foraging habitat; movement corridors). Not detected.
Low/Unlikely	Presence of low value suitable habitat (e.g. disturbed conditions; isolated small habitat area; fragmented movement corridors). Not detected.
None	No suitable habitat or corridors linking suitable habitat present. Not detected.

4.2 Field surveys

Following the desktop review, a field assessment was completed to identifying ecological constraints to inform the proposed rezoning and avoid impacts on biodiversity values as far as practicable.

The habitat resources present within the subject site (determined during the site inspection) were compared with the known habitat associations/requirements of the threatened and migratory biota highlighted by the desktop review. This was used to determine the likelihood of each threatened ecological community, endangered population and threatened or migratory species occurring within the subject site.

Field surveys were conducted within the subject site by two ecologists (i.e. senior botanist and zoologist) on 2 and 3 February 2017 over two days and one night.

Methods utilised during the assessment are described below.

4.2.1 Flora survey

Vegetation within the subject site was surveyed with reference to the BioBanking Assessment Methodology (OEH 2007) and the DEC (2004) *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities*. The survey involved the following:

- Vegetation surveys and mapping
- Threatened flora searches

Vegetation surveys and mapping

Vegetation within the subject site was assessed against identification criteria for State and Commonwealth listed Threatened Ecological Communities (i.e. Critically Endangered Ecological Communities (CEECs) and Endangered Ecological Communities (EECs)). Vegetation and habitats were compared with descriptions provided in OEH (2016b) and DEE (2016b) TEC profiles.

Opportunistic and incidental observations of flora species were recorded at all times during field surveys in order to compile a list of the dominant species present within the subject site. Casual identification of potential habitat for threatened flora species was also undertaken throughout the course of the flora survey and while incidentally traversing the subject site. This included identification of known associated species, identification of particular micro-climate conditions that may favour or enable threatened species to occur, as well as visual observations of threatened species if encountered. All observations of threatened flora or potential habitat for threatened flora species were recorded using a hand-held GPS.

All vascular plants (i.e. not mosses, lichens or fungi) observed were recorded on proforma field data sheets. Each species list was accompanied by a detailed biophysical description, including vegetation structure, soils, geology, geomorphology and disturbance history. Plant specimens that could not be identified rapidly in the field were collected and subsequently identified using standard botanical texts. Structural vegetation communities were described according to classifications made by Specht (1970). Plant identifications were made according to nomenclature in Harden (1990-93) and Royal Botanic Gardens Trust (2013). Plant specimens which were difficult to identify (either insufficient sample collected or buds/fruiting bodies were not available at the time of the survey) were identified to genus level.

Threatened flora searches

The habitat requirements for threatened flora predicted to occur by the desktop assessment were identified prior to the field survey. Those requirements were then compared with those habitats present within the site during the field survey and an assessment of the likelihood of occurrence was completed based on consideration of known distributions, previous records in the locality and habitat requirements for each species. Searches for threatened plants in areas of suitable habitat were conducted during all traverses across the subject site.

The timing of field surveys was ideal for the detection/identification of the majority of threatened flora previously recorded or predicted to occur within 10 km of the subject site.

The habitat assessments allowed for identification of habitat resources for cryptic species, in order to make an assessment of their likelihood of occurring within the subject site. As such, the survey was not designed to detect all species, rather to provide an overall assessment of the ecological values within the subject site in order to predict potential impacts of the proposal, with particular emphasis on threatened biota and their habitats. The field survey aimed to identify areas of suitable habitat for cryptic species were possible.

4.2.2 Fauna Survey

Fauna habitat assessment

Habitat assessments were conducted to help describe the suite of native fauna likely to occur in the subject site. Particular attention was paid to habitat features and resources considered to be diagnostic of habitat for threatened species.

Habitat assessments included searches for and inspection of:

- Vegetation patch size, age, disturbance and structural diversity (important for many threatened birds and mammals).
- Quality of substrate for sheltering frogs and reptiles, including rocks, logs, debris, decorticating bark, leaf litter and native grassland.
- Presence of winter-flowering eucalypts and food trees of the Koala (*Phascolarctos cinereus*).
- Hollow-bearing trees and logs that provide refuge, nest and den sites for a range of fauna species.
- Stags and other roost sites for raptors and owls.
- Wetlands, moist grassland and other foraging habitat for waterbirds (including migratory birds) and frogs.
- Mammal scats at the base of trees or along tracks.
- Tracks in soft substrate.

- Nest/den sites within logs, tree bases or tree trunks.
- Guano or moth remains at the base of hollow-bearing trees (diagnostic of the presence of tree-roosting bats).
- Scratches on tree trunks (diagnostic of koalas, gliders or goannas) and worn bark around tree hollows (diagnostic of active use of hollows).
- Owl pellets, whitewash or animal remains beneath trees (diagnostic of owl or raptor roosts).

The fauna habitat assessments have been utilised to prepare the likelihood of occurrence assessments for threatened species identified as potentially occurring in the subject site during the desktop assessment.

Hollow-bearing tree assessments

Hollow-bearing trees occurring in the subject site were identified, marked with a handheld GPS and mapped to provide an indication of the density of hollow-bearing trees. Any hollow-bearing trees encountered during surveys were also inspected for signs of fauna use.

Nocturnal Spotlighting

Nocturnal spotlighting was used to target arboreal, flying and ground dwelling mammals, nocturnal birds, reptiles and amphibians in the subject site. Spotlighting was completed after dusk on foot using high-powered headlamps. Sighted species were identified to the species level. Koala Spot Assessments

Potential Koala habitat and signs of Koala presence such as faecal pellets and claw marks were identified using the Spot Assessment Technique (SAT) (Phillips & Callaghan, 1995). This technique involves the selection of a centre tree (survey point) which is chosen according to the following criteria:

- A tree of any species beneath which one or more Koala faecal pellets have been observed; and/or
- A tree in which a Koala is observed; and/or
- Any other tree known or considered to be a feed tree for Koalas.

A minimum of 30 trees (including the centre tree) with a diameter at breast height (DBH) of 100 mm or greater must be surveyed. Surveys involve the inspection of the ground surface within 100 centimetres from the base of the tree. If faecal scats are identified, the survey concludes.

Activity levels were calculated as the percentage equivalent of the quotient derived by dividing the number of trees that had one or more Koala faecal pellets recorded beneath them, by the total number of trees sampled.

In total, two SAT tests were conducted in the subject site. These were conducted within the River-flat Eucalypt Forest vegetation community which specifically contained *Eucalyptus tereticornis* (Forest Redgum) and *Eucalyptus mollucana* (Grey Box) Koala feed tree species.

Opportunistic bird surveys

Targeted diurnal bird surveys were performed at dawn on 3 February 2017 and opportunistically during daylight hours within the subject site during all surveys (Figure 4). All vegetation types were examined to compile a list of native birds present. Species were identified by sight and call. Incidental observations made outside the targeted survey period were also recorded.

Trees were also scanned for nests, whitewash and the locations of habitat resources for birds captured with a handheld GPS unit.

Active searches

Active searches for frogs and reptiles were performed within the subject site focussing on drainage lines, wetlands and areas with suitable habitat. Drainage lines and wetland areas were systematically searched and semi-aquatic vegetation was visually scanned. Shelter sites were carefully lifted and replaced, trunks and decorticating bark were scanned and visual scanning of vegetation for active individuals was undertaken.

Microbat Surveys

Bat calls were recorded during the evening of 2 February 2017 using an Anabat Express detector (Titley Scientific). The detector recorded calls for one night at one location within the subject site (Figure 4).

Calls were identified using zero-crossing analysis and AnalookW software (version 4.1z, Chris Corben 2015) by visually comparing the time-frequency graph and call characteristics (e.g. characteristic frequency and call shape) with reference calls and/or species call descriptions from available reference material.

The *Bat calls of NSW: Region based guide to the echolocation calls of microchiropteran bats* (Pennay et al. 2004) was used to assist call analysis. Call identification was also assisted by consulting distribution information for possible species (Pennay et al 2011; Churchill 2008; Van Dyck et al. 2013) and records from BioNet (January 2017). No reference calls were collected during the survey.

A call (pass) was defined as a sequence of three or more consecutive pulses of similar frequency and shape. Calls with less than three defined consecutive pulses of similar frequency and shape were not unambiguously identified to a species but were used as part of the activity count for the survey area. Due to variability in the quality of calls and the difficulty in distinguishing some species the identification of each call was assigned a confidence rating (see Mills *et al.* 1996 & Duffy *et al.* 2000) as summarised in Table 4-2. Due to the absence of reference calls from the subject site, high level of variability within a bat call and overlap in call characteristics between some species, a conservative approach was taken when analysing calls.

Table 4-2 Confidence rating applied to microbat calls

Identification	Description
D - Definite	Species identification not in doubt.
PR - Probable	Call most likely to represent a particular species, but there exists a low probability of confusion with species of similar call type or call lacks sufficient detail.
SG - Species Group	Call made by one of two or more species. Call characteristics overlap making it too difficult to distinguish between species e.g. *Chalinolobus gouldii* /*Ozimops* sp. Nyctophilus sp. The calls of Nyctophilus geoffroyi / gouldi cannot be distinguished during the analysis process and are therefore lumped together. *Nyctophilus* sp/*Myotis Macropus*. The calls of these species can be easily confused during the analysis process and are therefore often lumped together.

Opportunistic observations

Opportunistic and incidental observations of fauna species were recorded at all times during the field survey. Survey effort was concentrated on suitable areas of habitat throughout the course of the survey, for instance burrows and diggings were noted, fallen timber or rocks were scanned and lifted to search for frogs and reptiles, and mature trees were scanned for roosting birds.

4.2.3 Survey effort

A summary of the survey effort is provided in Table 4-3 below.

Table 4-3 Survey methods and effort (GHD 2017)

Survey Method	Effort
Threatened flora surveys	10 person hours over two days
Opportunistic fauna surveys	10 person hours over two days
Bird surveys	One morning and one afternoon over two days (total of 3 person hours)
Habitat assessments	Two habitat assessments
Nocturnal call playback and spotlighting	4 person hours
Microbat Surveys (Anabat)	12 hrs recording over one evening (2 February)
Koala spot assessments	2 SAT assessments in identified potential koala habitat

4.2.4 Weather conditions

The field survey was undertaken in summer (early February 2017). This is generally considered a suitable time of year for ecological surveys in the area. Weather was generally fine with the temperature ranging from 16.2°C to 32.2°C during the survey (BOM 2017). Calm wind conditions experienced during the bird surveys did not hamper the detection of bird species. There was very little rain leading up to the field survey and conditions during the survey period were generally not favourable for the detection of amphibian species.

Bureau of Meteorology (BOM) records for survey date are outlined in Table 4-4 below. These records were taken at Gloucester Post Office NSW station located approximately 2 km from the subject site.

Table 4-4 Weather conditions

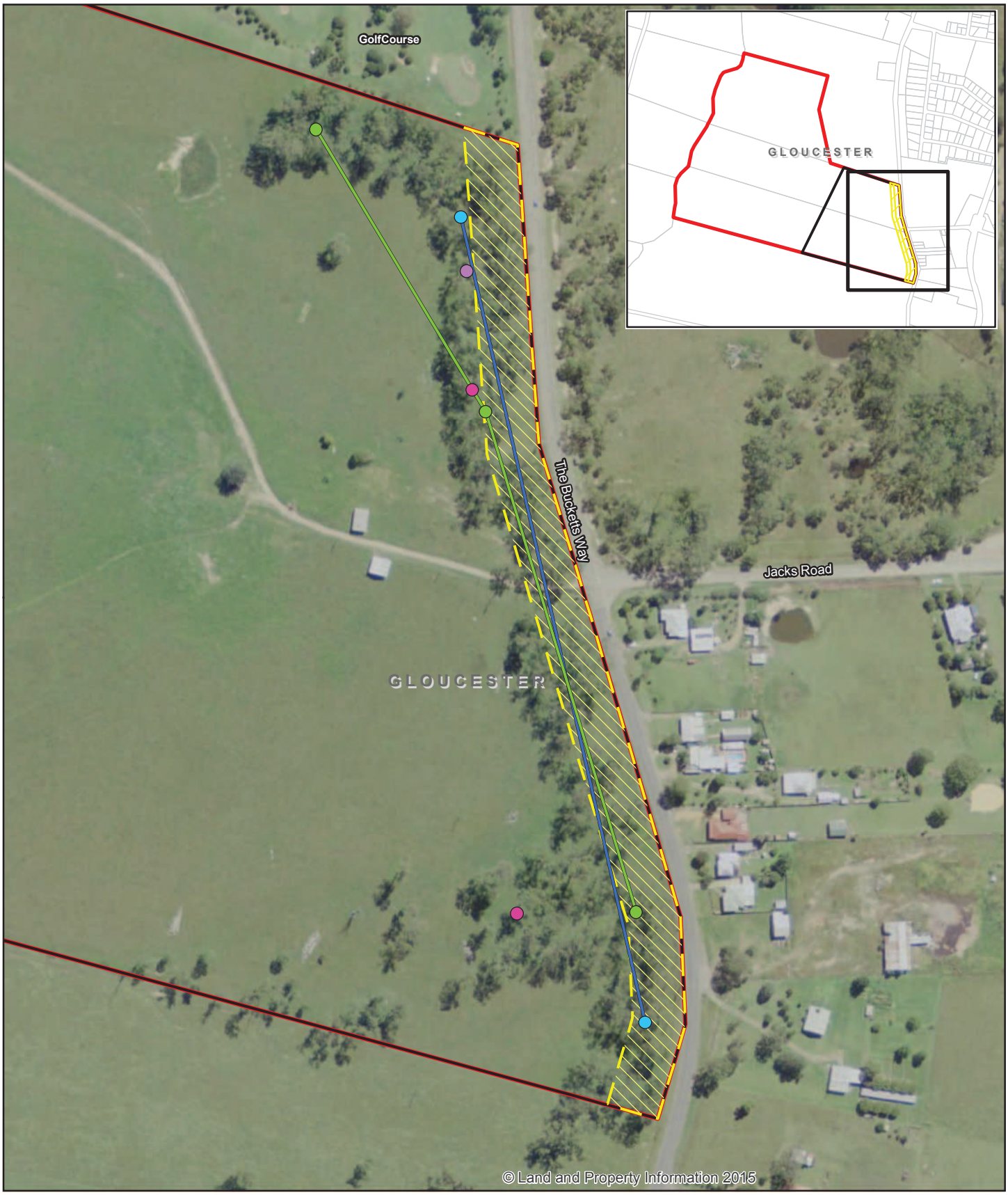
Date	Survey dates	Minimum temp (Deg Celsius)	Max temp (Deg Celsius)	Rainfall (mm)
31/01/2017	Prior to survey	21.2	28.9	0
1/02/2017	prior to survey	20.8	31.8	0
2/02/2017	During survey	23.3	32.2	0
3/02/2017	During survey	16.2	27.4	0

*Temperature and rainfall observations are from Gloucester Post Office NSW (site number 060015).

4.2.5 Survey limitations

Due to the lack of native vegetation present within the subject site, quadrats were not used to sample vegetation communities. Observations of vegetation community structure and species composition were considered adequate to confirm the identify of vegetation types. The timing of the survey and survey effort were considered adequate to detect the threatened species and communities modelled to occur within the locality.

No trapping was conducted for fauna species. Identification of species such as arboreal fauna was observational only.



LEGEND

- Study area
- Subject site
- Public recreation corridor
- Anabat (Microbat)
- Bird Survey transects
- Koala SPOT
- Arboreal Fauna (Spotlighting) transects

Transects

- Bird Survey
- Spotlight Survey

Paper Size A4

0 15 30 60 90 120

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Bucketts Way Biodiaversity Assessment

Job Number 2218749
Revision 0
Date 16 Jun 2017

Survey Effort

Figure 4

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Data source: LPI: Aerial imagery, 2015: DTDB, 2006\DCDB, 2016. Created by: tmorton

5. Results

5.1 Database searches

5.1.1 Threatened ecological communities

Database searches identified twelve endangered ecological communities (EECs) (listed under the TSC Act) and five TECs (listed under the EPBC Act), listed known or predicted to occur within 10 km of the subject site.

Of these, one was confirmed to be present within the subject site during field surveys; *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.* The remaining EECs and TECs do not occur within the subject site (refer Appendix A).

5.1.2 Endangered populations

Database searches did not identify any endangered populations likely to occur within the subject site.

5.1.3 Threatened flora

Database searches identified nine threatened flora species (listed under the TSC Act) and five threatened flora species (listed under the EPBC Act), previously recorded or predicted to occur within the locality of the subject site (Appendix A). Of these, one species*; Eucalyptus glaucina* (Slaty Redgum) was potentially identified within the subject site (see section 5.3.1). Based on the condition of the subject site and the presence of suitable habitat, no other threatened flora are likely to occur (Appendix A).

5.1.4 Threatened fauna

TSC Act

Database searches identified 29 threatened fauna species comprising 13 birds, 14 mammals and two frogs (listed under the TSC Act) to potentially occur in the locality of the subject site (Appendix A). Habitat was identified within the study area for the following species:

- Regent Honeyeater (*Anthochaera Phrygia*)
- Spotted Harrier (*Circus assimilis*)
- Red Goshawk (*Erythrotriorchis radiates*)
- Powerful Owl (*Ninox strenua*)
- Grey-crowned Babbler (eastern subspecies) (*Pomastomus temporalis temporalis*)
- Large-eared Pied-bat (*Chalinobus dwyeri*)
- Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*)
- Brush-tailed Phascogale (*Phascogale tapoatafa*)
- Koala (*Phascolarctos cinereus*)
- Grey-headed Flying Fox (*Pteropus poliocephalus*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*)
- Eastern Freetail-bat (*Mormopterus norfolkensis)*

EPBC Act

Database searches identified 20 threatened fauna species (nine birds, nine mammals, two frogs) and ten migratory species (seven terrestrial species, two wetland species and one marine species) (listed under the EPBC Act) to potentially occur in the locality of the subject site (Appendix A)

No threatened fauna species (listed under the EPBC Act) were confirmed to be present within the subject site during field surveys. However, habitat was identified within the study area for the following species:

- Regent Honeyeater (*Anthochaera phrygia*)
- Red Goshawk (*Erythrotriorchis radiatus*)
- Large-eared Pied-bat (*Chalinobus dwyeri*)
- Koala (*Phascolarctos cinereus*)
- Grey-headed Flying Fox (*Pteropus poliocephalus*)
- White-throated Needletail (*Hirundapus caudacutus*)
- Black-faced Monarch (*Monarcha melanopsis*)
- Fork-tailed Swift (*Apus pacificus*)

No other Matters of National Significance (MNES) (such as World or National Heritage Properties) were identified within the locality (DoEE 2017).

5.2 Field survey results

5.2.1 Flora species

As described in Section 4.2.1, the survey aimed to identify the dominant flora species present in the subject site. A total of 49 species of plants from 23 families were recorded, comprising 23 natives and 26 exotics. The Poaceae (grass) family was the most diverse family recorded (11 species - mostly exotic), followed by the Asteraceae (5 species) and Myrtaceae (5 species). A list of all plant species recorded is presented in Appendix B. The diversity of species present in the subject site is likely to be greater than this list (i.e. the cryptic nature of some species means detection is only possible at certain times of year).

One threatened flora species; *Eucalyptus glaucina* (Slaty Redgum) was potentially identified within the subject site (refer Figure 7). Flora species are discussed below in relation to the vegetation communities occurring within the subject site.

5.2.2 Noxious weeds

The *Noxious Weeds Act 1993* provides for the declaration of noxious weeds throughout NSW. Landowners and occupiers must control noxious weeds according to the control category specified in the Act.

The subject site contains numerous exotic flora species, of which three are declared as noxious weeds in the Port Stephens LGA (DPI 2015a) (refer to Table 5-1).

Table 5-1 Noxious weeds recorded in the subject site

Weed species	Class	Restriction level
Bryophyllum delagoense (Mother of Millions)	4	Locally Controlled Weed - *The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread.*
Opuntia stricta (Prickly Pear)		
Fireweed (*Senecio madagascariensis*)		

5.2.3 Vegetation types

The majority of the subject site consists of exotic grassland and disturbed agricultural land that is currently grazed and cropped (22.3 ha). One native vegetation community was identified in the eastern portion of the subject site; River Flat Eucalypt Forest EEC (3.9 ha). The extent of vegetation types within the subject site is shown in Figure 5. Table 5-2 provides details of the

composition of species of each vegetation type in terms of the dominant species in each stratum.

Appendix B provides a complete list of all flora species identified within the subject site.

Table 5-2 Vegetation communities within the subject site

Vegetation Type	PCT ID	Condition	Area (hectares)			Conservation Significance	Description
			Lot 11	Lot 12	Lot 2		
River-flat Eucalypt Forest	PCT 1594 Cabbage Gum-Rough-barked Apple grassy woodland on alluvial floodplains of the lower Hunter	Moderate/ good	2.94	3.53	3.11	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (TSC Act)	This vegetation was restricted to the eastern portion of the subject site in an elevated area adjacent to the boundary along Bucketts Way. The community had an open forest structure dominated by *Eucalyptus tereticornis* (Forest Redgum) and *Eucalyptus mollucana* (Grey Box). *Eucalyptus acmenoides* (Red Mahogany) also occurred to a lesser extent. No regeneration of these species was observed due to grazing and agricultural activities. The canopy projective foliage coverage (PFC) was estimated to be between 20-50% The shrub layer was largely absent, presumably due to ongoing removal by cattle grazing and agricultural activities. The groundcover was dominated by exotic grasses including *Chloris gayana* (Rhodes Grass), *Sporobolus africanus* (Parramatta Grass), *Paspalum dilitatum* (Paspalum), *Paspalum urvillei* (Vasey Grass), *Setaria parvifolia* (Pigeon Grass) and *Sporobolus africanus* (Parramatta Grass). The dominant herb species included *Einadia hastata* (Berry Saltbush) and a number of exotic species such as *Plantago lanceolata* (Lambs Tongues), *Modiola caroliniana* (Red-flowered Mallow) and *Sida rhombifolia* (Paddy's Lucerne). Although the majority of the groundcover was found to consist of exotic species, the majority of the canopy vegetation within the community was relatively intact. The community is therefore considered to be in moderate/good condition.

Vegetation Type	PCT ID	Condition	Area (hectares)			Conservation Significance	Description
			Lot 11	Lot 12	Lot 2		
Agricultural land / exotic grassland	N/A	N/A	31.20	39.98	27.72	Not listed.	Exotic grassland was the dominant vegetation type in the subject site and subject site. This vegetation was dominated by exotic grasses and herbs as well as small number of invasive native species. Common species within this vegetation type include *Stenotaphrum secundatum* (Buffalo Grass), *Sporobolus africanus* (Parramatta Grass) and and *Cynodon dactylon* (Couch Grass).

LEGEND

- Subject site
- Study area
- Cadastre
- Public recreation corridor
- Agricultural land/ exotic grassland
- River-flat Eucalypt Forest (EEC)
- River-flat Eucalypt Forest (EEC) (determined by desktop assessment)

Paper Size A4

0 60 120 180 240 300

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Job Number 2218749
Revision 0
Date 16 Jun 2017

Vegetation Communities

Figure 5

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Data source: LPI: Aerial imagery, 2015: DTDB, 2006\DCDB, 2016. Created by: tmorton

5.2.4 Groundwater dependant ecosystems

Ground Water Dependent Ecosystems (GDEs) are defined as 'any ecosystem that uses groundwater at any time or for any duration in order to maintain its composition and condition' (Serov *et al.* 2012). The guidelines on GDEs provide the following broad descriptions of dependency of ground water:

- Non-dependent ecosystems – occur mostly in recharge areas and have no connection to groundwater;
- "Facultative" ecosystems - requiring groundwater in some areas but not others, particularly where alternative sources of water can be accessed to maintain ecological function. Dependence on groundwater for facultative GDEs can range from opportunistic to being highly dependent.
- Fully dependent ecosystems – restricted to groundwater discharge areas or within aquifers such as subterranean caves and stygofauna communities such that changes to the groundwater regime can result in significant changes to species distribution and composition of ecosystems.

GDEs on the coastal plains of NSW include paperbark swamp forests and woodlands distributed across coastal dunes and floodplains, swamp heaths and swamp sclerophyll forests and woodlands, swamp scrubs and heaths that occur on coastal dunes and swampy areas and swamp shrublands (Serov *et al.* 2012).

The River-flat Eucalypt Forest identified within the subject site occurs on the edge of a floodplain and is therefore likely to have a facultative dependency on ground water according to the above definition.

The proposal will not involve excavations that will result in penetration of the water table; therefore, potential for groundwater contamination has not been identified as a potential impact associated with the project. Additionally, no ground water extraction is proposed during the construction phase.

5.2.5 Fauna species

A total of 27 fauna species, all of which were natives, were recorded in the subject site during the survey. These comprised:

- 16 common bird species;
- seven mammals; including the TSC Act listed Squirrel Glider (*Petaurus norfolcensis*), Yellow-bellied Sheathtail-bat *(Saccolaimus flaviventris),* Little Bentwing-bat (*Miniopterus australis)* and Eastern Freetail-bat (*Mormopterus norfolkensis*);
- one reptile; and
- three amphibians.

The full species list recorded during surveys is included in Appendix C.

5.2.6 Fauna habitat

There were two fauna habitat types in the subject site:

- Exotic grassland
- Open woodland

These habitat types are described below with particular reference to the threatened fauna species that occur or could potentially occur at the subject site.

Exotic grassland

This habitat type includes areas that have been previously cleared for agricultural activities. These areas are dominated by exotic grasses, pastoral species and weeds, and provide marginal foraging habitat for native fauna, particularly birds. These areas may provide movement corridors for fauna accessing patches of remnant and regrowth native vegetation, and foraging resources for macropods and other small mammals such as bandicoots.

Open forest

The open forest, mapped as River Flat Eucalypt Forest EEC in the eastern portion of the subject site (refer Figure 5), contained the following habitat features.

- Myrtaceous trees that may provide potential foraging resources for woodland birds and mammals, including the Koala and Squirrel Glider.
- Hollow-bearing trees that are important habitat for arboreal mammals, nesting birds, microbats, reptiles and amphibians, including threatened microbat species, gliders and the Brush-tailed Phascogale .
- Exotic groundcover and a low density of woody debris (fallen logs) that may provide shelter and foraging habitat for smaller native reptiles and amphibians, and foraging substrate for native insectivorous birds and mammals, including the Grey-crowned Babbler.
- Ephemeral aquatic habitat that may provide breeding habitat for amphibian species after heavy rain.

These habitat resources are discussed in detail below. Habitat features and resources are described in terms of the native fauna they may support with specific reference to species observed during surveys and threatened species potentially present within the subject site.

Myrtaceous species within the subject site provide foraging resources, including sap, foliage or nectar for arboreal mammals and woodland bird species (Plate 1). Some of the more common bird species observed utilising this habitat during the survey included the following:

- *Manorina melanocephala* (Noisy Minor)
- *Grallina cyanoleuca* (Magpie-Lark)
- *Sphecotheres vieilloti* (Figbird)
- *Platycercus eximius* (Eastern Rosella)
- *Psephotus haematonotus* (Red-rumped Parrot)
- *Trichoglossus haematodus* (Rainbow Lorikeet)

Plate 1 Mature trees (Myrtaceae) within the study area

Hollow-bearing trees

Around 300 vertebrate species use tree hollows and decorticating bark for shelter and roosting sites in Australia, and the shelter provided by these habitat features is essential for the survival of many of these species (Gibbons and Lindenmayer 2002). 163 hollow-bearing trees were recorded within the subject site during surveys and are mapping in Figure 6. The majority of these were small to medium hollows suitable for a range of species. A total of 48 hollow-bearing trees will be retained within the proposed 30m open space corridor.

A number of species were observed utilising this habitat within the subject site during the survey including:

- *Petaurus norfolcensis* (Squirrel Glider), Listed as Vulnerable under the TSC Act, see section 5.3.3
- Microbat species: Yellow-bellied Sheathtail-bat *(Saccolaimus flaviventris),* Little Bentwing-bat (*Miniopterus australis)* and Eastern Freetail-bat (*Mormopterus norfolkensis*), see section 5.3.3
- Common amphibian and reptile species.

Groundcover and woody debris

Groundcover and woody debris such as fallen logs and bark provides foraging and shelter substrate for a range of native birds including the TSC Act vulnerable listed Grey-crowned Babbler (*Pomatostomus temporalis temporalis*), mammals, reptiles and frogs. Most of the woody debris and groundcover within the subject site has been removed/modified by agricultural practices to encourage the growth of groundcover for grazing cattle. Fresh piles of logs were in some areas of the subject site (Plate 2) were observed to provide habitat for amphibians such as Green Tree Frog (*Litoria caerulea*).

Plate 2 Groundcover and woody debris within the study area

Ephemeral aquatic habitat

A small ephemeral drainage line leading into an agricultural man-made dam was identified in the southern portion of the subject site (Figure 6). No water was present in the drainage channel or the dam at the time of the survey but it is likely that this area may provide breeding habitat for ground dwelling amphibians after heavy rains. The dam was found to lack emergent vegetation such as *Typha orientalis* (Broad-leaved Cumbungi) or *Eleocharis* species. The habitat is therefore unlikely to be suitable breeding habitat for wetland birds.

Mapped Koala habitat

The subject site is located within the Gloucester Council LGA to which *State Environmental Planning Policy No. 44: Koala Habitat* Protection (SEPP 44) applies. There are 11 records of Koala within a 10km radius of the subject site, including six occurring along the Gloucester River immediately adjacent to the subject site.

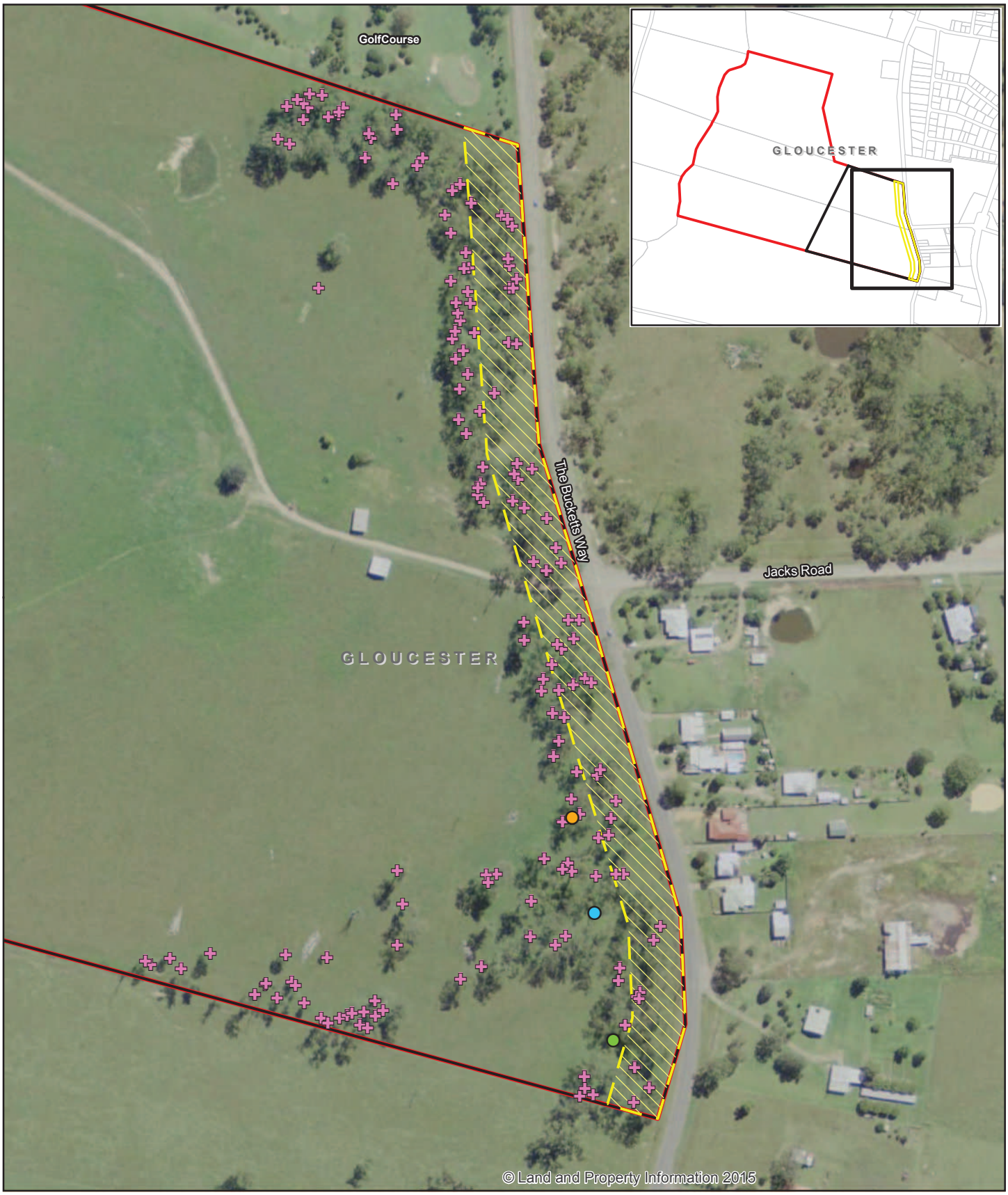
A range of Koala feed tree species were identified in the River-flat Eucalypt Forest EEC during surveys. Schedule 2 of SEPP44 lists primary and secondary Koala feed tree species. The primary feed tree species *Eucalyptus tereticornis* (Forest Redgum) and secondary feed tree species *Eucalyptus glaucina* (Slaty Red Gum) and *Eucalyptus mollucana* (Grey Box) were identified in the River-flat Eucalypt Forest EEC mapped in the subject site.

In accordance with SEPP 44 the koala habitat identified in the subject site constitutes 'potential koala habitat', as the koala feed trees identified constitute at least 15% of the total number of trees in the upper strata of the tree component.

5.2.7 Connectivity

Native vegetation within the subject site is largely restricted to the eastern portion, adjacent to Bucketts Way. Aerial imagery indicates that the woody vegetation surrounding the subject site is

restricted to fragmented patches of woodland and forest. The nearest native vegetation remnants appear to occur north of the subject site on the eastern side of Buckett's way. The vegetation within the subject site is therefore considered to have low connectivity with the surrounding landscape and is not considered part of an important habitat corridor.



LEGEND

- Study area
- Subject site
- Public recreation corridor
- Hollow-bearing tree
- Microbat roost
- Stag
- Squirrel glider den

Paper Size A4

0 15 30 60 90 120

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

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Date	16 Jun 2017

Fauna Habitat

Figure 6

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Data source: LPI: Aerial imagery, 2015: DTDB, 2006\DCDB, 2016. Created by: tmorton

5.3 Conservation significance

5.3.1 Threatened flora species

One potential threatened flora species; *Eucalyptus glaucina* (Slaty Redgum) was identified within the subject site. One large tree (>20m height) was identified in the southern portion of the subject site (Figure 7). No evidence of recruitment (i.e. seedlings or saplings) of this tree was observed.

The species was distinguished from the more common *Eucalyptus tereticornis* (Forest Redgum) by its more glaucous juvenile leaves and angular branchlets. Buds and fruit of this species are required to definitively distinguish *E. glaucina* from other red gum species. No buds or fruit could be found for examination during the survey.

Expert advice was sought from Dr Stephen Bell (East Coast Flora Surveys) who examined scanned images of the specimen but was also unable to provide a positive identification due to the inadequacy of the sample.

It should also be recognised that *E. glaucina* regularly hybridises with *E.* tereticornis, which was also identified within the subject site. There is therefore a possibility that the tree may be a hybrid (*E. tereticornis x E. glaucina*). Hybrids of these species are not listed under the TSC Act.

Due to the close proximity of records of *Eucalyptus glaucina* (Slaty Redgum) to the subject site and the suitability of the habitat, further samples should be collected to confirm identification.

No other threatened flora species are considered likely to occur in the subject site (Appendix A).

5.3.2 Threatened ecological communities

Approximately 3.9 hectares of open forest vegetation on the eastern portion of the subject site was found to be commensurate with *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*, which is an Endangered Ecological Community (EEC) listed under the TSC Act. Positive diagnostic features of the community include the following:

- The community occurs within the NSW North Coast Bioregion
- The community occurs on the edge of a coastal floodplain, on a raised levee above the Gloucester River
- The community occurs approximately 110 meters above sea level
- The soil type within the site consists of sandy clay loams that lack a deep humic layer and has no saline influence
- The community has an open forest structure dominated by *Eucalyptus tereticornis* (Forest Redgum)
- The community lacks a dominance of *Casuarina* sp. (She-oak), *Melaleuca* sp. (Paperbark) and *Eucalyptus robusta* (Swamp Mahogany).

The species composition and condition of the community is discussed previously in Table 5-2.

No other TECs are considered likely to occur within the subject site (Appendix A).

5.3.3 Threatened fauna species

Previous surveys within the study area (RPS 2015) have focussed on the Grey-crowned Babbler. This species is highly mobile and there is a moderate likelihood of occurrence of this species in the study area; however, due to a lack of midstorey trees and shrubs and a lack of

woody debris, the habitat is considered to be marginally suitable foraging habitat and is not considered to be breeding habitat.

Field surveys confirmed that four threatened fauna (mammal) species were present within the subject site. These are discussed in detail in the following sections.

An additional five bird species, six mammal species and two frog species are considered to have a moderate or higher likelihood of occurrence in the subject site which are detailed in Appendix A.

Squirrel Glider (Petaurus norfolcensis)

Squirrel gliders live in family groups usually consisting of one male, several females and juveniles. The species tends to occur in woodland or forest habitats containing trees with abundant hollows (Quin *et al.* 2004). Three Squirrel Glider individuals were observed foraging and utilising a hollow in canopy trees within the subject site during nocturnal arboreal fauna surveys (spotlighting) (see section 4.2.2 and Figure 7). All of these individuals were adult and appeared to be part of the same family group.

The Squirrel Gliders were identified visually (no trapping was conducted) and distinguished from other glider species such as Sugar Gliders, by their large size, body shape and markings. It is recommended that the presence of this species is definitively confirmed by trapping.

Microbats

The following threatened microbat species were identified within the subject site using Anabat analysis:

- Yellow-bellied Sheath-tail Bat *(Saccolaimus flaviventris)*
- Little Bentwing-bat *(Miniopterus australis)*
- Eastern Freetail-bat *(Mormopterus norfolkensis)*

Each of these species prefer to utilise tree hollows as roosting habitat. Due to the large numbers of hollows present within the subject site, it is likely that these species are utilising the subject site for both foraging and roosting habitat.

During the field surveys, microbats of an unknown species were observed emerging from a communal roost within the subject site to forage. The location of the identified microbat roost is shown on Figure 7.

Brush-tailed Phascogale

According to BioNet (OEH, 2017), the Brush-tailed Phascogale *(Phascogale tapostafa)* has been previously identified within the subject site during June 1983. This species prefers dry sclerophyll open forest with a sparse groundcover of herbs, grasses, shrubs or leaf litter. It also inhabits heath, swamps, rainforest and wet sclerophyll forest. It is an agile climber foraging preferentially in rough barked trees of 25 cm DBH or greater. Females have exclusive territories of approximately 20 - 40 ha, while males have overlapping territories often greater than 100 ha. The species nests and shelters in tree hollows with entrances 2.5 - 4 cm wide and use many different hollows over a short time span.

This species was not identified during the survey, however preferred habitat was identified.

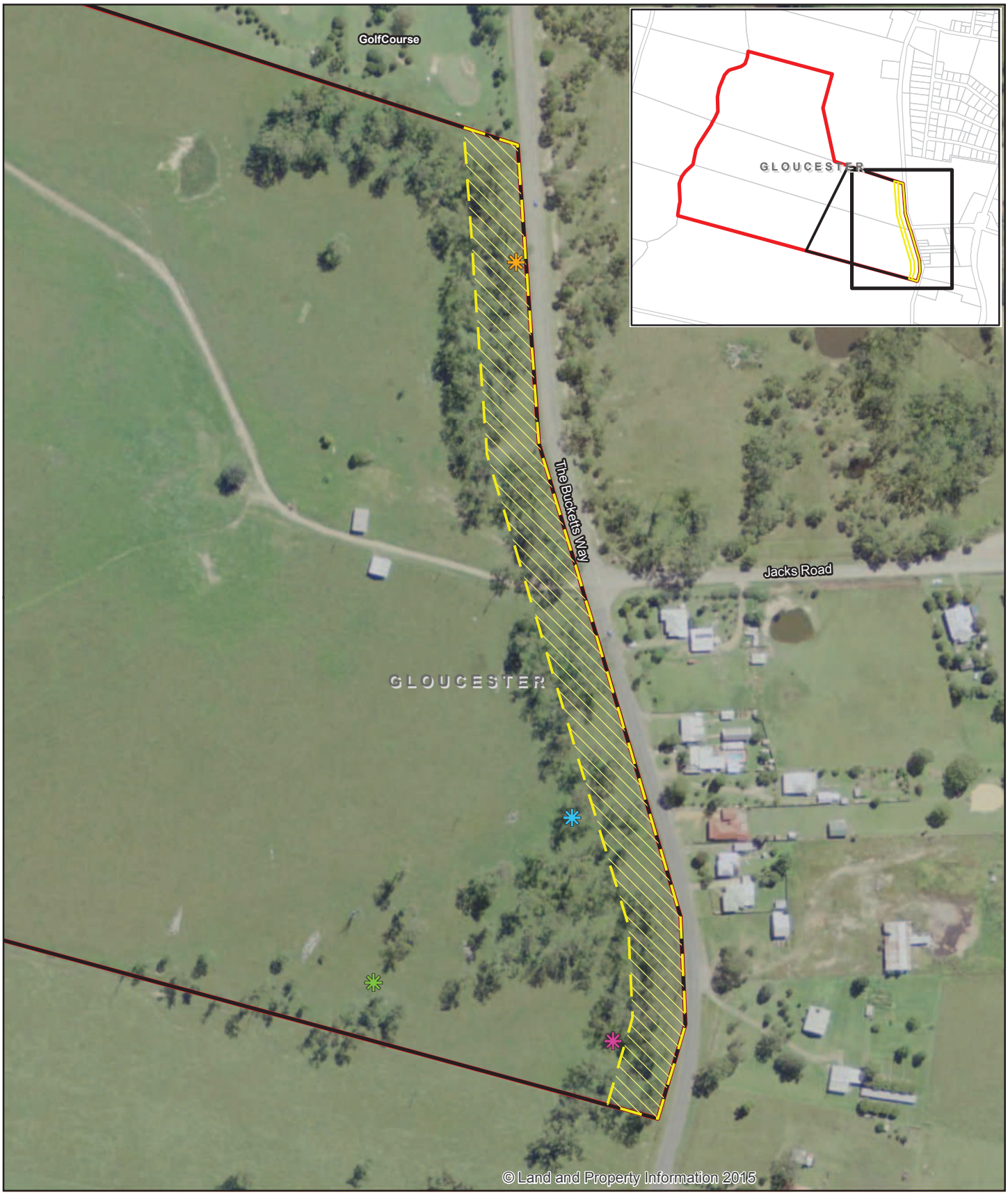
5.3.4 Species listed under the Fisheries Management Act

No threatened species listed under the FM Act were identified during the field surveys. This was expected given that no aquatic habitat was identified in the subject sie.

5.3.5 Migratory fauna species

No migratory listed species were identified within the subject site during field surveys.

Three migratory species; Black-faced Monarch *(Monarcha melanopsis),* Fork-tailed Swift *(Apus pacificus)* and White-throated Needletail (*Hirundapus caudacutus)* are considered likely to occur within the subject site due to habitat availability which are detailed in Appendix A.



LEGEND

- Study area
- Subject site
- Public recreation corridor
- Potential threatened Microbat roost
- Brush-tailed Phascogale *(Phascogale tapoatafa)* (BioNet 2017)
- Slaty Redgum *(Eucalyptus glaucina)*
- Squirrel Glider *(Petaurus norfolcensis)*

Paper Size A4

0 15 30 60 90 120

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Threatened Species

Figure 7

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Data source: LPI: Aerial imagery, 2015: DTDB, 2006\DCDB, 2016. Created by: tmorton

6. Ecological constraints

6.1 Constraints assessment

Ecological constraints within the subject site have been categorised into two broad constraint classes: high and low. Ecological constraints have been identified based on presence or absence of native vegetation, EECs, and identified threatened species and their habitat.

6.1.1 High ecological constraints

High ecological constraint areas within the subject site comprise:

- Part of a vegetation link/corridor within the locality.
- Areas of endangered ecological communities: River-flat Eucalypt Forest EEC.
- Areas containing habitat for *Eucalyptus glaucina* (Slaty Redgum), which potentially occurs within the site.
- Areas commensurate with 'potential Koala habitat' in accordance with SEPP44.
- Areas containing identified threatened species foraging and roosting/denning habitat, including Squirrel Glider dens, microbat roosts.
- Areas containing hollow-bearing trees.
- Other areas of native vegetation.

The areas identified as of high ecological constraint are shown in Figure 8.

6.1.2 Low ecological constraints

Areas mapped as exotic/agricultural lands are predominantly considered to be of low ecological constraint as shown in Figure 8.

LEGEND

- Study area
- Subject site
- Cadastre
- Public recreation corridor

Constraints

- High
- Low

Paper Size A4

0 40 80 160 240 320

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Date 16 Jun 2017

Ecological constraints

Figure 8

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G:\22\18749\GIS\Maps\Deliverables\BiodiversityAssessment\2218749_B008_Constraints_0.mxd

Data source: LPI: Aerial imagery, 2015: DTDB, 2006\DCDB, 2016. Created by: tmorton

7. Conclusion

This biodiversity assessment has been prepared to evaluate the conservation significance of biodiversity values in the proposed development footprint of Lot 2 DP 568113 and Lots 11 and 12 DP 193003, 4571 Bucketts Way, South Gloucester and identify flora and fauna constraints and opportunities for the proposed rural residential rezoning.

The assessment revealed the following:

- The majority of the subject site is cleared and disturbed due to historic land use. This area is of low ecological constraint (refer to Figure 8) and is suitable for future development with likelihood for minimal ecological impact.
- Areas mapped as high ecological constraint are areas that contain high ecological values include the following:
  - One endangered ecological community; River-Flat Eucalypt Forest EEC.
  - One potential threatened flora species; *Eucalyptus glaucina* (Slaty Redgum);
  - Four threatened fauna species; Squirrel Glider, Yellow-bellied Sheathtail-bat, Eastern Freetailed-bat and Little Bentwing-bat; and
  - Potential habitat for an additional 11 threatened fauna species.
- Three migratory species were considered likely to occur within the subject site on occasion, including: the Black-faced Monarch, Fork-tailed Swift and White-throated Needletail.
- The native vegetation within the subject site also constitutes 'potential Koala habitat' in accordance with SEPP 44.

A flora and fauna impact assessment report will be required to accompany a development application for the proposal. This will require additional targeted surveys for the threatened flora and fauna considered likely to occur within the subject site. Specifically, further assessment is required to confirm the presence of Squirrel Gliders (via trapping) and *Eucalyptus glaucina* (Slaty Redgum) (via examination of reproductive material). An assessment of the likely significance of impacts on threatened species, populations or ecological communities (or their habitats) listed on the TSC Act and EPBC Act will be required to determine the requirement for a Species Impact Statement (SIS) or EPBC Referral.

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Appendices

Appendix A – Threatened biota 'likelihood of occurrence'

Endangered ecological communities (EEC) known or predicted too occur in the locality					
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence in the proposal site
Lowland Rainforest of Subtropical Australia	-	EEC	CEEC	Occurs in low-lying areas below 300 metres above sea level. Mainly on basalt derived soils and alluvia (including sand) with high rainfall of more than 1300mm per year. Usually tall forest, with a closed canopy cover and many canopy layers. Composed of trees such as White Booyong (*Argyrodenron trifoliolatum*). Few eucalypt, melaleuca and casuarina species in the canopy. Fig trees can be in abundance, as can ferns and vines. High species richness and high diversity of fauna.	**Low.** Not identified within the subject site during field surveys.
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		EEC	-	Occurs on flats, drainage lines and river terraces of coastal floodplains where flooding is periodic and soils generally rich in silt, lack deep humic layers and have little or no saline (salt) influence. Occurs south from Port Stephens in the NSW North Coast, Sydney Basin and South East Corner bioregions. Characterised by a tall open canopy layer of eucalypts with variable species composition.	**Known** Identified within the subject site during field surveys.
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion		EEC	-	Exists on NSW coastal floodplains, with an open layer of tall eucalypts, nagophoras, melaleucas and bloodwoods. These species may exceed 40m in height. The most common species in the tree stratum include *Eucalyptus tereticornis, E. siderophloia* and *Corymbia intermedia.* A shorter layer of trees including *Casuarina glauca* and *Melaleuca* can be present, as well as a shrub layer and vines.	**Low**. Not identified within the subject site during field surveys.
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		EEC	-	Typically occurs below 20 metres above sea level on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes on coastal floodplains of NSW. Associated with grey-black clay loams and sandy loams, saline or sub-saline groundwater. Structure variable from open forests to scrubs or reedlands with scattered trees. Canopy dominated by *Casuarina glauca* (north of Bermagui) or *Melaleuca ericifolia* (south of	**Low**. Not identified within the subject site during field surveys.

Endangered ecological communities (EEC) known or predicted too occur in the locality					
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence in the proposal site
				Bermagui). Understorey characterised by frequent occurrences of vines, a sparse cover of shrubs, and a continuous groundcover of forbs, sedges, grasses and leas litter.	
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		EEC	-	Typically occurs below 20m above sea level (sometimes up to 50 metres). Associated with humic clay loams and sandy loams, on waterlogged or periodically inundated alluvial flats and drainage lines associated with floodplains. Characterised by open to dense tree layer of eucalypts and paperbarks, with trees up to or higher than 25m. Includes areas of fern land or tall reed or sedge land, where trees are sparse or absent.	**Low**. Not identified within the subject site during field surveys.
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions		EEC	-	Found on seacliffs and coastal headlands. The composition of the community is typically closed tussock grassland, but can also be open grassy shrubland or heath. Common species in the community include *Themeda australis, Banksia integrifolia, Acacia sophorae, Lomandra longifolia and Sporobolus virginicus* among others. *Themeda australis* is the dominant species in the community.	**Low**. Not identified within the subject site during field surveys.
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		EEC	CEEC	Coastal Saltmarsh occurs in the intertidal zone on the shores of estuaries and lagoons that are permanently or intermittently open to the sea. It is frequently found as a zone on the landward side of mangrove stands. Characteristic plants include *Baumea juncea*, Sea Rush (*Juncus krausii* subsp. *australiensis*), Samphire (*Sarcocornia quinqueflora* subsp. *quinqueflora*), Marine Couch (*Sporobolus virginicus*), Streaked Arrowgrass (*Triglochin striata*), Knobby Club-rush (*Ficinia nodosa*), Creeping Brookweed (*Samolus repens*), Swamp Weed (*Selliera radicans*), Seablite (*Suaeda* australis) and Prickly Couch (*Zoysia macrantha*).	**Low**. Not identified within the subject site during field surveys.
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and		EEC	-	Occurs in coastal areas subject to periodic flooding with standing fresh water for at least part of the year. Typically on silts, muds or humic loams below 20m elevation in low-lying parts of floodplains, alluvial flats, depressions, drainage lines, backswamps, lagoons and lakes. Structure and composition varies spatially and temporally	**Low**. Not identified within the subject site during field surveys.

Endangered ecological communities (EEC) known or predicted too occur in the locality					
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence in the proposal site
South East Corner Bioregions				depending on the water regime, though is usually dominated by herbaceous plants and has few woody species.	
Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions		EEC	-	The Hunter Lowland Redgum Forest in the Sydney Basin and NSW North Coast Bioregions is generally an open forest with most common canopy trees species being *Eucalyptus tereticornis* and *Eucalyptus punctata* although other frequently occurring canopy species are *Angophora costata*, *Corymbia maculata*, *Eucalyptus crebra* and *Eucalyptus moluccana*, with a number of other eucalypts being less frequently recorded. It is generally found on gentle slopes arising from depressions and drainage flats on permian sediments of the Hunter Valley floor	**Low**. Not identified within the subject site during field surveys.
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		EEC	CEEC	Littoral rainforest is generally a closed forest, the structure and composition of which is strongly influenced by its proximity to the ocean. The plant species of this community are predominantly rainforest species. Several species have compound leaves, and vines may be a major component of the canopy. These features differentiate littoral rainforest from forest or scrub, but while the canopy is dominated by rainforest species, scattered emergent individuals of sclerophyll species, such as *Angophora costata, Banksia integrifolia, Eucalyptus botryoides* and *Eucalyptus tereticornis* occur in many stands. The community occurs only on the coast. Occurs on sand dunes and on soil derived from underlying rocks.	**Low**. Not identified within the subject site during field surveys.
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions		EEC	CEEC	Lowland Rainforest may be associated with a range of high-nutrient geological substrates, notably basalts and fine-grained sedimentary rocks, on coastal plains and plateaux, footslopes and foothills. Lowland Rainforest, in a relatively undisturbed state, has a closed canopy, characterised by a high diversity of trees whose leaves may	**Low**. Not identified within the subject site during field surveys.

Endangered ecological communities (EEC) known or predicted too occur in the locality					
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Likelihood of occurrence in the proposal site
				be mesophyllous and encompass a wide variety of shapes and sizes. Typically, the trees form three major strata: emergents, canopy and sub-canopy which, combined with variations in crown shapes and sizes, give the canopy an irregular appearance (Floyd 1990). The trees are taxonomically diverse at the genus and family levels, and some may have buttressed roots. A range of plant growth forms are present in Lowland Rainforest, including palms, vines and vascular epiphytes. Scattered eucalypt emergents (e.g. *Eucalyptus grandis, E. saligna*) may occasionally be present. In disturbed stands of this community the canopy continuity may be broken, or the canopy may be smothered by exotic vines.	
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion		EEC	CEEC	A closed canopy rainforest characterised by high species richness and structural complexity. Has a dense canopy that allows little light to reach the ground, creating moist conditions, typical tree species include figs (*Ficus macrophylla*), silky oak (*Grevillea robusta*), palms and brush cherry. Occurs along the east coast of NSW.	**Low**. Not identified within the subject site during field surveys.

All information in this table is taken from NSW OEH and Commonwealth DoE Threatened Species profiles (OEH 2015a, DotE 2015a) unless otherwise stated. The codes used in this table are: CE – critically endangered; E – endangered; V – vulnerable; EP – endangered population; CEEC – critically endangered ecological community; EEC – endangered ecological community

Threatened flora known or predicted from the locality						
Scientific name	Common name	TSC/FM Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
Flora						
Asperula asthenes	Trailing Woodruff	V	V	A small herb that only occurs in NSW. Found scattered from Buladelah to Kempsey further north. It is often found in damp sites along riverbanks.	**Previously** recorded in the locality (OEH, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Cycanchum elegans	White-flowered Wax Plant	E	E	Occurs from Gerroa (Illawarra) to Brunswick Heads and West to Merriwa in the Upper Hunter. Most common near Kempsey. Usually occurs on the edge of dry rainforest or littoral rainforest, but also occurs in Coastal banksia Scrub, open forest and woodland, and Maleleuca scrub. Soil and geology types are not limiting.	**Predicted** to occur in locality (DoEE, 2017). **Previously** recorded in locality (OEH, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Dichanthium setosum	Bluegrass	-	V	Occurs inland NSW and Queensland, on heavy basaltic soils and red-brown loams with clay subsoil. Associated with White Box (*Eucalyptus albens),* Silver-leaved Ironbark (*Eucalyptus melanphloia),* Yellow Box (*Eucalyptus melliodora)* and Kangaroo Grass (*Themeda australis).* May also be found in moderately disturbed areas such as cleared woodland, highly disturbed pasture and grassy roadside remnants.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.

Threatened flora known or predicted from the locality						
Scientific name	Common name	TSC/FM Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
Eucalyptus glaucina	Slaty Red Gum	V	V	Distribution restricted to the North coast of NSW. Grows in grassy woodland and dry eucalypt forest, on deep, fertile and well-watered soils.	**Predicted** to occur in locality (DoEE, 2017). **Previously** recorded in locality (OEH, 2017).	**Known** Potentially identified during surveys.
Eucalyptus largeana	Craven Grey Box	E	-	The species occurs in the Gloucester district and near Pokolbin. Very few populations occur, which are located in conservation areas and on private land as single trees or small clusters. The species is found in wet forest on subcoastal ranges.	**Previously** recorded in the locality (OEH, 2017).	**Low** Not observed during surveys although preferred habitat is present within the subject site.

Threatened flora known or predicted from the locality						
Scientific name	Common name	TSC/FM Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
Euphrasia arguta	-	CE	CE	*Euphrasia arguta* is an erect annual herb ranging in height from 20-35cm. Historic records of the species noted the following habitats: 'in the open forest country around Bathurst in sub humid places', 'on the grassy country near Bathurst', and 'in meadows near rivers'. Plants from the Nundle area have been reported from eucalypt forest with a mixed grass and shrub understorey; here, plants were most dense in an open disturbed area and along the roadside, indicating the species had regenerated following disturbances.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Haloragis exalata subsp. Velutina	Tall Velvet Sea-berry	V	V	Tall Velvet Sea-berry is distributed along the North Coast of NSW and southeast Queensland. it grows in damp places near watercourses, and also occurs on woodland on steep rocky slopes.	**Previously** recorded in the locality (OEH 2017). **Predicted** to occur in the locality (DoEE, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Pomaderris queenslandica	Scant Pomaderris	E	-	This species has a scattered distribution in north-east NSW and Queensland. The species is found in moist eucalypt forest and sheltered woodlands with a shrubby understorey. Occasionally found along creeks also.	**Previously** recorded in the locality (OEH, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.

Threatened flora known or predicted from the locality						
Scientific name	Common name	TSC/FM Act	EPBC Act	Habitat association	Nature of record	Likelihood of occurrence in the proposal site
Thesium australe	Austral Toadflax	V	V	Found in small, scattered populations along the east coast, northern and southern tablelands. Occurs in grassland or grassy woodland, and is often found in association with Kangaroo Grass (*Themeda australis*).	**Predicted** to occur in the locality (DoEE, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
Birds						
Anthochaera phrygia	Regent Honeyeater	CE	E	In NSW confined to two known breeding areas: the Capertee Valley and Bundarra-Barraba region. Non-breeding flocks occasionally seen in coastal areas foraging in flowering Spotted Gum and Swamp Mahogany forests, presumably in response to drought. Inhabits dry open forest and woodlands, particularly Box-Ironbark woodland and riparian forests of River Sheoak, with an abundance of mature trees, high canopy cover and abundance of mistletoes.	**Predicted** to occur in the locality (OEH 2017).	**Moderate.** Not observed during surveys but preferred habitat is present within the subject site.
Botaurus poiciloptilus	Australasian Bittern	E	E	Widespread but uncommon over most NSW except the northwest. Favours permanent freshwater wetlands with tall dense reedbeds particularly *Typha* spp. and *Eleocharis* spp., with adjacent shallow, open water for foraging. Roosts during the day amongst dense reeds or rushes and feeds mainly at night on frogs, fish, yabbies, spiders, insects and snails.	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Calidris ferrigunea	Curlew Sandpiper	E	CE	Occurs around the coast and widespread inland. Mainly resides on intertidal mudflats in sheltered coastal areas, like estuaries, bays, inlets and lagoons. Also around non-tidal swamps, lakes and lagoons near the coast. Forage on mudflats, and amongst sparse emergent vegetation like saltmarsh. Will also forage on seagrass, seaweed or algae and waterweed. Roost on dry shingle, shell or sand beaches, sandspits and islets around wetlands or lagoons.	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Circus assimilis	Spotted Harrier	V	-	Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	**Previously** recorded in the locality (OEH, 2017).	**Moderate.** Not observed during surveys but preferred habitat is present within the subject site.

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
Dasyornis brachypterus	Eastern Bristlebird	E	E	The species occurs in three areas in south-eastern Australia. It prefers dense, low vegetation. This includes heath and open woodland with a heathy understorey. In northern NSW, they will occur in open forest forest with dense tussock grass in the understorey. Recorded in forest that has a low fire regime, the Illawarra and southern populations reaching maximum density in forest that hasn't been burned in 15 years.	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Erythrotriorchis radiatus	Red Goshawk	CE	V	The Red Goshawk is endemic to Australia, ranging from the western Kimberley region, to North-eastern NSW (Marchant and Higgins, 1993). Occurs in coastal and sub-coastal areas in forest and woodland of tropical and warm-temperate Australia. Preferred vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest, and rainforest margins.	**Predicted** to occur in the locality (OEH 2017).	**Moderate.** Not observed during surveys but preferred habitat is present within the subject site.
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Widespread in Australia and New Guinea, as far south as central NSW. Found in wetlands of major coastal river. Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. Forage in 5-30cm deep water for animals like eels, fish, frogs and invertebrates.	**Previously** recorded in the locality (OEH, 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Grantiella picta	Painted Honeyeater	V	V	Nomadic, occurring in low densities across most of NSW. Highest concentrations and almost all breeding occur on inland slopes of the Great Dividing Range. Inhabits Boree, Brigalow and Box Gum woodlands and Box-Ironbark forests. Specialist forager on the fruits of mistletoes, preferably of the Amyema genus. Nests in outer tree canopy.	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
Lathamus discolour	Swift Parrot	E	E,M	Migratory, travelling to the mainland from March to October. Breeds in Tasmania from September to January. On the mainland, it mostly occurs in the southeast foraging on winter flowering eucalypts and lerps, with records of the species between Adelaide and Brisbane. Principal over-winter habitat is box-ironbark communities on the inland slopes and plains. *Eucalyptus robusta, Corymbia maculata* and *C. gummifera* dominated coastal forests are also important habitat.	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Ninox strenua	Powerful Owl	V	-	Endemic to eastern and south-eastern Australia, from Mackay to south-western Victoria. Resides in a wide range of vegetation types, from woodland and open sclerophyll forest, to tall open wet forest and rainforest. Roosts in species like Turpentine, Black Sheoak, Blackwood, Rough-barked Apple and Cherry Ballart.	**Previously** recorded in the locality (OEH 2017).	**Moderate.** Not observed during surveys but preferred habitat is present within the subject site.
Numenius madagascariensis	Eastern Curlew	-	CE	The Curlew is a migratory bird that travels from Australia to Russia. In Australia it is primarily coastal, residing in estuaries, bays, harbours, inlets and coastal lagoons. Forages on crabs and molluscs on mudflats (Marchant and Higgins, 1993).	**Predicted** to occur in the locality (OEH 2017).	**Unlikely**. Not observed during surveys and preferred habitat not present within the subject site.
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	-	In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW (OEH 2012). It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains (OEH 2012).	**Previously** recorded in the locality (OEH 2017).	**Moderate.** Not observed during surveys but preferred habitat is present within the subject site.
Rostratula australis	Australian Painted Snipe	E	E	In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more	**Predicted** to occur in the locality	**Unlikely**. Not identified during surveys and preferred habitat not

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
				recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	(OEH 2017).	present within the subject site.
Mammals						
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Occurs from the coast to the western slopes of the divide. Largest numbers of records from sandstone escarpment country in the Sydney Basin and Hunter Valley (Hoye and Schulz, 2008). Roosts in caves and mines and most commonly recorded from dry sclerophyll forests and woodlands. An insectivorous species that flies over the canopy or along creek beds (Churchill. 2008). In southern Sydney appears to be largely restricted to the interface between sandstone escarpments and fertile valleys.	**Predicted** to occur in locality (DoEE, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site but preferred roosting habitat not present.
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Inhabits a range of environments including rainforest, open forest, woodland, coastal health and inland riparian forest, from the sub-alpine zone to the coastline. Den subject sites are in hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces. Females occupy home ranges of up to 750 ha and males up to 3,500 ha, which are usually traversed along immensely vegetated creek lines.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely** Not observed during surveys. Suitable foraging and denning habitat is not present.
Miniopterus schreibersii oceanensis	Eastern Bentwing Bat	V	-	Occurs along the east coast and north-west coast of Australia. The species uses caves as primary roosting habitat, but will use man-made structure like mines and tunnels also. Hunts in forested areas for insects like moths and flying insects.	**Previously** recorded in the locality (OEH, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site but preferred roosting habitat not present.
Myotis macropus	Southern Myotis	V	-	Found widely across the coast of Australia. Roosts in groups of at least 10 close to water, in caves, dense foliage, or man-made structures.	**Previously** recorded in the locality	**Unlikely**. Not identified during surveys and preferred habitat not

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
					(OEH, 2017).	present within the subject site.
Mormopterus norfolkensis	Eastern Freetail-bat	V	-	Found along the east coast of Australia between southern QLD and southern NSW. Occurs in dry sclerophyll forest, woodland, mangroves and swamp forests. Roosts in tree hollows, but will also roost in man-made structures.	**Previously** recorded in the locality (OEH, 2017).	**Present.** Identified during surveys through ANABAT analysis.
Petauroides volans	Greater Glider	-	V	The species is restricted to eastern Australia, from north QLD to central Victoria. This nocturnal marsupial occurs in eucalypt forests and woodlands. It feeds on eucalypt leaves and flowers. It uses large tree hollows in old, large trees. It prefers, tall old growth forests	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely** Not observed during surveys, no suitable habitat is present in the subject site.
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	Occurs from the Shoalhaven north to the Queensland border. Now mostly extinct west of the Great Dividing Range, except in the Warrumbungles and Mt Kaputar. Occurs on rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges facing north. Diet consists of vegetation in adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	Mainly occurs on the eastern side of the Great Dividing Range in New South Wales. Species prefers dry sclerophyll open forest with groundcover of grasses, herbs and shrubs. Will inhabit swamps, heath and rainforest. Diet consists of invertebrates and nectar. Requires an abundance of tree hollows of 2.5-4cm wide.	**Previously** recorded in locality (OEH, 2017).	**Moderate** Not identified during surveys, preferred foraging and roosting habitat present within the subject site. Previous records occur within the study area.
Phascolarctos cinereus	Koala	V	V	Occurs from coast to inland slopes and plains. Restricted to areas of preferred feed trees in Eucalypt woodlands and forests. Home range varies depending on habitat quality, from <2 to several hundred hectares.	**Predicted** to occur in locality (DoEE, 2017).	**Moderate** Not observed during surveys, but habitat is present in the subject site.

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
Potorous tridactylus	Long-nosed Potoroo	V	V	Sparsely distributed along the coast of New South Wales and Queensland. There is little known about their habitat in these regions, as there has been no consistent habitat types. It has been found in wet sclerophyll forest, coastal heaths and scrubs. Dense vegetation is thought to be required for shelter, and fungi for foo (Claridge et al, 1992).	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Psuedomys novaehollandiae	New Holland mouse	-	V	The species has patchy distribution across Tasmania, New South Wales and Queensland. The species prefers soil types with deeper top soils and softer substrates for digging burrows. Will inhabit open heathland, open woodland with heathland understorey, and vegetated sand dunes.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Psuedomys oralis	Hastings River Mouse	E	E	Distribution ranges from northern NSW to southeast QLD along the coast. the species is found in habitat with open canopy and shrub. *Carex, Juncus* and *Cyperus* species are common at habitat sites. These will often occur near creeks or permanent and ephemeral water bodies.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Roosts in camps within 20km of a regular food source, typically in gullies, close to water and in vegetation with a dense canopy. Forages in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, swamps and street trees, particularly in eucalypts, melaleucas and banksias. Highly mobile with movements largely determined by food availability (Eby and Law, 2008). Will also forage in urban gardens and cultivated fruit crops.	**Predicted** to occur in locality (DoEE, 2017).	**Moderate.** Not observed during surveys (i.e. no roosts observed), but foraging habitat is present in the subject site.
Scoteanax rueppelli	Greater Broad-nosed Bat	V	-	Occurs in gully and river systems that drain into the great dividing range. Found throughout NSW but not in altitudes over 500m. Utilises a variety of habitat from woodland to moist and dry eucalypt forest, but mostly inhabits tall wet forest. Roosts in tree hollows	**Previously** recorded in the locality (OEH, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site

Threatened fauna known or predicted from the locality						
Scientific Name	Common Name	TSC/FM Act	EPBC Act	Habitat Association	Nature of record	Likelihood of occurrence in the proposal site
				and buildings. Open woodland and dry open forest is used for foraging for beetles and flying insects.		
Frogs						
Litoria booroolongensis	Booroolong Frog	E	E	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. The species lives along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses. Adults occur on or near cobble banks and other rock structures within stream margins and shelter under rocks or amongst vegetation near the ground on the stream edge.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Mixophyes balbus	Stuttering Frog	E	V	Restricted to the eastern slopes of the Great Divide, from the Cann River catchment in East Gippsland, Victoria, to the tributaries of the Timbarra River near Drake in NSW (Gillepsie and Hines, 1999). It is typically found in permanent streams in temperate and subtropical rainforests and wet sclerophyll forest. Little known about the ecological requirements of the species, but is more commonly found in undisturbed areas with a thick canopy and simple understorey.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.

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EPBC Act-listed migratory fauna known or predicted from the locality						
Scientific name	**Common name**	**TSC/FM Act**	**EPBC Act**	**Habitat association**	**Nature of record**	**Likelihood of occurrence in the proposal site**
Wetland species						
Gallinago hardwickii	Latham's snipe		M	Occurs along the coast and west of the Great Dividing range. Non breeding visitor to Australia. Inhabit permanent and ephemeral wetlands up to 2000 metres above sea level. Typically in open, freshwater wetlands with low, dense vegetation (including swamps, flooded grasslands and heathlands). Can also occur in saline/brackish habitats and in modified or artificial habitats close to human activity.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.
Pandion haliaetus	Osprey	V	M	The species occurs in littoral and coastal habitats and terrestrial wetlands in tropical and temperate Australia, and offshore islands mostly found in coastal regions on cliffs, but also occur along rivers. Feeding requires expansive areas of open fresh, brackish or saline water. Occur sympatrically with the White-bellied Sea-eagle.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely**. Not identified during surveys and preferred habitat not present within the subject site.

Terrestrial species						
Cuculus optatus	Oriental Cuckoo		M	It has a large breeding range in northern Eurasia. It breeds across much of Russia west to the Komi Republic with occasional records as far west as Saint Petersburg. It also breeds in northern Kazakhstan, Mongolia, northern China, Korea and Japan. It mainly inhabits forests, occurring in coniferous, deciduous and mixed forest. It feeds mainly on insects and their larvae, foraging for them in trees and bushes as well as on the ground.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely.** Not identified during surveys and preferred habitat not present within the subject site.
Hirundapus caudacutus	White-throated Needletail		M	Recorded along NSW coast to the western slopes and occasionally from the inland plains. Breeds in northern hemisphere. Almost exclusively aerial while in Australia. Occur above most habitat types, but are more frequently recorded above more densely vegetated habitats (rainforest, open forest and heathland) than over woodland or treeless areas.	**Predicted** to occur in locality (DoEE, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site
Monarcha melanopsis	Black-faced Monarch		M	Summer breeding migrant to south-east. Occurs along the coast of NSW. Inhabits rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating (Birds Australia 2005).	**Predicted** to occur in locality (DoEE, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site
Monarcha trivirgatus	Spectacled Monarch		M	It is found in Australia, Indonesia, and Papua New Guinea. Its natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely.** Not identified during surveys and preferred habitat not present within the subject site.

Terrestrial species						
Motacilla flava	Yellow Wagtail		M	Occurs widespread throughout Australia, inland and coastal. Occurs in a range of wetland types or wet habitats with low vegetation. These include marshes, waterside pastures, sewage farms, and occasionally grassy tundra.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely.** Not identified during surveys and preferred habitat not present within the subject site.
Myiagra cyanoleuca	Satin Flycatcher	-	M	In NSW widespread on and east of the Great Divide, sparsely scattered on the western slopes, very occasional records on the western plains. Inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, often near wetlands and watercourses. On migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. Generally not in rainforests.	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely.** Not identified during surveys and preferred habitat not present within the subject site.
Rhipidura rufifrons	Fufous Fantail		M	Found along New South Wales coast and ranges. Inhabits rainforest, dense wet forests, swamp woodlands and mangroves. During migration, it may be found in more open habitats or urban areas (Birds Australia, 2008).	**Predicted** to occur in locality (DoEE, 2017).	**Unlikely.** Not identified during surveys and preferred habitat not present within the subject site.
Marine species						
Apus pacificus	Fork-tailed swift		M	Recorded in all regions of NSW. Non- breeding, and almost exclusively aerial while in Australia. Occurs over urban and rural areas as well as areas of native vegetation.	**Predicted** to occur in locality (DoEE, 2017).	**Moderate.** Not observed during surveys. Foraging habitat may be present in the subject site

All information in this table is taken from NSW OEH and Commonwealth Department of the Environment Threatened Species profiles (OEH 2015a, DotE 2015a) unless otherwise stated. The codes used in this table are: M - migratory.

Appendix B – Flora Species

Flora species recorded within the subject site

Family	Scientific Name	Common name	TSC Act	EPBC Act	Stratum		
					Canopy	Shrub	Ground
Amaranthaceae	*Alternanthera denticulata*	Lesser Joyweed					x
Amaranthaceae	*Gomphrena celosioides**	Gomphrena Weed					x
Apiaceae	*Centella asiatica*	Indian Pennywort					x
Apiaceae	*Cyclospermum leptophyllum**	Slender Celery					x
Apocynaceae	*Gomphocarpus fruticosus**	Narrow-leaved Cotton Bush				x	
Apocynaceae	*Parsonsia straminea*	Common Silkpod					
Asphodelaceae	*Aloe maculata**	Soap Aloe					x
Asteraceae	*Cirsium vulgare**	Spear Thistle					x
Asteraceae	*Conyza bonariensis**	Flaxleaf Fleabane					x
Asteraceae	*Conyza canadensis**						x
Asteraceae	*Hypochaeris radicata**	Catsear, Flatweed					x
Asteraceae	*Senecio madagascariensis**	Fireweed					x
Brassicaceae	*Lepidium africanum**						x
Cactaceae	*Opuntia stricta**	Common Prickly Pair				x	
Campanulaceae	*Wahlenbergia gracilis*	Sprawling Bluebell					x
Chenopodiaceae	*Einadia Hastata*	Berry Saltbush					x
Commelinaceae	*Commelina cyanea*						x
Crassulaceae	*Bryophyllum delagoense**	Mother-of-millions					x
Cyperaceae	*Carex inversa*						x
Cyperaceae	*Cyperus eragrostis**	Umbrella sedge					x
Cyperaceae	*Cyperus gracilis*	Slender Flat-sedge					x
Cyperaceae	*Schoenoplectiella mucronata*						x
Fabaceae	*Glycine clandestina*						x
Fabaceae	*Glycine tabacina*						x
Juncaceae	*Juncus imbricatus**						x
Juncaceae	*Juncus usitatus*						x
Lomandraceae	*Lomandra glauca*	Pale Mat-rush					x
Malvaceae	*Modiola caroliniana**	Red-flowered Mallow					x

Family	Scientific Name	Common name	TSC Act	EPBC Act	Stratum		
					Canopy	Shrub	Ground
Malvaceae	*Sida rhombifolia**	Paddy's Lucerne					x
Myrtaceae	*Eucalyptus acmenoides*	White Mahogany			x		
Myrtaceae	*Eucalyptus glaucina* (potential)	Slaty Red Gum	V	V	x		
Myrtaceae	*Eucalyptus moluccana*	Grey Box			x		
Myrtaceae	*Eucalyptus tereticornis*	Forest Red Gum			x		
Oxalidaceae	*Oxalis perennans*						x
Plantaginaceae	*Plantago lanceolata**	Lambs Tongues					x
Poaceae	*Bromus catharticus**	Prairie Grass					x
Poaceae	*Chloris gayana*	Rhodes grass					x
Poaceae	*Cynodon dactylon*	Bermudagrass, couch					x
Poaceae	*Echinochloa colona*	Awnless Barnyard Grass					x
Poaceae	*Eleusine indica**	Crowsfoot Grass					x
Poaceae	*Eragrostis brownii*	Brown's Lovegrass					x
Poaceae	*Eragrostis curvula**	African Lovegrass					x
Poaceae	*Paspalum dilitatum**	Paspalum					x
Poaceae	*Paspalum urvillei**	Vasey Grass					x
Poaceae	*Setaria parvifolia**	Pigeon Grass					x
Poaceae	*Sporobolus africanus**	Parramatta Grass					x
Portulacaceae	*Portulaca oleracea*	Pigweed					x
Protaceae	*Grevillia robusta**	Silky Oak			x		
Verbenaceae	*Verbena rigida**	Veined Verbena					x

Exotic species denoted with *, V= Vulnerable, X= Present

Appendix C – Fauna species list

Family	Scientific Name	Common Name	TSC Act	EPBC Act
Birds				
Ardeidae	*Ardea ibis*	Cattle Egret		
Artamidae	*Cracticus tibicen*	Australian Magpie		
Artamidae	*Cracticus nigrogularis*	Pied Butcherbird		
Cacatuidae	*Eolophus roseicapillus*	Galah		
Campephagidae	*Coracina novaehollindae*	Black-faced Cuckoo-shrike		
Cisticolidae	*Cisticola exilis*	Golden-headed cisticola		
Columbidae	*Ocyphaps lophotes*	Crested Pigeon		
Corvidae	*Corvus coronoides*	Australian Raven		
Meliphagidae	*Manorina melanocephala*	Noisy Minor		
Monarchidae	*Grallina cyanoleuca*	Magpie-lark		
Oriolidae	*Sphecotheres vieilloti*	Figbird		
Psittacidae	*Platycercus eximius*	Eastern Rosella		
Psittacidae	*Psephotus haematonotus*	Red-rumped Parrot		
Psittacidae	*Trichoglossus haematodus*	Rainbow Lorikeet		
Rhipiduridae	*Rhipidura albiscapa*	Willie Wagtail		
Threskiornithidae	*Platalea regia*	Royal Spoonbill		
Mammals				
Petauridae	*Petaurus norfolcensis*	Squirrel Glider	**Vulnerable**	
Emballonuridae	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail Bat	**Vulnerable**	
Minioperidae	*Miniopterus australis*	Little Bentwing-bat	**Vulnerable**	
Molossidae	*Austronomus australis*	White-striped Free-tail Bat		
Molossidae	*Mormopterus norfolkensis*	Eastern Freetail-bat	**Vulnerable**	
Verspertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat		
Verspertilionidae	*Vespadelus pumilus*	Eastern Forest bat		
Amphibians				
Hylidae	*Litoria caerulea*	Green Tree Frog		
Hylidae	*Litoria peroni*	Emerald Spotted Tree Frog		
Hylidae	*Litoria dentata*	Bleating Tree Frog		
Reptiles				
Diplodactylidae	*Oedura robusta*	Robust Velvet Gecko		

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Appendix G – Parsons Brinckerhoff Grey-Crowned Babbler Retention Plan 2005

Department of State and Regional Development

First for Business

GREY-CROWNED BABBLER RETENTION PLAN




PARSONS BRINCKERHOFF

Grey-Crowned Babbler Retention Plan

October 2005

Gloucester Shire Council

PARSONS BRINCKERHOFF

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Signed: .....

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- Scott Hoy (Gloucester Shire Council, Public Works Department)

1. Introduction

Increasing population growth and demand for residential and industrial land has created pressure on the existing town boundaries and zonings in the township of Gloucester. The future expansion of lands for development in Gloucester has required the consideration of potential impacts on family groups and habitat of the Threatened Grey-crowned Babbler (*Pomastomus temporalis temporalis*). This species is listed as Vulnerable under the NSW *Threatened Species Conservation Act 1995*.

Parsons Brinckerhoff (PB) was commissioned by Gloucester Shire Council to prepare a retention plan for the Grey-crowned Babbler in light of potential expansion and rezoning of industrial and residential lands surrounding the township of Gloucester.

1.1 Gloucester Shire

Gloucester Shire local government area is located in the north-eastern corner of the Hunter region, approximately 120 kilometres north of Newcastle. It covers an area of 2952 square kilometres and lies on the eastern slopes of the Great Dividing Range. The shire is within the North Coast bioregion as defined in the Interim Biogeographic Regionalisation for Australia (Thackway & Cresswell 1995).

Land use within the Shire is dominated by a combination of forestry, agriculture and mining, as well as large conservation reserves that are used for wilderness based recreation. A significant proportion of the Shire (75 per cent) has a slope of more than eight degrees, much of which is too steep or rugged for agricultural use (Hunter Development Brokerage Pty Ltd 2005). Most of the agriculturally suitable lands on the alluvial floodplains surrounding the township of Gloucester has been cleared for grazing and cultivation. Remnant vegetation on the floodplains occur as patches and roadside areas of dry open sclerophyll woodland in various states of disturbance and fragmentation. The world-heritage listed Barrington Tops National Park and areas of State Forests are located in south and western parts of the Shire (*Figure 1.1*).

The shire contains a population of almost 5,000 people, much of which is centred in the townships of Gloucester, which is the largest town. The township of Gloucester is located at the foothills of the ranges and escarpments of the Bucketts mountain range, between the Barrington and Gloucester Rivers. The township is surrounded by an outer perimeter zoned Environmental Protection 7(d) Scenic (*Figure 1.2*), which extends to the Mograni mountain range in the east and the Bucketts mountain range to the west. The purpose of the environment protection zone surrounding the town is to restrict development.

The community of Gloucester has historically had a very slow rate of population growth, which has meant long term planning of infrastructure development for growth has not been necessary. However over the last two and a half years a 20 year plan for town expansion has been realised. In line with the accelerated growth of residential land has come a strong enquiry and growth in the small business sector. This growth has created pressure on the traditional town boundaries and industry zonings.

It has been suggested in the Gloucester Local Environment Study that the population of the shire should be capped at 12,000 and that Gloucester and the immediate surrounds could have a population of 6,700 with an additional 3,000 residences (Hunter Development Brokerage Pty Ltd 2005). Areas identified for rezoning include lands to the east of the existing town along the north coast railway for rural residential and residential properties, and to the south of the current industrial areas for future industrial expansion.

Within the township of Gloucester there currently exist two Grey-Crowned Babbler family groups that use habitat within and around the southern residential and industrial zones. The rezoning of the traditional boundaries of the township and the future development of earlier environmental protection lands has implications for the Grey-crowned Babbler within Gloucester and requires careful consideration of the ecology and potential threats to the species. Gloucester Shire Council has identified that the retention of Grey-crowned Babblers is a priority in the future expansion of the residential and industrial areas, which is the purpose of this retention plan.

1.2 Aims and objectives

The objective of this retention plan is to address current and future land expansion issues in relation to the habitats of the Grey-crowned Babbler in the Gloucester township and the immediate surrounding areas.

The aims of the retention plan are to create a working document that:

- Identifies historic and current locations, and habitat of the Grey-crowned Babbler within the township and immediate surrounding areas.
- Includes planning options for the development and expansion of residential and industrial areas, as well as management of current and proposed reserve locations.
- Aims to retain the existing family groups within Gloucester and increase their size.
- Aims to increase the number of family groups within Gloucester.
- Creates an information guide to the public on the continuing presence of Grey-crowned Babblers.

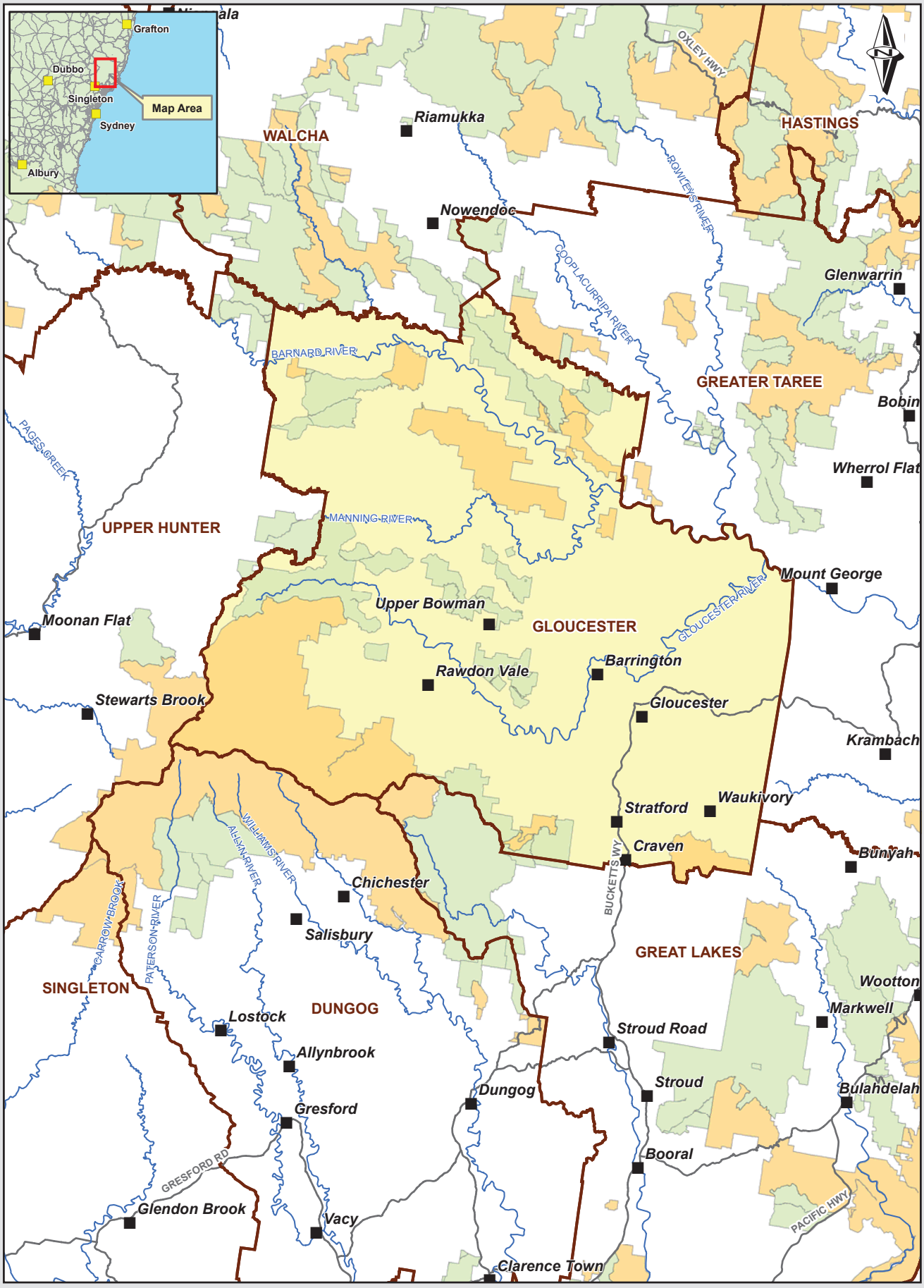

Figure 1.1: Gloucester local government area

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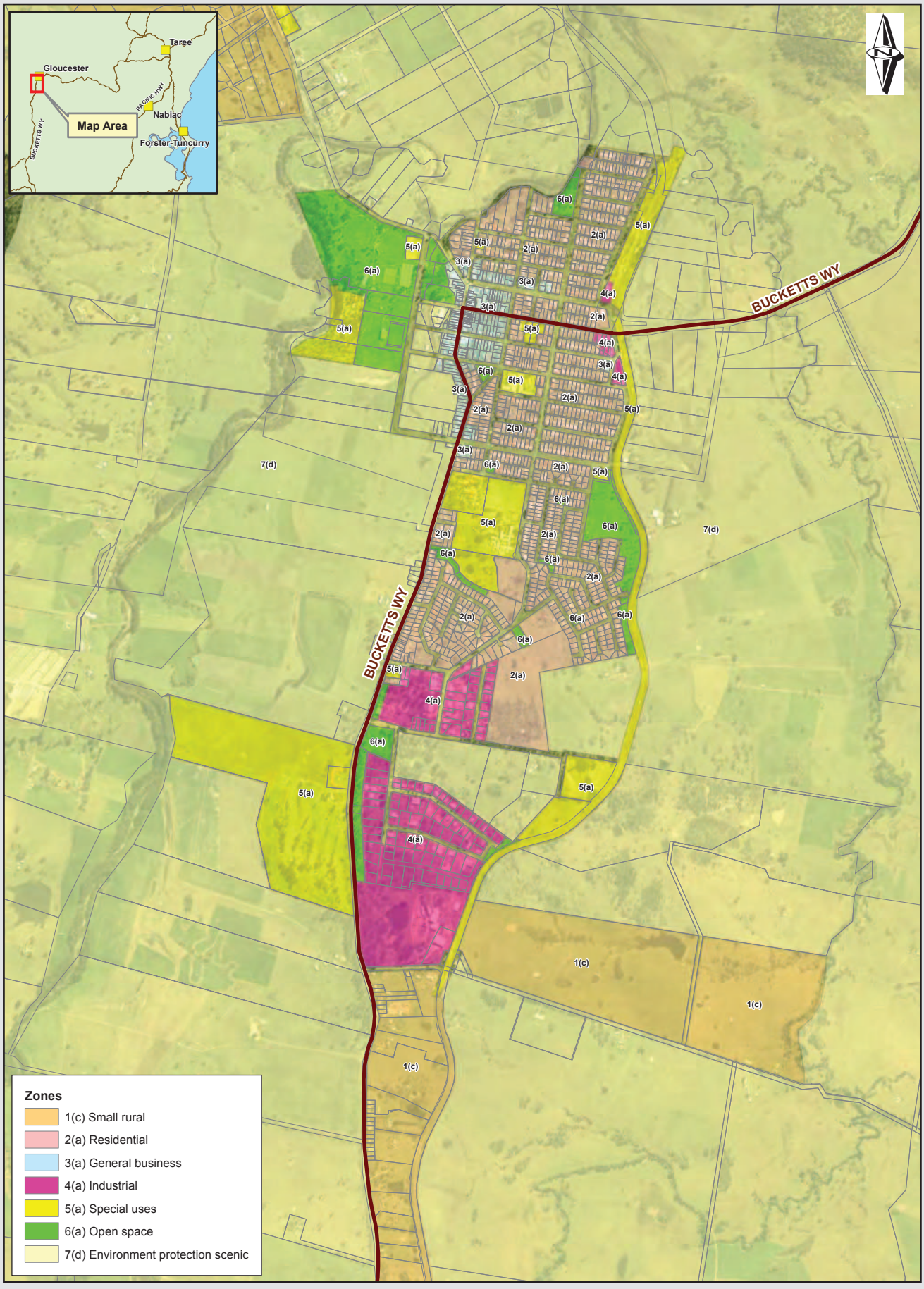


Figure 1.2: Location of Gloucester and township zoning boundaries

2. Relevant legislation and plans

Protection of biodiversity is a key element of ecologically sustainable development and is part of the core business of Council. Environmental legislation and policies create the framework in which Council makes planning and land use decisions and consideration of the effects of such on Threatened species and biodiversity (Hunter Councils 2002).

The Grey-crowned Babbler – Eastern Subspecies (*Pomastomus temporalis temporalis*) is listed as Vulnerable under the NSW *Threatened Species Conservation Act 1995.* In order to fulfil sustainable development planning objectives and environmental legislative requirements including the NSW *Environmental Planning and Assessment Act 1979* and NSW *Threatened Species Conservation Act 1995,* the potential impacts on the species must be addressed comprehensively and integrated early in the planning process. Currently, a recovery plan has not been prepared for the Grey-crowned Babbler in New South Wales.

State legislation, plans and policies relevant to the retention plan are detailed in *Table 2.1*.

Table 2.1: **Legislation, policies and plans relevant to the Grey-crowned Babbler retention plan for Gloucester**

Relevant legislation, policies and plans	Details
Threatened Species Conservation Act 1995	The *Threatened Species Conservation Act* is the Act under which Threatened species, population and communities are listed. Listing under the Act provides statutory protection for these species and communities and provides a mechanism by which impacts are assessed during the development application process. The Grey-crowned Babbler is listed as Vulnerable under the *Threatened Species Conservation Act 1995*.
Environmental Planning and Assessment Act 1979	Part 3 of the *Environmental Planning and Assessment Act 1979* relates to the preparation of environmental planning instruments including Local Environment Plans and Development Control Plans. Local Environment Plans divide the area they cover into 'zones' such as residential, industrial and commercial zones. Each zone usually has a list of 'objectives' and a list of the types of development that are permissible without consent, permissible with consent, and prohibited. Council needs to be confident that the zoning is compatible with the existing environment and that there is unlikely to be a significant impact on Threatened species, populations and communities. Section 34A of the Environmental Planning and Assessment Act 1979 states that: "A Council must consult with the Director-General of National Parks and Wildlife before preparing a draft local environmental plan, if in the opinion of the council, critical habitats or threatened species, populations of ecological communities, or their habitats, will or may be affected by the draft plan."
Upper and Northern Hunter Environmental Management Strategy	The strategy is a joint initiative between the Upper and Northern Hunter local government areas of Gloucester, Singleton, Muswellbrook, Scone, Murrurundi, Merriwa, Dungog and Great Lakes. The Strategy aims to identify integrated environmental management actions that can be implemented by the member Councils so that the social, environmental and economic quality of the Upper and Northern Hunter is maintained and/or enhanced.

Relevant legislation, policies and plans	Details
Hunter Regional Environmental Plan 1989	The plan was established to promote the balanced development of the region, the improvement of its urban and rural environments and the orderly and economic development and optimum use of its land and other resources. The plan applies to all land within the Gloucester Shire local government area, and as such the rezoning of traditional land boundaries.
Gloucester Local Environmental Plan (LEP) 2000	The aims of the plan are to manage the resources of the Gloucester area, protect prime crop and pasture land and places of natural and cultural significance, manage development to benefit the community and to embrace and promote the principles of ecologically sustainable development. The zoning and development controls within the LEP govern the type of development that can occur and must also be considered when determining permissibility of an activity. The LEP states that development cannot be carried out on land that is critical habitat or the subject of a recovery plan that specifies measures to be taken in respect to the *Threatened Species Conservation Act*.

3. Grey-crowned Babbler- *Pomastomus temporalis*- biology and ecology

3.1 Description

The Grey-crowned Babbler is a distinctive medium sized bird measuring approximately 29 centimetres in length and weighing about 80 grams. The species has a curved bill, pale-grey head, a dark brown 'bandit's stripe' from the bill through the eye, orange tipped wings and white tipped tail. The general back colour is dark brown and the underparts are greyish-white to greyish-brown (King 1980). Grey-crowned Babblers are most often identified by their distinctive calls, including loud 'chuck' calls and a loud ringing 'peeoo, peeoo, peeoo' sound (Higgins & Peter 2002).

3.2 Distribution

The Grey-crowned Babbler (Eastern subspecies) has a wide distribution throughout Eastern Australia, occurring mostly in dry open forests and woodlands on fertile soil types of plains and undulating terrain (Robinson 1994). The Eastern subspecies has, however, declined in numbers and disappeared from large parts of its range. The species is now extinct in South Australia and from coastal regions of Victoria (NSW Scientific Committee 2001). Historically the species was recorded in NSW east of the Great Dividing Range from the Sydney Basin north to the mid-north Coast (NSW Scientific Committee 2001). The species is now extinct in the Orange area (Heron 1973) and possibly also from around Bathurst. Within the Hunter it is now considered uncommon (NSW Scientific Committee 2001).

3.3 Habitat

The Grey-crowned Babbler is found mainly in rural districts where it predominantly lives in roadsides and private land (Schulz 1991). In New South Wales, suitable habitats are usually abundant with leaf-litter and debris; often dominated by eucalypts including ironbark species, Spotted Gum (*Eucalyptus maculata*), open mixed woodland associations of Bimble Box (*Eucalyptus populnea*) with Cypress Pine (*Callitris columellaris*), partly-cleared woodland usually containing Forest Redgum (*E. tereticornis),* Pink Bloodwood (*Eucalyptus intermedia*) and Rough-barked Apple (*Angophora floribunda*), acacia shrubland and adjoining farmland (Higgins & Peter 2002). Grey-crowned Babblers are unlikely to occur in regrowth forest, large patches of forest or woodland and forest with dense understorey or grassland with few trees (Schulz 1991).

An understorey of young trees and shrubs, in the 10 to 25 centimetres diameter at breast height range, is used for nest sites and shelter, and a relatively sparse ground layer with more litter and less ground cover is preferred by the species (Adam &

Robinson 1996). Within that broad habitat category, they prefer sites with large trees, a scattered understorey of small trees or shrubs and a sparse ground layer of litter and short grass (Davidson & Robinson 1992). At the local scale, the species is common in edge habitats where there is access to both tree-cover and open ground. Historically this edge habitat would be found near larger trees in mature woodland habitat, but is now largely restricted to roadside vegetation and the edges of remnant patches (Robinson, Davidson & Tzaros 2001).

3.4 Feeding ecology

Grey-crowned Babblers are insectivorous, feeding largely on the ground or on the branches and trunks of trees. The main food items taken from trees are beetle larvae, caterpillars and spiders. Occasionally birds consume flying insects, lizards and lerps or break open termite galleries to extract their prey (Higgins & Peter 2002). When on the ground, they search for food by turning over leaf litter or by probing at the base of grass tussocks and into the soil. When feeding in trees, they use their beaks to prise beneath peeling bark, probe into crevices and demolish rotting bark (Robinson, Davidson & Tzaros 2001). They consequently prefer feeding on trees with rough bark and crevices (e.g. ironbarks) and larger trees (greater than 60 centimetres trunk diameter at breast height) containing diverse microhabitats for insects (Adam & Robinson 1996).

3.5 Social and breeding ecology

The Grey-crowned Babbler is a communal-breeding species noted for its gregarious social behaviour. It is sedentary and territorial, with co-operatively breeding social groups (known as family groups) and is rarely seen singly or in unattended pairs (Brown et al. 1983a, 1983b; Counsilman 1980). Grey-crowned Babblers have a 'flock' behaviour, with individuals usually within 15 metres of each other, and groups usually occupying an area of less than 30 metre in diameter (Higgins & Peter 2002). The activity ranges of Grey-crowned Babbler groups vary from 2 to 53 hectares (Blakers et al. 1984) and increases with increasing group size and habitat connectivity (Counsilman 1977; King 1980).

A healthy Grey-crowned Babbler group (breeding unit) consists of a dominant breeding pair and a number of usually related helpers that contribute to nest-building, feeding of the incubating female and feeding of the young. Group size ranges between 4 and 12 individuals, although larger groups have been recorded. Group size appears to be related to habitat elements such as the amount of wooded cover and the type of ground layer (Brown et al. 1983). In declining populations in fragmented habitat, groups are often much smaller, often with only two or three birds (King 1980). Based on population viability analysis in Victoria, a viable population is likely to contain more than 10 family groups, while populations with less than 10 groups are likely to have a high rate of extinction (Doug Robinson *personal communication* 2005).

Adult birds have an average life expectancy of approximately four years. Young birds stay with the family group for at least one year after fledging and may remain for two or more years acting as non-breeding helpers, even though they are physiologically

capable of breeding (Brown et al. 1983a). Occasionally groups contain two breeding pairs or two breeding females (Counsilman 1977). As breeding spaces become available in the population, some helpers may disperse to establish their own breeding group (Dow & King 1984).

The breeding season is from June to February with clutches laid either once or twice per breeding season. Clutch size varies from two to six eggs in NSW, and is negatively influenced by drought and greater temperature ranges. Incubation takes between 18 and 25 days and nestlings fledge after 17 to 23 days (Higgins & Peter 2002). Nesting success ranges from 40 to 70 per cent and breeding success of family groups is significantly related to the number of helpers in the group (Dow & King 1984; Higgins & Peter 2002). Nest failure has been related to predation, bad weather and starvation (Robinson, Davidson & Tzaros 2001).

3.6 Nesting ecology

The Grey-crowned Babbler is a prolific nest builder, building nests throughout the year for both breeding and roosting (Counsilman 1979). Active Grey-crowned Babbler territories can be located readily by finding clusters of their distinctive and bulky nests, domed with a short tunnel beneath and an overhanging projection leading to an enclosed and roughly spherical nest-chamber (Dow & King 1984). The nests are found close together, often with more than 12 nests within 90 square metres (Dow & King 1984). Nests are located in shrubs or the lower canopy of trees, usually less than six metres above the ground (Brown et al. 1983a). Materials used to construct the external parts of the nest include sticks, grass, bark and fine roots, with a lining of soft grass including tufts with roots attached. Plants used for nests include a variety of eucalypts, paperbark trees, wattles, Callitris Pine, She-Oak, tea-tree and hoop pines (Higgins & Peter 2002; Robinson, Davidson & Tzaros 2001).

3.7 Threats

3.7.1 Habitat clearing and fragmentation

The Grey-crowned Babbler is one of a suite of species that has declined in woodland and open forest in south-eastern Australia as a result of clearance or other modification of habitat, especially in the last 30 to 40 years (Davidson & Robinson 1992). The primary cause of the Grey-crowned Babbler's decline has been widespread clearing of its preferred box woodland habitat, which has been disproportionately cleared for agriculture (Prober & Thiele 2005; Schulz 1991; Trail & Duncan 2000). Much of the remaining woodland habitat is unsuitable, either because it does not contain the preferred overstorey tree species or because it is too dense (Robinson, Davidson & Tzaros 2001). Most of the remaining habitat in New South Wales now occurs mostly in remnant patches along roadside verges, remnant woodland with an open understorey, fringes of woodland on farmland with dense shrub layer, and in parks or residential areas (Reid 1999).

Like other Threatened species of woodland bird, the fragmentation of habitat through clearing and modification has isolated populations into scattered remnants, with family groups becoming isolated (Reid 1999; Trail & Duncan 2000; Watson, Whittaker & Freudenberger 2005).

Grey-crowned Babblers show relatively small levels of dispersal from their parents' territories and most sites occupied by babbler groups are within one kilometre of other groups (Higgins & Peter 2002). The species is reluctant to traverse large tracts of cleared land (Robinson 1994; Watson, Whittaker & Freudenberger 2005), and therefore, habitat fragmentation prevents the opportunity for new groups to become established and genetic exchange to occur between groups. As a collection of reduced groups, isolated small populations are vulnerable to extinction via stochastic events and from the loss of genetic viability in the long term (Robinson 1994).

3.7.2 Modification of understorey habitat

An open woodland character with a grassy understorey is an important habitat element for the Grey-crowned Babbler and a number of factors can modify this.

The removal of dead timber for firewood for domestic use severely modifies habitat of the species, reducing a major source of feed insects derived from microhabitats created by fallen dead wood, bark, and leaf litter (Davidson & Robinson 1992).

Studies by Adam and Robinson (1996) have shown that fuel reduction burning has a considerable, detrimental impact on the habitat of the Grey-crowned Babbler due to the reduction of understorey habitat in which the birds can nest or shelter. As a result, controlled burning can also fragment Grey-crowned Babbler groups.

Grazing by stock affects the structural architecture of the environment by removing fallen logs, or by changing the proportion of bare ground and grass cover (James 2003). Overgrazing can remove grass and low shrub cover needed by the Grey-crowned Babbler for feeding, breeding or shelter, and open habitats to weed invasion (such as introduced perennial grasses) and predators (Robinson, Davidson & Tzaros 2001). Grazing also causes a significant decline in the abundance of litter and topsoil invertebrates, an effect that increases with increasing grazing pressure (Cardillo et al. 1999), resulting in a reduction in the availability Grey-crowned Babbler food resources.

3.7.3 Increased competition and predation

Increased abundance of competitors, such as the Noisy Miner (*Manorina melanocephala*), and nest predators, including the Pied Butcherbird (*Craticus nigrogularis*), Pied Currawong (*Strepera graculina*), Australian Magpie (*Gymnorhina tibicen*) and Australian Raven (*Corvus coronoides*), threaten Grey-crowned Babbler foraging efficiency and breeding (Major, Gowing & Kendal 1996; Woinarski 1984). Observational studies have provided correlated evidence that where Noisy Miners (*Manorina melanocephala*) are present in small, degraded woodland remnants, other insectivorous species and small woodland birds are absent due the aggressive exclusionary behaviour of the Noisy Miners (Grey, Clarke & Loyn 1998).

Feral predators have a major impact on bird populations that are restricted to isolated patches of remnant woodland. Cats and the European Red Fox have been known to predate on Grey-crowned Babblers, particularly fledglings (Robinson 1994; Schulz 1991).

3.8 Status

As result of the ongoing threats to the species, the New South Wales Scientific Advisory Committee (1992) determined that the Grey-crowned Babbler is:

- rare in terms of abundance and distribution
- significantly prone to future threats likely to result in extinction.

Consequently, the Grey-crowned Babbler is listed as Vulnerable under the New South Wales *Threatened Species Conservation Act 1995*.

The species is not listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, but has been listed as Near Threatened in the Commonwealth Department of the Environment and Heritage Action Plan for Australian Birds (Garnett & Crowley 2000). The species is also listed as Endangered under the Victorian *Flora and Fauna Guarantee Act 1988*.

4. Grey-crowned Babblers in Gloucester Shire

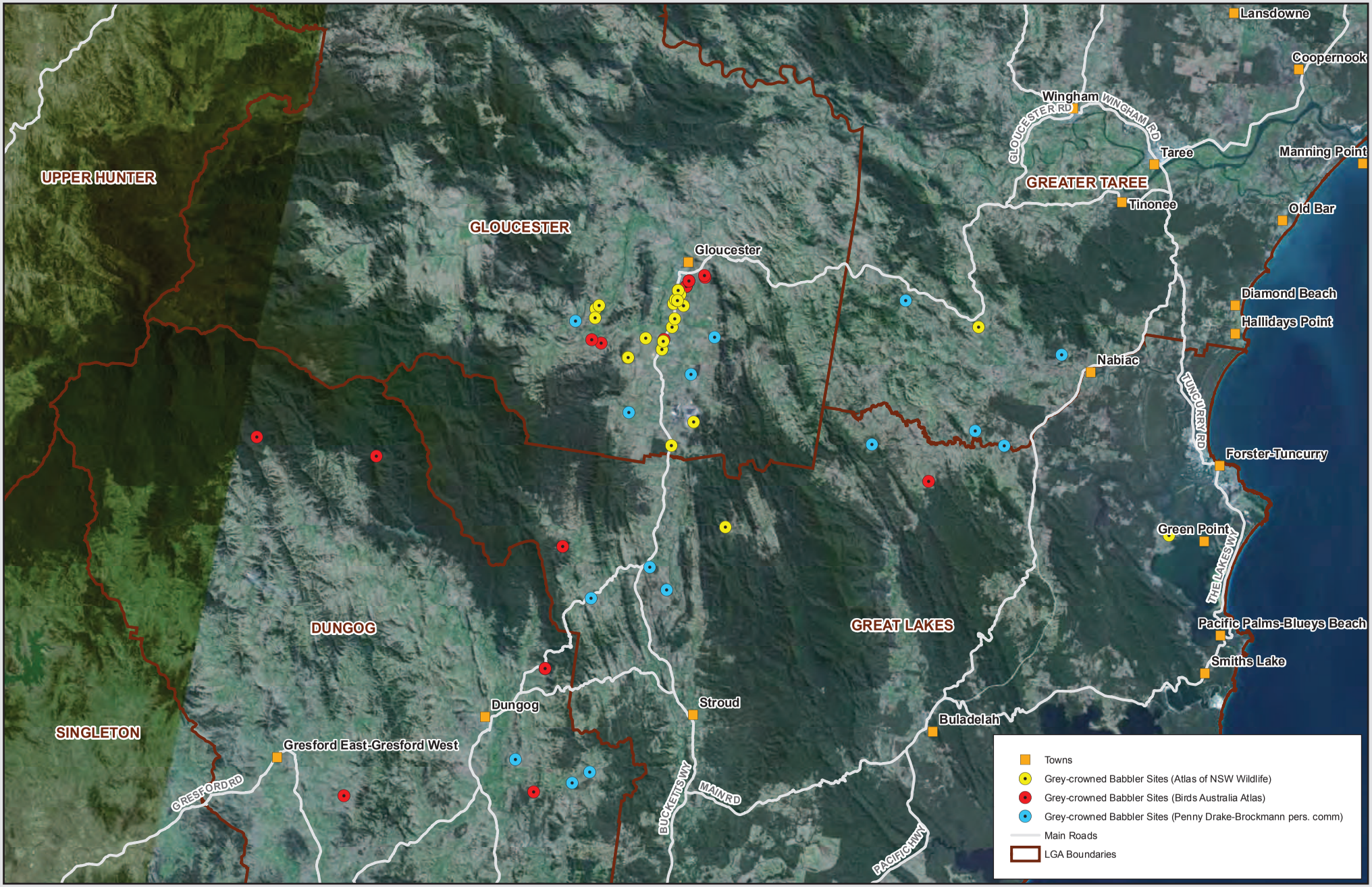
4.1 Known current distribution in Gloucester Shire

Sightings of Grey-crowned Babbler within the Hunter region have declined considerably with most now centred around the Lower Hunter Valley and Gloucester areas. Within the Gloucester local government area the Barrington population of Grey-crowned Babbler died out in the 1980s (G. Germon *personal communication* 2005_ and the Gloucester population is reported by long term residents to be in decline (P. Drake-Brockman *personal communication* 2005).

Approximately 20 family groups are known to be distributed throughout Gloucester Shire Council boundaries from Gloucester township to Monkerai in the south both sides of the Bucketts Way (*Figure 4.1*). Forty kilometres south of Gloucester there appears to be a separate population south of Dungog, to Clarencetown and the Lower Hunter Valley, and another population west of the Pacific Highway in the Dyers Crossing area. However there have been no studies that have identified genetic interchange between these populations and those around Gloucester (P. Drake-Brockman *personal communication* 2005).

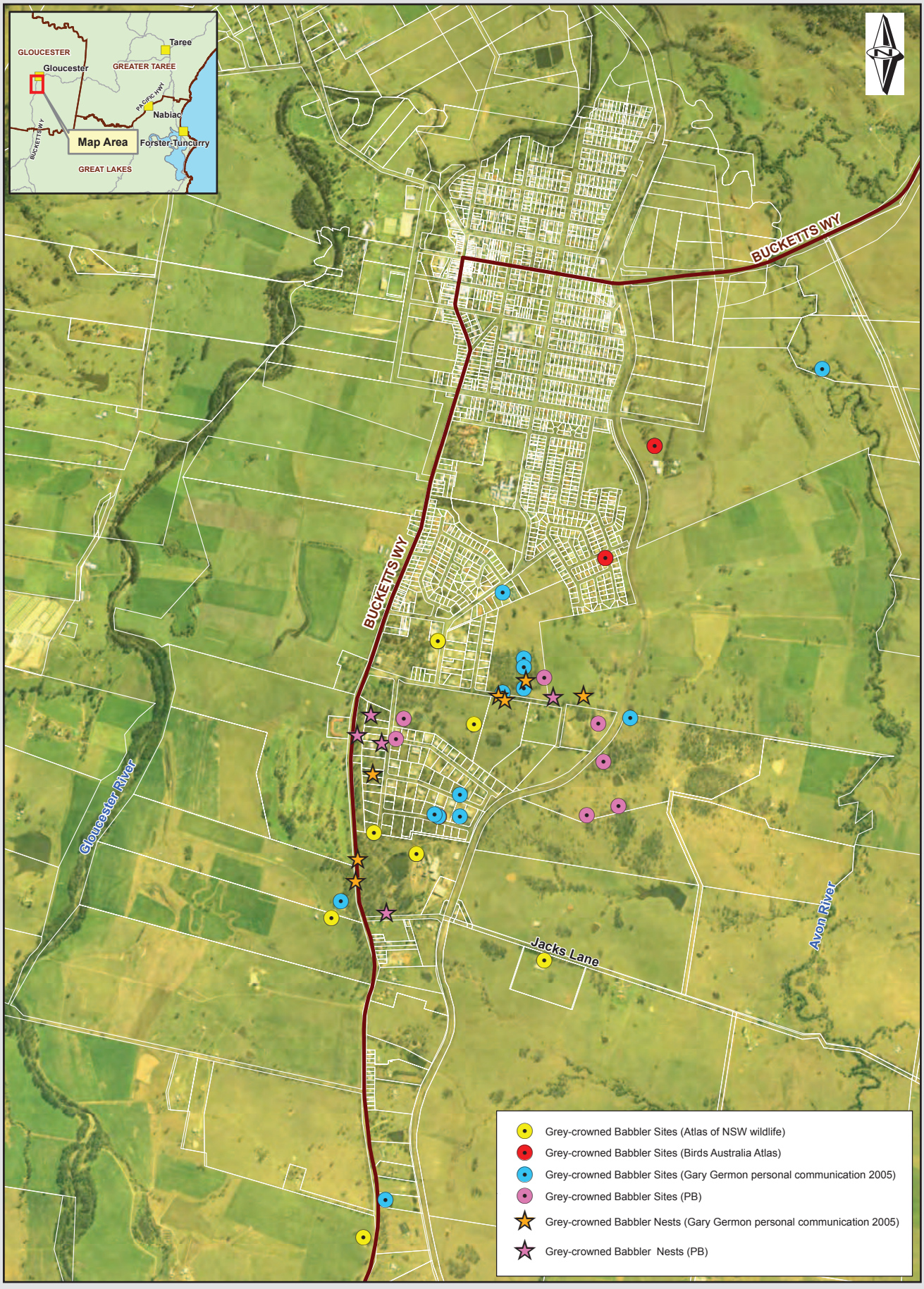
There have been numerous records of the birds in Gloucester (*Figure 4.2*) including those of a local environment group (Friends of the Grey-crowned Babbler) that maintains database records of observations and nest sites. The Department of Environment and Conservation Atlas of New South Wildlife and Birds Australia (New Atlas) databases have records of the species around Gloucester. Recent records within this report have been supplemented by field surveys and personal communication with Penny Drake-Brockmann (Friends of the Grey-crowned Babbler), Gary Germon (formerly Gloucester Department of Environment and Conservation), and Trish Waters and Peter Beard (Gloucester Department of Environment and Conservation).

There are no records of the species within local National Parks and conservation reserves (Department of Environment and Conservation 2005); areas that generally include heavily timbered higher ridges. The species range appears to be restricted to the Gloucester valley where the fertile soils are derived from Permian Coal Measures geological formations (Germon and Drake-Brockman personal communications 2005, Henderson 2000) and to one or two groups within the Barrington valley.



2116585A_2005_Regional_Map.mxd

Figure 4.1: Distribution of Grey-crowned Babbler records in the wider area



2116585A_2004_GBC_Records.mxd

Figure 4.2: Grey-crowned Babbler records at Gloucester township

4.2 Grey-crowned Babbler family groups at Gloucester Township

Two family groups of Grey-crowned Babbler are known to currently occur in the southern half of Gloucester township (*Figure 4.2*). The two groups form the northerly extent of known family groups within the Gloucester Shire council boundaries (G. Germon *personal communications.* 2005). For reference purposes of this plan the groups have been referred to as the Cemetery Road group and Avon Valley group. These family groups interact where their foraging territories overlap at the Gloucester cemetery (P. Drake-Brockman *personal communication.*). The activity range for both groups is shown in *Figure 4.3*.

The Cemetery Road group consists of up to 14 individuals that use habitats including:

- A reserved bush lot zoned as Residential 2 (a) on the northern side of Cemetery Road.
- Cemetery Road and the cemetery itself.
- Woodlands to the east of the north coast railway near the cemetery.
- Small areas of woodland along Tate Street in areas zoned for industrial development and environment protection.
- Woodlands at the corner of Bucketts Way Road and Jacks Lane.
- The road side of Jacks Lane.
- Vegetation south east of Ravenshaw Road 500 metres north of Cemetery Road.

The Avon Valley group of approximately 11 individuals uses areas of habitat including:

- a large “cattle camp” opposite 58 Avon Valley Road
- woodland patches between the railway line and the Avon River
- vegetation at the base of the Mograni Mountain range (east of the township).

Another family group occurs at Gloucester Tops Road in private property near Buggs Creek, which connects to Gloucester River. While it is unlikely that this group forages as far as Gloucester or within the territory of the Cemetery Group, interaction could occur, such as young females travelling to join other breeding groups. The location of recorded birds and the likely activity range for each group is shown in *Figures 4.2 and 4.3.*

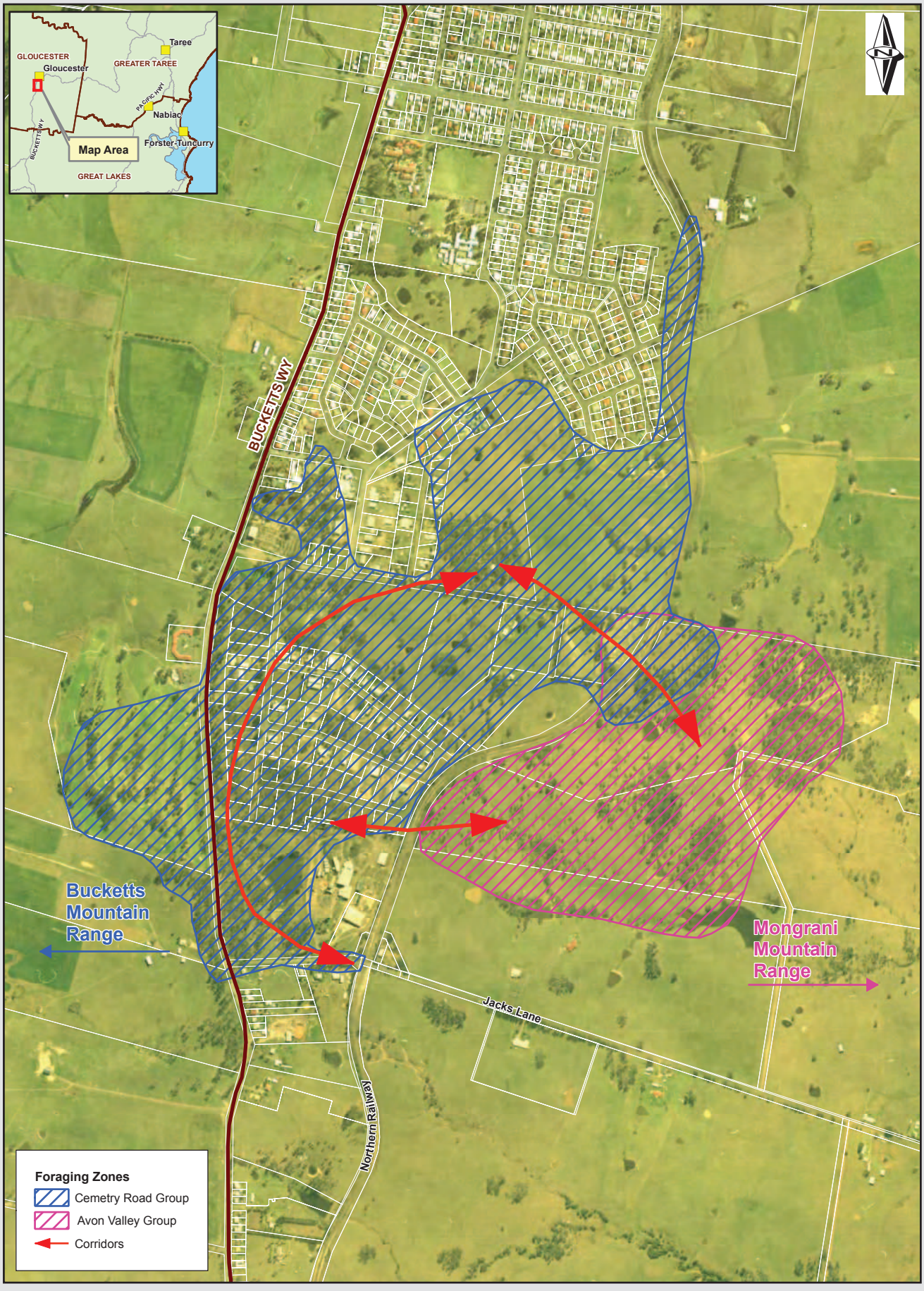


Figure 4.3: Activity areas of Grey-crowned Babbler groups at Gloucester

4.3 Habitat in Gloucester Shire

Fragments of woodland habitat suitable for the species exist amongst residential, industrial and rural land in south-east Gloucester. The quality of habitat for Grey-crowned Babbler varies according to size, shape and connectivity to other areas, and the presence of endemic vegetation. Most of the habitat used by the birds occurs as linear roadside woodland remnants or the edges of remnant woodland on private rural property. The species appears to be relatively disturbance tolerant, being observed foraging in gardens, parks and small remnants with cleared understorey, fence boundaries, and man made structures near roads - providing there is nearby connectivity to suitable habitats. In general the birds prefer to forage in open woodland habitats with fallen dead wood, bark and leaf litter on the ground (for foraging), native tussock grasses and shrubs (foraging and refuge) and canopy trees (breeding and foraging), particularly *Eucalyptus carnea* (Broad-leaved White Mahogany), *E. molluccana* (Grey Box), *E. globoidea* (White Stringybark) and *E. eugenoides* (Narrow-leaved Stringybark).

Habitats that have the highest value for both family groups occur north and along the roadside of Cemetery Road (*Photograph 4.1* and *4.2*), in woodlands east of the Railway Line (*Photograph 4.3*), and at the corner of Jacks Lane and Bucketts Way Road (*Figure 4.3*). Other roadside trees (*Photograph 4.5*) and vegetation patches (*Photograph 4.4*) provide nesting sites and important habitat corridors especially for the family group at Cemetery Road whose activity range is largely within areas zoned Industrial (4a) and Residential (2a) (*Figure 4.3*).

Grey-crowned Babbler nests have been recorded in a variety of sites, mostly clustered around the group's main breeding area, which may consist of linear rows of varied sized trees along roadsides, groups of trees in paddocks, the outer fringes of denser woodlands and smaller patches scattered through grazing land. Nests have been recorded from 2.5 to 20 metres high, on terminal branches and centrally within large eucalypts, in regrowth along roadsides and, during summer (when in leaf), in exotic deciduous trees close to housing. The known distribution of nests occurring along Cemetery Road, the water tower on the northern side of the road and at the Cemetery itself is shown in *Figure 4.2*. Nests also occur along Jacks Road near Bucketts Way, McKinleys Lane, Waukivory Road, Fairbairns Road and Tiedmans Lane in the southern half of Gloucester township (Gary Germon 2005 and Birds Australia 2005).

Photograph 4-1: Grey-crowned Babbler habitat near the water tower along Cemetery Road

Photograph 4-2:Grey-crowned Babbler habitat near the water tower along Cemetery Road

Photograph 4-3: Across the eastern side of the railway line the Avon Valley group forages on the outer margins of denser regrowth woodland

Photograph 4-4: Woodland remnant on the corner of Tate Street and Cemetery Road in the industrial area provides foraging habitat for the species

Photograph 4-5: Roadside remnant vegetation and plantings along Cemetery Road used by the species for nesting

4.3.1 Species of plant

The remnant dry open sclerophyll woodland in various states of disturbance comprises of a variety *Eucalyptus* canopy species including:

- *E. carnea* (Broad-leaved White Mahogany)
- *E. tereticornis* (Forest Red Gum)
- *E. globoidea* (White Stringybark)
- *E. eugenioides* (Narrow-leaved Stringybark)
- *E. crebra* (Narrow-leaved Ironbark)
- *E. maculata* (Spotted Gum)
- *E. moluccana* (Grey Box)
- *E. amplifolia* (Cabbage Gum).

Other tree species include *Melaleuca styphelioides* (Prickly-leaved Paperbark) which occurs in the damper areas of the industrial area near the Forestry depot and *Allocasuarina torulosa* (Forest Oak) which suppresses the growth of invasive groundcover species (S. Hoy personal *communications* 2005). Mixture plantings of non-native species including pine trees and non-indigenous eucalypts also occur as plantings in roadside reserves or areas of public open space.

Prior to disturbance, the open woodlands would have been characterised by a limited diversity and density of shrub species, and groundcover dominated by *Themeda* tussock grasses (Binns 1995; Henderson 2000; Prober & Thiele 1995). However, grazing within the woodlands has resulted in a general absence of groundcover vegetation, or a dominance of introduced perennial grasses. Native understorey species occurring throughout the south-eastern Gloucester include *Melaleuca stypheloides* (Prickly-leaved Paperbark), *Acacia ulicifolia* (Prickly Moses), *Bursaria spinosa* (Blackthorn), *Acacia irrorata* (Green Wattle)*, Leptospermum spp.*, *Dillwynia spp.* (Eggs and Bacon) and *Xanthorrhoea* spp. Native pasture species of grass include *Themeda australis* (Kangaroo Grass), *Cymbopogon refractus* (Barbwire grass) and *Poa labillardierei* (Tussock Grass) (Binns 1995; Henderson 2000).

While open and disturbed areas within the industrial area have moderate levels of weed invasion, grazing has controlled the invasion of weeds in most paddock areas east of the railway line. However, there is often a shortage of ground litter and understorey and improved pasture grows too densely for successful Grey-crowned Babbler foraging.

4.4 Current viability

It is not known if groups within the township of Gloucester and the immediate surrounding areas are part of a viable population. Approximately 20 groups are known to be distributed throughout Gloucester Shire, the number of which is low compared to studies in Victoria by Robinson et al (2001). Preliminary population viability analysis in Victoria has suggested that at least 10 groups, and preferably closer to 50, are necessary to maintain a viable population (D. Robinson, *personal communication* 2005). Further studies are required to determine the viability of the Gloucester/Monkerai Grey-crowned Babbler population.

The size of the family groups of Grey-crowned Babblers in Gloucester township are relatively large and healthy, containing between 11 and 14 individuals with known breeding activity. It is important to note, however, that the family groups at Gloucester may still be part of a declining population even though group sizes appear healthy. The population may be in the process of an 'extinction debt', which occurs when previous actions (such as habitat clearing and fragmentation) result in local or total species extinctions, with the species still extant only due to the time lag in the extinction process (Possingham & Field 2001). Thus, although the groups at Gloucester appear to be healthy with large numbers of individuals, there may be a substantial time lag between the loss of habitat and the consequent decline of groups and the wider Gloucester population.

For the purpose of this retention plan, and in the absence of further information, it is assumed that the population within Gloucester is viable.

5. Grey-crowned Babbler issues and management at Gloucester

5.1 Grey-crowned Babbler issues at Gloucester

The threats outlined in Section 4 have resulted in the current distribution and abundance of Grey-crowned Babblers seen in Gloucester today. Wide-scale clearing of woodland vegetation for agriculture and urban expansion has resulted in the reduction and fragmentation of habitat, resulting in the loss of many family groups from the wider region. Some of the remaining groups would have become isolated, and through local impacts such as increased competition and habitat degradation suffered a reduction in group size and fledgling success, until they became unviable.

The pattern of past land clearing has nevertheless resulted in the creation of the edge habitats that are used by the groups within the Gloucester township and immediate surrounding area.

The threatening processes that are likely to currently be working in Gloucester include

- habitat loss and fragmentation
- habitat degradation
- mortality from predation and collision

These main threatening processes have the potential to increase and impact the family groups at Gloucester as the town's population increases resulting in growing pressure on traditional land uses and boundaries. Habitat management is therefore an essential part of any conservation strategy (Bennett, Kimber & Ryan 2000), and forms the basis of this retention plan.

5.1.1 Habitat loss and fragmentation

The major pressures on the habitat of the Grey-crowned Babbler are the expansion of urban and industrial lands to the south and east of the township and the development of lands already zoned for these uses. The area to the east of the north coast rail line has been suggested as a possible site of future rural residential expansion, but also includes foraging and nesting habitat for Grey-crowned Babblers. This site borders a recent rezoning to the north of Jacks Lane. Similarly, the property south of the current industrial estate is zoned industrial 4(a), and contains suitable habitat for this species. The future expansion of the township into these areas has the potential to reduce and fragment habitat and isolate the existing groups.

Two groups of Grey-crowned Babblers are active within areas that have been already rezoned for either industrial or residential uses. For example, Grey-crowned Babblers have been recorded throughout the current industrial area, but it is likely that the suitability of this habitat will be reduced following the development of all the current lots.

It is the patchwork of development within the industrial area that has made the site suitable as habitat. Similarly, the birds use open habitat north of the water tower, an area that has been zoned residential. It is likely that with the future development of lots in this zone that the birds will contract their activity range towards Cemetery Road.

Trees within many remaining woodland remnants within the Gloucester valley suffer from severe dieback that may be the result of phosphate being added to the pastures. The progressive loss of tree cover in these remnants will gradually make them unsuitable for Grey-crowned Babblers, thereby reducing the extent of available habitat and further fragmenting the landscape.

5.1.2 Habitat degradation

The habitat requirements of the Grey-crowned Babbler are linked to their tree-foraging needs, nesting needs and ground-feeding needs. Wherever one or more of these habitat elements is missing or removed, Grey-crowned Babblers are usually absent, or soon disappear (Adam & Robinson 1996). Furthermore, because degraded and smaller remnants tend to have an open understorey and high edge-to-area ratio, their dependent fauna is more vulnerable to predation by foxes, cats and other birds than the fauna of larger, more intact remnants of native vegetation (Robinson 1994).

Babbler habitat degradation also occurs from the removal of coarse, woody debris within woodland remnants for firewood and fire protection works. Such simplification of the ground layer decreases the amount of foraging habitat available for Grey-crowned Babblers (Martin & Possingham 2005). Timber removal is a problem near large towns, where firewood collection significantly reduces the amount of potential foraging habitat.

Remnant woodland habitats within private properties in Gloucester may be degraded as a result of overgrazing of understorey vegetation, leading to the invasion of introduced weed species such as perennial grasses which dominate the understorey layer and affect the long term regeneration of the woodland remnants.

The preferred open woodland habitat of the Grey-crowned Babbler is a fine balance between over grazing which reduces the habitat complexity of the remnants and the cessation of grazing which sees an increase in ground cover. This can be seen clearly in the bushland remnant near the water tower where weeds have rapidly increased following cessation of grazing.

The maintenance of road reserves can also reduce the suitability of this habitat for Grey-crowned Babblers (Adam & Robinson 1996). Generally the management actions reduce the number of smaller trees and shrubs.

5.1.3 Mortality from predation and collision

Mortality can be influenced by habitat degradation. A reduced shrub layer within foraging habitats and narrow rows of roadside trees make Grey-crowned Babblers vulnerable to predation by feral animals including foxes and cats, and nest predation by native species including Pied Butcherbirds (*Craticus nigrogularis*), Laughing Kookaburras (*Dacelo novaeguineae*), Australian Magpies (*Gymnorhina tibicen*) and Australian Ravens (*Corvus coronoides*).

The typically slow and low flight of the species from one side of the road to the other makes the species susceptible to being killed on roads. This susceptibility is compounded by the fact that most of the nesting and foraging habitats occur on either side of roads with moderate traffic volume including Tate Street, Jacks Lane, Waukivory Road and Cemetery Road. An example of such an incident occurred in January 2005 when a motor vehicle resulted in the death of three Grey-crowned Babbler birds on Bucketts Way Road which is a busy regional road (P. Drake-Brockman *personal communications* 2005).

5.2 Current Grey-crowned Babbler management at Gloucester

To date, Gloucester Shire Council has taken some actions to protect Grey-crowned Babblers. These include:

- Retention of remnant woodland habitat used by Grey-crowned Babbler on Cemetery Road and another smaller lot with a thin connective corridor in the industrial area at Lowe Street (*Figure 5.1*). The Cemetery Road remnant is approximately four hectares, although there is considerable growth of weeds and a dense shrub layer thereby reducing the suitability of this area as habitat for Grey-crowned Babblers. The industrial estate remnant is approximately 0.25 hectares and borders a narrow strip running along the south of the existing estate. The industrial estate remnants are in poor condition.

- Creation of open space areas to the west of the industrial area adjacent to Bucketts Way.

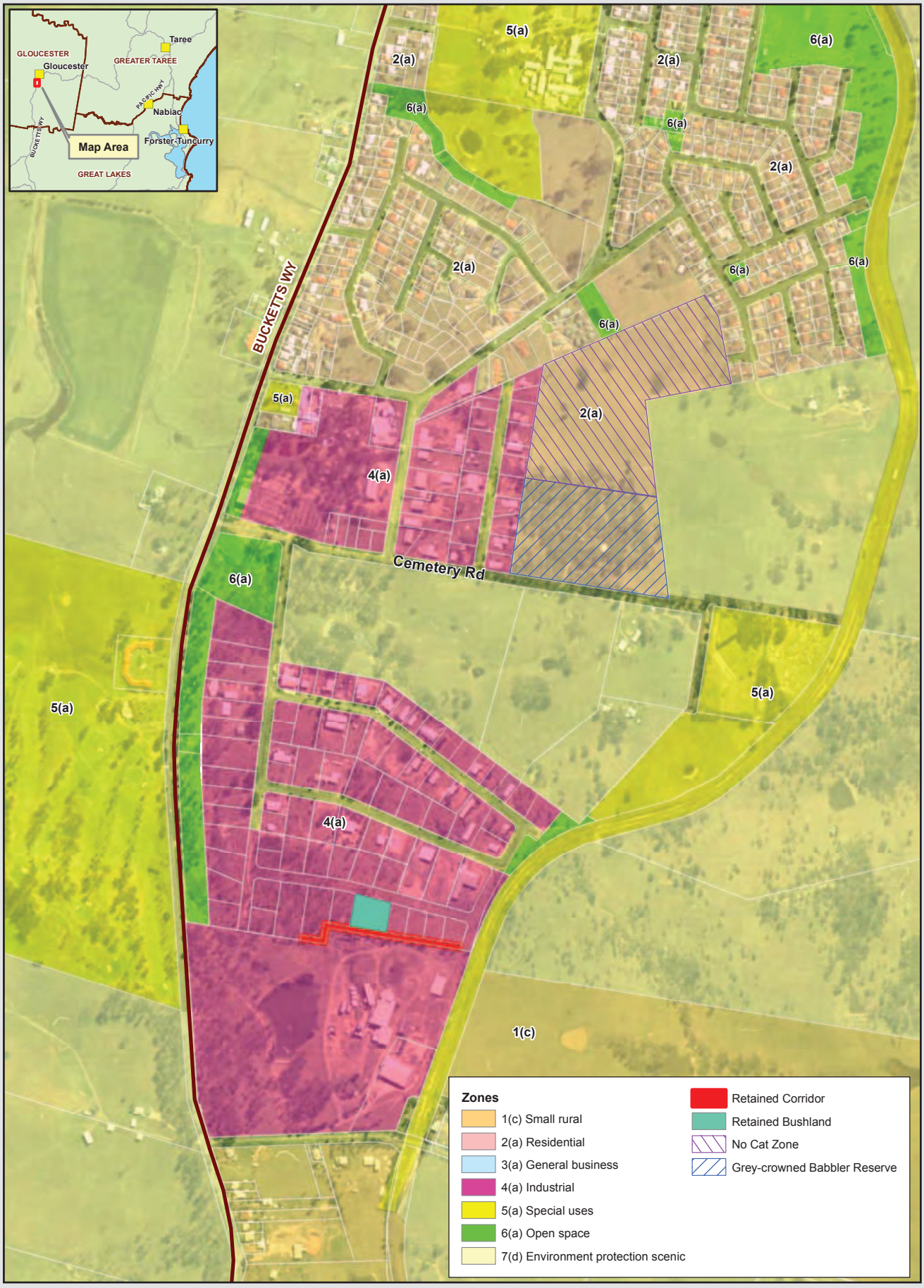
- Introduction of a 'no cat zone' in the area proposed for residential development (north-east of the industrial area).

- Planting a mixture of native trees in roadside reserves.

- Producing an environmental newsletter, the 'Environmental Educator', creating public awareness on environmental issues including biodiversity protection. The newsletter is produced by Council for local schools, interested community groups and individuals. The newsletter outlines environmental issues and events relevant to the local community.

- Implementing a Schools Environment Program, co-ordinated by Council. The program aims to combine with school curriculum and promote sustainable activities in relation to waste management, energy efficiency, water conservation, biodiversity and ecosystem management.

Gloucester Shire Council is in the process of creating a roadside vegetation management plan that will identify significant roadside areas including Grey-crowned Babbler habitat (Scott Hoy personal communications 2005).



2116585A_2009_Existing_Protection_Measures.mxd

Figure 5.1: Existing protection measures

6. Management actions and Recommendations

Local extinction can be partly avoided by habitat management in the short term and large-scale habitat reconstruction in the long term (Possingham & Field 2001). The maintenance of both family groups and their numbers of helpers is important for the population of Grey-crowned Babblers long-term survival in the Gloucester area. It is especially important that viability of the two family groups be maintained because they represent the northern extent of the Gloucester population. Once a family group declines to less than four, the group is unlikely to successfully breed. Furthermore, natural colonisation cannot occur if there is an absence of suitable habitat with good connectivity.

The survival of the two family groups depends on the appropriate protection and management of remnant habitat on roadsides and both public and private land. As a precautionary measure, it is important that more than just adequate amounts of habitats are maintained. Rehabilitation should be considered as a measure to enhance habitats, bearing in mind that rehabilitated habitats take many years to develop to a fully functional stage.

The management actions outlined are in most cases not prescriptive, since the restoration and rehabilitation of habitats is by its very nature a dynamic process. Management of the habitat and species must be adaptive, recognising that the management of natural resources is always experimental, that we can learn from implemented activities, and that management can be improved on the basis of what has been learned. Input into the monitoring and review of previous actions is needed and this role should be provided by Council.

The management actions detailed below are also based on the precautionary principle, namely that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

6.1 Habitat protection and maintenance

Grey-crowned Babblers are dependent on habitat and habitat corridors that cannot be created easily. Consequently, protection of significant habitats should be the priority for Grey-crowned Babbler conservation in Gloucester.

Objectives

- To maintain and protect woodland remnants that form part of a corridor network and other habitats that have potential for regeneration for the longer term benefit of the species.

- To protect habitat of existing groups to promote increases in group size and breeding success.

Criteria

The net extent of suitable habitat remains the same or increases.

Actions

Action
▪ Protect remnant vegetation north of Cemetery Road, adjacent to the water tower, through rezoning as Environmental Protection (Wildlife Habitat) 7(I).
▪ Negotiate statutory environment protection for vegetation remnants on private property east of the northern rail line. This can be achieved though a variety of mechanisms including property vegetation plans or voluntary conservation agreements, but should be included in any future rezoning/subdivision plans.
▪ Maintain vegetation within existing remnants so as to protect and enhance the woodland characteristics. This may include small light control burns to reduce weeds and dense vegetation cover. It will be important to maintain edge habitats within the remnants.
▪ Provide buffers comprising of at least 20 metres around all remnant patches. This will not only protect the remnant vegetation but will also provide suitable edge habitats.
▪ Consider controlled grazing within remnants instead of controlled burning to keep the open nature of the vegetation. Grazing should only be used in mature remnants in which grazing will not stop the natural pattern of regeneration.
▪ Retain large trees (approximately 60 centimetres diameter at breast height) due to the significantly larger surface area that provides foraging resources for insects as well as the safety of nesting sites (Robinson 1994).
▪ Prohibit firewood collection within public controlled remnants and within roadside reserves.
▪ Implement a program of weed control within remnant vegetation that opens up the ground cover and promotes natural regeneration.
▪ Maintain roadside vegetation in a way that minimises disturbance to the shrub and ground layer and allows for a diversity of plant species. This may include using small, light control burns in consultation with the Rural Fire Service. An important element of all roadside vegetation management should be the maintenance of suitable vegetation structure. This may include only using control measures such as slashing and burning in areas that have high fuel loads and pose a risk to public safety. A mosaic pattern could be produced along longer lengths of road maintaining some suitable habitat at any one time.
▪ Create a roadside vegetation management plan that identifies significant Grey-crowned Babbler habitats in roadside areas, which is regularly updated with information from population monitoring (see Section 6.7).
▪ Implement protocols for vegetation management by Council employees including frequency of slashing and maintenance activities in weed infested areas.
▪ Support the 'no cat zone' with regular trapping of cats and other feral predators within the Council managed lands.

6.2 Habitat restoration and corridor creation

Revegetation is a longer term management action and plays an important role in securing the family groups, especially within the precinct of increasing surrounding development. *Figure 6.1* shows the areas proposed for rehabilitation mentioned.

For the rehabilitation works to be effective, sites must be regularly managed to be prevent weed invasion, with occasional light and small burns (Adam & Robinson 1996; Cole & Lunt 2005).

Objective

- Enhance the habitat of existing groups to promote increases in group size and breeding success.
- Restore degraded habitats and create habitat corridors for tree-less areas within the foraging range of Gloucester township and the wider valley.

Criteria

The net extent of suitable habitat and connectivity increases.

Actions

Action
▪ Increase the width of roadside vegetation along Cemetery Road and Waukivory Road to at least 20 metres. This can be achieved either though purchase of land or as part of future zoning proposals. Reclaimed land should be fenced and allowed to naturally regenerate with minimal maintenance in order protect the open nature of the woodland vegetation. Revegetation should be used as a secondary program, using a mixture of species and aiming for a mixture of age classes.
▪ Create a linear habitat corridor along both sides of the railway line within open space land at the cemetery (west side) and private land zoned as environment protection (east side). The corridors would connect with the southern half of the industrial area near Lowe Street and Jacks Lane. For corridors to be effective they should be a 20 to 30 metres wide and should comprise of native indigenous species such as those listed in *Appendix A*.
▪ Increase the width of the corridor south of the current industrial area and extend to the west to join the Buckets Way. This can be best achieved through future rezoning and subdivision. The corridor should be at least 20 metres wide and provide suitable open woodland habitat.
▪ Investigate opportunities to increase the width of roadside vegetation along Bucketts Way, through education and providing incentives to landholders.
▪ Investigate opportunities for regeneration of native vegetation in the corner of paddocks that would connect to roadside vegetation. Any such areas should be fenced.
▪ Allow vegetation to initially naturally regenerate so as to provide variation in ages of plants.
▪ Promote mixed plantings of indigenous tree species through a local or regional nursery (*Appendix A*).
▪ Provide incentives for private landholders to fence buffer strips next to existing habitat along roads and around remnant vegetation to encourage tree regeneration.
▪ Maintain regenerated areas as per Section 6.1 above.

2116585A_2007_Potential_rehabilitation.mxd

Figure 6.1: Areas of priority for potential rehabilitation and retention

6.3 Road and traffic management

With the importance of roadside vegetation in the overall management of the Grey-crowned Babbler, there will be situations where birds are put at risk from collision with vehicles.

Objective

Prevent/reduce the incidence of collision of Grey-crowned Babblers with motor vehicles.

Criteria

There is an overall reduction in the number of Grey-crowned Babbler deaths due to vehicle collision.

Actions

Action
▪ Implement go-slow areas through speed restrictions and/ or traffic control measures, particularly along Cemetery Road, the industrial area around Tate Street, and Jacks Lane.
▪ Erect road signs with a image of a bird resembling a Grey-crowned Babbler along Cemetery Road, Tate Street, Jacks Lane and at the entrance to the town along Bucketts Way.

6.4 Public education

Public participation in the overall protection of the Grey-crowned Babbler is important since private lands will play a significant role in the overall habitat retention.

Objective

To promote public education awareness of the threats, ecology and management issues surrounding Grey-crowned Babbler groups within Gloucester.

Criteria

Residents and visitors to Gloucester are provided with information highlighting the importance of Grey-crowned Babblers and in particular the need for habitat protection and details of management actions implemented.

Action

Action
▪ Raise awareness of Grey-crowned Babbler issues through public workshops and a variety of media (eg. The Environmental Educator quarterly newsletter). The management of Grey-crowned Babbler habitat and other threats to the species should be highlighted through the newsletter, providing a public forum for nature conservation activities.

Action
▪ Promote Grey-crowned Babbler habitat friendly land use practices including habitat management and rehabilitation, as well as avoiding planting non-indigenous trees that encourage competitors and nest predators of Grey-crowned Babbler (see *Appendix A* for list of native indigenous tree species).
▪ Continue to educate school children through the Schools Environment Program co-ordinated by Gloucester Shire Council. Local schools could be involved in tree planting activities and this process would allow children to be practically involved in conservation.
▪ Create an education brochure that contains comprehensive information about Grey-crowned Babblers, their habitats, threats and habitat management. The brochure should be distributed to Gloucester residents (suburban and rural) and school groups as well as tourists through the information centre and Gloucester Department of Environment and Conservation office.
▪ Erect educational signs in prominent areas such as the cemetery, the water tower remnant and visitors rest area along Bucketts Way that inform visitors and residents about Grey-crowned Babblers and their status under the *Threatened Species Conservation Act 1995* .
▪ Erect signs at restoration sites informing the public of the aims of the restoration and their function in the wider plans for the Grey-crowned Babbler.

6.5 Grey-crowned Babbler research

This retention plan is based on a number of assumptions about the viability of the Grey-crowned Babblers within Gloucester Shire. Further research, supported by Council and undertaken by either community groups or university students should be encouraged. Such research will contribute to the better understanding of management issues.

Objective

To provide a better understanding of the Grey-crowned Babbler family groups that make up the population in the Gloucester area and the issues surrounding their management.

Criteria

The level of knowledge and understanding of the distribution of groups and their viability within Gloucester Shire increases in a manner that contributes to the overall management of the species and their habitats.

Actions

Action
▪ Study the relationship between the Gloucester/ Monkerai Grey-crowned Babbler population, the Krambach/Dyers Crossing/Medowie population and the Stroud/ Dungog/ Clarencetown population. This should be encouraged by Council through liaison with local environment groups and nearby universities including the University of Newcastle and University of New England.
▪ Provide support for monitoring and ecological studies of Grey-crowned Babbler populations in and around Gloucester. The level of detail of the studies would be appropriate for a Masters or Honours level of academic research. Friends of the Grey-crowned Babbler should be approached to assist with research studies.

Action
▪ Seek funding assistance from regional and State government, research bodies and non-government organisations for such research. For example, the Upper Hunter Regional Environment Strategy can assist in sourcing funds to provide information on the dynamics and viability of Grey-crowned Babbler population.

6.6 Planning controls and options

Planning controls should be implemented for the future expansion of urban and industrial lands to the east and south of the current township taking into consideration the protection of Grey-crowned Babbler habitat. In order for the retention plan to be successful, planning controls have to consider potential adverse social and economic impacts that may result from the implementation of the plan. Consideration of such impacts should be specifically linked to consultation arrangements between residents, property developers, town planners, ecologists, local environment groups (Friends of the Grey-crowned Babbler), Department of Environment and Conservation, as well as other stakeholders.

Primarily, habitat protection should be considered in planning decisions where appropriate with revegetation works considered as a supplementary and longer term action to protect the species.

Objective

To incorporate the consideration of Grey-crowned babbler family groups in Gloucester, early in the decision making and land use planning process.

Criteria

Future planning decisions take into consideration habitats of the Grey-crowned Babbler.

Actions

Action
▪ Protect Grey-crowned Babbler habitat to the east of the north coast rail line through provisions of the local environment plan at the rezoning stage. This would apply to land proposed for small rural 1(c). The habitat and a suitable buffer can be transferred into public ownership and management (with a zoning 7(I) Wildlife Habitat). Alternatively public positive covenants can be placed over the land with suitably sized lots created for habitat protection that would allow a dwelling to be constructed. For the purpose of these developments Council may consider including these larger lots in the calculation of average lot size, while at the same time setting a limit on the minimum lot size.
▪ Extend the 'no cat zone' implemented in the recent residential subdivision to all new subdivisions including small rural, residential and industrial.
▪ Implement a tree preservation order for the Shire that applies to small rural and residential areas that protects native species of tree with a diameter at breast height greater than 50 centimetres and a height greater than two metres. This should focus on rough-barked species.
▪ Incorporate buffer zones of 10 to 20 metres between proposed developments and significant habitats (including corridors) of the Grey-crowned Babbler. For example, the development areas surrounding habitats used at the water tower on Cemetery Road and along Tate Street.

Action
▪ Incorporate landscaping/ streetscape guidelines as part of a development control plan for new subdivisions that take into consideration potential habitat creation through the use of native indigenous plant species.
▪ Include roadside reserves in structure plans for new subdivisions that strategically link habitats.
▪ Ensure that all levels of development applications undergo a thorough and appropriate development assessment process talking into consideration the full impacts on Grey-crowned Babblers and their habitat.

6.7 Monitoring

Monitoring is an important element of any conservation plan, particularly where management actions should be adaptive.

Objective

To determine if management activities meet the stated aims and objectives.

Criteria

The effectiveness of management actions are appropriately determined and necessary changes made to future actions.

Actions

Action
▪ Review this retention plan yearly with regard to any future recovery plans as well as any best practice guidelines produced by the NSW Department of Environment and Conservation as part of the recovery planning process.
▪ Monitor the following at least twice per year: restoration works undertaken; regeneration of native plant species; weed species regeneration; and, presence of feral animals within remnant habitat. Monitoring should be structured to determine the success of the program in relation to the quality of the Grey-crowned Babbler habitat.
▪ Monitor numbers of Grey-crowned Babblers including nesting and breeding activity within the groups at least twice per year.

7. Communications, reporting and review requirements

Reporting of the outcomes of management actions is important in ensuring their effectiveness. Details of management actions undertaken must be recorded along with any subsequent outcomes.

All contractors must report on all management actions completed including weeding, revegetation and rehabilitation. This information should be provided monthly and should include details of the area worked, the type of work carried out and any problems encountered. This information should be provided to the Director of Planning and Environment or their representative, who will regularly brief the relevant Council members, staff and management.

Council should report yearly on the success or otherwise of the retention plan in Gloucester's State of the Environment Report.

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Appendix A

Native plant species from the Gloucester township area

Appendix A: Native plant species indigenous to Gloucester township area

Scientific name	Common Name
Eucalyptus carnea	Broad-leaved White Mahogany
Eucalyptus paniculata	Grey Ironbark
Eucalyptus crebra	Narrow-leaved Ironbark
Eucalyptus tereticornis	Forest Redgum
Eucalyptus globoidea	White Stringybark
Eucalyptus eugenoides	Narrow-leaved Stringybark
Eucalyptus maculata	Spotted Gum
Eucalyptus molluccana	Grey Box
Eucalyptus. amplifolia	Cabbage Gum
Eucalyptus microcorys	Tallowwood
Angophora subvelutina	Broad-leaved Apple
Angophora floribunda	Rough-barked Apple
Allocasuarina torulosa	Forest Oak
Melaleuca styphelioides	Prickly-leaved Paperbark
Acacia irrorata	Wattle
Acacia ulicifolia	Prickly Moses
Pultanea villosa	Hairy Bush Pea
Jacksonia scoparia	Winged Broom-pea, Dogwood
Exocarpos cupressiformis	Native Cherry
Bursaria spinosa	Blackthorn
Themeda australis	Kangaroo Grass
Poa labillardierei	Tussock Grass
Cymbopogon refractus	Barbwire Grass

Appendix H – Peter Andrews & Associates Pty Ltd Landscape Character Assessment

Gloucester River Run Pty Ltd
and
Brian Beesley and Heather Beesley

Landscape character and visual impact assessment

Lot 2 DP 568113 and Lots 11 and 12 DP 193003
4571 The Bucketts Way
South Gloucester, NSW

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architecture
planning
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February 2016

Report prepared for:

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Document history and status

Residential Subdivision
Lot 2 DP 568113 and Lots 11 and 12 DP 193003
4571 The Bucketts Way
South Gloucester, NSW

Version	Date issued	Description	Author
A	26/02/2015	Landscape character and visual impact assessment	Peter Andrews

Introduction

This report provides a strategic assessment of the potential impact of the proposed 140 lot low density residential subdivision on the landscape character and views.

In a strategic context, the impacts on landscape character are considered more relevant than the impact on particular views, since the impact of the proposal in terms of view loss is relatively minor in terms of the local and regional context.

The Proposal

The proposal involves the development of a low density, residential estate of approximately 140 lots, adjacent the Gloucester Country Club on the southern entry to the Gloucester township. Refer Figure 1.

The land holding of 97.18ha extends between Bucketts Way and the Gloucester River. However, the proposed area of development is only 26.47ha and located east of the alluvial flood plains (estimated 1:100 flood) extending to Bucketts Way. The land is cleared and was formerly used for dairying. A band of spotted gum along Bucketts Way boundary enables filtered views into the site.

The site is approved for a retirement village that has “physical commencement”. A new roundabout is planned at the intersection of Jacks Road and Bucketts Way will provide access to the site.

Figure 1 – Proposed Subdivision Plan

Methodology

Sensitivity and magnitude provide measures to assess impacts from the proposal on the landscape character. They are determined by identifying a series of landscape character zones (LCZ) and valuing the physical landscape elements that characterise each zone. These include landform and topography, vegetation, drainage systems and cultural and built elements. The sensitivity and magnitude for landscape character are as follows:

Sensitivity: refers to how sensitive the character of the setting is to the proposed change and its capacity to absorb the change.

Magnitude: refers to the scale, form and character of a development proposal.

Sensitivity and magnitude are classified by the rankings outlined in Table 1.

Table 1 – Sensitivity and magnitude rankings

Rank	Description
High	The proposal would be the **dominant feature** in the landscape and would significantly affect and change its character
Moderate	The proposal would form a **significant and immediately apparent** part of the landscape that affects and changes its character
Low	The proposal constitutes a **minor component** of the wider view
Negligible	Only a **small part is discernible** or at such a distance and is scarcely appreciated

The combination of sensitivity and magnitude provides an impact rating for the proposed works on the landscape character based on the following table.

Table 2 – Landscape character and visual impact matrix

		MAGNITUDE			
		High	Moderate	Low	Negligible
SENSITIVITY	High	High Impact	High-Moderate	Moderate	Negligible
	Moderate	High-Moderate	Moderate	Moderate-Low	Negligible
	Low	Moderate	Moderate-Low	Low Impact	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

(RMS, 2013)

An analysis of the proposal's landscape and surrounds was carried out to assess the significance of likely changes from the proposal.

Landscape Character Zones

A series of landscape character zones (LCZ) were identified for the study area that have a distinct character resulting from a similar combination of urban and landscape features that include landform, builtform, vegetation and land use. Refer Figure 2.

The landscape character zones include:

- LCZ 1 - The Bucketts / Gloucester River
- LCZ 2 - Mount Mograni / Avon River
- LCZ 3 - Gloucester Village
- LCZ 4 - Bucketts Way

The following provides a preliminary analysis of each of the landscape character zones.

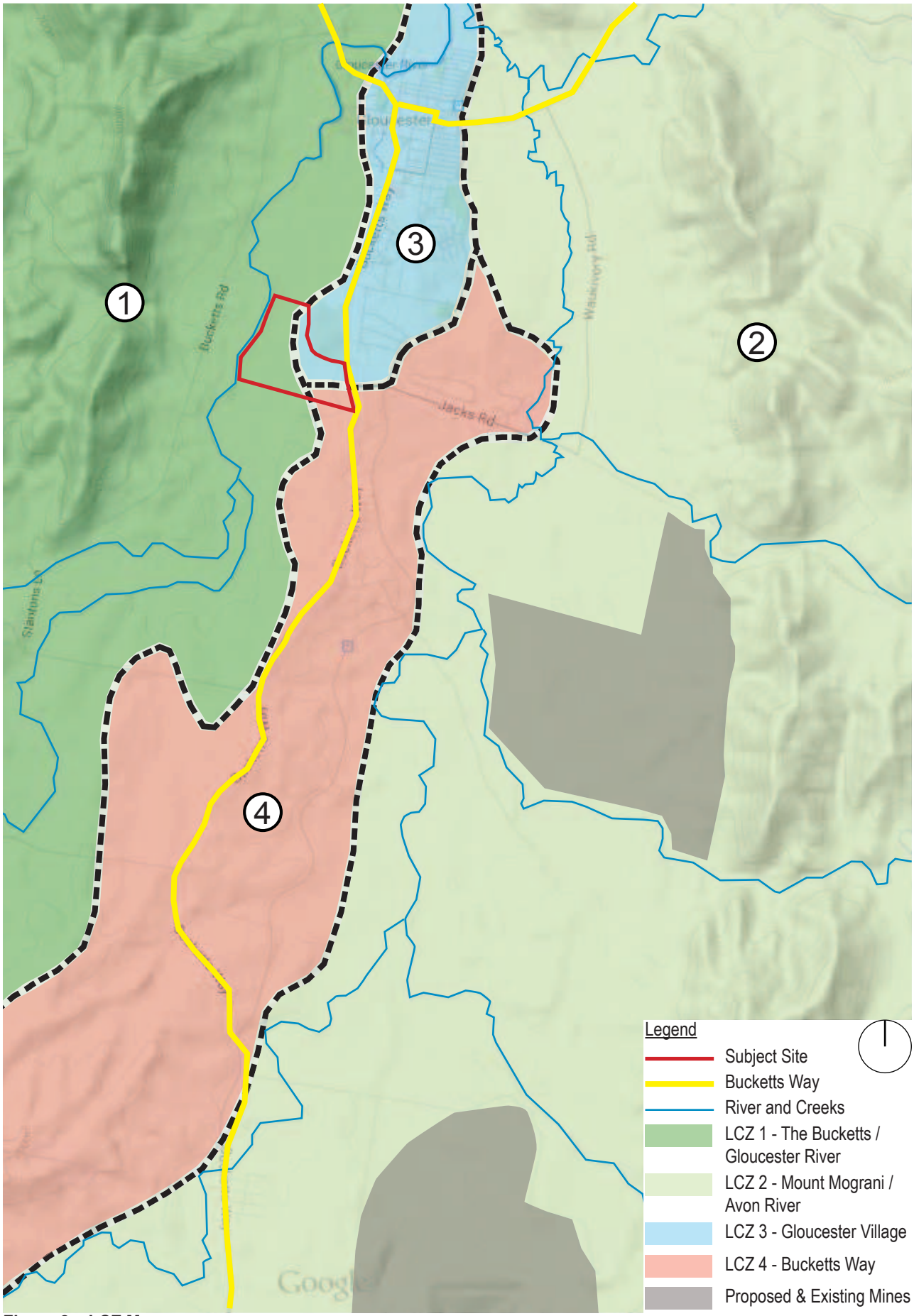

Figure 2 – LCZ Map
Source: Google Earth Pro

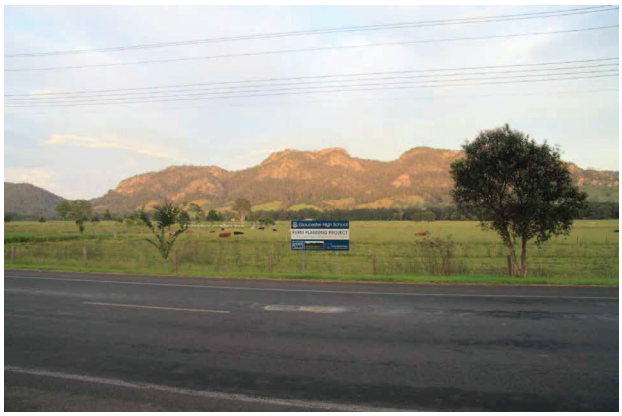

Table 3 - LCZ 1 - The Bucketts / Gloucester River

Overall Character	The Bucketts Mountain range and Gloucester River flood plain and alluvial flats create a high quality scenic landscape. The Bucketts has a very distinctive form of pronounced peaks, ridges and rock formations and creates a very strong eastern edge to the town of Gloucester and its approaches from the south. In combination these two elements create a dominant feature in the landscape.
Landform	Mountain range and alluvial river flats.
Open or Closed Landscape + Views	Expansive views across the river floodplain, contrasted with enclosed views along the roads at the foot of the Bucketts and within the adjoining foothills.
Vegetation	Cleared agricultural land along river flats. Dense vegetation along creek line ranging to open woodland along mountain range.
Locality / Development	Mainly agriculture and rural buildings.

Table 4 - Measurement of impact - LCZ 1

Sensitivity	High	Comments
Magnitude	Low	The area is very sensitive to development, but the proposal is of very small magnitude in relation to the size of the LCZ.
Impact	Moderate	

Table 5 - LCZ 2 - Mount Mograni / Avon River

Overall Character	Mountain range and Avon River valley defines the eastern boundary to the town of Gloucester and together with the Bucketts creates a well-defined north south valley system. Eastern edge defined by Bucketts Way running along lower north south ridge. Similar to LCZ 1, however the valley floor is wider and more disturbed through mining and rural development, and the Morangi range is less distinctive in form than The Bucketts.
Landform	Mountain range and alluvial river flats.
Open or Closed Landscape + Views	Extensive views contrasted with more enclosed views along the valley floor and foot slopes.
Vegetation	Cleared agriculture pastures and remnant vegetation.
Locality / Development	Agriculture, coal mining, rural hobby farms around the south/ south eastern side of Gloucester. Rail corridor. Current proposal for a new coal mine southeast of the township of Gloucester.

Table 6 - Measurement of impact - LCZ 2

Sensitivity	High	Comments
Magnitude	N/A	The proposal will not impact this LCZ.
Impact	N/A	

Table 7 - LCZ 3 - Gloucester Village

Overall Character	Village straddles north south ridge between the Bucketts and Morangi ranges. Well-defined lineal form with north south/east west street grid. Well-defined main street. Edge defined by railway and flood plain on east and floodplain on west. Southern edge less defined. Northern edge defined by confluence of Gloucester and Avon Rivers.
Landform	Village located on low-north south ridgeline and extends to the flood plains on either side.
Open or Closed Landscape + Views	Open views to mountain ranges either side. More enclosed views around Gloucester District Park.
Vegetation	Mix of native and introduced species. Deciduous street trees create colour in autumn.
Locality / Development	Low density residential with mainly single storey homes with some two-storey buildings. Supporting light industry/services. Rural residential on south and south eastern end of town. Golf course and hospital. A roundabout is proposed at the intersection of Jacks Road and Bucketts Way and a new cycleway/pathway will extend from Jacks Road north into the township. Potential future industrial development on the southern entry at the intersection of Jacks Road and Bucketts Way.

Table 8 - Measurement of impact - LCZ 3

Sensitivity	Moderate	Comments
Magnitude	Low	The proposal will impact on the southern entry to the town. This area is of low to moderate sensitivity due to existing development and the general landscape character. Development is already permitted on the site and the overall impact compared to the permitted development will be relatively minor.
Impact	Moderate - Low	

Table 9 - LCZ 4 - The Bucketts Way

Overall Character	Low north south ridge separating the Gloucester River valley (LCZ1) and Avon River valley (LCZ2). Mainly cleared rural grazing land and remnant vegetation. Defined by Stratford Village to the south and Gloucester township in the north.
Landform	North south ridge undulating land form.
Open or Closed Landscape + Views	Views to LCZ1 and LCZ2 vary between expansive open views to mountain ranges and river flats, to filtered or enclosed views.
Vegetation	Cleared grazing land, remnant vegetation and rural buildings.
Locality / Development	Rural agriculture and native bushland. A roundabout is proposed at the intersection of Jacks Road and Bucketts Way and a new cycleway/pathway will extend from Jacks Road north into the township.

Table 10 - Measurement of impact - LCZ 4

Sensitivity	Moderate	Comments
Magnitude	Low	The LCZ is impacted by existing development and of lower scenic quality than LCZ1 and LCZ2. The proposal is of relatively small scale compared to the size of the LCZ.
Impact	Moderate - Low	

Visual Impact

In a strategic context the proposal has minimal impact on view loss. The Bucketts Way is an important scenic tourist route and provides extensive views to the Bucketts and Mograni mountain ranges and the Gloucester and Avon Rivers. The most expansive views of the Bucketts occur south and north of the subject land. In a number of instances these views include a much broader panorama taking in the Bucketts and the Mt Morangi ranges. A sequential view analysis was undertaken to assess view impacts along Bucketts Way approaching the site in both a north and south direction. These are shown in Figures 4 to 32.

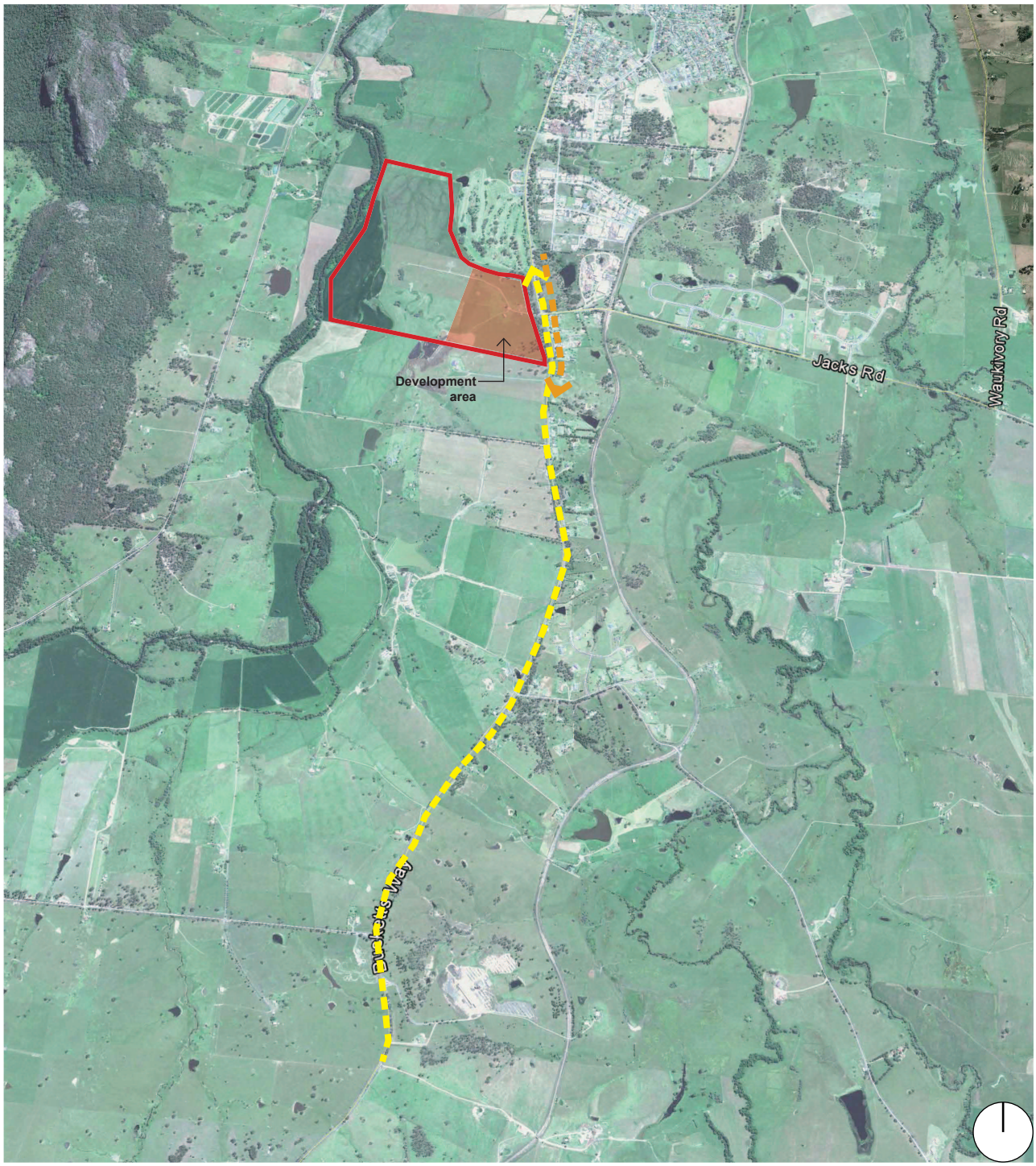

Figure 3 – Key view corridors
Source: Google Earth Pro

Sequential View Analysis

Figure 4 – Travelling south along Bucketts Way
Source: Google Earth Pro

Figure 5 – Travelling south along Bucketts Way
Source: Google Earth Pro

Figure 6 – Travelling south along Bucketts Way
Source: Google Earth Pro

Figure 7 – Travelling south along Bucketts Way
Source: Google Earth Pro

Figure 8 – Travelling south along Bucketts Way
Source: Google Earth Pro

Sequential View Analysis Cont.

Figure 9 – Travelling north along Bucketts Way - Boral entry at Faukland Road
Source: Google Earth Pro

Figure 10 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 11 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 12 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 13 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 14 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 15 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 16 – Travelling north along Bucketts Way
Source: Google Earth Pro

Sequential View Analysis Cont.

Figure 17 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 18 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 19 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 20 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 21 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 22 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 23 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 24 – Travelling north along Bucketts Way
Source: Google Earth Pro

Sequential View Analysis Cont.

Figure 25 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 26 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 27 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 28 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 29 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 30 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 31 – Travelling north along Bucketts Way
Source: Google Earth Pro

Figure 32 – Travelling north along Bucketts Way
Source: Google Earth Pro

Visual Impact Cont.

There are a limited number of existing dwellings that may be impacted and the impact is considered to be relatively minor for the reasons summarised below. Consequently a formal view and visual impact matrix was not undertaken. Figure 33 shows the dwellings potentially impacted by the proposal.

The potential visual impacts include:

- Partial loss of some filtered views to The Bucketts from existing rural residential development on the western side of the Bucketts Way.
- Partial loss of some filtered views to The Bucketts from the Bucketts Way, Bucketts Way along the property frontage, because of new housing, or
- Opening up more expansive views of The Bucketts by the removal of existing trees along the Bucketts Way road frontage and the new roundabout, or
- A combination of both of the above. ie partial loss of views through new housing, and opening up vistas to The Bucketts through partial removal of existing trees.

The potential loss of rural views to existing residences will occur under the exiting approved development, and could be lost if the vegetation along the road frontage was left to regenerate naturally.

There are six dwellings located south of Jacks Road intersection that are potentially affected. Most of these dwellings appear to have their primary outdoor space focussed towards the east. Some of these dwellings have screen planting along the Bucketts Way frontage, and only one dwelling appears to have a substantial veranda on the western façade. The landform falls away from the Bucketts Way to the east and the impact of new housing would be mitigated to some extent by the topography. Views to The Bucketts over the roofs any new buildings would be retained (Figures 33 & 34).

In terms of view loss along a major scenic route the impacts are considered relatively minor given that views through the site are filtered by existing vegetation. Views over rooftops to the Bucketts will still be retained by virtue of the landform.

Figure 33 – TDwellings potentially impacted by the proposal
Source: Google Earth Pro

Figure 34 – Dwellings potentially impacted by the proposal
Source: Google Earth Pro

Mitigating Measures - Landscape Character and Visual Impacts

The proposal will potentially change the landscape character of the southern approach to Gloucester Township. The development is located at the northern edge of LCZ4. This LCZ was found to be of low to moderate impact from the proposal. The landscape character of this area is likely to change in any event due to:

- The existing approved development that has “physically commenced”.
- The new roundabout at Jacks Road.
- Implementation of Council’s proposed pedestrian/cycleway.
- Future urbanisation of the Industrial Zone on the north east corner of the Jacks Road intersection.
- Future development of the Rural Living zone to more intensive rural residential subdivision.

Bucketts Way is an important tourist route and in terms of landscape character and visual impact that proposal is likely to have relatively minor impacts in the context of the overall character and view impacts along the Bucketts Way corridor.

At present, the southern entry to the town is not well defined. A sign north of the Country Club designates the entry, and Council is considering creating a “gateway“ at the intersection of Church Street and Phillips Street (western town bypass). Notwithstanding this, the Country Club, together with a new roundabout at Jacks Road coupled with the proposed development provides an opportunity to create a more defined southern entry to the township. Properly treated, this could also mitigate some of the possible impacts to existing filtered views of The Bucketts along the road frontage to the Bucketts Way including:

- Retention of a substantial number of the existing Spotted Gum along the Bucketts Way frontage.
- Controls on landscape/fence treatment along the eastern and southern boundaries to minimise the impacts of rear yards and outbuildings on the southern approaches to the township.
- Appropriate treatment of the Jacks Road roundabout and estate entry to create an informal “gateway” defining the southern approach to Gloucester Township.

A number of possibilities for managing the road interface with the Bucketts Way were considered including:

- A conservation zone,
- Incorporating part of the site into the road reserve,
- A section 88b instrument to regulate removal of trees, buildings, fencing and landscape treatment.

For a project of this scale, an 88b instrument is considered most appropriate.

These matters should be addressed as part of a future Development Application.

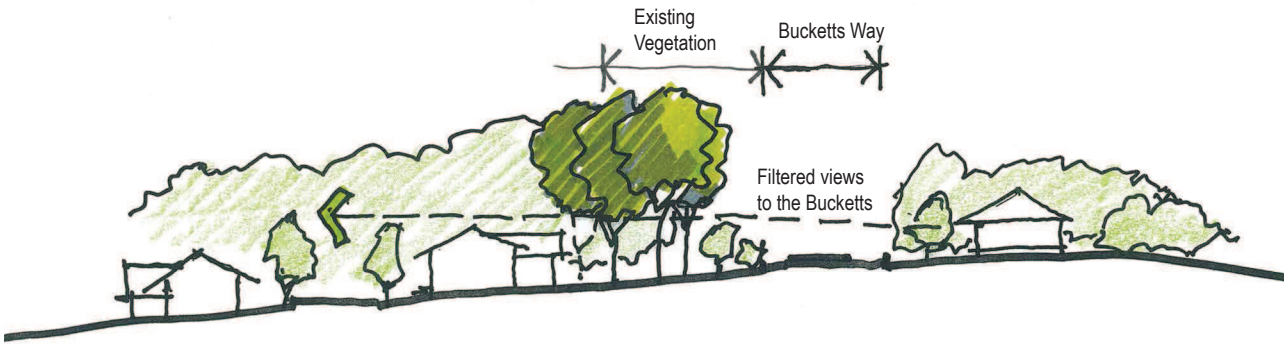

Figure 35 – Typical section through Bucketts Way

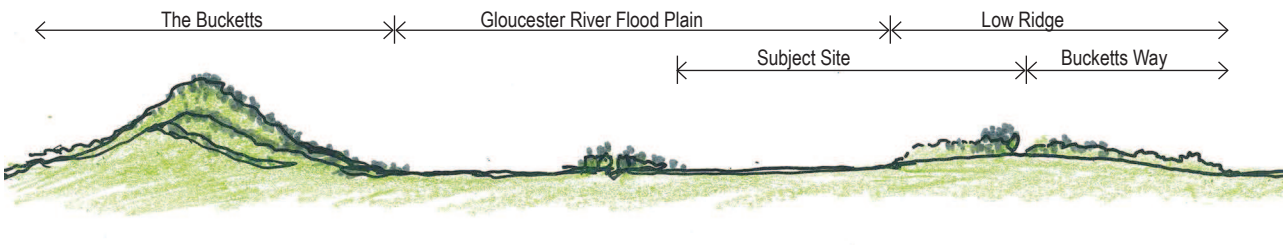

Figure 36 – Typical east west cross section through site and surrounds

Appendix I – Artefact Heritage Aboriginal Archaeological Assessment Report

Rezoning of 4571 The Bucketts Way, Gloucester, NSW

Aboriginal Archaeological Assessment Report

Report to Gloucester River Run Pty Ltd

17 July 2017

artefact

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Project Director	Sandra Wallace
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Name of document:	Aboriginal Archaeological Assessment Report. Rezoning of 4571 The Bucketts Way, Gloucester, NSW
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EXECUTIVE SUMMARY

The Proposal

Gloucester River Run Pty Ltd proposes to rezone land at number 4571 The Bucketts Way, Gloucester, New South Wales (NSW), to low density residential and recreational land. At present, the proposal is restricted to rezoning and does not include development. The proposal is located in Lot 11/DP 193003 and Lot 12/DP 193003l (the study area) in the Mid-Coast Local Government Area (LGA). It measures approximately 22 hectares and is shown in client mapping below as the 'Development Area' (Figure 1).

The study area is located within the boundaries of the Forster Local Aboriginal Land Council (Forster LALC). The study area borders The Bucketts Way, Gloucester in the east and farmland on the floodplains of the Gloucester River in the west. It is located three kilometres (km) south west of the centre of the township of Gloucester, NSW.

Background

Previous Aboriginal heritage assessment of the proposal was carried out in 2000 by the FLALC (Yetica, 2000), and assessed the same extent of land as the current study area (Yetica, 2000: p 6). This assessment did not identify any Aboriginal objects within the study area. The assessment recommended there should be investigation and monitoring of excavation within the top 500 millimetres (mm) of topsoil (Yetica, 2000: p 12).

This previous assessment (Yetica 2000), took place prior to current codes of heritage practice. The Office of Environment & Heritage NSW (OEH) has advised that Yetica (2000) does not satisfy current requirements for Aboriginal cultural heritage assessments accompanying planning proposals (Office of Environment & Heritage NSW, 2016).

Artefact Heritage has been engaged by Gloucester River Run Pty Ltd to prepare an Aboriginal archaeological assessment which will comply with current legislation and codes of practice.

Overview of findings

- No Aboriginal cultural, historical or aesthetic values were identified in the study area.
- No Aboriginal cultural objects, materials or places of likely archaeological sensitivity were identified in the study area.
- The study area has been assessed as being of low archaeological potential.

Recommendations

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of Aboriginal cultural heritage
- The views and information provided by registered Aboriginal stakeholder groups

- The likely varying heritage sensitivities of different parts of the study area

It is recommended that:

- RAPs have requested that monitoring of the eventual excavation of roadways within Survey Unit 3 should be undertaken to identify any potential Aboriginal heritage that this excavation may reveal. This report treats only the heritage implications of rezoning, and cannot make such recommendations that relate to potential future development. However, it would be desirable that in the future the developer facilitates such monitoring in consultation with the RAPs who have requested that such monitoring take place.
- Unexpected finds of Aboriginal objects are protected by the National Parks and Wildlife Act 1974 (as amended 2011). It is an offence under the NPW Act 1974 to disturb or destroy an Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). If any such objects, or potential objects, are uncovered in the course of the proposed works, all activity in the vicinity should cease immediately. A qualified archaeologist must be contacted to assess the find and OEH and FLALC must be notified.
- If human remains, or suspected human remains, are found in the course of the proposed works, all work in the vicinity should cease immediately, the site should be secured and the NSW Police and OEH must be notified.
- There are no further Aboriginal heritage constraints on the proposed development. Works can proceed with caution.

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1.0 INTRODUCTION AND BACKGROUND

Gloucester River Run Pty Ltd proposes to rezone land at number 4571 The Bucketts Way, Gloucester, New South Wales (NSW), to low density residential and recreational land. At present, the proposal is restricted to rezoning and does not include development. The proposal is located in Lot 11/DP 193003 and Lot 12/DP 193003l (the study area) in the Mid-Coast Local Government Area (LGA). It measures approximately 22 hectares and is shown in client mapping below as the 'Development Area' (Figure 1).

The study area borders The Bucketts Way, Gloucester in the east and farmland on the floodplains of the Gloucester River in the west. It is located three kilometres (km) south west of the centre of the township of Gloucester, NSW.

Figure 1: Location of the study area shaded in black & indicated by arrow. Client supplied map

1.1 Background

Aboriginal heritage assessment of the proposal was previously carried out in 2000 by the Forster LALC (Yetica, 2000) which assessed the same extent of land as the current study area (Yetica, 2000: p 6). This assessment did not identify any Aboriginal objects within the study area. The assessment recommended that there should be investigation and monitoring of excavation within the top 500 millimetres (mm) of topsoil (Yetica, 2000: p 12).

This previous assessment took place prior to current codes of heritage practice. The Office of Environment and Heritage NSW (OEH) has advised that Yetica (2000) does not satisfy current requirements for Aboriginal cultural heritage assessments accompanying planning proposals (OEH NSW, 2016)

1.2 Scope and structure of this assessment

Artefact Heritage has been engaged by Gloucester River Run Pty Ltd to prepare an Aboriginal archaeological assessment which will comply with the following legislation and OEH guidelines as follows.

- *Code of practice for archaeological investigation of Aboriginal objects in New South Wales* (2010)
- *Aboriginal cultural heritage consultation requirements for proponents (2010).*

This assessment consists of the components described in the following sections.

1.2.1 Aboriginal community consultation

A list of Registered Aboriginal parties (RAPs) has been compiled (Appendix 1). The RAPs have been provided with information detailing project information and the proposed assessment methodology. The results of consultation are provided in summary in 2.0, and in greater detail in Appendices 1 to 4.

1.2.2 Review of background information

This section will provide information which will assist in evaluating the likely occupation and use of the study area by Aboriginal people in the past, and the likely preservation or destruction of any archaeological remains from prior land use activities since settlement. The background information section will address:

- The geographic and environmental setting of the study area
- Ethnographic and historical accounts of Aboriginal life in the study area and surrounds
- A search of the OEH Aboriginal Heritage Information Management System (AHIMS) to identify known Aboriginal sites within or in the surrounds of the study area.
- Information on historical uses of the study area including current evidence of previous ground disturbance
- Relevant archaeological reports from the region of the study area

1.2.3 Archaeological survey

Archaeological survey was undertaken in accordance with requirements 5-10 of the *Code of Practice* (2010). This survey was carried out on the 14 June 2017 by qualified heritage consultants together with representatives of the RAPs.

1.2.4 Significance assessment and impact assessment

The Aboriginal heritage significance of the study area will be assessed based on background research, on survey and on feedback received from the RAPs. The potential impact of the proposed development on the assessed levels of Aboriginal heritage significance will be assessed, and management recommendations will be developed accordingly.

1.3 Report authorship and acknowledgements

This report was written by Michael Lever (Senior Heritage Consultant), with input by Alyce Haast (Heritage Consultant) and Ryan Taddeucci (Heritage Consultant). Sandra Wallace (Managing Director) provided management input and Vanessa Edmonds (Principal Heritage Consultant) provided review.

1.4 Statutory requirements

1.4.1 National Parks and Wildlife Act (1974) (NPW Act)

The *National Parks and Wildlife Act 1974* (NPW Act) provides statutory protection to all Aboriginal places and objects. An Aboriginal place is declared by the Minister, under Section 84 of the Act, in recognition of its special significance with respect to Aboriginal culture. An Aboriginal object is defined as:

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

The protection provided to Aboriginal objects applies irrespective of the level of their significance or issues of land tenure. However, areas are only gazetted as Aboriginal Places if the Minister is satisfied that sufficient evidence exists to demonstrate that the location was and/or is of special significance to Aboriginal culture.

1.4.2 Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* is administered by the NSW Department of Human Services - Aboriginal Affairs. This Act established Aboriginal Land Councils (at State and Local levels). These bodies have a statutory obligation under the Act to; (a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and (b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area. The Act also provides for a Land Council to claim certain unused Crown Land within its boundary. The study area is held under freehold title and therefore cannot be subject to a claim under this Act.

1.4.3 Native Title (New South Wales) Act 1994

The *Native Title (New South Wales) Act 1994* was introduced to work in conjunction with the Commonwealth *Native Title Act 1993*. Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act. There are no Native Title claims currently registered in the study area.

2.0 CONSULTATION PROCESS

2.1 Documentation of consultation

Aboriginal stakeholder consultation has been conducted in accordance with the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (herein referred to as the Consultation Requirements). The consultation log is provided in Appendices A to C.

In accordance with step 4.1.2 of the Consultation Requirements, Artefact corresponded with the following organisations by letter on 9 January 2017 requesting the details of Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the local area:

- Hunter Local Land Services
- Gloucester Branch - Mid Coast Council
- NTS Corp
- Forster Local Aboriginal Land Council
- Office of Environment and Heritage - Hunter Region
- Office of the Registrar, Aboriginal Land Rights Act 1983

In addition to this, and in accordance with Step 4.1.3 of the consultation requirements, an advertisement was placed in a local newspaper, the Gloucester Advocate, on 11 January 2017 (Appendix A).

The advertisement invited all Aboriginal persons and organisations who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the subject land to register their interest.

In accordance with Step 4.1.3 of the consultation requirements, letters were sent to all Aboriginal persons or organisations identified through responses from agencies or advertisement. contacted as part of Step 4.1.2. and Step 4.1.3.

In accordance with Step 4.2 the letters provided details about the location and nature of the proposal, as well as an invitation to register as an Aboriginal Party. A total of 104 letters of invitation were issued.

Following the completion of steps 4.1.2 and 4.1.3, a total of 16 Aboriginal stakeholders registered as persons or organisations that may hold cultural knowledge relevant to determining the Aboriginal cultural values of the study area.

The registered Aboriginal stakeholders are listed in

Table 1 below in order of registration date.

Table 1: Registered Aboriginal Stakeholders

Person	Organisation
Mr Bob Syron	Self
Mr Mark Relf	Self
Amber Galvin	Gloucester Worimi First Peoples Aboriginal Corporation
Allen Paget	Ungooroo Aboriginal Corporation
Paulette Ryan	Hunter Traditional Owner
Wanaruah LALC	Wanaruah LALC
Mr Rob Yetica, Mr Jay Curry	Foster LALC
Jenny Lee	JLC Cultural Services
Richard Edwards	Wonnarua Elders Council
Les Atkinson	Jarban + Mugrebea
Steven Hickey	Widescope
Carolyn Hickey	A1
Amanda Hickey	Amanda Hickey Cultural Services
Mr Arthur Fletcher	Kauwul Wonn1
Kathie Kinchela	Yinarr Cultural Services
Auntie Norma Fisher	Self

The proponent advised that while they were willing to engage all RAPs on an unpaid basis in accordance with consultation guidelines, they were only able to provide payment for survey participation by two RAPs. The proponent further advised that these two paid parties would preferably be the Forster LALC, and Auntie Norma Fisher.

On 5 June 2017, invitations were extended to RAPs to attend a site survey or visit. Forster LALC and Auntie Norma Fisher were invited to participate in an on-site meeting and site survey on 14 June 2017, and invitations were extended to all other RAPs to participate in an unpaid onsite meeting and consultation on 15 June 2017. Mr Rob Yettica subsequently advised that due to events at the Forster LALC which prevented Forster LALC from providing RAPs at that time, his presence and that of his colleague should be noted as 'associated with the Forster LALC'.

An onsite meeting on the 14 June was held at the residence of the current tenant, Mr Brian Beesley who also represents the proponent. Attendants at this meeting are listed in Table 2. Artefact and Mr Beesley described the nature and extent of the proposed development. RAP concerns and comments on the development and the study area were discussed at length prior to and after the archaeological survey. All attendants at the meeting participated in a pedestrian survey of the study area as described in Section 4 below.

An onsite meeting was held on the 15 June 2017 with RAP representatives detailed in Table 3, along with Artefact and Mr Brian Beesley. Artefact and Mr Beesley described the nature and extent of the proposed development. RAP concerns and comments on the development and the study area were discussed at length.

Table 2: RAP attendees at on-site meetings

Name	Organisation	Date
Auntie Norma Fisher	Self	14 & 15 June 2017
Mr Rob Yetica	Associated with Forster LALC	14 June 2017
Mr Rob Paulsen	Associated with Forster LALC	14 June 2017
Mr Bob Johnson	Self	15 June 2017
Mr Arthur Fletcher	Kauwul Wonn1	15 June 2017

2.2 RAP comments at site survey and meeting

Detailed transcript of these meetings is presented in Appendix 4. There was consensus that the slopes of the study area (Survey Units 1 & 2 – see Section 4 for description of Survey Units) were of low archaeological potential. Two RAPS (Auntie Norma Fisher and Mr Bob Johnson) felt that Survey Unit 3 was also of low archaeological potential and that no further archaeological assessment was required for the development to proceed. Three RAPs (Mr Rob Yetica, Mr Rob Paulsen and Mr Arthur Fletcher) agreed that Survey Unit 3 was of low significance, but that as it was the highest point in the otherwise low-lying and flood prone study area, they would request that they be permitted to monitor the de-turfing and grading of soils in Survey Unit 3. It was explained and acknowledged that road formation was not part of the ambit of this report, which only examines subdivision. Nevertheless, it was requested by RAPs that their request for monitoring be documented here.

2.3 RAP review of report

A draft of this report was sent to all RAPs for review and comment. No written comments were received.

3.0 STUDY AREA CONTEXT

3.1 Aboriginal Heritage Information Management System

An extensive search of the AHIMS database was undertaken by Michael Lever (Artefact Heritage) on 11 April 2017. An area of 5 km x 5 km, centred on the study area, was searched in order to gain information on the archaeological context of the area, and to ascertain whether there are any previously recorded Aboriginal sites within the study area. The details of the AHIMS search parameters are as follows:

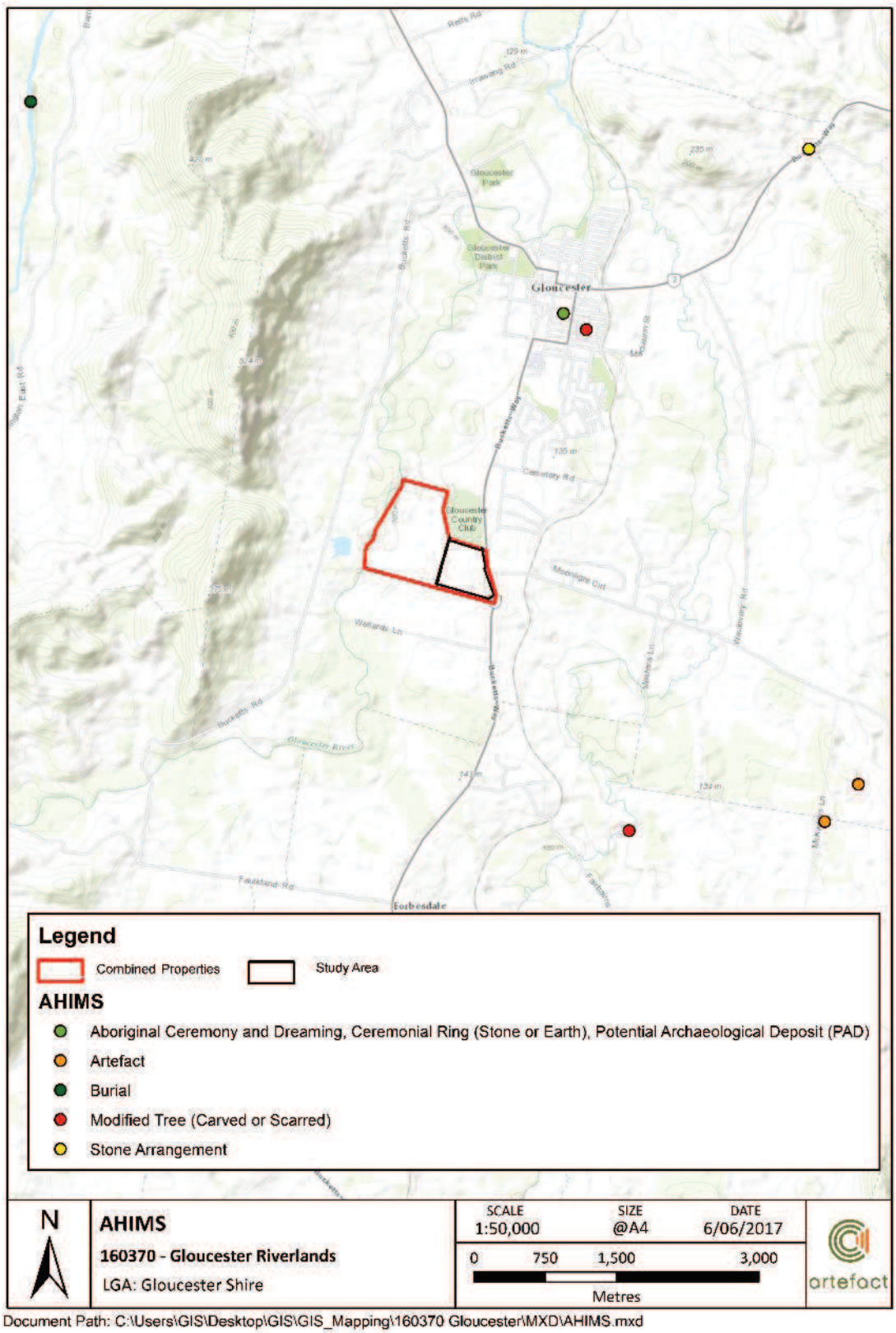
GDA 1994 MGA 56	32.0773 – 32.0053E 151.8949 – 152.0092N
Buffer	0 m
Number of sites	8
AHIMS Search ID	276206

A total of eight recorded sites have been identified within the search around the study area. These are listed in Table 3 and shown in Figure 2.

Table 3: AHIMS search results

Site ID	Site Name	Site Type	Long / Lat (GDA94)	Distance to Study Area
38-1-0028	Restricted			
38-1-0003	Gloucester	Modified Tree	151.9640E -32.0118N	2.3 km NE
30-4-0006	Barrington Burial Site; Barrington West	Burial	151.9023 -31.9896	4.5 km NE
30-4-0002	Gloucester Ridgeview	Stone Arrangement	151.9891 -31.9948	4.8 km NE
38-1-0049	LEA1	Modified Tree	151.9683 -32.0595	2.7 km SE
38-1-0073	Gloucester Corroboree Ground	Ceremony & Dreaming, Ceremonial Ring PAD	151.9615 -32.0103	2.3 km NE
38-1-0068	Gloucester RY 1	Artefact: 1	151.9939 -32.0553	4.2 km SE
38-1-0069	Gloucester RY 2	Artefact: 1	151.9901 -32.0588	4.1 km SE

Figure 2: AHIMS listed sites within five kilometres of the study area



Document Path: C:\Users\GIS\Desktop\GIS\GIS_Mapping\160370 Gloucester\MXD\AHIMS.mxd

3.2 Discussion of recorded Aboriginal sites

The number of sites for which details are available (n=7) is too small for a meaningful analysis that would likely produce insight to local Aboriginal life in the past.

One Restricted site is present in the search results (AHIMS 38-1-0028). OEH has been consulted regarding this site and have advised that it will not be impacted by activities in the study area (Gordon, D (email to R. Taddeucci- Artefact), 2017).

The study area and surrounds have been extensively cleared and the Gloucester township has developed to its north. The small number of recorded Aboriginal sites in the area likely reflects the small amount of archaeological investigation carried out there, and the impacts of de-vegetation on preservation and visibility of sites.

3.3 Geographical and environmental setting

Information presented in this section has been largely adapted from the Australian Government Bioregional Assessment Context statement for the Gloucester subregion (Australian Government, 2014).

The study area is located in the Gloucester subregion. The Gloucester subregion is part of the Northern Sydney Basin bioregion which is located north-west of Sydney. It adjoins the Northern Inland Catchments bioregion in the north east and the Southern Sydney Basin bioregion in the South. It covers an area of about 17,390 km. The Gloucester subregion extends 55 km north–south (at its longest) and 15 km east–west (at its widest). The Gloucester subregion is defined by the geological Gloucester Basin also referred to as the Stroud-Gloucester Syncline, which contains the study area of this report. It is a tectonically formed broad valley located in the north of the Hunter Valley in NSW.

The Gloucester River is a major permanent waterway which flows northwards along the western valley floor of the Basin, discharging into the Manning River to the north. The Gloucester River runs 800 metres (m) west of the study area. The Avon River is a lesser permanent waterway that also flows northwards, along the eastern valley floor of the Basin. The Avon River is located at nearest 1.1 km east of the study area.

The three main geological features of the Gloucester Basin are

- Qa – Quaternary (2.5 million years ago to present) river-deposited sediments of gravel, sand, silt and clay.
- Cua - Alum Mountain Volcanics. These are mid-Permian (270-280 million years ago) Flows of olivine basalt and rhyolite with pebble conglomerate, sandstone, mudstone, tuff, breccia and coal seams at the base.
- Pc – Craven Coal Measures. These are a conglomerate of sandstone, mudstone, shale and coal.

Elevation in the Gloucester subregion ranges from 10 m to 515 m above sea level. Local landform is mostly undulating with relative low slopes. Some steep slopes are found at the edge of the subregion in bordering mountain ranges. Tectonic uplift has resulted in the sharply contoured Gloucester Bucketts Range which is located one km west of the study area, across the Gloucester River.

Pre-European vegetation was dominated by eucalypt forest and current vegetation cover is mainly persistent vegetation, associated with the border forests and grazing (the primary current land use). Climate in the Gloucester Basin currently varies between Temperate and Sub-Tropical. Rainfall has historically been plentiful at 916 mm per annum to 1314 mm per annum (BOM, 2017).

The surrounds of the study area would therefore have likely contained a richly varied source of resources for Aboriginal people in the past. The varied landforms in the immediate proximity of the study area include at least three geo-ecological zones: the rocky outcrops of the steep slopes of the Bucketts Range, the fertile floodplains and riverine surrounds of the Gloucester River and the open woodlands of the surrounding lower slopes.

Each of these geological and botanically distinct areas would have in themselves supported a wide and at-times distinct range of flora and fauna. Species variety and abundance increases markedly at locations of more than two intersecting ecological areas (Butzer, 1982). Where at least three ecological areas intersect, as in the surrounds of the study area, it could be expected that species variety and abundance would be high. Similarly, availability of stone material for manufacture of stone tools would be heightened through the availability of raw material from river cobbles and from suitable material included in local volcanic rocky outcrops.

The study area is almost equidistant (approximately 800 m to 1100 m) between the Gloucester River and the Avon River. These are currently major freshwater resources, and likely have also been significant watercourses over many thousands of years. The proximal and year-round availability of water in the surrounds of the study area likely affected the ways in which Aboriginal people in the past utilised the region. In drier areas, Aboriginal camping, travel and hunting would often have been constrained to areas from which water could be reached. The wider surrounds of the study area however could likely have been more widely and intensively utilised by Aboriginal people given the security of nearby water resources.

3.4 Aboriginal ethnohistorical and historical Context

The scientific record provides evidence for Aboriginal people's presence in NSW dating back over 40,000 years (Attenbrow, 2010, p. 18). In this time, Aboriginal people developed life-ways that were highly attuned to the land and which managed land and resources in an efficient manner (Gammage, 2011; Pascoe, 2014).

The Gloucester region would have provided Aboriginal people in the past with a richly varied set of landforms with abundant water supply. This region was an ecological zone of abundant stone suitable for artefact manufacture, plant and animal resources.

The identity of traditional Aboriginal groupings in the wider region of the proposal area is poorly documented by early European observers. Howitt (1904, p. 85) does not list a name for these observed people but mentions in passing that tribes to the south around Dungog intermarried with tribes of the Gloucester River. More recent works give the general area as belonging to the Biripi, Worimi, Geawegal and Wonaruah people (National Parks & Wildlife Service NSW, 2010). Perhaps the most extensive, and likely the most pertinent depiction of Aboriginal traditional life in the Gloucester – Stroud region is contained within the report provided by the local Minimbah & Districts Elders Group Inc to Duralie Coal Pty Ltd (Minimbah & Districts Elders Group, 2009). Their report is contained as Attachment A of Duralie Coal (2009), and is reproduced verbatim below.

3.4.1 Minimbah & District Elders - Aboriginal People in the Stroud-Gloucester Region

There are many Aboriginal people within the Stroud - Gloucester region. Most are direct descendants of the region's traditional tribal groups. The two main tribal groups are the Gringai (whose tribal boundaries stretch from the southern sides of the Gloucester - Barrington Tops, east to Stroud) and the Worimi whose country adjoined the Gringai at Baral and (many say) continued all the way South to Tocal. Most local Aboriginal descendants still observe their cultural connections with both the lands and waters of the before mentioned regions. The Elders of both tribal groups are generally referred to as knowledge-holders. Before any knowledge is passed down to the young respect has to be gained.

The Gringai and Worimi enjoyed a healthy and abundant lifestyle before non-Aboriginal exploration and settlement disrupted their way of life. Up to 500 members existed within each tribal nation before non-Aboriginal contact was made. The shell middens around the regions lakes suggest that food from the lake and sea was abundant, as well as wallabies, kangaroos, echidnas, waterfowl and fruit bats. Fire was an important feature of life, both for campsites and the periodic 'burning ' of the land.

Land was fenced and cleared to make way for intensive agricultural practices. During the years 1830-1840, the first white settlers arrived overland from Gloucester with bullock teams en-route to the Manning valley.

This would indicate that settlers were arriving in the study area before and during the 1830's. Aboriginal people who occupied lands deemed for farming or forestry were herded to places they could be 'controlled'. Some of these places still exist today and are often referred to as 'missions'. Each tribe has significant areas and things that are still very important to continuing customary lore. "The Three Brothers Mountains are a very significant spiritual place for the Biripi people. Within the regional context of the study area, Gloucester is well known for it's traditional cultural significance. In the years 1918-1924, early settlers observed and recorded significant places that they had been told, were especially important to the local Aboriginal population living in the Gloucester area at the time. The current site of the Gloucester Primary School is important, in that it once was a ceremony- bora or "Bumbaf' place. This is supported by anthropological records that record 8 "dendroglyphs / teleteglyphs" or marked trees surrounding the "Bumbei" at Gloucester.

Recognition as an Aboriginal place sends a strong message to the whole community about their past and ongoing Aboriginal significance," Greg Croft NPWS 2003.

Another area is Saltwater, south of Wallabi Point. Dark Point south of Seal Rocks is an important cultural place of the Worimi people. Both tribes have similar cultural associations with the Great Dividing Range, notably the Barrington-Gloucester-Nowendoc mountain regions. Each significant place has a dance, song or story about it.

Scientific evidence indicates the Biripi and Worimi tribal groups occupying the coast and ranges up to the last ice age around 7,000yrs BP.

- *An Aboriginal shell midden near Bohnock has been C-14 Carbon dated to 6,400yrs BP.*
- *Another shell midden near Green Point has been C-14 carbon dated at 4,450yrs BP.*

Many books and historical documents contain details of Aboriginal people around the turn of the 18th century. This information supports Aboriginal descendants' knowledge and use of the

Gloucester-Manning- Great Lakes regions.

At the time of first European settlement the Gloucester - Stroud district was inhabited by the Kattang speaking peoples of the Gringai and Worimi tribes (Enright, 1932; Holmer, 1966; Gilbert, 1954)

These tribes were divided into a number of local groups, each with a degree of autonomous identity and rights associated with a specific geographical estate. The size, composition and distribution of individual extended family bands within the estate of the larger local group varied in response to social and economic circumstances (Dawson, 1935).

Available ethnographic information suggests that a seasonal pattern of movement and resource exploitation was followed (Ramsland, 2001; Brayshaw, 1987; Byrne & Nugent, 2004) *but this may not necessarily have been the case prior to European contact.*
Even though coastal hinterland groups had economic, social and ceremonial links spanning wide areas (including the study area), life on the ranges and coastal plains seem to have been fairly settled, prompting Cunningham (1827) *to write of the 'better order of things' obtaining amongst Aboriginal people at Port Stephens and to the north. He describes their 'comfortable' huts of tea-tree bark that were capable of holding several persons.*

3.4.2 Colonial depictions and histories of local Aboriginal people

A small number of early historical mentions of the 'Gloucester tribes' can be gleaned, generally from brief mentions in historical texts that deal with neighbouring Aboriginal groups. These include collated histories of Wonnarua and Worimi Aboriginal groups near the Williams River, 60 Km south of the study area (Williams, 2017), and accounts of the Worimi People of the Great Lakes region 50 km to the south east whose territory is stated by some to have extended inland past Gloucester (Wonnarua, 2017).

Colonial occupation of the region began in the early 1800s and Aboriginal people in the region were recorded as subject to persecution and massacres (Williams 2017). This included a massacre of Aboriginal people near the Gloucester River. The details of this event are recorded, however local Aboriginal groups have requested that such details, and the location of the event not be publicised (National Parks & Wildlife Service NSW, 2010).

Dr McKinlay was a physician and a frequent traveller through the region from at least the 1830's (Bennett, 1930). McKinlay undertook a census of Aboriginal people in the Dungog area in 1845. This identified that Aboriginal local population had fallen by half within ten years (Williams, 2017). Such a decline in population may well have also occurred among the Aboriginal inhabitants of the study area which is 40 Km north of Dungog.

Nevertheless, despite this decline in population and dispersal from traditional homelands, some degree of cohesive Aboriginal life seems to have continued in the Gloucester region after 1845. Newspaper accounts depict 'the Dungog and Gloucester tribes' joining to attack the 'Stroud and Booral tribes' in 1844 and 1846. In 1848, a public meeting protested the removal of troops who had been posted to protect residents against attacks by Aboriginal people from Dungog, Gloucester, and the Manning regions (William 2017). With the passing of time, coexistence seems to have become more peaceful. In 1883, 50 acres of church and school land near Gloucester were being used by some 60 Aboriginal people for residence and subsistence (Williams 2017). In the early 20th century such reserves were closed with a resulting movement of Aboriginal people to nearby townships.

3.5 Historical background

The Gloucester Basin was settled by pastoralists from the early 19th century. It has continued as primarily a dairy, grazing, timber getting and small-scale agricultural zone to the present. More intensive built development has taken place in relatively small and dispersed townships such as Gloucester.

The effects of land clearance and de-vegetation would have largely destroyed signs of the Aboriginal past such as carved and modified trees, and habitation structures. The introduction of exotic pastoral grasses has seen a high level of ground surface cover which would obscure identification of Aboriginal stone artefact sites. The effects of cattle trampling on soils would have further disturbed the archaeological integrity of stone artefact sites.

Through this period of pastoralism, the flood-prone river-side locations have characteristically been better preserved in their natural state than areas more intensively used for agriculture. The image below is dated 1908 (Figure 3). It shows cattle watering at the Gloucester River. Remnant native grasses can be seen interspersed with exotic pasture along the river banks, and mature eucalypts are visible preserved along the river banks, and further back from the immediate banks of the Gloucester River.

Figure 3: Cattle at the Gloucester River, 11 May 1908 (NSW State Archives)

While grazing has been a primary focus of industry in the region, agriculture has played a secondary role, often as a short-lived activity in combination with pastoral activity. The image below (Figure 4) shows cattle grazing along the Gloucester River banks, fenced off from what appears to be a crop of maize on the wider river flats.

Figure 4: Cattle and crops along the Gloucester River, 11 May 1908 (NSW State Archives)

Characteristic historical impacts to land in the study area are therefore likely to have included de-vegetation and removal of trees, ploughing for planting pasture, ploughing for farming of crops and the impacts of cattle trampling.

3.6 Previous Aboriginal archaeological investigations

Few archaeological reports are available for the immediate surrounds of the study area. No reports were listed associated with the AHIMS database search. A search for recent reports associated with local coal industry resulted in the identification of four previous reports undertaken in the Gloucester Basin. One report from prior to 2010 (Kayandel, 2009) is included here, as its results are heavily drawn upon by subsequent works (Duralie Coal, 2009; Appleton, Ammended Rocky Hill Coal Project, 2016a; Appleton, Part 11B: Aboriginal Cultural Heritage Assessment - Private Haul Road, 2016b).

Kayandel (2009) carried out an Aboriginal Cultural Heritage Assessment for an extension to the Duralie Coal Mine, located 25 km south of the study area at Bucketts Way. Most of the study area treated by Kayandel (2009) was of similarly sloping landform to lands in the study area at Bucketts Way.

Kayandel (2009) noted that predictions of archaeological sensitivity in the Gloucester Basin were limited by the small amount of archaeological testing and survey that had been undertaken there. Previous local reports had consisted of survey only, and Kayandel (2009) did not list any previous archaeological subsurface testing in the region. Nevertheless, based on broad archaeological modelling, Kayandel (2009) proposed that heightened archaeological potential would be associated with proximity to permanent waterways, and lower archaeological potential would be associated with proximity to ephemeral waterways. Consultation with Aboriginal Stakeholders resulted in notification that Mammy Johnsons River and Mammy Johnsons' Grave were considered culturally significant sites, as were two cultural / ritual sites associated with Mammy Johnsons River. These four cultural items were the primary focus of consultation correspondence from Aboriginal stakeholders.

Kayandel (2009) also undertook systematic and opportunistic survey with representation by RAPs. Ground visibility conditions were not recorded. This survey resulted in the location of nine Aboriginal sites, being three isolated stone artefacts, four scarred (bark extraction) Yellow Box trees, one Ironbark Honey Tree and one scatter of three stone artefacts. As a result of informal survey, an additional four Aboriginal heritage sites were located within approximately one km of the study area. These comprised an isolated artefact, one artefact scatter of nine items, one extensive artefact scatter of at least 25 items, and one historical Aboriginal burial site (Mammy Johnson's Grave). Lithic materials are not always provided in Kayandel (2009), but where they are, a variety of materials are present. These include basalt (n=1), quartzite (n=2), 'river cobble' (n=2), red silcrete (n=2) and jasper (n=2). Kayandel (2009) does not provide detailed measurements of distances between sites and waterways, however mention is made that all of the lithic artefact sites were on flatter terrain near drainage lines or the Mammy Johnsons River, and apparently not on sloping terrain as is predominant in the study area.

Syme, Hubschmann, & Dunk (2012) carried out an Aboriginal cultural heritage assessment for the Stratford Extension Project, located eight kilometres south of the study area. A sample survey was undertaken of their study area which comprised 400 ha. High levels of vegetation cover restricted soil visibility to areas of exposure associated with vehicle tracks and erosion. Survey identified fifteen previously unrecorded Aboriginal sites. These were four open scatters, four isolated artefacts, four scarred trees, two areas of Potential Archaeological Deposit (PAD), and one potential cultural site. Identified lithic materials included basalt, quartz and mudstone. A series of rockpools in basalt was identified by Aboriginal participants as a potential women's site, however no supporting documentation could be located to substantiate this. The authors concluded based on the nature of these sites that the likely site types to be found within their study area were small density artefact scatters and isolated artefacts. Scars or carvings on trees older than 100 to 150 years could be present in the area, particularly on wooded slopes. None of the sites identified by Syme, Hubschmann and Dunk (2010) were listed as streams or watercourses.

Duralie Coal (2014)**.** The Duralie Coal Mine is located approximately 27 km south of the study area, and is situated near the locality of Weismantel in the south of the Gloucester Basin. Proposed modifications to the Duralie Open included increasing the surface extent of existing mine pits to a total area of 2.5 ha. This report (Duralie Coal 2014) largely relied on the findings of Kayandel (2009). Previous reporting including Kayandel (2009) had identified Aboriginal sites, however none of these were within their 2.5 ha study area. Intermittent monitoring by Aboriginal stakeholders of works in the mine surrounds had also not identified any sites in the study area. This was concluded as evidence of the low archaeological potential of the study area. No added survey or investigative measures were advocated, and the proposed works were permitted under existing Duralie Coal Mine Aboriginal heritage management measures for the identification of unexpected finds.

Appleton (2016a) examined proposed changes to the area of the Rocky Hill Coal Project. This is located approximately two km south east of the study area of this report at Bucketts Way. The Rocky Hill Coal Project location had been previously surveyed by Appleton in 2010, however changes to the legislative framework required that new investigations be undertaken. Appleton (2010) noted that few archaeological sites had been previously recorded in the vicinity of the mine (n=10). He proposed this was due to a combination of factors including lack of raw material, ground cover associated with pasture, and preferential deposition of artefacts near waterways, where vegetation is thick. Appleton (2016) stated he had undertaken a total systematic survey of the study area which measured 573 ha. Survey was undertaken by six people over four days.

After adjustment for soil surface visibility and exposure, survey cover comprised an effective 432 m^2. The report identified six new Aboriginal sites and relocated 10 previously identified sites. It is difficult to accurately ascertain details of these sites from the report. Nevertheless, it can be concluded that only a small number of sites have been located in the large area (573 ha) that Appleton (2010; 2016 had examined.

Appleton (2016b) carried out reporting in association with the proposed development of a coal mine situated at closest two km south east from the study area at Bucketts Way. The development of this coal mine required construction of an internal haul road approximately five km long and with a corridor of 50 m width. The total area of disturbance associated with this roadway construction was estimated at 13.8 ha.

Pedestrian survey of the proposed road alignment, involving one Aboriginal RAP identified two isolated artefacts. Subsequent stakeholder consultation led to resurvey of the proposed alignment by ten Aboriginal stakeholders. This identified one additional isolated artefact. All three of the identified isolated artefacts were located on localised areas of ground exposure. Two artefacts were identified in mown areas containing exposed soils, and one artefact was located in a cattle path.

Thick vegetation at the time of survey resulted in very low levels of surface visibility. Vegetation was so dense that five of the ten Aboriginal stakeholders discontinued survey due to difficulty in walking through this vegetation. In response to this low surface visibility, Aboriginal stakeholders requested the area be subject to archaeological testing. This request was refused by Appleton and the mine developer, and measures were put in place to allow stakeholders partial monitoring of turf removal. The assessment by Appleton (2016b) of the archaeological potential in the proposed road corridor as low appears less than optimal. Due to thick vegetation, the study area was not subject to effective survey, nor was sub-surface testing utilised to assess potential for archaeological deposits.

3.7 Conclusions

There is little information available on the archaeological potential of the Gloucester Basin in general and the study area at Bucketts Way in particular. The reports summarised above have wholly consisted of surface surveys, often only of sample portions of large areas and in conditions of very low or effectively zero ground visibility. Where artefact and site details are clearly documented in the reports above, they combine to the following totals, which are combined with sites identified during the AHIMS search undertaken for this report:

Table 4: Site types and frequencies recorded in studies summarised above and AHIMS search

	Isolated artefacts	Artefact scatters	Scarred trees	Honey tree	PAD	Burials	Cultural Places	Total
Surveys #	11	7	8	1	2	1	3	33
% of total	33	21	24	3	6	3	12	100%
AHIMS #	2	-	2	-	-	1	2	7
% of total AHIMS	28		28			14	28	100%

3.8 Predictions

The small numbers of sites recorded in Table 4 are too few to permit meaningful statistical analysis, particularly given the large area in which they were recorded. Their identification is likely more due to opportunistic factors such as ground exposure for artefacts, or preservation and visibility for culturally modified trees, than it is likely to be a reflection of archaeological deposition and Aboriginal land use patterns in the past. Nevertheless, some indications of site types likely to be present at Bucketts Way can be approximated from these figures. Isolated artefacts, artefact scatters and scarred trees are the site types most likely to be encountered during survey. Burials and cultural places may be present but are unlikely to be detected during survey. Identification of cultural places and possibly burials is largely dependent on consultation with and information from RAPs.

3.8.1 General Predictive Statements

The OEH *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South* Wales (*Due Diligence* 2010) provides definitions of 'areas where landscape features indicate the presence of Aboriginal objects' (OEH 2010, p.12), and which should be subject to particular attention. These are areas on undisturbed land:

- Within 200 m of waters, or
- Located within a sand dune system, or
- Located on a ridge top, ridge line or headland
- Located within 200 m below or above a cliff face, or
- Within 20 m of or in a cave, rock shelter, or a cave mouth

The study area at Bucketts Way is not within 200 m of the current course of Gloucester River. No other mapped constraints occur or are likely to occur within the study area. The study area does not contain marked rises or ridges. It is not within 200 m of cliff faces, caves or dunes.

The study area is therefore not likely to be of elevated archaeological potential.

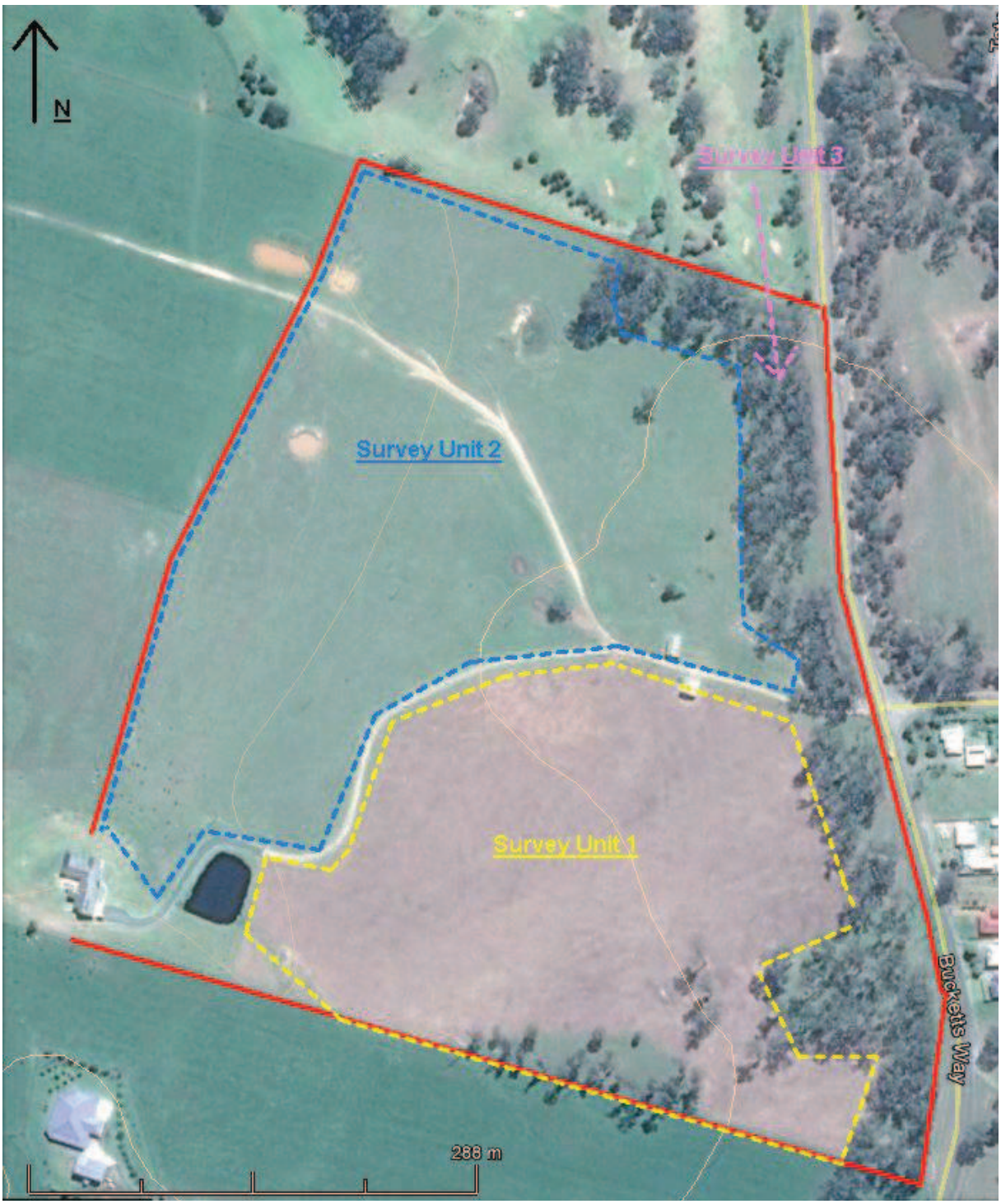
4.0 SITE SURVEY

4.1 Survey methodology

The principal objective of the survey was to identify and record any material traces and evidence of Aboriginal land use. This is carried out by examining areas which demonstrate reasonable ground surface visibility, and visible landform features such as any rocky outcrops and native vegetation stands. Landform configuration was also noted in order to assess the likelihood of a given area to contain archaeological deposits.

- Step 1 – involved a search of the AHIMS register to review and obtain information on Aboriginal sites situated within the study area. The GPS co-ordinates of each site were uploaded to a hand-held GPS and mapped on corresponding aerials to enable the participants to locate the sites on the ground. No recorded Aboriginal sites were located within the study area.
- Step 2 – involved analysis of aerials and topographic maps in order to identify areas of reasonable ground surface exposure (i.e. unsealed road and tracks, ploughed land, areas surrounding dams and cuttings). From this analysis, three Survey Units were identified based on visible differences in landform and botany. These are shown on Figure 5:
  - Survey Unit 1: Is recently ploughed and planted field sloping gently upwards to the east. Survey Unit 1 is approximately eight ha in size.
  - Survey Unit 2: Is pasture / grassed land also sloping gently upwards to east. Survey Unit 2 is approximately 11 ha in size.
  - Survey Unit 3: Is a wooded low plateau running along the Bucketts Way frontage of the property. Survey Unit 3 is approximately three ha in size.
- Step 3 – involved pedestrian survey conducted on foot. This was carried out by the six participants. These were Mr Rob Yetica and Mr Rob Paulsen associated with the Forster LALC, Auntie Norma Fisher, Mr Brian Beesely (land holder), and Michael Lever & Ryan Taddeucci (Artefact Heritage).
  - In Survey Unit 1, participants were spaced approximately 10 m apart and undertook transects from west to east and return.
  - In Survey Unit 2, participants were spaced approximately 10 m apart and targeted areas of soil exposure.
  - In Survey Unit 3, participants were spaced approximately five m apart and walked from south east to north west inspecting soil exposures & mature trees.

Figure 5: Survey Units 1- 3 within the study area



5.0 SURVEY RESULTS

5.1 Survey Unit 1

Survey Unit 1 was a recently ploughed and planted field which sloped gradually downwards from the east towards the west and the Gloucester River (Figure 6). Soil surface visibility was very high, at approximately 90 per cent. Soils were heavy silty clays and were almost wholly free of natural lithic inclusions. Some fragmented brick and ceramics were identified. It is understood that these resulted from demolition of previous farm structures. No Aboriginal artefacts, scarred trees or other Aboriginal cultural materials were identified in Survey Unit 1.

Figure 6: Survey Unit 1 seen from the north east, view to south west.

Figure 7: Soil visibility in Survey Unit 1

Table 5: Survey Unit 1 Findings

Survey Unit 1 Landform	Survey Unit Area (sq m)	Visibility (%)	Exposure (%)	Effective Coverage Area (sq m)	Effective Coverage (%)	Artefacts	Scarred Trees
Slope	80,000	90	90	64,800	81	0	0

5.2 Survey Unit 2

Survey Unit 2 is of the same landform as Survey Unit 1. On inspection, Survey Unit 2 was thickly grassed and ground surface visibility was effectively nil (Figure 8). Opportunistic survey was carried out in Survey Unit 2, targeting localised areas of soil exposure such as dirt road and eroded dam walls (Figure 9). Soils were heavy silty clays and were almost wholly free of natural lithic inclusions. Some fragmented brick and ceramics were identified. No Aboriginal artefacts, scarred trees or other Aboriginal cultural materials were identified in Survey Unit 2.

Figure 8: Survey Unit 2 looking north east, showing thick grass cover. Mr Rob Yetica in foreground.

Figure 9: Eroded dam wall in Survey Unit 2 showing soil exposure. View north east.

Table 6: Survey Unit 2 Findings

Survey Unit 1 Landform	Survey Unit Area (sq m)	Visibility (%)	Exposure (%)	Effective Coverage Area (sq m)	Effective Coverage (%)	Artefacts	Scarred Trees
Slope	110,000	2	2	44	.04	0	0

5.3 Survey Unit 3

Survey Unit 3 is a localised low plateau that runs along the eastern boundary of the study area. On inspection, Survey Unit 3 was lightly wooded, thickly grassed and ground surface visibility was very low. Opportunistic survey was carried out in Survey Unit 3, targeting localised areas of soil exposure, such as roadway, vehicle tracks and natural exposures. Trees in Survey Unit 3 do not appear sufficiently old to have been culturally scarred. These are predominantly juvenile to young Spotted Gum (*Corymbia maculata*) and Grey Box (*Eucalyptus macrocarpa*). Nevertheless, all mature trees were inspected for the presence of cultural scarring. No Aboriginal artefacts, scarred trees or other Aboriginal cultural materials were identified in Survey Unit 3.

Figure 10: Survey Unit 3, looking westwards from Bucketts Way

Table 7: Survey Unit 3 Findings

Survey Unit 1 Landform	Survey Unit Area (sq m)	Visibility (%)	Exposure (%)	Effective Coverage Area (sq m)	Effective Coverage (%)	Artefacts	Scarred Trees
Low plateau	30,000	2	2	12	.04	0	0

5.4 Conclusions from archaeological survey

No Aboriginal artefacts or areas of archaeological sensitivity were detected during the survey.

The study area is chiefly comprised of moderate slopes at a minimum distance of 750 m from the Gloucester River.

6.0 Significance Assessment

6.1 Findings

No items of Aboriginal archaeological significance were identified during survey.

The study area is considered to be of low archaeological significance.

Three RAPs have requested that monitoring be undertaken of the de-turfing and excavation of roads passing through the plateau in Study Unit 3. Road formation is not part of the current proposal. The recommendation for monitoring of road formation has been noted as stated by RAPs and is considered a reasonable proposition that the developer would be advised to engage. However, it does not constitute a formal recommendation for the current stage of works.

7.0 RECOMMENDATIONS

The following recommendations are based on consideration of:

- Legislative, policy and procedural requirements for the assessment of Aboriginal cultural heritage
- The views and information provided by registered Aboriginal stakeholder groups
- The likely varying heritage sensitivities of different parts of the study area

It is recommended that:

- RAPs have requested that monitoring of the eventual excavation of roadways within Survey Unit 3 should be undertaken to identify any potential Aboriginal heritage that this excavation may reveal. This report treats only the heritage implications of rezoning, and cannot make such recommendations that relate to potential future development. However, it would be desirable that in the future, the developer facilitates such monitoring in consultation with the RAPs who have requested that monitoring take place.
- Unexpected Aboriginal objects are protected by the National Parks and Wildlife Act 1974 (as amended 2011). It is an offence under the NPW Act 1974 to disturb or destroy an Aboriginal object without an Aboriginal Heritage Impact Permit (AHIP). If any such objects, or potential objects, are uncovered in the course of the proposed works, all activity in the vicinity should cease immediately. A qualified archaeologist must be contacted to assess the find and OEH and Forster LALC must be notified.
- If human remains, or suspected human remains, are found in the course of the proposed works, all work in the vicinity should cease immediately, the site must be secured and the NSW Police and OEH must be notified.
- There are no further Aboriginal heritage constraints on the proposed development. Works can proceed with caution.

8.0 REFERENCES

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9.0 APPENDICES

APPENDIX 1 – CONSULTATION LIST OF ABORIGINAL PERSONS & ORGANISATIONS CONTACTED

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Kawul Cultural Services	Vicky	Slater	33 Gardner Circuit	SINGLETON NSW 2330	0434 210 190	Vicki.slater@hotmail.com
Warrigal Cultural Services	Aaron	Slater	PO Box 1095	SINGLETON NSW 2330	6543 1288	Warragil_c.s@hotmail.com
Wurrumay Consultants	Kerrie	Slater	PO Box 817	SINGLETON NSW 2330		wurrumay@hotmail.com
	Ron	Smith	Flat 8/ 6 Hastings River Drive	PORT MACQUARIE NSW 2444	0419 676 580	scottosmith@live.com.au
	Scott	Smith	Unit 4 122 Upper Street	TAMWORTH NSW 2340	0403 139 411	
Murrawan Cultural Consultants Pty Ltd	Robert	Smith	33 Clift Street	HEDDON GRETA NSW 2321	6742 5563	murrawancc@gmail.com
Smith Dhagaans Cultural Group	Tim	Smith	46 Springvale Cct	CAMERON PARK NSW 2285	0403 139 411	Smith.Dhagaans@hotmail.com
Giwiirr Consultants	Michele	Stair	8 Fitzgerald Avenue	MUSWELLBROOK NSW 2333	0411 196 991	
Yinarr Cultural Services	Kathleen	Steward	111 Westwood Road	GUNGAL NSW 2333	0404 171 544	Yinarculturalservices@bigpond.com
	Stephen	Talbot	28a Kiah Road	Gillieston Heights NSW 2321	49552136	gomeroi.namoi@outlook.com

Group	First name	Last Name	Address	Address	Phone	Email
	Esther	Tighe	1/86 Edward Street	GUNNEDAH NSW 2380	0412 369 661	
	Lorraine	Towney	32 Dewhurst Street	QUIRINDI NSW 2343	0412 693 952	
D F T V Enterprises	Derrick	Vale Snr	5 Mountbatten Close	RUTHERFORD NSW 2320		deckavale@hotmail.com
Valley Culture	Larry	Van Vliet	140 Sydney Street	MUSWELLBROOK NSW 2333		
Ungooroo Cultural & Community Services	Rhonda	Ward	8 Blaxland Avenue	SINGLETON NSW 2330	6571 5111	Ungooroo59@hotmail.com
Wallagan Cultural Services	Maree	Waugh	PO Box 40	CESSNOCK NSW 2325	0439 653 928	
Black Creek Aboriginal Corporation	Tracey	White	PO Box 168	KURRI KURRI NSW 2327	0401 151 124 or 0434 642 004	blackcreek@idl.net.au
Mayaroo Inc	Tracey	White	PO Box 168	Kurri Kurri NSW 2327		mayaroo@bigpond.com; rara@bigpond.com
Ngarramang-Kuri Aboriginal Culture & Heritage Group	Abie	Wright	21 Bancroft Street	GLENDALE NSW 2285	0423 044 586	abie@yarnteen.com.au

APPENDIX 2 – REGISTERED ABORIGINAL PARTIES (RAPS)

Group	First name	Last Name	Address	Address	Phone	Comments
Wanaruah LALC						Does not wish to be involved in fieldwork but wishes to be kept informed.
Jarban + Mugrebea	Les	Atkinson				
JLC Cultural Services	Jenny Lee	Chambers	39 Goulburn Dr	Sandy Hollow NSW 2333.	0432 087 829	
Foster LALC	Jay	Curry				
Wonnarua Elders Council	Richard	Edwards	PO Box 844	Cessnock NSW 2325		Does not wish to be involved in fieldwork but wishes to be kept informed.
Auntie Norma Fisher	Norma	Fisher	6 Wattle Close	Gloucester 2422	65581983	
Kauwul Wonn1	Arthur	Fletcher	619 Main Road	Glendale, 2285	402146193	
Gloucester Worimi First Peoples Aboriginal Corporation	Amber	Galvin				
Widescope	Steven	Hickey			425230693	
A1	Carolyn	Hickey				
Amanda Hickey Cultural Services	Amanda	Hickey				
Yinarr Cultural Services	Kathie	Kinchela				
Ungooroo Aboriginal Corporation	Allen	Paget	PO Box 3095	SINGLETON NSW 2330	65 71 5111	
	Mark	Relf				

Group	First name	Last Name	Address	Address	Phone	Comments
Hunter Traditional Owner	Paulette	Ryan	14 Barton Avenue	SINGLETON HEIGHTS	0432 672 273	6574 4906
	Bob	Syron				
Foster LALC	Rob	Yetica	10 Breckenridge St	Forster NSW 2428	65555411	o457336884

APPENDIX 3 – CORRESPONDENCE LOG

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
	Hunter Local Land Services	Alyce Haast/ Artefact Heritage	Letter	9.1.17	
	Gloucester Branch - Mid Coast Council	Alyce Haast/ Artefact Heritage	Email	9.1.17	
George Tonna	NTS Corp	Alyce Haast/ Artefact Heritage	Email	9.1.17	
	Forster Local Aboriginal Land Council	Alyce Haast/ Artefact Heritage	Letter	9.1.17	
Peter Saad	Office of Environment and Heritage - Hunter Region	Alyce Haast/ Artefact Heritage	Letter	9.1.17	
	Office of the Registrar, *Aboriginal Land Rights Act 1983*	Alyce Haast/ Artefact Heritage		9.1.17	
	Gloucester Advocate	Alyce Haast/ Artefact Heritage	Advert	11.1.17	
Peter Saad	Office of Environment and Heritage - Hunter Region	Alyce Haast/ Artefact Heritage	Email	18.1.17	Provided list of potential stakeholders
Aaron Kelly	Gloucester Branch - Mid Coast Council	Alyce Haast/ Artefact Heritage	Phone	18.1.17	Recommended contacting the Foster and Tatee LALC
Jay Curry	Forster Local Aboriginal Land Council	Alyce Haast/ Artefact Heritage	Phone	24.1.17	Called in response to 4.1.2, Said that he will speak to the cultural officers of the LALC regarding best groups to contact. Registered the LALC's interest in the project.
Bob Syron		Alyce Haast/ Artefact Heritage	Email	24.1.17	Invitation to register
Mark Relf		Alyce Haast/ Artefact Heritage	Email	24.1.17	Invitation to register
Amber Galvin	Gloucester Worimi First Peoples Aboriginal Corporation	Alyce Haast/ Artefact Heritage	Email	24.1.17	Invitation to register
Allen Paget	Ungooroo Aboriginal Corporation	Alyce Haast/ Artefact Heritage	Email	24.1.17	Invitation to register

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Aliera French	Aliera French Trading	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Alison Sampson		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Tracey White	Black Creek Aboriginal Corporation	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Donna & George Sampson	Cacatua Culture Consultants	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Derrick Vale Snr	D F T V Enterprises	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Deidre Perkins	Devine Diggers Aboriginal Cultural Consultants	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Debbie Dacey-Sullivan	Gidawaa Walang & Barkuma Neighbourhood Centre Inc.	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Kerren Boyd	HECMO Consultants	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Patricia Hampton	HSB Heritage Consultants	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Tania Matthews	Hunters & Collectors	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Ivy Jaegar	I & E Aboriginal Culture and Heritage	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Les Atkinson	Jarban & Mugrebea	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Norm Archibald	Jumbunna Traffic Management Group Pty Ltd	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Jill Green	Kauma Pondee Inc.	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Vicky Slater	Kawul Cultural Services	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Les Ahoy	Lower Hunter Aboriginal Incorporated	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Lea-Anne Ball	Lower Hunter Wonnarua Council Inc.	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Uncle Tommy Miller	Lower Hunter Wonnarua Council Inc.	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Barry Anderson	Lower Wonnaruah Tribal Consultancy Pty Ltd	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Michelle Saunders		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Robert Smith	Murrawan Cultural Consultants Pty Ltd	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Susan Cutmore	Moreeites	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Warren Schillings	Myland Cultural & Heritage Group	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Rebecca Lester		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Abie Wright	Ngarramang-Kuri Aboriginal Culture & Heritage Group	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Ron Smith		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Roslyn Sampson		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Tim Smith	Smith Dhagaans Cultural Group	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Jennifer Hampton	Thawan Heritage Consultant	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Sarah Hall	Ungooroo Aboriginal Corporation	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Rhonda Ward	Ungooroo Cultural & Community Services	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Elizabeth Howard	Waabi Gabinya Cultural Consultancy	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
	Wanaruah Local Aboriginal Land Council	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Aaron Slater	Warrigal Cultural Services	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Des Hickey	Wattaka Wonnarua CC Service	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Steven Hickey	Widescope Indigenous Group Pty Ltd	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Arthur Fletcher	Wonn1 Contracting	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Kerrie Slater	Wurrumay Consultants	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Scott Franks	Tocomwall	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Kathleen Steward	Yinarr Cultural Services	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Stephen Talbot		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Des Hickey	Wonnarua Traditional Custodians NTAC	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email
Carolyn Hickey		Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Tracey White	Mayaroo Inc	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register - invalid email

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
	AGA Services	Veronica Norman/Artefact Heritage	Email	24.1.17	Invitation to register
Margaret Matthews	Aboriginal Native Title Elders Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Lloyd Matthews	Bullen Bullen	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Cheryl Moodie & Justin Matthews	Carrawonga Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Tracey Skene	Culturally Aware	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Deslee Matthews	Deslee Talbott Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Helen Faulkner	DRM Cultural Management	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Esther Tighe		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Michele Stair	Giwiirr Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Priscilla Priestley	Griffiths Group	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Clifford Johnson	Hielamon Cultural Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Paulette Ryan	Hunter Traditional Owner	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Rhonda Griffith	Hunter Valley Aboriginal Corporation	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Christine Matthews	Hunter Valley Cultural Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
David French	Hunter Valley Natural & Cultural Resources	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Jeff Matthews		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Jenny Lee Chambers	JLC Cultural Services	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Krystal & Kylie Saunders	KL KG Saunders Trading services	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Lorraine Towney		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
	Mindaribba Local Aboriginal land Council	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Clifford Matthews	Mingga Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Stephen Matthews	Mooki Plains Management	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Les Field	Mooki Plains Management	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Brian & Gay Horton	Muswellbrook Cultural Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Roger Noel	Roger Noel Matthews Consultancy	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Scott Smith		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Cultural Heritage Officer	St Clair Singleton Aboriginal Corporation	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Steven Saunders		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
	T & G Culture Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Trevor Robinson		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Alan Paget	Ungooroo Aboriginal Corporation	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Melissa & Darrel Matthews	Upper Hunter Heritage Consultants	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Rhoda Perry	Upper Hunter Wonnarua Council Inc.	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Larry Van Vliet	Valley Culture	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Maree Waugh	Wallagan Cultural Services	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
David Foot	Wanaruah Custodians	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Gordon Griffiths	Wonnarua Culture Heritage	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
	Wonnaruah Elders Council	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
J & A Leonardi		Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Robert Lester	Plains Clans of the Wonnarua People	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Scott Franks	Plains Clans of the Wonnarua People	Veronica Norman/Artefact Heritage	Letter	24.1.17	Invitation to register
Jakub Czastka	Tocomwall	Veronica Norman/Artefact Heritage	Email	24.1.17	As the study area is outside the boundaries of the Plains Clan of the Wonnarua registered native title claim area. As such, Tocomwall will not be registering for the project
Tracey White	Mayaroo Inc	Veronica Norman/Artefact Heritage	Letter	25.1.17	Invitation to register

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Paulette Ryan	Hunter Traditional Owner	Alyce Haast/ Artefact Heritage	Phone	2.2.17	Registered an interest in the project
Norma Fisher	Traditional Owner	Michael Lever / Artefact heritage	Phone	12.4.2017	Identified contact details to send invitation & methodology
Norma Fisher	Traditional Owner	Michael Lever / Artefact heritage	Letter	12.4.2017	Sent methodology
Michael Lever	Artefact	Norma Fisher	Phone	28.4.2017	Confirm registration
Alyce Haast	Artefact	Suzie Worth / Arthur Fletcher /Wonn0	Email	28.4.2018	Confirm registration
Michael Lever	Artefact	Suzie Worth / Arthur Fletcher /Wonn1	Email	1.5.2017	Confirm registration
Norma Fisher		Michael Lever / Artefact heritage	Phone	29.5.2017	Called to arrange inspection date - no answer
Rob Yetica	Forster Local Aboriginal Land Council	Michael Lever / Artefact heritage	Email	29.5.2017	emailed to arrange inspection date
Norma Fisher		Michael Lever / Artefact heritage	Phone	2.06.2017	Called to arrange inspection date - no answer
Rob Yetica	Forster Local Aboriginal Land Council	Michael Lever / Artefact heritage	Phone	2.06.2017	Called to arrange inspection date. Tentatively set at 14.06.2016. Advised that Jay Curry no longer associated with Forster Lalc
Norma Fisher		Michael Lever / Artefact heritage	Phone	2.06.2017	Norma Fisher returned Michael Lever call & confirmed date 14/6 for site visit
Rob Yetica	Forster Local Aboriginal Land Council	Michael Lever / Artefact heritage	Express Mail	5/06/2017	Confirm 14th site visit
Norma Fisher		Michael Lever / Artefact heritage	Express Mail	5/06/2017	Confirm 14th site visit
Bob Syron		Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Mark Relf		Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Amber Galvin	Gloucester Worimi First Peoples Aboriginal Corporation	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Allen Paget	Ungooroo Aboriginal Corporation	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit

Contact	Organisation	Contacted by / Organisation	Method	Date	Comment
Paulette Ryan	Hunter Traditional Owner	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Jenny Lee	JLC Cultural Services	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Les Atkinson	Jarban + Mugrebea	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Steven Hickey	Widescope	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Carolyn Hickey	A1	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Amanda Hickey	Amanda Hickey Cultural Services	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Arthur Fletcher	Kauwul Wonn1	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Kathie Kinchela	Yinarr Cultural Services	Michael Lever / Artefact heritage	Email	5/06/2017	Invite to 15th site visit
Michael Lever	Artefact	Les Atkinson	Email	6/06/2017	Advised could not attend site visit
Michael Lever	Artefact	Arthur Fletcher / Wonn1	Email	9/06/2017	Advised would attend site visit

APPENDIX 4 – ARCHAEOLOGICAL SURVEY & MEETING TRANSCRIPT

Archaeological survey 14 June 2017

On Wednesday 14 June 2017 three RAPs met onsite and carried out survey with Mr Brian Beesley (land holder), Michael Lever (Senior Heritage Advisor, Artefact) and Ryan Taddeucci (Archaeologist, Artefact). The RAPs present were:

- Auntie Norma Fisher
- Mr Rob Yetica (associated with Forster LALC) and
- Mr Rob Paulsen (associated with Forster LALC).

Through the hospitality of Mr & Mrs Beesley, all attendants were able to meet at the Beesley residence and hold lengthy conversations prior to and after the site survey, to discuss understandings of the area and the findings of the survey.

Auntie Norma Fisher noted her longstanding connection to the area, and her familiarity with the study area. She depicted a personal family connection to local Country through her Aboriginal grandparents who brought her up locally, and from whom she had learned much about local Aboriginal history and ways. She stated that her observations of the study area on the day matched her previous assessment of the property. She felt the study area was unlikely to contain significant archaeological remains. Auntie Norma stated that her comments were based on her knowledge of the way that Aboriginal people in the past had used the local landscape.

Auntie Norma stated that she had walked the study area several times in the past, including on one occasion during drought when soils were exposed, and that she had never observed any artefacts. Auntie Norma felt that nothing further was required prior to development, but she voiced concern that were gravels to be imported to the site from areas that she knew to have been locations of Aboriginal stone tool manufacture (such as the Cut Hill Quarry), this could result in the deposition of transported artefacts into the study area.

Mr Rob Yetica agreed that the majority of the study area was unlikely to contain significant archaeological material. He felt there had been reduction of archaeological potential in the study area through the repeat ploughing and disturbance to the slopes of the study area. Mr Yetica further felt that the slopes of the study area would not have constituted an attractive location for Aboriginal people in the past. He proposed that in the past Aboriginal people may have temporarily camped on higher ground such as in Survey Unit 3, and may have travelled through the adjacent slopes to access the resources of the Gloucester River.

Mr Yetica recalled identifying a single lithic artefact in Survey Unit 3 during a past visit, however this artefact had not been formally recorded and he had not been able to subsequently identify this artefact. Mr Yetica felt that these factors combined to give Survey Unit 3 a slightly greater archaeological potential. Soil visibility in Survey Unit 3 was poor during the site survey and soils could not be inspected thoroughly. Therefore, Mr Yetica requested that a member of the Aboriginal community should be present during initial de-turfing and excavation of roadways for the proposed development. Mr Yetica felt that monitoring of this excavation would provide sufficient window into the likely archaeological potential of the local plateau in Survey Unit 3.

Mr Rob Paulsen agreed with the observations and recommendations made by Mr Rob Yetica.

On-Site meeting 15 June 2017

On Thursday 15 June 2017 three RAPs met onsite with Mr Rob Beesley (land holder), Michael Lever (Senior Heritage Advisor, Artefact) and Ryan Taddeucci (Archaeologist, Artefact). The RAPs present were:

- Auntie Norma Fisher
- Mr Bob Johnson
- Mr Arthur Fletcher

Auntie Norma Fisher restated her view that no further Aboriginal archaeological investigation was required at the study area.

Mr Bob Johnson is a local Aboriginal man who is intimately familiar with the study area. He stated that he had ploughed the study area on a number of occasions (~7), and that in this time he had never observed artefacts, or even rocks in the soil of the study area. He noted that the local soils are very shallow, with heavy clay substrate above shallowly buried bedrock. He recalled that in the past, before the formation of The Bucketts Way, much of the study area was a washout of heavily eroded clays which had been reformed during construction of the Bucketts Way. He emphasised that were any artefacts to be found during development or any future investigation, they should be returned to the local soils: 'What comes from the land needs to be returned to the land'. Mr Johnson did not indicate that further archaeological investigation was required.

Mr Arthur Fletcher disagreed with the notion that local Aboriginal People had only moved along river courses between their camping places. He noted that in the past significant numbers of artefacts had been found in areas previously considered to be archaeologically insignificant. He also noted that the AHIMS search for the study area and surrounds had only identified small numbers of Aboriginal sites. He proposed that this small number of registered Aboriginal sites did not reflect an absence of archaeology. Rather it resulted from only a small number of archaeological studies having been undertaken in the study area.

Mr Fletcher felt that some level of further investigation should be undertaken in Survey Unit 3 - the wooded plateau in the study area. Mr Fletcher concurred with Mr Yetica's suggestion that monitoring of initial roadway during de-turfing and excavation would be a satisfactory means of examining soils in Survey Unit 3. Mr Fletcher agreed that the trees in Survey Unit 3 were likely too young to have been culturally scarred by Aboriginal people living traditionally in the area. Nevertheless, he proposed that trees scarred by modern Aboriginal people constituted artefacts, and that all mature trees should therefore be examined (as had occurred during survey). Mr Fletcher also concurred with Mr Johnson's recommendation that any artefacts identified in the study area should be returned to the Aboriginal community for local reburial.

Conclusions from RAP consultation

It was agreed that the study area in general was considered of low potential for the presence of Aboriginal artefacts. The study area is known to have undergone ongoing ploughing, soil disturbance and exposure. Local RAPs stated that they have several times in the past inspected the ploughed

portions of the study area without observing artefacts. One RAP with detailed knowledge of the study area, stated that the plateau in Survey Unit 3 was once a heavily eroded washout that had been brought to its current level state through formation of Bucketts Way and associated land-forming. Two RAPs have requested that monitoring be undertaken of the de-turfing and excavation of roads passing through the plateau in Study Unit 3. Road formation is not part of the current proposal. The recommendation for monitoring of road formation has been noted as stated by RAPs and is considered a reasonable proposition that the developer would be advised to engage. However, it does not constitute a formal recommendation for the current stage of works.

artefact

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Appendix J – Calco Surveyors Pty Ltd Acoustic Assessment for Aircraft Noise Intrusion

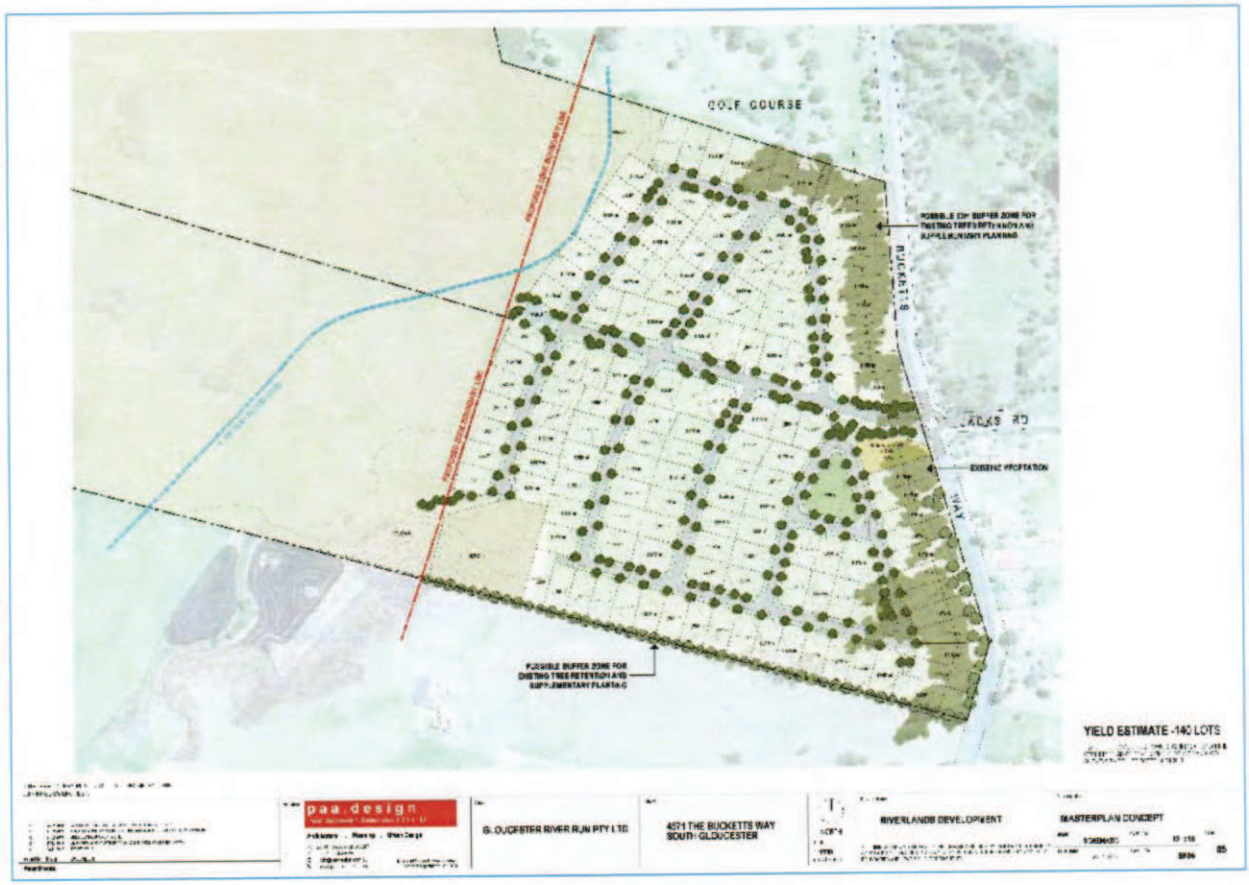
ACCOUSTIC ASSESSMENT FOR AIRCRAFT NOISE INTRUSION

PROPOSED RESIDENTIAL REZONE

4571 BUCKETTS WAY SOUTH, GLOUCESTER

Introduction

A proposed land rezoning is situated on Lots 11 & 12 DP193003, being 4571 Bucketts Way South, Gloucester. The proposed rezone fronts the Bucketts Way as shown on Masterplan layout (P.A.A Design – SK06). The site is within a high impact zone as shown on the Australian Noise Exposure Forecast Map within the Gloucester Local Environment Plan 2010 (the LEP).



Gloucester Aerodrome

Gloucester Aerodrome is located about 4km south east of Gloucester. It is an unmanned aerodrome and shown as not certified on the Australian Visual Navigation Chart. The Aerodrome is mostly for public use, but is also used several times annually for recreation and skydiving, and occasional aero club meetings attracting a number of small aircraft. The Gloucester Aero club hangs a Cessna 172n at the aerodrome and this aircraft is typical of that used at the airstrip. Take-off and Arrival is in a straight line roughly north-south. Generally landing is from the north and take-off is headed south. ANEF charts are not available for the aerodrome.

CalCo SURVEYORS PTY LTD

Australian Standard 2021:2015 Acoustics – Aircraft Noise Intrusion

AS2021:2015 (The standard) defines the criteria required to determine if a certain type of development will be significantly affected by aircraft noise. Distance co-ordinates for building site relative to aerodrome runways are used to estimate the likely noise level for different aircraft. The distance co-ordinates for the closest point development site to the runway have been determined as DS2200m, DL1400m, and DT2150m and are shown in the figure below.

Figure: Distance Co-ordinates for 4751 Bucketts Way

Determining Aircraft Noise Level

Table 3.1(b) of the standard indicates that Table 3.52 should be used to find noise information for a Cessna 172n. This table has indicated that using the above co-ordinates a noise level of less than 32 decibels will impact the development site upon aircraft arrival (as the value for DS = 2200 is out of the range of the table), and 40 decibels while departing, as shown on the marked up tables below.

TABLE 3.52(A)

NOISE LEVELS FOR CESSNA 172R ARRIVALS

Centre-line distance (*DL*), m	Noise levels, dB(A)																			
	Sideline distance (*DS*), m																			
	0	50	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400
0	***	***	***	***	***	***	***	***	***	***	44	42	41	38	36	34	33	32	31	30	29
250	***	***	***	***	***	***	***	***	***	***	45	43	42	39	37	35	34	33	31	30	29
500	72	69	64	61	58	55	53	51	49	47	45	44	43	40	38	36	35	33	32	31	30
750	70	67	64	60	58	55	53	51	49	48	46	45	43	41	39	37	35	34	33	31	30
1000	68	66	63	60	58	55	53	51	50	48	46	45	44	41	39	37	36	34	33	32	31
1250	66	65	62	60	57	55	53	52	50	48	47	45	44	42	40	38	36	35	34	32	31
1500	65	64	62	59	57	55	53	52	50	49	47	46	45	42	40	38	37	35	34	33	32
1750	64	63	61	59	57	55	53	52	50	49	47	46	45	43	41	39	37	36	34	33	32
2000	63	62	61	59	57	55	53	52	50	49	48	46	45	43	41	39	38	36	35	34	33
2250	62	61	60	58	57	55	53	52	50	49	48	46	45	43	41	39	38	37	35	34	33
2500	61	61	59	58	56	55	53	52	50	49	48	47	46	43	41	40	38	37	35	34	33
2750	60	60	59	58	56	55	53	52	50	49	48	47	46	44	42	40	38	37	36	35	34
3000	60	59	58	57	56	54	53	52	50	49	48	47	46	44	42	40	39	37	36	35	34
3250	59	59	58	57	55	54	53	51	50	49	48	47	46	44	42	40	39	38	36	35	34
3500	58	58	57	56	55	54	53	51	50	49	48	47	46	44	42	41	39	38	37	35	34
3750	58	58	57	56	55	54	52	51	50	49	48	47	46	44	42	41	39	38	37	36	34
4000	57	57	56	56	55	53	52	51	50	49	48	47	46	44	42	41	39	38	37	36	35
4250	57	57	56	55	54	53	52	51	50	49	48	47	46	44	42	41	40	38	37	36	35
4500	56	56	56	55	54	53	52	51	50	49	48	47	46	44	43	41	40	38	37	36	35
4750	56	56	55	54	54	53	52	51	50	49	48	47	46	44	43	41	40	38	37	36	35
5000	55	55	55	54	53	52	51	50	50	49	48	47	46	44	43	41	40	39	37	36	35

printed)

TABLE 3.52(B)

NOISE LEVELS FOR CESSNA 172R DEPARTURES

Centre-line distance (*DT*), m	Noise levels, dB(A)																		
	Sideline distance (*DS*), m																		
	0	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600
0	***	***	***	***	***	56	53	51	48	47	45	43	41	39	38	37	35	34	33
250	***	***	***	***	***	56	53	50	48	47	45	43	41	39	38	37	35	34	33
500	***	***	***	***	***	56	53	51	49	47	46	43	41	40	38	37	35	34	33
750	***	***	***	***	***	57	55	52	50	48	46	44	42	40	38	37	36	34	33
1000	***	***	***	***	***	58	55	53	51	49	47	44	42	40	39	37	36	35	33
1250	***	***	***	***	***	59	56	54	51	49	48	45	43	41	39	38	36	35	34
1500	***	***	***	***	***	60	57	55	52	50	49	46	44	42	40	38	37	35	34
1750	***	***	***	***	***	61	58	55	53	51	50	47	44	42	41	39	37	36	35
2000	***	***	***	***	***	61	58	56	54	52	50	47	45	43	41	39	38	37	35
2250	***	***	***	***	***	61	59	56	54	52	51	48	46	43	42	40	38	37	36
2500	75	73	70	67	64	61	59	57	55	53	51	49	46	44	42	40	39	37	36
2750	74	72	70	67	64	61	59	57	55	53	52	49	47	44	43	41	39	38	37
3000	72	71	69	66	64	61	59	57	55	54	52	49	47	45	43	41	40	38	37
3250	71	70	68	66	63	61	59	57	55	54	52	50	47	45	43	42	40	39	37
3500	70	70	68	66	63	61	59	57	56	54	52	50	48	45	44	42	40	39	38
3750	69	69	67	65	63	61	59	57	56	54	53	50	48	46	44	42	41	39	38

Determining the Building Site Acceptability

As ANEF charts are not available for the aerodrome, clause 2.1.2 of the standard permits site acceptability to be determined using aircraft noise levels and table E1 from the standard (shown below).

The proposed development site can be deemed as Acceptable, Conditionally Acceptable, or Unacceptable by the standard. From the standard, if the building site *"... is defined as acceptable, there is usually no need for the building construction to provide protection specifically against aircraft noise"*. If conditionally acceptable certain construction methods need to be implemented, and if unacceptable, approval to build would not normally be considered.

It can be seen that for a house worst case scenario of more than 30 flights per day;

- An acceptable noise level is that less than 70 decibels
- A conditionally acceptable noise level of 70 – 75 decibels, and
- An unacceptable noise level of more than 80 decibels

TABLE E1

BUILDING SITE ACCEPTABILITY BASED ON AIRCRAFT NOISE LEVELS*

Number of flights per day	Aircraft noise level expected at building site, dB(A)		
	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park, school, university, hospital, nursing home			
>30	<70	70 75	>75
15 30	<80	80 85	>85
<15	<90	90 95	>95
Hotel, motel, hostel, public building			
>30	<75	75 80	>80
15 30	<85	85 90	>90
<15	<95	95 100	>100
Commercial building			
>30	<80	80 85	>85
15 30	<90	90 95	<95
<15	<100	100 105	>105

* The values in Table E1 are based on a small aerodrome with a small number of civil, non-jet aircraft movements. They should not be used in any other circumstances.

With this in consideration, the pre-determined noise levels of 32 and 40 decibels are well lower than the acceptable 70 decibels and hence the site is classified as acceptable.

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Building Construction against noise intrusion and determining the Indoor Design Level

As the development is predominately for housing, an indoor design sound level will be deemed as 50 decibels in accordance with the below table 3.3.

TABLE 3.3

INDOOR DESIGN SOUND LEVELS* FOR DETERMINATION OF AIRCRAFT NOISE REDUCTION

Building type and activity	Indoor design sound level*, dB(A)
Houses, home units, flats, caravan parks	
Sleeping areas, dedicated lounges	50
Other habitable spaces	55
Bathrooms, toilets, laundries	60
Hotels, motels, hostels	
Relaxing, sleeping	55
Social activities	70
Service activities	75
Schools, universities	
Libraries, study areas	50
Teaching areas, assembly areas (see Note 5)	55
Workshops, gymnasia	75
Hospitals, nursing homes	
Wards, theatres, treatment and consulting rooms	50
Laboratories	65
Service areas	75
Public buildings	
Churches, religious activities	50
Theatres, cinemas, recording studios (see Note 4)	40
Court houses, libraries, galleries	50
Commercial buildings, offices and shops	
Private offices, conference rooms	55
Drafting, open offices	65
Typing, data processing	70
Shops, supermarkets, showrooms	75
Industrial	
Inspection, analysis, precision work	75
Light machinery, assembly, bench work	80

* These indoor design sound levels are not intended to be used for measurement of adequacy of construction. For measurement of the adequacy of construction against aircraft noise intrusion see Appendix D.

As the aircraft noise levels of 32 decibels (landing) and 40 decibels (take-off) are less than the specified 50 decibels, no attenuation is needed and hence there are no constructions requirements for the proposed development site.

Changing Circumstances and the future

It is not envisaged that Gloucester aerodrome will have a change of use or upgrade in any significant future. Even without considering possible population growth, reasons for this being that the airstrip is currently situated within private farmland. Also, its proximity to Williamtown Aerodrome (100km's) and Taree Aerodrome (75km's) reduces the necessity to upgrade. Hence the noise levels obtained from the above tables should deemed as adequate.

However, as an example seen below, the site distance co-ordinates result in only 1 decibel attenuation for a building bedroom to comply with the standard for housing (50 decibels) for a Boing 717. This indicates that there is a possibility for the aerodrome to upgrade without having a negative effect on the proposed development should it be required.

TABLE 3.11(B)

NOISE LEVELS FOR BOEING 717-200 DEPARTURES

Centre-line distance (*DT*), m	Noise levels, dB(A)																		
	Sideline distance (*DS*), m																		
	0	100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600
0	***	***	***	***	***	71	68	66	64	62	61	58	56	54	53	51	50	49	47
250	***	***	***	***	***	70	67	65	63	61	60	58	56	54	52	51	49	48	47
500	***	***	***	***	***	69	66	64	62	60	59	57	55	53	52	50	49	48	47
750	***	***	***	***	***	69	66	63	61	60	58	56	54	53	51	50	49	47	46
1000	***	***	***	***	***	68	65	63	61	59	58	56	54	52	50	49	48	47	46
1250	***	***	***	***	***	68	65	63	61	59	58	55	54	52	51	49	48	47	46
1500	***	***	***	***	***	68	65	63	62	61	59	57	55	53	52	50	49	48	47
1750	***	***	***	***	***	71	68	66	64	62	61	58	56	54	53	51	50	48	47
2000	***	***	***	***	***	73	70	68	66	64	62	60	57	55	54	52	51	49	48
2250	***	***	***	***	***	74	72	69	67	65	64	61	58	56	54	53	51	50	49
2500	92	90	86	82	78	75	72	70	68	66	65	62	59	57	55	53	52	50	49
2750	90	88	85	82	78	76	73	71	69	67	65	62	60	58	56	54	53	51	50
3000	88	87	84	81	78	76	73	71	69	67	66	63	61	58	57	55	53	51	50
3250	86	85	83	81	78	76	74	71	70	68	66	64	61	59	57	55	53	52	50
3500	85	84	82	80	78	76	74	72	70	68	67	64	61	59	57	55	53	52	50
3750	82	81	80	78	76	74	72	70	69	67	66	63	61	59	57	55	53	52	50

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Appendix K – Site Contamination Statutory Declaration

CONTAMINATION REPORT SEPP. NO. 55 FOR GLOUCESTER RIVER RUN PTY. LTD.

PROPERTY 4571 BUCKETTS WAY SOUTH GLOUCESTER. N.S.W. 2422

EXECUTIVE SUMMARY

The property was part of the A.A. Company Grant of 1847. When the area was subdivided by the Gloucester Estate Limited in 1914 the lands passed into the hands of the Borham family and have been used by that family until the present as a dairy farming operation.

As a result of such confined rural activities the only potential sources of contamination would be associated with such activities in the form of:

- use of sprays and pesticides,
- treatment of livestock and
- cleaning products associated with the dairying activities.

The EPA have no Notices on this land with respect to the Unhealthy Building Land Act. Council's records do not show any significant environmental issues relating to the site. Zoning of the land has always been for agricultural purposes and the land have always been used solely for this purpose.

SITE INSPECTION AND DESCRIPTION.

A number of site inspections have been undertaken on the site in company with Edwin Cyril Borham who was born on the property and has lived and worked on the property all his life. Mr. Borham is aged 44 years. Inspection revealed a typical dairy farm operation. The improvements being dwelling, dairy building, hay shed and machinery shed are located on the higher area of the property out of flood reach. There is a second dwelling on the property also out of flood reach. The property then gradually slopes towards the Gloucester River across open flat pasture country which is fenced into appropriate paddocks and is used to grow cattle fodder for the dairy herd and graze the herd.

The lower country is either used for the cattle to graze or in rotation for the growing of crops which are harvested to provide feed. The property has an irrigation license and the paddocks adjacent to the river are watered to enable crops such as lucerne and clovers to be grown under irrigation conditions.

ZONING

The lands up until the recent amendment of the Gloucester LEP have been zoned for agricultural purposes.

LAND TITLES

Investigation of the Land Titles confirms that the property was acquired by the Borham family on 25th June, 1914 and has been in the possession of the family until acquired by the present owners in October, 2001.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The lands have been used since 1914 as a dairy farming operation. This has involved the growing of crops, the grazing of dairy cattle and their progeny, the milking of cows, the storage of the milk produced and the transport from the property of the produce.

The area of any concern in relation to the potential for contamination of the soil and groundwater from these activities could be:

- The area used for the milking of cows and use of detergents and cleaning equipment.
- The area used to load the produce being cattle and milk involving the use of trucks.
- The use of drenches and medicines for animal husbandry in and around the dairy building and stockyard.
- The storage of small amounts of diesel and petrol used in the operation of the farm plant and machinery.
- The use of fertilisers and chemical in growing the crops required for the feed of the milking herd.
- The use of herbicides for the eradication of noxious weeds
- The use of part of the land as a residence.

In respect of each of these matters ample evidence by site inspection and the first hand knowledge of Mr. E.C. Borham demonstrate that there is no potential for contamination. Mr. Borham attests that in respect of each of the above:

- Biodegradable and/or commercially available detergents were used in the dairy farm operation for the cleaning of the premises.
- No spillage of diesel, petrol or the like occurred in the transporting of the produce from the farm.
- Only commercial available drenches and medicines were used to treat the herd. Generally this was done under the supervision of a qualified veterinary practitioner and all needles, packaging and excess materials were always immediately removed from the property.
- There has never been a spillage of diesel, petrol or the like from any material stored on the property.
- Fertilisers used for the growing of crops involved limited amounts of superphosphate, urea and commercially mixed products.
- The only sprays used on the property involved the use of commercial

RECOMMENDATIONS

Because of:

- the long history of use of the land by the Borham family as responsible conservative dairy farmers,
- the evidence available from the E.C. Borham as to the use of the farm and any possible contaminants,
- the many inspection of the property which show no evidence of contamination
- and the report of Dr. Malcolm Smeal

It is therefore reasonable to conclude that there is no contamination of the property and no further investigation is required.

DATED at Gloucester on 28th October, 2002

I, **EDWIN CYRIL BORHAM**, of "Haven Court", Bucketts Way South. Gloucester, in the State of New South Wales, being duly sworn make oath and say:

The matters contained in Contamination Report SEPP55 for Gloucester River Run Pty. Ltd dated 28th October, 2002. attributed to myself are true and correct.

AND I MAKE this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths Act, 1900.

SIGNED BY THE SAID
EDWIN CYRIL BORHAM) E.C Borham.
)
)

In the presence of
Richard F.M. Webb

Justice of the Peace JP. 1/11/02.

Appendix L – NSW Department of Industry (Resources and Energy) 29 January 2016

Department of Industry
Resources & Energy

E-MAILED
29 JAN 2016

BN15/9246

GLOUCESTER SHIRE COUNCIL
RECORDS RECEIVED
16190.29
4 FEB 2016

Ms Rebecca Connor
Manager Planning & Environment
Gloucester Shire Council
PO Box 11
GLOUCESTER NSW 2422

Dear Ms Connor

Thank you for your letter of 3 December 2015 regarding the Planning Proposal for 4571 Bucketts Way South, Gloucester, which proposes to rezone land from environment to residential.

The Department of Industry (Department) has assessed this planning proposal and believes the proposal has potential State wide implications. The Department objects to this rezoning proposal for the following reasons:

- It is inconsistent with the *Environmental Planning and Assessment Act 1979*, s117 Direction, 1.3 Mining, Petroleum Production and Extractive Industries, as it restricts the potential development of petroleum resources which are of State significance by permitting a land use that is likely to be incompatible with such development;
- It has the potential to sterilise future resource extraction for the State of NSW, as the proposed housing development will increase the land affected by exclusion and buffer zones;
- It is inconsistent with the NSW Government's Gas Plan and policy position with respect to Strategic Energy Projects for which the Gloucester Gas Field is one such project;
- It is inconsistent with clause 9A of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, being Coal seam gas development prohibited in certain exclusion zones;
- It poses a possible future risk to a current project and title holder of the Gloucester Gas Field; and
- Making of the planning proposal has the potential to generate future land use conflicts and minimise economic and social opportunities.

The site overlies Petroleum Exploration Licence 285 (PEL 285) currently held by AGL Upstream Investments Pty Limited (AGL) and lies approximately 650 metres northwest of AGL's Petroleum Production Licence Application 12 (PPLA 12). PPLA 12 covers the land and subject of development approval for Stage 1 Gas Field Development Area and Central Processing facility (Application No. 08_0154 granted 22 February 2011 by the Planning Assessment Commission).

GPO Box 5477, Sydney NSW 2001, Australia
Level 49 MLC Centre, 19 Martin Place, Sydney NSW 2000, Australia,
Tel: +612 9338 6600 Fax: +612 9338 6860 www.trade.nsw.gov.au ABN: 72 189 919 072

As you would be aware, the NSW Government has introduced a two kilometre exclusion zone in residential areas for the Coal Seam Gas (CSG) industry. The proposed rezoning will see areas currently zoned E3 replaced with R2 zoning, which may affect access for exploration in the subject area and result in an extension of the two kilometre residential exclusion zone so that it may encroach on the operation of the Strategic Energy Project defined within PEL 285. As such this planning proposal has the potential to sterilise future resource extraction, for the State of NSW, as the proposed housing development will increase the land affected by exclusion and buffer zones.

The Gloucester Gas Field is a State significant Strategic Energy Project. Gas generated from the field will be utilised to supply NSW energy needs and place downward pressure on the cost of gas and other energy sources. This gas field will provide a sustainable, secure and efficient energy supply for the locality, region and the State, being up to 15% of the NSW demand for gas. Such sustainable and efficient energy supplies are an integral component for the development of strong resilient communities. It is for these reasons that the Gloucester Gas Field was defined as a Strategic Energy Project.

Specific detail regarding the AGL Gas Field development may be obtained from AGL by contacting Suzanne Westgate, Head of Land & Approvals, by emailing swestgate@agl.com.au or on 9921 2563.

The Department understands that managing competing and conflicting land uses can be achieved by having a staged approach to land use planning, for a resource area. This encompasses the need to recognise the sequential nature of resource extraction. It is therefore considered that a future opportunity may exist for residential development, in this locale, once resource extraction has been completed and the potential for land use conflict minimised.

Should you have any enquiries regarding this matter please contact Bryan Whitlock, A/Manager Royalty and Advisory Services, on (02) 9842 8575.

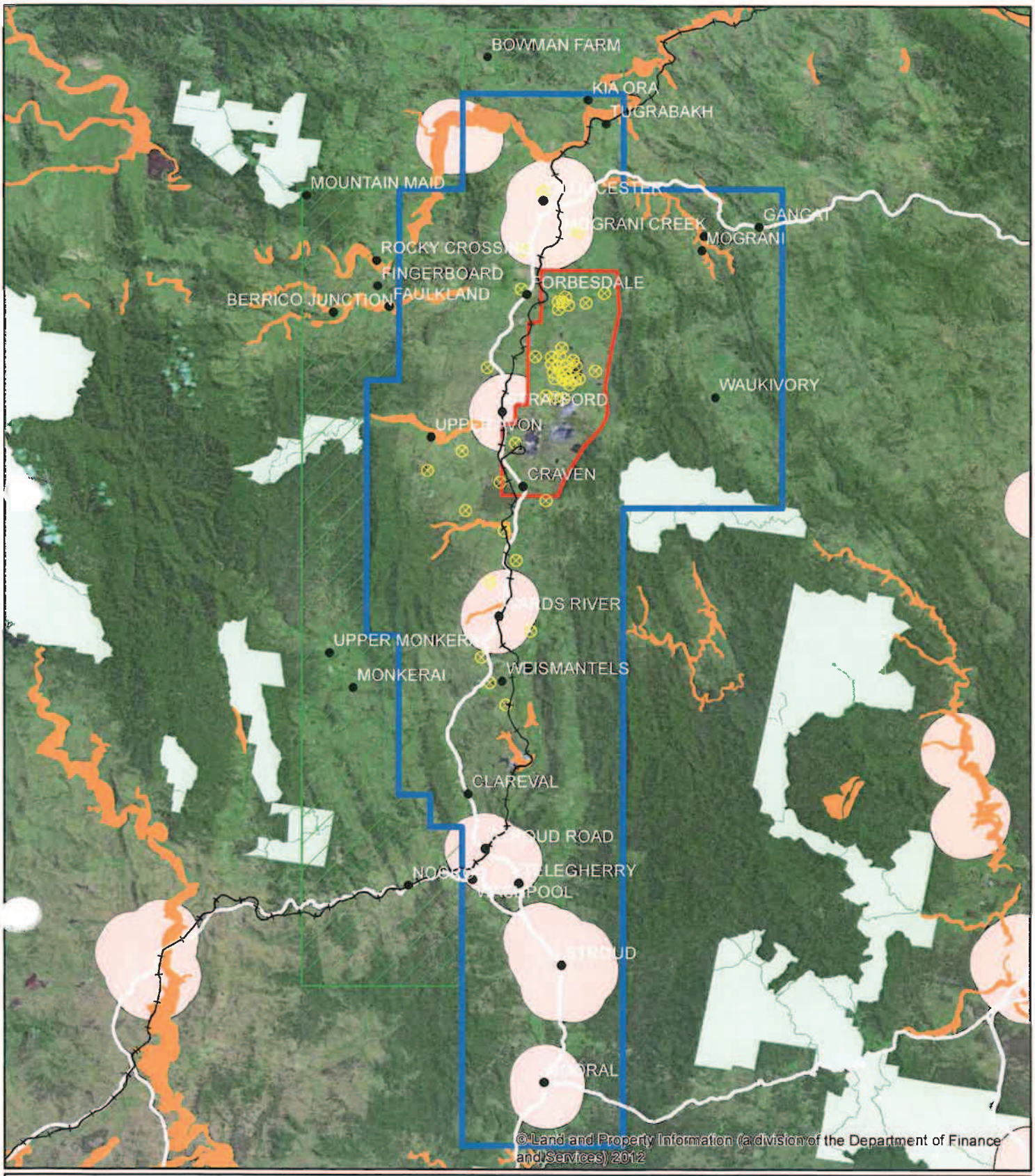
Yours sincerely

K Hargreaves

Kylie Hargreaves
Deputy Secretary
Resources & Energy

29 JAN 2016

Gloucester PEL 285 - Exclusion Zones



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Kilometres

0 3 6 9 12 15

- Renewed PEL285 Area
- Relinquished PEL285 Area
- Stage 1 Development Area
- Biophysical SAL
- Residential Exclusions
- Railways
- Major Roads
- Existing Exploration Wells

NSW GOVERNMENT Trade & Investment Resources & Energy

30 July 2014

Appendix M – NSW Department of Industry (Resources and Energy) 25 August 2016

Department of Industry
Resources & Energy

25 August 2016

Aaron Kelly
Urban & Regional Planner
MidCoast Council
PO Box 11
GLOUCESTER NSW 2422

Emailed: Paul.Donnelly@environment.nsw.gov.au

Your Reference: 61274.29
Our Reference: OUT16/31744

Dear Aaron

Re: Planning Proposal – 4571 The Bucketts Way South, Gloucester

Thank you for the opportunity to provide advice on the above matter, and providing follow-up information as requested by us. This is a response from NSW Department of Industry – Division of Resources & Energy (DRE).

We refer to your letter dated 21 July 2016, and referencing our previous communications on this matter. Whilst the existence of energy resources in this area has not altered, we acknowledge the significant change in circumstances around the likelihood of any further exploration or extraction. Given the proximity of this proposal to the town of Gloucester, and the decision by AGL to not proceed with its Gloucester Project, DRE no longer objects to this Planning Proposal.

Queries in relation to this matter, should be directed to the Geological Survey of NSW (GSNSW) Land Use team at landuse.minerals@industry.nsw.gov.au.

Yours sincerely

Cressida Gilmore
Manager- Land Use

4931 6537

NSW Department of Industry, Skills and Regional Development
RESOURCES & ENERGY DIVISION
PO Box 344 Hunter Region Mail Centre NSW 2310
Tel: 02 4931 6666 Fax: 02 4931 6726
ABN 51 734 124 190
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Appendix N – NSW Office of Environment and Heritage 27 July 2016

NSW GOVERNMENT | Office of Environment & Heritage

DOC16/353859

Mr Glenn Handford
Interim General Manager
MidCoast Council
PO Box 11
GLOUCESTER NSW 2422

Attention: Aaron Kelly

Dear Mr Handford

REVISED PLANNING PROPOSAL - OEH COMMENTS - GLOUCESTER RIVER RUN PTY LTD

I refer to your email dated 18 July 2016 seeking comment on the applicants response provided to council to address the Office of Environment and Heritage's (OEH) previous comments. OEH has reviewed the supplied information and provides the following comments.

Aboriginal Cultural Heritage

OEH has reviewed the Aboriginal cultural heritage response contained in Peter Andrews and Associates Pty Ltd 2016 Planning Proposal: Lot 2 DP 568113 and Lots 11 and 12 DP 193003, 4571 The Bucketts Way, South Gloucester NSW, prepared for Gloucester River Run Pty Ltd.

OEH acknowledges that an *Aboriginal Sites Investigation* (ASI) was conducted in November 2000 by the Forster Local Aboriginal Land Council (LALC) for the subject properties. OEH notes that any Aboriginal cultural heritage assessment undertaken prior to 2010 will not meet current OEH Aboriginal cultural heritage guidelines for the assessment of Aboriginal cultural heritage in NSW (see OEH 2011 *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*). It is additionally noted that the ASI developed by the Forster LALC (2000) will not be in accord with either the DECCW 2010 *Aboriginal cultural heritage consultation requirements for proponents*, or the recently developed Aboriginal cultural heritage guidelines for planning proposals (see previous advice dated 21 April 2016, OEH reference DOC15/183862-1). These recent guidelines focus particularly on an assessment of Aboriginal cultural values across the proposed development rather than an assessment of absence of Aboriginal cultural objects within the subject properties.

OEH maintains the requirement to assess the significance of Aboriginal cultural values from Aboriginal people who have a cultural association with the land associated with the planning proposal, and that these values be considered in addition to any archaeological values that the land may retain. Therefore until an assessment of Aboriginal cultural heritage has been undertaken in accordance with previous advice (DOC16/183862-1) OEH objects to this proposal due to inconsistencies with Section 117(2) Direction 2.3 – Heritage Conservation.

Locked Bag 1002 Dangar NSW 2309
Level 4, 26 Honeysuckle Drive Newcastle NSW 2300
Tel: (02) 4904 2615 Fax: (02) 4904 2597
ABN 30 841 387 271
www.environment.nsw.gov.au

Biodiversity

The statement made by the proponent regarding the site being cleared of vegetation is incorrect. A review of the most recent aerial photography covering the site (December 2015) clearly shows remnant vegetation extending beyond the eastern boundary of the proposed 30m RE1 zoning, which is to be dedicated to council. In addition there appears to be remnant trees, and therefore potential threatened species habitat, along the eastern end of the southern and northern boundaries of the proposal.

As such OEH retains its position as presented in previous correspondence (DOC16/183862-1) and objects to this proposal until such time as the proponent has undertaken an assessment of the biodiversity within the site, in particular the threatened species recorded within the site and locality. In regards to the existing consents the proponent is entitled to enact valid consents if they so choose.

If you have any enquiries concerning this advice, please contact Ziggy Andersons, Conservation Planning Officer, on 4927 3151.

Yours sincerely

27 JUL 2017

STEVE LEWER
Acting Senior Team Leader Planning, Hunter Central Coast Region
Regional Operations

Appendix O – NSW Office of Environment and Heritage 31 August 2017

DOC17/393399-1
Ref: 61274.29

Mr Aaron Kelly
Strategic Planner
MidCoast Council
aaron.kelly@MidCoast.nsw.gov.au

Dear Mr Kelly

Review of additional information – Rezoning at 4571 Bucketts Way South, Gloucester – Gloucester River Run (Lot 2 DP 588113, Lot 11 DP 193003, Lot 12 DP 193003)

I refer to your email dated 27 July 2017 requesting advice from the Office of Environment and Heritage (OEH) in relation to a rezoning proposal for an approximately 99 ha parcel of land on Bucketts Way. OEH provided previous advice in relation to earlier versions of this planning proposal in December 2015 and April 2016 (DOC15/498466-4 and DOC16/183862-1). In this proposal land will be rezoned to a combination of R2 (27 ha) and RE1 (1.7 ha) and approximately 70 ha of E3.

Biodiversity

It is noted that no calculation of the impacts on biodiversity has been carried out for this planning proposal, although the plans indicate that there will be clearing of vegetation on the site and that the development will impact on some biodiversity. There are also no indications of how impacts will be ameliorated or offset and no mechanisms described for ensuring that biodiversity in the area is conserved. It is argued by the proponent that this information can be provided at the development application stage. Furthermore, no zone map has been provided. OEH recommends proponents provide this information to councils at the rezoning stage, in order to protect proponents from having an unreasonable expectation of development potential, and to prevent delays in the planning process.

The proponent's request to assess impacts and amelioration at the development application stage is not supported by OEH. OEH recommends that any impacts on biodiversity are calculated using the Biodiversity Assessment Method (BAM) to determine a credit liability for the project. There is insufficient information in the biodiversity report provided for OEH to calculate a potential credit liability. The vast majority of the site is grazed or cropped, but the biodiversity values of the remnant vegetation are mapped as high by the biodiversity report. Although it is indicated that some vegetation will be retained at the front of the site as a public open space recreation area, the area put aside for retention does not include all the vegetation.

OEH recommends that the proponent avoids impacts to the vegetation in the east of the property, in order to avoid the need for offsets. Further, OEH recommends that an E2 zone is used for the vegetation at the front of the lots, rather than an RE zone, a zone generally used for sport facilities or other recreational facilities. The remaining biodiversity values of the area which is not to be developed on the western side of the site are recognised, even if a portion of the parcel has been used for agriculture. The planning proposal should outline how these biodiversity values will be maintained and

the mechanisms by which the environmental values on the property, both to the east along the frontage of the site and to the west, at the back of the lot, will be secured. Typically an E3 zone, which has been proposed for part of the property, does not include cropped land, as E3 zone provisions do not include intensive agriculture in most local government areas. Council may recommend split zones to the proponent to manage the diversity of land-uses on site.

The 3.9 ha of vegetation along the front of the site is mapped as Endangered Ecological Community (EEC) River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bio-regions in the Biodiversity Report. It is noted that there is no statement on the quantum of impacts on biodiversity provided in the report, although it appears as if the proposal would impact on some of the vegetation (2.2 hectares) at the front of the property, which means that only 1.7 ha will be retained. Furthermore, the zone recommended for this retained area is an RE zone, which does not have the provisions to provide conservation outcomes for biodiversity. It is not clear what the proponent envisages for this 1.7 ha part of the site. If an E zone with strict conservation provisions (e.g. an E2 zone) was selected for this area instead of an RE zone, OEH would be more confident that conservation was the intended outcome for this section of the site. OEH expects offsets for any area proposed to be zoned RE, as this recreation zone does not provide any assurance of environmental protection.

The biodiversity report identifies that the remnant forest along the front of the site contains several threatened species, including squirrel glider *(Petaurus norfolcensis)*, brush-tailed phascogale (*Phascogale tapoatafa)*, grey-crowned babbler (*Pomatostomus temporalis)*, yellow-bellied sheathtail-bat (*Saccolaimus flaviventris)*, little bentwing-bat (*Miniopterus australis)* and eastern freetail-bat (*Mormopterus norfolkensis)*. There is a known squirrel glider den tree on the proposed site, as well as hollow-bearing trees which are potential roost trees for threatened and non-threatened micro-bats. There are also six koala (*Phascolarctos cinereus)* records on the Gloucester River immediately adjacent to the site in the River-flat Eucalypt Forest EEC, which forms the western boundary of the site. The Gloucester River may provide a corridor function for koalas and other wildlife. As the Biodiversity Report states that more than 15% of the trees on site are considered koala feed trees and Gloucester is listed as an area to which SEPP 44 applies, the site should be assessed and mapped according to SEPP 44 to identify priority koala areas for conservation.

Aboriginal Cultural Heritage

OEH provided previous advice in relation to earlier versions of this planning proposal in December 2015 and April 2016 (DOC15/498466-4 and DOC16/183862-1). OEH noted the absence of current Aboriginal cultural heritage investigations at that time, and advised that such investigations should be undertaken to support the planning proposal. OEH also advised that consultation with Aboriginal people should be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010). In response to this advice, the applicant has recently supplied an *Aboriginal Archaeological Assessment Report* (Artefact 2017) to support the planning proposal.

OEH has reviewed the *Aboriginal Archaeological Assessment Report* and notes that Artefact undertook a process of Aboriginal community consultation for this assessment to meet the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010). The assessment included a field survey (undertaken in conjunction with RAP representatives) which did not identify any Aboriginal objects or areas of potential sensitivity within the project area, and OEH understands that consultation with RAPs did not identify any significant Aboriginal cultural heritage values associated with the project area that could trigger conservation planning. Therefore, based on our review of the supplied assessment, OEH understands that there are no significant Aboriginal cultural heritage constraints that would trigger our objection to the planning proposal on Aboriginal cultural heritage grounds. We do, however, note that the *Aboriginal Archaeological Assessment* includes no supporting documentation to demonstrate that the Aboriginal community consultation process adequately met the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW 2010), as is asserted in the assessment. Examples of documentation that would typically be provided to demonstrate adequate consultation include copies of correspondence to agencies, the public advertisement, invitation letters to Aboriginal parties and correspondence with RAPs regarding the proposed methodology and draft

assessment. In the absence of this documentation, OEH advises Council to be aware of the potential risk of unanticipated Aboriginal cultural heritage constraints being identified post approval because the Aboriginal community consultation process is found to have been deficient.

Floodplain management

Gloucester Council has put forward a planning proposal to rezone a number of properties off Bucketts Way South, Gloucester. The properties include Lot 2 DP568112 & Lots 11 and 12 DP193003 Bucketts Way South Gloucester. The properties concerned are affected by Gloucester River flooding and as such flooding considerations need to be taken into account. The proposed rezoning will result in intensification of use and therefore should conform to the requirements of Section 117(2) directions from the Department of Planning.

The planning proposal is to rezone environmental land to large lot (low density) residential land use. The location of the proposed rezoning is included in the recently completed Gloucester and Avon Rivers Flood Study, BMT WBM April 2015. Flooding issues are described in the exhibition document by Peter Andrews and Associates dated September 2015. The zone boundary shown in Figure 9 - Masterplan appears to be in the higher part of the subject land however there is inconsistency in the representation of the 1:100 year flood level in various figures within the document. Figure 9 – Masterplan shows the residential zone boundary outside of the 1 in 100 year flood line whereas the Masterplan Concept in the same document shows the zone boundary partially encroaching over the 1 in 100 year flood line. This inconsistency should be resolved.

Section 117(2) Part 4.3 (5) states that “A planning proposal must not rezone land within the flood planning areas from Special Use, Special Purpose, Recreation, Rural or Environmental Protection Zones to a Residential, Business, Industrial, Special Use or Special Purpose Zone. “

In order to be consistent with the 117(2) directions the zone boundary would be required to be at the flood planning level which is the 1 in 100 year flood line plus a freeboard of 500mm. The Masterplan (Figure 9) and Masterplan concept (SK06) need to be revised to remove inconsistency between the documents and to clearly show the zone boundary outside of the flood planning area. The flood planning area is represented in Figure B-18 Revision A of the Flood mapping Compendium document R.N20257.001.02, April 2015 BMT WBM.

The proposed development is located upstream of Gloucester township and will drain to Gloucester river. No site specific flood study has been provided to assess the impact of the proposed development on the downstream area. The development will result in an increase in impervious areas which, if unmitigated, will cause increased flows to the Gloucester river. There has been no analysis provided of the impact of these flows or any proposed mitigation works. The masterplan concept provided by Peter Andrews and Associates shows less than 1% of the development area proposed to be reserved for WUSD (water sensitive urban design) works with no supporting calculations. It is considered unlikely that sufficient area has been set aside for flood mitigation or water quality works within the proposed development.

The Gloucester and Avon Rivers Flood Study, BMT WBM April 2015 may be used to assess the impacts of current flooding on the proposed development site however this document does not consider the impacts of increased development on downstream flooding. A site specific study will be required to demonstrate that no adverse effects occur outside of the boundaries of the development site in order to ensure that other properties are not affected by the development.

The effect of the proposed increase in impervious area needs to be assessed on flood levels outside of the site boundaries. Pre-and post development models are required for Flood Impact assessment. The post development models need to take into account cumulative effects of development rather than assuming each site will match pre-development flows. The development together with any associated flood mitigation devices such as on site detention need to modelled concurrently to determine the offsite impacts. Modelling must take into account timing of flows in the context of the wider catchment.

Recommendations:

OEH recommends the following:

- A zone map to indicate the proposed land uses of the site should be provided.
- All of the remaining vegetation on the lot should be retained, as this would remove the need for the proponent to provide offsets for the impacts to biodiversity.
- The width of the front environmental zone should be increased to include all vegetation, including the area containing the squirrel glider den tree.
- A mechanism to manage the biodiversity values on site, in particular the front strip and the area along the Gloucester River should be identified.
- A site-specific flood study should be undertaken.
- The 1:100 year flood level needs to be consistent throughout the planning proposal.
- A Flood Impact assessment including pre-and post development models should be undertaken.

If you require any further information regarding this matter please contact Karen Thumm, Conservation Planning Officer, on 4927 3153.

Yours sincerely

STEVEN COX
Senior Team Leader Planning
Hunter Central Coast Branch
Regional Operations Division

31 August 2017

Appendix P – NSW Office Department of Primary Industries 11 February 2016

NSW GOVERNMENT | Department of Primary Industries

OUT16/6431
Ref INW15/60433

The General Manager
Gloucester Shire Council
PO Box 11
89 King Street
Gloucester NSW 2422

11 February 2016

ATTENTION: Aaron Kelly

Dear Aaron,

Referral of Planning Proposal – 4571 Bucketts Way South, Gloucester Lot 2 DP588113 and Lots 11 & 12 DP 193003

Thank you for your letter 03 December 2015 and the opportunity for the Department of Primary Industries Agriculture (DPI) to comment on the proposal to rezone land in the above mentioned from E3 Environmental Management to R2 Low Density Residential and to reduce the minimum lot size to 1000sqm.

No major implications for agriculture are identified within the proposal documents. However, due to potential risk of land use conflict with existing land users, it is recommended that current agricultural industries within the vicinity of the proposal are consulted prior to development.

Two publications are available on the NSW DPI website Buffers - planning for sustainable agriculture and The Living and Working in Rural Areas handbook. These documents provide specific guidelines as to the issues to be considered to effectively separate conflicting land uses and recommended mitiagatory measures, including separation distances.

Please direct all future land use planning correspondence to the below email address.

landuse.ag@dpi.nsw.gov.au

Please do not hesitate to contact DPI should you have any questions.

Yours sincerely

Leonie Coleman
A/Resource Management Officer (For Helen Squires)

NSW Department of Primary Industries, Agricultural Land Use Planning Unit
Locked Bag 21, Orange NSW 2800 Tel: 02 6391 3494 Fax: 02 6391 3551
Email: landuse.ag@dpi.nsw.gov.au www.dpi.nsw.gov.au

Appendix Q – Midcoast Water 22 December 2015

MIDCOAST WATER

Date: 22nd December 2015
Ref: 79433, 73434 & 75071

Att: Aaron Kelly
Gloucester Shire Council
PO Box 11
GLOUCESTER NSW 2422

PLANNING PROPOSAL: 4571 BUCKETTS WAY, GLOUCESTER LOT 2 DP588113 & LOTS 11 & 12 DP193003

Dear Aaron Kelly

Thank you for the opportunity to provide a submission in relation to the Planning Proposal for 4571 Bucketts Way, Gloucester.

MidCoast Water has reviewed the supplied documentation and do not oppose the progression of the Planning Proposal; however we do provide the following comments:

The proposed rezoning is within MidCoast Waters servicing area, and can be serviced through an extension of both water and sewerage reticulated networks. This extension will also require the construction of a new sewer pump station. As well as the extension works, MidCoast Water also requires augmentation of the existing sewer network in the area to facilitate the proposed rezoning.

A local water and sewage supply strategy will be required to be prepared and approved by MidCoast Water. All proposed water and sewage supply infrastructure to service the site will need to be constructed to MidCoast Water's requirements and shall be provided at the developer's cost. It should be noted that as part of the water service, all water connection points will be required to be north of MidCoast Waters existing Booster Water Pump Station, which is located just North of Jacks Road.

Upon reviewing the Planning Proposal it was noted that there is a clash between the Master Plan (Figure 9) and the Sewer Servicing Strategy (Appendix 8), in which the Master Plan indicates a proposed area on the Eastern side as Water Sensitive Urban Design, and the Sewer Servicing Strategy shows this same parcel of land as the proposed pump station site. Confirmation of the final location of these will be required as MidCoast Water has minimum requirements for pump station sites to be 20.0m x 20.0m for safe access and operation of the site.

MidCoast Water proposes that the following conditions of approval should be placed on any approval issued in order to satisfy water and sewerage servicing requirements:

MIDCOAST WATER

Template conditions of approval

Provision of Certificate of Compliance (for construction of services)

A Certificate of Compliance is to be received from MidCoast Water prior to the release of this development for construction, stating that satisfactory arrangements have been made for the provision of MidCoast Water services to the development.

This condition will ensure that proposed infrastructure can adequately service the development.

Provision of Certificate of Completion (for Subdivision)

A Certificate of Completion is to be received from MidCoast Water prior to the release of the Subdivision Certificate, stating that satisfactory arrangements have been made and all payments have been finalised for the provision of MidCoast Water services to the development.

This condition will ensure that the development is adequately provided with MCW services.

Please feel free to contact me on (02) 6591 7513 should you have any questions or require further information.

Yours faithfully

Craig Wilkinson
Development Coordinator

Appendix R – Draft Planning Agreement and Explanatory Note

Planning Agreement

Midcoast Council (**Council**)

&

Gloucester River Run Pty Ltd &

Brian and Heather Beesley (**Developer**)

Rezoning of land 4571 Bucketts Way South Gloucester

Lot 2 DP 568113, Lots 11 & 12 DP 193003

Prepared under section 7.4 of the Environmental Planning & Assessment Act 1979

DRAFT 8 June 2018

Contents

Parties

Council

Name: Midcoast Council

ABN: 44 961 208 161

Address: 88 King Street, PO Box 11 Gloucester NSW 2430

Email council@midcoast.nsw.gov.au

Attention: General Manager

Developer

Name: Gloucester River Run Pty Ltd

ABN: [insert]

Address [insert]

Email: [insert]

Attention: [insert]

Name: Brian and Heather Beesley

Address [insert]

Email: [insert]

Attention: [insert]

Background

A. On 20 May 2013 the Developer lodged the Planning Proposal with Council for the purpose of making a future development application for development consent to carry out the Development on the Site.

B. The Developer has since provided an offer to enter into this planning agreement including dedication of the Contribution Land to Council, completion of environmental management works on the Site in accordance with the Vegetation Management Plan and preparation of the Stormwater Management Plan on the terms of this agreement.

C. The objectives of the planning agreement are to provide for the conservation and enhancement of the natural environment and the amenity of the urban area by retaining a natural bushland setting as part of the Development.

Operative Terms

1. Definitions and Interpretation

1.1 In this agreement, unless the context clearly indicates otherwise:

Act means the *Environmental Planning and Assessment Act* 1979 (NSW).

Construction Certificate means a construction certificate issue under Division 6.3 of the Act.

Contribution Land means the land to be dedicated by the Developer to Council as identified and described in Schedule 3.

Development means the development of the Site to be carried out or procured by the Developer in accordance with the Planning Proposal.

GST has the same meaning as in the GST Law.

GST Law has the meaning given to that term in *A New Tax System (Goods and Services Tax) Act* 1999 (Cth).

Just Terms Act means the *Land Acquisition (Just Terms Compensation) Act* 1991 (NSW).

LPI means the Land and Property Information New South Wales or its successor body.

Planning Proposal means the planning proposal for the Site prepared by Peter Andrews & Associates Pty Ltd on behalf of the Developer dated May 2013 for the purpose of rezoning the Site to enable the Development.

Real Property Act means the *Real Property Act 1900* (NSW) as amended.

Register means the Torrens title register maintained under the Real Property Act.

Subdivision Certificate means a subdivision certificate issue under Division 6.4 of the Act.

Site means the land the subject of this planning agreement as identified and described in Schedule 2.

Stormwater Management Plan means a stormwater management for the Site prepared in accordance with the requirements of Schedule 5 and approved by Council in accordance with clause 6 of this agreement.

Vegetation Management Plan means a vegetation management plan for the Site prepared in accordance with the requirements of Schedule 4 and approved by Council in accordance with clause 5 of this agreement.

1.2 In this agreement unless the context clearly indicates otherwise:

a) Headings are inserted for convenience only and do not affect the interpretation of this agreement.

b) A reference in this agreement to a business day means a day other than a Saturday or Sunday on which banks are open for business generally in Sydney.

c) If the day on which any act, matter or thing is to be done under this agreement is not a business day, the act, matter or thing must be done on the next business day.

d) A reference in this agreement to dollars or $ means Australian dollars and all amounts payable under this agreement are payable in Australian dollars.

e) A reference in this agreement to any law, legislation or legislative provision includes any statutory modification, amendment or re-enactment, and any subordinate legislation or regulations issued under that legislation or legislative provision.

f) A reference in this agreement to any agreement, deed or document is to that agreement, deed or document as amended, novated, supplemented or replaced.

g) A reference to a clause, part, schedule, or attachment is a reference to a clause, part, schedule or attachment of or to this agreement.

h) An expression importing a natural person includes any company, trust, partnership, joint venture, association, body corporate or governmental agency.

i) Where a word or phrase is given a defined meaning, another part of speech or other grammatical form in respect of that word or phrase has a corresponding meaning.

j) A word which denotes the singular denotes the plural, a word which denotes the plural denotes the singular, and a reference to any gender denotes the other genders.

k) References to the word 'include' or 'including' are to be construed without limitation.

l) A reference to this agreement includes the agreement recorded in this agreement.

m) A reference to a party to this agreement includes a reference to the servants, agents and contractors of the party, and the party's successors and assigns.

n) Any schedules form part of this agreement.

o) Neither this agreement nor any part of it is to be construed against a party on the basis that the party or its lawyers were responsible for its drafting.

2. Planning agreement under the Act

2.1. The parties agree that this agreement is a planning agreement:

a) within the meaning of section 7.4 of the Act; and

b) governed by Subdivision 2 of Division 7.1 of Part 7 of the Act.

3. Application of this Agreement

3.1. This agreement applies to:

a) the Site; and

b) the Development.

4. Operation of this Agreement

4.1. This agreement operates from the date of execution by both parties.

5. Vegetation Management Plan

5.1. The Developer must submit a draft Vegetation Management Plan to Council before the lodgement of any development application relating any proposed Development on the Site.

5.2. Council, acting reasonably and within a reasonable time frame, must give the Developer written notice of whether it approves the draft Vegetation Management Plan or if changes are required to the draft Vegetation Management Plan before the lodgement of any development application relating to any proposed Development on the Site. If changes are required:

a) Council will specify the nature of the changes and the reasons for the changes; and

b) the Developer will amend the draft Vegetation Management Plan accordingly.

5.3. The Developer must, at its own cost, carry out and complete the works in accordance with the Vegetation Management Plan to Council's reasonable satisfaction before dedication of the Contribution Land to Council.

6. Stormwater Management Plan

6.1 The Developer must submit a draft Stormwater Management Plan to Council with the lodgement of any development application relating to any proposed Development on the Site.

6.2. Council, acting reasonably and within a reasonable time frame, must give the Developer written notice of whether it approves the draft Stormwater Management Plan or if changes are required to the draft Stormwater Management Plan before the lodgement of any development application relating to the proposed Development on the Site. If changes are required:

a) Council will specify the nature of the changes and the reasons for the changes; and

b) the Developer will amend the draft Stormwater Management Plan accordingly.

7. Dedication of Land

7.1 The Developer must dedicate or transfer the Contribution Land to Council:

a) after completion of the works in the Vegetation Management Plan;

b) before the issue of a Subdivision Certificate for the first stage of the Development or before the issue of the first Construction Certificate for the Development, whichever occurs sooner;

c) at no cost to Council; and

d) free of any trusts, estates, interests, covenants and encumbrances (other than those specified in this agreement).

8. Application of s7.11, s7.12 and s7.24 of the Act

8.1 Sections 7.11, 7.12 and 7.24 of the Act apply to the Development.

8.2 Benefits under this agreement are excluded from being taken into consideration under section 7.11 of the Act in its application to the Development.

9. Registration of this Agreement

9.1 The Developer represents and warrants that it is the owner of the Site.

9.2 As contemplated by section 7.6 of the Act, the Developer agrees to lodge this agreement with the LPI for registration under the Real Property Act in the relevant folio of the Register no later than 10 business days after Council provides an executed copy of this agreement to the Developer.

9.3 The Developer, at its own expense, will take all practical steps and otherwise do anything to procure:

a) the consent of each person who:

(i) has an estate or interest in the Site registered under the Real Property Act; or

(ii) is seized or possessed or an estate or interest in the Site; and

b) the execution of any documents; and

c) the production of the relevant certificates of title; and

d) the lodgement and registration of this agreement, by the Registrar-General in the relevant folio of the Register.

9.4 The Developer will provide Council with a copy of the relevant folios of the Register and a copy of the registered dealing referable to this agreement within 10 business days, or other agreed time, of registration of this agreement in accordance with this clause 9.

9.5 Council agrees to do all things reasonably required by the Developer to release and discharge this agreement with respect to any part of the Site upon the Developer satisfying all of its obligations under this agreement in respect of that part of the Site.

9.6 The Developer acknowledges that Council may, in its absolute discretion, make a notation under section 10.7 of the Act about the agreement on any certificate issued under section 10.7 of the Act relating to the Site.

10. Registration of Caveat

10.1 The Developer acknowledges and agrees that:

a) When this agreement comes into operation, Council is deemed to have acquired, and the Developer is deemed to have granted, an equitable estate and interest in the Site for the purposes of section 74F(1) of the Real Property Act and consequently Council has a sufficient interest in the Site with respect of which to lodge with the LPI a caveat notifying that interest;

b) it will not object to Council lodging a caveat in the relevant folio of the Register for the Site nor will it seek to remove any caveat lodged by Council provided the caveat does not prevent registration of any dealing or plan other than a transfer; and

c) it will obtain the consent to the lodgement of the caveat of each person who has an estate or interest in the Site registered under the Real Property Act.

10.2 Council must, at the Developer's cost (with any such cost to be reimbursed to Council promptly on demand), register at the LPI a withdrawal of caveat in respect of the Site within 5 business days after the Developer complies with clause 9.2 and Council must not lodge any other caveats on the titles to any of the Site, providing the withdrawal of the caveat will only apply in respect of such parts of the Site in respect of which registration of the agreement has been procured in accordance with clause 9.2.

11. Compulsory Acquisition

11.1. If the Developer fails to transfer the Contribution Land to Council or its nominee in accordance with clause 7, then the Developer:

a) consents to Council compulsorily acquiring the relevant item of Contribution Land for compensation in the amount of $1.10 (including any GST) without having to go through the pre acquisition procedure under the Just Terms Act;

b) agrees that this clause 11 constitutes an agreement for the purposes of section 30 of the Just Terms Act as to Part 2 and Part 3 of the Just Terms Act, including the amount of compensation and the gazettal of an acquisition notice under section 19 of the Just Terms Act;

c) must ensure that the Contribution Land is free of all encumbrances, except those encumbrances which, in Council's reasonable opinion, do not impede the use of the land for the purpose of public access;

d) indemnifies Council for any additional costs associated with the acquisition relating to interests in the relevant item of Contribution Land; and

e) will promptly do all things necessary, and agrees to Council doing all things necessary on its behalf, to give effect to this clause 11, including without limit:

(i) signing any documents or forms;

(ii) giving land owner's consent for lodgement of any development application;

(iii) producing certificates of title to the Registrar-General under the Real Property Act; and

(iv) paying Council's costs arising from clause 11.

12. Bank Guarantee

12.1 Within three months of execution of this agreement, the Developer must deliver to Council an unconditional bank guarantee (in a form acceptable to Council) for the total amount of $20,000 to cover the costs of Council compulsorily acquiring the Contribution Land.

12.2 If the Developer does not dedicate the Contribution Land by the time specified in this agreement, Council may issue the Developer with a notice in accordance with this clause 12.2 requiring the Developer to rectify the relevant default within five business days.

12.3 If the Developer fails to comply with a notice issued under clause 12.2 to the reasonable satisfaction of Council, Council may, without limiting any other avenues available to it, call on the bank guarantee to the extent necessary to rectify the default and to cover the costs of exercising its rights under clause 11.

12.4. Within one month after the Developer satisfies its obligation under this agreement to dedicate the Contribution Land to Council, Council must return the amount of the bank guarantee to the Developer.

13. Review of this Agreement

13.1 The parties will review this agreement annually for the purpose of monitoring the Developer's performance of the agreement.

13.2 If the review identifies a need to modify this agreement, then the parties agree to use their best endeavours to agree on the modification of this agreement having regard to the outcome of the review.

14. Dispute Resolution

14.1 If a dispute between the parties arises in connection with this agreement or its subject matter, then the process and procedures set out in Schedule 6 (Dispute Resolution) will apply.

15. Notices

15.1 Any notice, consent, information, application or request that must or may be given or made to a party under this agreement is only given or made if it is in writing and sent in one of the following ways:

a) Delivered or posted to that party at its address set out at the beginning of this agreement; or

b) Emailed to that party at its email address set out at the beginning of this agreement.

15.2 If a party gives the other party three business days notice of a change to its address or email address, then any notice, consent, information, application or request is only given or made by that other party if delivered, posted or emailed to the latest address or email address.

15.3 Any notice, consent, information, application or request is taken as given or made at the following time:

a) If it is delivered, when it is left at the relevant address; or

b) If is sent by post, three business days after it is posted; or

c) If is sent by email, 24 hours after the e-mail was sent, unless the party sending the e-mail knows or ought reasonably to suspect that the e-mail was not delivered to the addressee's domain specified in the e-mail address.

15.4 If any notice, consent, information, application or request is delivered, or an error free transmission report in relation to it is received, on a day that is not a business day, or if on a business day, after 5pm on that day in the place of the party to whom it is sent, it is to be treated as having been given or made at the beginning of the next business day.

16. Approvals and consents

16.1 Except as otherwise set out in this agreement, and subject to any statutory obligations, a party may give or withhold an approval or consent to be given under this agreement in the party's absolute discretion and subject to any conditions determined by that party. A party is not obliged to give its reasons for giving or withholding consent or for giving consent subject to conditions.

17. Assignment and dealings

17.1 The Developer may not sell, transfer, assign or novate or similarly deal with (**Deal**) its right, title or interest in the Site or its rights or obligations under this agreement without Council's consent and unless:

a) the Developer gives Council no less than 10 business days notice in writing of the proposed Deal; and

b) Council gives the Developer notice in writing that it is satisfied (acting reasonably) that the person with whom the Developer wishes to deal (**Transferee**) is financially capable of complying with the terms of this agreement; and

c) a right of Council is not diminished or fettered in any way; and

d) the Developer and Transferee execute a deed of novation of this agreement prepared by Council in which the Transferee becomes contractually bound to fulfil the terms of this agreement.

17.2 For the avoidance of doubt, the Developer may not give Council a notice Deal with the Site under clause 17.1(a) if it is in breach of the agreement.

18. Costs

18.1 The Developer agrees to pay or reimburse the reasonable external costs of Council in connection with the negotiation, preparation and execution of this agreement within 10 business days after receipt of a tax invoice from Council.

18.2 The Developer also agrees that it is responsible for any costs associated with the registration of this agreement on the title of the Site, and costs associated with the enforcement of this agreement.

19. Entire Agreement

19.1 This agreement contains everything to which the parties have agreed in relation to the matters its deals with. No party can rely on an earlier document, or anything said or done by another party, or by a director, officer, agent or employee of that party, before this agreement was executed, except as permitted by law.

20. Further acts

20.1 Each party must promptly execute all documents and do all things that another party from time to time reasonably requests to affect, perfect or complete this agreement and all transactions incidental to it.

21. Governing law and jurisdiction

21.1 This agreement is governed by the law of New South Wales. Each party submits to the non-exclusive jurisdiction of its courts and courts of appeal from them. The parties will not object to the exercise of jurisdiction by those courts of any basis.

22. Joint and individual liability and benefits

22.1 Except as otherwise set out in this agreement, any agreement, covenant, representation or warranty under this Agreement by two or more persons binds then jointly and each of them individually, an any benefit in favour or two or more persons is for the benefit of them jointly and each of them individually.

23. No fetter

23.1 Nothing in this agreement will be construed as requiring Council to do anything that would cause it to be in breach of any obligations at law, and without limitation, nothing will be construed as limiting or fettering in any way the exercise of any statutory discretion or duty.

24. Representations and warranties

24.1 The parties represent and warrant that they have the power to enter into this agreement and comply with their obligations under the agreement and that entry into this agreement will not result in the breach of any law.

25. Severability

25.1 If a clause or part of a clause of this agreement can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause is illegal, unenforceable or invalid, that clause or part is to be treated as removed from this agreement, but the rest of the agreement is not affected.

26. Modification

26.1 No modification of this agreement will be of any force or effect unless it is in writing and signed by the parties.

27. Waiver

27.1 The fact that a party fails to do, or delays in doing, something the party is entitled to do under this agreement, does not amount to a waiver of any obligation of, or a breach of obligation by, another party.

27.2 A waiver by a party is only effective if it is in writing.

27.3 A written waiver by a party is only effective in relation to the particular obligation or breach in respect of which it is given. It is not to be taken as an implied waiver of any other obligation or breach or as an implied waiver of that obligation or breach in relation to any other occasion.

28. GST

28.1 If any party reasonably decides that it is liable to pay GST on a supply made to the other party under this agreement and the supply was not priced to include GST, then recipient of the supply must pay an additional amount equal to the GST on that supply.

29. Confidentiality

29.1 The parties agree that the terms of this agreement are not confidential and this agreement may be treated as a public document and exhibited or reported without restriction by any party.

30. Termination

30.1 This agreement is terminated on the date the Developer is released and discharged in accordance with clause 30.2.

30.2. Council agrees to:

a) provide a release and discharge of this agreement:

(i) upon the dedication or transfer of the Contribution Land in accordance with this agreement; and

(ii) completion of the works under the Vegetation Management Plan; and

(iii) approval of the Stormwater Management Plan.

b) do all things necessary to enable the Developer to arrange for the release and discharge to be registered by the Register-General in the relevant folio of the Register.

31. Explanatory Note

31.1 The explanatory note prepared for this agreement in accordance with the Environmental Planning and Assessment Regulation 2000 (NSW) must not be used to assist in construing this agreement.

Executed as an Agreement this day of 2018.

Executed by MidCoast Council)

....

General Manager Mayor

....

(print name) (print name)

Executed by Gloucester River Run)

Pty Ltd (ABN [insert]) in)

accordance with Section 127 of)

the Corporations Act 2001 by:)

....

Director Director

....

(print name) (print name)

Executed by Brian Beesley)

In the presence of)

....

Brian Beesly

Witness

.....

(print name)

Executed by Heather Beesley)

In the presence of)

.....

Heather Beesley

.....

Witness

.....

(print name)

Schedule 1

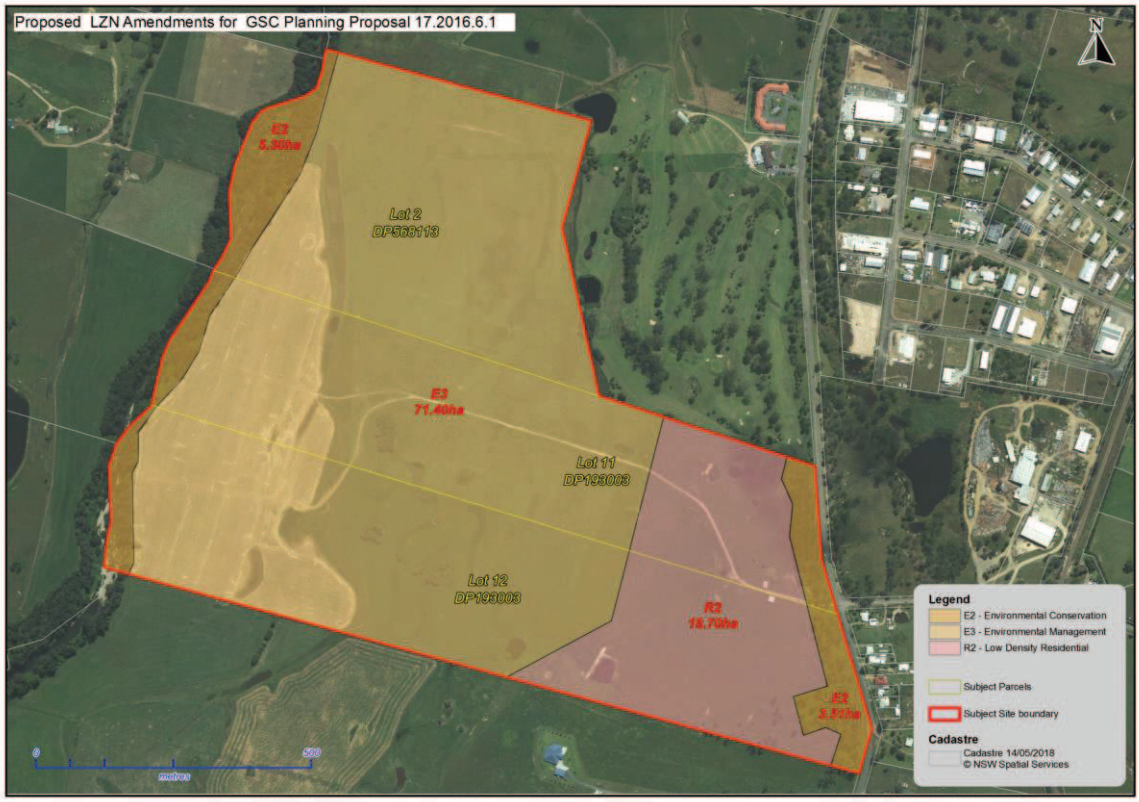
Section 7.4 Requirements

Sub-section of Act	Subject	Planning Agreement
Section 7.4 (1)	**Planning instrument and/or development application** – The Developer has: (a) sought a change to an environmental planning instrument. (b) made, or proposes to make, a development application. (c) entered into an agreement with, or is otherwise associated with, a person, to whom paragraph (a) or (b) applies.	(a) Yes (b) Yes (c) Not applicable
Section 7.4(3)(a)	**The land affected by this planning agreement**	Lot 2 DP 568113 Lot 11 DP 193003 Lot 12 DP 193003
Section 7.4(3)(b)	**The environmental planning instrument or the development affected by this planning agreement**	*Gloucester Local Environmental Plan* 2010
Section 7.4(3)(c)	**The scope, timing and manner of delivery of contribution required by this Agreement**	See clauses 5, 6, and **Error! Reference source not found.** and Schedules 3, 4 and 5.
Section 7.4(3)(d)	**Applicability of sections 7.11, 7.12, s7.24 of the Act**	This agreement does not exclude the operation of sections 7.11, 7.12 and 7.24. See clause 8.1.
Section 7.4(3)(e)	**Consideration of benefits under this Agreement if section 7.11 applies**	The benefits under this agreement are not to be taken into consideration in determining a development contribution under section 7.11. See clause 8.2.
Section 7.4(3)(f)	**Dispute resolution**	See clause 13 and Schedule 6.
Section 7.4(3)(g)	**Enforcement and security**	See clauses 9, 10, 11 and 12
Section 7.6	**Registration**	See clause 10.
Section 6.15(1)(d)	**Requirements relating to the issue of subdivision certificates**	Clause 7

Schedule 2

Site

Site means the land the subject of this planning agreement being Lot 2 DP 568133 and Lots 11 and 12 DP 193003 known as 4571 The Bucketts Way South, Gloucester as shown on the plan below:



Site ownership

Lot	**Owner**
Lot 2 DP 568133	Gloucester River Run Pty Ltd
Lot 11 DP 193003	Gloucester River Run Pty Ltd
Lot 12 DP 193003	Brian and Heather Beesley

Schedule 3

Site Contribution Land

Contribution Land means the area of land approximately 3.51 hectares in size on the Bucketts Way frontage of the Site which must be dedicated by the Developer to the Council in accordance with this agreement as shown in hatching on the plan below:

Schedule 4

Vegetation Management Plan

Purpose of Vegetation Management Plan

The Developer must dedicate the Contribution Land to Council to protect important native vegetation and habitat on the Site and to mitigate and offset the ecological impacts of the Development.

Before dedication of the Contribution Land to Council the Developer must commission relevantly qualified and experienced personnel to conduct primary intervention works to protect and restore habitat and function of the Contribution Land and to initiate an appropriate restoration trajectory of the Contribution Land. This work must be carried out in the accordance with the vegetation management plan prepared in accordance with this schedule.

This schedule sets out the principles that will underpin the vegetation management plan.

Preparation of Vegetation Management Plan

The Developer must prepare the vegetation management plan for the Contribution Land:

- to define the objectives and scope of the primary intervention works;
- in accordance with the findings of the GHD Biodiversity Report (June 2017) and the requirements set out in this schedule; and
- using a qualified and experienced ecological consultant, with input from qualified bushland regenerators

Scope of Vegetation Management Plan

The vegetation management plan will apply to the Site in so far as it will guide approved tree and habitat removal and set-out the practical measures to minimise clearing, manage the removal of approved hollow-bearing trees and utilise felled timber and native vegetation for rehabilitation and restoration activities.

The vegetation management plan will apply to the Contribution Land for the purposes of restoring the habitat within the Contribution Land. It will adopt a multi-pronged approach including (but not limited to);

- fencing and protection;
- natural regeneration;
- supplementary re-planting to offset trees that are removed from other parts of the Site; and
- habitat enhancement (logs, nesting boxes, food-plants for target fauna); and
- integrated weed management.

Objectives of the Vegetation Management Plan

The objectives of the vegetation management plan will be to:

- protect existing remnant native vegetation;
- encourage regeneration of functional native vegetation and enhance the habitat for native wildlife;
- control invasive weeds;
- minimise the impact of the Development on the native vegetation; and
- perform monitoring and maintenance activities to ensure that implementation of the mitigation measures are adequate and a satisfactory restoration outcome is achieved.

Vegetation and habitat removal

The vegetation management plan will:

- identify native trees and vegetation that are to be removed from the Site and specifically map the locations and define the hollow-bearing trees, koala food trees and Slaty Red Gum trees that are to be removed to facilitate development on the Site;
- minimise the loss of native trees from within the Site and especially minimise the removal of trees of good growth form, koala feed trees species, trees with hollows, trees with potential to form hollows, Slaty Red Gum trees;
- identify the provisions to ensure tree loss is minimised through lot lay-out patterns, one sided roads to retain natural areas, retention of trees in internal road verges, identification of a drainage reserve in the central southern boundary to protect existing trees outside the E2 Conservation zone;
- define the vegetation removal procedures for approved clearing, including procedures for the ecological supervision and appropriate dismantling of hollow-bearing trees to protect resident fauna;
- define the procedures for handling, transport and installation of logs, refurbished natural hollows, artificial nesting boxes and mulch into the Contribution Land;
- define other practical measures associated with vegetation and habitat removal and management, as required.

Natural Regeneration

The regeneration of the habitat should be undertaken by promoting natural ecological processes under an assisted natural regeneration regime with the aim being to accelerate, rather than replace, natural successional processes by removing or reducing barriers to natural forest regeneration such as soil degradation, competition with weedy species, and recurring disturbances (e.g., fire, grazing, and timber harvesting).

For the purposes of assisted natural regeneration of the habitat within the Contribution Land the following measures should be adopted by the Developer (the Works):

- protect the Contribution Land from disturbance through the installation of appropriate fencing, signage and other practical measures;
- undertake appropriate weed control measures as per methods described below;
- allow natural regeneration of plants within the regeneration area from all strata including groundcover, understorey and canopy; and
- if mulching is to be carried out within the Contribution Land only organic, weed-free natural mulch (preferably from on-site sources) shall be used.

Vegetation Planting

In relation to offsetting the impacts of the tree vegetation loss to facilitate the residential development on the rezoned land:

- replacement trees must be provided through active planting and maintenance of native trees into appropriate parts of the Contribution Land to offset the loss of native trees for development;
- a tree re-planting strategy must be applied for each native tree that is removed on the following basis:
    - re-planting of any Slaty Red Gum *Eucalyptus glaucina* at a ratio of 4:1 which will be propagated from local plant stock; and
    - re-planting of any other native trees with a trunk diameter greater than 150mm at a ratio of 2:1 and
    - re-planting of any other native trees at a ratio of 1:1.
- each replacement native tree shall be of the same species as the native tree it is replacing;
- not less than 20 Craven Grey Box *Eucalyptus largena* shall be used in the planting and these can be used as offset plants for any native tree other than Slaty Red Gum;
- the planting must be undertaken on the Contribution Land;
- the plantings must be placed irregularly within the Contribution Land to simulate a natural plant community;
- street trees must also be provided as part of the Development. Such trees are in addition to the replanting requirements of native trees. Street tree selection is to be made from the following species and size:
    - Syzygium australe 'Bush Cherry' - 10m high x 4m wide
    - Tristaniopsis laurina 'Water Gum' - 8m high x 4m wide
    - Waterhousia floribunda 'Weeping Lilly Pilly' - 12m high x 8m wide
    - Baloghia inophylla 'Brush Bloodwood' - 10m x 4m wide
    - Cupaniopsis parvifolia 'Small Leaf Tuckeroo' - 10m x 4 wide

- Any subdivision of development of the Site is to be accompanied by a landscape plan prepared by a qualified landscape architect.

- In the case of subdivision, planting densities should be one street tree per two residential lots and street trees must be installed and maintained as part of the subdivision construction process. Details of the locations, species and establishment/maintenance methods for street trees in the subdivision are to be provided at the development application stage for approval by Council.

Integrated Weed Management

A primary integrated weed management program must be implemented on the Contribution Land. This would involve an approach that incorporates weed management techniques such as:

- physical control such as hand removal, mulching, tilling and mowing;

- chemical control through the use of appropriate herbicides;

- biological control where available;

- cultural control by encouraging the competitiveness of desired species that helps to supress weed growth by reducing access to available sunlight, nutrients and moisture; and

- Parramatta grass has been identified as a priority for control

The Developer is responsible only for one primary treatment and one follow-up treatment in the Contribution Land before the dedication of that Land to Council. The intent of the primary treatment is to provide Council with land that is resilient and functional.

Development Design Principles

Any development of the Site shall be sensitively designed where it is adjacent to the Contribution Land. The following measures must be identified in the vegetation management plan and subsequently in any development planning:

- Any subdivision design should ensure that privately owned lots should not have rear boundaries to the Contribution Land (ie one-sided roads are to be provided);

- Appropriate transitioning should occur between the Contribution Land and any development. Roads and / or access driveways are to be adjacent to the Contribution Land to form adequate buffer areas;

- Native trees shall be retained in street verges, rear yards and other spaces, wherever possible;

- An open space drainage reserve is to be provided in the vicinity of the remnant native trees near the central southern boundary of the Site. A bio-retention facility for water quality purposes is to be provided for within this drainage reserve and shall be designed in a manner that protects all existing native trees.

Schedule 5

Stormwater Management Plan

As part of any future development of the Site a number of water quality objectives must be achieved in a Council approved stormwater management plan.

This schedule sets out the objectives of the stormwater management plan:

- To safeguard the surrounding environment to the site by maintaining or improving the quality of the stormwater run-off from any development of the Site;
- To protect and restore adjacent aquatic, estuarine or riparian ecosystems and bushland areas to the development site;
- To harvest rainwater and urban stormwater runoff for use where appropriate;
- To control the hydrological impacts of development on receiving surface and ground water systems by controlling the frequency, magnitude and duration of flows to preserve, as far as practicable, pre-development groundwater and surface water regimes and interactions;
- To control the impacts of the development on channel bed and bank erosion by controlling the magnitude, nature and duration of sediment-transporting flows;
- To promote disconnection of impervious areas to the drainage system by introducing appropriate measures to minimise the rate, frequency and volume of urban runoff events in order to improve WSD performance;
- To incorporate and integrate water quality measures into quality development design so that it fits into the natural landscape and contributes to the amenity of such development.

Schedule 6

Dispute Resolution

1.1 Dispute

Before court proceedings (other than for urgent interlocutory relief) may be commenced, the following steps must be taken to attempt to resolve any dispute that arises out of or in connection with this agreement.

1.2 Notice of Dispute

Notice (the notice of dispute) must be given in writing by the party claiming that a dispute has arisen to the other party (or parties) to this agreement specifying the nature of the dispute.

1.3 Negotiation

Within 10 business days or receipt of notice of dispute, the parties must meet to discuss the matter in good faith and use reasonable endeavours to settle or resolve the dispute (including attempting to agree upon an appropriate procedure for resolving the dispute).

1.4 Resolution Institute

If within 10 business days of the parties meeting to discuss the dispute:

(a) the dispute is not resolved; or

(b) an appropriate alternative dispute resolution process is not agreed,

then the parties will refer the dispute to the:

Resolution Institute
Level 1, 13-15 Bridge Street
Sydney NSW 2000
Telephone: (61-2) 9251 3366
Fax (61-2) 9251 3733

for facilitation of a mediation in accordance with Resolution Institute's Mediation Rules.

1.5 Mediator

The mediator appointed under this process must have reasonable qualifications and practical experience in the area of the dispute. If within 10 business days after referral of the dispute to the Resolution Institute the parties have not agreed upon the mediator or other relevant particular, the mediator and any other particular will be determined in accordance with the Resolution Institute's Mediation Rules.

1.6 Litigation

If the dispute is not finally resolved in accordance with this process, either party is at liberty to litigate the dispute.

1.7 Continue to perform obligations

Each party must continue to perform its obligations under this agreement despite the existence of a dispute.

Explanatory Note

Draft Planning Agreement

4571 The Bucketts Way South, Gloucester

1. Introduction

The purpose of this Explanatory Note is to provide a plain English explanation of the draft planning agreement (the **Planning Agreement**) between:

- MidCoast Council (**Council**); and
- Gloucester River Run Pty Ltd and Brian and Heather Beesley who are the registered landowners (**Developer**).

This Explanatory Note has been prepared jointly by the parties and is to be exhibited at the same time as the Planning Agreement.

The Planning Agreement will be entered into by the parties in accordance with section 7.4 of the *Environmental Planning and Assessment Act* 1979 (**the Act**).

2. Description of the Site

The land to which the Planning Agreement applies is land known as 4571 The Bucketts Way South, Gloucester (**the Site)** being:

- Lot 2 DP 568133
- Lot 11 DP 193003
- Lot 12 DP 193003

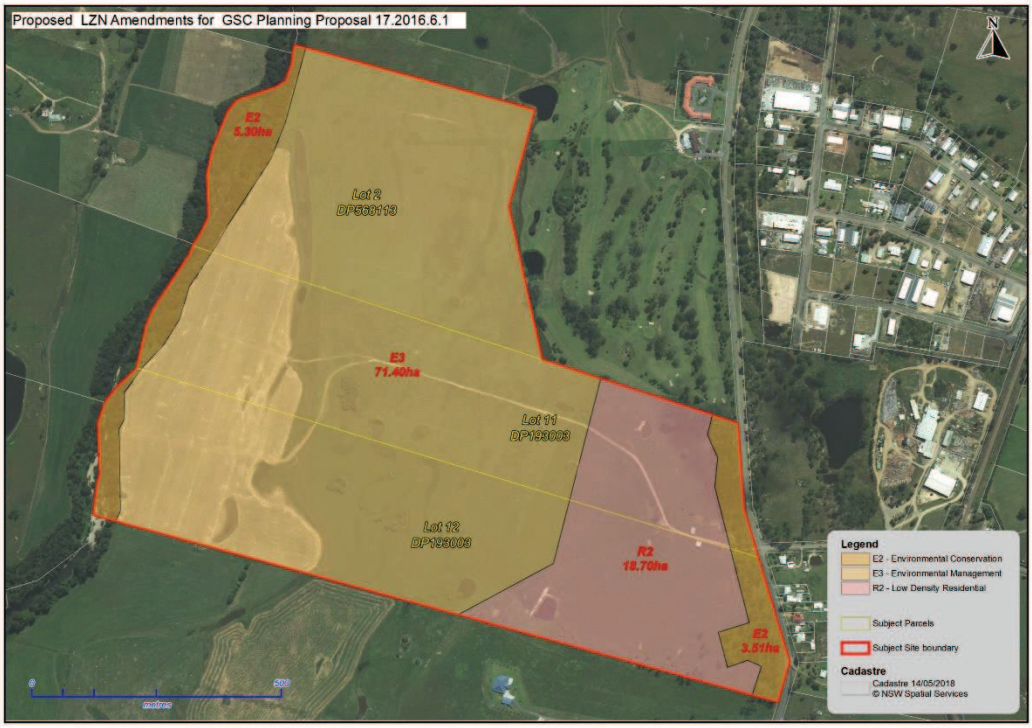
The Site is located in Council's local government area and is currently zoned E3 – *Environmental Management* under the *Gloucester Local Environmental Plan 2010* (**Gloucester LEP**).

3. Description of Proposed Development

Council, in response to a request from the Developer, proposes to rezone the Site under the Gloucester LEP to a combination of:

- R2 – *Low Density Residential*
- E2 - *Environmental Conservation*
- E3 – *Environmental Management*

This will enable future residential subdivision of part of the Site and protect the remaining environmentally sensitive areas (being the ecological buffer adjacent to The Bucketts Way South on the eastern side of the Site and the riparian corridor on the western side of the Site). The proposed rezoning of the Site is shown on the plan below.



The planning proposal was lodged in May 2013 and a gateway determination to proceed was issued by the Department of Planning and Environment in August 2014.

As part of the planning proposal, it is proposed that a Planning Agreement be entered into that requires:

- Dedication of part of the land to be zoned E2 to Council – this is the E2 land on the eastern side of the Site which is approximately 3.51 hectares in size and adjacent to The Bucketts Way South as shown on the adjacent plan (**the Public Land**);

- Preparation of a vegetation management plan for the Site to protect and enhance vegetation on the Site;

- Completion of the works in the vegetation management plan before dedication of the Public Land to Council; and

- Preparation of a stormwater management plan for the Site to control water quality in the future development.

4. Summary of Objectives, Nature and Effect of the Planning Agreement

The objectives of the Planning Agreement are to:

- Conserve and enhance the natural environment, including threatened species, by ensuring that a vegetation management plan is prepared and implemented which:

  (a) Protects existing remnant native vegetation;

  (b) Encourages natural vegetation regeneration;

  (c) Controls invasive weeds;

  (d) Minimises the impact of any development on native vegetation;

  (e) Provides offset plantings to compensate for the loss of vegetation;

  (f) Encourages design that provides appropriate buffering and transitioning between the residential development and native vegetation.

- Conserve and enhance the natural environment by ensuring that a stormwater management plan is prepared which contains a number water quality objectives for the future development on the Site.

- Provide for the amenity of the urban area by retaining a natural bushland through the dedication of the Public Land to Council.

Under the Planning Agreement, the Developer must:

- Prepare a vegetation management plan and stormwater management plan for the Site before or with the lodgment of any development application for the Site. These plans must be approved by Council and meet the requirements set out in the Planning Agreement.

- Complete the works in the vegetation management plan on the Site before dedication of the Public Land to Council.

- Dedicate the Public Land to Council after completion of the works in the vegetation management plan and before the issue of a subdivision certificate or construction certificate for any development on the Site.

This will ensure that the environmentally sensitive nature of the Site is conserved and enhanced, and it will contribute to the preservation of biodiversity in the local government area.

If the Developer fails to dedicate the Public Land to Council as required by the Planning Agreement, then Council may compulsorily acquire that land and will hold a bank guarantee from the Developer to cover the cost of doing so.

Further contributions under section 7.12 of the Act will be levied on the subdivision consent in accordance with the Council's Development Contribution Plan.

5. Assessment of the merits of the proposed agreement

The Planning Agreement sets a framework to conserve and enhance the environmentally sensitive habitat on the Site, and to provide for the amenity of the urban area by retaining a natural bushland setting.

The Public Land has been declared environmentally important in two studies:

- The *Gloucester Grey Crowned Babbler Retention Plan* – the area is identified for conservation in this plan to increase and maintain habitat for the threatened eastern grey crowned babbler;

- The GHD Biodiversity Report dated June 2017 mapped areas of high ecological constraint, which included all 3.9-hectares of the open forest on Site (being part of the Public Land) and considered that this constrained area had values associated with: connectivity, endangered ecological communities, threatened flora, potential koala habitat, threatened fauna, hollow-bearing trees and native vegetation. This report identified:

    - Forty-nine (49) plant species - comprising 23 native plant species and 26 exotic plant species

    - One (1) threatened plant species was tentatively identified (Eucalyptus glaucina).

    - Three (3) class 4 weeds (Mother of Millions, Prickly Pear, Fireweed)

    - Two (2) vegetation community types, namely:

        - 3.9-hectares of River-flat Eucalypt Forest (EEC) (comprising Forest Red Gum/ Grey Box open forest) with an intact canopy, but highly modified lower vegetation layers (ie. no shrub layer and mostly exotic groundcover layer). This community was considered to be a groundwater dependent ecosystem

        - Agricultural Land/ exotic Grassland.

    - Twenty-seven (27) native fauna species

    - Two (2) fauna habitat types (exotic grassland and open forest)

    - The open forest habitat type contained potential foraging resources, 163 hollow-trees (of which only 48 are being retained on the Public Land), shelter habitat including fallen logs and ephemeral aquatic habitats

    - Five (5) threatened fauna species (brush-tailed phascogale (previous record),

squirrel glider (3 individuals observed), yellow-bellied sheathtail-bat, little bentwing-bat and eastern freetail-bat)

- Thirteen (13) additional potential threatened fauna species (regent honeyeater, spotted harrier, red goshawk, powerful owl, grey-crowned babbler, large-eared pied bat, eastern bentwing-bat, koala, grey-headed flying-fox, greater broadnosed-bat,

- Nearby koala records, including records adjacent to the subject site (noting the Site is potential koala habitat as defined by SEPP44)

- Relatively low connectivity of the forest habitats of Site with proximal or nearby areas

Preparation of the vegetation management plan, completion of the works identified in the vegetation management plan and dedication of the Public Land to Council, will ensure that the environmentally sensitive nature of the Site is conserved and enhanced.

Preparation of the stormwater management plan as part of the development application process for the future development of the Site will also ensure that the water quality from stormwater run-off will meet a number of water quality objectives.

6. Promotion of the Public Interest and Objects of the Act

The Planning Agreement will promote the public interest by encouraging ecologically sustainable development including the conservation of biological diversity and preservation of the natural environment.

More generally, the Planning Agreement promotes the objects of the Act including:

- the proper management and conservation of natural resources (s 1.3(a));

- facilitating ecologically sustainable development (s 1.3(b));

- the protection of the environment (s 1.3(e)); and

- promoting good design and amenity of the built environment (s1.3(g)).

7. Consistency with Guiding Principles for Local Government

The Planning Agreement is consistent with a number of the guiding principles for local government set out in s 8A of the *Local Government Act* 1993 including:

- Councils should carry out functions in a way that provides the best possible value for residents and ratepayers;

- Councils should manage lands so that current and future local community needs can be met in an affordable way; and

- Councils should consider the principles of ecologically sustainable development.

8. Planning Purpose of the Planning Agreement

The Planning Agreement provides a mechanism to ensure that environmentally sensitive land is protected and conserved through the dedication of the Public Land to Council after the completion of environmental rehabilitation works on the Site by the Developer. The dedication of the Public Land to Council is vital for:

- providing a buffer between The Bucketts Way and any future development on the Site; and

- ensuring a vegetation corridor remains as part of the *Gloucester Grey Crown Babbler Retention Plan.*

The agreement is a reasonable means of achieving this planning purpose - providing security and certainty to the process. The public benefit includes protection of vegetation and biodiversity, increased amenity and the provision of a natural bushland reserve for recreation.

The agreement is also a reasonable means of securing water quality objectives for the future development on the Site. These controls are currently not provided for in Council's development control plan.

9. Conformity with Council's Capital Works Program

There is no direct link between the Planning Agreement and Council's Capital Works Program. However, the ongoing environmental enhancement of the area is consistent with Council's responsibilities of managing the natural environment.

10. Requirements to be complied with before subdivision certificate

The Planning Agreement requires the Developer to complete the works in the vegetation management plan and dedicate the land to Council before the issue of a subdivision certificate for the first stage of any development on the Site.

Dated:

Signed ……..... MidCoast Council

Signed: …… Gloucester River Run Pty Ltd

Signed: …… Brian Beesley

Signed: …… Heather Beesley