PLANNING PROPOSAL – PP005

Shoalhaven Local Environmental Plan 2014

Rezoning of deferred land at Warrah Road, Bangalee (part of the 'Crams Road Urban Release Area')

Prepared by
Planning & Development Services Group
Shoalhaven City Council

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Shoalhaven City Council

www.shoalhaven.nsw.gov.au

Shoalhaven City Council
PO Box 42
NOWRA NSW 2541
telephone (02) 4429 3111
facsimile (02) 4422 1816
e-mail planning@shoalhaven.nsw.gov.au
internet www.shoalhaven.nsw.gov.au

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1 Introduction

This Planning Proposal (PP) seeks to resolve the long term development potential of land within the 'Crams Road Urban Release Area' that was deferred from Shoalhaven Local Environmental Plan (LEP) 2014. The land is currently zoned Rural 1(d) General Rural under Shoalhaven LEP 1985. The land is proposed to rezoned to a mix of E2 - Environmental Conservation, RU2 - Rural Landscape and R2 - Low Density Residential.

This is a revised version of the PP that was submitted to the NSW Department of Planning and Environment (DPE) for Gateway Determination in April 2016. It has been prepared in support of a request to amend the Gateway Determination in accordance with Council's resolution on 8 August 2017.

1.1 Subject Land

The subject land is located at Bangalee, approximately 3.5 km north west of the Nowra town centre, within Shoalhaven LGA. The site location is shown in Figure 1 below:

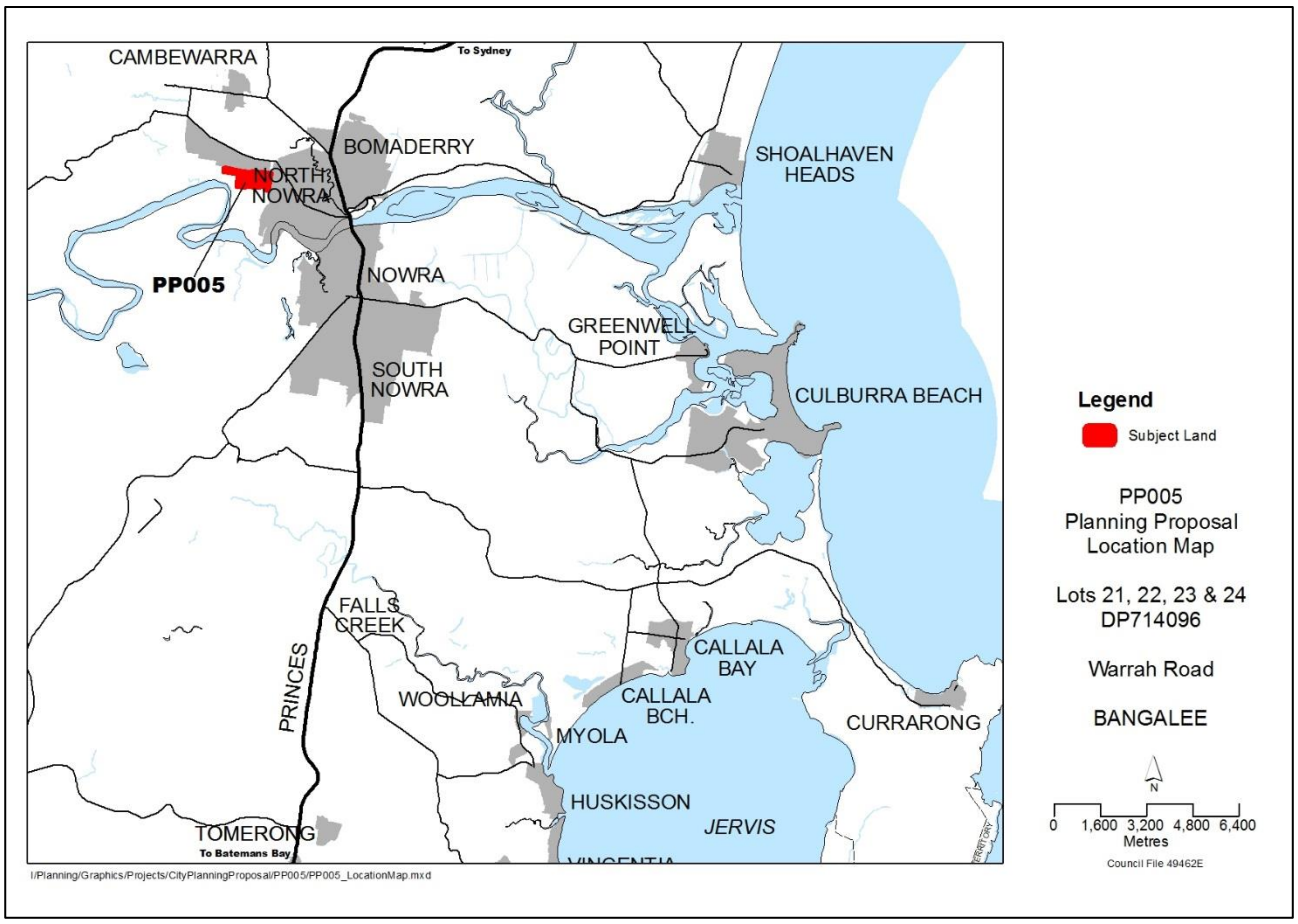


Figure 1 – Site Location Map

The subject land is comprised of Lots 21-24 DP 714096. The subject land is bordered by existing large lot residential development to the north (R2 - Low Density Residential), small lot residential to the east (R2 - Low Density Residential) and small rural holdings (E2 -

Environmental Conservation and E3 - Enviropmental Management) to the south and west. The subject land covers an area of approximatetly 80 hectares, and is shown in Figure 2 below.

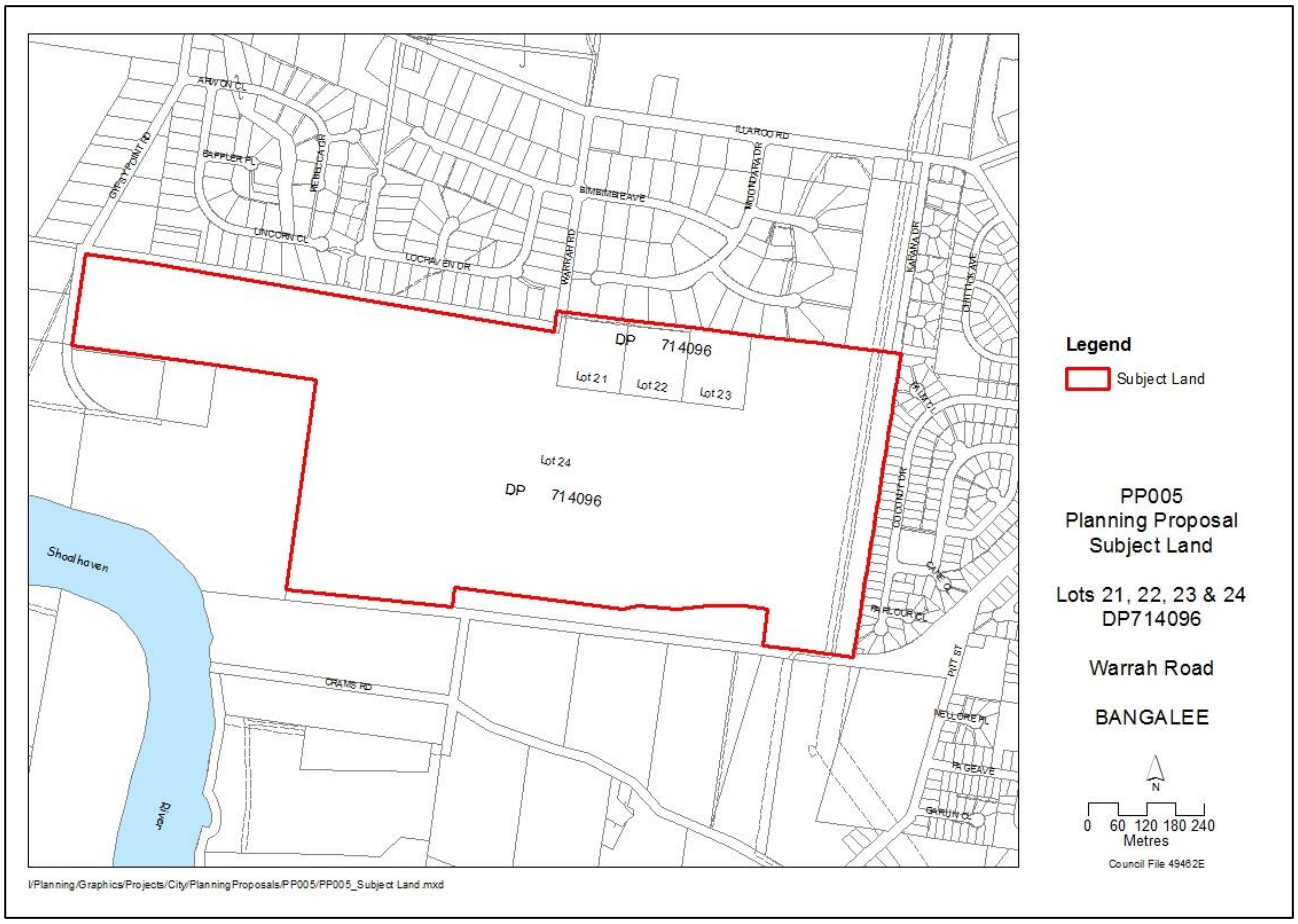


Figure 2 - Subject Land

The subject land is predominately vegetated with the cleared and partially cleared areas in the east as shown in Figure 3 below. There are no existing improvements on site. The site generally drains to the south and west and is part of the catchment of the Shoalhaven River. The land drains to the Shoalhaven River via a small network of intermittent watercourses .

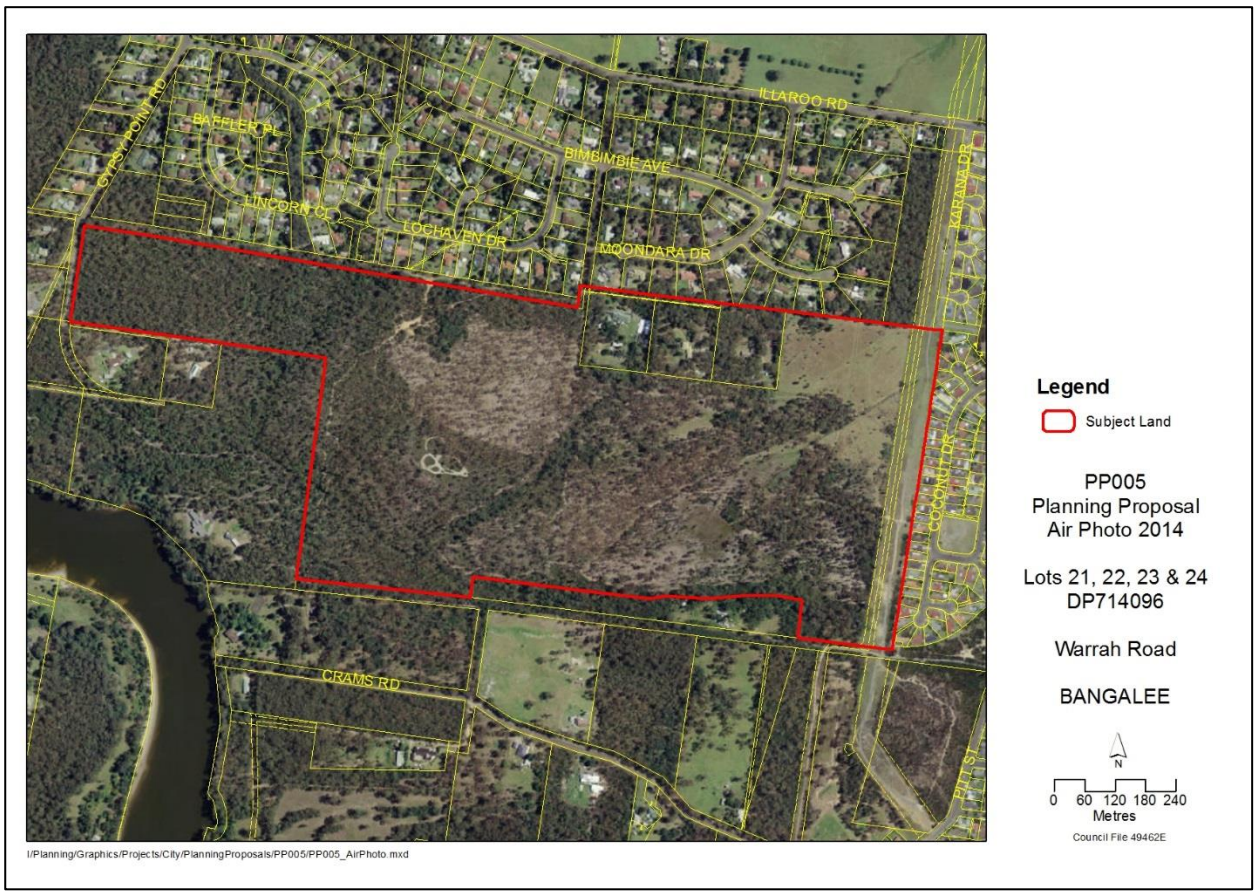


Figure 3 - Aerial Photo

The land was deferred from Shoalhaven LEP 2014, as shown in Figure 4 below, and as such the provisions of Shoalhaven LEP 1985 continue to apply. Under Shoalhaven LEP 1985, the site is currently zoned Rural 1(d) (General Rural).

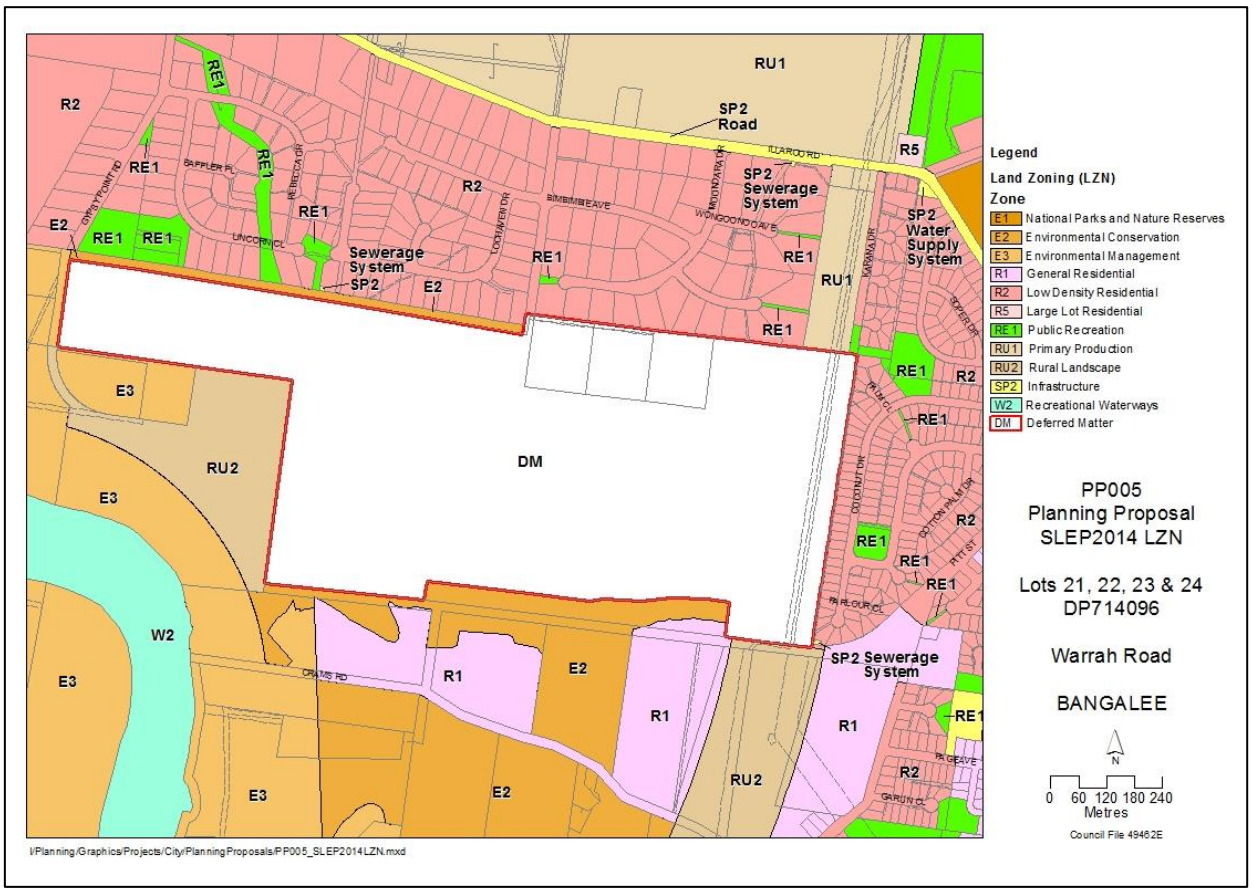


Figure 4 - Current Land Use Zones

1.2 Background

The Crams Road investigation area (CRIA) was initially identified as one of seven (7) potential Urban Release Areas (URAs) in the Nowra-Bomaderry Structure Plan (NBSP) which was adopted by Council in 2006 and endorsed by DPE in 2008.

The NBSP identified an area of ninety (90) hectares for potential rezoning at Crams Road, as shown in Figure 5 below, subject to further studies, including a threatened species and biodiversity assessment.

The NBSP also states that the URAs will be released in phases, having regard to a range of factors such as road and traffic issues. The CRIA was identified as 'phase 4' in recognition of the need to resolve traffic congestion associated with the Shoalhaven River crossing. The NBSP specifically links the release of the CRIA with completion of a new river crossing.

The NBSP identified an investigation area at Crams Road of 90 ha, subject to completion of a number of assessments, including threatened biodiversity and bushfire risk management. The NBSP applied a notional dwelling density of 12 dwellings/ha to estimate a total dwelling yield of 1080 dwellings.

As detailed later in this PP, investigations completed to date have shown that a total of 50 ha in the CRIA is potentially suitable for residential development. As such, the NBSP

overestimated potential housing supply for the CRIA by 480 approx. dwellings. This may need to be offset by increasing densities elsewhere in the NBSP area.

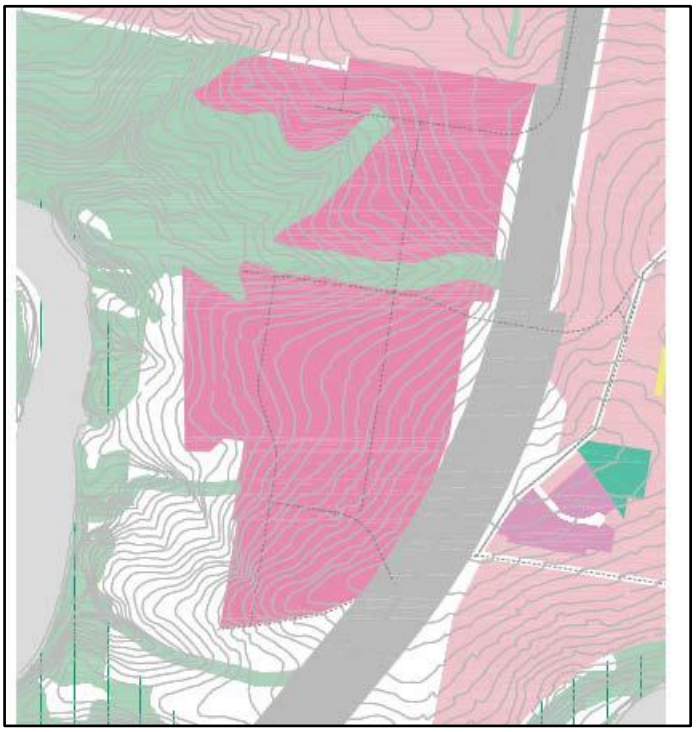


Figure 5 - Extract from NBSP - Crams Road Future Living Area

In 2008, Council engaged Allison Hunt and Associates (AHA) to undertake a strategic biodiversity assessment of the CRIA in accordance with the requirements of the NBSP. This was done as part of a broader assessment that considered possible bio-certification of the NBSP area. Based on the findings of the AHA assessment, a significant reduction in the proposed Crams Road URA was proposed in the exhibited draft Shoalhaven LEP 2014, as shown in Figure 6 below.

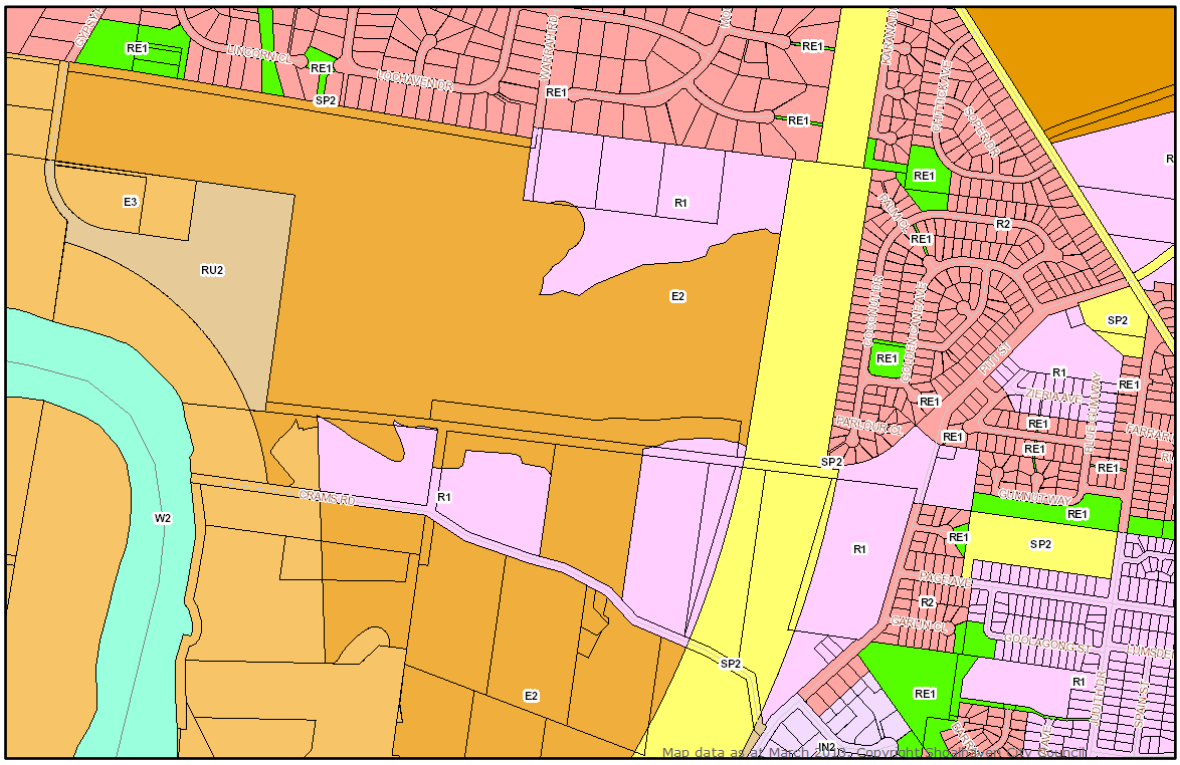


Figure 6 - Extract from draft Shoalhaven LEP 2014 as exhibited - Crams Road URA

During the exhibition of the draft Shoalhaven LEP 2014, parts of the subject land were cleared by the owner, resulting in a Remediation Order being imposed by the NSW Office of Environment and Heritage (OEH) requiring rehabilitation of parts of the site.

The proponent made a submission to the then draft Shoalhaven LEP 2014 that requested additional areas outside the exhibited zone boundaries be considered for rezoning to R1 - General Residential as shown in Figure 7 below.

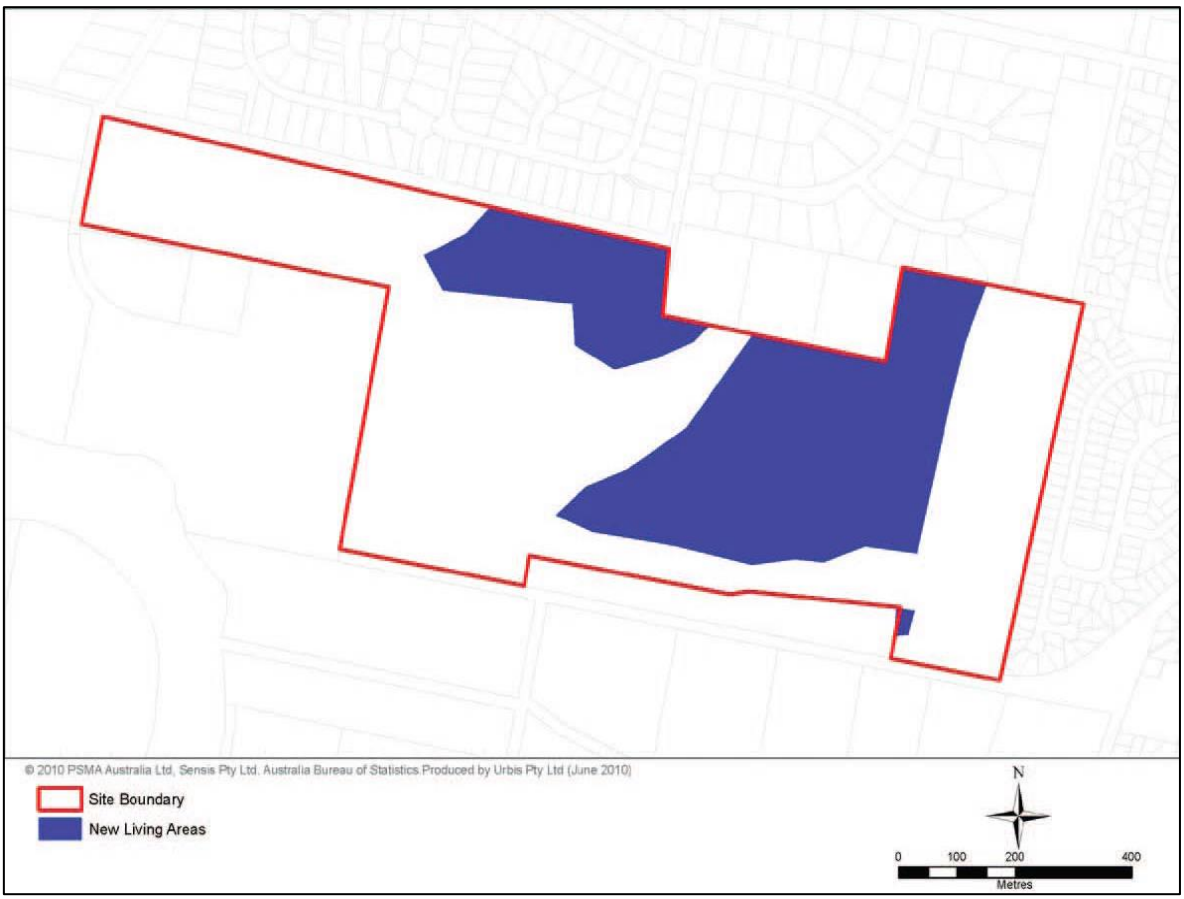


Figure 7 - Extract from proponent's submission to draft Shoalhaven LEP 2014 - proposed 'New Living Area'

Following the exhibition of the draft Shoalhaven LEP 2014, Council resolved to:

a) Defer the area identified as Lots 21, 22, 23, 24 DP 714096 from the Draft LEP 2013 to enable further specific consideration;
b) …
c) Consider a planning proposal for the site after the completion of the investigations into alleged illegal clearing.

Accordingly, the subject land was deferred from the notified Shoalhaven LEP 2014.

In 2014 the proponent submitted a PP to Council that sought to rezone a larger proportion of the subject land to R1. A copy of the proponents preferred land use zones is shown in Figure 8 below.

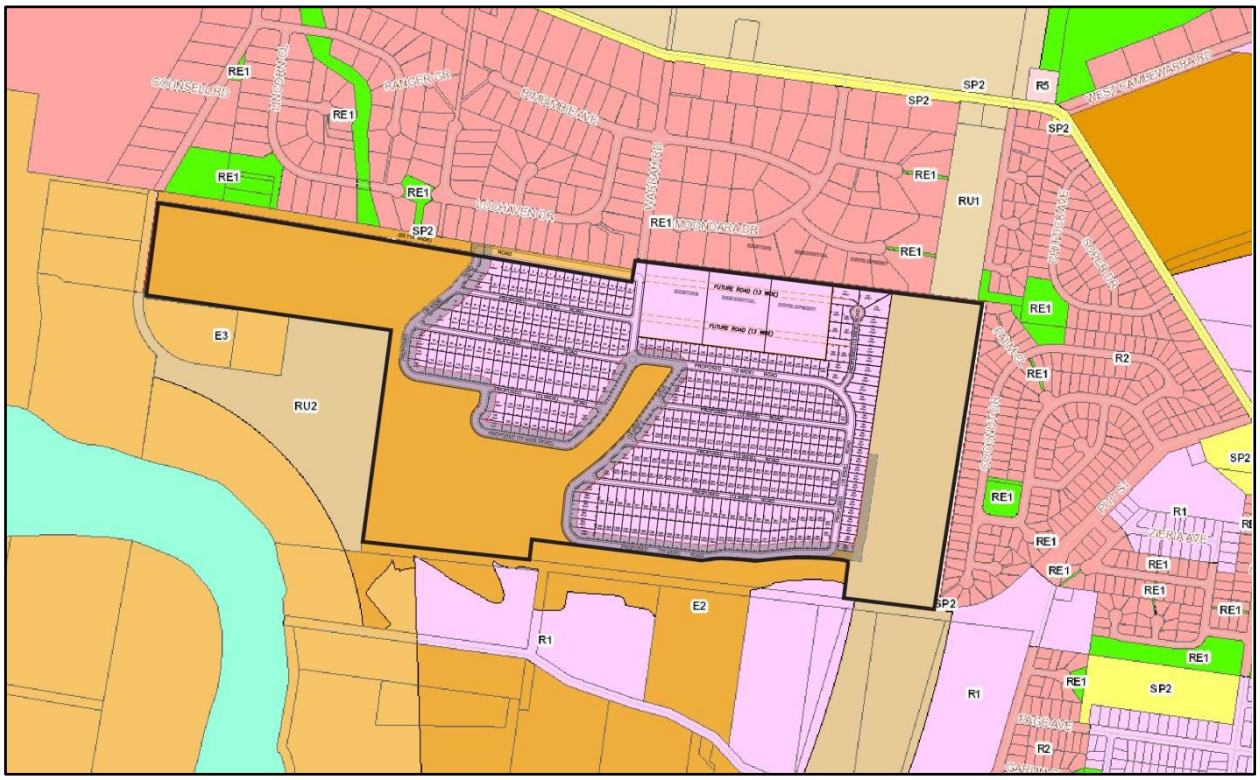


Figure 8 - Extract from the proponent's PP - Proposed land use zones

The proposed increase in the R1 area was based on ecological assessments commissioned by the proponents in 2010 and 2011. (The findings of the proponents' ecological assessments differed from the findings of the AHA assessment commissioned by Council).

The proponents' PP was considered by Council's Development Committee meeting on 7 October 2014, which resolved that:

a) Council support the draft Warrah Road, Bangalee Planning Proposal in principle, pending an independent peer review of the conflicting threatened species and biodiversity assessments that exist over the site – prior to submitting the proposal for Gateway determination;

b) Council engage an independent consultant (to be funded by the proponent) to peer review the existing threatened species and biodiversity assessments related to the site of the Warrah Road, Bangalee Planning Proposal and make recommendations on the biodiversity significance of the site;

c) A report of the findings of the peer review be reported back to Council with recommendations on the preferred approach to continue the proposal; and

d) ...

1st Peer Review of Biodiversity Studies

Council subsequently engaged NGH Environmental to undertake an independent peer review of the biodiversity studies (Council's and proponents') to determine the extent of high conservation value (HCV) land. The peer review did not involve further surveys/studies over the site.

NGH Environmental applied the 'precautionary principle': areas in doubt due to a lack of detailed surveys were categorised as HCV. The NGH Environmental report also outlined the survey requirements and information to more accurately map the extent of HCV land.

The extent of HCV land recommended by NHG is shown in Figure 9 below.

Figure 9 - Extract from NGH Report - High Conservation Value Land

On 1 December 2015, Council resolved to prepare a PP based on the findings of the NGH Environmental peer review (refer to Figure 10) and:

> *Submit the Planning Proposal for Gateway determination and request the NSW Department of Planning and Environment determine the appropriateness of further biodiversity investigations over the site, to support the possible increase in residential zoned land…*

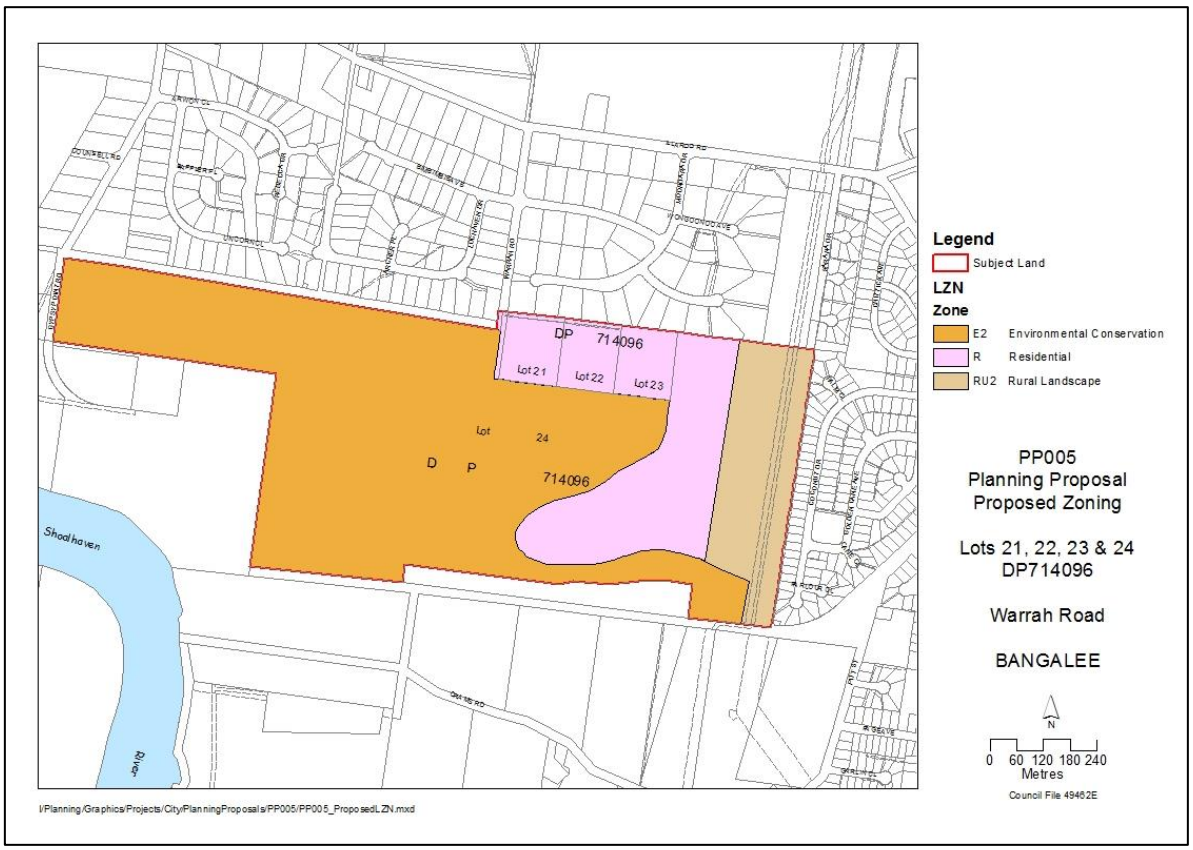


Figure 10 – Proposed zoning adopted by Council on 1 December 2015 for submission to DPE for Gateway Determination

Gateway Determination

Council submitted the PP to DPE in March 2016 and DPE provided a Gateway Determination in July that year. Meanwhile, a further biodiversity study prepared by OMVI on behalf of the proponents was submitted to Council. The Gateway Determination permitted the PP to progress subject to 8 conditions which are:

1. *The planning proposal is to be revised to remove the proposed residential zoning over the lands in Sub-remediation Area B of the s.38 Remedial Direction under the Native Vegetation Act, 1993. An appropriate environmental zone is to be applied to this area.*

2. *The following studies are to be prepared (or existing studies revised) prior to exhibition of the planning proposal:*
   (a) Bushfire Hazard Study
   (b) Aboriginal Archaeological Assessment
   (c) Biodiversity Review of Lots 21-23
   (d) Provision of infrastructure - water, sewerage and electricity to confirm demand and supply issues.

3. *Following completion of the required studies, the planning proposal is to be revised to confirm the explanation of provisions, and update proposed zoning, floor space ratio, lot size, and height of building maps prior to public exhibition. A copy of the updated proposal is to be provided to the Department for review prior to exhibition of the proposal.*

4. *Council is to update its consideration of section 117 Directions 2.1 Environmental Protection Zones, 2.3 Heritage Conservation and 4.4 Planning for Bushfire Protection following consultation with the Office of Environment and Heritage and the NSW Rural Fire Service. The updated considerations are to be included in the exhibited planning proposal.*

5. *Community consultation is required under sections 56(2)(c) and 57 of the Act as follows:*
   (a) the planning proposal must be made publicly available for a minimum of 28 days; and
   (b) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of A Guide to Preparing LEPs (Department of Planning and Environment 2013).

6. *Consultation is required with the following government agencies prior to exhibition, in accordance with the Act and to comply with the requirements of relevant section 117 Directions:*
   - *NSW Rural Fire Service;*
   - *Office of Environment and Heritage;*
   - *Office of Water;*
   - *Endeavour Energy;*
   - *Shoalhaven Water; and*
   - *Roads and Maritime Services.*

   The agencies are to be provided with a copy of the planning proposal and any relevant supporting material and given at least 21 days to comment on the proposal. Any agency advice received and Council's proposed response to this advice should be placed on public exhibition with the planning proposal.

7. *7. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).*

8. *The timeframe for completing the LEP is to be 12 months from the week following the date of the Gateway determination.*

2nd Peer Review of Biodiversity Studies

A report to Council in December 2016 on the Gateway Determination noted that the proponents had requested that a further biodiversity study prepared by OMVI in 2016 on their behalf be considered. Council resolved to consider the proponents additional biodiversity assessment prior to the public exhibition (MIN16.944).

Thus, Council engaged NGH Environmental to prepare an independent peer review of the OMVI 2016 study. The scope of the peer review was to:

- reassess areas of High Conservation Value (HCV) land; and
- determine if further field studies are still required to accurately define HCV areas.

This peer review was completed in June 2017. It concluded that adequate survey has been undertaken to determine HCV lands at the subject site. A full copy of the report prepared by NGH Environmental is provided as Attachment B. The revised HCV map prepared by NGH Environmental is shown in Figure 11 below.

Figure 11 – Final HCV Map

2 Part 1 – Objective and Intended Outcomes

The objective of this PP is to resolve the planning status of the deferred land at Warrah Road, Bangalee. This will be achieved by:

- Protecting land of high conservation value (HCV) land by rezoning it to an appropriate environmental zone.
- Protecting the Western Bypass Corridor by rezoning it to RU2 - Rural Landscape.
- Ultimately enabling residential development to occur on the non-HCV land (subject to satisfaction of Part 6 of Shoalhaven LEP 2014).

3 Part 2 – Explanation of Provisions

3.1 The Proposed LEP Amendment

The subject land is currently zoned Rural 1(d) (General Rural) under Shoalhven LEP 1985. It is proposed to amend the following map overlays in Shoalhaven LEP 2014:

- Land use
- Minimum lot size
- Height of Buildings
- Urban Release Area
- Local Clauses
- Acid Sulfate Soils

Land Use Zones

The proposed layout for residential development has been revised based on the outcomes of the second biodiversity peer review (NGH Environmental 2017). The proposed zones are shown in Figure 12 below.

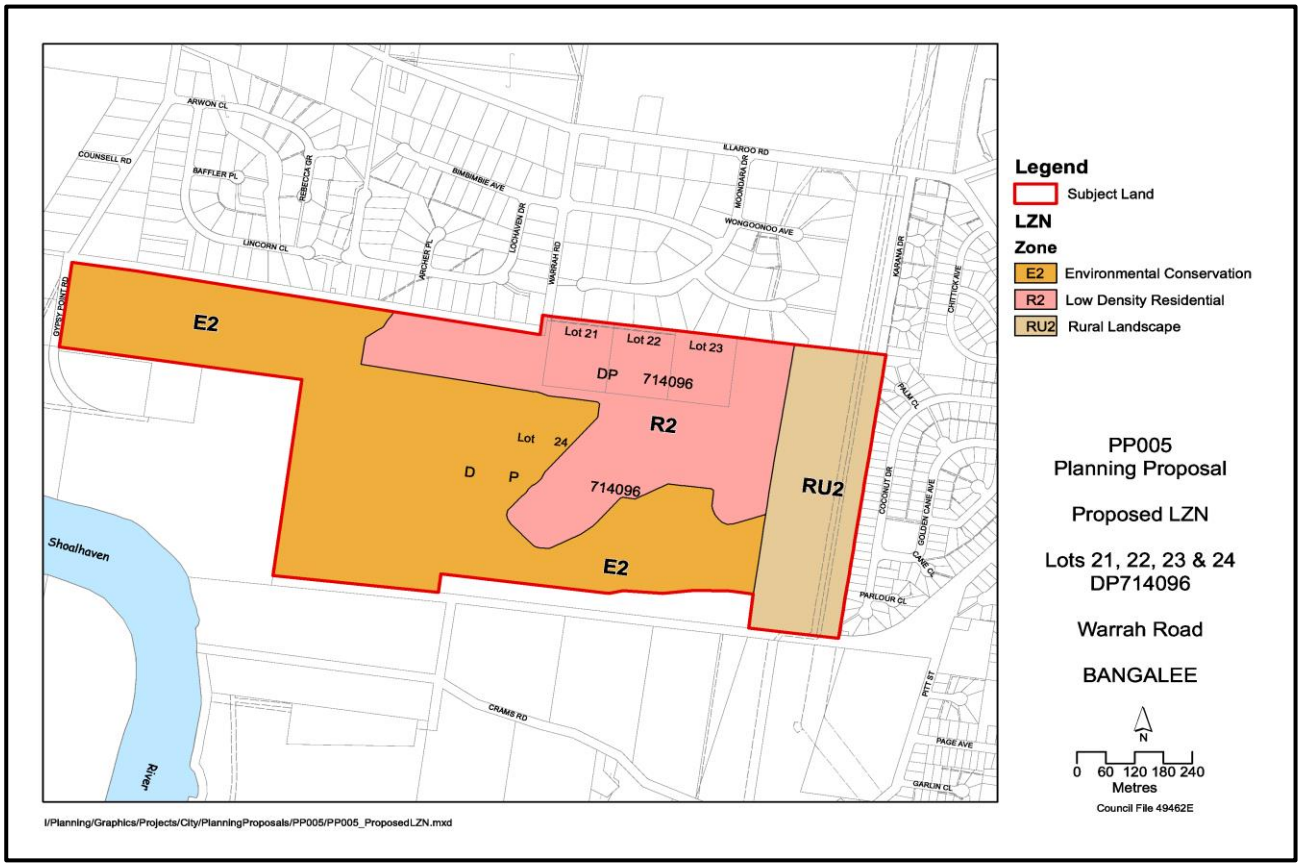


Figure 12 – Proposed Land Use Zone Map

Minimum Lot Size Zones (LSZ)

A draft lot size map is provided in Figure 13.

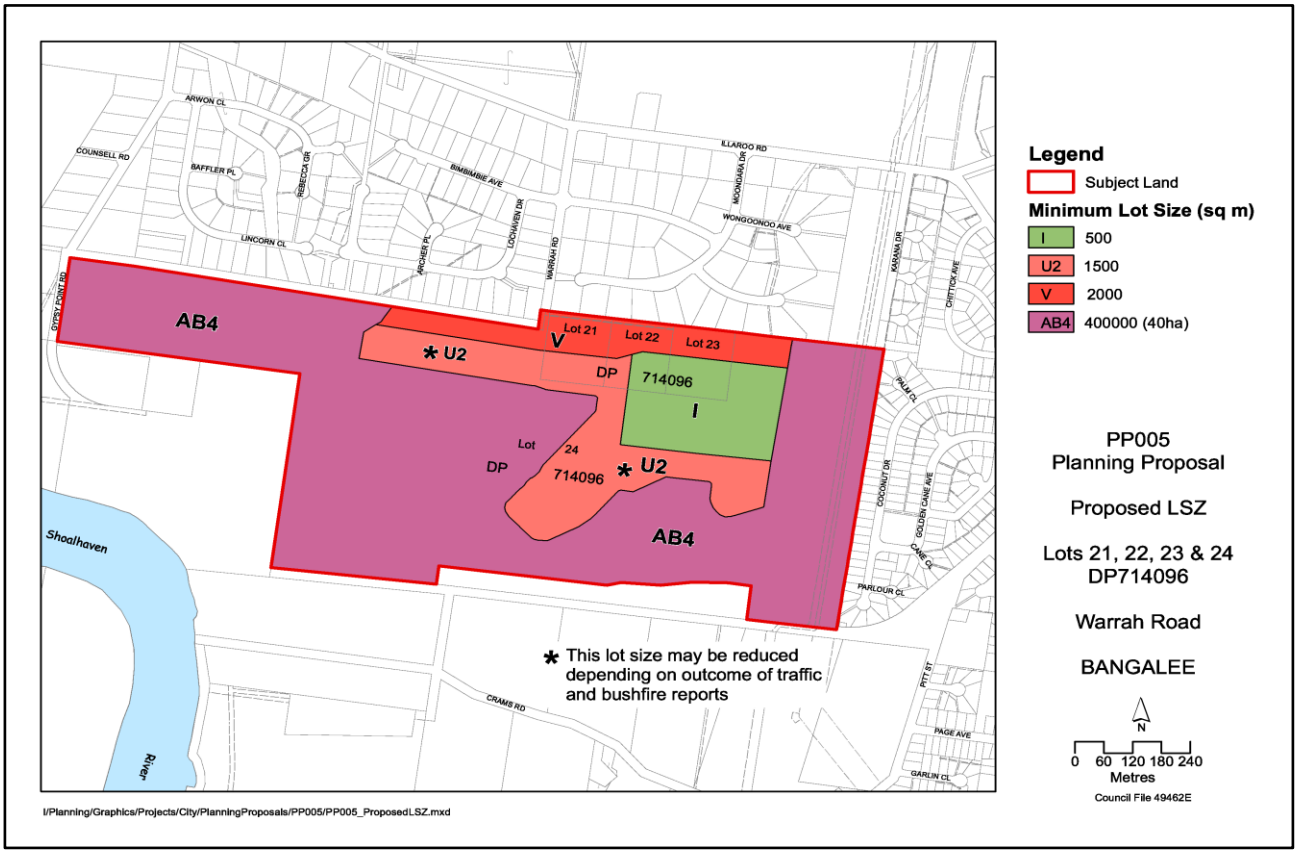


Figure 13 – Proposed Lot Size Zone Map

It is proposed to provide a 2000 m^2 lot size across the northern part of the developable footprint to maintain a consistent landscape character and amenity for the existing dwellings to the north.

A 500 m^2 lot size is proposed for the central part of the development footprint that is separated from existing large lots to the north and bushfire hazard in the west and south. This is considered to be the most appropriate part of the site for this density of development, providing a transition from larger lots to smaller lots within the development footprint.

A 1500 m^2 minimum lot size is proposed for the residential land adjoining the proposed E2 zone. This lot size reflects the constraints on site in relation to bushfire and traffic. Each lot adjoining the E2 zone will need a bushfire asset protection zone (APZ) between the dwellings and the adjoining bushland. Planning for Bushfire Protection (PBP) also requires perimeter road access between the future dwellings and the adjoining bushland. The nett result of these bushfire planning requirements is that the lots on the fringe of the footprint will need to be larger.

There is also potential for traffic issues to result in a need to limit the number of lots that can be achieved on the site. If lot numbers are to be limited it is considered desirable to provide the largest lots adjacent to the E2 zone for amenity reasons and to reduce the number of dwellings on the “front line” in the event of bushfire.

It is proposed to request a notation in the Gateway that this may be revised in the final PP subject to traffic and bushfire investigations.

Urban Release Areas (URA)

All parts of the site to be zoned R2 are proposed to be identified as Urban Release Areas with detailed provisions relating to traffic infrastructure to be determined as a result of specialist studies.

Height of Buildings (HOB)

All parts of the site to be zoned R2 are proposed to be provided with a maximum building height of 8.5m.

Riparian Lands and Watercourses

The existing watercourse and its tributaries are to be mapped in the LEP as shown in Figure 14 below:

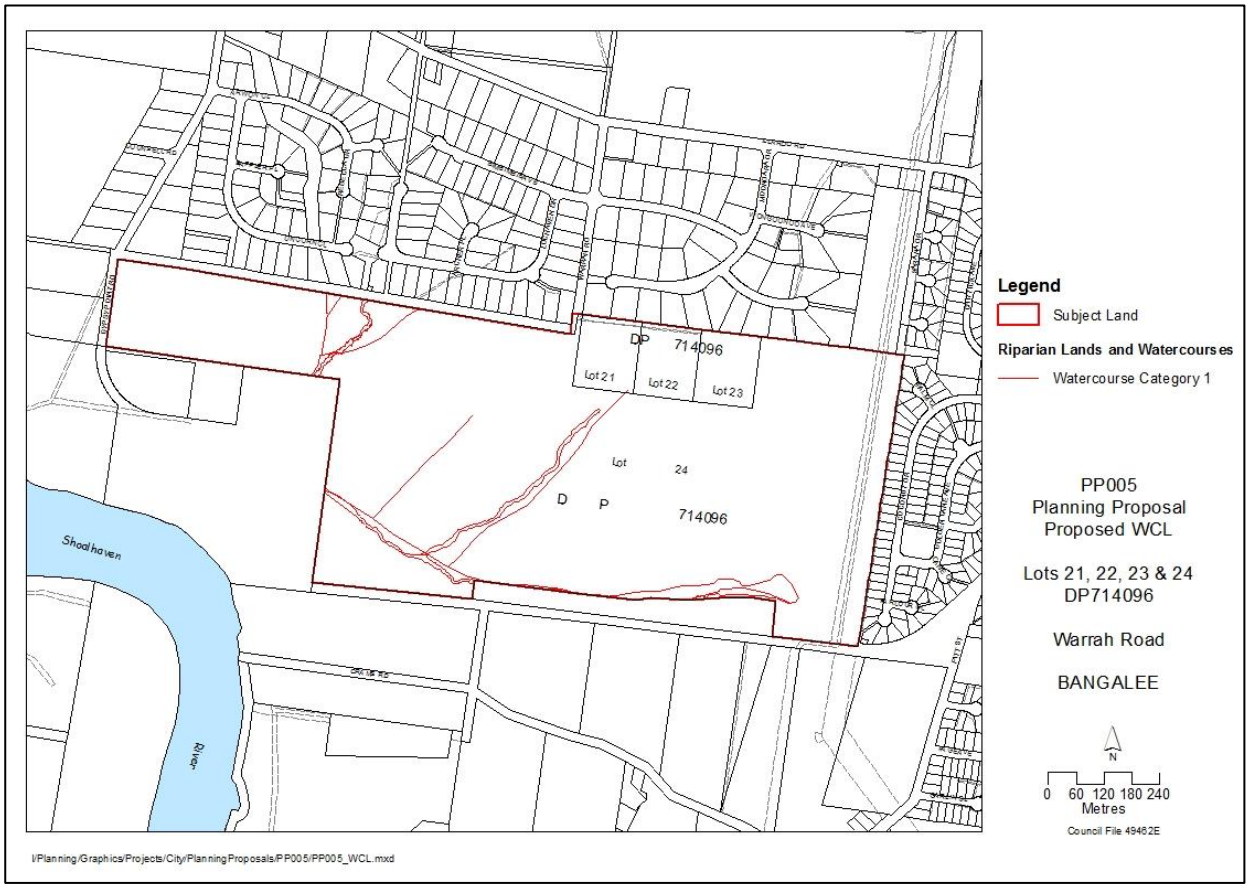


Figure 14 - Proposed Riparian Lands and Watercourses Overlay

Acid Sulphate Soils Overlay (ASS)

The entire site is to be mapped as Class 5 Acid Sulphate Soil land under the LEP.

Clauses Overlay (CLS)

The part of the site to be zoned RU2 Rural landscape is to be mapped as being subject to Clause 7.21 of the LEP. This is an existing clause in the LEP that relates to the future use of the land for a road corridor.

3.2 The Proposed Gateway Determination Amendment

Amend the Preamble to the Determination

The original gateway determination was provided at a time when there was less certainty for the layout of the proposal. It is proposed to update the preamble of the Gateway Determination to reflect the more advanced state that the proposal is now in. The proposed amendments are highlighted below in red.

> *Planning proposal (Department Ref: PP_2016_SHOAL_002_00): to enable residential development and environmental protection on Lots 21 to 24 DP714096, Warrah Road, Bangalee to:*
>
> - *rezone land from Rural 1 (d) (General Rural) to part E2 Environmental Conservation,* **R2 Low Density Residential** *and RU2 Rural Landscape,'*
> - *update the Minimum Lot Size Map (LSZ) to establish a minimum lot size of 40 ha for land zoned E2 Environmental Conservation and RU2 Rural Landscape* **and lot sizes of between 500 m^2 and 2000 m^2 for the R2 Low Density Residential Zone**;
> - *update the Riparian Lands and Watercourses Map (WCL) to identify Category 1 Watercourses;*
> - *update the Acid Sulphate Soils Map (ASS) to identify the lands as class 5 Acid Sulfate Soils;*
> - *update the Clauses Map (CLS) to apply Clause7.21 Development on land in the Vicinity of the Western Bypass Corridor; and*
> - *update the Urban Release Area Map to include* **the parts of the subject land to be zoned R2 Low Density Residential as** *an Urban Release Area.*

Condition 1 – zoning of Sub-remediation Area B

Condition 1 of the Gateway Determination requires that Sub-remediation Area B be given an appropriate environmental zoning, as opposed to a residential zoning. Sub Remediation Area B is proposed to be zoned E2 in accordance with Condition 1.

Condition 1 did not refer to Sub-remediation Area A because an E2 zone was already proposed. That is, even though Su-remediation Area A was not referred to, the intent of Condition 1 was to prevent development on the land that had been unlawfully cleared.

Figure 15 shows the remediation areas, HCV land (NGH 2017) and the proposed zoning.

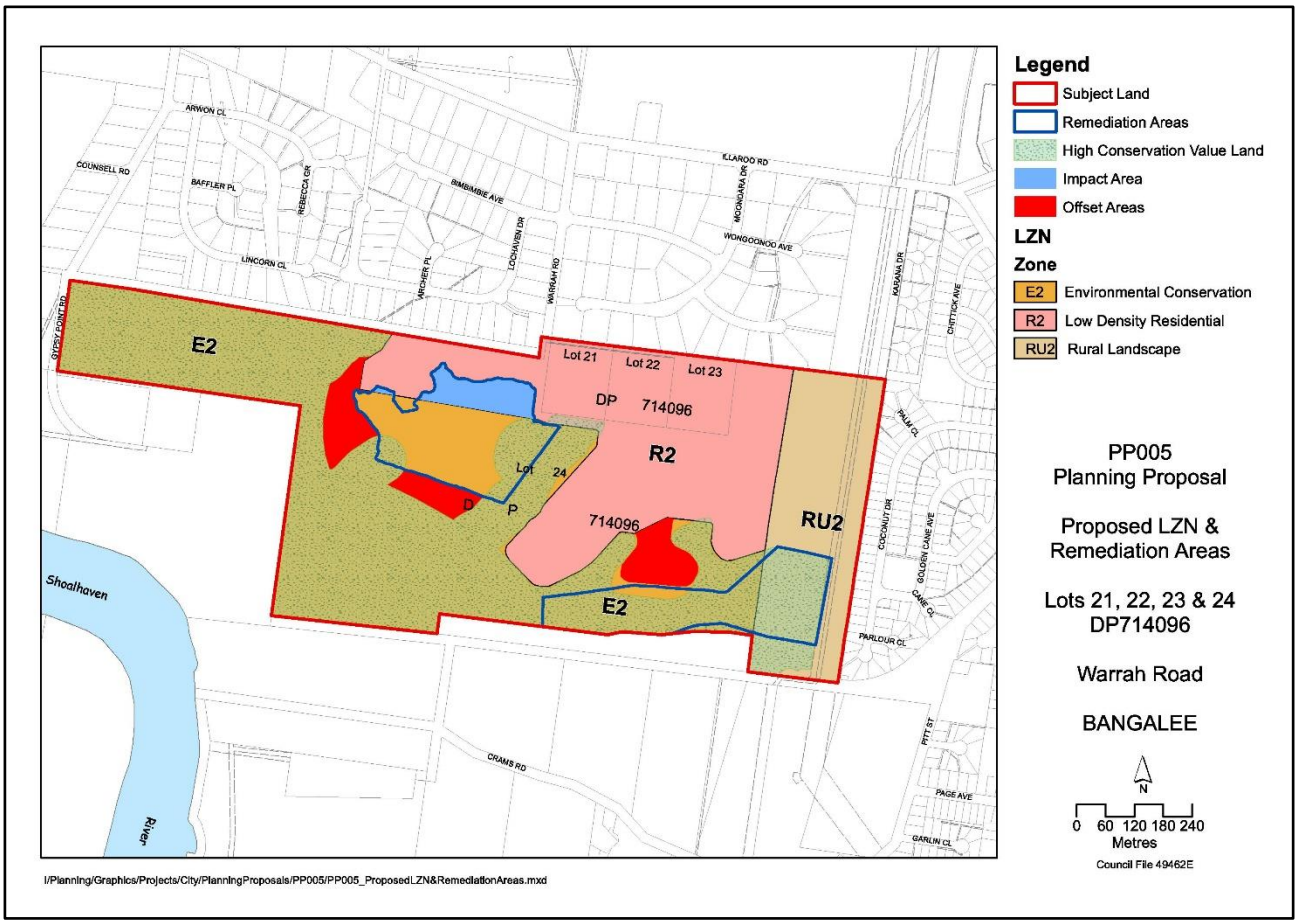


Figure 15 – Offsetting Map for Remediation Area Land

Some encroachment into the northern fringe of Sub Remediation Area A would facilitate better planning and environmental outcomes, namely:

- The proposal minimises the length of interface between residential and environmental zones, which will reduce potential edge effects.
- The additional land being zoned E2 is closer to habitat for threatened species (refer to Figure 11 above). Securing this land in an E2 zone is more likely to benefit these species, specifically:
    - the eastern offset area - Glossy Black Cockatoo habitat
    - central offset area – Little Lorikeet
    - western offset area – Eastern Pygmy Possum
- The resulting E2 zone will have a more consistent width and will be more effective as a wildlife corridor.
- The encroachment area is 1.5 hectares and would be 'offset' by rezoning approximately 3.8 hectares of otherwise potentially developable land to E2. This represents an 'offset ratio' of 1:2.5 and shows that the proponents will not receive a nett benefit from the unauthorised clearing.

Condition 2(c) - biodiversity investigations of Lots 21-23

Condition 2(c) of the Gateway Determination requires additional biodiversity investigations to be undertaken for lots 21-23. Council considers that the zoning of this land has already been assessed through the 2014 comprehensive LEP process. This land was proposed to

be zoned R1 as part of the comprehensive LEP process and was publically exhibited on that basis (refer to Figure 6 above). Consequently, Council seeks the deletion of this condition.

Condition 2(d) – infrastructure requirements (water, sewerage and electricity)

Condition 2(d) of the Gateway Determination requires the demand and supply of infrastructure to be confirmed as part of the planning proposal process. Council proposes to identify the land on the Urban Release Area map overlay, to which Part 6 of the LEP applies. This will require servicing and master planning to be undertaken before a DCP chapter is prepared for the site and the land subsequently released.

Consequently, Council seeks the deletion of this condition.

Lot sizes

While further changes to the development footprint are not anticipated at this stage, the proposed lot sizes will potentially need to be modified depending on the outcomes of the traffic and bushfire assessments. To facilitate flexibility in the development of the lot size map, Council requests a gateway condition requiring the lot size for the R2 zone to be determined following traffic and bushfire investigations with the lot sizes to be between 500 and 2000 m^2.

4 Part 3 – Justification

4.1 Need for the Planning Proposal (Section A)

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

YES.

The subject land is identified as one of seven URAs in the endorsed NBSP.

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

YES.

The current rural zoning under SLEP 1985 does not permit this type of development. Council deferred the zoning of the site as part of the finalisation of Shoalhaven LEP 2014, to consider a site specific PP to resolve the differences between the biodiversity studies related to the land. The land cannot be developed in the manner proposed without amending the LEP via a planning proposal. There is no matter of state significance that would warrant a SEPP process.

4.2 Relationship to strategic planning framework (Section B)

4.2.1 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)?

Illawarra Shoalhaven Regional Plan

The Illawarra Shoalhaven Regional Plan (ISRP) applies to the whole Shoalhaven LGA and was released in late 2015. It provides regional level guidance on the provision of suitable land to meet the Region's employment and housing needs. It seeks to ensure housing is well located, more diverse and more affordable.

The ISRP identifies the CRIA as one of a number of regionally significant release areas, which will contribute to housing supply in the Region. The ISRP identifies the Crams Road URA, although the footprint needs to be updated.

4.2.2 Is the Planning Proposal consistent with the local council's Community Strategic Plan, or other local strategic plan?

Community Strategic Plan – Shoalhaven 2023

The PP is consistent with Council's Community Strategic Plan (CSP). The relevant objectives and strategy are detailed below.

Objective 2.2	Population and urban settlement growth that is ecologically sustainable and carefully planned and managed.
Objective 2.6	Settlements that are resilient to the unexpected impacts of natural hazards.
Strategy 2.4.2	Develop land use and related plans for the sustainable growth of the city which use the core principles of the Growth Management Strategy and ESD principles, also carefully considering community concerns and the character of unique historic townships.

Nowra-Bomaderry Structure Plan (NBSP)

The subject land was originally identified as one of seven URAs in the NBSP that was adopted by Council in 2006 and endorsed by DP&E in 2008. The NBSP identified an area of ninety (90) hectares for potential rezoning subject to further studies, including a threatened species and biodiversity assessment.

4.2.3 Is the Planning Proposal consistent with applicable state environmental planning policies?

The PP is generally consistent with the applicable State Environmental Planning Policies (SEPPs). A full list of the SEPPs is provided at **Attachment C**. Commentary is provided below on a number of SEPPs that are particularly significant to this proposal.

Deemed SEPP – Illawarra Regional Environmental Plan No 1

The Illawarra Regional Environmental Plan No 1 (IREP) still applies to the subject site given that it was deferred from Shoalhaven LEP 2014. The IREP has a range of objectives in relation to residential development. The IREP requires that urban expansion be orderly and efficient having regard to environmental constraints; only occur where adequate services are available or are to be provided; provide for a range of lot sizes and dwelling types; and avoid development in hazard prone areas including those at risk of bush fire. The PP is considered to be consistent with this SEPP.

SEPP 44 – Koala Habitat Protection

The SEPP requires that land is conserved and managed to provide habitat for koalas. The biodiversity field surveys conducted did not identify Schedule 2 feed trees nor did they discover evidence of koalas inhabiting the area. Therefore this proposal is considered not to be inconsistent with this policy.

SEPP 55 – Remediation of Land

The SEPP aims to promote the remediation of contaminated land. Its purpose is to reduce the risk of harm to human health or any other aspect of the environment. It seeks to achieve this by specifying certain considerations applicable to development applications in general and by requiring that all remediation work meet certain standards.

A Stage 1 Contamination Assessment was undertaken by the proponent. It found the site to be of low to medium risk of contamination in certain areas where illegal dumping of rubbish had occurred. Other potential sources of contamination derive from the possibility that at one stage an abattoir operated on the site as well as potential contamination resulting from building material stockpiles. Nevertheless, the majority of the site was assessed to be ‘greenfield’.

The assessment concluded that a targeted Stage 2 Contamination Assessment is required for the site. SEPP 55 provides a statutory framework for further investigations and suitable remediation through the development application process.

SEPP (Infrastructure) 2007

The PP could result in development classed as traffic generating development in accordance with the SEPP. In order to consider the aims and objectives of the SEPP, the Roads and Maritime Services (RMS) will be consulted, consistent with the Gateway Determination.

SEPP (Rural Lands) 2008

The Rural Lands Ministerial Direction requires that PPs which affect land within existing or proposed rural or environmental zones be consistent with the principles of the SEPP. The PP does not contradict the objectives of the SEPP since the site does not currently accommodate major agricultural uses or provide sustainable economic activities. Accordingly the loss of a portion of the site as rural and would not be detrimental to the rural economy of the district.

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

The Ministerial Directions are summarised in **Attachment D** and those that are most relevant are discussed below.

Direction 1.2 Rural Lands

The objective of this Direction is to protect the agricultural production value of rural land. The primary use of the site although identified as a rural zone is not for agricultural production and is of minimal value as rural land. The subject land is an identified URA in the NBSP, which is an endorsed strategy, and the use of the land for residential development forms a natural extension of the existing residential uses immediately to the north and east. Therefore, any inconsistency with this Direction is considered minor in nature. Furthermore, the land is not prime crop and pasture land.

Direction 2.1 Environmental Protection Zones

The PP does not seek to reduce the environmental protection standards that apply to the land. The subject land is currently zoned Rural 1(d) (General Rural) under Shoalhaven LEP 1985 and the PP specifically includes provisions that facilitate the protection and coservation of the HCV land identified in the independent peer review of biodiversity assessments (NGH Environmental, 2017). The PP proposes to rezone land to an E2 Environmental Conservation zone as previously outlined. The PP is therefore considered consistent with this Direction.

Direction 2.3 Heritage Conservation

This Direction requires that items of aboriginal and other cultural heritage be identified in a study of the area's environmental heritage. An aboriginal cultural heritage assessment was provided by the proponent which determined that the PP would not impact on items of aboriginal cultural significance, and based on this, the PP is therefore considered consistent with this Direction.

Direction 3.1 Residential Zones

This Direction applies as the PP proposes the rezoning of land for residential purposes. The subject land is proposed to be identified as a URA under Shoalhaven LEP 2014, which contains requirements for residential development to provide appropriate public utility infrastructure under Part 6 Urban Release Areas (URA). The PP is considered to be consistent with this Direction.

Direction 3.4 Integrating land use and transport

In context of the Nowra-Bomaderry area, options to reduce dependency on private motor vehicles are discussed in sections 6.3 and 6.4 the NBSP, which was adopted by Council and endorsed by the State Government in 2008. These options include expanding the network of cycleways and pathways, priority lanes for bus services etc. These and any other available integrated transport options will be reviewed and advanced as the URAs are progressively investigated.

As already noted, the Crams Road / Warrah Road URA is identified in the NBSP as a longer-term release area that is contingent on traffic congestion at the river crossing being addressed. Further traffic and transport investigations are required to address this issue and will be completed prior to the exhibition of the PP. The RMS will be consulted on transport infrastructure issues after the Gateway Determination. Specific consultation will be required in regard to the Western Bypass Corridor that forms part of the site.

As such, the PP is not inconsistent with this Direction.

Direction 4.4 Planning for bushfire protection

The majority of the area to which this PP applies is bushfire prone. A bushfire constraints assessment was included with the material submitted by the proponent and makes the following conclusions:

- The vegetation within the development site and on adjoining land is recorded on the Shoalhaven Bushfire Prone Map as constituting Category 1 Bushfire Prone vegetation.
- The characteristics of the site, together with the bushfire protection measures recommended, provide that the rezoning and subsequent subdivision of the land for residential development is suitable in terms of its intended land use.

The assessment will need to be updated to reflect the new layout and to determine appropriate asset protection zones and lot sizes. The outcome in this regard will be significant in determining the final form of the lot size zone map for the PP.

Access requirements, including the need for alternate access, is presently unresolved and will be the subject of consultation with the Commissioner of the NSW RFS following the outcome of this request for an amended gateway determination.

4.3 Environmental, Social and Economic Impact (Section C)

4.3.1 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?

Detailed consideration has been given to assessing the likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal. Although there had been conflicting biodiversity studies over the site, an independent peer review by NGH Environmental (2017) has essentially resolved this.

The revised PP ensures that all HCV land identified on the site will be protected. It is considered that these investigations have now been satisfactory completed and the proposed layout is satisfactory with regard to these matters.

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

Traffic

The proponent's traffic impact assessment (based on 397 dwellings) indicates a peak hour generation of 258 vehicles and a daily traffic volume of 2,580 vehicles. The assessment indicates that all intersections on the road network would operate within acceptable Levels of Service (LOS). Nevertheless, the proposed development is not currently supported by a logical external road hierarchy. Particular areas of concern include the following:

- The single point of access via Warrah Road, which does not connect directly with Illaroo Road, the principal collector road in North Nowra;
- The household vehicle trip generation rates used in this analysis tend to be on the low side;
- Increased traffic on quiet residential roads (Bimbimbi Avenue and Moondara Drive); and
- Traffic impact on Illaroo Road's intersection with Princes Highway and the river crossing.

Consideration will need to be given to creating an additional point of access. The proposed development would also need to take into account the anticipated timing of road proposals

to improve access into/out of North Nowra, which would enhance the road hierarchy of the area.

This is to be investigated in more detail prior to public exhibition of the PP.

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

The PP will provide certainty for the community on the site's intended development outcomes and land supply. This is particular important given concerns raised by members of local community regarding the retention of character of the existing residential area immediately north of the site. The planning proposal incorporates a 2000 m^2 minimum lot size zone along the northern boundary of the site to limit impacts on the amenity and character of the existing adjoining residential area.

Community consultation undertaken as part of the formal public exhibition process will help to identify and address any specific social and economic issues.

Aboriginal cultural heritage

An Aboriginal archaeological report was submitted with the information provided by the proponent. It did not find any sites or artefacts of Aboriginal cultural heritage significance outside of the HCV land. As noted above, the subject land is moderately to highly disturbed and it is not considered likely to retain any extensive or intact aboriginal cultural remains or archaeological potential within the proposed residential zone.

The Aboriginal archaeological report was a due diligence assessment only and was not a cultural heritage assessment. This is to be corrected prior to the public exhibition of the proposal by the preparation of an Aboriginal cultural heritage assessment.

4.4 State and Commonwealth Interests (Section D)

4.4.1 Is there adequate public infrastructure for the Planning Proposal?

There are major impediments to the provision of infrastructure for the subject land. Council has concerns regarding the build-up of traffic flows on Illaroo Road, in particular its intersection with Princes Highway and the consequences for the river crossing (discussed in 4.3.2). However, the subject land will be subject to Part 6 of Shoalhaven LEP 2014, which requires the State Government to sign off on the satisfactory provision of infrastructure, and allows Council to prepare a contributions plan for essential infrastructure prior to the land being released.

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

It is intended that Council will consult with the following public authorities and any additional public authorities identified in the Gateway determination (Table 3).

Table 3: Public Authorities to be consulted

Public Authority	Reason
OEH / NPWS	Biodiversity studies, Aboriginal cultural heritage
NSW Office of Water	Riparian corridors – Shoalhaven River
Commissioner of NSW Rural Fire Service	As per s.117 Direction 4.4
Roads & Maritime Services	Traffic impact on Princes Highway, the Shoalhaven River crossing and the Future Western Bypass

5 Part 4 – Mapping

This PP is supported by the following maps:

- Land Zone Map (LZN)
- Lot Size Map (LSZ)
- Urban Release Areas Map (URA)
- Riparian Lands and Watercourses Map (WCL)
- Acid Sulphate Soils Map (ASS)
- Local Clauses Map (CLS)

6 Part 5 - Community Consultation

Council proposes to exhibit the PP in accordance with the requirements of Section 57 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and any other requirements as determined by the Gateway process. It is intended that the PP will be publicly exhibited for at least 28 days, acknowledging that extensive exhibition/consultation was undertaken as part of the process of finalising Shoalhaven LEP 2014.

Public notification of the exhibition would include notification in the local newspapers, and a notice on Council's website. Hard copies of the PP would be made available at Council's Administrative Building in Nowra.

Council has received representation from a number of landowners in the Bangalee area and it is intended that all surrounding landowners would be notified of the public exhibition.

7 Part 6 – Project Timeline

The following milestone timeframes are anticipated and will be revised if any significant delays are encountered during the process.

Table 4: Projected Timeline

Task	Anticipated Timeframe
Commencement date (date of Gateway Determination)	March 2016
Completion of studies required by Gateway Determination	December 2017
Public exhibition (minimum 28 days)	February 2018
Post exhibition consideration of PP	March 2018
Finalisation and notification of Plan	April - May 2018

Attachment A: Development Committee Report and Resolution

MINUTES OF THE DEVELOPMENT COMMITTEE

Meeting Date: Tuesday, 8 August 2017
Location: Council Chambers, City Administrative Building, Bridge Road, Nowra
Time: 5.00pm

DE17.55 Planning Proposal (Rezoning) - Warrah Road Bangalee - Finalisation of Development Footprint **HPERM Ref: D17/213879**

Recommendation (Item to be determined under delegated authority)

That Council

1. Adopt the attached Land Use Zone (Attachment 5) and Lot Size (Attachment 6) maps as the basis for preparing the specialist studies required to enable public exhibition of the Planning Proposal.
2. Forward these maps to the NSW Department of Planning and Environment with a request to revise the Gateway determination that:
   a. Reflects the proposed new development footprint;
   b. Removes condition 1, which is covered by the new footprint;
   c. Removes items (c) and (d) from condition 2 in the current determination; and
   d. Adds a condition allowing the minimum lot size of 1500 m^2 to be revised if appropriately supported by the traffic and bushfire assessments undertaken for the planning proposal.
3. That the proposal be reported back to Council prior to exhibition.

RESOLVED (Clr Guile / Clr Watson) MIN17.675

That Council

1. Adopt the attached Land Use Zone (Attachment 5) and Lot Size (Attachment 6) maps as the basis for preparing the specialist studies required to enable public exhibition of the Planning Proposal.
2. Forward these maps to the NSW Department of Planning and Environment with a request to revise the Gateway determination that:
   a. Reflects the proposed new development footprint;
   b. Removes condition 1, which is covered by the new footprint;
   c. Removes items (c) and (d) from condition 2 in the current determination; and
   d. Adds a condition allowing the minimum lot size of 1500 m^2 to be revised if appropriately supported by the traffic and bushfire assessments undertaken for the planning proposal.
3. That the proposal be reported back to Council prior to exhibition.

FOR: Clr Gash, Clr Wells, Clr Findley, Clr Cheyne, Clr Alldrick, Clr Guile, Clr Pakes, Clr Watson, Clr Kitchener, Clr Proudfoot, Russ Pigg and Warwick Papworth

AGAINST: Clr White and Clr Gartner

CARRIED

DE17.55 Planning Proposal (Rezoning) - Warrah Road Bangalee - Finalisation of Development Footprint

HPERM Ref: D17/213879

Group: Planning Environment & Development Group
Section: Strategic Planning

Attachments:
1. Gateway Determination - Warrah Road Planning Proposal
2. Final Peer Review - Ecological Assessment - Warrah Road Planning Proposal (under separate cover)
3. Proponents Submission 10/7/2017 - Warrah Road PP (under separate cover)
4. Proposed Land Zoning Map
5. Proposed Lot Size Map
6. Proposed Offset Map

Purpose / Summary

Advise Council of the results of the latest biodiversity peer review and consider a possible development footprint for the site and resultant draft zoning and lot size maps to enable progression of this Planning Proposal (PP) at Warrah Road, Bangalee.

Recommendation (Item to be determined under delegated authority)

That Council

1. Adopt the attached Land Use Zone (Attachment 5) and Lot Size (Attachment 6) maps as the basis for preparing the specialist studies required to enable public exhibition of the Planning Proposal.
2. Forward these maps to the NSW Department of Planning and Environment with a request to revise the Gateway determination that:
   a. Reflects the proposed new development footprint;
   b. Removes condition 1, which is covered by the new footprint;
   c. Removes items (c) and (d) from condition 2 in the current determination; and
   d. Adds a condition allowing the minimum lot size of 1500 m^2 to be revised if appropriately supported by the traffic and bushfire assessments undertaken for the planning proposal.
3. That the proposal be reported back to Council prior to exhibition.

Options

1. Adopt the revised zone and lot size maps as the basis for progressing this PP.

   Implications: This option reflects the constraints and opportunities arising from the most recent ecological investigations related to the site. It also reflects Council's earlier resolutions and allows much of the land that is not identified as having high conservation value to be developed. As such, it is the recommended approach

2. Do not utilise the results of the most recent and final biodiversity peer review and progress the PP based on the previous reduced development footprint and adopt appropriate zones and minimum lot size to proceed with.

   Implications: This option avoids the need to seek an amended gateway determination from the NSW Department of Planning & Environment (DP&E) in the short term. It would, however mean that the PP does not reflect the more detailed biodiversity information and final biodiversity peer review that now exists, making progression of the PP potentially problematic. This approach is likely to result in further delays, and/or a lower lot yield and/or significant environmental impacts. This option is not recommended.

3. Discontinue the PP.

   Implications: This would mean that the future of the site remains unresolved and the current 'deferred' zoning under Shoalhaven Local Environmental Plan (LEP) 2014 would be retained. Thus, this option is not recommended. Under this option, the proponent would also have the option to seek the intervention of the DP&E and Joint Regional Planning Panel (JRPP), which could result in the proposal being taken out of Council's control.

Overview

On 6 December 2016, Council resolved to consider an additional biodiversity assessment submitted by the proponents (Huntingdale Developments Pty Ltd and Southbank Land Pty Ltd) in relation to the PP at Warrah Road, Bangalee.

This report outlines the results of the independent peer review of the proponent's additional biodiversity assessment. The resulting revised development footprint, supported by draft zoning and lot size maps are presented for consideration so that the other necessary studies related to the PP can be prepared.

Background

The overall Crams Road Urban Release Area (URA) was originally identified in the Nowra-Bomaderry Structure Plan (NBSP). The subject land was part of the original URA.

The NBSP stated that a range of investigations, including biodiversity, would need to be completed to determine the potential extent of residential development.

Due to conflicting biodiversity studies the Crams Road URA was ultimately 'deferred' from the Shoalhaven LEP 2014 to enable further investigations to be undertaken to determine an appropriate development footprint for the site.

In 2014 the proponents submitted a PP to commence the process to resolve the zoning of the site. In an attempt to reconcile the conflicting biodiversity studies over the subject land, in early 2015 Council engaged NGH Environmental Pty Ltd to undertake an independent peer review of the biodiversity studies that existed over the site and make recommendations on biodiversity significance to inform a PP.

In December 2015, Council ultimately resolved to prepare and advance a PP based on the findings of the peer review. The Warrah Road PP (PP005) was subsequently submitted to DP&E and a Gateway determination issued on 12 July 2016. The Gateway determination allowed the PP to proceed subject to a number of terms and conditions including the following:

Condition 1: applying an environmental zone to Sub-remediation Area B.

Comment: this concerns unauthorised clearing on the site which is discussed later in this report.

Condition 2: completion of additional studies:

a) Bushfire Hazard Study
b) Aboriginal Archaeological Assessment
c) Biodiversity Review of Lots 21-23
d) Provision of infrastructure – water, sewerage and electricity to confirm demand and supply issues

Comments:
This report includes a recommendation that Council seek an amendment to the gateway determination to delete conditions c) and d).

In relation to condition c) the suitability of Lots 21-23 for residential development has already been established and confirmed by the latest independent peer review that is discussed later in this report.

In relation to condition d) Part 6 of the LEP already requires that adequate utility infrastructure is provided prior to the actual released of land within the URAs. Furthermore, the original Crams Road URA (of which the site is part) is identified as a long-term release area in the NBSP. As such the area once zoned, will not be developed in the short/medium term.

A copy of the Gateway determination is provided as **Attachment 1**.

Independent Peer Review of Conservation Significance Assessment Report

Following receipt of the Gateway determination, the matter was reported to Council and it was noted that the proponent had prepared a further biodiversity study that should be considered. Thus, in accordance with MIN16.944 (December 2016) Council engaged NGH Environmental Pty Ltd to prepare an independent and objective peer review of the latest OMVI 2016 study commissioned by the proponent and to:

- Reassess areas of High Conservation Value (HCV) land; and
- Determine if further field studies are still required to accurately define HCV areas.

This peer review was completed in June 2017. It concluded that adequate survey has been undertaken to determine HCV lands at the subject site. A full copy of the report prepared by NGH Environmental Pty Ltd, including the revised HCV land map is provided as **Attachment 2** (see separate folder).

However, it should also be noted that NGH concluded that "…*given that populations of the Leafless Tongue Orchid may not flower every year, and only one comprehensive survey for this species has been undertaken, it is recommended that another additional targeted survey be conducted for this species in areas that may be developed in the future, to clarify the conclusions of the study that the species is absent*."

Proponent's Response to the Biodiversity Peer Review

A copy of the completed peer review was provided to the proponent and they responded on 10 July 2017 - see **Attachment 3** (separate folder).

As a result of the latest information, the proponent's submission proposes that:

1. The future western bypass corridor be zoned RU2 Rural Landscape
2. The HCV land be zoned E2 Environmental Conservation
3. For the remaining land:
    - the area to the west of Warrah Road be zoned R2 Low Density Residential
    - the area to the east of Warrah Road be zoned R1 General Residential

The proponent has proposed the following lot sizes:

- 2000 m^2 for the land adjoining existing residential development
- 500 m^2 for the remaining land within the development footprint
- 40 ha for the proposed E2 and RU2 areas

Council staff have reviewed the proponent's proposed zoning and lot size maps. The overall development footprint is generally supported but some changes to the proposed density of development are considered necessary in response to the known site constraints.

Recommended Zoning and Lot Size Maps

The recommended land use zoning map is shown in **Attachment 4** and the recommended lot size map is shown in **Attachment 5**.

The proposed 2000 square metres lot size across the northern part of the developable footprint is consistent with the existing pattern of development to the north, and will help maintain a consistent landscape character and amenity for the existing dwellings. It will enable a more appropriate development transition.

However, a 500 square metres lot size is considered too small for the southern fringe of the proposed R2 zone. The irregular configuration and long length of the residential/environmental boundary on the eastern side of the residential area has implications for infrastructure requirements and bushfire risk. It will also pose challenges in terms of managing weeds, pests and illegal dumping within the E2 area.

Thus, a 1500 square metres minimum lot size is recommended for the land adjoining the proposed E2 zone. This lot size reflects the need for a bushfire asset protection zone (APZ) between the dwellings and the adjoining bushland, as well as potential road/traffic issues. It is proposed to request a notation in the Gateway that this may be revised in the final PP subject to traffic and bushfire investigations.

An area within the centre of the site is proposed to have a minimum lot size of 500 square metres to enable some flexibility in this part of the site to enable smaller lots.

Remediation Areas

The current Gateway determination requires land affected by a remediation order under the Native Vegetation Act to be zoned for environmental protection. This reflects the uncertainty in determining ecological values after land has been cleared and the principal that there should be no benefit from unlawful activities.

The residential zone suggested by the proponents will encroach into the remediation area by approximately 1.5 hectares. To offset this impact, it is proposed to conserve in an E2 zone 3.8 hectares of land that would otherwise potentially be suitable for residential zoning. This represents an offset ratio of 1:2.5, and is shown in **Attachment 6**.

It is considered that this offsetting is appropriate as it will facilitate a negotiated outcome and allows better planning outcomes to be achieved. This outcome cannot be pursued, however,

unless DP&E agree to delete or modify condition 1 from the Gateway determination, hence recommendation 2b in this report.

Community Engagement

The purpose of this report is to establish a potential development footprint and enable the PP to advance on that basis so that the other investigations required by DP&E can be undertaken.

The community will then be able to provide input through the formal PP exhibition process when this point is reached and prior to the PP being finally adopted by Council.

A site-specific chapter in Shoalhaven Development Control Plan (DCP) 2014 will also need to be prepared before the land is ultimately released in the future. Thus may also need to be accompanied by a supporting Contributions Plan (CP). This step will also involve a separate community engagement process at that stage.

Council could consider seeking community feedback on the proposed footprint, zoning and lot size maps prior to the formal PP exhibition period. However, the proposal is not yet in a form that would enable a community member to reach an informed opinion on the proposal. It may also contribute to 'consultation fatigue' which could impact on formal community engagement processes for the PP and DCP Chapter.

If the land is able to be subdivided in the future once the PP and DCP/CP processes are completed, the proponents will need to submit development applications to subdivide the land, at which point the community will have further opportunity to comment on the proposed subdivision(s).

Financial Implications

The proponent has paid the PP lodgement and preparation fee in accordance with Council's fees and charges and met the costs of the reports prepared to date. Any additional studies required by the PP are required to be wholly funded by the proponent, as would any further peer reviews that may need to be undertaken.

Conclusion

The ecological investigations for the Warrah Road PP have been completed and a position reached between the ecologists working for the proponent and the ecologists working for Council. A potential new footprint for the rezoning has been designed that reflects the latest and most complete ecological assessment of the site. Adopting this will require an amendment to the Gateway determination and it is recommended that Council request this amendment.

Once the Gateway determination is amended and further studies undertaken into bushfire risk, traffic impacts and Aboriginal cultural heritage, the PP will be in a form suitable to allow a community member to reach an informed opinion on the proposal. The proposal can then be formally exhibited and then reported back to Council.

NSW GOVERNMENT Planning & Environment

Shoalhaven City Council
Received
18 JUL 2016
File No. 49462E
Referred to: G-Clark

Our ref: PP_2016_SHOAL_002_00 (13/08481)
Your ref: 49462E(D16/71158)

Mr Russ Pigg
General Manager
Shoalhaven City Council
PO Box 42
Nowra NSW 2541

Attention: Mr Gordon Clark

Dear Mr Pigg

Planning proposal to amend Shoalhaven Local Environmental Plan 2014

I am writing in response to Council's request for a Gateway determination under section 56 of the *Environmental Planning and Assessment Act 1979* (the Act) in respect of the Warrah Road, Bangalee Planning Proposal to rezone Lots 21 to 24 DP714096, Warrah Road, Bangalee for residential development and environmental conservation.

As delegate of the Minister for Planning, I have now determined the planning proposal should proceed subject to variations as outlined by the conditions in the attached Gateway determination.

The planning proposal requests the Gateway determination establish the appropriateness of further biodiversity investigations over Lot 24 to support a possible increase in residential zoned land. I have noted the independent Peer Review of Biodiversity Studies which identifies that the studies are sufficient to clearly define areas of High Conservation Value (HCV) as defined in the South Coast Regional Conservation Plan, 2010. Therefore, no further biodiversity studies are required at this time for Lot 24.

The planning proposal is inconsistent with the section 117 Directions 2.1 Environmental Protection Zones and 5.10 Implementation of Regional Plans in that it seeks to rezone areas of the illegally cleared HCV lands in Sub-remediation Area B of the s38 Remedial Direction under the *Native Vegetation Act, 1993* to residential. The rezoning of the lands subject to the Remedial Direction for residential development is not supported given the lands were exhibited as E2 under the draft Shoalhaven LEP 2013 prior to clearing. As the Remedial Direction is in place until 2029 the lands may regain their pre-cleared HCV state once rehabilitated.

The planning proposal is to be revised to remove the proposed rezoning of lands subject to the Remedial Direction from rural to residential. Council should consider an appropriate environmental zoning for these lands. Council will need to revise the planning proposal to amend the explanation of provisions and update proposed zoning, floor space ratio, height of buildings and lot size maps prior to exhibition.

Department of Planning & Environment
23-33 Bridge Street Sydney NSW 2000 | GPO Box 39 Sydney NSW 2001 | T 02 9228 6333 | F 02 9228 6455 | www.planning.nsw.gov.au

Any further inconsistencies with section 117 Direction 2.1 Environmental Protection Zones and 5.10 Implementation of Regional Plans will need to be justified by Council to the satisfaction of the Secretary's delegate before the planning proposal is finalised.

I have agreed the planning proposal's inconsistency with section 117 Directions 1.2 Rural Zones and 1.5 Rural Lands are justified by the endorsed Nowra Bomaderry Structure Plan and are of minor significance. No further approval is required in relation to these Directions.

Council is to address inconsistencies with section 117 Direction 2.3 Heritage Conservation following completion of further studies and consultation with relevant public authorities and prior to the commencement of public exhibition. Further, Council is to consult with the NSW Rural Fire Service prior to undertaking community consultation in order to satisfy section 117 Direction 4.4 Planning for Bushfire Protection and update the planning proposal accordingly.

Plan making powers were delegated to councils by the Minister in October 2012. I note that Council has requested to be issued with delegation for this planning proposal. I have considered the complex nature of Council's planning proposal and have decided not to issue an authorisation for Council to exercise delegation to make this plan.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the Gateway determination. Council's request for the Department of Planning and Environment to draft and finalise the LEP should be made six weeks prior to the projected publication date.

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal, and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Minister may take action under section 54(2)(d) of the Act if the time frames outlined in this determination are not met.

Should you have any queries in regard to this matter, I have arranged for Mr Graham Towers, Team Leader of the Southern Region office to assist you. Mr Towers can be contacted on (02) 4224 9467.

Yours sincerely

Marcus Ray
Deputy Secretary
Planning Services
12/07/2016
Encl:
Gateway Determination

NSW GOVERNMENT Planning & Environment

Gateway Determination

***Planning proposal (Department Ref: PP_2016_SHOAL_002_00)**: to enable residential development and environmental protection on Lots 21 to 24 DP714096, Warrah Road, Bangalee to:*

- *rezone land from Rural 1(d) (General Rural) to part E2 Environmental Conservation, a residential zone and RU2 Rural Landscape;*
- *update the Minimum Lot Size Map (LSZ) to establish a minimum lot size of 40ha for land zoned E2 Environmental Conservation and RU2 Rural Landscape and an appropriate lot size for the residential zoned land;*
- *update the Terrestrial Biodiversity Map (BIO) to include areas of significant vegetation and/or habitat corridor if appropriate;*
- *update the Riparian Lands and Watercourses Map (WCL) to identify Category 1 Watercourses;*
- *update the Acid Sulphate Soils Map (ASS) to identify the lands as class 5 Acid Sulfate Soils;*
- *update the Clauses Map (CLS) to apply Clause7.21 Development on land in the Vicinity of the Western Bypass Corridor; and*
- *update the Urban Release Area Map to include the subject land as an Urban Release Area if appropriate.*

I, the Deputy Secretary, Planning Services, at the Department of Planning and Environment as delegate of the Minister for Planning, have determined under section 56(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the *Shoalhaven Local Environmental Plan (LEP) 2014* as described above should proceed subject to the following conditions:

1. The planning proposal is to be revised to remove the proposed residential zoning over the lands in Sub-remediation Area B of the s.38 Remedial Direction under the *Native Vegetation Act, 1993*. An appropriate environmental zone is to be applied to this area.

2. The following studies are to be prepared (or existing studies revised) prior to exhibition of the planning proposal:
   (a) Bushfire Hazard Study
   (b) Aboriginal Archaeological Assessment
   (c) Biodiversity Review of Lots 21-23
   (d) Provision of infrastructure – water, sewerage and electricity to confirm demand and supply issues.

3. Following completion of the required studies, the planning proposal is to be revised to confirm the explanation of provisions, and update proposed zoning, floor space ratio, lot size, and height of building maps prior to public exhibition. A copy of the updated proposal is to be provided to the Department for review prior to exhibition of the proposal.

4. Council is to update its consideration of section 117 Directions 2.1 Environmental Protection Zones, 2.3 Heritage Conservation and 4.4 Planning for Bushfire Protection following consultation with the Office of Environment and Heritage and the NSW Rural Fire Service. The updated considerations are to be included in the exhibited planning proposal.

5. Community consultation is required under sections 56(2)(c) and 57 of the Act as follows:
   (a) the planning proposal must be made publicly available for a minimum of **28 days**; and
   (b) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of *A Guide to Preparing LEPs (Department of Planning and Environment 2013)*.

6. Consultation is required with the following government agencies prior to exhibition, in accordance with the Act and to comply with the requirements of relevant section 117 Directions:
   - NSW Rural Fire Service;
   - Office of Environment and Heritage;
   - Office of Water;
   - Endeavour Energy;
   - Shoalhaven Water; and
   - Roads and Maritime Services.

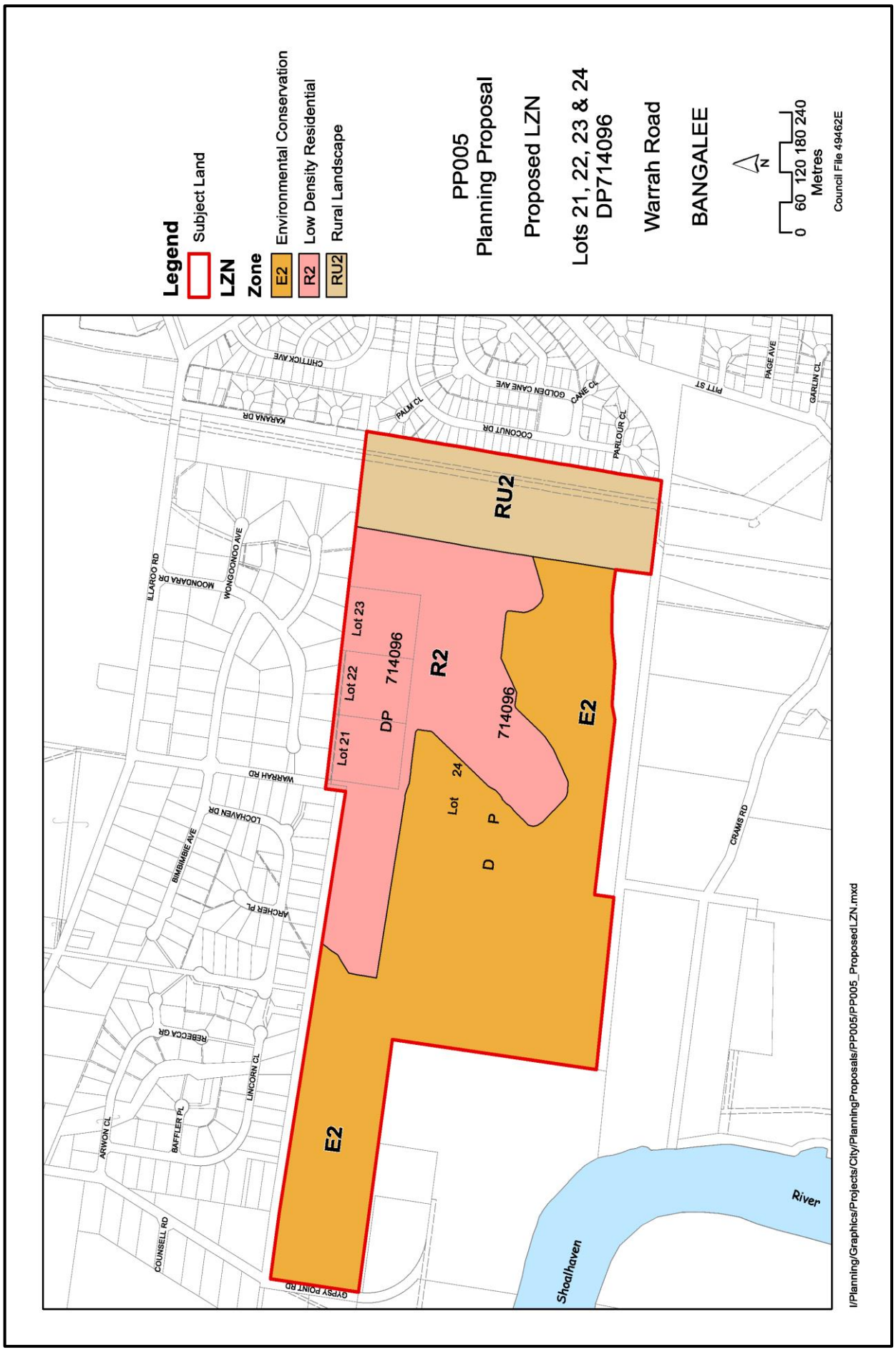
   The agencies are to be provided with a copy of the planning proposal and any relevant supporting material and given at least 21 days to comment on the proposal. Any agency advice received and Council's proposed response to this advice should be placed on public exhibition with the planning proposal.

7. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

8. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 12th day of July 2016

Marcus Ray
Deputy Secretary
Planning Services
Delegate of the Minister for Planning


Legend
Subject Land
LZN
Zone
E2 Environmental Conservation
R2 Low Density Residential
RU2 Rural Landscape
PP005
Planning Proposal
Proposed LZN
Lots 21, 22, 23 & 24
DP714096
Warrah Road
BANGALEE
N
0 60 120 180 240
Metres
Council File 49462E
RU2
R2
E2
E2
Lot 21
Lot 22
Lot 23
DP 714096
714096
Lot 24
DP
River
Shoalhaven
CHITTICK AVE
KARANA DR
PALM CL
GOLDEN CANE AVE
CANE CL
COCONUT DR
PARLOUR CL
PITT ST
PAGE AVE
GARLIN CL
ILLAROO RD
MOONDARA DR
WONGONDOO AVE
WARRAH RD
LOCHAVEN DR
BIMBIMBIE AVE
ARCHER PL
CRAMS RD
REBECCA DR
LINCORN CL
ARWON CL
BAFFLER PL
COUNSELL RD
GYPSY POINT RD
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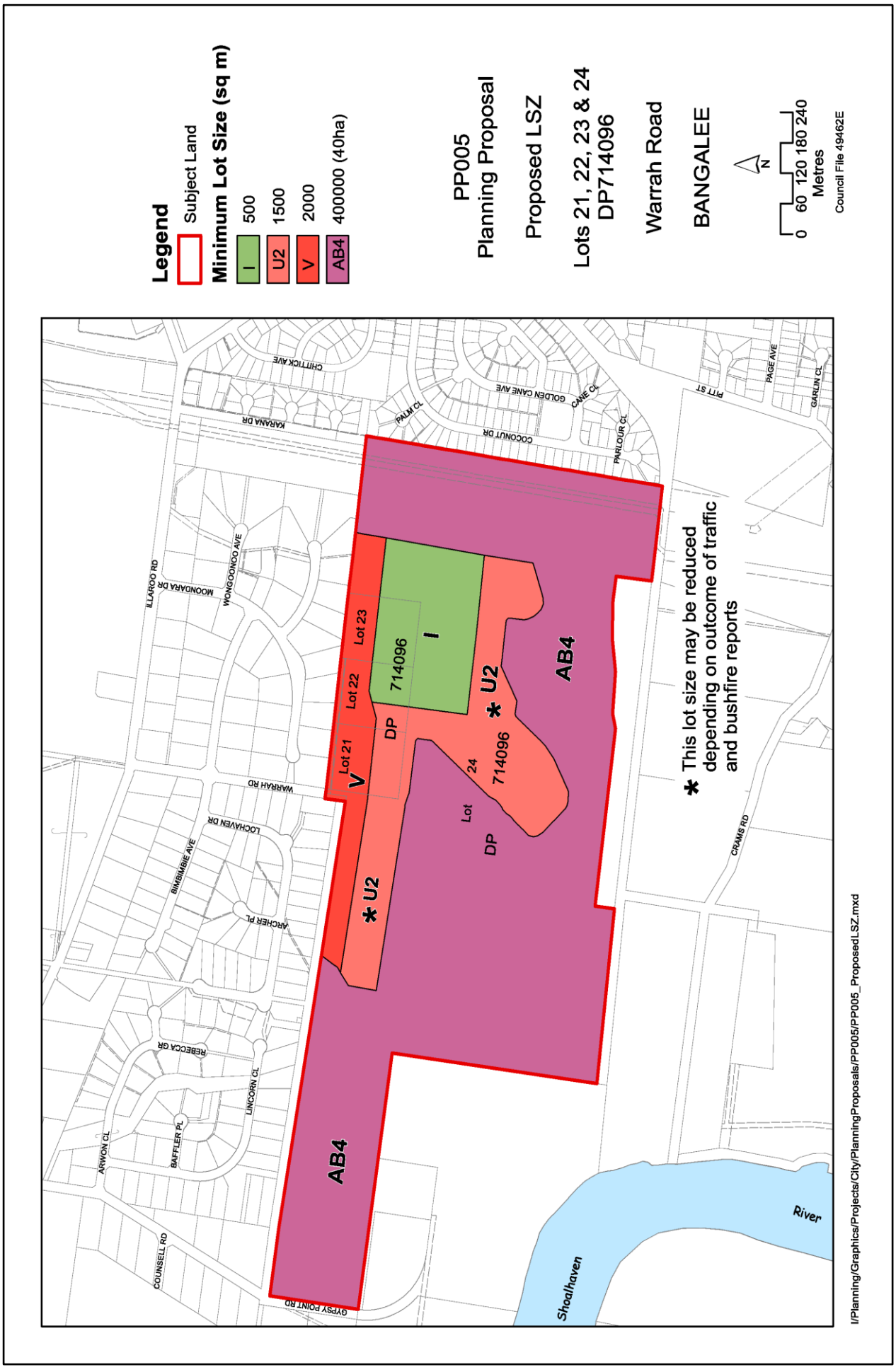
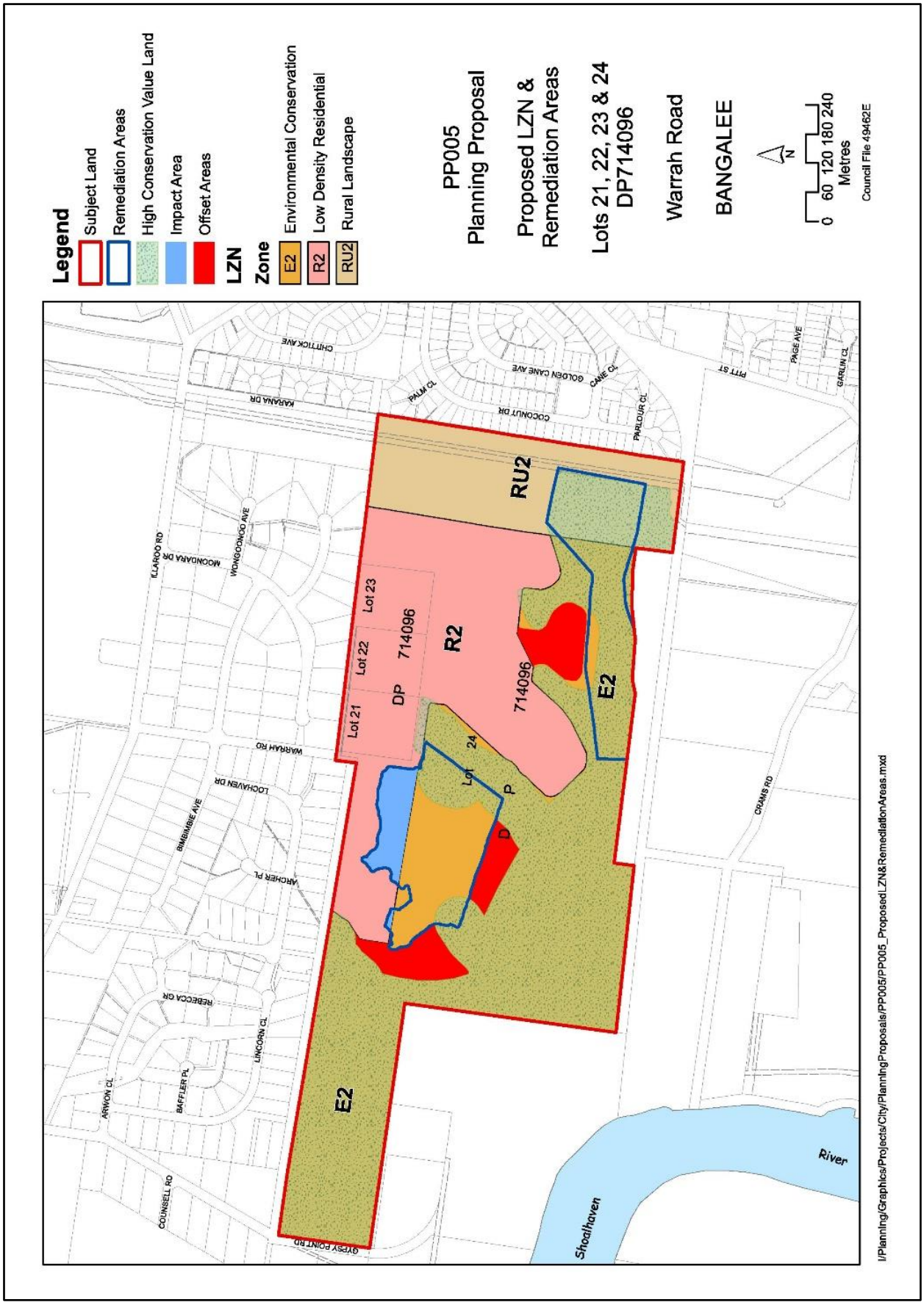

Legend
Subject Land
Minimum Lot Size (sq m)
I 500
U2 1500
V 2000
AB4 400000 (40ha)
PP005
Planning Proposal
Proposed LSZ
Lots 21, 22, 23 & 24
DP714096
Warrah Road
BANGALEE
N
0 60 120 180 240
Metres
Council File 49462E
* This lot size may be reduced depending on outcome of traffic and bushfire reports
Lot 23
Lot 22
Lot 21
DP 714096
Lot 24 DP 714096
I
V
* U2
* U2
AB4
AB4
WARRAH RD
CRAMS RD
GYPSY POINT RD
COUNSELL RD
Shoalhaven River
I:\Planning\Graphics\Projects\City\PlanningProposals\PP005\PP005_ProposedLSZ.mxd


Legend
Subject Land
Remediation Areas
High Conservation Value Land
Impact Area
Offset Areas
LZN
Zone
E2 Environmental Conservation
R2 Low Density Residential
RU2 Rural Landscape
PP005
Planning Proposal
Proposed LZN &
Remediation Areas
Lots 21, 22, 23 & 24
DP714096
Warrah Road
BANGALEE
N
0 60 120 180 240
Metres
Council File 49462E
RU2
R2
E2
Lot 23
Lot 22
Lot 21
DP 714096
714096
Lot 24
DP
Shoalhaven River
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Attachment B: NGH Peer Review – Biodiversity Assessment

Shoalhaven City Council

Peer Review of Conservation Significance Assessment Report

WARRAH ROAD PLANNING PROPOSAL, BANGALEE

JUNE 2017

ngh environmental

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Warrah Road Planning Proposal, Bangalee

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NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622) and NGH Environmental (Heritage) Pty Ltd (ACN: 603 938 549. ABN: 62 603 938 549) are part of the NGH Environmental Group of Companies.

www.nghenvironmental.com.au

e: ngh@nghenvironmental.com.au

Bega - ACT and South East NSW
suite 1, 216 carp st (po box 470)
bega nsw 2550 (t 02 6492 8333)

Sydney Region
18/21 mary st
surry hills nsw 2010 (t 02 8202 8333)

Canberra - NSW SE & ACT
8/27 yallourn st (po box 62)
fyshwick act 2609 (t 02 6280 5053)

Brisbane
level 7, 320 adelaide st
brisbane qld 4000 (t 07 3511 0238)

Newcastle - Hunter and North Coast
7/11 union st
newcastle west nsw 2302 (t 02 4929 2301)

Wagga Wagga - Riverina and Western NSW
suite 1, 39 fitzmaurice st (po box 5464)
wagga wagga nsw 2650 (t 02 6971 9696)

Bathurst - Central West and Orana
35 morrisset st (po box 434)
bathurst nsw 2795 (t 02 6331 4541)

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ACRONYMS AND ABBREVIATIONS

DEC	Refer to OEH
DECCW	Refer to OEH
EEC	Endangered Ecological Community – as defined under relevant law applying to the proposal
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cwth)
HCV	High Conservation Value
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water (DECCW) and prior to this, Department of Environment and Conservation (DEC)
SCC	Shoalhaven City Council
SCRCP	South Coast Regional Conservation Plan
sp/spp	Species/multiple species
TSC Act	*Threatened Species Conservation Act 1995* (NSW)

1 INTRODUCTION

1.1 BACKGROUND

Lot 24 DP 714096, Warrah Road, Bangalee (the subject land) (Figure 1-1) is the subject of a planning proposal (rezoning) that is being assessed by Shoalhaven City Council (SCC). There have been a number of biodiversity studies conducted and reports prepared to determine the conservation significance of the vegetation and habitats present to inform the rezoning of the land, since 2008.

1.1.1 Previous assessments

NGH Environmental was engaged by SCC in May 2015 to conduct a peer review of five separate biodiversity assessments that presented conflicting conclusions as to the conservation significance of the subject land. These assessments included:

i. *Threatened Biodiversity Survey and Assessment, Nowra Bomaderry Structure Plan* (May 2008). Report prepared for Shoalhaven City Council by Allison Hunt and Associates (AHA).
ii. *Flora and Fauna Assessment and Constraints Analysis* (September 2010). Report prepared for the landowner by Biosis Research.
iii. *Lot 24 Warrah Road, North Nowra, Hollow Bearing Tree Survey* (April 2011). Report prepared for the landowner by Biosis Research.
iv. *Review of Hollow Bearing Tree Assessment of Lands at Warrah Road* (May 2011). Report prepared for the landowner by OMVI.
v. *Review of Conservation Significance of Lands at Warrah Road, North Nowra* (October 2011). Report prepared for the landowner by OMVI.

The aim of the review was to provide an independent and objective review of the existing studies and to determine whether or not the subject land contained areas of High Conservation Value (HCV) as defined in the South Coast Regional Conservation Plan (SCRCP) or, if further assessment was required to define HCV areas. The review (NGH Environmental 2015) determined that:

- The existing studies were generally in agreement that the site provided known habitat for a number of threatened species.
- The existing studies differed in their opinion of what constituted 'high constraint' and 'high conservation value' areas.
- In general, survey effort employed was not adequate to accurately determine the current importance of the habitat to these threatened species.
- In the absence of exhaustive multi-seasonal targeted surveys on and surrounding the subject land, that the precautionary principle be employed.

It was the opinion of the review that areas that provide good quality known habitat for threatened species should be included as areas of high conservation value unless it can be adequately demonstrated that the known habitat is no longer important to the relevant threatened species. The review mapped the areas considered to be high conservation value (Figure 1-1) and recommended these areas be considered for Environmental Conservation (E2) zoning to protect the biodiversity values contained in these areas unless it can be adequately demonstrated that loss of these areas would not result in a significant impact, through adequate survey and analysis.

Figure 1-1 High Conservation value areas identified in the NGH Environmental peer review (2015) and those from previous assessments

1.1.2 Current assessment (this review)

The proponent of the planning proposal has submitted to SCC an additional Conservation Significance Report (OMVI 2016) which documents additional studies and assessments conducted on the subject land. The report provides further analysis and mapping of what is considered by OMVI to constitute HCV land (OMVI 2016). SCC have engaged NGH Environmental to conduct a peer review of this study to determine the accuracy and validity of the approach, assumptions and depth of analysis and ascertain whether/or how much of the subject land meets the criteria of HCV, as defined in Chapter 5 of the SCRCP. The conclusion of this peer review will directly inform the eventual Planning Proposal and the future zoning of this land.

1.2 OBJECTIVES AND SCOPE OF THIS REVIEW

The primary objective of this report is to provide an independent and objective review of the OMVI 2016 study. Based on the updated information, this report aims to reassess areas of HCV as defined in the SCRCP and, to determine if further field studies are still required to accurately define HCV areas.

The 2015 review by NGH Environmental, clearly identifies the land subject to review and provides a brief history of key planning decisions affecting the land. It identifies relevant biodiversity legislation and regional planning documents, stating how they apply to the land and provides a detailed analysis of the five past studies. This information is not duplicated in this report and it is recommended that this report be read in conjunction with the 2015 review.

This review:

Provides a summary of the OMVI 2016 study including the objectives, methods and key results.	Section 2
Provides NGH Environmental's assessment of the adequacy of additional survey work conducted on the subject land considering the target species and survey techniques and effort recommended by the draft Threatened Biodiversity Survey and Assessment: Guidelines for Development and Activities (DEC 2004), the NSW Guide to Surveying Threatened Plants (OEH 2016) and the BioBanking Assessment Methodology (OEH 2014).	Section 3
Provides NGH Environmental's audit of the findings of the OMVI 2016 study, assessing the accuracy and validity of the approach, assumptions and depth of analysis.	Section 3
Makes an objective assessment of which areas of the subject land meet the criteria of HCV as defined in Chapter 5 of the SCRCP. This assessment considers the results of the previous review conducted by NGH Environmental (2015) and any valid results documented in the Conservation Significance Assessment Report.	Section 4
Provides recommendations regarding the potential for development on the subject land, in consideration of the above evaluation.	Section 5

The scope of this review is limited to the evaluation of areas of HCV as they relate to biodiversity. This review does not consider other key factors such as Aboriginal heritage which may also have a bearing on the conservation value of the subject land.

It is noted that two (2) areas subject to a remedial order are present at the site. These areas are required to be zoned environmental protection at the direction of the NSW Department of Planning and the NSW Office of the Environment and Heritage (OEH) regardless of the conservation values they contain. These areas are identified separately on the mapping of HCV areas in this report.

The review was completed by senior ecology staff (refer to Appendix A, Assessment Personnel) who completed the 2015 review but have not been involved in the previous studies and reports undertaken on the subject site.

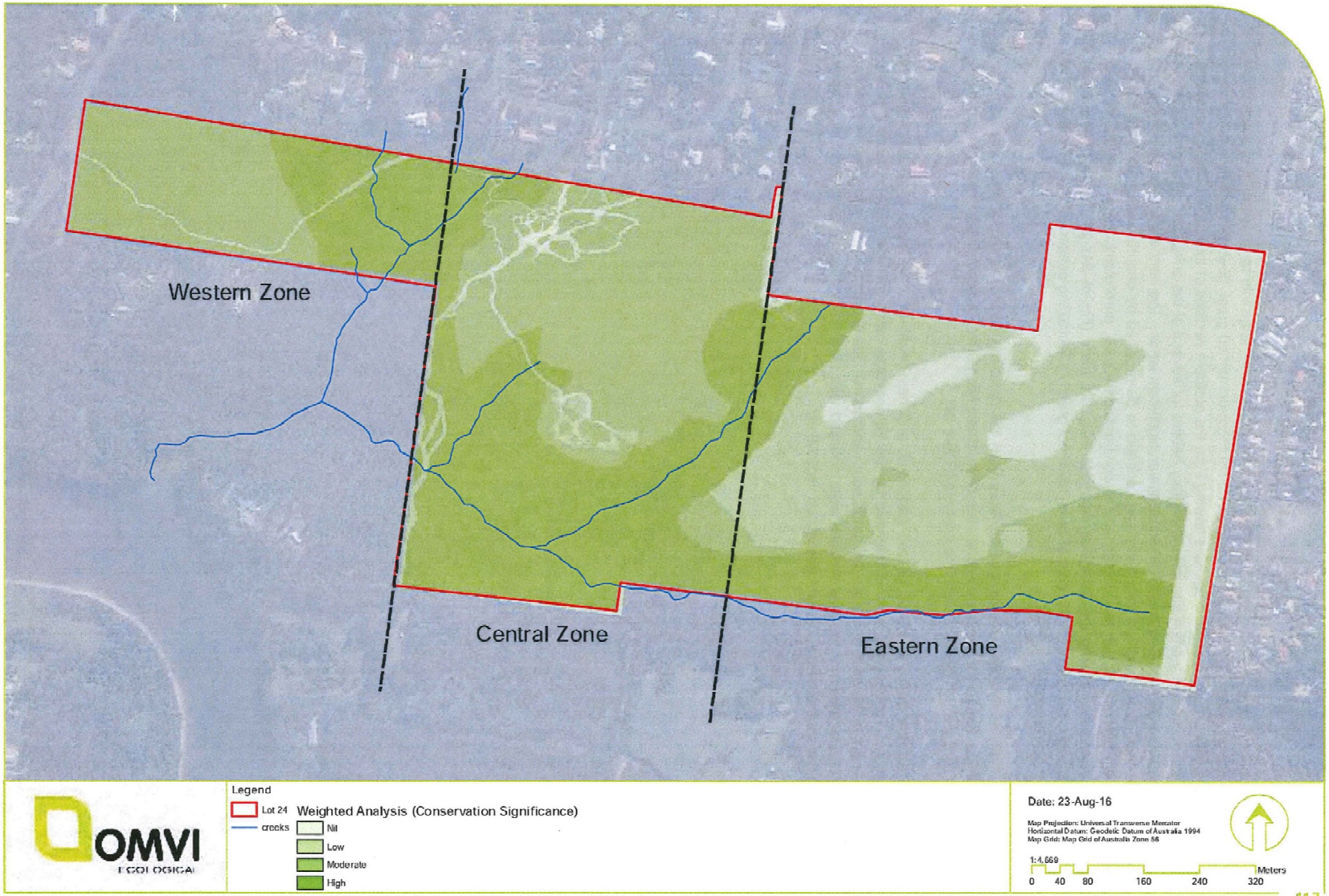

Figure 24: Weighted sum of habitats for conservation dependent species across lot 24

Figure 1-2 HCV areas as defined in the OMVI 2016 report

2 OBJECTIVES, METHODS AND OUTCOMES OF THE OMVI 2016 STUDY

2.1 OBJECTIVES

The primary objective of the OMVI 2016 study as stated in the executive summary is "*to 'fill in the gaps' in data required to determine current occupation, usage and importance of all areas of the lot and surrounding areas by conservation dependant flora and fauna, which have either been described previously in earlier assessments or that have recently been recorded utilising habitat on Lot 24. Therefore giving a relative qualification and quantification to the key matters of conservation significance and deriving an up-to-date map of the 'conservation values' of habitats across Lot 24*". It goes on to state that "*the assessment was conducted for planning purposes and not to assess the likely significance of a development under the administrative guidelines for determining significance under the NSW Environmental Planning and Assessment Act 1979 for those species listed on the Threatened Species Conservation Act 1995 or under the schedules of the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Nor was it the aim of the report and analysis to rely on facets of the legislation in the absence of data to derive conservation significance*".

This review considers that the objectives of the OMVI 2016 study are consistent with the above statements, aimed at providing the information required to accurately determine areas of high conservation value.

2.2 METHODS

The OMVI 2016 study references and summarises the results of all the previous assessments and reports to date, providing a good consolidated understanding of the site's biodiversity context.

Subject threatened species were determined by scrutinising the existing reports, performing updated database searches and assessing the habitat type and quality present at the site.

A range of field methodologies were employed for the purposes of accurately defining vegetation types and habitats and targeting subject threatened species. Survey methods employed are summarised in Section 3 below and their suitability and adequacy analysed with reference to relevant guidelines.

For each of the vegetation types and subject species that were considered to be present on site, the conservation value of habitats was mapped and a conservation value rating applied as detailed in Section 6.2 of the OMVI 2016 study:

- *"Primary (i.e. High) – supports core habitat for biota recorded; poorly conserved vegetation or wildlife corridors in accordance with the HCVs of the SCRCP*
- *Secondary (i.e. Moderate) – includes habitat known to be used, possibly used or presents potential habitat for vector movement for species recorded but is not likely to be critical for the species' population viability locally*
- *Marginal (i.e. Low) – incorporates all potential habitat that was recorded with current threatened species use, was not determined to have essential breeding resources, foraging resources and did not provide important connectivity corridors*
- *Nil – did not provide suitable habitat for subject biota"*

A weighted sum analysis was then undertaken within a Geographic Information System (GIS) environment, weighing all subject vegetation types and species evenly to produce a combined conservation value map

for the site (Figure 1-2). This approach combines the conservation values across all species. Where an area may be HCV for one species, if it has no conservation value for several other species, then the overall value would be diminished. In this sense, important habitat for a particular threatened species may not be included in the final HCV analysis. This is discussed further in Section 4.

2.3 RESULTS

The OMVI 2016 study provides a detailed analysis of the vegetation types and habitats present at the site, and includes revised mapping and an assessment of the vegetation types against the HCV criteria. The OMVI 2016 study agrees with the conclusions of the NGH Environmental (2015) review in that vegetation that aligns with the Currambene-Batemans Lowlands Forest community represents a poorly conserved vegetation type and as such is HCV.

Based on the updated vegetation and habitat information, the results of previous studies and updated database searches, the following subject species were identified as requiring further survey and analysis:

Flora

- *Hibbertia stricta* subsp. *furcatula*
- Bomaderry Zieria (*Zieria baeuerlenii*)
- Leafless Tongue Orchid (*Cryptostylis hunteriana*)
- Halbury Rustyhood (*Pterostylis vernalis*)
- Brittle Midge Orchid (*Genoplesium baueri*)

Fauna

- Australian Grayling
- Giant Burrowing Frog
- Square-tailed Kite
- Little Eagle
- Glossy Black Cockatoo
- Gang-gang Cockatoo
- Little Lorikeet
- Powerful Owl
- Masked Owl
- Varied Sittella
- Eastern Pygmy Possum
- Yellow-bellied Glider
- Squirrel Glider
- Grey-headed Flying-fox
- Threatened microchiropteran bats
    - Large-eared Pied Bat
    - Eastern Cave Bat
    - Little Bent-wing Bat
    - Eastern Bent-wing Bat
    - Large-footed Myotis
    - Yellow-bellied Sheathtail-bat
    - East-coast Freetail Bat
    - Eastern False Pipistrelle

  - Greater Broad-nosed Bat
- Migratory species
  - White-bellied Sea Eagle
  - Rufous Fantail
  - Satin Flycatcher
  - Black faced Monarch

The list of subject species accounts for all the species identified in the NGH Environmental (2015) peer review as driving the delineation of HCV areas at the subject site, which included:

- Bauer's Midge Orchid (*Genoplesium baueri*) – referred to in the OMVI 2016 study as the Brittle Midge Orchid
- Yellow-bellied Glider
- Squirrel Glider
- Glossy Black Cockatoo
- Gang-gang Cockatoo
- Varied Sittella
- Grey-headed Flying Fox
- Threatened forest microbats

The OMVI 2016 study considers a number of species additional to those identified in the NGH Environmental (2015) peer review above, and demonstrates a comprehensive approach.

A detailed analysis of how the OMVI 2016 study determines whether the site provides HCV areas for the vegetation types and habitat for subject species present is provided in Section 3 below.

3 DETAILED ANALYSIS OF THE ADEQUACY OF THE OMVI 2016 STUDY AND ITS CONCLUSIONS

The table and section below detail an objective analysis of the survey approach and effort and the conclusion regarding HCV areas for each of the subject vegetation types and species considered in the OMVI 2016 study. Where surveys were conducted that did not specifically target a subject species that would affect the determination of HCV areas, it is not investigated in any detail. In assessing the adequacy of survey and the HCV conclusions, the efforts and results of the previous studies are also considered.

3.1 DETAILED ANALYSIS OF SURVEY EFFORT CONDUCTED FOR THE OMVI 2016 STUDY

Table 3-1 Detailed analysis of survey effort conducted for the OMVI 2016 study and previous studies

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
FLORA				
Vegetation communities				
Transect surveys and ground truthing of vegetation boundaries	All vegetation types and Endangered Ecological Communities (EECs)	Not documented within the report	Vegetation previously mapped within the Alison Hunt and Associates report (AHA 2008) and in the Biosis (2011) report.	The OMVI 2016 study considers the vegetation typing of all previous assessments at the site and published up to date broader vegetation mapping (i.e. Tozer *et al.* 2010, AHA 2010). The analysis of vegetation structure and composition and the delineation of various vegetation types and condition is detailed and thorough and considered adequate.
Biometric plots	All vegetation types and EECs	25 plots across all vegetation types	NA	The number of plots conducted across the site is adequate and is consistent with the minimum requirements of the BioBanking Assessment Methodology (OEH 2014).

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
Subject flora species				
Random meanders	• *Hibbertia stricta* subsp. *furcatula* • Bomaderry Zieria (*Zieria baeuerlenii*)	Not documented within the report	No specific targeted searches for these species but would have been detectable during general vegetation surveys	Consistent with the DEC (2004) survey guidelines. Not consistent with the NSW Guide to Surveying Threatened Plants (OEH 2016) but surveys consistent with these guidelines were conducted for more cryptic species below and covered the majority of the site including the most likely habitat for these species. The survey effort and approach is considered adequate for these species.
Parallel Transects	• Leafless Tongue Orchid (*Cryptostylis hunteriana*)	Parallel transects 3-5m apart. 24 person hours on the 15 and 18 December 2015 and confirmation of flowering at nearby reference sites from 7 December 2015 to mid-February 2016.	Targeted orchid surveys (2 ecologists) 5 & 6 December 2007 (AHA 2008)	The survey methodology employed is considered appropriate and adequate for the Leafless Tongue Orchid and the Brittle Midge Orchid.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
	• Brittle Midge Orchid (*Genoplesium baueri*)	Parallel transects 3-5m apart. 32 person hours over four days (1-3 and 9 March 2016) and confirmation of flowering at nearby reference sites on 1 March 2016.	No suitable timed targeted surveys undertaken	Although identified as a subject species in Section 4.4 of the OMVI 2016 study, the Halbury Rustyhood was not included in the targeted parallel transect surveys. This species flowers in October so the timing of the other targeted surveys was not appropriate for this species. Targeted searches for this species were conducted by Alison Hunt and Associates on 4 and 6 October 2007 within suitable habitat however, the study area for this survey did not cover the entire subject site and given that the surveys were conducted nearly 10 years ago, the results are not considered valid.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
FAUNA				
Fish and tadpoles				
Tadpole surveys – dip-netting	• Giant Burrowing Frog	Pools across the study area (number not defined) were each surveyed once for 15mins. Survey timing not specified but likely to be during the November 2015 and May 2016 sampling periods.	AHA (2008) conducted diurnal searches of suitable habitat for the Green and Golden Bell Frog and Giant Burrowing Frog during summer (2 person hours) 2.5 person hours was spent on call playback surveys on the subject land. Spotlight searches were also conducted at night along tracks and roads during rain events for the Giant Burrowing Frog. Biosis (2010) conducted a 1-hour combined diurnal reptile and amphibian survey in areas of potential sheltering, foraging, basking, breeding and roosting habitat such as	The survey methods and effort undertaken by the OMVI 2016 study is consistent with the DEC (2004) guidelines for amphibians. The Threatened species survey and assessment guidelines: field survey methods for fauna - Amphibians (DECC 2009) provide specific recommended survey methodologies, effort and timing for the Giant Burrowing Frog. The OMVI 2016 study is generally consistent with these guidelines although it is not clear if the surveys conducted as part of the OMVI 2016 study were timed to coincide with heavy rainfall events as recommended.
Bait traps - light	• Giant Burrowing Frog • Australian Grayling	Five traps deployed over four nights along the southern creekline in November 2015 and May 2016.		
Spotlight stream side surveys	• Giant Burrowing Frog • Australian Grayling	Four streamside surveys conducted on at least two nights each of the November 2015 and May 2016 sampling period.		
Call playback	• Giant Burrowing Frog	Selected sites during streamside surveys incorporating an initial 15min listening period, 5min call broadcast and 10min listening.		

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
General herpetofauna surveys including: Diurnal searches Rock, log and debris rolling Listening for frog calls diurnally and nocturnally Active shelter surveys Nocturnal spotlighting surveys	• Giant Burrowing Frog	November 2015 and May 2016 sampling period. Number of surveys and survey effort not specified	riparian zones and rock outcrops. A 30-minute searching and listening period was conducted in riparian zones for amphibians on one night.	Bait traps and dip-netting are recommended techniques for surveying the Australian Grayling (DSEWPAC 2011). Backpack electrofishing is also recommended. No minimum survey effort is recommended in the Survey Guidelines for Australia's threatened Fish (DSEWPAC 2011). Surveys for the Australian Grayling are considered adequate.
Avifauna				
Diurnal bird surveys	• Square-tailed Kite • Little Eagle • Glossy Black Cockatoo • Gang-gang Cockatoo • Little Lorikeet • Varied Sittella • Powerful Owl • Masked Owl • White-bellied Sea Eagle • Rufous Fantail • Satin Flycatcher • Black faced Monarch	Three morning bird surveys 07:30 – 09:00 were undertaken across the subject site in each of the November 2015 and May 2016 sampling periods. Daytime habitat sampling looking for pellets and white wash also conducted.	Several bird surveys conducted by other studies	The survey methods and effort undertaken by the OMVI 2016 study is consistent with the DEC (2004) guidelines.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
Glossy Black Cockatoo feed signs – parallel transects	• Glossy Black Cockatoo	5 – 10m transects across the entire subject site during the November 2015 Survey. Cones were identified as foraging or investigative behaviour and classified according to age.	Habitat mapping completed by AHA (2008) and transect surveys by OMVI (2011)	There is no recommended minimum survey effort in the DEC (2004) guidelines. The type and level of survey is considered to be thorough and adequate.
Nocturnal bird surveys Spotlighting and listening Call playback	• Powerful Owl • Masked Owl • Sooty Owl	Three spotlighting surveys 18:00 – 22:00 were undertaken across the subject site in each of the November 2015 and May 2016 sampling periods. Call Playback was conducted on two nights in each of the November 2015 and May 2016 sampling periods. Surveys employed a 5min broadcast and 5min listening for each species and then a final 10min listening period.	Call playback surveys were completed by both AHA (2008) and Biosis (2010) in accordance with the guidelines except for number of site visits required.	The DEC (2004) Guidelines recommend at least 5 visits per site for the Powerful Owl and at least 8 site visits for the Masked Owl. None of the studies past or present have completed this level of survey. However, cumulatively, the level of survey effort is considered adequate to have detected the species if they were to be regularly utilising the subject site.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
MAMMALS				
Diurnal tracks and signs	• Eastern Pygmy Possum • Yellow-bellied Glider • Squirrel Glider • Grey-headed Flying-fox	Specific searches for tracks, scats, burrows, diggings, scratching or pads. No particular survey effort provided but conducted as part of other surveys which have comprehensive coverage of the subject site	General fauna habitat assessment and completed by all previous studies.	The DEC (2004) guidelines recommend 30min searches in all habitat types. Although not clearly stated in the OMVI 2016 study, it is considered likely that this requirement has been met, based on other documented survey effort during which this survey type would have been incorporated.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
Elliot trapping	• Eastern Pygmy Possum • Squirrel Glider	Two surveys of four nights each during both the November 2015 and May 2016 sampling periods. 75 traps were placed along four transects both on the ground and on tree mounted platforms. A total of 300 trap nights were employed each survey.	Elliot trapping completed by both the AHA (2008) and Biosis (2010) studies with 40 and 26 trap nights respectively.	The DECC (2002) guidelines recommend 100 trap nights per stratification unit per survey. The OMVI 2016 study almost meets this requirement for each survey period with 60 trap nights in the disturbed areas and 80 trap nights in the other main habitat types. Neither of the previous studies met the recommended minimum number of trap nights either but the current study has employed the greatest survey effort to date. Combined, the studies are considered adequate to determine the presence or absence of the species and the general rates of use.
Spotlighting	• Eastern Pygmy Possum • Yellow-bellied Glider • Squirrel Glider • Grey-headed Flying-fox	Three nights of spotlighting during both the November 2015 and May 2016 sampling periods from sundown to 20:30.	Spotlighting completed by both the AHA (2008) and Biosis (2010) studies. AHA (2008) over at least two nights as required by the guidelines.	Spotlighting survey effort is consistent with the DEC (2004) guidelines.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
Targeted Yellow-bellied Glider occupation surveys	• Yellow-bellied Glider	Stag watching and active tracking of animals for an entire night in the November 2015 survey and numerous more hours over each survey. 5 – 10m parallel transects searching for evidence of foraging. Types of feed scars and relative age also recorded.	Parallel transect surveys for feed signs conducted by OMVI (2011).	The type and level of survey is considered adequate for determining the core habitat areas for the Yellow-bellied Glider.
Call Playback	• Yellow-bellied Glider • Squirrel Glider	Calls were broadcast for at least two nights each survey season from locations within different habitat types but targeted for the target species. A total of six locations were surveyed.	Call playback completed for the Biosis (2010) study but number of survey locations not documented.	The level of call playback survey conducted for nocturnal arboreal mammals at the subject site is considered to meet the requirements of the DECC (2001) guidelines.

Survey methodology	Target species	Survey effort and timing conducted for the OMVI 2016 study	Relevant survey effort from previous studies	NGH Environmental analysis of adequacy
Microchiropteran bats				
Ultrasonic call detection (Anabat)	• Microchiropteran bats	Two detectors deployed for three full nights during both the November 2015 and May 2016 sampling periods.	Anabat surveys completed by both the AHA (2008) and Biosis (2010) studies. AHA (2008) over at least two nights as required by the guidelines.	The DEC (2004) guidelines recommend that sampling be conducted between October to March when bats are most active. The November 2015 survey was within this window and meets the requirements of the DEC (2004) guidelines. Activity is likely to have been lower during the May 2016 survey. All threatened bats that are likely to occur at the subject site are detectable through call analysis. The call analysis procedures described in the OMVI 2016 study are considered appropriate and adequate.
Harp trapping	• Microchiropteran bats	Two harp traps over four nights each session at six locations during the November 2015 and May 2016 sampling periods.	Harp trapping was not conducted in previous studies	The survey approach and effort is consistent with the DEC (2004) guidelines. This survey technique compliments the Anabat surveys.

3.2 ANALYSIS OF THE CONCLUSIONS REGARDING THE DELINEATION OF HCV AREAS FOR EACH SUBJECT SPECIES

An analysis of HCV area conclusions documented within the OMVI 2016 study is provided below. The results and key conclusions of conservation significance are largely taken directly from the OMVI (2016) study (*italicised text*). It should be noted that in certain instances not all of the text included in the OMVI 2016 study has been duplicated here, particularly where it was not considered important for the determination of HCV areas.

3.2.1 Poorly conserved vegetation types

Study results and conclusion

The OMVI 2016 study agrees with the conclusions of the NGH Environmental (2015) review in that vegetation that most closely aligns with the Currambene-Batemans Lowlands Forest community (Grey Gum Woodland and Spotted Gum Forest) represents a poorly conserved vegetation type and as such is HCV.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.2 Hibbertia stricta subsp. furcatula

Study results

Despite numerous surveys over the study area and locality, there have been no individuals recorded in the area. It is therefore unlikely that Hibbertia stricta subsp. furcatula is present within the study area.

Study conclusions of conservation significance

Given the absence of the species within the lot, after several appropriately timed targeted surveys for the species, over several years, it unlikely the Hibbertia stricta subsp. furcatula occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.3 Bomaderry Zieria (Zieria baeuerlenii)

Study results

The targeted threatened species surveys were conducted in all seasons across the study area in 2007 (AHA 2008), 2010 (Biosis 2011) and in the current surveys 2015/2016 and did not record this species. There are numerous records from known population in and around Bomaderry Creek Regional Park. Despite the atlas record in close proximity to the study area as referred to in previous studies, Z. baeuerlenii has not been recorded. It is therefore unlikely that Z. baeuerlenii is present in the study area.

Study conclusions of conservation significance

Given the absence of the species within the lot, after several appropriately timed targeted surveys for the species, over several years, it unlikely the Bomaderry Zieria occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.4 Leafless Tongue Orchid (Cryptostylis hunteriana)

Study results

Despite 3-10 metre transect surveys for the species over more than 29 hours in the recent 2015 surveys undertaken across all areas of associated vegetation communities during the known flowering period, no individuals were recorded within the study area. Moreover, two previous appropriately timed surveys in 2007 (AHA 2008) and 2010 (Biosis 2011), no individuals were recorded. It is therefore unlikely that C. hunteriana is present within the study area.

Study conclusions of conservation significance

Given the absence of the species within the lot, after several appropriately timed targeted surveys for the species, over several years, it unlikely the Leafless Tongue Orchid occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

NGH Environmental agree that the recent November 2015 survey was appropriately timed with suitable effort. It is noted however, that the AHA (2008) surveys were only conducted over a portion of the site and did not confirm flowering at a reference site during the survey period. The majority of the Biosis flora and fauna surveys were conducted in April 2010 (Biosis 2010) which was not appropriate timing for the Leafless Tongue Orchid. Hollow-bearing tree surveys were conducted by Biosis on 6 and 7 January 2011 (Biosis 2011) employing a structured parallel foot based survey across the subject site, but given that the focus was on identifying hollow-bearing trees and only "focused on areas supporting significant habitat features" (Biosis 2011), it can be hardly considered a targeted survey for the species.

The leafless Tongue Orchid is a cryptic species. Being leafless, flowering is the only indication of the species presence and this is inconsistent from year to year (Bell 2001). As such, repeated surveys are required to conclusively determine the presence or absence of the species. However, given that the species was confirmed to be flowering in the local region (at Tomerong and Manyana) and that a suitable level of survey intensity was applied at the correct time, according to relevant guidelines, the conclusions of the OMVI 2016 study are considered reasonable.

Given that populations of the species may not flower every year, it is recommended that another additional targeted survey for this species be conducted in areas that may developed in the future, to clarify the conclusions of the OMVI 2016 study.

3.2.5 Halbury Rustyhood (*Pterostylis vernalis*)

Study results

The closest records for this species occur in Triplarina Nature Reserve south of the study area and south of the Shoalhaven River and despite numerous surveys over the study area and locality, there have been no individuals recorded in the Bomaderry North Nowra area. It is therefore unlikely that Pterostylis vernalis is present within the study area.

Study conclusions of conservation significance

Given the absence of the species within the lot, after several appropriately timed targeted surveys for the species, over several years, it unlikely Pterostylis vernalis occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

Table 6 in Section 3.1 states that habitat for the Halbury Rustyhood (*Pterostylis vernalis*) is absent at the subject site, that the species has not been recorded in the locality and the species is unlikely to occur. This is in contradiction to the AHA (2008) report, where suitable habitat was identified and targeted surveys were conducted for the species, but in agreement with the Biosis (2010) report.

Targeted searches for this species were conducted by AHA on 4 and 6 October 2007 within habitat that was considered suitable by AHA. Random meanders were employed, consistent with the DECC (2004) guidelines however, the study area for this survey did not cover the entire subject site (Figure 1-1). As habitat for this species was specifically mapped in the AHA (2008) report, it is not possible to determine if all the habitat considered suitable by AHA within the subject site was surveyed.

The Biosis (2010) report states that the site provides "*some habitat*" with regards to vegetation types, but concludes the species is unlikely to occur on the basis that "*no observations were made of locations that would support the moisture regime preferred by the species*" and that the species is not recorded in the locality. The absence of the preferred moisture regimes is consistent with observations made by NGH Environmental during the site inspection made for the 2015 peer review. It may have been that the suitable "semi-swampy areas" that AHA identify in their 2008 report were temporary and a result of specific weather events rather than persisting conditions. There are however, four records of the species 2.5km south of the subject site just south of the Shoalhaven River from 2011 – 2015 (as acknowledged in the conclusion of the OMVI 2016 study). These records would not have been present at the time of the Biosis survey and report however, they were picked up in the updated database searches conducted as part of the OMVI 2016 study as they are mapped on Map 26 and the species identified as possibly occurring in Table 23.

Further advice was sought from OMVI to clarify whether the species was considered to have the potential to occur and whether targeted surveys were conducted. OMVI advised that "*the OMVI assessment being reviewed utilised all available information regarding all species. OMVI also discussed the potential occurrence of all conservation significant species with relevant experts, and in relation to orchids including OEH threatened species officers and Alan Stephenson. Pterostylis vernalis (Speculantha vernalis) was determined not likely to occur*" (B. Ryan *pers. comm.* via email to Daniel Hodge 11.05.17). This expert advice is not documented in the OMVI (2016) report. However, it is accepted by NGH Environmental. Combined with the apparent absence of the hydrological conditions preferred by this species during the Biosis 2010 and NGH Environmental 2015 surveys, NGH Environmental agree that the subject site is unlikely to hold conservation value for *Pterostylis vernalis*.

3.2.6 Brittle Midge Orchid (Genoplesium baueri)

Study results

Surveys have been conducted for this species by both AHA and Biosis as part of their respective assessments and the property has been examined in previous years, specifically for this species by local orchids experts, Alan Stephenson and Terry Barrett in 2014 (Alan Stephenson pers. comm.) during the local flowering period. No individuals were found during any of the previous surveys.

There is one record from the Atlas of wildlife for this species from 2006 which is recorded from on site, the location which was closely examined during the recent survey failed to locate an individual. However, seven individuals (seven flowers) were located along a central creek to the east of the atlas records and further north toward Warrah Road.

Being a relatively difficult species to survey for, given the size and colouration it is possible that other individuals may be present in the more dense forest in the west of the lot. It is however, unlikely that the species occurs in east of the individuals recorded given the open grassy habitat, and the detailed surveys undertaken. Moreover, the preferred Scribbly Gum/Red Bloodwood/Stringybark woodland on sandstone occurs mostly in the transition between the Shoalhaven Sandstone woodland and the Grey Gum Gully Forest, which generally follows the creeks and drainage lines across the site (Figure 13), and which also occurs at the reference site near Bomaderry Creek Regional Park.

Study conclusions of conservation significance

The brittle midge orchid is listed as endangered on both the NSW TSC Act and Commonwealth EPBC Act. It is therefore highly conservation dependant.

Flowering usually occurs from December to April (OEH species profile) and was during March 2016 locally. Despite favourable seasonal conditions, some plants do not regularly appear each year.

[The pollinators] *are likely to be able to move large distances and could be cosmopolitan if travelling in the high strata winds. Therefore a relative arbitrary 70 metre buffer around the local population has been considered the primary habitat for the species in lot 24 and all appropriate Scribbly Gum/Grey Gum intergrade as secondary habitat across the site. Open Scribbly gum is unlikely to support this species and the dense understorey with the creek channel is also unlikely to be ideal habitat for the species. The individuals are adjacent to a existing farm trail, which is likely to have been there as long as the existing barbed wire fence +50 years. The opening resulting from the track maybe an important factor in the presence or persistence of the individuals at this location.*

The conservation of vegetated linkages to other known populations may be important, however, given the highly fragmented landscape and that there is no longer linkages to the records north of Illaroo Road nor to those near Bomaderry Creek Regional Park, marinating creek buffers and therefore associated suitable habitat has been hence classified as secondary habitat for the species in the current assessment.

NGH Environmental analysis

Habitat ratings as mapped in the OMVI (2016) report are provided as Figure 3-1.

Given that it was recorded during surveys for the OMVI 2016 study, the fact that several previous surveys (including by experts in the field) failed to locate the species on the site is testimony to the difficulty of its detection. The OMVI 2016 study acknowledges that it is highly conservation dependant.

Primary habitat has been identified by applying an arbitrary buffer of 70m on the plants recorded during the OMVI 2016 study. The location of the previous record is located 370m to the south-west. Although this

location was surveyed and no individuals found, the OMVI 2016 study states "*Despite favourable seasonal conditions, some plants do not regularly appear each year*". As such, it is still possible that the species occurs in this location. Further, the OMVI 2016 study states "*Being a relatively difficult species to survey for, given the size and colouration it is possible that other individuals may be present in the more dense forest in the west of the lot*". It states that "*the preferred Scribbly Gum/Red Bloodwood/Stringybark woodland on sandstone occurs mostly in the transition between the Shoalhaven Sandstone woodland and the Grey Gum Gully Forest, which generally follows the creeks and drainage lines across the site, and which also occurs at the reference site near Bomaderry Creek Regional Park*".

An arbitrary buffer of 70m on the seven individuals found during the recent survey does not seem appropriate given the site provides other known and preferred habitat for the species. The OMVI 2016 study states that "*The conservation of vegetated linkages to other known populations may be important, however, given the highly fragmented landscape and that there is no longer linkages to the records north of lllaroo Road nor to those near Bomaderry Creek Regional Park, marinating creek buffers and therefore associated suitable habitat has been hence classified as secondary habitat*". Although not important for connectivity to populations outside of the subject site, these areas may be important for connectivity between populations that occur on the subject site. Given its sporadic flowering, several surveys over a number of seasons would be required to more accurately determine the distribution of the species across the site. This would include cross-checking with known reference sites to determine the degree of flowering in any given season. For example, if surveys across the site were conducted during a season when most of the known local reference sites were flowering then it could be confidently concluded that majority of the occurrences of the species on the site should have been detected. Conversely, if there were poor rates of flowering at known local reference sites then it is also likely that there would be poor rates of flowering at the subject site and occurrences of the species may be overlooked. Regardless of where the species occurs at the subject site, the areas of suitable habitat represent potential habitat for future dispersal which could contribute to the viability of the local population. It is the opinion of this review that in the absence of surveys that account for the sporadic flowering of the species, that both primary and secondary habitat mapped by the OMVI 2016 study, should be considered HCV.

Figure 15: Habitat for the Brittle Midge Orchid across lot 24

Figure 3-1 Habitat ratings for *Genoplesium baueri* as mapped in the OMVI (2016) report

3.2.7 Australian Grayling

Study results

No Australian Grayling were captured or seen during the site surveys and very few records of the species are available for several years in the Shoalhaven River or tributaries. It is therefore unlikely that the un-named creek along the southern boundary of the study area would serve as habitat for the species.

Study conclusions of conservation significance

Given the absence of the species within the un-named creek, after targeted surveys for the species, and the apparent very low number of possible extinction from the Shoalhaven River catchment, it unlikely the Australian Grayling occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.8 Giant Burrowing Frog

Study results

While the habitat along the southern creekline may be suitable for the species, it is more limited in size and quality than other known habitat in the Shoalhaven Region (e.g. Vincentia and Booderee National Park). The potential breeding sites observed during the survey were also relatively small and would appear to be rarely inundated, thus providing sub-optimal breeding habitat.

Targeted surveys for the Giant Burrowing Frog were undertaken across suitable habitat within the study area and in immediately adjoining areas that presented potential habitat during and after heavy rainfall during the known local breeding season. No tadpoles or frogs were observed or heard. There is a known population on Cambewarra Range to the north (Daly 2012) and one record from Bomaderry Creek Regional Park to the north east (Figure 27). Given the absence of the species during targeted surveys, particularly tadpoles throughout the range of surveys of the creek from 2007 to 2016, suggest that the Giant Burrowing Frog is unlikely to be present in the study area.

Study conclusions of conservation significance

Given the absence of the species within the un-named creek, after targeted surveys for the species, and the possible local extinction from the North Nowra Bomaderry area, it unlikely the Giant Burrowing Frog occurs and therefore the lot holds no conservation significance for the species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.9 Square-tailed Kite

Study results

The Square-tailed Kite is annually recorded in the North Nowra-Bomaderry area (Figure 27). They are recorded regularly near the North Nowra water tower as they make their season migrations (Daly 2012). One individual was recorded during the March terrestrial orchid surveys on Lot 24. The bird was recorded

foraging above the residences north of lot 24 and moved east continuing to forage 1-2 metres from the canopy of trees within the residential matrix through to the water tower and shopping centre of North Nowra. No other individuals have been recorded during spring or summer surveys by other surveyors of lot 24 or locality.

The forested portions of lot 24 are likely to represent foraging for this species, as is the forested habitat along the Shoalhaven River and surrounds. Considering the species' ability to forage in fragmented forest across the locality, all the remnant woodland particularly to the west (where breeding has been recorded) is likely to represent foraging and nesting habitat.

Study conclusions of conservation significance

Square-tailed Kite nest in mature live trees, often near water, such as the nest site recorded in Bangalee Reserve (Daly and Evison 1996). The nest is placed in a fork of a large limb, which is usually horizontal (Marchant and Higgins 1993). There were no raptor nests recorded across lot 24 despite numerous hours of survey over multiple years and only one sighting north of the lot during the current 2016 surveys. Nevertheless the woodland habitat across the lot, or specifically the numerous birds occupying and breeding within this habitat represent foraging habitat for the species on its annual migration. Given the scant observations, and the large areas of similar habitat, including the residential matrix, the habitat provided within lot 24 is unlikely to be critical for the breeding or foraging of this wide ranging and highly mobile species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.10 Little Eagle

Study results

The Little Eagle was not recorded during targeted surveys of the study and no raptor nests were observed. The subject site is likely to represent a very small area of potential foraging for this species and it is highly unlikely to represent a significant portion of an individual's home range, if present.

There is one local record at Worrigee to the south east of the study area and one west of Nowra to the south west within 10 kilometres. There are also few other records in the Nowra Bomaderry area. The absence of the species during targeted surveys over several years, suggest that the Little Eagle is unlikely to be resident in the study area, or a regular visitor particularly in the summer breeding season.

Study conclusions of conservation significance

The little eagle has not been recorded near the study area during the site surveys or surveys anywhere in the North Nowra / Bomaderry area (Atlas records). Therefore [the] *study area is likely to represent only a small area of potential foraging for this species, if it occurs transiently, and it is highly unlikely to represent a significant portion of an individual's home range, if present. Therefore, the lot holds little conservation significance for the species.*

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.11 Glossy Black-Cockatoo

Study results

While all the vegetation communities recorded in the study area support a midstorey of She-oaks, the historical disturbance throughout the study area, from past activities such as grazing, under-scrubbing, has reduced the amount of mature She-oaks present. However, one of the greatest impacts to this foraging resource across the lot has been fire. As recorded in the previous assessments in the locality (AHA 2008) bush fires had had a large impact on foraging resources for this species. As a consequence of recent fires, a large percentage of the site now does not support mature She-oaks, suitable or preferred by Glossy Black-Cockatoos. Only areas not affected by the fires, such as the ecotone between the two main vegetation types in the study area appear to support the mature trees with observed foraging. It is also apparent that foraging resources exist on vegetated lands in the surrounding forested and peri-urban landscape, as evidence of foraging as well as sightings of individuals resulted from other local surveys (OMVI 2012, NGH 2012) and from brief targeted surveys of the local street verges in the current surveys (Figure 16).

Despite targeted surveys over successive years within the study area (2007-2016) no individuals have been observed within lot 24. Nevertheless, foraging evidence has been recorded and individuals are using the site for semi-regular foraging expeditions, the lot is therefore a part of a larger home range of some locally occurring individuals.

Moreover, given the absence of foraging evidence on the site during the past surveys (AHA 2008, Biosis 2010, OMVI 2011 and NGH 2015) the suitability of the foraging resources is improving post fire. Given the last major impacting fire was 2003, the subsequent 12 years has seen the extent and maturity of the Allocasuarina increase which has also seemingly resulted in an increase of Glossy Black-Cockatoo activity across lot 24.

During the targeted Glossy Black-Cockatoo foraging surveys conducted over three days in November 2015, more than 55 trees were recorded with evidence of Glossy Black-Cockatoo activity on lot 24 and in adjacent lots and crown land. 21 were recorded with active foraging and 34 were recorded as being investigative sampling of the cones only (Table 9). Three trees were recorded as having been visited more than a single time.

It is therefore evident that the resources for Glossy Black-Cockatoo, while currently are not regularly used, are becoming a part of the foraging resources for locally occurring cockatoos and over time will become more important for certain individuals. However, currently the majority of lot 24 represents nil to marginal foraging habitat, with some Secondary habitat with mature Allocasuarina present, which is irregularly used.

Study conclusions of conservation significance

The largest fruit bearing trees were recorded on the boundary of Lot 24 were in the paper road easement along the northern boundary, in the Powerline easement in the south-east corner of the lot as well as in the neighbouring properties and the road verges in the surrounding residential areas.

It is therefore evident that the resources for Glossy Black-Cockatoo, while currently are not regularly used, are becoming a part of the foraging resources for locally occurring cockatoos and over time will become more important for certain individuals. However, currently the majority of lot 24 represents nil to marginal foraging habitat, with some Secondary habitat with mature Allocasuarina present, which is irregularly used.

Individuals are known to regularly visit foraging, and watering habitat immediately west of Gypsy Point road and other are regularly observed in Bomaderry Creek area, and adjacent residential lands supporting Allocasuarina, such as the North Nowra water tank. Orts were recorded along Crams road in the AHA (2007)

surveys as well as during the current investigations, therefore there is likely to be another family group or pair south of the site. Given the ability of the species [to] *forage widely in any given environment, any of these known groups could be responsible for the orts recorded locally.*

Given the number of re-visits and the sparse scattering across the lot and the general number seen beneath any given tree (Table 9), it appears that the site is not frequently used but is a part of an extended foraging range of one or two birds.

NGH Environmental analysis

The OMVI 2016 study maps the areas where foraging resources have been recorded as secondary habitat for this species (Figure 3-2). No areas are mapped as primary habitat. The definition of HCV areas for threatened species in the SCRCP relies on areas being considered important habitat. In the SCRCP verification rules for identification of HCV; "*Important habitat contributes to the viability of local threatened fauna populations and can include, but is not limited to, essential breeding resources, foraging resources and connectivity corridors*" (refer Appendix B). The subject site does contain specific foraging resources for the Glossy Black-Cockatoo and the fact that there are being used (albeit infrequently), suggests that they may be contributing to the viability of the local population. Further, there is no data provided on the frequency of use of specific foraging resources in the broader locality and it is not possible to determine if this frequency of use is common. A broader study of habitats in the locality and their frequency of use would be required to conclude that the trees on the site are being used less frequently relative to other local resources and therefore, have less importance to the local population. As stated in the OMVI 2016 study, "*It is therefore evident that the resources for Glossy Black-Cockatoo, while currently are not regularly used, are becoming a part of the foraging resources for locally occurring cockatoos and over time will become more important for certain individuals*". This is supported by NGH Environmental, and suggests that these foraging resources constitute important habitat for the species, particularly where there are multiple occurrences of preferred and investigated trees. These areas are also considered important in the context of the potential for clearing of other areas of habitat at the site that may be marginal at the moment, but could provide future foraging resources as the trees mature. As such, the area with the highest density of observed foraging signs is recommended for inclusion as primary habitat and therefore HCV (Yellow circle on Figure 3-2). This differs from the conclusions of the OMVI 2016 study.

The other isolated foraging resources are not proposed as HCV for this species as their isolated nature suggests a much lower density of preferred trees. Further, encompassing these trees in the broader HCV area would require the inclusion of areas that do not necessarily contain important habitat for threatened species to maintain connectivity to these resources. Trees kept in isolation (without connected corridors) may be abandoned by the species as preferred trees given their exposed nature and the proximity of other more sheltered habitats.

Figure 16: Habitat for the Glossy Black Cockatoo across lot 24

Figure 3-2 Habitat ratings and foraging resource records for the Glossy Black-Cockatoo as mapped in the OMVI (2016) report

(Suggested NGH HCV area identified by yellow circle)

3.2.12 Gang-gang Cockatoo

Study results

The Gang-gang Cockatoo was recorded during the Biosis surveys (2010) along Crams Road but not during the AHA Crams Road IA surveys (2006). There is only one additional record of this species within the Study Area: from 2006 with approximate 1km accuracy.

A pair was recorded flying across the site in November 2015, and again in December 2015. On both occasions, the pair were not recorded forging and were flying west to east during morning surveys.

Despite the scant records there is nevertheless suitable foraging habitat for the species throughout the study area in the form of seeds-capsules of eucalypts, acacia pods and invertebrate within the canopy.

Nesting of C. fimbriatum has been recorded mostly in mountain/highland areas north and east of the study area however, one coastal nesting was recorded in the Jerberra Estate at Tomerong (BES 2007), and Daly (2012) has recorded breeding behaviour from cockatoos in the upper Tapitallee catchment. There has been no nesting recorded within the study area despite targeted surveys between 2007 and 2016.

Suitable foraging and breeding habitat for this species occurs widely within the locality, particularly in Bomaderry Creek Regional Park, along the Shoalhaven River and in private lands with large stands of contiguous forest further to the west, north and south. Similarly, potential foraging habitat is common and widespread in the region, including the coastal national parks to the west, forested agricultural lands and even retained trees in developed urban and semi-urban area, as the species is known to forage within disturbed landscapes.

Study conclusions of conservation significance

There were no nesting cockatoos and only three sightings recorded across lot 24 despite numerous hours of survey over multiple years. Nevertheless, the woodland habitat across the lot, represent foraging habitat for the species on its seasonal migration. Given the scant observations, and the large areas of similar habitat, including the residential matrix, the habitat provided within lot 24 is unlikely to be critical for the breeding or foraging of this wide ranging and highly mobile species.

The study area appears from the survey to represent only temporary and transient foraging habitat. Gang-gang Cockatoos, since they are recorded infrequently in the area. It is highly unlikely that the study area is regular breeding habitat, and may not be regular foraging habitat

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.13 Little Lorikeet

Study results

Habitat suitable for this species is known to occur throughout the Shoalhaven region and recorded habitat does exist within the study area. No known breeding sites have been recorded for Little Lorikeets in the literature, however, in coastal Manyana, the species has been recorded utilising E. sclerophylla for nesting (B. Ryan pers. obs.). The same individuals have been recorded occupying the same area year round for at least the last 3 years. There a few local records of Little Lorikeets, and are known from the broader locality,

such as in Conjola NP, Morton NP and coastal towns such as Manyana, Lake Conjola, Narrawallee and Lake Tabourie (B. Ryan pers obs.).

The Little Lorikeet was not recorded during previous surveys of lot 24 or the locality but was recorded in pairs, or small flocks on numerous occasions through the 2015/2016 surveys (Figure 17) [Figure 3-3]. All records were from the tall vegetation along the southern creekline, and adjacent Scribbly Gum Woodland in the south west. Individuals were recorded foraging in flowering eucalypts during November and December 2015 site surveys as well as during March 2016, where they were also recorded inspecting hollows in a large E. sclerophylla. On this occasion four pairs were recorded in the same area and with the same group of trees, late morning for more than 2 hours.

Study conclusions of conservation significance

It is therefore likely that Little Lorikeets maybe breeding within lot 24, or at the least were inspecting suitable hollows at the beginning of the recognised breeding seasons for the species. The primary and secondary habitat for the species has been assumed as being the tall, mixed species woodland along the creeklines across the study area as well as the woodland knoll where the parrots were inspecting hollows.

The remaining potential habitat is recorded as marginal habitat, given that while the remaining did not support the local individuals during the many hours spent on site woodland may still represent potential habitat (Figure 17) [Figure 3-3].

The habitat across the southern portions of lot 24 are therefore of conservation significance for the Little Lorikeet and as such is assessed as a 'high conservation value' for lands in this assessment.

NGH Environmental analysis

NGH Environmental agree that the site contains land of HCV for the Little Lorikeet. The definition of primary habitat by the OMVI 2016 study has been limited to the extent of the recorded observations. The other areas supporting the tall mixed species woodland along riparian areas preferred by this species have been mapped as secondary habitat (Figure 3-3). These habitats are continuous with that in which the records occurred, contain a number of hollow-bearing trees and as such are also likely to support the species. As such, these 'secondary' habitats defined by the OMVI 2016 study are also considered to provide essential breeding and foraging resources that contribute to the viability of the local population and are considered important habitat. It is recommended that they be included as HCV areas.

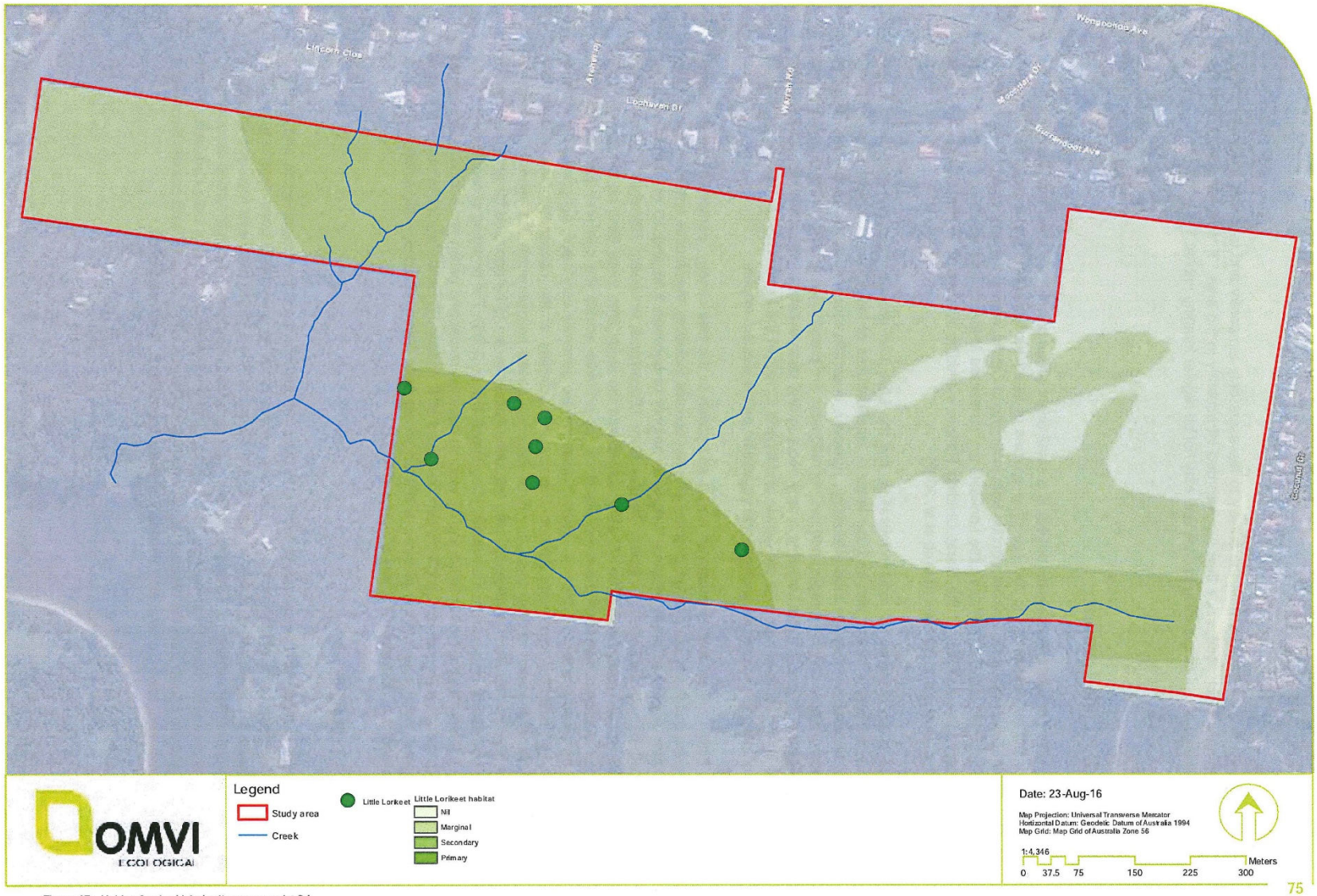

Figure 17: Habitat for the Little Lorikeet across lot 24

Figure 3-3 Habitat ratings and records of the Little Lorikeet as mapped by OMVI (2016)

3.2.14 Powerful Owl

Study results

Since breeding has been recorded in the same tree since 2005 and Powerful Owls are strongly territorial, there is not likely to be other breeding sites within Lot 24 or nearby. Given the proximity of the permanent breeding and roosting site it is strange that Powerful Owls were not recorded during the surveys conducted by both AHA and Biosis nor during the current surveys, which overlapped with the occupancy west of the study area in March 2016.

The study area contains limited suitable foraging habitat for the species, as there is a relatively low density and diversity of preferred prey species (arboreal mammals). Pellet analysis indicated a high proportion of birds in the diet of this owl pair in 2005/08, and only birds remains were found at the roost sites in the 2011/12 survey period, which suggest that birds appear to be the main prey in this part of the owls' breeding range. This may be due to the range of disturbances to the surrounding landscape or prevalence of suitable bird prey species in that modified environment.

Study conclusions of conservation significance

The Powerful Owl has not been recorded during numerous local surveys targeting the species and despite its known presence west of the site. Nevertheless, the woodland habitat across the lot, may represent suitable foraging habitat. However, the habitat provided within lot 24 is unlikely to be critical for the breeding or foraging of this wide ranging and highly mobile species.

NGH Environmental analysis

The OMVI 2016 study comments that "*Given the proximity of the permanent breeding and roosting site it is strange that Powerful Owls were not recorded during the surveys conducted by both AHA and Biosis nor during the current surveys, which overlapped with the occupancy west of the study area in March 2016*". It is noted that none of the surveys on their own have met the minimum recommended five site visits for detection of the Powerful Owl (DEC 2004). This may have been a contributing factor to the lack of detection.

It is however, considered likely by NGH Environmental, that if the subject site supported essential breeding or foraging resources that would define important habitat, that the cumulative level of survey completed by all the studies would have detected the species. NGH Environmental agree that the habitat provided within the subject site is unlikely to be critical for the breeding or foraging of the Powerful Owl and as such, the subject site does not contain land of HCV for this species.

3.2.15 Masked Owl

Study results

The relative few records locally may also be a direct result of completion. Powerful Owls are much more frequently recorded in the Bomaderry area (atlas of wildlife) and the Masked Owl may therefore be forced to forage on differing prey species when sympatric or forced to differing habitats in order to forage sustainably. Nevertheless, given recent records from Bomaderry Creek, indicate that the open forest of Lot 24 may represent potential foraging habitat, if only transiently.

Study conclusions of conservation significance

The masked Owl has not been recorded during numerous local surveys targeting the species. Nevertheless, the woodland habitat across the lot, may represent transient foraging habitat. However, the habitat provided within lot 24 is unlikely to be critical for the breeding or foraging of this wide ranging and highly mobile species.

NGH Environmental analysis

NGH Environmental agree with this conclusion.

3.2.16 Varied Sittella

Study results

Most of the broad fauna habitat types within Lot 24 (other than grasslands) provide potential habitat resources for the Varied Sittella (Figure 9), although the denser components of the Grey Gum Forest, Spotted Gum Forest, Melaleuca Forest and Morton Mallee Heath are less likely to be used. Suitable and widespread foraging resources are present in their preferred habitat (e.g. insects) and the species is likely to use trees for nesting, although none were recorded during the surveys.

Varied Sittellas were recorded during the surveys as a small group of 4 (25 November 2015) in the west Scribbly Gum Wood with a heathy understorey; five birds were recorded again in the same area the following day (25th November 2015) and later the same day six birds were recorded flying west to east to forage in the central (north south) creekline. No birds were recorded during the May 2016 surveys.

Varied Sittella's were not recorded during the 2007 (AHA) surveys and were recorded along the central creekline in a similar location to where they were recorded foraging in 2015, during the Biosis 2010 surveys. There are several records form Spotted Gum forest and the Grey Gum intergrade forest west of the site (OMVI 20012) and Tapitallee Nature reserve, and Bangalee Reserve to the west. Therefore it appears that at least in the locality one possibly two groups occupy the mixed forest (i.e. roughbarked gums) over the western half of the site as well as west of Gypsy Point Road. It is likely that the birds seen on three occasions in November 2015 are the same group and the Grey Gum Woodland, and intergrade, serve as foraging habitat for the group, if only transiently. Similar habitat suitable for this species is known to occur throughout the Shoalhaven region and the habitat that exists within the study area, particularly along the Shoalhaven River and its tributaries.

The species was not recorded east of the central creekline on any of the surveys (2007-2016) and given the presence of Noisy Miners, Starlings and Common Myna in this mostly disturbed woodland, their presence in unlikely. Many studies have shown that Noisy Miners exclude most small insectivorous bird species from their colonial territories (Debus 2008), and a study by Maron et al (2013) shows that the Varied Sittella is a species impacted by the Miners dominant occupation.

Study conclusions of conservation significance

The Woodland interface and Grey Gum Woodland across the western half of the lot appears to be irregularly used, (based on surveys and the numerous hours spent on the site since 2007) by the Varied Sittella. The same family group, or associated group are known to occupy similar habitat west of Gypsy Point road and were regularly seen in open forest along the Shoalhaven River, including at the end of Crams Road (B. Ryan pers. obs.).

The mixed woodland habitat across the western half of the lot therefore represents suitable foraging habitat. However, the habitat provided within lot 24 is unlikely to be critical for the breeding or foraging, given the scant observations of the species in the lot. The remaining open generally smooth barked Scribbly Gum woodland is considered as marginal habitat in this assessment.

The recorded habitat across lot 24 is therefore of marginal conservation significance for the Varied Sittella and as such is not assessed as a 'high conservation value' in this assessment.

NGH Environmental analysis

Although infrequently recorded on the subject site, as acknowledged by the OMVI 2016 study, the western section represents suitable known foraging habitat for the Varied Sittella. Although nesting has not been observed on the site, the habitats in this area provide suitable nesting opportunities and could be utilised in the future. The species is generally sedentary (OEH 2012) and as such, the habitats on the subject site are likely to be contributing to the viability of the local population.

However, it is recognised that there are extensive habitats to the west of Gypsy Point Road which are also known to support the local population. In this context, the small area of habitat on the subject site that appears to be infrequently utilised by the species and does not provide important connectivity, is not considered to be greatly contributing to the viability of the local population. The conclusion by OMVI that the habitats on the subject site are not HCV for the Varied Sittella is supported by NGH Environmental.

3.2.17 Eastern Pygmy Possum

Study results

During the current surveys across Lot 24, Eastern Pygmy Possums were captured on three nights in the western heathy Scribbly Gum. Habitat was similar to the areas where the species has been captured locally (OMVI 2012, NGH 2012). The western Scribbly Gum Woodland, bounded by Gypsy Point road to the west, a council reserve (with the same vegetation) to the north and similar habitat to the south through other lots. This type of woodland is relatively common along the same altitude and topography in the North Nowra Bangalee area. With irregular fire and low human disturbance it forms a low emergent E. sclerophylla woodland with a dense shrub layer including potential food resources such as Banksia spinulosa, B. serrata, B. oblongifolia and B. ericifolia as well as Mountain devil (Lambertia formosa) and Grevillea spp. There is only a shallow skeletal soil over sandstone and a relatively dense ground cover or grasses and sedges.

Due to historical impacts (human and wildfire) within the study area the same community type east of the western finger has lost the dense understorey and therefore apparently habitat quality suitable for the Eastern Pygmy Possum (no captures despite the similar effort). Similarly, the Currambene- Batemans Lowland Forest, Grey Gum intergrade or the Melaleuca Forest was unsuitable habitat for the Eastern Pygmy-possum due to the extent understorey foraging resources. The habitat for this species over most of the study area appears to be sub-optimal due to the disturbance history, which has resulted in spared understorey and lack of shelter and foraging resources.

The current surveys recorded higher capture rates were 3 animals in 160 trap nights over the November and May trapping periods or 1.9 per 100 trap night, again much higher than other published results. Therefore the heathy Shoalhaven Sandstone Forest recorded throughout the Bangalee, North Nowra Bomaderry area is likely to support foraging and shelter habitat for the Eastern Pygmy Possum. Moreover, it has been shown to support the species across the locality from Bangalee Scout Camp to Bomaderry Creek regional Park when targeted with dedicated survey methods (OMVI 2012, NGH 2012, Ecological 2011).

Conversely, the same Vegetation Community, with an absence of the same dense heath has been found not to support the species locally (OMVI 2012 and the current surveys).

Study conclusions of conservation significance

The heathy Scribbly Gum Woodland across the western finger is therefore assumed to be primary habitat for the Eastern Pygmy Possum and the other areas of the same community as secondary or potential habitat. Connectivity, without non-vegetated breaks is also considered important for the conservation of the species locally, therefore the Grey Gum Woodland and other vegetation along the Creeklines of the site has also been included as secondary habitat for the species in the significance modelling. The more disturbed open and grazed woodland, open grassland etc do not represent suitable habitat for the species (Figure 18) [Figure 3-4].

NGH Environmental analysis

NGH Environmental agree that the heathy Scribbly Gum Woodland across the western finger provides primary habitat for the Eastern Pygmy Possum and that this area is HCV for this species. OMVI (2016) have mapped connectivity corridors as Secondary habitat and state that "*connectivity, without non-vegetated breaks is also considered important for the conservation of the species locally, therefore the Grey Gum Woodland and other vegetation along the creeklines of the site has also been included as secondary habitat for the species in the significance modelling*". By the HCV verification rules in the SCRCP (refer Appendix B), areas that provide important connectivity corridors for threatened species are considered HCV. As such, the areas mapped as secondary habitat for the Eastern Pygmy Possum, specifically along the creek lines within the subject site, are also considered to be HCV for this species.

Figure 18: Habitat for the Eastern Pygmy Possum across lot 24

Figure 3-4 Habitat ratings and records of the Eastern Pygmy Possum as mapped by OMVI (2016)

3.2.18 Yellow-bellied Glider

Study results

Surveys of an unknown person or persons in 2005/6 recorded the majority of the records for the Yellow-bellied Glider across lot 24, most records are based on indirect evidence (sap-feeding incisions); there is also a record of a den tree, five records of call recognition and two observations from the same 2005/6 surveys. Both AHA and Biosis recorded indirect evidence (feeding incisions) of the Yellow-bellied Glider when conducting surveys across the lot and Biosis surveys recorded a call (response to call play back) in 2010 which is recorded as another wildlife atlas record for the site (Figure 27).

There are no records from the AHA surveys in 2007, noted in the Atlas data and it is noted from the report that the SCC Threatened Species officer conducted most of the surveys or this species as a part of the Crams Road IA survey effort in 2007.

Given the local records and the vocalisations heard on site or nearby, a series targeted occupation surveys for the species were conducted as part of the current assessment to determine the presence and occupation, habitat usage, of the Yellow-bellied glider in Lot 24 and in surrounding lands. Analysis of all findings from each of the surveys previously conducted along with the current surveys have shown that Yellow-bellied Gliders do utilise the study area for both foraging and denning. The den tree recorded in the 2005/6 surveys (recorder unknown) was shown in the current surveys to also be used by the species several years later. This part of the locality, Tall wet Grey Gum Forest along the southern creekline, with nearby spotted gum and other vegetation type, which is only 300meters from the Shoalhaven River is likely to be supporting at least one family group of gliders. An individual was observed during the November surveys soon after sun-down on the western boundary with 'Elbrevan' (lot 11, 102 Gypsy Pt Road, Bangalee), and several calls heard throughout he nocturnal surveys from the same lot or along the creekline in this corner of the current study area. The AHA studies along with current spotlighting and listening periods recorded Gliders on Crams road to the south, which is a part of the same catchment of the un-named creek entering the Shoalhaven at Gypsy Point (Figure 19) [Figure 3-5].

Despite the absence of observations in the remaining portions of the lot, the north/south creeks in the centre of lot 24 are also likely to represent foraging habitat, as are some of the Red Bloodwoods and Grey Gums, with notches currently being utilised. A large number of records for the species on the lot from atlas of wildlife (as discussed above), are recorded as feed trees or notched trees. Where the species that has created the notches being assumed as YBG.

A parallel transect survey of the entire lot and adjacent lands was undertaken in November 2015, by two experienced surveyors, to determine current usage and the species most likely to have created any notches recorded. All trees across the entire lot were inspected during these surveys 17 trees were recorded with some form of glider notching; from either YBG or Sugar Gliders. The surveyors were very care not to include tree scarred by insect damage (e.g. Longicorn beetles, Wood moth) or fungal disease, the damage caused on the trunks of many Eucalypts which can look superficially similar, particularly when callused or grown over. The number of trees recorded with notches was considerably less than the number of Atlas records.

Of the 18 notched trees recorded, 15 were within lot 24 and only 4 were currently used by a glider for sap (scars bleeding and/or recent chewing evident); 9 were old notches, not used or some time and the remainder 5 were recorded as very old notches, that were completely callused over and had not been used for many years (Table 10). Of these notches nine were recorded as most likely as being created by YBGs, including 1 current use site in the south west corner. Another current use sap site recorded in the east was a large Red Bloodwood with very old YBG notches and recent smaller, (mostly likely Sugar Glider) notches.

There were several small Red Bloodwoods (>30cm dbh) recorded in the south west corner of Lot 24 with old YBG notches. Three additional Red Bloodwoods with distinctive YBG notches were recorded outside in adjacent lots or the Council road reserve (Figure 19) [Figure 3-5]*. There were no Acacia recorded across the site with characteristic glider notching. One Black Wattle on Crams road was recorded with numerous incisions, with flowing exudates, which may have been from TBG or sugar gliders.*

It should be noted that most (83%) of the trees recorded with notches were Red Bloodwood, however the most characteristic y and v notching was recorded on Grey Gums across the locality.

Study conclusions of conservation significance

Given the location of all observations recorded during surveys of the current study area and those of surveys conducted locality; the calls heard or elicited; the distribution of recent and used notches in Red Bloodwood and Grey Gum, the southern creeklines, particularly in the western corner of the lot (as well as the adjoining lot 11) appear to the current primary habitat for the local group of gliders. The Grey Gum Woodland and other vegetation along the Creeklines of the site have also been included as secondary habitat for the species in the significance modelling and all other forested habitat remaining a potential habitat but modelled as marginal for this assessment.

The more disturbed open and grazed woodland, open grassland etc do not represent suitable current habitat for the species (Figure 19) [Figure 3-5].

NGH Environmental analysis

In their initial analysis of the ecology of the local YBG population OMVI (2026) state "*As the Yellow-bellied Glider maintains a large home range, none of which appear to overlap with the subject site (i.e. absence of records, and suitable foraging or nesting habitat), it is unlikely that any portion of a home range will be impacted by the proposal and therefore is unlikely to significantly impact on this species*". This is a contradiction to the results presented above which clearly show the subject site provides primary and secondary habitat for this species.

NGH Environmental agree that the south-west corner of the subject site represents the most important habitat for the species and should be included as HCV. However, as discussed above for the Eastern Pygmy Possum, the southern creeklines are also likely to provide important connectivity for this species. The OMVI 2016 study does not provide any justification as to why areas have been mapped as secondary habitat aside from stating that "*the southern creeklines, particularly in the western corner of the lot (as well as the adjoining lot 11) appear to the current primary habitat for the local group of gliders. The Grey Gum Woodland and other vegetation along the Creeklines of the site have also been included as secondary habitat*". As the southern creeklines have been identified as primary habitat for this species by the OMVI 2016 study, it is the opinion of NGH Environmental that areas mapped as secondary habitat along these creeklines, should also be included as HCV for this species.

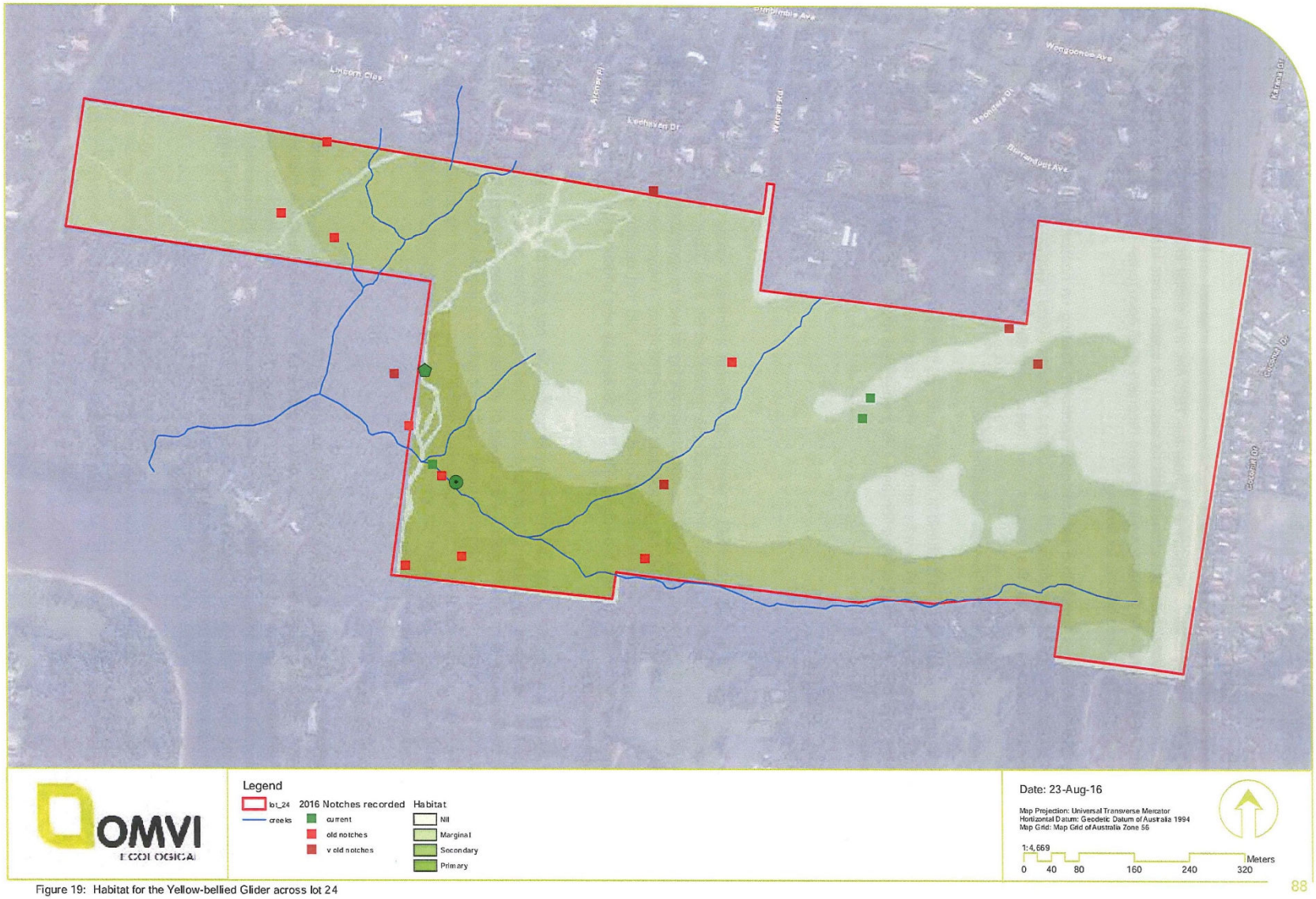

Figure 3-5 Habitat ratings and records of the Eastern Pygmy Possum as mapped by OMVI (2016)

3.2.19 Squirrel Glider

Study results

During the current surveys (November 2015 and May 2016), which included: call playback, camera surveys, arboreal trapping and spotlighting; only Sugar Gliders were seen, heard or captured. Each of the 38 individual Sugar gliders captured during the trapping program, were weighed, measured and photographed. All relevant descriptors, including colouration, head shape, tail thickness (of the pelage) showed that all individuals captured were Sugar Gliders (P. breviceps) and not the larger Squirrel Glider.

Study conclusions of conservation significance

It appears given the data collected from the site and from the locality over recent years, including the apparent absence within the locality despite numerous targeted surveys; the large number of Sugar Gliders occupying the woodland and wet forest of the study area; that the Squirrel Glider is no longer present in the woodland across the study area. Therefore the woodland and forest of the study area does not hold conservation significance for the Squirrel Glider.

NGH Environmental analysis

The Squirrel Glider was trapped on the subject site during the AHA surveys in 2007 within Elliot B traps with a survey effort of 40 trap nights. The Biosis survey in 2010 employed 26 trap nights using arboreal Elliot A traps and did not trap the species. Spotlighting by Biosis also did not detect the species. The current study employed two surveys of 300 trap nights each using Elliot A traps combined with spotlighting.

It is noted that only the AHA (2007) study used the larger style Elliot B traps. The use of the smaller Elliot A traps is generally not recommended for larger animals such as a Squirrel Glider as they can get their tails stuck in the door (DEH 2010). It is also likely that the larger Squirrel Glider would also be more apprehensive to enter a smaller trap. It is the experience of the author and evidenced in a number of targeted surveys for the Squirrel Glider (ARCUE 2016, ARCUE 2013, NGH Environmental 2009, van der Ree 2003), that cage and camera trapping are the most common methods employed.

Although not optimal in terms of methodology, it is considered likely that if a population of the Squirrel Glider occurred on the subject land, that the species would have been detected during the Biosis (2010) and OMVI (2016) studies through other techniques such as spotlighting. Combined with the paucity of records in the locality, it is the opinion of NGH Environmental that the survey effort to date of all techniques (such as spotlighting), would have likely identified a resident population of the Squirrel Glider if present. NGH Environmental agree with the conclusions of the OMVI 2016 study that the subject site does not contain areas of conservation significance for the Squirrel Glider.

3.2.20 Grey-headed Flying-fox

Study results

The study area is known to contain suitable habitat for the Grey-headed Flying-fox and this species is likely to forage widely within the study area when the canopy species are in flower the animals have migrated from northern permanent camps. There are neither camps nor suitable diurnal roosts within the study.

The Grey-headed Flying-fox was recorded flying over the study area during the field surveys during the AHA surveys in 2007 and in the recent November site surveys. Individuals are mostly likely moving from the nearby Bomaderry Creek summer roost camp. The mature forest in locality, the proximity of the seasonally

occupied camp site in Bomaderry Creek and presence of suitable foraging throughout the Nowra Bomaderry area as well as the relatively contiguous remnant vegetation throughout the locality, which includes gardens and residential areas, the study area would provide some foraging habitat for the species.

Study conclusions of conservation significance

The Grey-headed Flying-fox is a highly mobile and wide ranging species, readily adaptable to novel habitat, as evidenced in the recent Batemans Bay camp, within a water control pondage engineered to control storm water from the CBD. The forested habitat across lot 24 nevertheless represents suitable forging habitat in close proximity to a known breeding colony and therefore has conservation significance. While unlikely to represent significant habitat for this species, the conservation values for the species have been incorporated into the habitat modelling for this assessment.

NGH Environmental analysis

It is not clear how the conservations values for the Grey-headed Flying Fox have been incorporated into the habitat modelling. No map of habitat values for the species is included in the OMVI 2016 study. Nevertheless, it is the opinion of NGH Environmental that the subject site does not contain primary habitat for this species. The site would contain secondary habitat where woodland is present given the foraging resources it contains but these foraging resources are abundant within the home range of the local population and would not be contributing greatly to the viability of the local population. The subject site is not considered to contain areas of HCV for the Grey-headed Flying-fox.

3.2.21 Threatened microchiropteran bats

Study results

Surveys for microbats were conducted in summer along with an autumn, during the AHA survey in 2007 (12-19 Feb 2007), the Biosis surveys in 2010 (12-14 April 2010) and the current 2015/16 surveys (23-27 Nov 2015; 2-6 May 2016) which covers high activity periods for all microbats, including the small climate and temperature sensitive species such as the Little Forest Bat (Vespadelus vulturnus). In recent years, however, most species including the small forest bats have been recorded year round in the Nowra area (B. Ryan pers obs.).

A relatively diverse group of microbats were recorded, including a number of small bats which are unlikely to be roosting on site (e.g. Eastern Horseshoe Bat, Eastern Cave Bat and Eastern Bentwing Bat (Table 2). The presence of this range species highlights that the climate including the temperature was suitable for the detection of a full suite of small to large microbats. All locally occurring threatened microbats have been detected during the surveys with varying degrees of certainty and all are assessed all as species of conservation significance in this assessment.

No bats were recorded roosting within the study area during any of the surveys.

The Large-eared Pied Bat, Eastern Cave Bat, Little Bent-wing Bat, Eastern Bent-wing Bat and Large- footed Myotis are predominantly cave roosting species that also utilise man-made structures, including drains, bridges, tunnels and mines (Dwyer, 1995). The remaining species roost in tree hollows.

There were no caves, mine adits or built structures that could serve as roosting habitat for the cave roosting species, however the steep sandstone banks within the monolith sandstone cliffs and gorges of Morton National Park to the west and the rocky cliff lines of the Shoalhaven River to the south would provide numerous caves, and rock pile for these species. These species are highly unlikely to roost within the study area.

Yellow-bellied Sheathtail Bat

The Yellow-bellied Sheathtail Bat was not recorded during the 2010 or 2015/16 field investigations but was recorded as possible call, via Anabat recording in 2007 (AHA 2008). There are five local records, all from Anabat recordings (Figure 27) and could potentially occur on site given the habitats present. Despite being a large bat with an low-frequency audible part of their call, which can be seen spotlighting, none were recorded in recent surveys.

The assumption for this assessment was that this species, while unlikely to be regular visitor to the study area, individuals are likely to utilise the forest and woodland across the lot for foraging transiently. Considering this and the availability of foraging resources within the wider locality, the woodland and forest vegetation in the lot 24 is unlikely to represent a significant portion of the foraging habitat for the species locally, should it occur.

East-coast Freetail Bat

The East-coast Freetail Bat was recorded during the 2007, 2010 and 2015/16 field investigations and is known from the region (Figure 27). Lot 24 does represent suitable foraging and roosting habitat across the forested areas and margins. Given the preference to riparian areas in the Hunter, it is likely that the species is present in the forests of the study area, due to the proximity of the Shoalhaven River and that the urban areas to the east, and north are unlikely to provide resources for the species.

All of the Wet Sclerophyll vegetation associated with the creeklines is considered better quality foraging habitat for this species, and the drier woodlands as marginal. However, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, the small and mostly densely overgrown creeklines on lot 24 are unlikely to represent a significant portion of the foraging habitat for the species locally, and it not likely to provide suitable maternity roosting which would be critical for the species locally.

Eastern False Pipistrelle

Possibly recorded during the 2007 surveys (AHA 2008) and as an 'either' in the 2015/16 surveys foraging along the edge of the existing forest, the potential habitat for the Eastern False Pipistrelle is assumed to be the forested areas and adjacent vegetation within the study area and in the wider locality, as well as the hollow-bearing trees. However, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, and it not likely to provide suitable maternity roosting which would be critical for the species locally.

Greater Broad-nosed Bat

This species was potentially recorded with varying degrees of confidence in all surveys conducted across the study area. The Greater Broad-nosed Bat is likely to use the more open foraging habitat that occurs along gaps in woodland/forest along streets and the edges of the fragmented vegetation occurring. Tree hollows across the site are likely to provide potential roosting habitat for this species.

The Greater-broad-nosed Bat does use the forested areas and adjacent vegetation within the study area and in the wider locality, as well as the hollow-bearing trees. However, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, and it not likely to provide suitable maternity roosting which would be critical for the species locally.

Study conclusions of conservation significance

All the threatened microbat recorded or that are likely to use habitats within lot 24 are highly mobile and ranging widely during nightly foraging, and many migrate very large distances to maternity colonies during the breeding season. All recorded species, are able to tolerate some disturbance as is evidenced by their use of the fragmented vegetation across lot 24 and the surrounding urban matrix. The forested habitat across lot 24 nevertheless represents suitable forging habitat for all the species described above and may represent suitable roosting habitat for the tree-roosting species. The wetter riparian gallery forest appears to represent the most preferred habitat for most species given the records and habitat preferences recorded elsewhere in any species' range. However, the remaining woodland, heathland and other shrublands would also represent habitat for these species.

Notwithstanding this, given the past disturbances, the fragmentation and proximity to open residential areas, most habitats across the site are unlikely to represent critical habitat for any species. All forest and woodland habitat for all bats has been incorporated into the habitat modelling for this assessment.

NGH Environmental analysis

The OMVI 2016 study states that "*most habitats across the site are unlikely to represent critical habitat for any species*" which implies that some of the habitats may be more important. Prior to this the OMVI 2016 study states that "*the wetter riparian gallery forest appears to represent the most preferred habitat for most species given the records and habitat preferences recorded elsewhere in any species' range*".

The OMVI 2016 study concludes for all threatened microbat species that "*the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for* [these] *widely ranging species locally, and it*['s] *not likely to provide suitable maternity roosting which would be critical for the species locally*". As a result, the OMVI 2016 study has mapped the majority of the subject site as secondary habitat (Figure 3-6).

NGH Environmental agree that the foraging resource that the subject site provides is widespread in the locality but also note that the site appears to contain preferred foraging habitat for a number of species along the creek lines. The OMVI 2016 study also acknowledges that the site "*may represent suitable roosting habitat for the tree-roosting species*" which would be provided for by the hollow-bearing trees. The site contains known foraging habitat for threatened microbat species that are known to frequently occur on the site. As such, the more preferred habitats are considered to be contributing to the viability of local populations and should be regarded as important habitat as defined in the SCRCP (refer Appendix B). It is recommended by NGH Environmental that the preferred riparian habitats within the subject site be considered as HCV for threatened microbat species.

Figure 22: Habitat for the Microchiropteran Bats across lot 24

Figure 3-6 Habitat ratings for threatened microbats as mapped by OMVI (2016)

3.2.22 Migratory species

Study results

A large number of bird species listed under the migratory species provisions of the Commonwealth EPBC Act have been recorded within 10km of the subject site (Appendix C). Those species listed pursuant to the Act comprise migratory species protected by International Agreements with other countries including between, Australia and China (CAMBA), Australia and Japan (JAMBA), Australia and the Republic of Korea (Rokamba) and the Bonn Convention or the convention on the conservation of migratory species of wild animals, as well as additional species which belong to a number of bird families nominated by Federal Environment Department.

Of the listed migratory species; the White-bellied Sea Eagle (Haliaeetus leucogasta); Rufous Fantail (Rhipidura rufifrons); Satin Flycatcher (Myiagra cyanoleuca) or Black-faced Monarch (Monarcha melanopsis) have been recorded on or near lot 24.

Study conclusions of conservation significance

White-bellied Sea Eagle

The White-bellied Sea Eagle occurs along the coastline of Australia and also range inland over large rivers and wetlands, favouring forested coasts and forested margins of inland waterways. Nests are usually near water, in tall live or dead trees or on remote coastal cliffs. River Red Gum (Eucalyptus camaldulensis), Forest Red Gum (E. tereticornis) and Bangalay (E. botryoides) are commonly used as nest trees (Emison & Bilney 1982). On islands free of predators, nests may be close to the ground in shrubs or rocky platforms (Marchant & Higgins 1993). Given that there is no wetland and open water habitats within the study area; no raptor nest have been recorded on or nearby the study area, the lot does not hold any conservation significance for the White-bellied Sea Eagle.

Rufous Fantail

The Rufous Fantail occurs throughout the coastal areas of north and eastern Australia but is also found on some of the surrounding islands, especially in the Solomon Islands where it is also resident. This species forages for insects in the lower undergrowth gleaning prey from leaves, branches and logs. Rufous Fantails can be found in a range of habitats, including undergrowth of rainforests, monsoon forests, paperbark swamps, coastal scrubs, parks and gardens. The Rufous Fantail is a breeding migrant to south-eastern Australia where breeding occurs between October and February. Pairs nest in a small cup woven from roots, grasses and spider webs, usually built in a shaded fork about 5 metres above the ground. This species regularly migrates in autumn and winter to Papua New Guinea but does not migrate in flocks tending to be nomadic. Woodland and forest across lot 24 is likely to represent seasonal habitat for the species, however, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, therefore it is unlikely to be of high conservation significance for the Rufous Fantail.

Satin Flycatcher

Satin Flycatchers mainly inhabit eucalypt forests, often near wetlands or watercourses. They generally occur in moister, taller forests than the Leaden Flycatcher (Myiagra rebecula), often occurring in gullies (Blakers et al. 1984; Emison et al. 1987; Officer 1969). They also occur in eucalypt woodlands with open understorey and grass ground cover, and are generally absent from rainforest (Emison et al. 1987; Officer

1969). Satin Flycatchers are migratory, moving north in autumn to spend winter in northern Australia and New Guinea. They return south in spring to spend summer in south-eastern Australia (Blakers et al. 1984). Woodland and forest across lot 24 is likely to represent seasonal habitat for the species, however, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, therefore it is unlikely to be of high conservation significance for the Stain Flycatcher.

Black-faced Monarch

The Black-faced Monarch occurs along the eastern coast of Australia, from Cape York to Victoria, although it is considered more common in the northern coastal areas. This species forages for insects in foliage and can be found in a variety of habitats from rainforests, eucalypt woodlands, and coastal scrubs. When migrating, they have been recorded in more open woodland. Breeding occurs between October and January and Black-faced Monarchs are breeding migrants to coastal south-eastern Australia from August to September and March to April. Pairs nest in a deep cup woven from bark strips, rootlets and green moss, which is often built in the fork of a slender sapling. Many migrate to Papua New Guinea in autumn and winter. Woodland and forest across lot 24 is likely to represent seasonal habitat for the species, however, considering this and the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, therefore it is unlikely to be of high conservation significance for the Black-faced Monarch.

White-throated Needletail

White-throated Needletail This species of migratory bird migrates from Siberia, the Himalayas, and Japan to Australia in Summer, arriving mid-October and departing mid-April. It is known to inhabit a variety of habitats including forests, woodlands, farmlands, plains, lakes, costs and towns (Pizzey and Knight 1999). The White-throated Needletail nests in tree hollows and feeds on insects during flight, chiefly ahead of weather changes. In Australia this species is nomadic, responding to local weather changes and is often seen foraging high in the sky on the south coast immediately before a rain storm (B. Ryan pers. obs.)

While the woodland, forest and other habitats across lot 24 is likely to represent habitat for the prey species of the White-throated Needletail, the entire locality represents foraging habitat for this high and fast flying species, which is uncommonly recorded perching/landing in trees. In the context of the availability of foraging resources within the wider locality, including the Shoalhaven River, and the adjacent ranges and National Parks, the vegetation across lot 24 is unlikely to represent a significant portion of the foraging habitat for this widely ranging species locally, therefore it is unlikely to be of high conservation significance for the White-throated Needletail.

NGH Environmental analysis

NGH Environmental agree with the conclusions of the OMVI 2016 study with regard to migratory species.

3.3 ANALYSIS SUMMARY

3.3.1 Survey effort

The survey types, timing and effort are generally appropriate and in accordance with the NSW Threatened Biodiversity Survey and Assessment Guidelines (DECC 2004). Where surveys have not met the

requirements of the guidelines this was taken into account when considering the conclusion of HCV areas. Two exceptions are noted:

- No appropriately timed targeted surveys (identified as October in the OEH threatened species profile database) were conducted for the Halbury Rustyhood despite it being included as a subject species and contradicting statements of its likelihood of occurrence appearing within the OMVI (2016) report. However, it is acknowledged that further advice from OMVI (B. Ryan *pers. comm.* via email to Daniel Hodge 11.05.17) is that orchid experts were contacted and advised that this species is unlikely to occur on the subject site. As such, no further surveys are considered to be warranted.
- Elliot A traps are generally not recommended for trapping Squirrel Gliders and other larger arboreal mammals as they can get their tails trapped in the traps (DEH 2010). No cage trapping or arboreal camera trapping was conducted as part of the OMVI 2016 study however, it is the opinion of NGH Environmental that the survey effort to date of all techniques (such as spotlighting), would have likely identified a resident population of the Squirrel Glider if present.

3.3.2 Assessment of conservation significance

There have been a number of revision to areas defined as 'high constraint' or HCV at the subject site. These included areas defined by AHA (2008) and Biosis (2010) and then, the initial definition of HCV areas according to the SCRCP by NGH Environmental (2015) (refer to mapping in Appendix C). The NGH Environmental 2015 peer review identified a lack of survey effort to conclusively determine HCV areas and, in the absence of this information, took a precautionary approach. This lack of survey effort has been addressed by the OMVI 2016 study which has allowed for a more accurate delineation of important habitat and HCV areas based on the definitions in the SCRCP.

In general, NGH Environmental agree with the delineation of primary and secondary habitat provided by the OMVI 2016 study and the justifications provided regarding areas of little to no conservation significance. There are however, a few instances where NGH Environmental consider that a higher degree of importance should be given to habitats to be considered as HCV areas. These include:

- Previously recorded locations of the Brittle Midge Orchid and all suitable habitat on the subject site
- Areas with a higher density of Glossy Black-Cockatoo foraging resources
- Secondary habitat areas supporting the tall mixed species woodland along riparian areas preferred by the Little Lorikeet
- Connectivity corridors for the Eastern Pygmy Possum and Yellow-bellied Glider
- Preferred foraging habitat (wetter riparian gallery forest) and potential roost sites contained in this area for threatened microbats.

This is included in the final assessment of HCV areas in Section 4 below.

4 FINAL ASSESSMENT OF HCV AREAS

The verification rules for ground-truthing HCV areas are stated in Appendix B. For threatened fauna, the verification rules require that

> "*until an appropriate survey (DEC 2004) demonstrates otherwise, the mapped habitat should be regarded as important habitat. Important habitat contributes to the viability of local threatened fauna populations and can include, but is not limited to, essential breeding resources, foraging resources and connectivity corridors*".

This definition has formed the basis of the analysis of conservation value in Section 3 above and as such, the delineation of HCV areas in this review.

It was the opinion of the 2015 NGH Environmental review that "*areas that provide good quality known habitat for threatened species should be included as areas of HCV unless it can be adequately demonstrated that the known habitat is no longer being utilised*". The additional work conducted by the OMVI (2016) study has further clarified which areas of the subject site are being utilised by threatened species, the frequency of use and the relative importance of the habitats being utilised.

The OMVI 2016 review identified HCV areas for the following vegetation types and threatened species:

- Currambene-Batemans Lowlands Forest community (Grey Gum Woodland and Spotted Gum Forest) – poorly conserved vegetation type
- Brittle Midge Orchid – occupied habitat and an arbitrary 70m buffer
- Known habitat of the Little Lorikeet
- Known habitat of the Eastern Pygmy Possum
- Core habitat of the Yellow-bellied Glider

As a result of this review, as stated in Section 3.3.2 above, NGH Environmental also consider that the following areas of threatened species habitat be included as HCV areas:

- Previously recorded locations of the Brittle Midge Orchid and all suitable habitat on the subject site
- Areas with a higher density of Glossy Black-Cockatoo foraging resources
- Secondary habitat areas supporting the tall mixed species woodland along riparian areas preferred by this Little Lorikeet
- Connectivity corridors for the Eastern Pygmy Possum and Yellow-bellied Glider
- Preferred foraging habitat and potential roost sites along riparian areas for threatened microbats

Many of these areas overlap or are already defined as HCV in the OMVI 2016 report for other threatened species or poorly conserved vegetation types.

As discussed in Section 2.2, the weighted analysis approach of OMVI (2016) used to determine the final HCV areas in their report combines the conservation values across all species. Where an area may be HCV for one species, if it has no conservation value for several other species, then the overall value is diminished. In this sense, important habitat for a particular threatened species may not be included as HCV in the final analysis. This appears to be the case in two instances. In Section 4.12.2 the OMVI 2016 study states that "*the habitat across the southern portions of lot 24 are therefore of conservation significance for the Little Lorikeet and as such is assessed as a 'high conservation value' for lands in this assessment*" (refer Figure 3-3). However, following the weighted analysis, a portion of this area has been defined as only

moderate conservation significance. Similarly, the area mapped as primary habitat for the Eastern Pygmy Possum is also defined as only being of moderate conservation significance (refer Figure 1-2).

The SCRCP states important habitat "*contributes to the viability of local threatened fauna populations*". While OMVIs ranked analysis prioritise areas that contribute numerous threatened fauna, NGH Environmental have taken a more conservative and inclusive approach and suggest that even areas that support important habitat for only one species should be considered to have potential to be categorised as having HCV. For this reason, we have recommended some additional areas that the data supports as being important for single species.

A revised HCV area map is provided in Appendix C based on the weighted sum analysis map produced by OMVI (2016) and incorporating the items detailed above. A comparison map is also provided comparing the previous HCV areas (defined as high constraint areas in some reports) of AHA (2008), Biosis (2010), NGH Environmental (2015) and OMVI (2016). Largely, the revised HCV map produced in this report aligns with the areas identified as high and a portion of those identified as moderate conservation significance on the OMVI (2016) weighted sum analysis map, and includes the additional areas identified considered to be HCV by NGH Environmental above.

5 CONCLUSION AND RECOMMENDATIONS

This review has independently and objectively assessed the Conservation Significance Report prepared by OMVI (2016) to address knowledge gaps in the conservation value of habitats on Lot 24 DP 714096, Warrah Road, Bangalee (the subject land). It has critically analysed the survey effort and methods, analysis and recommendations of the study for the purposes of making a final independent assessment of the conservation value of the subject land, with specific reference to high conservation value (HCV) land in accordance with the South Coast Regional Conservation Plan 2010.

This review has identified that:

- The methodologies employed to survey the subject land were generally consistent with applicable guidelines and that sufficient survey effort has been employed at the subject site by the present and past studies to adequately assess HCV areas
- The OMVI (2016) report makes an objective and informed analysis of habitat values at the subject site specific to the vegetation types and threatened species habitats that occur
- In general, NGH Environmental agree with the conclusions of HCV lands with regard to the following entities identified in the OMVI (2016) report:
    - Currambene-Batemans Lowlands Forest community (Grey Gum Woodland and Spotted Gum Forest) – poorly conserved vegetation type
    - Brittle Midge Orchid – occupied habitat and an arbitrary 70m buffer
    - Known habitat of the Little Lorikeet
    - Known habitat of the Eastern Pygmy Possum
    - Core habitat of the Yellow-bellied Glider

  However, NGH Environmental also recommended the inclusion of the following:
    - Previously recorded locations of the Brittle Midge Orchid and all suitable habitat on the subject site
    - Areas with a higher density of Glossy Black-Cockatoo foraging resources
    - Secondary habitat areas supporting the tall mixed species woodland along riparian areas preferred by this Little Lorikeet
    - Connectivity corridors for the Eastern Pygmy Possum and Yellow-bellied Glider
    - Preferred foraging habitat and potential roost sites contained in this area for threatened microbats
- That the weighted sum analysis approach of OMVI (2016) to determining the final areas of HCV is allows for important habitat for individual threatened species to be given a lesser conservation value rating. It gives a higher rating where multiple threatened species may use areas of habitat. It is the recommendation of this review in mapping the final HCV areas, that **all** important threatened species habitat be included as HCV land.

It is concluded by this review that adequate survey has been undertaken to determine HCV lands at the subject site. However, given that populations of the Leafless Tongue Orchid may not flower every year, and only one comprehensive survey for this species has been undertaken, it is recommended that another additional targeted survey be conducted for this species in areas that may developed in the future, to clarify the conclusions of the study that the species is absent.

As recommended in the NGH Environmental (2015) review, this review further recommends that the areas mapped by NGH Environmental in this review as high conservation value in Appendix C, should be considered for Environmental Conservation (E2) zoning to protect the biodiversity values contained in these areas.

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APPENDIX A ASSESSMENT PERSONNEL

Role, staff member	Qualifications and experience
Senior Ecologist (Botany) **Dave Maynard** **Author and field survey**	Dave holds qualifications in science and engineering. He completed his Honours in plant systematics in conjunction with UNSW and the Botanic Gardens Trust, Sydney in 2004. Dave specialises in biodiversity assessment, particularly field based flora surveys and vegetation community mapping. He has experience as Lead Botanist in small and large scale projects for vegetation community mapping including identification and demarcation of endangered ecological communities. He has also led targeted threatened species surveys, such as Leafless Tongue Orchid (*Cryptostylis hunteriana*), East Lynne Midge Orchid (*Genoplesium vernale*) and Crimson Spider Orchid (*Caladenia concolor*). Dave is regularly involved in fauna habitat assessment and survey for projects he is working on. He has been involved in numerous diurnal and nocturnal mammal, reptile and bird surveys particularly targeting threatened fauna species. Dave is based on the NSW far south coast and has extensive experience in this region. Dave is an accredited Biobanking Assessor.
Manager – NSW SE & ACT **Brooke Marshall (CEnvP)** **Senior review**	Brooke has an honours degree in Natural Resources from the University of New England (UNE) where she specialised in wildlife management and ecosystem rehabilitation. Brooke prepares and reviews environmental impact assessment, biodiversity assessment, and environmental management documentation undertaken in the South Coast and ACT regions. Brooke has worked on large scale infrastructure projects including subdivision and land use planning projects. Brooke is an accredited Biobanking Assessor and Certified Environmental Practitioner.
Director – NGH Environmental **Nick Graham-Higgs (CEnvP, FEIANZ)** **Senior technical input and Certification**	Nick has worked as an environmental planning consultant since 1992, specialising in natural resource management. His work demands an in-depth knowledge of current planning and environmental legislation coupled with a comprehensive understanding of development-related impacts. Nick has acquired his knowledge in this field for over 20 years, during which he has worked with a number of land management organisations within and outside Australia. Work undertaken includes the preparation of varied and complex environmental planning, environmental impact assessments, natural resource surveys (biodiversity surveys and assessments) and the preparation of environmental management plans. Nick is a Certified Environmental Practitioner and a Fellow of the Environment Institute of Australia and New Zealand.

APPENDIX B VERIFICATION RULES FOR IDENTIFICATION OF HIGH CONSERVATION VALUE AREAS

The following are the recommended verification procedures for ground-truthing of mapped high conservation value areas on the South Coast. It is taken directly from Section 8.1.1 of the South Coast Regional Conservation Plan (DECCW 2010)

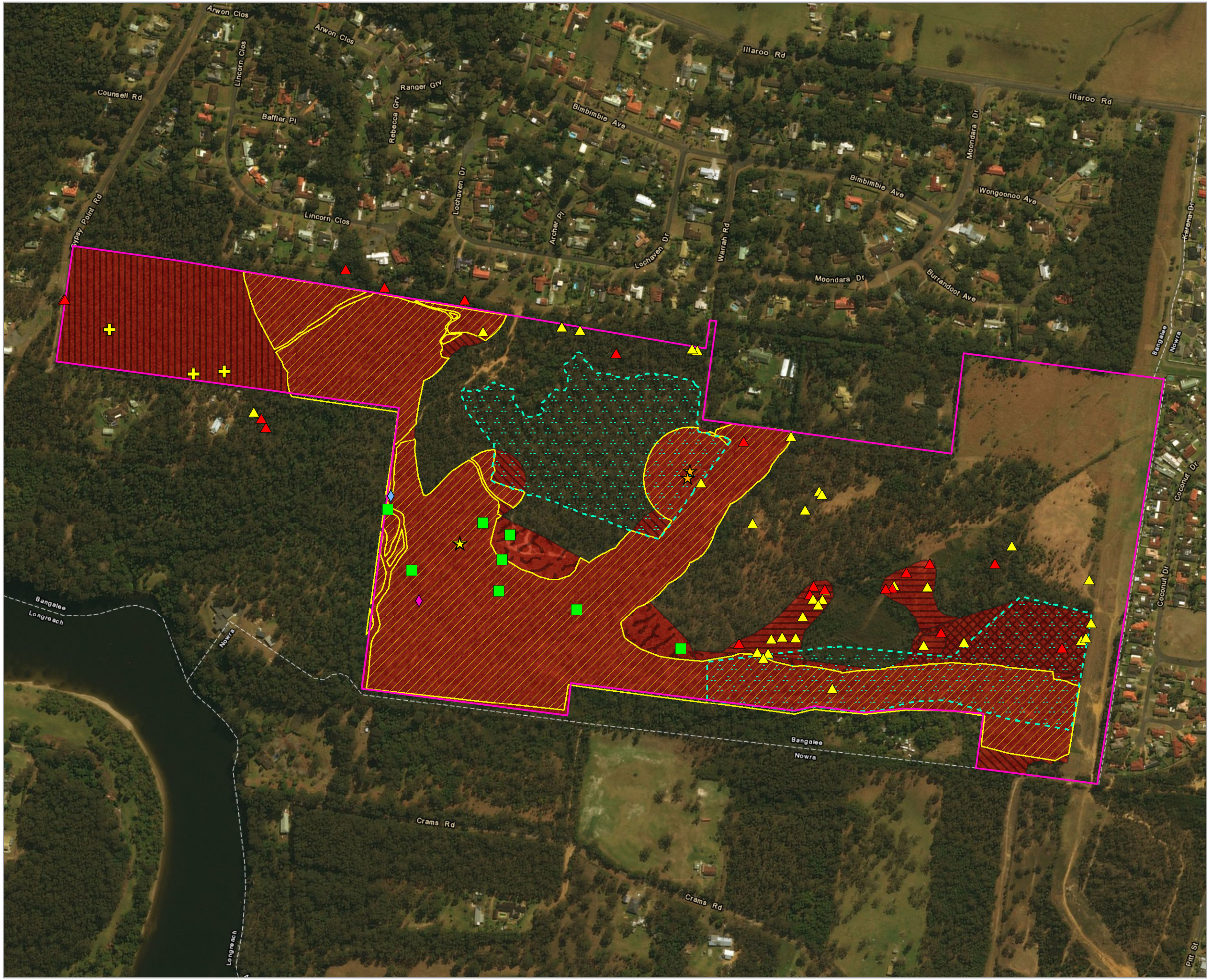
Value	Verification rules
Vegetation-related values • **EECs** • **rare vegetation types** • **overcleared vegetation types** • **vegetation in overcleared landscapes.**	Vegetation is not of high conservation value if it is in poor condition, as defined in section 5.3. The vegetation community descriptions and listing of diagnostic species and associated environmental parameters in Tozer et al. (2006) should be consulted for on-ground verification of vegetation type. The final determinations for EECs under the TSC Act and EPBC Act are the key documents in deciding whether a patch of vegetation is an EEC.
Old-growth vegetation	Old growth is largely defined by the current canopy structure, which should largely consist of senescing or mature trees. Regrowth should be less than 30% of the canopy. There should also be negligible evidence of disturbances such as logging or catastrophic fires. The old-growth layer in this RCP is probably the least accurate of all information provided. Thus it is suggested the occurrence of mapped old-growth features should be confirmed or checked on the ground.
Threatened fauna	The data provided by the RCP ties verified records to mapped vegetation polygons. The Atlas of NSW Wildlife can be consulted to determine what threatened fauna records are involved. Until an appropriate survey (DEC 2004) demonstrates otherwise, the mapped habitat should be regarded as important habitat. Important habitat contributes to the viability of local threatened fauna populations and can include, but is not limited to, essential breeding resources, foraging resources and connectivity corridors. The Threatened Species Web Tool will provide further assistance in habitat identification and advises what other fauna species should be considered.
Threatened flora	The data provided by the RCP ties verified records to mapped vegetation polygons. The Atlas of NSW Wildlife can be consulted to determine what threatened plant records are involved. Targeted surveys for the identified plant species should occur within the proposed development or planning area. The Threatened Species Web Tool advises what other plant species should be considered.

Value	Verification rules
Significant aquatic habitats • **nationally important wetlands** • **catchments of** • **significant lakes and estuaries** • **habitat of migratory wetland species**	The key question is whether a planning or development decision is within, or affects, the catchment of these environmental assets identified in the RCP, and (as required by the SCRS) whether this impact will have a neutral or beneficial effect.
Statutory conservation protection • **conservation and property agreements** • **declared wilderness** • **SEPP 14 wetlands** • **SEPP 26 rainforest**	These assets have surveyed or described tenure boundaries. Verification is a matter of determining whether the planning or development decision occurs within a defined area

APPENDIX C HCV AREA MAPS

HIGH CONSERVATION VALUE AREAS AND RELEVANT SURVEY RESULTS

Warrah Road Peer Review



Subject land
Remediation area

High Conservation Value (HCV) areas
- OMVI HCV areas 2016
- NGH HCV areas 2017

NGH HCV areas additional to OMVI 2016
- Brittle Midge Orchid
- Brittle Midge Orchid - Yellow-bellied Glider
- Eastern Pygmy Possum
- Glossy Black-Cockatoo
- Little Lorikeet

OMVI 2016 survey results

Yellow-bellied Glider
- Possible den tree
- Yellow-bellied Glider

Glossy Black-Cockatoo feed signs
- foraging
- investigation

Eastern Pygmy Possum captures

Little lorikeet observations

Brittle Midge Orchid

NSW Wildlife Atlas records
- Brittle Midge Orchid

Notes:
- Subject land boundary digitised by NGH Environmental based on cadastral data
- HCV areas digitised by NGH Environmental based on HCV and threatened species habitat mapping by OMVI 2016
- Base map Copyright © ESRI and its data suppliers 2017

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Author: DM 13/06/17

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HIGH CONSERVATION VALUE AREAS COMPARISON WITH PREVIOUS STUDIES AND REPORTS

Warrah Road Peer Review

Subject land
Remediation area
High Conservation Value (HCV) areas
OMVI HCV areas 2016
NGH HCV areas 2017
Previous constraint/environmental areas
AHA 2008 - High constraint area
Biosis 2011 - proposed conservation area
NGH 2015 HCV areas

Notes:
- Alignment discrepancies of previous constraint and HCV areas due to utilisation of different site boundaries
- Subject land boundary digitised by NGH Environmental based on cadastral data
- HCV areas digitised by NGH Environmental based on HCV and threatened species habitat mapping by OMVI 2016
- AHA 2008 high constraint area provided by SCC
- Biosis proposed conservation area digitised by NGH Environmental based on Biosis 2011 mapping
- Base map Copyright © ESRI and its data suppliers 2017

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Author: DM 13/06/17

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Attachment C: State Environmental Planning Policies

Table 1: SEPP Consistency Summary

SEPP	Subject	Inconsistent	Not Inconsistent	Not Applicable
IREP1	Deemed SEPP Illawarra Regional Plan No.1		✓	
1	Development Standards			✓
4	No Consent, Exempt & Complying Development			✓
6	Number of Storeys in a Building			✓
14	Coastal Wetlands			✓
15	Rural Landsharing Communities			✓
19	Bushland in Urban Areas			✓
21	Caravan Parks			✓
22	Shops and Commercial Premises			✓
26	Littoral Rainforests			✓
30	Intensive Agriculture			✓
32	Urban Consolidation (redevelopment of urban land)			✓
33	Hazardous and Offensive Development			✓
36	Manufactured Home Estates			✓
44	Koala Habitat Protection		✓	
45	Permissibility of Mining			✓
50	Canal Estate Development			✓
52	Farm Dams & Other Works			✓
53	SEPP 53 Transitional Provisions 2011			✓
55	Remediation of Land		✓	
60	Exempt and Complying Development			✓
62	Sustainable Aquaculture			✓
64	Advertising and Signage			✓
65	Design Quality of Residential Apartment Development			✓
70	Affordable Housing (revised schemes)			✓
71	Coastal Protection			✓
--	Housing for Seniors or People with a Disability 2004			✓
--	BASIX : 2004			✓
--	Major Projects : 2005			✓
--	Mining, Petroleum & Extractive Industries 2007			✓
--	Temporary Structures 2007			✓
--	Infrastructure 2007		✓	
--	Rural Lands 2008		✓	
--	Exempt and Complying Development Codes 2008			✓
--	Affordable Rental Housing 2008			✓
--	Sydney Drinking Water Catchment 2011			✓
--	State and Regional Development 2011			✓
--	Urban Renewal			✓
--	Vegetation in Non-Rural Areas		✓	

Attachment D: Ministerial Directions

Table 2: Ministerial Directions (s.117) Consistency Summary

MD	Subject	Applies	Relevant	Consistent
1. Employment & Resources				
1.1	Business & Industrial Zones			
1.2	Rural Zones	✓	✓	✓
1.3	Mining, Petroleum & Extractive Industries			
1.4	Oyster Aquaculture			
1.5	Rural Lands	✓	✓	✓
2. Environment & Heritage				
2.1	Environment Protection Zones	✓	✓	✓
2.2	Coastal Protection			
2.3	Heritage Conservation	✓	✓	✓
2.4	Recreation Vehicle Areas			
3. Housing Infrastructure & Urban Development				
3.1	Residential Zones			
3.2	Caravan Parks & Manufactured Home Estates			
3.3	Home Occupations			
3.4	Integrated Land Use & Transport	✓	✓	✓
3.5	Development Near Licensed Aerodromes			
3.6	Shooting Ranges			
4. Hazard & Risk				
4.1	Acid Sulphate Soils			
4.2	Mine Subsidence & Unstable Land			
4.3	Flood Prone Land			
4.4	Planning for Bushfire Protection	✓	✓	✓
5. Regional Planning				
5.1	Implementation of Regional Strategies	✓	✓	✓
5.2	Sydney Drinking Water Catchments			
5.3	Farmland of State & Regional Significance Far North Coast			
5.4	Commercial & Retail Development – Pacific Hwy North Coast			
5.5	Development in Cessnock LGA (revoked)			
5.6	Sydney to Canberra Corridor (revoked)			
5.7	Central Coast (revoked)			
5.8	Second Sydney Airport: Badgerys Creek			
5.9	North West Rail Link Corridor Strategy			
6. Local Plan Making				
6.1	Approval & Referral Requirements			
6.2	Reserving Land for Public Purposes			
6.3	Site Specific Provisions	✓	✓	✓
7. Metropolitan Planning				
7.1	Implementation of A Plan for Growing Sydney			
7.2	Implementation of Greater Macarthur Land Release			

Attachment E: Gateway Determination

NSW GOVERNMENT Planning & Environment

Our ref: PP_2016_SHOAL_002_00 (13/08481)
Your ref: 49462E(D16/71158)

Mr Russ Pigg
General Manager
Shoalhaven City Council
PO Box 42
Nowra NSW 2541

Attention: Mr Gordon Clark

Dear Mr Pigg

Planning proposal to amend Shoalhaven Local Environmental Plan 2014

I am writing in response to Council's request for a Gateway determination under section 56 of the *Environmental Planning and Assessment Act 1979* (the Act) in respect of the Warrah Road, Bangalee Planning Proposal to rezone Lots 21 to 24 DP714096, Warrah Road, Bangalee for residential development and environmental conservation.

As delegate of the Minister for Planning, I have now determined the planning proposal should proceed subject to variations as outlined by the conditions in the attached Gateway determination.

The planning proposal requests the Gateway determination establish the appropriateness of further biodiversity investigations over Lot 24 to support a possible increase in residential zoned land. I have noted the independent Peer Review of Biodiversity Studies which identifies that the studies are sufficient to clearly define areas of High Conservation Value (HCV) as defined in the South Coast Regional Conservation Plan, 2010. Therefore, no further biodiversity studies are required at this time for Lot 24.

The planning proposal is inconsistent with the section 117 Directions 2.1 Environmental Protection Zones and 5.10 Implementation of Regional Plans in that it seeks to rezone areas of the illegally cleared HCV lands in Sub-remediation Area B of the s38 Remedial Direction under the *Native Vegetation Act, 1993* to residential. The rezoning of the lands subject to the Remedial Direction for residential development is not supported given the lands were exhibited as E2 under the draft Shoalhaven LEP 2013 prior to clearing. As the Remedial Direction is in place until 2029 the lands may regain their pre-cleared HCV state once rehabilitated.

The planning proposal is to be revised to remove the proposed rezoning of lands subject to the Remedial Direction from rural to residential. Council should consider an appropriate environmental zoning for these lands. Council will need to revise the planning proposal to amend the explanation of provisions and update proposed zoning, floor space ratio, height of buildings and lot size maps prior to exhibition.

Any further inconsistencies with section 117 Direction 2.1 Environmental Protection Zones and 5.10 Implementation of Regional Plans will need to be justified by Council to the satisfaction of the Secretary's delegate before the planning proposal is finalised.

I have agreed the planning proposal's inconsistency with section 117 Directions 1.2 Rural Zones and 1.5 Rural Lands are justified by the endorsed Nowra Bomaderry Structure Plan and are of minor significance. No further approval is required in relation to these Directions.

Council is to address inconsistencies with section 117 Direction 2.3 Heritage Conservation following completion of further studies and consultation with relevant public authorities and prior to the commencement of public exhibition. Further, Council is to consult with the NSW Rural Fire Service prior to undertaking community consultation in order to satisfy section 117 Direction 4.4 Planning for Bushfire Protection and update the planning proposal accordingly.

Plan making powers were delegated to councils by the Minister in October 2012. I note that Council has requested to be issued with delegation for this planning proposal. I have considered the complex nature of Council's planning proposal and have decided not to issue an authorisation for Council to exercise delegation to make this plan.

The amending Local Environmental Plan (LEP) is to be finalised within 12 months of the Gateway determination. Council's request for the Department of Planning and Environment to draft and finalise the LEP should be made six weeks prior to the projected publication date.

The State Government is committed to reducing the time taken to complete LEPs by tailoring the steps in the process to the complexity of the proposal, and by providing clear and publicly available justification for each plan at an early stage. In order to meet these commitments, the Minister may take action under section 54(2)(d) of the Act if the time frames outlined in this determination are not met.

Should you have any queries in regard to this matter, I have arranged for Mr Graham Towers, Team Leader of the Southern Region office to assist you. Mr Towers can be contacted on (02) 4224 9467.

Yours sincerely

Marcus Ray
Deputy Secretary
Planning Services
12/07/2016

Encl:
Gateway Determination

NSW GOVERNMENT | Planning & Environment

Gateway Determination

***Planning proposal (Department Ref: PP_2016_SHOAL_002_00)**: to enable residential development and environmental protection on Lots 21 to 24 DP714096, Warrah Road, Bangalee to:*

- *rezone land from Rural 1(d) (General Rural) to part E2 Environmental Conservation, a residential zone and RU2 Rural Landscape;*
- *update the Minimum Lot Size Map (LSZ) to establish a minimum lot size of 40ha for land zoned E2 Environmental Conservation and RU2 Rural Landscape and an appropriate lot size for the residential zoned land;*
- *update the Terrestrial Biodiversity Map (BIO) to include areas of significant vegetation and/or habitat corridor if appropriate;*
- *update the Riparian Lands and Watercourses Map (WCL) to identify Category 1 Watercourses;*
- *update the Acid Sulphate Soils Map (ASS) to identify the lands as class 5 Acid Sulfate Soils;*
- *update the Clauses Map (CLS) to apply Clause7.21 Development on land in the Vicinity of the Western Bypass Corridor; and*
- *update the Urban Release Area Map to include the subject land as an Urban Release Area if appropriate.*

I, the Deputy Secretary, Planning Services, at the Department of Planning and Environment as delegate of the Minister for Planning, have determined under section 56(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the *Shoalhaven Local Environmental Plan (LEP) 2014* as described above should proceed subject to the following conditions:

1. The planning proposal is to be revised to remove the proposed residential zoning over the lands in Sub-remediation Area B of the s.38 Remedial Direction under the *Native Vegetation Act, 1993*. An appropriate environmental zone is to be applied to this area.

2. The following studies are to be prepared (or existing studies revised) prior to exhibition of the planning proposal:
   (a) Bushfire Hazard Study
   (b) Aboriginal Archaeological Assessment
   (c) Biodiversity Review of Lots 21-23
   (d) Provision of infrastructure – water, sewerage and electricity to confirm demand and supply issues.

3. Following completion of the required studies, the planning proposal is to be revised to confirm the explanation of provisions, and update proposed zoning, floor space ratio, lot size, and height of building maps prior to public exhibition. A copy of the updated proposal is to be provided to the Department for review prior to exhibition of the proposal.

4. Council is to update its consideration of section 117 Directions 2.1 Environmental Protection Zones, 2.3 Heritage Conservation and 4.4 Planning for Bushfire Protection following consultation with the Office of Environment and Heritage and the NSW Rural Fire Service. The updated considerations are to be included in the exhibited planning proposal.

5. Community consultation is required under sections 56(2)(c) and 57 of the Act as follows:
   (a) the planning proposal must be made publicly available for a minimum of **28 days**; and
   (b) the relevant planning authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available along with planning proposals as identified in section 5.5.2 of *A Guide to Preparing LEPs (Department of Planning and Environment 2013)*.

6. Consultation is required with the following government agencies prior to exhibition, in accordance with the Act and to comply with the requirements of relevant section 117 Directions:
   - NSW Rural Fire Service;
   - Office of Environment and Heritage;
   - Office of Water;
   - Endeavour Energy;
   - Shoalhaven Water; and
   - Roads and Maritime Services.

   The agencies are to be provided with a copy of the planning proposal and any relevant supporting material and given at least 21 days to comment on the proposal. Any agency advice received and Council's proposed response to this advice should be placed on public exhibition with the planning proposal.

7. A public hearing is not required to be held into the matter by any person or body under section 56(2)(e) of the Act. This does not discharge Council from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).

8. The timeframe for completing the LEP is to be **12 months** from the week following the date of the Gateway determination.

Dated 12th day of July 2016

Marcus Ray
Deputy Secretary
Planning Services
Delegate of the Minister for Planning