

NORMAN W. JOHNSTON

MBA, MTCP, BA, Dip (Urban Studies) Cert Acct/P/Planning



DEVELOPMENT & PLANNING ADVISOR

- Property
- Finance
- Infrastructure
- Procurement

T. (02) 9528 9528

PO Box 230

M. +61 (0)431 969 932

Junah 2226 NSW

E. njonno@opiusnet.com.au

Australia

General Manager
Wingecarribee Shire Council.

Attention: Ms Susan Stannard – Strategic Planning Division

Dear Susan,

Re: Planning Proposal for Farnborough Heights Moss Vale

I refer to our discussions over the past few months regarding the lodgement of a Planning Proposal over land (Stages 4&5) in the Farnborough Heights Estate Moss Vale. Before we were able to lodge a sensible document which professionally addressed the constraints on this land, there was a need to complete the following studies:

1. A Review of the Environmental and Threatened Species issues which arise from the Ecologically Endangered Community (EEC).
2. A Review of the Asset Protection Zone (APZ) impacting the site.
3. A Review of the Urban Design standards which were originally put in place in the 1980's subdivision approval.
4. The construct of a new Master Plan which reflects the above issues, interprets them scientifically and in a contemporary Urban Design context.

This work has been completed by leading professionals who are all cited in the Planning Proposal. They have come together in their individual disciplines, and with my firm's direction to establish this concept solution which forms a key component of the Planning Proposal.

The Planning Proposal has been developed in accordance with NSW Planning Department Guidelines and has been developed to a stage where we believe sound judgements can be made on its veracity. I wish to emphasise that it is only asking for minor changes and in return we believe is delivering major community and environmental and threatened species management benefits.

If you have any questions in relation to the Planning Proposal please direct them to myself as Principal and lead consultant. I can be contacted directly on 0431 969 932.

I would like to say in conclusion – that we appreciate the professional way advice from your Council's Strategic Planning unit has been delivered and the courtesy exhibited towards my-self and my colleagues by Ms Stannard and others.

Yours Sincerely

N.W. Johnston

14/3/2012

CEO J/E Australia Pty Ltd

www.johnstonenterprisesaustralia.com.au

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**MOSS VALE
FARNBOROUGH HEIGHTS**
Planning Proposal

**FINAL
MARCH 2012**

**Prepared by Johnston Enterprises Australia Pty Ltd
Je_australia@yahoo.com.au**

**Principal N.W.Johnston
Mob: 0431 969 932**



View of un-subdivided land in the foreground and railway along Port Kembla-Moss Vale line

To: The General Manager Wingecarribee Shire Council
Attention: Susan Stannard – Strategic Planner WSC
susan.stannard@wsc.nsw.gov.au

Dear Sir,

We are pleased to submit this Planning Proposal to Wingecarribee Shire Council. We thank you for the input and advice from your strategic planning team and look forward to further discussing the report and any comments, recommendations or changes you may have.

NAME	ORGANISATION	ROLE
Norman Johnston Principal M: 0431 969 932	Johnston Enterprises Australia Pty Ltd. PO Box 230 Jannali NSW 2226	Lead Consultant and Adviser. Exclusive WSC Council contact on this Planning Proposal.
Jennifer Havilah	The Agenda Group	Representation, community interest & PR.
Michael Sheather- Reid	Travers Bush Fire & Ecology	Senior Ecologist, EEC scientist, conservation mapping, bush fire hazard plans.
John Wilkins	Candalepas Associates	Practice Head – Masterplan and Urban Design. Concept development and interpretation.

Confidentiality and Privilege Notice

This document is intended only to be read or used by the Wingecarribee Shire Council. It is confidential and may contain legally privileged information. If you are not the addressee indicated in this Notice (or responsible for delivery of the report to such person), you may not copy or deliver this Planning Proposal to anyone; you should destroy this document and kindly notify the sender by reply email. Confidentiality and legal privilege are not waived or lost by reason of mistaken delivery to you.

Johnston Enterprises Australia Pty Ltd is representing the Baron Corporation of Moss Vale on this matter. J/E Australia is a privately owned company that is fully controlled by its Company Directors and has been operating in Australia and overseas since 2007. During this time it has evolved into a boutique high level advisory group that has diversified its professional advice and services in the fields of Major Development, Planning, Economic Analyses, Special Economic Zones, Policy and Infrastructure & Transit Oriented Value Capture - built around years of local and international experience running major public organizations at CEO level.

Executive Summary

Johnston Enterprises Australia Pty Ltd has pleasure in submitting a Planning Proposal on behalf of the Baron Corporation of Moss Vale.

This document is intended to explain the effect of a proposed amendment to the current local environmental plan (LEP) based on a detailed but early examination of the facts and supporting material and in so doing sets out the justification for the Council making this amendment to the current WSC LEP 2010.

There has been a professional consideration of the scientific and professional advice required to support this first step application which has been prepared with the input of leading companies in their particular field of expertise. We understand that the Planning Proposal is the first step in preparing a revised LEP and is only part of a complex series of studies and community input into this process by WSC. It will hopefully evolve and be supported by the Council and we ask that you consider these important points:

- The existing subdivision approval cited in the Planning Proposal is an old design and lacks any community or environmental conscientious.
- The new subdivision concept attached to the Planning Proposal and forming the basis for our request to slightly amend the WSC LEP 2010, by contrast achieves the following:
 1. A modern design catering for a mix of residents and affordable options totally consistent with the Economic Development and State Government drivers for growth in Wingecarribee Shire.
 2. A recognition and protection of ecologically endangered communities through the new "Preservation Zone" covering some 3 hectares.
 3. An asset protection zone (APZ) consistent with the preservation area and designed in accordance with Australian Standard AS 3959.
 4. Scientific input on the protected species and the methodology for maintaining and enhancing the EEC, including the erection of signage explaining the community and a walking trail through the community.
 5. A new village green where the local community can meet and hold outdoor activities – under community title if Council requires.
 6. A new neighborhood center made up of a cluster of small shops servicing the local community and adjoining a new car park.
 7. A new netball court and amenities areas on the area already reserved and dedicated for open space to Council and at no expense to Council.
 8. A connectivity network through the whole subdivision including both walking track and bicycle tracks and accessing all public and community areas.

While there has been concern raised at the number of increased traffic movements, the additional 31 only residential lots will generate around 90 residents and we suggest an additional 120 total car movements a day. These will be offset however by the new community center which will capture "escape expenditure" on minor convenience retail and services – now available through the neighborhood center.

Overall we recommend the Planning Proposal to Council for their consideration and hopefully their support.

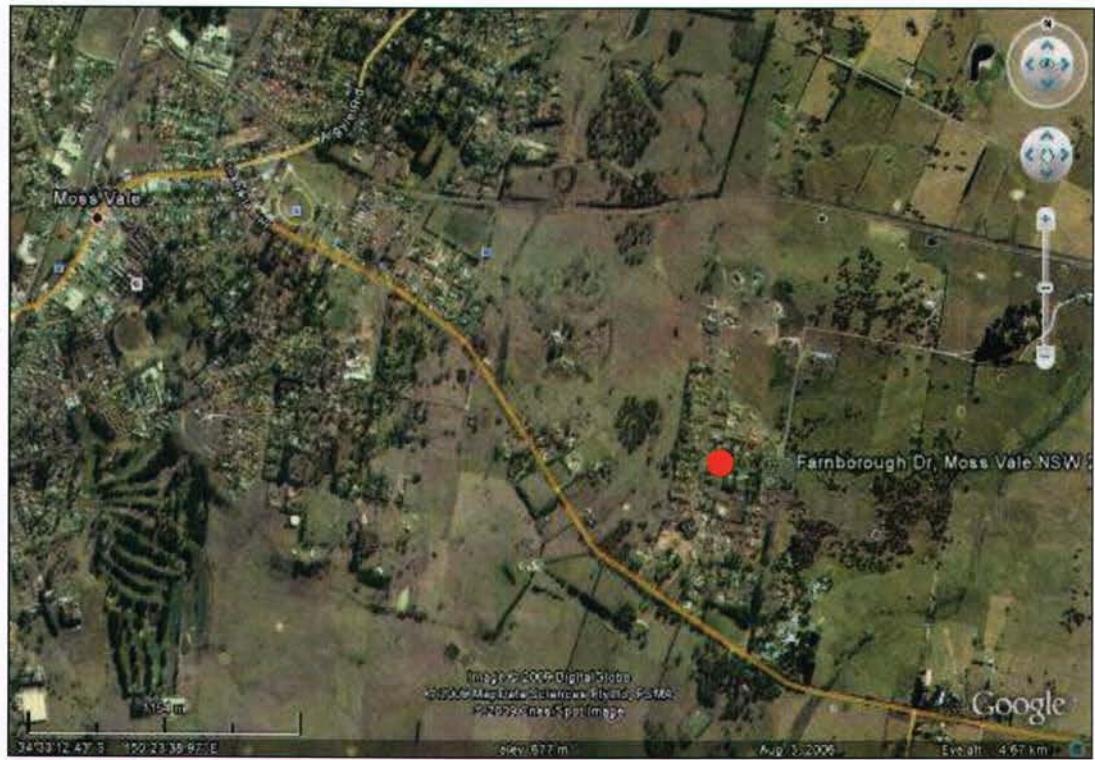
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1. Introduction

1.1 Site Location

The subject site, for the Planning Proposal is the Farnborough Estate, Illawarra Highway Moss Vale, on the NSW Southern Highlands. The land in question is identified as Site Part Portion 15, 23, 24 in Parish of Yarrunga + Lot 2 DP 561403 and is located to the north of the Illawarra Highway, 4km east of the Moss Vale Town Centre with the Berrima/Port Kembla Railway forming its rear boundary.



Aerial photo illustrating subject site and its proximity to Moss Vale Town Centre 4km to the west along the Illawarra Highway

The site is in a reasonably picturesque setting with attractive view corridors to the north east, which are typical of the unique attractiveness of the Southern Highlands and ideal for its rural/residential character. It has a gently undulating topography, a local homestead and a good stand of native trees (Southern Highland Shale Woodland) and a developing local community. It comprises a total of 226 one acre lots of which the subject land comprise 77 4,000sqm lots which generally vary in character and slope from south to north towards the railway line, and running parallel with the Port Kembla Railway line.

An electricity tower is situated within the site while part of the site is also zoned RE1 Public Recreation under the WSC LEP. As indicated the site is bordered by the Port Kembla- Moss Vale line to the north. The land to the north, east and west is designated as E3 Environmental Management.

There are however no improved parks and recreation areas, no pedestrian corridors and no local/neighbourhood shopping facilities available, requiring a number of daily traffic movements to Moss Vale village approximately 4km's west of the site. There is also no protection of the EEC classified Shale Woodland which is needed to preserve the local character of the area. This Planning Proposal seeks to formally amend the current WSC Local Environmental Plan 2010 to address these issues (outlined in more detail below) and enable greater flexibility in both the distribution and layout of the current subdivision.

1.2 Environmental constraints

The site is affected by a classification of environmentally endangered ecological community (EEC), the Southern Highlands Shale Woodland, found onsite and currently mapped under the Wingecarribee LEP. This represents a significant vegetation community for the Wingecarribee Shire Council. The proportion of low and median condition vegetation has been defined using the services of Travers Bushfire and Ecology Division and through this work we have been able to advise as to an appropriate area of the EEC to be conserved. A draft copy of the EEC Report is attached for your scientific review and assessment. **Appendix A**

The site is also mapped as bushfire prone as a consequence of the LEP mapping which shows a vegetated portion within the subdivision land currently approved. Consequently, it is a requirement of the Rural Fires Act to prepare and submit a bushfire protection assessment for the proposed subdivision. The currently approved subdivision layout does not take into account any requirements for asset protection zones (APZ's) or access requirements in accordance with the NSW Rural Fire Service policy document "Planning for Bushfire Protection 2006 and AS3959."

The width of any asset protection zones or other requirements will primarily be dependent on the amount of vegetation being retained and restored to meet a 'maintain or improve' outcome as required by the Office of Environment and Heritage. We have now completed this work and a suitable 3 hectare area has been set aside as a "Preservation Zone". Refer to the mapping diagrams in the report which show a large "preservation zone" which will also represent the template for the APZ under AS3959 standard. The condition assessment will be based on a quantitative vegetation mapping of all trees in the community – an assessment method that clearly demonstrates the proportions of poor and medium condition vegetation. No high quality vegetation communities were found. The method for this condition assessment was defined by and subject to the methodology outlined within the Native Vegetation Act.

The subdivision layout was then redesigned around the environmental constraints and meeting the EEC defined preservation zone and the APZ for the land as defined by the new concept plan of subdivision. **Appendix B**

1.3 Planning Context

The Wingecarribee Shire Council (WSC) has undertaken a number of key strategic planning initiatives over the past several years, which were aimed at improving and guiding the long term planning needs of the Sub Region. This was particularly so when it came to future residential lands and associated subdivision of land.

For example, Council's Strategic Plan "Wingecarribee Our Future" charted the strategic direction and form of development of the Shire for the next decade. Included in the Plan were proposals for new urban releases in various parts of the Shire to accommodate up to 1,500 new residential allotments over that period. These residential opportunities were in addition to the existing capacity under the prevailing Shire Statutory Plan of 3000 allotments/homes.

The Wingecarribee Strategic Plan 2002 was proposed to accommodate a total of 4,400 lots. A series of other strategies and options in respect of population and housing were documented in the Strategic Plan. The Strategic Plan identified several points that needed to be satisfied when considering new proposals, including:

1. They should only represent a minor variation to the existing urban zone.
2. They do not compromise the existing visual catchment boundaries of the town or village
3. They prevent towns or villages merging with each other
4. They have no adverse impact on the environmental capacity of existing infrastructure; particularly water, sewer, drainage, roads and community facilities
5. They have no significant physical constraints or risks to future development including bush fire and flooding.

As development proceeds' these fairly key criteria at the time would remain relevant to all current proposals. Our Planning Proposal has taken these factors into account and in addition added our own contemporary planning outcomes to the design solution.

More recently WSC has on 28th April 2010 resolved to to commence the preparation of a new Local Planning Strategy for the Shire to replace the current Wingecarribee Our Future Strategic Plan (2002). The Local Planning Strategy is an important policy document which will be used by Council in considering planning-related matters and applications. This key document will set the planning platform for the Shire over the period 2010 –2031, informing the new LEP and having a close alignment with the Sydney Metropolitan Plan, 2035. In turn these documents have their inception in the key COAG recommendations of 2007, which encouraged all levels of Government to increase the role of strategic planning through utilizing long term Urban Growth plans. The WSC web site outlines the importance of this local work:

"The Local Planning Strategy follows on from the Department of Planning's Regional Strategy in terms of the core themes of Rural Lands, Economic Development, Transport, Housing and Settlement, Natural Environment, Heritage and Services, but does so in more detail taking local issues into account.

It is intended the Local Planning Strategy, whilst over-viewing the Shire as a whole, will also drill down to the individual towns and villages and rural localities in terms of their future character and development opportunities. This is being done through a series of Workshops throughout the Villages and Towns within the Shire. Workshops are also being held for those who live on rural and rural-residential land. Summaries of workshop discussions and findings are being prepared and uploaded and may be viewed using the green links at the bottom of this page.

The Local Planning Strategy will replace the Wingecarribee Our Future Strategic Plan, 2002. Although it is not the same as the 2031 Corporate Strategic Plan, the outcomes from the Local Planning Strategy will be incorporated into the relevant sections of the Corporate Strategic Plan and will provide a strategic framework for further review of the Wingecarribee Local Environmental Plan 2010."

The process for the Local Planning Strategy is well underway, as are associated "Consultancy Reports" which will assist in forming the Councils opinion on a wide range of issues and also helping facilitating community input into the process. It is our understanding that the work will be presented to Council in the 2nd quarter of 2012 and then made available for wider consultation. This Planning Proposal will be presented before those studies are completed and considered fully by WSC however we believe that it will be (as much as is possible) consistent with the aims and objectives of the new strategic plan – particularly in relation to satisfying population and housing stock projections.

1.4 Purpose of Planning Proposal

This Planning Proposal is intended to outline the rationale behind a request for an amendment to the existing WSC Local Environmental Plan (LEP) 2010 in relation to the R5 zoning that currently exists for the subject land. The amendment relates specifically to the application of a development standard – in this case the minimum lot size consideration for land within the R5 zone. It also involves the inclusion of a small neighborhood zone (b1) to allow for a neighborhood center to service the needs of the people who live in this precinct. There being no such facilities at present and over 1,000 future residents. The amendments will seek to:

- Vary the minimum lot size to allow a mix of 4,000sqm, 2,000sqm and 1,000sqm lots in and around a new 30,000sqm ecologically preserved community of Southern Highland Shale Woodland over Site Part Portion 15, 23, 24 in Parish of Yarrunga + Lot 2 DP 561403.
- Create a new neighborhood center which will service the growing Farnborough Heights community and provide access to child care services, neighborhood retail, doctors and established community facilities.
- Embellish existing public reserve through the provision of parking for access to recreational facilities and create a second "village green".
- Create new pedestrian friendly "connectivity links" through the whole subdivision. These will enable safe access for the new community based facilities, and also provide learning environments around the Woodland Shale Ecological Community the local heritage precinct and the "village green".

The Planning Proposal will set out the justification for making these minor amendments to the WSC LEP 2010 and hopefully align with the wider and longer term objectives of the Local Planning Strategy – which is soon to be completed. As such we have prepared a relatively concise document which focusses on the rationale behind the request. It sets out the justification for the changes in a clear and un-ambiguous manner and also deals with the key environmental constraints existing on the site, their impact on ecological communities and in turn the bush fire and hazard reduction areas and asset protection buffers.

Those key constraints in summary are:

- The large Ecologically Endangered Community (EEC) of Southern Highlands Shale Woodland mapped under the WSC LEP 2010. Appendix C
- The current asset protection zones (APZ's) and access requirements in accordance with the NSW Rural Fire Service policy document Planning for Bushfire Protection 2006 and AS3959.
- The lack of neighborhood amenities in the form of parks, recreational facilities, community center uses, small shops and connectivity networks between same.
- Access onto Moss Vale Rd from the intersection to Farnborough Heights. (Although detailed traffic studies will be completed at the next stage).
- The natural lay of the land, topographical features and the historic cottage.

We have sought advice from key technical experts – scientists and leaders in their respective fields. This has enabled us to ascertain an accurate assessment of the constraints present, how the design solution we have developed will complement and enhance the existing area and finally how the wider community can benefit from such initiatives. As indicated the Planning Proposal is supported by the necessary technical studies and investigations completed at this stage. Of course there are likely to be several more studies required either by WSC or through the NSW Planning Departments Gateway process and we welcome the opportunity to both undertake and complete those further investigations, including:

- Vegetation Management Plan
- Bushfire Assessment and Report
- Storm/water design incorporating WSUD (Water Sensitive Urban Design)
- Acoustic Assessment (rail noise) and Report
- Visual Impact Assessment and Report
- Geotechnical Assessment and Report
- Contamination Assessment and Report
- Aboriginal and Archaeological Assessment and Report
- Traffic Assessment and Report
- Community Consultation
- Services and Infrastructure Assessment and Report

As these further studies and consultation are undertaken, relevant parts of the Planning Proposal will be updated, amended and embellished with the guidance of the WSC Strategic Planning officers, Council and its elected officials and Planning Departmental officers. The process will follow that outlined in the Departments publication "A guide to preparing local environmental plans" (Department of Planning, 2009). We indeed welcome such input in addition to local community comment as we firmly believe our Planning Proposal is of benefit to all parties affected.



Aerial photograph illustrating subject site bounded in red. Southern sector of the site is hatched and has already been subdivided while the unsubdivided (but approved to be subdivided) land is located in the northern sector abutting the railway line to Port Kembla

1.5 History of Planning Approvals – subject land

The site was originally approved as a 194 lot subdivision on the 5th of April 1982. This approval has substantially commenced with many new lots created and a local residential community now well established. Amendments followed this original approval and the details are outlined below:

PURPOSE	TITLE AND USE	DETAILS
Purpose: Subdivision of 194 lots under S.92 EP&A Act (1979).	Site Part Portion 15, 23, 24 in Parish of Yarrunga + Lot 2 DP 561403.	DA No. 32/28/290/82 WSC Date: 5/4/1982 amended 12/10/1982
Purpose: Amendment to Subdivision approval to allow 226 lots.	Lots 40&41 DP 263854, Lots 21, 22, 23 DP 731791 and all lots in DP's 1056257, 1037722, 1001704, 263854, 800719, 733972 +731372.	DA No 32/28/290/82 WSC thru' Assessment No: 4226530006 18/10/2004
Purpose: Creation of a road reserve, Windsor Cres, Moss Vale.	Lot 123 DP 1056257	DA No. LUA 10/1186 2/3/2011
Contributions under Sec 94 EP&A Act as amended in 2004 DA Approval.	Water Supply Contribution Sewerage Contribution Open space recreation and Community facilities	\$326,250 \$539,775 \$ 9,248
Dedication	Public Roads and Reserve Min area 1.5 Ha's	Use for Sporting facilities and \$21,750 towards playground equipment.

1.6 Planning Proposal Methodology

To undertake this work we first considered the provisions under the "Exceptions to development standards" Clause 4.6 of the Wingecarribee Local Environmental Plan 2010. Sub Clause 6 (a) however appears to clearly state that within an R5 zone such variation to the minimum standard – in this case being Lot Size – would not be permitted.

Following discussions with WSC we have pursued the Planning Proposal methodology and appreciate very much the officer's time and consideration of our matter in your Councils Strategy Division of Planning. We have subsequently undertaken the limited but necessary technical studies to "determine" the site constraints as evidenced in the Maps attached to the WSC LEP 2010.

The study process has employed a methodology focused upon:

- Assessment of the history of the site and prior planning approvals and submissions.
- Review of Regional Planning drivers and the impact of new employment generating activities to the WSC area.
- Review of the WSC Local Environmental Plan 2012 – its Objectives and Development Standards.
- Identification of site constraints clearly defined as EEC areas and bush fire and asset protection zones (APZ's). Appendix D.
- Early consultation with WSC strategic planning officials and members of the development assessment team.
- Background Research (Review of previous investigations, DA approvals and current technical material including the EEC classification);
- Field Investigation (Site visitation and observation) by all parties involved, the owners, technical consultants and planning advisers;
- Consultation (Interchange of ideas with authorities, specialists advisers and owners) to arrive at a reasoned approach to the planning outcome presented;
- Synthesis of findings (Constraints/opportunities mapping) and development of a Draft Concept Plan, which takes into account the site constraints and adds value to the local community;
- Discussion of the Concept design with elected officials and representatives; and
- Submission of the Planning Proposal to Council's professional staff for their consideration and recommendations.

2. Objectives of intended Outcome

2.1 Project Objectives

THE OBJECTIVES OF THE INTENDED OUTCOME OF THE PLANNING PROPOSAL ARE:

Firstly:

To enable a reduction in minimum lot sizes in an R5 zone {WSC Local Environmental Plan (2010)} to permit the subdivision of Parcels 4 & 5 DP... to allow a mix of 1,000sqm, 2,000sqm and 4,000sq m allotments.

This is intended to give effect to:

- Facilitating the aims of the Local Planning Strategy (to be adopted) to increase the supply and mix of housing choices for the accelerated growth and economic prosperity of the Shire.
- To achieve this without impacting the WSC principal land use planning policy through the integration of the desired amendment into the existing zoning template and through introducing sound community and environmental solutions to the area.

- To recognize the existing constraints on the land and plan for them in such a way as to improve the overall design outcomes pursuant to the "Sustainability & Design Criteria for New Urban Residential Development", which became effective from 7 May 2008.
- To preserve the Ecologically Endangered Community (EEC) of Southern Highlands Woodland Shale through sound planning and environmental practices and allowing effective bush fire and asset protection zones to be established.

Secondly:

To rezone a small packet of land currently un-useable for residential purposes from R5 to B1 Neighborhood Centre to allow the establishment of four 200sqm retail shops and a small community center for the growing Farnborough Heights community.

This is intended to give effect to:

- Enlivening the Residential Estate through the provision of a local service center to provide local scale retail shops and services such as a small grocery store, local restaurant, doctor's surgery and a community facility. Thus reducing traffic movements in and out of Farnborough Heights.
- Create community parking areas (designed to Council Engineering Standards) for the local neighborhood center and also the future local sporting fields at no cost to Council.
- Provide a key central point in the Farnborough Estate for connectivity of the new pedestrian network linking the Neighborhood Center to the future sporting facilities, the EEC Community of Southern Highland Shale Woodlands, village green and the "Heritage Walk".

A Map showing the areas nominated are outlined below:



Under the WSC LEP 2010, the subject site is zoned as R5 Large Lot Residential. In this area we are seeking a mix of 1,000 2,000 and 4,000sqm Lots

This small area of land approximately 1,200sqm is proposed to be rezoned for Neighbourhood Centre B1, adjoining the Park and Sportsground.

3. Explanation of Provisions

3.1 How the intended outcomes are achieved – Objective One

To enable a reduction in minimum lot sizes in an R5 zone {WSC Local Environmental Plan (2010)} to permit the subdivision of Parcels 4 & 5 DP... to allow a mix of 1,000sqm, 2,000sqm and 4,000sq m allotments.

The intended outcomes for the Planning Proposal are achieved for Objective One with the following minimal changes:

Wingecarribee Local Environmental Plan 2010:

Objective One

- **PART 1 - No Change**
- **PART 2 - No Change**
- **LAND USE TABLES - No Change**
- **PART 3 - No Change**
- **PART 4 – Principal Development Standards (Requires No Change)**
- **PART 4.1 – Minimum subdivision lot size.**
- **Under this provision the Map Index (Last updated 24th September 2011) for Lot Size Maps needs to have Map Sheet No LSZ 007 D amended to note an amending instrument as of the Ministers proclamation – state "This map is amended to allow minimum lot sizes of between 1,000sq m and 4,000sq m in accordance with the approved subdivision plan".**

3.2 How the intended outcomes are achieved – Objective Two

The intended outcomes for the Planning Proposal are achieved for Objective Two:

To rezone a small packet of land currently un-useable for residential purposes from R5 to B1 Neighborhood Centre to allow the establishment of four 200sqm retail shops and a small community center for the growing Farnborough Heights community.

Wingecarribee Local Environmental Plan 2010:

Objective Two

- **PART 1 - No Change**
- **PART 2 - No Change**
- **LAND USE TABLES - No Change**
- **PART 3 - No Change**
- **PART 4 – Principal Development Standards (Requires Change)**
- **In this section neighborhood centres are to be permitted on Lot 201 DP 516403 at Appendix E**
- **PART 4.1 – Minimum subdivision lot size.**
- **Under this provision the Map Index (Last updated 24th September 2011) for Lot Size Maps needs to have Map Sheet No LSZ 007 (attached) to note an amending instrument as of the Ministers proclamation – state "This map is amended to allow minimum lot sizes of between 1,000sq m and 4,000sq m as defined by the approved subdivision DA plan No???"**
- **Attached at Appendix F is the relevant Map reference: LSZ 007H 020**

4. Justification – Section A (Planning Proposal Guidelines)

DETAIL – REFERENCED IN PREVIOUS SECTIONS

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

There is a fundamental association between the Councils current residential planning strategy work which is reviewing the density and associated population targets for the Shire. This Planning Proposal represents a solution which can be put forward to support these objectives.

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

After the detailed technical and professional work undertaken by Planning, Architecture and Scientific disciplines we believe that the solution put forward in the Planning Proposal is of a high standard, considerate of the constraints present and in keeping with sustainability drivers, contemporary urban planning and community interests – particularly the interests of the local Farnborough Heights area. We would in fact welcome testing this solution through the community consultation process.

Is there a net community benefit?

A formal community benefit test has not been undertaken at this stage though the key considerations of such a test have been considered. We believe the solution will satisfy and prove to have a Net Community Benefit and again would welcome Councils support of this Planning Proposal to move to that stage.

5. Justification – Section B (Planning Proposal Guidelines)

RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

The Strategic and Statutory Planning Framework to which the Planning Proposal relates involve a 'mosaic' of State, Regional and Local Planning strategies, plans and policies. The principal guiding strategic planning document is the new WSC LEP 2010 which is the fundamental driver of local planning and is considered initially.

Wingecarribee Local Environmental Plan 2010

Current version for 1 November 2011 to date (accessed 13 February 2012 at 09:26)

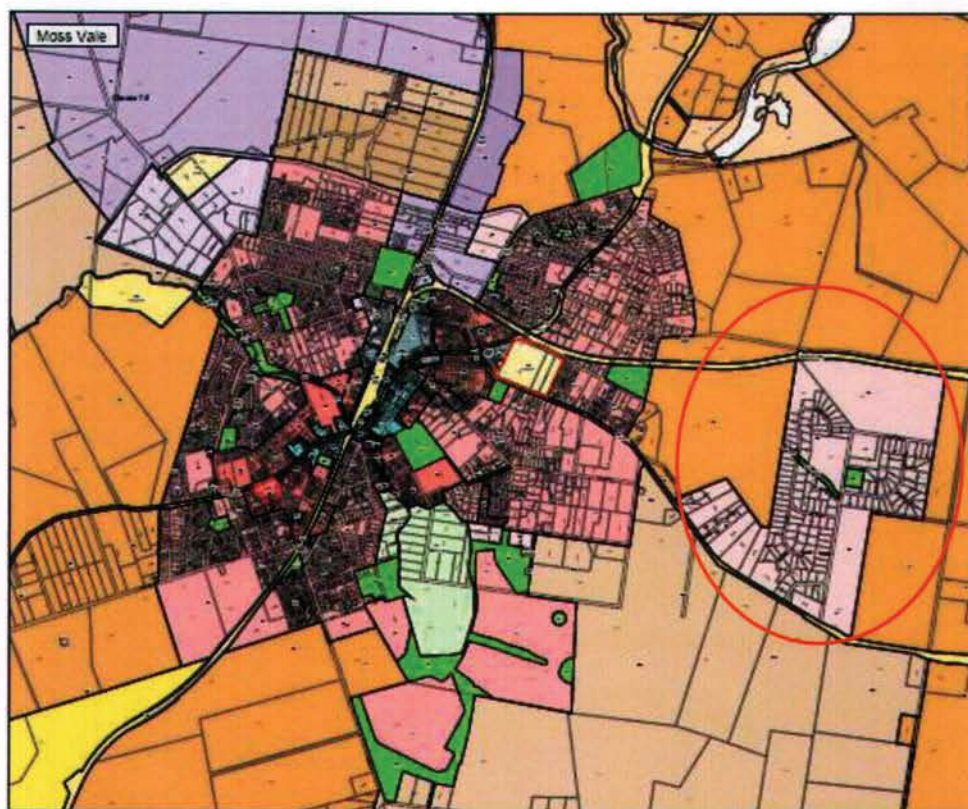
The relevant aims of the WSC Local Environmental Plan are as follows:

- a) *to conserve and enhance, for current and future generations, the ecological integrity, environmental heritage and environmental significance of Wingecarribee,*

Assessment: It is considered that the function of the mix of lots within the subject site will maintain the environmental amenity for future generations and assist in encouraging population changes pursuant of the growth forecast expected as a result of the latest Residential Strategy work. Permitting a mix of lot sizes will encourage urban household formation, affordability and the preservation of unique areas of threatened species environments – within our overall preservation strategy. It will enhance the ecological integrity of the area and both facilitate and maintain a high quality residential environment.

- (b) *to maintain Wingecarribee's original settlement pattern of towns and villages dispersed throughout a rural and native vegetation landscapes*

Assessment: The subject site is situated on the peripheral of Moss Vale Centre. The Land Zoning Map attached to the LEP zones the land R5 Large Lot Rural Residential. No change to this zoning is proposed in this submission. (refer below). We believe the Planning Proposal maintains the original settlement pattern of towns and villages and supports its classification as



- (c) *to encourage the efficient use and development of urban land, minimising the spread of urban areas into rural and native vegetation environments, thereby increasing the accessibility of the population to urban facilities and services.*

Assessment: The proposed lot size mix will allow a better integration of the urban landscape, the EEC area and community into the rural residential character of the Estate. It will increase accessibility through the provision of a local neighbourhood centre and effectively minimise the number of un-necessary vehicular trips to Moss Vale for local recreation, bread, milk and service related shopping and some sporting needs.

(d) to provide opportunities for development and land use activities that:

1. make an effective contribution towards the economic wellbeing of the community in a socially and environmentally responsible manner, and
2. do not adversely impact on natural systems and processes and the overall quality of Wingecarribee's natural environment, and
3. retain the critical natural, rural and built environmental landscape elements that make up the scenic and cultural heritage value of Wingecarribee,

Assessment: It is considered that the urban design solution, incorporating the EEC preservation and local community centre will substantially enhance the well-being of the local community – in a socially and environmentally responsible manner. It will actually enhance the natural systems by putting in place environmentally responsible management and preservation of the EEC community and will permit more flexibility in lot sizes thereby promoting social and economic access and improved community facilities. It will retain critical natural elements add to the scenic and cultural heritage and the values implicit in the rural residential character of the Region.

(e) to provide opportunities for a range of new housing and housing choice in locations that have good access to public transport, community facilities and services, retail and commercial services, employment opportunities, including opportunities for the provision of adaptable and affordable housing.

Assessment: The proposed use of the site and increase in lot size mix will provide the residential market with variety of housing choices in a location that is well serviced by public transport (5 minute drive to railway station) and community facilities. The range in lot sizes will present options for the local and newly established market and will also create the potential for affordable housing choices. New community facilities will support the growing number of families in the area and avoid un-necessary traffic movements for convenience shopping trips.

(f) to provide for a range of living opportunities that address differing lifestyle needs without compromising the environmental quality of Wingecarribee, and the value of its natural resources such as water, biodiversity and agricultural land

Assessment: The proposed variation in lot sizes will provide increased living opportunities and permit differing life style needs. The reduction in lot sizes will prevent potential urban sprawl and enable WSC to meet its residential growth targets. The reduced lot sizes are considered to be of generous proportions and will not alter the character of the district. It is reiterated that the environmental quality of the surrounding rural residential character will not be compromised within the confines of the approved subdivision and does not protrude into surrounding environmental zones. The railway line to the north also acts as a buffer to the environmental lands.

(g) to strengthen the viability of Wingecarribee's zoned local centres as central places for investment, employment and cultural activity, and encourage a

majority of future housing opportunities to be located in relatively close proximity to those centres.

Assessment: The subject site is within close proximity to the Moss Vale centre. It is considered that the proposed variation in lot sizes will strengthen the viability of the local area through additional housing population which will services likely increased employment associated with the general growth of the area as well as with anticipated growth associated with the Industrial sector and Inland Port.

(h) to promote the economic well-being of the community in a socially and environmentally responsible way focusing new employment growth and identified employment hubs like business centres and enterprise zones that can be better accessed by public and private transport.

Assessment: The subject site is close to Moss Vale Centre, where all shopping, service and business needs can be catered for, the new neighbourhood centre will supplement this through local needs and bread, milk and convenience services. It is considered that intensification of the local population through a small increase in lot numbers for the site will foster a new employment opportunities through younger family's being able to afford to live in the rural - residential lifestyle. This will in turn encourage new and existing business opportunities.

(i) to protect suitable primary production potential of rural land, and prevent the fragmentation of agricultural holdings

Assessment: The subject site is not utilised as agricultural land and therefore will not impact upon the land's production potential. Importantly, the proposal allows for additional residential allotments without the need to expand at the expense of rural/agricultural land.

(j) to conserve the Aboriginal and European cultural and environmental heritage of Wingecarribee,

Assessment: There is no potential conflict with any Aboriginal or European cultural and environmental heritage. All efforts are being made to preserve the wider Environmental significance of the Threatened Species Community of Wollybutt Shale Forests. There are no known cultural elements not addressed in the Planning proposal.

(k) to protect areas of high scenic landscape value,

Assessment: The visual corridor to the north of the site typifies the Moss Vale/Bowral rural landscape as the stand of Threatened Species native Wollybutt Shale Forest. These are all being preserved through efficient master planning of the site and suitable orientation of the dwellings.

(l) to develop an ecologically sustainable future for Wingecarribee through the conservation, rehabilitation and regeneration of native vegetation (particularly threatened species populations and ecological communities), soil, waterways, riparian land and water quality (surface and groundwater),

Assessment: The protection and land uses within the EEC have been identified together with actions identified to quarantine and re-vegetate the EEC to its original condition. The location of the *Eucalyptus macarthurii* (Camden Wollybutt) and what are the possible ramifications for this species if established or confirmed on site - will also be undertaken.

Groundwater and surface run-off – together with water quality treatment for both surface and groundwater have been designed into the subdivision – consistent with the original planning approvals and WSC Guidelines.

- (m) to prevent loss of life and property by bush fires, by discouraging the establishment of incompatible uses in bush fire prone areas and incorporating as part of compatible developments protective measures that minimise bush fire risk without unacceptable environmental degradation,*

Assessment: Bush fire protection zones have been established as are the Asset protection Zones that support this area. Protective measures to prevent bush fire risk have been recently undertaken (clearing of scrub and long grasses) and will be minimised once the subdivision plan is in place and residents move in to control the local environment establish homes and hard surfaces.

- (n) to provide for a range of sustainable development opportunities in harmony with recreation and lifestyle choices, emerging markets and changes in technology, and capitalise on Wingecarribee's regional distinctiveness and existing tourism asset base,*

Assessment: While the area does not represent a tourist precinct, being of rural residential character, the creation of the EEC area, together with the re-vegetation of the species will be explained through signage and information plaques along the pedestrian corridors. This will help explain the sustainable development initiatives that have taken place and the protective measures to visitors and locals alike.

- (o) to ensure that extractive resources and mineral deposits are not rendered sterile by future development, but at the same time ensuring that subsequent extraction, open cut mining and transportation activities are undertaken in a way that maintains residential amenity,*

Assessment: The Proposal will have no impact on this other than to provide a broader range of housing choice to future employees and local residents in the WSC.

- (p) to protect and enhance waterways, riparian land and water quality in the drinking water catchments of Wingecarribee.*

Assessment: The Proposal will have no impact on this as it meets the standards set out in the WSC Subdivision Guidelines. The future development will comply with Illawarra Regional Environmental Plan No 1 and SEPP 58 – Protecting Sydney's Waterways which is underpinned by the principles of Ecologically Sustainable Development and Total Catchment Management.

Zone R5 Large Lot Residential

It is suggested that the subject site not be rezoned from R5 Large Lot Residential, but alternatively changes to the minimum Lot Size Maps occur to permit lot sizes of between 1,000m², 2000m² & 4,000m² consistent with the standards of Council's Subdivision Guidelines. It is considered that the site will remain consistent with the rural residential character and the objectives for the broader zone, being:

1 Objectives of zone

- To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.*

Assessment: There will be little if any impact on the rural residential character of the future subdivision layout as smaller lots will be integrated with larger lots to produce the character and feel of a semi-rural landscape. This will be enhanced by the 3 ha

EEC preservation area which will provide regenerated urban bush land of high quality species – currently under threat.

- *To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.*

Assessment: This is already an approved subdivision with separately approved access arrangements and there will be no impact on the orderly development of the area.

- *To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.*

Assessment: At present the land in the Farnborough Heights subdivision generates a population of approximately 826 persons, made up of mainly families. The changes to the subdivision layout and the inclusion of the EEC Community will increase the lot numbers by 38 and increase the overall population to 959 persons. This will not have an adverse impact on the demand for public services and facilities.

- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

Assessment: There will be no conflict between the current zone and adjoining zones as it will be consistent with the WSC LEP 2010 other than a small area for a neighbourhood centre.

- *To provide a restricted range of opportunities for employment development and community facilities and services do not unreasonably or significantly detract from:*
 - (a) *the primary residential function, character and amenity of the neighbourhood, and*
 - (b) *the quality of the natural and built environments*

Assessment: The areas residential function will be preserved and enhanced through this initiative, the neighbourhood amenity and natural environment will be substantially improved through the inclusion of:

- New environmental parks and picnic areas – improving amenity
- Pedestrian corridors linking the residential estate's natural features and EEC
- Land use planning which improves conditions for walking and cycling.
- Encouraging broad interaction between the community and their local environment.
- Community engagement through walking and cycling facilities and establishing a neighbourhood centre.
- A consistent and quality built environment maintaining the primary residential character

Zone B1 Neighbourhood Centre

1 Objectives of zone

- *To provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood.*

Assessment: A small number (5 likely) of retail shops will be introduced into the neighbourhood to provide convenience retail and community services to the local Farnborough community.

- *To generally conserve and enhance the unique sense of place of business centre precincts in villages and towns by ensuring that new development integrates with the*

distinct village scale, character, cultural heritage and landscape setting of those places.

Assessment: The shops will adjoin a new parking area and the local reserve (already dedicated to WSC) serving two purposes as parking for the local community. The distinct character of the precinct will be retained through the small number of shops, the low scale nature of the buildings and the pedestrian and cycle corridors that will link them to the wider community. This keeps the village scale and feel of the Estate.

- *To ensure that new development has regard to the character and amenity of adjacent and nearby residential areas.*

Assessment: Again the low scale nature of the new neighbourhood centre, its integration to the existing community through parking and pedestrian/cycle corridors aims to reinforce local walking and cycling networks and create a safe and comfortable walking and cycling environment.

WSC Subdivision Guidelines (DCP)

Part 4.1 Minimum subdivision lot size

- *To ensure that the subdivision of land to create new lots is compatible with the character of surrounding land;*
- *To ensure that new lots created by a subdivision provide suitably sized lots for development which do not compromise existing development or amenity.*

Assessment: The proposed new mix of residential lot sizes will not result in any adverse residential amenity impacts as they are capable of maintaining solar access, visual and acoustic privacy as well as the requirements of Council's DCP for Residential Development. There will be only 20 1,000sqm lots the remaining 83 new lots will be equally blended between 2,000sqm and 4,000sqm lot sizes.

In terms of density, setbacks, dwelling orientation, private open space requirements and building separation. The proposed 1,000 & 2,000sqm lots have been located so that they are compatible with the The National Charter for Integrating Land Use & Transport which is a Commonwealth-level agreement committing to a set of good-practice planning principles, including "route continuity through local streets for pedestrians, cyclists and public transport".

Dwellings typical of rural residential lots would have an area of over 300m². If built on a single level. This would still leave between 700m² & 1700m² for landscaping and tree planting even on the small number of lots in the subdivision.

- *To ensure appropriate attention to conservation principles and standards in residential areas that include individual buildings and streetscapes of nominated heritage significance;*

Assessment: The proposed lot sizes will facilitate ample private open space provision. Given the lot sizes, it is anticipated that dwellings within the lots can be adequately setback from the front and side setbacks and will minimise the impact and dominance of the dwellings from the public domain.

- *To integrate new development with established settlement patterns and landscaping in the neighbourhood by retaining and enhancing:*
 - o *existing streetscape and significant vegetation; and*

- o *pedestrian, cycle and vehicular connections and accessibility, and*
- o *scale, density and form of existing development*

Assessment: The proposed lot sizes will be sufficient in maintaining that the design, density and form are consistent with the established streetscape pattern. A smaller number of minimum lot sizes of between 1,000m² & 2000m² is sufficient to maintain an adequate landscaping treatment, but additionally new cycle and pedestrian corridors will link over **30,000m² of new reserve and picnic grounds as proposed.**

- *To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms.*

Assessment: It is considered that the site can cater for the small number of additional lots in terms of surrounding environmental impact. Total new lots proposed is between 30 & 35 in a subdivision of over 300 lots – only **10%.**

Illawarra Regional Environmental Plan No 1

The Illawarra Regional Environmental Plan No. 1 is taken into account by Council's when they prepared the new local environmental plan for WSC or when determining development applications.

Parts of the objectives relating to this Plan are to:

- *Ensure that urban expansion is orderly and efficient having regard to the constraints of the natural environment and that sufficient land is available to prevent price rises resulting from scarcity of land;*
- *Ensure that new residential land or land for high density development is only developed where there are adequate utility and community services available or there is a commitment from the relevant authorities or developer to provide those services;*
- **To provide for a range of lot sizes, dwelling types and tenures forms to cater for varying household needs in local government areas;**
- *To ensure that residential development does not take place on hazard-prone lands; and*
- *To minimize bush fire risks to urban development*

Assessment: Increasing the development density of the site is considered to be a sustainable option having regard to the need to improve the number and form of residential options available to all the community. These are similar principles to those outlined in establishing the new WSC Residential Strategy – currently under preparation.

The subject site is also conveniently located within 4km of Moss Vale town centre, railway station and on the highway to Sydney and Canberra. The site is additionally capable of being serviced by utilities including electricity, water, drainage and telephone and the additional 10% in lot yield is considered relatively insignificant.

Importantly however the Planning Proposal supports the need to establish “a range of lot sizes, dwelling types and tenures” in order to encourage diversity in the community and re-enforce that household formation today is much different to that which existed even 30 years ago when the original subdivision was conceived.

SEPP 32 - Urban Consolidation

Assessment: The current zoning of the site and the intended introduction of a mix of lot sizes is considered consistent with the objectives of SEPP 32 and the State Government's urban consolidation initiatives.

The site is located close to Illawarra Highway and Moss Vale centre as well as the proposed enterprise zone, and is serviced by existing public transport infrastructure and community facilities. The proposed additional lots will increase the level of available housing and will assist in meeting demand for low density housing which is close to employment, retail and leisure opportunities. It will attract a mix of residential lots, all of which will maintain their rural residential character through effective urban design principles - introduced through this new Planning Proposal.

Wingecarribee Strategic Plan (now under preparation)

Part of this strategy is a "Residential Study" which will introduce post WSC LEP 2010 measures and initiatives to accommodate the Shire's future residential needs to 2031 and provide a total of 4400 additional housing opportunities. The Strategic Plan identified that the following points should be satisfied:

Identification of any suitable sites for future residential subdivision that satisfy stringent planning criteria, and which:

- only result in a minor variation to an existing urban zone;
- do not compromise the existing visual catchments boundary of the town or village;
- prevent towns or villages' merging' into each other;
- have no adverse impact on the environmental capacity of existing infrastructure, particularly sewer, drainage, water, roads and community facilities; and
- have no significant physical constraint or risks to existing or future development, including bush-fire and flooding.

Assessment: It is considered that the recommendations contained within the Planning Proposal fully comply with the above criteria.

A slight adjustment to the Lot Size Map within the R5 Rural Residential Zone will increase the density and assist in satisfying the Residential Strategy aspects of the overall Strategic Plan - once adopted. The creation of a range of lots sizes will permit the sustainable retention of land and natural resources within the new EEC Reserve on the site and maintain appropriate management of individual parcels of land include the threatened species present.

The existing infrastructure has the capacity to support an increase in demand associated with the proposed intensification.

The Planning Proposal assists the new Strategy - which acknowledges that increased strain will be placed upon Moss Vale's housing demand, over the coming years and that additional housing supply can potentially be sought through new residential and planning initiatives.

The draft Wingecarribee Strategic Plan and associated sustainable housing policy will clearly articulate the number and types of future housing opportunities that can be reasonably expected from subdivision and medium density development in the existing Shire LEP 2010. Added to this existing supply are the potential 800 additional allotments that could arise from the rezoning and subsequent subdivision of the Renwick site at East Mittagong and a number of other site or sites recommended in the community consultation process. Moss Vale and the recommendations for the Farnborough Heights Estate are ideal examples we believe of innovative and contemporary interpretations of

the likely Draft Strategy recommendations. They leave plenty of other opportunities within the Shire for similar innovative and environmentally sustainable outcomes.

It is further acknowledged that historically the population size increased by 30% between 1986 and 1996, and that while 88.5% of the population lives in detached dwellings the average occupancy rate is just 2.62 persons per household. It is therefore considered that the proposed lot size of a minimum 4000m² is unreasonable and should be blended with 1,000 and 2,000sqm lots to allow affordability considerations and bring the house and land package to under \$500,000 – attracting stamp duty concessions in NSW.

Furthermore, given the likely future population growth within the Shire (which is mainly cantered around the 3 centres of Moss Vale, Bowral and Mittagong), it is considered that a mix of housing density in the rural residential areas is a more sustainable long term outcome, and will prevent urban sprawl.

Wingecarribee Residential DCP 2006

The Planning Proposal is considered to generate a more efficient use of the site, recognises major environmental and physical constraints, introduces community facilities and will be compliant with the relevant controls for detached houses being:

Height

The maximum height of any residential building must not exceed 6m above the natural ground level. Additional rooms are permitted in roof spaces where such roof form would be compatible with the desired streetscape character.

Designs proposing a second storey are to include design elements which reduce the bulk and mass of the proposed dwelling with features such as asymmetrical design, modest roof forms and balconies.

Front setback

Front setbacks are to be consistent with those of the dwellings immediately adjacent to a site and those in the immediate context.

In the case where there is an inconsistency in front setbacks, Council will assess the proposed front setback on merit.

Side Setback

In areas where there are no existing dwellings, a minimum setback of 1000mm wall to boundary and 675mm outside of eave and gutter to boundary are the minimum setbacks previously required by Council.

Rear Setback

Council will assess the proposed rear setbacks for new development on merit, taking into account impacts on:

- a. existing vegetation and natural features on the site
- b. privacy of the proposed dwellings and existing dwellings
- c. solar access to the proposed dwellings and existing dwelling.

Dwelling Orientation

The living area and 50% of the primary private open space of that dwelling must receive a minimum of 3 hours of direct sunlight on June 21.

Private Open space

Detached dwellings must provide a minimum area of private open space of 90m²

The private open space must provide a consolidated open space area with minimum dimensions of 6 metres in width and depth.

Comment:

The introduction of a mix of Lot Sizes will accommodate these requirements as only 20% of the lots are 1,000sqm and most importantly the character and feel of the subdivision will be enhanced through the introduction of contemporary urban design elements – totally missing from all prior design solutions and DA approvals for the land in question.

It is considered that the above provisions of the DCP can be easily complied with as demonstrated by existing allotment design in other subdivisions which range from 1,000sqm to 2000sqm allotments.

Therefore the Planning Proposal will therefore be in accordance with the objectives of the relevant State, Regional, LEP and DCP provisions and we believe will be consistent with the proposed WSC Residential Strategy and residential growth projections.

6. Economic Development & Regional Drivers

Sydney-Canberra Corridor Regional Strategy

The Sydney-Canberra regional corridor extends from the southern highlands and tablelands of NSW to the ACT border – an area of approximately 25,000 square kilometres. Clearly identified by the Hume and Federal highways, the region itself is characterised by classic rural countryside and an array of regional centres, historic towns and villages. It also features major drinking water catchments.

As a key part of our national transport and communications infrastructure, the corridor provides for the ongoing flow of trade, tourism and ideas within the region and between the capital cities and centres on the eastern seaboard. Those areas close to work and business opportunities in Sydney, Canberra and the NSW South Coast are already experiencing significant growth and development pressures.

Currently the region offers its 137,000 residents significant choice in terms of lifestyle, employment and investment opportunities. The main purpose of the regional strategy is to support and manage growth while ensuring that the rural and environmental settings that characterise the region are not compromised. The strategy report is attached to this Planning Proposal for more detailed information, however in principle it is considered that the Planning Proposal meets all of the key aims outlined below and satisfies the need to provide diversified and affordable housing options in the Moss Vale region – to meet economic growth projections.

The NSW Government's 25-year land-use strategy aims to:

- Provide up to 25,000 new homes for the 46,530 additional people in the Region by 2031.
- Increase the amount of housing within existing centres and the choice of housing for smaller households and an ageing population
- Manage the environmental impact of settlement by focusing new development in the major regional centres of Bowral, Goulburn and Queanbeyan.
- Ensure an adequate supply of land to support economic growth and provide for the projected 27,800 jobs.
- Promote important primary industry resources, water resources, environmental diversity, scenery and heritage, which give the region its character and potential.

Assessment: It is considered that the minor change to the mix in lot size proposed as a result of the Planning Proposal is appropriate in accommodating future population growth within the corridor. The rural residential housing and the provision of additional lots by 10% will assist in meeting housing supply and can be supported by the existing site, infrastructure, services and facilities.

The additional provision of housing complies in encouraging urban population growth from the northern sectors of surrounding Southern Highlands Local Government Areas. Rural residential housing is consistent with environmental considerations and fosters the expansion of the enterprise zone through the creation of more affordable housing for potential workers.

Importantly, there are no adverse environmental consequences associated with the proposal which satisfies the environmental provisions of the Strategy and further seeks to preserve and maintain endangered ecological communities.

Travers

bushfire & ecology

flora & fauna assessment

Lot 391 DP 737061,
Farnborough Drive,
Moss Vale

February 2012
(REF: A12002F)



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bushfire & ecology

Flora & Fauna Assessment

Proposed Rural Residential Subdivision

Lot 391 DP 737061

Farnborough Drive, Moss Vale

FEBRUARY 2012

Report Authors: John Travers B. App. Sc. / Ass. Dip. / Grad. Dip. Managing - Director
Michael Sheather-Reid B. Nat. Res. (Hons.) - Senior Ecologist
Lindsay Holmes B. Sc. - Botanist
Corey Mead B. App. Sc. - Fauna Ecologist
Maps prepared: Nick Barclay, Trent Matheson
Checked by: Michael Sheather-Reid on behalf of John Travers
Date: 24/2/12
File: A12002F

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The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

Executive Summary

This Flora and Fauna Assessment Report has been prepared by *Travers bushfire & ecology* to identify the flora and fauna characteristics of Lot 391 DP 737061 off Famborough Drive, Moss Vale and to assess the potential impacts of a proposed rural residential subdivision.

Lot 391 DP 737061 will hereafter be referred to as the subject site.

Record threatened flora, fauna & EEC's

Ecological survey and assessment has been undertaken in accordance with relevant legislation including the *Environmental Planning and Assessment Act 1979*, the *Threatened Species Conservation Act 1995*, the *Environment Protection and Biodiversity Conservation Act 1999* and the *Fisheries Management Act 1994*.

In respect of matters required to be considered under the *Environmental Planning and Assessment Act 1979* and relating to the species / provisions of the *Threatened Species Conservation Act 1995*, two (2) threatened fauna species being Eastern Bentwing-bat (*Miniopterus orianae oceanensis*) and Large-footed Myotis (*Myotis macropus*), no threatened flora species, and one EEC, Southern Highlands Shale Woodland were recorded within or in close proximity to the subject site.

In accordance with Section 5A of the *Environmental Planning and Assessment Act 1979*, the 7 part test of significance concluded that the proposed subdivision will not have a significant impact on any threatened species, populations or EECs. Therefore, a Species Impact Statement should not be required for the proposed development.

In respect of matters required to be considered under the *Environment Protection and Biodiversity Conservation Act 1999*, no threatened fauna species, no protected migratory bird species, no threatened flora species, and no EECs listed under this Act were recorded within or in close proximity to the subject site.

The proposed development was not considered to have a significant impact on matters of national environmental significance. As such a referral to Department of Sustainability, Environment, Water, Populations and Communities should not be required.

In respect of matters relative to the *Fisheries Management Act 1994*, no suitable habitat for threatened marine or aquatic species was observed within the subject site and there are no matters requiring further consideration under this Act.

Ecological impacts

6.43ha of EEC, Southern Highlands Shale Woodlands has been mapped on site, with 3.08ha being classed as moderate condition and 3.35ha being classed as low condition. The proposed conservation area will be 3.00ha in size which shall be restored through weed control and revegetation works to a good quality remnant. Within this proposed conservation area, there is currently 1.21ha of moderate condition vegetation and 0.85ha of low condition vegetation.

The proposed subdivision will potentially result in the following ecological impacts:-

- Based upon the proposed subdivision layout and the conservation area, there will be a loss of approximately 1.87 ha of moderate condition EEC and 2.5 ha of low condition EEC.
- The loss of trees for future development would minimise the usage by the Eastern Bentwing-bat, and for nesting birds.
- The removal or modification to the existing dam structures would reduce the future usage by the Large-footed Myotis.
- The proposal will not increase the fragmentation but instead aims to restore some portion of the remnant through weed control and revegetation works.
- There may be some minor impacts to hydrology however these are expected to be managed through suitable design principles such as bio-retention basins.
- Removal of trees that contain hollows would mean a reduction of breeding, roosting or nesting resources in the locality.

Mitigation measures

The key impacts to minimise are the loss of the EEC - Southern Highlands Shale Woodlands and associated fauna habitat. For the purposes of the subdivision, the loss of low condition vegetation onsite is not considered to be significant and does not require offsetting. Based on the location of the subdivision i.e. a semi-rural landscape and the presence of 3.08 ha of medium quality EEC, Travers bushfire and ecology considers that a subdivision outcome that results in a 3 ha conservation area of fully restored EEC - Southern Highlands Shale Woodlands would be a balanced ecological outcome.

Therefore the following mitigation measures are recommended:-

- Establishment of a 3 ha conservation area as shown on Figure 1 which will be protected and restored in accordance with an approved Vegetation Management Plan. Post completion of primary restoration works (fencing, revegetation and primary weed control), a minimum 3 year maintenance period is required.
- Remnant trees in good health should be retained throughout the subdivision landscape to promote the retention of arboreal habitat within lots.
- Street-scaping or landscaping works should utilise species that occur frequently within the Southern Highlands Shale Woodlands EEC or as recommended by Council.
- Subject to a condition assessment, retain hollow-bearing trees in situ that have been marked as significant, and utilise any fallen logs or dismantled trees as additional ground habitat within the conservation area.
- Retain existing water bodies or provide new open water areas as foraging habitat for the Large-footed Myotis.
- The removal of hollow bearing trees is to be offset with the installation of artificial nest boxes at a minimum ration of 1:1 for every hollow removed or destroyed. The nest boxes should be installed within the conservation area.

- A tree condition assessment and habitat tree assessment is to be undertaken to assess the no of trees to be removed due to poor condition or civil works and to determine the no of hollows and types being lost. A nest box installation program is to be recommended and incorporated into the preparation of a vegetation management plan for the proposed conservation areas.
- A vegetation management plan is to be prepared for the proposed conservation area identifying as a minimum the revegetation requirements and number of artificial hollows to be installed. Standard protection weed control and maintenance works are to be stipulated as part of the VMP. Any proposed pathways are to be identified.

Note that early intervention by protecting the conservation areas will promote significant regeneration of the EEC – Southern Highlands Shale Woodland and reduce the level of primary restoration effort.

The trees assessment should be undertaken during the flowering or fruiting period of *Eucalyptus macarthurii* to locate the presence or otherwise of this threatened tree species. This in turn will influence the retention of trees within lots and whether any planting of this species is required within the proposed conservation area to offset losses.

Conclusion

Provided that the mitigation measures proposed are implemented, it is concluded that the proposed subdivision at Farnborough Drive, Moss Vale, is unlikely to result in a significant impact on any threatened species, populations or EECs or their habitats.

As such no further assessments are considered to be required under the *Environmental Planning and Assessment Act 1979*, the *Environment Protection and Biodiversity Conservation Act 1999* or the *Fisheries Management Act 1994*.

List of abbreviations

APZ	asset protection zone
BPA	bushfire protection assessment
CLUMP	conservation land use management plan
DCP	Development Control Plan
DEC	NSW Department of Environment and Conservation (superseded by DECC from 4/07)
DECC	NSW Department of Environment and Climate Change (superseded by DECCW from 10/09)
DECCW	NSW Department of Environment, Climate Change and Water (superseded by OEH from 4/11)
EEC	endangered ecological community
EPA	Environmental Protection Agency
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESMP	ecological site management plan
FF	flora and fauna assessment
FM Act	<i>Fisheries Management Act 1994</i>
FMP	fuel management plan
HTA	habitat tree assessment
IPA	inner protection area
LEP	Local Environment Plan
LGA	local government area
NES	national environmental significance
NPWS	NSW National Parks and Wildlife Service
NSW DPI	NSW Department of Industry and Investment
OEH	Office of Environment and Heritage (Part of the NSW Department of Premier and Cabinet)
OPA	outer protection area
PBP	<i>Planning for Bush Fire Protection 2006: A Guide for Councils, Planners, Fire Authorities and Developers</i>
POM	plan of management
RF Act	<i>Rural Fires Act</i>
RFS	NSW Rural Fire Service
ROTAP	rare or threatened Australian plants
SEPP 44	<i>State Environmental Protection Policy No 44 – Koala Habitat Protection</i>

SEWPAC	Federal Department of Sustainability, Environment, Water, Population and Communities
SIS	species impact statement
SULE	safe useful life expectancy
TPO	tree preservation order
TPZ	tree preservation zone
TRRP	tree retention and removal plan
TSC Act	<i>Threatened Species Conservation Act 1995</i>
VMP	vegetation management plan

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Introduction

1

Travers bushfire & ecology has been engaged by to identify the potential ecological impacts of a proposed rural residential subdivision at Lot 391 DP 737061 off Farnborough Drive, Moss Vale, hereafter referred to as the subject site.

1.1 Aims of the assessment

The aims of the flora and fauna assessment are to:

- Carry out a botanical survey to describe the vegetation communities and their conditions
- Carry out a fauna survey for the detection and assessment of fauna and their habitats
- Complete target surveys for threatened species, populations and ecological communities
- Prepare a flora and fauna impact assessment in accordance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the *Threatened Species Conservation Act 1995* (TSC Act), the *Fisheries Management Act 1994* (FM Act) and guidelines issued by the Department of Environment and Conservation (DEC 2004 - now OEH)

1.2 Statutory requirements

1.2.1 *Threatened Species Conservation Act 1995*

The specific requirements of the TSC Act must be addressed in the assessment of impacts on threatened flora and fauna, populations and ecological communities. The factors to be taken into account in deciding whether there is a significant effect are set out in Section 5A of the *Environmental Planning and Assessment Act 1979* (EPA Act) and are based on a 7 part test of significance. Where a proposed activity is located in an area identified as critical habitat, or such that it is likely to significantly affect threatened species, populations, ecological communities, or their habitats, a Species Impact Statement (SIS) is required to be prepared.

1.2.2 *Fisheries Management Act 1994*

The FM Act provides a list of threatened aquatic species that require consideration when addressing the potential impacts of a proposed subdivision. Where a proposed activity is located in an area identified as critical habitat, or such that it is likely to significantly affect threatened species, populations, ecological communities, or their habitats, an SIS is required to be prepared.

1.2.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act requires that Commonwealth approval be obtained for certain actions. It provides an assessment and approvals system for actions that have a significant impact on matters of *national environmental significance* (NES). These may include:

- World Heritage Properties and National Heritage Places
- Wetlands of International Importance protected by international treaty
- Nationally listed threatened species and ecological communities
- Nationally listed migratory species
- Commonwealth marine environment

Actions are projects, developments, undertakings, activities, and series of activities or alteration of any of these. An action that needs Commonwealth approval is known as a controlled action. A controlled action needs approval when the Commonwealth decides the action would have a significant effect on an NES matter.

Where a proposed activity is located in an area identified to be of NES, or such that it is likely to significantly affect threatened species, ecological communities, migratory species or their habitats, then the matter needs to be referred to the Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) for assessment. In the case where no listed federal species are located on site then no referral is required. The onus is on the proponent to make the application and not the Council to make any referral.

A significant impact is regarded as being:

important, notable, or of consequence, having regard to its context or intensity and depends upon the sensitivity, value, and quality of the environment which is impacted and upon the duration, magnitude, and geographical extent of the impacts. A significant impact is likely when it is a real or not a remote chance or possibility.

Source: EPBC Policy Statement

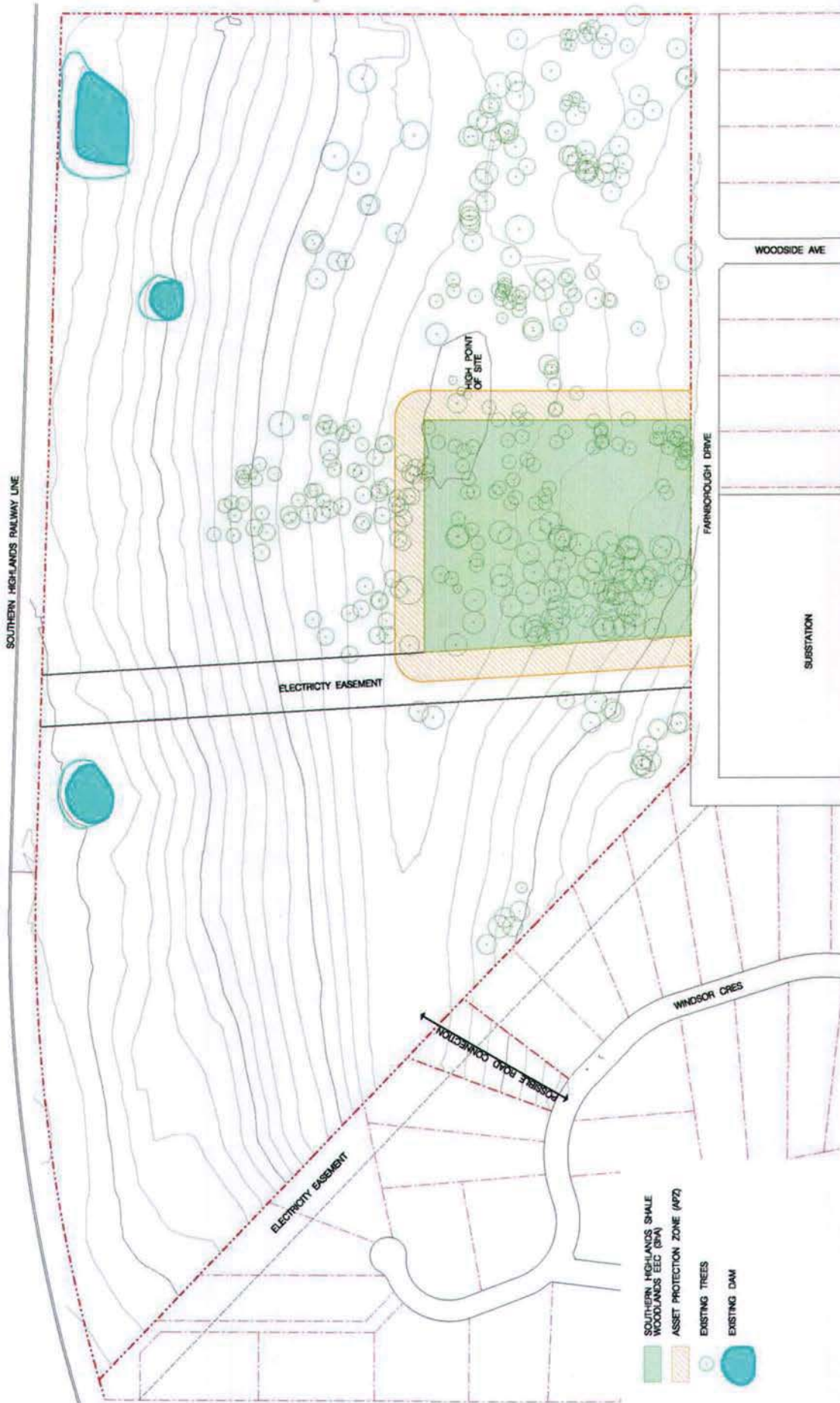
Guidelines on the correct interpretation of the actions and assessment of significance are located on the department's web site <http://www.environment.gov.au/epbc/publications>.

1.3 Proposed Works

The current subject site contains one large residence with a tennis court and some light landscaping in the south-eastern corner, with the central and western portions being used for grazing by cattle. The proposal is to subdivide the large lot into smaller rural residential lots of 1,000 to 4,000m².

The proposal will minimise the loss of higher quality vegetation existing vegetation by restoration of 3ha of the EEC – Southern Highlands Shale Woodland adjacent to Farnborough Drive and the electrical easement. It will be placed immediately adjacent to the easement to utilise a portion of the easement as an asset protection zone.

The proposed conservation area is shown in Figure 1. The subdivision layout was not available at the time of completion of this report.



PRELIMINARY

THE INFORMATION CONTAINED IN THIS DOCUMENT IS FOR THE CLIENT ONLY. THE CLIENT IS RESPONSIBLE FOR THE USE OF THIS INFORMATION IN THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE CLIENT WILL RELY ON ITS OWN EXPERTISE IN CONSIDERING THE INFORMATION.



CANDELEPAS ASSOCIATES
LEVEL 2, 29 CASTLEBRIDGE ST
SYDNEY NSW 2000
T 9283 7755 F 9283 7477

CONSTRAINTS ANALYSIS SK 1005
JOB NO: 5673 SCALE: 1:2500 @ A3
PROJECT: FARNBOROUGH DRIVE, MOSS VALE DATE: 21 FEBRUARY 2012
CLIENT: ASSOCIATED PROJECT SERVICES DRAWN BY: JRW

Figure 1: Proposed subdivision

1.4 Site description

Table 1.1 provides a summary of the planning, cadastral, topographical, and disturbance details of the subject site.

Table 1.1 – Site features

Location	Lot 391 DP 737061
Local government area	Wingecarribee
Grid reference	262250E 6173750N
Size	35.15ha approximately
Elevation	665-700m AMSL
Topography	Ridge line runs east-west across the centre of the site with low-moderate slopes either side of the ridge. Steepest slopes on the northern side of the ridge on the western side of the site.
Geology and soils	Geology; The ridge area is Bringelly Shale (of the Wianamatta Group) with the remainder being Quaternary.
Catchment & drainage	Via tributaries of Wingecarribee River
Vegetation	Woodland or open woodland comprising over-mature remnant trees of a low density with a managed understorey from either mowing or grazing pressure
Existing land use	Rural residence with cattle
Clearing	Tree clearance has occurred predominately in the southern portion of the subject site. There is no mid-storey present.

Survey Methodology

2

2.1 Survey constraints

It is important to note that field survey data collected during the survey period is representative of species occurring within the subject site for that occasion. Due to effects of fire, breeding cycles, migratory patterns, camouflage, weather conditions, time of day, visibility, predatory and / or feeding patterns, increased species frequency or richness may be observed within the subject site outside the nominated survey period. Habitat assessments based on the identification of micro-habitat features for various species of interest, including regionally significant and threatened species, have been used to overcome this survey limitation.

2.2 Information collation, technical resources, desktop assessments, specialist identification and licences

A review of the relevant information pertinent to the subject site was undertaken.

Client documents reviewed include:

- Site Plan prepared by Candelepas Associates

Standard Technical Resources utilised:

- *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities 2004* (working draft) Department of Environment and Conservation (DEC)
- Aerial photographs (Google Earth Pro/ Spatial Information Exchange/ Nearmap)
- Topographical maps (scale 1:25,000)
- *Threatened Species Conservation Act 1995* (TSC Act)
- *Fisheries Management Act 1994* (FM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Rare and Threatened Australian Plants* (ROTAP)
- Online Geological Map – Moss Vale 1:100,000

Desktop Assessment:

To determine the likely and actual occurrence of flora species, fauna species and plant communities on the subject site, desktop assessments were undertaken to including:

- **A literature review** – A review of readily available literature for the area was undertaken to obtain reference material and background information for this survey.
- **A data search** – A search of the *Atlas of NSW Wildlife* (OEH 2012) on the Bionet website was undertaken to identify records of threatened flora and fauna species located within a 10km radius of the site. Searches were also undertaken on the SEWPAC – 'protected matters search tool' website to generate a report that will help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in the area of interest. The search was

broadened to a 10km radius like the Atlas search. These two searches combined, enabled the preparation of a list of threatened flora and fauna species that could potentially occur within the habitats found on the site (Tables A2.1, A2.2 and A2.3).

Accuracy of identification:

Specimens of plants not readily discernible in the field were collected for identification. Structural descriptions of the vegetation were made according to Specht *et al* (1995).

Licences:

Individual staff members are licensed under Clause 20 of the *National Parks and Wildlife (Land Management) Regulation 1995* and Section 120 & 131 of the *National Parks and Wildlife Act 1974* to conduct flora and fauna surveys within service and non-service areas. NPWS Scientific Licence Numbers: S10359.

The staff of *Travers bushfire & ecology* is licensed under an Animal Research Authority issued by the Department of Agriculture. This authority allows *Travers bushfire & ecology* staff to conduct various fauna surveys of native and introduced fauna for the purposes of environmental consulting throughout New South Wales.

2.3 Flora survey methodology

Flora survey was undertaken over approximately an 8hr time frame on February 8th 2012. A random meander search was undertaken in accordance with Cropper (1993) to create a broad species list and to determine the approximate edges of native vegetation.

Some landscaping species were planted around the existing residence but no botanical survey was undertaken in the immediate vicinity to the residence. Some conifers have also been planted, however the planted species were not recorded on the species list.

Sixteen (16) 20x20m floristic quadrats were assessed to determine the presence or otherwise of EEC vegetation with the results compared to published benchmarks to determine the condition of vegetation.

Searches for any threatened flora species were done during the initial random meander.

A review of the Atlas of NSW Wildlife database (OEH 2012) was undertaken prior to the botanical survey to identify threatened species previously recorded within 10km of the subject site and determine whether target searches were needed to be undertaken.

2.4 Fauna survey methodology

Site survey effort accounting for techniques deployed, duration, and weather conditions (Figure 2) are outlined in Table 2.1.

Current standard fauna survey techniques employed by *Travers bushfire & ecology* in line with relevant survey guidelines as well as current survey knowledge are provided in Appendix 1. Fauna survey techniques that have been tailored to the site are provided in Section 2.6.

2.5 Field survey effort

Tables 2.1 and 2.2 below detail the flora and fauna survey effort undertaken for the subject site.

Table 2.1 – Fauna survey effort

Fauna group	Date	Weather conditions	Survey technique(s)	Survey effort / time (24hr)
Diurnal birds	9/2/12	7/8 cloud, no wind, short light shower, temp 19-21°C	6x Census points & Diurnal opportunistic	2hrs 50min 1110 - 1400
Nocturnal birds		Survey not undertaken		
Arboreal mammals		Survey not undertaken		
Terrestrial mammals	9/2/12	7/8 cloud, no wind, short light shower, temp 19-21°C	Habitat searches & Diurnal opportunistic	2hrs 50min 1110 - 1400
Bats	8/2/12	8/8 cloud, no wind, light showers, temp >12°C	Anabat II (Passive monitoring)	Overnight from 2000
Reptiles	9/2/12	7/8 cloud, no wind, short light shower, temp 19-21°C	Habitat search, opportunistic	2hrs 50min 1110 - 1400
Amphibians	9/2/12	7/8 cloud, no wind, short light shower, temp 19-21°C	Habitat search & diurnal call identification	2hrs 50min 1110 - 1400

Table 2.2 – Flora survey effort

Flora survey	Survey technique(s)	Dates
Vegetation communities	Survey of the boundaries of all communities – field verification and aerial photographic interpretation Vegetation condition assessment – Biometric field method	8/2/12
Stratified sampling	20x20 metre quadrats in all existing bushland or remnant areas	8/2/12
Target searches	Target searches in known habitats	8/2/12

2.6 Site specific survey techniques

Diurnal birds

Six (6) diurnal bird census quadrats were undertaken within the subject site during survey. These accounted for all areas of remnant woodland. A minimum of 20 minutes of survey was undertaken within each quadrat.

Significant Habitat Trees

Significant habitat trees are defined as trees containing large hollows suitable for use by owls and/or containing a number of good quality hollows typically consisting of more than one medium (10-30cm) sized hollow. A tree may also be considered significant where evidence of use by select fauna is found such as Yellow-bellied Glider, sap feed tree, raptor nest, or owl roost.

A summary of significant habitat tree results is provided in Table 3. Tree locations were point sourced on an aerial photograph and depicted in Figure 1.

2.7 Survey limitations

It is important to note that field survey data collected during the survey period is representative of species occurring within the subject site for that occasion. Due to effects of fire, breeding cycles, migratory patterns, camouflage, weather conditions, time of day, visibility, predatory and / or feeding patterns, increased species frequency or richness may be observed within the subject site outside the nominated survey period. Habitat assessments based on the identification of micro-habitat features for various species of interest, including regionally significant and threatened species, have been used to minimise the implications of this survey limitation.

Given the limited potential for threatened species to occur on site because of the heavily disturbed (and removed understorey) it is unlikely that there are any significant limitations of this study.

Whilst some flora species are difficult to identify unless flowering, the presence of some species on site may have been overlooked. Care has been taken to target any area where native vegetation was present traversing in a zig zag pattern.

Flora survey limitations

The threatened eucalypt *Eucalyptus macarthurii* is known to occur around the locality of Moss Vale. Its distinguishing features are that the fruiting material has exerted valves and the ovate-cordate juvenile leaves.

In general, there was very little fruiting material present in the trees and even less on the ground, making the identification of the eucalypts more difficult than usual as most of the trees on site look the same at a quick glance.

Of the limited fruiting material collected, none were of the species *Eucalyptus macarthurii*. Additionally, juvenile leaves on mature trees were not of an ovate-cordate shape.

Further tree survey may be required at a later date to determine its presence or absence on site when fruiting material may be more abundant.

Fauna survey limitations

No active nocturnal fauna survey was undertaken at this site. Subsequently no nocturnal call-playback or spotlighting for arboreal mammals and owls was undertaken. Passive Anabat recording was undertaken overnight. The diurnal survey included searches for whitewash below perches surrounding large hollows to indicate use of the site by owl species.

DRAFT



Survey Results

3

3.1 Flora results

3.1.1 Flora species

The plants observed within the vegetation communities of the subject site are listed in the Table 3.1 below.

Table 3.1 – Flora observations for the subject site

Family	Scientific Name	Common Name
TREES		
Mimosaceae	<i>Acacia melanoxylon</i>	Blackwood
Myrtaceae	<i>Eucalyptus amplifolia</i>	Cabbage Gum
Myrtaceae	<i>Eucalyptus fastigata</i>	Brown Barrel
Myrtaceae	<i>Eucalyptus radiata</i>	Narrow-leaved Peppermint
SHRUBS		
Rosaceae	<i>Crataegus monogyna</i> *	Hawthorn
Aquifoliaceae	<i>Ilex aquifolium</i> *	Holly
Rosaceae	<i>Rubus fruticosus</i> sp. agg.*	Blackberry Complex
Solanaceae	<i>Solanum mauritianum</i> *	Wild Tobacco
GROUNDCOVERS		
Polygonaceae	<i>Acetosella vulgaris</i> *	Sheep Sorrel
Poaceae	<i>Agrostis capillaris</i> *	Browntop Bent
Poaceae	<i>Aira cupaniana</i> *	Silvery Hairgrass
Poaceae	<i>Anthoxanthum odoratum</i> *	Sweet Vernal Grass
Poaceae	<i>Aristida vagans</i>	Three-awn Speargrass
Rubiaceae	<i>Asperula conferta</i>	Common Woodruff
Poaceae	<i>Austrodanthonia racemosa</i>	Wallaby Grass
Poaceae	<i>Austrodanthonia tenuior</i>	Wallaby Grass
Poaceae	<i>Austrostipa rudis</i> subsp. <i>nervosa</i>	A Speargrass
Poaceae	<i>Bromus cartharticus</i> *	Prairie Grass
Asteraceae	<i>Carduus nutans</i> subsp. <i>nutans</i> *	Nodding Thistle
Gentianaceae	<i>Centaurium erythraea</i> *	Pink Stars
Gentianaceae	<i>Centaurium tenuiflorum</i> *	Branched Century
Asteraceae	<i>Cichorium intybus</i> *	Chicory
Asteraceae	<i>Cirsium vulgare</i> *	Spear Thistle
Asteraceae	<i>Conyza sumatrensis</i> *	Fleabane
Cyperaceae	<i>Cyperus brevifolius</i> *	Mullumbimby Couch
Poaceae	<i>Dactylis glomerata</i> *	Cocksfoot
Apiaceae	<i>Daucus carota</i> *	Wild Carrot
Phormiaceae	<i>Dianella longifolia</i>	-
Poaceae	<i>Dichelachne crinita</i>	Long-hair Plume Grass
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed
Poaceae	<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	Tufted Hedgehog Grass

Family	Scientific Name	Common Name
Poaceae	<i>Ehrharta erecta</i> *	Panic Veldtgrass
Chenopodiaceae	<i>Einadia hastata</i>	Berry Saltbush
Chenopodiaceae	<i>Einadia nutans</i> subsp. <i>nutans</i>	Climbing Saltbush
Chenopodiaceae	<i>Einadia trigonos</i> subsp. <i>trigonos</i>	Fishweed
Poaceae	<i>Eragrostis brownii</i>	Brown's Lovegrass
Poaceae	<i>Eragrostis mexicana</i> *	Mexican Lovegrass
Asteraceae	<i>Euchiton sphaericus</i>	Cudweed
Apiaceae	<i>Foeniculum vulgare</i> *	Fennel
Asteraceae	<i>Gamochaeta spicata</i> *	Cudweed
Haloragaceae	<i>Gonocarpus tetragynus</i>	Poverty Raspwort
Goodeniaceae	<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	Ivy-leaved Goodenia
Poaceae	<i>Holcus lanatus</i> *	Yorkshire Fog
Asteraceae	<i>Hypochaeris radicata</i> *	Flatweed
Juncaceae	<i>Juncus planifolius</i>	Broad Rush
Juncaceae	<i>Juncus subsecundus</i>	Finger Rush
Juncaceae	<i>Juncus usitatus</i>	Common Rush
Poaceae	<i>Lachnagrostis filiformis</i>	Blown Grass
Brassicaceae	<i>Lepidium campestre</i> *	Pepperwort
Apiaceae	<i>Lilaeopsis polyantha</i>	Lilaeopsis
Poaceae	<i>Lolium perenne</i> *	Perennial Ryegrass
Lomandraceae	<i>Lomandra filiformis</i>	Wattle Mat-rush
Lomandraceae	<i>Lomandra multiflora</i> var. <i>multiflora</i>	Many-flowered Mat-rush
Poaceae	<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Grass
Onagraceae	<i>Oenothera stricta</i> *	Evening Primrose
Rubiaceae	<i>Opercularia diphylla</i>	-
Oxalidaceae	<i>Oxalis perennans</i>	-
Poaceae	<i>Panicum effusum</i>	Hairy Panic
Poaceae	<i>Panicum sp.</i> *	-
Poaceae	<i>Paspalum dilatatum</i> *	Paspalum
Poaceae	<i>Pennisetum clandestinum</i> *	Kikuyu
Poaceae	<i>Pentaschistis airoides</i> *	False Hairgrass
Caryophyllaceae	<i>Petrohagia dubia</i> *	-
Poaceae	<i>Phalaris aquatica</i> *	Phalaris
Phytolaccaceae	<i>Phytolacca octandra</i> *	Inkweed
Plantaginaceae	<i>Plantago lanceolata</i> *	Ribwort
Poaceae	<i>Poa annua</i> *	Winter Grass
Poaceae	<i>Poa labillardieri</i> var. <i>labillardieri</i>	Tussock Grass
Euphorbiaceae	<i>Poranthera microphylla</i>	
Asteraceae	<i>Pseudognaphalium luteo-album</i>	Cudweed
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken
Cyperaceae	<i>Schoenus melanostachys</i>	Black Bog Rush
Asteraceae	<i>Senecio madagascariensis</i> *	Fireweed
Poaceae	<i>Setaria pumila</i> *	Pale Pigeon Grass
Solanaceae	<i>Solanum chenopodioides</i> *	Whitewip Nightshade
Solanaceae	<i>Solanum nigrum</i> *	Black Nightshade
Asteraceae	<i>Sonchus asper</i> *	Rough Sowthistle
Asteraceae	<i>Sonchus oleraceus</i> *	Common Sow-thistle
Poaceae	<i>Sporobolus africanus</i> *	Parramatta Grass
Caryophyllaceae	<i>Stellaria media</i> *	Common Chickweed
Asteraceae	<i>Taraxacum officinale</i> *	Dandelion
Poaceae	<i>Themeda australis</i>	Kangaroo Grass
Fabaceae	<i>Trifolium pratense</i> *	Red Clover

Family	Scientific Name	Common Name
Fabaceae	<i>Trifolium repens</i> *	White Clover
Verbenaceae	<i>Verbena bonariensis</i> *	Purpletop
Plantaginaceae	<i>Veronica plebeia</i>	Creeping Speedwell
Violaceae	<i>Viola betonicifolia</i>	-
Poaceae	<i>Vulpia myuros</i> *	Rat's Tail Fescue
EPIPHYTES		
Loranthaceae	<i>Amyema pendulum</i>	Mistletoe
VINES		
Ranunculaceae	<i>Clematis aristata</i>	Old Man's Beard
Species name ^{TS} = Threatened Species * = Introduced Species		

3.1.2 Vegetation communities

Four (4) vegetation communities were identified within the subject site through ground truthing.

- Narrow-leaved Peppermint Woodland – EEC: Southern Highlands Shale Woodlands
- Exotic Plantings and Landscaping
- Dams with Aquatic Sedges
- Pasture

Narrow-leaved Peppermint Woodland

This vegetation community occupies approximately 6.43ha (18% of the subject site). It has been broken into two (2) categories to reflect the condition of the vegetation in accordance with the biometric assessment methodology and associated benchmarks for canopy cover and the percentage of natives versus exotics in the understorey.

The canopy is comprised of *Eucalyptus radiata* (Narrow-leaved Peppermint) and less frequently *Eucalyptus fastigata* (Brown Barrel). The canopy coverage varies greatly to a maximum of 25%, but more commonly between 5-15%. The height of the canopy for mature trees is typically between 18-28m.

The majority of canopy species are over-mature specimens of poor or fair health with vigour of 30-60%. There are numerous dead trunks and branches on the trees and it is evident that there have been some relatively recent losses of large limbs.

The mid-storey is absent except for the presence of some young trees or exotic shrubs such as Hawthorn, Holly and Wild Tobacco.

The ground layer of vegetation lacks native species diversity and is more often than not comprised of a larger proportion of exotics than natives. Common native species include the grasses *Microlaena stipoides* var. *stipoides*, *Themeda australis*, *Austrostipa rudis* var. *nervosa* and *Poa labillardierei* var. *labillardierei* as well as the small shrubs, herbs or ferns *Pteridium esculentum*, *Dichondra repens*, *Veronica plebeia*, *Euchiton sphaericus*, *Einadia* species, *Oxalis perennans* and *Asperula conferta*.

The most common exotic species which occur within this vegetation community include *Anthoxanthum odoratum*, *Taraxacum officinale*, *Plantago lanceolata*, *Cirsium vulgare*, *Senecio madagascariensis*, *Acetosella vulgaris*, *Rubus fruticosus* ssp. agg., *Conyza sumatrensis*, *Trifolium repens* and *Paspalum dilatatum*.



Photo 1 – Narrow-leaved Peppermint Woodland near the central portion of the subject site.

Exotic Plantings and Landscaping

This vegetation community occurs along the driveway to the existing residence and includes the landscaping in close vicinity to it and the tennis court. Species observed within this community have not been added to the species list (Table 3.1) and have not been survey to any detail.



Photo 2 – Planted conifers near the existing residence



Photo 3 – Planted Agapanthus along the driveway entry to the existing residence

Dams with Aquatic Sedges

There are three (3) existing dams within the subject site, generally near to the lowest contours. The western most dam contains basically no aquatic vegetation. The central dam contains at least 50% coverage of aquatic sedges, and the western dams contains approximately a 25% coverage of aquatic sedges.



Photo 4 – Western-most dam with some fringing vegetation and a patch of native sedges in the middle.

Common species include *Juncus usitatus* and *Lilaeopsis polyantha*.

Pasture

This vegetation community occupies 28.07ha of approximately 80% of the subject site. It comprises a mixture of native and exotic grasses and herbs. A high proportion of native grasses were noted to the north (downslope) of the existing residence where there has not been recent cattle grazing. In the central and western areas the majority of the vegetation is exotic.



Photo 5 – A combination of exotic (*Conyza sumatrensis*) and native pasture (*Themeda australis*) towards the north-eastern corner of the subject site.



Photo 6 – 85-95% exotic pasture looking along transect 1 (see figure 2)

3.2 Fauna results

Fauna species observed throughout the duration of fauna surveys are listed in Table 3.2 below.

Table 3.2 – Fauna observations for the study area

Common name	Scientific name	Method Observed	
Birds		Feb 2012	
Australian Magpie	<i>Gymnorhina tibicen</i>	O C	
Common Myna *	<i>Acridotheres tristis</i>	O C	
Crimson Rosella	<i>Platycercus elegans</i>	O C	
Eastern Rosella	<i>Platycercus eximius</i>	O C	
Fairy Martin	<i>Hirundo ariel</i>	O C	
Grey Butcherbird	<i>Cracticus torquatus</i>	O C	
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	O C	
Noisy Miner	<i>Manorina melanocephala</i>	O C	
Pied Currawong	<i>Strepera graculina</i>	O C	
Striated Pardalote	<i>Pardalotus striatus</i>	O C	
Welcome Swallow	<i>Hirundo neoxena</i>	O C	
Mammals			
Eastern Bentwing-bat ^{TS}	<i>Miniopterus orianae oceanis</i>	A	
Eastern Grey Kangaroo	<i>Macropus giganteus</i>	S	
Gould's Wattled Bat	<i>Chalinolobus gouldii</i>	A	