



BUSHFIRE PROTECTION ASSESSMENT REPORT

RIVERSIDE TEA GARDENS

**AUGUST 2008
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www.cegconsult.com

Central Coast Office
4/369 Mann Street, Gosford NSW 2250
PO Box 360 Gosford NSW 2250

•Ph (02) 4324 7888 • Fax (02) 4324 7899

•Email cegconsult@bigpond.com

ABN 62 274 841 042

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Conacher Environmental Group

Environmental and Land Management Consultants

369 Mann Street, Gosford NSW
PO Box 360, Gosford NSW
Phone: 02 4324 7888 Fax: 02 43247899
23 Coleman Street, Lismore NSW
PO Box 92, Lismore NSW
Ph: 02 6622 7522 Fax: 02 6622 7533

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PREFACE

A Bushfire Protection Assessment Report has been prepared by *Conacher Environmental Group* at the request of Crighton Properties for the proposed development at Myall Road, Tea Gardens.

This report provides an assessment of the bushfire protection measures required for the development to guard against the potential impact of bushfires. Recommendations have been made in respect to fuel management, construction standards / building protection, access, bushfire education and land ownership responsibility.

PROJECT TEAM

PHILLIP ANTHONY CONACHER B. Sc. (Hons), Dip. Urb. Reg. Planning, M. Nat. Res.
NPWS Scientific Licence Number: S10618
Director
Conacher Environmental Group

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SECTION 1

INTRODUCTION

1.1 AIMS OF THE ASSESSMENT

Conacher Environmental Group has been engaged by Crighton Properties to provide a Bushfire Protection Assessment for the proposed residential subdivision of land at Myall Road, Tea Gardens.

The aims of the bushfire protection assessment are to:

- Review the bushfire threat to the property
- Review the capability of the property to provide a safe development
- Review the potential to carry out hazard management over the landscape
- Provide advice on mitigation measures including the provision of asset protection zones and construction standards in accordance with '*Planning for Bushfire Protection, 2006*'
- Advise on specific fire management issues

1.2 PLANNING RELATIONSHIPS

This report has been prepared having regard to the following legislative and planning requirements.

1.2.1 Legislation

As the development is to be assessed under the provisions of Part 3A of the *Environmental Planning and Assessment Act, 1979* by the *Department of Planning* the development and this report is therefore not subject to assessment under the provisions of Section 100B of the *Rural Fires Act* in this case.

Management of hazardous fuels is required to be undertaken in accordance with the *Rural Fires Act, 1997* - Sections 63 (2). This requires owners or occupiers to take all practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of bushfires.

Construction of buildings in a bushfire prone area is assessed under the *Environmental Planning and Assessment Act, 1979* - Section 79 BA. This requires Councils to be satisfied that developments in bushfire prone areas comply with *Planning for Bushfire Protection, 2006* before granting development consent.

1.2.2 Planning Policies

Planning for Bushfire Protection – 2006 (PBP 2006) – This document was prepared by the Rural Fire Service and provides planning controls and bushfire protection guidance for development within a designated bushfire prone area.

1.3 INFORMATION COLLATION

To achieve the aims of this report, a review of the information relevant to the property was undertaken prior to the initiation of field surveys.

Information sources reviewed include the following:

- Proposed development plan prepared by Crighton Properties
- Port Stephens 1:25,000 Topographic Map (9332-4S, second edition).
- DLWC 1:25,000 Port Stephens Aerial Photograph
- Planning for Bushfire Protection 2006'.
- Australian Standard 3959 'Construction of Buildings in Bush Fire Prone Areas'

An inspection of the proposed development site and surrounds was undertaken to assess the topography, slopes, aspect, drainage, vegetation and adjoining land uses. The identification of existing bush fire protection advantages and a visual appraisal of bush fire hazard and risk were also undertaken. (Bush fire protection advantages are those landscape features which act to suppress or mitigate a fire e.g. escarpments, creeks, roads and fire breaks etc).

1.4 PROJECT SYNOPSIS

It is proposed to develop the subject site at Myall Road, Tea Gardens for residential and tourist development.

The proposed development is for a mixed use commercial and residential development. According to the Concept Masterplan the proposal will include the following:

- Residential lot development totalling 1045 lots over 3 precincts to be developed as Community Title,
- The 1045 residential lot development includes 108 home based business dwellings,
- The 1045 residential lot development includes a tourist precinct of 50 tourist lodges and 15 townhouses,
- Wildlife movement corridors
- Water management corridors
- Open space corridors
- Lake areas for water quality management
- Public Reserve areas
- Community park incorporating walking trails, gazebo and other facilities

The proposed tourist development is classified as a Special Fire Protection Purpose development for bushfire hazard assessment purposes as identified in '*Planning for Bushfire Protection, 2006*' (RFS 2006).

The proposed residential subdivision will connect with adjacent existing residential areas. The subject site does not contain any existing dwellings or structures that would require removal as a part of the future development of the site.

1.5 SITE DESCRIPTION

Location and Surrounding Land Use

The subject site is situated to the east of Myall Road and South of Toonang Drive with approximately 1.2 kilometre frontage along Myall Road. The site will link an existing rural residential settlement to the north with Leeward Circuit and Shoreline Drive in the south. The Myall River forms the eastern boundary to the subject site.

The subject site covers approximately 220 hectares and will be subdivided into residential urban lots, with some areas of the site developed as an eco-style tourist resort.

Topography and Drainage

The proposed development is located on flat land to the west of the Myall River. Drainage lines flow from the north into the subject site in a general southerly direction towards the river. An artificial lake on the southern boundary will be extended partly into the development. This lake is connected to the Myall River and is subject to regular tidal movements.

The land rises towards the existing rural residential settlement in the north. This forms the highest point in the area with the remainder of the site having slopes of less than five degrees.

Vegetation

The majority of the proposed development site consists of cleared pastureland with scattered trees. To the north and north-west is dry sclerophyll forest which extends along the northern hill slope. Forested Wetlands and Saltmarsh (saline wetland) are located to the east within land zoned for conservation which acts as a buffer to the SEPP14 wetlands. Saltmarsh is present to the south-east of the site.

Managed vegetation will remain within the residual areas in the form of grassed drainage reserves with scattered trees. Vegetation will be retained within the conservation zoned land and SEPP14 wetland to the east. A Wildlife Corridor is to be retained in the central to north-east part of the site linking the Open Forest of the northern slopes with the Forested Wetlands and Saltmarsh/Rushland areas adjoining the Myall River.

Bushfire Categories

The subject site is mapped as Bushfire Prone Land as identified in the Great Lakes Council Bushfire Prone Land Mapping. The site is within the North Coast areas categorised as having a Forest Fire Danger Index (FDI) of 80. Therefore Table A3.4 of 'Planning for Bushfire Protection, 2006' is the appropriate table to use for determining the category of bushfire attack and appropriate asset protection zones.

SECTION 2

BUSHFIRE THREAT AND PROTECTION ASSESSMENT

2.1 BUSHFIRE ATTACK ASSESSMENT

'Planning for Bushfire Protection' (Rural Fire Service, 2006) provides concepts for building in bushfire prone areas and guidance on the planning and development control processes in relation to bushfire protection measures. This document also provides a methodology for determining asset protection zones. Tables 1 & 2 provide a summary of this assessment.

'Planning for Bushfire Protection 2006' also provides a methodology for assessing bushfire attack at construction stage for a building within a designated bushfire prone area. This identifies the 'Construction Level' required for a site and relates to AS3959.

Tables 1 & 2 provide a summary of Bushfire Attack and the construction standards required for both residential dwellings and tourist units.

| Table 1 Bushfire Attack and APZ requirements for Residential Development | | | | | | |
|---|---------------------------|--------------------------|------------------------------|--|------------------|---------------|
| Direction | Vegetation within 140m | Effective Slope Gradient | Minimum APZ (m) (Table A2.5) | Bushfire Attack APZ Range (m) Construction Standard (Table A3.4) | | |
| | | | | Level 3 (High) | Level 2 (Medium) | Level 1 (Low) |
| North west | Pasture Managed Grassland | 0-5 ^U | No requirement | - | - | - |
| North-west | Dry Sclerophyll Forest | 0-5 ^U | 20 | 17-25 | 25-35 | 35-100 |
| North to North-east | Dry Sclerophyll Forest | 0-5 ^U | 20 | 17-25 | 25-35 | 35-100 |
| East | Forested Wetlands | 0-5 ^D | 20 | 17-24 | 24-34 | 34-100 |
| South to South-east | Saline Wetlands | 0-5 ^D | No requirement | - | - | - |
| South | Residential | 0-5 ^D | No requirement | - | - | - |
| West | Pasture Industrial | 0-5 ^D | No requirement | - | - | - |

*Construction Standard AS 3959

^U = Upslope

^D = Downslope

| Table 2 Bushfire Attack Assessment Tourist Units (Special Fire Protection Purposes) | | | |
|--|--|---------------------------------|------------------------|
| Direction | Vegetation within 140m of Development | Effective Slope Gradient | APZ (m)required |
| North to North-east | Managed Lands/ Residential development | 0-5 ^U | Nil |
| East | Saline Wetlands | 0-5 ^D | Nil |
| South | Forested Wetlands | 0-5 ^D | 60 metres* |
| North-west | Forest | 0-5 ^U | 60 metres* |
| West | Managed Lands/ Residential development | 0-5 ^U | Nil |

*24m APZ required for residential dwellings (Level 2) if constructed within APZ for Special Fire Protection Purposes)

SECTION 3

SPECIFIC PROTECTION ISSUES

3.1 ASSET PROTECTION ZONES

For Residential Dwellings

'Planning for Bushfire Protection, 2006' provides a methodology for determining the setback requirements (asset protection zones) and construction standards for habitable buildings in special protection developments that are located within a designated bushfire prone area. The following recommendations are provided in direct accordance with *'Planning for Bushfire Protection, 2006'*.

For the proposed development, an asset protection zone (APZ) is not required to the residential land to the south. No APZ is required for the grassland and offsite industrial areas to the west. A minimum APZ of 25 metres (Level 2 Construction Standard) is required to the Forest to the northwest, north and northeast. An APZ of 24 metres is required to the Forested Wetland vegetation to the east while no APZ is required to the Saline Wetlands to the south-south east.

Asset protection zones to the proposed residential dwellings are able to be provided in accordance with or greater than the requirements of *'Planning for Bushfire Protection, 2006'*. The above APZ widths are based on a Level 2 Construction Standard (AS3959).

For Tourist Development

Class 9 structures as defined by the Building Code of Australia and Special Fire Purpose Protection buildings as defined by the RFS are required to be provided with asset protection zones in accordance with Table A2.6 of *PBP 2006*. In this case the maximum heat flux of 10 K/W m can be accommodated by providing APZ's of 60 metres from the forest vegetation in the north west and 60 metres to the Forested Wetlands in the south.

3.2 BUILDING PROTECTION

For Residential Dwellings

The Bushfire Attack Assessment (Table 1) identifies that the north-west, north to north-east and east present a theoretical medium to low level of threat of bushfire attack to the proposed residential areas. The south and west will not be exposed to a level of bushfire attack due to the presence of residential and industrial areas in these locations.

In accordance with the provisions of *'Planning for Bushfire Protection, 2006'* the future residential development should be constructed to a Level 1 or 2 construction standard to protect against the level of bushfire attack depending on the width of the APZ utilized. This arrangement is in compliance with *'Planning for Bushfire Protection, 2006'* in respect of building construction standards.

For Tourist Development

The Bushfire Attack Assessment (Table 2) identifies that the predominant bushfire risk is from the Forested slopes of the south west and west and Forested Wetlands to the south.

3.3 HAZARD MANAGEMENT

The managers/owners the lot/s will have an ongoing liability to ensure the management of the Asset Protection Zones within the property to prevent the build up of combustible fuel.

Section 63(2) of the *Rural Fires Act* requires that *'it is the duty of the owner or occupier (including Councils) of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of fires on, and to minimise the danger of the spread of fires on or from that land'*.

There is no physical reason that should constrain hazard management in any potential asset protection zone from being successfully carried out by normal means e.g. landscaping / mowing / slashing following initial clearing works.

3.4 EVACUATION SAFETY

Evacuation from the proposed development is possible during a bushfire event via multiple direct and indirect routes to Myall Road. From Myall Road safe egress can then be obtained in a northerly or southerly direction whereby existing residential development and associated clearing provides adequate separation from the surrounding bushfire threats.

3.5 AVAILABILITY OF FIRE FIGHTING SERVICES

There is a Rural Fire Brigade located at Tea Gardens approximately 3km (by road) to the property in a southeasterly direction. Tea Gardens Rural Fire Brigade would have a response time of approximately 10-15 minutes to service the development if they are not assisting elsewhere.

There is an additional Rural Fire Service located at Bulahdelah to the north. The Rural Fire Service would have a response time of approximately 30 - 45 minutes to service the development if they are not assisting elsewhere.

3.6 ACCESS FOR FIRE FIGHTING OPERATIONS

The internal road network of the proposed development will provide adequate access / egress for emergency vehicles. The connection of the internal road network within the proposed subdivision with the existing road networks in adjacent residential settlements will provide adequate access for fire fighting operations and simultaneous egress for residents.

All access requirements are to comply with the provisions of *'Planning for Bushfire Protection, 2006'*.

3.7 WATER SUPPLIES

Town reticulated water supply is available to the proposed residential subdivision, therefore an additional supplementary water supply will not be necessary for fire fighting purposes. A hydrant supply should be installed in accordance with Australian Standard AS2419-1 (1994). Access points for reticulated water supply are to incorporate a ring main system for all internal roads.

AS2419.1 recommends that hydrants be separated by no more than 120 metres (Source AS 2419.1 2005 Appendix B, B2) for residential development.

This water supply arrangement is to be in compliance with 'Planning for Bushfire Protection 2006' in respect of water supply.

3.8 COMMUNICATIONS

Telephone communications will be provided for this development to aid in communications during a bushfire incident.

SECTION 4

CONCLUSION AND RECOMMENDATIONS

4.1 CONCLUSION

The proposed development is classified as residential development within a bushfire prone area and therefore the requirements of 'Planning for Bushfire Protection 2006' apply.

The following recommendations are provided to ensure that the development is safe and in accord or greater than the requirements of 'Planning for Bushfire Protection 2006'.

4.2 RECOMMENDATIONS

Recommendation 1 - The future development should be sited as indicated on Figure 1 'Bushfire Protection Measures'.

Recommendation 2 - Asset protection zones should be provided to the proposed development area and shall be measured from the building line of development. The asset protection zones shall be as nominated in Table 1 and Table 2 and also as depicted in Figure 1.

Recommendation 3 - Fuel management within the asset protection zones should be maintained by regular maintenance in accordance with a site specific fuel management plan as generally described in '*Planning for Bushfire Protection, 2006*' and / or other publications by the RFS.

Recommendation 4 - The application of construction standards of the Australian Standard AS3959 'Construction of Buildings in Bush Fire Prone Areas' should apply to the future development, as detailed in Section 4.2 – Building Protection.

Recommendation 5 - The public roads within the subdivision shall comply with the design criteria required by 'Planning for Bushfire Protection 2006'. With either an eight metre minimum (kerb to kerb) width two-way urban road or a 6.5 metre wide two-way public road with allocated parking bays or turning circles.

Recommendation 6 - A hydrant supply should be installed in accordance with Australian Standard AS2419-1 (1994).

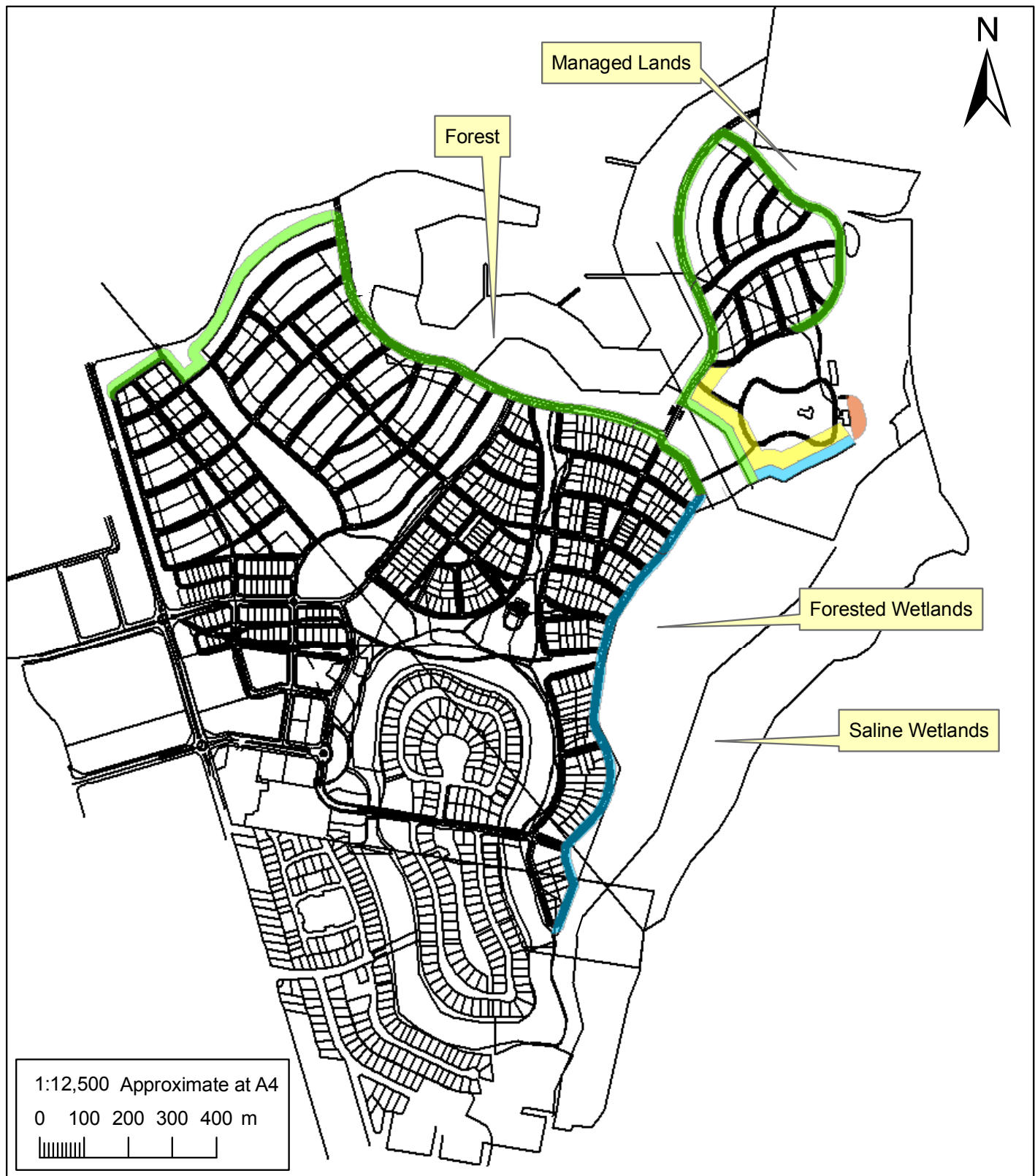
Recommendation 7 – A Bushfire Evacuation Plan should be prepared for the proposed tourist units and Community Title allotments. This Evacuation Plan can be incorporated into the Community Management Statement to be prepared for the proposed development.

REFERENCES

- NSW Rural Fire Service (2006)- *'Planning for Bush Fire Protection - A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. NSW Rural Fire Service
- Walker, J. (1984) Fuel Dynamics in Australian Vegetation. In "Fire and the Australian Biota" Australian Academy of Science.
- McArthur, (1967). A.G. Leaflet 107 Fire Behaviour in Eucalypt Forest A.G.McArthur, Canberra. Commonwealth of Australia Department of National Development. Forestry and Timber Bureau. (and reprinted later by) CSIRO Div. Forestry - Bush Fire Research Unit.1967.
- Australian Building Codes Board (1996) – Building Code of Australia, Class 1 and Class 10 Buildings Housing Provisions Volume 2.
- Councils of Standards Australia AS3959 (1999) – Australian Standard Construction of buildings in bush fire-prone areas.

FIGURE 1

PLAN OF BUSHFIRE PROTECTION MEASURES



Original plan produced in A4 colour. Plan for indicative purposes only, not for detailed measurement.
Subject site boundary subject to final survey.

Legend

- | | |
|--|---|
|  60m Special Protection APZ |  25m Asset Protection Zone |
|  35m Asset Protection Zone |  24m Asset Protection Zone |