

BUSHFIRE PROTECTION ASSESSMENT
FOR THE PROPOSED COMMUNITY TITLE
RESIDENTIAL SUBDIVISION

OF

LOT 66 in DP551005,
PACIFIC HIGHWAY,
MOONEE BEACH

FOR

HILLVIEW HEIGHTS PTY LTD.



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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited, at the request of *Hillview Heights Pty Ltd*, to undertake the bushfire consultancy to inform the concept planning process, under Part 3A [Major Projects] of the *Environmental Planning & Assessment Act 1979*, on the bushfire protection measures required for the proposed Community Title residential subdivision within Lot 66 in DP 551005, Pacific Highway, Moonee Beach.

The land over which the concept planning is being undertaken is land located on the eastern side of the Pacific Highway, approximately 1.0 kilometre to the south of the village of Moonee Beach and approximately 8.0 kilometres to the north of Coffs Harbour. It contains 102 hectares in area and extends from the Pacific Highway in the west to Crown (state owned) land along the coast in the east, and from a tributary of Moonee Creek in the north southwards to a Crown Road Reserve which runs along the southern boundary of the property.

The land within the property is partly zoned 2E Residential Tourist and partly 7A Environmental Protection Habitat & Catchment. The development proposal occurs within the 2E Residential Tourist zoned land. The northern development precinct [Precinct A] occupies the land on a low ridgeline within the north-western portion of the property whilst the southern development precinct [Precinct B] occupies the land on a low spur line within the south-western corner of the property, adjoining the approved North Sapphire Beach development.

The western portion of the property contains an existing power line easement which extends to the south across the adjoining North Sapphire Beach development. Access to the development Precincts A & B will be provided by a new slip road constructed within the power line easement with a northern extension linking to the Moonee Village precinct via a proposed development on the land to the north of the property.

The northern development Precinct A will have direct access to the new slip road whilst access to the southern Development B precinct is provided by a new road constructed within the twenty [20] metre wide Crown Road Reserve along the northern boundary of the adjoining North Sapphire Beach development, connecting to the slip road to the west.

The vegetation within the property ranges from Swamp Forest and Sedgeland / Rushland / Mangroves / Saltmarsh in the eastern portion of the property; Swamp Forest and Coastal Riparian Open Forest in the central south-western portion to Open Forest which covers the land within the proposed residential development precincts and the land along the northern boundary of the property. This vegetation provides the bushfire hazard to the development.

The Concept Plan for the Community Title Subdivision within the development precincts provides for a perimeter road between the future dwellings and the retained bushfire prone vegetation on the property which will be managed as part of the community property. The perimeter road connects to a series of internal roads, which in Precinct A, connects with a main access road that extends to the east from the slip road located to the west of the precinct.

The perimeter road to Precinct B also connects to internal roads which connect to a new road constructed within the existing Crown Road to the south and west of the precinct. The access to this precinct extends west to the slip road via a new road constructed within the existing Crown Road Reserve which is located along the northern boundary of the adjoining North Sapphire Beach development.

The development proposal includes for the management, within the Community Title provisions, of the vegetated corridor between the powerline easement/slip road and the Pacific Highway carriageway and a corridor along the northern aspect to the access road to Precinct B. This management is recommended to provide additional fire protection to the exit roads from the development precincts. Furthermore, an emergency exit from Precinct A is available onto the Pacific Highway, via an exiting access and emergency egress, using the emergency access provisions of the Rural Fires Act, is available from Precinct B from the Public Road carriageway onto the adjoining North Sapphire Beach estate.

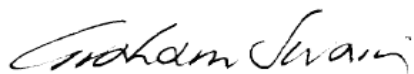
The Coffs Harbour Certified Bushfire Prone Land Map indicates that the development site contains Category 1 Bushfire Prone Vegetation.

The Director General's Environmental Assessment Requirements, issued on the 20/10/2006 includes, under subheading 6 "Hazard Management and Mitigation" Item 6.1, the following advice:

Address the requirements of *Planning for Bushfire Protection 2001 (RFS)*, in particular the provision of bushfire asset protection zones (APZ) in accordance with appropriate vegetation classification, locations [outside the proposed conservation areas and buffer zones]; provision of emergency access and egress; water supply and measures for fuel management and maintenance.

Since the receipt of the Director Generals Requirements [DGRs], *Planning for Bushfire Protection 2001* has been replaced by *Planning for Bushfire Protection 2006*. This report examines the DGRs under the provisions of the 2006 document.

This report undertakes an assessment to determine the deemed-to-satisfy requirements of *Planning for Bushfire Protection 2006* and provides recommendations on the provision of Asset Protection Zones to the buildings; emergency access/egress; fire-fighting access and water supplies; construction standards of the buildings and the management of the Asset Protection Zones and residual vegetation so as to address the aim and objectives of *Planning for Bushfire Protection 2006* and therefore Item 6.1 of the Directors Generals Requirements [DGRs].



Graham Swain,
Director,
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Development Proposal.

This Bushfire Protection Assessment has been prepared at the request of *Hillview Heights Pty Ltd* to inform the concept planning process, under Part 3A [Major Projects] of the *Environmental Planning & Assessment Act 1979*, on the bushfire protection measures required for the proposed Community Title residential subdivision within Lot 66 in DP 551005, Pacific Highway, Moonee Beach. The development proposal will create a low rise mix of residential dwellings within a village network.

The northern development precinct [Precinct A] occupies the land on a low ridgeline within the north-western portion of the property whilst the southern development precinct [Precinct B] occupies the land on a low spur line within the south-western corner of the property, adjoining the approved North Sapphire Beach development.

Access to the development Precincts A & B will be provided by a new slip road constructed within the power line easement with a northern extension linking to the Moonee Village precinct via a proposed development on the land to the north of the property.

The northern development Precinct A will have direct access to the new slip road whilst access to the southern Development B precinct is provided by a new road constructed within the twenty [20] metre wide Crown Road Reserve along the northern boundary of the adjoining North Sapphire Beach development, connecting to the slip road to the west.

The proposed development also includes an array of measures to protect retained vegetation and communities on the site, native habitats and resources in the vicinity including management of the dedicated Conservation Reserve on the property (which occupies approximately 70% of the land) in perpetuity for conservation purposes. The Conservation Reserve is to be the subject of a *Vegetation Management Plan* to be implemented through the Community Title arrangement.

1.2 Aims of this Assessment.

The aim of this assessment is to address the Director General's Environmental Assessment Requirements, issued on the 20/10/2006 which include, under subheading 6 "Hazard Management and Mitigation" Item 6.1, the following advice:

Address the requirements of *Planning for Bushfire Protection 2001 (RFS)*, in particular the provision of bushfire asset protection zones (APZ) in accordance with appropriate vegetation classification, locations [outside the proposed conservation areas and buffer zones]; provision of emergency access and egress; water supply and measures for fuel management and maintenance.

Since the receipt of the Director Generals Requirements [DGRs], *Planning for Bushfire Protection 2001* has been replaced by *Planning for Bushfire Protection 2006*. This report examines the DGRs under the provisions of the 2006 document.

1.3 Statutory Requirements.

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

1.3.1 Legislation.

1.3.1 Legislation.

(a) Environmental Planning and Assessment Act - 1979 (EPA Act)

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1997* (EPA Act). Part 3A [Major Projects] of the Act commenced on the 1st August 2005 and consolidated the assessment and approval regime for all major projects previously addressed under Part 4 [Development Assessment] or Part 5 [Environmental Assessment] of the Act.

Under the provisions of Part 3A, proponents of major projects are required to address the requirements of the Environmental Assessment as determined by the Director General of the Department of Planning.

These are issued as the Director Generals Requirements (DGRs). *[Refer to Section 1.2 above for requirements relating bushfire matters within the DGRs].*

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention
- Protection of people and property from fires; and
- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW, the following section of the Act applies:

- Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

(c) *Rural Fires Regulation 2002.*

The *Rural Fires Regulation 2002*, August 2002, repeals the *Rural Fires Regulation 1997* and restates with some modifications the provisions of the old Regulation and contains new provisions relating to bushfire prone land and bushfire hazard reduction.

(d) *Threatened Species Conservation Act 1995 (TSC Act).*

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities as listed under the Act. The TSC Act is integrated with the EP&A Act and requires consideration of whether a development or an activity (such as the implementation of hazard reduction and asset protection) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

(e) *Native Vegetation Act 2003 (NV Act).*

The *Native Vegetation Act* states indigenous vegetation within 20 metres of the bed or bank of a river or lake, or on slopes over 18 degrees, requires clearing consent under the *NV Act*, unless during an emergency fire event as authorized under the *Rural Fires Act 1997*.

1.3.2 Planning Policies.

(a) *Planning for Bushfire Protection – 2006. [Rural Fire Service]*

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential and residential subdivision, “Special Fire Protection” and Class 5 – 8 and 10 buildings in bushfire prone areas.

The document provides deemed-to-satisfy specifications on the provision of Asset Protection Zones to residential and “Special Fire Protection” developments; defensible space requirements to other developments and access/water supply provisions for developments in bushfire prone areas. Provision for the assessment of construction standards to buildings and management /maintenance of the Asset Protection Zones/defensible space to buildings is also provided in the document.

1.3 Documentation reviewed in this Assessment.

The following documents were reviewed in the preparation of this report:

- “Moonee Waters” Concept Plan Annand Alcock;
- Flora & Fauna Assessment prepared by Gunninah Environmental Consultants, dated August 2006;
- Moonee Beach 1:25,000 Aerial Photograph;
- Moonee Beach 1:25000 Topographic Map;
- Coffs Harbour Council Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service;
- Australian Standard AS3959 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2002*.

1.4 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty Limited* inspected the site and surrounding areas on the 29th April 2007 to assess the topography, slopes and vegetation classification within and adjoining the development property and to validate the future subdivision’s compliance with the requisite deemed-to-satisfy Asset Protection Zones and access provisions.

Adjoining properties were also inspected to determine the surrounding land use / vegetation communities land management.

1.5 Authority Consultation.

In accordance with the Director Generals Requirements, consultation with the NSW Rural Fire Service was held on the 19th October 2007.

This consultation occurred between Mr Dan Copeland, Development Control Officer with the NSW Rural Fire Service and Graham Swain, Director of *Australian Bushfire Protection Planners Pty Limited*.

There were no issues raised by Mr Copeland that warrants modification to the development layout or the contents of this report and the recommendations in respect to the provision of fire protection measures and compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

SECTION 2

PROPERTY DESCRIPTION

2.1 Location.

The property known as Lot 66 in DP 551005, Pacific Highway, Moonee Beach is located in the Coffs Harbour Local Government Area (LGA) and occupies an area of approximately 112 hectares of land to the immediate south of the village of Moonee Beach. The property has a frontage of 580 metres to the Pacific Highway and extends from the Pacific Highway in the west to Crown Reserve No. 1082 along the coast in the east.

Moonee Creek forms most of the northern boundary, apart from the reserve enclosing Green Bluff at the east and Lot 65 in DP 551005 at the west and extends southwards to a 20.0 metre wide Crown Road Reserve which is located along the entire southern boundary of the property.

The proposed Community Title residential development precincts are located on the higher land within the north-western and south-western portions of the property.

Aerial Photograph of Development Site



2.2 Existing Land Use.

The land within the development property is vacant land. Approximately 69.05 hectares [68%] of the property is currently zoned 2E – Residential/Tourism, with the remainder zoned 7A – Environmental Protection (Coffs Harbour *Local Environmental Plan 2000*).

The *Development Concept Plan* identifies that the proposed residential precincts are to be located on the higher 2E zoned land within the property and involves only approximately 30% of the property and 44% of the land zoned for 2E Residential – Tourist purposes.

2.3 Surrounding Land Use.

(a) North

The land adjoining the northern boundary of the property ranges from 7A (Environmental Protection Habitat & Catchment) along the riparian corridor to Moonee Creek to 2E (Residential/Tourist) within the Moonee Village. Part of the northern boundary is adjoined by vacant land whilst the remainder contains existing residential development.

The vacant 2E zoned land, within Lot 211 in DP 1044929 and Lots 650 & 651 in DP 600058, adjoining the north-western corner of the property is currently under investigation for future residential development.

(b) East

The land adjoining the eastern aspect of the property, being land within Lot 7019 in DP 1035124, is land within Crown Reserve No. 1082.

(c) South

The adjoining land to the south, within Lot 13 in DP 882816, is currently vacant land that has been approved from the development of the “North Sapphire Beach” residential estate. The eastern part of this land contains a SEPP 14 Wetland within the “*Cougles Stone Environmental Reserve*”.

(d) West

The adjoining land to the west is land within the Pacific Highway carriageway. Beyond the highway the land use consists of rural 1A zoned land containing small farmlets/rural residential development scattered amongst vacant vegetated pockets.

2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour to the site.

2.4.1 Within Development Property.

The land within the northern portion of the development site forms part of the catchment to Moonee Creek whilst the remainder of the site forms part of the catchment to Sugar Mill Creek which junctions with Moonee Creek in the central northern portion of the property.

The land within the property therefore slopes to these creek lines with the higher land within Development Precinct A displaying slopes of 5 – 8 degrees downslope to the north, east and south whilst the land within Development Precinct B forms the eastern end of a knoll/ridge line that extends to the northeast from the adjoining land to the west, falling downslope to the northeast and east at 8 – 10 degrees. Both development precincts are encapsulated by a steep embankment that forms a narrow transition from the higher land to the gently sloping land that forms the flood plain to the creeks.

The effective slope of the land within the flood plain [within the proposed Conservation Reserve] is downslope at 1.5 – 2 degrees to the creeks.

2.4.2 Beyond the Development Precincts.

- **Development Precinct A**

- (a) **North.**

- The topography to the north of Precinct A falls steeply across a narrow scarpline with the effective slope of the land to the flood corridor to Moonee Creek falling to the north at 2 – 3 degrees.

- (b) **East.**

- The topography to the east of Precinct A falls across a low scarpline to the flood plain of the convergence of Moonee Creek and Sugar Mill Creeks. The effective slope across the flood plain is 1.5 – 2 degrees downslope to the east.

- (c) **South.**

- The topography to the south of Precinct A forms the side slopes to the western tributary of Sugar Mill Creek with effective slopes of 2 – 3 degrees falling to the southeast and south.

- (d) **West.**

- The topography of the land to the west of Precinct A forms a flat saddle of land that extends to the west across the Pacific Highway. The land on the saddle falls at < 5 degrees to the north, into Moonee Creek and the south in the tributary to Sugar Mill Creek.

- **Development Precinct B**

- (a) **North.**

- The topography to the north of Precinct B falls steeply across a narrow scarpline with the effective slope of the land on the flood plain to Sugar Mill Creek falling to the north and northeast at 1.5 – 2 degrees.

(b) East.

The topography to the east of Precinct B falls across a low scarpline to the flood plain of Sugar Mill Creek. The effective slope across the flood plain is 1.5 – 2 degrees downslope to the east.

(c) South.

The topography to the south of Precinct B forms the side slopes to the ridgeline that extends through the precinct and falls to the southeast in to the SEPP 14 Wetlands on the adjoining property. The effective slopes on this ridge line consist of approximately 50 metres of land at < 5 degrees downslope to the southeast, giving way to level swampland.

(d) West.

The topography of the land to the west of Precinct B rises above the south-western corner of the precinct to form the low knoll within the adjoining property. The western aspect of the knoll falls to the west to the riparian corridor that traverses the northern portion of the adjoining North Sapphire Beach development precinct. The land to the west of the southern portion of Precinct B rises at < 5 degrees to the west whilst the land to the west of the north portion of Precinct B falls to the west at 6 degrees.

2.3 Vegetation within the Development Property.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the future development on the site.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) *Forests [wet & dry sclerophyll forests];*
- (b) *Woodlands;*
- (c) *Plantations – being pine plantations not native plantations;*
- (d) *Forested Wetlands;*
- (e) *Tall Heaths;*
- (f) *Freshwater Heaths;*
- (g) *Short Heaths;*
- (h) *Alpine Complex;*
- (i) *Semi – arid Woodlands;*
- (j) *Arid Woodlands; and*
- (k) *Rainforests.*

The vegetation within the development property has been mapped by Gunninah Environmental Consultants and is shown on the plan accompanying the Flora & Fauna report.

The property supports a mosaic of vegetation and plant communities including sedgelands and estuarine wetlands in the eastern and northern parts of the property; swamp forest communities in low-lying portions through the central parts; moist forest and riparian communities on the lower slopes and in the drainage lines and dry forest and woodland communities on the plateaus and upper slopes

Vegetation varies from Open Forest [Dry Blackbutt Forest; Flooded Gum Forest] on the higher land within the north-western and south-western [Development Precincts A & B] portions of the property through to Swamp/Paperbark/Swamp Mahogany/Swamp She Oak/ sedgeland/rushland within the central eastern portion of the property and the western tributary to Sugar Mill Creek, between Development Precincts A & B. The southern tributary of Sugar Mill Creek contains an area of SEPP 14 Wetland.

2.6 Vegetation within 140 metres of Development Precincts.

- ***Development Precinct A***

- (a) ***North***

The predominant bushfire prone vegetation to the north of Precinct A consists of Dry Blackbutt Open Forest within the riparian corridor to Moonee Creek.

- (b) ***North East & East***

The predominant bushfire prone vegetation to the northeast consists of a corridor of Swamp Forest to Moonee Creek extending into Dry Blackbutt Open Forest beyond the creek riparian corridor. The predominant bushfire prone vegetation to the east consists of Swamp Forest.

- (c) ***Southeast.***

The predominant bushfire prone vegetation to the southeast of Precinct A consists of Swamp Forest within the Sugar Mill Creek flood plain.

- (d) ***South***

The predominant bushfire prone vegetation to the south of Precinct A consists of Swamp Forest within the tributary to Sugar Mill Creek.

- (e) ***West.***

The predominant vegetation to the west of Precinct A consists of Dry Blackbutt Open Forest within the Pacific Highway carriageway with similar vegetation occupying the vegetated pockets of land to the west of the highway corridor.

- ***Development Precinct B***

- (a) ***North***

The predominant bushfire prone vegetation to the north of Precinct B consists of Swamp Forest within the flood plain to Sugar Mill Creek.

- (b) ***North East & East***

The predominant bushfire prone vegetation to the northeast and east consists of Swamp Forest within the flood plain to Sugar mill Creek.

(c) **Southeast.**

The predominant bushfire prone vegetation to the southeast of Precinct B consists of a narrow corridor of Dry Blackbutt Open Forest extending into SEPP 14 Wetlands containing Swamp Forest.

(d) **Southwest**

The predominant bushfire prone vegetation to the southwest of Precinct B consists of managed grassland within the approved North Sapphire Beach development.

(e) **West.**

The predominant vegetation to the west of Precinct B consists of managed grassland within the approved North Sapphire Beach development.

2.7 Significant Environmental Features on the Property.

The Gunninah Flora & Fauna Assessment records that development property contains significant environmental features such as SEPP 14 Wetlands; SEPP 26 Littoral Rainforests and SEPP 44 Koala Habitat. The property does not contain areas of Geological interest; Land slip areas or National Parks Estate. The development site does contain small sections of Steep Lands [>18 degrees] within the scarpline to the western section of Moonee Creek [north of Precinct A].

2.8 Known Threatened Species, Population or Ecological Community within the Property.

Extensive studies have been made by Gunninah Environmental Consultants with the Flora & Fauna Assessment recording that “several plant communities in the low-lying parts of the property [wetlands, estuarine vegetation and swamp forest communities] have been listed as “*endangered ecological communities (EEC)* on the *NSW Threatened Species Conservation Act 1995 (TSC Act)*”. This community will be retained within the proposed Conservation Reserve.

“Two threatened plant species have been recorded on or immediately adjacent to the property. The Rusty Plum *Amorphospermum whitei* and the Moonee Quassia were recorded as scattered individuals in the northern part of the property in areas of moist Coastal Blackbutt Forest in the vicinity of the northern boundary [within the Conservation Reserve].

A number of threatened fauna species have been recorded on the property, including:

- The Osprey, Square-tailed Kite, Regent Honeyeater and Glossy Black Cockatoo;
- The Grey-headed Flying Fox, Yellow-bellied Glider, Koala, Common Planigale and Common Blossom Bat; and
- The Eastern Freetail Bat, Little and Common Bent-wing Bats, Golden-tipped Bat, Yellow bellied Sheath-tail Bat and Large-footed Myotis.

As all of the threatened fauna species recorded on the property are highly mobile, and all but the Yellow Bellied Glider are wide-ranging, the property represents only a small part of the available habitat for these species within their home range and in this location generally”.

The management of the land within the Community Property [and Conservation Reserve] will be undertaken in accordance with a Vegetation Management Plan and complimentary Fire Management Plan, both forming part of the Community Management Statement for the estate.

2.9 Details and location of Aboriginal Relics or Aboriginal Place.

An assessment of archaeological sites, in the broader area has revealed a number of mythological and ceremonial sites. These sites are designated as Sugar Mill Creek 1; Sugar Mill Creek 2 and 22 – 1 – 0198 located just outside the property to the southeast on Lot 6 in DP 238651. There are no known Aboriginal relics or Aboriginal places within the site.

The Aboriginal significance of the project area has been assessed by Coffs Harbour and District LALC and Gumbala Julipi Elders as high and further assessment will be undertaken as part of the development process.

SECTION 3

FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Coffs Harbour Council.

The Coffs Harbour Council has responsibility, under Section 66 of the *Rural Fires Act*, to issue a notice in writing requiring an owner / occupier of any land within the LGA to carry out bushfire hazard reduction works on that land. Section 100E of the *Rural Fires Act* requires Council to issue bushfire hazard reduction certificates for hazard reduction to be undertaken on private lands. |

3.2 New South Wales Rural Fire Service.

The NSW Rural Fire Service (RFS) has the responsibility for undertaking fire suppression activities, hazard management activities and other functions relative to emergency management, within its areas of operation. *Section 73* of the *Rural Fires Act (1997)* enables the Commissioner to carry out bush fire hazard reduction works on any land as required by a bush fire risk management plan if the work has not been carried out satisfactorily. Incurred costs can be recovered as a debt owed to the Crown.

3.3 New South Wales Fire Brigade.

The NSW Fire Brigade has the responsibility for undertaking fire suppression activities, and other functions relative to emergency management, within its area of operation and through Mutual Aid Agreements, provide assistance to the NSW Rural Fire Service, particularly for structural fire operations within the NSW Rural Fire Brigade Districts. Hazmat management within New South Wales is the responsibility of the NSW Fire Brigade.

3.4 Coffs Harbour Bush Fire Management Committee.

The Coffs Harbour Bushfire Management Committee has the responsibility for planning for co-ordinated fire fighting activities / hazard management activities on a local government level. It is not an operational organization, a fire fighting organization or a funding source for fire management activities.

The Bush Fire Management Committee is supported by the following provisions of the Rural Fires Act 1997:

- **Section 50** of the Act requires the Bush Fire Co-ordinating Committee to constitute a Bush Fire Management Committee for the whole of the area of any local Council area for which a rural fire district is constituted.
- **Section 51 (1A)** requires a Bush Fire Management Committee to report to the Bush Fire Co-ordinating Committee on the implementation of the requirements of the Bushfire Risk Management Plan.

- **Section 52** requires each Bush Fire Management Committee to prepare a draft bush fire management plan for their local areas which includes a plan of operations and a bush fire risk management plan.
- **Section 54** of the Act specifies that a draft bush fire risk management plan is to 'set out schemes for the reduction of bush fire hazards in the rural fire district or other part of the State'. A draft bush fire risk management plan may also restrict or prohibit the use of fire or other fire hazard reduction activities in all or specified circumstances or places to which the plan applies.

3.5 Private Land Owners / Occupiers.

The Rural Fires Act, 1997 provides several legislative opportunities to require land owners and occupiers to manage hazardous fuels. These are listed below:

- **Section 63(2)** states that 'it is the duty of the owner or occupier 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'.

In this section; 'notified steps' means:

- (a) any steps that a bush fire risk management plan (or the Co-ordinating Committee) advises a person to take;
 - (b) that are included in a bush fire risk management plan applying to the land.
- **Section 87** allows the removal of hazards in the bush fire danger period by the provision of a permit system. The permits are valid for 21 days, excluding TOBAN days. Section 10 permits are not required to adhere to Part V provisions of the EPA Act 1979 in the assessment of impact, except for public authorities. An owner/occupier of private land must obtain from the NSW Rural Fire Service, a bushfire hazard reduction certificate before undertaking hazard reduction works on that land (Section 100E of the Rural Fires Act 1997).

SECTION 4

PRECINCT LEVEL ASSESSMENT

4.1 Precinct Level Assessment of Bushfire Prone Vegetation.

Planning for Bushfire Protection 2006 provides the following procedure for assessing a development at a defined precinct level in order to determine whether the development is bushfire prone and if so, be the need to provide appropriate setbacks [Asset Protection Zones]:

(a) *Determine vegetation distance, type and class as follows:*

Identify all vegetation in each direction from the site for a distance of at least 140 metres, and then consult Table A2.1 to determine the vegetation formation which predominates;

(b) *Determine the average slope of the land between the predominant vegetation class and the development.*

Tables 1 & 2 summarises the information provided in Section 2 of this report, to undertake a precinct level assessment to determine those aspects of the Development Precincts A & B that require provision of Asset Protection Zones.

Table 1. Precinct Level Assessment – Precinct A

Aspect	Existing Land Use	Predominant Vegetation within 140 m of Development	Predominant vegetation class [Table A2.1 <i>BfBFP</i>]	Effective Slope of land for 100m.	Comments
North	Vacant Land within Conservation Reserve.	Dry Blackbutt Open Forest	Forest	< 3 degrees downslope.	The adjoining vegetation is bushfire prone.
North East & East	Vacant Land within Conservation Reserve	Swamp Forest.	Forested Wetlands	< 2 degrees downslope	The adjoining vegetation is bushfire prone.
South East	Vacant Land within Conservation Reserve	Swamp Forest	Forested Wetlands	< 2 degrees downslope	The adjoining vegetation is bushfire prone.
South	Vacant Land within Conservation Reserve.	Swamp Forest	Forested Wetlands	< 2 degrees downslope	The adjoining vegetation is bushfire prone.
West	Highway Corridor	Dry Blackbutt Forest	Forest	Level.	The adjoining vegetation within the Highway Corridor and the pockets to the west of the Highway is bushfire prone.

Table 2. Precinct Level Assessment – Precinct B

Aspect	Existing Land Use	Predominant Vegetation within 140 m of Development	Predominant vegetation class [Table A2.1 BfBFP]	Effective Slope of land for 100m.	Comments
<i>North</i>	Vacant Land within Conservation Reserve.	Swamp Forest	Forested Wetlands	< 2 degrees downslope.	The adjoining vegetation is bushfire prone.
<i>North East & East</i>	Vacant Land within Conservation Reserve	Swamp Forest	Forested Wetlands	< 2 degrees downslope	The adjoining vegetation is bushfire prone.
<i>South East</i>	Vacant Land within SEPP 14 Wetland	Swamp Forest	Forested Wetlands	Level	The adjoining vegetation is bushfire prone.
<i>South West</i>	Vacant Land within approved North Sapphire Development	Managed Grassland – Future development	Nil	< 5 degrees downslope to the southwest	The adjoining vegetation is not bushfire prone.
<i>West</i>	Vacant Land within approved North Sapphire Development	Managed Grassland – Future development	Nil	< 5 degrees upslope	The adjoining vegetation is not bushfire prone.

The Bushfire Prone Land map accurately maps the vegetation within and adjoining the property as Category 1 Bushfire Prone Vegetation. The managed grassland vegetation on the North Sapphire Beach development site to the southwest and west of Precinct B is not bushfire prone vegetation.

SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

The Director General requires that the development address the requirements of *Planning for Bushfire Protection 2006*, in particular the provision of bushfire Asset Protection Zones (APZ) in accordance with appropriate vegetation classification, locations [outside the proposed conservation areas and buffer zones]; provision of emergency access & egress; water supply and measures for fuel management and maintenance.

Planning for Bushfire Protection 2006 provides a methodology to determine the Asset Protection Zones and Bushfire Attack / Construction Standards required for habitable buildings in development for residential purposes that are designated as bushfire prone.

Sections 5.2 and 5.3 of this report use the methodology provided by *Planning for Bushfire Protection 2006* to determine the deemed-to-satisfy Asset Protection Zones and construction standards required for the construction of the residential development on the site. The document also provides deemed-to-satisfy specifications on the provision of access and water supplies for firefighting operations and emergency access/egress and the management protocols for Asset Protection Zones and landscaping. These matters are examined in Sections 5.4 – 5.8 of this report.

5.2 Determination of Asset Protection Zones.

Appendix 2 of *Planning for Bushfire Protection 2006* provides the following procedure for determining setback distances (Asset Protection Zones):

- (a) *Determine vegetation formations as follows:*
 - Identify all vegetation in all directions from the site for a distance of 140 metres;
 - Consult Table A2.1 to determine the predominant vegetation type; and
 - Select the predominant vegetation formation as described in Table A2.1.
- (b) *Determine the effective slope of the land under the predominant vegetation Class.*
- (c) *Determine the appropriate fire [weather] area in Table A2.2.*
- (d) *Consult Table A2.5 and determine the appropriate setback [Asset Protection Zone] for the assessed land use, vegetation formation and slope range.*

Tables 3 & 4 provide a summary of this assessment and the resultant widths of the Asset Protection Zones for the construction of residential development within Development Precincts A & B. Fire Danger Index – 80:

Table 3. Bushfire Protection Assessment – Determination of Asset Protection Zones – Precinct A. FDI – 80

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Table A2.1)	Effective Slope of Land	Width of Asset Protection Zone – Determined using RFS Calculator	Width of Asset Protection Zone Provided	Compliance with Table A2.4.
North	Dry Blackbutt Forest in riparian corridor & proposed Conservation Reserve.	Forest	< 3 degrees down slope.	20 metres for Forest vegetation [11m IPA + 9M OPA]	> 25 metres provided by perimeter road & building setback	Yes
North East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
West	Dry Blackbutt Forest in Highway corridor	Forest	Level.	14 metre IPA for Forest vegetation.	> 30 metres provided by access road/easement + managed corridor between road/easement & Highway	Yes.

Assessment Results:

The widths of the Asset Protection Zones provided by the perimeter road and building setback exceed the deemed-to-comply setbacks provided by Table A2.5 of *Planning for Bushfire Protection 2006*, required for Level 3 construction of the future dwellings in Precinct A.

Table 4. Bushfire Protection Assessment – Determination of Asset Protection Zones – Precinct B. FDI – 80

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Table A2.1)	Effective Slope of Land	Width of Asset Protection Zone – Determined using RFS Calculator	Width of Asset Protection Zone Provided	Compliance with Table A2.4.
North	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope.	14 metre IPA for Forest vegetation	> 25 metres provided by perimeter road & building setback	Yes
North East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South East	Swamp Forest in EEC on adjoining Land	Forested Wetlands	< 5 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South West & West	Managed Grassland – future development	Nil	< 5 degrees down slope to S.W. < 5 upslope to west	None required	> 20 metres provided by access road within Crown Road Reserve	Yes.
North West	Dry Blackbutt Open Forest	Forest	< 5 degrees down slope to the N.W.	20 metres for Forest vegetation [11m IPA + 9m OPA]	> 25 metres provided by perimeter road & building setback	Yes

Assessment Results:

The vegetation within the Forested Wetland to the north, northeast, east and southeast of Development Precinct B will be located more than 25 metres from future dwelling houses, therefore exceeding the minimum width of Asset Protection Zone required by Table A2.4 of *Planning for Bushfire Protection 2006*.

The land within the approved North Sapphire Beach development site contains managed grassland vegetation which is not bushfire prone vegetation.

However, the proposed access road within the Crown Road Reserve provides a > 20 metre wide Asset Protection Zone to the south-western and western aspect of the future residential development within Precinct B.

5.3 Assessment of Bushfire Attack (Construction Standards).

Part 2.3.4 of the Building Code of Australia states that a Class 1 building that is constructed in a *designated bushfire prone area* must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes. Part GF5.1 states that a Class 2 or 3 building constructed in a *designated bushfire prone area* is to provide a resistance to bushfires in order to reduce the danger to life and minimize the risk of the loss of the building.

Australian Standard A.S. 3959 -1999 is the enabling standard that addresses the performance requirements of both Parts 2.3.4 and Part GF5.1 of the Building Code of Australia. Therefore, the construction of the Class 1, 2 and Class 3 buildings within the development shall be constructed to comply with the specifications of this Standard.

Appendix A3.6 of *Planning for Bushfire Protection 2006* provides the following procedure for determining bushfire attack at construction stage for a building within a designated bushfire prone area:

- (a) *Determine vegetation formation types and sub-formation types around the building;*
- (b) *Determine the separation distance between each vegetation formation and the building in accordance with the following classifications:*
 - *Less than 20 metres*
 - *From 20 metres but not greater than 30 metres*
 - *Greater than 30 metres but not greater than 50 metres*
 - *Greater than 50 metres but not greater than 80 metres*
 - *Greater than 80 metres but not greater than 100 metres.*
- (c) *Determine the effective slope of the ground for each vegetation formation;*
- (d) *Determine the relevant FDI for the Council Area;*
- (e) *Match the relevant FDI, appropriate vegetation formation, separation distance and effective slope to determine the category of bushfire attack.*

Five categories of Bushfire Attack are determined. They are:

- Low:

Insignificant ember attack, radiation heat no greater than 12.5 KWm₂ or is greater than 100 metres from all woody vegetation.

- Medium:

Significant ember attack with radiation heat no greater than 12.5 KWm₂, (Level 1 Construction AS3959-1999).

- High:

Significant ember attack and possible flame contact, radiation heat greater than 12.5 KWm₂ and no greater than 19 KWm₂ (Level 2 Construction AS3959-1999).

- Extreme:

Significant ember attack and possible flame contact, radiation heat greater than 19 KWm₂ and no greater than 29 KWm₂ (Level 3 Construction AS3959-1999).

- Flame Zone:

Within the Flame Zone and / or greater than 29 KWm₂ (Construction outside scope of AS3959-1999).

Tables 4 & 5 provide a summary of the Bushfire Attack Assessment for the future residential buildings within Development Precincts A & B and provide recommendations on the resultant construction standards for a Fire Danger Index [FDI] of 80.

Table 4 Bushfire Attack Assessment – Determination of Construction Standards to Future Dwellings – Precinct A

Aspect	Predominant Vegetation Class <i>[Table A2.1 Planning for Bushfire Protection 2006]</i>	Effective Slope of Land	Minimum width of Asset Protection Zone <i>[Table A2.5 PFBFP 2006]</i>	Level of Bushfire Attack <i>[Table A3.3 of PFBFP 2006]</i>	Construction Standard in accordance with A.S.3959
North	Forest	< 3 degrees down slope.	25 metres separation to Dry Blackbutt Forest.	Extreme	Level 3 construction standards.
Northeast, east and Southeast	Forested Wetlands	< 2 degrees down slope.	25 metres provided by perimeter road + setback to building.	High.	Level 2 construction standards.
South	Forested Wetlands	< 2 degrees down slope.	25 metres provided by perimeter road + setback to building.	High.	Level 2 construction standards.
West	Forest	Level	> 30 metres provided by access road + easement + managed corridor	High.	Level 2 construction standards.

Table 5 Bushfire Attack Assessment – Determination of

Construction Standards to Future Dwellings – Precinct B

Aspect	Predominant Vegetation Class [Table A2.1 Planning for Bushfire Protection 2006]	Effective Slope of Land	Minimum width of Asset Protection Zone [Table A2.5 PfBFP 2006]	Level of Bushfire Attack [Table A3.3 of PfBFP 2006]	Construction Standard in accordance with A.S.3959
North	Forested Wetlands	< 2 degrees down slope.	25 metres provided by perimeter road + setback to building.	High.	Level 2 construction standards.
Northeast, east and Southeast	Forested Wetlands	< 2 degrees down slope.	25 metres provided by perimeter road + setback to building.	High.	Level 2 construction standards.
South	Forested Wetlands	< 2 degrees down slope.	25 metres provided by perimeter road + setback to building.	High.	Level 2 construction standards.
West	Forest	Level	> 30 metres	Low.	Nil. Refer to Note 1
Northwest	Forest	< 5 degrees down slope	> 25 metres	Extreme	Level 3 construction standards

Assessment Results:

Note 1:

In addition to the construction standards found to be necessary as determined in Tables 4 & 5 it is recommended that the minimum construction to the future dwellings in Precincts A & B shall be Level 1 in accordance with the specifications of Australian Standard A.S 3959 -1999 “*Construction of Buildings in Bushfire Prone Areas*.”

5.3 Water Supplies for Firefighting Operations.

The future residential subdivision of the land will have a reticulated supply connected to the Coffs Harbour Council mains supply. The dwellings in the future subdivision of the land will be connected to this reticulated water supply.

The reticulated water supply shall include the provision of a ring main with Hydrants installed in accordance with the specifications of Australian Standard A.S 2419.2 and have a minimum flow rate of 10 litres / second.

Fire hydrants shall be accessible and located such that a tanker can park within a maximum distance of 20 metres from the hydrant and the habitable

building must be located such that a fire at the furthest extremity can be attacked by fire-fighters using two 30 metre hose lines and a 10 metre water jet. A clear unobstructed path between the hydrant and the most distant point of the building cannot exceed 90 metres.

Hydrant locations shall be delineated by blue markers placed on the hydrant side of the centreline of the road pavement.

5.4 Access for Fire Fighting Operations.

5.4.1 Adequacy of Public Roads:

The Community Title subdivision of the land within Lot 66 in DP 551005 will create new lots which will have vehicular access directly off perimeter and internal roads which will be constructed to the deemed-to-satisfy specifications for Public Roads as defined by Chapter 4 of *Planning for Bushfire Protection 2006*.

5.4.2 Specifications for Public Roads.

Section 4.1.3 [Access] of *Planning for Bushfire Protection 2006* provides advice on the design and construction of Public Roads providing access to and internal roads within a development which is deemed to be bushfire prone.

The specifications for public roads are:

- *Roads shall be designed for two-wheel drive all weather access;*
- *Perimeter roads shall be two-way with a minimum carriageway width of 8.0 metres, kerb to kerb, with shoulders on each side to allow traffic to pass in opposite directions;*
- *Roads shall be through roads. Dead ends shall not be more than 200 metres in length and incorporate a 12m outer radius turning circle;*
- *The capacity of road surfaces/bridges in a subdivision with reticulated water supply shall be 15 tonnes;*
- *Curves of roads shall have a minimum inner radius of 6 metres and a minimum outer radius of 12 metres;*
- *Vertical clearance above the road surface shall be 4.0 metres;*
- *All public roads eight metres wide shall locate services outside parking reserves to ensure accessibility to the reticulated water supply;*

- *All public roads between 6.5 & 8 metres in width shall be No Parking on one side with services (hydrants) located opposite the parking side;*
- *Public Roads less than 6.5 metres in width shall provide parking bays clear of the road formation and locate services outside the parking bays;*
- *Single lane one-way roads shall be no less than 3.5 metres in width with parking bays provided clear of the road formation;*
- *Parking Bays shall be 2.6 metres wide from kerb to the edge of the road formation;*
- *All access roads directly interfacing the bushfire hazard shall provide roll top kerbing to the hazard side of the road.*

5.4.3 Specifications for Property [Internal] Access Roads.

The specifications for property [Internal] access roads within a development are:

- *Internal roads are two-wheel drive capable, sealed, all-weather roads;*
- *Internal perimeter roads are provide with at least two traffic lane width [carriageway 8 metres minimum kerb to kerb] and shoulders to each side to allow traffic to pass in opposite directions;*
- *Roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metre outer radius turning circle or “T” turning head suitable for a 10.0m rigid truck, and are clearly sign posted as a dead end road;*
- *Speed humps/chicanes are not used to control traffic speed;*
- *A minimum carriageway width of 6.5 metres with “No Parking” and services [Hydrants] located on one side of the road;*
- *Passing bays shall be provided at approximately 200 metre intervals on internal roads. Passing bays shall be 20 metres long and 3 metres wide, clear of the road formation;*
- *The carrying capacity of the road surface/bridges shall be 15 tonnes for reticulated areas and 28 tonnes for non-reticulated areas;*
- *Curves shall have an inner radius of 6 metres and an outer radius of 12 metres;*
- *Maximum grades shall be 15 degrees (10 degrees preferred);*

- *A minimum vertical distance of 4.0 metres shall be provided clear of overhanging branches, trees and shrubs.*

5.4.4 Fire Trail Access.

There are no fire trails planned within the residential subdivision. However, there is an existing access road constructed within the Crown Road Reserve along the southern boundary of the property, linking Precinct B to the eastern foredune area of the property with a second fire trail extending off the north-eastern corner of Precinct B.

5.4.5 Emergency Response Access / Egress.

The subdivision layout provides emergency response access/egress in the form of perimeter roads to the hazard aspects of both development precincts. These perimeter roads link to the internal road network at regular intervals and provide fire fighting access to the vegetation within the Conservation Reserve.

Within Precinct A, the internal road network links to a central spine road that runs east to west through the precinct, connecting to a proposed “slip” road which is to be constructed within the cleared powerline corridor that runs along the western side of the precinct. This slip road will extend to the north, connecting to the internal road network of the proposed residential development to the north of the property and linking to the existing road network in the Moonee Village. This new road will exit onto the Pacific Highway at the current Pacific Highway/ Moonee Beach Road intersection.

To the south, the slip road will connect to the approved slip road within the North Sapphire Beach development, continuing to the south where it exits onto the Pacific Highway.

No public road access will connect directly from the access roads within Precinct A to the Pacific Highway. However, due to the likelihood that the slip road will be impacted by fires that occur in the vegetation to the east and west of the road, the need exists for the provision of an emergency exit connection to the Pacific Highway, opposite to where the central road connects with the slip road. [A second emergency exit connection shall be provided onto the Pacific Highway, opposite the primary access road to Precinct B. Both of these emergency access connections will not be required after the slip road is constructed].

Furthermore, it is recommended that to increase the safety to road users, a fuel managed corridor shall be provided in the Dry Blackbutt Open Forest vegetation between the slip road carriageway and the eastern alignment of the Pacific Highway carriageway.

It is further recommended that a 20 metre wide managed corridor be provided within the Dry Blackbutt Open Forest on the eastern side of the southern section of the slip road. The management of these corridors shall be undertaken by the Community Association in accordance with the “Moonee Waters” Fire Management Plan.

Within Precinct B, the internal road network links to a new road constructed within the Crown Road Reserve to the south and west of the precinct with a primary access road extending to the west along the Crown Road Reserve separating the development property and the adjoining approved North Sapphire Beach development. Whilst this access road will be safe from potential impact of bushfires from the south [due to the development on the adjoining land] it is likely to be closed during fires burning in the vegetation to the north of the road carriageway.

Therefore, it is recommended that a 30 metre wide managed corridor be provided within the Dry Blackbutt Open Forest vegetation along the northern side of the road. The management of this corridor shall be undertaken by the Community Association in accordance with the “Moonee Waters” Fire Management Plan.

Emergency access from this precinct is also available, under the emergency access provisions of the *Rural Fires Act*, via the existing gravel access road link through the adjoining North Sapphire Beach development. This link extends from the Crown Road Reserve to the southwest of Precinct B into the North Sapphire Beach development road network.

5.5 Adequacy of Bushfire Maintenance Plans and Fire Emergency procedures.

The Coffs Harbour Bushfire Risk Management and Operational Plans adequately address the bushfire maintenance and fire emergency procedures for the management of the bushfire vegetation and the operational procedures during fire events in the local area.

However, as the Community Association has responsibility, under Section 63 of the Rural Fires Act, for the management of the residual land so as to prevent a fire occurrence on and fire from escaping from Community Lot, it is recommended that a Fire Management Plan be prepared, in concert with the Vegetation Management Plan, for the fuel management of the vegetation within the Community Lot [and the management of the Asset Protection Zones to the future residential development within the development precincts]. The Fire Management Plan shall form part of the Community Management Statement. Fire management of the vegetation within the Community Lot shall be undertaken in accordance with the provisions of the Rural Fire Service “*Bushfire Environmental Assessment Code for Asset Protection and Strategic*

Fire Advantage Zones”, including the provisions of the “Rules and Notes for the Implementation of the Threatened Species Hazard Reduction List”.

The management prescriptions of the Fire Management Plan shall address those measures required to meet the provisions of Section 63 of the *Rural Fires Act 1997* whilst specifically recognising the need to protect the plant communities in the low-lying parts of the property [wetlands, estuarine vegetation and swamp forest communities] that have been listed as “*endangered ecological communities (EEC)* on the *NSW Threatened Species Conservation Act 1995* (TSC Act) and the two threatened plant species [The Rusty Plum *Amorpha* *whitei* and the Moonee Quassia] located in the northern portion of the property.

Fuel management of the wetlands, estuarine vegetation and swamp forest communities shall not be undertaken by slashing, trittering or other mechanical means with the inter-fire frequency period for prescribed burning complying with the specifications of “*Rules and Notes for the Implementation of the Threatened Species Hazard Reduction List*”.

If a wildfire occurs before the minimum frequency is reached then no prescribed burning can be undertaken until such time as the minimum fire frequency is again achieved for at least 50% of the EEC.

Fire [including wildfires, where possible] shall be excluded to within 20 metres of the two threatened plant species on the site.

5.6 Emergency Management for Fire Protection / Evacuation.

The proposed residential development within Precincts A & B will be subject to the impact of fires burning within the bushfire prone vegetation on the Community Lot and from fires burning through the vegetated corridors to the west of the Pacific Highway.

The potential impact is from bushfires burning in the Wetland vegetation to the east of both development precincts will be high levels of ember attack and dense smoke given off by the predominant Swamp Paperbark vegetation. The setbacks prescribed in this report are in accordance with the Rural Fire Service deemed-to-satisfy setback provisions and are designed to mitigate the likely levels of radiant heat on the dwellings to less than 12.5 kWm² with the radiant heat unlikely to threaten building elements.

The potential impact from fires burning towards the northern development precinct, Precinct A, will be mitigated by the provision of the slip road/easement and the management of the vegetation on the western side of the slip road.

However, the precincts are likely to come under a fire event that may require relocation of residents within the dwellings on the perimeter of the development precincts. Should this occur, safe refuge areas can be established in areas that are not likely to be directly impacted or evacuation can be undertaken to relocate residents to a safe refuge zone remote to the precinct. Therefore, it is recommended that an Evacuation Plan be prepared for each precinct and that the Community Association establish an Evacuation Sub-Committee with the responsibility for monitoring and updating the Evacuation Plan.

5.7 Bushfire Hazard Management.

The intention of bushfire hazard management is to prevent flame contact with a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimize the potential for wind driven embers to cause ignition and to reduce the effects of smoke on residents and fire-fighters. A Fire Management Plan shall be prepared for the Community Title subdivision and shall form part of the Community Management Statement.

Careful attention shall be given to species selection of landscaping within the lots, their location relative to their flammability, avoidance of continuity of vegetation [separation horizontally and vertically] and ongoing maintenance to remove flammable fuels. Methods of bushfire hazard management include mowing of lawns and manual removal of combustible material, particularly within the landscaped areas and the Community Lot immediately adjacent to the perimeter road.

It is recommended that a Section 88B Instrument, under the Conveyancing Act of 1919, shall be created on the title of the lots within the development to ensure ongoing management of the nominated Asset Protection Zone and the combustible fuels within the landscaped gardens and to ensure the management of the vegetation within the Community Lot in accordance with the Fire Management Plan.

5.7.1 Fuel Management:

A diligent approach to the management of bushfire fuel levels is required to the land within the future development. Management of the vegetation within the development precincts shall comply with the recommendations of Appendix A5.4 & Appendix A5.5 of *Planning for Bushfire Protection 2006* and the Rural Fire Service “*Standards for Asset Protection Zones*”.

Management of the landscaped gardens shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
- Keep areas under fences, fence posts, gates & trees raked and clear of combustible fuels;
- Utilise non-combustible fencing and retaining wall structures;

- Separate the tree canopy and shrub connectivity with defined landscaped garden beds;
- Maintain tree canopies and shrubs so that they are clear of the building by at least five metres;
- Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings;
- Maintain minimal fine fuel loading at ground level within the Inner Protection Area and landscaped area (nominally 3 tonnes / hectare);
- Trees and shrubs are acceptable provided that they are spread out and do not form a continuous canopy, are not species that retain dead material and are located away from the buildings to minimize radiant heat and direct flame attack.
- Landscape species selection shall be drawn from those that are considered to be species which are “*fire retardant*” and do not promulgate the spread of fire.

Management of the vegetation within the Community Lot, including the managed corridors to the access roads, shall be undertaken in accordance with the Fire Management Plan and strictly comply with the provisions of the NSW Rural Fire Service “*Bushfire Environmental Assessment Code for Asset Protection and Strategic Fire Advantage Zones*”, including the provisions of the “*Rules and Notes for the Implementation of the Threatened Species Hazard Reduction List*”.

The frequency and intensity of fire has a pronounced impact on the diversity and distribution of species within vegetation communities. The occurrence of 2 or more fires within a 10 year period is likely to contribute to a change in vegetation composition and potentially the loss of some of the existing species on site. If a hazard reduction burn is to occur within these areas, as part of the management of bushfire risk, undertaken in accordance with the prescriptions of the Fire Management Plan, then a mosaic pattern of burning is recommended, both across the site and over time to maintain biological diversity.

This ensures a range of age classes of burnt and un-burnt vegetation across the site. An inter-fire period of 20 – 40 years is recommended for the communities in the low-lying parts of the property [wetlands, estuarine vegetation and swamp forest communities.

The inter-fire period at a specific location should be varied and rotational patterns of burning maintained to ensure a variety of lifecycles are present across the residual land at any one time. Management of the vegetation within the Community Lot should aim to prevent wildfires within EEC listed vegetation and unplanned fire ignitions should be extinguished as soon as possible to prevent the spread of fire throughout this vegetation.

5.7.2 Management Responsibilities:

Section 63(2) of the Rural Fires Act states that ‘it is the duty of the owner or occupier 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’.

The owners of each lot and the Community Association will be responsible for the maintenance of the curtilages to the dwellings and the residue lands within the development site to reduce the potential for fires to ignite and spread across the site.

5.8 Adequacy of Sprinkler Systems & other Fire Protection Measures.

There are no sprinkler systems required or recommended.

SECTION 5

RECOMMENDATIONS

Recommendation 1:

Asset Protection Zones shall be provided to the widths as nominated in Tables 6 & 7. (Refer to Figure 1 “*Plan of Bushfire Protection Measures*”).

Table 6. Asset Protection Zones – Development Precinct A

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Table A2.1)	Effective Slope of Land	Width of Asset Protection Zone – Determined using RFS Calculator	Width of Asset Protection Zone Provided	Compliance with Table A2.4.
<i>North</i>	Dry Blackbutt Forest in riparian corridor & proposed Conservation Reserve.	Forest	< 3 degrees down slope.	20 metres for Forest vegetation [11m IPA + 9M OPA]	> 25 metres provided by perimeter road & building setback	Yes
<i>North East</i>	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
<i>South East</i>	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
<i>South</i>	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
<i>West</i>	Dry Blackbutt Forest in Highway corridor	Forest	Level.	14 metre IPA for Forest vegetation.	> 30 metres provided by access road/easement + managed corridor between road/easement & Highway	Yes.

Table 7. Asset Protection Zones – Development Precinct B

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Table A2.1)	Effective Slope of Land	Width of Asset Protection Zone – Determined using RFS Calculator	Width of Asset Protection Zone Provided	Compliance with Table A2.4.

North	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope.	14 metre IPA for Forest vegetation	> 25 metres provided by perimeter road & building setback	Yes
North East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
East	Swamp Forest in proposed Conservation Reserve.	Forested Wetlands	< 2 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South East	Swamp Forest in EEC on adjoining Land	Forested Wetlands	< 5 degrees down slope	14 metre IPA for Forested Wetland vegetation	> 25 metres provided by perimeter road & building setback	Yes
South West & West	Managed Grassland – future development	Nil	< 5 degrees down slope to S.W. < 5 upslope to west	None required	> 20 metres provided by access road within Crown Road Reserve	Yes.
North West	Dry Blackbutt Open Forest	Forest	< 5 degrees down slope to the N.W.	20 metres for Forest vegetation [11m IPA + 9m OPA]	> 25 metres provided by perimeter road & building setback	Yes

Recommendation 2:

The Asset Protection Zones and the landscape gardens within each lot shall be maintained as an Inner Protection Area in accordance with Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's "*Specifications for Asset Protection Zones*". Management of the landscaped gardens shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
- Keep areas under fences, fence posts, gates & trees raked and clear of combustible fuels;
- Utilise non-combustible fencing and retaining wall structures;
- Separate the tree canopy and shrub connectivity with defined landscaped garden beds;
- Maintain tree canopies and shrubs so that they are clear of the building by at least five metres;
- Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings;
- Maintain minimal fine fuel loading at ground level within the Inner Protection Area and landscaped area (nominally 3 tonnes / hectare);

- Trees and shrubs are acceptable provided that they are spread out and do not form a continuous canopy, are not species that retain dead material and are located away from the buildings to minimize radiant heat and direct flame attack.
- Landscape species selection shall be drawn from those that are considered to be species which are “*fire retardant*” and do not promulgate the spread of fire.

Recommendation 3:

A Fire Management Plan shall be prepared to address the maintenance of the Asset Protection Zones/landscaped gardens and the residual vegetation on the Community lands. The Fire Management Plan shall form part of the Community Management Statement.

The management prescriptions of the Fire Management Plan shall specifically address those measures required to meet the provisions of Section 63 of the *Rural Fires Act 1997* whilst recognising the need to protect the plant communities in the low-lying parts of the property [wetlands, estuarine vegetation and swamp forest communities] that have been listed as “*endangered ecological communities (EEC)*” on the *NSW Threatened Species Conservation Act 1995* (TSC Act) and the two threatened plant species [The Rusty Plum *Amorpha sp.* and the Moonee Quassia] located in the northern portion of the property.

Fuel management of the wetlands, estuarine vegetation and swamp forest communities shall not be undertaken by slashing, trittering or other mechanical means with the inter-fire frequency period for prescribed burning complying with the specifications of “*Rules and Notes for the Implementation of the Threatened Species Hazard Reduction List*”.

If a wildfire occurs before the minimum frequency is reached then no prescribed burning can be undertaken until such time as the minimum fire frequency is again achieved for at least 50% of the EEC. Fire [including wildfires, where possible] shall be excluded to within 20 metres of the two threatened plant species on the site.

Management of the vegetation within the Community Lot should aim to prevent wildfires within EEC listed vegetation and unplanned fire ignitions should be extinguished as soon as possible to prevent the spread of fire throughout this vegetation.

Recommendation 4:

An 88B Covenant, in accordance with the provisions of the Conveyancing Act 1919, shall be created on the title of the future residential lots and the Community Property Lot to ensure the ongoing management of the landscaped gardens/residual vegetation within the development in

accordance with the provisions of an Inner Asset Protection Zone [Curtilage to dwellings] and the management prescriptions of the Fire Management Plan [residue vegetation in the Community Lot].

Recommendation 5:

The application of bushfire construction standards shall apply to the future dwellings in accordance with Tables 4 & 5 of this report. The minimum construction standard to the future dwellings within the Community Title subdivision shall be Level 1 construction standard, in accordance with the specifications of Australian Standard A.S 3959 - Second Edition 1999 and Amendment 1, 2000, "*Construction of Buildings in Bushfire Prone Areas*".

Recommendation 6:

Future public access roads shall be constructed to comply with the deemed-to-satisfy provisions of Section 4.1.3 of *Planning for Bushfire Protection 2006*.

Specifications for public roads are:

- *Roads shall be designed for two-wheel drive all weather access;*
- *Perimeter roads shall be two-way with a minimum carriageway width of 8.0 metres, kerb to kerb, with shoulders on each side to allow traffic to pass in opposite directions;*
- *Roads shall be through roads. Dead ends shall not be more than 200 metres in length and incorporate a 12m outer radius turning circle;*
- *The capacity of road surfaces/bridges in a subdivision with reticulated water supply shall be 15 tonnes;*
- *Curves of roads shall have a minimum inner radius of 6 metres and a minimum outer radius of 12 metres;*
- *Vertical clearance above the road surface shall be 4.0 metres;*
- *All public roads eight metres wide shall locate services outside parking reserves to ensure accessibility to the reticulated water supply;*
- *All public roads between 6.5 & 8 metres in width shall be No Parking on one side with services (hydrants) located opposite the parking side;*
- *Public Roads less than 6.5 metres in width shall provide parking bays clear of the road formation and locate services outside the parking bays;*
- *Single lane one-way roads shall be no less than 3.5 metres in width with parking bays provided clear of the road formation;*

- *Parking Bays shall be 2.6 metres wide from kerb to the edge of the road formation;*
- *All access roads directly interfacing the bushfire hazard shall provide roll top kerbing to the hazard side of the road.*

Specifications for Property [Internal] Access Roads.

The specifications for property [Internal] access roads within a development are:

- *Internal roads are two-wheel drive capable, sealed, all-weather roads;*
- *Internal perimeter roads are provide with at least two traffic lane width [carriageway 8 metres minimum kerb to kerb] and shoulders to each side to allow traffic to pass in opposite directions;*
- *Roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metre outer radius turning circle or “T” turning head suitable for a 10.0m rigid truck, and are clearly sign posted as a dead end road;*
- *Speed humps/chicanes are not used to control traffic speed;*
- *A minimum carriageway width of 6.5 metres with “No Parking” and services [Hydrants] located on one side of the road;*
- *Passing bays shall be provided at approximately 200 metre intervals on internal roads. Passing bays shall be 20 metres long and 3 metres wide, clear of the road formation;*
- *The carrying capacity of the road surface/bridges shall be 15 tonnes for reticulated areas and 28 tonnes for non-reticulated areas;*
- *Curves shall have an inner radius of 6 metres and an outer radius of 12 metres;*
- *Maximum grades shall be 15 degrees (10 degrees preferred);*
- *A minimum vertical distance of 4.0 metres shall be provided clear of overhanging branches, trees and shrubs.*

Recommendation 7:

An emergency access link shall be provided from Development Precinct A, onto the Pacific Highway. Locked bollards shall be provided on the boundary of the property to prevent unauthorised use of the emergency link.

Recommendation 8:

The vegetation between the slip road and the Pacific Highway carriageway shall be fuel managed as prescribed by the Fire Management Plan. Similarly, a fuel managed corridor of 20 metres width shall be provide to the eastern aspect of the slip road, south of Development Precinct A and a 30 metre wide fuel managed corridor shall be provided within the Dry Blackbutt Open Forest on the northern side of the access road to Development Precinct B.

Recommendation 9:

The Coffs Harbour Water Supply mains shall be extended, to service the future residential development, in accordance with the specifications of Australian Standard A.S 2419.2. Hydrants shall have a flow rate of 10 litres / second with blue pavement marks provided to locate hydrant positions.

Fire hydrants shall be accessible and located such that a tanker can park within a maximum distance of 20 metres from the hydrant and the habitable building must be located such that a fire at the furthest extremity can be attacked by fire-fighters using two 30 metre hose lines and a 10 metre water jet. A clear unobstructed path between the hydrant and the most distant point of the building cannot exceed 90 metres.

Blue hydrant markers shall be provided to locate the positions of the hydrants. The markers shall be positioned on the hydrant side of the centreline of the road pavement.

Recommendation 10:

The roof gutters/valley of the future buildings shall be fitted with a protection device that minimises the accumulation of combustible materials in the gutters/valleys. The protection device shall have a flammability index of less than 5 as measured under Australian Standard A.S.1530.2 – 1993 *“Methods for fire tests on building materials, components and structures – Test for flammability of materials”*;

Recommendation 11:

An Evacuation Plan shall be prepared for each precinct and the Community Association shall establish an Evacuation Sub-Committee with the responsibility for monitoring and updating the Evacuation Plan.

SECTION 6**CONCLUSION**

A concept plan approval is being sought, under Part 3A [Major Projects] of the *Environmental Planning & Assessment Act 1979* for the Community Title subdivision of part of the 2E Residential/Tourist zoned land within Lot 66 in DP 551005, Pacific Highway, Moonee Beach.

The property is located to the south of the village of Moonee Beach and extends to the east from the Pacific Highway to a Crown Reserve which is located along the foreshores of Sapphire Beach, south of Green Bluff.

The property contains part of the catchment and flood plains to Moonee Creek and Sugar Mill Creek with the vegetation occupying this lowland consisting of Swamp Forest, sedgeland/Rushland.

The development proposal, as shown on the Concept Plan, is for the Community Title residential subdivision of the high land located in the north-western portion of the property [Precinct A] and the high land located in the south-western corner of the southern portion of the property [Precinct B]. The vegetation within the proposed development precincts consists of Dry Blackbutt Open Forest.

The development proposal retains the integrity of the wetland vegetation and provides perimeter roads and Asset Protection Zones between the retained vegetation and the future dwellings in the development precincts. The widths of the Asset Protection Zones exceed the minimum deemed-to-comply widths required by Table A2.5 of *Planning for Bushfire Protection 2006*.

The remaining vegetation within the property [Community Lot] will be managed in accordance with a Fire Management Plan which will form part of the Community Management Statement.

The Director General's Environmental Assessment Requirements, issued on the 20/10/2006, includes under subheading 6 "Hazard Management and Mitigation" Item 6.1, the following advice:

Address the requirements of *Planning for Bushfire Protection 2001 (RFS)*, in particular the provision of bushfire asset protection zones (APZ) in accordance with appropriate vegetation classification, locations [outside the proposed conservation areas and buffer zones]; provision of emergency access and egress; water supply and measures for fuel management and maintenance.

Since the receipt of the Director General's Requirements [DGRs], *Planning for Bushfire Protection 2001* has been replaced by *Planning for Bushfire Protection 2006*. This report examines the DGRs under the provisions of the 2006 document.

This report has therefore assessed the requirements of *Planning for Bushfire Protection 2006* and the recommendations contained in Section 6 address the

deemed-to-comply provisions of *Planning for Bushfire Protection 2006* and therefore the requirements of Section 6.1 of the Director Generals Requirements dated 20/10/2006.

The following table summarises the extent to which the schematic Concept Plan conforms to the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006*.

Table 8. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Bushfire Protection Measure	Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.
(I) Asset Protection Zone setbacks	YES
(II) The siting and adequacy of water supplies for fire fighting	YES
(III) Capacity of public roads to handle increased volumes of traffic in the event of a bushfire emergency	YES
(IV) Public roads that link with the fire trail network have two - way access	YES
(V) Adequacy of emergency response access and egress	YES
(VI) Adequacy of bushfire maintenance plans and fire emergency procedures	YES
(VII) Building construction standards	YES
(VIII) Adequacy of sprinkler systems and other fire protection measures to be incorporated into the development	Not applicable

The proposed development, as represented by the schematic Concept Plan layout, complies with the “Deemed-to-Satisfy” specifications set out in Chapter 4 (Performance Based Control) and the aim and objectives of *Planning for Bushfire Protection 2006*.

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- *Rural Fires Regulation 2002*;

- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002*;
- *Threatened Species Conservation Act 1995*;
- *Native Vegetation Act*;
- *Bushfire Environmental Assessment Code 2003*;
- Building Code of Australia;
- Australian Standard A.S 3959-1999 “*Construction of Buildings in Bushfire Prone Areas*”.
- *Coffs Harbour Bushfire Prone Land Map*.

SECTION 7

FIGURE 1

PLAN OF BUSHFIRE PROTECTION MEASURES



-  ASSET PROTECTION ZONE
-  ACCESS ROAD
-  FUEL MANAGEMENT CORRIDOR

From: "Graham Swain - ABPP" <abpp@bigpond.net.au>
Subject: **FW: Emergency Egress**
Date: 14 November 2007 7:31:24 PM
To: "'Peter Biasotto'" <peter@biasotto.com.au>, "'Evy Anwar'" <evy@aaud.com.au>, <peter@aaud.com.au>
2 Attachments, 4.2 MB [Save](#)

Copy of Email forwarded to Anthony Cogle this afternoon – I hope we get a positive response

Regards

Graham

Australian Bushfire Protection Planners Pty Limited
RMB 3411 Dog Trap Road, SOMERSBY, NSW, 2250
Mob: 0427 622204 Ph: (02) 43622112 Fax: (02) 43622204

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From: Graham Swain - ABPP [mailto:abpp@bigpond.net.au]
Sent: Wednesday, 14 November 2007 6:19 PM
To: 'acogle@bigpond.net.au'
Subject: Emergency Egress

Good afternoon Anthony,
Thank you for taking the time to discuss this matter with me this afternoon.

Australian Bushfire Protection Planners has prepared a detailed Bushfire Protection Assessment for the proposed development of the land that adjoins your northern and eastern boundaries [beyond the unmade Crown Road Reserve]. I have attached a copy of the report for your perusal.

You will notice two development precincts. The first is the northern precinct which is located within the northern portion of the site and the second is on land to the east of your land.

The primary access to the southern development precinct is via the existing Crown Road Reserve along your northern boundary. This primary access runs within a 30 metre wide corridor that will be managed as an Asset Protection Zone, which by default, will also provide an Asset Protection Zone to the northern portion of your development.

The residential precinct to the east of your development will remove the need for an Asset Protection Zone to the east of your development. Therefore, with the removal of the need for you to provide an Asset Protection Zone along your northern AND eastern boundaries, this substantially increases your potential development yield within your property.

As I mentioned, the primary access/egress from the southern precinct is via the Crown Road Reserve, however it would be beneficial to have an emergency egress from the Crown Road Reserve, through your existing access gate and onto the road network within your development. This emergency access link would only be utilised if the need arose for an alternate route for the egress from the southern precinct during a major fire event in the vegetation adjoining the development precinct.

I envisage the management of the evacuation of the southern development precinct, if needed, would be co-ordinated by the Emergency Services [Rural Fire Service/Police] thus ensuring an orderly relocation of the residents and Emergency Service personnel, via the emergency access link.

At this stage in the development process, we are seeking your consideration of this request and if it is deemed an appropriate proposal, a letter of agreement in principle would be suitable.

I would appreciate your timely consideration of this request and would be happy to discuss the matter with you once you have had a chance to consider my request,

Regards

Graham

Australian Bushfire Protection Planners Pty Limited
RMB 3411 Dog Trap Road, SOMERSBY, NSW, 2250
Mob: 0427 622204 Ph: (02) 43622112 Fax: (02) 43622204

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