

**BUSHFIRE PROTECTION ASSESSMENT**  
**FOR THE CONSTRUCTION OF A NEW DWELLING**  
**ON LOT 88 in DP 752017**  
**EURABBA ROAD,**  
**DUFFYS FOREST**

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<b>Assessment Number</b>	<b>Document</b>	<b>Preparation Date</b>	<b>Issue Date</b>	<b>Directors Approval</b>
B213688 - 1	Final	05.05.2021	20.12.2021	<i>G.L.Swain</i>

## EXECUTIVE SUMMARY

*Australian Bushfire Protection Planners Pty Limited* has been commissioned to prepare an updated Bushfire Protection Assessment report for the construction of a new dwelling on Lot 88 in DP 752017, Eurabba Road, Duffys Forest.

A previous Development Application for the erection of a dwelling and construction of the proposed driveway was approved by the Land and Environment Court on the 10<sup>th</sup> September 2018 (Case Number 2018/00222061).

The owner is applying for a new Development Application for the construction of a dwelling on the site under the provisions of Section 4.14 of the *Environmental Planning and Assessment Act 1979*.

The development site is located on the north-eastern side of Eurabba Road, is rectangular in shape and contains an open paddock with stables and arena, located in the north-eastern portion of the site. The proposed dwelling is to be located within the open paddock area [rear] of the site.

The design includes the construction of a two storey building containing an Entry, Kitchen, Dining, Family Lounge, Office and Cabana on the Ground Floor and four bedrooms and Family on the First Floor level.

A basement contains a Garage, Rumpus Room/Bushfire Refuge.

The development proposal includes the construction of a Courtyard, Swimming Pool, Tennis Court and construction of a driveway off Eurabba Road.

The land to the northeast contains the Terrey Hills Golf and Country Club. The land to the northwest and southeast of the development site contains existing rural residential development.

The south-western [front] portion of the development site and the land to the southwest, beyond Eurabba Road, contains Duffys Forest vegetation. This vegetation is recorded on the Northern Beaches Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation.

The site inspection confirmed that the Bushfire Prone Land Map accurately records the extent of Category 1 Bushfire Prone Vegetation within 140 metres of the proposed dwelling. Therefore, as the development site is mapped as containing Bushfire Prone Vegetation, the property is deemed to be located within a Bushfire Prone Area and, pursuant to Section 4.14 of the *Environmental Planning and Assessment Act*, the consent authority must determine if the proposed development complies with *Planning for Bushfire Protection 2019*.

The proposed development, consisting of the construction of a new dwelling on an existing lot, is defined as “infill development” by Section 7 of *Planning for Bushfire Protection 2019*.

This report assesses the bushfire protection requirements necessary to provide compliance with Section 4.14 of the *Environmental Planning and Assessment Act 1979* and reviews the adequacy of Asset Protection Zones and examines access, water supplies/building construction standards to satisfy the objectives of Section 7.3 and the specifications and requirements for bushfire protection measures for infill development as defined by Section 7 "Infill Development" of *Planning for Bushfire Protection 2019*.



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

***Fire Protection Association Australian Member No 48781***

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## SECTION 1

### INTRODUCTION

#### 1.1 Aim of this Report.

Development Applications for infill development on bushfire prone land must be accompanied by a Bushfire Assessment Report demonstrating compliance with the aim and objectives of *Planning for Bushfire Protection 2019* and the specific objectives and performance criteria for the land use proposed. In particular, the following matters must be addressed:

- A statement that the site is bushfire prone;
- The location, extent and vegetation formation of any bushland on or within 140 metres of the site;
- The slope and aspect of the site and of any bushfire prone land within 100 metres of the site;
- Any features on or adjoining the site that may mitigate the impact of a bushfire on the proposed development;
- A statement assessing the likely environmental impact of any proposed bushfire protection measures (BPMs);
- A site plan showing access, water supplies, Asset Protection Zones, Bushfire Attack Level (BAL) requirements and building footprint in relation to the bushfire hazards; and
- Calculated BAL construction levels.

#### 1.2 Statutory Requirements.

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

##### 1.2.1 Legislation.

##### ***Environmental Planning and Assessment Act (EPA Act)***

Section 4.14 of the EP&A Act requires a consent authority to determine if a proposed development that is located within a designated Bushfire Prone Area or the buffer zone to the Bushfire Prone Land complies with *Planning for Bushfire Protection 2019*.

### **1.2.2 Planning Policies.**

#### ***Planning for Bushfire Protection 2019 – (Rural Fire Service).***

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for residential and rural residential subdivision and the construction of ‘*Special Protection Purpose Developments*’ and residential and rural residential dwellings in bushfire prone areas.

### **1.3 Documentation reviewed in this Assessment.**

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

- Aerial photograph of the site;
- Architectural Plans and Elevations of proposed dwellings prepared by H.Y. Koo & Associates – dated March 2021;
- Northern Beaches Bushfire Prone Land Map.

### **1.4 Site Inspection.**

A site inspection was undertaken by Graham Swain of Australian Bushfire Protection Planners Pty Limited on the 1<sup>st</sup> September 2017.

### **1.5 Development Proposal.**

The design includes the construction of a two storey building containing an Entry, Kitchen, Dining, Family Lounge, Office and Cabana on the Ground Floor and four bedrooms and Family on the First Floor level.

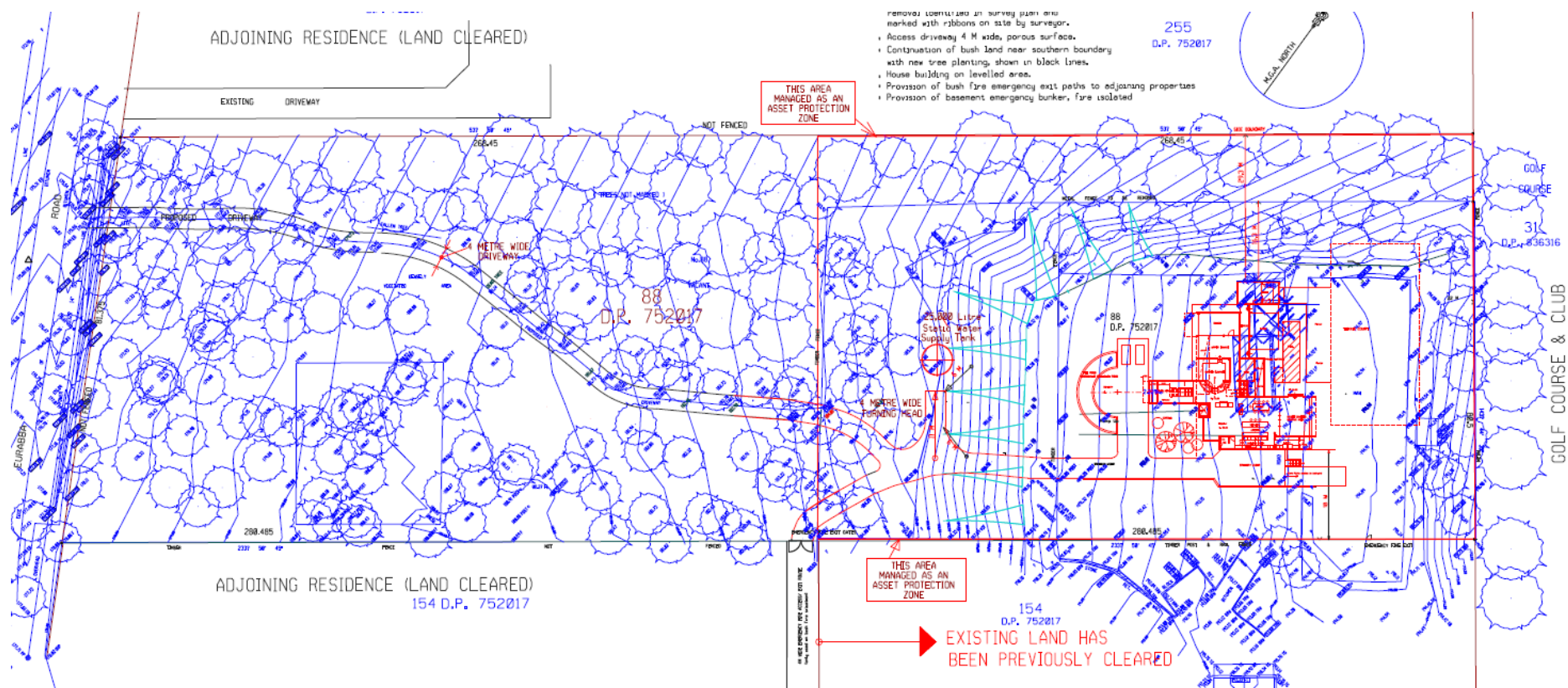
A basement contains a Garage, Rumpus Room/Bushfire Refuge.

The development proposal includes the construction of a Courtyard, Swimming Pool, Tennis Court and construction of a driveway off Eurabba Road.

The development also includes the construction of an emergency access link across the adjoining Lot 154 in DP 752017, to the south of the development site.

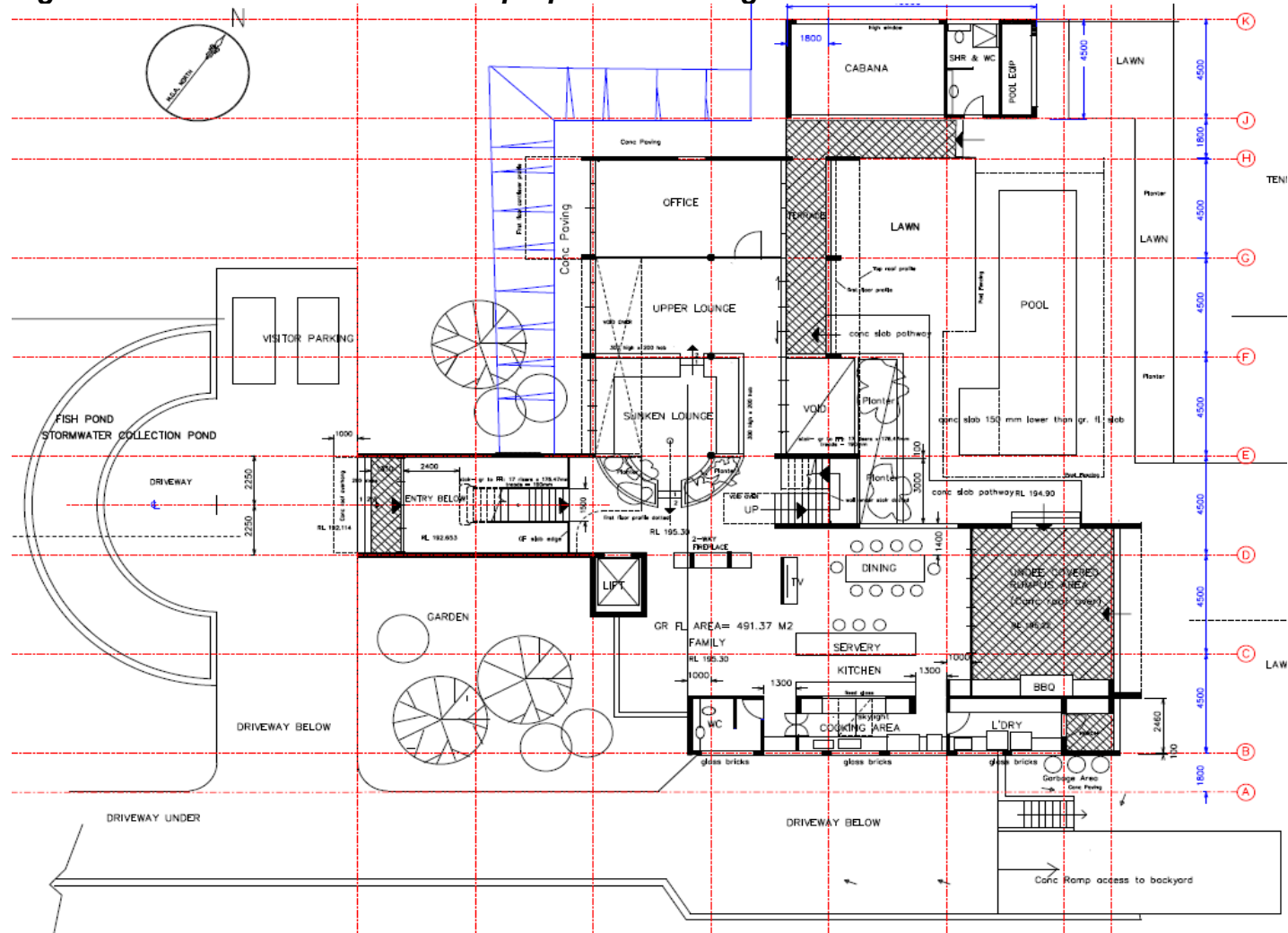
Refer to Figure 1 – Site Plan on Page 8 and Figure 2 – Plans & Elevations on Page 9.

**Figure 1 – Site Plan of the Development Site showing the location of the proposed Dwelling**

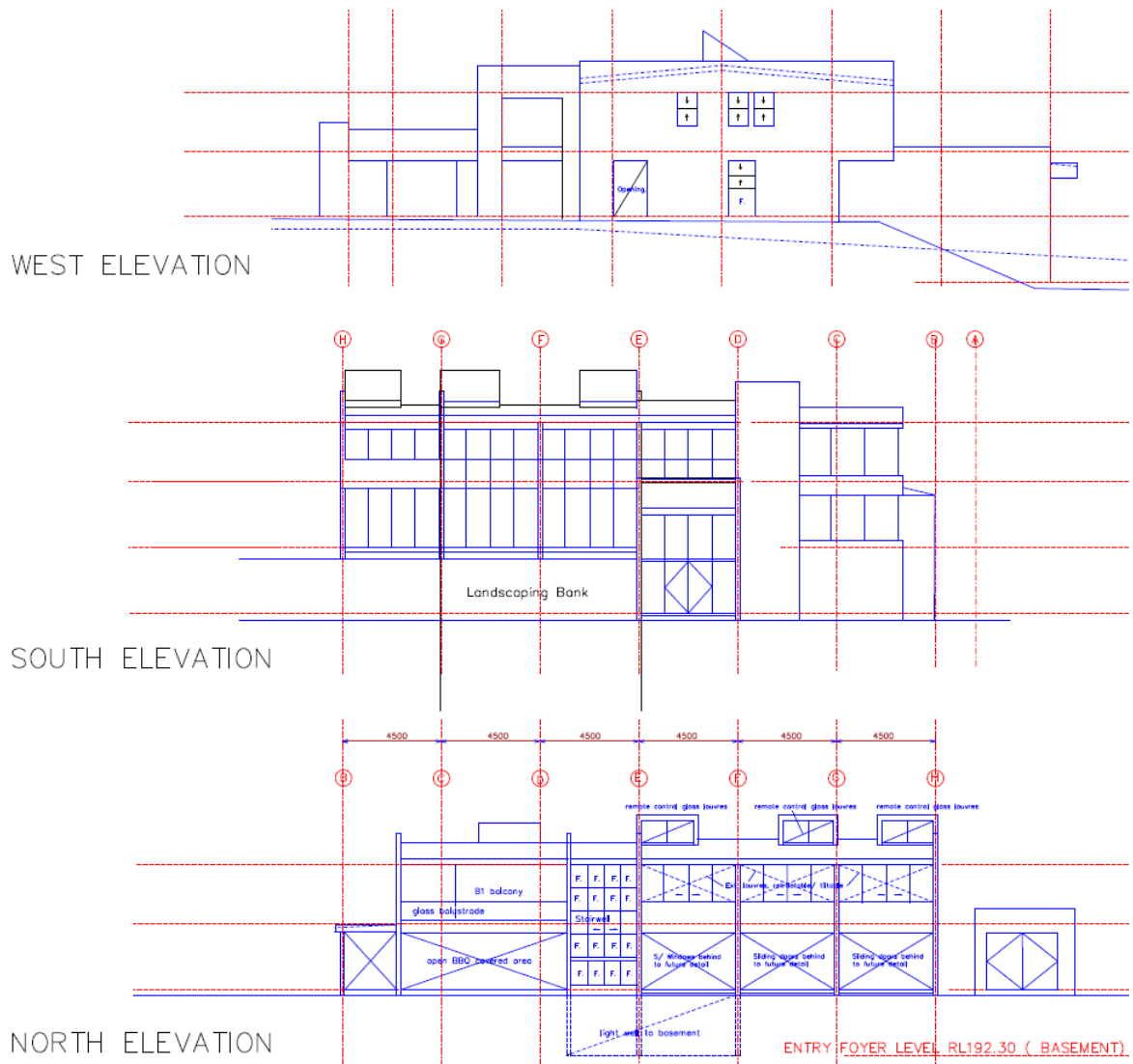


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**Figure 3 – Ground Floor Plan of the proposed Dwelling.**



**Figure 4 – Elevations of the proposed Dwelling.**



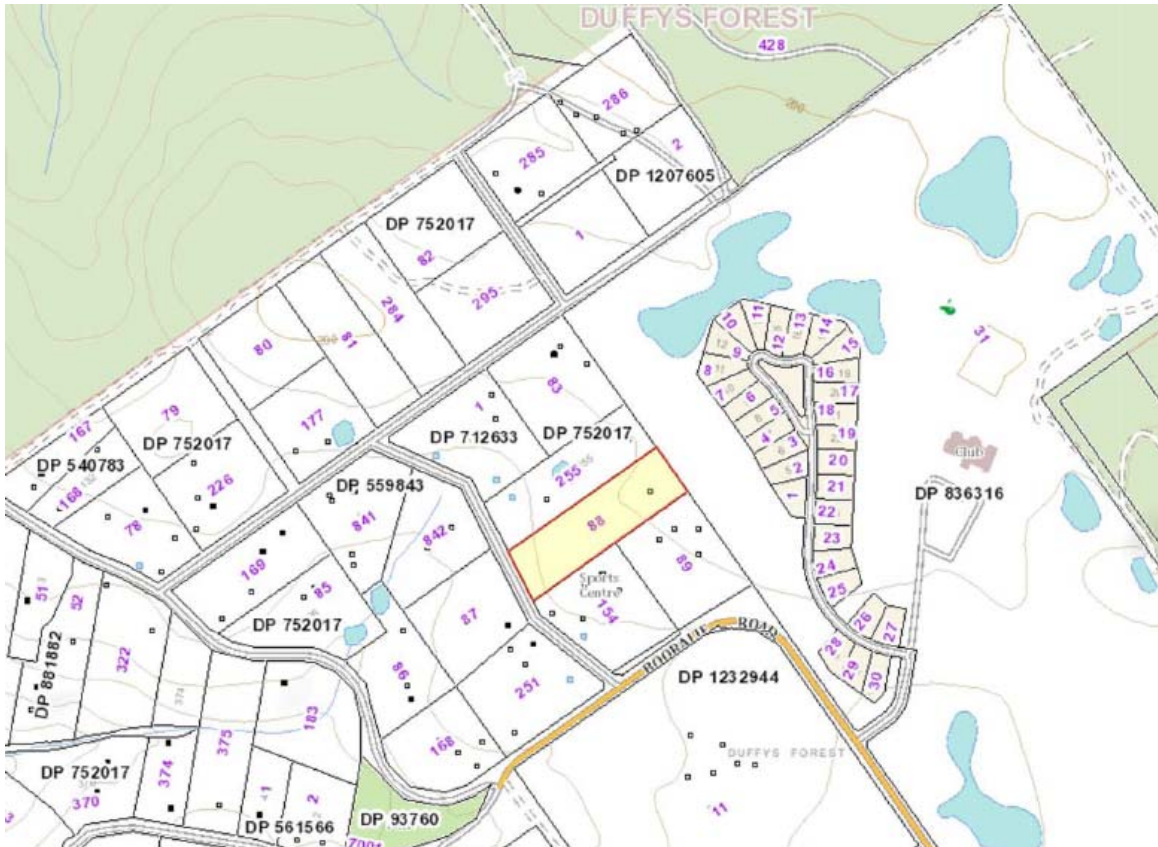
## SECTION 2

### PROPERTY DESCRIPTION

#### 2.1 Location.

The property on which the proposed dwelling is to be erected is located on the north-eastern side of Eurabba Road in the suburb of Duffys Forest.

**Figure 5 – Site Location Plan.**



#### 2.2 Existing Land Use.

The land within the south-western portion of the development site is vacant. The north-eastern portion of the site contains a grazing paddock, Stables and Arena.

#### 2.3 Surrounding Land Use.

The land to the northeast of the development site contains the Terrey Hills Golf Course and Country Club.

The adjacent land to the northwest and southeast contains existing rural residential development whilst vacant land and rural residential development occupies the land to the southwest, beyond Eurabba Road – refer to Figure 6 – Aerial Photograph on Page 13.

**Figure 6 – Aerial Photograph showing the location of the development site and adjoining existing landuse.**



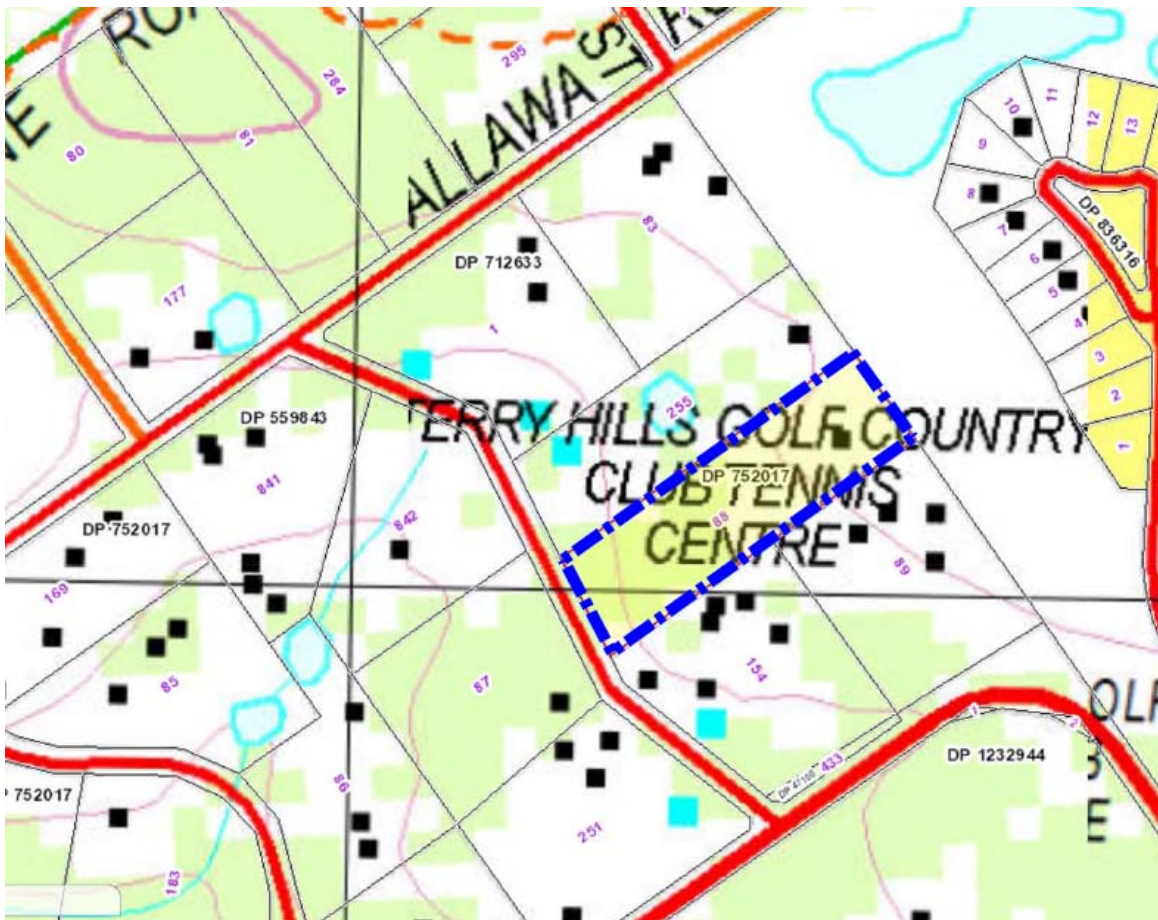
## **2.4 Topography.**

Appendix 2 of *Planning for Bushfire Protection 2019* 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.

The land containing the Category 1 Bushfire Prone Vegetation, within the south-western of the development site, falls to the southwest towards Eurabba Road at less than 5 degrees. The land containing the Category 1 Bushfire Prone Vegetation to the southwest of Eurabba Road also falls to the southwest at less than 5 degrees.

Refer to Figure 7 – Topographic Map on Page 14.

**Figure 7 – Topographic Map.**



## **2.5 Bushfire Prone Vegetation.**

Vegetation is classified using Appendix 1 - Figure A1.2 of *Planning for Bushfire Protection 2019*, which classifies vegetation types into the following groups:

- (a) Rainforest;
- (b) Wet Sclerophyll Forest;
- (c) Dry Sclerophyll Forest;
- (d) Woodlands;
- (e) Tall Heaths;
- (f) Short Heaths; and
- (g) Grassland.

### **2.5.1 Predominant Vegetation within 140 metres of the Development Site.**

The land within the south-western portion of the development site contains Duffys Forest. This vegetation also extends across the vacant land to the southwest of Eurabba Road.

## **2.6 Features on or adjoining the site that may mitigate the impact of a high intensity bushfire.**

The new dwelling is located in the north-eastern corner of the development site, adjoined to the northwest, northeast and southeast by existing rural residential development, resulting in the dwelling house not being exposed to high intensity bushfires from the predominant northwest fire path.

The dwelling will be exposed to a fire within the Duffys Forest in the south-western portion of the development site, burning under a south-westerly wind influence. Depending on the fire weather conditions at the time and fluctuations in wind direction, the dwelling may be exposed to the impact from a high intensity bushfire fire.

## SECTION 3

### BUSHFIRE PROTECTION ASSESSMENT

#### 3.1 Introduction.

The south-western portion of the development site is shown on the Northern Beaches Council Bushfire Prone Land Map to contain Category 1 Bushfire Prone Vegetation – refer to Figure 8 below.

**Figure 8 – Extract from the Northern Beaches Council Bushfire Prone Land Map showing extent of Category 1 [Orange] Bushfire Prone Vegetation and buffer zone [Red] recorded on the development site and adjoining land.**



The Section 4.55 Application to the Northern Beaches Council seeks approval for the construction of a dwelling on the site which is defined as “infill development” under Section 7 of *Planning for Bushfire Protection 2019*.

Section 7.3 of *Planning for Bushfire Protection 2019* provides the following specific objectives for infill development:

- Provide a defensible space to enable unimpeded access for fire-fighting around the building;
- Provide better bushfire outcomes on a redevelopment site than currently exists, commensurate with the scale of works proposed;
- Design & construct buildings commensurate with the bushfire risk;
- Provide access, services and landscaping to aid fire-fighting operations;
- Not impose an increased bushfire management and maintenance responsibility on adjoining landowners; and
- Increase the level of bushfire protection to existing dwellings based on the scale of the proposed work and level of bushfire risk.

These performance criteria are examined in the following sections of this report.

These performance criteria are examined in the following sections of this report.

### **3.2 Asset Protection Zone & Construction Standards to the Building.**

The NSW Rural Fire Service issued the following advice to Northern Beaches Council (Letter dated 11<sup>th</sup> December 2017 – Reference D17/4342) on the provision of Asset Protection Zones required for the proposed dwelling:

1. At the commencement of building works and in perpetuity, the land surrounding the proposed dwelling shall be managed as an inner protection area (IPA) as outlined within Appendices 2 & 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones' as follows:
  - northwest for a minimum distance of 27 metres.
  - northeast to the property boundary;
  - southeast to the property boundary;
  - southwest for a minimum distance of 60 metres; and

around the emergency access link as shown in the Bushfire Protection Assessment, Figure 7, prepared by Australian Bushfire Protection Planners, dated 16/11/2017 ref.B173029-5.

The nominated widths of the Asset Protection Zones replicated the recommendations on the widths of the Asset Protection Zones contained in the Bushfire Protection Assessment Report prepared by ABPP – reference B173029 dated 16<sup>th</sup> November 2017.

The new application reduces the width of the Asset Protection Zone to the southwest of the proposed dwelling to 47 metres to accommodate the retention of the Duffys Forest vegetation located in the former grazing paddock.

The new application also seeks to reduce the Asset Protection Zone to the northwest of the proposed dwelling from 27 metres to 16.3 metres to accommodate the retention of a ten (10) metre wide corridor of Duffys Forest vegetation located along the north-western boundary of the development site.

Table A1.12.5 of *Planning for Bushfire Protection 2019* provides a summary of the determination of Asset Protection Zones for residential developments in bushfire prone areas having a Fire Danger Index (FDI) of 100.

The vegetation to the southwest of the proposed dwelling consists of Duffys Forest on land that falls to the southwest at 0 – 5 degrees.

Table A1.12.5 of *Planning for Bushfire Protection 2019* identifies that the available Asset Protection Zone width of 47 metres reduces the radiant heat loading on the western elevation of the building to 19kW/m<sup>2</sup>.

The narrow corridor (< 10 metres) of Duffys Forest to the northwest of the proposed dwelling is identified as 'low hazard' vegetation – i.e. vegetation with a width less than 50 metres wide.

The NSW Rural Fire Service accepts that this vegetation can be assessed as 'rainforest' for the purpose of determining the width of Asset Protection Zone and bushfire construction standards to the north-western elevation of the building.

Table A.1.12.5 of *Planning for Bushfire Protection 2019* identifies that the available Asset Protection Zone width of 16.3 metres for low hazard rainforest on level land reduces the radiant heat loading on the north-western elevation of the building to 19kW/m<sup>2</sup>.

The north-eastern and south-eastern aspects to the dwelling contain managed vegetation within the adjoining rural residential and Golf Course development.

Whilst Table A.1.12.5 of *Planning for Bushfire Protection 2019* identifies that the south-western and north-western elevation of the building requires a BAL 19 level of construction it is recommended that the entire building shall be constructed to comply with Section 3 and Section 7 (BAL 29) and that a non-combustible roof gutter protection system is installed to minimise the accumulation of combustible material in the roof gutters.



### **3.3 Safe Access for Fire Fighting Operations & Residents.**

#### **3.3.1 Adequacy of Public Roads.**

The proposed dwelling will have direct access onto Eurabba Road which is a public road maintained by the Northern Beaches Council. This road provides two-way access for emergency vehicles.

#### **3.3.2 Emergency Access / Egress to the Development.**

Emergency access to the new dwelling is available from Eurabba Road via the proposed 4 metre wide driveway. This driveway is located in the Duffys Forest vegetation and therefore does not provide a safe means of access/egress during fires in the vegetation.

To address this there has been established on the adjoining property to the southeast an Easement for Emergency Access, linking to the existing driveway on Lot 154 in DP 752017 which in turn provides an alternate access/egress to Booralie Road, to the southeast – through managed landscaped gardens.

A truck turning head is provided adjacent to the proposed static water supply tank – refer to Figure 9 on Page 19.

### **3.4 Water Supplies for Fire Fighting Operations – Utility Services.**

A reticulated water supply complete with fire hydrants is available in Eurabba Road and will be connected to the proposed dwelling.

However, it is recommended that a Static Water Supply [SWS] tank be provided.

The SWS tank shall be constructed from concrete/steel and have a storage capacity of 25,000 litres and be fitted with a 65mm outlet complete with a 65mm ball valve, Stortz Coupling and Blanking Cap.

It is recommended that a 35 metre long x 19mm I.D. fire hose be installed on the eastern corner of the proposed dwelling and connected to the SWS tank, via a diesel powered pump, housed in a non-combustible enclosure.

The electrical supply to the dwelling shall be installed underground and gas cylinders installed so the 'blow-off' valves face away from the building.

All exposed piping/fittings shall be metal.

A Static Water Supply sign shall be displayed at the entry to the property.

### **3.5 Landscape Management.**

The whole of the nominated Asset Protection Zone as shown on Figure 9 shall be managed as an Inner Protection Area in accordance with Appendix 4 of *Planning for Bushfire Protection 2019* and the Rural Fire Service “Standards for Asset Protection Zones”.

### **3.8 Likely Environmental impact of proposed Bushfire Protection Measures.**

The area of the development site to be occupied by the proposed dwelling and Asset Protection Zones contains managed vegetation therefore the bushfire protection measures (Asset Protection Zones) do not require the removal of fully structured Duffys Forest vegetation.

### **3.9 Fire Management Plan.**

In order to address the responsibilities under Section 63 of the Rural Fires Act 1997, there shall be prepared, and implemented, a Fire Management Plan for the property.

The FMP shall include protocols for the management of the Asset Protection Zone and the residual vegetation on the land.

This plan shall also take into account the recommendations of the Vegetation Management Plan prepared by Anne Clements & Associates.

## SECTION 4

### RECOMMENDATIONS

#### **Recommendation 1: Asset Protection Zones:**

The Asset Protection Zone [managed curtilage to the dwelling and the emergency access link] shall be established to the extent as shown on Figure 9 on Page 19 of this report.

#### **Recommendation 2: Construction Standards:**

The building shall be constructed to comply with Section 3 and Section 7 [BAL 29] of A.S. 3959 – 2009 – ‘Construction of Buildings in Bushfire Prone Areas’.

#### **Recommendation 3: Gutter Protection:**

Roof gutters shall be fitted with a non-combustible device which prevents the accumulation of dry litter and ignition of this material by burning embers.

#### **Recommendation 4: Fire-fighting Water Supply – Utility Services:**

A Static Water Supply [SWS] tank shall be provided, located adjacent to the turning area.

The SWS tank shall be constructed from concrete/steel and have a storage capacity of 25,000 litres and be fitted with a 65mm outlet complete with a 65mm ball valve, Stortz Coupling and Blanking Cap.

A 35 metre long x 19mm I.D. fire hose shall be installed on the eastern corner of the proposed dwelling and connected to the SWS tank, via a diesel powered pump, housed in a non-combustible enclosure.

The electrical supply to the dwelling shall be installed underground and gas cylinders installed so the ‘blow-off’ valves face away from the building.

All exposed piping/fittings shall be metal.

A Static Water Supply sign shall be displayed at the entry to the property.

#### **Recommendation 5: Landscape Management:**

The whole of the nominated Asset Protection Zone shall be managed [to the extent shown on Figure 9] as an Inner Protection Area in accordance with Appendix 4 of *Planning for Bushfire Protection 2019* and the Rural Fire Service “Standards for Asset Protection Zones”.

**Recommendation 6: Fire Management Plan:**

In order to address the responsibilities under Section 63 of the Rural Fires Act 1997, there shall be prepared and implemented a Fire Management Plan for the property.

The FMP shall include protocols for the management of the Asset Protection Zones and the residual vegetation on the land.

This plan shall also take into account the recommendations of the Vegetation Management Plan prepared by Anne Clements & Associates.

**Recommendation 7: Easement for the Management of the Asset Protection Zone and fire protection measures:**

There shall be established on the title of the land an Easement, pursuant to Section 88B of the Conveyancing Act 1919, for:

- The establishment and maintenance of the Asset Protection Zone to the area as shown on Figure 9 of this report;
- The provision of a Static Water Supply as recommended in this report;
- The establishment and maintenance of a Fuel Management Plan for the Asset Protection Zones and Duffys Forest Vegetation.

## SECTION 5

### CONCLUSION

The proposed development consists of an new application under Section 4.14 of the *Environmental Planning and Assessment Act 1979* for the construction of a dwelling on Lot 88 in DP 752017, Eurabba Road at Duffys Forest.

The Development Consent seeks approval for the increase in the floor area and modified design of the approved dwelling, reducing the width of the approved Asset Protection Zones.


This report has found that even with the reduction in the width of the Asset Protection Zones to the southwest and northwest, the radiant heat exposure on the southwest and northwest elevations is less than 19kW/m<sup>2</sup>.

This report also maintains the original reports' advice that the vegetation [Duffys Forest] on the south-western [front] portion of the development site poses a high level risk to the proposed dwelling from a bushfire burning under a south-westerly wind influence. The primary access to the proposed dwelling extends through this vegetation and therefore does not provide safe access/egress during such fire events.

Therefore it is recommended that the entire building be constructed to comply with Section 3 and Section 7 (BAL 29) of A.S. 3959 -2018 – '*Construction of Buildings in Bushfire Prone Areas*'.

This report also repeats the recommendations contained in the original report in respect to the provision of water supplies for firefighting operations and the management of fuel hazards/landscaping within the Asset Protection Zone.

I certify that the application of the recommended bushfire protection measures satisfy the requirements of Section 4.14 of the *Environmental Planning & Assessment Act 1979* and Australian Standard A.S. 3959 – 2018 – '*Construction of Buildings in Bushfire Prone Areas*'.



Graham Swain,  
Managing Director,

***Australian Bushfire Protection Planners Pty Limited.***

## REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2019* ;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires Regulation 2013*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2015*;
- *Native Vegetation Act*;
- *Bushfire Environmental Assessment Code*;
- Building Code of Australia;
- Australian Standard A.S 3959-2018 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Northern Beaches Council Bushfire Prone Land Map*.