REF: 5408BF

AUGUST 1, 2024

VALID TO: 1/08/2025

BUSHFIRE HAZARD ASSESSMENT

PROPOSED 2 LOT SUBDIVISION

57 WANDEAN ROAD, WANDANDIAN, NSW.

LGA: Shoalhaven

Lot 1, DP 1268021

Applicant: Paola Glammar

APPROVED

Land and Environment Court of NSW

LEC No: 2024/00150241

DEVELOPMENT CONSENT NO: SF10955 Dated: 22/10/2024

HARRIS ENVIRONMENTAL CONSULTING

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BPAD Bushfire Planning & Design Accredited Practitioner Level 3

BUSHFIRE HAZARD ASSESSMENT

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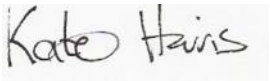
ASSESSOR & QUALIFICATIONS



BPAD-L3-26927
MASTERS BUSH FIRE PROTECTION, WSU
GRAD DIP BUSH FIRE PROTECTION, UWS
GRAD DIP ENVIRO MANG HERTS, UK,
GRAD DIP NAT RES UNE,
BSC APP SC, AGRICULTURE HAC

VERSION CONTROL

Title	Bushfire Hazard Assessment			
Site address	57 Wandean Road, Wandandian, NSW.			
Prepared By	Bailey Jones – Bachelor of Science (Environment)			
Approved by:	Katherine Harris BPAD L3 26947			
Date Created	30/07/2024			
Version Number	**Modified By**	**Modifications Made**	**Date Modified**	**Status**
1.0	BJ	DA Report	31/07/2024	Complete
1.1	KH	DA Report	1/08/2024	Complete

DISCLAIMER

The recommendations provided in the summary of this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report however there is no guarantee of human error. The intention of this report is to address the submission requirements for Development Applications on bushfire prone land. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent and there is no way Harris Environmental Consulting is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent. This bushfire assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event.

TABLE OF CONTENTS

FIGURES

TABLES

APPENDIX

EXECUTIVE SUMMARY

This Bushfire Hazard Assessment is for the proposed 2 Lot Subdivision of 57 Wandean Road, Wandandian, NSW. The subdivision involves the creation of two separate lots:

- Lot 1 is proposed to encompass the northwest corner of the original subject lot and spans 2.21Ha. There is a proposed building envelope on the subject lot.
- Lot 2 is proposed to span 5.67Ha. There is an existing dwelling on the proposed lot.

The assessment confirms the subject lot is identified as bushfire prone.

This assessment classifies the bushfire-prone vegetation within 140m of proposed subject lot as:

Aspect	Vegetation Classification & Slope	Distance from hazard to façade
Lot 1 (Proposed Building Envelope)		
North	0-5° Downslope Forest	74.2 m
	0-5° Downslope Grassland	29 m
Northeast	0-5° Downslope Remnant Vegetation	30.2 m
East	0-5° Downslope Forest	75.4 m
	0-5° Downslope Grassland	29 m
South	Upslope Grassland	10 m
West	Upslope Grassland	10 m
Lot 2 (Existing Dwelling)		
North	0-5° Downslope Forest	30.4 m
	0-5° Downslope Grassland	29 m
East	0-5° Downslope Forest	29 m
South	Upslope Grassland	10 m
West	Flatland Grassland	10 m
Northwest	Flatland Remnant Vegetation	55.4 m

The relevant technical bushfire protection provisions under the National Construction Code (NCC) for design and construction of building standards are:

- AS3959 - *2018 Construction for Buildings in Bushfire Prone Areas* or,
- *NASH Standard Steel Framed Construction in Bushfire Areas (2014) if* a steel frame is proposed.

The Planning for Bushfire Protection A Guide for Councils, Planners, Fire Authorities and Developers 2019 (PBP) provides the specific development standards and guidance for designing and building on bushfire prone land in NSW.

The proposed subdivision is capable of satisfying bushfire requirements outlined as specified by the requirements outlined in Appendix 2, PBP. Both lots, the proposed building envelope and existing dwelling provide Asset Protection Zones (APZ) that meet BAL 29 or less.

The APZ's and their Inner Protection Areas' (IPA) and Outer Protection Areas (OPA) is for the following distances:

Lot 1 (Proposed Building Envelope):

- 29 m on the northern and eastern elevations;
- 10 m on the southern and western elevations.

Lot 2 (Existing Dwelling):

- 29 m on the northern and eastern elevations;
- 10 m on the southern and western elevations.

The APZ for the existing dwelling on Lot 2 should be managed as an IPA and OPA. The general layout should be:

IPA:

- 0-19 m on the northern and eastern elevations;
- 0-10 m on the southern and western elevations.

OPA:

- 19-29 m on the northern and eastern elevations;

The subject lot is located on Wandean Road. This is a two-wheel drive, all-weather road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles

The proposed subdivision is considered a rural subdivision and a perimeter road and secondary access are not proposed. All proposed lots are located within 200 m of a public through road.

The existing access in Lot 2 is approximately 130 m from the public through road and provides 4 m carriageway and an adequate turning area for a fire tanker that requires an inner minimum turning radius of 6 m and outer minimum radius of 12 m. The proposed access to Lot 1 is approximately 60 m in length.

The access road for the proposed subdivision is required to comply with the relevant requirements of Table 5.3b (PBP 2019). This includes:

- property access roads are two-wheel drive, all-weather roads;
- the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.
- there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.
- minimum 5.5m carriageway width kerb to kerb;
- parking is provided outside of the carriageway width;
- curves of roads have a minimum inner radius of 6m;
- the road crossfall does not exceed 3 degrees;
- and a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

The applicant should ensure a 20,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available. Above ground tanks are required to be manufactured of concrete or metal and raised tanks have their stands protected. All above ground water pipes external to the building are required to be metal including and up to any taps. Pumps are to be shielded. Underground tanks should have an access hole of 200 mm and a hardened ground surface within 4 m of the access hole. A suitable connection for firefighting purposes is required such as a 65mm storz outlet and a gate or ball valve.

Any bottled gas will be installed and maintained under AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

Electrical transmission lines, if above ground, will be managed under specifications issued by the respective energy supplier.

1. PROPOSAL

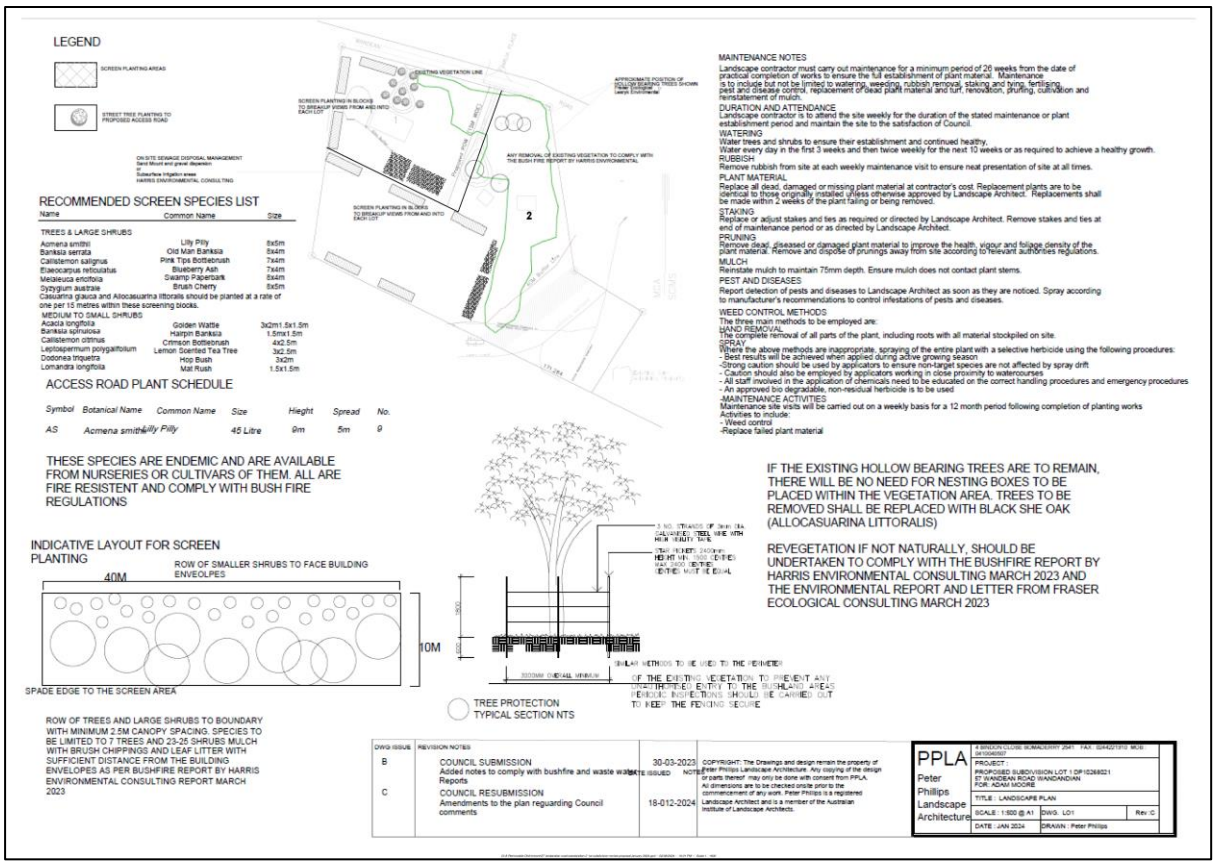
The proposal involves a 2-lot subdivision of Lot 1, DP 1268021 of 57 Wandean Road, Wandandian, NSW. The subdivision involves the creation of two separate lots:

- Lot 1 is proposed to encompass the northwest corner of the original subject lot and spans 2.21Ha. There is a proposed building envelope on the subject lot.
- Lot 2 is proposed to span 5.67Ha. There is an existing dwelling on the proposed lot.

This assessment confirms the subject lot is mapped bushfire prone. Harris Environmental Consulting was commissioned to provide this bushfire assessment.

Figure 1 shows the proposed subdivision plan.

FIGURE 1 PROPOSED SUBDIVISION PLAN



2. ASSESSMENT REQUIREMENTS

2.1 Regulation

As this proposal involves a subdivision it requires Integrated DA approval. This involves obtaining a Bushfire Safety Authority (BFSA) from the NSW Rural Fire Services (RFS).

Integrated development applications under section 100B of the *Rural Fires Act* (RF Act) and section 4.46 of the *EP&A Act* require the following detailed information:

- Description of property;
- Classification of vegetation out to 140 m from the development;
- An assessment of the effective slope to a distance of 100 m;
- Identification of any significant environmental features;
- Details of threatened species, populations, endangered communities and critical habitat known to the applicant;
- Details of Aboriginal heritage known to the applicant; and
- A bushfire assessment that demonstrates compliance with the relevant requirements of the PBP (2019) and AS 3959:2018.

These relevant specific objectives for subdivision in Chapter 5 of the PBP (2019) include:

- Minimise perimeters of the subdivision exposed to the bush fire hazard;
- Minimise bushland corridors that permit the passage of bush fire;
- Provide for the siting of future dwellings away from ridge tops and steep slopes;
- Ensure that separation distances (APZ) between a bush fire hazard and future dwellings enable conformity with deemed to satisfy requirements of the BCA;
- Ensure the ongoing maintenance of asset protection zones;
- Provide clear and ready access from all properties to the public road for residents and emergency services; and
- Ensure an adequate supply of water and other services to facilitate effective firefighting.

3. SITE LOCATION

The subject site is located within the Shoalhaven LGA. The surrounding area is dominated by Primary Production Small Lot and Village land.

Figure 2 shows the subject lot location.
Figure 3 provides a broad scale aerial view of the subject site.
Figure 4 shows a close-up view of the subject lot.

FIGURE 2 LOCATION OF SUBJECT LOT

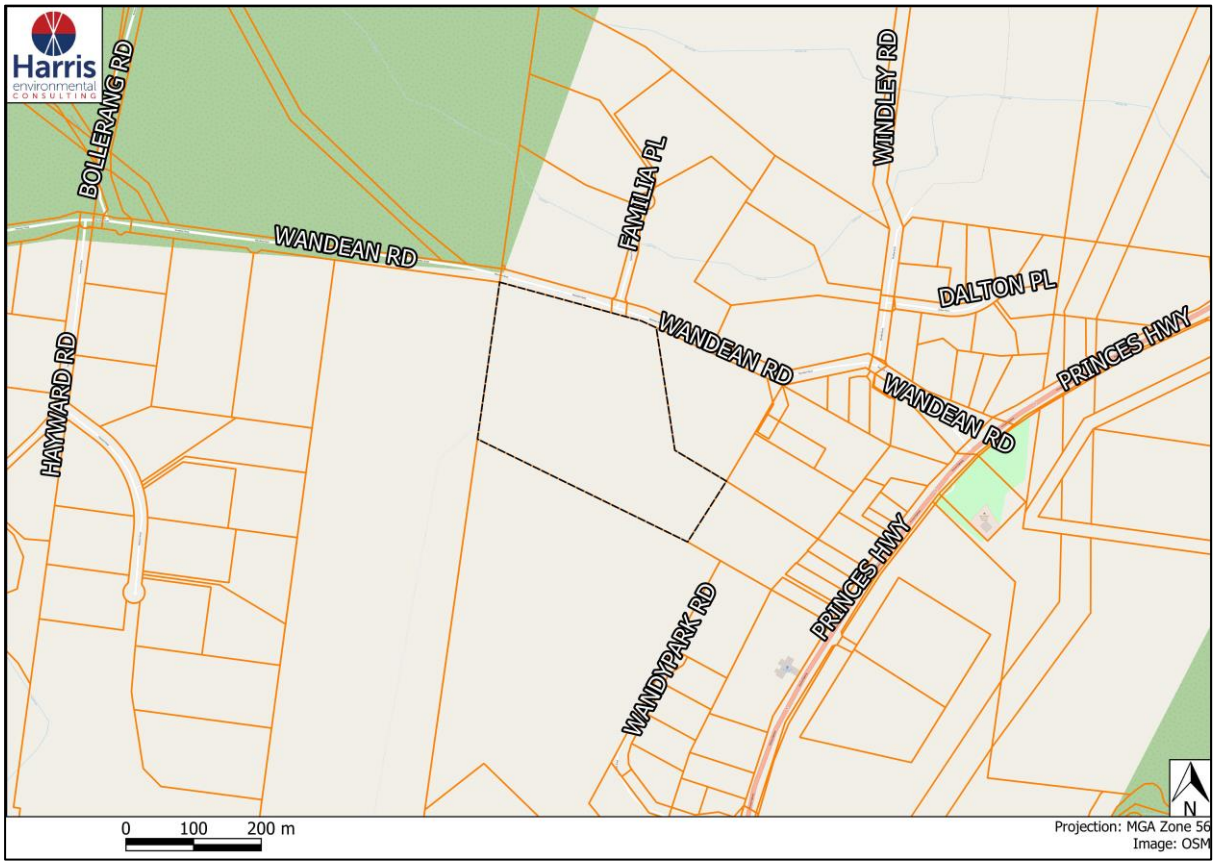


FIGURE 3 EXTENDED AERIAL VIEW OF THE SUBJECT LOT

FIGURE 4 CLOSE-UP AERIAL

4. PLANNING LAYERS

The following planning layers are described in Table 1 and shown in the Figures below:

TABLE 1 PLANNING LAYERS

MAP	FIGURE	DESCRIPTION
Bushfire Prone Land Map	5	The subject lot is mapped "Vegetation Category 3".
LEP Zone Map	6	The subject lot is zoned as "RU4 Primary Production Small Lots".
Vegetation Mapping	7	The vegetation surrounding within the subject lot is mapped as "Sydney Coastal Dry Sclerophyll Forests" (biometric vegetation types of the Shoalhaven, Eurobodalla and Bega Valley local government areas. Version 2.1. VIS_ID 3900.
Biodiversity Values Map	Appendix ii	There is NO land within the subject lot identified on 6/3/22 as having high biodiversity value under the Biodiversity Offsets Scheme under the *Biodiversity Conservation Act 2016.*

FIGURE 5 BUSHFIRE PRONE MAP

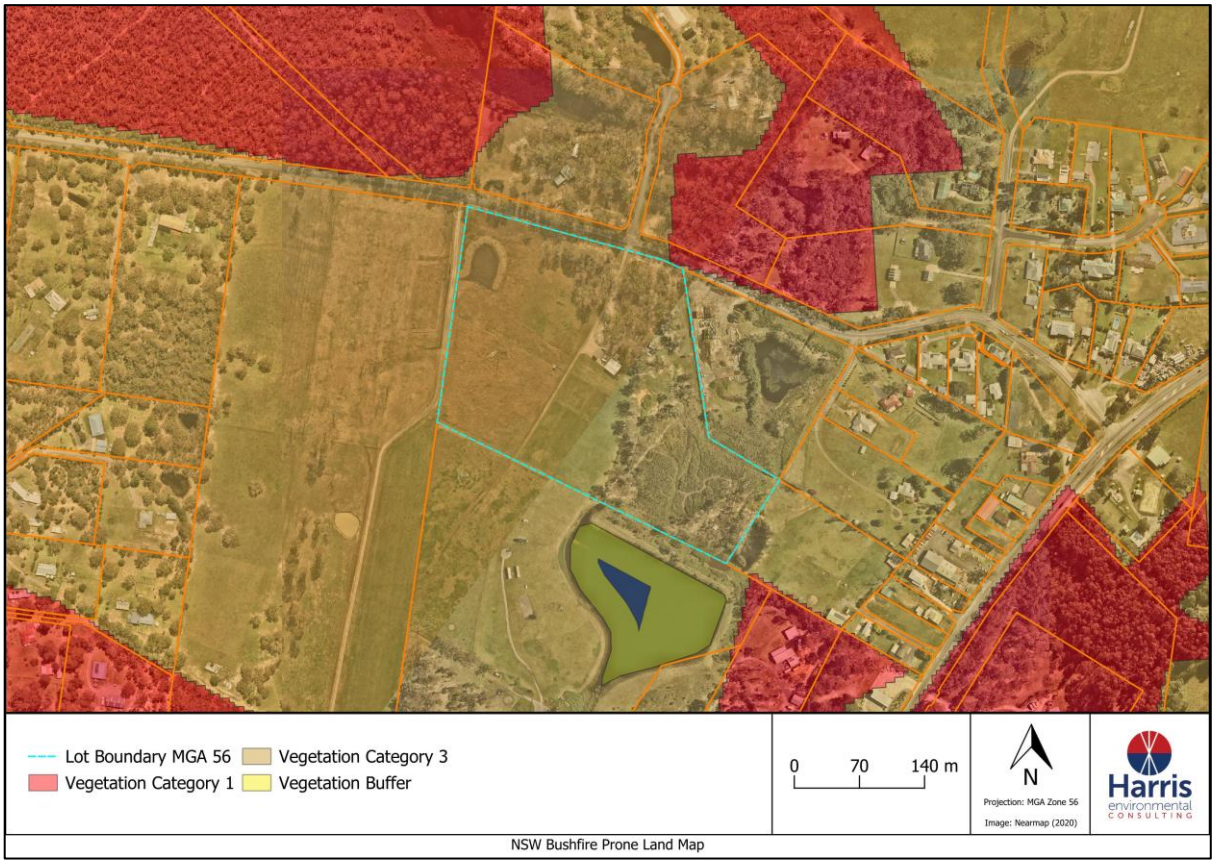


FIGURE 6 LEP ZONE MAP

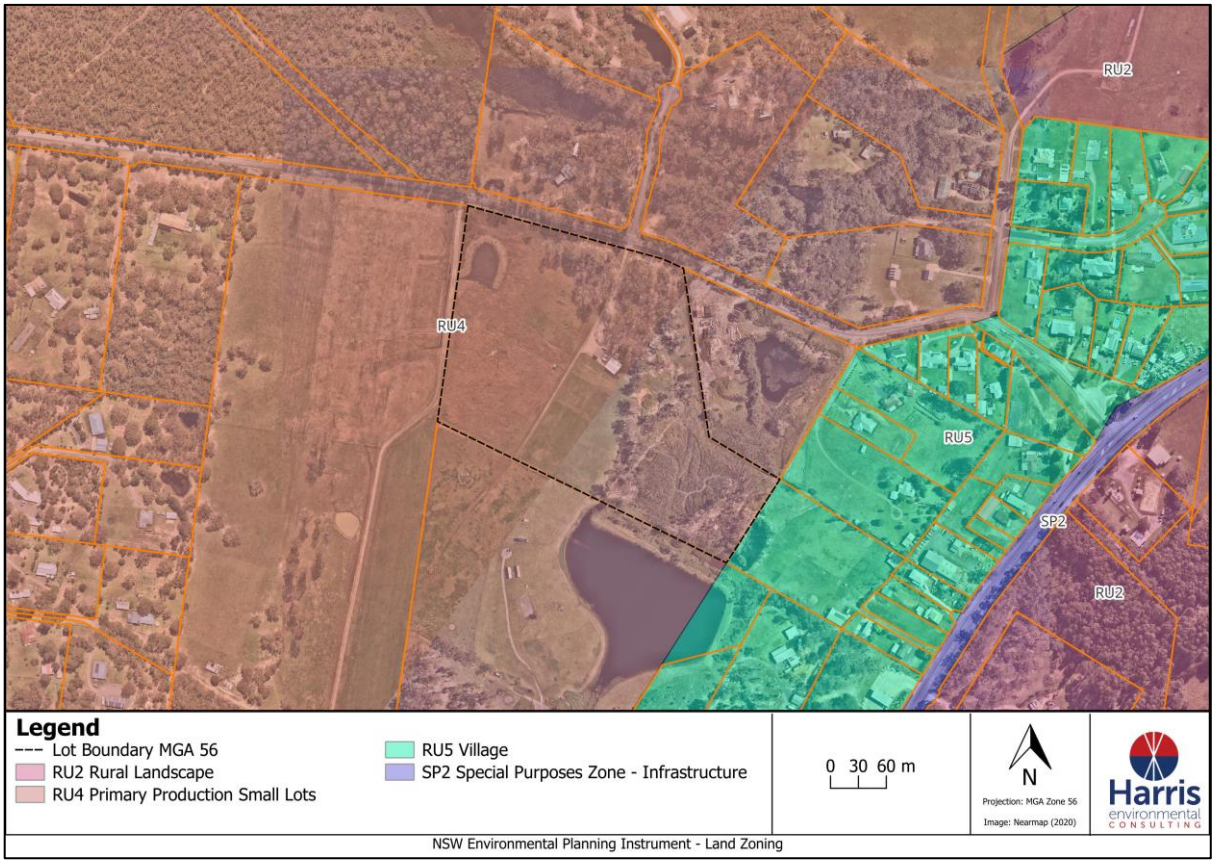
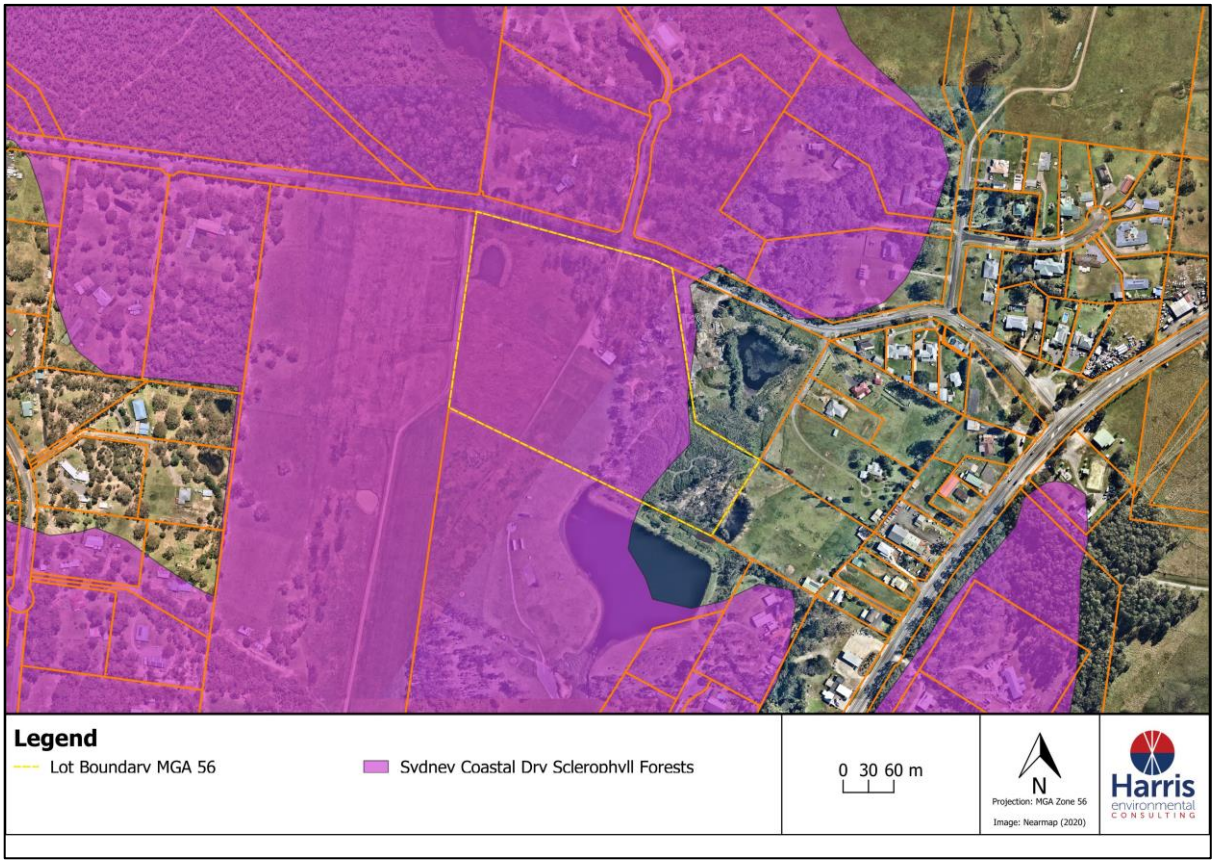


FIGURE 7 VEGETATION MAPPING



5. SITE DESCRIPTION

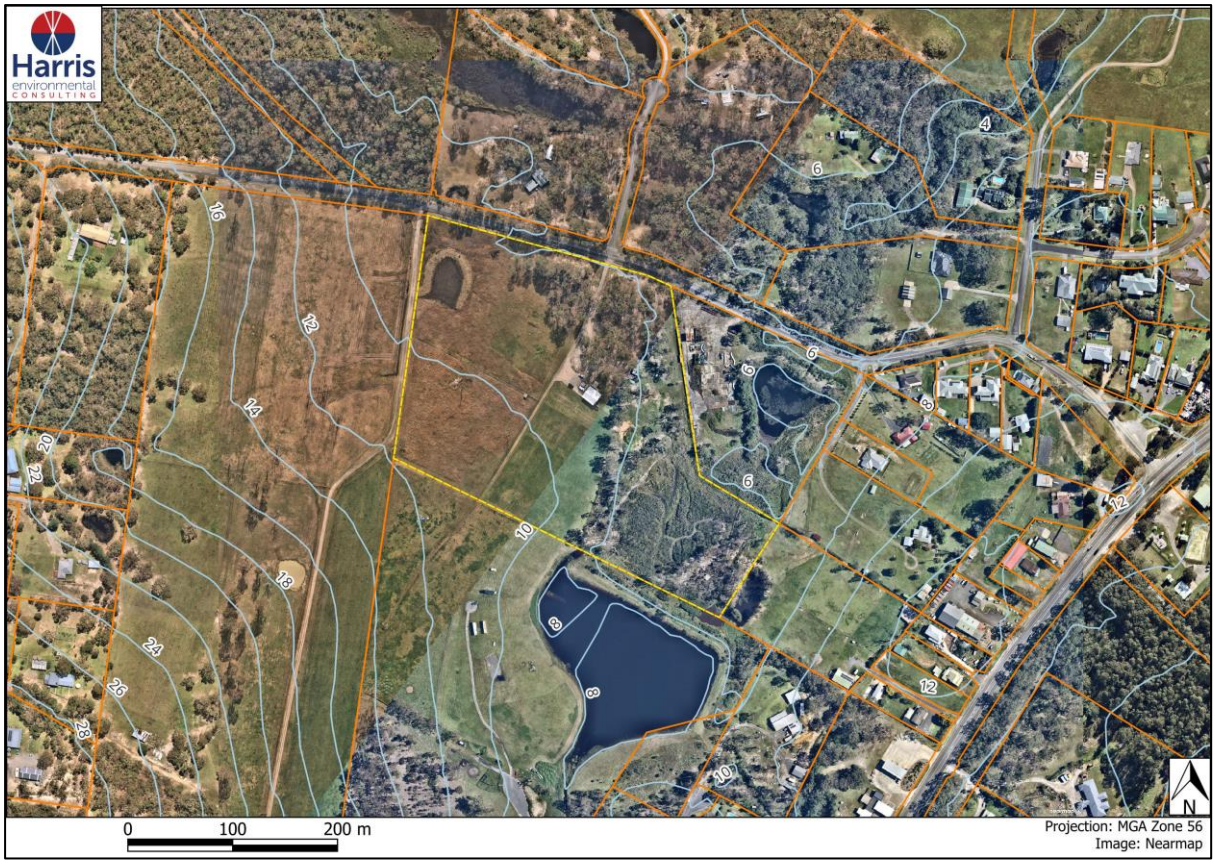
5.1. Slope and aspect of the site within 100 m

The slope that would most significantly influence fire behaviour was determined over 100 m from the subject lot. This assessment was made using 2 m contour intervals.

The Australian Standard AS3959 - 2018 and PBP 2019 identify that the slope of the land under the classified vegetation is much more important than the slope between the site and the edge of the classified vegetation.

As can be seen in Figure 8 the subject site is located on relatively flat topography that gently downslopes to the east and upslopes to the west.

FIGURE 8 SLOPE



5.2. Identification of significant environmental features

The owner has not provided any studies of aboriginal archaeological significant or geological significance.

A Flora and Fauna draft assessment has been issued by Fraser Ecological Consulting evaluating the terrestrial ecology of the subject lot, and identifies no conservation reserves occur within the subject lot. This study confirms that there is no ecological impact associated with the 2 trees required to be removed for the APZ on Lot 2.

5.3. Vegetation formation within 140 m of proposed development

Figure 9 shows the managed and unmanaged land within 140 m of the proposed building envelope on Lot 1.

Figure 10 shows the managed and unmanaged land within 140 m of the existing dwelling on Lot 2.

The vegetation formations are described below and summarised in Table 2.

The vegetation to the north of the subject lot and within the eastern region of the subject lot is mapped as “Sydney Coastal Dry Sclerophyll Forests”. This has been classified as ‘Forest’ in accordance with the *Planning for Bush Fire Protection 2019*.

There is a parcel of vegetation within the northern region of the subject lot that spans an area of less than 1Ha, as such it has been classified as “Remnant Vegetation” in accordance with *Planning for Bush Fire Protection 2019*. The PBP identifies that
“Remnant vegetation is a parcel of vegetation with a size of less than 1 Ha. These remnants are considered a low hazard and APZ setbacks and building construction standards for these may be the same as for Rainforest.”

The remaining vegetation has been classified as ‘Grassland’.

TABLE 2 PREDOMINATE VEGETATION CLASSIFICATION FOR PROPOSED LOT 1

	Vegetation Formation	Effective Slope	Distance from façade to hazard
Lot 1 (Proposed Building Envelope)			
North	Forest	0-5° Downslope	74.2 m
	Grassland	0-5° Downslope	29 m
Northeast	Remnant Vegetation	0-5° Downslope	30.2 m
East	Forest	0-5° Downslope	75.4 m
	Grassland	0-5° Downslope	29 m
South	Grassland	Upslope	10 m
West	Grassland	Upslope	10 m
Lot 2 (Existing Dwelling)			
North	Forest	0-5° Downslope	30.4 m
	Grassland	0-5° Downslope	29 m
East	Forest	0-5° Downslope	29 m
South	Grassland	Upslope	10 m
West	Grassland	Flatland	10 m
Northwest	Remnant Vegetation	Flatland	55.4 m

FIGURE 9 BUSHFIRE PRONE VEGETATION WITHIN 140 M FOR PROPOSED LOT 1

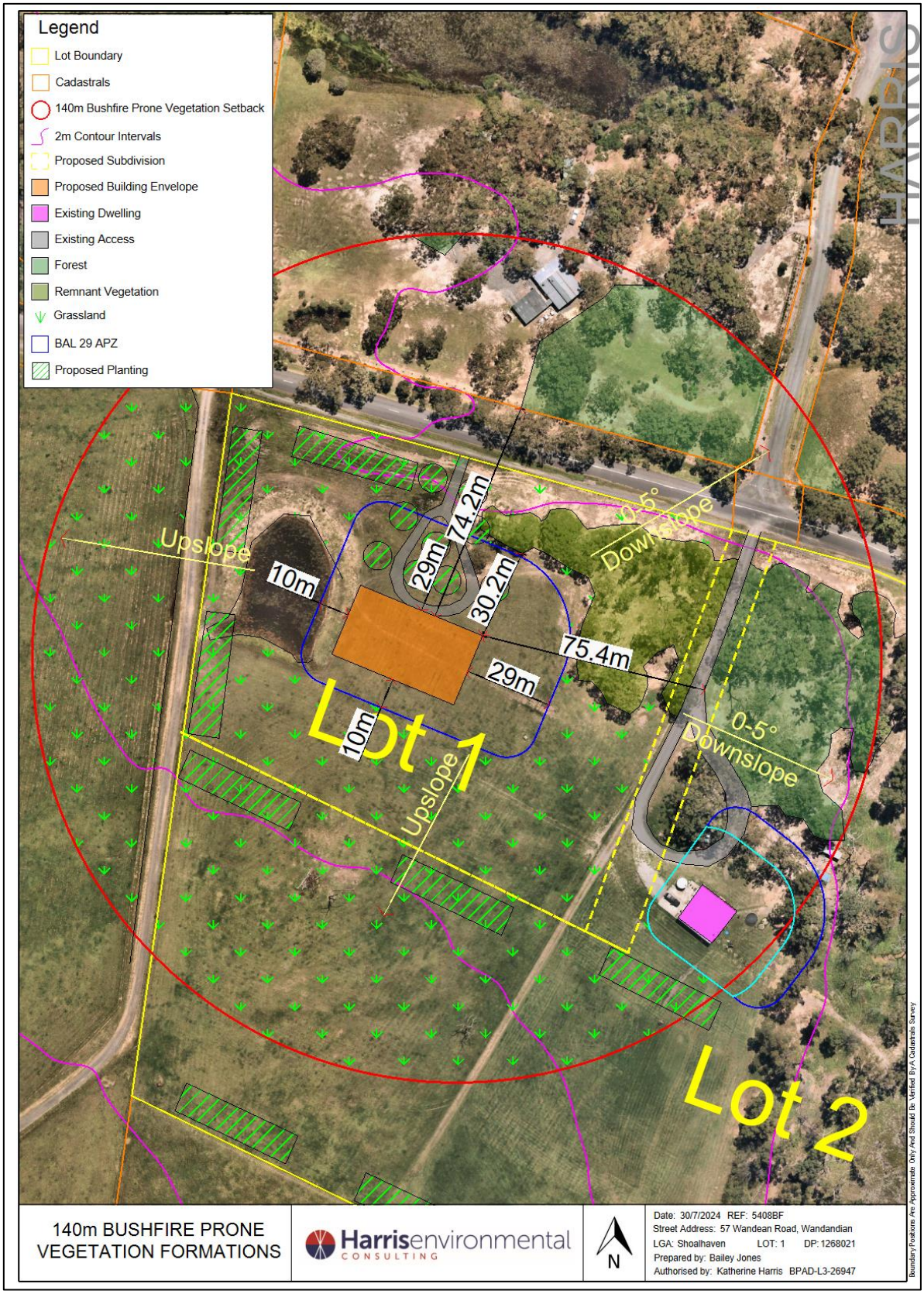
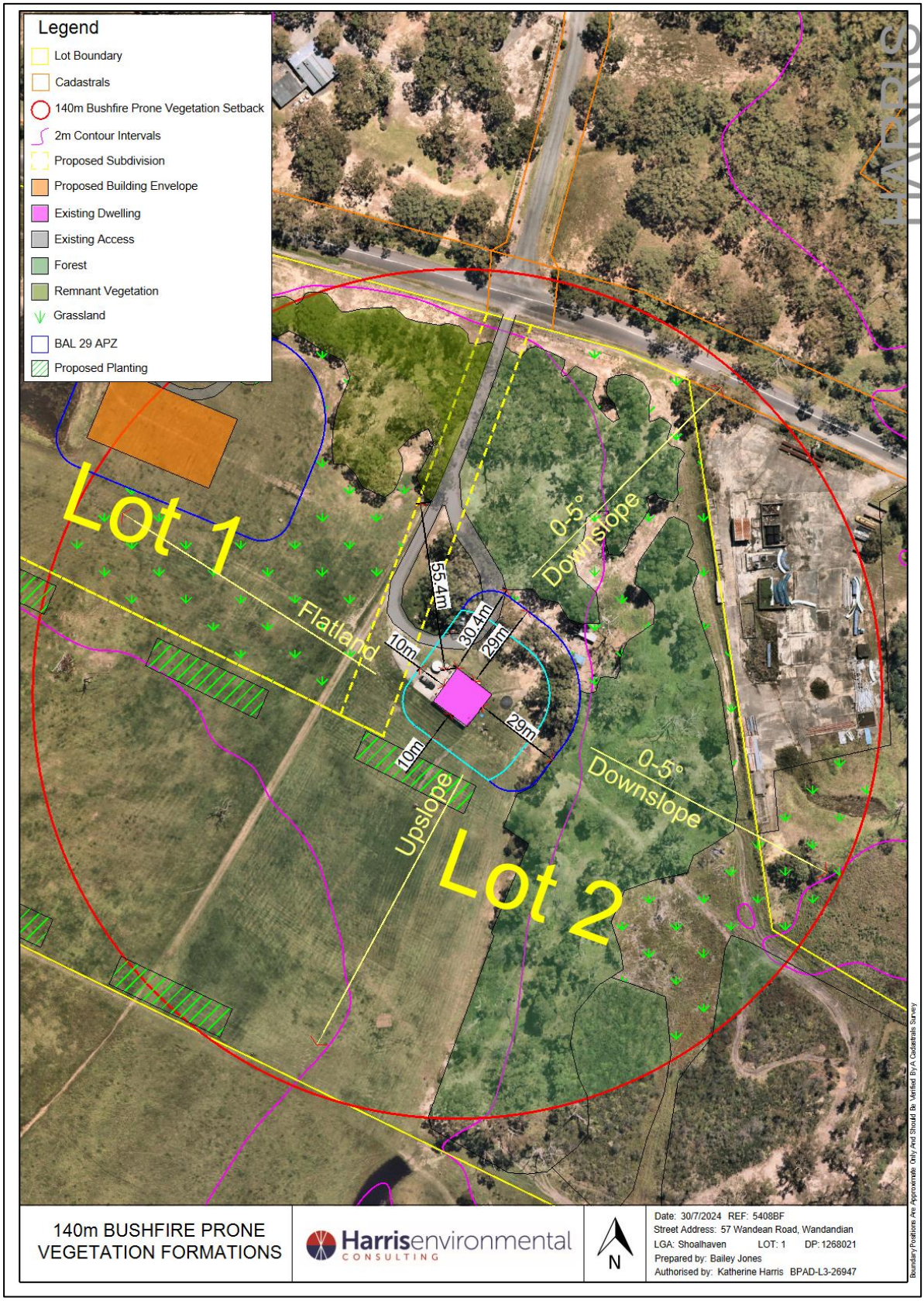


FIGURE 10 BUSHFIRE PRONE VEGETATION WITHIN 140 M FOR PROPOSED LOT 2



6. BUSHFIRE THREAT ASSESSMENT

6.1. Asset Protection Zones (APZ)

The required APZ for the proposed development is calculated using the vegetation and slope data from Table A1.12.5 *Planning for Bush Fire Protection 2019*.

Table 3-4 and Figures 11-12 show the proposed APZ and BALs for the proposed subdivision for the proposed Lots 1 and 2.

Figure 13 below provides additional areas within Lot 2 alongside the existing dwelling that can support a building envelope of **BAL 29 or less**.

The APZ's are to be maintained for the following distances:
Lot 1 (Proposed Building Envelope):

- 29 m on the northern and eastern elevations;
- 10 m on the southern and western elevations.

Lot 2 (Existing Dwelling):

- 29 m on the northern and eastern elevations;
- 10 m on the southern and western elevations.

The proposed planting provided by Peter Philips Landscape Architecture (Landscape Plan, Proposed Subdivision Layout for Lot 1 DP10268021 57 Wandean Road Wandandian, Date: Jan 2024, Rev: C) can comply with the APZ guidelines (Appendix 4, PBP 2019) as they provide canopy coverage of less than 15% and do not touch within 2m to 5m of each other. The APZ for the existing dwelling will require the removal of two trees to ensure canopies do not touch within 2m to 5m of each other. The trees required to be removed are identified in Figure 12.

TABLE 3 APZ AND BAL DETERMINATION FOR PROPOSED LOT 1 (BUILDING ENVELOPE)

	NORTH	***NORTHEAST***	***EAST***	***SOUTH***	***WEST***
Vegetation	Forest	Remnant Vegetation	Forest	Grassland	Grassland
Gradient	0-5° Downslope	0-5° Downslope	0-5° Downslope	Upslope	Upslope
Between façade and vegetation	74.2 m	30.2 m	75.4 m	10 m	10 m
BAL 29 required APZ	29 -< 40 m	14 -< 21 m	29 -< 40 m	10 -< 15 m	10 -< 15 m
BAL Proposed	**BAL 29**	**BAL 29**	**BAL 29**	**BAL 29**	**BAL 29**

TABLE 4 APZ AND BAL DETERMINATION FOR PROPOSED LOT 2 (EXISTING DWELLING)

	NORTH	*EAST*	*SOUTH*	*WEST*
Vegetation	Forest	Forest	Grassland	Grassland
Gradient	0-5° Downslope	0-5° Downslope	Upslope	Upslope
Between façade and vegetation	30.4 m	29 m	10 m	10 m
BAL 29 required APZ	29 -< 40 m	29 -< 40 m	10 -< 15 m	10 -< 15 m
BAL Proposed	**BAL 29**	**BAL 29**	**BAL 29**	**BAL 29**

6.2. Inner and Outer Protection Zones (IPA & OPA)

The vegetation classification of the existing dwelling on Lot 2 for bushfire purposes on the northern and western elevations for this site is “Forest”. Forest vegetation can be managed as an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is critical for providing a defendable space and managing heat intensities at the building surface. The OPA serves to reduce the potential length of flames, filtering embers and reducing the likelihood of crown fires.

The IPA should provide a tree canopy cover less than 15% and any tree canopies must be located greater than 2 metre from any part of the proposed dwelling roofline. Garden beds of flammable shrubs should not be located under trees and should be no greater than 10m from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above ground.

An OPA should provide a tree canopy cover of less than 30% and should have understory managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (September). The general location of the IPA and OPA are shown in Figure 12 and outlined below.

The IPA and OPA of the existing dwelling should be:
IPA:

- 0-19 m on the northern and eastern elevations;
- 0-10 m on the southern and western elevations.

OPA:

- 19-29 m on the northern and eastern elevations;

FIGURE 11 APZ AND BAL DETERMINATION FOR PROPOSED LOT 1

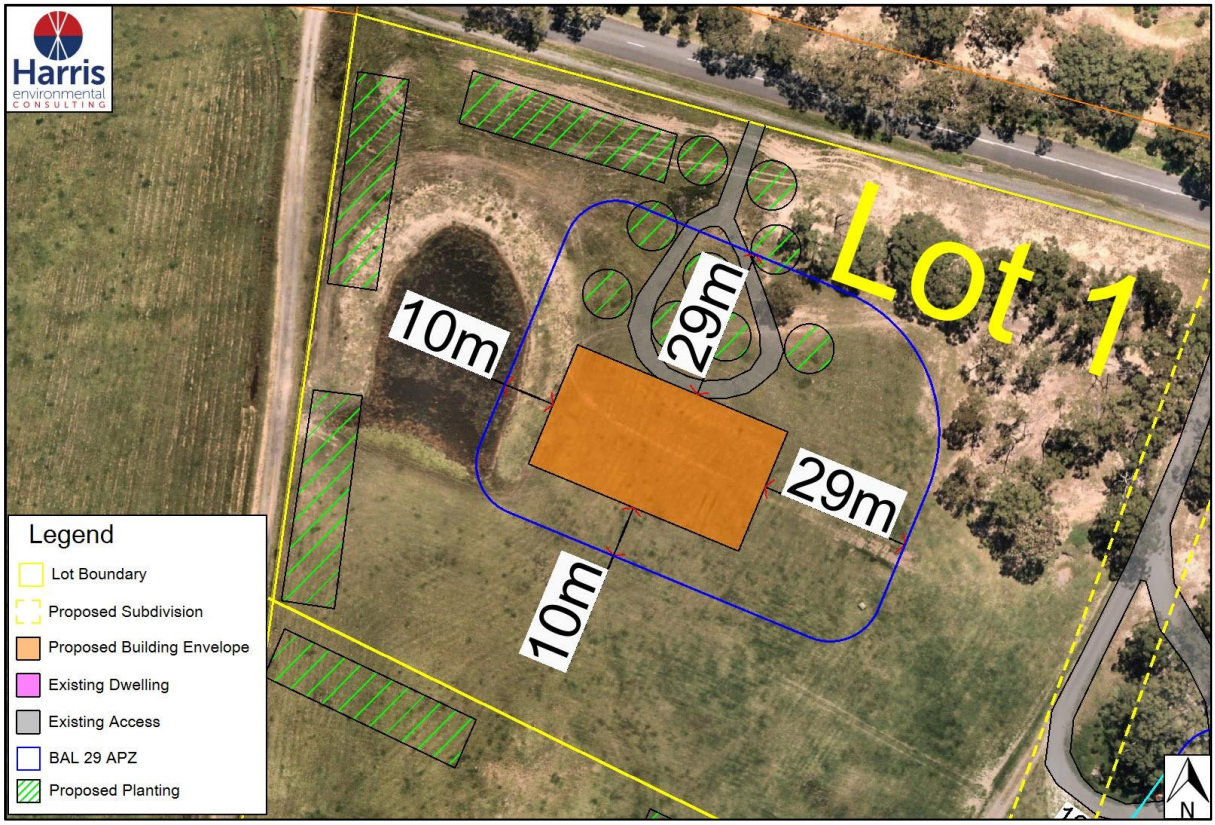


FIGURE 12 APZ AND BAL DETERMINATION (WITH IPA AND OPA) FOR PROPOSED LOT 2

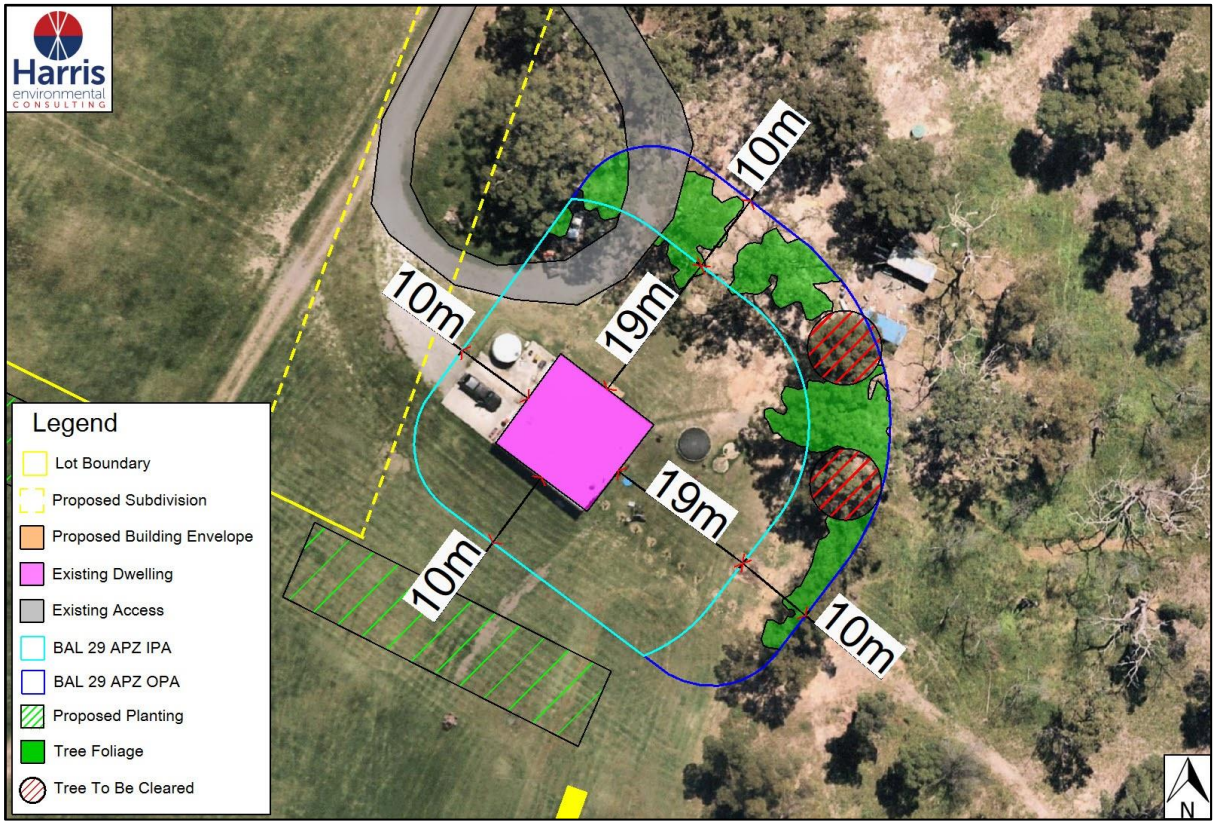


FIGURE 13 BAL DETERMINATION FOR AREAS THAT CAN ACHIEVE BAL 29 OR LESS WITHIN PROPOSED LOT 2

6.3. Relevant Construction Standard

The Australian Standard AS3959 – 2018 and *NASH Standard Steel Framed Construction in Bushfire Areas* (2014) are the enabling standards that address the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the Construction of Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

The following was determined for this site:

Relevant fire danger index……FDI 100
Flame temperature ……1090 K

The proposed subdivision is capable of both lots, the proposed building envelope and existing dwelling being able to provide APZ's that meet **BAL 29 or less** as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas, *PBP 2019* and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014).

6.4. Emergency Management

The applicants are advised to obtain the *NSW Rural Fire Service – "Guidelines for the Preparation of Bush Fire Evacuation Plans"* & *'Bush Fire Survival Plan'.* In the event of emergency, the any future owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

6.5. Adequate Water and Utility Services

The applicant should ensure a 20,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available. Above ground tanks are required to be manufactured of concrete or metal and raised tanks have their stands protected. All above ground water pipes external to the building are required to be metal including and up to any taps. Pumps are to be shielded. Underground tanks should have an access hole of 200 mm and a hardened ground surface within 4 m of the access hole. A suitable connection for firefighting purposes is required such as a 65mm storz outlet and a gate or ball valve.

Any bottled gas will be installed and maintained under AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

Electrical transmission lines, if above ground, will be managed under specifications issued by the respective energy supplier.

6.6. Safe Operational Access

The PBP (2019) requires the provision of safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

The subject lot is located on Wandean Road. This is a two-wheel drive, all weather road. The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles.
The proposed subdivision is considered a rural subdivision and a perimeter road and secondary access are not proposed. All proposed lots are located within 200 m of a public through road.

The existing access in Lot 2 is approximately 130 m from the public through road, shown by Figure 14. The access provides 4 m carriageway and an adequate turning area for a fire tanker that requires an inner minimum turning radius of 6 m and outer minimum radius of 12 m.

The proposed access to Lot 1 is approximately 60 m in length.
The proposed access road for the proposed subdivision is required to comply with the relevant requirements of Table 5.3b. Compliance is demonstrated in Section 7 of this report.

FIGURE 14 ACCESS

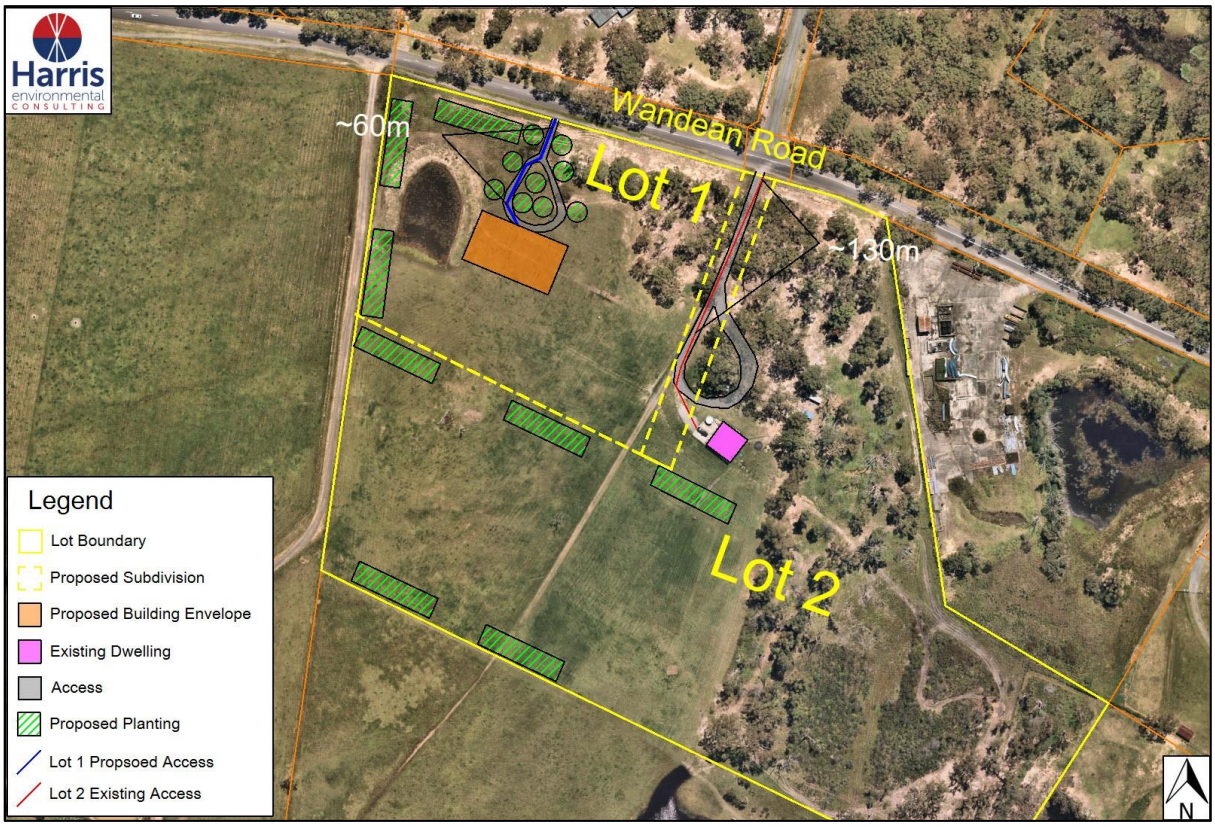
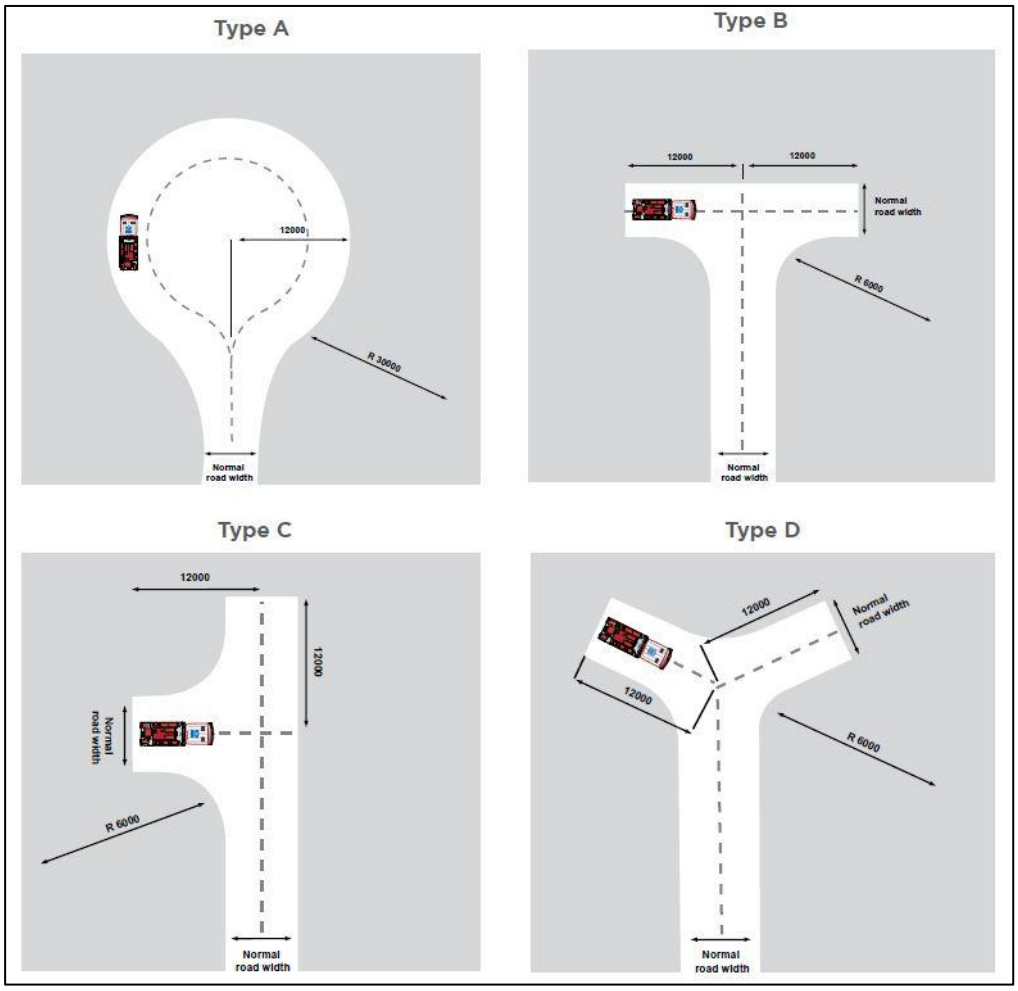


FIGURE 15 OPTIONS FOR TURN-AROUND AREAS



7. HOW THIS PROPOSAL MEETS DEEMED TO SATISFY

The following tables show how the proposal meets the Performance Based Controls of the PBP (2019) Chapter 5.

TABLE 5 DEMONSTRATION OF PBP 2019 TABLE 5.3A COMPLIANCE

	Performance Criteria	Acceptable Solution	Demonstration of Compliance
ASSET PROTECTION ZONES	Potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m² on each proposed lot.	APZs are provided in accordance with Tables A1.12.2 and A1.12.3 based on the FFDI.	APZs are provided in accordance with BAL 29.
	APZs are managed and maintained to prevent the spread of a fire to the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	The APZ can be managed if two identified trees on Lot 1 are removed so that canopy disconnection of the existing trees within the APZ on eastern elevation is achieved
	The APZ is provided in perpetuity.	APZs are wholly within the boundaries of the development site.	The APZ is located within the proposed subject lots.
	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZ are located on lands with a slope less than 18 degrees.	The land is less than 18 degrees downslope.
LANDSCAPING	Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Landscaping is in accordance with Appendix 4; and Fencing is constructed in accordance with section 7.6.	The Landscaping Plan provided by Peter Philips Landscape Architecture (Landscape Plan, Proposed Subdivision Layout for Lot 1 DP10268021 57 Wandean Road Wandandian, Date: Jan 2024, Rev: C) complies.

TABLE 6 DEMONSTRATION OF PBP 2019 TABLE 5.3B COMPLIANCE

	Performance Criteria	Acceptable Solution	Demonstration of Compliance
ACCESS (GENERAL REQUIREMENTS)	Firefighting vehicles are provided with safe, all-weather access to structures.	Property access roads are two-wheel drive, all-weather roads.	Complies.
		Perimeter roads are provided for residential subdivisions of three or more allotments.	Not applicable.
		Subdivisions of three or more allotments have more than one access in and out of the development.	Not applicable. 2 Lot subdivision proposed.
		Traffic management devices are constructed to not prohibit access by emergency services vehicles.	Can comply.
		Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	Not applicable. No public road proposed.
		All roads are through roads.	Not applicable. No public road proposed.
		Dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.	Not applicable. No public road proposed.
		Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.	Not applicable
		Where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system;	Not applicable
	The capacity of access roads is adequate for firefighting vehicles	The capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/ causeways are to clearly indicate load rating.	Is required to comply.
	There is appropriate access to water supply	Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.	Not applicable.
		Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and	Not applicable
		There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Is required to comply.

PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	Are two-way sealed roads. Minimum 8m carriageway width kerb to kerb. Parking is provided outside of the carriageway width. Hydrants are located clear of parking areas. Are through roads, and these are linked to the internal road system at an interval of no greater than 500m. Curves of roads have a minimum inner radius of 6m. The maximum grade road is 15 degrees and average grade of not more than 10 degrees. The road crossfall does not exceed 3 degrees; and A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Not applicable. No public perimeter road proposed for the rural 2 lot residential subdivision.
NON-PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	Minimum 5.5m carriageway width kerb to kerb. Parking is provided outside of the carriageway width. Hydrants are located clear of parking areas. Roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m. Curves of roads have a minimum inner radius of 6m. The road crossfall does not exceed 3 degrees; and A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Not applicable. No public perimeter road proposed for the rural residential subdivision.

PROPERTY ACCESS	firefighting vehicles can access the dwelling and exit the property safely.	minimum 4m carriageway width;	Can comply.
		in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay;	Not applicable
		a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;	Is required to comply
		provide a suitable turning area in accordance with Appendix 3;	Is required to comply
		curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;	Is required to comply
		the minimum distance between inner and outer curves is 6m;	Is required to comply#
		the crossfall is not more than 10 degrees;	Is required to comply
		maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and	Is required to comply
		a development comprising more than three dwellings has access by dedication of a road and not by right of way.	Not applicable.

TABLE 7 DEMONSTRATION OF PBP 2019 TABLE 5.3C COMPLIANCE

	Performance Criteria	Acceptable Solution	Demonstration of Compliance
WATER SUPPLIES	An adequate water supply is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available; and Or a 20,000 L minimum static water supply is provided where no reticulated water is available.	Is required to comply.
	Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations.	Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005. Hydrants are not located within any road carriageway; and Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Is required to comply.
	Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	Is required to comply.
	The integrity of the water supply is maintained.	All above-ground water service pipes external to the building are metal, including and up to any taps.	Is required to comply.
ELECTRICITY SEVICES	Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground; and Where overhead, electrical transmission lines are proposed as follows: • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and • no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines.*	Is required to comply.
GAS SERVICES	Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used. All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side. Connections to and from gas cylinders are metal. polymer-sheathed flexible gas supply lines are not used; and Above-ground gas service pipes are metal, including and up to any outlets.	Is required to comply.

8. LANDSCAPING

A landscaping plan is provided by Peter Philips Landscape Architecture (Landscape Plan, Proposed Subdivision Layout for Lot 1 DP10268021 57 Wandean Road Wandandian, Date: Jan 2024, Rev: C).

When landscaping in the future, vegetation should be located greater than 2 m from any part of the roofline of a dwelling or the shed. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 m from an exposed window or door. Trees should have lower limbs removed up to a height of 2 m above the ground.
Appendix 4 (*PBP 2019*) provides guidelines for landscaping and Bushfire Provisions within the APZ. To incorporate bushfire protection measures into future development, the owner is advised to consider the following:

- Avoid planting trees species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopy.
- Avoid planting deciduous species that may increase fuel at surface/ground level by the fall of leaves.
- Avoid climbing species to walls and pergolas.
- Locate combustible materials such as woodchips/mulch, flammable fuel stores (LPG gas bottles) away from the building.
- Locate combustible structures such as garden sheds, pergolas, and materials such as timber furniture away from the building.
- Ensure any vegetation planted around the house is a suitable distance away so these plants do not come into physical contact with the house as they mature.
- The property should be developed to incorporate suitable impervious area surrounding the house, including courtyards, paths, and driveways.

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well-maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity.
- trees at maturity should not touch or overhang the building.
- lower limbs should be removed up to a height of 2m above the ground.
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided.
- shrubs should not be located under trees.
- shrubs should not form more than 10% ground cover: and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide, grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

9. SUMMARY

- *The Planning for Bushfire Protection A Guide for Councils, Planners, Fire Authorities and Developers* 2019 (PBP) provides the specific development standards and guidance for designing and building on bushfire prone land in NSW.

- The proposed subdivision is capable of both lots, the proposed building envelope and existing dwelling being able to provide APZ's that meet **BAL 29 or less** as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas, *PBP 2019* and/or *NASH Standard Steel Framed Construction in Bushfire Areas* (2014).

- The APZ's and their IPA's and OPA's is for the following distances:
- Lot 1 (Proposed Building Envelope):
    - 29 m on the northern and eastern elevations;
    - 10 m on the southern and western elevations.
- Lot 2 (Existing Dwelling):
    - 29 m on the northern and eastern elevations;
    - 10 m on the southern and western elevations.

- The APZ for the existing dwelling on Lot 2 should be managed as an Inner Protection Area (IPA) and Outer Protection Area (OPA). The general layout should be:
- IPA:
    - 0-19 m on the northern and eastern elevations;
    - 0-10 m on the southern and western elevations.
- OPA:
    - 19-29 m on the northern and eastern elevations;

- The subject lot is located on Wandean Road. This is a two-wheel drive, all-weather road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles

- The proposed subdivision is considered a rural subdivision and a perimeter road and secondary access are not proposed. All proposed lots are located within 200 m of a public through road.

- The existing access in Lot 2 is approximately 130 m from the public through road and provides 4 m carriageway and an adequate turning area for a fire tanker that requires an inner minimum turning radius of 6 m and outer minimum radius of 12 m. The proposed access to Lot 1 is approximately 60 m in length.

- The access road for the proposed subdivision is required to comply with the relevant requirements of Table 5.3b (PBP 2019).

- The applicant should ensure a 20,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available. Above ground tanks are required to be manufactured of concrete or metal and raised tanks have their stands protected. All above ground water pipes external to the building are required to be metal including and up to any taps. Pumps are to be shielded. Underground tanks should have an access hole of 200 mm and a hardened ground surface within 4 m of the access hole. A suitable connection for firefighting purposes is required such as a 65mm storz outlet and a gate or ball valve.

- Any bottled gas will be installed and maintained under AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

- Electrical transmission lines, if above ground, will be managed under specifications issued by the respective energy supplier.

10. REFERENCES

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Peter Philips Landscape Architecture, *Landscape Plan, Proposed Subdivision Layout for Lot 1 DP10268021 57 Wandean Road Wandandian, Date: Jan 2024, Rev: C.*

Fraser Ecological Consulting, *Flora and Fauna Assessment - 47 Wandean Road, Wandandian – Proposed 2 Lot Subdivision, 28th July 2024.*

APPENDIX I DEFINITION OF ASSET PROTECTION ZONES

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1) Discontinuous shrub layer (clumps or islands of shrubs not rows);

2) Vertical separation between vegetation stratums;

3) Tree canopies not overhanging structures;

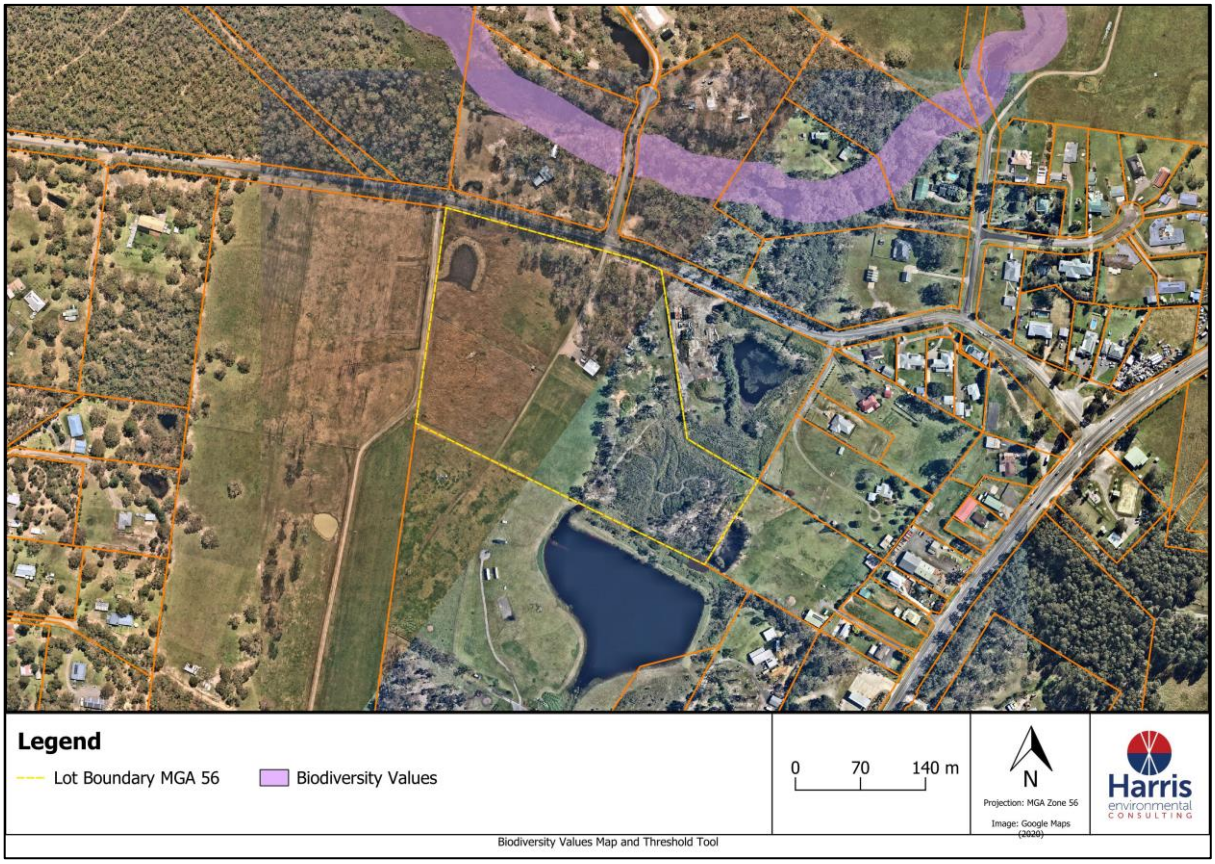
4) Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in “Vegetation Safety Clearances” issued by Energy Australia (NS179, April 2002);

5) Maintain low ground covers by mowing / whipper snipper / slashing; and

6) Non-combustible mulch e.g., stones and removing stores of combustible materials;

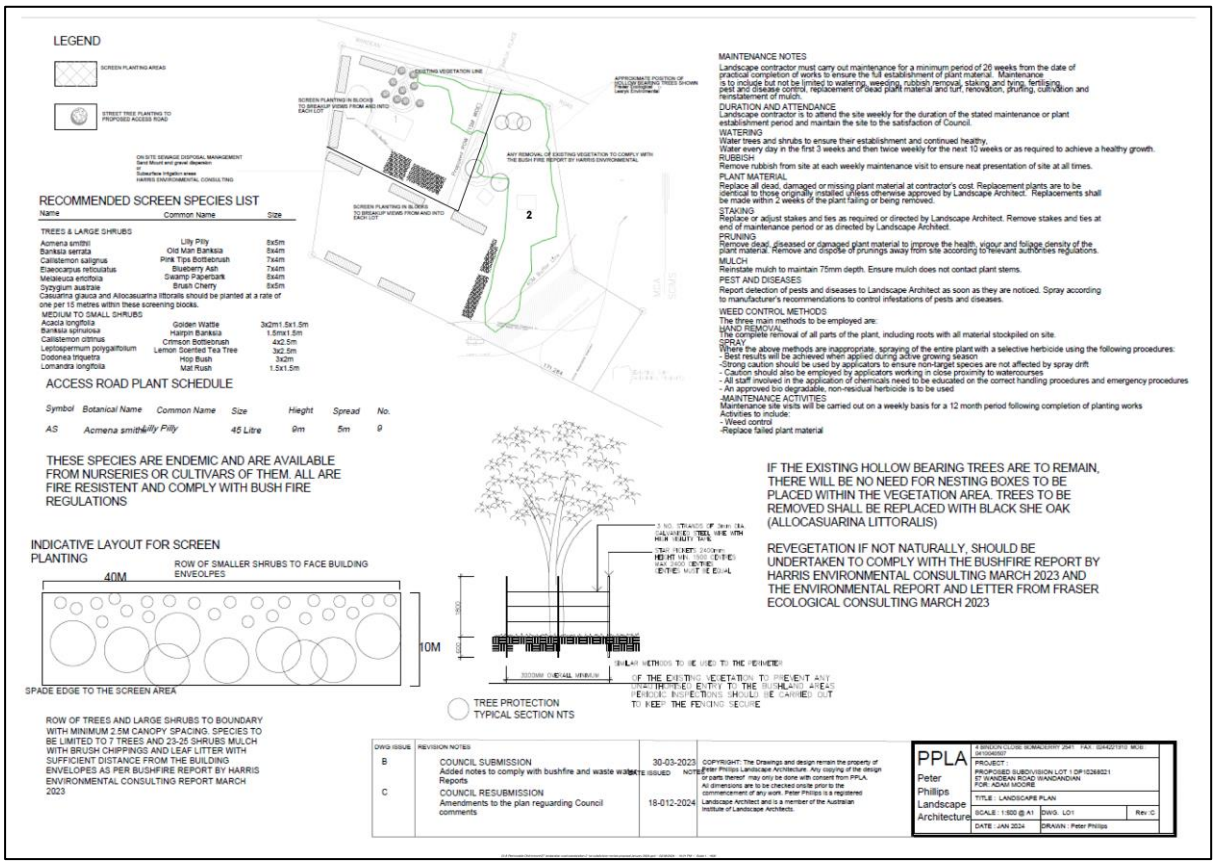
7) Vegetation to be planted should consist of fire retardant/ less flammable species strategically located to reduce attack from embers (i.e., as ember traps when in small clumps and short wind breaks).

APPENDIX II BIODIVERSITY VALUES MAP



Biodiversity Values Map and Threshold Tool

APPENDIX III PROPOSED LANDSCAPE PLAN



APPENDIX IV EXCERPT FROM FLORA AND FAUNA ASSESSMENT PROVIDED BY FRASER ECOLOGICAL CONSULTING DETAILING TREES TO BE REMOVED IN LOT 2

Flora and Fauna Assessment – 57 WANDEAN ROAD, WANDANDIAN - PROPOSED 2 LOT SUBDIVISION

Photograph 1: Location of the 2 trees proposed for removal to accommodate the APZ within proposed Lot 2 surrounding the existing dwelling Note: The understorey is already maintenance mowed in a fuel reduced state and is dominated by introduced grass

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