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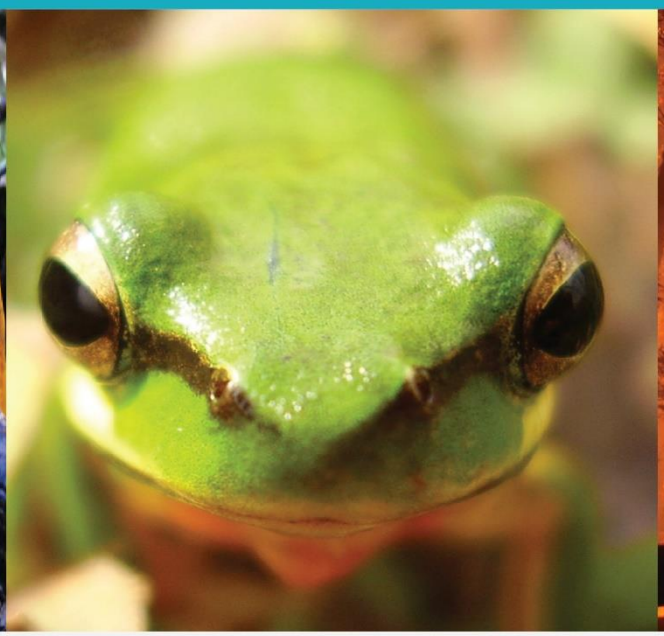

BUSHFIRE PROTECTION ASSESSMENT

Planning Proposal Request to Facilitate Future Superlot Subdivision and Land-use Rationalisation

Lot 100, DP 1230568

229 Macquarie Grove Road, Cobbitty

Under Section 9.1(2) of the *EP&A Act* (1979) and

Section 100B of the Rural Fires Act 1997

6 September 2023

(REF: 21PPS02)

BUSHFIRE PROTECTION ASSESSMENT

Planning Proposal Request to facilitate future Superlot Subdivision and landuse rationalisation

Lot 100, DP 1159926 229 Macquarie Grove Road, Cobbitty

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This report has been prepared to provide advice to the client on matters pertaining to the particular and specific development proposal as advised by the client and / or their authorised representatives. This report can be used by the client only for its intended purpose and for that purpose only. Should any other use of the advice be made by any person, including the client, then this firm advises that the advice should not be relied upon. The report and its attachments should be read as a whole and no individual part of the report or its attachments should be relied upon as meaning it reflects any advice by this firm. The report does not suggest or guarantee that a bush or grass fire will not occur and or impact the development. This report advises on policies and specifications published by the NSW Rural Fire Service e.g. Planning for Bush Fire Protection 2019.

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

EXECUTIVE SUMMARY

This bushfire protection assessment has been undertaken for the proposed rezoning geared to facilitate a super-lot subdivision and land-use rationalisation of 229 Macquarie Grove Road, Cobbitty.

This report identifies matters for consideration for the Planning Proposal Request (PPR) and highlights the required bushfire protection measures, including indicative asset protection zones (APZs), for future development under *Ministerial Direction 4.3 'Planning for Bush Fire Protection*'. This Ministerial Direction made under Section 9.1(2) of the *EP&A Act* requires Council to consult with the Commissioner of the RFS and to take into account any comments by the Commissioner and to have regard to the planning principles of *PBP* (detailed within Section 1.5.3).

The key principle for the proposal is to ensure that future development is capable of complying with *PBP*. Planning principles for the PPR include the provision of adequate access including perimeter roads, establishment of adequate APZs for future development, specifying minimum lot requirements to accommodate APZs and the introduction of controls which avoid placing inappropriate developments in hazardous areas and placement of combustible material in APZs.

Our assessment has found that the land is suitable for rezoning and PPR adequately addresses bushfire risk and the land is suitable for rezoning and development in the context of that risk. The PPR results in a decrease in the area that can be used for residential purposes, and of itself creates no increase in demand on the local road network, emergency services or infrastructure, further, it has and no implications for adjoining land.

The assessment has concluded that there is the capacity for future development on site to conform to the planning principles of *PBP 2019* and *Ministerial Direction 4.3 'Planning for Bush Fire Protection*'.

GLOSSARY OF TERMS

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	*Australian Standard – The storage and handling of LP Gas*
AS2419	*Australian Standard – Fire hydrant installations*
AS3745	*Australian Standard – Planning for emergencies in facilities*
AS3959	*Australian Standard – Construction of buildings in bushfire-prone areas 2018*
BAL	*bushfire attack level*
BCA	*Building Code of Australia*
BSA	bushfire safety authority
DA	development application
DLUP	Development Land Use Plan
EEC	Endangered ecological community
EP&A Act	*Environmental Planning & Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
FFDI	forest fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
LGA	local government area
m	metres
NCC	*National Construction Code*
OPA	outer protection area
PBP 2019	*Planning for Bush Fire Protection 2019*
PPR	*Planning Proposal Request*
RF Act	*Rural Fires Act 1997*
RFS	NSW Rural Fire Service
SFR	short fire run
SFPP	special fire protection purpose
TBE	*Travers bushfire & ecology*

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ATTACHMENTS

1. INTRODUCTION

Travers bushfire & ecology has been engaged to undertake a bushfire protection assessment of the PPR and super-lot subdivision and zoning rationalisation and subsequent development of the site located at Lot 100, DP 1230568, 229 Macquarie Grove Road, Cobbitty.

The proposal is located on land identified as bushfire prone on the *Camden Council* bushfire prone land map (refer Figure 1-1). Ministerial Direction *4.3 Planning for Bushfire Protection* issued under Section 9.1(2) of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* identifies matters for consideration for planning proposals that will affect, or are in proximity to land mapped as bushfire prone. In accordance with this Direction, the relevant planning authority must ensure the objectives of Direction 4.3 are met and is required to consult with the Commissioner of the NSW Rural Fire Service (RFS) and to take into account any comments by the Commissioner. Although no residential use is proposed at this time, the proposed subdivision does pertain to land that can lawfully be used for limited residential and school purposes. As such, the provisions of Section 100B of the *Rural Fires Act (RF ACT)* apply. This requires that a bush fire safety authority (BFSA) must be obtained prior to the granting of development consent.

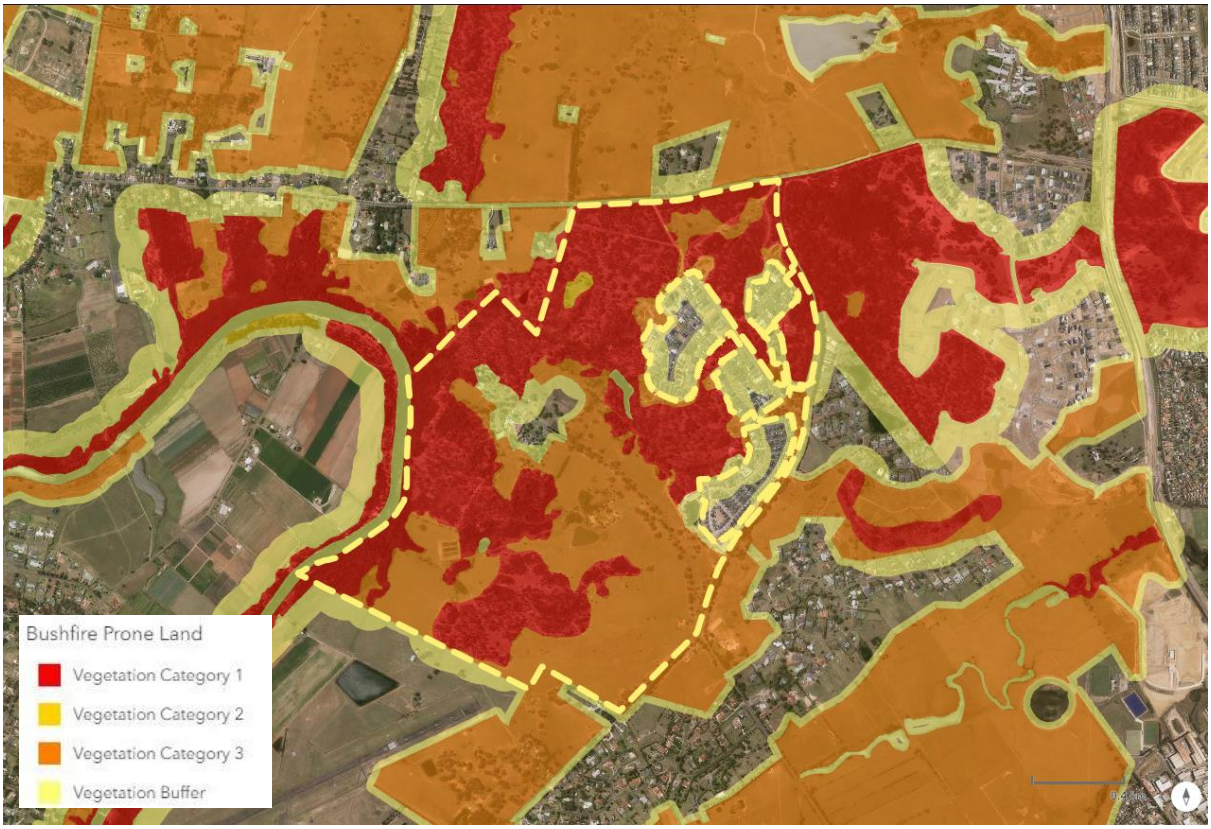

Figure 1-1 – Bushfire Prone Land Map
(source: NSW Planning Portal, 2021)

1.1 Aims of the assessment

Planning proposals are required to address Section 9.2(2) Direction 4.3 of Planning for Bushfire Protection. The objectives of this direction are;

a) to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas

b) to encourage sound management of bush fire prone areas.

The potential variation to the planning framework for the property, from a bushfire context, needs to ensure that future land uses are in a suitable location to minimise the risk and impact of bush fire attack. In addition, services and infrastructure to facilitate effective suppression of a bush fire also needs to be provided.

The broad principles which should be applied to strategic level development are as follows:

a) not all land is suitable for development in the context of bush fire risk

b) any new development on bush fire prone land must comply with PBP

c) infrastructure associated with emergency evacuation and firefighting operations must be provided

d) appropriate ongoing land management practices must be facilitated.

Strategic planning (such as the PPR) should provide for the exclusion of inappropriate development in bush fire prone areas as follows:

a) when the bush fire risk makes it inappropriate for new development to occur

b) for development that is likely to be difficult to evacuate during a bush fire

c) for development that will adversely affect other bush fire protection strategies or place existing development at increased risk

d) for development that is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants.

e) where environmental constraints to the site cannot be overcome.

1.2 Proposed development

The proposal seeks to amend the prevailing planning framework (refer to figures 1.2 to 1.6) by rationalising the zoning regime and amending the minimum subdivision lot size provision (refer to figures 1.3 and 1.5). It is proposed to undertake a future super-lot subdivision, creating four (4) super-lots as an initial development stage. (Refer to Figure 1.6). As identified in Figure 1.2, the lot is currently zoned a combination of C2, RU1, R5 and SP2, with a large portion of the RU1 area comprised of native vegetation managed under an in-perpetuity conservation agreement.

The zoning rationalisation includes the rezoning of the R5 area to RU2 and a large tract of RU1 land to C2 land in a manner consistent with the adjoining land which is currently the subject of a conservation agreement. (Refer to figure 1-4). For a strategic study of the site, refer to table 1-1.

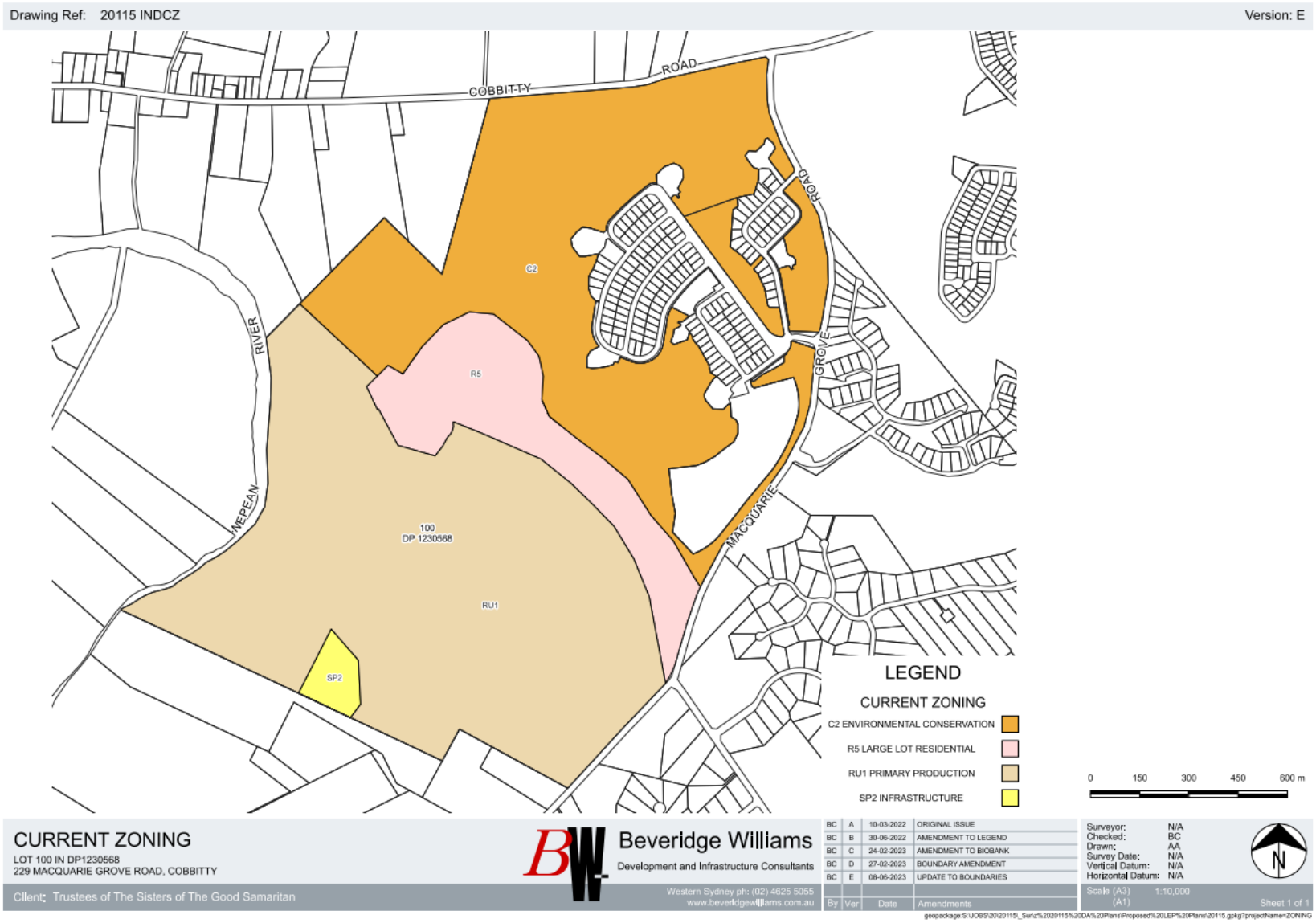

Figure 1-2- Current Zoning

(Source: Beveridge Williams, Current Zoning, no. 20115 INDCZ, dated: 08/06/2023)

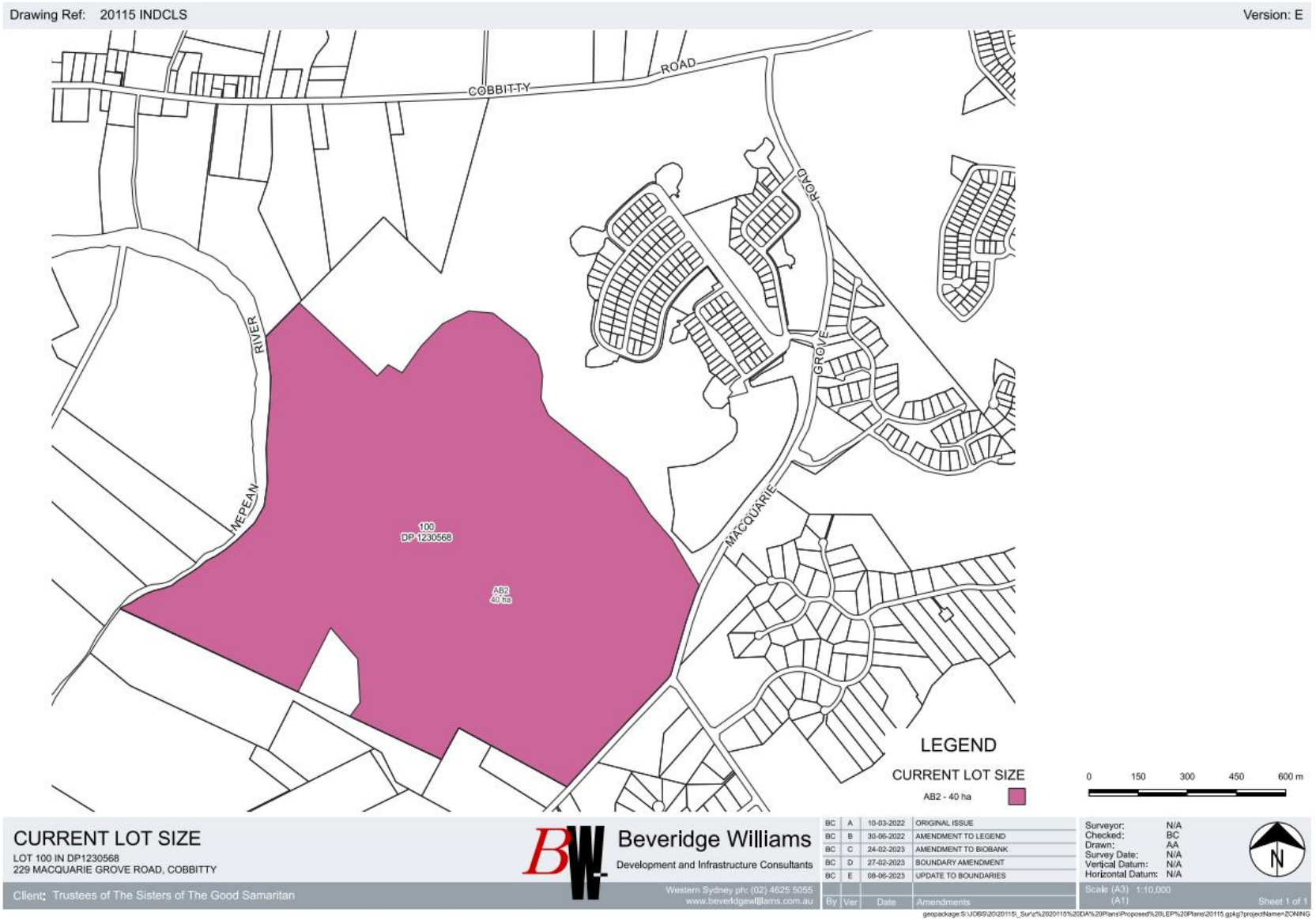

Figure 1-3- Current Lot Size

(Source: Beveridge Williams, Current Lot Size, no. 20115 INDCLS, rev. E., dated: 08/06/2023)

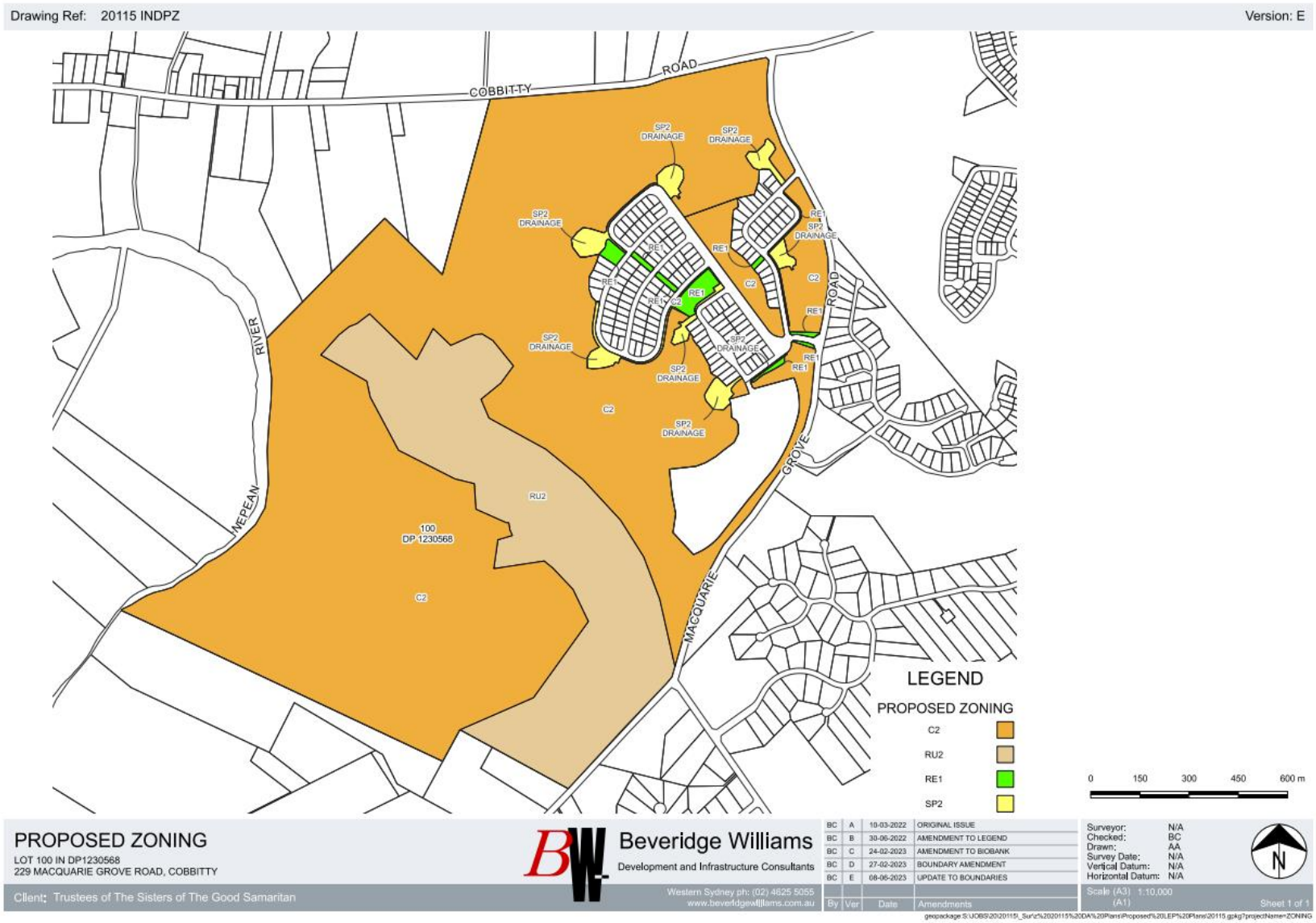

Figure 1-4- Proposed Zoning

(Source: Beveridge Williams, Proposed Zoning, no. 20115 INDPZ, rev. E., dated: 08/06/2023)

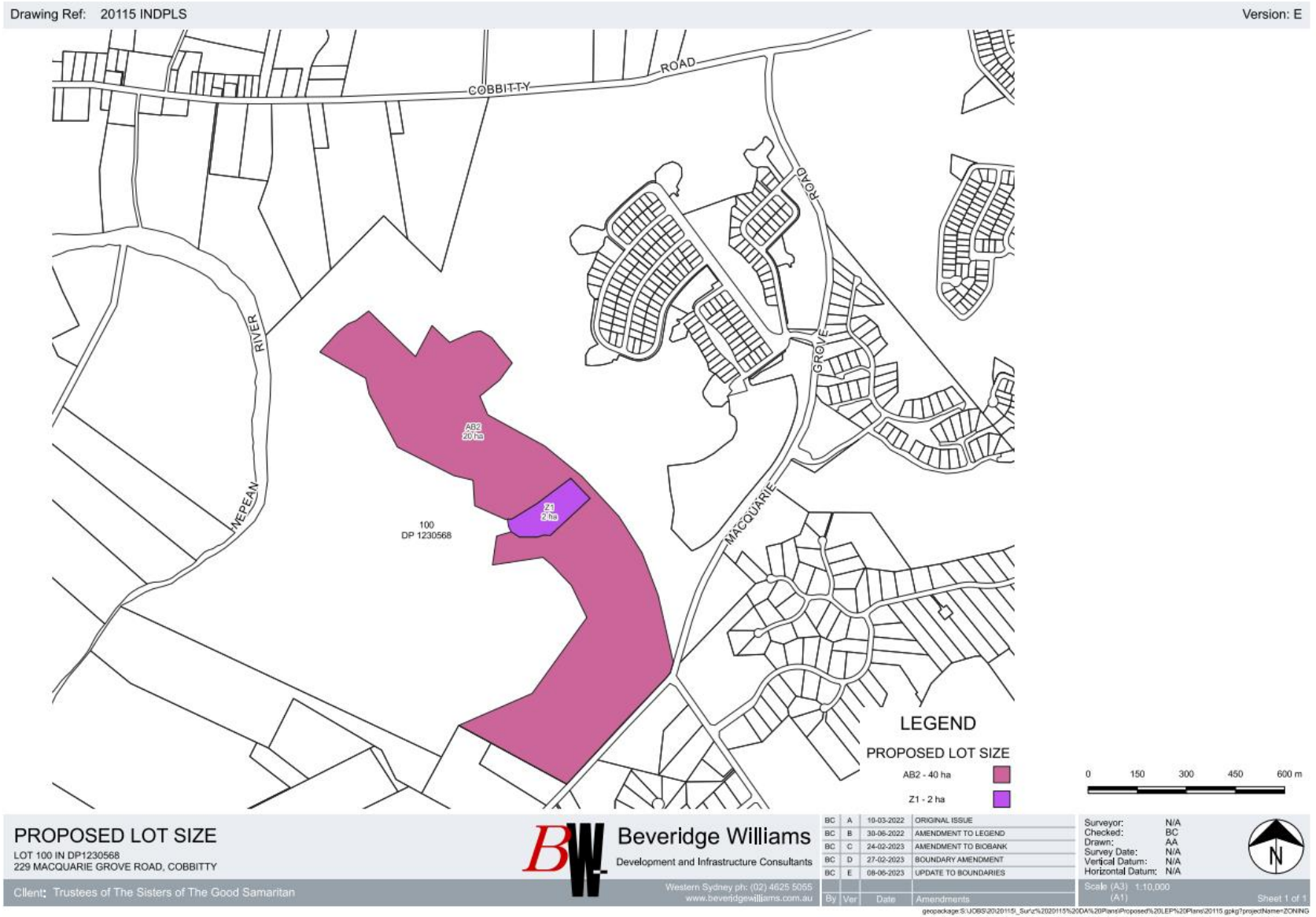

Figure 1-5- Proposed Lot Size

(Source: Beveridge Williams, Proposed Lot Size, no. 20115 INDPLS, rev. E., dated: 08/06/2023)

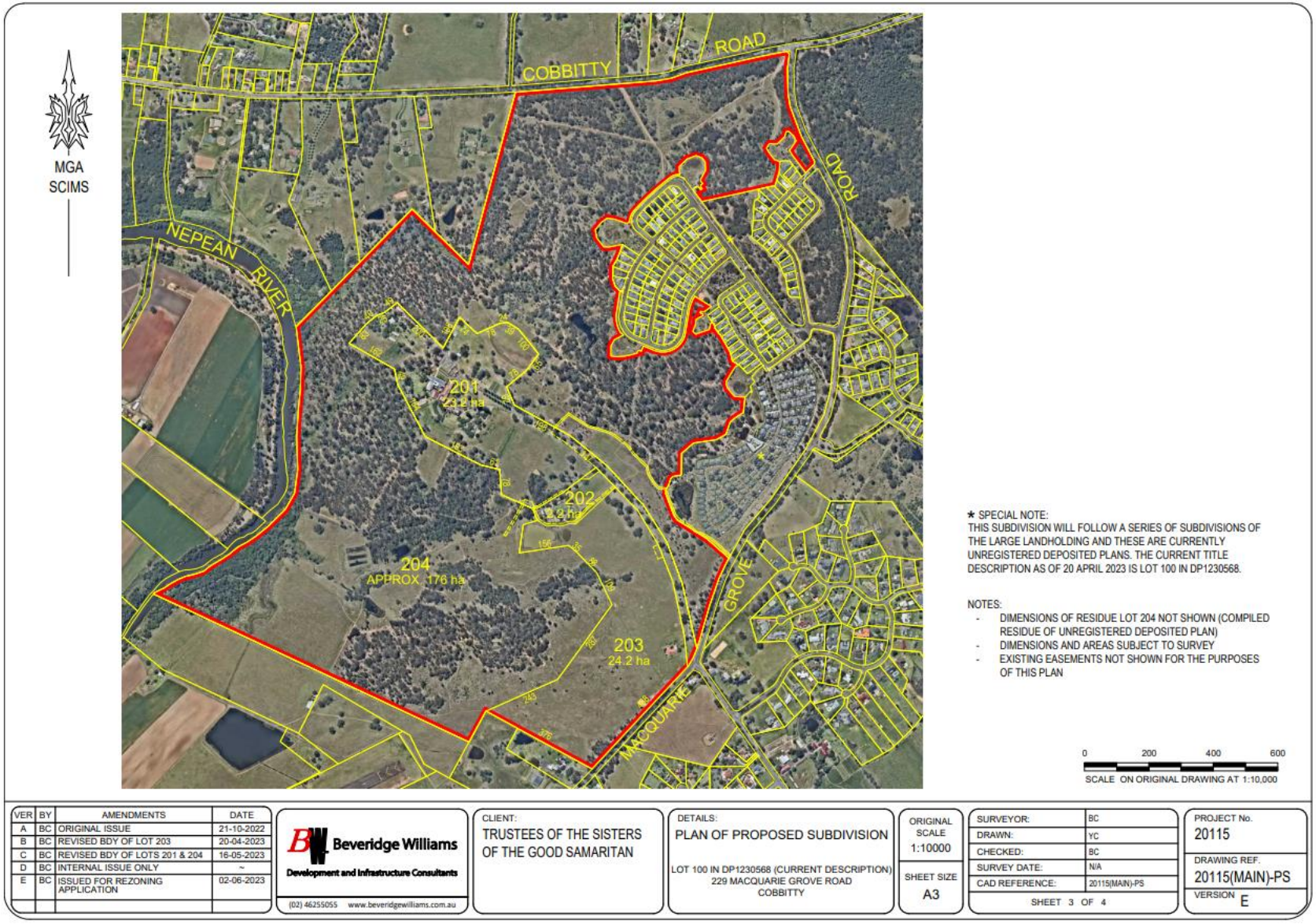

Figure 1-6 - Proposed Subdivision Layout

(Source: Beveridge Williams, Plan of Proposed Subdivision, no. 20115, rev. E., dated: 02/06/2023)

1.3 Information collation

To achieve the aims of this report, a review of the information relevant to the property was undertaken prior to the initiation of field surveys. Information sources reviewed included the following:

- Beveridge Williams, *Lot 100 in DP 1230568 229 Macquarie Grove Road, Cobbitty,* no. 20115, rev. E., dated: 08.06.23.
- Beveridge Williams, *Plan of Proposed Subdivision,* no. 20115, dwg ref. 20115(MAIN)-PS, rev. E., dated: 02.06.23
- Camden Local Environmental Plan 2010
- *Nearmap* aerial photography
- Topographical maps *DLPI of NSW* 1:25,000
- *Australian Standard 3959 Construction of buildings in bushfire-prone areas*
- *Planning for Bush Fire Protection 2019 (PBP, 2019)*
- *Planning for Bushfire Protection November 2022 Addendum*
- *Section 9.1 Direction* (direction issued by the Minister for Planning to relevant planning authorities under section 9.1(2) of the *Environmental Planning and Assessment Act 1979*)

1.4 Site description

The site compromises Lot 100 DP 1230568, situated at 229 Macquarie Grove Road, Cobbitty. It is located to the south of Cobbitty Road and to the west of Macquarie Grove Road.

In the approximate centre of the lot are two existing schools support infrastructure and other incidental buildings, with the remainder of the site comprised primarily of native vegetation managed for conservation and/or open rural lands. To the north-east of the schools is a cluster of residential and seniors living allotments excised from the lot under a previous subdivision, and not part of the current proposal.

Figure 1-77 – Aerial appraisal
(source: SIXmaps)

1.5 Legislation and planning instruments

1.5.1 *Environmental Planning and Assessment Act (1979)* and bush fire prone land

The *EP&A Act* governs environmental and land use planning and assessment within New South Wales. It provides for the establishment of environmental planning instruments, development controls and the operation of construction controls through the *Building Code of Australia (BCA).* The identification of bushfire prone land is required under Section 10.3 of the *EP&A Act*.

PBP, 2019 (p. 18) stipulates that if a proposed amendment to land use zoning or land use affects a designated bushfire prone area then the Section 9.1(2) Direction No 4.3. of the *EP&A Act* must be applied. This requires Council to consult with the Commissioner of the RFS and to take into account any comments by the Commissioner and to have regard to the planning principles of *PBP 2019* (detailed within Section 1.5.3).

1.5.3 *Planning for Bush Fire Protection 2019 (PBP)*

Bushfire protection planning requires the consideration of the RFS planning document entitled *Planning for Bush Fire Protection 2019 (PBP). PBP, 2019,* provides planning principles for rezoning of bush fire prone land as well as guidance on effective bushfire protection measures.

For strategic development proposals in bush fire prone areas *PBP* requires, as a minimum, assessment of the components in Table 1-1 below. These issues are addressed in Section 3 of this report.

Table 1-1 - Requirements for a Bush Fire Strategic Study

Issue	*Detail*	*Assessment Considerations*
Bush fire landscape assessment	A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.	The bush fire hazard in the surrounding area, including: • Vegetation • Topography • Weather The potential fire behaviour that might be generated based on the above; Any history of bush fire in the area; Potential fire runs into the site and the intensity of such fire runs; and The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain.
Land use assessment	The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses.	The risk profile of different areas of the development layout based on the above landscape study; The proposed land use zones and permitted uses; The most appropriate siting of different land uses based on risk profiles within the site

Issue	*Detail*	*Assessment Considerations*
		(i.e. not locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and The impact of the siting of these uses on APZ provision.
Access and egress	A study of the existing and proposed road networks both within and external to the masterplan area or site layout.	The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile; The location of key access routes and direction of travel; and The potential for development to be isolated in the event of a bush fire.
Emergency services	An assessment of the future impact of new development on emergency services.	Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/ brigades; and Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency.
Infrastructure	An assessment of the issues associated with infrastructure and utilities.	The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants; and Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.
Adjoining land	The impact of new development on adjoining landowners and their ability to undertake bush fire management.	Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans.

2. BUSHFIRE THREAT ASSESSMENT

To assess the bushfire threat and to determine the required width of an APZ (as a management "tool") for a development, an assessment of the potential hazardous vegetation and the effective slope within the vegetation is required. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

2.1 Hazardous fuels

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) if using the simplified acceptable solutions in PBP 2019, or alternatively the vegetation class if adopting the comprehensive vegetation fuel loads (as allowable when undertaking an assessment under Method 2 of AS3959). The hazardous vegetation is calculated for a distance of at least 140m from a proposed building envelope.

The vegetation posing a bushfire threat to the proposed development includes:

Table 2-1 - Vegetation

Vegetation community	***Vegetation formation***	***Vegetation classification***	***Comprehensive fuel loads (t/ha)***	***Acceptable solution fuel loads (t/ha)* (PBP 2019)**
Cumberland Shale Plains Woodland (PCT 3320)	Grassy Woodlands	Coastal Valley Grassy Woodlands	10/ 18.07	10.5/ 20.2
Unmanaged Grassland	Grassland		6/ 6	6/ 6

2.2 Effective slope

The effective slope has been assessed for up to 100m from the development site. Effective slope refers to that slope which provides the most effect upon likely fire behaviour. A mean average slope may not in all cases provide sufficient information such that an appropriate assessment can be determined.

The effective slope within the hazardous vegetation is described in detail within table 2-2 below.

2.3 Bushfire attack assessment

The following assessment has determined the APZ requirements via the following approaches;

- Tables A1.12.1 and A1.12.2 of *PBP2019*

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney region. Table 2-2 provides a summary of the bushfire attack assessment based on residential and SFFP development and the methodologies identified above.

Table 2-2 - Bushfire Attack Assessment Summary

Aspect	Predominant Vegetation Class	Effective Slope	Minimum APZ Required	
			Residential	SFPP
South	Grassland	0-5^{oD}	12m (see note 2)	40m
South	Grassland	Upslope	10m (see note 2)	36m
South-west	Grassland	0-5°^{D}	12m	40m
West	Grassy Woodland	5-10°^{D}	20m	60m
North-East & East	Grassy Woodland	0-5^{oD}	16m	50m

Slope is either 'U' meaning up slope or 'C' meaning cross slope or 'D' meaning down slope

Note 1: For a more detailed outline of bushfire protection measures, refer to schedule 1.

Note 2: Minimum Residential APZ required for Grassland along the southern aspect is not reflected in the schedule 1 bushfire protection measures. There is an 14m existing APZ compromising of the road carriageway between the site and unmanaged grassland on southern neighbouring property.

3. SPECIFIC PROTECTION ISSUES

3.1 Asset protection zones (APZs)

Table 3.1 outlines the capacity for future development on the site to conform with the performance criteria for APZs.

Table 3-1 – Performance criteria for asset protection zones (PBP 2019 guidelines pg. 43)

Performance criteria	Acceptable solutions	Comment
Potential building footprints will not be exposed to radiant heat levels exceeding 29kW/m^2 on each proposed lot	APZs are provided in accordance with Tables A1.12.2 and A1.12.5 based on the FFDI	The proposed RU2 zoned area is sufficiently large to incorporate the required APZs. See Schedule 1.
APZs are managed and maintained to prevent the spread of a fire towards the building	APZs are managed in accordance with the requirements of Appendix 4 of *PBP 2019*	Can be made a condition of consent for future DAs.

Performance criteria	Acceptable solutions	Comment
The APZ is provided in perpetuity	APZs are wholly within the boundaries of the development site	The proposed RU2 zoned area is sufficiently large to incorporate the required APZs.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	The APZ is located on lands with a slope of less than 18^{o}	All slopes within the proposed RU2 zoned area are less than 18 degrees, other than creek banks and some small artificial embankments alongside roads etc.
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 of *PBP 2019*	Can be made a condition of consent for future DAs.
	Fencing is constructed in accordance with section 7.6 of *PBP 2019*	Can be made a condition of consent for future DAs.

3.2 Access for firefighting operations

Table 3-2 outlines the capacity for future development on the site to conform with the performance criteria for access.

Table 3-2 – Performance criteria for access within Residential Subdivisions (PBP 2019) Guidelines pg. 44)

Performance criteria		Acceptable solution	Comment
ACCESS (GENERAL REQUIREMENTS)	Firefighting vehicles are provided with safe, all weather access to structures.	Property access roads are two-wheel drive, all-weather roads	Existing access road complies. Can be made a condition of consent for future DAs.
		Perimeter roads are provided for residential subdivisions of three or more allotments.	Can be made a condition of consent for future DAs.
		Subdivisions of three or more allotments have more than one access in and out of the development.	There is scope for further limited access points along an 850m length of Macquarie Grove Road
		Traffic management devices are constructed to not prohibit access by emergency services vehicles.	Can be made a condition of consent for future DAs.

Performance criteria	Acceptable solution	Comment
	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.	All slopes within the proposed RU2 area are less than 15 degrees, other than creek banks and some small artificial embankments alongside roads etc.
	All roads are through roads	Can be made a condition of consent for future DAs.
	Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200m in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.	Can be made a condition of consent for future DAs.
	Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.	Can be made a condition of consent for future DAs.
	Where access / egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.	There is scope for alternate access/egress and routes that traverse grassland only.
	One way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	Can be made a condition of consent for future DAs.
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.	Can be made a condition of consent for future DAs.
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.	Can be made a condition of consent for future DAs.
	Hydrants are provided in accordance with *AS 2419.1:2005.*	Can be made a condition of consent for future DAs.
	There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Can be made a condition of consent for future DAs.

	Performance criteria	Acceptable solution	Comment
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.	Can be made a condition of consent for future DAs.
		Minimum 8m carriageway width kerb to kerb.	Can be made a condition of consent for future DAs.
		Parking is provided outside of the carriageway width.	Can be made a condition of consent for future DAs.
		Hydrants are located clear of parking areas.	Can be made a condition of consent for future DAs.
		There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	Can be made a condition of consent for future DAs.
		Curves of roads have a minimum inner radius of 6m.	Can be made a condition of consent for future DAs.
		The maximum grade road is 15° and average grade is 10°.	Can be made a condition of consent for future DAs.
		The road crossfall does not exceed 3°.	Can be made a condition of consent for future DAs.
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Can be made a condition of consent for future DAs.
NON-PERIMETER ROADS	Access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating.	Minimum 5.5m carriageway width kerb to kerb.	Can be made a condition of consent for future DAs.
		Parking is provided outside of the carriageway width.	Can be made a condition of consent for future DAs.
		Hydrants are located clear of parking areas.	Can be made a condition of consent for future DAs.
		Roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	Can be made a condition of consent for future DAs.
		Curves of roads have a minimum inner radius of 6m.	Can be made a condition of consent for future DAs.

	Performance criteria	Acceptable solution	Comment
		The road crossfall does not exceed 3°.	Can be made a condition of consent for future DAs.
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	Can be made a condition of consent for future DAs.
PROPERTY ACCESS	Firefighting vehicles can access the dwelling and exit the property safely.	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	There is scope to provide future allotments with direct frontage to public roads or provide property access roads in compliance with the acceptable solutions.

3.3 Water supplies

Table 3-3 outlines the capacity for future development on the site to conform with the performance criteria for water supply.

Table 3-3 – Performance criteria for reticulated water supplies (PBP guidelines pg. 47)

Performance criteria	Acceptable solutions	Comment
Adequate water supplies is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available.	Can be made a condition of consent for future DAs.
	A static water supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed	Can be made a condition of consent for future DAs.
	Static water supplies shall comply with Table 5.3d.	Can be made a condition of consent for future DAs.
Water supplies are located at regular intervals. The water supply is accessible and reliable for firefighting operations.	Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard *AS 2419.1:2021.*	Can be made a condition of consent for future DAs.
	Hydrants are not located within any road carriageway.	Can be made a condition of consent for future DAs.
	Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Urban subdivision is not proposed, the principles can be observed where relevant.
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of *AS 2419.1:2021.*	Can be made a condition of consent for future DAs.
The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps.	Can be made a condition of consent for future DAs.
	Above ground water storage tank shall be of concrete or metal	Can be made a condition of consent for future DAs.

3.4 Gas

Table 3-4 outlines the capacity for future development on the site to conform with the performance criteria for gas supply.

Table 3-4 – Performance criteria for gas supplies (PBP Guidelines pg. 47)

Performance criteria	Acceptable solutions	Comment
Location of gas services will not lead to the ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas bottles are to be installed and maintained in accordance with *AS/NZS 1596 (2014)*, the requirements of relevant authorities and metal piping is to be used.	Can be made a condition of consent for future DAs.
	All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the hazard side.	Can be made a condition of consent for future DAs.
	Connections to and from gas cylinders are metal.	Can be made a condition of consent for future DAs.
	Polymer sheathed flexible gas supply lines are not used.	Can be made a condition of consent for future DAs.
	Above ground gas service pipes are metal, including and up to any outlets.	Can be made a condition of consent for future DAs.

3.5 Electricity

Table 3-5 outlines the capacity for future development on the site to conform with the performance criteria for electricity supply.

Table 3-5 – Performance criteria for electricity services (PBP guidelines pg. 47)

Performance criteria	Acceptable Solutions	Comment
Location of electricity services limit the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	Can be made a condition of consent for future DAs.
	Where overhead electrical transmission lines are proposed: 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 ISSC3 Guideline for Managing Vegetation Near Power Lines.	Can be made a condition of consent for future DAs.

4. CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

The assessment has found that future development in accordance with the Planning Proposal Request adequately addresses bushfire risk and the land is suitable for development in the context of that risk. The proposal is noted to result in a decrease in the area that can be used for residential purposes. Further, no increase in demand on the local road network, emergency services or infrastructure, and no implications for adjoining land are occasioned at this formative planning phase and can be adequately dealt with in future development applications, where relevant.

The assessment has concluded that future development on site can conform to the planning principles of *PBP 2019* and *Ministerial Direction 4.3 'Planning for Bush Fire Protection*'.

5. REFERENCES

Australian Building Codes Board (2010) – *Building Code of Australia*, Class 1 and Class 10 Buildings Housing Provisions Volume 2.

Chan, K.W. (2001) – *The suitability of the use of various treated timbers for building constructions in bushfire prone areas*. Warrington Fire Research.

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bush fire-prone areas.*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change.

Rural Fire Service (2019) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers*. NSW Rural Fire Service.

Tan, B., Midgley, S., Douglas, G. and Short (2004) - *A methodology for assessing bushfire attack.* RFS Development Control Service.

SCHEDULE 1. INDICATIVE MINIMUM APZ SETBACKS

Legend

- Site boundary (source:LPI)
- Contour (source:LiDAR)
- Proposed land zoning (source:CAD)
- Indicative Residential APZ
- Indicative SFPP APZ
- Proposed Environmental Zone

VISID 2200 Wollongong Native Vegetation 2009

- Forested Wetlands
- Grassy Woodlands

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PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
229 Macquarie Grove Road, Cobbitty 21PPS02.3_BF001	9/08/2023 Issue 1 SC	1:8,000 GDA 1994 MGA Zone 56

0 100 200 m

TITLE

Schedule 1 - Bushfire Protection Measures

Document Path: N:\GIS STORAGE\N Drive\21PPS02_MacquarieGroveRd_Cobbitty\MXDs\21PPS02.3_BF001.mxd

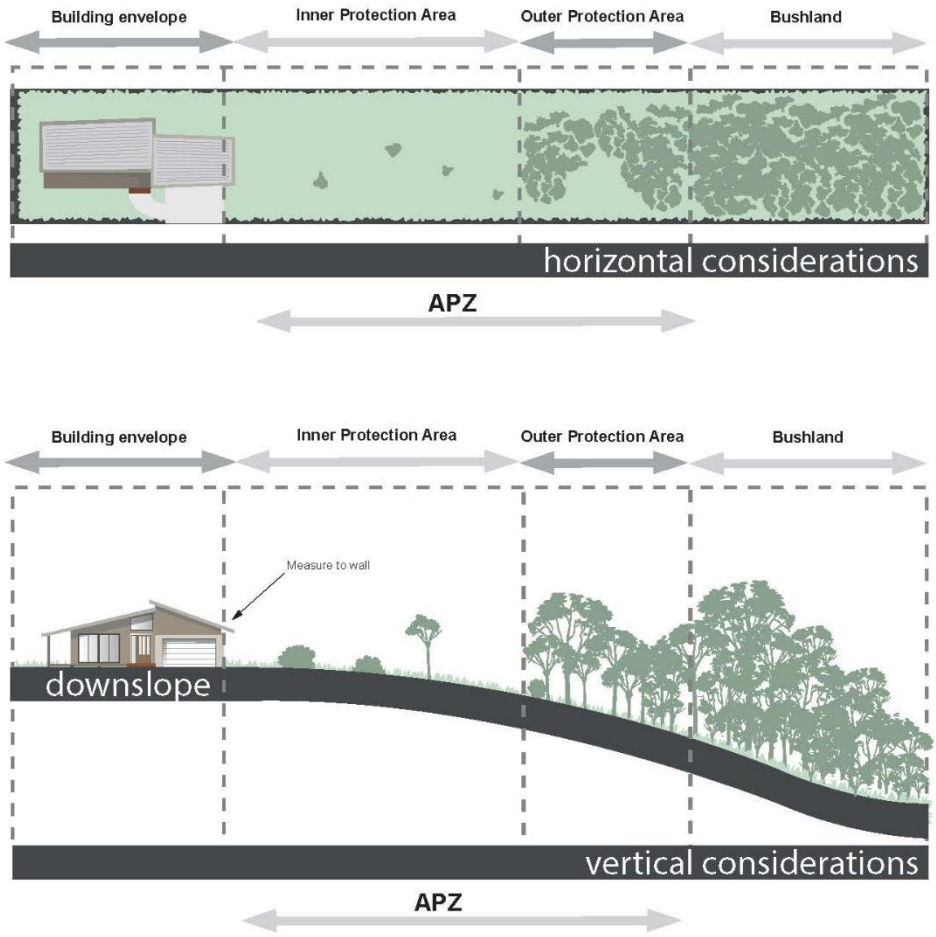
Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered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

APPENDIX 1. MANAGEMENT OF ASSET PROTECTION ZONES

The RFS provides basic advice in respect of managing APZs through documents such as, *Standards for Asset Protection Zones* (RFS, 2005), with landscaping to comply with Appendix 4 of *PBP*.

In forest vegetation an APZ may consist of two subordinate areas, an inner protection area (IPA) and an outer protection area (OPA). The IPA is the area immediately surrounding the building and the OPA (up to 30% of the total APZ width) is between the IPA and the hazard.

A typical APZ is graphically represented below.



APZs and progressive reduction in fuel loads
(Source: PBP, 2019)

> **Note:** Vegetation management as shown is for illustrative purposes only. Specific advice is to be sought regarding vegetation removal and retention from a qualified and experienced expert to ensure APZs comply with the RFS performance criteria.

The following table adapted from *PBP 2019* provides maintenance advice for vegetation within the IPA and OPA. The APZ is to be maintained in perpetuity and maintenance should be undertaken regularly, particularly in advance of the bushfire season.

	Inner Protection Area	Outer Protection Area
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 retaining smooth barked and evergreen trees.	➢ Tree canopy cover should be **less than 30%;** and ➢ Canopies should be separated by **2 to 5m**.
Shrubs	➢ Large discontinuities or gaps in the vegetation should be provided to slow down or break the progress of fire towards buildings; ➢ Shrubs should not be located under trees; ➢ Shrubs should form **less 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.	➢ Shrubs should not form a continuous canopy; and ➢ Shrubs should **form less than 20%** of ground cover.
Grass and Leaf Litter	➢ Grass should be kept mown to a height of **less than 100mm**; and ➢ Leaves and other debris should be removed	➢ Grass should be kept mown to a height of **less than 100mm**; and ➢ Leaf and other debris should be removed.

	All Management Zones
Weeds	➢ All weeds should be removed in accordance with best practice guidelines, and measures taken to prevent their further spread
Landscaping	➢ Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways; ➢ Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come into contact with the building; ➢ When considering landscape species consideration needs to be given to estimated size of the plant at maturity; ➢ Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies; ➢ Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown; ➢ Avoid planting of deciduous species that may increase fuel at surface / ground level (i.e. leaf litter); ➢ Avoid climbing species to walls and pergolas; ➢ Locate combustible materials such as woodchips / mulch, flammable fuel stores away from the building; ➢ Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and ➢ Use of low flammability vegetation species.