REF: 7372BF

Date: 4/04/2025

Valid to 27/03/2026

BUSHFIRE HAZARD ASSESSMENT

PROPOSED BOUNDARY ADJUSTMENT

1476 & 1521 CANYONLEIGH ROAD, BRAYTON

LGA: Goulburn-Mulwaree

Lot 299, DP 750053 and Lot 2, DP 715240

Applicant: Bryan Quinn C/-- Tina Dodson at Premise

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Version Control

Version Number	Name	Issue Detail	Date Modified	Status
1.0	CH	Draft Report	26/03/2025	Complete
1.1	KH	Final Report	04/04/2025	Complete

Bushfire Hazard Assessment

Property Address:	1476 & 1521 Canyonleigh Road, Brayton, Lot 299, DP 750053 and Lot 2, DP 715240
Description of Proposal:	Proposed Boundary Adjustment
Highest BAL Rating:	**BAL 29 or less**
Performance-Based Solution	Yes, BAL 19 APZ for Lot 1 due to the access to the nearest public through road being greater than 200 m in length.
Bushfire Assessment Reference:	7372BF
Report Date:	4 April 2025

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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. The 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

APPENDIX

FIGURES

TABLES

EXECUTIVE SUMMARY

This Bushfire Hazard Assessment is for a proposed boundary adjustment between 1476 & 1521 Canyonleigh Road, Brayton. Harris Environmental Consulting was commissioned to provide this bushfire assessment. Letara Judd (BPAD Level 2) conducted a site inspection on the 19th of March 2025.

The proposed boundary adjustment involves the removing the northern boundary of Lot 2 DP715420 to combine with the eastern lot component of Lot 299 DP750053, increasing the area of Lot 2 DP715420 to approximately 60 ha. The area of Lot 299 DP750053 will decrease to approximately 32 ha due to the loss of the eastern component of the lot.

The existing dwellings are not exposed to radiant heat exceeding 29 kW/m^2.

No built development is included in the proposal. However, both existing dwellings have been given an APZ.

- The existing dwelling on Lot 1 can support a building area exposed to radiant heat no greater than 29 kW/m^2. However, as the dwelling is located greater than 200m from the nearest public through road, a BAL 19 APZ has been provided.
- The existing dwelling on Lot 2 can support a building area exposed to radiant heat no greater than 29 kW/m^2 and has been given a BAL 29 APZ.

The existing dwelling on Lot 1 is located approximately 565 m from the nearest public through road. At least one alternative property access road is required for individual dwellings or groups of dwellings that are located more than 200 meters from a public through road. The access is greater than 200 m in length with no alternate access. Therefore, a BAL 19 APZ to all elevations has been provided as an alternate solution. The existing dwelling on Lot 2 is located approximately 130 m from the nearest public through road.

The applicant should ensure there is at least 20,000 litre water supply per lot available for firefighting purposes for existing dwelling. 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 relevant authority's requirements. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and 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 relevant energy supplier.

1 PROPOSAL

The owners of 1476 & 1521 Canyonleigh Road, Brayton, on Lot 299, DP 750053 (Lot 1) and Lot 2, DP 715240 (Lot 2) propose a boundary adjustment to remove the northern boundary of Lot 2 DP715420 to combine with the eastern lot component of Lot 299 DP750053, increasing the area of Lot 2 DP715420 to approximately 60 ha. The area of Lot 299 DP750053 will decrease to approximately 32 ha due to the loss of the eastern component of the lot.

The existing dwellings on each subject lot is utilised in this assessment to demonstrate the ability of both lots to provide a building footprint that is not exposed to radiant heat exceeding 29 kW/m^2, or BAL 29.

As the proposal involves the subdivision of land for residential purposes, which is mapped as bushfire prone, the proposal will be required to satisfy the relevant provisions of both s.4.14 and s4.46 of the Environmental Planning and Assessment Act 1979.

Harris Environmental Consulting was commissioned to provide this bushfire assessment. Letara Judd (BPAD Level 2) conducted a site inspection on the 19th of March 2025.

Figure 1 shows the subject lot location.

Figure 2 provides a broad scale aerial view of the subject site.

Figure 3 shows a close up of the subject lot.

Figure 4 shows the proposed subdivision.

FIGURE 1 SITE LOCATION

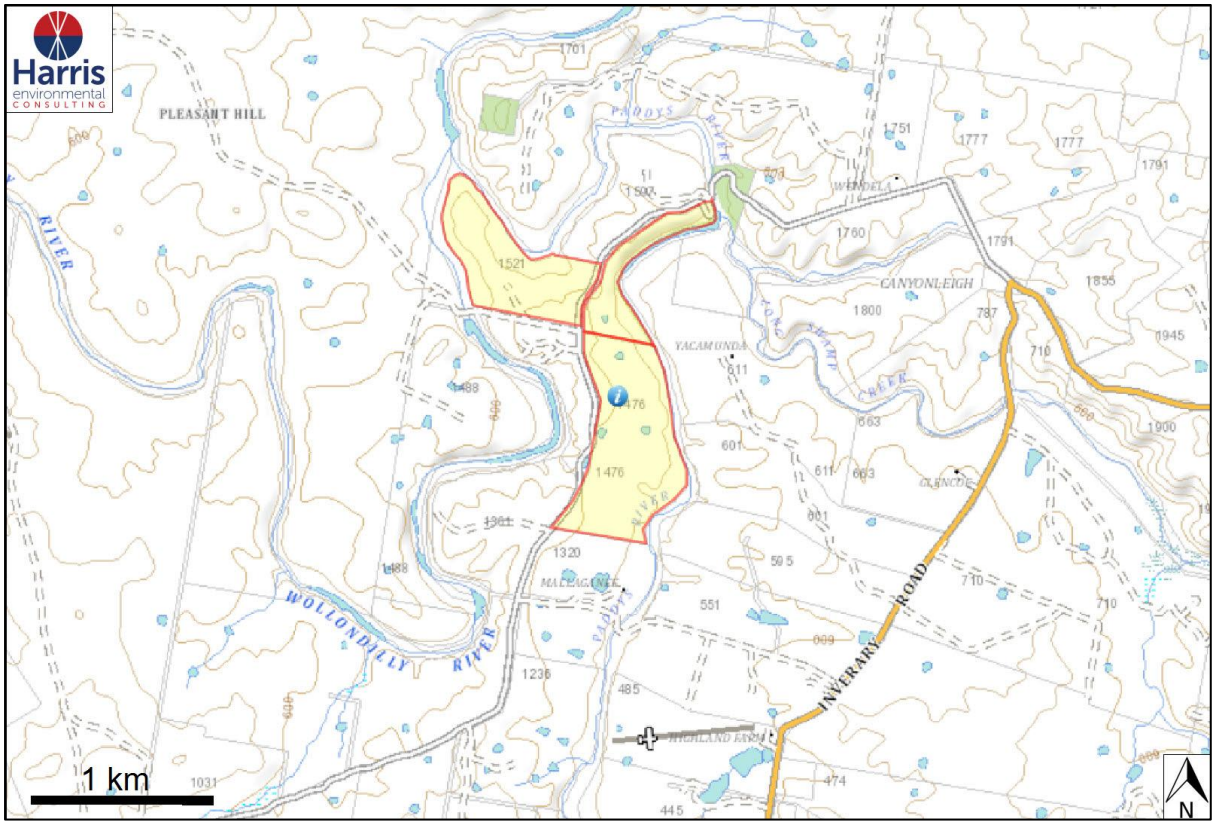


FIGURE 2 BROAD SCALE AERIAL VIEW OF THE SUBJECT SITE

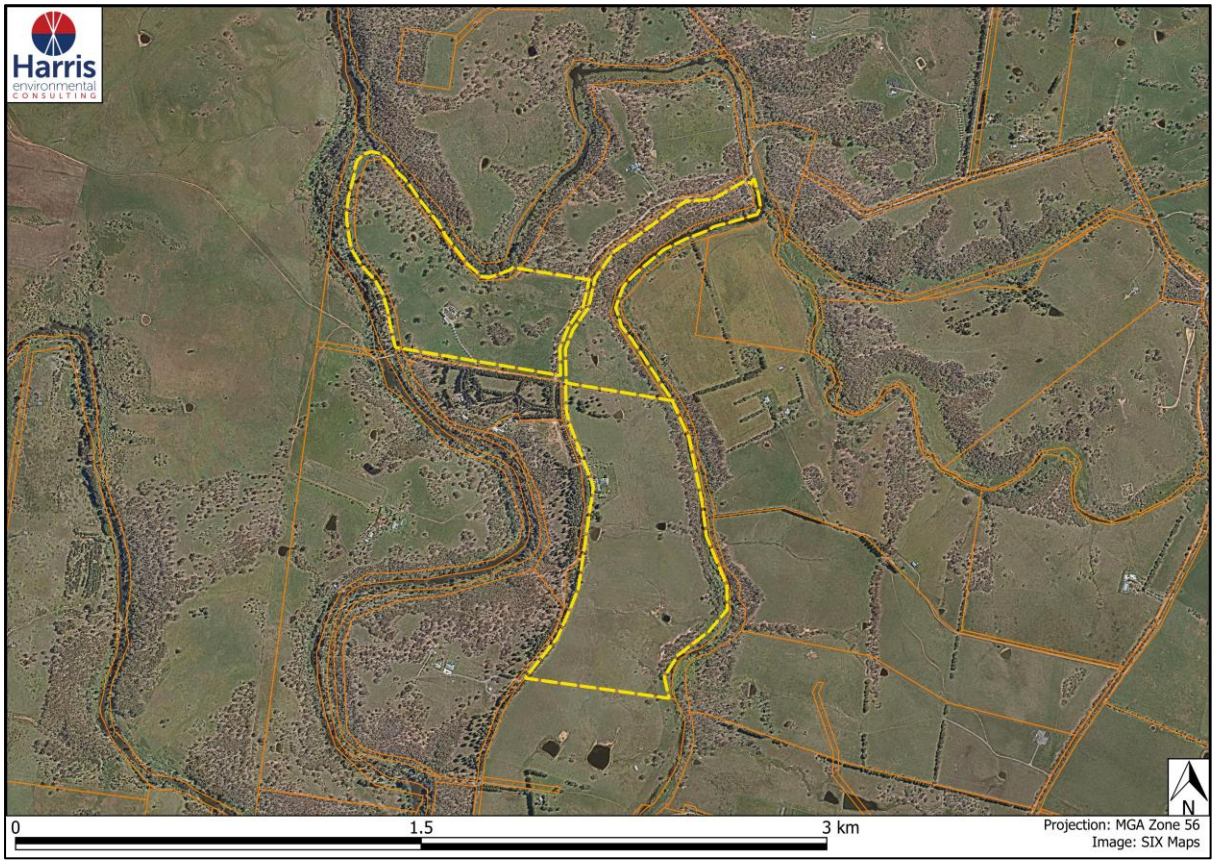
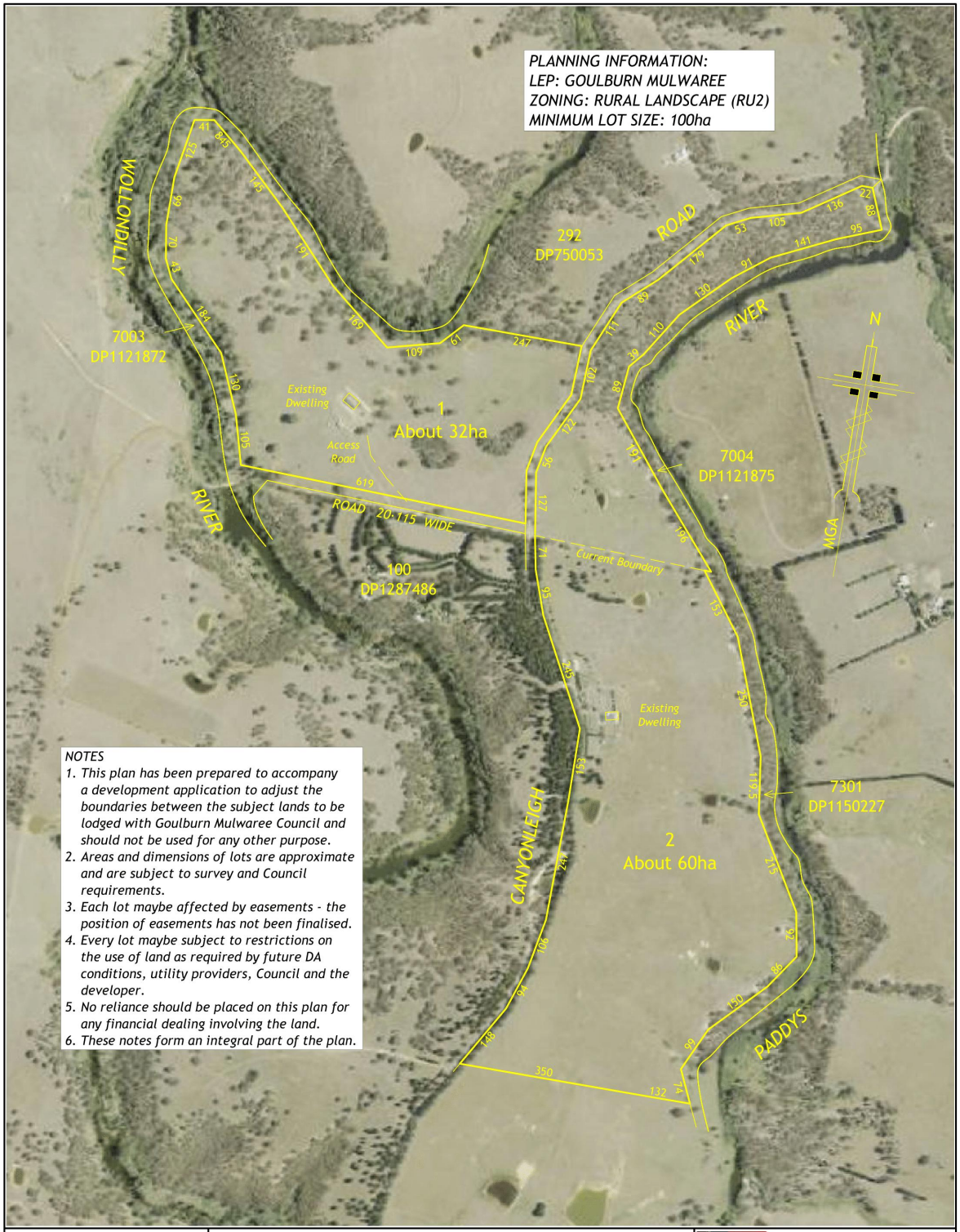


FIGURE 3 CLOSE UP VIEW OF SUBJECT LOT

FIGURE 4 PROPOSED SUBDIVISION PLAN



2 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 as “Vegetation Category 1”, and “Vegetation Category 3”.
LEP Zone Map	6	The subject lot is zoned as “RU2 – Rural Landscape”.
Vegetation Mapping	7	The surrounding vegetation is mapped predominantly as “Southern Tableland Dry Sclerophyll Forest”, “Southern Tableland Wet Sclerophyll Forest”, “Eastern Riverine Forest” and “Central Gorge Dry Sclerophyll Forest” (DPE, 2022).
Biodiversity Values Map	8	As of 4/04/2025, there is land identified within the subject lot as having high biodiversity value under the Biodiversity Offsets Scheme under the *Biodiversity Conservation Act 2016.* However, this is on the perimeter of the lot and do not influence the ability of the existing dwellings to support a BAL 29 APZ.
Hydrology	9	There are a number of watercourses through the subject lot, however, none impact the APZ of the existing dwellings.

FIGURE 5 BUSHFIRE PRONE MAP

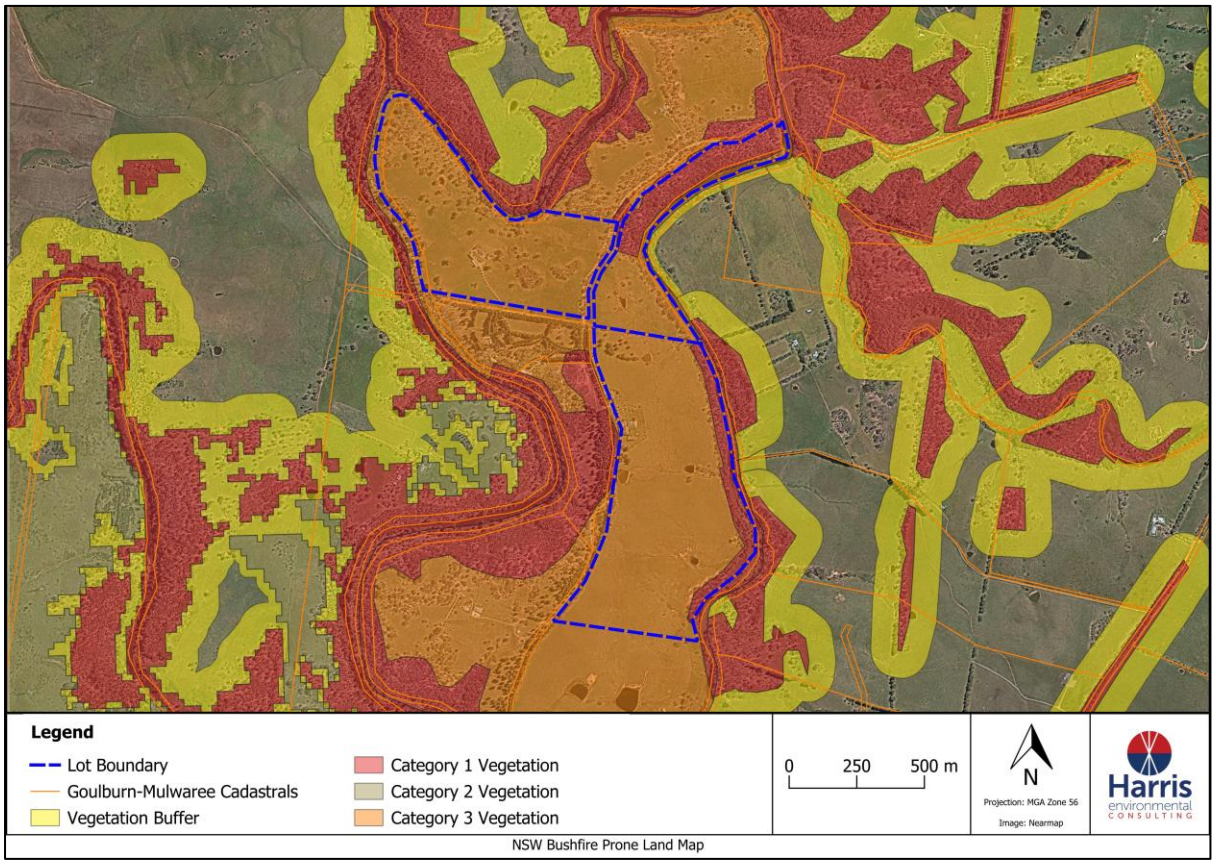


FIGURE 6 LEP ZONE MAP

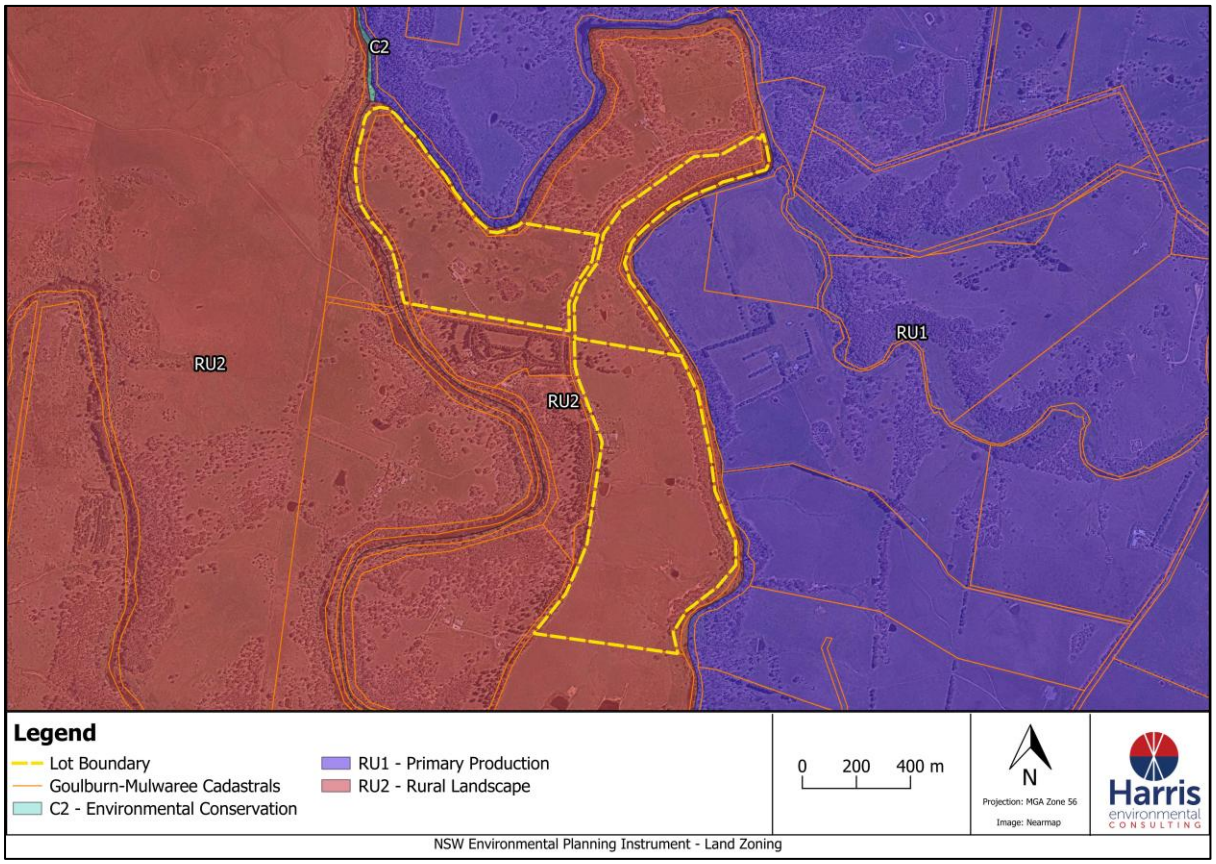


FIGURE 7 VEGETATION MAPPING

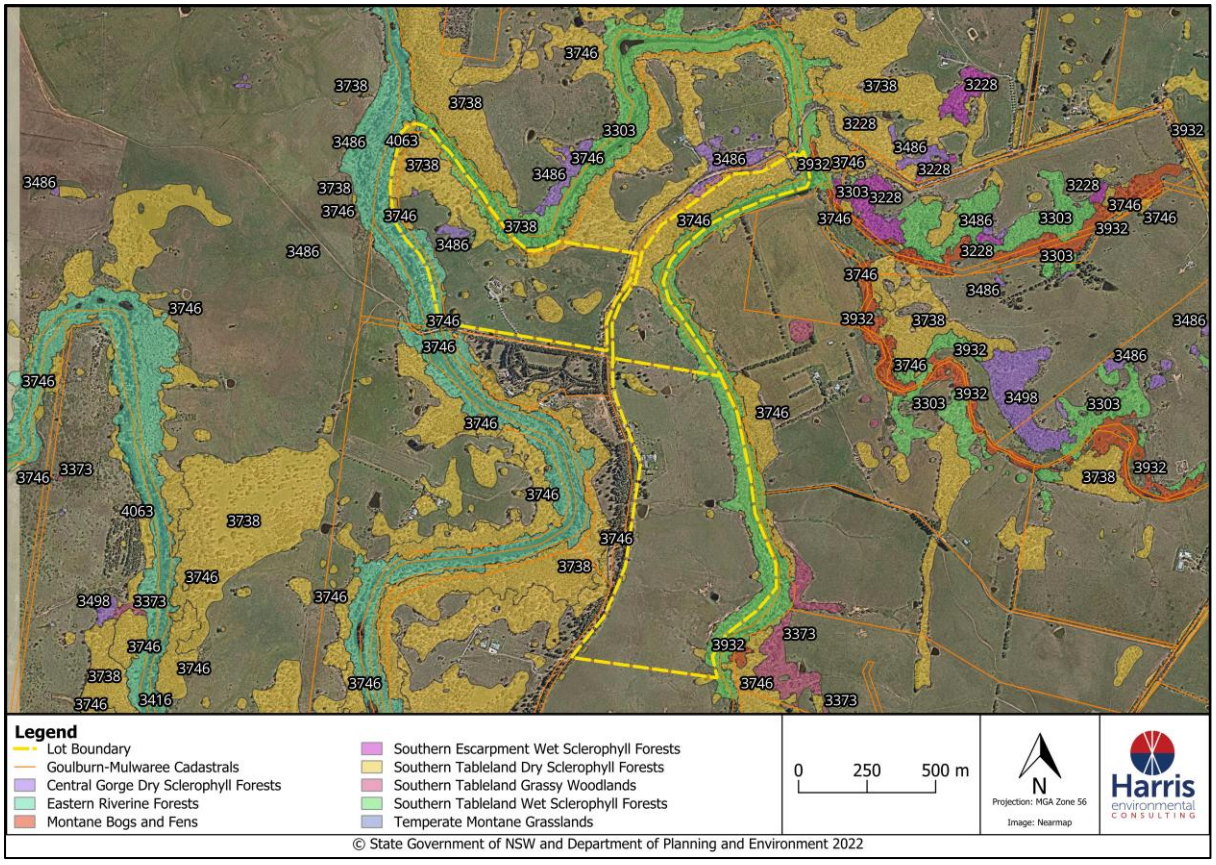


FIGURE 8 BIODIVERSITY VALUES MAP

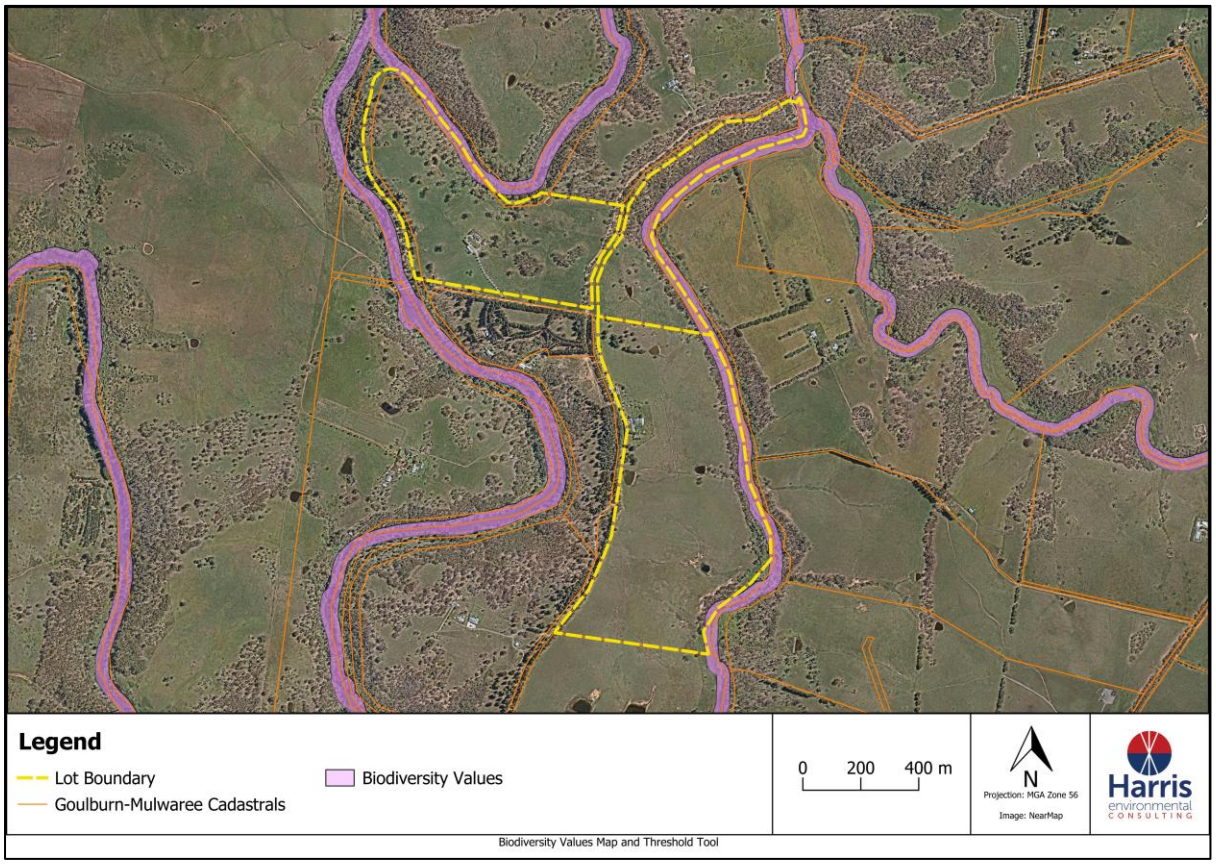
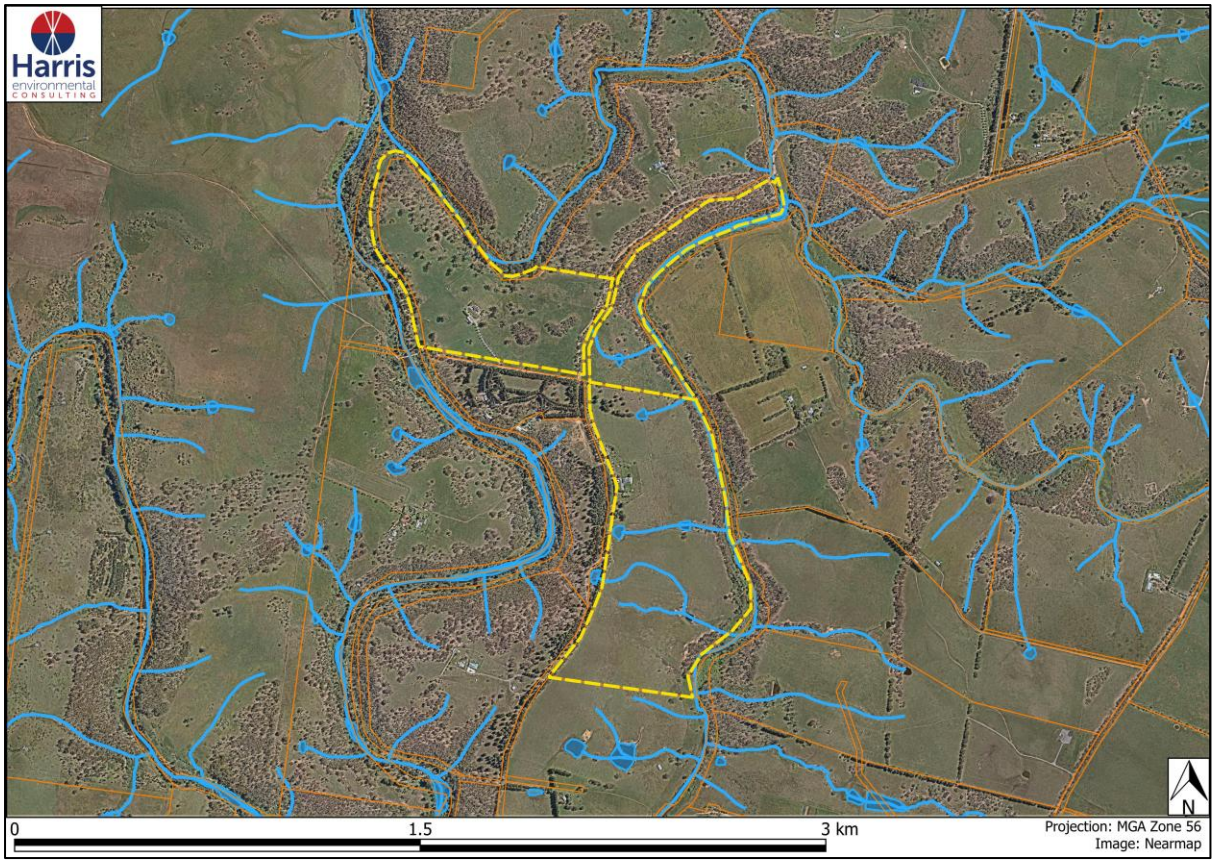


FIGURE 9 HYDROLOGY



3 SITE DESCRIPTION

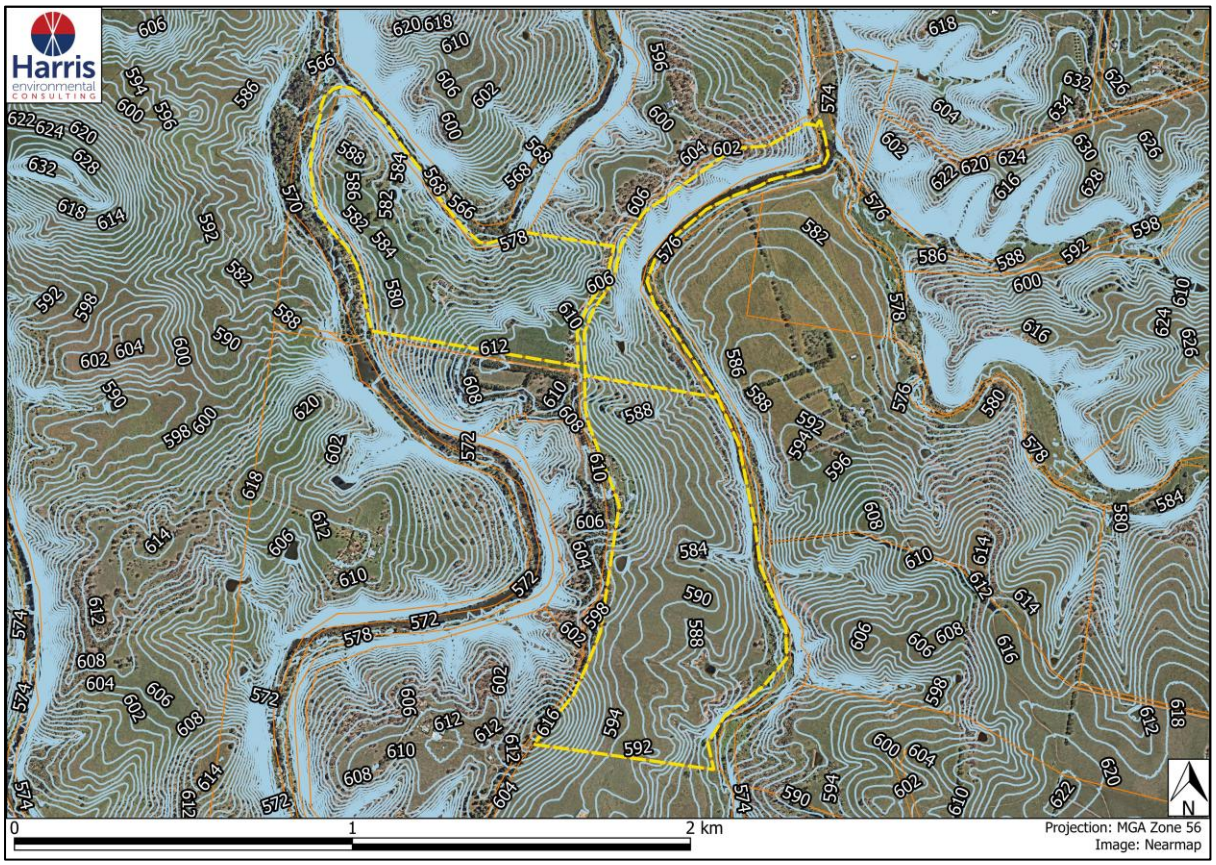
3.1 Slope and Aspect of the Site within 100m

The slope that most significantly influenced fire behaviour was determined over a distance of 100 m out from the proposed development. This assessment used 2 m contour intervals.

The Australian Standard AS3959 - 2018 and Planning for Bushfire Protection (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 10, the subject lot is exposed to a variety of gentle and steep upslopes and downslopes.

FIGURE 10 SLOPE



3.2 Vegetation Formation Within 140m of Proposed Development

3.2.1 Lot 1

Figure 11 shows the vegetation formations within 140m of the existing dwelling on Lot 1.

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

The vegetation to the northern elevation of the existing dwelling has been mapped as "Southern Tableland Dry Sclerophyll Forest" (DPIE, 2022). In accordance with *Planning for Bush Fire Protection 2019*, this vegetation has been classified as "Forest".

The small parcel of vegetation to the southeast of the existing dwelling has been classified as Remnant Vegetation under section A1.11.1 of the PBP (2019):

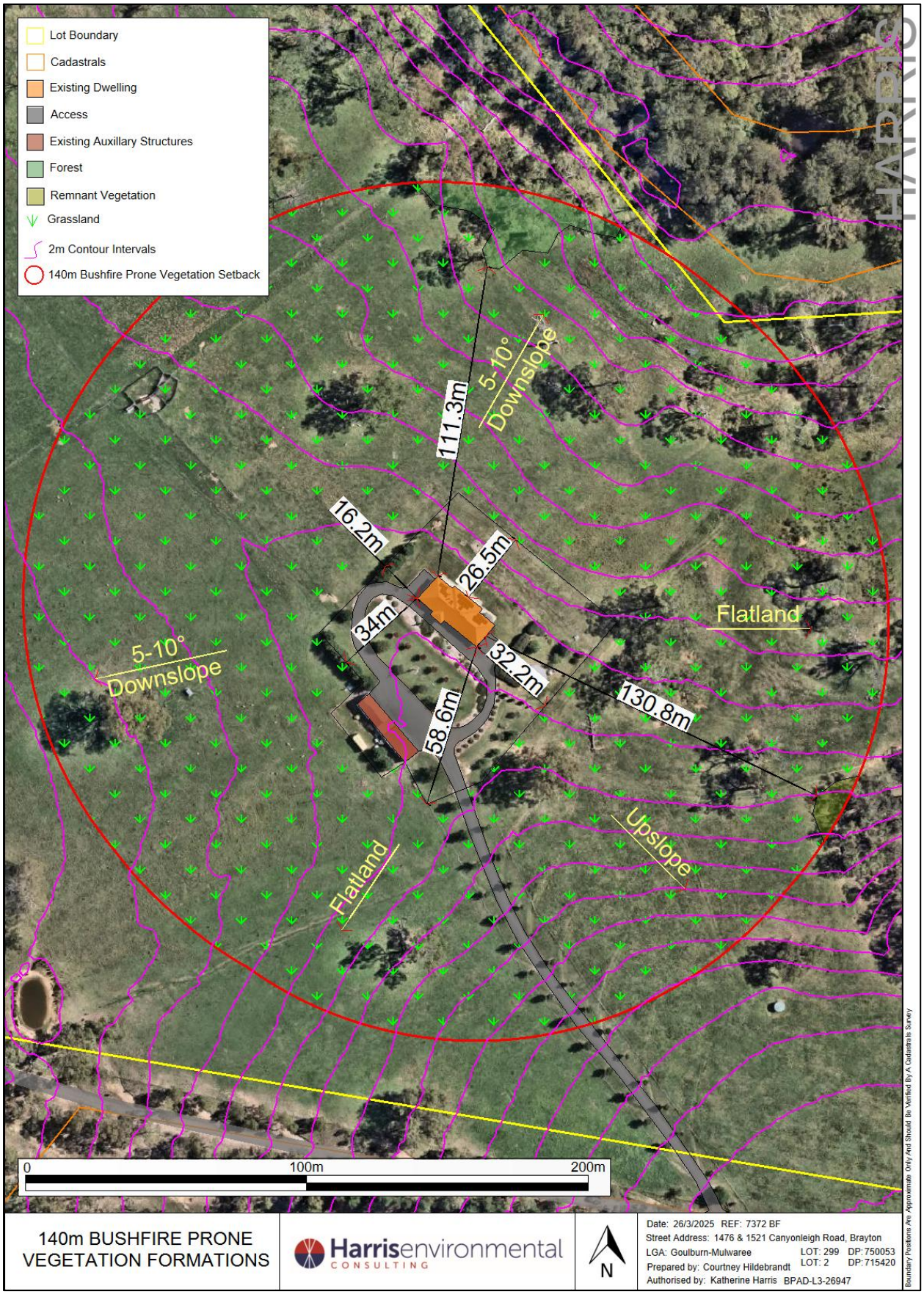
"Remnant vegetation is a parcel of vegetation with a size of less than 1 Ha. These remnants are considered a low hazard and APZ setbacks and building construction standards for these may be the same as for Rainforest."

The vegetation surrounding dwelling has been classified as Grassland in accordance with *Planning for Bushfire Protection* (2019).

TABLE 2 PREDOMINATE VEGETATION CLASSIFICATION (LOT 1)

	Vegetation Formation	Effective Slope	Distance to hazard
North	Grassland	5-10° Downslope	26.5 m
	Forest	5-10° Downslope	111.3 m
East	Grassland	Flatland	32.2 m
	Remnant Vegetation	Flatland	130.8 m
South	Grassland	Flatland	58.6 m
West	Grassland	5-10° Downslope	34.0 m
Northwest	Grassland	5-10° Downslope	16.2 m

FIGURE 11 BUSHFIRE PRONE VEGETATION WITHIN 140 METRES OF EXISTING DWELLING IN LOT 1



3.2.2 Lot 2

The vegetation to the western elevation of the existing dwelling has not been mapped as a vegetation type, however, is connected to “Southern Tableland Dry Sclerophyll Forest” (Tozer et al. 2010). Therefore, this vegetation has been classified as “Forest” in accordance with *Planning for Bushfire Protection 2019*.

The small parcel of vegetation to the south of the existing dwelling has been classified as Remnant Vegetation under section A1.11.1 of the PBP (2019):

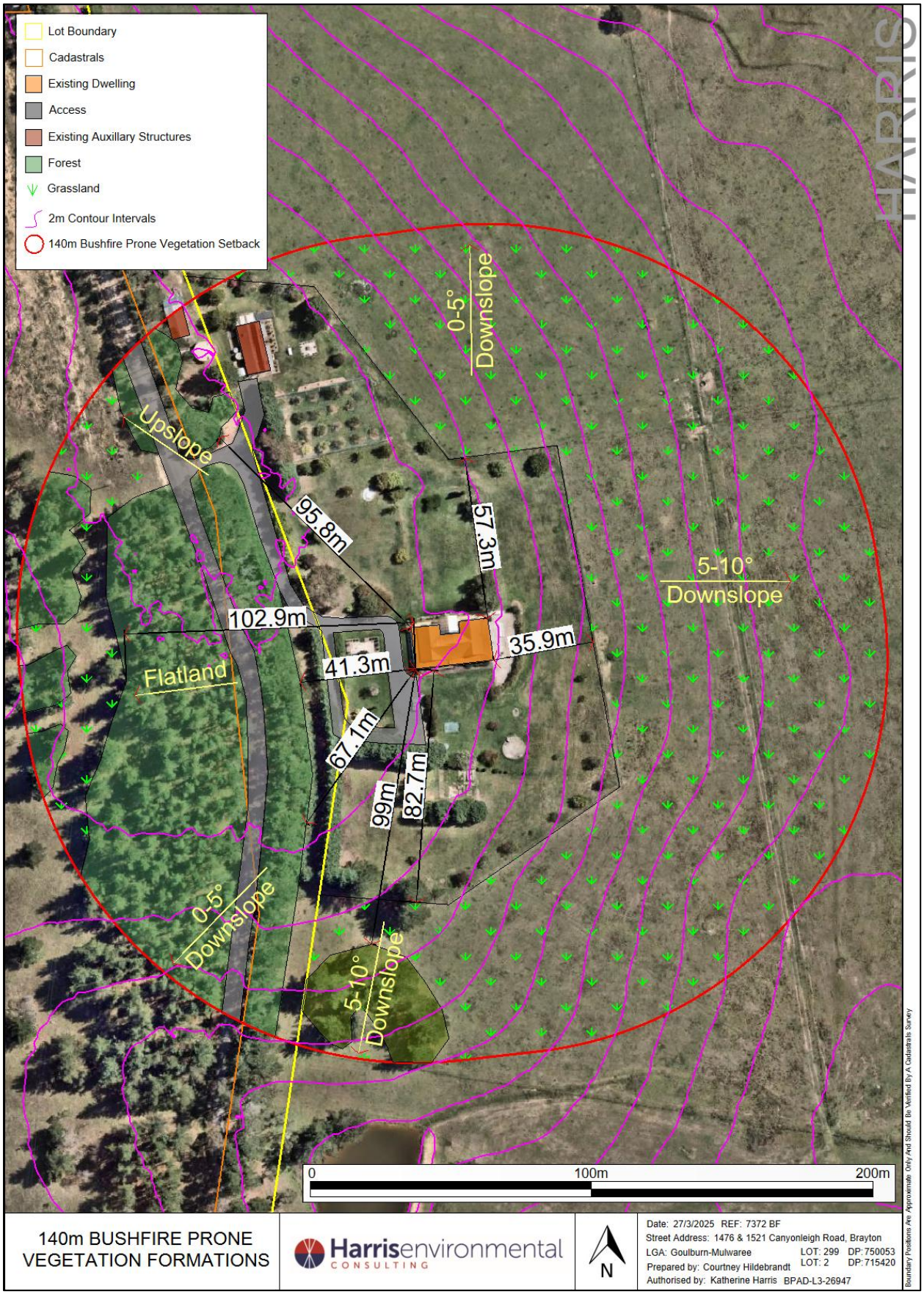
“Remnant vegetation is a parcel of vegetation with a size of less than 1 Ha. These remnants are considered a low hazard and APZ setbacks and building construction standards for these may be the same as for Rainforest.”

The vegetation surrounding the dwelling and in between the sections of forest and remnant vegetation has been classified as Grassland in accordance with *Planning for Bushfire Protection* (2019).

TABLE 3 PREDOMINATE VEGETATION CLASSIFICATION (LOT 2)

	Vegetation Formation	Effective Slope	Distance to hazard
North	Grassland	0-5° Downslope	57.3 m
East	Grassland	5-10° Downslope	35.9 m
South	Grassland	5-10° Downslope	82.7 m
	Remnant Vegetation	5-10° Downslope	99.0 m
Southwest	Forest	0-5° Downslope	67.1 m
West	Forest	Flatland	41.3 m
	Grassland	Flatland	102.9 m
Northwest	Forest	Upslope	95.8 m

FIGURE 12 BUSHFIRE PRONE VEGETATION WITHIN 140 METRES OF EXISTING DWELLING IN LOT 2



4 BUSHFIRE THREAT ASSESSMENT

4.1. Asset Protection Zones (APZ)

4.1.1 Lot 1

Table A1.12.5 PBP 2019 has been used to determine the width of the indicative APZs using the vegetation and slope data identified. This proposal is for the subdivision of the land only and is required to demonstrate an APZ of BAL 29 or less can be provided within the lot boundary. No built development is included in the proposal. The existing dwelling on Lot 1 has been used to demonstrate this.

The existing dwelling can support a building area exposed to radiant heat no greater than 29 kW/m^2. However, as the dwelling is located greater than 200m from the nearest public through road, a BAL 19 APZ has been provided. Table 4 and Figure 13 demonstrate the setbacks required for BAL 29 or less and the BAL 19 APZ that is proposed for the existing dwelling.

TABLE 4 APZ AND BAL DETERMINATION

	North	***East***	***South***	***West***	***Northwest***
Vegetation	Grassland	Grassland	Grassland	Grassland	Grassland
Gradient	5-10° Downslope	Flatland	Flatland	5-10° Downslope	5-10° Downslope
Table A1.12.5 PBP 2019 BAL 29 setbacks	13 -<20 m	10 -< 15 m	10 -< 15 m	13 -<20 m	13 -<20 m
Table A1.12.5 PBP 2019 BAL 19 setbacks	20 -< 28 m	15 -< 22 m	15 -< 22 m	20 -< 28 m	20 -< 28 m
APZ BAL	***BAL 19***	***BAL 19***	***BAL 19***	***BAL 19***	***BAL 19***
BAL Achievable	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***

FIGURE 13 APZ FOR EXISTING DWELLING ON LOT 1

4.1.2 Lot 2

Table A1.12.5 PBP 2019 has been used to determine the width of the indicative APZs using the vegetation and slope data identified. This proposal is for the subdivision of the land only and is required to demonstrate an APZ of BAL 29 or less can be provided within the lot boundary. No built development is included in the proposal. The existing dwelling on Lot 2 has been used to demonstrate this.

Table 5 and Figure 14 demonstrate the setbacks required for BAL 29 or less and the BAL 19 APZ that is proposed for the existing dwelling.

TABLE 5 APZ AND BAL DETERMINATION (LOT 2)

	North	***East***	***South***		***Southwest***	***West***	***Northwest***
Vegetation	Grassland	Grassland	Grassland	Remnant Vegetation	Forest	Forest	Forest
Gradient	0-5° Downslope	5-10° Downslope	5-10° Downslope	5-10° Downslope	0-5° Downslope	Flatland	Upslope
Table A1.12.5 PBP 2019 BAL 29 setbacks	12 -< 17 m	13 -< 20 m	13 -< 20 m	18 -< 26 m	29 -< 40 m	24 -< 33 m	24 -< 33 m
APZ BAL	***BAL 29***	***BAL 29***	***BAL 29***	***BAL 29***	***BAL 29***	***BAL 29***	***BAL 29***
BAL Achievable	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***	***BAL 29 or less***

FIGURE 14 APZ FOR EXISTING DWELLING ON LOT 2

4.2. Relevant Construction Standard

The Australian Standard AS3959 – 2018 and/or *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

No development is proposed in this Development Application. All lots can provide APZ's that meets BAL 29 (<29kW/m^2) or less.

The existing dwellings are required to be upgraded to improve ember protection, unless already constructed to a relevant standard. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weep holes and eaves. External doors are to be fitted with draft excluders.

4.3. Emergency Management

The owners 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 an emergency, the owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

4.4. Adequate Water and Utility Services

The applicant should ensure there is at least 20,000 litre water supply available per lot for firefighting purposes for the existing dwelling. 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 future residential developments will require a water supply for firefighting which meets *PBP 2019*. This will require a DA to demonstrate infill development under Section 4.14 EPA Act.

Any bottled gas will be installed and maintained under AS1596 and the relevant authority's requirements. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and 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 relevant energy supplier.

4.5. Safe Operational Access

The *Planning for Bushfire Protection 2019* requires safe operational access to structures and water supply for emergency services while residents are seeking to evacuate from an area.

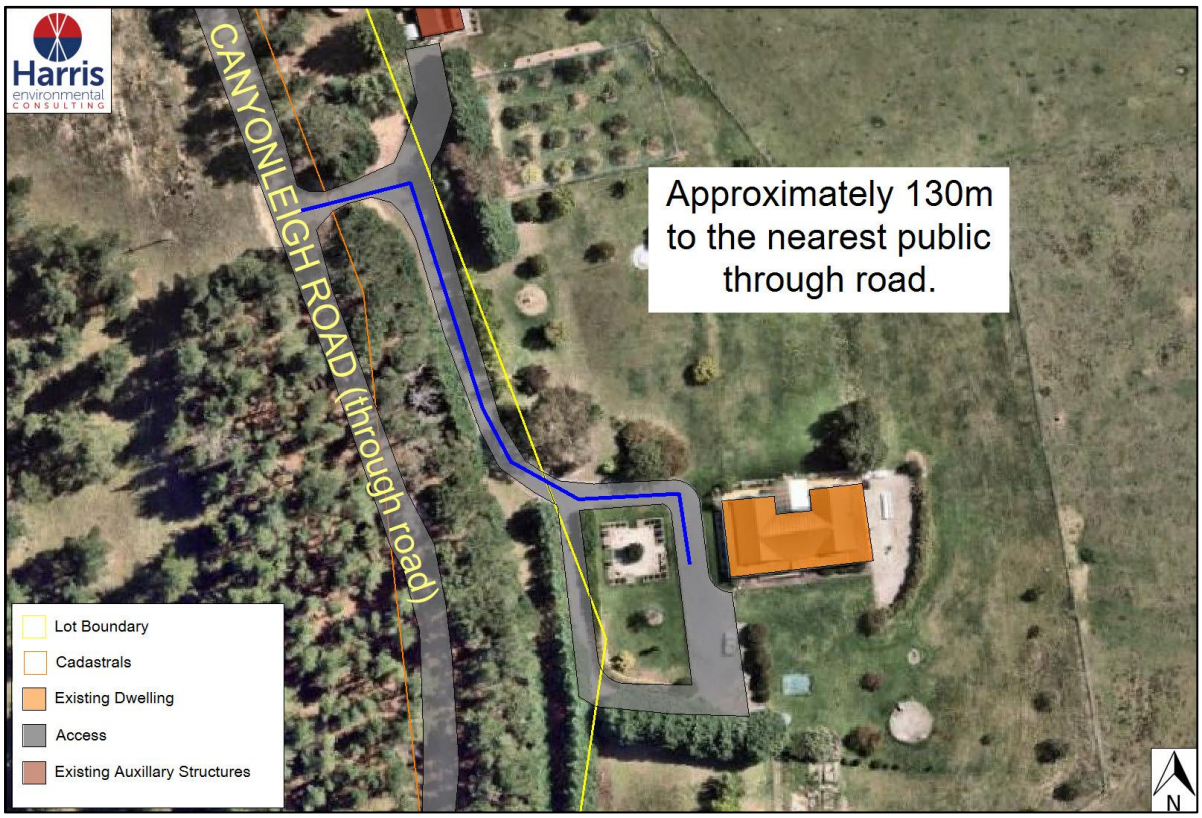
The proposed subdivision development is located on Canyonleigh Road. This is a two-wheel drive, all weather, through road. Road surfaces and bridges are sufficient to carry fully loaded firefighting vehicles.

The existing dwelling on Lot 1 is located approximately 565 m from the nearest public through road (Figure 15). At least one alternative property access road is required for individual dwellings or groups of dwellings that are located more than 200 meters from a public through road. The access is greater than 200 m in length with no alternate access. Therefore, a BAL 19 APZ to all elevations has been provided as an alternate solution.

The existing dwelling on Lot 2 is located approximately 130 m from the nearest public through road (Figure 17). No changes to the existing access is proposed or required.

FIGURE 15 ACCESS TO EXISTING DWELLING ON LOT 1

FIGURE 16 ACCESS TO EXISTING DWELLING ON LOT 2



5 LANDSCAPING

Provided APZ will be required to be established and should be maintained in perpetuity.

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 APZ is to be managed as an Inner Protection Area, also known as an IPA. 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.

6. HOW THIS PROPOSAL MEETS DEEMED TO SATISFY

The following tables show how the proposal meets the Acceptable Solutions of the PBP (2019) Chapter 5.

TABLE 6 COMPLIANCE TABLE FOR SUBDIVISION (BOUNDARY ADJUSTMENT)

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.	All proposed residential lots can support a potential building footprint not exposed to radiant heat levels exceeding 29 kW/m².
	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.	BAL 19 APZ have been provided for the existing dwellings.
	The APZ is provided in perpetuity.	APZs are wholly within the boundaries of the development site.	APZs can be located wholly within their respective lot boundaries.
	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.	APZ to be managed in perpetuity.
ACCESS (GENERAL REQUIREMENTS)	Firefighting vehicles are provided with safe, all-weather access to structures.	Property access roads are two-wheel drive, all-weather roads.	Provided.
		Perimeter roads are provided for residential subdivisions of three or more allotments.	Development is a boundary adjustment between two lots, therefore not applicable.
		Subdivisions of three or more allotments have more than one access in and out of the development.	Development is a boundary adjustment between two lots, therefore not applicable.
		Traffic management devices are constructed to not prohibit access by emergency services vehicles.	No traffic management devices are proposed.

		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.	No roads are proposed.
		All roads are through roads.	No roads are 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.	No roads are proposed.
		Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.	No roads are proposed.
		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;	No roads are proposed.
	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.	No roads are proposed.
	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.	No roads are proposed.
		Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation, and commissioning	No roads are proposed.
		There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	Will need to be provided.
PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as	Are two-way sealed roads.	No roads are proposed.
		Minimum 8m carriageway width kerb to kerb.	No roads are proposed.
		Parking is provided outside of the carriageway width.	No roads are proposed.

	providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.		Hydrants are located clear of parking areas.	No hydrants are proposed.
			Are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	No roads are proposed.
			Curves of roads have a minimum inner radius of 6m.	No roads are proposed.
			The maximum grade road is 15 degrees and average grade of not more than 10 degrees.	No roads are proposed.
			The road crossfall does not exceed 3 degrees;	No roads are proposed.
			A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	No roads are proposed.
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.	No roads are proposed.
			Parking is provided outside of the carriageway width.	No roads are proposed.
			Hydrants are located clear of parking areas.	No roads are proposed.
			Roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	No roads are proposed.
			Curves of roads have a minimum inner radius of 6m.	No roads are proposed.
			The road crossfall does not exceed 3 degrees;	No roads are proposed.
			A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	No roads are proposed.
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.	Not applicable.
		OR	minimum 4m carriageway width.	Existing road complies.
			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.	Existing road complies.

			provide a suitable turning area in accordance with Appendix 3 of the PBP 2019.	Existing road complies.
			a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches.	Existing road complies.
			curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress.	Existing road complies.
			the minimum distance between inner and outer curves is 6m.	Existing road complies.
			the crossfall is not more than 10 degrees. maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;	Existing road complies.
			a development comprising more than three dwellings has access by dedication of a road and not by right of way.	Existing road complies.
			Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.	Existing road complies.
	An adequate water supply is provided for firefighting purposes.		Reticulated water is to be provided to the development, where available; or A static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed. Static water supplies shall comply with Table 5.3d.	A static water supply compliant with Table 5.3d will be required for both existing dwelling on the lots.
WATER SUPPLIES	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.	No hydrants proposed.
			Hydrants are not located within any road carriageway; and	No hydrants proposed.
			Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	No hydrants proposed.

	Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	No hydrants proposed.
	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.	To comply.
		above-ground water storage tanks shall be of concrete or metal.	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	To comply.
		Where overhead, electrical transmission lines are proposed as follows: • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; • 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.*	To comply.
GAS SERVICES	Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side.	To comply.
		Connections to and from gas cylinders are metal.	To comply.
		Polymer-sheathed flexible gas supply lines are not used;	To comply.
		Above-ground gas service pipes are metal, including and up to any outlets.	To comply.

7 SUMMARY

- Both lots can provide building footprints that are not exposed to radiant heat exceeding 29 kW/m^2.

- No built development is included in the proposal. However, both existing dwellings have been given an APZ.
  - The existing dwelling on Lot 1 can support a building area exposed to radiant heat no greater than 29 kW/m^2. However, as the dwelling is located greater than 200m from the nearest public through road, a BAL 19 APZ has been provided.
  - The existing dwelling on Lot 2 can support a building area exposed to radiant heat no greater than 29 kW/m^2 and has been given a BAL 29 APZ.

- The existing dwelling on Lot 1 is located approximately 565 m from the nearest public through road. At least one alternative property access road is required for individual dwellings or groups of dwellings that are located more than 200 meters from a public through road. The access is greater than 200 m in length with no alternate access. Therefore, a BAL 19 APZ to all elevations has been provided as an alternate solution. The existing dwelling on Lot 2 is located approximately 130 m from the nearest public through road.

- The applicant should ensure there is at least 20,000 litre water supply per lot available for firefighting purposes for existing dwelling. 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 relevant authority's requirements. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and 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 relevant energy supplier.

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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 Endeavour Energy (NS179, April 2002);

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

6) Noncombustible 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 DEFINITIONS & ABBREVIATIONS

Asset Protection Zone- A fuel reduced area surrounding a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI.

AS3959-2019: Australian Standard AS 3959:2018 Construction of buildings in bush fire-prone areas.

Bush fire prone area- an area of land that can support a bush fire or is likely to be subject to bushfire attack, as designated on a bush fir prone land map

Bush fire prone vegetation (BFPV) – A map prepared by Council in accordance with RFS guidelines and defining area of vegetation by BFPV categories

Bushfire prone land map (BFPL) A map prepared in accordance with RFS guidelines and certified by the Commissioner of the NSW RFS under section 146 (2) of the Environmental Planning and Assessment Act (1979)

BFSA: Bush fire safety authority.

Effective Slope: The land beneath the vegetation which most significantly effects fire behaviour, having regard to the vegetation present.

Fire Danger Index (FDI) The chance of a fire starting, its rate of spread, its intensity and the difficulty potential for its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects.

Fire hazard: the potential for land o carry a bush fire, utilizing materials or fuels that can be ignited

Grasslands- Grassed areas capable of sustaining a fire. Under Australia standard 3959 Construction of buildings in bushfire -prone areas, identified as low open shrubland, hummock grassland, closed tussock grassland, tussock grassland, open tussock, sparse open tussock, dense sown pasture, sown pasture, open herb field and sparse open herb field. Grass, whether exotic or native, which is regularly maintained at or below 10 cm in height (includes maintained lawns, golf course, maintained public reserves, parklands, nature strips and commercial nurseries) are regarded as managed land

Inner Protection Area (IPA): the component of an APZ which closest to the asset (measured from unmanaged vegetation). It consists of an area maintained to minimal fuel loads so that a fire path is not created between the hazard and the building.

Managed land- Managed land is land that has vegetation removed or maintained to limit the spread and impact of bushfire. It may include existing developed land (i.e. residential, commercial or industrial) roads, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens, and commercial nurseries.

PBP 2019: Planning for Bushfire Protection 2019.