REF: 4668

November 30, 2023

Strategic Bushfire Assessment for the proposed rezoning of Glenlee Estate, 60 Menangle Road, Menangle Park, NSW

LGA: Campbelltown

Lots:1,2 & 3, DP: 713646

Applicant: Premise NSW Pty Ltd.

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

STRATEGIC BUSHFIRE HAZARD ASSESSMENT

HARRIS ENVIRONMENTAL CONSULTING

ABN 541 287 40 549

Ph.: (02) 4236 0954 | (02) 4862 1168
Mob.: 04 0323 7072

Email: kate@hec.eco
Web: www.harrisenvironmental.com.au

ASSESSOR & QUALIFICATIONS

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

DISCLAIMER

The recommendations provided in the summary of this report result from 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

TABLES

FIGURES

APPENDIX

EXECUTIVE SUMMARY

This strategic study has been undertaken to inform and support a Planning Proposal for Glenlee House Estate, 60 Menangle Road, Menangle. The purpose of the study is to address "gateway" requirements in respect to compliance with the relevant considerations of Ministerial Direction 4.4 - Planning for Bushfire Protection.

The broad principles of the study are to:

- Ensure land is suitable for development in the context of bushfire risk.
- Ensure the new development will comply with the requirements of the PBP 2019.

The assessment demonstrates that the Planning Proposal can exclude any inappropriate development by not:

- being exposed to high bushfire risk.
- likely be difficult to evacuate during a bushfire due to siting in the landscape, access limitation, fire history and or size or scale.
- adversely affecting other bushfire protection strategies placing existing development at risk.
- being located within an area where the density of existing development may cause evacuation issues for new and existing occupants.
- conflicting with any environmental constraints that cannot be overcome.

1 INTRODUCTION

This Strategic Bushfire Hazard Assessment is for the proposed rezoning of Lots 1, 2 and 3 DP 713646 at 60 Menangle Road, Menangle Park, as part of the Planning Proposal (Department Ref: PP-2021-412): Glenlee House. The Gateway determination for the planning proposal requires consultation with the NSW RFS before the public exhibition.

A concept subdivision plan for the land provides for subdivision of the subject lot into 13 parcels of 1200 m^2 lots in the south and 13 large 1200 m^2 lots to the north with dedicated open space and a Heritage Homestead Precinct. The subdivision also includes a super lot, to be zoned R3 Medium Density Residential, for terrace house style development at a future date. Indicative plans are provided to demonstrate how the proposal location is suitable for development in the context of bushfire risk. The subject land currently supports the heritage-listed homestead precinct, including Glenlee House (Photo 1). The current land comprises low intensity grazing land and is zoned RU2 – Rural Landscape.

PHOTO 1 LANDSCAPED GARDENS AND FARMLAND SURROUNDING GLENLEE HOUSE.

2 DEVELOPMENT PROPOSAL

The subject land comprises 17.73 hectares and generally forms a rectangular shape. The historic Glenlee House and outbuildings located in managed gardens are proposed to be retained in the proposed E3 zone. Two areas of 13 residential lots of approximately 1200m^2, one in the north and one in the south, with the heritage precinct retained in the centre of the lot.

An additional medium density precinct is proposed between the aforementioned northern residential lot area and the north-eastern land boundary.

The proposal is within the fringe of a rapidly expanding urban area under the Greater Sydney Regional Plan. Figure 2 shows Glenlee Estate located on the north-west interface of the most recently council considered indicative layout plan for Menangle Park in the Campbeltown Menangle Park DCP.

FIGURE 1 INDICATIVE LAYOUT PLAN

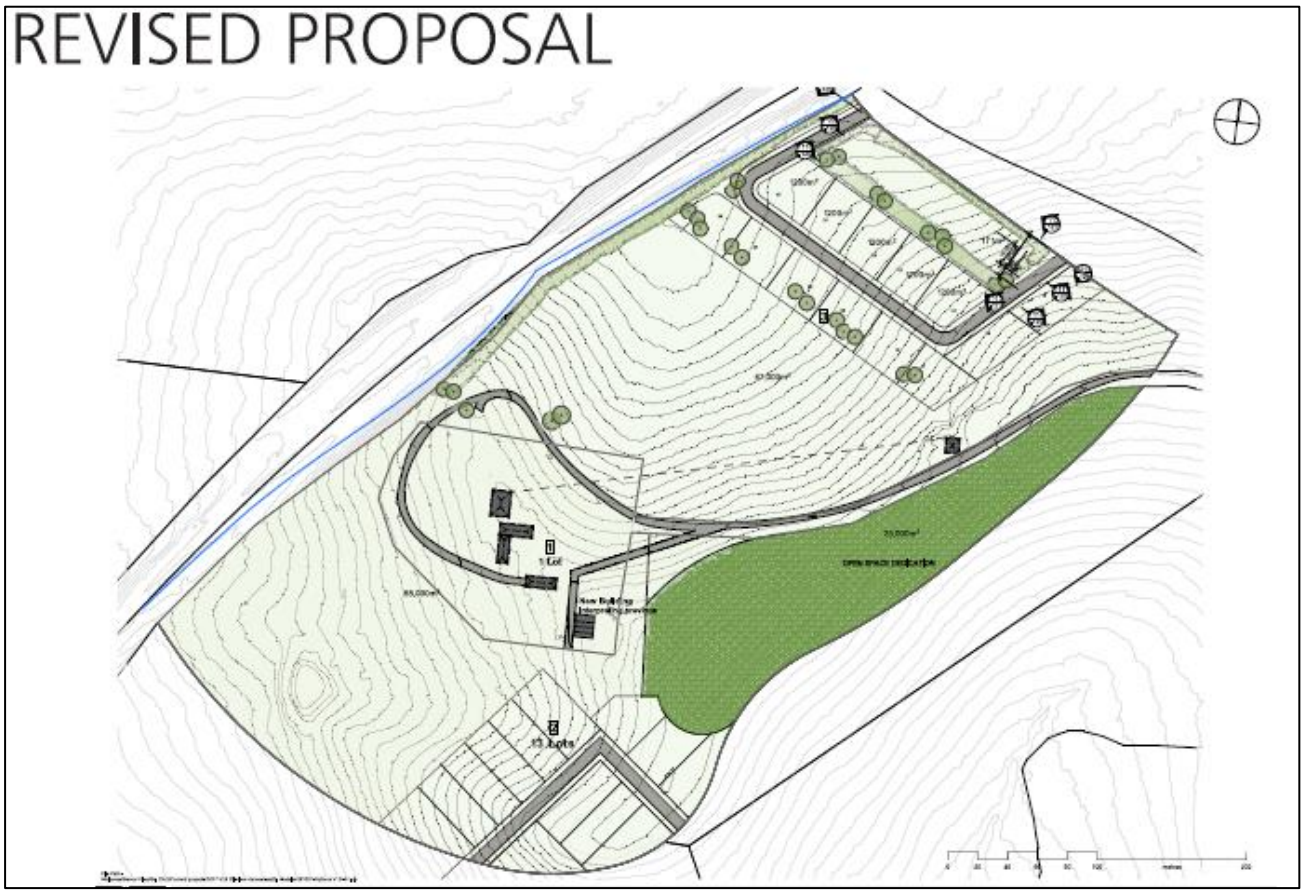
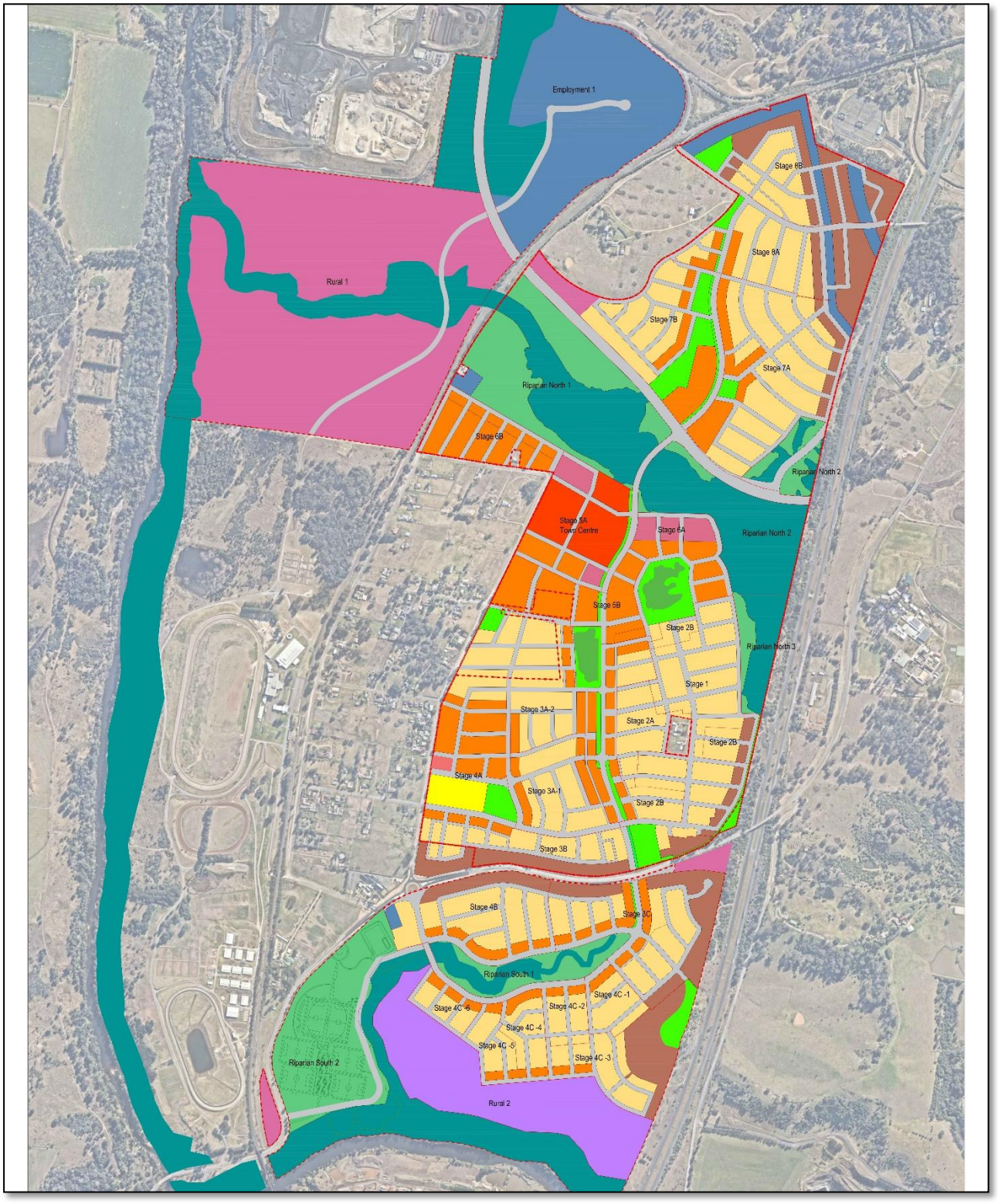


FIGURE 2 SURROUNDING PROPOSED DEVELOPMENT (MENANGLE PARK, 23)



3 SITE ANALYSIS

3.1. Location

The subject land is in the Campbelltown City Council Local Government Area and is located 800 m west of the Hume Motorway. The Main Southern Railway Line bounds the site on the west, and the proposed urban development of Menangle Park is on the north and east elevations, as shown in Figure 3.

A broad-scale aerial view of the subject site, as shown in Figure 4, displays a modified agricultural environment with little unmanaged forest or woodland vegetation. The riparian corridor, a Nepean River Tributary, can be seen flowing from east to west and located south of the subject lot is identified as a future riparian zone in the Menangle Park DCP (Campbelltown Council, 2021). This future bushfire hazard is located at least 200 m from the indicative subdivision layout on the southeast.

A close up of the proposed subdivision within the site is provided in Figure 5 below.

FIGURE 3 SITE LOCATION

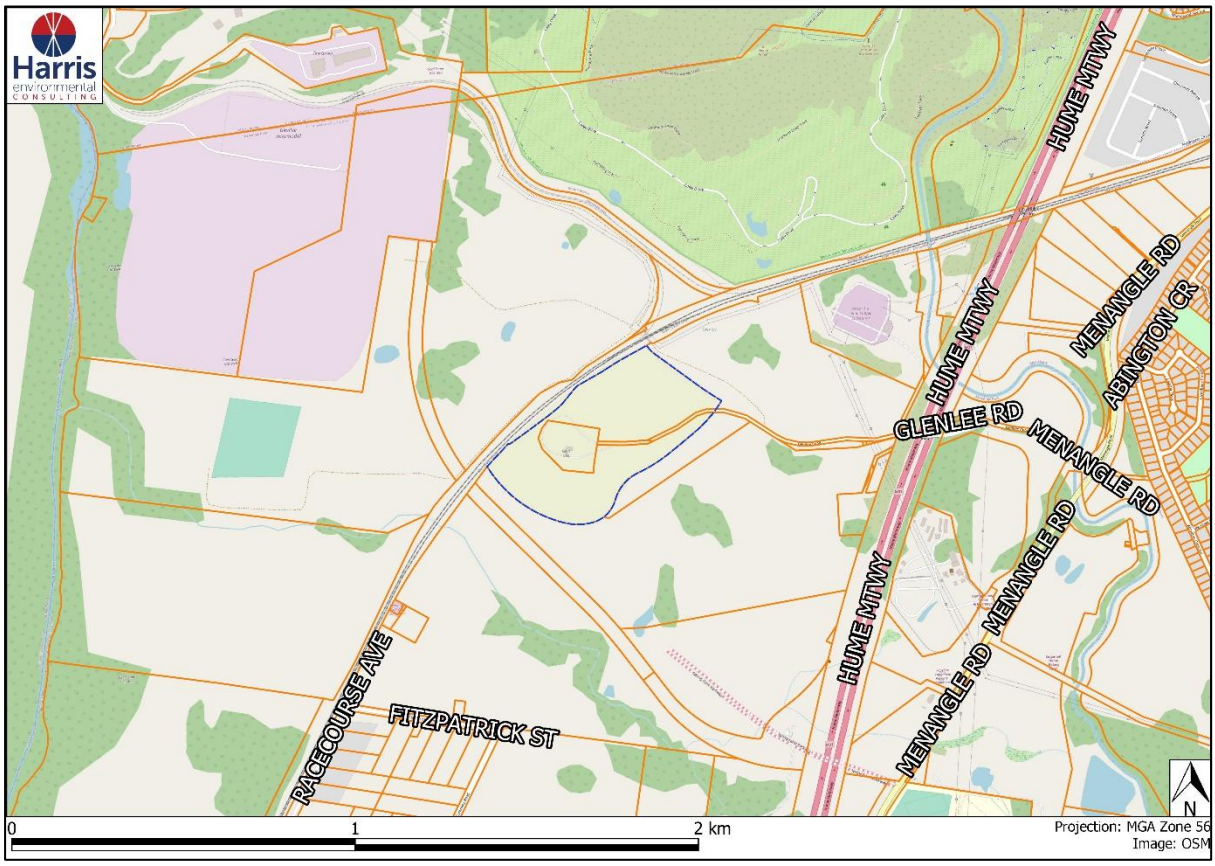
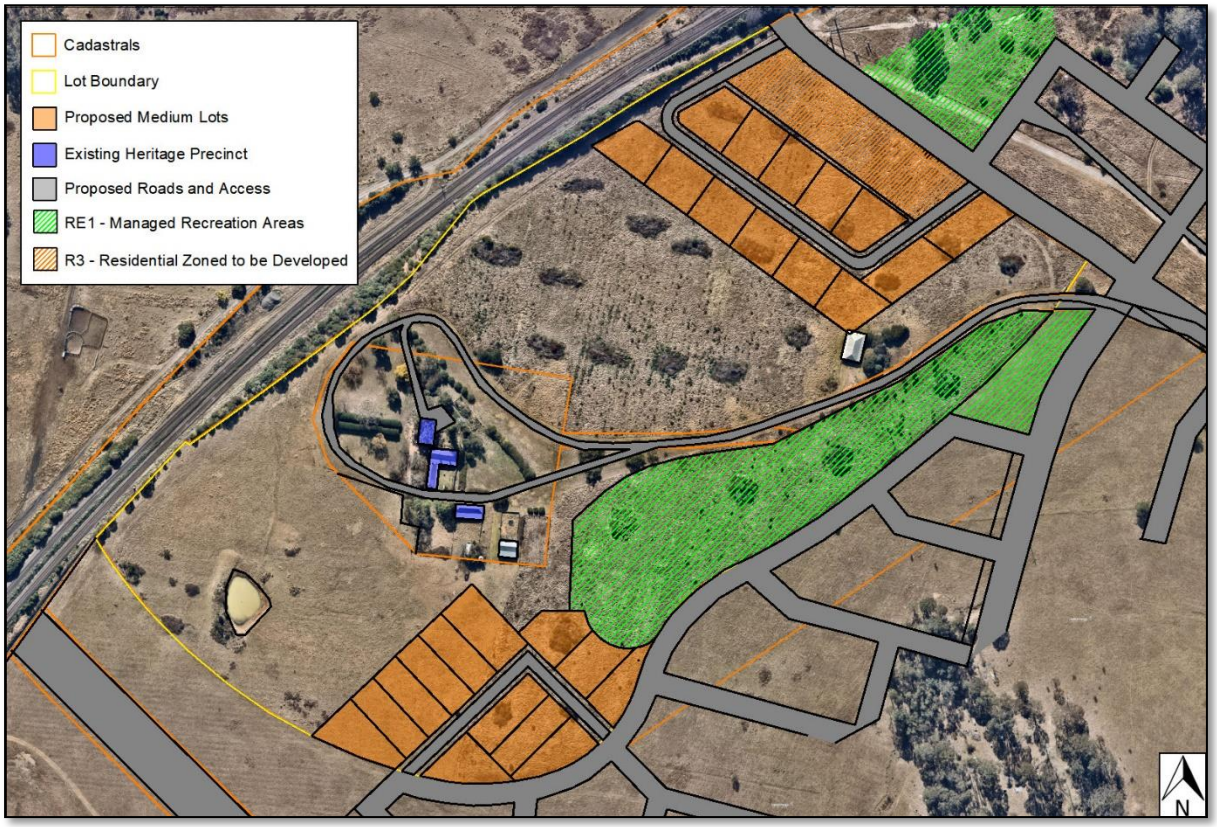


FIGURE 4 BROAD-SCALE AERIAL VIEW OF THE SUBJECT SITE

FIGURE 5 Close up of the proposed subdivision



3.2. Topography

The site is characterised by undulating hills which slope down towards the north-west and the Main Southern Railway Line. The highest elevation is a hill at the southeastern corner of the lot, with the slope gradually decreasing towards the northern corner of the lot.

Contours were obtained from ground surface models in ASCII grid format derived from C3 LiDAR (Light Detection and Ranging) from an ALS50ii (Airborne Laser Scanner). The data has an accuracy of 0.3m (95% Confidence Interval) vertical and 0.8m (95% Confidence Interval) horizontal. The DEM has had been processed through a Gaussian Filter with a Radius of 10 and Sigma of 5. Figure 6 shows 2m contour intervals across and surrounding the subject site.

The Australian Standard AS3959-2018 identifies 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. The slope that would most significantly influence fire behaviour was determined over 100 m from the proposal, using 2-metre contour intervals and shown in Figure 7.

The proposed lots within the southwest portion of the site are located on the hill's northern flank situated directly south of the Glenlee Homestead. The opposite side of the hill falls away between a 5-to-10-degree downslope. Likewise, the land directly north of the larger lots also falls 5- 10 degrees towards the north where the land proposed to be zoned E2 and the Main Southern Railway. On the eastern elevation, the land falls more gently downslope between 0-5 degrees, as shown in Photo 2. These effective slopes can be seen in Figure 7.

PHOTO 2 CHARACTERISTIC TOPOGRAPHY OF THE SITE

FIGURE 6 SLOPE

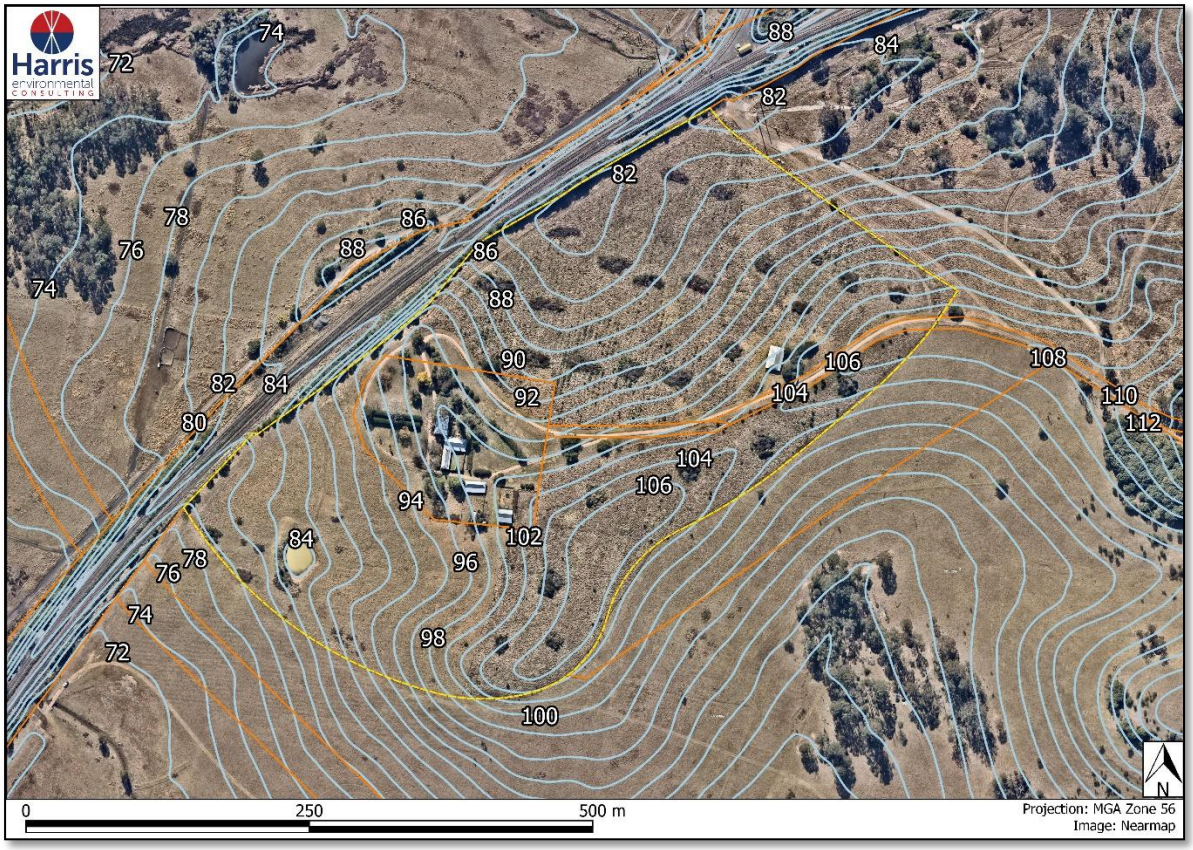
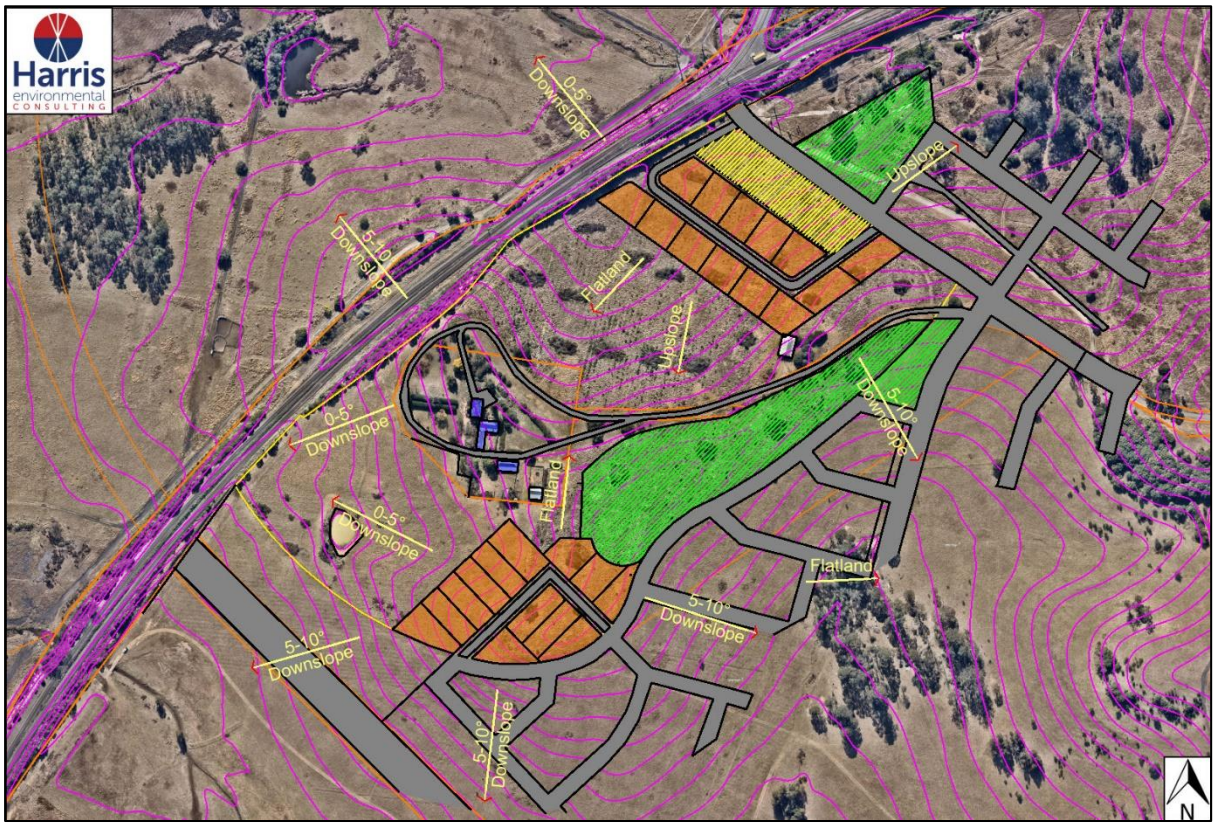


FIGURE 7 EFFECTIVE SLOPE



3.3. Climate and Bushfire Season

The Macarthur Bushfire Management Plan (RFS, 2012) describes how the subject location generally experiences a warm temperate climate, with high summer rainfalls between January and March low humidity with little variation throughout the year. In summer, the winds are predominantly northwest to southerly. The most significant fire danger period occurs after a dry winter and spring, before rain in summer. The occasional strong winds with cold fronts during summer can lead to extreme fire danger. During the fire season, weather conditions are hot, dry winds, particularly from the northwest, and temperatures above 30 degrees and low humidity. These conditions are sometimes followed by a rapid change producing solid southerly winds and high-intensity storms, with concentrated periods of lightning with little rain. The Macarthur Bush Fire Management Committee recognises that deliberate misuse of fire and arson-related activities form a majority of the ignition causes within the Zone.

There are three main areas where deliberate fire occurs within the Macarthur zone: motor vehicle, structure/house, and bushland settings. The occurrences of these instances are widespread and statistically average twice daily.
The Macarthur Bush Fire Management Committee (BFMC) area has on average 417 bush fires per year, of which annually five on average can be considered major fires. None of these major fires has impacted the subject site.
The greatest bushfire threat in the future could potentially be the open spaces that could be maintained as unmanaged Grassland (depending on future management) and the proposed riparian corridor located 200 m south of the proposed planning proposal. This bushfire threat will be managed through any Development Application requiring to meet the relevant bushfire protection guidelines of the PBP 2019.

4 PLANNING LAYERS

The following planning layers are described in Table 7 and shown in the Figures below:

4.1. Bushfire Prone Land

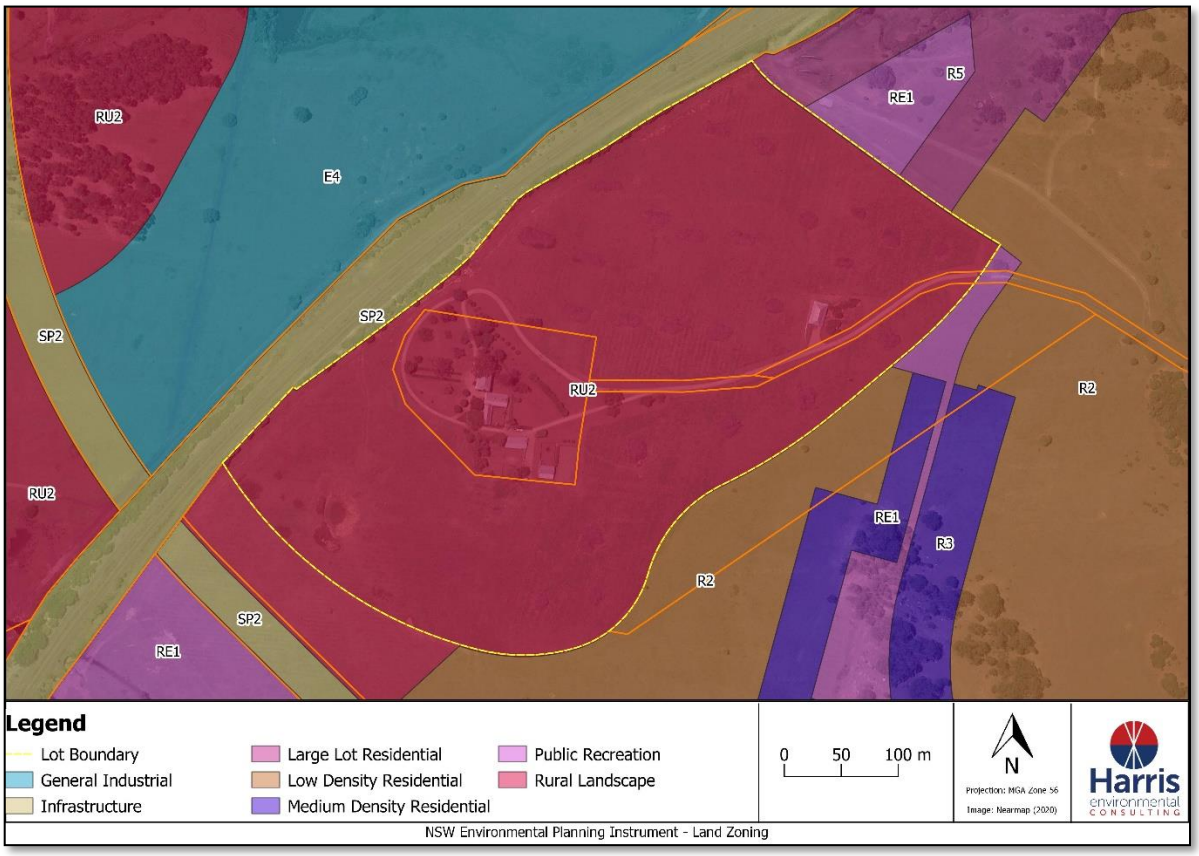
The subject site is mapped “Vegetation Category 3” on all grassland areas with a Vegetation Buffer located on the managed gardens of the historic Glenlee Homestead as shown in Figure 8.

FIGURE 8 BUSHFIRE PRONE MAP

4.2. Land-use Zone

The subject lot is currently zoned as 'RU2 - Rural Landscape' as shown in Figure 9.

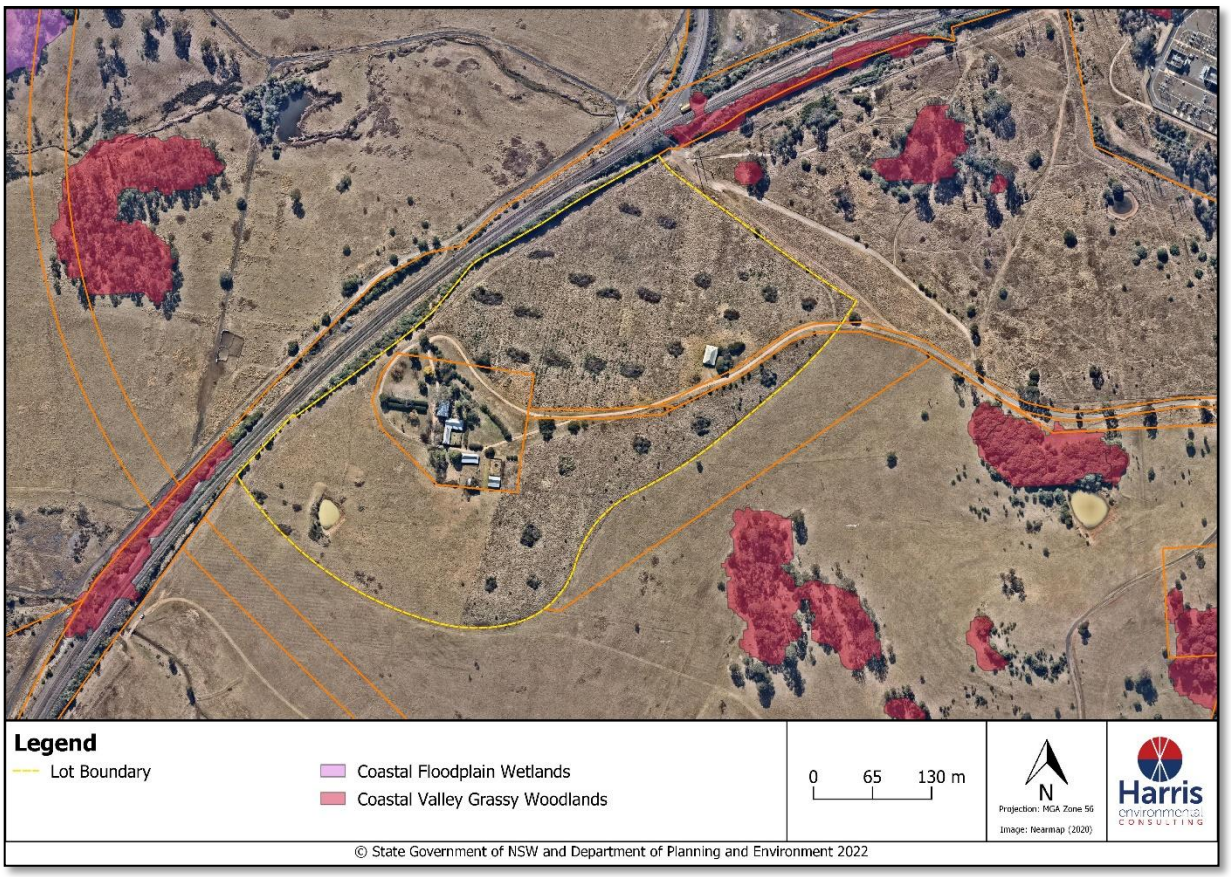
FIGURE 9 LEP ZONE MAP



4.3. Southeast Native Vegetation Maps

The NSW SEED Vegetation mapping (DPIE, 2022) shown in Figure 10 has classified the vegetation on the neighbouring lots as “Coastal Valley Grassy Woodlands” and “Coastal Floodplain Wetlands”.

FIGURE 10 VEGETATION MAPPING



4.4. Biodiversity Values

The land within the subject lot was not mapped to have a high biodiversity value as of October 24th, 2023 (NSW Department of Planning, Industry and Environment, 2021).

5. BUSHFIRE THREAT ASSESSMENT

5.1. Bushfire Vegetation Formations

The bushfire vegetation formations within 140 m of the indicative site plan are shown in Figure 11. The 140 m setback is identified as a redline. Only the vegetation within the redline will require to be classified when any Development application is sought. The following bushfire vegetation formations are identified:

Remnant Vegetation: Narrow strip of vegetation consisting of a mixture of tree species as shown in Photo 3. This vegetation interfaces the Railway Line running north-south along the western boundary of the subject lot and proposed indicative development. The extent of this vegetation is considered small enough in size to be excluded.

Grassland: The proposed open spaces are classified as Grassland. Views of this Grassland is shown in Photos 4 to 9.

Forest: A small cluster of trees are located in the proposed open space within 140 m of the southeastern elevation and more than 160 m from the indicative layout design. These trees are located within the proposed urban development of Menangle Park and may be managed in the future; however, for this study are classified as forest.

Figure 12 provides the bushfire vegetation formations within 140 m of Glenlee Homestead meets BAL 12.5

PHOTO 3 LOOKING TOWARDS THE TREES GROWING ALONG THE RAILWAY CORRIDOR ON THE WESTERN BOUNDARY OF THE SUBJECT LOT

FIGURE 11 VEGETATION FORMATIONS WITHIN 140 M

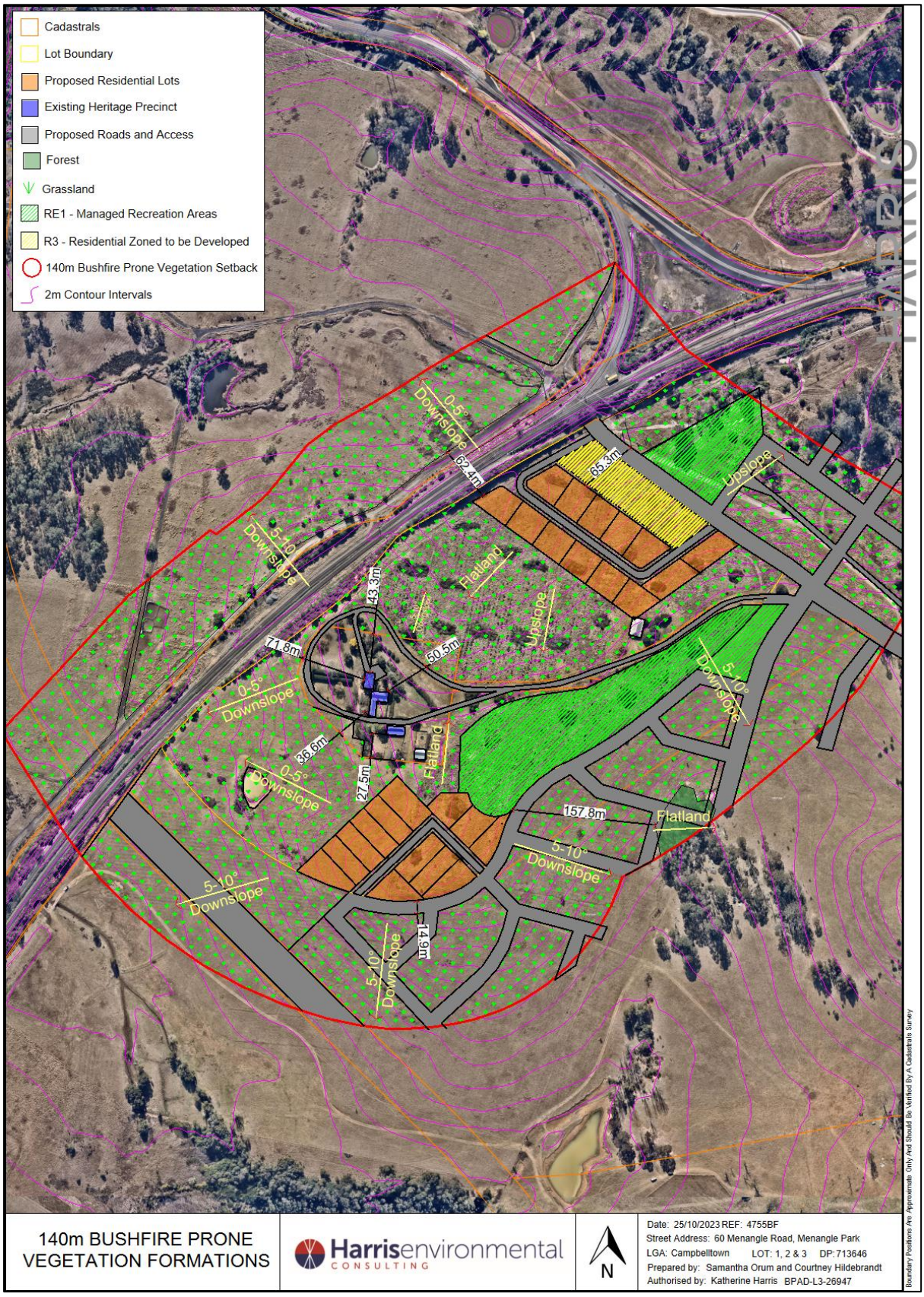


FIGURE 12 VEGETATION FORMATIONS WITHIN 140 M OF THE GLENLEE HOMESTEAD AND ANCILLARY BUILDINGS

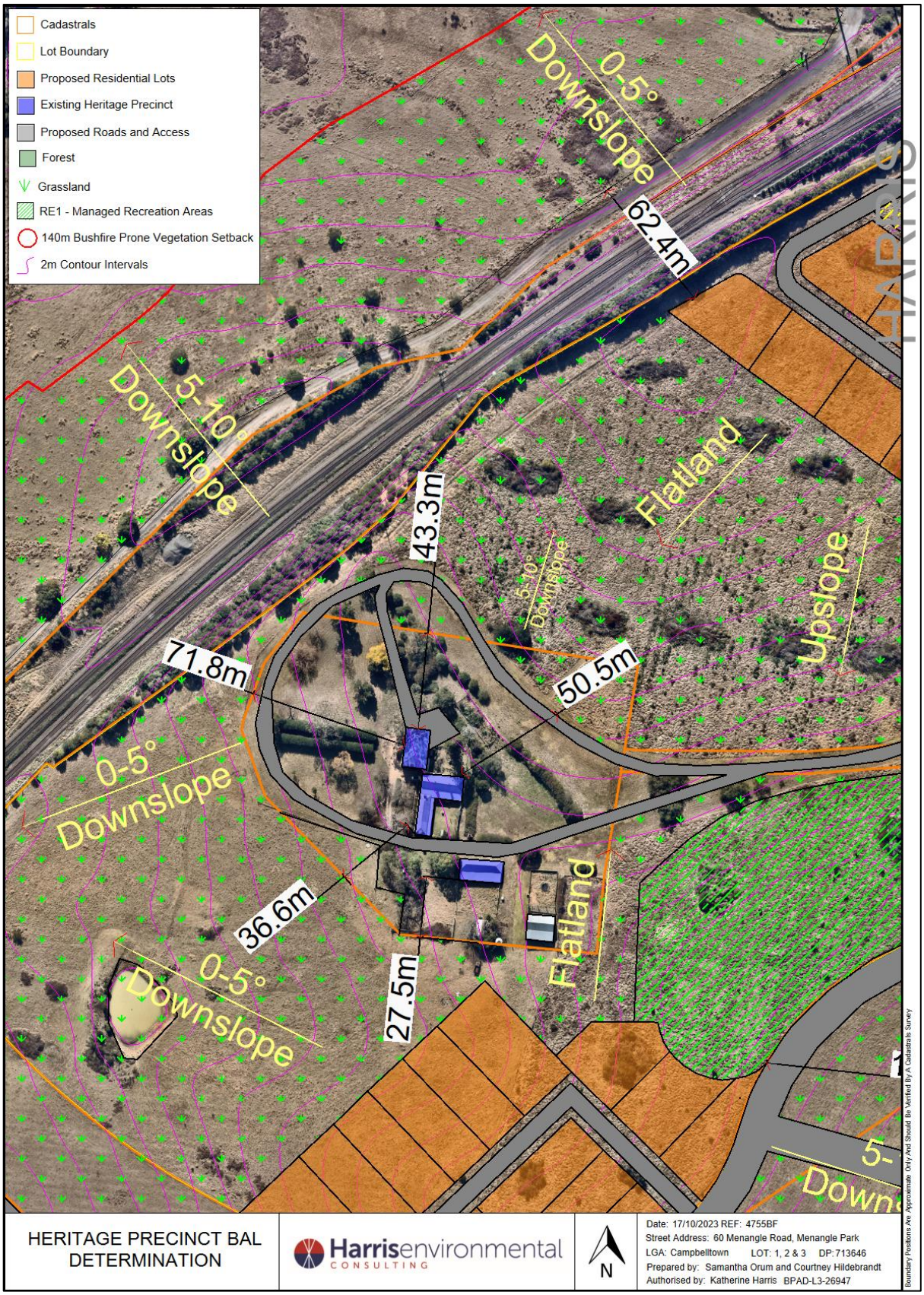


PHOTO 4 VIEW OF HILL LOOKING SOUTH TOWARDS THE LARGER LOTS INDICATIVE LAYOUT PLAN

PHOTO 5 VIEW LOOKING NORTH-WEST FROM THE INDICATIVE LAYOUT PLAN LARGER LOTS

PHOTO 6 VIEW LOOKING NORTHEAST AT THE SOUTHERN PROPOSED MEDIUM DENSITY PRECINCT INDICATIVE LAYOUT PLAN

PHOTO 7 VIEW LOOKING SOUTH-EAST TOWARDS PROPOSED MEDIUM DENSITY PRECINCT INDICATIVE LAYOUT PLAN

5.2. Asset Protection Zones (APZ)

Table A1.12.15 *Planning for Bush Fire Protection 2019* has been used to assess the width of the required APZ for the residential development proposed in the indicative design layout using the vegetation and slope data identified. Table 1 shows the relevant setbacks for the vegetation formations identified.

An FDI of 100 and flame temperature of 1090 K was used for this location.

The Australian Standard AS3959 – 2018 is the enabling standard that addresses the performance requirements of parts 2.3.4 and Part GF5.1 of the Building Code of Australia for constructing the Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area. The PBP 2019 provides the minimum distances for FFDI 100.

TABLE 1 VEGETATION FORMATION SETBACKS REQUIRED

Vegetation Formation	Effective Slope	BAL 12.5	BAL 19	BAL 29	BAL 40	FZ
Forest	5-10° Downslope	65-<100	49-<65m	36-<49 m	28-<36 m	< 28m
Grassland	Upslope	22-<50 m	15-<22 m	10-<15 m	8-<10 m	< 8m
Grassland	0-5° Downslope	25-<50 m	17-<25 m	12-<17 m	9-<12 m	< 9m
Grassland	5-10° Downslope	28-<50 m	20-<28 m	13-<20 m	10-<13 m	< 10m

A suitably worded instrument, created pursuant to section 88B of the Conveyancing Act 1919, is to be placed on the future Homestead Precinct Lot (residue lot 15) requiring the provision of asset protection zones (APZs) as indicated at Figure 13. The instrument is to ensure the ongoing management of the APZs as an Inner Protection Area (IPA) in accordance with Appendix 4 of Planning for Bush Fire Protection 2019 and prohibits the construction of buildings other than class 10b structures within the APZ.

Table 5.3a (PBP 2019), requires any potential building footprint not to be exposed to radiant heat levels exceeding 29 kW/m^2. Therefore, with respect to the principal heritage elements, the areas in Figure 14 shown as yellow can meet the BAL setbacks required.

FIGURE 13 88B APZ SETBACKS

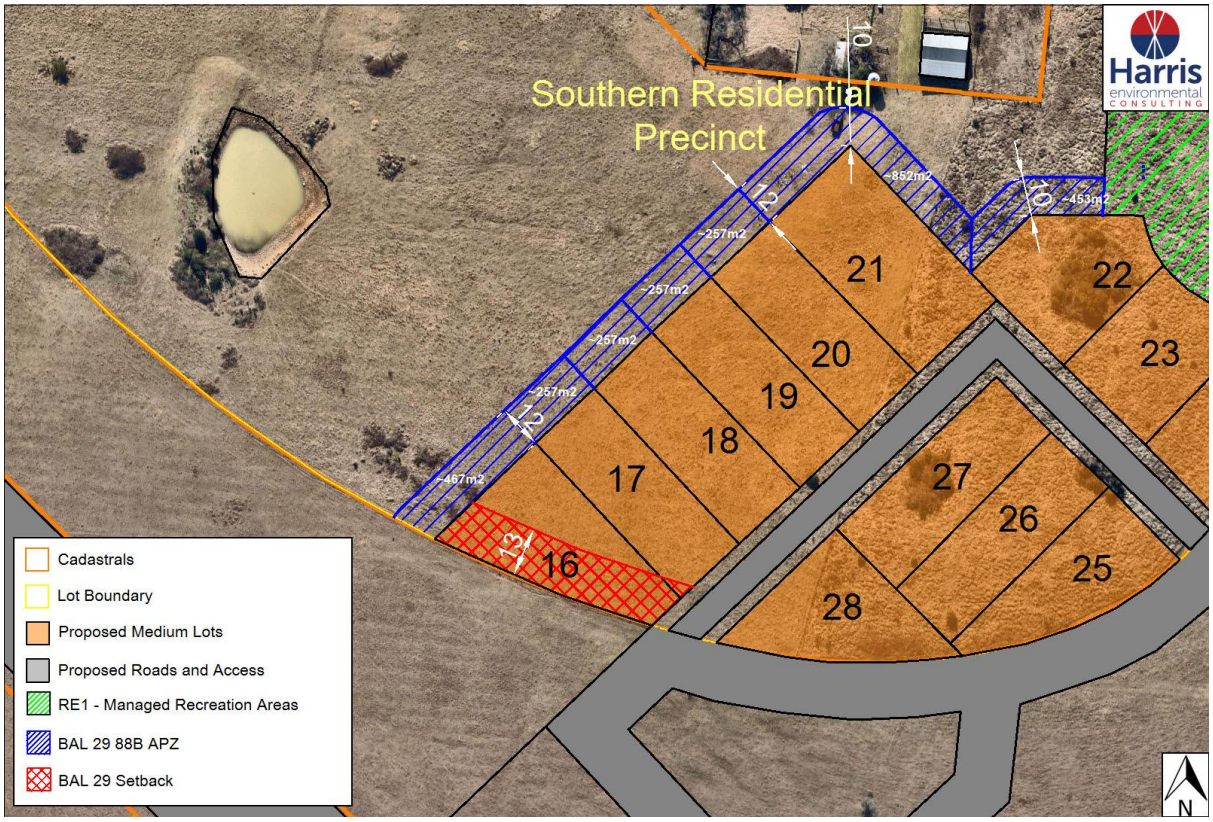
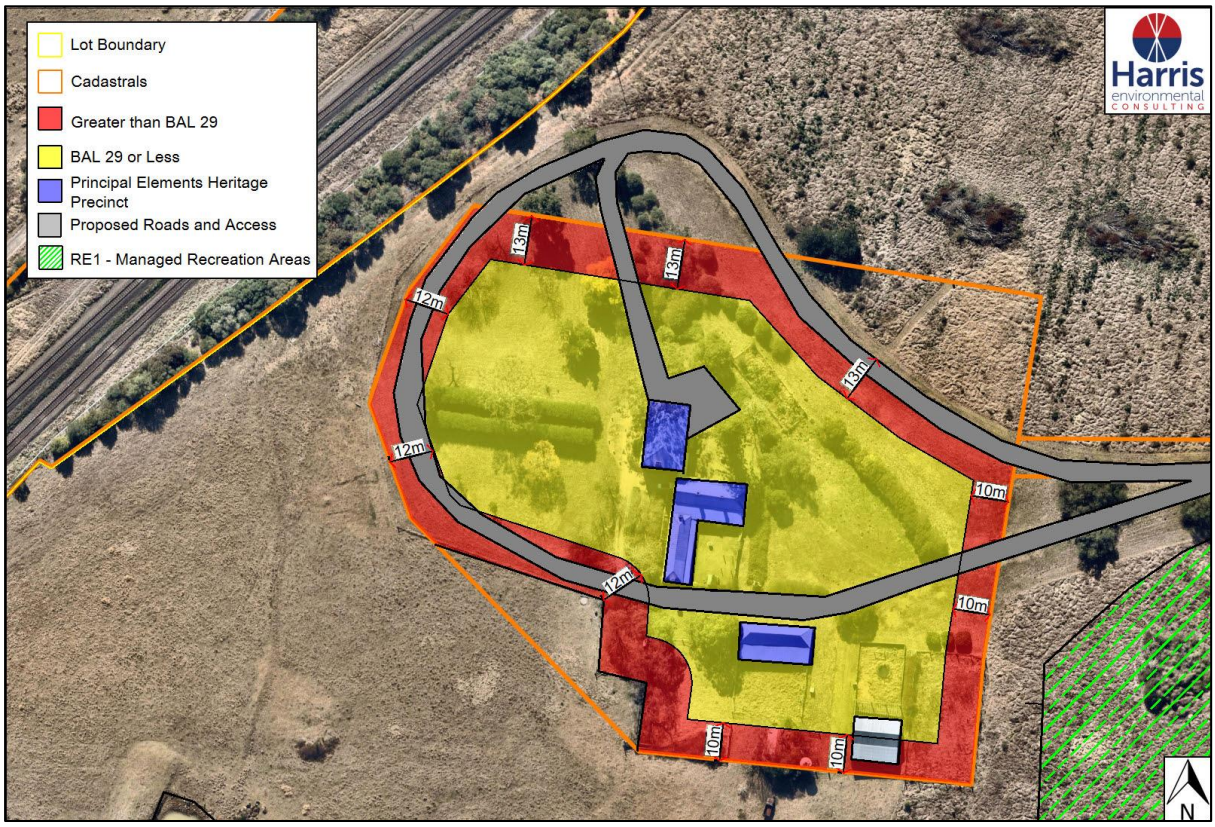


FIGURE 14 BAL DETERMINATION FOR HERITAGE PRECINCT



5.3. BAL Distribution Compliance

Residential Lots	BAL Achievement	Compliance
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18 ,19, 20, 21, 22, 23, 24, 25, 26, 27 and 28	Entirely BAL 29 or less	Can Comply
15 (Residue Lot)	Predominantly BAL 29 or Less with some portion greater than BAL 29	Can Comply

5.4. Safe Operational Access

The PBP (2019) requires safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.
Access to subdivisions on bushfire prone land is required to provide the following.

General Requirements:

- property access roads are two-wheel drive, all-weather roads;
- perimeter roads are provided for residential subdivisions of three or more allotments;
- subdivisions of three or more allotments have more than one access in and out of the development;
- traffic management devices are constructed to not prohibit access by emergency services vehicles;
- 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 roads are through roads;
- 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;
- where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; 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; and
- 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.

Perimeter Roads:

- 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 an 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;
- 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 indicate load rating clearly;
- hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
- hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and

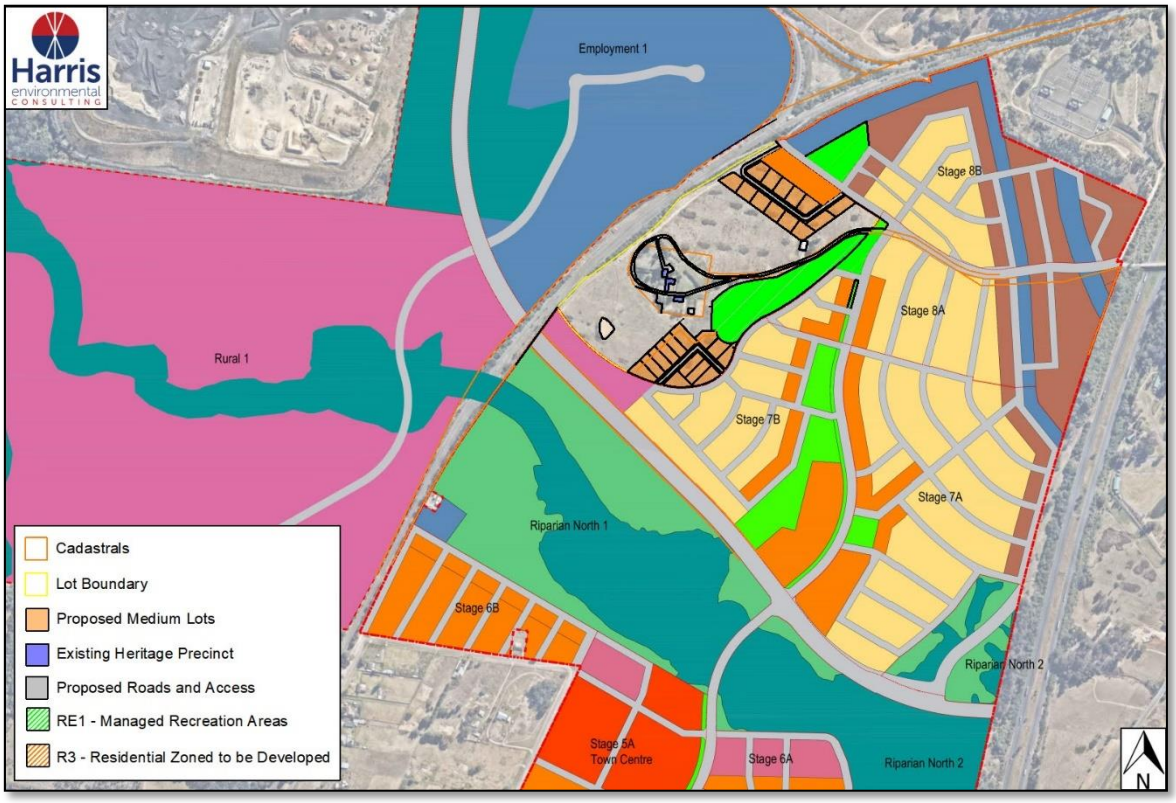
Non-Perimeter Roads:

- 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 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.

The indicative layout plan shows a perimeter road around the subject lot and the proposed medium density area. It is noted that the access design for the larger lots relies upon completion of the adjoining stages to meet compliance. This assessment notes the plan has the ability meet the PBP standard at DA stage.

Figure 15 below demonstrates the variety of access routes that are available to the two proposed subdivision precincts. The key access routes and direction of travel would be in urban development and not within proximity of forest or woodland. The existing access to the site is the Hume Motorway overbridge may also afford a secondary alternative emergency access.

FIGURE 15 ACCESS ROUTES



5.5 Adequate Water and Utility Services

Reticulated water is proposed for the proposed subdivision. Future subdivision development applications will require fire hydrant, spacing, design and sizing to comply with the relevant clauses of Australian Standard AS 2419.1:2005 and also the hydrants are not to be located within any road carriageway.

Reticulated water supply to urban subdivisions are required to use a ring main system for areas with perimeter roads. Fire hydrant flows and pressures are to comply with the relevant clauses of AS 2419.1:2005. Where practicable, electrical transmission lines are required to be underground, but electrical transmission lines could be installed with short pole spacing (30m).

6 INDICATIVE LAYOUT PLAN COMPLIANCE WITH PBP 2019

This study provides an analysis of the compliance of the indicative subdivisions to support the evidence that the proposal can meet PBP 2019 requirements. Any future subdivision will be required to meet the requirements of the PBP 2019 Tables 5.3A, 5.3B and 5.3C. The following Tables 2, 3 and 4 provide the performance criteria, acceptable solution and comment on this proposals demonstration of compliance.

TABLE 2 PBP 2019 TABLE 5.3 A COMPLIANCE

	Performance criteria	Acceptable Solution	Demonstration of compliance
Asset Protection Zones	Potential building footprints must not be exposed to radiant heat levels exceeding 29kw/m^2 on each proposed lot.	APZ is determined in accordance with Tables A1.12.2 based on 100 FDI but based on 88b legal agreement for APZ.	Current plan does comply
	APZ's are managed and maintained to prevent the spread of a fire towards the building.	In accordance with the requirements of Appendix 4.	Complies
	APZ is provided for perpetuity	Is wholly within boundaries of the development site and will be provided in perpetuity.	Complies
	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	Complies The land is less than 18 degrees downslope.
Landscaping	Landscaping is managed to minimise flame contact, reduce heat levels, minimise embers and reduce the effect of smoke on residents and fire fighters.	Landscaping in accordance with Appendix 4.	Will be required to comply.

TABLE 3 PBP 2019 TABLE 5.3 B COMPLIANCE

	Performance criteria	Acceptable Solution	Demonstration of compliance
Access (General Requirements)	Firefighter vehicles are provided with safe, all weather access to structures and hazard vegetation.	Property access roads are two-wheel drive, all weather roads; Perimeter roads are provided for residential subdivisions of three or more allotments Subdivisions of three or more allotments have more than one access in and out of the development; Traffic management devices are constructed to not prohibit access by emergency service vehicles 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 roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 m in length, incorporate a minimum 12 metre outer radius turning circle, and a clearly sign posted as a dead end. Where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; 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.	Indicative design is conceptual and will be required to comply at DA stage
	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 and will be 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; Hydrants are provided in accordance with AS 2419.12005. There is suitable access for a Category 1 fire appliance to within 4 of the static water supply where no reticulated supply is available	Can and will be required to comply.

Perimeter Road	Perimeter access roads are designed to allow safe access and egress for medium rigid 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.	Perimeter roads are two way sealed roads; 8 m carriageway width kerb to kerb; Parking is provided outside of the carriageway width and Hydrants are located clear of parking areas; There are through roads, and these are linked to the internal road system at an interval of no greater than 500 m; Curves of roads have a minimum inner radius of 6 m, The maximum grade of the road is 15 degrees and average grade is 10 degrees; The road cross fall does not exceed 3 degrees; A minimum vertical clearance of 4 m to any overhanging branches is provided.	Indicative layout plan is conceptual and can and will be required to comply at DA stage
Non-Perimeter Roads	Access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating.	Minimum 5.5 m 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 500 m; Curves of the roads have a minimum inner radius of 6 m, The road cross fall does not exceed 3 degrees; A minimum vertical clearance of 4 m to any overhanging obstructions, including tree branches, is provided.	Can and will be required to comply.

TABLE 4 PBP 2019 TABLE 5.3 C COMPLIANCE

Water Supply	Adequate water supplies is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available; Or a 10,000 litres minimum static water supply for firefighting purposes is provided for each occupied building where no reticulated water is available.	Can and will be 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 complies with the relevant clauses of Australian Standard AS 2419.1:2005; Hydrants are not located within any road carriageway; Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	
	Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	
	The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps; Above-ground water storage tanks shall be of concrete or metal.	
Electricity Services	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; Where overhead, electrical transmission lines are proposed as follow: • 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.*	Can and will be 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; If gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion; Polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; Above-ground gas service pipes external to the building are metal, including and up to any outlets.	Can and will be required to comply.

7 PROPOSAL COMPLIANCE WITH PBP TABLE 2.4.1

This assessment addresses the broader strategic bushfire protection requirements for proposed rezoning as required by the Environmental *Planning and Assessment Act 1979 s.9.1 (2).* Direction, 4.4 Consideration of the bushfire risk, evacuation, and environmental constraints which may affect bushfire protection strategy are identified as critical issues in *Section 4.4.1 of 'Planning for Bush Fire Protection* (PBP) (RFS 2019). Table 4.2.1 (PBP 2019) provides the specific assessment considerations for a bush fire strategic study.

Compliance demonstration to Table 4.2.1 requirements is provided below in the following tables:

- Table 5: likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader landscape.
- Table 6: most appropriate locations within the masterplan area or site layout for the proposed land use.
- Table 7: existing and potential proposed networks both within and external to the masterplan area.
- Table 8: future impact of new development on emergency services.
- Table 9: issues associated with infrastructure and utilities
- Table 10: new development on adjoining landowners and their ability to undertake bushfire management

TABLE 5 LANDSCAPE ASSESSMENT

Considerations	Comments
The bushfire hazard in the surrounding area including: • Vegetation • Topography • Weather	Glenlee Estate consists of large agricultural paddocks that slope down from the southern elevation towards the northern elevation of the subject lot. The existing buildings are located in the centre of the proposed residue lot and are surrounded by grasslands on all elevations. The proposed subdivision lots is located in BAL 29 or less.
The potential fire behaviour that might be generated based on above	Any potential fires can be managed with APZ and BALs
Any history of bushfire in the area	No
Potential fire runs into the site, and the intensity of such runs	Any potential fires can be managed with APZ and BALs
The difficulty in accessing and suppressing a fire, the continuity of bushfire hazards or fragmentation of landscape fuels and the complexity of the associated terrain.	Any potential fires can be managed with APZ and BALs

TABLE 6 LAND USE

Assessment Considerations	Comments
The risk profile of different development layout based on the above landscape study	Layout can meet requirements of PBP 2019
The proposed land use zones and permitted uses	Can comply
The most appropriate siting of different land uses based on risk profiles within the site (i.e not locating development on ridge tops, SFPP development to be located in lower risk areas of the site	Siting is appropriate
The impact of the siting of these uses on APZ provision	Minimum APZ provided in accordance with Table 5.3a & Table A1.12.2

TABLE 7 ACCESS AND EGRESS

Assessment Considerations	Comments
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 access will be required to meet the acceptable solutions of Table 5.3 b PBP 2019. This includes perimeter roads designed to allow access and egress for firefighting vehicles while residents are evacuated as well as providing a safe operating environment for emergency service personnel during firefighting and emergency management on the interface.
The location of key access routes and direction of travel	The direction of travel is away from the hazard
The potential for the development to be isolated in the event of a bushfire	The potential for development to be isolated is low

TABLE 8 EMERGENCY SERVICES

Assessment Considerations	Comments
Consideration of the increase in demand for emergency services responding to a bushfire emergency, including the need for new stations/ brigades	The development will meet all requirements of PBP 2019 at the DA stage
Impact on the ability of emergency services to carry out fire suppression in a bushfire emergency	The development is capable of complying with and will meet all requirements of PBP 2019 at the DA stage

TABLE 9 INFRASTRUCTURE AND UTILITIES

Assessment Considerations	Comments
The ability of the reticulated water system to deal with a major bushfire event in terms of pressures, flows and spacing of hydrants	Fire hydrant, spacing ,design and sizing will comply with the relevant clauses of Australian Standard AS 2419:1:2005.
Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines ect	The location and design of gas services will be installed in accordance with AS/NSZ 1596:2014 and the requirements of relevant authorities. The location of the electricity services will be provided so that the possibility of ignition of the surrounding bushland or the fabrics of the buildings is limited

TABLE 10 ADJOINING LAND

Assessment Considerations	Comments
Consideration of the implications of a change in land use on adjoining land, including increased pressure on BPMS through the implementation of Bushfire Management Plans	This proposal does not affect the bushfire protection of the district as the proposal will meet PBP 2019 requirements at the DA stage.

8 CONCLUSION

This strategic study has provided an assessment of whether this proposal is appropriate in the bushfire hazard context. In summary, the indicative concept plans with the inclusion of a proposed 88B Asset Protection Zone on the southern and northern development areas can meet all of the strategic issues relating to bushfire risk.

The surrounding area is proposed to be developed in the Menangle Park DCP (Campbelltown Council, 2019), as potentially amended in accordance with Figure 2. This development will provide the infrastructure for a proposed road network which will ensure there is no potential for the development to be isolated in the event of a bushfire. The indicative layout plan provides compliant perimeter roads for the medium density lots and detailed access design for the large lots can be achieved at the Development Application stage.

In conclusion, the proposal's location will not be exposed to potential fire runs that could potentially impact life or property in the context of the broader surrounding landscape. Furthermore, any bushfire risk can be met by complying with the requirements of APZ and BAL setbacks as identified by the PBP 2019, and associated restrictions/positive covenants on the title.

9. REFERENCES

Campbelltown City Council (2021) *Part 8a Menangle Park Precinct Development Control Plan.* Prepared by Campbelltown City Council In conjunction with APP Corporation Pty Limited June 21

Geoscience Australia (2020). *ELVIS - Elevation - Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: http://elevation.fsdf.org.au/.

Keith, D. (2004) "*Ocean Shores to Desert Dunes*" Department of Environment and Conservation, Sydney.

NSW Department of Planning and Environment (2002). *Native vegetation mapping in the Blue Mountains 1999-2002 VIS_ID 2239.* NSW Australia.

NSW Department of Planning and Environment (2020). *Planning Portal.* Accessed at: https://www.planningportal.nsw.gov.au/.

NSW Office of Environment and Heritage (2020). *Biodiversity Value Map v.10.* Accessed at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap.

NSW Rural Fire Service (2019) *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. *November 2019.*

NSW Rural Fire Service (2012) *Macarthur Bushfire management Committee Bush Fire Risk Management Plan*

Standards Australia (2018) *AS3959, Construction of buildings in bushfire-prone areas.*

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S 2010. *Native Vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands*. Cunninghania 11:359-406.

APPENDIX I DEFINITIONS

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.

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 RSS under section 146 (2) of the Environmental Planning and Assessment Act (1979)

Effective Slope: The land beneath the vegetation which most significantly effects fire behavior, 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.

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 herbfield 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.
fire hazard: the potential for land to carry a bush fire, utilising materials or fuels that can be ignited

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.