Strategic Bush Fire Study

Proposed rezoning of Lot 111 DP 850244, Lot 1 DP 1124566, Lot 700 DP 1272452 and Lot 122 DP 1165184.

Prepared for

Belford Land

V2 Final / November 2024

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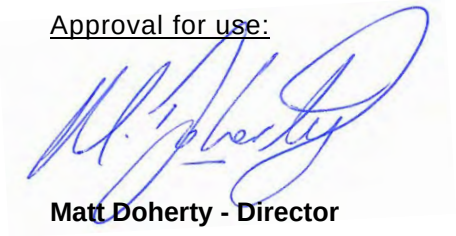

Matt Doherty - Director

11 November 2024

This report has been prepared in accordance with Appendix 2 of Planning for Bushfire Protection 2019 and certifies the development conforms to the specifications and requirements of S4.14 of the Environmental Planning and Assessment Act 1979.

EXECUTIVE SUMMARY

MJD Environmental has been engaged by Belford Land to prepare a Strategic Bush Fire Study (SBFS) to accompany a planning proposal for the rezoning of land at Lot 111 DP 850244, Lot 1 DP 1124566, Lot 700 DP 1272452 and Lot 122 DP 1165184, Elderslie Road, Radford Park, hereafter referred to as the 'site'.

The assessment considers and assesses the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Regulation 2021.*

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 4 and Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of site inspection and report production.

PBP (2019) states in Chapter 4, the study of bushfire context ensures that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning.

The bushfire risk is considered at the macro-scale, looking at fire runs, steep slopes and any areas of isolation. The amount of proposed development interfacing vegetation was also considered. Firefighting access and evacuation potential was considered as well as an assessment of traffic volumes and evacuation routes. The study highlighted areas with a significant fire history and any known fire paths

The broad principles which apply to this analysis are:

- ensuring land is suitable for development in the context of bush fire risk;
- ensuring new development on BFPL will comply with PBP;
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations; and
- facilitating appropriate ongoing land management practices.

Strategic planning should provide for the exclusion of inappropriate development in bush fire prone areas in the following circumstances:

- the development area is exposed to a high bush fire risk and should be avoided;
- the development is likely to be difficult to evacuate during a bushfire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely affect other bushfire protection strategies or place existing development at increased risk;
- the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and
- the development has environmental constraints to the area which cannot be overcome.

A strategic assessment across the local landscape and local site assessment presented in this report has determined that the site does not exhibit any significant features that would make it more likely to experience a bushfire of undue severity or intensity. The potential impact on life and property of the site is not worsened by the context of the broader surrounding landscape in which it is situated.

The proposed land use is appropriate to the site and surrounding landscape.

This strategic assessment has determined that the proposed development is able to comply with PBP (2019) as:

- the land is suitable for development in the context of bushfire risk;
- new development on BFPL will comply with PBP 2019;
- reliance on performance-based solutions is minimised;
- infrastructure associated with emergency evacuation and firefighting operations is adequate; and
- Ongoing land management practices are appropriate.

Furthermore, the development is not deemed inappropriate from a bushfire risk perspective due to the following factors;

- The area is not exposed to a heightened bushfire risk as a result of the proposed future use.
- The development is not likely to be difficult to evacuate during a bushfire due to its siting in the landscape, access limitations, fire history &/or size and scale.
- The development will not adversely affect other bushfire protection strategies or place existing development at increased risk.
- The development is not within an area of high bushfire risk where density of exiting development may cause evacuation issues for both existing and new occupants.
- The development does not have environmental constraints which cannot be overcome.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

- The following APZ's will be required for future residential development. It is anticipated that a future approval will establish and manage identified APZ's to an IPA standard and in perpetuity. Additionally, the below residential APZ have been provided as per A1.12.2 PBP 2019 for context acknowledging zoning over the land will enable an increase in density of residential dwellings.

Transect	Vegetation Classification	Slope Class	APZ
Site Boundary			
T01	Forest	0-5° Downslope	29m
T02	Forest	Upslope	14m
T03	Rainforest	5-10° Downslope	18m
T04	Grassy and Semi-arid Woodland	0-5° Downslope	16m
T05	Grassy and Semi-arid Woodland	Cross slope/Upslope	12m
T06	Forest	0-5° Downslope	29m
T07	Forest	0-5° Downslope	29m
T08	Forest	Cross slope/Downslope	24m
T09	Grassland	0-5° Downslope	12m
T10	Grassland	0-5° Downslope	12m
T11	Grassland	0-5° Downslope	12m
T12	Grassland	Upslope	10m
T13	Grassland	5-10° Downslope	13m
T14	Grassy and Semi-arid Woodland	5-10° Downslope	20m
T15	Grassy and Semi-arid Woodland	Upslope	12m
T16	Grassy and Semi-arid Woodland	Upslope	12m

Transect	Vegetation Classification	Slope Class	APZ
T17	Grassland	Upslope	10m
T18	Grassy and Semi-arid Woodland	Upslope	12m
T19	Grassland	5-10° Downslope	13m
T20	Grassland	5-10° Downslope	13m
Riparian Corridor			
R01	Rainforest	0-5° Downslope	14m
R02	Rainforest	0-5° Downslope	14m
R03	Rainforest	0-5° Downslope	14m
R04	Rainforest	0-5° Downslope	14m
R05	Rainforest	0-5° Downslope	14m
R06	Rainforest	0-5° Downslope	14m
R07	Rainforest	0-5° Downslope	14m
R08	Rainforest	5-10° Downslope	18m
R09	Rainforest	0-5° Downslope	14m
R10	Rainforest	5-10° Downslope	18m
R11	Rainforest	0-5° Downslope	14m
R12	Rainforest	0-5° Downslope	14m
R13	Rainforest	5-10° Downslope	18m
R14	Rainforest	5-10° Downslope	18m
R15	Rainforest	Cross slope	11m
R16	Rainforest	Upslope	11m
R17	Rainforest	Upslope	11m
R18	Rainforest	0-5° Downslope	14m
R19	Rainforest	0-5° Downslope	14m
R20	Rainforest	0-5° Downslope	14m
R21	Rainforest	Upslope	11m
R22	Rainforest	0-5° Downslope	14m
R23	Rainforest	10-15° Downslope	23m
R24	Rainforest	5-10° Downslope	18m
R25	Rainforest	Upslope	11m
R26	Rainforest	0-5° Downslope	14m
R27	Rainforest	Upslope	11m

- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site. Landscaping must be managed in accordance with Appendix 4 of PBP 2019 “Asset Protection Zone Requirements”.
- Services have been assessed and are to be provided and connected to the site in accordance with PBP (2019).

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GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419-2005	Australian Standard – Fire Hydrant Installations
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BAR	Bushfire Assessment Report
BCA	Building Code of Australia
BC Act	Biodiversity Conservation Act 2016
BMP	Bush Fire Management Plan
BPA	Bush Fire Prone Area (Also Bushfire Prone Land)
BPL	Bush Fire Prone Land
BPLM	Bush Fire Prone Land Map
BPM	Bush Fire Protection Measures
DoE	Commonwealth Department of the Environment
DPI Water	NSW Department of Primary Industries – Water
EPA Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FDI	Fire Danger Index
FMP	Fuel Management Plan
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
LLS Act	Local Land Services Act 2013
OPA	Outer Protection Area
OEH	NSW Office of Environment and Heritage
PBP or PBP (2019)	Planning for Bushfire Protection 2019
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
RFS	NSW Rural Fire Service
TSC Act	NSW Threatened Species Conservation Act 1995 (as repealed)

1 Introduction

MJD Environmental has been engaged by Belford Land to prepare a Strategic Bush Fire Study (SBFS) to accompany a planning proposal for the rezoning of land at of Lot 111 DP 850244, Lot 1 DP 1124566, Lot 700 DP 1272452 and Lot 122 DP 1165184, Branxton, hereafter referred to as the 'site'. Refer to **Figure 1**.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Regulation 2021.*

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapters 4 and Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the Site at the time of report production.

1.1 Aims & Objectives

PBP (2019) states in Chapter 4, the study of bushfire context ensures that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning.

The bushfire risk is considered at the macro-scale, looking at fire runs, steep slopes and any areas of isolation. The amount of proposed development interfacing vegetation will also be considered. Firefighting access and evacuation potential must be considered as well as an assessment of traffic volumes and evacuation routes. The study will highlight areas with a significant fire history and any known fire paths

The broad principles which apply to this analysis are:

- ensuring land is suitable for development in the context of bush fire risk;
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- the development will adversely affect other bushfire protection strategies or place existing development at increased risk;
- the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and
- the development has environmental constraints to the area which cannot be overcome.

1.2 Description of Proposal

The proposal seeks for the approval of a proposed rezoning (by way of a Planning Proposal) over the land at Lot 111 DP 850244, Lot 1 DP 1124566 and part of Lot 700 DP 1272452 and Lot 122 DP 1165184, Branxton (as described above). The intended rezoning will facilitate the future development of the area to be zoned as R5 Large Lot Residential.

Refer to **Figure 1** for a site and location map and **Appendix A** for a plan of the proposal.

1.3 Site Particulars

Locality	The site is located in Branxton, NSW
Land Title	Lot 111 DP 850244 Lot 1 DP 1124566 Lot 700 DP 1272452 Lot 122 DP 1165184.
LGA	Singleton Council
Area	82 ha (approx.)
Zoning (current)	RU1: Primary Production
Boundaries	The site is bound by large lot rural land parcels with residential development bordering the southeast. Elderslie Drive borders the northeast of the site.
Current Land Use	The study area currently contains a residential dwelling northeast of the site. The lot is predominately vacant, containing a mix of vegetation classes. The western portion of the lot (Lot 1 DP 1124566) is predominately pasture with remnant patches of canopy to the northwest. An unnamed 2nd order stream crosses through the north of both lots.
Topography	The study area ranges from a minimum of 40 m to 90 m A.S.L, undulating across the site. The lowest elevation occurs along the riparian corridor along the unnamed 2nd order stream central of the site.
Climate / Fire History	The site lies within a geographical area with a Fire Danger Index (FDI) rating of 100. The site is classified as being affected by Category 1 Vegetation and Category 3 Vegetation on the Bushfire Prone Land Map (DPE 2024). Refer to **Figure 2**.
Environment & Cultural Significance	The planning proposal has been informed by an Aboriginal Cultural Heritage Assessment and Stage 1 BAM - Biodiversity Inventory Report).

RADFORK PARK

0 170 340 510 680

Metres

1:10000

N

W E

S

FIGURE 1: SITE LOCATION

Legend

- Site Boundary
- Cadastral Boundary

MJD Environmental

Aerial: Nearmap (2024) | Data: MJD Environmental, NSW Spatial Services (2024) | Datum/Projection: GDA2020 / MGA zone 56 | Date: 2024-09-30 | Version: 1 | Z:\21020 - Radford Park Sewer | This plan should not be relied upon for critical design dimensions.

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FIGURE 2: BUSH FIRE PRONE LAND

Legend

- Site Boundary
- Cadastral Boundary

Bush Fire Prone Land

- Category 1
- Category 2
- Category 3
- BFPV Buffer

0 170 340 510 680

Metres

1:10000

N W E S

MJD Environmental

Aerial: Nearmap (2024) | Data: MJD Environmental, NSW Rural Fire Service, NSW Spatial Services (2024) | Datum/Projection: GDA2020 / MGA zone 56 | Date: 2024-09-30 | Version: 1 | Z:\21020 - Radford Park Sewer | This plan should not be relied upon for critical design dimensions.

2 Bushfire Hazard Analysis

2.1 Vegetation Assessment

Methodology

The vegetation in and around the Site, to a distance of 140m, has been assessed in accordance with PBP 2019. This assessment has been made via a combination of:

- Aerial photo interpretation;
- On-site vegetation classification; and
- Reference to regional community vegetation mapping (including VIS and Keith).

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Figure A1.2 of PBP (2019) with due regard to Appendix 1 of PBP (2019).

Vegetation Classification

Vegetation classification has been presented in **Table 1** below and **Figure 3**.

Table 1 Vegetation Classification

Direction	Description	Vegetation Classification
Site Boundary		
T01	▪ Unmanaged vegetation to the north of a large rural land parcel. Area contains a riparian corridor and an unnamed 2nd order watercourse.	Forest
T02	▪ Unmanaged vegetation to the north of a large rural land parcel. Area contains a riparian corridor and an unnamed 2nd order watercourse.	Forest
T03	▪ Unmanaged vegetation to the north of a large rural land parcel. Area contains a riparian corridor and an unnamed 2nd order watercourse.	Rainforest
T04	▪ Unmanaged woodland with a grassy understory northwest of a large rural land parcel.	Grassy and Semi-arid Woodland
T05	▪ Unmanaged woodland with a grassy understory northwest of a large rural land parcel.	Grassy and Semi-arid Woodland
T06	▪ Elderslie Road ▪ Unmanaged vegetation to the east of the site.	Forest
T07	▪ Elderslie Road ▪ Unmanaged vegetation to the east of the site.	Forest
T08	▪ Elderslie Road ▪ Unmanaged vegetation to the east of the site.	Forest
T09	▪ Grassland vegetation located within large rural land parcel. ▪ Patch of remnant forest vegetation excluded[1]	Grassland
T10	▪ Grassland vegetation located within large rural land parcel.	Grassland
T11	▪ Grassland vegetation located within large rural land parcel.	Grassland
T12	▪ Grassland vegetation located within large rural land parcel.	Grassland

[1] Vegetation excluded in accordance with A.10 Low Threat Vegetation – Exclusions, PBP 2019

Direction	Description	Vegetation Classification
T13	▪ Grassland vegetation located within large rural land parcel.	Grassland
T14	▪ Unmanaged forest vegetation within a large rural land parcel.	Grassy and Semi-arid Woodland
T15	▪ Unmanaged forest vegetation within a large rural land parcel	Grassy and Semi-arid Woodland
T16	▪ Unmanaged forest vegetation within a large rural land parcel	Grassy and Semi-arid Woodland
T17	▪ Grassland vegetation located within large rural land parcel.	Grassland
T18	▪ Grassland vegetation located within large rural land parcel.	Grassy and Semi-arid Woodland
T19	▪ Grassland vegetation located within large rural land parcel.	Grassland
T20	▪ Grassland vegetation located within large rural land parcel.	Grassland
Riparian Corridor		
R01	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R02	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R03	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R04	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R05	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R06	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R07	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R08	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R09	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R10	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R11	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R12	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R13	▪ Riparian zone and watercourse containing a 1st order transitioning into a 2nd order watercourse. Closed canopy and understorey containing sedges and shrubbery.	Rainforest
R14	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R15	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R16	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R17	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest

Direction	Description	Vegetation Classification
R18	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R19	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R20	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R21	▪ Riparian zone and watercourse containing a 1st order transitioning into a 2nd order watercourse. Closed canopy and understorey containing sedges and shrubbery.	Rainforest
R22	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R23	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R24	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R25	▪ Unmanaged vegetation within riparian corridor along an unnamed 1st order stream.	Rainforest
R26	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest
R27	▪ Unmanaged vegetation within riparian corridor along an unnamed 2nd order stream.	Rainforest

2.2 Slope Assessment

Methodology

In accordance with PBP (2019), an assessment of the slope was conducted throughout the Site (where a hazard is present) and for a distance of 100m around the Site in the hazard direction. Both the average slope and maximum slopes were considered to determine the level of gradient which will most significantly influence fire behaviour on the Site. The slope transect was categorised within the slope classification under PBP Appendix A1.4.

Slope assessment was assisted by:

- Preparation of elevation model based on Digital Elevation Model data derived from state LiDAR; and
- Preparation of slope assessment based on NSW 1m contours.

Effective Slope

The slope class under the bushfire hazard within 100m is presented in **Table 2** below and **Figure 3**.

Table 2 Slope Class

Transect	Vegetation Classification	Slope Class
Site Boundary		
T01	Forest	0-5° Downslope
T02	Forest	Upslope
T03	Rainforest	5-10° Downslope
T04	Grassy and Semi-arid Woodland	0-5° Downslope
T05	Grassy and Semi-arid Woodland	Cross slope/Upslope
T06	T05Forest	T050-5° Downslope
T07	Forest	0-5° Downslope
T08	Forest	Cross slope/Downslope
T09	Grassland	0-5° Downslope
T10	Grassland	0-5° Downslope
T11	Grassland	0-5° Downslope
T12	Grassland	Upslope
T13	Grassland	5-10° Downslope
T14	Grassy and Semi-arid Woodland	5-10° Downslope
T15	Grassy and Semi-arid Woodland	Upslope
T16	Grassy and Semi-arid Woodland	Upslope
T17	Grassland	Upslope
T18	Grassy and Semi-arid Woodland	Upslope
T19	Grassland	5-10° Downslope
T20	Grassland	5-10° Downslope
Riparian Corridor		
R01	Rainforest	0-5° Downslope
R02	Rainforest	0-5° Downslope
R03	Rainforest	0-5° Downslope

Transect	Vegetation Classification	Slope Class
R04	Rainforest	0-5° Downslope
R05	Rainforest	0-5° Downslope
R06	Rainforest	0-5° Downslope
R07	Rainforest	0-5° Downslope
R08	Rainforest	5-10° Downslope
R09	Rainforest	0-5° Downslope
R10	Rainforest	5-10° Downslope
R11	Rainforest	0-5° Downslope
R12	Rainforest	0-5° Downslope
R13	Rainforest	5-10° Downslope
R14	Rainforest	5-10° Downslope
R15	Rainforest	Cross slope
R16	Rainforest	Upslope
R17	Rainforest	Upslope
R18	Rainforest	0-5° Downslope
R19	Rainforest	0-5° Downslope
R20	Rainforest	0-5° Downslope
R21	Rainforest	Upslope
R22	Rainforest	0-5° Downslope
R23	Rainforest	10-15° Downslope
R24	Rainforest	5-10° Downslope
R25	Rainforest	Upslope
R26	Rainforest	0-5° Downslope
R27	Rainforest	Upslope

RADFORK PARK

FIGURE 3: VEGETATION AND SLOPE CLASSIFICATION

Legend

- Site Boundary
- Cadastral Boundary
- Slope Classification Buffer (100 m)
- Vegetation Classification Buffer (140 m)

Vegetation (*Keith 2004*)

- Development Footprint
- Grassland
- Grassy and Semi-Arid Woodland
- Low Threat Excluded
- Managed Land
- Waterbody

- Contours (1 m)
- Transect
- Proposed Road

0 100 200 300 400

Metres

1:6000

N W E S

MJD Environmental

Aerial: Nearmap (2024) | Data: MJD Environmental, NSW Spatial Services (2024) | Datum/Projection: GDA2020 / MGA zone 56 | Date: 2024-11-06 | Version: 1 | Z:\21020 - Radford Park Sewer | This plan should not be relied upon for critical design dimensions.

3 Bushfire Protection Measures

PBP sets out a suite of BPMs and criteria that require consideration and assessment for applicable proposals on bushfire prone land in order to provide an adequate level of protection to new developments.

The measures required to be assessed are listed below and discussed throughout this chapter:

- Asset Protection Zones (APZ)
- Bushfire Attack Levels (BAL) set out in PBP 2019
- Landscaping and Fuel Management

Measures pertaining to the items listed below are addressed in Chapter 4 of this report as it relates to the Strategic Bush Fire Study:

- Access
- Services – Water supply, Gas and Electricity
- Emergency Management

3.1 Asset Protection Zones

An APZ is a buffer zone between the hazard and buildings that is progressively managed to minimise bushfire hazard (fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack) PBP (2019), in order to mitigate risk to life and asset.

An APZ can include the following:

- Lawns;
- discontinuous gardens;
- swimming pools;
- driveways;
- detached garages;
- open space / parkland;
- car parking; and
- cycleway and formed walkways.

The site lies within the Singleton Council LGA and therefore is assessed under an FFDI (Forest Fire Danger Index) rating of 100. Refer to **Table 3** detailing the acceptable solution APZ setbacks relevant to the future proposal type. Acceptable solution APZ is detailed in **Figure 4**.

Table 3 Acceptable Solution APZ (PBP 2019)

Transect	Vegetation Classification	Slope Class	APZ
Site Boundary			
T01	Forest	0-5° Downslope	29m
T02	Forest	Upslope	14m
T03	Rainforest	5-10° Downslope	18m
T04	Grassy and Semi-arid Woodland	0-5° Downslope	16m
T05	Grassy and Semi-arid Woodland	Cross slope/Upslope	12m
T05T06	Forest	0-5° Downslope	29m
T07	Forest	0-5° Downslope	29m

Transect	Vegetation Classification	Slope Class	APZ
T08	Forest	Cross slope/Downslope	24m
T09	Grassland	0-5° Downslope	12m
T10	Grassland	0-5° Downslope	12m
T11	Grassland	0-5° Downslope	12m
T12	Grassland	Upslope	10m
T13	Grassland	5-10° Downslope	13m
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T16	Grassy and Semi-arid Woodland	Upslope	12m
T17	Grassland	Upslope	10m
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R06	Rainforest	0-5° Downslope	14m
R07	Rainforest	0-5° Downslope	14m
R08	Rainforest	5-10° Downslope	18m
R09	Rainforest	0-5° Downslope	14m
R10	Rainforest	5-10° Downslope	18m
R11	Rainforest	0-5° Downslope	14m
R12	Rainforest	0-5° Downslope	14m
R13	Rainforest	5-10° Downslope	18m
R14	Rainforest	5-10° Downslope	18m
R15	Rainforest	Cross slope	11m
R16	Rainforest	Upslope	11m
R17	Rainforest	Upslope	11m
R18	Rainforest	0-5° Downslope	14m
R19	Rainforest	0-5° Downslope	14m
R20	Rainforest	0-5° Downslope	14m
R21	Rainforest	Upslope	11m
R22	Rainforest	0-5° Downslope	14m
R23	Rainforest	10-15° Downslope	23m
R24	Rainforest	5-10° Downslope	18m
R25	Rainforest	Upslope	11m
R26	Rainforest	0-5° Downslope	14m
R27	Rainforest	Upslope	11m

3.2 Landscaping & Fuel Management

All future landscaping on the Site should be designed and managed to minimise impact of bushfire based on the principles set out in PBP (2019) being:

- Prevent flame contact / direct ignition on the dwelling;
- Provide a defendable space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

In this manner, consideration should be given to species selection, planting location, flammability and size at maturity to ensure discontinuous canopy/ structure both vertically and horizontally to ensure the above principles are met.

Ongoing fuel management across the site as part of the maintenance regime should comply with the NSW RFS '*Asset protection zone standards'* and *Appendix 4 - Asset Protection Zone Requirements* of PBP (2019) which provides guidance on maintenance activities to assist in achieving the landscape principles.

Fencing and gates are to be constructed in accordance with PBP (2019) section 7.6 as follows:

Fences and gates in bush fire prone areas may play a significant role in the vulnerability of structures during bush fires. In this regard, all fences in bush fire prone areas should be made of either hardwood or non-combustible material.

However, in circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.

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FIGURE 4: REQUIRED ASSET PROTECTION ZONE (PBP 2019)

Legend

- Site Boundary
- Cadastral Boundary
- Slope Classification Buffer (100 m)
- Vegetation Classification Buffer (140 m)
- Asset Protection Zone

Vegetation (*Keith 2004*)

- Grassland
- Grassy and Semi-Arid Woodland
- Low Threat Excluded
- Waterbody

- Proposed Road

0 100 200 300 400

Metres
1:6000

N W E S

MJD Environmental

Aerial: Nearmap (2024) | Data: MJD Environmental, NSW Spatial Services (2024) | Datum/Projection: GDA2020 / MGA zone 56 | Date: 2024-11-06 | Version: 1 | Z:\21020 - Radford Park Sewer | This plan should not be relied upon for critical design dimensions.

4 Bush Fire Strategic Study

4.1 Bush Fire Landscape Assessment

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

This bushfire 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 Bushfire 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.*

A landscape analysis relating to bushfire has been undertaken within a 2-kilometre buffer of the site. This analysis has considered:

- Topography (**Figure 5**)
- Mean annual rain fall (**Figure 6**)
- Mean annual temperatures (**Figure 7**)
- Wildfire History (**Figure 8**)
- Proposed over Existing Land Use Zoning (**Figure 9**)

The bushfire hazard surrounding the site is generally represented by topography consisting of undulating lands toward a central water course. Due to historical land clearing and practices, the site generally consists of pasture and is surrounded by large lot rural land parcels. An unnamed 2nd order stream is located central of the site with the associated riparian corridor containing forest vegetation. Forest vegetation within the broader landscape is generally intact stretching further east within the broader region. West of the site predominately contains pasture with remnant patches of canopy.

The temperate climate as evidenced by the mean precipitation and temperatures is characteristic of the area with warm to hot summers at peak and cool winter periods. Rainfall patterns generally make for a dryer period in the peak of summer under normal conditions.

On the basis of the local climate coupled with vegetation and topography, history of severe fire behaviour in the area is well documented. A review of NSW NPWS fire history records identifies the closest wildfire record as to have occurred approximately 2.1km northeast of the site, impacting a small portion of a rural property in 2001. Another wildfire occurred on the same date approximately 2.4km north of the site.

A table has been provided in **Appendix B** lists all fires larger than 1 ha that occurred within 10km of the site (NPWS Wildfire History 26/09/2024).

Potential fire runs into the site and the intensity of such fire runs

Potential fire runs into the site are most likely to occur from an easterly direction, coming from the remnant patch of vegetation situated east of Elderslie Road. Larger intact patches of forest (>100ha) occur south of the site, to the south of the Hunter Expressway. The of bush fire from larger intact patches of forest has been reduced due to the large rural type holdings containing dwellings, sheds and paddocks with scattered timber. Watercourses are interspersed in this area and, pending conditions, may provide some mitigation as these areas allow greater soil moisture and vegetation greenness in the area, decreasing vegetation flammability lowering potential fire rate of spread.

Ember attack and spotting from the east is more likely, as prevailing winds during the bushfire season often come from a westerly to north-westerly direction.

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.

The site is accessible from Elderslie Road and the newly built connection to the south, Claret Avenue. Future development will provide opportunity for access (fire truck and/or on foot) to the principle hazard being the forest vegetation to the north and to the riparian corridor central to the site. A perimeter road is achievable to provide separation between the riparian corridor and future development. Given the site context (rural lifestyle living type) and scale, an internal road is provided in the future western and southwestern development areas, both having two points of connection for redundancy and circulation in an emergency event. Any future proposal over the site will provide additional water supply via mains and hydrants. Unmanaged hazards will remain to the north of the site, however this area does not contain significant slope gradient (0-5° Downslope).

A concept plan of the road layout demonstrates the ability to provide emergency vehicles access and coverage of a proportion of the site.

The findings of this bushfire landscape assessment are that the site does not exhibit any significant features that would make it more likely to experience a bushfire of undue severity or intensity. The potential impact on life and property of the site is not worsened by the context of the broader surrounding landscape in which it is situated.

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FIGURE 5: DIGITAL ELEVATION MODEL

Legend

Site Boundary

Contours (1 m)

Elevation (m)

102

17

0 170 340 510 680

Metres

1:10000

N

W E

S

MJD Environmental

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FIGURE 6: ANNUAL MEAN PRECIPITATION

Legend

- Site Boundary
- Place Names

Annual Mean Precipitation (mm)

- 550 - 750
- 750 - 950
- 950 - 1150
- 1150 - 1250
- 1250 - 1450
- 1450 - 1650
- > 1650

0 8,000 16,000 24,000 32,000

Metres

1:500000

N W E S

MJD Environmental

RADFORK PARK

Newcastle

0 8,000 16,000 24,000 32,000

Metres

1:500000

N

W E

S

FIGURE 7: ANNUAL MEAN TEMPERATURE

Legend

- Site Boundary
- Place Names

Annual Mean Temperature (°C)

- 8.0 - 9.2
- 9.2 - 10.4
- 10.4 - 11.6
- 11.6 - 12.8
- 12.8 - 14.0
- 14.0 - 15.2
- 15.2 - 16.4
- 16.4 - 17.6
- 17.6 - 18.8

MJD Environmental

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FIGURE 8: FIRE HISTORY

Legend

- Site Boundary
- 10 km Buffer from Site Boundary
- NPWS Fire History – Wildfires and Prescribed Burns

0 1,700 3,400 5,100 6,800

Metres

1:100000

N W E S

MJD Environmental

Aerial: Nearmap (2024) | Data: MJD Environmental, NSW Spatial Services, © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water (2024) | Datum/Projection: GDA2020 / MGA zone 56 | Date: 2024-10-02 | Version: 1 | Z:\21020 - Radford Park Sewer\QGZ\21020_StrategicBushfireReport_20241002.qgz | This plan should not be relied upon for critical design dimensions.

4.2 Land Use Assessment

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

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 (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.*

The proposal would amend the zoning of the land from RU1 Primary Production to R5 Large Lot Residential, allowing an additional 150-200 lots to be created. The amended zoning would result in the following permitted uses:

Zone R5 Large Lot Residential - Bed and breakfast accommodation; Building identification signs; Business identification signs; Dual occupancies; Dwelling houses; Food and drink premises; Group homes; Home industries; Neighbourhood shops; Oyster aquaculture; Pond-based aquaculture; Roads; Tank-based aquaculture.

As discussed above in **Section 4.1**, the greatest threat of bush fire comes from the forest vegetation located to the north of the site. The risk profile of the landscape is mitigated by the implementation of APZ's and the concept road layout. Unmanaged hazards will remain along the riparian corridor. However, no significant slope gradient occurs under the vegetation posing a risk. Multiple access roads have been provided within the concept road layout leading away from hazards into developed areas.

RADFORK PARK

FIGURE 9: PROPOSED OVER EXISTING LAND USE ZONING

Legend

- Site Boundary
- Cadastral Boundary

Land Zoning

- C4 - Environmental Living
- R5 - Large Lot Residential
- RU1 - Primary Production
- RU2 - Rural Landscape

0 170 340 510 680

Metres

1:10000

N W E S

MJD Environmental

4.3 Access and Egress

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

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.*

In the event of a serious bushfire threat to the proposed development, it will be essential to ensure that adequate ingress/egress and the provision of defendable space are afforded in the development design with due regard to the requirements of Table 5.3b and Appendix 3 of PBP (2019).

The provided concept road layout allows for 6 access points into the site, exceeding the two access roads outlined within the acceptable solutions. Perimeter roads can be provided for future residential development. The road layout presented within the concept plan contains a single dead-end road to the south that is less than 200 metres in length and incorporates a minimum 12 metres outer radius turning circle.

The potential for the proposed development to be isolated in the event of a bushfire is low, as in all cases access arrangements to be enabled by the planning proposal will allow egress from the site in an easterly direction into existing urbanised areas away from proximate bushfire hazards and into developed areas.

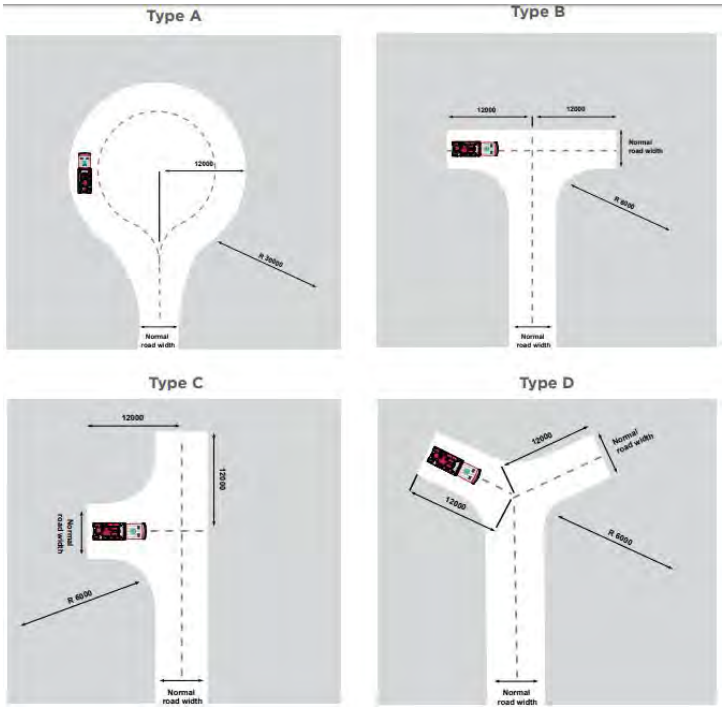
Refer to **Figure 10** below for Plan showing Key Access Routes. Refer to **Appendix A** showing a concept for the site development.

Table 4 below summarises the requirements of Table 5.3b, and Appendix 3 of PBP (2019).

Table 4 Acceptable solutions for access (PBP 2019)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
General Requirements ▪ Firefighting vehicles are provided with safe, all-weather access to structures.	▪ 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

Performance Criteria	Acceptable Solutions
	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.
▪ 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.
▪ 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 the relevant clauses of AS 2419.1:2005; and ▪ there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.
Perimeter access roads ▪ Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	▪ are two-way sealed roads; ▪ minimum 8m carriageway width kerb to kerb; ▪ parking is provided outside of the carriageway width; hydrants are located clear of parking areas; ▪ are through roads, and these are linked to the internal road system at an interval of no greater than 500m; ▪ curves of roads have a minimum inner radius of 6m; ▪ the maximum grade road is 15 degrees and average grade of not more than 10 degrees; ▪ the road crossfall does not exceed 3 degrees; and ▪ a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
Non-perimeter access 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; ▪ minimum 5.5m carriageway width kerb to kerb; ▪ parking is provided outside of the carriageway width; hydrants are located clear of parking areas; ▪ roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; ▪ curves of roads have a minimum inner radius of 6m; ▪ the road crossfall does not exceed 3 degrees; and ▪ a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.
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. In circumstances where this cannot occur, the following requirements apply: ▪ minimum 4m carriageway width; ▪ in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m

Performance Criteria	Acceptable Solutions
	wide, making a minimum trafficable width of 6m at the passing bay; ▪ a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; ▪ provide a suitable turning area in accordance with Appendix 3; <table><tr><th>Curve radius (inside edge in metres)</th><th>Swept path (metres width)</th></tr><tr><td>< 40</td><td>4.0</td></tr><tr><td>40 - 69</td><td>3.0</td></tr><tr><td>70 - 100</td><td>2.7</td></tr><tr><td>>100</td><td>2.5</td></tr></table>  ▪ curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; ▪ the minimum distance between inner and outer curves is 6m; ▪ 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; and ▪ a development comprising more than three dwellings has access by dedication of a road and not by right of way. *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.*

4.4 Emergency Services

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

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.*

Future development of the site provide opportunity to design access and supporting services (hydrants) within defendable space between the future asset and the hazard interface to allow ease of ingress via perimeter roads whilst occupants egress.

Several Stations and brigades are situated in the area surrounding the site including:

- North Rothbury Rural Fire Station
- Greta Rural Fire Station
- Belford Rural Fire Station

The planning proposal is not considered to significantly impact on the ability of emergency services to carry out fire suppression in a bush fire emergency, nor would it place an undue demand on the resources of existing emergency services in the area.

4.5 Infrastructure

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

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;*
- *Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.*

In addition, future development over the site will need to comply with the acceptable solution criteria for services outlined in Chapter 5 of PBP (2019) as summarised in **Table 5** below.

The planning proposal is considered to be able to satisfy the requirements of Chapter 4 and Chapter 5 of PBP (2019) given:

- The Site will be connected to the reticulated water.
- The Site shall be connected to the existing power supply.
- Any future gas connection can be installed in accordance with the provisions of PBP (2019).
- Fire hydrant spacing, design and sizing can comply with the relevant clauses of AS 2419.1:2005.

Table 5 Acceptable solutions for services (PBP 2019)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
Reticulated water supplies ▪ water supplies are easily accessible, reliable and located at regular intervals. ▪ flows and pressure are appropriate ▪ the integrity of the water supply is maintained	▪ reticulated water is to be provided to the development, where available ▪ a static water supply is to be provided where no reticulated water is available

<table>
<tr><th>Performance Criteria</th><th>Acceptable Solutions</th></tr>
<tr><td>If reticulated water supplies are considered inadequate or shall not be connected as part of the proposal, the PBP (2019) performance criteria for ‘non-reticulated’ water supply shall apply as detailed below.</td><td>▪ reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads
▪ fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005.
▪ hydrants are not located within any road carriageway
▪ all above ground water and gas service pipes external to the building are metal, including and up to any taps</td></tr>
<tr><td>Non-reticulated water supply areas
for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is provided and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot.

<table><tr><th>Development Type</th><th>Water Requirements</th></tr><tr><td>Residential lots (<1000m²)</td><td>5,000L/lot</td></tr><tr><td>Rural-residential lots (1000-10,000m²)</td><td>10,000L/lot</td></tr><tr><td>Large rural/lifestyle lots (>10,000m²)</td><td>20,000L/lot</td></tr><tr><td>Multi-dwelling housing (including dual occupancies)</td><td>5,000L/dwelling</td></tr></table>Table 5.3d PBP 2019</td><td>▪ the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 5.3d (refer to insert on left)
▪ there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available
▪ static water supply is not required to be solely dedicated for firefighting purposes and can include water holding structures such as tanks, pools, and dams
▪ static water supply must be accessible, reliable, adequate, and available for the life time of the development
▪ the provision of appropriate connections as detailed above for reticulated water supplies must be considered if a static water supply is to be suitable
▪ a ‘SWS’ (Static Water Supply) sign in a visible location should be installed</td></tr>
<tr><td>Electricity Services
▪ location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings</td><td>▪ where practicable, electrical transmission lines are underground.
▪ where overhead electrical transmission lines are proposed:
o lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and
o 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.</td></tr>
</table>

Performance Criteria	Acceptable Solutions
Gas services ▪ location 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/NZ 1596:2014 – *The storage and handling of LP Gas*, and the requirements of relevant authorities. Metal piping is to be used. ▪ all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation. ▪ Above-ground gas service pipes are metal, including and up to any outlets. ▪ Connections to and from gas cylinders are metal. ▪ polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

4.6 Adjoining Land

The following criteria are set out in Chapter 4 Table 4.2.1 of PBP (2019) and require consideration for the Planning Proposal:

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.*

Rezoning and future development of the site will not have implications on neighbouring property owners or managers that should necessitate them to modify of change their bushfire management. Site development will reduce the bushfire hazard on site and in the immediate locality, decreasing pressure on adjacent land BPMs by reducing the proximity and prevalence of hazardous vegetation.

Assessment of the site set out in **Chapter 2** and **Chapter 3** of this report has determined that an APZ can be established from hazards and on the site boundaries without a reliance on adjacent landowners outside of the investigation site.

5 Conclusion & Recommendations

MJD Environmental has been engaged by Belford Land to prepare a Strategic Bush Fire Study (SBFS) to accompany a planning proposal for the rezoning of land at Lot 111 DP 850244, Lot 1 DP 1124566, Lot 700 DP 1272452 and Lot 122 DP 1165184, Elderslie Road, Radford Park, hereafter referred to as the 'site'.

The assessment considers and assesses the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Regulation 2021.*

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adhered to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 4 and Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of site inspection and report production.

PBP (2019) states in Chapter 4, the study of bushfire context ensures that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning.

The bushfire risk is considered at the macro-scale, looking at fire runs, steep slopes and any areas of isolation. The amount of proposed development interfacing vegetation was also considered. Firefighting access and evacuation potential was considered as well as an assessment of traffic volumes and evacuation routes. The study highlighted areas with a significant fire history and any known fire paths

The broad principles which apply to this analysis are:

- ensuring land is suitable for development in the context of bush fire risk;
- ensuring new development on BFPL will comply with PBP;
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations; and
- facilitating appropriate ongoing land management practices.

Strategic planning should provide for the exclusion of inappropriate development in bush fire prone areas in the following circumstances:

- the development area is exposed to a high bush fire risk and should be avoided;
- the development is likely to be difficult to evacuate during a bushfire due to its siting in the landscape, access limitations, fire history and/or size and scale;
- the development will adversely affect other bushfire protection strategies or place existing development at increased risk;
- the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and
- the development has environmental constraints to the area which cannot be overcome.

A strategic assessment across the local landscape and local site assessment presented in this report has determined that the site does not exhibit any significant features that would make it more likely to experience a bushfire of undue severity or intensity. The potential impact on life and property of the site is not worsened by the context of the broader surrounding landscape in which it is situated.

The proposed land use is appropriate to the site and surrounding landscape.

This strategic assessment has determined that the proposed development is able to comply with PBP (2019) as:

- the land is suitable for development in the context of bushfire risk;
- new development on BFPL will comply with PBP 2019;
- reliance on performance-based solutions is minimised;
- infrastructure associated with emergency evacuation and firefighting operations is adequate; and
- Ongoing land management practices are appropriate.

Furthermore, the development is not deemed inappropriate from a bushfire risk perspective due to the following factors;

- The area is not exposed to a heightened bushfire risk as a result of the proposed future use.
- The development is not likely to be difficult to evacuate during a bushfire due to its siting in the landscape, access limitations, fire history &/or size and scale.
- The development will not adversely effect other bushfire protection strategies or place existing development at increased risk.
- The development is not within an area of high bushfire risk where density of exiting development may cause evacuation issues for both existing and new occupants.
- The development does not have environmental constrains which cannot be overcome.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

- The following APZ will be required for a future development. It is anticipated that a future approval will establish and managed APZ as an IPA in perpetuity. Additionally, residential APZ has been provided as per A1.12.2 PBP 2019 for context acknowledging zoning over the land will enable an increase in density of residential dwellings.

Transect	Vegetation Classification	Slope Class	APZ
Site Boundary			
T01	Forest	0-5° Downslope	29m
T02	Forest	Upslope	14m
T03	Rainforest	5-10° Downslope	18m
T04	Grassy and Semi-arid Woodland	0-5° Downslope	16m
T05	Grassy and Semi-arid Woodland	Cross slope/Upslope	12m
T05T06	Forest	0-5° Downslope	29m
T07	Forest	0-5° Downslope	29m
T08	Forest	Cross slope/Downslope	24m
T09	Grassland	0-5° Downslope	12m
T10	Grassland	0-5° Downslope	12m
T11	Grassland	0-5° Downslope	12m
T12	Grassland	Upslope	10m
T13	Grassland	5-10° Downslope	13m
T14	Grassy and Semi-arid Woodland	5-10° Downslope	20m
T15	Grassy and Semi-arid Woodland	Upslope	12m

Transect	Vegetation Classification	Slope Class	APZ
T16	Grassy and Semi-arid Woodland	Upslope	12m
T17	Grassland	Upslope	10m
T18	Grassy and Semi-arid Woodland	Upslope	12m
T19	Grassland	5-10° Downslope	13m
T20	Grassland	5-10° Downslope	13m
Riparian Corridor			
R01	Rainforest	0-5° Downslope	14m
R02	Rainforest	0-5° Downslope	14m
R03	Rainforest	0-5° Downslope	14m
R04	Rainforest	0-5° Downslope	14m
R05	Rainforest	0-5° Downslope	14m
R06	Rainforest	0-5° Downslope	14m
R07	Rainforest	0-5° Downslope	14m
R08	Rainforest	5-10° Downslope	18m
R09	Rainforest	0-5° Downslope	14m
R10	Rainforest	5-10° Downslope	18m
R11	Rainforest	0-5° Downslope	14m
R12	Rainforest	0-5° Downslope	14m
R13	Rainforest	5-10° Downslope	18m
R14	Rainforest	5-10° Downslope	18m
R15	Rainforest	Cross slope	11m
R16	Rainforest	Upslope	11m
R17	Rainforest	Upslope	11m
R18	Rainforest	0-5° Downslope	14m
R19	Rainforest	0-5° Downslope	14m
R20	Rainforest	0-5° Downslope	14m
R21	Rainforest	Upslope	11m
R22	Rainforest	0-5° Downslope	14m
R23	Rainforest	10-15° Downslope	23m
R24	Rainforest	5-10° Downslope	18m
R25	Rainforest	Upslope	11m
R26	Rainforest	0-5° Downslope	14m
R27	Rainforest	Upslope	11m

- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site. Landscaping must be managed in accordance with Appendix 4 of PBP 2019 “Asset Protection Zone Requirements”.
- Services have been assessed and are to be provided and connected to the site in accordance with PBP (2019).

6 Bibliography

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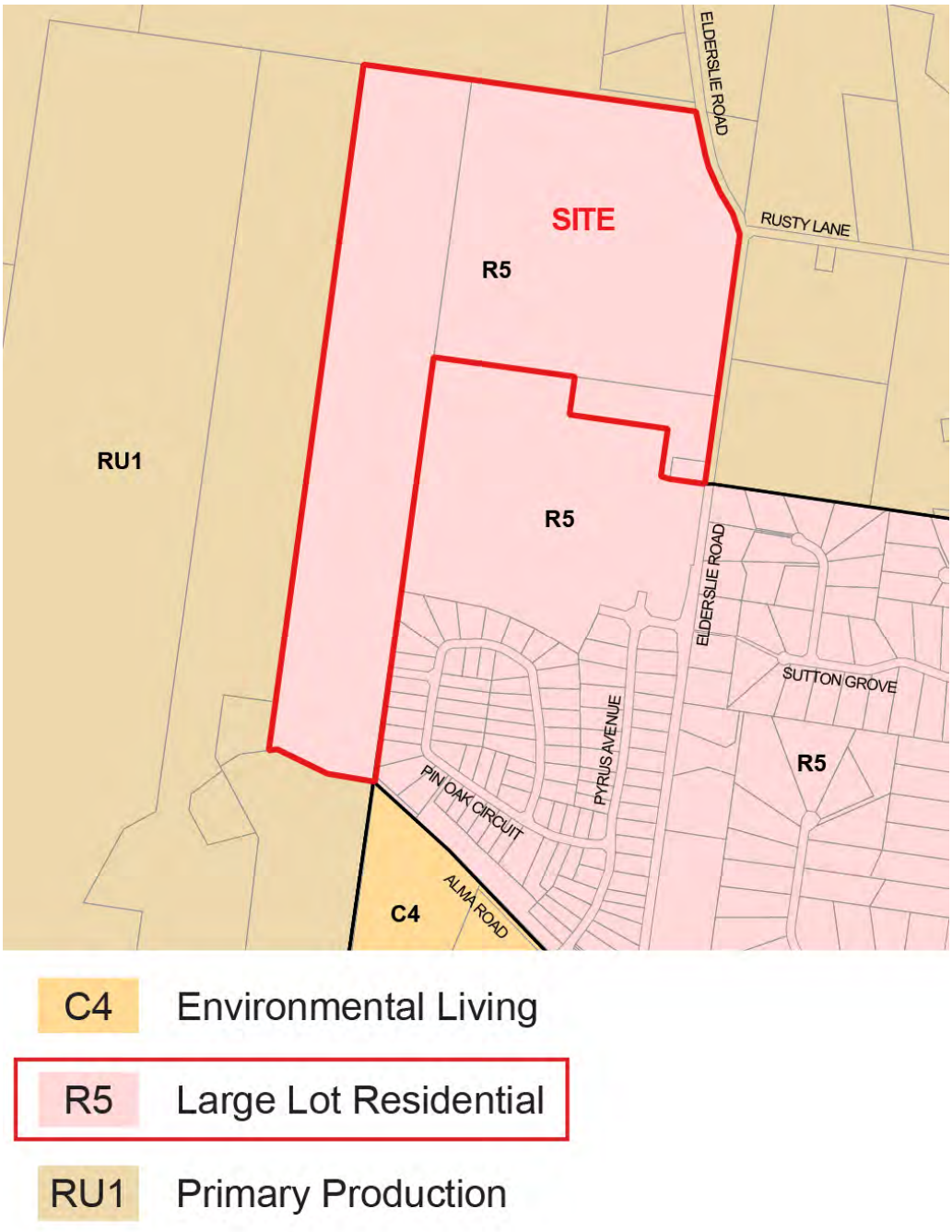
Appendix A Plans of Proposal

3 Proposed Zoning



Appendix B List of recorded fires over 1Ha within 10km of site

Fire Name	Fire No	Label	StartDate	End Date	Area Ha	Perimeter M	Ver Date
	CCHR	2001-02 Wildfire		2/11/2001	1.00016834	354.5251068	22/08/2024
	CCHR	2001-02 Wildfire		2/11/2001	1.00017712	354.5266639	22/08/2024
	CCHR	2001-02 Wildfire		2/11/2001	0.50009375	250.6895087	22/08/2024
Talga		2002-03 Wildfire			452.3016315	12028.01677	22/08/2024
Scrub Alight - Singleton	7011319747	2006-07 Wildfire	13/01/2007	22/01/2007	12.30304973	1749.070136	22/08/2024
Belford West	HR08041129391	2011-12 Prescribed Burn	23/05/2012	24/05/2012	24.58305944	8232.612125	22/08/2024
Belford East 4	HR13031363378	2014-15 Prescribed Burn	7/08/2014	15/08/2014	8.6012895	1411.686088	22/08/2024
Belford East 2	HR13031363379	2014-15 Prescribed Burn	7/08/2014	15/08/2014	67.05654664	4119.888333	22/08/2024
Mt Tangory	13101380358	2013-14 Wildfire	13/10/2013	31/10/2013	1485.887559	32648.29124	22/08/2024
Merewether, Rothbury	15120710567	2015-16 Wildfire	7/12/2015	7/12/2015	2.2942677	830.2305797	22/08/2024
Hanwood Rd, North Rothbury	16051125520	2015-16 Wildfire	9/03/2016	9/03/2016	0.73569368	362.4737527	22/08/2024
Bell Rd, Lower Belford	19111256706	2019-20 Wildfire	11/11/2019	31/12/1969	0.04419306	92.71589618	22/08/2024