

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 1456 (3488) Great Northern Highway

Suburb: Muchea

State: WA

P/code: 6051

Local government area: Shire of Chittering

Description of the planning proposal: Rezoning application for industrial development

BMP Plan / Reference Number: 20PER-15939

Version: v1

Date of Issue: 17/02/21

Client / Business Name: Bayley Environmental Services

Reason for referral to DFES

Yes

No

Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?

Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?

Is the proposal any of the following special development types (see SPP 3.7 for definitions)?

Unavoidable development (in BAL-40 or BAL-FZ)

Strategic planning proposal (including rezoning applications)

Minor development (in BAL-40 or BAL-FZ)

High risk land-use

Vulnerable land-use

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

High level strategic rezoning application from agricultural to industrial land uses

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration

Name

Alex Aitken

Accreditation Level

Level 2

Accreditation No.

37739

Accreditation Expiry

November 2021

Company

Eco Logical Australia

Contact No.

08 6218 2200

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner



Date

17-Feb-21



Bushfire Management Plan:
Rezoning Application: Lots 1456 (3488) Great
Northern Highway, Muchea

Bayley Environmental Services

DOCUMENT TRACKING

Project Name	Bushfire Management Plan: Rezoning Application: Lots 1456 (3488) Great Northern Highway, Muchea
Project Number	20PER-15939
Project Manager	James Leonard
Prepared by	Alex Aitken (BPAD Level 2 – 37739)
Reviewed by	James Leonard; Daniel Panickar (BPAD Level 3 – 37802)
Approved by	Daniel Panickar (BPAD Level 3 – 37802)
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ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Bayley Environmental Services (the client).

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Template 2.8.1

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1. Introduction

1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Bayley Environmental Services to prepare a Bushfire Management Plan (BMP) to support a rezoning application for Lots 1456 (3488) Great Northern Highway, Muchea (hereafter referred to as the subject site, Figure 1). The subject site is currently zoned as 'Agricultural Resource' under the local planning scheme and is proposed to be zoned as 'Industrial Development'.

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019; Figure 3), which triggers bushfire planning requirements *under State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

The subject site is part of Precinct 2 within the Muchea Industrial Park being developed by the Shire of Chittering, with assistance from State and Federal Governments.

This assessment has been prepared by ELA Senior Bushfire Consultants Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739) and James Leonard with quality assurance undertaken by Principal Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

The subject site has been historically cleared for agricultural operations with the majority of the subject site currently being utilised as a cattle farm.

Any clearing (including re-clearing) of native vegetation and/or non-native vegetation providing habitat for Matters of National Environmental Significance onsite may require consultation with State and Commonwealth Government environmental agencies and subsequent approvals prior to development commencing.

The areas of Public Open Space (POS), foreshore reserve and drainage swales are proposed to be revegetated with shrubs up to 2 m in height as part of the future development. The landscaping plans for the revegetated areas will be further defined at future planning stages.

Figure 1: Site Overview



- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment

0 0.5 1
Kilometers
Datum/Projection:
GDA 1994 MGA Zone 50

Figure 2: Site Plan

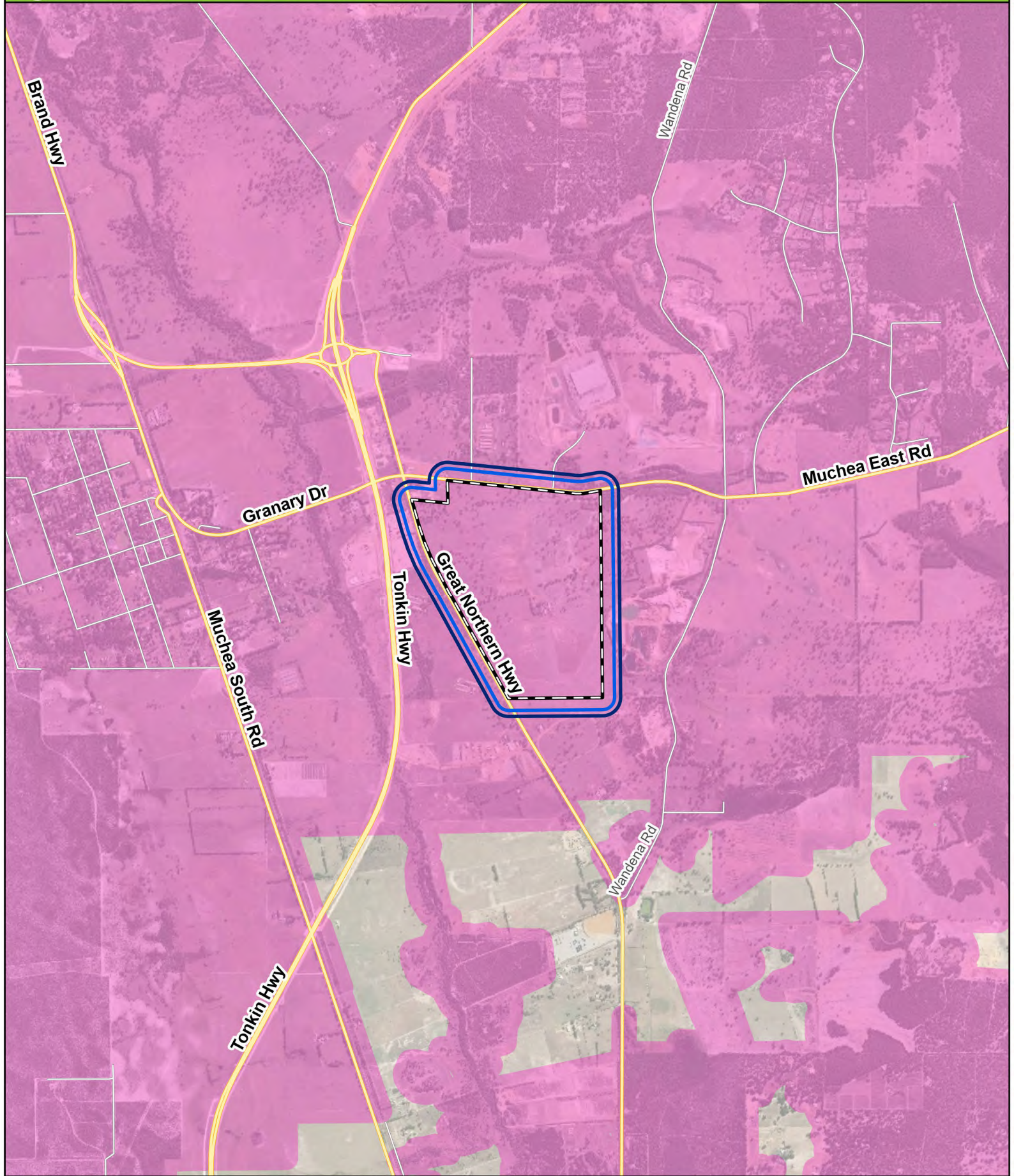


- Site boundary
- - - Proposed lot boundary
- Creekline
- Foreshore reserve
- Bioretention swale
- POS
- ▨ Drainage reserve
- ▨ Tree retention

Tallangatta

Structure Plan

Figure 3: Bushfire Prone Areas



- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment
 - Bushfire Prone Mapping (DFES 2019)

0 0.5 1
Kilometers
Datum/Projection:
GDA 1994 MGA Zone 50

2. Bushfire assessment results

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australia, as outlined in Australian Standard (AS) 3959–2018 and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.2 Vegetation classification

Vegetation within the subject site and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2018 *Construction of Buildings in Bushfire Prone Areas* (SA 2018) with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 29 October 2019.

The classified vegetation for the site from each of the identified vegetation plots are identified below, Table 1 and Figure 4.

Table 1: Classified vegetation as per AS 3959-2018

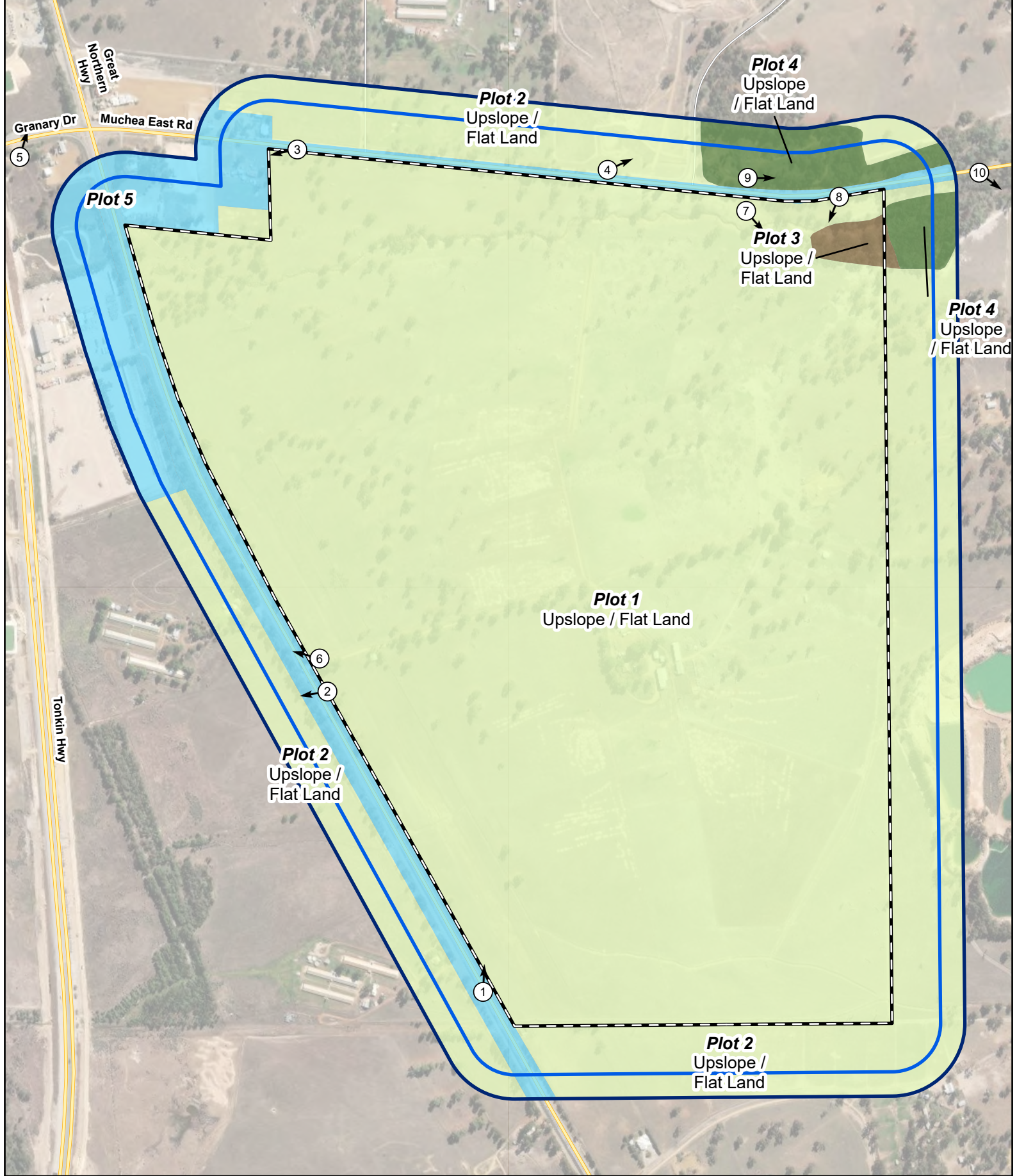
Plot	Vegetation Classification	Effective Slope
1	Class G Grassland	All upslopes and flat land (0 degrees)
2	Class G Grassland	All upslopes and flat land (0 degrees)
3	Class B Woodland	All upslopes and flat land (0 degrees)
4	Class A Forest	All upslopes and flat land (0 degrees)
5	Excluded AS 3959-2018 2.2.3.2 (e)	-

Photographs relating to each area and vegetation type are included in Appendix A.

2.1.3 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959-2018 and is depicted in Figure 4. Slope under classified vegetation was assessed and is shown in Table 1.

Figure 4: Vegetation Classification



Legend

- Subject site
- 100m site assessment
- 150m site assessment

Vegetation classification

- Class A forest
- Class B woodland
- Class G grassland
- Excluded as per clause 2.2.3.2 (e) and (f)

0 75 150 300
Metres
Datum/Projection:
GDA 1994 MGA Zone 50

2.2 Bushfire assessment outputs

A bushfire hazard level (BHL) assessment has been undertaken in accordance with SPP 3.7, the guidelines, AS 3959-2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 Bushfire hazard level (BHL) assessment

All land located within 150 m of the site has been classified as per AS3959-2018 as shown in Figure 4. These vegetation classifications have been combined with slope under the classified vegetation to define the BHL as per the methodology indicated within the Guidelines. In addition, all land within 100 m of Extreme and Moderate BHLs has also been mapped as a Moderate hazard as per the Guidelines.

The BHL provides an indication of potential bushfire impact on the subject site by providing a likely intensity based on the classified vegetation.

Table 2 and Figure 5 display the BHL assessment that has been completed for the proposed rezoning in accordance with the Guidelines and AS 3959-2018 methodology.

Clearing will be undertaken within the subject site for development purposes, and consequently the pre-development BHLs are subject to change. A post-development BHL assessment is provided in Table 2 and Figure 6 which takes into account the assumption that the entire subject site will be managed in a low threat state as per the Guidelines and AS3959-2018. Within the current concept plans provided to ELA (Figure 2) there are areas of revegetation along the creekline in the north of the subject site and minor drainage swales within several road reserves. These areas are proposed to be revegetated with shrubs and have been considered in the post-development BHL assessment.

Table 2: BHL assessment

Plot and vegetation classification	Effective slope	BHL rating	
		Pre-Development	Post-Development
Plot 1- Class G Grassland	All upslopes and flat land (0 degrees)	Moderate	Low
Plot 2- Class G Grassland	All upslopes and flat land (0 degrees)	Moderate	Low
Plot 3 - Class B Woodland	All upslopes and flat land (0 degrees)	Extreme	Low
Plot 4- Class A Forest	All upslopes and flat land (0 degrees)	Extreme	Extreme
Plot 5- Excluded AS 3959-2018 2.2.3.2 (e)	-	Low	Low

2.3 Identification of issues arising from the BHL assessment

The on-site vegetation extent is proposed to be cleared to enable development of an industrial zone amongst areas of landscaped/managed Public Open Space (POS) and various easements. Therefore, for the purposes of strategic level planning, ELA does not consider the current on-site vegetation extent to be a bushfire hazard issue post-development, since these hazards can be managed through a staged clearing process, adequate separation of future built assets from classified vegetation (both external and internal [e.g. retained vegetation] to the subject site), and ongoing fuel management that can be undertaken in and around individual development stages.

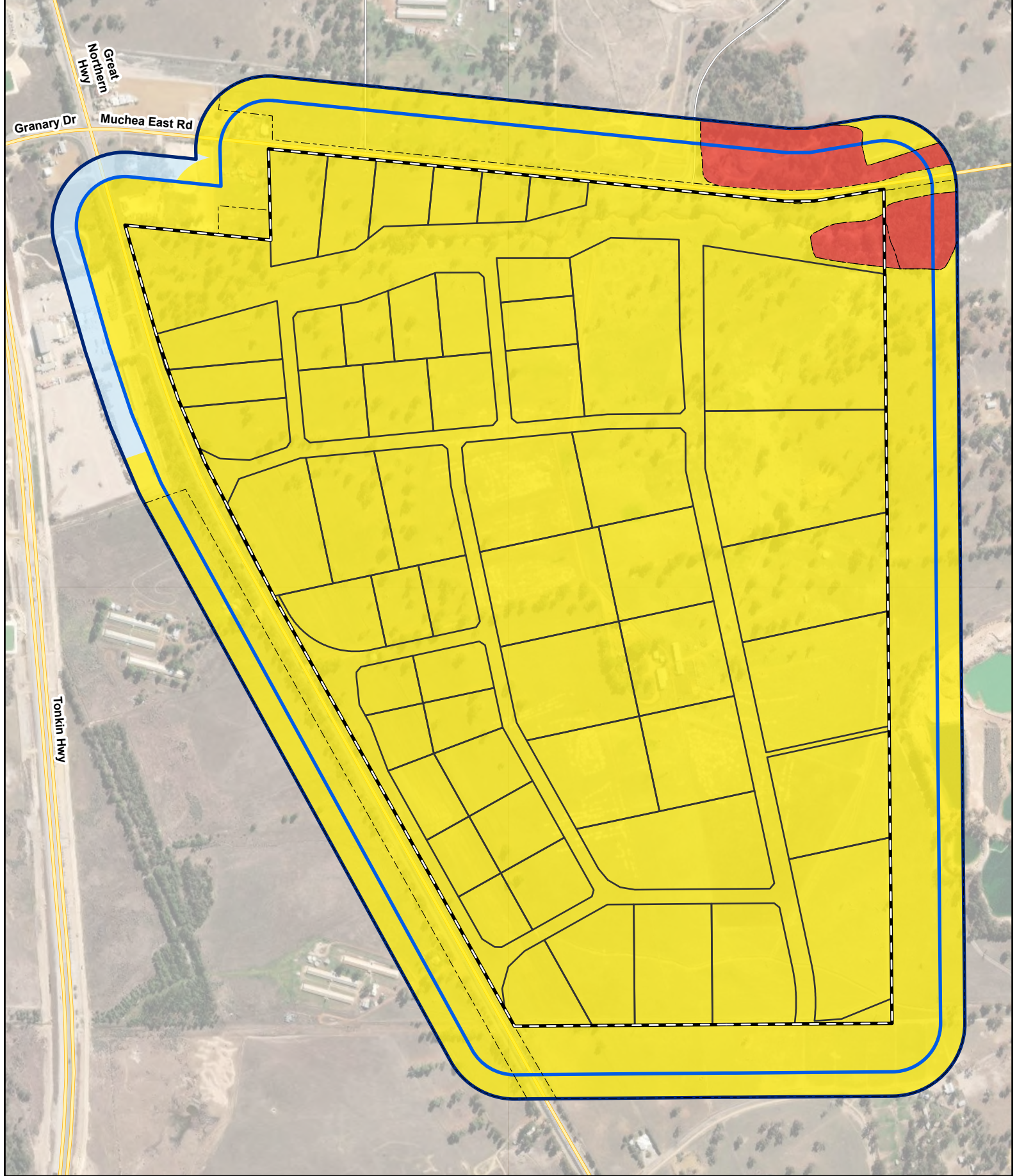
On the basis of the above information, ELA considers that the bushfire hazards within and adjacent to the subject site and the associated bushfire risk is readily manageable through standard management

responses and compliance with acceptable solutions outlined in the Guidelines. These management measures will need to be factored into the development design as early as possible to ensure a suitable, compliant and effective bushfire management outcome is achieved to ensure protection of future life and property assets.

Demonstration of compliance with the relevant requirements of SPP 3.7, the Guidelines and AS3959-2018 at future planning stages will also depend on the developer's ability to coordinate the timing and staging of clearing and development works within the subject site with the aim of avoiding bushfire impacts from temporary, retained vegetation.

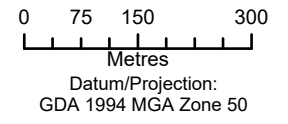
Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BHL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

Figure 5: Pre-Development Bushfire Hazard Level (BHL) Assessment



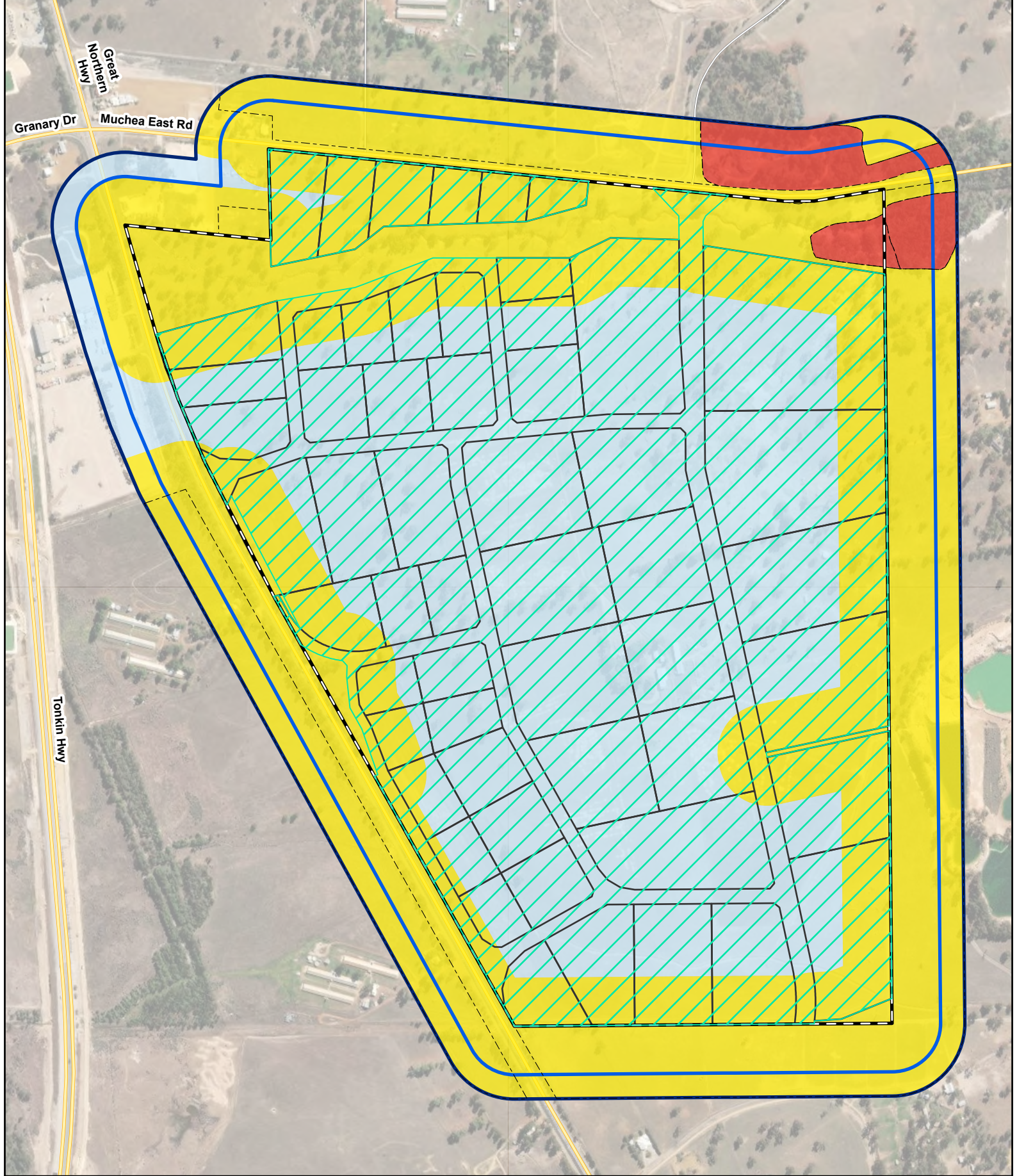
- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment
 - Conceptual lot boundary
 - Bushfire Hazard Interface

- Bushfire Hazard Level (BHL)**
- Extreme
 - Moderate
 - Low



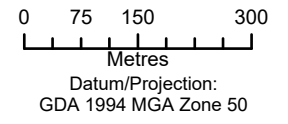
Datum/Projection:
GDA 1994 MGA Zone 50

Figure 6: Post-Development Bushfire Hazard Level (BHL) Assessment



- Legend**
- Subject site
 - 100m site assessment
 - 150m site assessment
 - Conceptual lot boundary
 - Bushfire Hazard Interface

- Indicative Asset Protection Zone (APZ)
- Bushfire hazard level (BHL)**
- Extreme
 - Moderate
 - Low



3. Assessment against the Bushfire Protection Criteria

3.1 Compliance

The proposed rezoning is required to comply with policy measures 6.2 and 6.3 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed rezoning in accordance with the Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summaries how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 7 where relevant.

Table 3: Summary of solutions used to achieve bushfire protection criteria

Bushfire Protection Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Post-development, the subject site will be predominantly located in an area subject to BHLs of Low and Moderate. A minor portion of Extreme hazard associated with the POS areas in the north east will remain, however will be separated from future built assets by Asset Protection Zones (APZs) (Figure 6; Figure 7). These APZs will ensure that future assets will be subject to BAL ratings of BAL-29 or lower. The proposed rezoning is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	As the lot layout is currently unconfirmed, APZs are unable to be prescribed at this level of planning. APZs will be defined in BMPs supporting future planning applications (subdivision) to ensure that all future lots will be subject to a BAL rating of BAL-29 or lower. Figure 6 and Figure 7 depict indicative APZs which will be refined at future stages of planning. These indicative APZs however, demonstrate that the majority of the subject site will be subject to BHLs of Moderate or Low and ELA expects that APZs will be able to be accommodated within road reserves, maintained Public Open Space areas and within individual lots etc. The proposed rezoning is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There are currently two access routes from the subject site being north/south on Great Northern Highway and east/west on Muchea Road East (Figure 7).

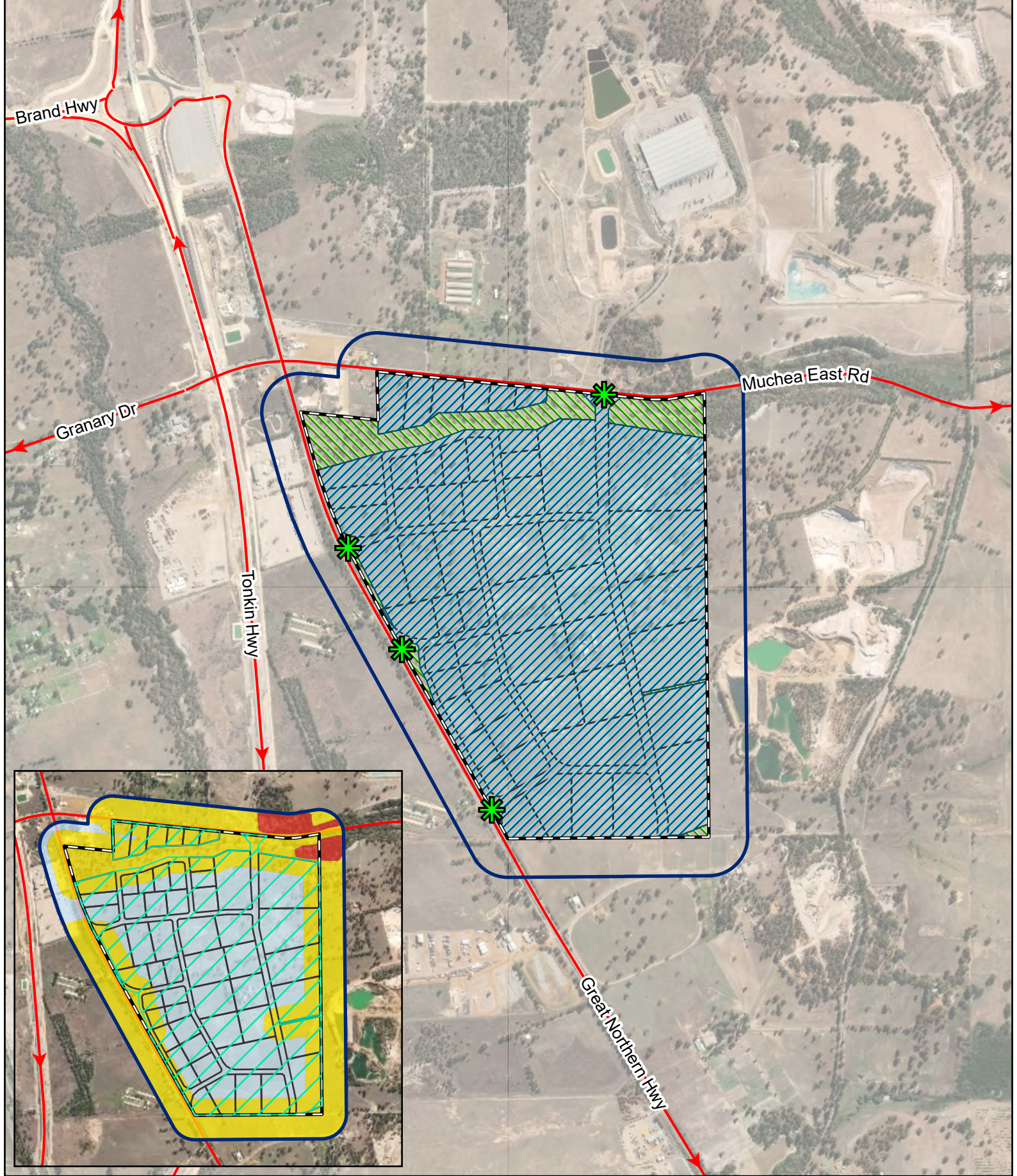
Bushfire Protection Criteria	AS	PS	N/A	Comment
				BMPs supporting future planning applications (subdivision) will provide greater detail on road networks and ensure that all stages of development are provide with two forms of access at all times where relevant and possible. The proposed development is considered to be compliant with A3.1.
A3.2 Public road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All future public roads will be designed and constructed to comply with the Guidelines (Appendix C). BMPs supporting future planning applications (subdivisions) will address this element in greater detail. The proposed development is considered to be compliant with A3.2.
A3.3 Cul-de-sac	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	At this stage, no cul-de-sacs are proposed to be constructed within the subject site.
A3.4 Battle-axe	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	At this stage, no battle-axe lots are proposed within the subject site.
A3.5 Private Driveway longer than 50 m	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	At this stage, no private driveways longer than 50 m are proposed to be constructed within the subject site.
A3.6 Emergency Access way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	At this stage, no emergency access ways are proposed to be constructed.
A3.7 Fire-service access routes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	At this stage, no fire service access routes are proposed to be constructed.
A3.8 Firebreak width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The subject site will be managed in accordance with the Shire of Chittering Firebreak & Bushfire Hazard Reduction Notice. BMPs supporting future planning applications (subdivisions) will address this element in greater detail. The proposed development is considered to be compliant with A3.8.
Element 4: Water				
A4.1 Reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The subject site is not connected to a reticulated water supply. Reticulated water is not present within the area.
A4.2 Non-Reticulated areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No reticulated water is currently available to the subject site. Future planning stages will ensure that a firefighting water supply will be provided in accordance with the Guidelines. The proposed development is considered to be compliant with A4.2.
A4.3 Individual Lots within non-reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	It is unlikely that a development proposal for the subject site will result in the construction of one additional lot.

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE

3.2 Additional Bushfire Requirements

Future demonstration of compliance with the relevant requirements of SPP 3.7, the Guidelines and AS3959-2018 will depend on the developer's ability to coordinate the timing of development works within the subject site. Updated BMPs will be prepared to support subsequent planning applications where relevant and will contain re-assessments of bushfire risk including Bushfire Attack Level assessments etc.

Figure 7: Spatial representation of the bushfire management strategies

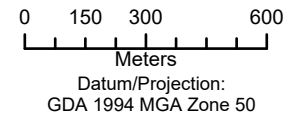


Legend

- Subject site
- Conceptual lot boundary
- Indicative Asset Protection Zone (APZ)
- Public Open Space (POS)

- Access / egress route
- Access point

- Bushfire hazard level (BHL)**
- Extreme
 - Moderate
 - Low



4. Implementation and enforcement

Implementation of the BMP applies to the developer, the Shire of Chittering, and future landowners to ensure bushfire management measures are adopted and implemented on an ongoing basis. This BMP has been prepared as a strategic guide to demonstrate how development compliance will be delivered at future planning stages in accordance with the Guidelines. In this respect, management measures documented in Section 3, where applicable, will be incorporated into development design as early as possible and confirmed through Structure Plan and subdivision design. Therefore, aside from the revision of this BMP or preparation of a BMP addendum to accompany future subdivision applications, there are no further items to implement, enforce or review at this stage of the planning process.

The revised BMPs or addendums to this BMP are required to meet the relevant commitments outlined in this strategic level BMP, address the relevant requirements of SPP 3.7 (i.e. Policy Measure 6.4) and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions to meet the performance requirements of the Guidelines.

5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed rezoning. As such, the proposed rezoning is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

6. References

Department of Fire and Emergency Services, 2019, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Shire of Chittering. 2020. *Shire of Chittering Firebreak & Bushfire Hazard Reduction Notice*.

Standards Australia, 2018, *Construction of buildings in bushfire-prone areas, AS 3959-2018*. SAI Global, Sydney.

Western Australian Planning Commission, 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. WAPC, Perth.

Western Australian Planning Commission, 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices)*, WAPC, Perth.

Western Australian Planning Commission, 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.

Appendix A – Classified Vegetation Photos

Plot 1 Classification or Exclusion Clause Class G Grassland

Photo Point 1

Classified vegetation is onsite unmanaged grassland, grazing paddocks.
 Slope under the vegetation has been assessed as flat land.



Plot 1 Classification or Exclusion Clause Class G Grassland

Photo Point 2

Classified vegetation is onsite unmanaged grassland, Onsite paddocks with scattered trees up to 10m.
 Slope under the vegetation has been assessed as flat land.



Plot 1 Classification or Exclusion Clause Class G Grassland

Photo Point 3

Classified vegetation is onsite unmanaged grassland, Onsite paddocks with scattered trees up to 10m.
 Slope under the vegetation has been assessed as flat land.



Plot 2 Classification or Exclusion Clause Class G Grassland

Photo Point 4

Classified vegetation is offsite unmanaged grassland.

Slope under the vegetation has been assessed as flat land.



Plot 2 Classification or Exclusion Clause Class G Grassland

Photo Point 5

Classified vegetation is onsite unmanaged grassland, Offsite paddocks with scattered trees up to 8m.

Slope under the vegetation has been assessed as flat land.



Plot 2 Classification or Exclusion Clause Class G Grassland

Photo Point 6

Classified vegetation is offsite unmanaged grassland.

Grass paddocks with minor tree line along road verge.

Slope under the vegetation has been assessed as flat land.



Plot 3 Classification or Exclusion Clause Class B Woodland

Photo Point 7

Classified vegetation is onsite open woodland, remanent native trees over grass. 10-20% canopy cover.

Note: onsite grassland to the right hand side, woodland in background of left hand side

Slope under the vegetation has been assessed as flat land.



Plot 3 Classification or Exclusion Clause Class B Woodland

Photo Point 8

Classified vegetation is onsite open woodland, remanent native trees over grass. 10-20% canopy cover. Trees up to 8m

Note woodland with no understorey under trees.

Slope under the vegetation has been assessed as flat land.



Plot 4 Classification or Exclusion Clause Class A Forest

Photo Point 9

Classified vegetation is low open forest with canopy cover and shrub understorey, trees up to 10m.

Slope under the vegetation has been assessed as flat land.



Plot 4 **Classification or Exclusion Clause** **Class A Forest**

Photo Point 10

Classified vegetation is low open forest with canopy cover and shrub understorey, trees up to 10m.

Low open forest vegetation along watercourse
Slope under the vegetation has been assessed as flat land.



Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.3* (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m^2 (BAL-29) in all circumstances.

b. Location: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

c. Management: the APZ is managed in accordance with the requirements of ‘Standards for Asset Protection Zones’ (below):

- Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
- Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
- Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
- Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy (**Figure 8**).

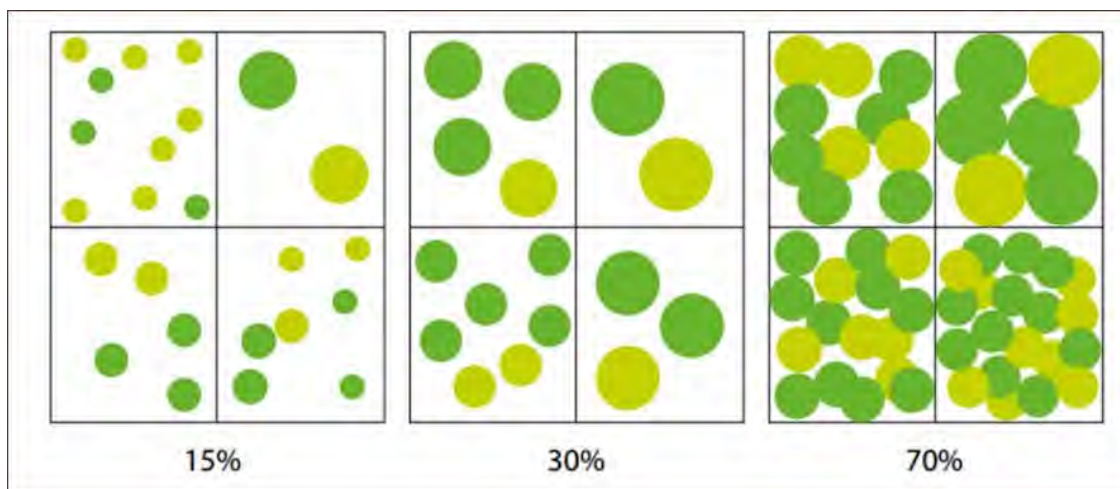


Figure 8: Illustrated tree canopy cover projection (WAPC 2017)

- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Appendix C - Vehicular access technical requirements (WAPC 2017)

Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5
* Refer to E3.2 Public roads: Trafficable surface					

