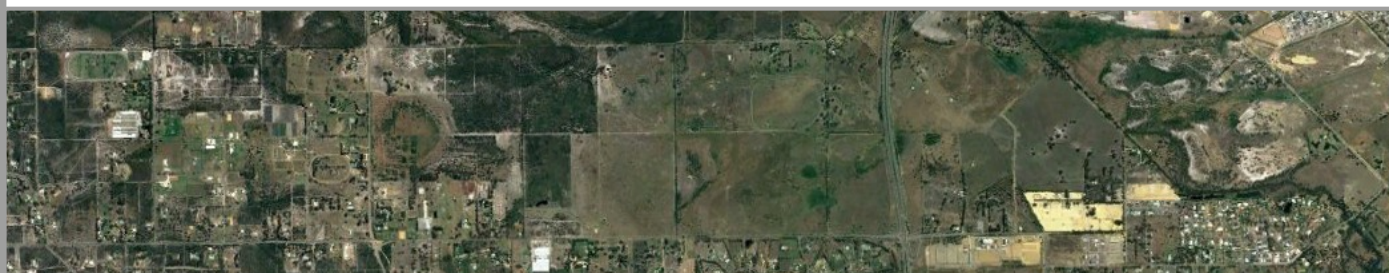




Bushfire Management Plan (Bushfire Hazard Level Assessment)

South Forrestdale Business Park Stage 2



LUSH FIRE & PLANNING

3 Paterson Road
Pinjarra WA 6208
0418 954 873
ABN 74 232 678 543



Ref 17-023
Ver D
February 2021

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:	Land bounded by Rowley, Kargotich and Stirling Roads		
Suburb:	Forrestdale	State:	WA
		P/code:	6112
Local government area:	Armadale		
Description of the planning proposal:	Scheme Amendment		
BMP Plan / Reference Number:	17-023	Version:	D
		Date of Issue:	8/02/2021
Client / Business Name:	CLE Town Planning & Design		

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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the development is a special development 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.)?

Local Planning Scheme Amendment to conform to the Metropolitan Region Scheme

Note: The decision maker (e.g. the 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	Accreditation Level	Accreditation No.	Accreditation Expiry
Geoffrey Lush	Level 2	BPAD 27682	28/02/2022
Company	Contact No.		
Lush Fire & Planning	0418 954 873		

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

Signature of Practitioner



Date

19/12/2020

South Forrestdale Business Park Stage 2 - Summary

This bushfire management plan (hazard level assessment) has been prepared for a proposed amendment to the City of Armadale Local Planning Scheme No 4.

The amendment relates to land generally located between Rowley and Oxley Roads Forrestdale. The subject land has an area of 184 hectares comprised of six allotments of which 148 hectares will be rezoned.

The land was rezoned from 'Rural' to 'Industry' by Amendment No 1340/57 to the Metropolitan Region Scheme and this was gazetted on the 18 October 2019. The adjoining land being Stage 1 of the Business Park was rezoned to 'Industrial Development' under the City's Town Planning Scheme No.4 in 2016.

The site adjoins the Forrestdale Lake Nature Reserve which contains a Conservation Category Wetland (CCW) and RAMSAR wetland which holds international importance. Both the Forrestdale Lake Nature Reserve and portions of freehold lots are also included in Bush Forever Site No. 345.

All of the subject land has been designated as being bushfire prone.

The amendment proposes to include the land within the Industrial Development Zone shall be in accordance with an approved Structure Plan prepared in accordance with Part 4 of the Deemed Provisions and Schedule 8 of the Scheme. This will be consistent with the provisions for the adjoining Stage 1 which are included in Development Area 46 and subject to the provisions in Schedule 8 of the Scheme.

The amendment will require the preparation of a 'Buffer Management Plan' as part of the future structure planning process for the rural land between the industrial zoned land and the bush forever site to the north and west.

The primary bushfire management issues for the development of the subject land are ensuring:

- a) That the subdivision and development of the site provides an adequate setback distance to the northern and western boundaries due to the proximity to the Forrestdale Lake Nature Reserve and associated wetlands.
- b) That there is a suitable mechanism to require any non residential buildings to apply suitable fire protection measures in a manner consistent with AS3959 Construction of Buildings in Bushfire Prone Areas. This can be a special development provision in the Scheme or referenced in the structure plan so that it applies to any subsequent planning approval.
- c) That Stirling Road be maintained for access especially for emergency purposes.
- d) That the size, location and revegetation requirements for the proposed wetland buffer areas be determined as part of the structure plan through the preparation of a wetland buffer study, LWMS and UWMP.

This report demonstrates that:

- a) The existing hazard level is generally moderate due to the existing grassland;
- b) The hazard level on the subject land will reduced and permanently altered by the site being developed.
- c) The Bushfire Protection Criteria in the Guidelines can be achieved now or in subsequent planning stages.

South Forrestdale Business Park Stage 2 - Summary

The proposed local scheme amendment complies with the objectives of State Planning Policy 3.7 as:

1. It avoids any increase in the threat of bushfire to people, property and infrastructure.

Where development can occur with a maximum BAL-29 rating it does not increase the threat of bushfire. The development of the site will be for non - residential purposes and can be designed to meet a lower BAL rating.

2. It reduces vulnerability to bushfire through the identification and consideration of bushfire risks in the design of the development and the decision-making process.

The bushfire hazard and risks have been identified and assessed in this report.

3. The design of the subdivision and the development takes into account bushfire protection requirements and includes specific bushfire protection measures.

The proposed development will be able to comply with the Bushfire Protection Criteria.

4. Achieves an appropriate balance between bushfire risk management measures and biodiversity, conservation values, and environmental protection.

The vegetation on the site which is to be cleared for any development does not have any significant conservation value. The proposed conservation buffers to the wetlands will be incorporated into any bushfire assessment.

Document Reference

Property Details

Street No	Lot No's	Plan	Street Name
	5066 5, 7 & 9 10 & 12	30019 226007 226007	Kargotich Rd Oxley Rd Rowley Rd
Locality	Forrestdale	State WA	Postcode 6112
Local Government Area	Armadale		
Project Description	Rezoning		

Report Details

Ref No	17-023	
Prepared for	Landowners	
Revision	Date	Purpose
A	30 June 2017	Draft Report
B	14 July 2017	Client comments
C	19 December 2020	Local Scheme Amendment
D	08 February 2021	Client comments

Practitioner Details

BPAD	Level 2 Practitioner	Accreditation No	27682
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Disclaimer

The measures contained in this report do not guarantee that a building will not be damaged in a bushfire. The ultimate level of protection will be dependent upon the design and construction of the dwelling and the level of fire preparedness and maintenance under taken by the landowner. The severity of a bushfire will depend upon the vegetation fuel loadings; the prevailing weather conditions and the implementation of appropriate fire management measures.



Geoffrey Lush

8 February 2021

geoffrey@lushfire.com.au



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1.0 PROPOSAL DETAILS

1.1 Introduction

This bushfire hazard level assessment has been prepared for a proposed amendment to the City of Armadale Local Planning Scheme No 4. The amendment relates to land generally located between Rowley and Oxley Roads Forrestdale. The subject land is located on the western side of Tonkin Highway being approximately 6kms south west of the Armadale CBD as shown in Figure 1.

The subject land was rezoned from 'Rural' to 'Industry' by Amendment No 1340/57 to the Metropolitan Region Scheme and this was gazetted on the 18 October 2019. It is now proposed to include the land in the 'Industrial Development zone' in the City of Armadale Town Planning Scheme No. 4. The adjoining land being Stage 1 of the Business Park was rezoned to 'Industrial Development' under the Town Planning Scheme No.4 in 2016.

The objectives of this report are to:

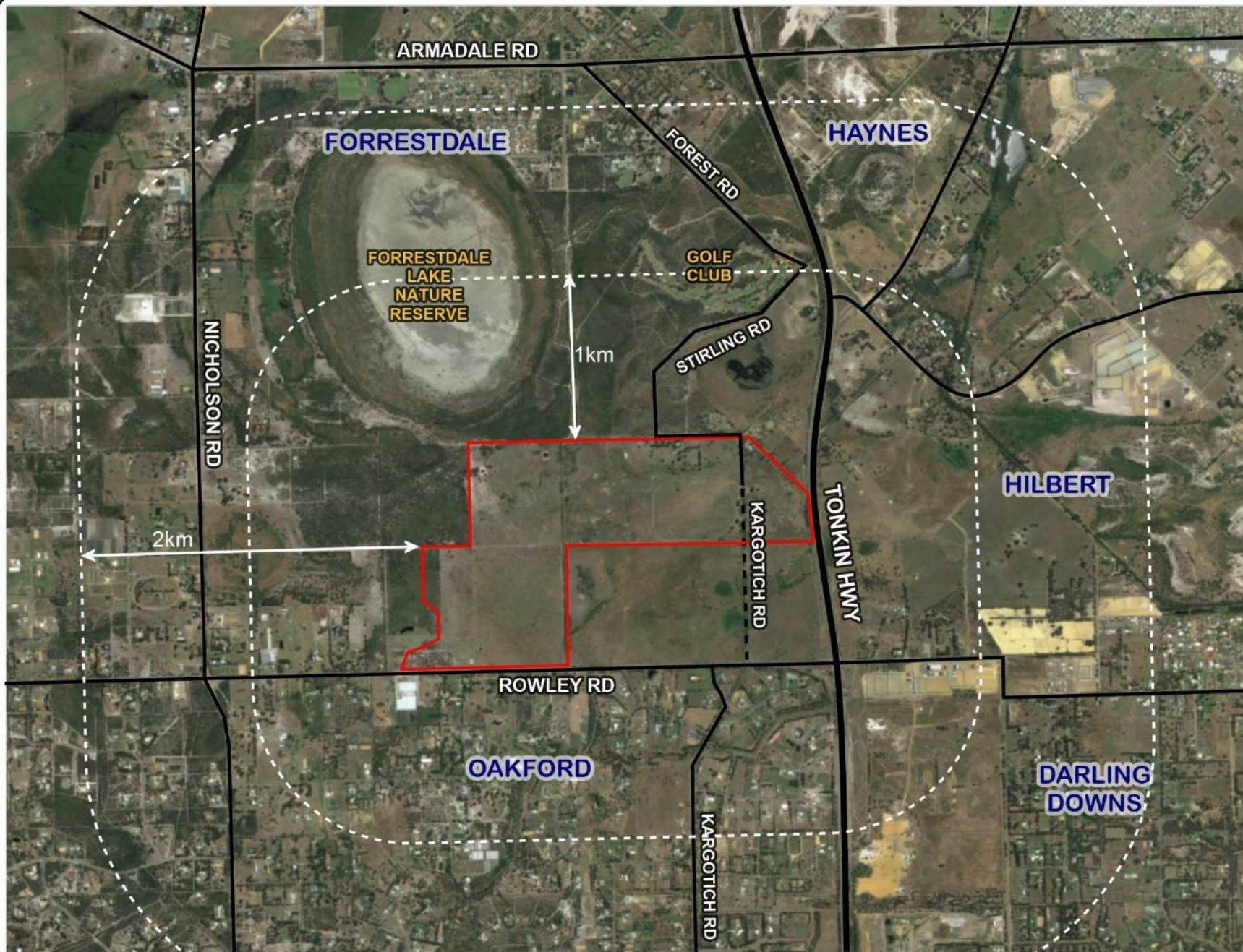
- a) Demonstrate how the hazard level will be initially reduced and maintained for the life of the development. This will enable the decision-maker to ensure that appropriate bushfire risk management measures are in place to achieve and maintain a low or moderate hazard level.
- b) To identify any bushfire management issues and any spatial impact of such issues; which should be considered; in the preparation of any Scheme amendment, local structure plan; subdivision and development.
- c) Demonstrate that development will comply with State Planning Policy SPP3.7 Planning in Bushfire Prone Areas; the associated Guidelines and Bushfire Protection Criteria now and/or in subsequent planning stages.

Appendix 5 of the Guidelines for Planning Bushfire Prone Areas contains a checklist for the preparation of Bushfire Management Plans. In relation to the bushfire assessment results it provides the option of either a Bushfire Attack Level (BAL) Contour Map or a Bushfire Hazard Level assessment as shown in Table 1 below. The BAL Contour Map is usually prepared when the subdivision layout is known.

Given the strategic nature of this report, the size of the subject land and that there is no subdivision layout, the bushfire assessment is in the form of a Bushfire Hazard Level assessment.

Table 1 Bushfire Management Plan Checklist

SECTIONS	Local Planning Strategies	Scheme and Amendments	Structure Plans	Subdivision	Development Approval
3.0	Bushfire assessment results				
3.2	Assessment outputs				
BHL assessment	Yes	Yes	Yes		
		or	or		
BAL contour map		Yes	Yes	Yes	
				or	
BAL assessment				Yes	Yes



LEGEND

- SUBJECT LAND —
- HIGHWAY
- DISTRICT ACCESS
- GRAVEL ROAD
- LOCALITY HAYNES

FIGURE 1
SITE CONTEXT



Rev	Description	Date
A	Preliminary	26/06/2017

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1.2 Existing Conditions

The subject land has an area of 184 hectares comprised of six allotments as documented in Table 2. The proposed amendment will affect 148 hectares.

Table 2 Land Details

Lot	Plan	Road	Area(ha)	Rezoning Area(ha)
5066	30019	Kargotich	14.62	14.61
5	226007	Oxley	31.58	31.58
7	226007	Oxley	31.83	29.22
9	226007	Oxley	31.83	26.22
10	226007	Rowley	37.23	34.35
Part 12	226007	Rowley	37.23	12.05
Total			184.32	148.03

The existing cadastral information is shown in Figure 2 and the existing conditions are shown in Figure 3.

The subject land is approximately 180 hectares in areas and is comprised of open paddocks that were previously cleared of remnant vegetation. It is currently being used for broad acre farming and grazing.

The main feature of the location is the Forrestdale Lake Nature Reserve located land to the north and west of the site. This is a Conservation Category Wetland (CCW) and RAMSAR wetland which holds international importance. There are additional wetlands within the reserve. Both the Forrestdale Lake Nature Reserve and portions of freehold lots are also included in Bush Forever Site No. 345.

To the north east are rural residential properties and Tonkin Highway is on the eastern boundary. Adjoining the subject land to the south east fronting Rowley Road is the South Forrestdale – Stage 1 area which has been rezoned under the Metropolitan Region Scheme from Rural to Industrial zone.

To the south of Rowley Road are rural residential properties which are generally between 2 and 4 hectares in size. The land to the west contains lots which are generally 4 ha in size or larger.

A 330kV transmission line and associated easement traverses the site from south to north.

The subject land has an elevation of 25m AHD and is effectively flat with a high groundwater table.

The site is accessed from:

- The south via Rowley Road which is a major east west district road; and
- The north via Oxley and Stirling Roads which extend from Forest Road and Armadale Road.

The majority of the site is cleared farming land with areas of bushland in the adjoining properties and also along the road reserves. There are introduced Eucalypt plantings especially for windbreaks. The predominant vegetation feature are the scattered paddock trees which are generally Melaleucas.

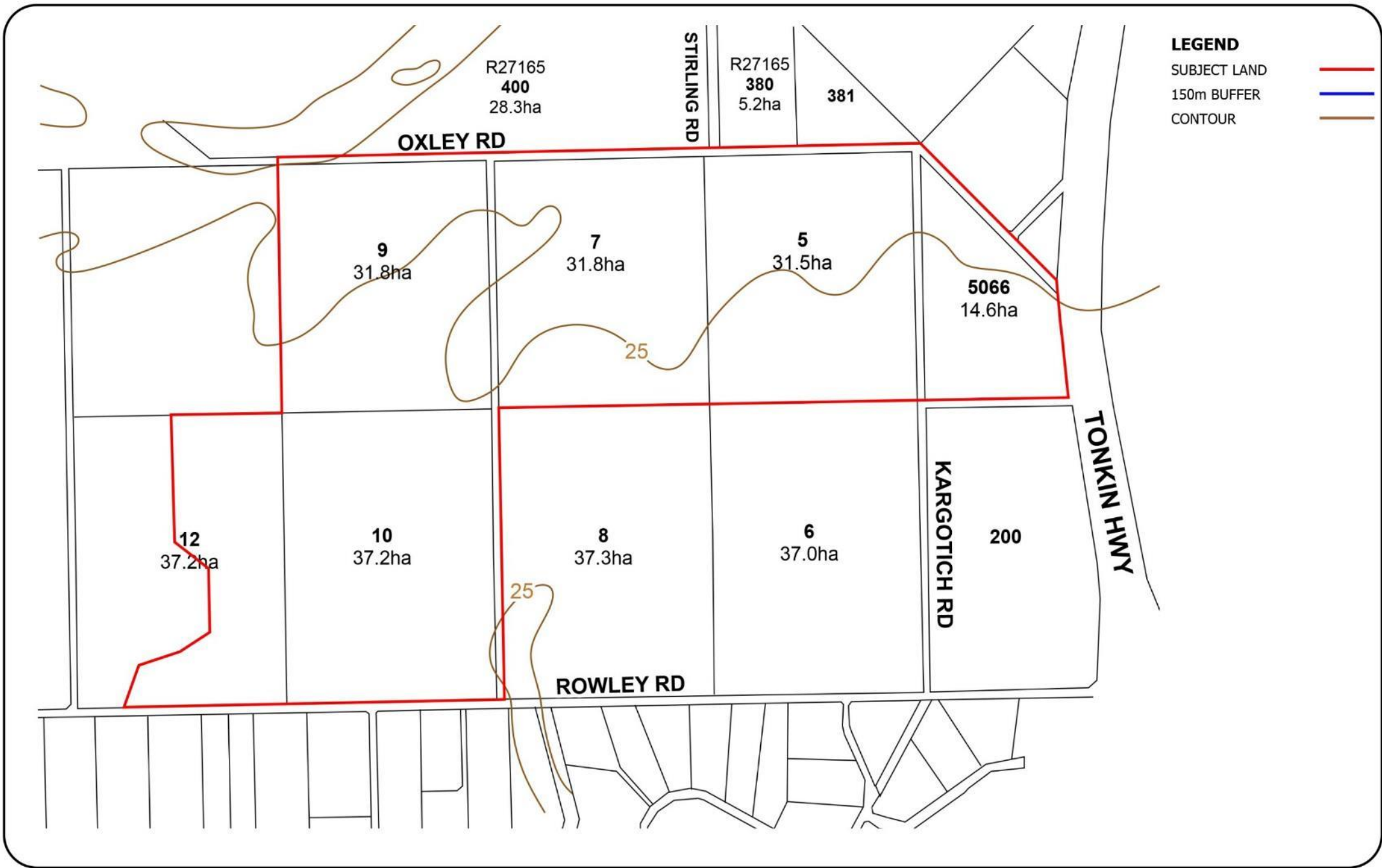
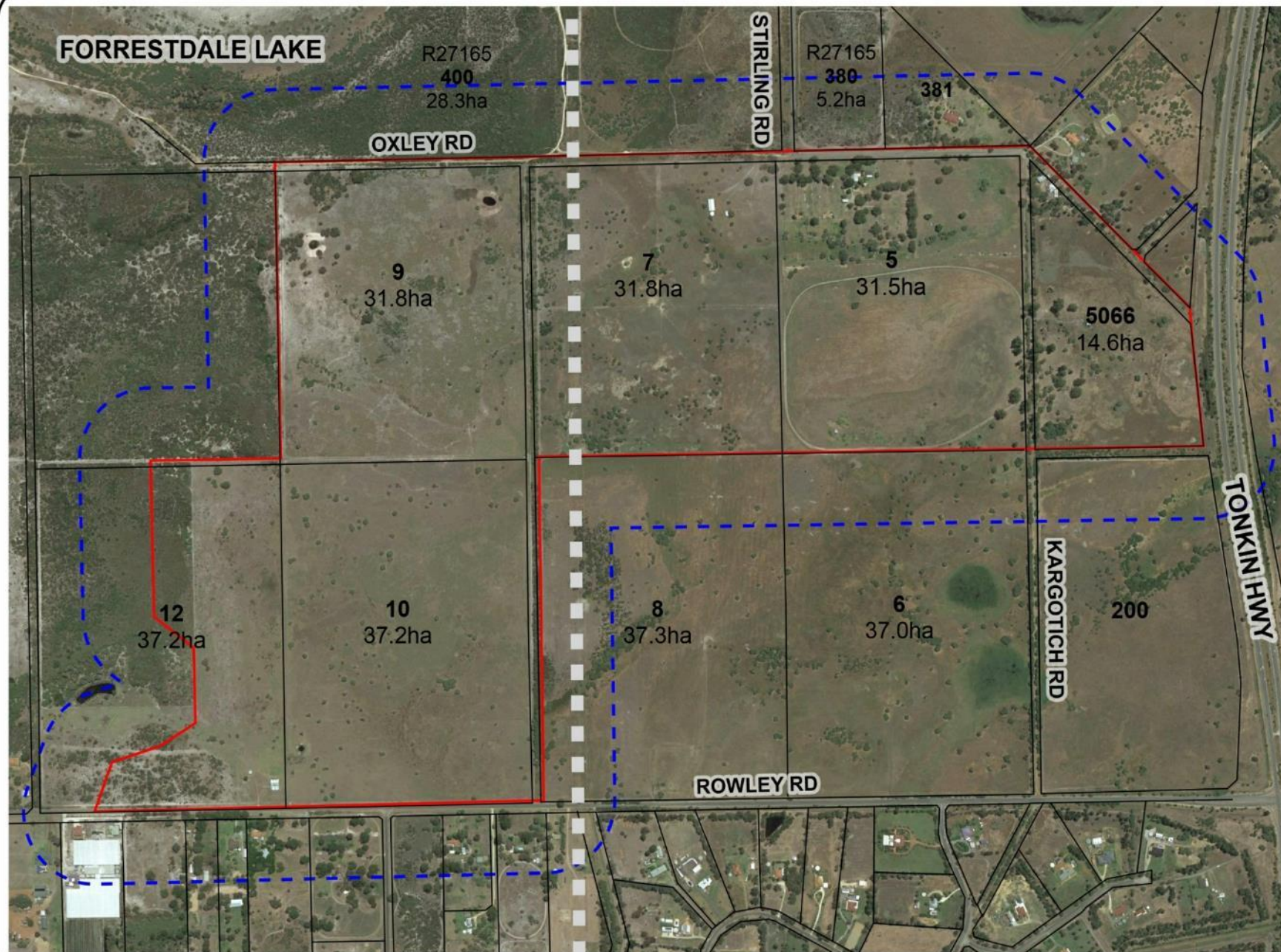


FIGURE 2
CADASTRAL PLAN



Rev	Description	Date
A	Preliminary	26/06/2017





LEGEND

SUBJECT LAND



150m BUFFER



FIGURE 3
EXISTING CONDITIONS



Rev	Description	Date
A	Preliminary	26/06/2017

1.3 Bushfire Prone Land

All of the subject land has been designated as being bushfire prone. The designation of bushfire prone areas triggers:

- The application of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas under the Building Code of Australia;
- The provisions of the Planning and Development (Local Planning Schemes) Regulations 2015; and
- The application of State Planning Policy SPP3.7 Planning in Bushfire Prone Areas.

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP3.7) requires that any amendment in a bushfire prone area includes:

- A BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site;
- The identification of any bushfire hazard issues arising from the BAL Contour Map; and
- An assessment against the bushfire protection criteria.

The Policy requires that planning proposals, subdivision applications should have on completion:

- A moderate bushfire hazard level (BHL); and/or
- A Bushfire Attack Level (BAL) rating of between BAL-12.5 to BAL-29 applies.

This assessment has been prepared by an Accredited Level 2 BPAD Practitioner using the Simplified Procedure (Method 1) as detailed in Section 2 of AS 3959 – 2009 (Incorporating Amendment Nos 1, 2 and 3) and in accordance with the methodology contained in the Guidelines for Planning in Bushfire Prone Areas.

1.4 Firebreak Notice

The City's 2020 Firebreak Notice stipulates that:

A. For land greater than 0.5 hectares the following measures are required:

- Install and maintain a minimum three (3) metres wide by four (4) metres high clearance, bare mineral earth, trafficable (refer to definition) firebreak no more than 10 metres from the property boundary for the entire perimeter of that property. A reticulated and maintained green lawn may be accepted in lieu of a firebreak.
- The firebreak must be a minimum of three (3) metres wide to accommodate for the width of emergency vehicles and have a minimum height clearance of four (4) metres to allow for the height of emergency vehicles.
- Bare, mineral earth is essential for the safety and effectiveness of all firebreaks and is considered a safe passage for emergency vehicles to travel along. If a firebreak contains inflammable material, it could potentially set vehicles alight and facilitate the growth of a fire.
- Install bare mineral earth trafficable firebreaks to a minimum of three (3) metres wide immediately surrounding all buildings, sheds and haystacks or groups of buildings situated on that land, with all overhanging branches, trees, limbs etc. to be trimmed back to provide a four (4) metres high clear vertical axis over the firebreak area. This includes driveways and access to all buildings on the land.

B. For land less than 0.5 hectares the following measures are required:

- Have all inflammable matter except living trees, shrubs and plants under cultivation, slashed, mowed or trimmed down by other means to a height no greater than five (5) cms across the entire property. This includes slashing between parkland, includes weeds, all grasses and hay.

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- Shrubs are to be trimmed back over driveways and access ways to all buildings to provide a three (3) metre wide clearance with a clear vertical axis over the driveways and access ways and four (4) metres high to afford access for emergency vehicles to all structures and points of the property.

1.5 Proposed Development

Amendment No 1340/57 to the Metropolitan Region Scheme included the majority of the subject land in the Industry zone as shown in Figure 4. An issue considered in the final approval of the Amendment relates to the buffer areas to the bush forever site and wetlands. These areas have been identified as future Open Space in the South Metropolitan Peel Sub-Regional Planning Framework.

It is also noted that the WAPC expect that a future structure plan for the area will include both Rural and Industrial land and that appropriate buffers to the conservation areas and wetlands will be identified through the structure planning process.

The amendment proposes to include the land zoned 'Industry' in the MRS as 'Industrial Development' in Local Planning Scheme No 4. Subdivision and development within the Industrial Development Zone shall be in accordance with an approved Structure Plan prepared in accordance with Part 4 of the Deemed Provisions and Schedule 8 of the Scheme. This will be consistent with the provisions for the adjoining Stage 1 which are included in Development Area 46 and subject to the provisions in Schedule 8 of the Scheme. Draft provisions are shown in Table 3.

Inclusion of the subject land in the 'Industrial Development zone' potentially allows for a range of discretionary uses. This is dependent upon the provisions within the proposed structure plan underlying zoning such as General Industry or Industrial Business.

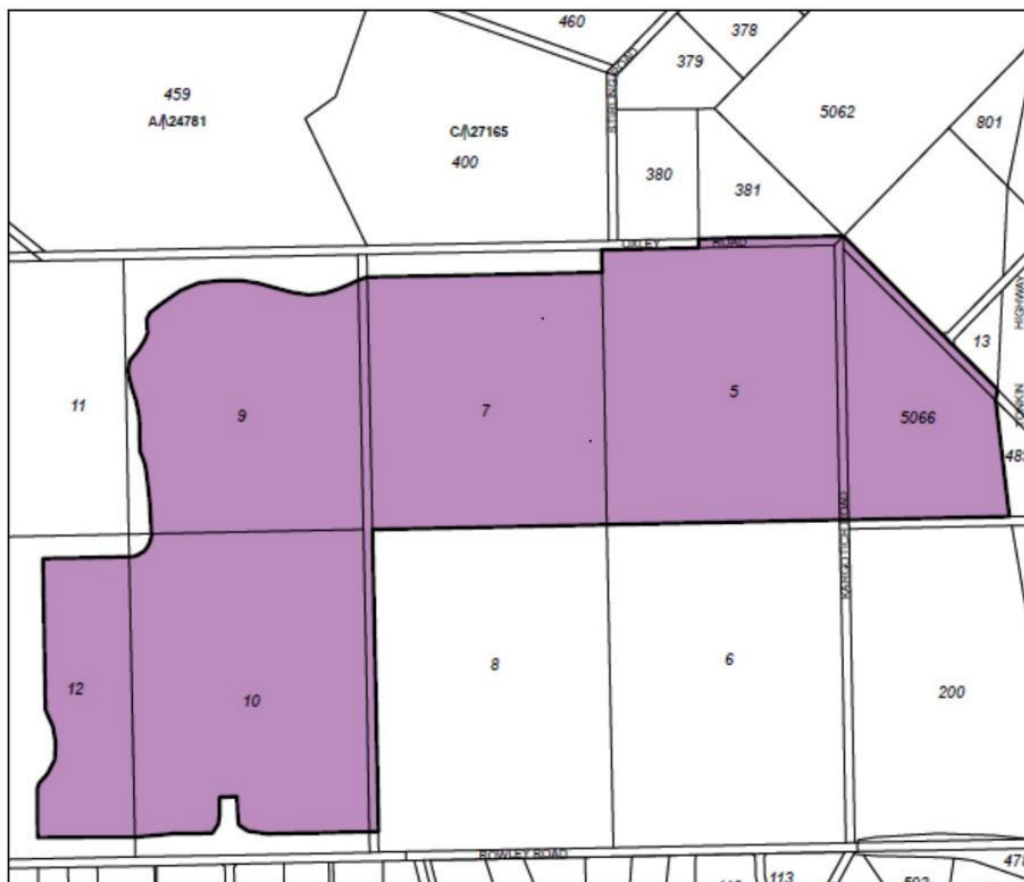


Figure 4 MRS Amendment Map

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Table 3 Draft Schedule 8 Provisions

No.	Description of land	Additional provisions applicable to subdivision and development	
DA 46	South Forrestdale Industrial Centre, Lots 6, 8, 10, 12 and 200 Rowley Road, Lots 5, 7, and 9 Oxley Road and Lot 5066 Kargotich Road Forrestdale (Rowley Road Industrial Area)	46.1	Subdivision and development should be generally consistent with a Structure Plan/s for Development Area 46 – Rowley Road Industrial Area to be prepared pursuant to the provisions outlined in Part 6A.
		46.2	A transport assessment shall be prepared in accordance with applicable Western Australian Planning Commission Guidelines.
		46.3	The Structure Plan/s shall make adequate provision for the rehabilitation and protection of adjoining Conservation Category Wetlands, Bush Forever land and Regional Parks and the Resource Enhancement Wetland on Lot 8 Rowley Road to the satisfaction of the Department of Water and Environmental Regulation and the local government.
		46.4	To ensure management of the environmental values adjacent the western and northern boundaries of Development Area No.46, the following information is required to accompany the Structure Plan/s: <ul style="list-style-type: none"> a) A Buffer Management Plan for the land zoned 'Rural' under the Metropolitan Region Scheme between the Industrial-zoned land and the adjoining Bush Forever Site 345. The Buffer Management Plan is to address the retention of any native vegetation within the buffer, revegetation of cleared areas, bushfire management, access and drainage. The Buffer Management Plan is to be prepared in consultation with the Department of Biodiversity, Conservation and Attractions to the satisfaction of the local authority. b) A Local Water Management Strategy which, in addition to standard matters, addresses the location and design of stormwater drainage features within the buffer. The Local Water Management Strategy is to be prepared in consultation with the Department of Water and Environmental Regulation to the satisfaction of the local authority.
		46.5	The Structure Plan/s shall include the following information where relevant: <ul style="list-style-type: none"> a) A Servicing Report detailing load demand and indicative network augmentation / reinforcement requirements for review and ratification by Western Power; b) Delineate the Western Power registered easement and: <ul style="list-style-type: none"> i. Transmission infrastructure; ii. Include detailed designs and information for review, assessment and written consent of Western Power to any proposals below, if applicable, within the registered

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No.	Description of land	Additional provisions applicable to subdivision and development	
			easement, in accordance with standard easement conditions: <ul style="list-style-type: none"> • Landscaping plans (including mature heights and location of species); • Ground level changes; • Permanent structures; • Drainage plans; • Conservation controls.

2.0 ENVIRONMENTAL CONSIDERATIONS

2.1 General

State Planning Policy 3.7 (SPP3.7) policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. The principal environmental consideration is the Forrestdale Lake Nature Reserve and associated wetlands.

This bushfire assessment assumes that environmental approval for any vegetation modification will be achieved prior to the commencement of any clearing.

The amendment area is located adjacent to the southern boundary of the Forrestdale Lake Nature Reserve (R27175), which is a class 'A' nature reserve managed by DBCA's Parks and Wildlife Service for the conservation of flora and fauna. Forrestdale Lake, is recognised as an being internationally significant under the Ramsar Convention and is a matter of national environmental significance under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), is located within the nature reserve.

Bush Forever site 345 (Forrestdale Lake and adjacent bushland, Forrestdale) is located directly north and west of the area proposed for rezoning. Conservation Category Wetlands (UFI 7383, 13536 and 15182) and Resource Enhancement wetland (UFI 15943) are located within the Bush Forever site and adjacent to the area proposed to be rezoned.

Forrestdale Lake is a RAMS Wetland and this site is designated a Matter of National Environmental Significance (MNES) under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The boundary to the MRS Industry Zoning is setback 50-60m provides from the existing Parks and Recreation Forrestdale Lake Bush Forever Site.

2.2 Clearing and Revegetation

The vegetation within the proposed Industrial Development zone is expected to be cleared to allow for development to occur.

The amendment will require the preparation of a 'Buffer Management Plan' as part of the future structure planning process for the rural land between the industrial zoned land and the bush forever site to the north and west. The Buffer Management Plan is to address retention of native vegetation, revegetation and bushfire management.

The specifications for the buffers are not known at present and may result in there being additional hazard vegetation.

3.0 BUSHFIRE ASSESSMENT RESULTS

3.1 Assessment Inputs - Vegetation Classification

All vegetation within 150m of the site / proposed development was classified in accordance with:

- Clause 2.2.3 of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas;
- The Visual Guide for Bushfire Risk Assessment in Western Australia; and
- Applicable Fire Protection Australia BPAD Practice Notes.

It is noted that AS3959 (2018) commenced operation from the 1st May 2019 and this alters the classification of woodland and scrub. Woodlands are now defined as having a grassy understorey with isolated shrubs while Scrub vegetation (tall heath) has been increased from 4 to 6m height. AS3959 Amendment No 2 also clarifies that a forest can be less than 10m in height.

It is necessary at this strategic level to take a conservative approach to the vegetation classification. As a consequence of the above changes a number of classifications from the previous assessment have been revised.

The vegetation classifications for the site and the surrounding area are shown on Figure 5 and the location the photographs is shown in Figure 6. The predominant vegetation is low open Melaleuca forest and scrub. Larger Eucalypts are found especially along the road verges and as paddock windbreaks.



LEGEND

- SUBJECT LAND —
- 150m BUFFER - - -
- GEO REFERENCE +
- VEGETATION CLASSES
- FOREST ■
- WOODLAND ■
- SHRUBLAND ■
- SCRUB ■
- GRASSLAND ■
- LOW THREAT VEGETATION ■

- NOTES**
- 1) REFER TO TABLE 3 FOR DESCRIPTIONS
 - 2) VEGETATION PHOTOGRAPHS ARE CONTAINED IN APPENDIX 1

Location	South Forrestdale
Details:	
Assessment Date:	09/06/2017 & 01/12/2020
Prepared by:	G Lush
Accreditation Level:	Level 2
Accreditation Number:	BPAD 27682
Accreditation Expiry Date:	February 2021
Date of Aerial Photo:	November 2020

FIGURE 5
VEGETATION CLASSIFICATIONS



Job No 20-075
Rev C Description LPS Amendment

Date 17/12/2020



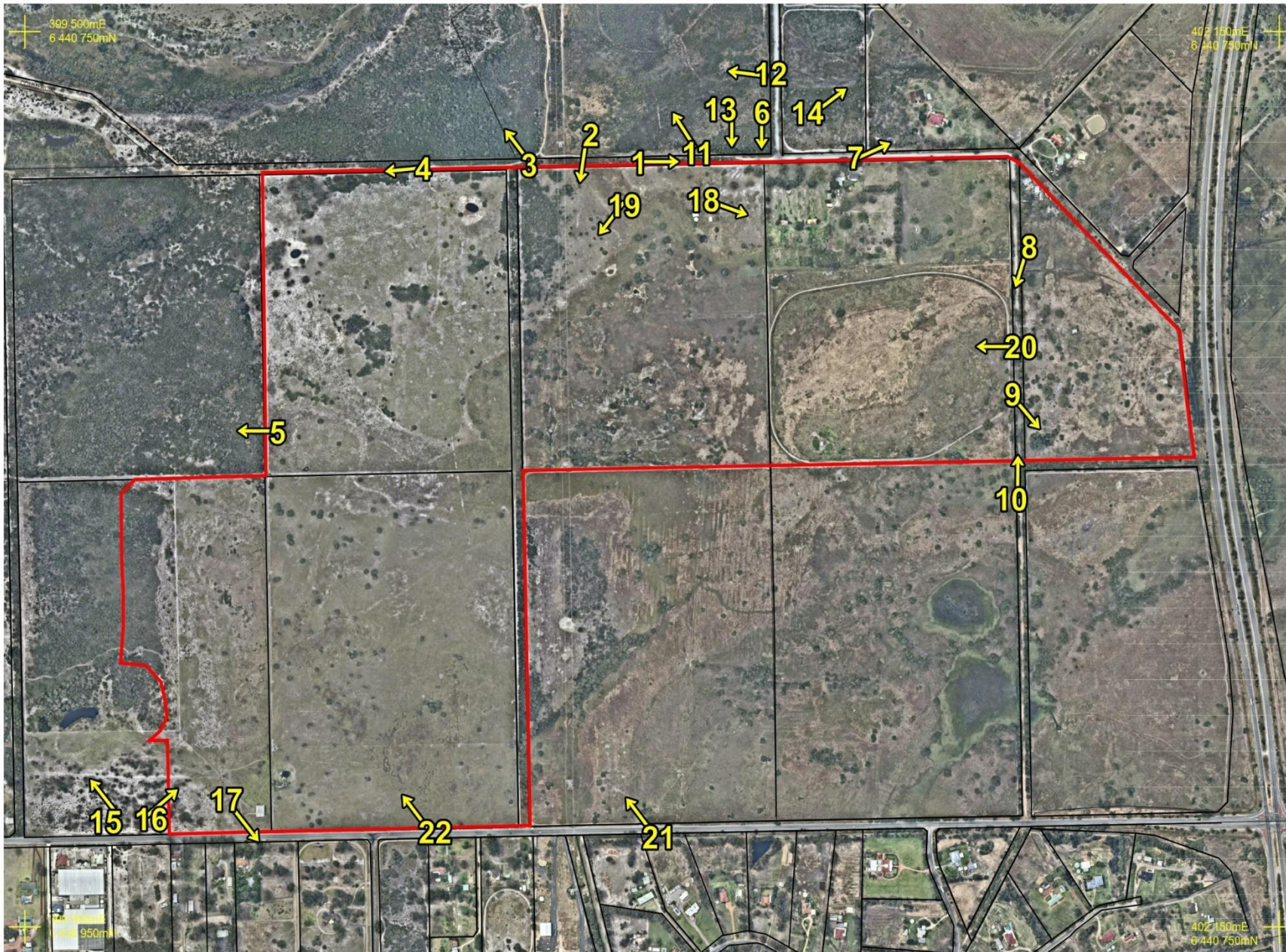


FIGURE 6
PHOTO LOCATIONS

South Forrestdale Business Park Stage 2

Plot No 1

Vegetation Classification

Class A Forest - Low open forest A-04

Description

Low open forest predominantly Melaleuca generally to 8m in height and Eucalypts to 15m with scrub understorey including wattles and Victorian Tee Tree. Foliage coverage exceeds 50% with heavy fuel loads. Some areas could be classified as scrub where they have a uniform height less than 6m.

Photo 1

Photo 2



Photo 3

Photo 4



Photo 5

Photo 6



South Forrestdale Business Park Stage 2

Plot No 1

Vegetation Classification

Class A Forest - Low open forest A-04

Description

Low open forest predominantly Melaleuca generally to 8m in height and Eucalypts to 15m with scrub understorey including wattles and Victorian Tee Tree. Foliage coverage exceeds 50% with heavy fuel loads. Some areas could be classified as scrub where they have a uniform height less than 6m.

Photo 7



Photo 8



Photo 9



Photo 10



Plot No 2

Vegetation Classification

Class C Shrubland - Closed heath C-10

Description

Heath vegetation less than 2m in height with variable foliage coverage to 50% with some grassland spaces.

Photo 11



Photo 12



Plot No 3

Vegetation Classification

Class D Scrub - Closed scrub D-13

Description

Mixed vegetation species but predominantly Melaleuca in adjacent reserve with portions extending into the subject land. Less than 4m in height with foliage coverage greater than 50%. Understorey is predominantly heath with heavy fuel loads.

Photo 13



Photo 14



South Forrestdale Business Park Stage 2

Plot No 4

Vegetation Classification

Class B Woodland - Woodland B-05

Description

Banksia woodland to 7m in height, foliage coverage of less than 30% with grassland understorey moderate fuel loads less than 15 tph.

Photo 15



Photo 16



Plot No 5

Vegetation Classification

Class B Woodland - Woodland B-05

Description

Non-homogenous vegetation within rural residential lots. Contains managed land and low threat vegetation around dwellings. Both managed and unmanaged grassland in paddock areas often with eucalyptus windbreaks. Some areas of scrub. Overall classification for the basis of determining the hazard level.

Photo 17



Photo 18



South Forrestdale Business Park Stage 2

Plot No 5

Vegetation Classification

Class G Grassland – Open herbfield G-27

Description

Broad acre grazing land with some other areas of unmanaged grassland. The plot includes isolated paddock trees.

Photo 19



Photo 20



Photo 21



Photo 22



3.2 Bushfire Hazard Levels

A Bushfire Hazard Level assessment provides a 'broadbrush' means of determining the potential intensity of a bushfire for a particular area. The bush fire hazard primarily relates to the vegetation on the site, the type and extent (area) of vegetation and its characteristics.

The methodology for determining the bushfire hazard level is contained in the Guidelines for Planning in Bushfire Prone Areas (Section 4.1 and Appendix 2). This classifies vegetation based on tree height and the percentage of canopy cover and the characteristics of the different hazard categories (1) are:-

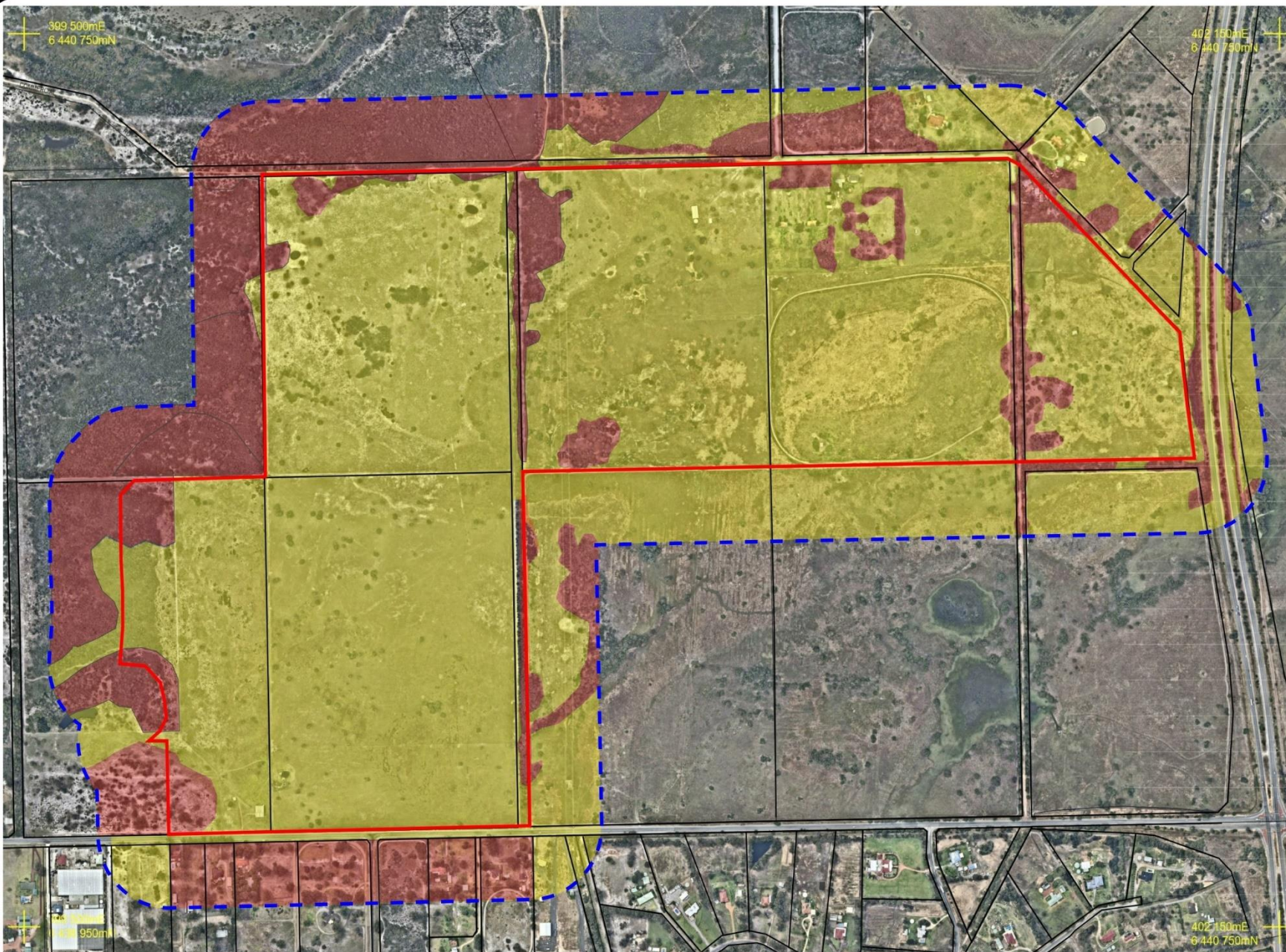
Extreme Hazard	<ul style="list-style-type: none">• Class A Forest• Class B Woodland (05)• Class D Scrub• Any classified vegetation with a greater than 10 degree slope
Moderate Hazard	<ul style="list-style-type: none">• Class B Open Woodland (06), Low Woodland (07) Low Open Woodland (08) Open Shrubland (09) *• Class C Shrubland• Class E Mallee/Mulga• Class G Grassland including sown pasture and crops• Vegetation that has a low hazard level but is within 100 metres of vegetation of vegetation classified as a moderate or extreme hazard.
Low Hazard	<ul style="list-style-type: none">• Low threat vegetation, may include the following: areas of maintained lawns, golf courses, public recreation reserves and parklands, vineyards, orchards; cultivated gardens, commercial nurseries, nature strips and windbreaks.• Managed grassland in a minimal fuel condition meaning that there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short cropped grass to a nominal height of 100mm.• Non vegetated areas including waterways; roads; footpaths; buildings or rock outcrops.

* *As per AS3959 Table 2.3 Note 2 - Overstoreys of open woodland, low open woodland, tall open shrubland should be classified to the vegetation type on the basis of their understoreys; others to be classified on the basis of their overstoreys.*

The bushfire hazard levels for the existing site conditions are shown in Figure 7.

The site generally has a moderate hazard level due to the existing grassland / pasture areas. The areas of bushland, especially on the adjoining reserves has an extreme hazard level.

1 WAPC (2015) Guidelines for Planning in Bushfire Prone Areas - Proposed modification to Appendix 2



LEGEND

- SUBJECT LAND
- 150m BUFFER

- HAZARD LEVELS
- EXTREME
- MODERATE
- LOW

NOTES

- 1) BUSHFIRE HAZARD LEVEL ASSESSMENT PREPARED IN ACCORDANCE WITH APPENDIX 2 OF GUIDELINES.
- 2) LAND WITHIN 100m OF VEGETATION THAT HAS EITHER A MODERATE OR EXTREME HAZARD LEVEL IS CLASSIFIED AS HAVING A MODERATE HAZARD LEVEL DUE TO THE INCREASED RISK.

Location	South Forrestdale
Details:	
Assessment Date:	09/06/2017 & 01/12/2020
Prepared by:	G Lush
Accreditation Level:	Level 2
Accreditation Number:	BPAD 27682
Accreditation Expiry Date:	February 2021
Date of Aerial Photo:	November 2020

FIGURE 7
BUSHFIRE HAZARD LEVELS
EXISTING CONDITIONS



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Date 17/12/2020



4.0 FIRE MANAGEMENT ISSUES AND ASSESSMENT

4.1 District Context and Site Issues

The relationship of the subject land to the surrounding district is shown in Figure 1 and the site development considerations are shown in Figure 8.

The surrounding land is a mixture of urban, rural residential, and rural land uses. This has a moderate to extreme bushfire hazard level with Scrub vegetation being the most prominent vegetation class.

Bushfires occur regularly within the district and can pose a threat to life and property.

The major bushfire management issue is the interface with the adjoining Forrestdale Lake Nature Reserve. The main bushfire threat would be a fire from the north and westerly directions which can have a significant fire run and hence intensity. The development interface with the reserve and any associated vegetation buffers needs to be considered in any subsequent structure plan and in particular:

- Provision of a "hard edge" such as a subdivision road; and
- Additional development setbacks.

There is excellent district access to the subject land from multiple directions. However, there is only the one access to the north via Stirling Road. Given that it is unlikely that any additional access, even for emergency purposes, can be created on to Tonkin Highway it is even more important that Stirling Road be retained for access.

4.2 Proposed Land Use and Development

The bushfire construction requirements of the Building Code of Australia as reflected in AS3959 do not apply to industrial or commercial buildings. However, any commercial or industrial buildings with a floor area of more than 500m² must be referred to DFES for an assessment of compliance with the Fire and Emergency Services Commissioner's operational requirements.

Requirements for any specific bushfire construction measures would have to be included as a condition of planning approval and this already occurs in other nearby industrial parks.

4.3 Siting and Design

The most efficient and cost effective fire management measure is to separate development from hazard areas. The greater the separation distance the lower the hazard or BAL rating for the development.

This principle is reflected in the SPP 3.7 and the Guidelines by seeking:

- To locate development in areas with either a low or moderate hazard level rating; and/or
- To ensure that a maximum BAL-29 rating is applied to any development.

The anticipated bushfire hazard levels for the completed development are shown in Figure 7. This illustrates that the majority of the subject is expected to have a Low Hazard rating with a Moderate Hazard rating around the perimeter.

The relevant BAL setbacks for flat land are shown in Table 4. Assuming that the hazard vegetation is classified as forest, including in the wetland buffers, then a development setback of 21m would give a BAL-29 rating.

The BAL-12.5 rating varies from 17 - 42m and is only 19m for shrubland vegetation. This may apply in the wetland buffers and this setback can be accommodated within the boundary

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subdivision road. Appendix G of AS3959 states that the risk of bushfire for a development site with a BAL-12.5 rating is considered to be low. There is still a risk from ember attack rather than radiant heat.

Table 4 BAL Setbacks

Vegetation Classification	Bushfire Attack Levels (BALs)				
	BAL - FZ	BAL - 40	BAL - 29	BAL - 19	BAL - 12.5
Distance (m) of the site from the predominant vegetation class					
All upslopes and flat land					
A Forest	< 16	16 - < 21	21 - < 31	31 - < 42	42 - < 100
B Woodland	< 10	10 - < 14	14 - < 20	20 - < 29	29 - < 100
C Shrubland	< 7	7 - < 9	9 - < 13	13 - < 19	19 - < 100
D Scrub	< 10	10 - < 13	13 - < 19	19 - < 27	27 - < 100
G Grassland	< 6	6 - < 8	8 - < 12	12 - < 17	17 - < 50

4.4 Vulnerable Land Uses

Vulnerable land uses are uses where it is considered that occupants have a lesser capacity to respond in the event of a bushfire, and which may present evacuation challenges. These are generally associated with hospitals, nursing homes and retirement villages. However, they also include any form of tourist accommodation, places of assembly, family day care centres etc.

Potential vulnerable land uses within the Industrial Business zone include:

- Child Care Premises (D);
- Club Premises (D);
- Community Purpose (D);
- Educational Establishment (D);
- Reception Centre (D); and
- Recreation - Private (D).

As these are already (D) discretionary uses any application can have regard to the provisions of SPP3.7 including the preparation of a specific bushfire management and evacuation plan.

4.5 High Risk Uses

High risk land uses are those uses which may lead to the potential ignition, prolonged duration and/or increased intensity of a bushfire. Such uses may also expose the community, fire fighters and the surrounding environment to dangerous, uncontrolled substances during a bushfire event. Examples of high risk land uses include service stations, landfill sites, bulk storage of hazardous materials, fuel depots.

Potential high risk land uses within the Industrial Business zone include:

- Fuel Depot (D);
- Industry General (P);
- Industry Noxious (A);
- Service Station (D); and
- Transport Depot (P).

There is no classification of hazardous industry.

SPP 3.7 requires that a development application for any high risk land use is to be accompanied by a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services. This may include establishing an appropriate Asset Protection Zone or Hazard Separation Zone, and should be supported by a risk management plan that addresses bushfire risk management measures for any flammable on-site hazards. It may also determine

that a reduction in on-site flammable material or appropriate storage of such material, is required to reduce the bushfire threat.

These provisions only apply when the development site has a rating of between BAL-12.5 and BAL-29.

4.6 Bushfire Protection Criteria

A summary of the compliance with the Bushfire Protection Criteria is documented in Table 5. This demonstrates how the Criteria are expected to be complied with at the various planning stages being:

- The amendment to the Metropolitan Region Scheme;
- The amendment to the Local Planning Scheme;
- The preparation of the Local Structure Plan;
- A subdivision application; and
- A development application.

Demonstration of compliance with the Bushfire Protection Criteria would include a bushfire management plan prepared in conjunction with the Structure Plan based upon the proposed subdivision design.

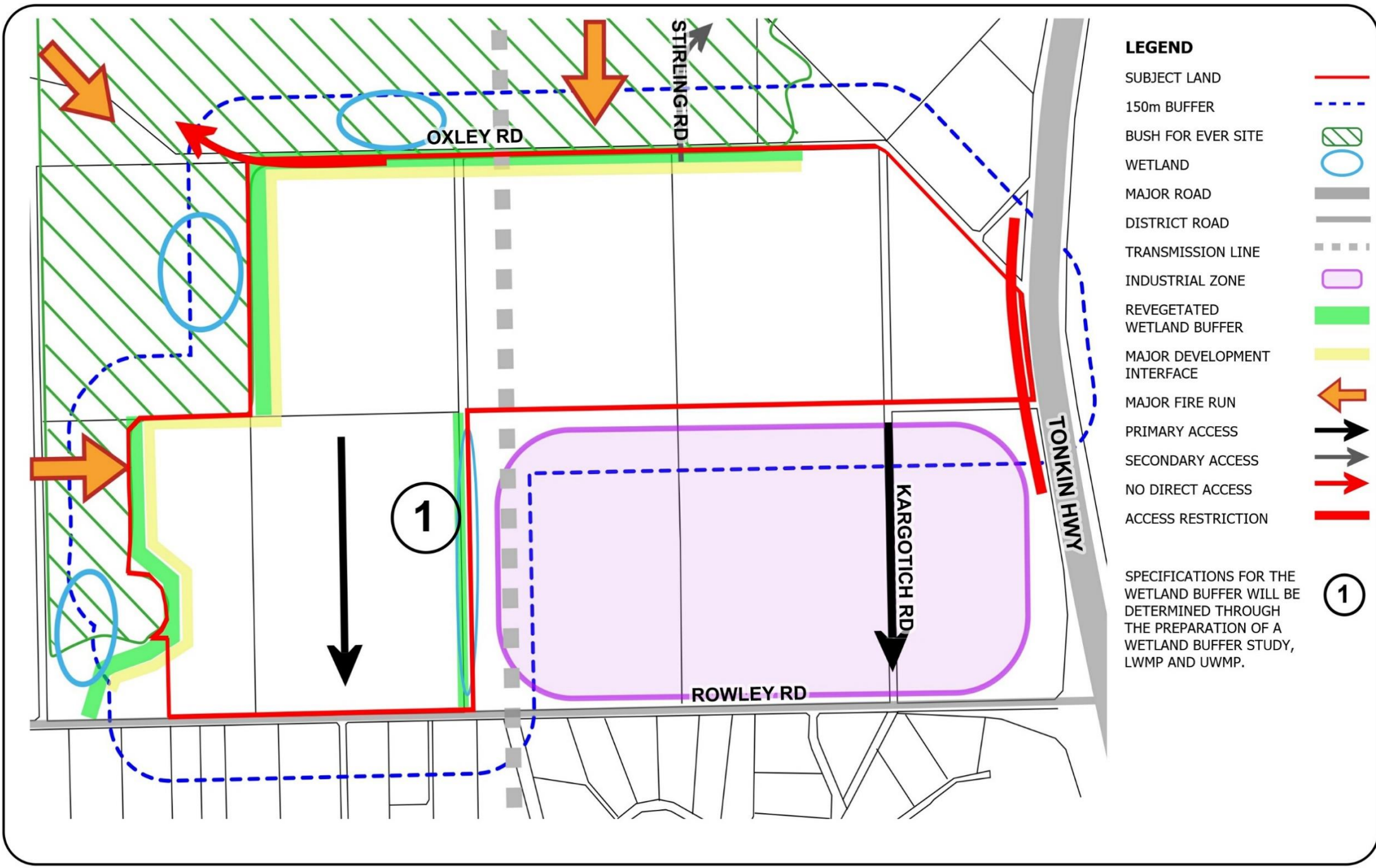
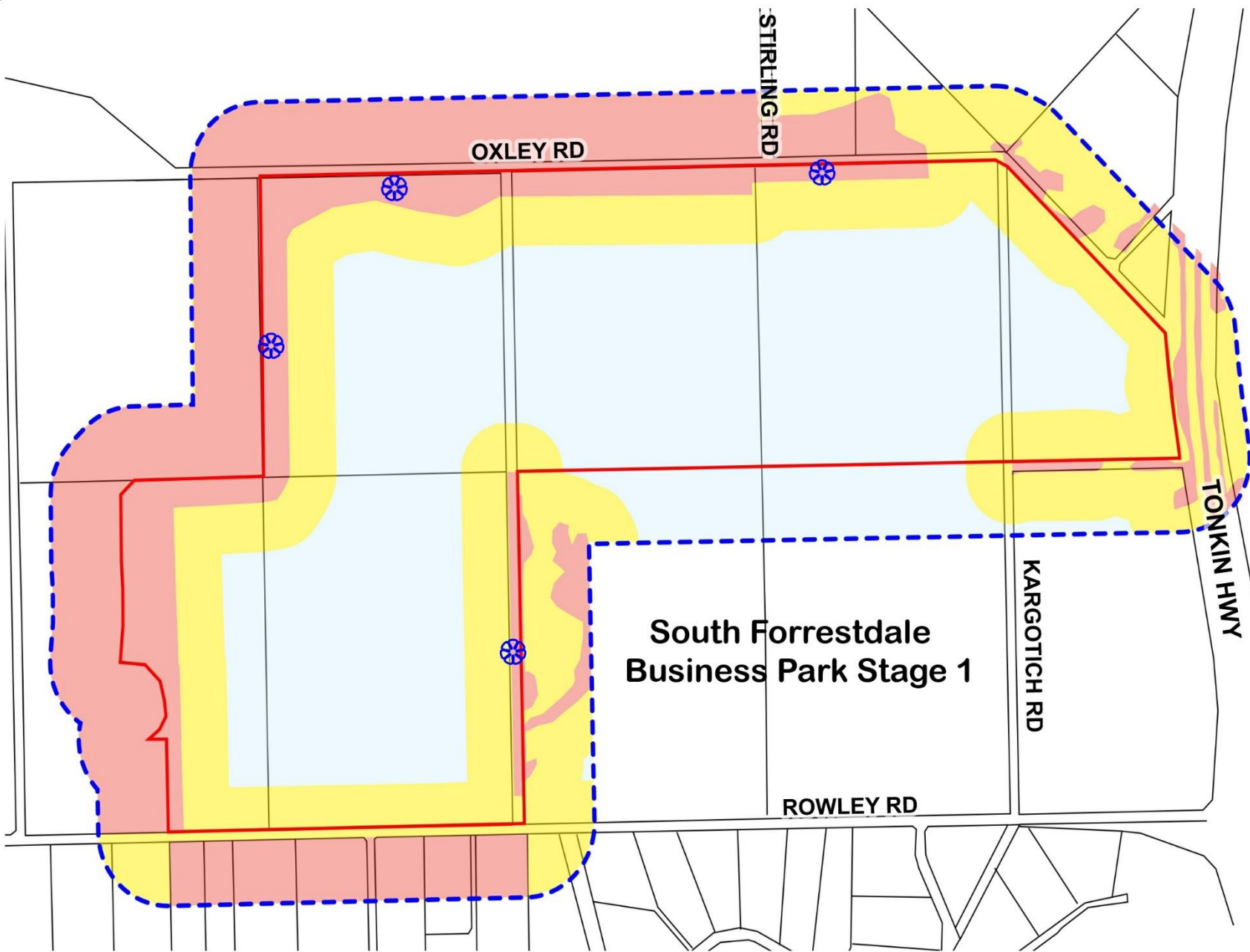


FIGURE 8
DEVELOPMENT CONSIDERATIONS



LEGEND

- SUBJECT LAND —
- 150m MAP BUFFER - - -
- WETLAND BUFFER

- HAZARD LEVELS
- EXTREME █
- MODERATE █
- LOW █

ASSUMPTIONS

- a) REVEGETATED BUFFER TO WETLANDS TO BE DETERMINED BY WETLAND BUFFER STUDY AS PART OF THE STRUCTURE PLAN.
- b) BASED UPON STAGE 1 DEVELOPMENT BEING COMPLETED.
- c) VEGETATION TO BE CLEARED FOR WIDENING OR ROWLEY ROAD

NOTES

- 1) BUSHFIRE HAZARD LEVEL ASSESSMENT PREPARED IN ACCORDANCE WITH APPENDIX 2 OF GUIDELINES.
- 2) LAND WITHIN 100m OF VEGETATION THAT HAS EITHER A MODERATE OR EXTREME HAZARD LEVEL IS CLASSIFIED AS HAVING A MODERATE HAZARD LEVEL DUE TO THE INCREASED RISK.

FIGURE 9
BUSHFIRE HAZARD LEVELS
COMPLETED DEVELOPMENT



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Table 5 BPC Compliance

Design Requirement \ Development Stage	Local Planning Scheme Amendment	Structure Plan	Subdivision Application	Development Application
Element 1 Location				
A1.1 Development Location	The majority of the land has a moderate hazard level which will become a low hazard level when developed. Development is expected to be able to achieve a BAL-29 rating and potentially lower. The proposal can comply with the WAPC Position Statement for Elements 1 and 2.	Can require the subdivision design to be based upon BAL-12.5 setbacks for new development. A Buffer Management Plan will be prepared to define the extent of the buffers to the conservation areas and any revegetation specifications. A bushfire management plan would be prepared to support the structure plan.	Would be in accordance with the structure plan and bushfire management plan. Any staging would require interim measures. The subdivision design should incorporate a perimeter around to separate the development from the hazard areas.	Approval of any development application is to have regard to SPP 3.7 and the Guidelines and can control the siting of development.
Element 2 Siting and Design				
A2.1 Asset Protection zone	Can be provided in accordance with a BAL-29 setback. The APZ can potentially be increased to accord with design objective for a lower BAL rating.	Can consider the inclusion of the APZ within each lot or incorporation of other land such as a road reserve.	Would be in accordance with the structure plan and bushfire management plan.	Approval of any development application is to have regard to SPP 3.7 and the Guidelines and can control the siting of development in accordance with an approved bushfire management plan.
Element 3 Vehicular Access				
A3.1 Two Access Routes	At both the district and local level the area has multiple access routes.	At both the district and local level the area has multiple access routes.	Would be in accordance with the structure plan and bushfire management plan. Any staging would require interim access measures.	Approval of any development application is to have regard to access under an approved bushfire management plan
A3.2 Public Road	Is not applicable.	The road design is expected to comply with design requirements in Table 6.	The road design is expected to comply with design requirements.	Is not applicable.
A3.3 Cul-de-sac	Is not applicable.	Is not applicable.	Is not applicable.	Is not applicable.
A3.4 Battle-axe	Is not applicable.	Is not applicable.	Is not applicable.	Is not applicable.

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Development Stage Design Requirement	Local Planning Scheme Amendment	Structure Plan	Subdivision Application	Development Application
A3.5 Driveway more than 50m	Is not applicable.	Is not applicable.	Is not applicable.	Is not applicable.
A3.6 Emergency Access Way	Is not applicable.	It may be applicable depending upon the subdivision design.	Would be in accordance with the structure plan and bushfire management plan. Any staging would require interim access measures.	Is not applicable.
A3.7 Fire Service Access Route	Is not applicable.	It may be applicable depending upon the subdivision design.	Would be in accordance with the structure plan and bushfire management plan. Any staging would require interim access measures.	Is not applicable.
A3.8 Firebreaks	Is not applicable.	It is subject to the proposed lot size and Council's firebreak notice.	It is subject to the proposed lot size and Council's firebreak notice.	Is not applicable.
Element 4 Water				
A4.1 Reticulated Areas	A reticulated water supply will be required.	Can consider if any additional hydrants are required.	Any development can be serviced with fire hydrants in accordance with the Water Corporation's Water Reticulation Standard No 63.	Building permit application will assess water supply for structural fire fighting.
A4.2 Non-reticulated Areas	Is not applicable.	Is not applicable.	Is not applicable.	Is not applicable.
A4.3 Single Lot Non-reticulated	Is not applicable.	Is not applicable.	Is not applicable.	Is not applicable.
High Risk Land Uses				
Proposed high risk land uses need special consideration.	The subject land is potentially suitable for high risk uses. Any proposed high risk uses can be controlled through zoning and development provisions.	Any proposed high risk uses can be controlled through the provisions of any structure plan.	Is not applicable.	Can require a BMP and risk evaluation plan to be lodged as part of any development application.
Vulnerable Land Uses				
Proposed vulnerable land uses need special consideration.	Any proposed vulnerable land uses can be controlled through zoning and development provisions.	Any proposed vulnerable land uses can be controlled through the provisions of any structure plan.	Is not applicable.	Can require a BMP and risk evaluation plan to be lodged as part of any development application.