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BPAD Bushfire Planning & Design

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 9330 Maralla Road

Suburb: Ellenbrook **State:** WA **P/code:** 6069

Local government area: City of Swan

Description of the planning proposal: Subdivision application

BMP Plan / Reference Number: RDP17502.01 **Version:** R002 Rev 0 **Date of Issue:** 04/04/2019

Client / Business Name: RobertsDay

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.)?

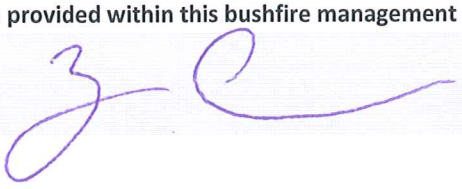
N/A

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	Accreditation Level	Accreditation No.	Accreditation Expiry
Zac Cockerill	Level 2	BPAD 37803	31/08/2019
Company		**Contact No.**	
Strategen Environmental		9792 4797	

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** 04/04/2019



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Bushfire Management Plan

Annie's Landing - Village 7B, Ellenbrook

Prepared for
Roberts Day
by Strategen

April 2019

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

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Bushfire Management Plan

Annie's Landing - Village 7B, Ellenbrook

Strategen is a trading name of
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April 2019

Limitations

Scope of services

This report ("the report") has been prepared by Strategen Environmental Consultants Pty Ltd (Strategen) in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

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In preparing the report, Strategen has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen has also not attempted to determine whether any material matter has been omitted from the data. Strategen will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen. The making of any assumption does not imply that Strategen has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

Client: Roberts Day

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Final Report	**Rev 0**	**Issued for use: to accompany lodgement of Subdivision Plan**	**Z Cockerill (BPAD 37803)**	**Electronic (email)**	**4/04/2019**

Filename: RDP17502_01 R002 Rev 0 - 4 April 2019

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1. Introduction

1.1 Background

Roberts Day is seeking to lodge a Subdivision Plan for proposed residential development at Annie's Landing – Village 7B, Ellenbrook (the project area) in the City of Swan. The Subdivision Plan identifies areas of residential development, Public Open Space (POS) and road layout (Figure 1).

Portions of the project area are designated as bushfire prone on the WA *Map of Bush Fire Prone Areas* (DFES 2019; Plate 1). Strategen has prepared this Bushfire Management Plan (BMP) to address the following information requirements triggered at the subdivision stage under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015) in accordance with Policy Measure 6.4:

- a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the project area, in accordance with *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines; WAPC 2017) – refer to Section 2.3 and Figure 4
- identification of any bushfire hazard issues arising from the BAL contour assessment – refer to Section 2.4
- assessment against the bushfire protection criteria in the Guidelines demonstrating compliance within the boundary of the subdivision site – refer to Section 4 and Table 3.

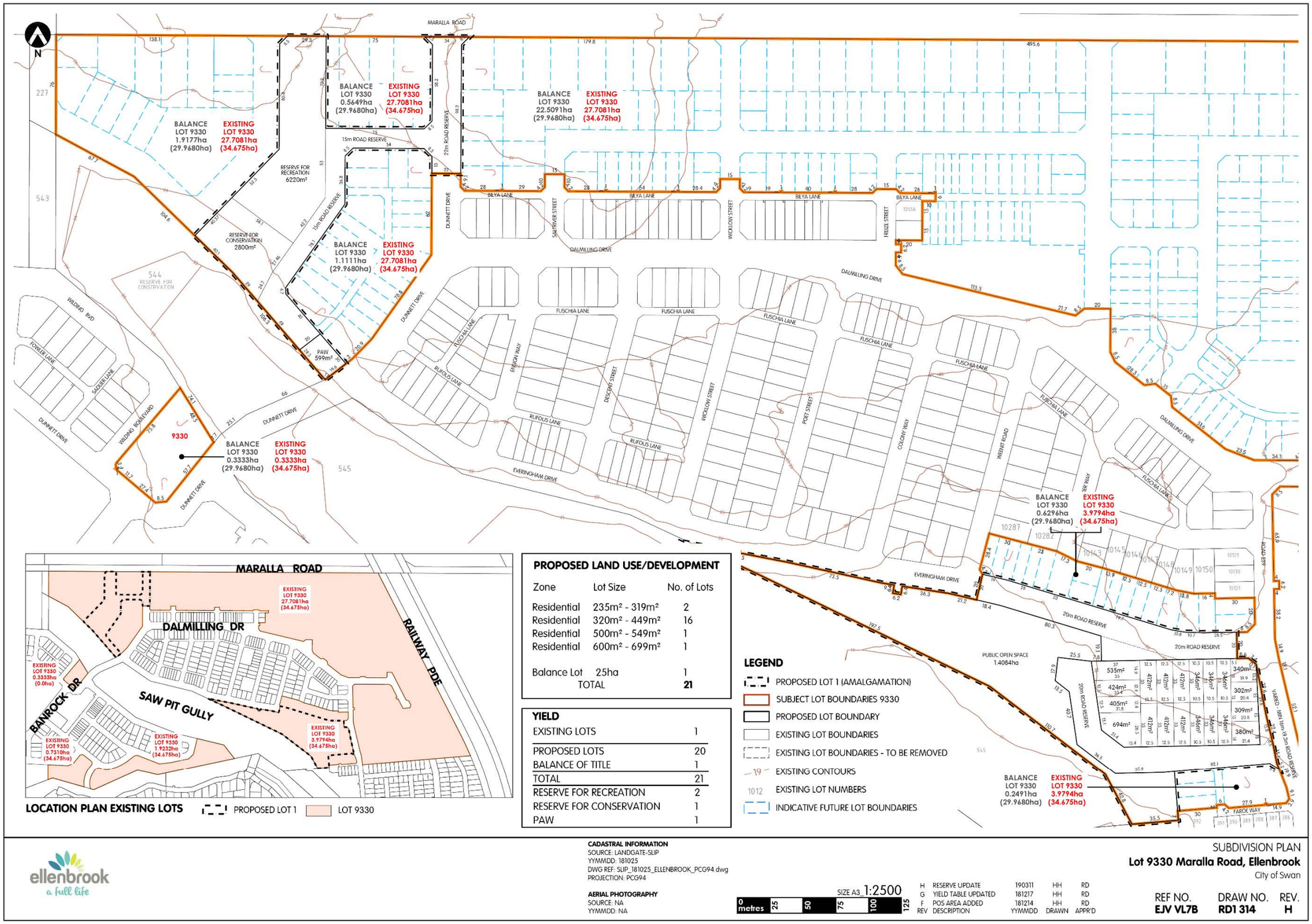
This BMP has been prepared in accordance with the Guidelines and addresses the above information requirements to satisfy SPP 3.7.

1.2 Purpose and application of the plan

The purpose of this BMP is to provide guidance on how to plan for and manage the bushfire risk to future life and property assets of the project area through incorporation of a range of bushfire management measures into early planning, design and construction. The BMP outlines how future on-site assets can be protected during the summer months when the threat from bushfire is at its peak. This is particularly relevant when existing fire appliances in the area may be unable to offer an immediate emergency suppression response; therefore, development planning and design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.



Plate 1: DFES State Map of Bush Fire Prone Areas (2019)



Source: Roberts Day 2019

Figure 1: Subdivision plan

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area comprises approximately 31.85 ha and is bound by the following as depicted in Figure 2:

- Maralla Road and partially cleared rural land to the north
- Sawpit Gully reserve (R 46875) and existing urban development to the south and west
- Railway Parade, rail reserve and cleared rural land to the east.

2.1.2 Assets

The project area is undeveloped and therefore does not contain any life or property assets. Proposed residential development will intensify the critical assets in that the number of residents, visitors and built assets will be increased within the site.

On-site environmental assets present are limited to small pockets of vegetation retained within existing or proposed POS.

2.1.3 Access

The project area is currently accessed via Maralla Road in the north, Dunnett Drive and Clydesdale Street in the south and Railway Parade in the east.

2.1.4 Water and power supply

Reticulated water and underground power supply infrastructure and services are available to the project area through extension of existing services from adjacent development.

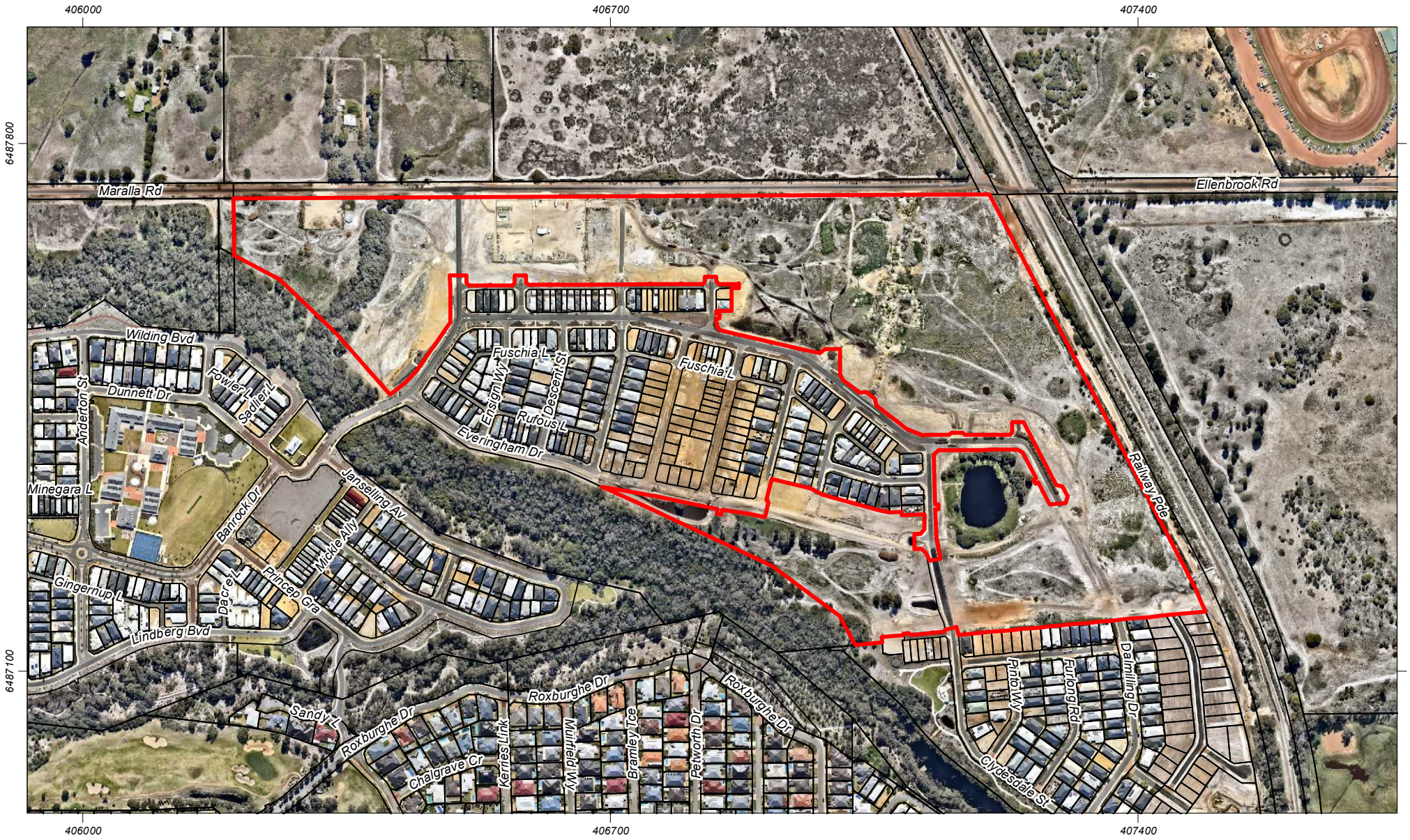


Figure 2: Site overview

Scale 1:7,000 at A4

0 50 100 150 200 m

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 3/04/2019
Author: JCrute
Source: Nearmap: Aerial imagery - 02/2019. Robertsday: Layout and existing cadastre, 01/04/2019.
Path: Q:\Consult\2017\RDP\RDP17502\01_GIS_documents\ArcMap_documents\RDP17502_G001_RevF.mxd

Legend

- Project area
- Existing cadastre

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2.2 Fire environment

2.2.1 Classified vegetation and exclusions

Classified vegetation was assessed in accordance with the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016) and *Australian Standard 3959-2009 Construction of Buildings in Bushfire Prone Areas* (AS 3959; SA 2009). This assessment involved on-ground verification of classified vegetation and any areas excluded from classification within the project area and adjacent 150 m as per conditions at time of assessment on 12 October 2017. Classified vegetation and exclusions are depicted in Figure 3 along with the location and direction of georeferenced site photographs (refer to Appendix 3 for site photographs).

Proposed development will result in the clearing of vegetation within proposed residential lots, road reserves and public access ways (PAWs). Therefore, proposed development areas within the site will be modified to a low threat state, as per Figure 3.

As identified on the Landscape Concept Plans (Appendix 1), POS areas 10, 11 and 13 within the project area will be subject to landscaping and ongoing maintenance that will achieve a low bushfire fuel state (less than 2 t/ha) all year round and therefore have been identified as being excluded under Clause 2.2.3.2 (f).

POS area 12 is subject to exclusion under Clause 2.3.2.3 (b) in that areas of vegetation will be less than 1 ha in size and not within 100 m of other areas of classified vegetation (see Appendix 1 for Landscape Concept Plans).

Existing Class A forest along the creek-line running north-south within the southern portion of POS area 8 will be retained. Existing vegetation within the remaining northern portion of POS area 8 will be subject to thinning of trees and understorey to achieve separation of canopies (see Appendix 2 for Landscape Concept Plans) and a post development vegetation classification of Class B woodland.

Therefore, post-development vegetation exclusions will include:

- Clause 2.2.3.2 (b): areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation classified, including POS area 12 within the project area
- vegetation that is currently or will be managed in a low threat, minimal fuel condition excluded from classification under Clause 2.2.3.2 (f) of AS 3959, including:
    - proposed POS areas 10, 11 and 13 within the project area
    - existing and proposed road reserves and nature strips consisting of managed low fuel areas.
- any non-vegetated areas occupied by roads, parking, dwellings or other infrastructure excluded from classification under Clause 2.2.3.2 (e) of AS 3959, including:
    - existing surrounding residential development and proposed residential lots
    - existing and proposed roads and PAWs.

Based on the above, the following types of classified vegetation and exclusions were identified:

- Class A forest within Sawpit Gully reserve to the south (Photo 1, Photo 2 and Photo 3) and POS area 8 (Photo 4 and Photo 5)
- Class B woodland within rural land to the north, Sawpit Gully reserve to the south (Photo 6) and northern portion of POS area 8
- Class D scrub within rural land to the north (Photo 7, Photo 8) and rail reserve and rural land to the east (Photo 9, Photo 10 and Photo 11)
- Class G grassland within rural land to the north (Photo 12, Photo 13, Photo 14 and Photo 15) and rail reserve and rural land to the east (Photo 16, Photo 17 and Photo 18)
- vegetation within POS area 12 excluded under Clause 2.2.3.2 b of AS 3959 (Photo 19)

- non-vegetated areas (e.g. roads and buildings) or low threat managed grassland and vegetation excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (Photo 20, Photo 21 and Photo 22).

This information has been used to inform a BAL contour assessment for the project area (refer to Section 2.3).

2.2.2 Effective slope

Strategen has assessed site topography and effective slope under post development classified vegetation within the development area and adjacent 150 m through on-ground verification in accordance with AS 3959 methodology (Figure 3).

The project area occurs on gently undulating land at an elevation of around 20 mAHD (Australian Height Datum) in the southeast to around 24 mAHD to the north.

Effective slope under post development classified vegetation consists of:

- Class A forest within Sawpit Gully reserve to the south and POS area 8 and post development Class B woodland within POS area 8 is down-slope >0–5 degrees
- Class D scrub and Class G grassland to the north and east of the project area is up-slope or flat
- portion of Class D scrub to the north is down-slope >0–5 degrees.

This information has been used to inform a BAL contour assessment for the project area (refer to Section 2.3).

406350 406800 407250

6487650 6487200

Flatland/Upslope
Downslope 0 to 5 degrees
Flatland/Upslope
Flatland/Upslope
Maralla Rd
Ellenbrook Rd
Flatland/Upslope
Downslope 0 to 5 degrees
Downslope 0 to 5 degrees
POS 8
POS 10
POS 13
POS 12
POS 11
Flatland/Upslope
Downslope 0 to 5 degrees
Downslope 0 to 5 degrees
Wilding Blvd
Moraba Gr
Fowler L
Sadler L
Dunnett Dr
Ridsdale Rd
Milward Wy
Anderton St
Minegara L
Banrock Dr
Janselling Av
Mickle Ally
Princep Gra
Catlidge St
Gingernup L
Moodah Wy
Decre L
Lindberg Blvd
Sandy L
Chalgrave Cr
Roxburghe Dr
Kerries Link
Muirfield Wy
Bramley Tce
Petworth Dr
Tumbery Wy
Roxburghe Dr
Palomino Prom
Everingham Dr
Ensign Wy
Descent St
Fuschia L
Rufous L
Railway Pde
Pinto Wy
Furlong Rd
Dalmaling Dr
Clydesdale St

Figure 3: Post-development vegetation class and effective slope

Scale 1:4,500 at A3

0 50 100 150 m

N

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 3/04/2019
Author: JCrute
Source: Nearmap: Aerial imagery - 02/2019. Robertsday: Layout and existing cadastre - 20190401.
Path: Q:\Consult\2017\RDP\RDP17502\01_GIS_documents\ArcMap_documents\RDP17502_G002_RevG.mxd

Legend

- Photo points
- Photo direction
- Surface elevation (mAHD)
- Project area
- POS
- Proposed lot
- 100m wide assessment area
- 150m wide assessment area
- Existing cadastre

Vegetation class

- Class A Forest
- Class B Woodland
- Class D Scrub
- Class G Grassland
- Area to be modified to low threat state
- Excluded Clause 2.3.2.3 (b) of AS3959-2009
- Excluded Clause 2.2.3.2 (e) and (f) of AS3959-2009

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RGB

- Red: Band_1
- Green: Band_2

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2.3 BAL contour assessment

Any proposed habitable development that cannot achieve a full 100 m wide low fuel separation distance from post development classified vegetation will require application of AS 3959 to determine appropriate location and siting of development and potential increased building construction standards in response to the assessed BAL.

Strategen has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for proposed development areas (Table 1). The BAL contour assessment is based on post-development conditions on and adjacent to the site. The Method 1 procedure for calculating the BAL (as outlined in AS 3959) incorporates the following factors:

- state-adopted FDI rating
- vegetation class
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by future buildings and subsequently informs the standard of building construction required for proposed buildings to potentially withstand such impacts.

The assessed indicative BAL contours are depicted in Figure 4.

The width of each BAL contour in Figure 4 is set in accordance with AS 3959 and reflects the relevant BAL rating applicable to the respective Class A forest, Class B woodland, Class D scrub or Class G grassland vegetation types situated on the various assessed slopes (refer to Table 1). Where multiple BAL contours conflict/converge based on different assessment parameters, the highest (worst case) BAL has been applied.

The BAL contours are based on post-development conditions and take into consideration the proposed clearing extent, vegetation retention, landscaping and management of POS, resultant vegetation exclusions and proposed management measures in line with this BMP and the subdivision plan.

Table 1: Method 1 BAL calculation

Classified vegetation	Effective slope	Separation distance	BAL rating	Comment
Class A forest (off-site to the south and on-site within POS area 8)	Down-slope >0-5 degrees	<20 m	BAL–FZ	4 lots affected; however, no habitable development is proposed in this area (see Management Actions BMP 1a and 5b)
		20–<27 m	BAL–40	7 lots affected; however, no habitable development is proposed in this area (see Management Actions BMP 1a and 5b)
		27–<37 m	BAL–29	Habitable development may occur in this area
		37–<50 m	BAL–19	Habitable development may occur in this area
		50–<100 m	BAL–12.5	Habitable development may occur in this area
Class B woodland (off-site to the north)	All up-slope and flat land (0 degrees)	<10 m	BAL–FZ	No habitable development is proposed in this area
		10–<14 m	BAL–40	No habitable development is proposed in this area
		14–<20 m	BAL–29	No habitable development is proposed in this area
		20–<29 m	BAL–19	Habitable development may occur in this area
		29–<100 m	BAL–12.5	Habitable development may occur in this area
Class B woodland (off-site to the south and on-site within POS area 8)	Down-slope >0-5 degrees	<13 m	BAL–FZ	2 lots affected; however, no habitable development is proposed in this area (see Management Actions BMP 1a and 5b)
		13–<17 m	BAL–40	6 lots affected; however, no habitable development is proposed in this area (see Management Actions BMP 1a and 5b)
		17–<25 m	BAL–29	Habitable development may occur in this area
		25–<35 m	BAL–19	Habitable development may occur in this area
		35–<100 m	BAL–12.5	Habitable development may occur in this area
Class D scrub (off-site to the north and east)	All up-slope and flat land (0 degrees)	<10 m	BAL–FZ	No habitable development is proposed in this area
		10–<13 m	BAL–40	No habitable development is proposed in this area
		13–<19 m	BAL–29	No habitable development is proposed in this area
		19–<27 m	BAL–19	Habitable development may occur in this area
		27–<100 m	BAL–12.5	Habitable development may occur in this area
Class D scrub (off-site to the north)	Down-slope >0-5 degrees	<11 m	BAL–FZ	No habitable development is proposed in this area
		11–<15 m	BAL–40	No habitable development is proposed in this area
		15–<22 m	BAL–29	Habitable development may occur in this area
		22–<31 m	BAL–19	Habitable development may occur in this area
		31–<100 m	BAL–12.5	Habitable development may occur in this area
Class G grassland (off-site to the north and east)	All up-slope and flat land (0 degrees)	<6 m	BAL–FZ	No habitable development is proposed in this area
		6–<8 m	BAL–40	No habitable development is proposed in this area
		8–<12 m	BAL–29	No habitable development is proposed in this area
		12–<17 m	BAL–19	No habitable development is proposed in this area
		17–<50 m	BAL–12.5	Habitable development may occur in this area
Class G grassland (off-site to the north)	Down-slope >0-5 degrees	<7 m	BAL–FZ	No habitable development is proposed in this area
		7–<9 m	BAL–40	No habitable development is proposed in this area
		9–<14 m	BAL–29	No habitable development is proposed in this area
		14–<20 m	BAL–19	No habitable development is proposed in this area
		20–<50 m	BAL–12.5	Habitable development may occur in this area

2.4 Identification of bushfire hazard issues

Landscape scale fire considerations deal with sites adjacent to development that comprise large areas of continuous, intact and heavy fuel loads such as forest or woodland fuels that often occur on steep or inaccessible terrain that makes early suppression difficult. Intact vegetation adjacent to the project area is limited to bushland areas within Sawpit Gully reserve to the south and west and within bushland to be retained within POS area 8. Given that the bushfire runs are not long within these areas of bushland, Strategen does not consider there to be any landscape scale bushfire risks to the site.

The bushfire risks to proposed development posed by the abovementioned hazards can be managed through standard application of acceptable solutions under the Guidelines, including provision for and implementation of Asset Protection Zones (APZs), relevant bushfire construction standards, provision of adequate emergency water supply and vehicular access, as well as through a direct bushfire suppression response if required.

On this basis, Strategen considers the bushfire hazards within and adjacent to the project area and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS 3959. These responses have been factored in to proposed development early in the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life and property assets.

3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation will enable all proposed lots to be developed with a manageable level of bushfire risk and full compliance with the Guidelines. The management actions recommended are directly referred to in the bushfire compliance table outlined in Table 4 to assist with implementation, enforcement and auditing of all relevant works.

3.1 Asset Protection Zones (APZs)

The BAL contours identified in Figure 4 demonstrate that, with the exception of 19 lots adjacent to POS area 8 and Sawpit Gully reserve, all proposed lots are located within areas of BAL-29 or lower. The 19 proposed lots impacted by small areas of BAL-40 and/or BAL-FZ are developable to BAL-29 or lower with capacity for provision of APZ building setbacks enforced via standard R code setbacks, Local Development Plan provisions and/or subdivision conditions stating restrictive covenants on title. Perimeter roads or PAWs are provided at the interface of all proposed lots adjacent to POS area 8 and Sawpit Gully reserve.

Therefore, all development areas can achieve minimum separation distances outlined in Table 1 through provision of APZs at all interfaces where proposed buildings abut post-development classified vegetation.

Minimum APZ widths required to avoid habitable development in areas of BAL-40/FZ for the 19 affected lots are as follows:

- 27 m adjacent to Class A forest (down-slope, >0–5 degrees) situated within Sawpit Gully reserve and POS area 8 (relevant for 11 lots)
- 17 m adjacent to Class B woodland (down-slope, >0–5 degrees) situated within POS area 8 (relevant for 8 lots).

APZs will comprise of one or a combination of:

- road reserves or PAWs (existing and proposed)
- POS managed in a low fuel state
- managed low fuel areas consisting of adjacent urban development
- building setbacks that are enforced through standard R code setbacks, Local Development Plan provisions and/or subdivision conditions stating restrictive covenants on title.

This will meet minimum APZ requirements as per Guideline acceptable solution A2.1 and will ensure habitable development is avoided throughout all areas of BAL–FZ and BAL–40 as per Guideline acceptable solution A1.1.

APZs will need to be established and maintained on a regular and ongoing basis in accordance with Schedule 1 of the Guidelines (refer to Appendix 4) to achieve a low threat minimal fuel condition in accordance with acceptable solution A2.1 of the Guidelines. This may include regular slashing/weed control of road verges and other grassland fuels where applicable. Timing and responsibilities for APZ implementation and maintenance are outlined below and summarised in Table 4.

Management Action BMP 1a
19 lots adjacent to POS area 8 and Sawpit Gully reserve currently impacted by areas of BAL-FZ and/or BAL-40 (as per Figure 4) will be subject to building setbacks enforced via standard R code setbacks, Local Development Plan provisions and/or subdivision conditions stating restrictive covenants on title to ensure that all lots can achieve a compliant APZ and BAL rating as per Guideline acceptable solutions A1.1 and A2.1.

3.1.1 On-site fuel management

Following future subdivision approval, the developer will be responsible for the management of any vacant lots through regular slashing and weed control to ensure the understorey and surface fuels are kept in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959 until such time that the lots are sold, after which the fuel management responsibility will be transferred to the respective landowners.

Management Action BMP 1b
Cleared vacant lots will be managed on a regular and ongoing basis by the developer until sale of lots after which time landowners will be responsible for ongoing management. Management will involve slashing/mowing of grassland and weeds to height of less than 5 cm, which is driven through compliance with the City of Swan annual firebreak notice (refer to Appendix 5).

3.1.2 POS fuel management

POS areas 10, 11 and 13 within the project area will need to be managed on a regular and ongoing basis through slashing, weed control and manual fuel removal to ensure the understorey and surface fuels are kept in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Individual trees throughout on-site POS areas can be retained for visual/aesthetic/screening purposes. POS management will be the responsibility of the developer until such time that these management responsibilities are transferred to the City.

The northern portion of POS area 8 will be subject to thinning of trees and understorey to achieve separation of canopies consistent with Class B woodland vegetation classification.

Management Action BMP 1c
POS areas 10, 11 and 13 will be subject to ongoing management that will achieve a low threat minimal fuel condition all year around. The required works will include slashing of understorey grasses and weeds on a regular and ongoing basis to maintain fuel loads at less than 2 t/ha and achieve a low threat minimal fuel condition all year round consistent with requirements for an APZ and/or Clause 2.2.3.2 (f). POS management will be the responsibility of the developer, until the land is transferred to the City.

Management Action BMP 1d
The northern portion of POS area 8 will be subject to tree and understorey thinning to achieve an outcome consistent with a Class B woodland vegetation classification. The required works will be undertaken by the developer and will need to be verified via detailed landscape concept plans prepared at the subdivision stage and BAL compliance certification post-completion of all subdivisional/landscaping works (see Management Action BMP 5c).

3.1.3 Road reserve fuel management

Proposed internal roads will be in a non-vegetated state following construction; however, road verges will need to be managed in a similar state to on-site POS to ensure the understorey and surface fuels are kept in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Existing road reserves, currently excluded from classification, will also need to be managed to ensure that fuels are maintained in a low threat, minimal fuel condition. Ongoing road verge management will be the responsibility of the City.

Management Action BMP 1e
Road verges will need to be managed to ensure the understorey and surface fuels remain in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Ongoing road verge management will be the responsibility of the City.

3.1.4 On-site staging buffers

The BAL contour assessment depicted in Figure 4 is based on proposed vegetation clearing and modification within the project area being fully completed.

Management Action BMP 1f
If development (and therefore clearing) is to occur on a staged basis, clearing and fuel reduction in advance will need to occur to ensure building construction is not inhibited by a temporary vegetation extent located within adjacent development stages yet to be cleared. This can be achieved by ensuring that each approved stage subject to construction is surrounded by a 100 m wide, on-site cleared or low threat buffer prior to development (not including vegetation proposed to be retained). Once the buffers are created, they will need to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition all year round until such time that the buffer area is developed as part of the next development stage.

3.2 Increased building construction standards

BAL contours have been derived for the project area through AS 3959 Method 1 BAL assessment, as outlined in Table 1 and Figure 4. These indicative BALs rely on Management Actions BMP 1a, 1b, 1c, 1d, 1e and 1f being implemented.

The BAL contour map outlined in Figure 4 is considered suitable for the purposes of informing future building permit approval processes; however, acceptance of the BAL contour map at future building permit stages is at the discretion of the WAPC/City and a BAL compliance assessment or reassessment of the BAL for individual lots located in designated bushfire prone areas may be required.

Management Action BMP 2a
All dwellings will be constructed to the assessed BAL rating (where applicable), in accordance with this BMP, BMP addendum or BAL compliance prepared to support future subdivision applications.

3.3 Vehicular access

As all proposed residential lots within the project area will directly front the proposed or existing access network, all lots will have at least two different points of vehicular access at all times in accordance with acceptable solution A3.1.

The proposed internal public road network links with the surrounding existing public road network at multiple locations. These access connections provide access/egress to more than two different destinations via Railway Parade, providing access to the north and south, Maralla Road, providing access to the east and west, and Dunnett and Banrock Drive, providing access to the south and west.

One cul-de-sac is proposed as part of the subdivision, situated in the south opposite Sawpit Gully. This cul-de-sac has been introduced to achieve beneficial environmental and visual/landscape amenity outcomes within POS 11 in the form of additional retention of Tuart trees. The previous Development Plan design depicted through-access at this point, which would have resulted in this vegetation having to be cleared. Retention of the Tuart trees does not compromise bushfire safety/mitigation outcomes, since POS 11 will be managed to a low threat state. The proposed cul-de-sac complies with acceptable solution A3.3 in that it is less than 200 m in length (approximately 160 m from the nearest road intersection) and the cul-de-sac head exceeds the minimum 17.5 m diameter requirement (total diameter of approximately 30 m).

No battle-axes, private driveways longer than 50 m, emergency access ways or fire service access routes are proposed or required as part of this BMP. Therefore, acceptable solutions A3.4, A3.5, A3.6 and A3.7 are not applicable in this instance.

Proposed public roads and the cul-de-sac will meet technical requirements outlined in Table 2 in accordance with acceptable solutions A3.2 and A3.3.

Given proposed residential lot sizes are within the thresholds specified by the City, individual lot boundary firebreaks will not be required under acceptable solution A3.8 (also refer to Appendix 5).

Table 2: Vehicular access technical requirements

Technical requirement	Public road	Cul-de-sacs
Minimum trafficable surface (m)	6*	6
Horizontal distance (m)	6	6
Vertical clearance (m)	4.5	N/A
Maximum grade <50 m	1 in 10	1 in 10
Minimum weight capacity (t)	15	15
Maximum crossfall	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5
* Refer to E3.2 Public roads: Trafficable surface (WAPC 2017)		

Management Action BMP 3a
All public roads and the cul-de-sac constructed as part of the development will comply with technical requirements of the Guidelines in accordance with acceptable solution A3.2 and A3.3 (refer to Table 2).

3.4 Reticulated water supply

All proposed lots will be provided a reticulated water supply through extension of existing services from adjacent urban development. The reticulated system will ensure an all year-round supply of water is provided for each lot to meet minimum domestic and emergency water supply requirements to comply with Guideline acceptable solution A4.1.

A network of hydrants will also be provided along the internal road network at locations which meet relevant water supply authority and DFES requirements, in particular the Water Corporation Design Standard DS 63 'Water Reticulation Standard Design and Construction Requirements for Water Reticulation Systems up to DN250'. This standard will guide construction of the internal reticulated water supply system and fire hydrant network, including spacing and positioning of fire hydrants so that the maximum distance between a hydrant and the rear of a building envelope (or in the absence of a building envelope, the rear of the lot) shall be 120 m and the hydrants shall be no more than 200 m apart.

Management Action BMP 4a
Provide a reticulated water supply for all proposed residential lots, as well as a network of hydrants, which meet relevant water authority, DFES and City of Swan technical requirements.

3.5 Additional measures

Strategen makes the following additional recommendations to inform ongoing stages of development.

Management Action BMP 5a
Where relevant, a notification pursuant to Section 165 of the *Planning and Development Act 2005* is to be placed on the certificates of title of proposed lots with a BAL rating of 12.5 or above, advising of the existence of a hazard or other factor. The notification is to state as follows:

This land is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land.

Management Action BMP 5b
A restrictive covenant pursuant to Section 129BA of *the Transfer of Land Act 1893* is to be placed on the title of proposed lots that require building setbacks to avoid habitable development within areas of BAL-40 or BAL-FZ, advising of the restriction on use of the land. The notification is to state as follows:

Habitable buildings are only to take place outside of areas identified as BAL-40 or BAL-FZ.

Management Action BMP 5c
Undertake BAL compliance certification post-completion of all subdivisional works. This will enable BAL certificates to be prepared prior to lot sale and included up-front as part of the contract of sale for individual lots to ensure future lot purchasers have confirmation of the BAL rating as part of the lot sale process. The BAL certificates would be valid for a 12-month period for use to support individual lot building permit applications. This BAL compliance procedure is consistent with Section 4.2 and Appendix 3 of the Guidelines.

Management Action BMP 5d
All parties are to comply with the current City of Swan annual firebreak notice as outlined in Appendix 5, which includes compliance with all requirements of an approved BMP.

Management Action BMP 5e
Reassessment of the BAL to inform individual building permit applications may be required at the discretion of the City or if any changes occur to proposed development design and/or vegetation class extent which may result in a different BAL rating being applied.

406350 406800 407250 407700

6487650 6487200

Maralla Rd
Ellenbrook Rd
Wilding Blvd
Moraba Gr
Fowler L
Saddler L
Dunnett Dr
Anderton St
Janselling Av
Barrock Dr
Mickle Ally
Princep Gra
Gingernup L
Moodah Wy
Dacre L
Lindberg Blvd
Sandy L
Roxburghe Dr
Trolladine Vista
Chalgrave Cr
Kerries Link
Wrinfield Wy
Bramley Tce
Petworth Dr
Turnberry Wy
Roxburghe Dr
Stable Vista
Chydesdale St
Everingham Dr
Rufous L
Ensign Wy
Descent St
Fuschia L
Railway Pde
Pinto Wy
Furlong Rd
Dalmilling Dr

406350 406800 407250 407700

Figure 4: BAL contour assessment: Annie's Landing – Village 7B, Ellenbrook

Scale 1:4,500 at A3

0 50 100 150 m

N

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 3/04/2019
Author: JCrute
Source: Nearmap: Aerial imagery - 02/2019. Robertsday: Layout and existing cadastre, 01/04/2019.
Path: Q:\Consult\2017\RDP\RDP17502\01_GIS_documents\ArcMap_documents\RDP17502_G003_RevH.mxd

Legend

- Project area
- 100m wide assessment area
- 150m wide assessment area
- POS
- Proposed lot
- Existing cadastre
- Classified vegetation

BAL contours

- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5
- BAL Low

stategen ENVIRONMENTAL
info@strategen.com.au
www.strategen.com.au

4. Proposal compliance and justification

Proposed development within the project area is required to comply with SPP 3.7 under the following policy measures:

6.2 Strategic planning proposals, subdivision and development applications

a) Strategic planning proposals, subdivision and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL-LOW apply, are to comply with these policy measures.

b) Any strategic planning proposal, subdivision or development application in an area to which policy measure 6.2 a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.

c) This policy also applies where an area is not yet designated as a bushfire prone area but is proposed to be developed in a way that introduces a bushfire hazard, as outlined in the Guidelines.

6.4 Information to accompany subdivision applications

Any subdivision application to which policy measure 6.2 applies is to be accompanied by the following information in accordance with the Guidelines:

a) a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. BAL Contour Maps should be prepared by an accredited Bushfire Planning Practitioner;

b) the identification of any bushfire hazard issues arising from the BAL Contour Map; and

c) an assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the subdivision site.

Implementation of this BMP is expected to meet the following objectives of SPP 3.7:

5.1 Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.

5.2 Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.

5.3 Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.

5.4 Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7, bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with acceptable solutions of the Guidelines to meet compliance with bushfire protection criteria. An ‘acceptable solutions’ assessment is provided in Table 3 to assess the proposed bushfire management measures against each bushfire protection criteria in accordance with the Guidelines and demonstrate that the measures proposed meet the intent of each element of the bushfire protection criteria.

Table 3: Acceptable solutions assessment against bushfire protection criteria

Bushfire protection criteria	Intent	Acceptable solutions	Proposed bushfire management measures	Compliance statement
Element 1: Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure	A1.1 Development location The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.	Refer to Sections 3.1, 3.2 and Figure 4, which demonstrate that the project area has capacity to ensure that all new habitable development will only occur in areas of BAL-29 or lower. No development will occur in BAL 40 or BAL FZ areas.	The measures proposed are considered to comply and meet the intent of Element 1 Location.
Element 2: Siting and design of development	To ensure that the siting and design of development minimises the level of bushfire impact	A2.1 Asset Protection Zone Every building is surrounded by an APZ, depicted on submitted plans, which meets detailed requirements (refer to the Guidelines for detailed APZ requirements).	Refer to Section 3.1 and Figure 4, which demonstrate that the development area has capacity to achieve minimum APZ requirements to achieve a rating of BAL-29 or lower, with APZs to be established and maintained in accordance with Schedule 1 of the Guidelines (Appendix 4).	The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development
Element 3: Vehicular access	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event	A3.1 Two access routes Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.	Refer to Section 3.3, which demonstrates that two access routes will be achieved for all proposed lots.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access
		A3.2 Public road A public road is to meet the requirements in Table 4 Column 1 of the Guidelines.	Refer to Section 3.3, which demonstrates that all proposed public roads will meet minimum technical requirements of the Guidelines as outlined in Table 2.	
		A3.3 Cul-de-sac (including a dead-end-road) A cul-de-sac and/or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved as per Table 4 Column 2 of the Guidelines.	Refer to Section 3.3, which demonstrates that the proposed cul-de-sac will meet minimum technical requirements of the Guidelines as outlined in Table 2.	
		A3.4 Battle-axe Battle-axe access legs should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved as per Table 4 Column 3 of the Guidelines.	N/A No battle-axes are proposed as part of the development.	
		A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements as per Table 4 Column 3 of the Guidelines.	N/A No private driveways longer than 50 m are proposed as part of the development.	

		A3.6 Emergency access way An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements as per Table 4 Column 4 of the Guidelines.	N/A No emergency access ways are proposed or required as part of the development.	
		A3.7 Fire service access routes (perimeter roads) Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for firefighting purposes. Fire service access routes are to meet detailed requirements as per Table 4 Column 5 of the Guidelines.	N/A No fire service access routes are proposed or required as part of the development.	
		A3.8 Firebreak width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government	Refer to Section 3.3, which demonstrates that no firebreaks will be required.	
Element 4: Water	To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	A4.1 Reticulated areas The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.	Refer to Section 3.4, which demonstrates that all proposed lots will be provided a reticulated water supply and network of hydrants in accordance with local water authority, City and DFES requirements.	The measures proposed are considered to comply and meet the intent of Element 4 Water
		A4.2 Non-reticulated areas Water tanks for firefighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas)	N/A The proposed development will not occur within a non-reticulated area.	
		A4.3 Individual lots within non-reticulated areas (only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10 000 litres.	N/A The proposed development will not occur within a non-reticulated area.	

5. Implementation and enforcement

Implementation of the BMP applies to the developer, landowners and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A bushfire compliance table is provided in Table 4 to drive implementation of all bushfire management works associated with this BMP.

Table 4: Bushfire compliance table

Reference	Action	Timing	Responsibility
BMP 1a (refer to Section 3.1)	19 lots adjacent to POS area 8 and Sawpit Gully reserve impacted by BAL-FZ and/or BAL-40 will be subject to APZ building setbacks enforced via standard R code setbacks, Local Development Plan provisions and/or subdivision conditions stating restrictive covenants on title to ensure that all lots can achieve a compliant APZ and BAL rating as per Guideline acceptable solutions A1.1 and A2.1. All APZs are to be established and maintained in accordance with Schedule 1 of the Guidelines (Appendix 4).	Local Development Plan or provision of subdivision approval conditions	Developer
BMP 1b (refer to Section 3.1.1)	Establish and maintain bushfire fuels within all cleared vacant residential lots to achieve exclusion Clause 2.2.3.2 (f) of AS 3959	Ongoing, all year round	Establishment – developer Maintenance - developer until vacant land is developed, landowners thereafter
BMP 1c (refer to Section 3.1.2)	Establish and maintain POS areas 10, 11 and 13 in a low threat state to achieve exclusion Clause 2.2.3.2 (f) of AS 3959	During subdivisional works, ongoing thereafter (all year round)	Establishment – developer Maintenance - developer until transfer of land, City thereafter
BMP 1d (refer to Section 3.1.2)	Undertake tree and understorey thinning within northern portion of POS area 8 to achieve Class B woodland vegetation classification. Works to be verified via BAL compliance certification post-completion of all subdivisional works (see Management Action BMP 5c).	During subdivisional works	Thinning - developer BAL compliance – developer utilising accredited bushfire planning practitioner
BMP 1e (refer to Section 3.1.3)	Maintain excluded areas of existing road reserves and new road verges in a low threat state to achieve exclusion Clause 2.2.3.2 (f) of AS 3959	Ongoing, all year round	Existing road reserves – City New road reserves – developer until transfer of land, City thereafter
BMP 1f (refer to Section 3.1.4)	Where development is staged, implement and maintain on-site low fuel buffers to achieve exclusion Clause 2.2.3.2 (f) of AS 3959	Prior to development of each stage	Developer
BMP 2a (refer to Section 3.2)	Construct buildings in accordance with AS 3959, either in accordance with this BMP or future reassessment of BALs	At building construction	Landowners / builder
BMP 3a (refer to Section 3.3)	Construct public roads and cul-de-sac in accordance with subdivision approval and relevant technical requirements of the Guidelines	During subdivisional works	Developer
BMP 4a (refer to Section 3.4)	Construct reticulated water supply and network of hydrants in accordance with subdivision approval and water authority, DFES and City technical requirements	During subdivisional works	Developer
BMP 5a (refer to Section 3.5)	Place notification on the Certificates of Title of all proposed lots with a BAL rating of 12.5 or above	At creation of Title	Developer

Reference	Action	Timing	Responsibility
BMP 5b (refer to Section 3.5)	Place restrictive covenant on the Certificates of Title of all proposed lots requiring APZ building setbacks to avoid habitable development with BAL-40 or BAL-FZ	At creation of Title	Developer
BMP 5c (refer to Section 3.5)	Undertake BAL compliance check	Post-completion of subdivisional works and prior to lot title	Developer utilising accredited bushfire planning practitioner
BMP 5d (refer to Section 3.5)	Comply with the City of Swan annual firebreak notice outlined in Appendix 5	Ongoing all year round	All parties
BMP 5e (refer to Section 3.5)	Reassess BALs for individual lots	At the discretion of the City prior to building construction if development design or vegetation class extent is modified from that outlined in this BMP	Developer prior to lot sale, future landowners thereafter

6. References

Department of Fire and Emergency Services (DFES) 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*, 19/12/2017].

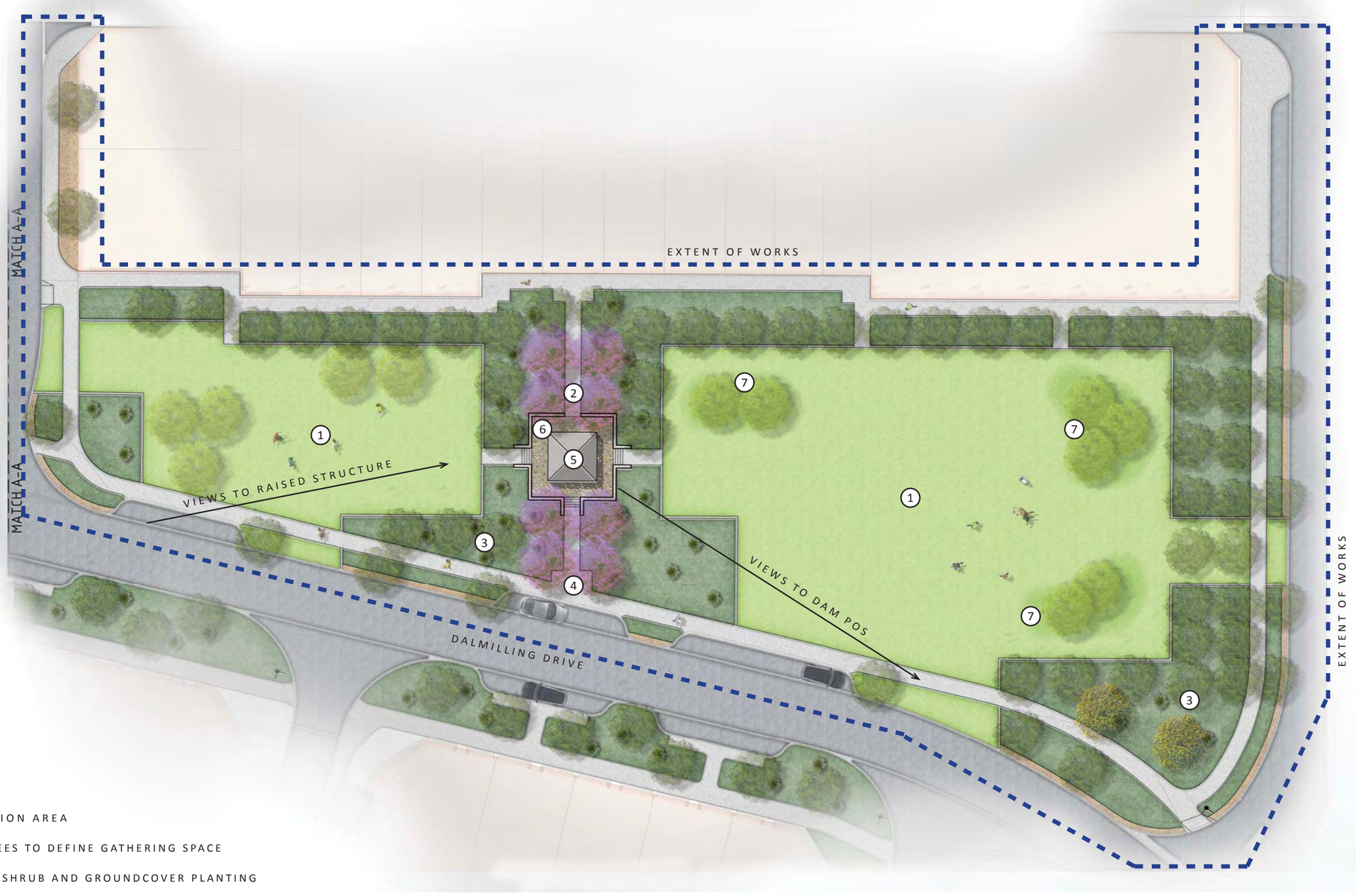
Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth, WA.

Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

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

Western Australian Planning Commission (WAPC) 2017, *Guidelines for Planning in Bushfire-Prone Areas*, Version 1.2 August 2017, Western Australian Planning Commission, Perth.

Appendix 1
Landscape concept plans (POS areas 10, 12 and 13)



KEY IDEAS:

1. TURF RECREATION AREA
2. JACARANDA TREES TO DEFINE GATHERING SPACE
3. FEATURE TREE, SHRUB AND GROUNDCOVER PLANTING
4. COLOURED CONCRETE ACCESS PATH
5. FEATURE SHELTER WITH PICNIC SETTING
6. FEATURE EXPOSED AGGREGATE PAVEMENT WITH PERIMETER RETAINING WALLS
7. TURF MOUNDING

ANNIE'S LANDING DALMILLING DRIVE POS
PREPARED FOR ELLENBROOK MANAGEMENT PTY LTD

LANDSCAPE CONCEPT PLAN

JOB NO. 1001551 C1.101 REV A MAY 2017
1:250 @ A1
0 5 10 20 30 50m

LANDSCAPE ARCHITECTS
414 ROKEBY RD SUBIACO WA 6008
T: (08) 9388 9566 E: mail@plane.com.au
LANDSPACE PTY LTD ACN 056 538 679

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PLAN E



STREET TREES

DRAINAGE SWALE WITH NATIVE PLANTING

DOG CIRCUIT

GARDEN BED PLANTING TO GENERATE DOG PLAY CIRCULATION

DRAINAGE CHANNEL PLANTED WITH RUSHES & LINED WITH BOULDERS TO CREATE EPHEMERAL WATER COURSE

TIMBER DECK BRIDGE

EXISTING TREES TO BE RETAINED

BENCH SEATING WITH WATER FOUNTAIN

DOG CIRCUIT

FENCE TO PERIMETER OF DOG PARK WITH ENTRY GATES AT PAVEMENT POINTS

PROPOSED TREES

NOTE: ALL AREAS OUTSIDE OF EXTENT OF WORKS SHOWN TO BE PLANTED WITH UNIRRIGATED TUBESTOCK PLANTING.









ANNIES LANDING - STAGE 15 DOG PARK

CONCEPT PLAN
SEPTEMBER 2017

JOB NO. 1001563
1:250 @ A1

C1.101

REV A

0 5 10 15 25m

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PLAN E
LANDSCAPE ARCHITECTS
414 ROKEBY RD SUBIACO WA 6008
T: (08) 9388 9566 E: mail@plane.com.au



ANNIE'S LANDING - EASTERN DAM POS

PREPARED FOR ELLENBROOK MANAGEMENT PTY LTD.

LANDSCAPE CONCEPT PLAN

JOB NO. 1001533 C1.101 REV B MAY 2015

1:300 @ A1

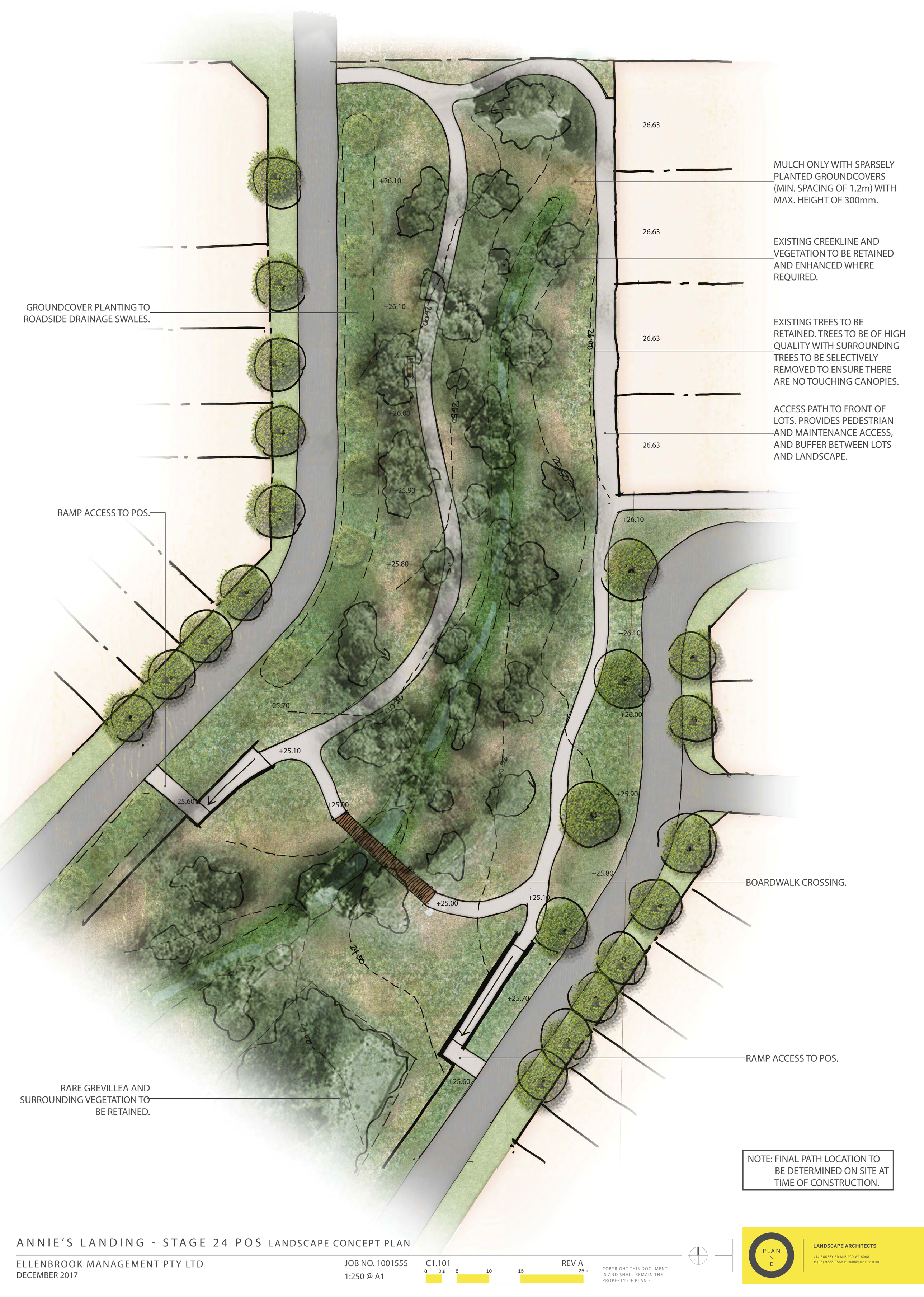
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Appendix 2
Landscape concept plans (POS area 8)



NOTE: FINAL PATH LOCATION TO BE DETERMINED ON SITE AT TIME OF CONSTRUCTION.

ANNIE'S LANDING - STAGE 24 POS LANDSCAPE CONCEPT PLAN

ELLENBROOK MANAGEMENT PTY LTD
DECEMBER 2017

JOB NO. 1001555
1:250 @ A1

C1.101

REV A

0 2.5 5 10 15 25m

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ANNIE'S LANDING STAGE 24 POS

PREPARED FOR ELLENBROOK MANAGEMENT PTY LTD

LANDSCAPE CONCEPT PLAN

JOB NO. 1001555

1:500 @ A3

C1.101 REV A OCT 2016

0 2.5 5 10 15 25m

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Appendix 3
Site photos



Photo 1: Off-site Class A forest within Sawpit Gully reserve to the south



Photo 2: Off-site Class A forest within Sawpit Gully reserve to the south



Photo 3: Off-site Class A forest within Sawpit Gully reserve to the south



Photo 4: On-site Class A forest within POS area 8



Photo 5: On-site Class A forest within POS area 8



Photo 6: Off-site Class B woodland to the north



Photo 7: Off-site Class D scrub to the north



Photo 8: Off-site Class D scrub to the north



Photo 9: Off-site Class D scrub within rail reserve to the east



Photo 10: Off-site Class D scrub (in background) and Class G grassland (in foreground) within rail reserve to the east



Photo 11: Off-site Class D scrub (in background) and Class G grassland (in foreground) within rail reserve to the east



Photo 12: Off-site Class G grassland to the north



Photo 13: Off-site Class G grassland to the north



Photo 14: Off-site Class G grassland to the north



Photo 15: Off-site Class G grassland to the north



Photo 16: Off-site Class G grassland within rural land to the northeast



Photo 17: Off-site Class G grassland within rail reserve to the east



Photo 18: Off-site Class G grassland within rail reserve and rural land to the east



Photo 19: On-site excluded areas (Clause 2.2.3.2 b) within POS area 12



Photo 20: On-site excluded areas (Clause 2.2.3.2 f) within POS area 11

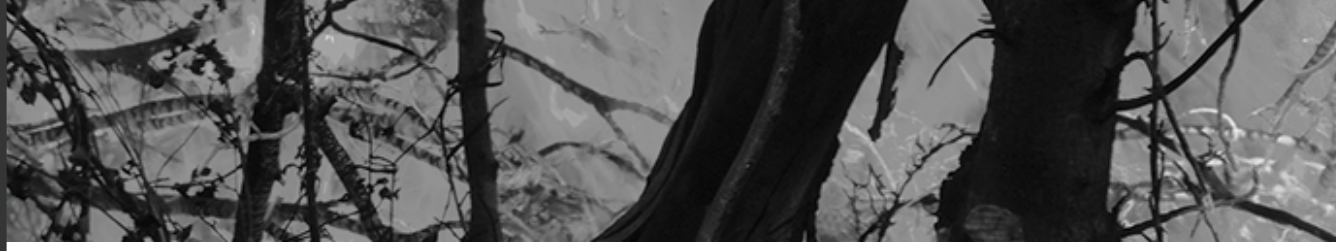


Photo 21: Off-site excluded areas (Clauses 2.2.3.2 e and f) to the north



Photo 22: Off-site excluded areas (Clauses 2.2.3.2 e and f) to the south

Appendix 4
APZ standards of the Guidelines
(Schedule 1)

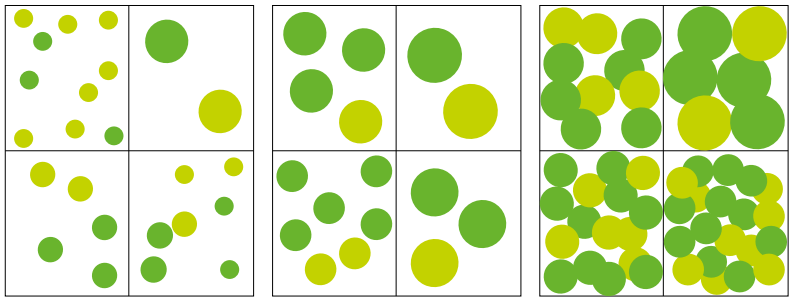


ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **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 16: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **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 5m^2 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.

Appendix 5
City of Swan annual firebreak notice, as amended

COMMUNITY SAFETY

Fire Season Guide

2018/19



city of swan

Firebreaks and Hazard Reduction measures must be carried out by November 1 and maintained up to April 30 inclusive.

FIRE SEASON QUICK GUIDE					
BURNING RESTRICTIONS					
RESTRICTED BURNING PERIOD		**PROHIBITED BURNING PERIOD**		**RESTRICTED BURNING PERIOD**	
Permits Required to Burn		Burning Prohibited		Permits Required to Burn	
From Oct 1	Until Nov 30	From Dec 1	Until Mar 31	From Apr 1	Until May 31
FIREBREAKS AND HAZARD REDUCTION REQUIREMENT PERIOD					
INSTALL BY NOVEMBER 1		**MAINTAIN UNTIL APRIL 30**			

All burning is prohibited on days where:

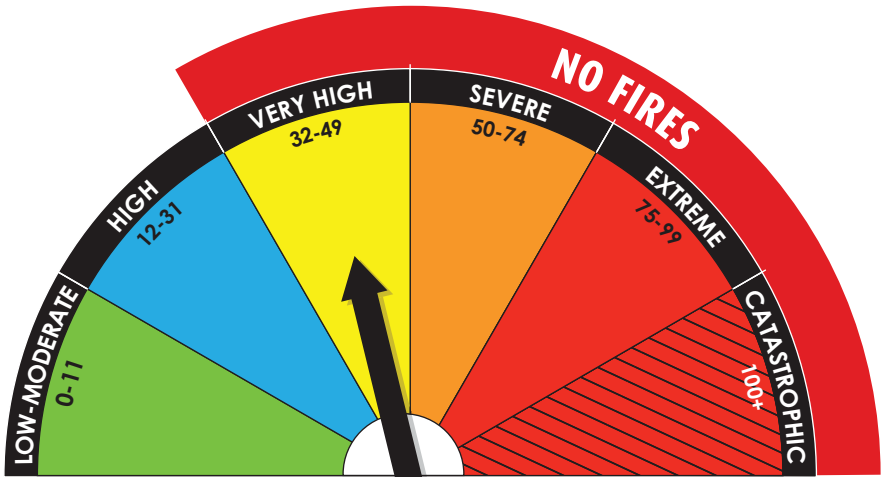
- the Fire Danger Rating is Very High or above or;
- a Total Fire Ban has been declared or;
- a Harvest and Vehicle Movement Ban has been declared

Restricted and Prohibited Period dates may be altered according to seasonal conditions, these changes will be advertised.

Burning is prohibited on land less than 2000m^2.
Exemptions are listed on page 8.

Call 000 for all fires and life threatening emergencies.

Important contacts



Fire Danger Rating is supplied daily by the Bureau of Meteorology at **www.bom.gov.au** and also available from the Telstra Weather Service by calling **1196**.

City of Swan

Fire Information - **9267 9326**
General enquiries - **9267 9267**
or visit **www.swan.wa.gov.au**

Department of Fire & Emergency Services

Emergency information line (Alerts & Warnings):
13 33 37 or **www.emergency.wa.gov.au**

Total Fire Ban information line:
1800 709 355 or **www.emergency.wa.gov.au**

General fire safety information:
www.dfes.wa.gov.au

City of Swan Bushfire Hazard Regulations

Property owners are advised to read and familiarise themselves with the Annual Fire Hazard Reduction Notice contained on pages 11-25 of this booklet and ensure that requirements contained within the notice are carried out and maintained during the regulated firebreak periods. Property owners who are unsure of their responsibilities may contact the City of Swan for further information.

This booklet includes information on:

- Fire Safety on Your Property
- Asset Protection Zone
- Bushfire Management Plans
- Firebreaks and Fire Service Access (Strategic Firebreaks)
- Burning Restrictions
- Fire Safety Bans
- Fire Hazard Reduction Notice (Firebreak Notice)

Fire Safety on your Property

Property owners are required to reduce fire hazards and install firebreaks prior to **November 1, 2018** and maintain their property in that condition until **April 30, 2019**. The bushfire hazard reduction strategies outlined below are minimum legal requirements to reduce the likelihood and impact a bushfire may have on life, property and the environment.

Land up to 5,000m^2 (0.5 Hectares or 1.2 Acres)

- Install and maintain an asset protection zone.
- Maintain all grass to or under 5cm high.
- If your land predominantly consists of dense native vegetation, firebreaks or additional understory maintenance may be required.
- Native vegetation should be maintained at or below 8 tons per hectare.

Land between 5,000m^2 and 25,000m^2 (0.5 - 2.5 Hectares) or (1.2 - 6.2 Acres)

- Install and maintain an asset protection zone.
- Install firebreaks immediately inside and adjacent to all external property boundaries. Firebreaks need to be 3 metres wide with a 4 metre vertical height clearance free from flammable materials and overhanging branches.
- Maintain all grass to a height of no greater than 10cm.
  - If the land is stocked, the grass must be reduced and maintained to a height of no greater than 10cm by the 1st day of December.
- Natural vegetation within 100 metres of buildings including attached and adjacent structures and essential infrastructure shall be maintained at or below 8 tonnes per hectare.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

Land with an area greater than 25,000m^2 (2.5 Hectares or 6.2 Acres)

- Install and maintain an asset protection zone.
- Install firebreaks immediately inside and adjacent to all external property boundaries. Firebreaks need to be 3 metres wide with a 4 metre vertical height clearance free from flammable materials and overhanging branches.
- Properties over 100 hectares require additional firebreaks to divide the land into areas not exceeding 100 hectares.
- Slash or mow grass to a height no greater than 10cm immediately adjacent to firebreaks to a minimum width of 3 metres.
  - If the land is stocked, this grass must be reduced and maintained to a height of no greater than 10cm by the 1st day of December.
- Natural vegetation within 100 metres of buildings including attached and adjacent structures and essential infrastructure shall be maintained at or below 8 tonnes per hectare.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements within that plan.

Asset Protection Zone

Asset Protection Zone (APZ), also known as a Building Protection Zone (BPZ), is a fuel-reduced area that surrounds habitable buildings and other assets. A well maintained APZ can minimise the likelihood and impact that direct flame contact, radiant heat and ember attack may have on buildings in the event of a bushfire.

The APZ extends out from the external walls of an asset or building to a minimum distance of 20m.



APZ requirements include:

- Maintain fuel loads at 2 tonnes per hectare or lower.
  Note: Complete removal of native vegetation is NOT required
- Maintain grass at 5cm or under
- Keep tree crowns or branches clear from overhanging buildings
- Maintain clear separation between tree crowns
- Under prune trees to 2m from the ground
- Ensure shrubs taller than 2m are not located within 2m of the building
- APZ requirements only apply within the boundaries of the lot on which the asset is located and cannot be enforced across boundaries.

Refer to the Fire Hazard Reduction Notice on pages 18 of this booklet for the complete list of Asset Protection Zone requirements. Permanent clearing of vegetation beyond the requirements of the Fire Hazard Reduction Notice is not permitted and requires approval from the Department of Water and Environmental Regulation and the City of Swan.

Fire Management Plans

Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements of the Annual Fire Hazard Reduction Notice and with any additional requirements outlined within that plan.



Example of a compliant firebreak

Firebreaks and Fire Service Access (Strategic Firebreaks)

Firebreaks, Fire Service Access (Strategic Firebreaks) and emergency access ways must be constructed and maintained to the standard specified in the City of Swan Fire Hazard Reduction Notice (see pages 11-25 of this booklet for details).

Type	Dimensions	Trafficable surface
Firebreak	3m wide 4m height	3m Suitable for 4 x 4 vehicles
Fire Service Access (Strategic Firebreak)	6m wide 4m height	4m Suitable for 4 x 4 vehicles
Emergency Access Way	6m wide 4m height	6m Suitable for all types of vehicles in all weather

Engaging Contractors

Landowners, including absentee landowners, must make efforts to verify contractor work is being completed to the standard required and not rely on their contractor's word; ultimately it is the land owner's responsibility to ensure their property complies with the annual Fire Hazard Reduction Notice.

Precautions when Slashing

Slashing and mowing can cause fires. These activities should not be undertaken in hot or windy weather. It is recommended that a suitable fire extinguisher is fitted to any machinery undertaking these activities.

Restricted and Prohibited Burning Times

Burning is Restricted from October 1 to November 30 and April 1 to May 31 inclusive.

During this period you are not permitted to burn without a burning permit. You may request a permit from your local Fire Control Officer – see details on the inside back cover of this booklet.

Burning is Prohibited December 1 to March 31 inclusive.

Burning is also prohibited on any day when the Fire Danger Rating reaches Very High or above or if a ban has been declared.

Burning Restrictions

All burning, including exemptions, is prohibited on days when the Fire Danger Rating is Very High or above, or whenever a Total Fire Ban or a Harvest and Vehicle Movement Ban has been declared (see Fire Safety Bans on pages 8-9 of this booklet for details).

Seasonal Restrictions (for dates see inside cover of this booklet)

Prohibited period

All burning, including garden refuse is prohibited during this period. Exemptions are listed on page 8.

Restricted period

Burning requires a permit except for garden refuse that may be burnt subject to conditions listed below. Additional exemptions are listed on page 8.

Conditions for burning garden refuse:

The fire must not be lit if the Fire Danger Rating is Very High or above, or if a Total Fire Ban or Harvest and Vehicle Movement Ban is declared.

The pile of refuse being burnt does not exceed 1 cubic metre and only one pile is alight at any time.

- A 5 metre wide area clear of flammable material surrounds the pile.
- The fire is only lit between 6 pm and 11 pm and completely extinguished by midnight.
- At least one person capable of controlling the fire is in attendance at all times and adequate means of extinguishing the fire is available at all times (e.g. garden hose or a fire appliance).
- You notify your neighbours of your intention to burn and the smoke from your fire doesn't cause a nuisance to neighbours or obscure the vision of motorists.
- You do not burn household or commercial waste, any noxious materials or any damp, wet or green material which could cause excessive smoke at any time.

Burning Prohibited on Land less than 2000m^2

As per Consolidated Local Law 2005 and in addition to seasonal burning restrictions; due to the impact smoke may have on densely built-up areas, burning is not permitted any time on land with an area less than 2,000m^2 (1/2 acre). Exemptions are listed below.

Exemptions

Exemptions include operations of a barbeque, a heater, water heater, space heater, stove, oven or incinerator. These must be fully enclosed and fired with dry wood, dry paper, synthetic char or charcoal type fuel. Suitable precautions must be taken so that no nuisance smoke arises. Causing excessive smoke is a prosecutable offence under the City's Health Local Laws.

Alternatives to Burning

Consider the environment and the effect smoke may have on the surrounding community, and whenever practical use alternative methods of fuel reduction like composting, mulching, slashing grass or the application of herbicides. Green waste can be deposed at Red Hill and Bullsbrook waste transfer stations or by utilising the City's curb side collection service.

Fire Safety Bans

When a Total Fire Ban or a Harvest or Vehicle Movement Ban has been declared it is illegal to carry out any activity that is likely to cause a fire.

The responsibility remains on the individual to ensure that the activity undertaken will not cause a fire, and that a ban is not currently in place.

Total Fire Bans are declared by the Department of Fire & Emergency Services (DFES) during times of extreme weather conditions or when the possibility of widespread bushfires may impact heavily on resources.

Harvest and Vehicle Movement Bans are declared by the Local Authority and limits the operation of machinery and plant equipment likely to cause a fire when operated over or near flammable material, dry grass, stubble or bush.

Similarly, conducting 'hot works' like operating abrasive cutters, welders or any other activity in the open air that may cause sparks and ignite vegetation are also not permitted during a Harvest and Vehicle Movement Ban.

When a ban has been declared **you must not:**

- Light a fire in the open air.
- Cook outside in the open air using an open fire (this includes under verandas and patios).
- Move vehicles or plant equipment in bushland or paddocks (see necessary agricultural activities*)
- Harvesting (see necessary agricultural activities*)
- Undertake 'hot works' such as welding, grinding or activity that may cause a spark or ignition unless you have an exemption issued by DFES.
- Use fireworks or hot air balloons.

When a ban has been declared **you may:**

- Use a gas cooker or barbeque with an enclosed flame on your own property or in a public recreational area designated for that purpose.
- Undertake essential feeding and watering of stock.
- Use mowers, chainsaws, line and hedge trimmers and similar plant in built up urban environments which are clear of flammable materials or surrounded by green grass etc.
- Conduct any work that has been covered by a current and relevant exemption, and provided that all conditions on that exemption are adhered to.

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*__Necessary Agricultural Activities__ are activities that cannot be postponed until after a Total Fire Ban ends without consequence to livestock or crops. These activities are permitted to continue with caution during a Total Fire Ban but harvesting of crops or movement across paddocks are not permitted if a Harvest and Vehicle Movement Ban has been declared.

During a Harvest and Vehicle Movement Ban, vehicles may be used or operated on or across a paddock only if it is for the prevention of an immediate or serious risk to a person or livestock, and only if reasonable precautions have been taken for that activity to prevent causing a bushfire.

Total Fire Ban Exemptions may be granted if you are able to demonstrate you are taking adequate precautions to prevent the ignition or spread of a fire, and you have suitable personnel and resources to extinguish a fire that may start. Exemptions for Total Fire Bans must be obtained from DFES in writing and are specific to activities, times and locations.

Total Fire Ban Activation and Additional Information

Activation and additional information is available on the DFES websites **www.dfes.wa.gov.au** and **www.emergency.wa.gov.au** or by calling the Total Fire Ban information line **1800 709 355**.

Information is also broadcasted on ABC local Radio frequency 720AM and other media outlets.

Harvest and Vehicle Movement Ban Activation and Additional Information

Activations and additional information is available by calling the City's Fire & Emergency Information Line on **9267 9326** and on the City of Swan website **www.swan.wa.gov.au**

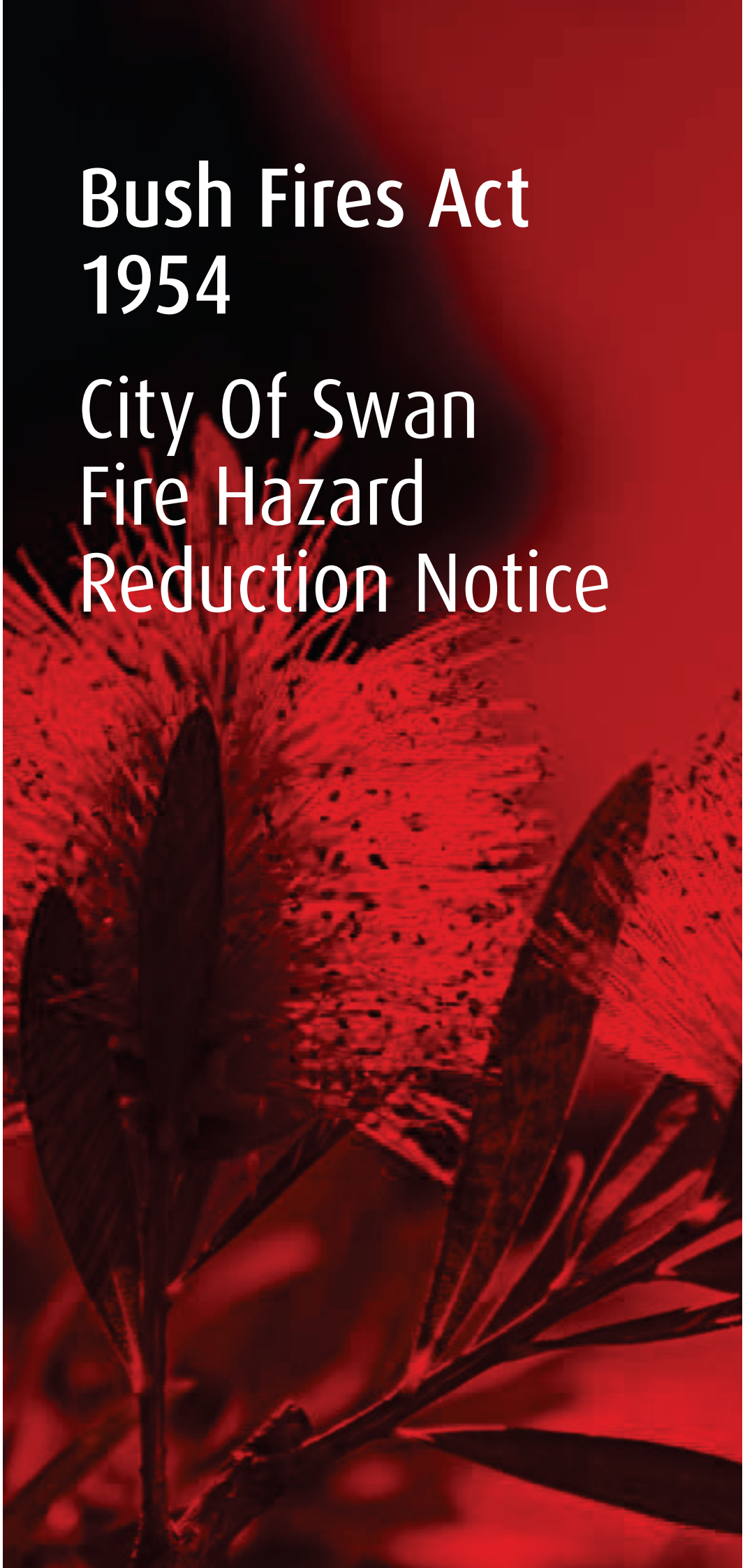
Information is also broadcasted on ABC local Radio frequency 720AM and other media outlets.

Penalties Apply

You could be fined up to $25,000 or imprisoned for 12 months, or both, if you ignore or commit an offence in relation to Total Fire Bans and Harvest and Vehicle Movement Bans.

Bush Fires Act 1954

City Of Swan Fire Hazard Reduction Notice



BUSH FIRES ACT 1954

City of Swan
Fire Hazard Reduction Notice
(Firebreak Notice)

Notice to Owners and/or Occupiers of land situated within the City of Swan.

To assist in the control of bush fires, and pursuant to Section 33 of the Bush Fires Act 1954, all owners and occupiers of land within the City of Swan are required on or before the 1st day of November, 2018, or within 14 days of becoming an owner or occupier of land after that date, to take all measures in accordance with this notice and maintain those measures to the required condition up to and including the 30th day of April, 2019.

1. All land up to 5,000m² (0.5 Hectares or 1.2 Acres)

1) Install and maintain an asset protection zone in accordance with the requirements specified in clause 13 of this notice.
2) Maintain all grass to a height of no greater than 5cm.
3) Areas of natural vegetation to be maintained at or below 8 tonnes per hectare.
4) Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

2. All land between 5,000m² and 25,000m² (0.5 - 2.5 Hectares) or (1.2 - 6.2 Acres)

1) Install and maintain an asset protection zone in accordance with the requirements specified in clause 13 of this notice.
2) Install firebreaks immediately inside and adjacent to all external property boundaries. Firebreaks need to be 3 metres wide with a 4 metre vertical height clearance free from flammable materials and overhanging branches (see section 10 in this notice for further details).

3) Maintain all grass to a height of no greater than 10cm.
    a) If the land is stocked, the grass must be reduced and maintained to a height of no greater than 10cm by the 1st day of December.
4) Natural vegetation within 100 metres of buildings including attached and adjacent structures and essential infrastructure shall be maintained at or below 8 tonnes per hectare, by passive methods of fuel reduction that does not permanently remove or reduce the quantity or occurrence of the native plants, shrubs and trees within the subject area.
5) Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

3. All land with an area greater than 25,000m^2 (2.5 Hectares or 6.2 Acres)

1) Install and maintain an asset protection zone in accordance with the requirements specified in clause 13 of this notice.
2) Install firebreaks immediately inside and adjacent to all external property boundaries. Firebreaks need to be 3 metres wide with a 4 metre vertical height clearance free from flammable materials and overhanging branches (see section 10 in this notice for further details).
    a) Properties over 100 hectares require additional firebreaks to divide the land into areas not exceeding 100 hectares.
3) Slash or mow grass to a height no greater than 10cm immediately adjacent to firebreaks to a minimum width of 3 metres.
    a) If the land is stocked, this grass must be reduced and maintained to a height of no greater than 10cm by the 1st day of December.

4) Natural vegetation within 100 metres of buildings including attached and adjacent structures and essential infrastructure shall be maintained at or below 8 tonnes per hectare, by passive methods of fuel reduction that does not permanently remove or reduce the quantity or occurrence of the native plants, shrubs and trees within the subject area.

5) Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

4. Plantations

1) Install and maintain external and internal firebreaks, firebreaks that form compartments (cells), firebreaks and hazard reduction measures that protect neighbouring communities and essential infrastructure in accordance with the requirements of a fire management plan approved in writing by the City; or

2) Where no such approved fire management plan exists,

   a) Unless the City approves an alternative plan in writing in accordance with clause 4(2)(b), install and maintain external and internal firebreaks and firebreaks that form compartments (cells), and carry out all other firebreaks and hazard reduction measures which are required in accordance with the requirements and specifications within the Department of Fire & Emergency Services 'Guidelines for Plantation Fire Protection' 2011 publication; or

   b) If it is considered impractical for any reason to carry out the plantation requirements outlined above in clause 4 (2)(a), plantation owners and managers may apply in writing to the City to implement an alternative plan or measures in accordance with clause 4 of this notice. A Fire Management Plan may be required to be developed and submitted as part of the application.

5. Application to Vary Firebreak and Hazard Reduction Requirements

1) If it is considered impractical for any reason to clear firebreaks in a manner or location required by this notice, or to carry out on the land any fire hazard reduction work or measures required by this notice, you may apply in writing on or before the 15th day of October, 2018 for approval to provide firebreaks in alternative positions or to take alternative measures to abate fire hazards on the land. Alternative firebreak application forms can be downloaded from the City of Swan website.

2) If permission is not granted in writing by the City prior to the 1st day of November, 2018 you shall comply with the requirements of this notice.

3) When permission to provide alternative firebreaks or fire hazard reduction measures has been granted, you shall comply with all conditions on the endorsed permit and maintain the land to the required standard throughout the period specified by this notice.

    a) Where a property is affected by an approved bushfire management plan, property owners must comply with any additional requirements and responsibilities outlined within that plan.

6. Fuel Dumps and Depots

Remove all flammable material within 10 metres of fuel dumps, fuel ramps or where fuel drums, whether containing fuel or not, are stored.

7. Hay Stacks

Clear and maintain a firebreak completely surrounding any haystack on the land, within 60 metres of the haystack.

8. Fire Service Access (Strategic Firebreaks)

1) Where under a written agreement with the City, or where depicted on an approved bushfire management plan Fire Service Access (Strategic Firebreaks) are required on the land, you are required to clear and maintain the Fire Service

Access (Strategic Firebreaks) a minimum of 6 metres wide along the agreed alignment to provide restricted vehicular access to emergency services and authorised vehicles.

2) Fire Service Access (Strategic Firebreaks) must be unimpeded by obstructions including boundary fences unless fitted with gates and signage approved in writing by the City.

3) Gates may only be secured with City of Swan Fire Service padlock

4) Fire Service Access (Strategic Firebreaks) shall be graded to provide a continues 4 wheel drive trafficable surface a minimum of 4 metres wide with a 1m shoulder on either side.

5) All branches must be pruned and obstacles removed to maintain a 4 metre vertical height clearance above the full 6 metre width of the trafficable surface.

9. Emergency Access Ways

1) Where under a written agreement with the City, or where depicted on an approved bushfire management plan, Emergency Access Ways are required on private land, you are required to clear and maintain a vehicular access way to a minimum of 6 metres wide along the agreed alignment.

2) Emergency access ways must be unimpeded by obstructions including boundary fences unless fitted with gates and signage approved in writing by the City.

3) Gates on Emergency Access Ways must remain unlocked at all times.

4) Emergency Access Ways shall be graded and have suitable drainage to provide a minimum 6 metre wide continuous trafficable surface suitable for all types of 2 wheel drive vehicles.

5) All branches must be pruned and obstacles removed to maintain a 4 metre vertical height clearance above the full 6 metre width of the trafficable surface.

10. Firebreak Construction

1) Firebreaks are to be developed and maintained clear of all obstacles and flammable materials to create a minimum of 3 metres wide trafficable surface suitable for 4 wheel drive vehicles.

2) Overhanging branches must be pruned to provide a 4 metre vertical clearance above the full width of the firebreak surface.

3) Boundary firebreaks must be aligned immediately inside and adjacent to the external property boundaries.

4) Alternative Firebreaks that are approved in writing by the City, or as depicted within a bushfire management plan approved in writing by the City, are to be constructed to the same standard as general firebreaks and must be constructed along the specified alignment.

5) Firebreaks must not terminate in a dead end.

6) Firebreaks may be constructed by ploughing, grading, raking, burning, chemical spraying or any other approved method that achieves the required standard.

11. Driveways

Where building sites are situated more than 50 metres from a public road,

1) Driveways must be maintained clear of all permanent obstacles and flammable materials to create a minimum 3 metre wide trafficable surface suitable for all types of 2 wheel drive vehicles.

2) Overhanging branches must be pruned to provide a 4 metre vertical clearance above a minimum 3 metre width over the driveway.

12. Fuel Reduction – Natural Vegetation

1) Available bushfire fuels must be maintained at or below:

   a) Asset Protection Zones - 2 tonnes per hectare

   b) Hazard Separation Zones - 8 tonnes per hectare
   *This requirement only applies where HSZs are depicted within a Fire Management Plan approved in writing by the City.

   c) Natural Vegetation - 8 tonnes per hectare for areas of natural vegetation within 100 metres of buildings, attached and adjacent structures and essential infrastructure

2) Passive Fuel Reduction within natural vegetation may be achieved by burning, raking, pruning, weed management, removal of dead materials and any other approved method.

3) Permanent removal or partial clearing of natural vegetation including individual or groups of native grasses, shrubs or trees may only be carried out in accordance with the minimum requirements of this notice.

4) Permanent clearing of natural vegetation structures including individual plants, shrubs or trees, that exceeds the requirements of this notice or the specifications outlined within a bushfire management plan approved in writing by the City, is only permitted in accordance with the provisions and exemptions outlined within the Environmental Protection Act 1986, or with the approval of the Department of Water and Environmental Regulation and the City of Swan.

   Note: Advice and resources on how to measure and manage native vegetation fuel loads are available from the Department of Fire and Emergency Services or the City of Swan.

13. Asset Protection Zones Specification

Asset protection zones for habitable buildings and other assets must meet the following requirements:

1) Asset protection zones for habitable buildings must extend a minimum of 20 metres out from any external walls of the building, attached structures, or adjacent structures within 6 metres of the habitable building, unless varied under an approved bushfire management plan.

2) On sloping ground the asset protection zone distance shall increase with 1 metre for every degree in slope on the sides of the building/ structure that are exposed to down slope natural vegetation.

3) Asset protection zone requirements only apply within the boundaries of the lot on which the asset is located and cannot be enforced across boundaries.

4) Recommendation Only - Asset protection zones predominantly consist of non-flammable managed vegetation, reticulated lawns and gardens and other non-flammable features.

5) All grass is maintained to or under 5cm.
6) Fuel loads must be reduced and maintained at 2 tonnes per hectare or lower.
7) The crowns of trees are to be separated where possible to create a clear separation distance between adjoining or nearby tree crowns. The separation distance between tree crowns is not required to exceed 10 metres. Clearing or thinning existing trees to create distances greater than 10 metres separation between tree crowns within an asset protection zone is not required or supported by this notice and requires approval from the Department of Environment and Regulation and the City of Swan.
8) A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species.
9) Trees are to be low pruned (or under pruned) to at least a height of 2 metres from ground.
10) No tree, or shrub over 2 metres high is planted within 2 metres of a building, especially adjacent to windows.
11) There are no tree crowns or branches hanging over buildings.
12) Clear and prune scrub to reduce to a sparse density (able to walk through vegetation with relative ease with minimal deviation around trees and shrubs).
13) Install paths or clear flammable or dry vegetation, debris and materials immediately adjacent to the building.
14) Wood piles and flammable materials stored a safe distance from buildings.

14. Burning

All burning must be carried out in accordance with the relevant provisions of this notice and the Bush Fires Act 1954.

Prohibited period: All burning, including garden refuse is prohibited during this period.

Restricted period: All burning requires a permit. Garden refuse is exempt and may be burnt without a permit after 6pm subject to conditions within the Bush Fires Act 1954, Health Act 1911 and compliance with the City's Consolidated Local Laws 2005. Conditions of burning include:

1) The fire must not be lit if the Fire Danger Rating is Very High or above, or if a Total Fire Ban or a Harvest and Vehicle Movement Ban is declared.
2) The pile of refuse being burnt does not exceed 1 cubic metre and only one pile is alight at any time.
3) A 5 metre wide area clear of flammable material surrounds the pile.
4) The fire is only lit between 6 pm and 11 pm and completely extinguished by midnight.
5) At least one person capable of controlling the fire is in attendance at all times and adequate means of extinguishing the fire is available at all times (e.g. garden hose or a fire appliance).
6) You notify your neighbours of your intention to burn and the smoke from your fire doesn't cause a nuisance to neighbours or obscure the vision of motorists.
7) You do not burn household or commercial waste, any noxious materials or any damp, wet or green material which could cause excessive smoke at any time.

15. Compliance

1) In addition to the requirements of this notice, further works which are considered necessary by an Authorised Officer of the City may be required as specified in writing in a subsequent notice addressed to the land owner.
2) Where the owner or occupier of the land fails or neglects to comply with the requirements of this notice or a subsequent notice addressed to the land owner, the City of Swan may enter onto the land with workmen, contractors, vehicles and machinery to carry out the requisitions of the notice at the expense of the land owner.
3) Failure to comply with this notice and subsequent written notices may result in a penalty not exceeding $5,000, or the issue of a $250 infringement notice and liability for any costs incurred by the City in relation to works undertaken on behalf of the land owner.

4) Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.

16. Definitions

'**Alternative Firebreak**' is a firebreak that is in an alternative position or alignment to the external boundaries of a property.

'**Alternative Firebreak Application**' is an application that may be made by a land owner to install firebreaks in an alternative position, or to carry out an alternative measures in lieu of general firebreaks.

'**Available Fuel**' is the bush fuel consisting of live and dead vegetation such as stubble, mulch, leaf litter, twigs, trash, scrub and other vegetation less than 6mm in diameter capable of carrying a running fire and will actually burn under prevailing conditions.

'**City**' means the City of Swan.

'**Buildings, Attached and Adjacent Structures**' means habitable buildings that are used as a dwelling, workplace, place of gathering or assembly, a building that is a car park, or a building used for the storage or display of goods or produce for sale by whole sale in accordance with classes 1-9 of the Building Code of Australia. The term building includes attached and adjacent structures like garages, carports verandas or similar roofed structure(s) that are attached to, or within 6 metres of the dwelling or primary building.

'**Asset Protection Zone (APZ)**' is a low fuel area that is reduced of flammable vegetation and materials surrounding buildings and essential infrastructure to minimise the likelihood and impact that direct flame contact, radiant heat or ember attack may have on buildings and assets in the event of a bushfire. This area must extend out from the external walls of a building or asset a minimum of 20 metres.

'**Bushfire Management Plan**' or 'Fire Management Plan' is a comprehensive plan that may be placed on the certificate of title(s) of land that has been developed

as a condition of development or subdivision. Bushfire Management Plans may become out dated and it's the responsibility of the property owner to review and keep them current. Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in the Annual Fire Hazard Reduction Notice and with any additional requirements outlined within that plan.

'**Emergency Access Way**' is a two wheel drive trafficable, 6 metre wide access route to provide local residents, general public and emergency services alternative links to road networks at the end of cul- de-sacs or areas where access is limited during an emergency incident.

'**Essential Infrastructure**' or '**Critical Infrastructure**' means assets, infrastructure, systems and networks that provide essential services necessary for social and economic wellbeing and is typically public infrastructure. Assets and infrastructure, usually of a public nature, that generate or distribute electricity, water supply, telecommunications, gas and dams are typical assets that are essential to society and are often located in, or traverse areas that are prone to bushfires.

'**Firebreak**' is an area of land cleared of flammable material (see available fuel above) to minimise the spread or extension of a bushfire. For the purpose of this notice the term firebreak is a strip of land at minimum 3 metres with a 4 metres vertical clearance, constructed to provide a 4x4 trafficable surface for emergency and authorised vehicle access. Boundary firebreaks are installed immediately adjacent the external boundaries of a property.

'**Fire Hazard**' means accumulated fuel (living or dead) such as leaf litter, twigs, trash, bush, dead trees and scrub capable of carrying a running fire, but excludes standing living trees and isolated shrubs.

'**Hazard Separation Zone (HSZ)**' if required by this notice and in accordance with a Fire Management Plan, means an area extending out from an asset protection zone a distance of 80 metres unless otherwise specified, to create a graduated fuel reduction and separation from natural vegetation.

'**Natural Vegetation**' means natural areas of forest, woodland, shrubland, scrub, mallee and mulga. 'Parkland Clearing' means areas of natural vegetation that has been significantly cleared of understory and tree density reduced to create a grassland or low vegetation area that can be walked through unimpeded with isolated, grouped or well spaced trees.

'**Passive Fuel Reduction**' means lowering the amount of available fuel that will burn under prevailing conditions by means that will not permanently reduce or modify the structure or life cycle of plant, shrub, scrub or tree communities within an treated area. This is typically achieved by undertaking a cool, controlled burn of an area during cooler, damper months, or by physical removal of built up leaf litter, dead materials, weeds and slashing long dry grasses without damaging live native plants within the area.

'**Plantation**' is any area of native or exotic planted trees that exceeds three hectares in a gazetted town site, or elsewhere a stand of trees of 10 hectares or larger that has been planted and managed intensively for their commercial and environmental value. A plantation includes roads, firebreaks and small areas of native vegetation.

'**Fire Service Access (Strategic Firebreaks)**' is a firebreak that is 6 metres wide established to provide strategic access and links to road networks whilst providing a wider control/ containment line to protect town sites, estates and similar exposures during bushfire operations.

By order of the Council,

MJ Foley
Chief Executive Officer
City of Swan

Permit Issuing Officers

Brigade permit issuing officers are volunteers and their ability to issue permits may vary in some instances, including when attending emergency incidents within your community. Please assist them by planning your permit requirements early.

METRO

Permits are issued by Community Safety Advocates subject to a site inspection — **9267 9267**

GIDGEGANNUP EAST

For Permits & Brigade enquiries — **9574 6000**
Saturday 8.30 – 10.00am
Fire Station, Toodyay Road, Gidgegannup

GIDGEGANNUP WEST

For Permits & Brigade enquiries: — **9574 6536**
Saturday 8.30 – 10.00am
Fire Station, Toodyay Road, Gidgegannup

EAST SWAN

For Permits & Brigade enquiries: — **9296 1288**
Sunday 9.00 – 11.00am
Fire Station, Cathedral Avenue, Brigadoon

BULLSBROOK

For Permits & Brigade enquiries: — **9571 2099**
Sunday 9.00 – 11.00am
Fire Station, Chittering Road, Bullsbrook

WEST SWAN

Membership and controlled burn enquiries only: — **9296 4431**
Permits within the Metropolitan Fire District are issued by the City of Swan (see Metro).



www.swan.wa.gov.au



city of swan

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