Appendix 8 – Bushfire Management Plan

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Version: 1, Version Date: 24/07/2026



Bushfire Management Plan

Lots 13, 14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River

Prepared for
LWP Property
by Strategen

October 2016

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Bushfire Management Plan

Lots 13, 14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River

Strategen is a trading name of
Strategen Environmental Consultants Pty Ltd
Level 1, 50 Subiaco Square Road Subiaco WA 6008
ACN: 056 190 419

October 2016

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Limitations

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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: LWP Property

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
				Form	Date
Draft Report	Rev A	For review by Client	D Panickar / R Banks (BPAD Level 2: 36857)	Electronic	21 Sep 2016
Final Report	**Rev 0**	**For submission to CoG**	**D Panickar / R Banks (BPAD Level 2: 36857)**	**Electronic**	**12 Oct 2016**

Filename: LWP16375_01 R001 Rev 0 - 12 October 2016

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Table of contents

1. Introduction 1

1.1 Background 1
1.2 Purpose and application of the plan 1

2. Spatial consideration of bushfire threat 3

2.1 Existing site characteristics 3
2.1.1 Location 3
2.1.2 Land use 3
2.1.3 Assets 3
2.1.4 Access 3
2.1.5 Water and power supply 4
2.2 Existing fire environment 4
2.2.1 Vegetation 4
2.2.2 Site topography and slope under vegetation 4
2.2.3 Bushfire weather conditions 10
2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition sources 10
2.2.5 Potential bushfire scenarios 11
2.2.6 Bushfire suppression response capability 11
2.3 Bushfire hazard level assessment 11
2.4 BAL assessment 13
2.4.1 Fire Danger Index 13
2.4.2 Vegetation class 13
2.4.3 Slope under classified vegetation 13
2.4.4 Method 1 BAL calculation 13

3. Bushfire management measures 15

3.1 Hazard separation distances and Asset Protection Zones (APZs) 15
3.2 Increased building construction standards 15
3.3 Vehicular access 15
3.4 Reticulated water supply 16
3.5 Additional measures 16

4. Proposal compliance and justification 18

5. Implementation and enforcement 22

5.1 Document review 22
5.2 Stakeholder consultation 22

6. References 23

List of tables

Table 1: Method 1 BAL calculation (BAL contours) 14
Table 2: Vehicular access requirements for public roads and emergency access ways 16
Table 3: Acceptable solutions assessment against bushfire protection criteria 19
Table 4: Proposed works program 22

List of figures

Figure 1: Site overview 2
Figure 2: Vegetation class 5
Figure 3: Bushfire hazards 12
Figure 4: Bushfire Management Plan: Lots 13, 14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River 17

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

List of appendices

Appendix 1 January wind profiles for Gosnells City
Appendix 2 City of Gosnells Annual Fire Hazard Reduction Notice
Appendix 3 Landscaping masterplan

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

1. Introduction

1.1 Background

A Local Structure Plan (LSP) has been prepared over *Cell 3E* comprising Lots 13,14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River (the subject site; Figure 1). Following conditional endorsement by the City of Gosnells in June 2016, the LSP has been referred to, and is currently under consideration by the Department of Planning.

The subject site is located within a designated bushfire prone area as per the Western Australian State Map of Bush Fire Prone Areas (DFES 2016) and consequently, a Bushfire Management Plan (BMP) is required to support the LSP in accordance with *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015a) and *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2015b).

LWP Southern River Pty Ltd. has commissioned Strategen to prepare a BMP for the subject site in accordance with SPP 3.7 and the Guidelines to support the LSP.

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 assets of the subject site through implementation of a range of bushfire management measures. 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 design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

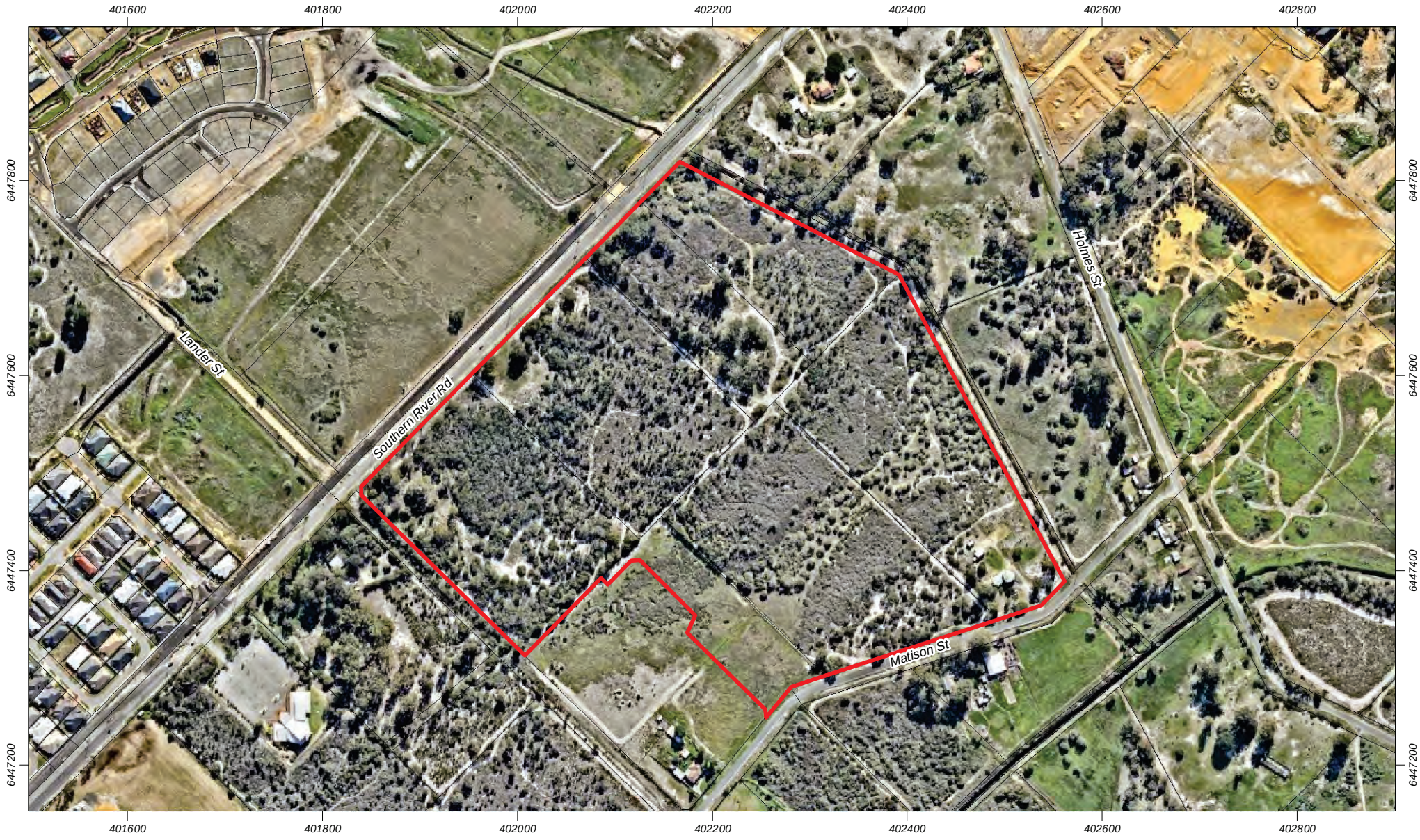

Figure 1: Site overview

Scale 1:5,400 at A4

0 50 100 150 200 250 m

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 20/09/2016
Author: JCrute

Legend

- Subject site
- Existing cadastre

Source: Aerial image: Nearmap, flown 06/2016. Existing cadastre: SLIP, Landgate 2016. Subdivision plan: Client 08/2016.

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Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The subject site is located approximately 19 km south-southeast of the Perth Central Business District in the City of Gosnells (CoG).

The subject site is bound by the following, as depicted in Figure 1:

- Southern River Road and undeveloped land to the northwest
- rural-residential properties to the north and east
- Matison Street and rural-residential properties to the south and southeast
- undeveloped land and rural-residential properties to the southwest.

2.1.2 Land use

The subject site is zoned 'Residential Development' under the CoG Town Planning Scheme No. 6 (TPS 6).

Development of the subject site will result in development of numerous residential lots, Public Open Space (POS) areas and associated infrastructure including roads, water, sewerage, power, gas and communication.

The on-site POS areas include:

- a large centrally located reserve comprising retained vegetation, drainage basins and irrigated turf to be used as active open space
- three drainage basins located on the northwest, northeast and eastern boundaries of the subject site.

A landscape masterplan has been included in Appendix 3.

Adjacent landholdings are a combination of 'Business Development', 'General Rural' and 'Residential Development' lots subject to zoning amendments under TPS 6.

2.1.3 Assets

The subject site currently contains a residence and associated facilities on Lot 20. The reminder of the subject site is undeveloped and contains limited site assets, restricted to historical rural infrastructure (e.g. fencing etc.). Proposed development of the subject site will significantly increase the critical life and property assets contained within. The proposed development will intensify the number residents, visitors and built assets across the subject site.

Environmental assets within the subject site have been assessed through the planning process and retained where possible.

2.1.4 Access

The proposed vehicular access network will provide one link to Southern River Road to the north and four links to Matison Street to the south. The proposed vehicular access network will also provide buffers and access for emergency service vehicles between proposed residences and adjacent vegetation.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

2.1.5 Water and power supply

Water and power supply services will be extended throughout the subject site from surrounding areas which will result in provision of a reticulated water supply including emergency use fire hydrants, hose reels and underground power supply for proposed residences.

2.2 Existing fire environment

2.2.1 Vegetation

The subject site and the surrounding land within 100 m currently consist of the following vegetation classes as depicted in Figure 2:

- Class B woodland (Plate 1; Plate 2)
- Class D scrub (Plate 3; Plate 4)
- Class G unmanaged grassland (Plate 5; Plate 6)
- Excluded vegetation as per clauses 2.2.3.2 (e) and (f) of AS3959-2009 (Plate 7; Plate 8).

Vegetation within the subject site, outside of the central POS area, will be cleared for development and has not been classified.

2.2.2 Site topography and slope under vegetation

All classified vegetation within, and within 100 m of the subject site is located on flat land or has an effective slope of greater than 0 degrees upslope as depicted in Figure 2. This information has been used to inform the BAL assessment outlined in Section 2.4.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026



Figure 2: Vegetation class

Scale 1:5,400 at A4

0 50 100 150 200 250 m

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 20/09/2016
Author: JCrute
Source: Aerial image: Nearmap, flown 06/2016. Existing cadastre: SLIP, Landgate 2016. Subdivision plan: Client 08/2016.
Path: Q:\Consult\2016\LWP\LWP16375\ArcMap_documents\R001\RevA\LWP16375_01_R001_RevA_F002.mxd

Legend

- Subject site
- Existing cadastre
- Photo location and direction
- 100m wide assessment area

Vegetation class

- Class B Woodland
- Class D Scrub
- Class G Grassland
- Excluded

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Version: 1, Version Date: 24/07/2026



Plate 1: Class B woodland vegetation



Plate 2: Class B woodland vegetation

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026



Plate 3: Class D scrub



Plate 4: Class D scrub

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Version: 1, Version Date: 24/07/2026

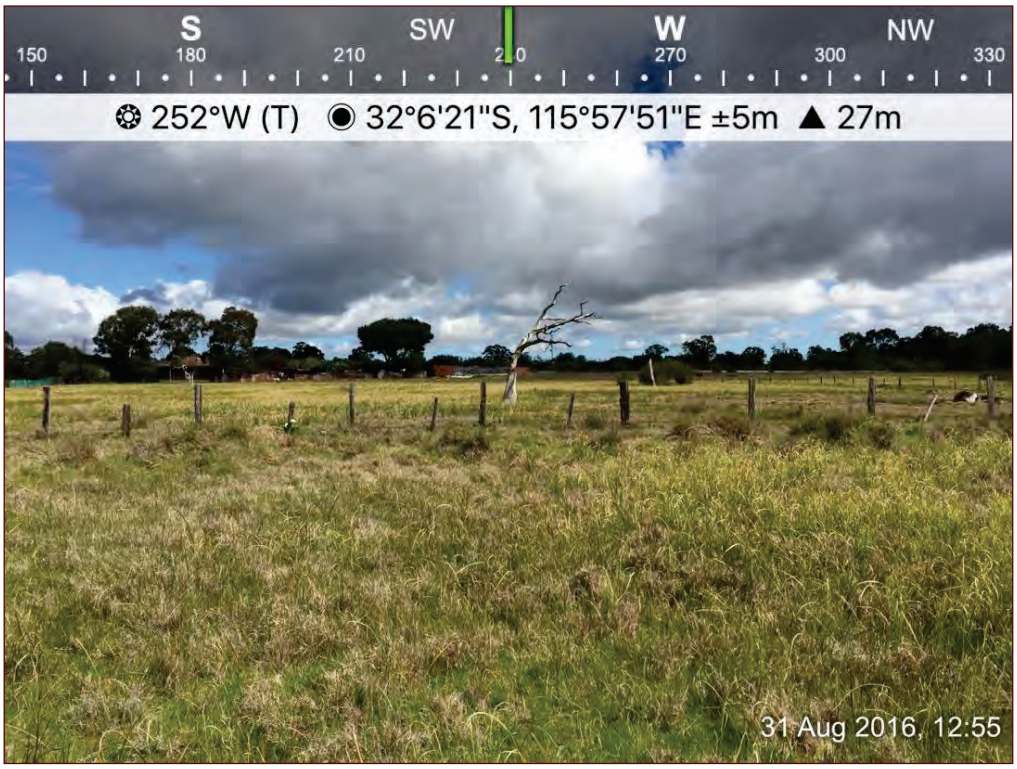

Plate 5: Class G grassland



Plate 6: Class G grassland

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026



Plate 7: Excluded as per clause 2.2.3.2 (f) of AS 3959-2009



Plate 8: Excluded as per clauses 2.2.3.2 (e) and (f) of AS 3959-2009

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

2.2.3 Bushfire weather conditions

Worst case bushfire weather condition

Southwest Western Australia generally experiences a cool to mild growing season in the months of August through to November of each year, followed by four months of summer drought conditions, which is when the potential for bushfire occurrence is at its peak.

Worst case (adverse) bushfire weather conditions can occur during this dry period when a low pressure trough forms off the west coast and strong winds develop from the north or northeast. These conditions are sometimes associated with 'Extreme' or 'Catastrophic' fire dangers, which are consistent with very high temperatures, low relative humidity and very strong winds. Based on the predominant summer climatic conditions of the local area, 'Extreme' and 'Catastrophic' fire dangers normally occur less than 5% of the time during the designated bushfire season, which equates to around six days between December and March (McCaw & Hanstrum 2003).

Predominant bushfire weather conditions

Predominant fire weather conditions are considered to occur 95% of the time during the designated bush fire season and these conditions generally align with average summer climatic conditions of the locality.

Average 9:00 am and 3:00 pm January wind profiles for Gosnells City are contained in Appendix 1. These illustrate that the predominant winds during the designated bush fire season are from the east and southeast in the morning averaging around 9.7 km/h; and from the south, west and southwest in the afternoon averaging around 12.2 km/h (BoM 2016).

The mean 9:00 am and 3:00 pm relative humidity for Gosnells City during the designated bush fire season is around 56% and 37% respectively, with average monthly maximum temperatures peaking at around 33.1°C in February.

The predominant bushfire weather conditions discussed above correlate with an average fire danger index of 'High', as determined using the Commonwealth Science and Industrial Research Organisation (CSIRO) Fire Danger and Fire Spread Calculator (CSIRO 1999).

2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition sources

Vegetation within and directly adjacent to the subject site does not contain any evidence of recent bushfire occurrence. Given the largely cleared nature of the understorey within these areas, the resulting fuel loads are moderate.

The risk of ignition pre-development was assessed as low throughout the subject site due to the low levels of public access and visitation. However, Strategen considers that the risk of ignition will increase due to the long unburnt nature of the site, high fuel loads and increasing levels of public access and resident occupancy at the bushland interface.

The potential sources of ignition in the area are expected to be from:

- deliberately lit fire (i.e. arson)
- lightning strike
- accidental causes, such as vehicle accidents and sparks from vehicle exhausts
- escapes from unauthorised camp fires, particularly throughout the broader fire environment and bushland reserves
- escapes from prescribed burns
- pole-top fires
- incorrect disposal of cigarettes.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

2.2.5 Potential bushfire scenarios

Bushfire runs in land adjacent to the subject site are patchy and consist of a mosaic pattern of grassland fuels and scrub/woodland fuels interspersed with developed areas.

Based on the above, a bushfire certainly has the potential to ignite and occur in and around the subject site; however, the relatively patchy bushfire runs are not expected to facilitate significantly elevated levels of radiant heat and ember attack because any such fire is likely to burn out prior to escalation of its full rate of spread potential.

Bushfire impacts are most likely to be received from the southeast in the morning and the south/southwest in the afternoon in association with the predominant prevailing winds during the bushfire season, but due to limited bushfire runs in these directions, there is limited scope for significant bushfire impacts to be received.

2.2.6 Bushfire suppression response capability

Local volunteer bushfire brigades and career fire service stations at Gosnells, Maddington and Armadale are able to respond to a bushfire scenario within the subject site within 30 minutes. This is considered sufficient capability in light of the surrounding limited fire environment to enable prompt bushfire suppression and containment of uncontrolled bushfire in and adjacent to the site.

2.3 Bushfire hazard level assessment

Strategen has mapped the bushfire hazard levels within 100 m of the subject site (refer to Figure 3) on the basis of the vegetation classes identified in Section 2.2.1 and the slope under classified vegetation assessed in Section 2.2.2. The following bushfire hazard levels were assigned:

- Class B woodland vegetation within and adjacent to the subject site: 'Extreme'
- Class D scrub vegetation within and adjacent to the subject site: 'Moderate'
- Class G grassland vegetation within and adjacent to the subject site: 'Moderate'
- all land within 100 m of Class B woodland, Class D scrub and Class G grassland vegetation: 'Moderate'
- all remaining land: 'Low'.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

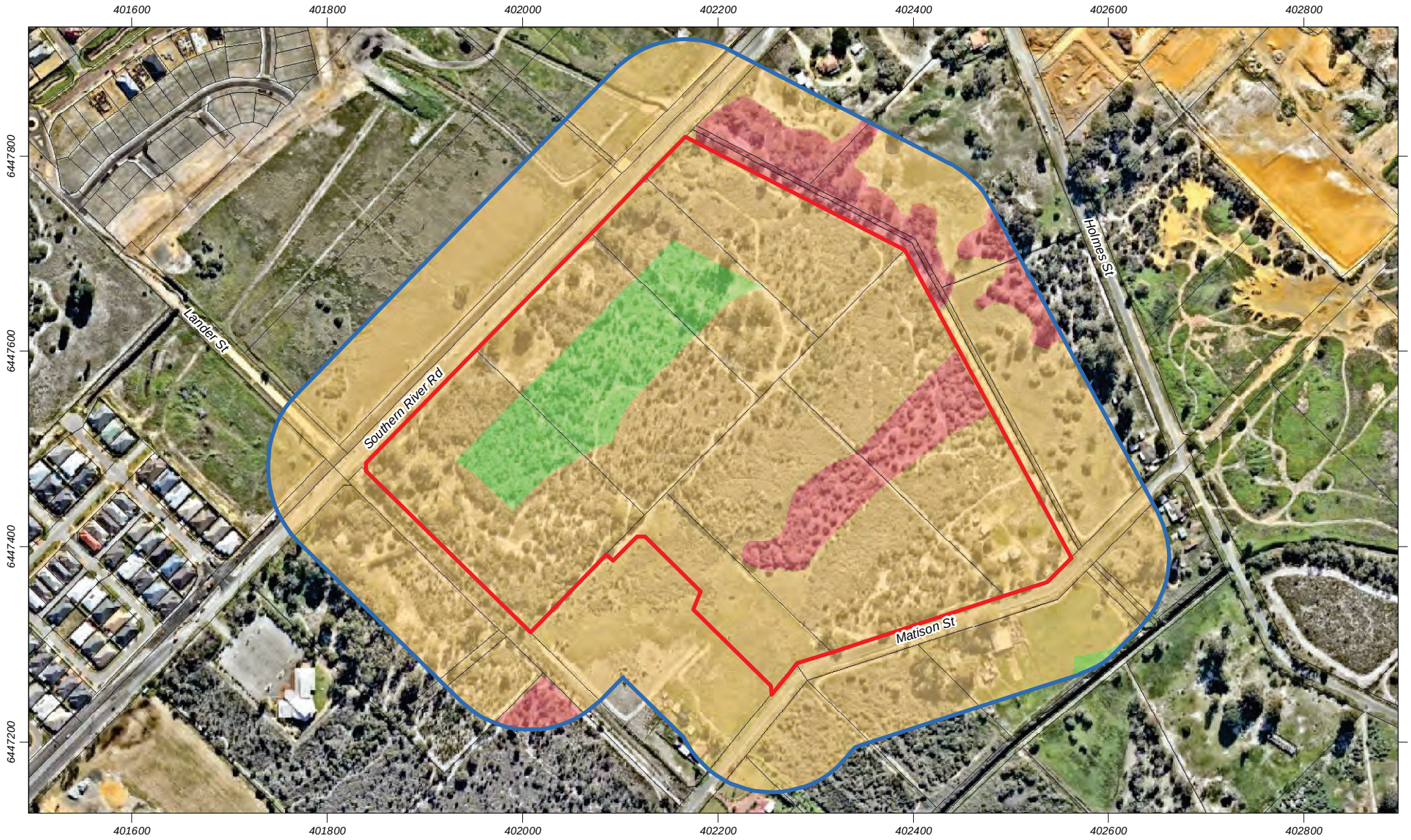

Figure 3: Bushfire hazards

Scale 1:5,400 at A4

0 50 100 150 200 250 m

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 20/09/2016
Author: JCrute
Source: Aerial image: Nearmap, flown 06/2016. Existing cadastre: SLIP, Landgate 2016. Subdivision plan: Client 08/2016.
Path: Q:\Consult\2016\LWP\LWP16375\ArcMap_documents\R001\RevA\LWP16375_01_R001_RevA_F003.mxd

Legend

- Subject site
- Existing cadastre
- 100m wide assessment area

Bushfire hazard level

- Extreme
- Moderate
- Low

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Version: 1, Version Date: 24/07/2026

2.4 BAL assessment

Classified vegetation assigned with a 'Moderate' or 'Extreme' bushfire hazard level is considered bushfire prone in accordance with methodology specified by Office of Bushfire Risk Management (OBRM). Any proposed development located within 100 m of the classified vegetation depicted in Figure 2 (or 50 m from class G grassland vegetation) is subject to BAL assessment in accordance with Australian Standard *AS 3959–2009 Construction of Buildings in Bushfire-prone Areas* (SA 2009).

The Method 1 procedure for calculating the BAL (as outlined in AS 3959–2009) incorporates the following factors:

- state-adopted Fire Danger Index (FDI) rating
- vegetation class
- slope under classified vegetation
- distance maintained between proposed development areas and the classified vegetation.

Based on the specified BAL, construction/setback requirements for proposed buildings can then be assigned.

2.4.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959–2009 and endorsed by Australasian Fire and Emergency Service Authorities Council.

2.4.2 Vegetation class

Vegetation class is depicted in Figure 2 and consists of Class B woodland, Class D scrub and Class G grassland.

2.4.3 Slope under classified vegetation

Slope under classified vegetation is assessed in Section 2.2.2. All classified vegetation within, and within 100 m of the subject site is located on flat land or has an effective slope of greater than 0 degrees upslope

2.4.4 Method 1 BAL calculation

A Method 1 BAL calculation has been completed for the subject site in accordance with AS 3959–2009 following assessment of the abovementioned parameters (Table 1). The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by the proposed dwelling and subsequently informs the standard of building construction required for that dwelling to withstand such impacts. BAL contours derived from the assessment are depicted in Figure 4.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Table 1: Method 1 BAL calculation (BAL contours)

BAL	Vegetation class	Slope under classified vegetation	Distance from classified vegetation
BAL FZ	Class B woodland	Vegetation at equal elevation to, or upslope from subject lots	0-<10 m
	Class D scrub		0-<10 m
	Class G unmanaged grassland		0-<6 m
BAL 40	Class B woodland		10-<14 m
	Class D scrub		10-<13 m
	Class G unmanaged grassland		6-<8 m
BAL 29	Class B woodland		14-<20 m
	Class D scrub		13-<19 m
	Class G unmanaged grassland		8-<12 m
BAL 19	Class B woodland		20-<29 m
	Class D scrub		19-<27 m
	Class G unmanaged grassland		12-<17 m
BAL 12.5	Class B woodland		29-<100 m
	Class D scrub		27-<100 m
	Class G unmanaged grassland		17-<50 m

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation will enable all subject site to be developed whilst maintaining a manageable level of bushfire risk and compliance with the Guidelines. The bushfire management measures are depicted in Figure 4 (where applicable) and discussed in the following subsections.

3.1 Hazard separation distances and Asset Protection Zones (APZs)

The hazard separation distances between classified vegetation and proposed lots will allow APZs to be contained within individual lots to achieve compliance with AS 3959–2009. All APZs are to be wholly contained within the subject site and comprise road reserves, lot setbacks and POS areas maintained in a low fuel state.

The APZs are required 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 status.

No buildings are permitted within APZs and all APZs will need to be cleared and implemented prior to dwelling construction on individual lots. In addition, the location and alignment of APZs will need to be reassessed following modification to the extent of bushfire prone vegetation on the surrounding landholdings. Should this vegetation be removed, the APZs may not be required.

Formal Hazard Separation Zones (HSZs) are not required around APZs in this instance, since proposed construction for each proposed dwelling meets the standard appropriate to the BAL for that location (WAPC 2015b).

3.2 Increased building construction standards

Strategen has designated BAL requirements for each proposed lot in accordance with AS 3959–2009. This has resulted in a combination of BAL 12.5, BAL 19 and BAL 29 contours being applied to a number of lots as depicted in Figure 4. These BAL contours will be revised at future stages of planning and will incorporate changes in the surrounding fire environment as a result of adjacent development.

Two proposed lots in the southeast corner of the subject site significantly intersect the BAL FZ and BAL 40 contours associated with the adjacent Balannup drain. The proposed lot layout in this area will be revised at the subdivision application stage if adjacent land remains undeveloped to avoid placing future buildings in areas subject to BAL FZ or BAL 40.

3.3 Vehicular access

The proposed vehicular access network will provide one link to Southern River Road to the north and four links to Matison Street to the south (Figure 4).

The public roads created as part of the proposed development will be compliant with Guideline requirements as detailed in Table 2. One cul-de-sac is proposed as part of the development. This will have a 17.5 m diameter head and will also be compliant with Guideline requirements as detailed in Table 2.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Table 2: Vehicular access requirements for public roads and emergency access ways

Technical requirements	Public Road	Cul-de-sac
Minimum trafficable surface	6 m*	6 m
Horizontal clearance	6 m	6 m
Vertical clearance	4.5 m	N/A
Maximum grade <50 m	1 in 10	1 in 10
Minimum weight capacity	15 tonnes	15 tonnes
Maximum crossfall	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5

*Widths for access routes refer to the width of the trafficable surface. A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metre wide paving and one metre wide road shoulders.

3.4 Reticulated water supply

Water supply services will be extended throughout the subject site from surrounding areas of development, which will result in provision of a reticulated mains water supply for proposed residences.

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 for the subject site, 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.

3.5 Additional measures

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

1. Notification on Title: Strategen recommends that a notification on title be placed on all proposed lots with a BAL rating above BAL - Low as a condition of subdivision to ensure all landowners/proponents and prospective purchasers are aware that their lot is in a designated bushfire prone area and that increased building construction standards will apply to future buildings. The notification on title is also to include that the site is subject to a Bushfire Management Plan.
2. BAL assessment at future planning stages: Management measures recommended in the BMP for individual dwellings (i.e. BAL ratings and APZs) are currently based on lot locations rather than building locations and bushfire prone vegetation of which a large proportion is temporary and proposed to be cleared at some future stage. Consequently, Strategen recommends that BALs be reassessed following any modification to the surrounding vegetation extent.
3. Compliance with the City of Gosnells annual firebreak notice: the developer/land manager and prospective land purchasers are to comply with the current City of Gosnells annual firebreak notice (Appendix 2).

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

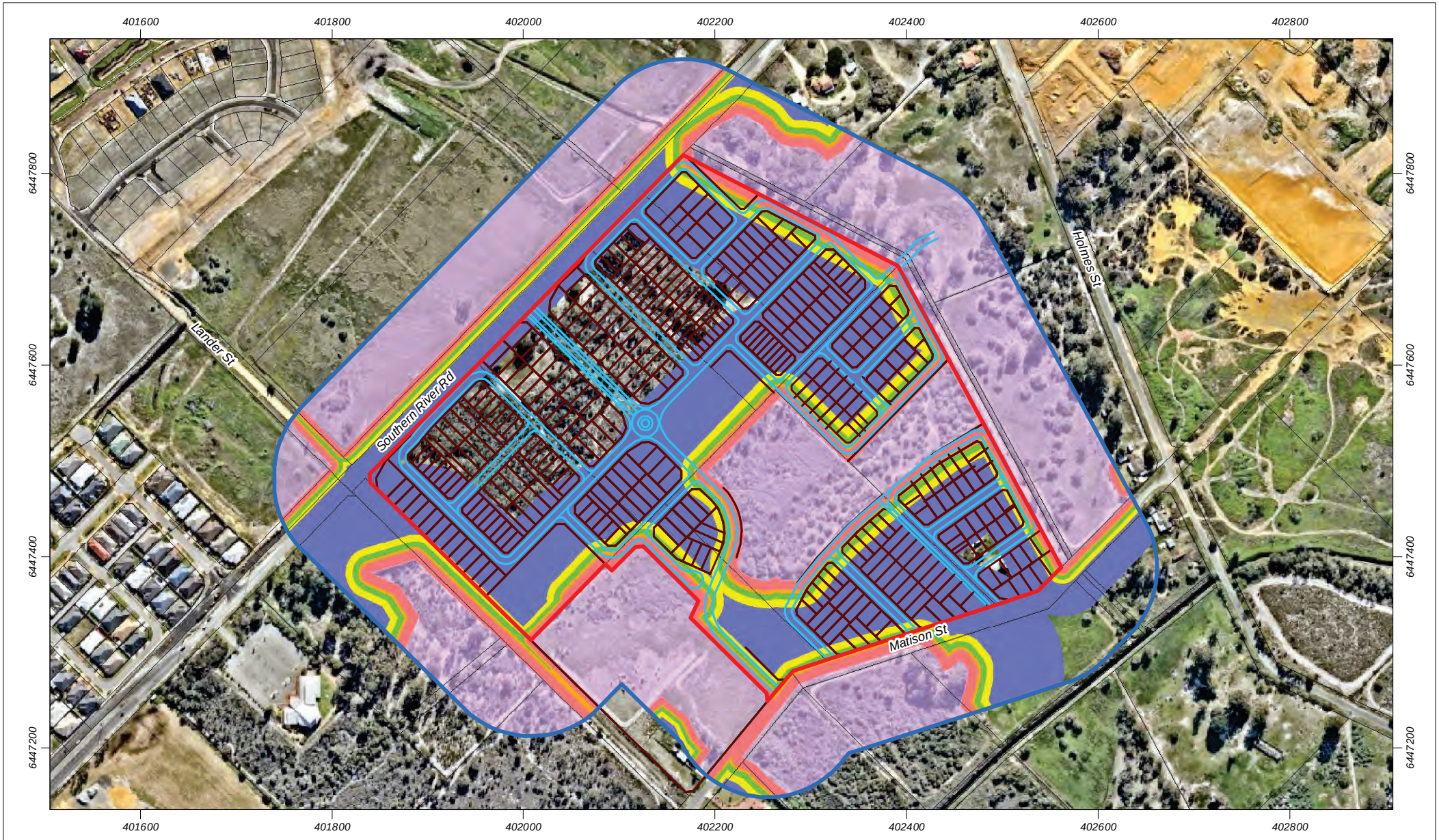

Figure 4: Bushfire Management Plan: Lots 13, 14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River

Scale 1:5,400 at A4

0 50 100 150 200 250 m

Coordinate System: GDA 1994 MGA Zone 50
Note that positional errors may occur in some areas
Date: 20/09/2016
Author: JCrute
Source: Aerial image: Nearmap, flown 06/2016. Existing cadastre: SLIP, Landgate 2016. Subdivision plan: Client 08/2016.
Path: Q:\Consult\2016\LWP\LWP16375\ArcMap_documents\R001\RevA\LWP16375_01_R001_RevA_F004.mxd

Legend

- Carriageway
- Lot boundaries
- Subject site
- Existing cadastre
- 100m wide assessment area
- Classified vegetation

BAL contours

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

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Version: 1, Version Date: 24/07/2026

4. Proposal compliance and justification

Proposed development of Lots 13, 14, 21 and 22 Southern River Road and Lots 19 and 20 Matison Street, Southern River is required to comply with SPP 3.7 and the Guidelines, as required 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.

6.3 Information to accompany strategic planning proposals

Any strategic planning proposal to which policy measure 6.2 applies is to be accompanied by the following information prepared in accordance with the Guidelines:

a) (i) the results of a BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines. BHL assessments should be prepared by an accredited Bushfire Planning Practitioner; or

a) (ii) where the lot layout of the proposal is known, a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. The BAL Contour Map should be prepared by an accredited Bushfire Planning Practitioner; and

b) the identification of any bushfire hazard issues arising from the relevant assessment; and

c) clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages.

This information can be provided in the form of a Bushfire Management Plan or an amended Bushfire Management Plan where one has been previously endorsed.

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

- **5.1**: Avoid increasing the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact is paramount
- **5.2**: Reduce vulnerability to bushfire through the identification and assessment of bushfire hazards in decision-making at all stages of the planning and development process
- **5.3**: Ensure that planning proposals and development applications take into account bushfire protection requirements and include specified bushfire protection measures where land has or will have a moderate or extreme bushfire hazard level, and/ or where a rating higher than BAL-Low applies
- **5.4**: Achieve a responsible approach between bushfire management measures and landscape amenity and biodiversity conservation values, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire management measures, as outlined in Section 3 have been devised for the proposed development accordance with Guideline acceptable solutions where possible to meet compliance with bushfire protection criteria. All performance principles have been achieved by the implementation of 'acceptable solutions' and as such, a summary of the '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.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Table 3: Acceptable solutions assessment against bushfire protection criteria

Bushfire protection criteria	Intent	Solution	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	Acceptable solution 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 Section 3.2, which demonstrates that development will only occur in areas of BAL 29 or lower. Two proposed lots in the southeast corner of the subject site significantly intersect the BAL FZ and BAL 40 contours associated with the adjacent Balannup drain. The proposed lot layout in this area will be revised at the subdivision application stage if adjacent land remains undeveloped to avoid placing future buildings in areas subject to BAL FZ or BAL 40. Therefore, 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	Acceptable solution 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 APZs are able to be maintained between all proposed lots and classified vegetation (i.e. no buildings are proposed in areas subject to BAL FZ or BAL 40). Two proposed lots in the southeast corner of the subject site significantly intersect the BAL FZ and BAL 40 contours associated with the adjacent Balannup drain. The proposed lot layout in this area will be revised at the subdivision application stage if adjacent land remains undeveloped to avoid placing future buildings in areas subject to BAL FZ or BAL 40. The reduction in the prescribed minimum 20 m wide APZ as per the Guidelines is in accordance with AS 3959-2009, which combined with heightened building construction standards meet the intent of the bushfire protection criteria.	The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development
		Acceptable solution A2.2 Hazard Separation Zone Every building and its contiguous APZ is surrounded by an HSZ, depicted on submitted plans, that meets detailed requirements (refer to the Guidelines for detailed HSZ requirements). An HSZ may not be required if the proposed construction meets the standard appropriate to the BAL for that location, and does not exceed BAL–29.	HSZs are not proposed since individual dwelling construction meets the standard appropriate to the BAL for that location.	

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Bushfire protection criteria	Intent	Solution	Proposed bushfire management measures	Compliance statement
Element 3: Vehicular access	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event	Acceptable solution 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 and Figure 4, which demonstrate that the proposed development will provide one link to Southern River Road to the north and four links to Matison Street to the south. These measures will ensure that residents and visitors/fire services can safely evacuate/service the subject site in the event of a bushfire.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access
		Acceptable solution A3.2 Public road A public road is to meet the requirements in Table 2, Column 1.	Refer to Section 3.3, which demonstrates that all proposed public roads will meet minimum requirements outlined in Table 2 of the Guidelines.	
		Not applicable 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 (refer to the Guidelines for detailed cul-de-sac requirements).	One cul-de-sac is proposed as part of the development. This will be compliant with the requirements of the Guidelines as detailed in Section 3.3.	
		Not applicable A3.4 Battle-axe Battle-axe access leg 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 (refer to the Guidelines for detailed battle-axe requirements).	N/A. No battle-axe lots are proposed as part of the development.	
		Not applicable A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements (refer to the Guidelines for detailed private driveway requirements).	N/A. No private driveways longer than 50 m are proposed as part of the development.	
		Not applicable 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 (refer to the Guidelines for detailed EAW requirements).	N/A. No emergency access ways are proposed as part of the development.	

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Bushfire protection criteria	Intent	Solution	Proposed bushfire management measures	Compliance statement
		Not applicable 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 fire fighting purposes. Fire service access routes are to meet detailed requirements (refer to the Guidelines for detailed fire service access route requirements).	N/A. No fire service access routes are proposed as part of the development.	
		Not applicable 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	N/A. No firebreaks are proposed as part of the development.	
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.	Acceptable solution 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
		Not applicable A4.2 Non-reticulated areas Water tanks for fire fighting 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.	
		Not applicable 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.	

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

5. Implementation and enforcement

Implementation of the BMP applies to the developer, local government and prospective landowners to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 4. These measures will be implemented to ensure the ongoing protection of proposed life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4: Proposed works program

Bushfire management measure	Timing for application	Responsibility
Creation of APZs	Prior to development of interfacing lots	Developer
Maintenance of APZs	As required to achieve 2 t/ha threshold all year round	Developer during development, CoG thereafter
Creation of POS (including low fuel areas)	Prior to development of all lots within 100 m of POS areas	Developer
Implementation of increased building construction standards	On development of individual lots	Builder, prospective landowners
Construction of public roads as per approved subdivision	Prior to development of lots for each respective stage	Developer
Provision of reticulated water supply and fire hydrant network	Prior to development of lots for each respective stage	Developer
Notification on Title	Following subdivision approval	Developer
Reassessment of the BAL and separation distances	Following any modification to the surrounding vegetation extent prior to building construction.	Landowner (if required)
Compliance with current fire control order	All year round as specified in the current fire control order	Developer/land manager/prospective landowners

5.1 Document review

This BMP will be updated as necessary following the date of approval to ensure:

1. Implementation is assessed and corrective actions are applied in cases of non-compliance.
2. The effectiveness and impact of fire prevention work is evaluated and any significant changes in development design or the surrounding environment are reassessed in a revised BMP.

The developer will be responsible for updating and revising the BMP until such time that the development is complete, after which time CoG will be the authority responsible for enforcing and revising the BMP as necessary.

5.2 Stakeholder consultation

Strategen has undertaken consultation with the developer and CoG to ensure aims and objectives of the BMP are in accordance with stakeholder expectations and the BMP maintains compliance with the Guidelines

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

6. References

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Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Appendix 1
January wind profiles for Gosnells City

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

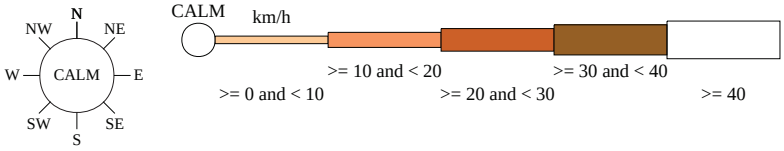
Rose of Wind direction versus Wind speed in km/h (17 Jul 1991 to 30 Sep 2010)

Custom times selected, refer to attached note for details

GOSNELLS CITY

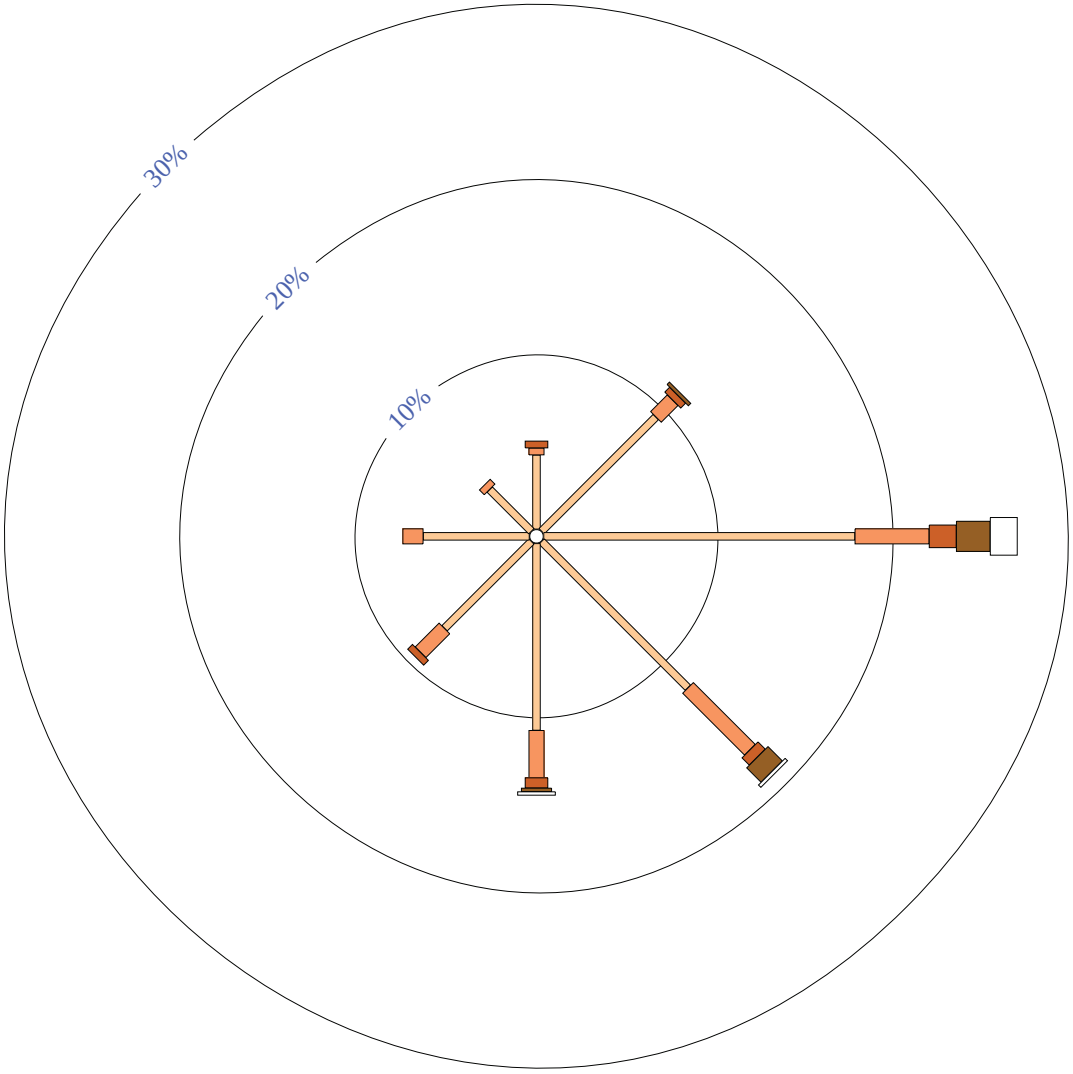
Site No: 009106 • Opened Jan 1961 • Still Open • Latitude: -32.0486° • Longitude: 115.9839° • Elevation 10m

An asterisk (*) indicates that calm is less than 0.5%.
Other important info about this analysis is available in the accompanying notes.



9 am Jan
512 Total Observations

Calm 2%



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Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

Rose of Wind direction versus Wind speed in km/h (17 Jul 1991 to 30 Sep 2010)

Custom times selected, refer to attached note for details

GOSNELLS CITY

Site No: 009106 • Opened Jan 1961 • Still Open • Latitude: -32.0486° • Longitude: 115.9839° • Elevation 10m

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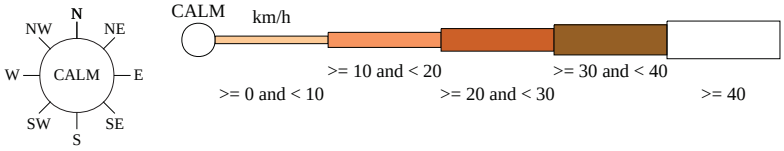
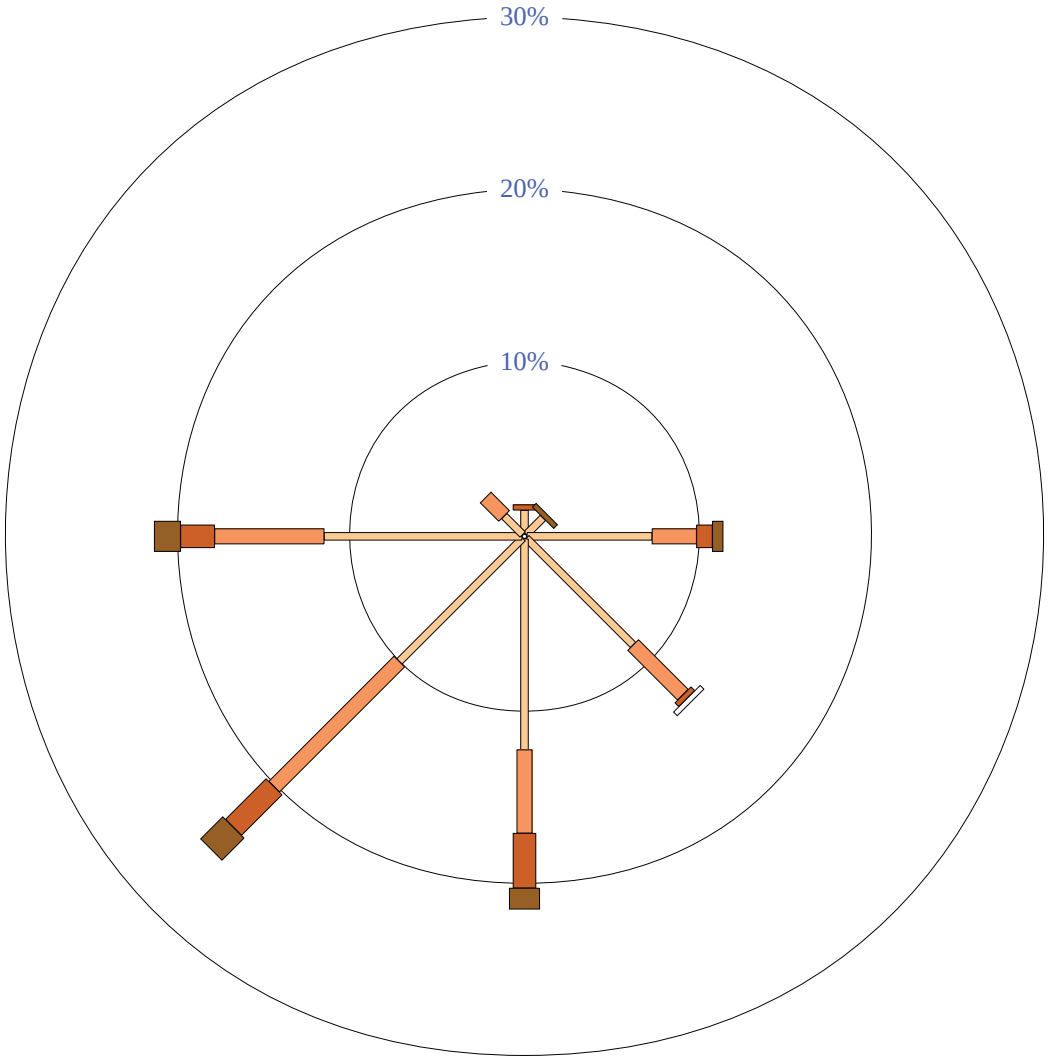


3 pm Jan
331 Total Observations

Calm 1%



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Prepared by National Climate Centre of the Bureau of Meteorology.
Contact us by phone on (03) 9669 4082, by fax on (03) 9669 4515, or by email on climatedata@bom.gov.au
We have taken all due care but cannot provide any warranty nor accept any liability for this information.

Appendix 2
City of Gosnells Annual Fire Hazard Reduction Notice

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Annual Fire Hazard Reduction Notice
Bush Fires Act 1954 Section 33(1)

To prevent bush fires and to minimise the spread of a bush fire, all owners and occupiers of land within the City's district are required to comply with the requirements of this Annual Fire Hazard Reduction Notice.

1. Owners and occupiers of land zoned "General Rural" or "Special Rural"

On or before 30 November in each year, all owners or occupiers of land zoned "General Rural" or "Special Rural" under the City of Gosnells Town Planning Scheme No.6 ("Scheme") are required to:

(a) Clear and maintain the land free of all flammable matter to a height no greater than 10cm;

or

(b) Maintain a mineral earth firebreak immediately inside all external boundaries of each lot on the land; and

(c) Maintain a mineral earth firebreak within 20 metres of all haystacks and stockpiled flammable matter.

Mineral earth firebreaks must be continuous (no dead ends) and maintained to a minimum standard of 3 metres wide by 4 metres high (vertical clearance) so as to provide unimpeded access for emergency vehicles. Driveways must also be maintained to these standards.

Firebreaks are intended to provide safe access on your property for emergency vehicles and to ensure fire does not travel under the vehicles or underfoot.

NOTE: The firebreaks and requirements set out above must be maintained up to and including 30 April in the following year.

2. Owners and occupiers of all other land, which is not zoned "General Rural" or "Special Rural"

At all times throughout the year, all owners or occupiers of land zoned other than "General Rural" or "Special Rural" under the Scheme are required to clear and maintain the land free of all flammable matter to a height no greater than 10cm.

NOTE: For the purposes of this Notice, Flammable matter includes, but is not limited to, vegetation (except for living trees, shrubs, plants and lawns under cultivation), prunings, cardboard, wood, paper, general rubbish and any other combustible material.

Permission needed to vary requirements

If, due to the topography of your land, you are unable to adhere to the requirements set out in this Notice, you may apply in writing to the City for permission to provide firebreaks in alternative locations or take alternative measures.

Unless and until permission in writing is granted by the City, you shall comply with the requirements of this Notice.

Penalty for non-compliance

Failing to comply with the requirements of this Notice is an offence under the *Bush Fires Act 1954* (Act), which carries a penalty of up to $5,000. In addition, where the owner or occupier of the land fails to comply with a Notice given pursuant to Section 33(1), the City may enter the land to carry out the work required to comply with the Notice and also recover any costs and expenses incurred in carrying out that work from the owner or occupier of the land.

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Other Requirements

Restricted burning times

These are the times of the year during which it is unlawful to set fire to bush without a permit (permits required):

- 1 October to 30 November (dates inclusive); and
- 1 April to 31 May (dates inclusive).

Prohibited burning times

It is unlawful to set fire to bush during 1 December to 31 March, both dates inclusive.
Restricted and Prohibited Burning periods may be extended due to un-seasonal weather patterns.

Burning Restricted	Burning Prohibited	Burning Restricted	Burning Restricted
Permits required from 1 October to 30 November	From 1 December to 31 March	Permits required from 1 April to 31 May	Permits required for non rural properties from 1 June to 30 September

To apply for a permit:

- Contact Ranger Services on 9397 3031
- Contact Health Services on 9397 3021

Burning rubbish, refuse or other material

With the exception of land in areas zoned "General Rural" or "Special Rural" under the Scheme, the City of Gosnells *Animals, Environment and Nuisance Local Law 2009* provides that a person shall not set fire to or cause to be set fire, any rubbish, refuse or other material at any time unless otherwise approved in writing by an authorised person.

The penalty for an offence under the Local Law is a fine of $250.

"Maintaining a fire hazard free property is your responsibility."



For all enquiries relating to this Notice please call Customer Service on 9397 3000.

**PO Box 662
Gosnells 6990
Western Australia**

www.gosnells.wa.gov.au
council@gosnells.wa.gov.au

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Appendix 3
Landscaping masterplan

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026

Landscape Masterplan

Legend

01 P.O.S. 1: Irrigated public open space with footpaths, turf, gardens, retained existing trees (where possible), picnic area and playground.

02 P.O.S. 2: Irrigated public open space with footpaths, turf, gardens, retained existing trees (where possible) and picnic area.

03 Conservation P.O.S.: Retained existing vegetation and informal footpath access utilising existing track locations (exact layout to be confirmed)

04 Drainage Detention Basin: Indicative location and layout of drainage basins. To be vegetated with a mix of biofiltration, embankment and wetland species.

05 Drainage Swale: Indicative location and layout of drainage swale. To be vegetated with a mix of biofiltration, embankment and wetland species.

06 Managed Landscape Buffer.

Note:
_ Refer Table 1. for Public Open Space area, irrigation method and water use.
_ Refer drainage drawings for details on basin sizes.
_ Road layout is indicative only, refer Engineer's Drawings for details.

	P.O.S. 1	P.O.S. 2
Proposed P.O.S area	1,794 sq/m	2,888 sq/m
Proposed water source	Bore	Bore
Turf irrigation areas	1,250 sq/m	1,900 sq/m
Garden irrigation areas	450 sq/m	850 sq/m
Estimated yearly water use	1,275 kl/yr	2,062 kl/yr

Table 1: Public Open Space area, irrigation method and water use.



Document Set ID: 9303590
Version: 1, Version Date: 24/07/2026