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Bushfire Management Plan

Lots 1 and 132 Wanneroo Road,
Wanneroo

DRAFT

Prepared for
Saracen Properties
by Strategen

December 2017



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Wanneroo**

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December 2017

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Client: Saracen Properties

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1. Introduction

1.1 Background

Saracen Properties is preparing to submit a Development Application (DA) for a proposed commercial precinct which includes a service station and childcare centre, as well as other commercial buildings at Lots 1 and 132 Wanneroo Road, Wanneroo (the project area) in the City of Wanneroo (the City) (Appendix 1).

The project area is designated as bushfire prone on the WA *Map of Bush Fire Prone Areas* (DFES 2017) due to native vegetation located within 100 m of the site. As a result, Strategen has prepared this Bushfire Management Plan (BMP) to inform planning at the development application stage and fulfil the following key objective:

1. Accompany the proposed development application to WAPC in order to meet planning requirements triggered under *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015).

The following information is required to accompany the development application as required under SPP 3.7 Policy Measure 6.5:

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

Additionally, SPP 3.7 Policy Measure 6.6 requires development applications for vulnerable and high-risk land uses (such as childcare centres and service stations respectively) in areas between BAL-12.5 and BAL-29, to have a BMP which is accompanied by a bushfire emergency evacuation plan (BEEP) relating to the childcare centre and a bushfire risk management plan (BRMP) for the service station. The BEEP is provided in Appendix 2, whereas the BRMP has been provided as a standalone report.

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

1.2 Purpose of the BMP

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 subdivision design and future planning/building stages. 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.

A BEEP and BRMP have also been prepared for the proposed development. The BMP, BEEP and BRMP are intended to be used in conjunction with one another to ensure that the intent of SPP 3.7 is achieved.

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area is located approximately 26 km north-west of the Perth Central Business District in the City of Wanneroo. The project area is currently and contains limited vegetation (Figure 1).

The project area is bound by the following:

- Wanneroo Road to the east
- existing Drovers Place Central Precinct ('business' development) to the north-west,
- Future public open space (POS) and Lake Joondalup Nature Reserve to the west
- vacant land, future Drovers Place Central Precinct ('business' development) to the to the south.

2.1.2 Assets

The project area is currently vacant and does not contain any existing property assets.

The project area has been historically cleared and contains limited native vegetation.

A Conservation Category Wetland (UFI 7954) is located west of the project area, associated with Lake Joondalup. This wetland will be protected through the provision of a POS buffer at the wetland/development interface.

Lake Joondalup Nature Reserve is also located to the west of the project area, and is Bush Forever site 299. These ecological assets are expected to remain in perpetuity.

2.1.3 Access

The main access to the proposed development will be via a roundabout at the south-eastern corner of the project area which connects directly to Wanneroo Road. Wanneroo Road is a north-south 'Primary Regional Road' providing connection to numerous existing public roads in various directions including Joondalup Drive, which provides egress to the east, away from the main fire hazard to the west.

2.1.4 Water and power supply

Reticulated water and underground power supply infrastructure and services are available to the project area and will be extended from surrounding developed areas.



2.2 Existing fire environment

2.2.1 Post-development vegetation class

Vegetation class has been assessed for this site in accordance with *AS 3959–2009 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2009). Strategen assessed vegetation class within the project area and adjacent 150 m through on-ground site investigation on 18 November 2017.

The entire project area will be cleared and landscaped to a low-threat standard (in accordance with AS3959) following development.

The extent of classified vegetation remaining within 150 m of the project area following development of the project area is provided below:

- Class B woodland occurs as remnant riparian vegetation to the west of the project area, within Lake Joondalup Nature Reserve, and to the north-east surrounding the Western Power facility on the opposite side of Wanneroo Road to the proposed development
- Class C shrubland occurs as sparse vegetative regrowth to the south of the project area within Lot 132 which is subject to future development, and within the proposed POS area to the west
- Class D scrub occurs as isolated patches within the project area, to the south of the project area within Lot 132 which is subject to future development, to the north within existing POS and to the east on the opposite side of Wanneroo Road
- Class G grassland is widespread to the south of the project area within Lot 132 which is subject to future development, however this development is not imminent. It is noted that the classification of this land as grassland is precautionary, on the basis of vegetation at maturity, as it currently presents as being largely non-vegetated.

Non-vegetated areas occur where vegetation has been removed to enable construction of roads, waterways, buildings and sealed areas. These areas are excluded from classification under Clause 2.2.3.2 (e) of AS 3959

Areas where the vegetation is managed in a low threat, minimal fuel condition occur throughout managed road verges and median strips and managed lots are excluded from classification under Clause 2.2.3.2 (f) of AS 3959.

Areas to the north-east of the project area within Lot 1 will be managed to a low-threat standard by the proponent until such time that development occurs.

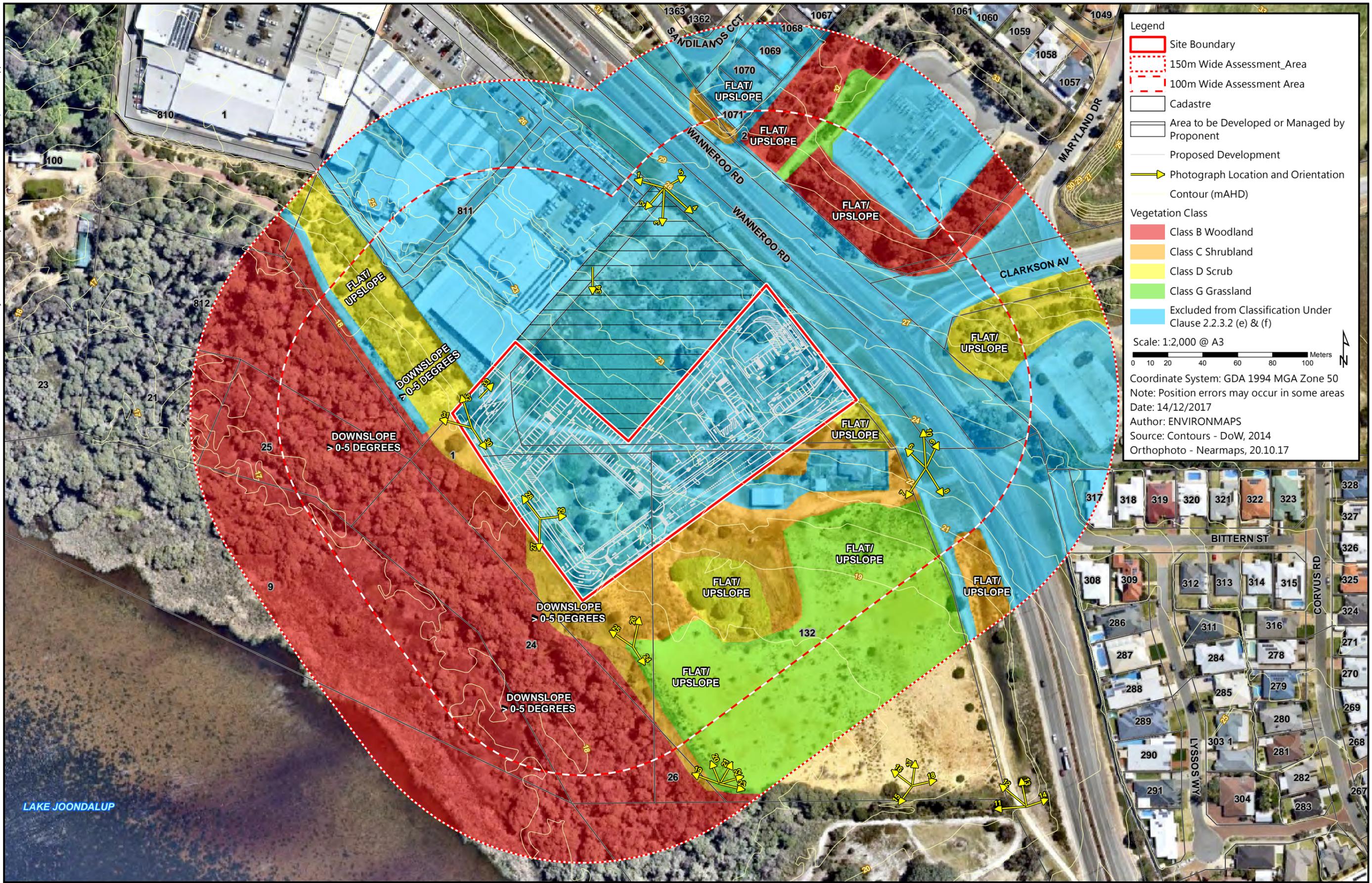
Strategen has taken georeferenced photographs during the on-ground site investigation, which are contained in Appendix 3 and demonstrate the location, direction and class of vegetation observed.

Strategen emphasises that the vegetation extent discussed above and mapped in Figure 2 demonstrates post-development site conditions and takes into account vegetation clearing and fuel management that will occur as part of proposed development, as discussed above.

2.2.2 Effective slope

Effective slope has been assessed for this site in accordance with methodology contained within AS 3959. Strategen assessed effective slope within the project area and adjacent 150 m through on-ground site investigation on 18 November 2017.

The effective slope beneath the classified vegetation is typically flat, with the exception of vegetation to the west of the project area which has been assessed as downslope (0°-5°) as the elevation naturally declines toward Lake Joondalup. Effective slope under classified vegetation as described above has been used to inform the BAL assessment for proposed development (refer to Section 2.3) and is shown on Figure 2.



2.3 BAL contour assessment

Since classified vegetation has been identified within 100 m of the project area, BAL contour assessment and application of AS 3959 is required to inform future building design, location and construction requirements. This has been undertaken in the form of a BAL contour map, which specifies the indicative acceptable BAL ratings across the project area. BAL contour assessment is based on post-development conditions, which reflect a non-vegetated/low threat managed vegetation status throughout the entirety of the project area.

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

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

A Method 1 BAL calculation for proposed development is outlined in the following subsections. This assessment is considered suitable for the purposes of informing future planning/building stages; however, acceptance of the BAL contour map at future planning/building stages is at the discretion of the City and reassessment of the BAL may be required should there be any significant change in vegetation class extent or once further detail on development layout is known.

2.3.1 Fire Danger Index

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

2.3.2 Vegetation class

Vegetation class is described in Section 2.2.1 (Figure 2) and represents the post-development vegetation which consists of:

- Class B woodland
- Class C shrubland
- Class D scrub, and
- Class G grassland.

The post-development vegetation has informed the BAL assessment inputs.

2.3.3 Effective slope

Effective slope is described in Section 2.2.2 (Figure 2) and classified vegetation is on flat land (0°) and downslope (0°-5°).

2.3.4 Distance between proposed development areas and the classified vegetation

Strategen has assessed the separation distances, prior to implementation of any risk mitigation measures, between the proposed and the classified vegetation extent as depicted in Figure 3.

The width of each BAL contour is set in accordance with AS 3959 and reflects the relevant BAL ratings applicable to the post-development classified vegetation (see Table 1).

2.3.5 Method 1 BAL calculation

A Method 1 BAL calculation has been undertaken to determine BAL contours for the project area in accordance with AS 3959 methodology. The assessed BALs give an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed lots and subsequently inform the standard of building construction required for proposed buildings to potentially withstand such impacts. Land located greater than 100 m from classified vegetation maintains a rating of BAL-Low, where there is insufficient risk to warrant an increase in the building construction standard, as adopted by Method 1 BAL assessment procedure.

BAL contour assessment results are outlined in Table 1 and shown on Figure 3.

Table 1: Method 1 BAL calculation

Vegetation class	Effective slope	BAL contour width (m)	BAL rating	Comment
Class B woodland	All up-slopes or flat land (0°)	<10	BAL-FZ	Development will not occur in this area.
		10-<14	BAL-40	Development will not occur in this area.
		14-<20	BAL-29	Development will not occur in this area.
		20-<29	BAL-19	Development will not occur in this area.
		29-<100	BAL-12.5	Development will occur in this area.
Class B woodland	Downslope (0°-5°)	<13	BAL-FZ	Development will not occur in this area.
		13-<17	BAL-40	Development will not occur in this area.
		17-<25	BAL-29	Development will occur in this area.
		25-<35	BAL-19	Development will occur in this area.
		35-<100	BAL-12.5	Development will occur in this area.
Class C shrubland	All up-slopes or flat land (0°)	<7	BAL-FZ	Development will not occur in this area.
		7-<9	BAL-40	Development will not occur in this area.
		9-<13	BAL-29	Development will not occur in this area.
		13-<19	BAL-19	Development will not occur in this area.
		19-<100	BAL-12.5	Development will occur in this area.
Class C shrubland	Downslope (0°-5°)	<7	BAL-FZ	Development will not occur in this area.
		7-<10	BAL-40	Development will not occur in this area.
		10-<15	BAL-29	Development will occur in this area.
		15-<22	BAL-19	Development will occur in this area.
		22-<100	BAL-12.5	Development will occur in this area.
Class D scrub	All up-slopes or flat land (0°)	<10	BAL-FZ	Development will not occur in this area.
		10-<13	BAL-40	Development will not occur in this area.
		13-<19	BAL-29	Development will not occur in this area.
		19-<27	BAL-19	Development will not occur in this area.
		27-<100	BAL-12.5	Development will occur in this area.
Class D scrub	Downslope (0°-5°)	<11	BAL-FZ	Development will not occur in this area.
		11-<15	BAL-40	Development will not occur in this area.
		15-<22	BAL-29	Development will occur in this area.
		22-<31	BAL-19	Development will occur in this area.
		31-<100	BAL-12.5	Development will occur in this area.
Class G grassland	All up-slopes or flat land (0°)	<6	BAL-FZ	Development will not occur in this area.
		6-<8	BAL-40	Development will not occur in this area.
		8-<12	BAL-29	Development will not occur in this area.
		12-<17	BAL-19	Development will not occur in this area.
		17-<50	BAL-12.5	Development will occur in this area.

Bushfire construction provisions of the National Construction Code (i.e. AS 3959-2009; BALs) do not apply to Class 4 to Class 9 buildings. In these instances, the applicant has the discretion to utilise any or all of the elements of AS 3959-2009 in the construction of the building that they deem appropriate.

Given the proposed development is to comprise only of commercial buildings, with likely classification of Classes 5 to 9 in accordance with the National Construction Code, there is no statutory requirement for this building to meet the construction requirements of AS 3959. Notwithstanding, due to the nature of the proposed facility, Strategen recommend that compliance with the construction requirements of AS 3959 is achieved wherever practicable.

2.4 Identification of bushfire hazard issues

The most significant vegetation in proximity the project area currently exists to the west of the project area, where remnant woodland vegetation is growing in association with Lake Joondalup. Given the largely built up environment to the east of the project area, and the connectivity of vegetation to the west with vegetation within Neerabup National Park to the north, this vegetation poses the main bushfire risk to future assets of the project area.

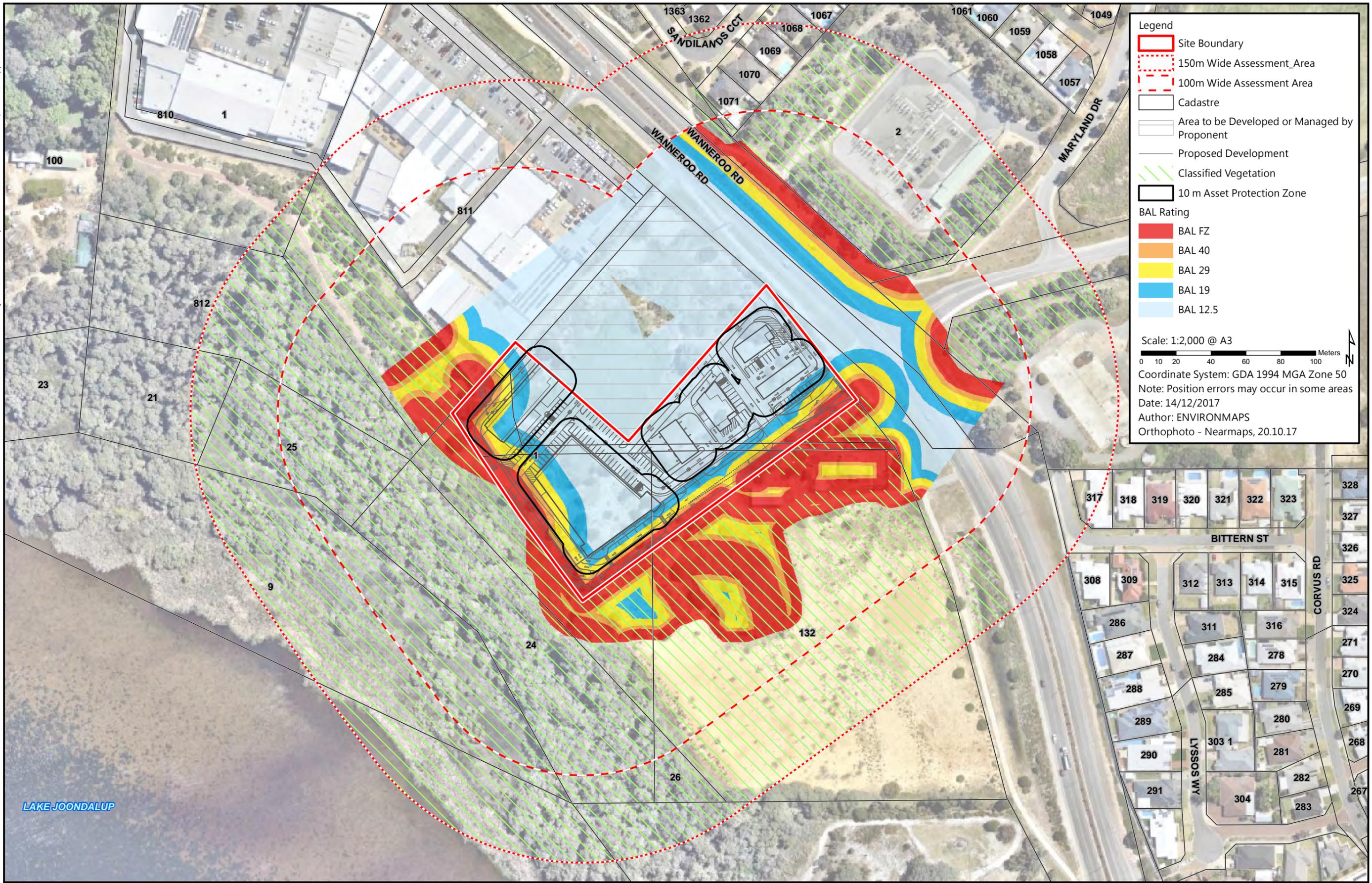
This vegetation forms part of a CCW and its associated buffer and is within Bush Forever site 299, therefore is provided planning protection and is expected to remain in-tact in perpetuity.

The interface between the project area and Lake Joondalup comprises a POS reserve, for which any landscaping or development plans are unknown. It is therefore assumed that this area will remain in the existing unmanaged state and pose a bushfire threat to the development.

The project area will be cleared for proposed development, which will be entirely non-vegetated elements with all onsite landscaping to be low-threat condition therefore minimising any bushfire risk within the project area.

Management of the bushfire hazard will be achieved by focussing on providing adequate hazard separation from the adjacent vegetation in the form of low-threat, managed areas and Asset Protection Zones (APZs). As the clients maintains control of the balance of the lot, management of these areas will be undertaken to ensure a low-threat condition in accordance with AS3959.

On the basis of the above information, Strategen considers the bushfire risk to be readily manageable through standard adoption of acceptable solutions outlined in the Guidelines and compliance with AS 3959 where required. These responses will need to be factored in to proposed development as early as possible to ensure a suitable, compliant and effective bushfire management outcome is achieved to ensure protection of future life and property assets.



3. Bushfire management measures

Strategen has identified a range of bushfire management measures that on implementation, will enable the project area to be developed with a manageable level of bushfire risk and full compliance with the Guidelines and AS 3959. The bushfire management measures are discussed in the following subsections.

3.1 Asset Protection Zone (APZ)

Method 1 BAL assessment has confirmed BAL-29 or lower can be achieved for all proposed development within the project area in accordance with acceptable solution A1.1 of the Guidelines. The BAL ratings assessed for proposed development rely on the separation distances being maintained between proposed buildings and the surrounding classified vegetation extent. These separation distances make up the APZs for the site in accordance with acceptable solution A2.1 of the Guidelines and comprise a combination of the following areas (as shown in Figure 3):

- the non-vegetated internal carpark and driveway network
- a small portion of the sewer easement in the northern portion of the project area, managed to an APZ standard

All APZs are required to be maintained on a regular and ongoing basis in accordance with Schedule 1 (Standards for Asset Protection Zones) from the Guidelines (see Appendix 4) with a fine fuel load less than 2 t/ha to achieve a low threat minimal fuel condition status as per Clause 2.2.3.2 (f) of AS 3959-2009. In the event that landscaping is proposed within 10 m of buildings, this will be implemented to an APZ standard.

Management Action BMP 1a

Establish the APZ to avoid building construction in areas of BAL-FZ and BAL-40. Ensure that parts of the APZ within the project area (including any proposed onsite landscaping) is constructed, landscaped and maintained to an APZ standard ((see Appendix 4). This includes the construction of the internal access roads to ensure the necessary building setbacks are achieved (developer).

Management Action BMP 1b

Maintain the portion of the APZ within the sewer easement to an APZ standard in accordance with Schedule 1 of the Guidelines (developer, any future land owner, or applicable land manager).

Management Action BMP 1c

Maintain the portion of the APZ within the balance lot/ future funeral development site, to an APZ standard in accordance with Schedule 1 of the Guidelines (developer and any future land owner).

3.2 Fuel management

The BAL contours assessed in this BMP rely on areas of low threat managed vegetation (excluded from classification) being maintained on a regular and ongoing basis all year round. It has been assumed that the following management measures will be implemented in perpetuity, or until the bushfire hazard has been permanently removed through development:

- all vacant undeveloped land within the project area will be managed (by the developer) to a non-vegetated or low-threat standard in accordance with AS3959 until the entire project area is developed.
- the sewer easement to the north of the project area, and future funeral development site to the east, will be managed or developed (by the developer) to a non-vegetated or low-threat standard in accordance with AS3959. This will include slashing of grass fuels to a nominal height 100 mm as per Clause 2.2.3.2 (f) of AS3959. The balance lot is >2 000m² and will therefore require a 3 m-wide firebreak in accordance with the City's current firebreak notice (Appendix 5).

- Class D scrub vegetation which currently exists to the east of the project area within the Wanneroo Road reserve will be removed to facilitate the Clarkson Avenue intersection upgrade, or alternatively will be managed to a low-threat standard in accordance with Clause 2.2.3.2 (f) of AS3959.
- the Wanneroo Road reserve will continue to be managed in a low-threat state in accordance with Clause 2.2.3.2 (f) of AS3959. Note: this relates to continuation of the current management regime and will not require any additional work outside of what is already being undertaken within road reserves.

Management Action BMP 2a

Maintain all vacant, undeveloped land within the project area, in a low-threat state in accordance with AS3959, through slashing of grasses and weeds to a height of 100 mm or less until such time that the land is developed (developer and any future land owner).

Management Action BMP 2b

Maintain the sewer easement in the northern part of the project area, and future funeral development area to the east, to a non-vegetated or low-threat standard in accordance with AS3959 (developer, any future land owner, or applicable land manager).

Management Action BMP 2c

Remove Class D scrub to the east of the project area within the Wanneroo Road reserve, or manage this vegetation in accordance with Clause 2.2.3.2 of AS3959 (developer).

Management Action BMP 2d

Maintain road reserves in a low fuel state through slashing of grasses and weeds to a height of less than 100 mm on a regular and ongoing basis (City of Wanneroo). Note: this relates to continuation of the current management regime and will not require any additional work outside of what is already being undertaken within road reserves.

3.3 Building construction standards and BAL compliance

BAL contour assessment over the project area (as outlined in Section 2.3 and Figure 3) indicates that the proposed buildings are partially affected by BAL ratings ranging from BAL-29 to BAL-12.5.

Bushfire constructions provisions of the National Construction Code require that buildings comply with the A 3959 construction requirements, in accordance with the assessed BAL under AS 3959, provided the building is a Class 1, 2 or 3 building, or a Class 10a building associated with a Class 1, 2 or 3 building.

As outlined in Section 2.3.5, the proposed building will likely be Class 5 to 9 in accordance with the National Construction Code, and as such, there is no statutory requirement for proposed building to meet the construction requirements of AS 3959. Notwithstanding, given the high-risk nature of the proposed use, and like all buildings, potential vulnerability to ember attack, Strategen recommend that compliance with the AS 3959 construction requirements is achieved wherever practicable. Strategen recommend that the requirements of the applicable BAL rating to each building are strongly considered for implementation.

No development will occur within areas of BAL-FZ or BAL-40, meaning that all proposed development within the project area can achieve a rating of BAL-29 or lower in accordance with Guidelines Acceptable Solution A 1.1.

Any land within the project area that is unaffected by a BAL rating on the BAL contour map is considered to be BAL-Low, where there is insufficient risk to warrant specific building construction requirements.

3.4 Vehicular access

Primary vehicular access to the project area will be directly from the Wanneroo Road and Clarkson Avenue intersection which is proposed to be upgraded (Appendix 1). Access to the proposed development will be permitted for vehicles travelling in both directions on Wanneroo Rd via a round-about connecting with Clarkson Avenue, thus vehicular access (including firefighter access) and egress to and from the project area is not restricted. The proposed development will have access to the above public roads which will ensure that two different vehicular access routes are provided at all times in accordance with acceptable solution A3.

The proposed development will have some building located further than 50 m from the public road network, as such, the proposed internal driveways will need to comply with Acceptable Solution A3.5. The internal driveways will need to comply with the technical requirements of a private driveway in the Guidelines, in Table 2 below and Acceptable Solution A3.5.

Table 2: Vehicular access technical requirements

Technical requirement	Private driveway
Minimum trafficable surface (m)	4
Horizontal distance (m)	6
Vertical clearance (m)	4.5
Maximum grade <50 m	1 in 10
Minimum weight capacity (t)	15
Maximum crossfall	1 in 33
Curves minimum inner radius	8.5

* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2017

The proposed development will not result in the creation of any public roads, cul-de-sacs, battle-axe lots, emergency access-ways or fire service access routes. Therefore, Acceptable Solutions A3.2 to A3.4, A3.6 and A3.7 do not apply.

Given that the proposed lot will be >0.5 ha, a minimum 3 m-wide firebreak is required to be installed in accordance with Acceptable Solution A3.8 and the City's current firebreak notice (see Appendix 5). It is noted that upon completion of this development, the proposed internal access network provides non-vegetated separation at the eastern, southern and western boundaries which exceed the 3 m-wide firebreak requirements.

Management Action BMP 3a

Construct all internal private driveways in accordance with Acceptable Solution A3.5 of the Guidelines (developer).

Management Action BMP 3b

Ensure a minimum 3 m-wide firebreak is installed in accordance with Acceptable Solution A3.8 and the City's current firebreak notice (developer and any future land owner/ land manager).

3.5 Reticulated water supply

The existing dwelling is currently provided with a reticulated town mains water supply from existing water infrastructure services which will be utilised for the proposed development. A network of hydrants is provided along the public road network at locations which are assumed to meet relevant water supply authority and DFES requirements. The reticulated system ensures an all year-round supply of water is provided to meet minimum domestic and emergency water supply requirements in accordance with acceptable solution A4.1 of the Guidelines.

3.6 Additional measures

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

Management Action BMP 4a

Prepare/ undertake a BMP addendum or BAL assessment may be prepared at a later date to demonstrate any change in the assessed BAL or other management measure documented in this BMP, which may occur as a result of a change in development design or the classified vegetation extent, or through detailed siting of buildings at the building permit stage (landowner/ developer).

Management Action BMP 4b

Comply with the bushfire risk management plan prepared for the proposed service station (landowner and relevant facility managers).

Management Action BMP 4c

Comply with the current City of Wanneroo annual firebreak notice (Appendix 5) (developer and any future land owner/land manager).

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.

6.5 Information to accompany development applications

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

a) (i) a BAL assessment. BAL assessment should be prepared by an accredited Level 1 BAL Assessor or a Bushfire Planning Practitioner unless otherwise exempted in the Guidelines; or

(ii) a BAL Contour Map that has been prepared for an approved subdivision clearly showing the indicative acceptable BAL rating 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 or the BAL assessment

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

6.6 Vulnerable or high-risk land uses

6.6.1 in areas where BAL 12.5 to BAL 29 applies

Subdivision and development applications for vulnerable or high-risk land uses in areas between BAL 12.5 to BAL 29 will not be supported unless they are accompanied by a Bushfire Management Plan jointly endorsed by the relevant local government and the State authority for emergency services. Subdivision applications should make provision for emergency evacuation. Development applications should include an emergency evacuation plan for proposed occupants and/or a risk management plan for any flammable on-site hazards.

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 and the Guidelines, the bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with acceptable solutions of the Guidelines where possible 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 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.

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 Section 3.1 and 3.2, which demonstrates that all future development will avoid areas of BAL-FZ and BAL-40 and a rating of BAL-29 or lower can be achieved.	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 3.2 and Figure 3, which demonstrates that creation of a 10 m APZ ensures sufficient separation distance is achieved between classified vegetation and proposed development, in accordance with AS 3959-2009, to ensure a rating of BAL-29 or lower is achieved across all parts of the proposed building. The APZs are largely within the project area but do extend 10 m to the east into the balance of the lot which is under the control of the developer and can be readily managed.	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 at least two different vehicular access routes will be identified and provided for the proposed development at all times.	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.	N/A No public roads are proposed as part of the development.	
		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.	N/A No cul-de-sacs are proposed as part of the development.	
		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-axe lots are proposed as part of the development.	

		<p>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.</p>	Private driveways longer than 50 m are proposed as part of the development and will need to comply with Acceptable Solution A3.5 of the Guidelines.	
		<p>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.</p>	N/A No emergency access ways are proposed as part of the development.	
		<p>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.</p>	N/A No fire service access routes are required as part of the development.	
		<p>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.</p>	<p>The lot within which the project area is located is >0.5 ha and therefore is required to install fire breaks to comply with A3.8 and the City's firebreak notice. Refer to Section 3.4.</p>	
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.	<p>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.</p>	Refer to Section 3.5, which demonstrates that the project area will be provided a reticulated water supply and network of hydrants in accordance with local water authority, City and DFES requirements.	Measures proposed are considered to comply and meet the intent of Element 4 Water.
	<p>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).</p>	N/A The proposed development will not occur within a non-reticulated area.		
	<p>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.</p>	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, prospective landowners/ managers and the City 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

Reference	Action	Timing	Responsibility
BMP 1a (Section 3.1)	Construct internal access roads to ensure the necessary building setbacks are achieved and the full extent of the APZ is established to avoid building construction in areas of BAL-FZ and BAL-40.	During construction and prior to occupancy of buildings.	Developer
BMP 1b (Section 3.1)	Maintain the portion of the APZ within the sewer easement to an APZ standard in accordance with Schedule 1 of the Guidelines	Ongoing	Developer
BMP 1c (Section 3.1)	Maintain the portion of the APZ within the balance lot/ future funeral development site, to an APZ standard in accordance with Schedule 1 of the Guidelines	Until the land is developed to remove the bushfire hazard	Developer
BMP 2a (Section 3.2)	Maintain all vacant, undeveloped land in a low-threat state through slashing of grasses and weeds to a height of 100 mm or less	Until the land is developed to remove the bushfire hazard	Developer
BMP 2b (Section 3.2)	Maintain the sewer easement to the north of the project area, and future funeral development area to the east, to a non-vegetated or low-threat standard in accordance with AS3959.	Ongoing	Developer or applicable land manager
BMP 2c (Section 3.2)	Remove Class D scrub to the east of the project area within the Wanneroo Road reserve, or manage this vegetation in accordance with Clause 2.2.3.2 of AS3959.	During construction (removal), ongoing (management), prior to building occupancy.	Developer
BMP 2d (Section 3.2)	Maintain road reserves in a low fuel state through slashing of grasses and weeds to a height of less than 100 mm on a regular basis.	Ongoing	City of Wanneroo
BMP 3a (Section 3.4)	Construct all internal private driveways in accordance with Acceptable Solution A3.5 of the Guidelines	During construction and prior to occupancy of buildings	Developer

Reference	Action	Timing	Responsibility
BMP 3b (Section 3.4)	Ensure a minimum 3 m-wide firebreak is installed in accordance with Acceptable Solution A3.8 and the City's current firebreak notice.	Ongoing	Developer and any future land owner/ manager
BMP 4a (Section 3.6)	BMP addendum or BAL reassessment.	As required at the discretion of the City, prior to building construction to validate the BAL contour assessment or modification of other management measures documented in this BMP.	Developer and any future land owner/ manager
BMP 4b (Section 3.6)	Compliance with the project BEEP and BRMP for the proposed development.	Following commissioning of the building and prior to occupation	Developer, landowners, facility manager
BMP 4c (Section 3.6)	Compliance with current City annual firebreak notice.	All year round as specified in the current firebreak notice (Appendix 5).	Developer and any future land owner/ manager

5.1 Document review and update

This BMP will be updated as required in response to any significant changes in development design and/or the classified vegetation extent to ensure bushfire management responses for proposed development are consistent with on-ground conditions. The developer will be responsible for updating and revising the BMP until such time that the development is complete. Revisions to the BMP may require approval from the relevant planning authority.

6. References

Department of Fire and Emergency Services (DFES) 2017, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from:
<http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>.

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

Appendix 1
Proposed development plan

Appendix 2
Bushfire emergency evacuation plan

Appendix 3
Site photographs



Photo Point 1: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959

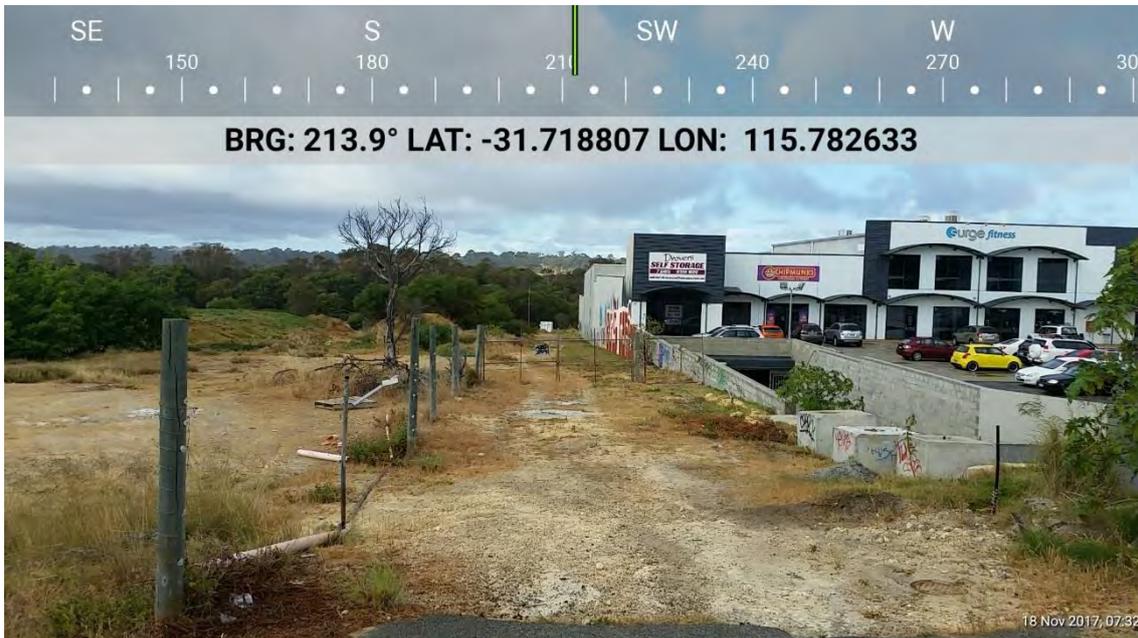


Photo Point 2: Non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) AS 3959 (road, carpark, buildings), Class G grassland along sewer easement



Photo Point 3: Class G grassland with Class D scrub in background



Photo Point 4: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, footpath, road), Class C shrubland and Class D scrub in background

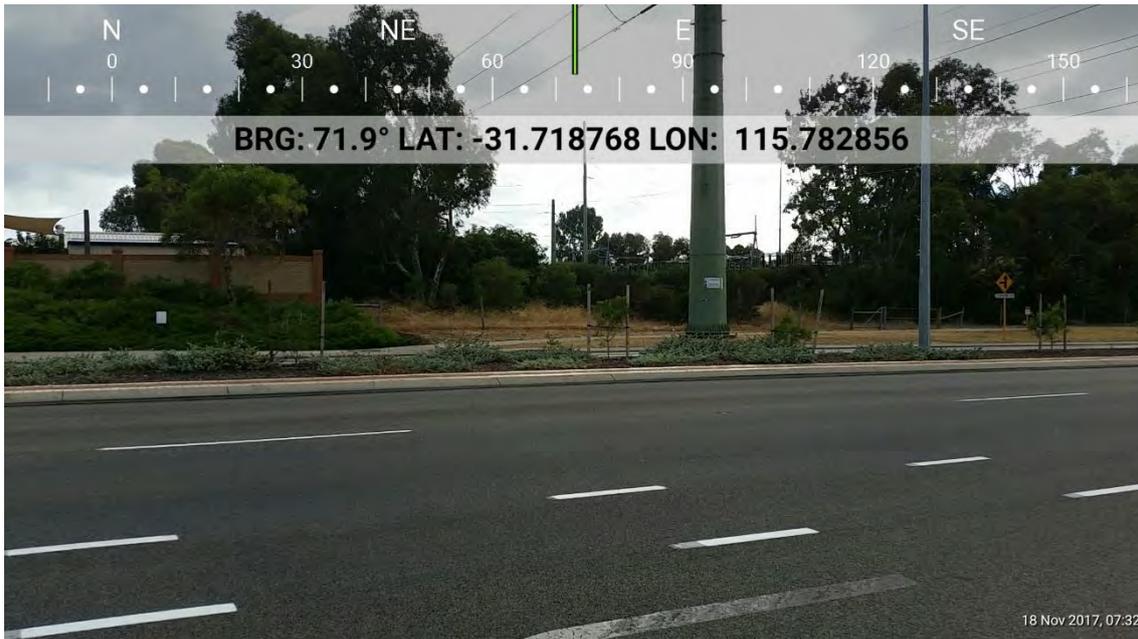


Photo Point 5: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959, Class B woodland in background



Photo Point 6: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, footpath), Class D scrub in background



Photo Point 7: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, footpath, managed domestic garden), Class G grassland in background



Photo Point 8: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, footpath, road), Class C shrubland in swale



Photo Point 9: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, road), Class D scrub in background

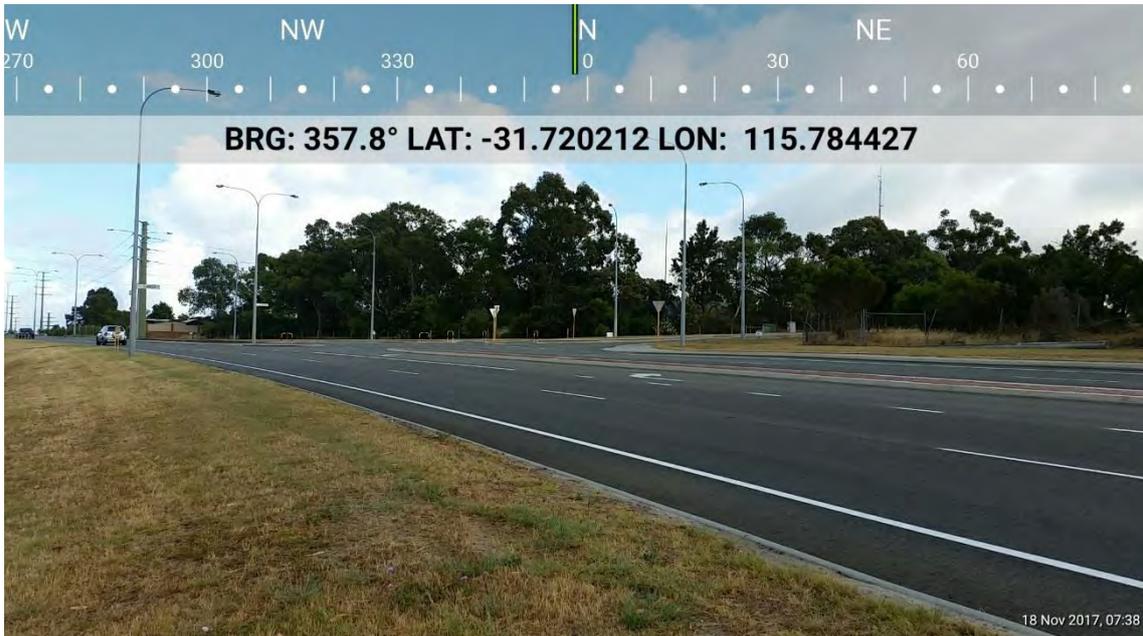


Photo Point 10: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (managed road verge, road), Class B woodland in background



Photo Point 11: Class D scrub south of the project area

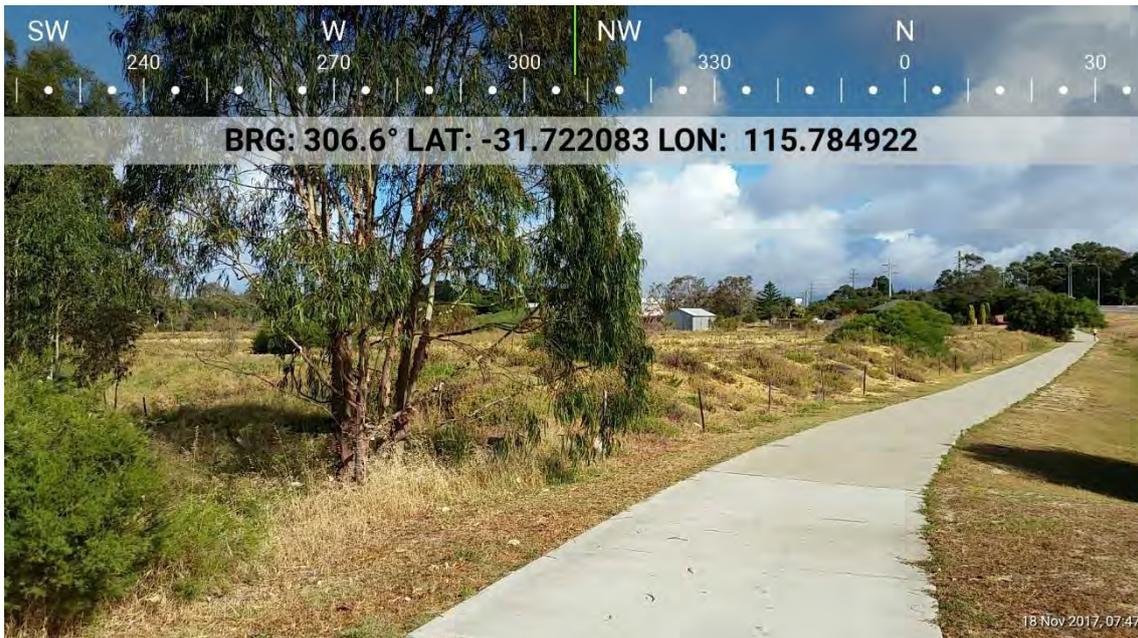


Photo Point 12: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (road verge and footpath); Class G grassland on left

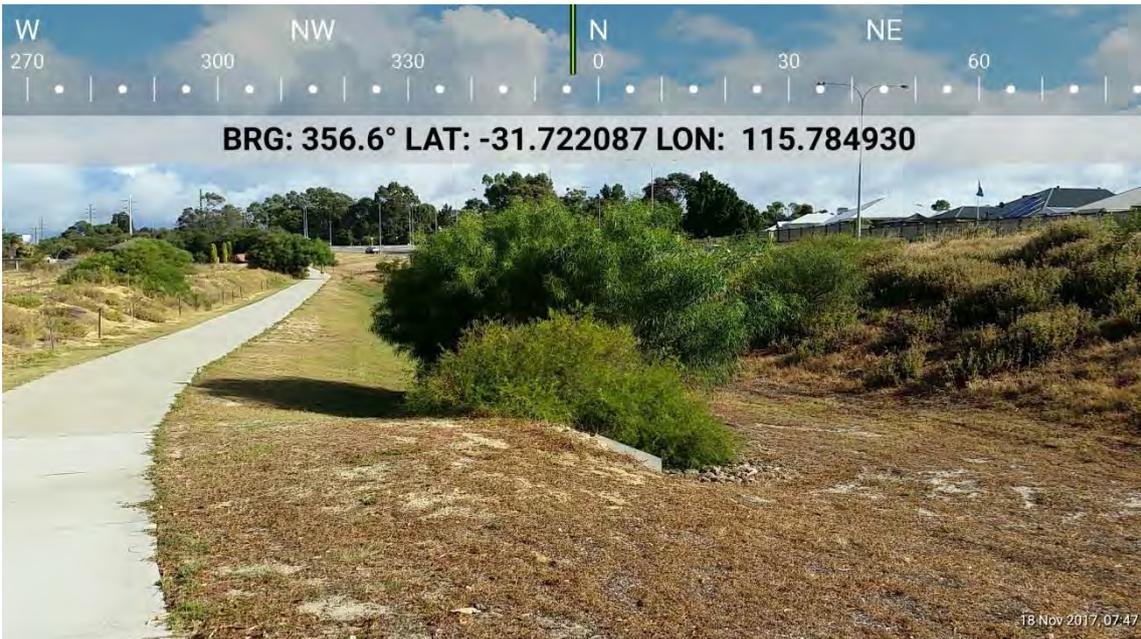


Photo Point 13: Low threat and non-vegetated areas excluded from classification under Clauses 2.2.3.2 (e) and (f) of AS 3959 (footpath, managed verge); Class C shrubland in swale



Photo Point 14: Class C shrubland on Wanneroo Road verge



Photo Point 15: Class D scrub (foreground) Class B woodland (background)

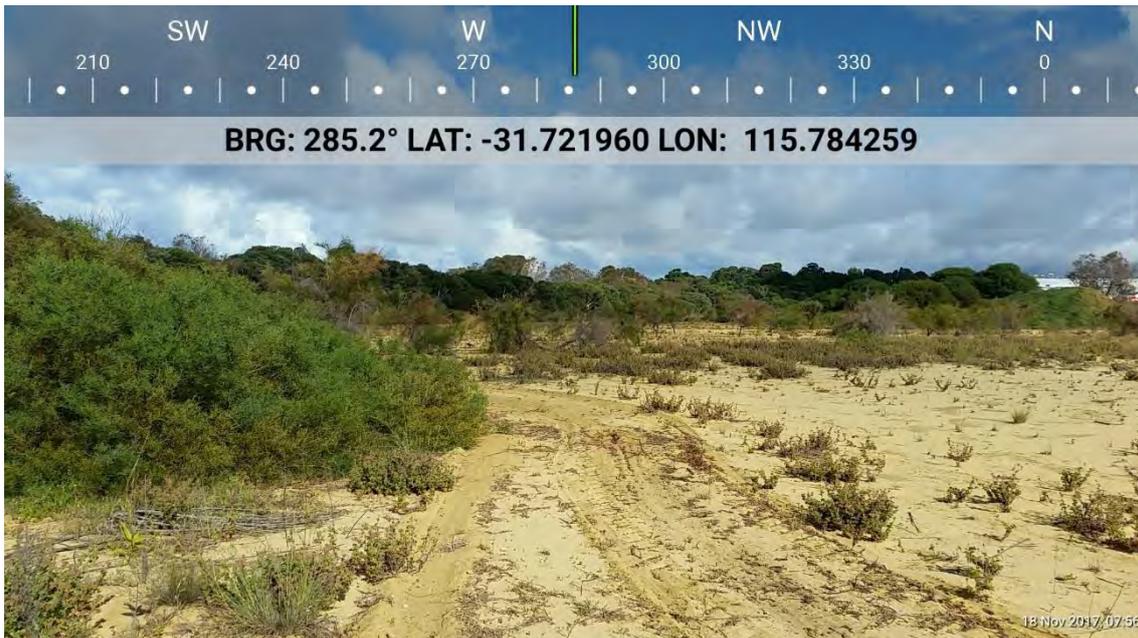


Photo Point 16: Class D scrub on left, Class B woodland in background, Class G grassland on right



Photo Point 17: Class G grassland; Class D scrub in background right



Photo Point 18: Class G grassland



Photo Point 19: Class G grassland in foreground; Class C shrubland in centre; Class B woodland in background



Photo Point 20: Class G grassland in foreground and centre; Class D scrub in background right; Class C shrubland and Class B woodland on left



Photo Point 21: Class G grassland; Class D scrub in background t



Photo Point 22: Class G grassland (at maturity)



Photo Point 23: Class G grassland



Photo Point 24: Class G grassland on left; Class C shrubland and Class B woodland on right



Photo Point 25: Class C shrubland on left and right; Class B woodland on far left



Photo Point 26: Class C shrubland



Photo Point 27: Class C shrubland in foreground; Class B woodland in background

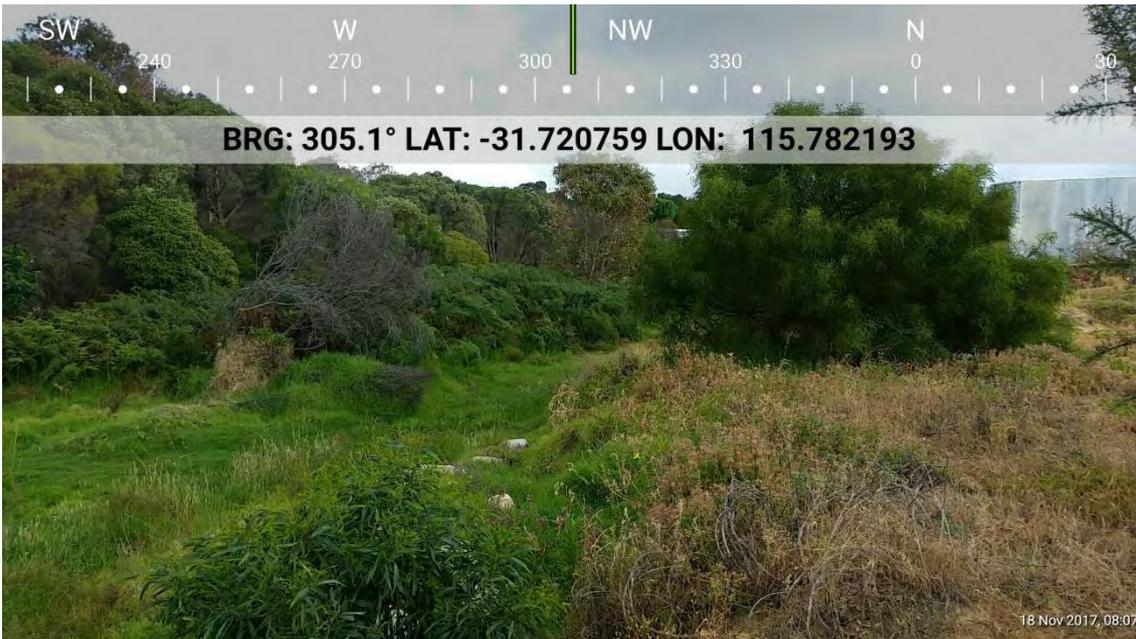


Photo Point 28: Class C shrubland in foreground (to be modified to non-vegetated and low threat as part of development); Class B woodland in background



Photo Point 29: Class C shrubland (to be modified to non-vegetated and low threat as part of development)



Photo Point 30: Class C shrubland in foreground; Class B woodland in background



Photo Point 31: Class C shrubland in foreground; Class D scrub in background right; Class B woodland in background left



Photo Point 32: Class C shrubland (to be modified to non-vegetated and low threat as part of development); Class D scrub in background



Photo Point 33: Class G grassland and Class C shrubland (to be modified to non-vegetated and low threat as part of development)



Photo Point 34: Class G grassland and Class C shrubland (to be modified to non-vegetated and low threat as part of development)

Appendix 4
Schedule 1 (Standards for Asset
Protection Zones) from SPP3.7
Guidelines

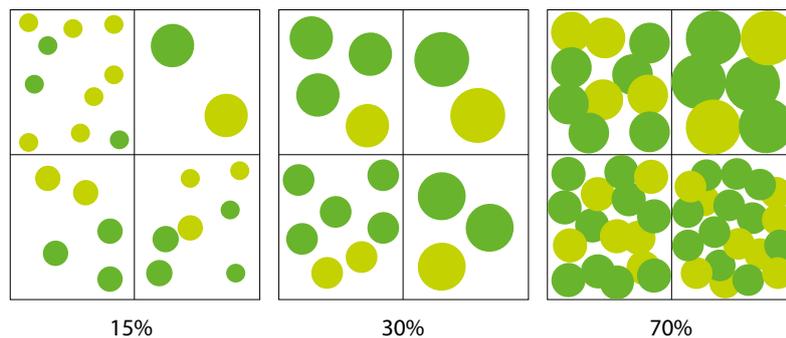
Contents	1 Introduction	2 Policy framework overview	3 Bushfire prone areas	4 Assessing bushfire risk in the planning context	5 Applying SPP 3.7	6 Roles and responsibilities	Appendices
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ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

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 18: 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 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

Appendix 5
City of Wanneroo annual firebreak
notice

Protect your home and property from bushfires

NOTICE TO ALL OWNERS OR OCCUPIERS OF LAND IN THE DISTRICT OF THE CITY OF WANNEROO REGARDING FIREBREAKS.

The City of Wanneroo hereby gives notice pursuant to Section 33 of the **Bush Fires Act 1954** to all owners or occupiers of land in its district that they are required on or before 15 November, or within 14 days of becoming the owner or occupier of the land if that occurs after the 15 November, to annually plough, cultivate, scarify, or otherwise clear firebreaks as specified in this Notice and thereafter up to, and including the 30 April, annually, to maintain the firebreaks clear of flammable matter.

1. Land having an area of 2000m² or more

A firebreak not less than 3 metres wide and 3 metres high immediately inside and around all external boundaries of the land must be cleared.

2. Land having an area of less than 2000m²

A firebreak not less than 2 metres wide and 2 metres high immediately inside and around all external boundaries of the land must be cleared.

3. Buildings

A firebreak not less than 3 metres wide immediately around all external walls of every building must be cleared. Whenever a firebreak is cleared by burning the provisions of the Act and Regulations made thereunder must be observed. If pursuant to Item (2) of this Notice, mowing or slashing is carried out the height of vegetation thereafter must not exceed, as far as is reasonably practicable, 20mm over the entire area of the firebreak. The use of chemicals is subject to all restrictions imposed by the Department of Agriculture. Attention is drawn to the Flammable Liquids Regulations made under the Explosives and Dangerous Goods Act 1961, which requires a site on which flammable liquid is stored to be totally cleared of all flammable material for a minimum distance of 5 metres surrounding the site.

If it is considered to be impracticable for any reason to comply with the provisions of this Notice, application may be made not later than the 1st day of November annually to the Council or its authorised officer for permission to provide alternative fire protection measures. If permission is not granted the requirements of this Notice must be complied with.

Penalty

An owner or occupier of land who fails or neglects in any respect to comply with the requirements of this Notice is liable to a maximum fine of \$5,000.

DATES TO REMEMBER

- Firebreaks must be cleared by **15 November (AND KEPT CLEAR UNTIL APRIL 30)**
- Burning permits required all year round
- Burning prohibited between **1 December to 31 March**

When and how to obtain a fire permit

Permits are available from the City of Wanneroo at the following locations:

WANNEROO ANIMAL CARE CENTRE

Located at the rear of the Ashby Operations Centre, 1204 Wanneroo Road, Ashby

The City's Rangers / Fire Control Officers are available to issue permits 7 days a week* from 4pm - 6pm

*Except Good Friday

CITY OF WANNEROO CIVIC CENTRE

23 Dundee Road, Wanneroo

The City's Fire Control Officers / Permit Issuing Officers are available to issue permits Monday to Friday 9am - 4pm

NEED ADVICE?

Further advice about how to protect your home, constructing firebreaks, and when and how to burn off, is available from the City of Wanneroo during office hours on 9405 5000.



City of
Wanneroo

23 Dundee Road, Wanneroo, WA 6065

Locked Bag 1, Wanneroo, WA 6946

T : (08) 9405 5000 F : (08) 9405 5499

After Hours : 1300 13 83 93

E : enquiries@wanneroo.wa.gov.au

wanneroo.wa.gov.au  

PROTECT YOUR HOME
AND PROPERTY FROM
BUSHFIRES



City of
Wanneroo

Keeping your home safe from fire

There are a number of ways you can help keep your home safe from fire:

- Install smoke detectors in your home
- Clear vegetation away from the walls of your home
- Clear all rubbish and flammable material from around your home to create a 20 metre circle of safety
- Store firewood, timber, petrol, and kerosene well away from your home
- Prior to summer, clean all leaves and debris from your gutters
- Don't have flammable trees such as conifers near buildings
- Have branches trimmed that overhang the house or powerlines
- Fit wire insect screens or shutters to windows and glass doors

If a firebreak is impractical along your boundary for environmental or other reasons notify the City of Wanneroo by 1 October to obtain permission to install firebreaks in alternative positions, or of a different nature.

ALTERNATIVE METHODS OF REDUCING FIRE HAZARDS ON VACANT LAND

- For urban land less than 2000m², if mowing or slashing is carried out, the height of the vegetation must not exceed, as far as is reasonably practical, 20mm over the entire area of the firebreak
- The use of chemicals is subject to all restrictions imposed by the Department of Agriculture
- Mulching • Disposal at an authorised rubbish tip site

When and how to burn

NO BURNING FROM 1 DECEMBER - 31 MARCH

Burning off - that is, bush/running fire including grass, on any land is totally prohibited between 1 December and 31 March. Fire permits for burning material other than garden rubbish are required all year round.

A person in control of the fire must stay with the fire until it is completely extinguished.

GARDEN RUBBISH AND REFUSE

The burning of garden refuse is permitted between the hours of 6pm and 11pm, provided the fire danger rating is not VERY HIGH, SEVERE, EXTREME or CATASTROPHIC or a TOTAL FIRE BAN has been declared.

Fire danger rating signs are located at the following locations:

- Corner of Joondalup Drive and Wanneroo Road
- Wanneroo Road, south of the Yanchep Beach Road turn off
- Wanneroo Road, Carabooda • Marmion Avenue, Jindalee
- Neaves Road, Mariginiup • Old Yanchep Road, Pinjar
- Gnaragara Road, Landsdale • Country Side Drive, Two Rocks

Other points to remember when burning garden refuse and rubbish are:

- All bush and flammable material must be thoroughly cleared within two metres of all points of the site of the fire
- The material must be on the ground, and be no more than one metre wide and one metre high

Only one heap may be burnt at any one time
Incinerators may be used providing:

- The incinerator is properly constructed and designed to prevent the escape of sparks of burning material
- The incinerator is situated not less than two metres away from a building or fence
- An area of two metres surrounding the incinerator is clear of all flammable material

BARBECUES

Only gas or electric barbecues may be lit during VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger rating or declared TOTAL FIRE BAN. The lighting of solid fuel barbecues is not permitted on these days.

SMOKE NUISANCES

City of Wanneroo residents are advised to be mindful of smoke issues associated with any burning that they conduct. Steps should be taken to avoid undue smoke impact to neighbours and adjacent roads. Smoke across roadways can severely impact motorists' visibility and therefore road safety. Issues of smoke nuisance are regulated by the Waste Avoidance and Resource Recovery Act 2007.

CAMPFIRES

Campfires must not be lit on VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger days or declared TOTAL FIRE BAN. A person must remain in attendance at the site during the whole time the fire is burning. The user must extinguish the fire using water or earth before leaving the area.

Hints for safer burning

- Don't light a fire on a hot or windy day
- Don't burn more than you can control
- Let your neighbours know you'll be burning material
- Make sure smoke and sparks will not affect your neighbour's washing or enter open windows
- Cut or rake long grass around trees, building and fences before burning
- Burn against the wind
- On a sloping block, burn from the top down
- Keep a hose or spray pack at hand to dampen down fierce fires
- If in doubt, don't burn material yourself - call the Volunteer Fire Brigade
- Stay with the fire until it is completely extinguished
- Where possible, don't burn any closer than 20 metres from your home or other buildings

Penalties

Under the Bush Fires Act 1954, failing to comply with regulations can result in a fine ranging from \$250 to \$250,000 or imprisonment.

Failure to maintain 2/3 metre firebreak as per firebreak order	\$250
Offence relating to lighting fire in the open air	\$250
Setting fire to bush during prohibited burning times	\$250
Failure of occupier to extinguish bush fire	\$250
Major offences result in Court action with fines ranging from \$250 to \$250,000 or imprisonment for 14 years.	

THE BIGGEST PENALTY OF ALL

The biggest penalty of all would be losing your loved ones or home to fire. Please ensure you, your family and your home are kept safe by taking the necessary precautions.

Special rural and residential land

Owners and occupiers of special rural and special residential land should be aware of their responsibilities to take bush fire prevention measures, while ensuring they do not contravene Town Planning Scheme provisions which control the removal of vegetation in Special Residential and Special Rural Zones.

These special rural zones were created in areas of natural flora, and the Scheme recognises the importance of preserving the natural environment in these areas. Anyone found cutting down, lopping or damaging trees in these areas without City approval may be guilty of an offence.

However, bush fire prevention, including the installation of firebreaks, is essential regardless of the zoning of the land.

Below are some guidelines for installing firebreaks in special rural zones to prevent bush fires, while minimising damage to the natural environment.

- A 3 metre wide and 3 metre high firebreak should be cleared around the perimeter of special rural or special residential lots
- These firebreaks need not be strictly around the perimeter, but may deviate according to the flora
- The firebreak does not have to be ploughed but can instead be created by clearing and removing all flammable material
- Care should be taken to avoid damaging or removing significant trees and shrubs
- Avoid the build up of undergrowth and leaf litter

