

63502 M01 Sinagra subdivision BMP addendum (Rev A)

DEPARTMENT OF PLA AND HERIT	NNING, LANDS AGE
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Bushfire Management Plan Addendum: Lot 1665 Wanneroo Road, Sinagra – superlot subdivision

1.1 Purpose

Strategen-JBS&G prepared a comprehensive Bushfire Management Plan (BMP) in September 2021 to support Stockland in their subdivision application for proposed urban residential development within Lot 1665 Wanneroo Road, Sinagra, located in the City of Wanneroo (hereon referred to as the project area). The subdivision was approved under WAPC Ref. 161417.

Stockland now intends to lodge a superlot subdivision application over the same project area, which will create two superlots (proposed Lots 1 and 2), two balance lots (proposed Lots 3 and 4, subject to approved subdivision under WAPC Ref. 161417) and the internal public road network, as depicted in Figure 1.

This BMP is an addendum to the previous subdivision stage BMP prepared for the project area (Strategen-JBS&G 2021) and provides an updated, detailed bushfire assessment specific to the superlot subdivision layout, particularly with regards to proposed Lots 1 and 2. As such, this BMP addendum should be read in conjunction with the previous subdivision stage BMP.

This addendum includes the following information:

- 1. A revised bushfire assessment including:
 - an updated Vegetation Classification and Effective Slope map, depicting the expected post-development vegetation classifications/exclusions specific to the superlot subdivision layout (Figure 2)
 - b. an updated BAL Contour map specific to the superlot subdivision layout and postdevelopment vegetation conditions mapped from Item 1a above (Figure 3).
- 2. An updated assessment against the bushfire protection criteria of the Guidelines, including updated statements of compliance against acceptable solutions to demonstrate compliance within the boundary of the subdivision site (Table 3).
- 3. A revised works program outlining responsibilities and timing for implementation of the bushfire management actions specific to the proposed superlot subdivision (Table 4).

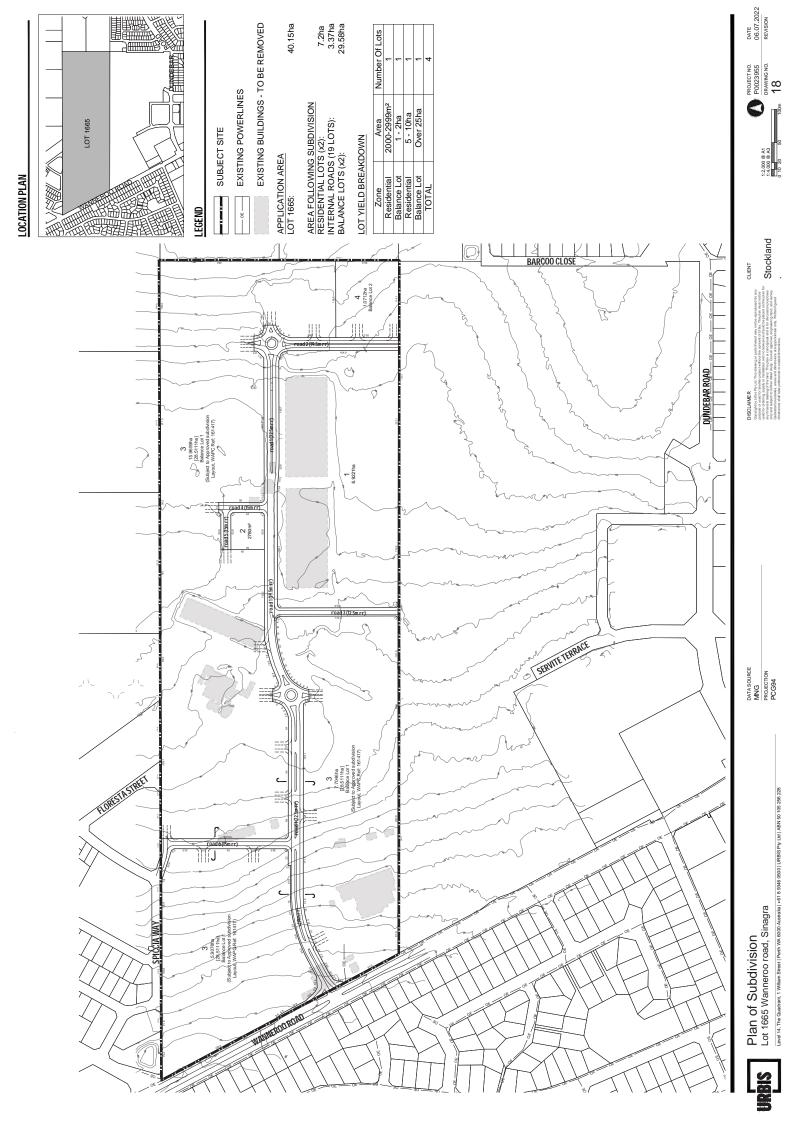
The majority of the project area is designated as bushfire prone on the Map of Bush Fire Prone Areas (DFES 2021); therefore, bushfire risk considerations and BAL assessment are required to inform proposed subdivision design and planning application, as per requirements under Policy Measure 6.2 of *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP3.7; WAPC 2015).

This BMP addendum has been prepared to accompany subdivision application for the proposed superlots within the project area and address requirements under Policy Measure 6.4 of SPP3.7 in accordance with *Guidelines for Planning in Bushfire-Prone Areas Version 1.4* (the Guidelines; WAPC 2021).











1.2 Bushfire assessment inputs

1.2.1 Vegetation classifications and exclusions

Strategen-JBS&G assessed classified vegetation and exclusions within the 150 m assessment area as part of the original subdivision stage BMP (Strategen-JBS&G 2021) in accordance with *AS 3959-2018 Construction of Buildings in Bushfire-Prone Areas* (AS3959; SA 2018) and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Site photos from the original site inspection representative of the vegetation classifications and exclusions can be viewed in Appendix B of the subdivision stage BMP (Strategen-JBS&G 2021).

A review of on-ground conditions via Nearmap imagery (dated 28 May 2022) has determined that the extent of classified vegetation has not materially changed since the original site inspection conducted by Strategen-JBS&G on 5 August 2021. In this regard, a desktop assessment was deemed to be an appropriate means of re-validating classified vegetation against current conditions, which are summarised as follows and depicted in Figure 2:

- Class A forest with a predominant eucalyptus canopy south of the project area within Lot 9000, as well as a relatively small section of unmanaged vegetation with a continuous canopy north of the project area
- Class B woodland that is dominated by banksia species southeast of the project area within Lot 9000, as well as small sections of unmanaged vegetation with sparse canopy coverage over grass north of the project area
- Class G grassland comprising unmanaged grass greater than 100 mm in height to the north of the project area.

Existing non vegetated areas (e.g. roads, buildings, earth-worked land) and low threat managed land (e.g. managed POS, urban street verge treatments, etc) within the 150 m assessment area are excluded under Clauses 2.2.3.2 (e) and (f).

The project area will ultimately be transformed from current site conditions into an urban residential built footprint amongst areas of managed POS. Therefore, all land within the project area will be modified to a non-vegetated and low threat managed state as part of the proposed development and will be excluded under Clauses 2.2.3.2 (e) and (f) of AS3959. This includes the provision of non-vegetated areas (i.e. buildings, roads, infrastructure, footpaths, sealed areas, etc) and low threat managed areas (i.e. POS, managed gardens, urban street verges, streetscaping, low threat staging buffers, etc). This takes into account the expected post-development clearing and earthworks footprint under subdivision approval WAPC Ref. 161417, as per the previous subdivision stage BMP (Strategen-JBS&G 2021).

1.2.2 Effective slope

Effective slope under classified vegetation was assessed as part of the subdivision stage BMP (Strategen-JBS&G 2021) through on ground verification in accordance with AS3959. Results were cross referenced with DPIRD 2m contour data.

Effective slope under classified vegetation was assessed to be downslope at >0–5 degrees in all instances due to the gradual incline in elevation from west to east adjacent to the project area, as depicted in Figure 2.

1.2.3 Summary of bushfire assessment inputs

Figure 2 illustrates the anticipated post-development vegetation classifications and exclusions following completion of subdivisional works. The post-development vegetation classifications/exclusions and effective slope are summarised in Table 1.

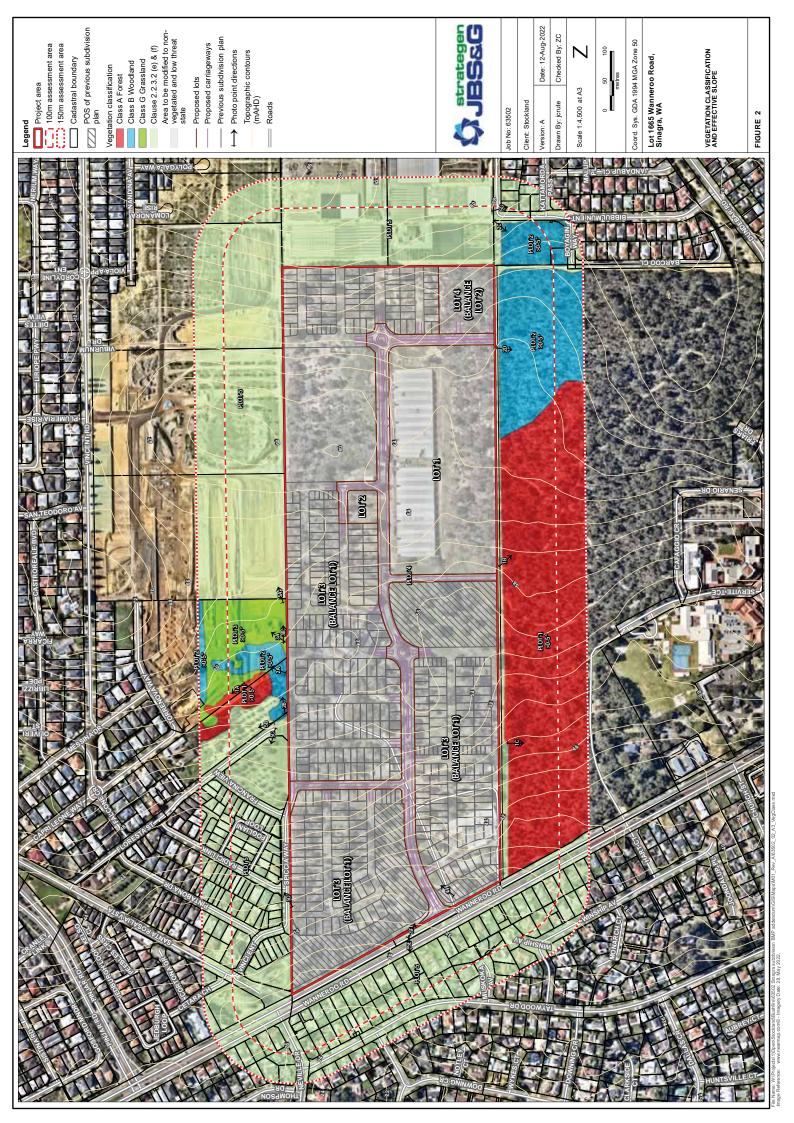






Table 1: Summary of post-development vegetation classifications, exclusions and effective slope

Vegetation	Vegetation classification	Effective slope	Comments
plot 1	Class A Forest	Downslope >0–5°	Vegetation with a predominant eucalyptus canopy south of the project area within Lot 9000, as well as a relatively small section of unmanaged vegetation with a continuous canopy north of the project area.
2	Class B Woodland	Downslope >0–5°	Vegetation that is dominated by banksia species southeast of the project area within Lot 9000, as well as small sections of unmanaged vegetation with sparse canopy coverage over grass north of the project area.
3	Class G Grassland	Downslope >0–5°	Unmanaged grassland greater than 100 mm in height to the north of the project area.
4	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Area to be modified to a non-vegetated/low threat managed state as part of proposed development.
5	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	A combination of existing non-vegetated areas (i.e. buildings, infrastructure, roads, footpaths, sealed areas, earth-worked land, etc) and low threat managed vegetation (managed POS, urban street verge treatments, etc).



1.3 Bushfire assessment outputs

1.3.1 Bushfire Attack Level (BAL) contour assessment

Strategen-JBS&G has undertaken a BAL contour assessment in accordance with Method 1 of AS3959 for the project area (Figure 3). The Method 1 procedure incorporates the following factors:

- state adopted FDI 80 rating
- vegetation classification
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed development and subsequently informs the standard of building construction and/or setbacks required for proposed habitable development to potentially withstand such impacts and deliver compliance with relevant bushfire protection criteria of the Guidelines.

The BAL contours are based on:

- the vegetation classifications and effective slope observed during the original site inspection and updated desktop review of current site conditions
- consideration of the proposed on-site clearing extent associated with both the proposed superlot subdivision and previous subdivision approval under WAPC Ref. 161417; establishment of a predominant urban build footprint on site; and resultant separation distances achieved in line with the subdivision plans.

Results of the BAL contour assessment are detailed in Table 2 and illustrated in Figure 3.

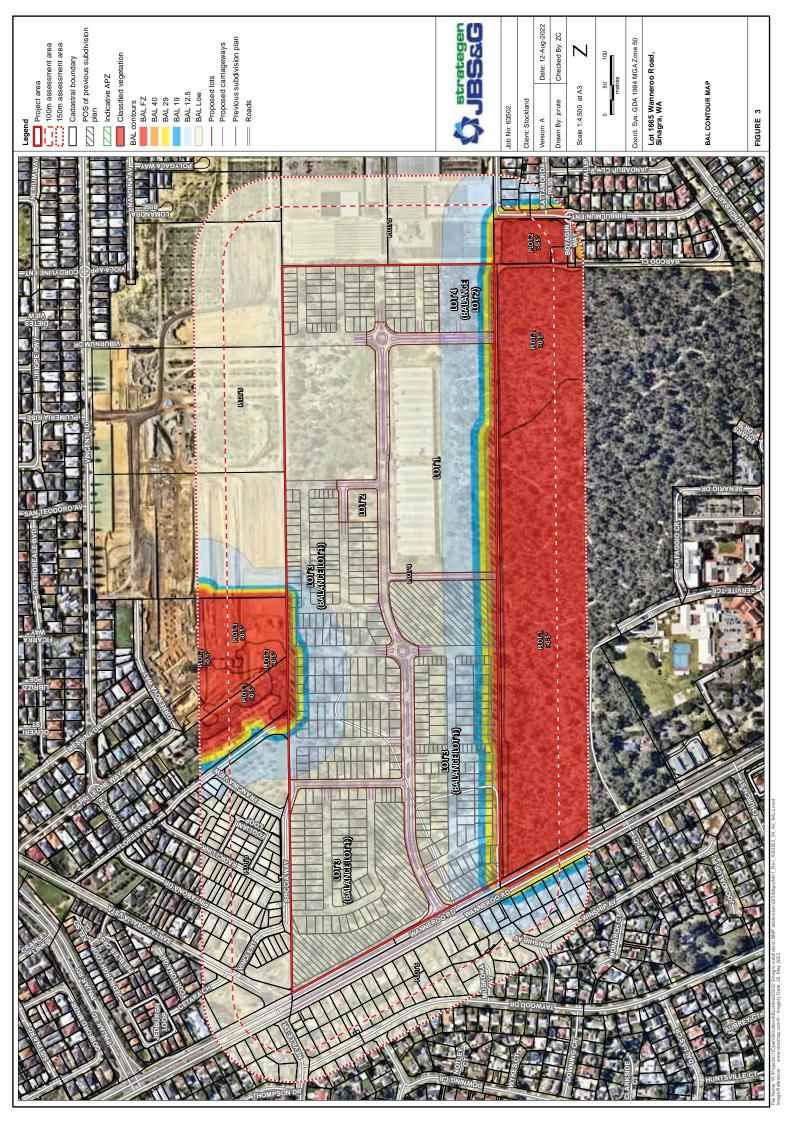
The determined worst case BAL impact to the lot boundary of proposed Lot 1 is BAL-FZ; however, an Asset Protection Zone (APZ) setback of 9–19 m along the southern boundary of Lot 1 (as per Figure 3), enforced via restrictive covenant on title, will ensure all proposed habitable development within Lot 1 achieves BAL-29 or lower.

The determined worst case BAL impact to the lot boundary of proposed Lot 2 is BAL-Low.

The BAL contour assessment for proposed balance Lots 3 and 4 is not relevant to this BMP as this was addressed as part of the previous subdivision stage BMP (Strategen-JBS&G 2021), as approved under WAPC Ref. 161417.

Table 2: BAL contour assessment results

	Method 1 BAL determination					
Vegetation plot	Vegetation classification	Effective slope	Separation distance to lot boundary	Highest BAL to lot boundary	APZ setback	Reduced BAL with APZ setback
1	Class A Forest	Downslope >0-5°	Lot 1: 8 m	Lot 1: BAL-FZ	Lot 1: 19 m off southern boundary	Lot 1: BAL-29
			Lot 2 : >100 m	Lot 2: BAL-Low	Lot 2: N/A	Lot 2: N/A
2	Class B Woodland	Downslope >0-5°	Lot 1: 8 m	Lot 1: BAL–FZ	Lot 1: 9 m off southern boundary	Lot 1: BAL-29
			Lot 2 : >100 m	Lot 2: BAL-Low	Lot 2: N/A	Lot 2: N/A
3	Class G Grassland	Downslope >0-5°	>50 m	BAL-Low	N/A	N/A
4	Excluded – Non- vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	N/A	N/A	N/A	N/A
5	Excluded – Nonvegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	N/A	N/A	N/A	N/A



1.4 Assessment against bushfire protection criteria

1.4.1 Compliance with Elements 1-4

Compliance with Elements 1-4 of the bushfire protection criteria of the Guidelines (Version 1.4) is demonstrated by meeting the acceptable solutions, as detailed in Table 3.

Table 3: Compliance with the bushfire protection criteria of the Guidelines (Elements 1-4)

Bushfire	Dockerson Opinish I	Method of compliance		Compliance
protection criteria	renomiance rincipie	Acceptable solutions	Statement of development compliance ac	achieved
Element 1: Location	Performance Principle P1 The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL–29 or below, and the risk can be managed. For unavoidable development in areas where BAL–40 or BAL–F2 applies, demonstrating that the risk can be managed to the attisfaction of the decision-maker.	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.	The BAL contour assessment (see Figure 3 and Table 2) demonstrates that all future habitable development will be located in areas of BAL-29 or lower, subject to provision of a 9-19 m wide APZ setback along the southern boundary of proposed Lot 1, which is of a sufficient size to cater for such setback.	>
Element 2: Stiring and design	Performance Principle P2 The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. The proposal incorporates a defendable space and significantly reduces the heat intensities at the building surface thereby minimising the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.	A2.1 Asset Protection Zone Every habitable building is surrounded by, and every proposed lot can achieve, an AP2 depicted on submitted plans, which meets the requirements set out in Schedule 1.	An APZ setback is required to deliver BAL-29 or lower for proposed Lot 1 given the BAL-40/FZ impacts resulting from the adjacent Class A forest and Class B woodland vegetation along the southern interface of the lot. A 9–19 m wide APZ setback will be required along the southern boundary of proposed Lot 1, enforced via restrictive covenant on title, to ensure all proposed habitable development within Lot 1 achieves BAL-29 or lower. In addition to the above, any land to be modified to a low threat state under Clauses 2.2.3.2 (e) and (f) of AS3959 (e.g. on-site development footprint, low threat staging buffers, etc) is to comply with Schedule 1 APZ standards of the Guidelines (refer to Attachment A).	>
Element 3: Vehicular access	Performance Principle P3i The design and capacity of vehicular access and egress is to provide for the community to evacuate to a suitable destination before a bushfire arrives at the site, allowing emergency services personnel to attend the site and/or hazard vegetation.	The mini to all processions and accessions. The public ro Column The traff the relevent the process. If the purch the process of the relevent the provided the relevent the provided the relevant the relevant the relevant the relationship provided the subject the result	All public roads will be constructed to the minimum technical requirements of the Guidelines (see Attachment B) and in accordance with relevant federal, State, and local government requirements. Proposed subdivision design indicates public road access in two different directions with connections provided to the surrounding public road network via Wanneroo Road to the west and via Spiccia Way to the north. Several future connections to the north, south and east will provide additional access routes in these directions. These future connections will link the project area to adjacent residential developments that are to be developed in the future by others. Overall, the current and future connections will provide public road access in multiple directions to multiple suitable destinations.	,
		outalea – rigule 25.		

Sushfire	Dorforms my Definite 1	Method of compliance	(See of the control o	Compliance
riteria	odbarri odranici odra	Acceptable solutions		achieved
		A3.2b Emergency access way Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution. An emergency access way is to meet all the following requirements: • requirements in Table 6, Column 2; • provides a through comection to a public road; • be no more than 500 metres in length; and • must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.	Any temporary EAWs required as part of internal development staging will be constructed to comply with relevant Guidelines requirements, as per Attachment B. All proposed public roads will ultimately be through roads. A number of temporary on-through roads will exist in the interim until such time that formal road connections.	
		All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where: • it is demonstrated that no alternative road layout exists due to site constraints; and • the no-through road is a maximum length of 200 metres to an intersection provisions in A3.2a of this table. A no-through road is to meet all the following requirements: • requirements of a public road (Table 6, Column 1); and • turn-around area as shown in Figure 24.	no-through roads will exist in the interim until such time that formal road connections are made to adjacent development areas to the north, south and east. Any temporary no-through roads required as part of internal staging will be constructed to comply with relevant Guidelines requirements, as per Attachment B.	
	Performance Principle P3ii The design of vehicular access and egress provides: a access and egress for emergency service vehicles while allowing the community to evacuate; a defendable space for emergency services personnel on the interface between classified vegetation and development site; and hazard separation between classified vegetation and the subject site to reduce the potential radiant heat that may impact a lot(s).	A3.4a Perimeter roads A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of: • separating areas of classified vegetation under AS3959, which adjoin the subject site, from the proposed lot(s); and • removing the need for battle-axe lots that back onto areas of classified vegetation. A perimeter road is to meet the requirements contained in Table 6, Column 1. A perimeter road may not be required where: • the adjoining classified vegetation is class G Grassland; • lots are zoned for rural living or equivalent; • it is demonstrated that it cannot be provided due to site constraints; or it is demonstrated that it cannot be provided due to site constraints; or all lots have frontage to an existing public road.	VIII	N/A
	Performance Principle P3iii Vehicular access is provided which allows: access and egress for emergency service vehicles; defendable space for emergency services personnel on the interface between classified vegetation and development; and	A3.4b Fire service access route Where proposed lots adjoin classified vegetation under AS3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation. A fire service access route is to meet all the following requirements:	As discussed above under A3.4a, proposed subdivision design does not require perimeter roads at all vegetation interfaces with the boundary of the subdivision area. In this regard, fire service access routes (FSARs) are not required for the proposed development.	N/A

Bushfire		Method of compliance		Compliance
criteria	renormance mincipie	Acceptable solutions	Statement of development compilation	achieved
	hazard separation between classified vegetation and the site to reduce the potential	 requirements in Table 6, Column 3; 		
	radiant heat that may impact a lot(s).	 be through-routes with no dead-ends; 		
		 linked to the internal road system at regular intervals, every 500 metres; 		
		 must be signposted; 		
		 no further than 500 metres from a public road; 		
		 if gated, gates must open the required horizontal clearance and can be locked by the local government and/or emergency services, if keys are provided for each gate; and 		
		turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres.		
	Performance Principle P3iv	A3.5 Battle-axe access legs	s part of the subdivision and the project area is not	N/A
	Vehicular access is provided which allows emergency service vehicles to directly access all habitable buildings and water supplies and exit the lot without entrapment.	Where it is demonstrated that a battle-axe cannot be avoided due to site constraints, it can be considered as an acceptable solution.	serviced by an existing battle-axe.	
		There are no battle-axe technical requirements where the point the battle-axe access leg joins the effective area of the lot, is less than 50 metres from a public road in a reticulated area.		
		In circumstances where the above condition is not met, or the battle-axe is in a non-reticulated water area, the battle-axe is to meet all the following requirements:		
		 requirements in Table 6, Column 4; and 		
		 passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres). 		
		A3.6 Private driveways	ls will	N/A
		There are no private driveway technical requirements where the private driveway is:	be lower than 70 km/hr and proposed lots are of size where all future habitable development will be located within 70 m of a public road. In this regard, there are no natural additionance committees continued and for fitting landowners of these in-habitable.	
		 within a lot serviced by reticulated water; 	private unveway compriance requirements for nature randowners of the subdivided.	
		no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and		
		- accessed by a public road where the road speed limit is not greater than 70 km/h.		
		In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following requirements:		
		 requirements in Table 6, Column 4; 		
		passing bays every 200 metres with a minimum length of 20 metres and a minimum		
		 additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and 		
		turn-around area as shown in Figure 28 and within 30 metres of the habitable building.		

Bushfire		Method of compliance		Compliance
protection criteria	Performance Principle	Acceptable solutions	statement of development compliance	achieved
Element 4: Water	No performance principle applies	A4.1 Identification of future water supply Evidence that a reticulated or sufficient non-reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2. Where the provision of a strategic water rank(s) is required a suitable area within a road reserve or a dedicated lot the location should be identified, should be identified on the structure plan, to the satisfaction of the local government.	A4.1 is applicable to strategic planning applications only.	N/A
	Performance Principle P4 Provide a permanent water supply that is: • sufficient and available for firefighting purposes; • constructed from non-combustible materials (e.g. steel), or able to maintain its integrity throughout a bushfire; and • accessible, with legal access for maintenance and re-filling by tankers and emergency service vehicles.	A4.2 Provision of water for firefighting purposes Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies: The provision of a water tank(s), in accordance with the requirements of Schedule 2; and Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: I and to be ceded free of cost to the local government for the placement of the tank(s): I and to be ceded free of cost to the local government for the placement of the tank(s): I and to be ceded free of subdivision; I tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). Where a subdivision includes an existing habitable building(s), that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above.	The proposed development will be connected to a reticulated water supply via extension of services from adjacent development areas in accordance with Water Corporation Design Standard 63 requirements.	>

1.5 Responsibilities for implementation and management of the bushfire measures

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

Table 4: Responsibilities for implementation and management of the bushfire measures

Impler	mentation/management table
	Developer – prior to issue of titles
No.	Implementation action
1	Construct (or have works bonded) the public roads (including any temporary no-through-roads/emergency access ways required as part of internal staging) to the standards stated in this BMP addendum.
2	Construct (or have works bonded) the reticulated water supply to the standards stated in this BMP addendum.
3	If confirmed to be required at subdivision clearance, establish a 9–19 m wide APZ setback along the southern boundary of proposed Lot 1 (as per Figure 3) and enforce through restrictive covenant on title.
4	Establish non-vegetated and low threat areas (i.e. development footprint, public roads, street verges and low threat staging buffers as required) in accordance with the requirements of this BMP addendum.
5	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (refer to Attachment C).
6	Prepare a BMP compliance report to demonstrate the relevant bushfire management measures have been implemented to deliver compliance in accordance with this BMP addendum.
	Developer – until sale/transfer of lots
No.	Implementation action
1	Maintain the development footprint, public roads, street verges and low threat staging buffers as required to a non-vegetated/low threat state in accordance with the requirements of this BMP addendum.
2	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (Attachment C).
	Landowner/occupier – prior to building construction and ongoing
No.	Implementation action
1	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (Attachment C), including maintenance of cleared vacant lots in a low threat state.
2	Maintain the APZ setback along the southern boundary of proposed Lot 1 (if required) in accordance with the requirements of this BMP addendum.
3	Comply with AS3959 building constructions standards relevant to the assessed BAL where required.
	Local government – ongoing management
No.	Implementation action
1	Maintain urban street verges in a low threat minimal fuel condition as per Clause 2.2.3.2 (f) of AS 3959.

1.6 References

- Department of Fire and Emergency Services (DFES) 2021, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: https://maps.slip.wa.gov.au/landgate/bushfireprone/, [1/08/2022].
- Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.
- Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.
- Strategen-JBS&G 2021, *Bushfire Management Plan (Subdivision Application) Lot 1665 Wanneroo Road, Sinagra*, report prepared for Stockland, September 2021.
- 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) 2021, *Guidelines for Planning in Bushfire Prone Areas, Version 1.4 December 2021*, Western Australian Planning Commission, Perth.

Attachment A APZ standards (Schedule 1 of the Guidelines)

Object	Requirement
Fences within the APZ	Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	 Should be managed and removed on a regular basis to maintain a low threat state. Should be maintained at <2 tonnes per hectare (on average). Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	 Trunks at maturity should be a minimum distance of six metres from all elevations of the building. Branches at maturity should not touch or overhang a building or powerline. Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. Canopy cover within the APZ should be <15 per cent of the total APZ area. Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	 Should not be located under trees or within three metres of buildings. Should not be planted in clumps >5 square metres in area. Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	 Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
Grass	 Grass should be maintained at a height of 100 millimetres or less, at all times. Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.

Schedule 1: Standards for Ass	et Protection Zones
Defendable space	Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	 Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building.
	The pressure relief valve should point away from the house.
	No flammable material within six metres from the front of the valve.
	 Must sit on a firm, level and non-combustible base and be secured to a solid structure.

Source: Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)

Element 2 Explanatory Notes

E2 Landscaping and design of an Asset Protection Zone

Landscaping, design, and maintenance of an APZ in a bushfire prone area can significantly improve the bushfire resilience of a building. An APZ should not be seen as an area entirely cleared of vegetation, but as a strategically designed space that gives holistic consideration to how existing or proposed vegetation or non-combustible features interact with, or affect the building's bushfire resilience.

A well designed APZ provides a greater level of vegetation management within the first few metres of a building with, for example, less vegetation or inclusion of non-combustible materials. The vegetation within the remainder of an APZ can increase further away from the building with carefully considered plant selection and landscaping techniques.

Strategic landscaping measures can be applied, such as replacing weeds with low flammability vegetation (refer to E2 Plant Flammability) to create horizontal and vertical separations between the retained vegetation. The accumulation of fine fuel load from different plants is an important consideration for ongoing maintenance in accordance with Schedule 1. For example, when planting ground covers under deciduous trees within an APZ, the total fine fuel load prescribed in Schedule 1 will include any dead plant material from ground covers and leaf litter from the trees.

Plant density and final structure and form of mature vegetation should be considered in the initial landscaping stages. For example, clumps of sapling shrubs planted at a density without consideration of future growth, may increase the bushfire risk as a clump will quickly grow to exceed 5m2. It should be noted that in some cases, a single shrub in a mature state may be so dense as to fill a 5m2 clump alone.

The location of plants within an APZ is a key design technique. Separation of garden beds with areas of low fuel or non-combustible material, will break up fuel continuity and reduce the likelihood of a bushfire running through an APZ and subjecting a dwelling to radiant heat or direct flame contact. It is important to note, where mature trees are separated from a building by six metres, but the canopy has grown to extend or overhang a building, maintenance and pruning to remove the overhanging branches should be undertaken without the entirety of the tree being removed.

Mulches used within the APZ should be non-combustible. The use of stone, gravel, rock and crushed mineral earth is encouraged. Wood mulch >6mm in thickness may be used, however it is recommended that it is used in garden beds or areas where the moisture level is higher by regular irrigation. These materials could be sourced from non-toxic construction and demolition waste giving the added benefit of reducing the environmental impact of any 'hard landscaping' actions.

Combustible objects, plants, garden supplies such as mulches, fences made from combustible material, should be avoided within 10 metres of a building. Vines or climbing plants on pergolas, posts or beams, should be located away from vulnerable parts of the building, such as windows and doors. Non-flammable features can be used to provide hazard separation from classified vegetation, such as tennis courts, pools, lawns and driveways or paths that use inorganic mulches (gravel or crushed rock). Consider locating firewood stacks away from trees and habitable buildings.

Incorporation of landscaping features, such as masonry feature walls can provide habitable buildings with barriers to wind, radiant heat and embers. These features can include noise walls or wind breaks. Use of Appendix F of AS 3959

Element 2 Explanatory Notes

for bushfire resistant timber selection within areas of 29kW/m² (BAL-29) or below, or the use of non-combustible fencing materials such as iron, brick, limestone, metal post and wire is encouraged.

In addition to regular maintenance of an APZ, further bushfire protection can be provided at any time by:

- ensuring gutters are free from vegetation;
- installing gutter guards or plugs;
- regular cleaning of underfloor spaces, or enclosing them to prevent gaps;
- trimming and removing dead plants or leaf litter;
- pruning climbing vegetation (such as vines) on a trellis, to ensure it does not connect to a building, particularly near windows and doors;
- removing vegetation in close proximity to a water tank to ensure it is not touching the sides of a tank; and/or
- following the requirements of the relevant local government section 33 fire break notice, which may include additional provisions such as locating wood piles more than 10 metres from a building.

Preparation of a property prior to the bushfire season and/or in anticipation of a bushfire is beneficial even if your plan is to evacuate. As embers can travel up to several kilometres from a bushfire and fall into small spaces and crevices or land against the external walls of a building, best practice recommends that objects within the APZ are moved away from the building prior to any bushfire event. Objects may include, but are not limited to:

- door mats;
- outdoor furniture;
- potted plants;
- shade sails or umbrellas;
- plastic garbage bins;
- firewood stacks;
- flammable sculptures; and/or
- playground equipment and children's toys.

E2 Plant flammability

There are certain plant characteristics that are known to influence flammability, such as moisture or oil content and the presence and type of bark. Plants with lower flammability properties may still burn during a bushfire event, but may be more resistant to burning and some may regenerate faster post-bushfire.

There are many terms for plant flammability that should not be confused, including:

- Fire resistant plant species that survive being burnt and will regrow after a bushfire and therefore may be highly flammable and inappropriate for a garden in areas of high bushfire risk.
- Fire retardant plants that may not burn readily or may slow the passage of a bushfire.
- Fire wise plants that have been identified and selected based on their flammability properties and linked to maintenance advice and planting location within a garden.

Although not a requirement of these Guidelines, local governments may develop their own list of fire wise or fire retardant plant species that suit the environmental characteristics of an area. When developing a recommended plant species list, local governments should consult with ecologists, land care officers or environmental authorities to ensure the plants do not present a risk to endangered ecological communities, threatened, or endangered species or their habitat.

When selecting plants, private landholders and developers should aim for plants within the APZ that have the following characteristics:

- grow in a predicted structure, shape and height;
- are open and loose branching with leaves that are thinly spread;
- have a coarse texture and low surface-area-to-volume ratio;
- will not drop large amounts of leaves or limbs, that require regular maintenance;
- have wide, flat, and thick or succulent leaves;
- trees that have bark attached tightly to their trunk or have smooth bark;
- have low amounts of oils, waxes, and resins (which will often have a strong scent when crushed);
- do not produce or hold large amounts of fine dead material in their crowns; and/or
- will not become a weed in the area.

Element 2 Explanatory Notes

Refer to the WAPC Bushfire and Vegetation Fact Sheet for further information on clearing and vegetation management and APZ landscaping, design and plant selection reference material.

Attachment B Vehicular access technical requirements of the Guidelines

Acceptable Solution A3.1 - Public Roads

Explanatory Note E3.1

These Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area.

The IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards do not prescribe a horizontal clearance. However, it is recommended that a traversable verge is provided to allow for emergency services vehicles to stop and operate on the side of the public road, specifically where the public road may traverse large areas of classified vegetation.

Where local government roads are proposed to be widened by the proponent, they must obtain approval from the local government.

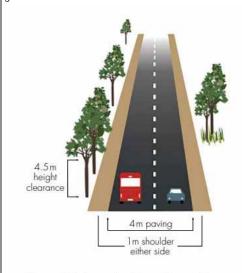


Figure 20: Example of a public road

Source: Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)

Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way ¹	3 Fire service access route ¹	4 Battle-axe and private driveways²
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road ³		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)	Condennes	8.5		

Notes:

¹ To have crossfalls between 3 and 6%.

Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

³ Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

Acceptable Solution A3.2a - Multiple access routes

Explanatory Note E3.2a

Two-way public road access is public road access from a lot in at least two different directions to two suitable destinations, and provides residents and the community, as well as emergency services, with access and egress from

both the subdivision and individual habitable buildings/development in the event of a bushfire emergency. A single road provides no alternative route if the access becomes congested or is unable to be traversed due to smoke and/or fallen trees during a bushfire.

Two-way public road access applies to access/egress routes leading into a subdivision, as well as those within a subdivision. A road that loops back onto itself does not constitute the option of two different directions.

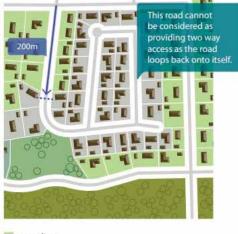
Two-way public road access should always be the first option. Where the site is not able to achieve two-way access within 200 metres of the lot boundary, due to demonstrated site or environmental constraints, the proponent should identify options for an emergency access way from the subject site to a suitable destination. Where an emergency

access way cannot be provided, the proponent should demonstrate compliance with the performance principle. Subject sites or proposed lots greater than 200 metres from an intersection, which provides two-way access, do not satisfy the requirement for two-way access unless they meet the provisions which allow for no-through roads greater than 200 metres in A3.2a.

To demonstrate compliance with the performance principle for two-way access, the bushfire planning practitioner may have regard to:

- a. the extent of the bushfire hazard, location and vegetation classification, the likelihood, potential severity and impact of bushfire to the subject site and the road network;
- b. time between fire detection and the onset of conditions in comparison to travel time for the community to evacuate to a suitable destination:
- c. available access route(s) travelling towards a suitable destination; and
- d. turn-around area for a fire appliance for nothrough roads.

A3.3 where cul-de-sacs are used, the maximum length should be no greater than 200 metres. For the lots coloured green, two way access is provided once a vehicle reaches this intersection. Any lot that is coloured grey beyond 200 metres from this intersection is not compliant with A3.3.



compliant

not compliant

Figure 21: Example of compliant and non-compliant two-way

Acceptable Solution A3.3 - Through roads

Explanatory Note E3.3

In bushfire prone areas, a proposed structure plan or subdivision that incorporates no-through roads should be avoided because they do not provide a connected and legible design that allows for easy access and egress by the community, residents and emergency services in the event of a bushfire. No-through roads also reduce the options available for access and egress in the event of a bushfire emergency.

There will however be situations where a subject site is accessed via an existing or proposed no-through road and alternative access cannot be provided. In these situations, the proponent should demonstrate to the decision-maker, that all efforts have been made with the local government and/or adjoining landowners to secure alternative public road access or an emergency access way and that a redesign has been explored. The bushfire planning practitioner may need to develop a performance principle-based solution or address the non-compliance and demonstrate to the decisionmaker why discretion should be exercised in accordance with section 2.6 of these Guidelines.

No-through roads will only be considered an acceptable solution where it is demonstrated by the proponent, to the satisfaction of the decision maker, that a no through-road cannot be avoided due to site constraints. For example, the internal road design of a structure plan or subdivision where site constraints, such as a water body or Bush Forever, prevent the ability to create a through-road and a no through road may be a more appropriate road layout.

No-through roads should be a maximum of 200 metres from the lot(s) boundary to an intersection where two-way access is provided and may only exceed 200 metres if it meets the provisions which allow for no-through roads greater than 200 metres in A3.2a.

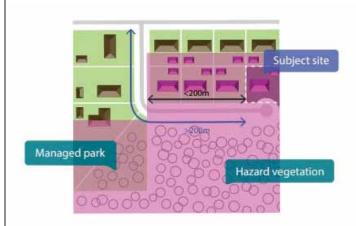


Figure 23: Example of a site on a no-through road greater than 200 metres from the intersection, but within 200 metres of BAL-LOW

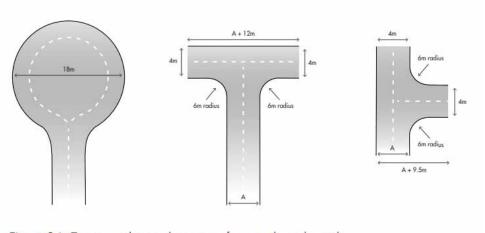


Figure 24: Turn-around area dimensions for a no-through road

Acceptable Solution A3.4a – Perimeter roads

Explanatory Note E3.4a

Where a planning proposal includes the creation of 10 or more lots adjacent to each other, which adjoin classified vegetation under AS 3959 with the exception of Class G Grassland, as part of a greenfield development or large urban infill site, hazard separation and defendable space should be provided in the form of a perimeter road. Greenfield is 'undeveloped or minimally developed areas that have been identified for urban development'; and urban infill is 'the redevelopment of existing urban areas at a higher density than currently exists'. The creation of 10 or more lots includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision.

A perimeter road should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area as per the requirements of a public road in Table 6, Column 1.

As the road is likely to function as a key neighbourhood distributor, or similar, consideration should be given to the provision of additional width to allow for emergency services vehicles to stop and operate on the side of the perimeter road, whilst simultaneously proving for the evacuation of the community (Figure 20).

When designing a strategic planning proposal and/or subdivision, creating a large setback between classified vegetation and proposed lots with a perimeter road, and orientating habitable buildings to front onto (rather than back onto) areas of vegetation has many benefits, including:

- passive surveillance;
- defendable space for firefighting and emergency management purposes;
- reducing the potential radiant heat that may impact a habitable building in a bushfire event;
- reducing the need for battle-axe lots; and
- unconstrained public access/egress for the community in the event of a bushfire.

In developments where no perimeter road exists, property defence in a bushfire event is difficult and can be impossible. Where proposed lots have frontage to an existing public road and abut the hazard at the rear or side, it may be an undesirable planning outcome to create lots which front the existing public road and back onto a perimeter road. In this instance, consideration should be given to a fire service access route. Refer to E3.4b.

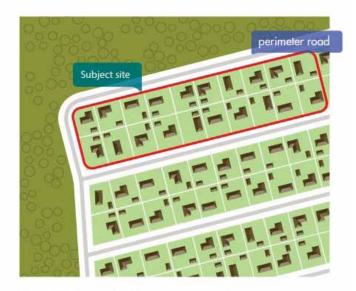


Figure 25: Example of a perimeter road

E3.2b Emergency access way

An emergency access way is not a preferred alternative to through public road access and should only be considered acceptable where it has been demonstrated that it will provide the safety and performance needs of emergency services and the community, including consideration for future needs, and that public road access to satisfy A3.2a cannot be achieved due to site constraints, such as an established road network with no opportunity to provide a public road for secondary access. Acceptance of an emergency access way should also consider the ability to accommodate reasonable worst-case vehicle volumes.

The principle function of the emergency access way is to provide a contingency (second) community evacuation route and simultaneously provide access for emergency services, in the event of a bushfire emergency. Where an emergency access way traverses classified vegetation, which has the potential to create a bushfire hazard, an emergency access way performs the secondary function of providing access by emergency services to this vegetation.

Emergency access ways should connect to a public road to allow alternative two-way through access. An emergency access way should not exceed 500 metres in length as they may not be as safe for road-use due to not being designed or constructed to the full requirements of a public road and may present uncertainties to emergency service personnel and the public as they are not part of the daily road network and not identified on Maps.

Permanent public emergency access way

An emergency access way can be provided as either a public easement in gross or a right-of-way. In both approaches, the management of the emergency access way is by the local government as the grantee of the easement or management body of the right-of-way. The proponent must obtain written consent from the local government that the local government will accept care, control and management of the easement or right-of-way; this must be provided to the decision-maker prior to granting planning approval. The approach taken is at the discretion of the decision-maker and/or the local government and is also dependent on whether the land is to remain in private ownership or be ceded to the Crown. Consultation with Land Use Management at the Department of Planning, Lands and Heritage should also be considered if the land is to be ceded to the Crown or if the local government is uncertain of which approach to take.

If the emergency access way is provided as an easement, it should be provided as a public easement in gross under sections 195 and 196 of the Land Administration Act 1997 in favour of the local government and/or public authority, to ensure accessibility for emergency services and the public at all times. To be provided as a right-of-way the emergency access way should be vested in the Crown under section 152 of the Planning and Development Act 2005 as a right-of-way and such land to be ceded free of cost and without any payment or compensation by the Crown. If gates are used to control traffic flow during non-emergency periods, these will be managed by the local government and must not be locked. Gates should be double gates wide enough to access the full pavement width and accommodate Type 3.4 fire appliances with the design and construction to be approved by the relevant local government.

Temporary public emergency access way

A temporary emergency access way may be proposed to facilitate the staging arrangements of a subdivision. The provision of two public roads may not be possible in the first stage of the subdivision and an emergency access way can be provided as an interim access route until the second public road is developed and gazetted in a subsequent stage of the subdivision (see figure 22). The emergency access way should be provided in the same manner as a permanent emergency access way, but it should be removed from the certificate of title once the public road is developed and gazetted. Where an emergency access way is proposed as an alternative to a public road, the Bushfire Management Plan should provide thorough justification for its use.

Restricted public emergency access way

There may be some instances where a restricted emergency access way is proposed as a performance principle-based solution where access is only available to the public in the event of a bushfire emergency. This option can only be considered where the local government or Main Roads WA have advised that vehicular access on the emergency access way is not allowed during non-emergency periods, as it provides an additional thoroughfare and entry point on a local or State road. In this scenario, the emergency access way can be provided as an easement under section 195 of the Land Administration Act 1997, as public access in the event of a bushfire emergency or vested in the Crown as a reserve under section 152 of the Planning and Development Act 2005. Such land is to be ceded free of cost without any payment or compensation by the Crown. The proponent must obtain written consent from the local government that

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the local government will accept care, control and management of the proposed reserve and agree to the terms of the Management Order Conditions (if applicable); this must be provided to the decision-maker prior to granting planning approval.

The purpose of the reserve should be for a public purpose specified in the condition related to the subdivision, for example for emergency access only, or for emergency access and recreation. A reserve for emergency access and recreation can optimise the land-use as a dual purpose where it provides vehicular access in the event of a bushfire emergency, but can be accessed by the public (on foot) on a day-to-day basis as a recreation link. Appropriate signage can ensure the general public is aware of the purpose of the reserve. The approach taken is at the discretion of the decision-maker and/or local government.

Right-of-carriageway emergency access way

There may be some instances where a right of carriageway easement is proposed as a performance principle-based solution. This may be where particular landowner(s) and emergency services, but not the public, require access over a neighbouring lot(s). A right-of-carriageway easement should be provided under section 195 of the Land Administration Act 1997. The easement is to provide alternative access for the particular landowner(s) in the event of a bushfire emergency and not for use by the public. In this scenario, support will be necessary from the adjoining lot owner(s). The easement is to be granted to the local government and it is to agree with the landowner on the arrangements of the management of the easement area by deed. These management arrangements will be at the discretion of the local government. If gated, the easement area can be locked to restrict day-to-day vehicular access.



Figure 22: Example of an emergency access way

Attachment C City of Wanneroo Firebreak Notice				



IMPORTANT FIRE MITIGATION NOTICE

Fire mitigation measures must be in place by <u>1 NOVEMBER</u> and maintained until <u>30 APRIL EACH YEAR</u>.

This is a requirement under the Bush Fires Act 1954 Section 33.

Failure to comply with this Notice may incur penalties of up to \$5,000 and the works required by this Notice will be carried out at the expense of the owner/occupier.

Fire management requirements for land LESS than 4000sqm

- Maintain grasses and inflammable materials with the exception of living trees on the entire property to a height of no more than 50 millimetres. The entire property is required to be maintained below 50 millimetres from 1 November each year until 30 April the following year.
 - OR
- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
 - If it is not possible to install the firebreak adjacent to the external boundary of the property due
 to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle.
 If this requires the firebreak to be greater than 5 metres away from the external boundary, a
 firebreak variation is required.
 - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Where a property is affected by an approved bushfire management plan, property owners must still
 comply with all requirements in this Notice and with any additional requirements outlined within
 that plan.

Fire management requirements for land **GREATER** than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
 - If it is not possible to install the firebreak adjacent to the external boundary of the property due to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle. If this requires the firebreak to be greater than 5 metres away from the external boundary, a firebreak variation is required.
 - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Install and maintain a 20 metre bare earth area around all hay stacks and/or fuel dumps.
- Where a property is affected by an approved bushfire management plan, property owners must still
 comply with all requirements in this Notice and with any additional requirements outlined within
 that plan.

Important Fire Mitigation Notice

All vacant land **GREATER** than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
- Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to ensure vehicles can drive along the firebreaks without being impeded by tree branches.
- If the land is an area of 50,000sqm (5 hectares) or greater, the grass must be maintained on the land to a height no greater than 50 millimetres for a distance of 10 metres from any firebreak.

Frequently asked questions

I live in a residential area, does this notice apply to me?

Yes. All City of Wanneroo property owners must comply with the Bush Fires Act 1954.

Please refer overleaf for fire management requirements to be in place by 1 November to ensure your property is compliant.

Most properties under 1000sqm will automatically comply if gardens are maintained.

How will inspections be carried out?

Inspections will be carried out by trained Fire Control Officers who are authorised to enter a property by foot, vehicle, quad bike and /or drone.

Do I need a Bushfire Survival Plan?

If you live in, on or near bushland, you are at risk from a bushfire and developing a bushfire survival plan is critical.

Visit the Department of Fire and Emergency Services website for information on how to develop a plan for your property dfes.wa.gov.au

I am concerned my neighbour's property is not compliant, what can I do?

All properties are required to be compliant by 1 November.

If you think your neighbour's property does not comply with the requirements as outlined in this Notice, please contact the Community Safety and Emergency Management team on 9405 5000.

I own a vacant lot, do I need a firebreak?

Yes. A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.

I am unable to meet the requirements outlined, what should I do?

If it is considered impracticable for any reason to implement any of the requirements of this Notice, an application for a firebreak variation must be made to the City of Wanneroo by no later than 18 October of each year.

If permission is not granted, the requirements of this Notice must be complied with.

Visit the City's website wanneroo.wa.gov.au/firebreakvariation to apply for a variation.

Where can I learn more about this Notice and bushfire management?

Visit the City's website wanneroo.wa.gov.au/ fireinformation to learn more.

Please note, in addition to the requirements of this Notice, if a City of Wanneroo Fire Control Officer considers further works are necessary to reduce the risk of bushfire, Landowners will be notified via letter to the address shown on the City of Wanneroo rates record for the relevant land.

