

20 June 2022

Our ref: 600-22BRI2715

Creation Homes (SA)
Level 3, 60 Hindmarsh Square
Adelaide
SA 5000

Attention: Chris Buttignol

Dear Chris,

Thaxted Park Golf Course Code Amendment – Bushfire Overlay

Creation Homes South Australia (CHSA) engaged ELA to undertake a bushfire hazard assessment and provide advice regarding bushfire planning considerations to address the requirements of the South Australia *Planning and Design Code (V2022.3)* (PDC) within and surrounding their proposed development sites (site 1 and site 2; hereafter referred to as the Affected Areas) at the Thaxted Park Golf Course (Figure 1).

Both Affected Areas are currently zoned *Recreation* under the SA PDC and are currently mapped within the *Hazard (Bushfire – Medium Risk) Overlay*. CHSA is proposing to amend the zoning of both Affected Areas under the PDC to *General Neighbourhood (GN)* or *Golf Course Estate (GCE)*.

This letter provides the results of a bushfire hazard assessment undertaken by ELA in late January 2022 (Section 1 below) and details on the bushfire planning requirements for development (deemed land division) under the current *Hazard (Bushfire – Medium Risk) Overlay* within both GN and GCE zones (section 2 and 4).

Additionally, this assessment addresses planning requirements for development under the *Hazard (Bushfire – High Risk) Overlay* (section 3 and 4). This level of overlay has been considered, as discussions between CHSA and the Attorney Generals Department (Government of South Australia) indicated that an update of the bushfire overlay code for the Affected Areas may be undertaken in line with the proposed land use and surrounding overlays.

Regards,



Tessa Innes

Environmental Consultant (Bushfire, Planning & Approvals)

1. Bushfire Hazard Assessment and Classified Vegetation

ELA completed a bushfire hazard assessment for the Affected Areas in January 2022 and expressed this in the form of a classified vegetation assessment and Bushfire Attack Level (BAL) assessment as per the requirements of *Australian Standard 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (AS 3959: 2018; SA 2018) as displayed in Figure 1 and Figure 2. The following assumptions were made in this assessment:

1. All vegetation within the Affected Areas will either be cleared or managed as low fuel areas¹; and
2. Land within the Affected Areas will be levelled.

A Method 1 BAL assessment (as outlined in AS 3959: 2018) was completed for the Affected Areas to inform bushfire risk, incorporating the following factors:

- State adopted Fire Danger Index (FDI) rating (FDI 80 for South Australia);
- Vegetation class (as displayed in Figure 1²);
- Slope under classified vegetation (as displayed in Figure 1); and
- Distance between proposed development area and the classified vegetation.

Based on the identified BAL, the level of bushfire risk can be determined and construction requirements for future buildings can be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

Table 1 and Figure 2 display the results of the vegetation classification and BAL assessment in the form of BAL contours (i.e. the distance each BAL rating extends from each plot of classified vegetation). As shown in Figure 2, Affected Area 1 is constrained due to the presence of classified vegetation on all fronts and Site 2 is constrained in the south-east. Typically, development of residential dwellings in areas subject to BAL ratings of BAL-FZ and BAL-40 is not permitted. To manage fire risk and for the purposes of the Code Amendment, the BAL for habitable buildings should not exceed BAL-29, however, the BAL rating would be subject to a separate assessment during the detailed design phase of the proposed future residential development. To achieve BAL-29 compliance, future dwellings would be

¹ Where CHSA have proposed public open space areas at Affected Area 1 (see Appendix A) - maintenance of the understorey and fuel loads will occur. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread. The area will be maintained to contain zero ground cover by shrubs and form no vertical connection to canopy; grass will be kept mown to a height of less than 100 mm and leaf and other debris will be removed regularly.

² AS3959: 2018 requires vegetation classification to be undertaken to a distance of 100 m from the site. In practice however, vegetation is typically assessed to 150 m to ensure that bushfire hazards immediately outside the 100 m required assessment area are considered. The BAL assessment is however, only undertaken to a distance of 100 m from the site.

required to be separated by up to 22 m (minimum) from classified vegetation (refer to Figure 1, Figure 2 and Table 1).

Table 1. Bushfire Attack Level (BAL) calculation

Plot and vegetation classification	Effective slope	Hazard separation distance (m)	BAL Rating
Plot 1	Downslope >5-10°	<16	BAL-FZ
Class B Woodland		16-<22	BAL-40
		22-<31	BAL-29
		31-<43	BAL-19
		43-<100	BAL-12.5
Plot 2	Downslope >0-5°	<13	BAL-FZ
Class B Woodland		13-<17	BAL-40
		17-<25	BAL-29
		25-<35	BAL-19
		35-<100	BAL-12.5
Plot 3	Upslope / flat land	<10	BAL-FZ
Class B Woodland		10-<14	BAL-40
		14-<20	BAL-29
		20-<29	BAL-19
		29-<100	BAL-12.5
Plot 4	Upslope / flat land	<10	BAL-FZ
Class B Woodland		10-<14	BAL-40
		14-<20	BAL-29
		20-<29	BAL-19
		29-<100	BAL-12.5
Plot 5	Upslope / flat land	<6	BAL-FZ
Class G Grassland		6-<8	BAL-40
		8-<12	BAL-29
		12-<17	BAL-19
		17-<50	BAL-12.5
Plot 6	No BALs applicable.		
Excluded as per clause 2.2.3.2			
(e) and (f) of AS3959: 2019			

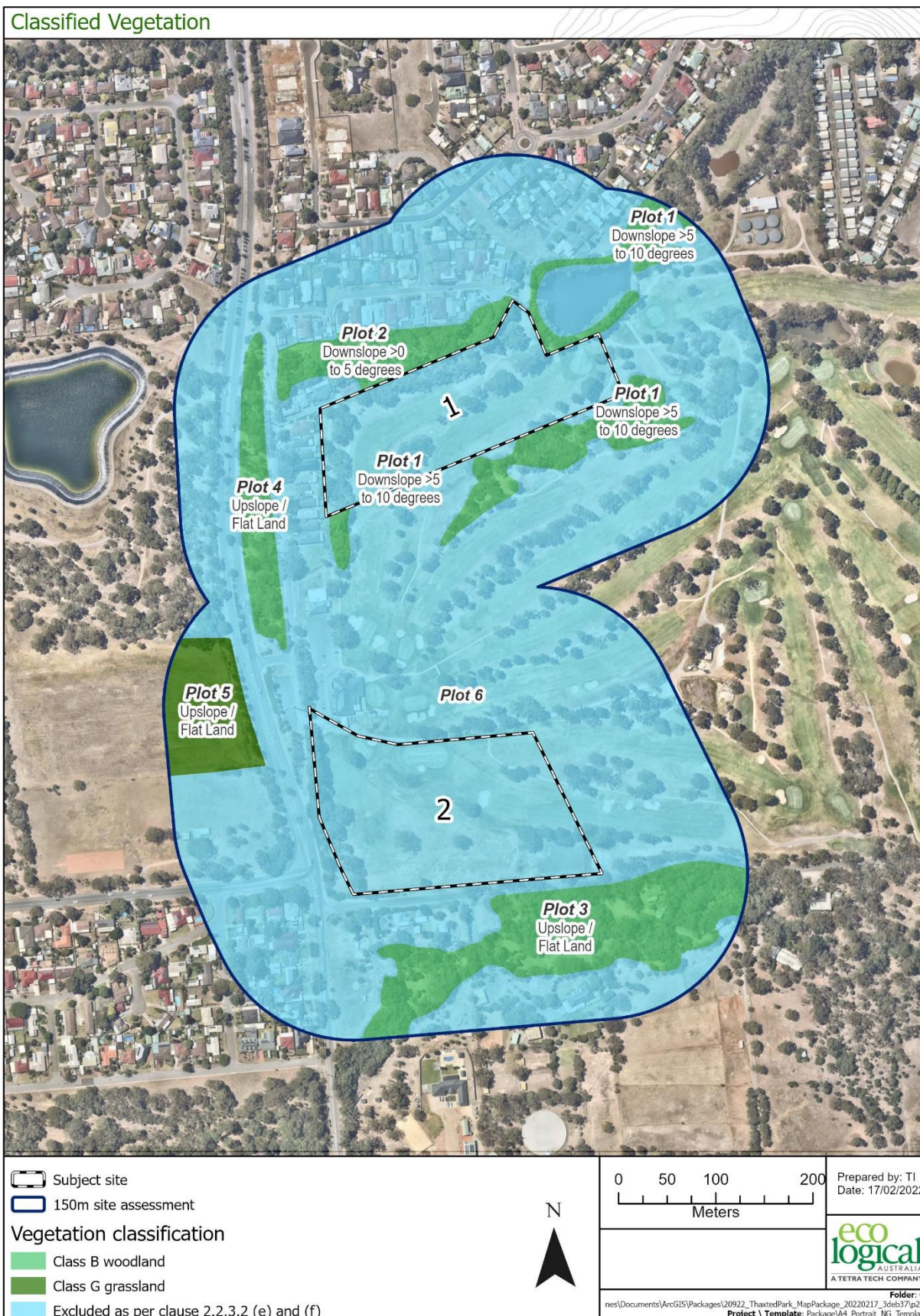


Figure 1. Classified Vegetation within 150 m of Sites 1 and 2.

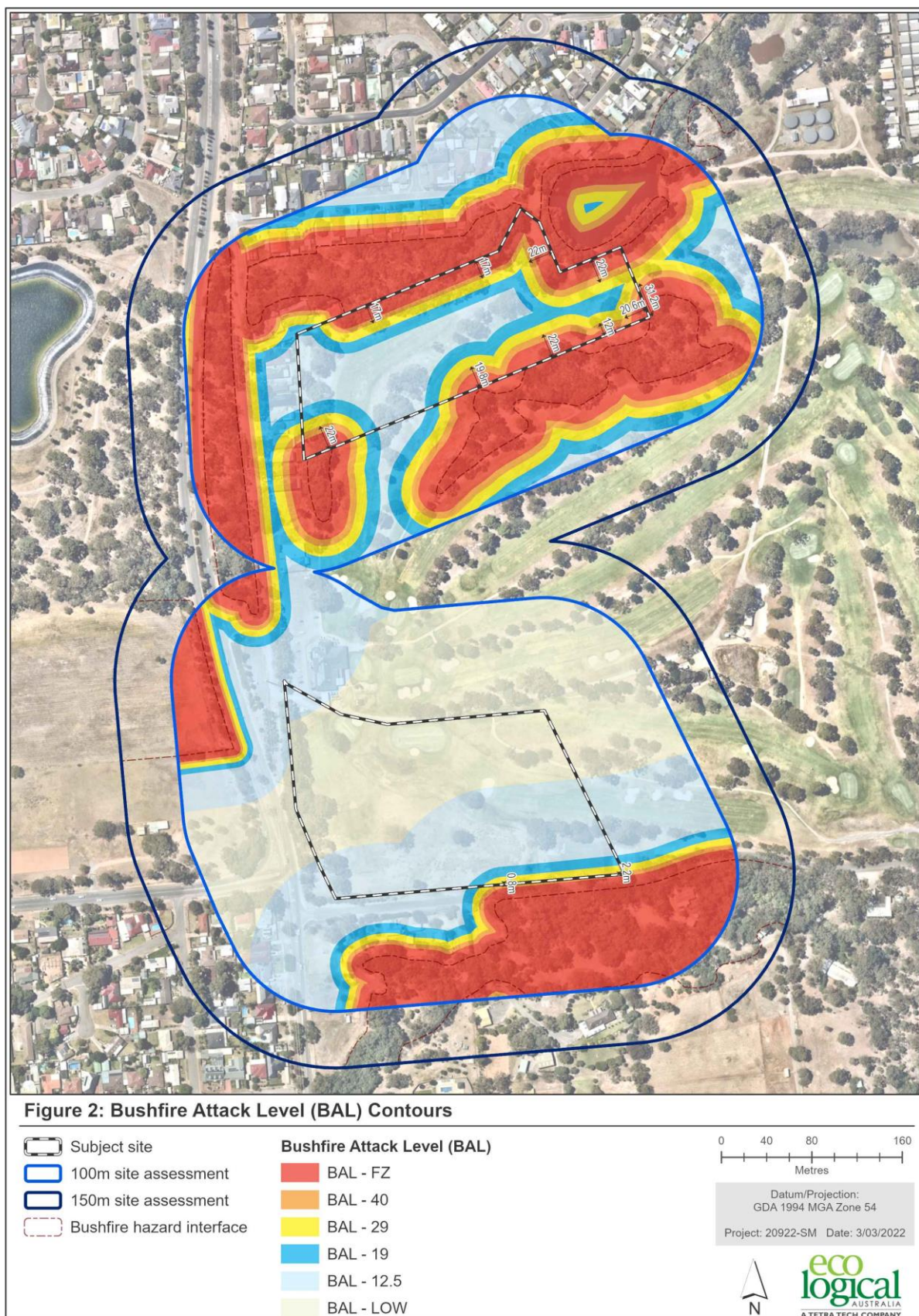


Figure 2. BAL Contours

2. Applicable Hazard (Bushfire) Overlay

2.1. Hazard (Bushfire – Medium Risk) Overlay

The Hazard (Bushfire – Medium Risk) Overlay presently applies to the Affected Areas. The Desired Outcomes (DO) for this Overlay are as follows:

- i. DO1 – Development, including land division responds to the medium level of bushfire risk and potential for ember attack and radiant heat by siting and designing buildings in a manner that mitigates the threat and impact of bushfires on life and property taking into account the increased frequency and intensity of bushfires as a result. Of climate change.
- ii. DO2 – To facilitate access for emergency service vehicles to aid the protection of lives and assets from bushfire danger.

The requirements to satisfy the associated Performances Outcomes (PO) relate generally to: continuous access; perimeter roads to create separation between bushfire hazards and development areas; and fire-fighting vehicle access.

2.1.1. Procedural Matters (PM) – Referral

The Procedural Matters section of the PDC Overlay identifies classes of development / activities that require referral under the Overlay and the applicable referral body. There are no identified classes of development requiring referral under the *Hazard (Bushfire – Medium Risk) Overlay*.

3. Potential Updated Hazard (Bushfire) Overlay

As previously outlined, the Hazards (Bushfire – Medium Risk) Overlay currently applies to the Affected Areas. However, subject to further consultation with the relevant agencies, we understand that the Hazards (Bushfire – High Risk) Overlay may be applied to the Affected Areas. On this basis, ELA have reviewed the implications of the Bushfire Hazard Assessment (Section 1) were the proposed project to be assessed against the *Hazard (Bushfire – High Risk) Overlay* code (Table 3).

3.1. Hazard (Bushfire – High Risk) Overlay

The Hazards (Bushfire – High Risk) Overlay does not presently apply to the Affected Areas, however where it may be applied, the DOs are as follows:

- i. DO1 – Development, including land division is sited and designed to minimise the threat and impact of bushfires on life and property with regard to the following risks:
 - a. Potential for uncontrolled bushfire events taking into account the increased frequency and intensity of bushfire as a result of climate change
 - b. High levels and exposure to ember attack
 - c. Impact from burning debris
 - d. Radiant heat
 - e. Likelihood and direct exposure to flames from a fire front.
- ii. DO2 – Activities that increase the number of people living and working in the area or where evacuation would be difficult is sited away from areas of unacceptable bushfire risk.
- iii. DO3 - To facilitate access for emergency service vehicles to aid the protection of lives and assets from bushfire danger.

The requirements to satisfy the associated POs relate generally to: continuous access; perimeter roads to create separation between bushfire hazards and development areas; and fire-fighting vehicle access.

3.1.1. Procedural Matters (PM) – Referral

The Procedural Matters section of the PDC Overlay Code identifies classes of development / activities that require referral under the Overlay and the applicable referral body. Under *the Hazard (Bushfire – High Risk) Overlay* following classes of development triggers a referral to the South Australian Country Fire Service (CFS) per Schedule 9, clause 3 item 2 of the *Planning, Development and Infrastructure (General) Regulations 2017*:

- (a) land division creating one or more allotments
- (b) dwelling
- (c) ancillary accommodation
- (d) residential flat building
- (e) tourist accommodation
- (f) boarding home
- (g) dormitory style accommodation
- (h) workers' accommodation
- (i) student accommodation

- (j) pre-school
- (k) educational establishment
- (l) retirement village
- (m) supported accommodation
- (n) residential park
- (o) hospital
- (p) camp ground

The purpose of the referral is to provide expert assessment and direction to the relevant authority on the potential impacts of bushfire on the development. There is one exemption listed in the PDC which state that referral is not triggered where a *relevant certificate* accompanies the application for planning consent. A *relevant certificate* means:

“...A certificate by, or on behalf, of the South Australian Country Fire Service certifying that:

(a) A Bushfire Attack Level assessment of the development has been undertaken within 3 months prior to lodgement of the application for planning consent in respect of the development; and

(b) The Bushfire Attack Level is \leq BAL-19 range.”

The referral trigger ensures that the design of habitable buildings with higher Bushfire Attack Levels (BAL) are subject to a more rigorous assessment by the Country Fire Service (CFS). However, the referral trigger does not necessarily determine the outcome and a development with BAL ratings over BAL-19 could be approved (where designed appropriately to mitigate and manage fire risk).

For referred developments, the CFS may:

1. Direct the relevant authority to refuse an application; or
2. Where the relevant authority decides to consent to or approve the development, to impose such conditions as the CFS thinks fit.

4. Bushfire Planning Requirements

As previously outlined, the Hazards (Bushfire – Medium Risk) Overlay currently applies to the Affected Areas. However, subject to further consultation with the relevant agencies, we understand that that Hazards (Bushfire – High Risk) Overlay may be applied to the Affected Areas. Both overlays apply to the management of bushfire risk with respect to vulnerable buildings (i.e. habitable buildings) together with the design of allotments proposed in a plan of division (including access arrangements). Table 2 and Table 3 provide a high level assessment of the Code Amendment against both overlays, noting the forms of development contemplated by the General Neighbourhood Zone and Golf Course Estate Zone, as well as CHSA’s intention to develop the land for residential purposes.

4.1. Policies – Desired Outcomes and Performance Outcomes

Zone, subzone, overlay and general development policies are comprised of desired outcomes (DOs) and performance outcomes (POs). These are applicable to performance assessed development and restricted development.

DESIRED OUTCOMES

DOs are policies designed to aid the interpretation of performance outcomes by setting a general policy agenda for a zone, subzone, overlay or general development policies modules. Where a relevant authority is uncertain as to whether or how a PO applies to a development, the desired outcomes(s) may inform its consideration for the relevance and application of a performance outcome, or assist in assessing the merits of the development against the applicable performance outcomes collectively.

PERFORMANCE OUTCOMES

POs are policies designed to facilitate assessment according to specified factors, including land use, site dimensions and land division, built form, character and hazard risk minimisation.

DESIGNATED PERFORMANCE FEATURES

To assist a relevant authority to interpret the performance outcomes, in some cases the policy includes a standard outcome which will generally meet the corresponding performance outcome (a *designated performance feature* or DPF). A DPF provides a guide to a relevant authority as to what is generally considered to satisfy the corresponding PO but does not need to necessarily be satisfied to meet the PO, and does not derogate from the discretion to determine that the outcome is met in another way, or from the need to assess development on its merits against all relevant policies.

Note: At this stage ELA have provided the overlay requirements to inform development design and our initial comments on meeting compliance. ELA believe the requirements for the Hazard (Bushfire – Medium Risk) Overlay Code and/or Hazard (Bushfire – High Risk) Overlay Code can be met as detailed in our comments below.

Table 2. Hazard (Bushfire – Medium Risk) Overlay.

Code Requirements for development within Hazard (Bushfire – <u>Medium Risk</u>) Overlay		ELA Comments
Performance Outcome	Deemed to satisfy criteria / Designated Performance Feature	
Siting		
PO 1.1 Buildings and structures are located away from areas that pose an unacceptable bushfire risk as a result of vegetation cover and type, and terrain.	None are applicable.	N/A to this stage of development. Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018. The hazard assessment in Section 2 shows this is achievable in areas of the Affected Areas.
Built Form		
PO 2.1 Buildings and structures are designed and configured to reduce the impact of bushfire through using designs at reduce the potential for trapping burning debris against or underneath the building or structure, or between the ground and building floor level in the case of transportable buildings and buildings on stilts.	None are applicable.	N/A to this stage of development. Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018.
PO 2.2 Extensions to building, outbuildings and other ancillary structures are sited and constructed using materials to minimise the threat of fire spread to residential and tourist accommodation (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) in the event of bushfire.	None are applicable.	N/A to this stage of development. To be addressed in detailed design of individual dwellings.
Habitable Buildings		
PO 3.1 To minimise the threat, impact and potential exposure to bushfires on life and property, residential and tourist accommodation and habitable buildings for vulnerable	None are applicable.	N/A to this stage of development. To be addressed in detailed design of individual dwellings or designation of building envelopes.

Code Requirements for development within Hazard (Bushfire – <u>Medium Risk</u>) Overlay		ELA Comments
communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) is sited on the flatter portion of allotments away from steep slopes.		
PO 3.2 Residential, tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) is sited away from vegetation areas that pose an unacceptable bushfire risk.	DTS/DPF 3.2 Residential, tourist accommodation and habitable buildings for vulnerable communities are provided with assets protection zone(s) in accordance with (a) and (b): (a) the asset protection zone has a minimum width of at least: i. 50 metres to unmanaged grasslands ii. 100 metres to hazardous bushland vegetation (b) The asset protection zone is contained wholly within the allotment of the development.	N/A to this stage of development. To be addressed in detailed design of individual dwellings or designation of building envelopes. <i>Note: recommended separation distances in accordance with assessed risk of hazardous vegetation are provided in Section 2. These provisions are based on AS3959 2018 Method 1 BAL assessment providing distances varied depending on classified vegetation type.</i>
PO 3.3 Residential, tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation), has a dedicated area available that is capable of accommodating a bushfire protection system comprising firefighting equipment and water supply in accordance with <i>Ministerial Building Standard MBS 008 – Designated bushfire prone areas – additional requirements</i> .	None are applicable.	N/A to this stage of development. To be addressed when lot design is finalised.
Land Division		
PO 4.1 Land Division is designed and incorporates measures to minimise the danger of fire hazard to residents and occupants of building, and to protect buildings and property from physical damage in the event of a bushfire.	None are applicable.	Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018.

Code Requirements for development within Hazard (Bushfire – <u>Medium Risk</u>) Overlay		ELA Comments
PO 4.2 Land division is designed to provide a continuous street pattern to facilitate the safe movement and evacuation of vehicles, residents, occupants and visitors.	None are applicable.	Dead end roads / cul-de-sacs should not be included in development design
PO 4.3 Where 10 or more new allotments are proposed, land division included at least two separate and safe exit points to enable multiple avenues of evacuation in the event of a bushfire.	None are applicable.	Two access/egress points should be provided at each site.
PO 4.4 Land division incorporates perimeter roads of adequate design in conjunction with bushfire buffer zones to achieve adequate separation between residential allotments and areas of unacceptable bushfire risk and to support safe access for the purposes of fire-fighting.	None are applicable.	Perimeter roads should be provided, and lots should not back directly onto bushfire hazards.
Vehicle Access – Roads, Driveways and Fire Tracks		
PO 5.1 Roads are designed and constructed to facilitate the safe and effective: <ul style="list-style-type: none"> a) access, operation and evacuation of fire-fighting vehicles and emergency personnel b) evacuation of residents, occupants and visitors 	Roads: <ul style="list-style-type: none"> a) are constructed with a formed, all-weather surface b) have a gradient of not more than 16 degrees (1-in-3.5) at any point along the road c) have a cross fall of not more than 6 degrees (1-in-9.5) at any point along the road d) have a minimum formed road width of 6m e) provide overhead clearance of not less than 4.0m between the road surface and overhanging branches or other obstructions including buildings and/or structures (Plate 1*) f) allow fire-fighting services (personnel and vehicles) to travel in a continuous forward movement around road curves by constructing the curves with a minimum external radius of 12.5m (Plate 2) 	Roads should be constructed as per the specifications provided in the Code

Code Requirements for development within Hazard (Bushfire – <u>Medium Risk</u>) Overlay		ELA Comments
	<ul style="list-style-type: none"> g) incorporating cul-de-sac endings or dead end roads do not exceed 200m in length and the end of the road has either: <ul style="list-style-type: none"> i. a turning area with a minimum formed surface radius of 12.5m (Plate 3) or ii. a 'T' or 'Y' shaped turning area with a minimum formed surface length of 11m and minimum internal radii of 9.5m (Plate 4) h) incorporate solid, all-weather crossings over any watercourse that support fire-fighting vehicles with a gross vehicle mass (GVM) of 21 tonnes 	
<p>PO 5.2</p> <p>Access to habitable buildings is designed and constructed to facilitate the safe and effective:</p> <ul style="list-style-type: none"> a) access, operation and evacuation of fire-fighting vehicles and emergency personnel b) evacuation of residents, occupants and visitors. 	<p>Access is in accordance with (a) or (b):</p> <ul style="list-style-type: none"> a) a clear and unobstructed vehicle or pedestrian pathway of not greater than 60 metres in length is available between the most distant part of the habitable building and the nearest part of a formed public access road b) driveways: <ul style="list-style-type: none"> i. do not exceed 600m in length ii. are constructed with a formed, all-weather surface iii. are connected to a formed, all-weather public road with the transition area between the road and driveway having a gradient of not more than 7 degrees (1-in-8) iv. have a gradient of not more than 16 degrees (1-in-3.5) at any point along the driveway v. have a crossfall of not more than 6 degrees (1-in-9.5) at any point along the driveway vi. have a minimum formed width of 3m (4m where the gradient of the driveway is steeper than 12 degrees (1-in-4.5)) plus 0.5 metres clearance either side of the driveway from overhanging branches or other 	<p>Roads should be constructed as per the specifications provided in the Code.</p>

Code Requirements for development within Hazard (Bushfire – <u>Medium Risk</u>) Overlay		ELA Comments
	<p>obstructions, including buildings and/or structures (Plate 1)</p> <p>vii. incorporate passing bays with a minimum width of 6m and length of 17m every 200m (Plate 5)</p> <p>viii. provide overhead clearance of not less than 4.0m between the driveway surface and overhanging branches or other obstructions, including buildings and/or structures (Plate 1)</p> <p>ix. allow fire-fighting services (personnel and vehicles) to travel in a continuous forward movement around driveway curves by constructing the curves with a minimum external radius of 12.5m (Plate 2)</p> <p>x. allow fire-fighting vehicles to safely enter and exit an allotment in a forward direction by using a 'U' shaped drive through design or by incorporating at the end of the driveway either:</p> <p style="padding-left: 40px;">A. a loop road around the building or</p> <p style="padding-left: 40px;">B. a turning area with a minimum radius of 12.5m (Plate 3) or</p> <p style="padding-left: 40px;">C. a 'T' or 'Y' shaped turning area with a minimum formed length of 11m and minimum internal radii of 9.5m (Plate 4)</p> <p>xi. incorporate solid, all-weather crossings over any watercourse that support fire-fighting vehicles with a gross vehicle mass (GVM) of 21 tonnes.</p>	
PO5.3		
Development does not rely on fire tracks as means of evacuation or access for fire-fighting purposes unless there are no safe alternatives available.	None are applicable	Unlikely to be applicable as formal roads will be provided.
*Plates are provided below		

Table 3. Hazard (Bushfire – High Risk) Overlay

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
Performance Outcome	Deemed to satisfy criteria / Designated Performance Feature	
Land Use		
PO 1.1 Development that significantly increases the potential for fire outbreak as a result of the spontaneous combustion of materials, spark generation or through the magnification and reflection of light is not located in areas of unacceptable bushfire risk.	None are applicable.	This PO applies to Land Use and is N/A for the proposed development type (residential sub-division).
PO 1.2 Pre-schools, educational establishments, hospitals, retirement and supported accommodation are sited away from areas of unacceptable bushfire risk and locations that: <ul style="list-style-type: none"> (a) are remote from or require extended periods of travel to reach safer locations (b) don't have a safe path of travel to safer locations. 	None are applicable.	This PO applies to Land Use and is N/A for the proposed development type (residential sub-division).
Siting		
PO 2.1 Buildings and structures are located away from area that pose an unacceptable bushfire risk as a result of vegetation cover and type, and terrain	None are applicable.	N/A to this stage of development. Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018. The hazard assessment in Section 2 shows this is achievable in areas of the Affected Areas.
Built Form		
PO 3.1 Buildings and structures are designed and configured to reduce the impact of bushfire through using designs at reduce the potential for trapping burning debris against or underneath the	None are applicable.	N/A to this stage of development. Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018.

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
building or structure, or between the ground and building floor level in the case of transportable buildings and buildings on stilts.		
PO 3.2		N/A to this stage of development. To be addressed in detailed design of individual dwellings.
Extensions to building, outbuildings and other ancillary structures are sited and constructed using materials to minimise the threat of fire spread to residential and tourist accommodation (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) in the event of bushfire.	Outbuildings and other ancillary structures are sited no closer than 6 m from the habitable building.	
Habitable Buildings		
PO 4.1		To be considered/addressed when developing the lot layout for the Affected Areas.
To minimise the threat, impact and potential exposure to bushfires on life and property, residential and tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) is sited on the flatter portion of allotments away from steep slopes.	None are applicable.	
PO 4.2	DTS/DPF 3.2	To be considered/addressed in when developing the lot layout for the Affected Areas.
Residential, tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation) is sited away from vegetation areas that pose an unacceptable bushfire risk.	Residential, tourist accommodation and habitable buildings for vulnerable communities are provided with asset protection zone(s) in accordance with (a) and (b): <ul style="list-style-type: none"> (a) the asset protection zone has a minimum width of at least: <ul style="list-style-type: none"> i. 50 metres to unmanaged grasslands ii. 100 metres to hazardous bushland vegetation (b) The asset protection zone is contained wholly within the allotment of the development. 	<i>Note: recommended separation distances in accordance with assessed risk of hazardous vegetation are provided in Section 2. These provisions are based on AS3959 2018 Method 1 BAL assessment providing distances varied depending on classified vegetation type.</i>

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
PO 4.3 Residential and tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and Workers' accommodation), has a dedicated area available that: <ul style="list-style-type: none"> (a) is capable of accommodating a bushfire protection system comprising firefighting equipment and water supply in accordance with <i>Ministerial Building Standard MBS 008 – Designated bushfire prone areas – additional requirements</i>. (b) Includes the provision of an all-weather hardstand area in a location that: <ul style="list-style-type: none"> i. Allows fire-fighting vehicles to safely access the dedicated water supply and exit the site in a forward direction ii. Is no further than 6 metres from the dedicated water supply outlet(s) where required. 	None are applicable.	To be considered/addressed when lot design and hydrant locations are being developed.
Land Division		
PO 5.1 Land division for residential and tourist accommodation and habitable buildings for vulnerable communities (including boarding houses, hostels, dormitory style accommodation, student accommodation and workers' accommodation) is limited to those area specifically set aside for these uses.	None are applicable.	CHSA are applying to amend the applicable zone for the area at which the project is proposed. This PO is N/A in regard to bushfire assessment for this purpose.
PO 5.2 Land division is designed and incorporates measures to minimise the danger of fire hazard to residents and occupants of buildings, and to protect buildings and property from physical damage in the event of a bushfire.	None are applicable.	Future buildings should be located within areas subject to BAL ratings of ≤BAL-29 and constructed to their designated BAL rating as per AS 3959: 2018.

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
PO 5.3 Land division is designed to provide a continuous street pattern avoiding the use of dead-end roads / cul-de-sac road design) to to facilitate the safe movement and evacuation of emergency vehicles, residents, occupants and visitors. Where cul-de-sac / dead-end roads are proposed, an alternative emergency evacuation route is provided.	None are applicable.	Dead end roads / cul-de-sacs should not be included in development design.
PO 5.4 Where 10 or more new allotments are proposed, land division included at least two separate and safe exit points to enable multiple avenues of evacuation in the event of a bushfire.	None are applicable.	Two access/egress points will be provided at each site.
PO 5.5 Land division provides sufficient space for future asset protection zones and incorporates perimeter roads of adequate design in conjunction with bushfire buffer zones to achieve adequate separation between residential allotments and areas of unacceptable bushfire risk and to support safe access for the purposes of fire-fighting.	None are applicable.	Perimeter roads should be provided, and lots should not back directly onto bushfire hazards. The assessment in Section 1 provides for planning to incorporate future asset protection zones.
Vehicle Access – Roads, Driveways and Fire Tracks		
PO 6.1 Roads are designed and constructed to facilitate the safe and effective: <ul style="list-style-type: none"> a) access, operation and evacuation of fire-fighting vehicles and emergency personnel b) evacuation of residents, occupants and visitors 	Roads: <ul style="list-style-type: none"> a) are constructed with a formed, all-weather surface b) have a gradient of not more than 16 degrees (1-in-3.5) at any point along the road c) have a cross fall of not more than 6 degrees (1-in-9.5) at any point along the road d) have a minimum formed road width of 6m e) provide overhead clearance of not less than 4.0m between the road surface and overhanging branches or other obstructions including buildings and/or structures (Plate 1*) f) allow fire-fighting services (personnel and vehicles) to travel in a continuous forward movement around 	Roads should be constructed as per the specifications provided in the Code.

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
	<p>road curves by constructing the curves with a minimum external radius of 12.5m (Plate 2)</p> <p>g) incorporating cul-de-sac endings or dead end roads do not exceed 200m in length and the end of the road has either:</p> <ul style="list-style-type: none"> i. a turning area with a minimum formed surface radius of 12.5m (Plate 3) or ii. a 'T' or 'Y' shaped turning area with a minimum formed surface length of 11m and minimum internal radii of 9.5m (Plate 4) <p>h) incorporate solid, all-weather crossings over any watercourse that support fire-fighting vehicles with a gross vehicle mass (GVM) of 21 tonnes</p>	
<p>PO 6.2</p> <p>Access to habitable buildings is designed and constructed to facilitate the safe and effective:</p> <ul style="list-style-type: none"> a) access, operation and evacuation of fire-fighting vehicles and emergency personnel b) evacuation of residents, occupants and visitors. 	<p>Access is in accordance with (a) or (b):</p> <ul style="list-style-type: none"> a) a clear and unobstructed vehicle or pedestrian pathway of not greater than 60 metres in length is available between the most distant part of the habitable building and the nearest part of a formed public access road b) driveways: <ul style="list-style-type: none"> i. do not exceed 600m in length ii. are constructed with a formed, all-weather surface iii. are connected to a formed, all-weather public road with the transition area between the road and driveway having a gradient of not more than 7 degrees (1-in-8) iv. have a gradient of not more than 16 degrees (1-in-3.5) at any point along the driveway 	<p>Roads should be constructed as per the specifications provided in the Code.</p>

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay	ELA Comments
<ul style="list-style-type: none"> v. have a crossfall of not more than 6 degrees (1-in-9.5) at any point along the driveway vi. have a minimum formed width of 3m (4m where the gradient of the driveway is steeper than 12 degrees (1-in-4.5)) plus 0.5 metres clearance either side of the driveway from overhanging branches or other obstructions, including buildings and/or structures (Plate 1) vii. incorporate passing bays with a minimum width of 6m and length of 17m every 200m (Plate 5) viii. provide overhead clearance of not less than 4.0m between the driveway surface and overhanging branches or other obstructions, including buildings and/or structures (Plate 1) ix. allow fire-fighting services (personnel and vehicles) to travel in a continuous forward movement around driveway curves by constructing the curves with a minimum external radius of 12.5m (Plate 2) x. allow fire-fighting vehicles to safely enter and exit an allotment in a forward direction by using a 'U' shaped drive through design or by incorporating at the end of the driveway either: <ul style="list-style-type: none"> A. a loop road around the building or B. a turning area with a minimum radius of 12.5m (Plate 3) or C. a 'T' or 'Y' shaped turning area with a minimum formed length of 11m and minimum internal radii of 9.5m (Plate 4) 	

Code Requirements for development within Hazard (Bushfire – <u>High Risk</u>) Overlay		ELA Comments
	xi. incorporate solid, all-weather crossings over any watercourse that support fire-fighting vehicles with a gross vehicle mass (GVM) of 21 tonnes.	
PO5.3 Development does not rely on fire tracks as means of evacuation or access for fire-fighting purposes unless there are no safe alternatives available.	None are applicable	Unlikely to be applicable as formal roads will be provided.
*Plates are provided below		

Plate 1 – Overhead and Side Clearances

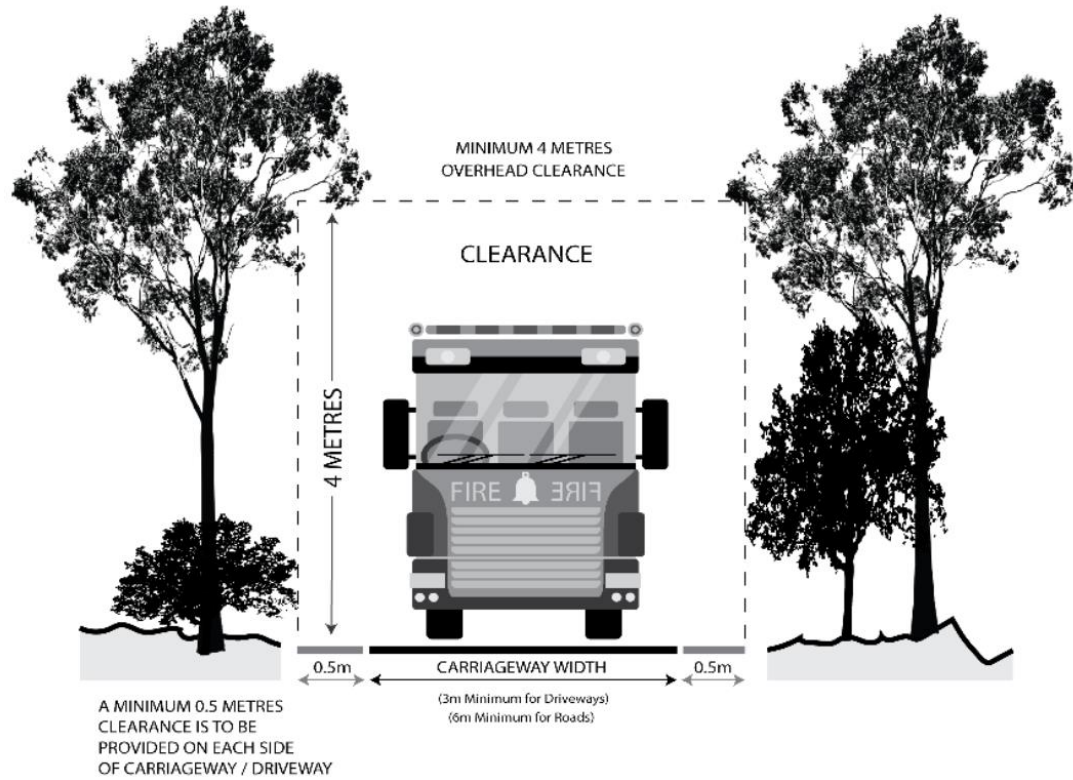


Plate 2 – Road and Driveway Curves

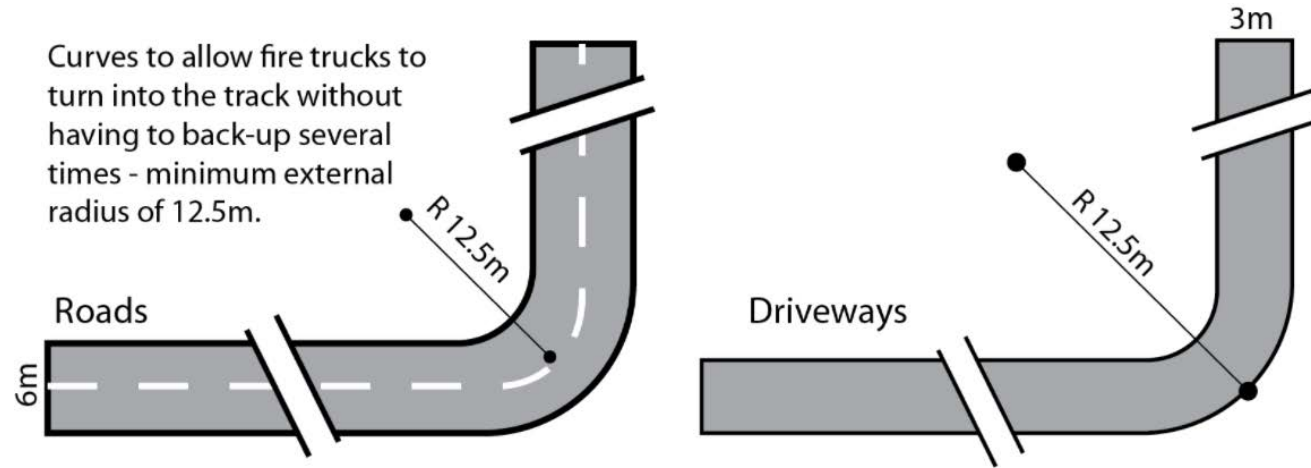


Plate 3 – Full Circle Turning Area

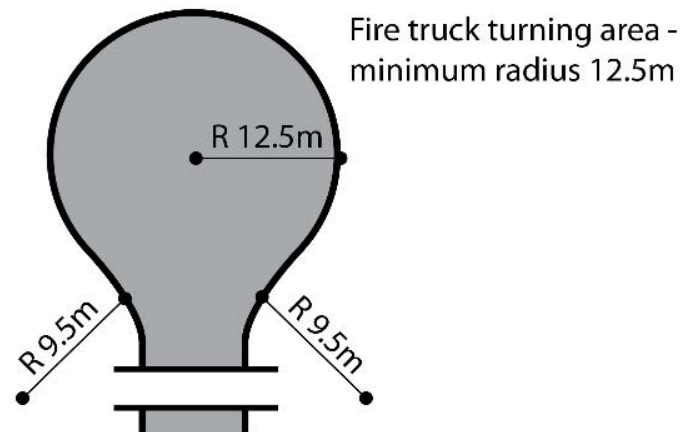


Plate 4 – 'T' or 'Y' Shaped Turning Head

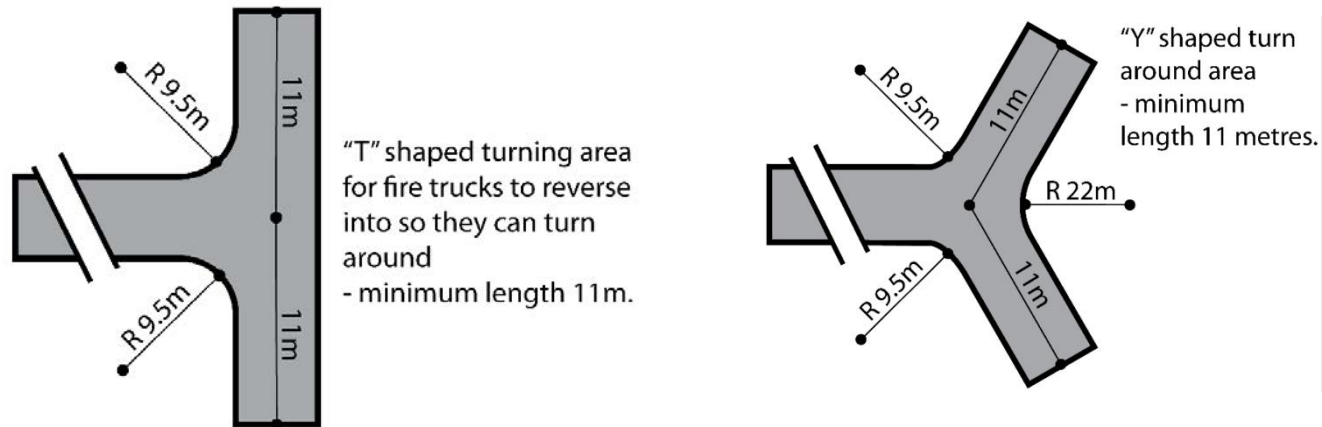
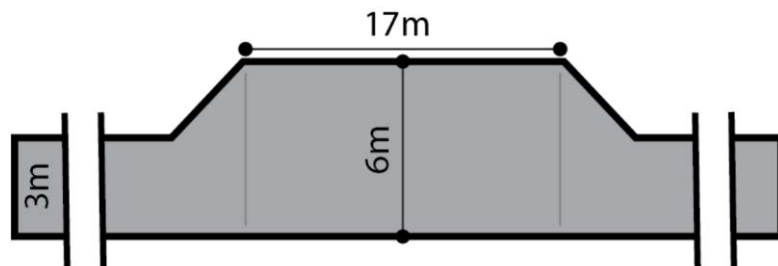


Plate 5 – Driveway Passing Bays

Passing bay for fire trucks - minimum width 6 metres, minimum length 17 metres.



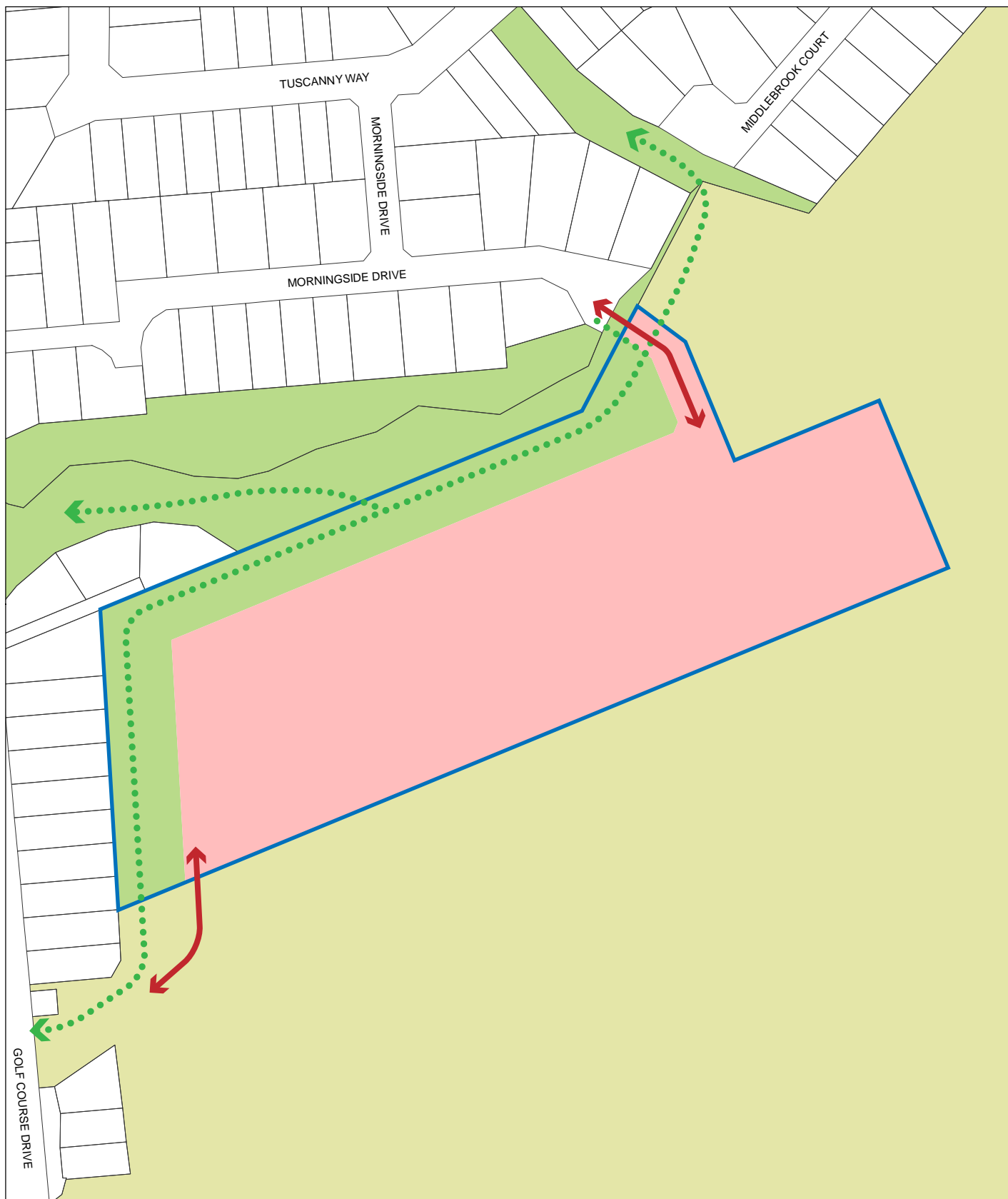
References

Standards Australia (2018) AS 3959:2009 *Construction of Buildings in Bushfire Prone Areas* (AS 3959: 2018; SA 2018)

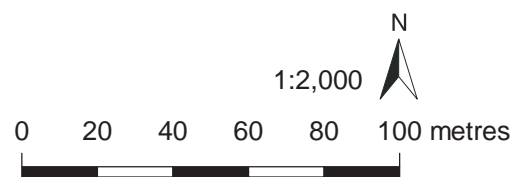
Government of South Australia (2022) Planning and Design Code. Version 2022.3 (PDC)

NSW Rural Fire Service (2019) *Planning for Bush Fire Protection; a guide for councils, planners, fire authorities and developers* (PBP 2019)

Appendix A – Concept Plan (Affected Area 1)



- Concept Plan Boundary
- Residential
- Public Open Space
- Golf Course
- ↔ Indicative Vehicle Access
- ... Shared Use Trail



Concept Plan X

WOODCROFT