

Bushfire Engineering Design & Compliance Strategy

Lourdes Retirement Village

Site Context:

The site is located within a residential area at the eastern end of Stanhope Road, Killara, 16km from the Sydney CBD. Access to the site is provided through Stanhope Road and Rosebery Road which then branch into multiple alternative options.

The site is adjoined by unmanaged bushland to the east and south which is associated with Gordon Creek. This bushland is primarily riparian forest with steep slopes and continues along Gordon Creek to the northeast (see Figure 1).



Figure 1: Aerial imagery showing the context of the site and adjoining bushfire hazard. Source SIX Maps 2020.

Project Description:

The site currently contains the existing Lourdes Retirement Village which was constructed in 1983 and consists of a total of 240 units. These units range from 2-3 storey's in height and include:

- 108 Independent living apartments;
- 49 serviced apartments;
- Residential Aged Care Facility (RACF) with 83 beds; and
- Community building and associated infrastructure.

Due to its age, the existing facility now presents major accessibility constraints and no longer meets the contemporary needs of the residents. There are no bushfire design or protection measures in place.

The proposal for the site may include a medium density development of the southern portion of the site comprising approximately 63 town houses and a new seniors housing development at the northern portion of the site comprising approximately:

- 141 independent living units;
- A new aged care facility with 110 beds; and
- 1,400sqm of internal communal space.

Legislative Context:

Section 100B of the *Rural Fires Act 1997* states that the Commissioner of the NSW RFS may issue a bush fire safety authority for:

- a) *a subdivision of bush fire prone land that could lawfully be used for residential or rural residential purposes; or*
- b) *development of bush fire prone land for a special fire protection purpose.*

A bush fire safety authority authorises development to the extent that it complies with standards regarding setbacks, provision of water supply and other matters considered by the Commissioner to be necessary to protect persons, property or the environment from danger that may arise from a bush fire.

A retirement village is considered a Special Fire Protection Purpose development and must obtain a bush fire safety authority before developing on bush fire prone land.

Section 100B of the *Rural Fires Act 1997* is typically satisfied through compliance with the requirements of *Planning for Bush Fire Protection 2019*. Aside from APZ design which would normally require a maximum exposure of 10kW/m², the bushfire design for the Lourdes Village will comply with Chapter 6 of *Planning for Bush Fire Protection 2019*.

Compliance Strategy

The design and compliance strategy will satisfy section 100B of the *Rural Fires Act 1997* through a performance-based approach using the Bush Fire Engineering Brief (BFEB) process for the APZ design and building construction. The BFEB process will be undertaken in accordance with the *International Fire Engineering Guidelines*.

This will be undertaken within the context of complying with the Aims and Objectives of *Planning for Bush Fire Protection 2019*. Consideration will be given to the most appropriate construction approval regime and ongoing compliance will be ensured through implementation of the *Bush Fire Protection, Operations and Maintenance Plan* as developed through the design strategy.

While better bushfire outcomes are not considered to be an appropriate benchmark for this performance design strategy, redevelopment of the site will represent a substantially better bushfire outcome in terms of bushfire safety for the occupants.

Design Strategy:

The following design strategy will be used to inform more detailed design and engineering so that bushfire risk and occupant safety is appropriately addressed through the final design:

1. The proposed design will comply with the aims and objectives of PBP 2019;
2. APZ are maximised wherever possible consistent with PBP 2019;
3. A defensible space is provided;
4. The Design Fire is based on the methodology and assumptions in PBP 2019 and site-specific inputs will be agreed with the NSW RFS;
5. Conservatism of the Design Fire will be explored based on agreed first principles and bushfire modelling;
6. Buildings are designed and constructed to prevent fire spread during bush fires as intended by PBP 2019;
7. All buildings are provided with an internal fire sprinkler system;
8. Any increases in density will be addressed on a bushfire risk basis, consistent with PBP 2019;
9. Design is responsive to the vulnerability of the occupants;
10. A suitable strategy and design is provided to allow emergency fire brigade intervention to assist evacuation during a bushfire event;
11. Horizontal type exiting will be considered so that occupants can move to more protected areas during bushfires;

12. A *Bushfire Protection, Operations and Maintenance Plan* is developed which will include an *Emergency Management and Evacuation Plan* and ongoing maintenance and certification of essential bushfire protection measures; and
13. Emergency management and evacuation planning is developed and implemented through a holistic system to minimise exposure of occupants to potential high-risk bushfire events. This is based on fire weather predictions, actual fire weather conditions and bush fire activity.

Currently the recognised standard places a high reliance on the 10kW/m² threshold, therefore the relationship between radiant heat levels, building design, fire resistance, occupant safety and firefighter safety is fundamentally related to the above design strategy.



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Attachment 1: Concept Masterplan

