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# Bushfire Attack Level (BAL) Assessment Report for Stage 7 Apsley Estate, Mandogalup

| Site Details | | | |
|---|---|---|---|
| **Address:** Stage 7 Apsley Estate: (Lots 774-779, 791-815, 819-830, 835 and 837) | | | |
| **Suburb:** | Mandogalup, 6167 | **State** | Western Australia |
| **Local Government Area:** | City of Kwinana | | |
| **Description of building works:** | Residential development, future buildings | | |

| Report details | | | |
|---|---|---|---|
| **Report/Job number:** | 20PER-16783 | **Report version:** | v1 |
| **Assessment date:** | 17/03/2022 | **Report date:** | 26/05/2022 |
| **Author:** | Stephen Moore, Maitland Ely and Daniel Panickar | **Review:** | Daniel Panickar (BPAD Level 3 – 37802) |

## SITE ASSESSMENT AND SITE PLAN

The assessment of the 45 subject lots for the purpose of determining the Bushfire Attack Level (BAL) in accordance with *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (SA 2018) Simplified Procedure (Method 1) has been undertaken multiple times since 2020 to inform staged development. The most recent assessment was undertaken on 17 March 2022. An overview of the site is presented in Figure 1.

## VEGETATION CLASSIFICATION

All vegetation within 150 m of the 45 subject lots was classified in accordance with Clause 2.2.3 of AS 3959: 2018. Each distinguishable vegetation class with the potential to determine the BAL is identified below and presented in Figure 1.

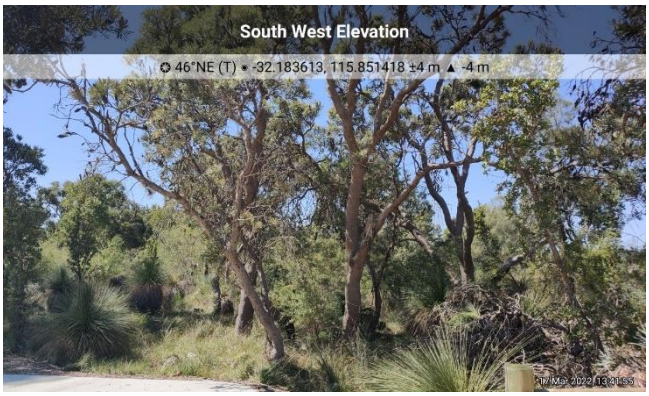
It is currently assumed that areas of landscaped vegetation within the site and assessment area will be managed and maintained by QUBE Property Group (the developer) until replaced by residential dwellings and associated infrastructure or handed over to the City of Kwinana in the future.

| Plot | 1 | Classification or Exclusion Clause | Class A Forest |
|---|---|---|---|

**Photo Point 1**

Classified vegetation within this plot is comprised of trees that could grow up to 30 m tall with approximately 30 to 70% foliage cover within a conservation reserve.

Slope under the vegetation has been assessed as upslope/flat land.




| Plot | 1 | Classification or Exclusion Clause | Class A Forest |
|---|---|---|---|

**Photo Point 2**

Classified vegetation within this plot is comprised of trees that could grow up to 30 m tall with approximately 30 to 70% foliage cover within a conservation reserve.

Slope under the vegetation has been assessed as upslope/flat land.


| Plot | 2 | Classification or Exclusion Clause | Class D Scrub |
|---|---|---|---|

**Photo Point 3**

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure within the Western Power easement that will be retained as part of overall landscaping.

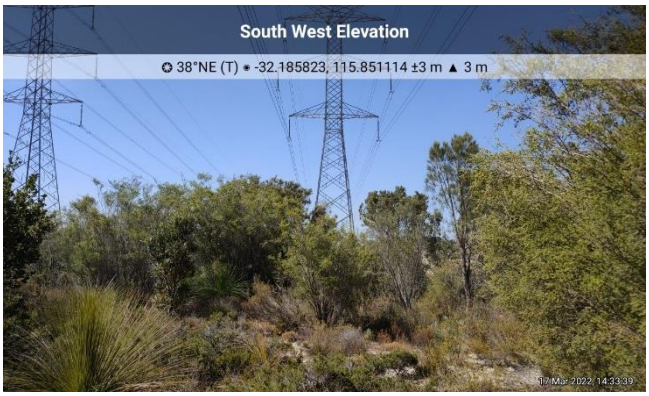
Slope under the vegetation has been assessed as upslope/flat land.

| Plot | 2 | Classification or Exclusion Clause | Class D Scrub |
|---|---|---|---|

**Photo Point 4**

Classified vegetation within this plot is comprised of shrubs >2 m high with greater than 30% foliage cover. Vegetation represents banksia woodlands in a scrub structure within the Western Power easement that will be retained as part of overall landscaping.

Slope under the vegetation has been assessed as upslope/flat land.




| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959: 2018 2.2.3.2 (f) |
|---|---|---|---|

**Photo Point 5**

Vegetation present is regarded as low threat due to factors such as flammability, moisture content and fuel load. Managed Western Power Easement.


| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959: 2018 2.2.3.2 (e) |
|---|---|---|---|

**Photo Point 6**

Non-vegetated area that has future development plans.


| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959: 2018 2.2.3.2 (e) |
|---|---|---|---|

**Photo Point 7**

Non-vegetated area that contains roads and future residential dwellings.

## RELEVANT FIRE DANGER INDEX

The Fire Danger Index (FDI) for this site has been determined in accordance with Table 2.1 of AS 3959: 2018. The FDI for WA is FDI 80.

## POTENTIAL BUSHFIRE IMPACTS

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 2.

**Table 1: BAL Analysis AS 3959: 2018**

| Plot | Vegetation Classification | Effective Slope |
|---|---|---|
| 1 | Class A Forest | All upslopes and flat land (0 degrees) |
| 2 | Class D Scrub | All upslopes and flat land (0 degrees) |
| 3 | Class G Grassland | All upslopes and flat land (0 degrees) |
| 4 | Excluded AS 3959: 2018 2.2.3.2 (e) & (f) | - |

## DETERMINED BUSHFIRE ATTACK LEVEL (BAL)

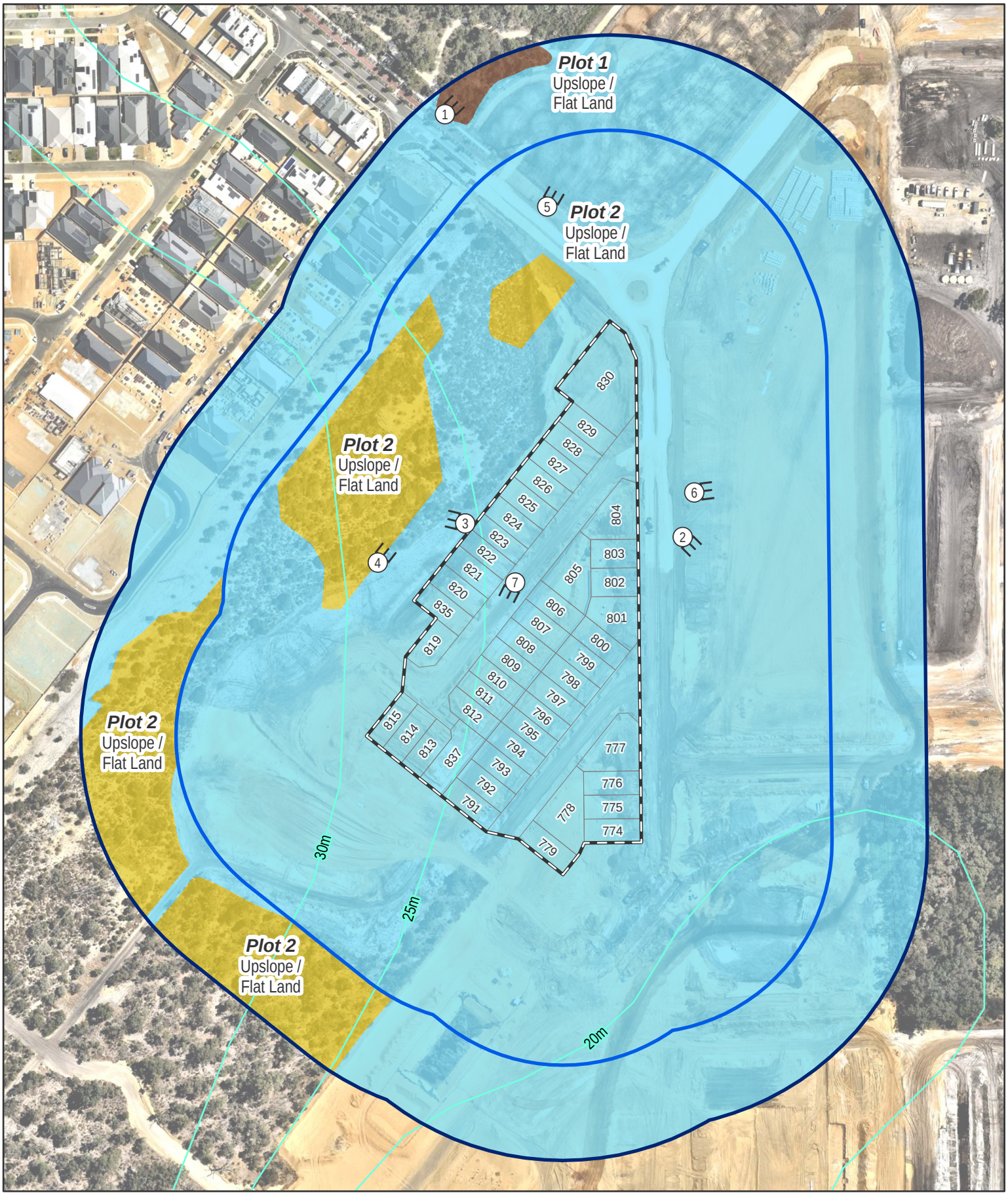
The determined Bushfire Attack Level (highest BAL) for the proposed works has been determined in accordance with Clause 2.2.6 of AS 3959: 2018 relevant data from the BAL assessment shown in Figure 2 and Table 2.

**Table 2: BAL assessment summary**

| BAL | Affected lots | Construction sections to be consulted in AS 3959-2018 |
|---|---|---|
| **BAL-FZ** | Nil | N/A |
| **BAL-40** | Nil | N/A |
| **BAL-29** | Nil | N/A |
| **BAL-19** | Nil | N/A |
| **BAL-12.5** | Determined Bushfire Attack Level for:<br>Lots 801*, 802*, 803*, 804*, 805*, 806*, 807*, 808*, 809* 810*, 811*, 812*, 813, 814, 815, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 835 and 837*. | 3 and 5 |
| **BAL-LOW** | Determined Bushfire Attack Level for:<br>Lots 774, 775, 776, 777, 778, 779, 791, 792, 793, 794, 795, 796, 797, 798, 799 and 800. | 4 |

* INDICATES THAT A SETBACK MAY BE ABLE TO REDUCE THE BAL RATING FOR A FUTURE DWELLING.

This BAL rating is based on the information current at the date of this document and is valid for 12 months.




## Figure 1: Vegetation Classification

- Subject site
- 100m site assessment
- 150m site assessment
- Lot boundary
- Contour (5m)
- Photo location

**Vegetation classification**

- Class A forest
- Class D scrub
- Excluded as per clause 2.2.3.2 (e) and (f)

0 20 40 80
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

Project: 16783-SM Date: 26/05/2022



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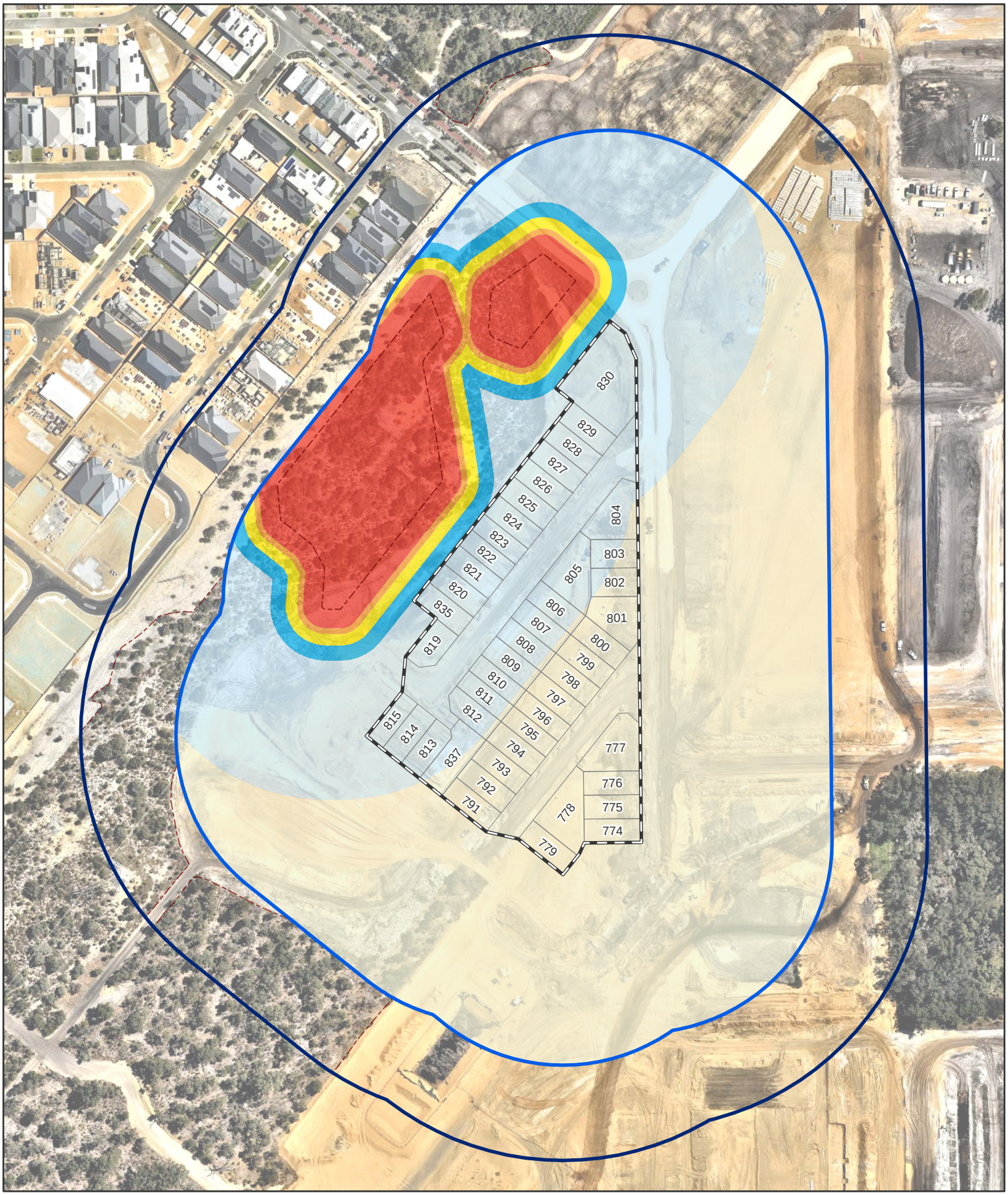


**Figure 2: Bushfire Attack Level (BAL) Contours**

- Subject site
- 100m site assessment
- 150m site assessment
- Lot boundary
- Bushfire hazard interface

**Bushfire Attack Level (BAL)**

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

0 20 40 80
Metres

Datum/Projection:
GDA 1994 MGA Zone 50

Project: 16783-SM Date: 26/05/2022



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# Appendix A – Additional Information / Advisory Notes

Bushfire Attack Level (BAL) as set out in the Australian Standard 3959 Construction of Buildings in Bushfire-Prone Areas (AS 3959), as referenced in the Building Code of Australia.

| Bushfire Attack Level (BAL) | Classified vegetation within 100 m of the site and radiant heat flux exposure thresholds | Description of predicted bush fire attack and levels of exposure | Construction Section as per AS 3959 |
|---|---|---|---|
| BAL-LOW | | There is insufficient risk to warrant specific construction requirements. | 4 |
| BAL-12.5 | ≤12.5 kW/m2 | Ember attack | 3 and 5 |
| BAL-19 | >12.5 kW/m2 ≤19 kW/m2 | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux. | 3 and 6 |
| BAL-29 | >19 kW/m2≤29 kW/m2 | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux | 3 and 7 |
| BAL-40 | >29 kW/m2≤40 kW/m2 | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing radiant heat flux with the increased likelihood of exposure to flames. | 3 and 8 |
| BAL-FZ | >40 kW/m2 | Direct exposure to flames from fire front in addition to radiant heat flux and ember attack | 3 and 9 |

Source: "*AS 3959: 2018 Construction of buildings in bushfire-prone areas*" published by Standards Australia, Sydney