

BAL-ASSESSMENT

MAHALA STAGES 8 AND 10, ANSTEY ROAD FORRESTDALE

PREPARED FOR:

ANSTEY ROAD DEVELOPMENTS PTY LTD

AUGUST 2023

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MAHALA STAGES 8 AND 10 BAL-ASSESSMENT REPORT

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1. PROPOSAL DETAILS

Martinick Bosch Sell Pty Ltd (MBS Environmental, MBS) was commissioned by Anstey Road Developments Pty Ltd to prepare this bushfire attack level (BAL) assessment report to support the development of 71 residential Lots in Stages 8 (34 Lots) and 10 (37 Lots) of the Mahala Estate, Anstey Road, Forrestdale (the Site, Stages 8 and 10) within the City of Armadale. The Site is located within a designated bushfire prone area. Therefore, the broad aim of the assessment process was to confirm the bushfire prone status, review and confirm potential site bush fire risks, and nominate BAL-ratings for any Lot that will be located within 100 m of classified vegetation as defined by AS 3959:2018 *Construction of Buildings in Bushfire Prone Areas*.

The BAL-assessment process considers current site conditions along with the provisions of *State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas* (Department of Planning, Lands and Heritage (DPLH), and the Western Australian Planning Commission (WAPC) (2015)) and *Guidelines for Planning in Bushfire Prone Areas* (the guidelines) (Department of Planning, Lands and Heritage and the Western Australian Planning Commission, V1.4, 2021).

1.1 LOCATION

Stages 8 and 10 Mahala is:

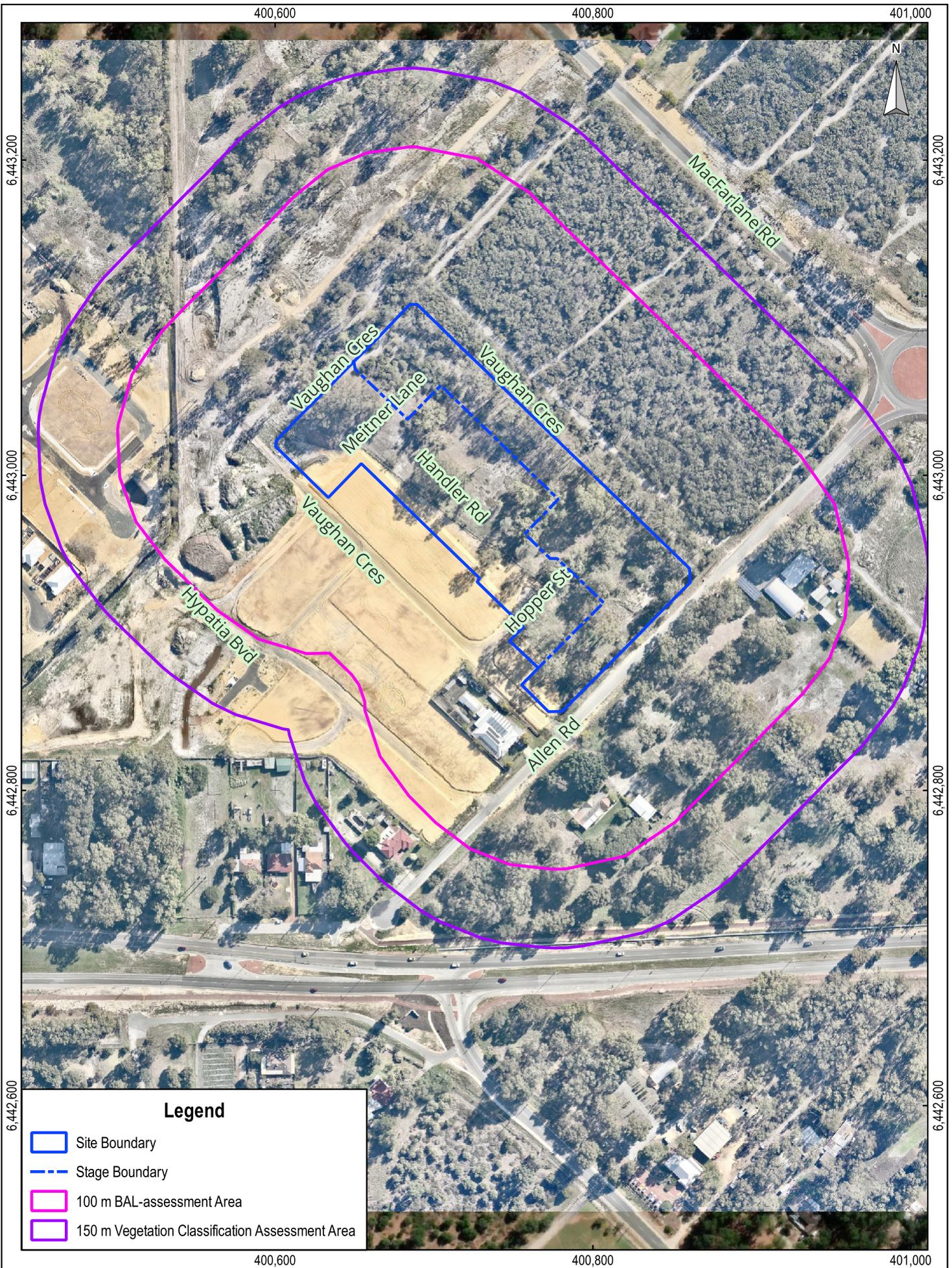
- Located approximately 22 km southeast of the Perth Central Business District within the City of Armadale.
- 2.7 ha (approx.).
- Bounded by existing rural residential Lots to the southeast and southwest, cleared areas currently being developed to the west and northwest, future public open space (POS) to the northwest, and vegetated land in private ownership by others to the northeast that will be retained as such for at least the short term.

1.2 LAND USES AND PROPOSED DEVELOPMENT

The site is currently vacant land that is yet to be cleared and civil engineering works commenced ahead of building construction (Figure 1, Figure 2). A site staging plan is provided in Figure 3.



Figure 1: Current Land Use, Mahala, Stages 8 and 10



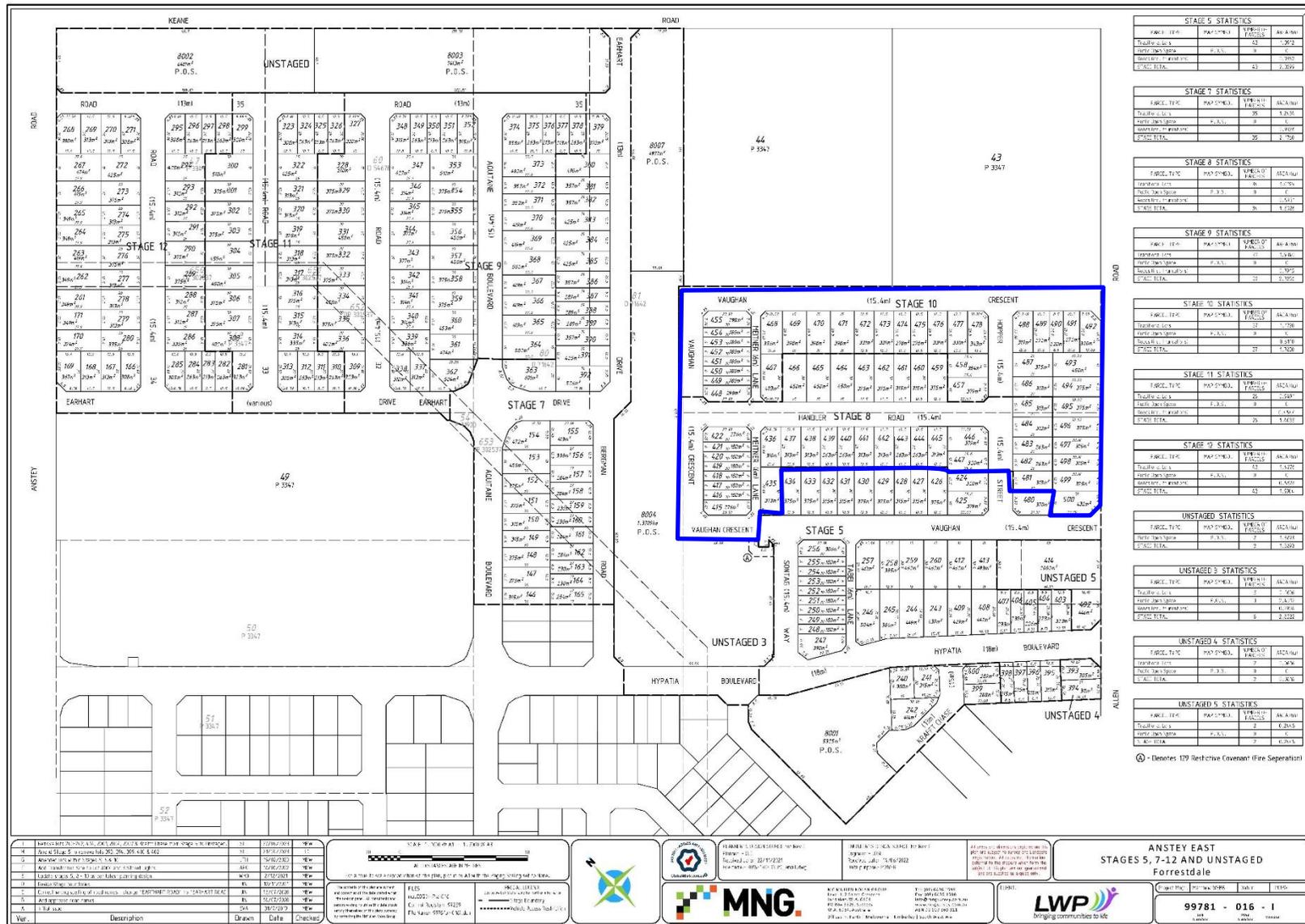


Figure 3: Staging Plan, Mahala

1.3 AIMS AND OBJECTIVES

The objective of the BAL-assessment process is to outline the BAL-ratings for the subdivision, the associated bushfire management methods, and any requirements that will be implemented to support the proposed development. Accordingly, broad aims include:

- Reduce the occurrence of and minimise the impact of fire to the life and property of future building occupants and the environment.
- Allow easy access for fire-fighters if a fire does occur.
- Protect the landscape within the site as far as is possible.
- Document bushfire prevention requirements of the area to which it relates.

2. ENVIRONMENTAL CONSIDERATIONS

2.1 NATIVE VEGETATION

Mahala Stages 8 and 10 currently contains remnant bushland that has been previously disturbed through historic land uses. This remnant vegetation will be cleared to accommodate the subdivision. A patch of vegetation to the northeast will be retained into the future and will represent an ongoing bushfire risk. Some Lots within the surrounding area retain treed vegetation that will either be cleared to accommodate future development while others are considered low-threat vegetation due to its small area (subject to exclusion clause 2.2.3.2 (b) of AS 3959:2018) or are actively managed by owners (subject to exclusion clause 2.2.3.2 (f)). Civil engineering is within Stages 8 and 10 is yet to commence. Environmental values of the broader Mahala site have been considered during earlier, higher level planning phases, with:

- No Bush Forever Sites within the Stages or broader development site boundary.
- No conservation category wetlands (CCW) or resource enhancement category wetlands (REW) as defined by the Geomorphic Wetlands Swan Coastal Plain Dataset within or in proximity to the Site.
- No Threatened Ecological Communities (TEC), Declared Rare or Priority Listed flora and fauna within the Site or broader development area.

2.2 REVEGETATION AND LANDSCAPING

Stages 8 and 10 are distinct stages of the broader Mahala subdivision. Areas of POS are planned to the southwest adjacent to the sewer pump station and a linear POS that will extend from Hypatia Bvd in the northwest through to MacFarlane Rd to the northeast. Some trees will be retained within these POS areas and meet the definition of low threat vegetation as defined by AS 3959:2018, and subject to exclusion clause 2.2.3.2 (f) (refer Section 3.1.1). A copy of the current landscaping plan is provided in Figure 4.



Figure 4: Landscaping Plan

3. BUSHFIRE ASSESSMENT

3.1 VEGETATION CLASSIFICATION

All vegetation within 150 m of the proposed Lots has been classified in accordance with Clause 2.2.3 of AS 3959:2018 *Construction of Buildings in Bushfire-prone Areas*. Each distinguishable area of vegetation with the potential to determine the BAL-rating is discussed and shown in Figure 5, Figure 6, Figure 7 and, Figure 8, with the overall pre-development vegetation classes shown in Figure 9.

3.1.1 Patch 1: Class B Woodland

Patch 1 is Class B Woodland characterised by trees 10 – 30 m with a 10 – 30% canopy cover. Previous disturbance within the broader site associated with rural residential land uses such as horse agistment has been responsible for the thinning of taller trees along with the removal of middle and understorey species, resulting in the Class B vegetation classification for the area that will be cleared to accommodate Stages 8 and 10 (Figure 5). Therefore, this vegetation class will not pose an ongoing bushfire risk. Two patches of Class B Woodland are present to the northwest, with one small patch being more than 100 m from the Site boundary and another that is approximately 90 m from the boundary. Both patches will be cleared to accommodate future development works, with the latter posing a moderate risk to Stages 8 and 10 until that occurs.

Patch	1	Classification or Exclusion Clause:	Class B Woodland
			
Photo ID 1			



Photo ID 2

Figure 5: Class B Woodland

3.1.2 Class D Scrub

Patch 2 is Class D Scrub is characterised by shrubs 2 – 4 m with a continuous canopy from ground level; the occasional taller tree may also be present. This vegetation class is present to the northeast of what will become Stage 10 in vegetation that will be retained in the longer term (Figure 6).

Patch	2	Classification or Exclusion Clause:	Class D Scrub
Photo ID 3			



Photo ID 4

Figure 6: Class D Scrub

3.1.3 Low Threat Vegetation

Low threat vegetation is characterised as such based on its moisture content, fuel load and/or flammability. Examples of low threat vegetation includes grassland managed in minimal fuel condition, maintained lawns and public reserves, cultivated gardens and nature strips. These forms of low threat vegetation are subject to exclusion clause 2.2.3.2 (f) of AS 3959:2018 (Figure 7). Other forms of low threat vegetation include areas less than 1 ha that are not located within 100 m of other areas of vegetation being classified and are subject to exclusion clause 2.2.3.2 (b).

Patch 3 is low threat vegetation in various forms, including (Figure 7):

- Areas that will become landscaped parkland in POS areas that will be created in time (Photo ID 5).
- Maintained lawns and surrounds in rural residential Lots (Photo ID 6).
- Small patches of vegetation that are less than 1 ha (Photo ID 7) and not located within 100 m of other vegetation being classified. The patch of vegetation located at the southern end of Allen Road will meet this definition when the clearing of vegetation in what will become Stages 8 and 10 in the near future.





Photo ID 6



Photo ID 7

Figure 7: Low Threat Vegetation

3.1.4 Patch 4: Non-vegetated Areas

Non-vegetated areas are present in the form of cleared areas associated with (Figure 8):

- Current land use within the broader development site in the form of cleared areas and civil engineering works either completed or in progress.
- The presence of roads and other assets within and in proximity to the site.

Patch 4 **Classification or Exclusion Clause:** Non-vegetated areas - Exclusion clause 2.2.3.2 (e)

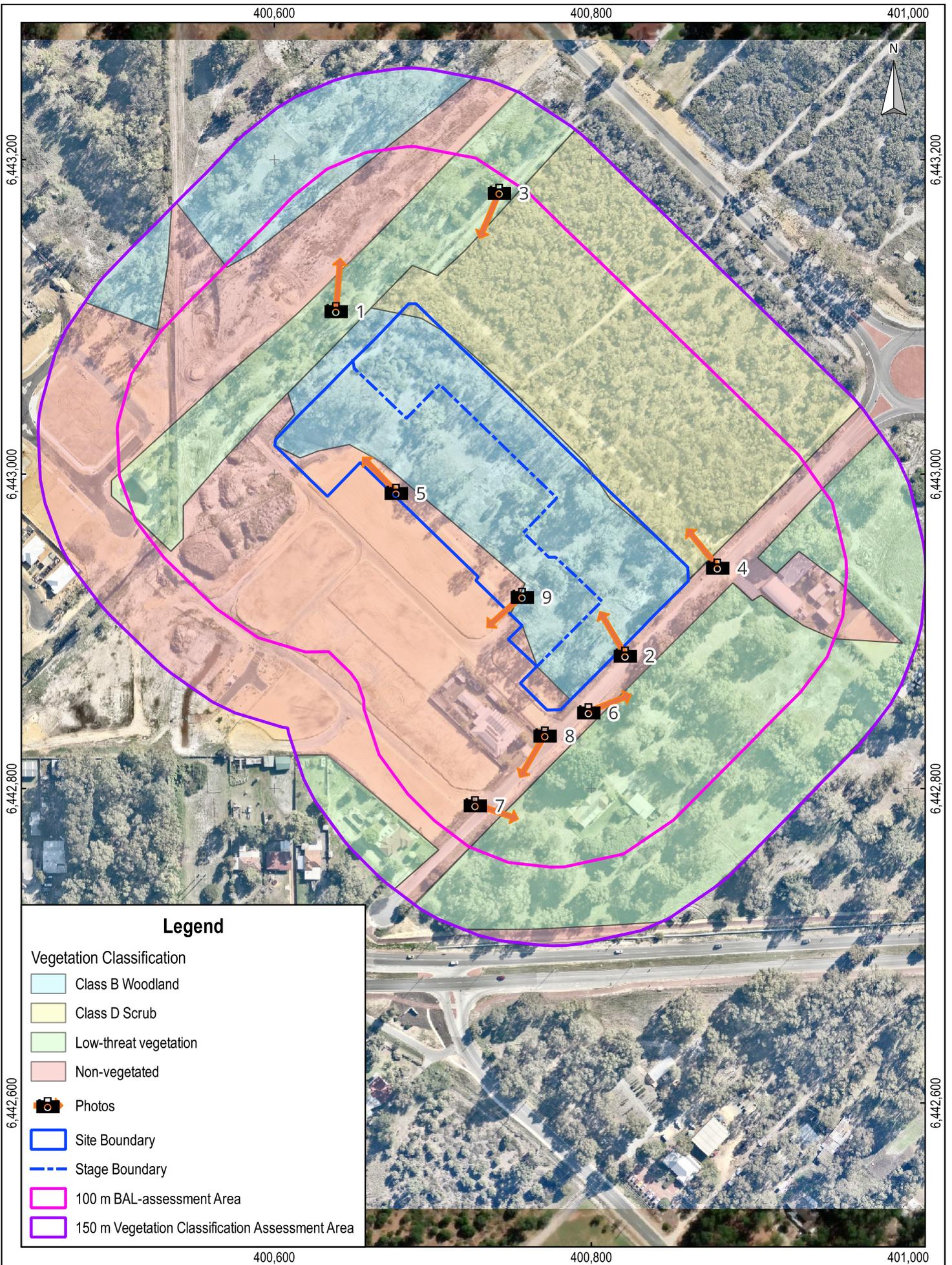


Photo ID 8



Photo ID 9

Figure 8: Non-vegetated Areas



Scale: 1: 3,100
 Original Size: A4
 Aerial Imagery: NearMap April 2023
 Grid: GDA94 / MGA zone 50
 0 25 50 m

BAL-assessment
Stages 8 and 10, Mahala
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Figure 9
Vegetation Classification
as per AS 3959:2018

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3.2 EFFECTIVE SLOPE

Mahala Stages 8 and 10 is located on flat land, thus for the purposes of the BAL-assessment the slope that will apply for the BAL-assessment process is upslope or flat land.

3.3 RELEVANT FIRE DANGER INDEX

The fire danger index (FDI) for this site is FDI 80, as documented in Table 2.4.3 of AS 3959:2018, which is the nominated FDI for Western Australia.

3.4 POTENTIAL FIRE IMPACTS

The potential fire impacts to the Lots in this Stage include smoke and ember attack, with the BAL-analysis for each vegetated area summarised in Table 1. The Class B Woodland within Stages 8 and 10 will be cleared to accommodate the development, meaning the Class D Scrub to the northeast of what will become Vaughan Cres represents the ongoing bushfire risk to these Stages.

Table 1: BAL Analysis

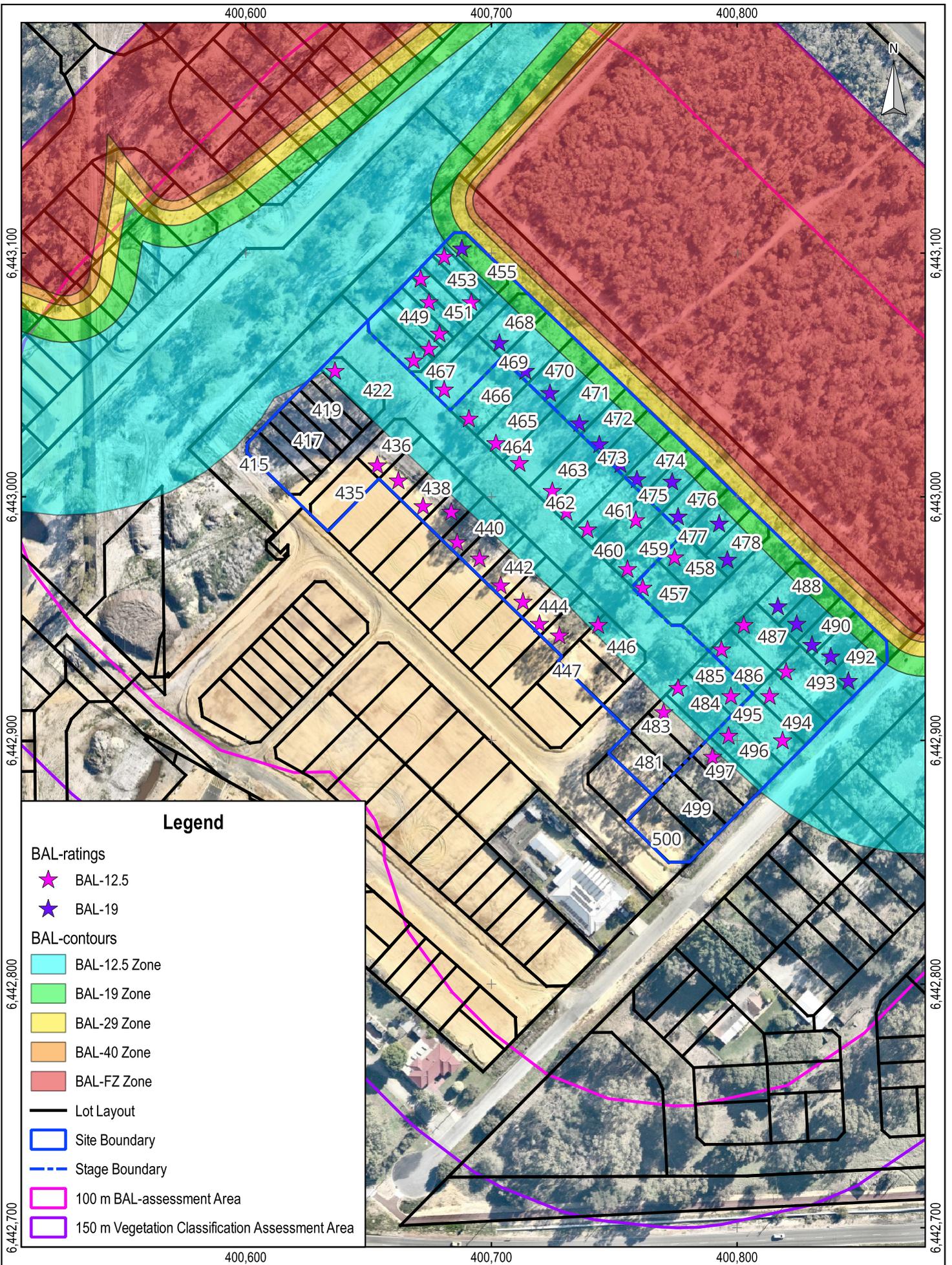
Patch	Vegetation Classification	Effective Slope	Separation Distance (m)	Maximum BAL-rating
1	Class B Woodland	Flat land	Will be cleared within Stage	BAL-Low
			> 90	BAL-12.5
			> 100	BAL-Low
2	Class D Scrub	Flat land	> 20	BAL-19
3	Low-threat Vegetation	Flat land	N/A	BAL-Low
4	Non-vegetated Areas	Flat land	N/A	BAL-Low

3.5 BUSHFIRE ATTACK LEVEL

For buildings within bushfire prone areas, an ideal hazard separation zone of at least 100 m between vegetation and building walls that includes a 20 m asset protection zone is preferred. Where that is not possible, the requirements of AS 3959:2018 *Construction of Buildings in Bushfire Prone Areas* can be applied as an acceptable solution. The presence of the Class D Scrub to the northeast that will be retained into the future will provide an ongoing bushfire risk, with several Lots within Stages 8 and 10 having a BAL-rating (Figure 10).

BAL-ratings will apply as follows:

- BAL-19 rating: Lots 455, 468 – 478, and 488 – 492 (17 Lots).
- BAL-12.5 rating: Lots 422, 448 – 454, 457 – 467, 483 – 487, 493 – 497, and 436 – 446 (40 Lots).
- BAL-Low rating: Lots 415 – 421, 435, 447, 481, 482, 498 – 500 (14 Lots).



Scale: 1: 2,000
 Original Size: A4
 Aerial Imagery: NearMap April 2023
 Grid: GDA94 / MGA zone 50

0 25 50 m

BAL-assessment
Stages 8 and 10, Mahala
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Figure 10
BAL-contours and Ratings

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3.5.1 Asset Protection Zone

The asset protection zone (APZ) for the Site is that area that provides a suitable separation distance between the classified vegetation and building walls, with its width being sufficient to ensure that the potential radiant heat impact of a bushfire does not exceed 29 kW/m², or any BAL-ratings for the Site do not exceed BAL-29. For Stages 8 and 10, the APZ commences at the junction of the BAL-40 and BAL-29 zones, or the junction of the orange and yellow zones shown in Figure 10, and will extend to the building walls. As a suitable APZ can be achieved with no Lot having a BAL-rating higher than BAL-19, confirmation that bushfire risks on Site can be managed has been demonstrated.

3.5.2 Shielding

The shielding provisions outlined in clause 3.5 of AS 3959:2018 provide for buildings to be constructed to the next lower BAL-rating for elevations that are not exposed to the source of the bushfire attack. The shielding provisions may apply to those Lots closest to the Class D scrub that will be retained in the longer term, namely Lots 455, 468 – 478, and 488 – 492.

4. COMPLIANCE AND JUSTIFICATIONS

4.1 SPP 3.7 OBJECTIVES AND APPLICATION OF POLICY MEASURES

The intent of *State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas* (Department of Planning and Western Australian Planning Commission, 2015) is to ensure that bushfire risks are considered in a timely manner and that planning documents demonstrate the appropriate application of the various policy measures. Table 2 summarises the intent and objectives of SPP 3.7 and provides evidence of how Stages 8 and 10 in Mahala complies.

Table 2: Evidence of Compliance with SPP 3.7 Intent and Objectives

SPP Reference	Description	Evidence of Compliance
Intent	<ul style="list-style-type: none"> Ensure that risks associated with bushfires are planned using a risk-based approach. 	<ul style="list-style-type: none"> Preparation of a BAL-assessment report in accordance with SPP 3.7. Hazard assessment indicates risks associated with bushland are manageable.
Objective 1	<ul style="list-style-type: none"> Avoid any increase in the threat of bushfire to people, property, and infrastructure. 	<ul style="list-style-type: none"> Hazard assessment indicates risks associated with bushland are manageable. Several Lots will have a BAL-rating with none higher than BAL-19.
Objective 2	<ul style="list-style-type: none"> Reduce vulnerability to bushfire. 	<ul style="list-style-type: none"> Hazard assessment indicates risks associated with bushland are manageable. Several Lots will have a BAL-rating with none higher than BAL-19.
Objective 3	<ul style="list-style-type: none"> Ensure that higher order strategic planning documents and proposals consider bushfire protection requirements at an early stage. 	<ul style="list-style-type: none"> Planning within the area is well progressed, with other nearby Stages constructed and sales progressing. Consideration of bushfire protection requirements were documented in the original Bushfire Management Plan (BMP) prepared by Bushfire Safety Consulting in 2020, with this BAL-assessment documenting bushfire protection requirements based on current site conditions and stages of the development process.
Objective 4	<ul style="list-style-type: none"> Achieve an appropriate balance between bushfire risk management and biodiversity conservation. 	<ul style="list-style-type: none"> Site environmental values have been considered during the early planning approvals process, noting that the predominant land uses were rural residential with some patches of remnant bushland that have been retained on site where possible to do so.

4.2 BUSHFIRE PROTECTION CRITERIA

Table 3 demonstrates the Site's Compliance with Bushfire Protection Criteria, with all Lots being rated between BAL-Low and BAL-19 due to the presence of the Class D Scrub to the northeast (Figure 9).

Table 3: Compliance with Bushfire Protection Criteria

Intent	Performance Principle	Stages 8 and 10 Mahala Solution
Element 1: Location		
Ensure subdivision and development applications are located in areas with the least possible risk of bushfire	<ul style="list-style-type: none"> Bushfire hazard assessment is or will on completion be moderate or low. BAL-rating is BAL-29 or lower. 	<ul style="list-style-type: none"> The subdivision is in an area where the bushfire hazard level is manageable. Several Lots will have a BAL-rating with none higher than BAL-19.
Element 2: Siting and Design of Development		
Siting and design of development minimises the level of bushfire impact	<ul style="list-style-type: none"> Siting and design of development is appropriate to the level of bushfire threat and minimises risk to people, property, and infrastructure. 	<ul style="list-style-type: none"> The subdivision is in an area where the bushfire hazard level is manageable. Perimeter roads surround the Stages. No battle-axe blocks or cul-de-sacs are present. Several Lots will have a BAL-rating with none higher than BAL-19.
Element 3: Vehicular Access		
Vehicular access servicing a subdivision is available and safe during a bushfire event	<ul style="list-style-type: none"> Internal layout, design and construction of public and private vehicular access and egress in the subdivision allow emergency and other vehicles to move easily and safely at all times. 	<ul style="list-style-type: none"> Access will be via the current and planned road network. Egress to Anstey Road will be available via Hypatia Bvd, with other internal roads providing a range of other access/egress options. Allen and MacFarlane Roads provide egress to either Anstey Rd or Armadale Rd.
Element 4: Water		
Water is available to the subdivision, development, or land use to enable people, property, and infrastructure to be defended from bushfire	<ul style="list-style-type: none"> Subdivision is provided with a permanent and secure water supply that is sufficient for firefighting purposes. 	<ul style="list-style-type: none"> The site is connected to scheme water, i.e. located within a reticulated area with hydrants compliant with Water Corporation design standards.
Element 5: Vulnerable Tourism Land Uses		
Bushfire protection for tourism land uses relevant to the characteristics of the occupants and/or the location, to preserve life and reduce the impact of bushfire on property and infrastructure.	<ul style="list-style-type: none"> Varies according to the type of tourism use, and will include: <ul style="list-style-type: none"> Suitable siting of dwellings with appropriate hazard separation from classified vegetation. Adequate vehicular access and egress in the event of a fire location. Has a permanent water supply available for firefighting purposes. 	<ul style="list-style-type: none"> Not applicable – Stages 8 and 10 Mahala is a residential development.

4.3 COMPLIANCE WITH RELEVANT DOCUMENTS

Sections 4.1 and 4.2 demonstrate that the Site complies with SPP 3.7 (DPLH *et al*, 2015) and *Guidelines for Planning in Bushfire Prone Areas V1.4* (WAPC and DPLH, 2021). Lot owners must comply with relevant sections of the annual firebreak notice and bushfire information prepared by the City of Armadale, such as total fire bans and hazard reduction programs.

4.4 COMPLIANCE STATEMENT

This BAL-assessment report has been prepared in accordance with the requirements of SPP 3.7 *Planning in Bushfire Prone Areas* (Department of Planning and Western Australian Planning Commission, 2015) and *Guidelines for Planning in Bushfire Prone Areas* (Department of Planning, Department of Fire and Emergency Services and Western Australian Planning Commission, V1.3 2017). The BAL-assessment was undertaken in accordance with the simple procedure (Method 1) of AS 3959:2018. Information provided in this document is correct as of 1 August 2023.



Signed:

Date: 01 August 2023

Accreditation Number: 36638

Accreditation Expiry Date: 30 April 2024



5. REFERENCES

AS 3959:2018 Construction of Buildings in Bushfire Prone Areas, Standards Australia, NSW.

Bushfire Safety Consulting, (2020), *Bushfire Management Plan – Subdivision Stages 1-4, Lots 50, 51, 53, 55 & 58 Anstey Road, Forrestdale*, unpublished report prepared for LWP Property Group.

Department of Planning, Lands and Heritage (DPLH) and the Western Australian Planning Commission (WAPC), (2021), *Guidelines for Planning in Bushfire Prone Areas - V1.4*, Western Australian Planning Commission, Perth, Western Australia.

Department of Planning and Western Australian Planning Commission, (2015), *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth Western Australia.