

## Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

### Bushfire Management Plan and Site Details

**Site Address / Plan Reference:** Catalina Beach Estate

**Suburb:** Tamala Park

**State:** WA

**P/code:** 6030

**Local government area:** City of Wanneroo

**Description of the planning proposal:** Subdivision Application

**BMP Plan / Reference Number:** 62243

**Version:** R01 Rev 0

**Date of Issue:** 22/12/2021

**Client / Business Name:** Satterley Property Group

| Reason for referral to DFES   | Yes                      | No                                  |
|---|--------------------------|-------------------------------------|
| Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>Is the proposal any of the following special development types (see SPP 3.7 for definitions)?</b>  |                          |                                     |
| Unavoidable development (in BAL-40 or BAL-FZ)   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Strategic planning proposal (including rezoning applications)   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Minor development (in BAL-40 or BAL-FZ)   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| High risk land-use  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Vulnerable land-use   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

**Note:** The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

### BPAD Accredited Practitioner Details and Declaration

| Name             | Accreditation Level | Accreditation No. | Accreditation Expiry |
|------------------|---------------------|-------------------|----------------------|
| Louisa Robertson | Level 3             | BPAD 36748        | 28/02/2022           |
| Company          |                     | Contact No.       |                      |
| Strategen-JBS&G  |                     | 08 9792 4797      |                      |

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner *LM Robertson*

Date 22/12/2021

Satterley Property Group  
Bushfire Management Plan  
(Subdivision Application)

Catalina Beach Estate

22 December 2021

62243/142,567 (Rev 0)

JBS&G Australia Pty Ltd T/A Strategen-JBS&G



## Table of Contents

|       |  |    |
|-------|--|----|
| 1.    | Proposal details .....   | 1  |
| 1.1   | Background.....  | 1  |
| 1.2   | Site description.....  | 1  |
| 1.3   | Purpose.....   | 2  |
| 1.4   | Other plans/reports.....   | 2  |
| 2.    | Environmental considerations.....  | 5  |
| 2.1   | Native vegetation – modification and clearing .....                              | 5  |
| 2.2   | Revegetation / Landscape Plans.....  | 6  |
| 3.    | Bushfire assessment results .....  | 7  |
| 3.1   | Assessment inputs.....   | 7  |
| 3.1.1 | Vegetation classification .....  | 7  |
| 3.1.2 | Effective slope .....  | 7  |
| 3.1.3 | Pre-development inputs .....   | 7  |
| 3.2   | Assessment outputs .....   | 9  |
| 3.3   | Bushfire Attack Level (BAL) contour assessment .....                             | 9  |
| 4.    | Identification of bushfire hazard issues.....                                    | 11 |
| 4.1   | Bushfire context .....   | 11 |
| 4.2   | Bushfire hazard issues .....   | 11 |
| 5.    | Assessment against the bushfire protection criteria.....                         | 13 |
| 5.1   | Compliance table.....  | 13 |
| 5.2   | Additional management strategies .....   | 15 |
| 5.2.1 | On-site staging buffers.....   | 15 |
| 5.2.2 | Staging of access .....  | 15 |
| 5.2.3 | Fuel management within cleared vacant lots.....                                  | 15 |
| 5.2.4 | Road verge fuel management.....  | 15 |
| 5.2.5 | Notification on title.....   | 15 |
| 5.2.6 | Building construction standards .....  | 15 |
| 5.2.7 | BMP compliance reporting .....   | 15 |
| 5.2.8 | Landscaping plan.....  | 16 |
| 5.2.9 | Compliance with annual firebreak notice .....                                    | 16 |
| 6.    | Responsibilities for implementation and management of the bushfire measures..... | 17 |
| 7.    | References .....   | 18 |
| 8.    | Limitations .....  | 19 |

## List of Tables

|  |    |
|--|----|
| Table 1: Summary of environmental values .....   | 5  |
| Table 2: Summary of post-development vegetation classifications/exclusions and effective slope ..... | 7  |
| Table 3: Summary of vegetation classifications, exclusions and effective slope.....                  | 9  |
| Table 4: Compliance with the bushfire protection criteria of the Guidelines .....                    | 13 |
| Table 5: Responsibilities for implementation and management of the bushfire measures .               | 17 |

## List of Figures

|   |    |
|---|----|
| Figure 1: Subdivision Plan .....                              | 3  |
| Figure 2: Site overview.....                                  | 4  |
| Figure 3: Vegetation classification and effective slope ..... | 8  |
| Figure 4: BAL contour map.....                                | 10 |

## List of Plates

|   |   |
|---|---|
| Plate 1: Map of Bush Fire Prone Areas (DFES 2021) ..... | 2 |
|---|---|

## Appendices

|            |  |
|------------|--|
| Appendix A | Landscape Plan   |
| Appendix B | Vegetation plot photos and description                 |
| Appendix C | APZ standards (Schedule 1 of the Guidelines)           |
| Appendix D | Vehicular access technical standards of the Guidelines |
| Appendix E | Water technical standards of the Guidelines            |
| Appendix F | City of Wanneroo Firebreak Notice                      |



## **1. Proposal details**

### **1.1 Background**

Satterley Property Group on behalf of Tamala Park Regional Council (TPRC) is seeking to develop Catalina Beach Estate at Lot 9030 Marmion Avenue, Tamala Park (the project area) within the City of Wanneroo.

A plan of subdivision is provided in Figure 1 (Niche Planning Studio 2021), which depicts the following within the project area:

- 60 proposed residential lots
- Public Open Space (POS) and drainage lots
- pump station
- internal public road network
- 266.8 ha balance landholding to the north of Portofino Promenade.

An area of land central to the project area has an approved Deposited Plan and does not form part of the current subdivision application area.

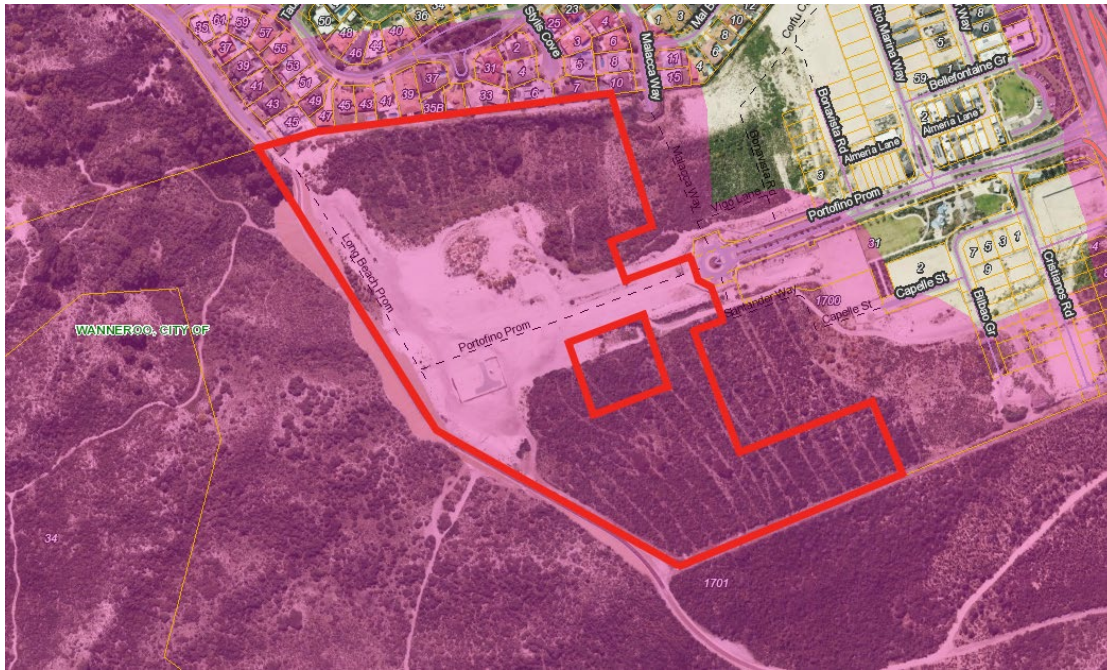
A subdivision design has been considered over the balance landholding to the north in order to assess bushfire compliance of this land as part of the current BMP.

### **1.2 Site description**

The project area is surrounded by (see Figure 2):

- developed land predominantly cleared for ongoing development stages of Catalina Beach Estate to the east
- vegetation yet to be cleared as part of future development stages of Catalina Beach Estate to the north
- remnant vegetation to be retained and partially rehabilitated to the west and south of the project area

The project area is designated as bushfire prone on the *Map of Bush Fire Prone Areas* (DFES 2021; see Plate 1).



**Plate 1: Map of Bush Fire Prone Areas (DFES 2021)**

### 1.3 Purpose

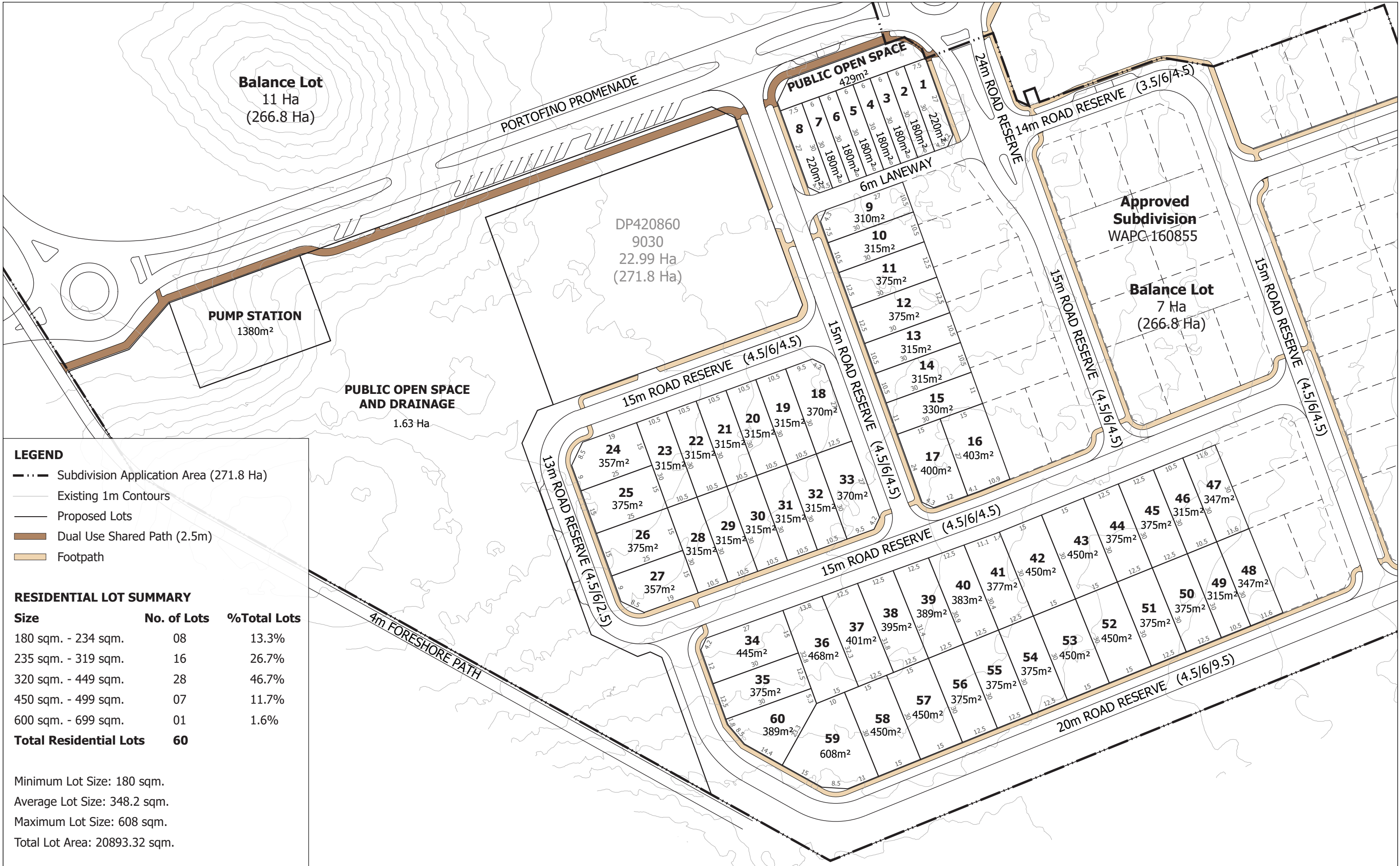
This Bushfire Management Plan (BMP) has been prepared to address requirements under Policy Measures 6.2 and 6.4 of *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015) and *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines Version 1.3; WAPC 2017).

### 1.4 Other plans/reports

Strategen-JBS&G is aware of the following relevant reports that have been previously prepared for Catalina Estate:

- *Bushfire Management Plan (Subdivision Application): Catalina Estate Stage 27B and 30* – prepared by Eco Logical Australia for Tamala Park Regional Council (June 2021).
- *Clearing and Revegetation Management Plan: Catalina Residential Development* – prepared by Eco Logical Australia for Tamala Park Regional Council (June 2018).





LEGEND

- Subdivision Application Area (271.8 Ha)
- Existing 1m Contours
- Proposed Lots
- Dual Use Shared Path (2.5m)
- Footpath

RESIDENTIAL LOT SUMMARY

| Size                   | No. of Lots | %Total Lots |
|------------------------|-------------|-------------|
| 180 sqm. - 234 sqm.    | 08          | 13.3%       |
| 235 sqm. - 319 sqm.    | 16          | 26.7%       |
| 320 sqm. - 449 sqm.    | 28          | 46.7%       |
| 450 sqm. - 499 sqm.    | 07          | 11.7%       |
| 600 sqm. - 699 sqm.    | 01          | 1.6%        |
| Total Residential Lots | 60          |             |

Minimum Lot Size: 180 sqm.  
Average Lot Size: 348.2 sqm.  
Maximum Lot Size: 608 sqm.  
Total Lot Area: 20893.32 sqm.

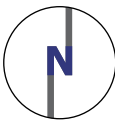
SUBJECT LAND SUMMARY

The proposed subdivision of Lot 9030 on DP420860 creates the following lot yield:

- 60 Residential Lots
- 1 Balance Lots

PROPOSED FREEHOLD SUBDIVISION  
LOT 1700 MARMION AVENUE, CLARKSON

Aerial supplied by: N/A  
Aerial Date Stamp: N/A  
Survey supplied by: N/A  
Plan Number: NPS1059 - 001  
Revision Number: A  
Drawn By: Nivedita Ravindran  
Client: Satterley Property Group



Scale: 1:800 @A3 Date Issued: 07.12.2021 ©Niche Planning Studio

DISCLAIMER:  
Town Planning compliance is subject to approval from the Tamala Park Regional Council and a suitable town planner will need to be appointed. All Dimensions, Areas and Calculations are subject to Detailed Survey and Design before Town Planning Permit application. Built Form is illustrative only and subject to Architectural Design and approval from an RIAA qualified architect. This plan has been prepared for illustrative purposes only and should not be used as a means to judge any properties value or yield potential.

NICHE  
— PLANNING —  
STUDIO





- Legend**
- Project area
  - Cadastral boundary
  - Bush Forever areas (DPLH)
  - Environmentally sensitive areas (DWER)
  - Roads (MRWA)



Job No: 62243

Client: Satterley Property Group

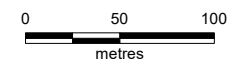
Version: A

Date 15/12/2021

Drawn By: jcrute

Checked By: CT

Scale 1:4,000 at A4



Coor. Sys. GDA 1994 MGA Zone 50

**Catalina Beach Estate,  
Mindarie, WA**

**SITE OVERVIEW**

**FIGURE 2**



## 2. Environmental considerations

### 2.1 Native vegetation – modification and clearing

The project area is already partially cleared and proposed development will involve further removal of the remaining remnant native vegetation. Publicly available environmental values applicable to the proposed development are depicted in Figure 2 and detailed in Table 1.

Strategen-JBS&G understands that all relevant clearing approvals have been previously addressed and granted under standard State and Federal environmental assessment and referral requirements under the *Environmental Protection Act 1986* and *Environment Protection and Biodiversity Conservation Act 1999*.

**Table 1: Summary of environmental values**

| Environmental value  | Mapped as occurring within or adjacent to the project area |          | Description  |
|--|--|----------|--|
|  | Within   | Adjacent |  |
| Environmentally Sensitive Area   | ✗  | ✓        | An ESA is associated with Bush Forever site 322 to the south, west and northwest of the project area.  |
| Swan Bioplan Regionally Significant Natural Area   | ✗  | ✗        | No Swan Bioplan Regionally Significant Natural Areas were identified.  |
| Ecological linkages  | ✗  | ✗        | No ecological linkages occur within or adjacent to the project area.   |
| Wetlands   | ✗  | ✗        | No wetlands occur within or adjacent to the project area.  |
| Waterways  | ✗  | ✗        | No waterways were identified.  |
| Threatened Ecological Communities (TECs) listed under the EPBC Act                         | -  | -        | Strategen-JBS&G is not aware of any TECs occurring within the project area and understands that if present this would have been addressed through the previous clearing approval process.  |
| Threatened and priority flora  | -  | -        | Strategen-JBS&G is not aware of any threatened or priority flora occurring within the project area and understands that if present this would have been addressed through the previous clearing approvals process.                           |
| Fauna habitat listed under the EPBC Act  | ✓  | ✓        | Carnaby's Black Cockatoo habitat is mapped throughout the project area and adjacent land, as area requiring investigation as feeding habitat. Strategen-JBS&G understands this would have been addressed during the clearing permit process. |
| Threatened and priority fauna  | -  | -        | Strategen-JBS&G is not aware of any threatened or priority fauna occurring within the project area and understands if present that this would have been addressed through the previous clearing approval process.                            |
| Bush Forever Site  | ✗  | ✓        | Bush Forever site 322 is located within and around the project site to the south, west and northwest. Strategen-JBS&G understands that the project area is no longer designated as Bush Forever  |
| DBCA managed lands and waters (includes legislated lands and waters and lands of interest) | ✗  | ✗        | No lands of interest or legislated lands or waters were identified.  |
| Conservation covenants   | ✗  | ✗        | N/A  |

## **2.2 Revegetation / Landscape Plans**

Revegetation within the project area will be limited to the proposed POS/drainage area within the southwest of the project area, which has been subject to previous clearing.

A conceptual Landscape Plan is contained in Appendix A. Since detailed landscape design is yet to be provided, vegetation classifications within POS areas have not yet been finalised. As such, the BMP has adopted a precautionary approach to post-development vegetation classification and extent, assigning worst case vegetation classifications to the proposed drainage area. While this area has been classified as Class D Scrub, it is acknowledged that this classification is to be confirmed through detailed landscape design and may be subject to change depending on final planting species/density list and any low threat landscaping provisions.

Remaining areas of the development will constitute non-vegetated and low threat areas excluded under Clauses 2.2.3.2 (e) and (f) of AS 3959.



### 3. Bushfire assessment results

#### 3.1 Assessment inputs

##### 3.1.1 Vegetation classification

Strategen-JBS&G assessed classified vegetation and exclusions within 150 m of the project area through on-ground verification on 30 November 2021.

Vegetation classifications have been assigned in accordance with *AS 3959—2018 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2018) and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix B. Vegetation classification results are outlined in Table 2 and depicted in Figure 3.

##### 3.1.2 Effective slope

Strategen-JBS&G assessed effective slope under classified vegetation within the 150 m assessment area through on-ground verification on 30 November 2021 in accordance with AS 3959. Results were cross-referenced with DAFWA 2 m contour data and are depicted Figure 3.

Effective slope is variable due to the nature of the dune systems in which the proposed development is situated. Effective slope was assessed to vary between up-slope/flat land (0 degrees) to down-slope >0-5 degrees.

On completion of the development, the retained areas of classified vegetation within the project area will be predominantly flat in relation to areas supporting habitable development.

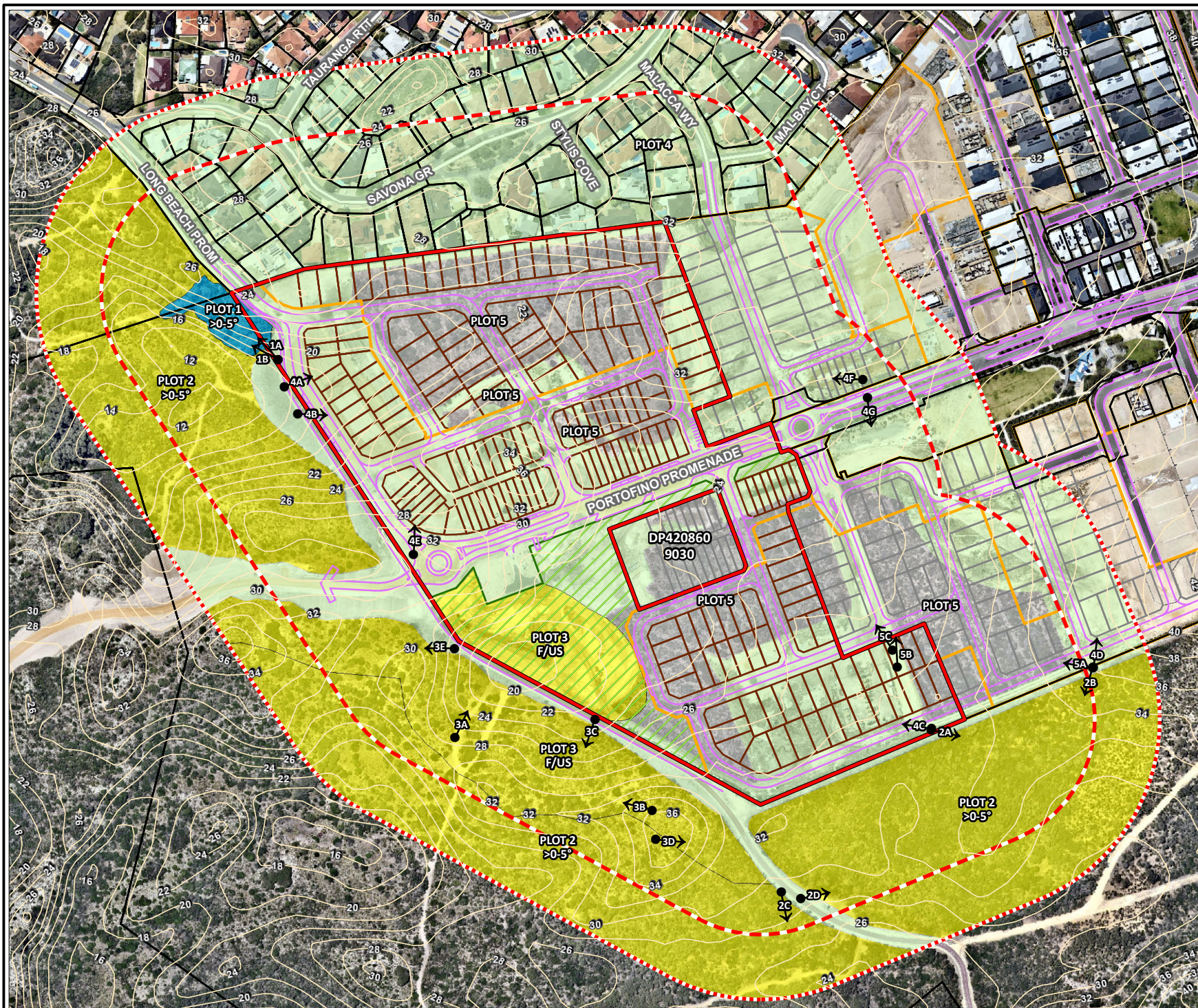
##### 3.1.3 Pre-development inputs

Figure 3 illustrates the anticipated post-development vegetation classifications and exclusions following completion of subdivision works including implementation of proposed foreshore revegetation/rehabilitation, establishment of low threat staging buffers and low threat POS landscaping. The post-development vegetation classifications/exclusions and effective slope are summarised in Table 2.

**Table 2: Summary of post-development vegetation classifications/exclusions and effective slope**

| Vegetation plot | Vegetation classification  | Effective slope   | Comments   |
|-----------------|--|-------------------|--|
| 1               | Class B Woodland   | Downslope >0–5°   | Trees 2-30 m at maturity, dominated by trees with a grassy understorey (lacks shrubby middle layer and deep surface litter)  |
| 2               | Class D Scrub  | Downslope >0–5°   | Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity  |
| 3               | Class D Scrub  | Flat/upslope (0°) | Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. Applies to revegetated drainage basin, as a precautionary classification. |
| 4               | Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])                   | N/A               | A combination of non-vegetated areas and low threat managed vegetation within and around the project area.   |
| 5               | Area to be modified to non-vegetated and low threat state (Clause 2.2.3.2 [e] and [f]) | N/A               | Vegetation to be modified to a non-vegetated/low threat state as part of the proposal (i.e. proposed residential lots, roads, low threat POS and any staging buffers).       |





- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Proposed lots
  - POS
  - Indicative future subdivisions on adjacent stages
- Vegetation classification**
- Class B Woodland
  - Class D Scrub
  - Clause 2.2.3.2 (e) & (f)
  - Area to be modified to non-vegetated and low threat state
  - Topographic contours (mAHd)
  - Proposed carriageways
  - Stage boundaries
  - Photo point directions
  - Roads (MRWA)



Job No: 62243

Client: Satterley Property Group

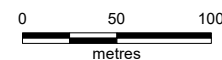
Version: A

Date 22/12/2021

Drawn By: jcrute

Checked By: CT

Scale 1:4,000 at A4



Coord. Sys. GDA 1994 MGA Zone 50

**Catalina Beach Estate,  
Mindarie, WA**

**VEGETATION CLASSIFICATION AND  
EFFECTIVE SLOPE**

**FIGURE 3**



### 3.2 Assessment outputs

### 3.3 Bushfire Attack Level (BAL) contour assessment

Strategen-JBS&G has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (Figure 4). 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 achieve compliance with relevant bushfire protection criteria of the Guidelines.

The BAL contours are based on:

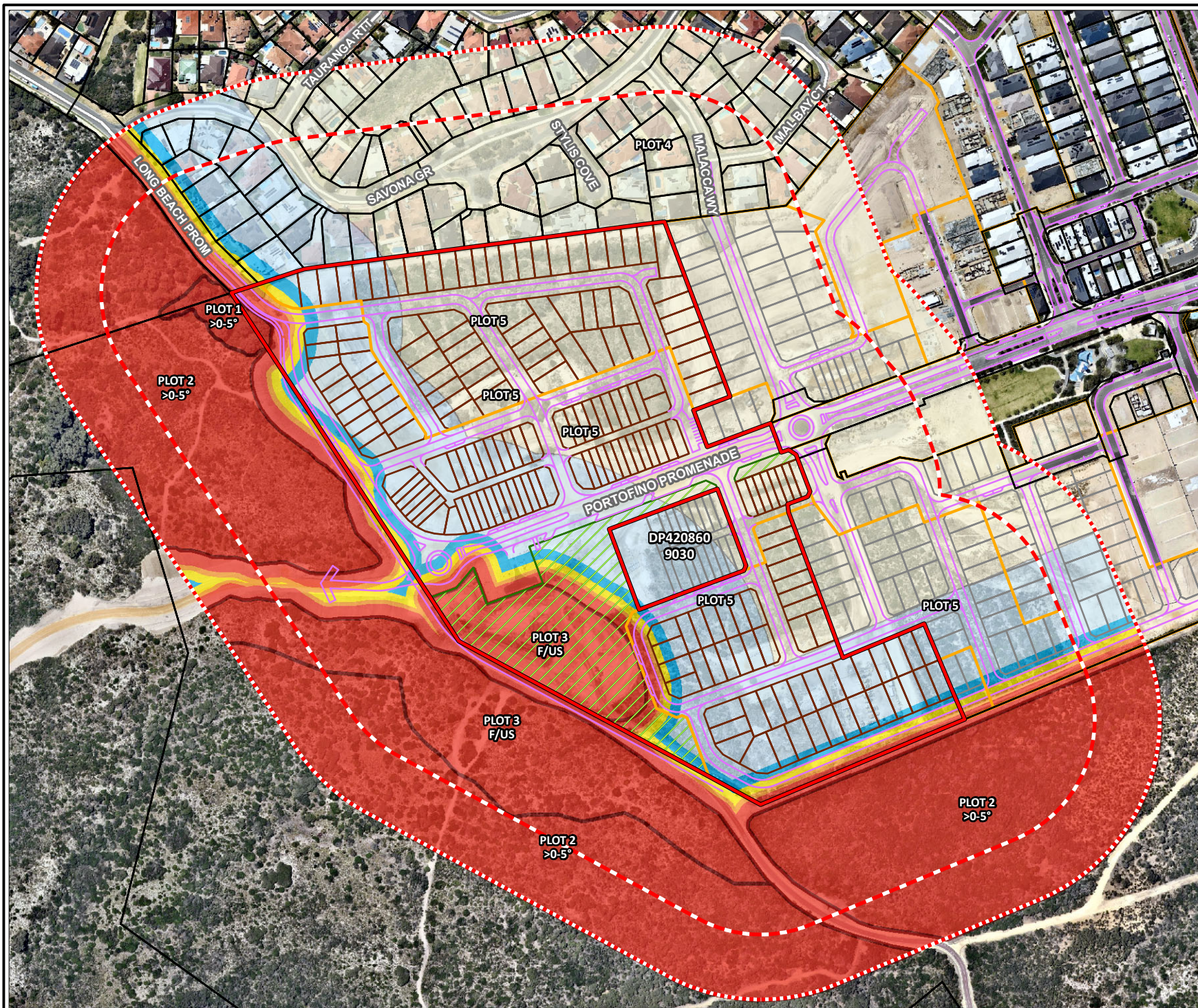
- the post-development vegetation classifications and effective slope observed at the time of inspection,
- consideration of the proposed on-site clearing extent (including within the balance land to the north) and resultant vegetation exclusions
- separation distances between residential lots and classified vegetation in line with the plan of subdivision
- proposed revegetation within the southwest drainage basin and ongoing management of low threat landscaping throughout the project area in accordance with the landscaping plan

Results of the BAL contour assessment are detailed in Table 3 and illustrated in Figure 4. The highest BAL applicable to the external boundary of the proposed lots is BAL-29. Lower BAL ratings may be achieved for individual lots following further detailed landscaping design and provision of building setbacks.

**Table 3: Summary of vegetation classifications, exclusions and effective slope**

| Vegetation plot | Vegetation classification  | Effective slope   | Separation distance | Highest BAL (to residential lot boundary) |
|-----------------|--|-------------------|---------------------|---|
| 1               | Class B Woodland   | Downslope >0–5°   | 17m                 | BAL-29                                    |
| 2               | Class D Scrub  | Downslope >0–5°   | 26m                 | BAL-19                                    |
| 3               | Class D Scrub  | Flat/upslope (0°) | 13m                 | BAL-29                                    |
| 4               | Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])                   | N/A               | N/A                 | N/A                                       |
| 5               | Area to be modified to non-vegetated and low threat state (Clause 2.2.3.2 [e] and [f]) | N/A               | N/A                 | N/A                                       |





- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Proposed lots
  - POS
  - Indicative future subdivisions on adjacent stages
  - Classified vegetation
  - BAL contours**
  - BAL FZ
  - BAL 40
  - BAL 29
  - BAL 19
  - BAL 12.5
  - BAL Low
  - Proposed carriageways
  - Stage boundaries
  - Roads (MRWA)



Job No: 62243

Client: Satterley Property Group

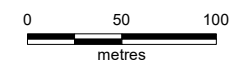
Version: A

Date 15/12/2021

Drawn By: jcrute

Checked By: CT

Scale 1:4,000 at A4



Coor. Sys. GDA 1994 MGA Zone 50

**Catalina Beach Estate,  
Mindarie, WA**

**BAL CONTOUR MAP**

**FIGURE 4**



## **4. Identification of bushfire hazard issues**

### **4.1 Bushfire context**

The project area is surrounded by a combination of existing residential development, remnant scrubland vegetation and land cleared to facilitate future urban development.

Land to the north and east comprises existing and ongoing residential development at Catalina Beach Estate in the form of roads, cleared vacant lots, houses and low threat managed residential lots and parks that do not pose a bushfire threat to the proposed development. Vegetated land to the east of Marmion Avenue will be retained as a conservation area as part of long-term planning for Catalina Estate, however, given the distance of 350-400 m from the project area, bushfire impacts are expected to be limited to low levels of ember attack.

The project area lies at the western and southern interface of Catalina Estate and foreshore reserve vegetation (Bush Forever Site 322) which will be retained and not subject to future development over the long term. Vegetation consists of shrubland to low scrub over a dunal landscape with fragmentation of fuels occurring due to presence of sandy exposed dunes. Potential fire runs within this vegetation are up to 550 m to the west, 1 km to the southwest and 2 km to the south. Under predominant afternoon south-westerly winds, a bushfire occurring within this vegetation has potential to impact the project area, however, interfacing low threat POS and perimeter roads will form a permanent buffer and defensible space to this vegetation. In addition, increased building construction standards will be employed for interfacing lots to increase resilience to the expected level of bushfire attack.

### **4.2 Bushfire hazard issues**

The BAL contours identified in Figure 4 demonstrate that all proposed lots are located within areas of BAL-29 or lower. Updated BAL contours will need to be determined at subdivision clearance to account for any amendments to vegetation classifications throughout POS areas based on detailed landscaped design.

On completion of development within the project area, there will be a reduced bushfire risk to future assets as a result of vegetation clearing/modification that will be undertaken to facilitate Butler, Western Australia 6036 development. Vegetation clearing throughout development staging will play an important role in managing the bushfire risk posed by on-site temporary vegetation during roll out of individual development stages. If development is staged, vehicular access arrangements will also need to ensure that all occupiers and visitors are provided with at least two vehicular access routes at all times. Potential staging matters are discussed as key management measures below, and reiterated in Section 5.

If subdivisional works are to be staged internal to the project area, the following staging provisions are to be implemented as required and in advance of lot creation within each development stage to negate any unnecessary bushfire risk from future development stages:

- establishment of internal 100 m wide low threat staging buffers around proposed residential lots, as discussed in Section 5
- provision of temporary compliant cul-de-sacs and turn-around points (if staged road construction is to be less than 200 m long), until such time that through access can be achieved onto adjacent development stages (this may also require consideration of temporarily quarantined lots to accommodate 17.5 m diameter cul-de-sac heads that cannot otherwise be achieved within existing road reserve widths)
- provision of temporary compliant Emergency Access Ways (EAWs) to achieve through access for each internal development stage if the access route is longer than 200 m and cannot be dealt with via a compliant temporary cul-de-sac.

These provisions will not apply for internal stages that are subject to BAL-LOW and/or are not designated bushfire prone.

Fire Brigade and Fire and Rescue Services stationed at Butler in the north and Joondalup in the south are expected to provide a best-case emergency suppression response time of 20 minutes should a bushfire threaten habitable buildings within the project area.

On this basis, Strategen-JBS&G considers the bushfire hazards within and adjacent to project area and the associated bushfire risks are readily manageable through standard management responses outlined in the Guidelines and AS 3959, as detailed in Section 5. These responses have been factored in to proposed development as early as possible at all stages of the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.



## 5. Assessment against the bushfire protection criteria

### 5.1 Compliance table

An acceptable solutions assessment against the bushfire protection criteria is provided in Table 4

**Table 4: Compliance with the bushfire protection criteria of the Guidelines**

| Bushfire protection criteria | Method of compliance                        | Proposed bushfire management strategies  | Compliance achieved |
|------------------------------|---|--|---------------------|
|                              | Acceptable solutions                        |  |                     |
| Element 1: Location          | A1.1 Development location                   | The BAL contour assessment (see Figure 4 and Table 3) identifies all lots as being situated in areas subject to BAL-29 or lower.   | ✓                   |
| Element 2: Siting and design | A2.1 Asset Protection Zone                  | Given all proposed residential lots can achieve BAL-29 or lower through the provision of interfacing roads, no additional APZ provisions are required. Low threat areas such as internal POS and staging buffers are to be established and maintained in accordance with Schedule 1 of the Guidelines (Appendix C) and the City's Firebreak and Fuel Hazard Reduction Notice (see Appendix F).   | ✓                   |
| Element 3: Vehicular access  | A3.1 Two access routes                      | Multiple vehicular access points are proposed to the existing public road network to the north and east, which will provide all occupants with the option of travelling to more than two different destinations as follows: <ul style="list-style-type: none"> <li>east to Marmion Avenue via Portofino Promenade</li> <li>northwest to Anchorage drive and the Mindarie marina via Long Beach Promenade</li> <li>northeast to Anchorage Drive and Marmion Avenue via Malacca Way.</li> </ul> The main distributor road in Marmion Avenue provides occupants with the option of travelling north towards Clarkson or south towards Kinross/Burns Beach. Neerabup Road also provide access to destinations to the east.<br>Two access routes are to be provided during staged construction of the subdivision area. | ✓                   |
|                              | A3.2 Public road                            | All public roads are to be constructed to the relevant technical requirements of the Guidelines (see Appendix D).  | ✓                   |
|                              | A3.3 Cul-de-sac (including a dead-end-road) | No permanent cul-de-sacs are proposed within the project area. Any proposed temporary cul-de-sacs required during development staging are to comply with Guideline requirements (see Appendix D).  | ✓                   |
|                              | A3.4 Battle-axe                             | No battle-axes are proposed and the project area is not serviced by an existing battle-axe.  | N/A                 |
|                              | A3.5 Private driveway longer than 50 m      | All private driveways are expected to be within 50 m of a public road.   | N/A                 |
|                              | A3.6 Emergency access way                   | Any proposed temporary emergency access ways required during staging of development will be required to comply with Guideline requirements (see Appendix D).   | ✓                   |

| Bushfire protection criteria | Method of compliance   | Proposed bushfire management strategies  | Compliance achieved |
|------------------------------|--|--|---------------------|
|                              | Acceptable solutions   |  |                     |
|                              | A3.7 Fire service access routes (perimeter roads)  | No FSARs are to be required given the proposed perimeter public access roads interfacing the habitable development cells.  | N/A                 |
|                              | A3.8 Firebreak width   | Given that all residential lots will be cleared and developed, individual boundary firebreaks will not be required for the proposed residential lots. The developer is to maintain compliance with the firebreak notice (Appendix F) for balance land during staging of subdivision, including provision of 3m wide internal perimeter firebreaks. | ✓                   |
| Element 4: Water             | A4.1 Reticulated areas   | The proposed development will be connected to a reticulated water supply via extension from surrounding development in accordance with Water Corporations Design Standard 63 requirements and relevant technical requirements of the Guidelines (Appendix E).  | ✓                   |
|                              | A4.2 Non-reticulated areas   | The proposed subdivision is located within an existing reticulated area.   | N/A                 |
|                              | A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively) | The proposed subdivision is located within an existing reticulated area.   | N/A                 |

## **5.2 Additional management strategies**

Strategen-JBS&G makes the following additional bushfire management recommendations to inform ongoing planning stages of the development and increase the level of bushfire risk mitigation across the site.

### **5.2.1 On-site staging buffers**

If development (and therefore clearing) is to occur on a staged basis, clearing in advance will need to occur to ensure building construction is not inhibited by a temporary vegetation extent located within adjacent development stages yet to be cleared. This can be achieved by ensuring that each approved stage subject to construction is surrounded by a 100 m wide, on-site cleared or low threat staging buffer (not including vegetation proposed to be retained). Once the buffers are created, they will need to be maintained on a regular and ongoing basis in accordance with AS 3959 Clause 2.2.3.2 (f) (including the management of grassland at 100 mm or lower) and Schedule 1 of the Guidelines (Appendix C) to achieve a low threat minimal fuel condition all year round until such time that the buffer area is developed as part of future development stages. This will assist in managing the current on-site temporary vegetation hazards.

### **5.2.2 Staging of access**

If development (and therefore construction of vehicular access) is to occur on a staged basis, vehicular access arrangements will need to ensure that all occupiers and visitors are provided with at least two access routes at all stages of development. This can be achieved via construction of public access roads in advance of stages or through provision of temporary emergency access ways/cul-de-sacs until two formal access roads are available.

### **5.2.3 Fuel management within cleared vacant lots**

Cleared lots are to be managed on a regular and ongoing basis by the developer until sale of lots after which time landowners will be responsible for ongoing management. Maintenance is to be in accordance with Clause 2.2.3.2 (f) of AS 3959 and Schedule 1 of the Guidelines (refer to Appendix C) and will involve slashing/mowing of grassland and weeds to height of less than 100 mm.

### **5.2.4 Road verge fuel management**

Surrounding road verges that have been excluded as low threat are to continue to be managed to ensure the understorey and surface fuels remain in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Ongoing road verge management is the responsibility of the Shire.

### **5.2.5 Notification on title**

Notification is to be placed on the Title of proposed lots subject to BAL-12.5 or higher (either through condition of subdivision or other head of power) to ensure landowners/proponents and prospective purchasers are aware that their lot is subject to an approved BMP and BAL assessment.

### **5.2.6 Building construction standards**

Future Class 1a, Class 1b, Class 2, Class 3 residential buildings and associated Class 10a structures in an area subject to BAL—12.5 or higher are required to comply with the bushfire specific construction requirements of AS 3959.

### **5.2.7 BMP compliance reporting**

A BMP compliance report will be prepared as evidence demonstrating that the BMP has been implemented as intended as a mechanism to clear subdivision conditions relating to the BMP. The BMP compliance report will be prepared following completion of subdivisional works and prior to issue of lot title to validate and confirm the accuracy of the BAL contour map depicted in the BMP, as

well as identify that compliant vehicular access and water supply provisions have been implemented for the subdivision as required under the BMP. The BMP compliance report will also demonstrate any change in the assessed BAL or other management measures documented in this BMP, which may occur as a result of changes in building location, vegetation class or bushfire management approach.

#### **5.2.8 Landscaping plan**

The BAL contour assessment is reliant on all landscaping being implemented and maintained in accordance with an approved landscaping plan, as guided by the proposed landscape design outlined in Appendix A and details under Section 2.2 of this BMP. It is acknowledged that the landscaping plan will be updated at clearance of subdivision based on detailed design, which may result in refinement of classified vegetation/exclusions, which will enable the BAL contour map to be revised based on detailed information.

Responsibility for establishment and maintenance of low threat landscaping is discussed in Section 6.

#### **5.2.9 Compliance with annual firebreak notice**

The developer/land manager and prospective land purchasers are to comply with the current City of Wanneroo annual firebreak notice as amended (refer to Appendix F).

## 6. Responsibilities for implementation and management of the bushfire measures

Implementation of the BMP 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 5 to drive implementation of all bushfire management works associated with this BMP.

**Table 5: Responsibilities for implementation and management of the bushfire measures**

| Implementation/management table                                 |   |
|---|---|
| Developer – prior to issue of titles                            |   |
| No.   | Implementation action   |
| 1   | Construct (or have works bonded) the vehicular access including public roads, permanent/temporary cul-de-sacs and temporary EAWs (where required) to the standards stated in the BMP. |
| 2   | Construct (or have works bonded) the reticulated water supply and network of hydrants to the standards stated in the BMP.   |
| 3   | Prepare detailed POS landscaping plans to support final vegetation classifications/exclusions throughout on-site POS and update BAL contour mapping accordingly.                      |
| 4   | Establish low threat areas (i.e. development footprint, road verges, low threat staging buffers and low threat POS as per landscape plans) to the standards stated in this BMP.       |
| 5   | Undertake BMP compliance reporting on a staged basis as evidence to demonstrate proper implementation of the BMP and general bushfire compliance.                                     |
| Developer – until sale/transfer of lots                         |   |
| No.   | Implementation action   |
| 1   | Maintain all established low threat areas (i.e. development footprint, road verges, low threat staging buffers, low threat POS) to the standards stated in this BMP.                  |
| 2   | Comply with the City's annual firebreak notice, as amended.   |
| Landowner/occupier – prior to building construction and ongoing |   |
| No.   | Implementation action   |
| 1   | Maintain low threat areas (i.e. cleared vacant lots) to the standards stated in this BMP.   |
| 2   | Construct buildings to the relevant BAL in accordance with AS 3959 and maintain buildings on an ongoing basis.  |
| 3   | Comply with the City's annual firebreak notice, as amended.   |
| Local government – ongoing management                           |   |
| No.   | Implementation action   |
| 1   | Maintain low threat road verges to the standards stated in this BMP.  |
| 2   | Maintain low threat POS areas to the standards stated in this BMP.  |

## 7. 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/>, [20/12/2021].

Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.

Eco Logical Australia 2021, *Bushfire Management Plan (Subdivision Application): Catalina Estate Stage 27B and 30*, Eco Logical Australia, Perth.

Eco Logical Australia 2018, *Clearing and Revegetation Management Plan: Catalina Residential Development*, Eco Logical Australia, Perth.

Niche Planning Studio 2021, *Proposed Freehold Subdivision Lot 1700 Marmion Avenue, Clarkson (07.12.2021)*, Niche Planning Studio, Perth.

Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

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) 2017, *Guidelines for Planning in Bushfire Prone Areas, Version 1.3 August 2017*, Western Australian Planning Commission, Perth.



## **8. Limitations**

### **Scope of services**

This report ("the report") has been prepared by Strategen-JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen-JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

### **Reliance on data**

In preparing the report, Strategen-JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, Strategen-JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen-JBS&G has also not attempted to determine whether any material matter has been omitted from the data. Strategen-JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Strategen-JBS&G. The making of any assumption does not imply that Strategen-JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. Strategen-JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

### **Environmental conclusions**

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

Strategen-JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by Strategen-JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

## Appendix A Landscape Plan

# CATALINA ESTATE CATALINA BEACH PRECINCT

FORESHORE PARK POS

LANDSCAPE CONCEPT REPORT

12606

ISSUE FOR REVIEW

REV A 16.11.2021

|         |   |
|---------|---|
| SK01    | LANDSCAPE VISION  |
| SK02    | LANDSCAPE OVERVIEW  |
| SK03    | VISUAL CONNECTIONS  |
| SK04    | PEDESTRIAN AND CYCLIST CONNECTIONS                        |
| SK05    | CREATING SHADE  |
| SK06    | HARDSCAPE MATERIALS - SUSTAINABILITY                      |
| SK07-11 | SENSORY PLAYGROUND COMBINING VISUAL ARTS 1-5              |
| SK12    | PLAYGROUND EQUIPMENT                                      |
| SK13    | PLAYGROUND MATERIALS                                      |
| SK14    | ACTIVE AND QUIET SPACES - ACTIVE ZONE                     |
| SK15    | ACTIVE AND QUIET SPACES - QUIET ZONE                      |
| SK16-19 | ACTIVE AND QUIET SPACES - URBAN EDGE AND EVENT SPACES 1-4 |
| SK20    | PRELIMINARY PLANT PALETTE                                 |

# LANDSCAPE CONCEPT - OVERVIEW - NTS



## CONSTRAINTS

- POS TO ACCOMMODATE LARGE DRAINAGE BASIN
- POS TO ACCOMMODATE WATER CORP PUMP STATION
- POS TO ACCOMMODATE SEWER EASEMENT
- EXTENSIVE CAPROCK PRESENT
- EXTENT OF TURF LIMITED
- LIMITED TREATMENT OPTIONS
- LIMITED TREATMENT OPTIONS
- POTENTIAL CONSTRUCTION ISSUES

## STRENGTHS

- + COMMERCIAL ZONE RIGHT NEXT TO POS
- + EXISTING DUP ALONG FORESHORE RESERVE
- + BICYCLE LANE ALONG PORTOFINO PROMENADE
- + PRECINCT DESIGNED FOR HIGHER END MARKET
- GENERATE PEDESTRIAN AND VEHICLE TRAFFIC
- GENERATE PEDESTRIAN AND BICYCLE TRAFFIC
- GENERATE PEDESTRIAN AND BICYCLE TRAFFIC
- LESS VANDALISM, MORE APPRECIATION OF PUBLIC ARTS AND SUSTAINABILITY

## OPPORTUNITIES

- CREATE YOUTH AND FITNESS ZONE WITHIN WATERCORP PUMP STATION SITE WITH MULTI-SPORT SPACES
- CREATE PAVED PROMENADE / URBAN EDGE ZONE ALONG COMMERCIAL SITE WITH OUTDOOR ROOMS AND TERRACING
- PROVIDE EVENT SPACES WITH TERRACING, AMPHITHEATER & HIT UP WALL (WEEKEND MARKETS, MOVIE NIGHTS ETC)
- CREATE PLAY SPACE SUITABLE FOR A WIDE AGE GROUP
- PROVIDE PUBLIC ART, VISUAL ART ELEMENTS AND HIGHER END SUSTAINABLE FINISHES



# PRELIMINARY PLANT PALETTE

## STREET TREES & POS TREES



## LOW SHRUB MIX

## MEDIUM SHRUBS MIX

## BASIN PLANTING

## BASIN PLANTING



SK20-A



## Appendix B Vegetation plot photos and description



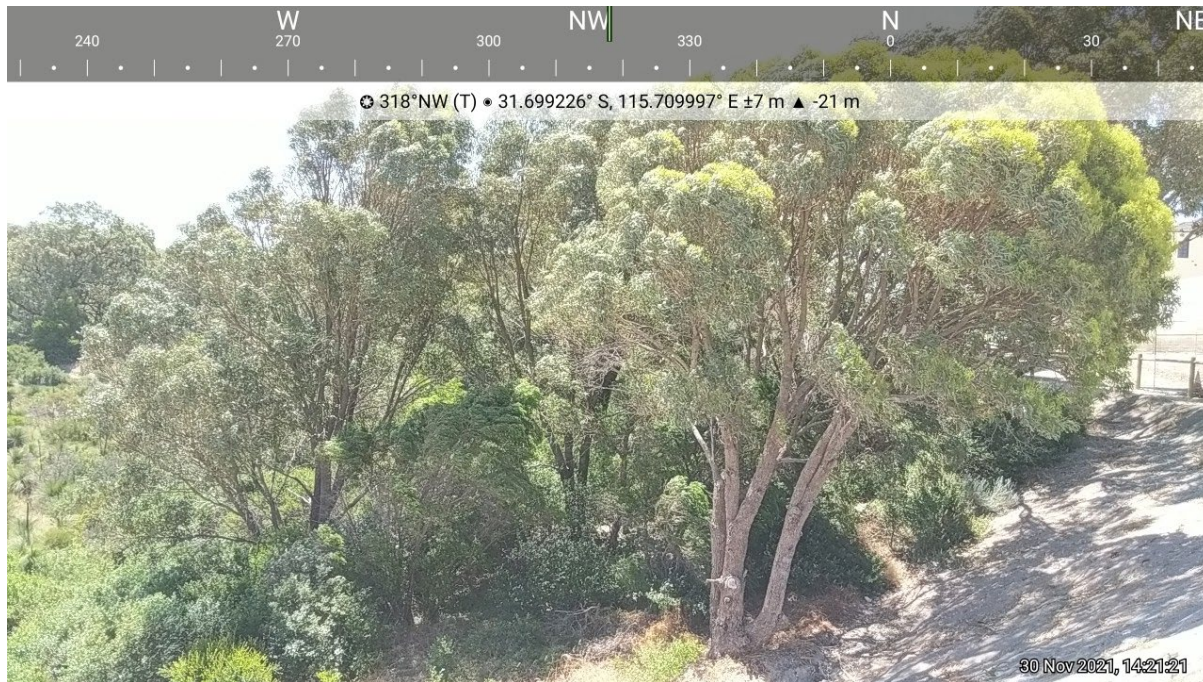


Photo ID: 1a



Photo ID: 1b

|                             |  |                  |
|-----------------------------|--|------------------|
| Plot number                 | Plot 1   |                  |
| Vegetation classification   | Pre-Development  | Class B Woodland |
|                             | Post-Development   | Class B Woodland |
| Description / justification | Trees 2-30 m at maturity, dominated by trees with a grassy understorey (lacks shrubby middle layer and deep surface litter)<br>Downslope >0-5° |                  |





**Photo ID: 2a**



**Photo ID: 2c**

**Plot number**

**Vegetation classification**

**Pre-development**

**Post-development**

**Description / justification**



**Photo ID: 2b**



**Photo ID: 2d**

**Plot 2**

**Class D Scrub**

**Class D Scrub**

**Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity**

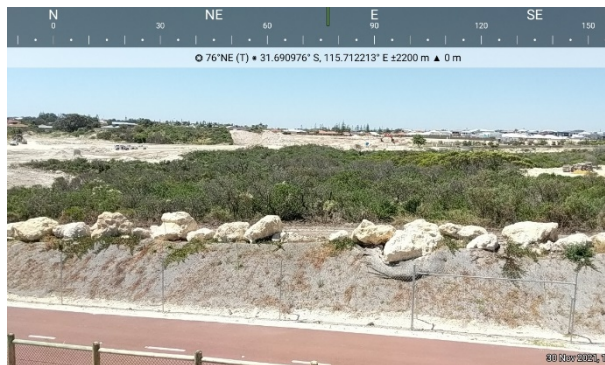


Photo ID: 3a



Photo ID: 3c



Photo ID: 3e



Photo ID: 3b

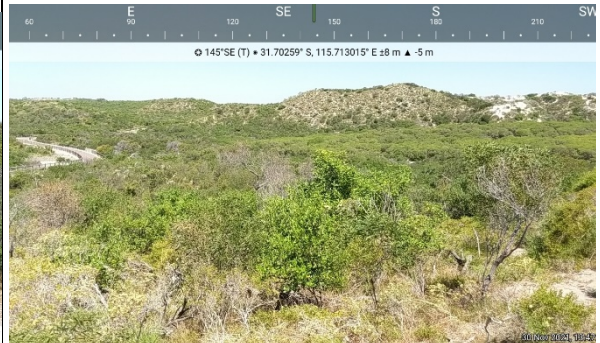


Photo ID: 3d

|                             |   |               |
|-----------------------------|---|---------------|
| Plot number                 |   | Plot e        |
| Vegetation classification   | Pre-development   | Class D Scrub |
|                             | Post-development  | Class D Scrub |
| Description / justification | Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity |               |





Photo ID: 4a



Photo ID: 4b



Photo ID: 4c

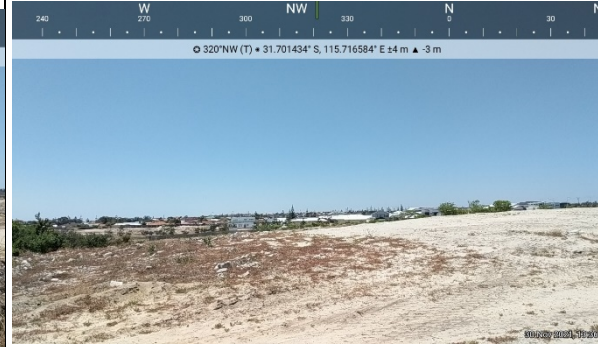


Photo ID: 4d



Photo ID: 4e



Photo ID: 4f



Photo ID: 4g

|                             |                  |  |
|-----------------------------|------------------|--|
| Plot number                 |                  | Plot 4   |
| Vegetation classification   | Pre-development  | Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])   |
|                             | Post-development | Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])   |
| Description / justification |                  | Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints |



Photo ID 5a

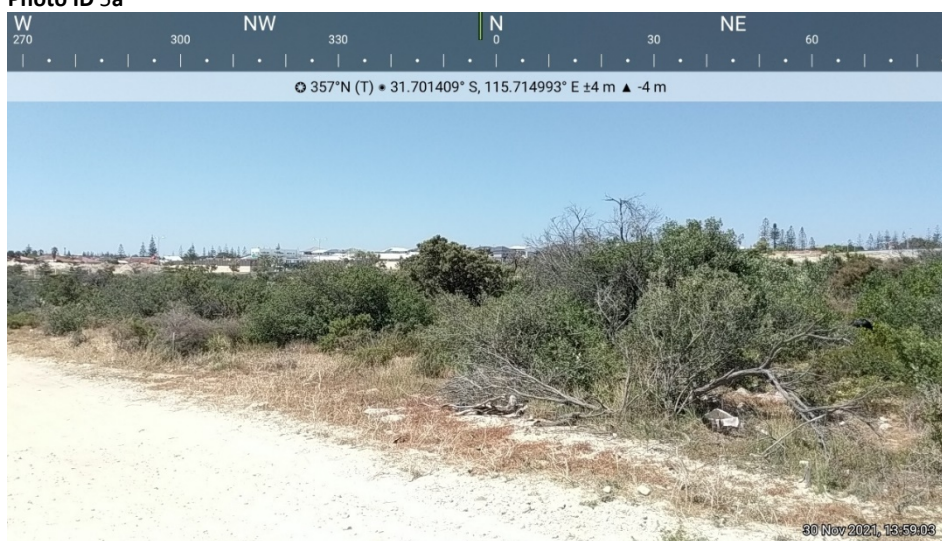


Photo ID 5b



Photo ID 5c

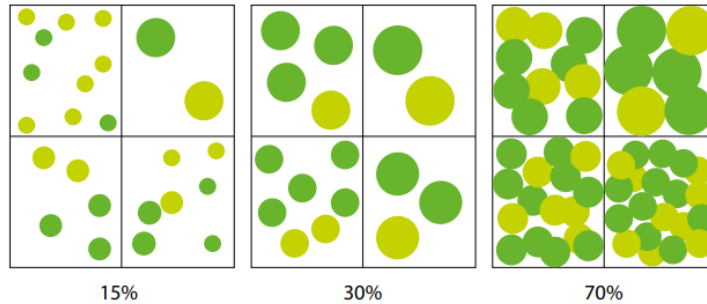
|                             |                  |   |
|-----------------------------|------------------|---|
| Plot number                 |                  | Plot 5  |
| Vegetation classification   | Pre-development  | Class D Scrub   |
|                             | Post-development | Modified to non-vegetated (exclusion 2.2.3.2 [e]) and/or low threat (exclusion 2.2.3.2 [f]) state |
| Description / justification |                  | Unmanaged grassland and weeds greater than 10 cm in height.<br>Downslope >0–5°                    |

## **Appendix C APZ standards (Schedule 1 of the Guidelines)**



#### Schedule 1: Standards for Asset Protection Zones

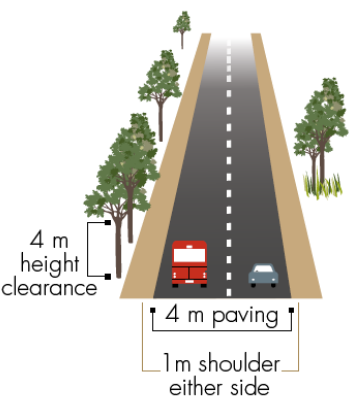
- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.

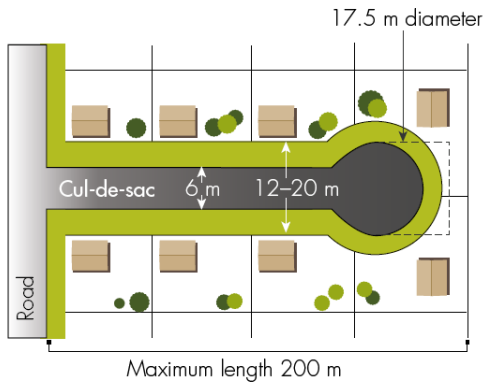


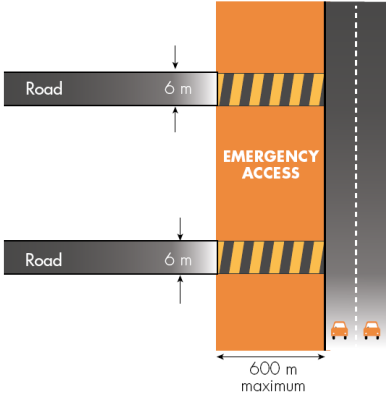
- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m<sup>2</sup> in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

## **Appendix D Vehicular access technical standards of the Guidelines**



| Public roads             |  |
|--------------------------|--|
| Acceptable solution A3.2 | A public road is to meet the requirements in Table 1, Column 1.  |
| Explanatory note E3.2    | <p><b>Trafficable surface:</b><br/>Widths quoted for access routes refer to the width of the trafficable surface. A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metre wide paving one metre wide constructed road shoulders. In special circumstances, where eight lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of 90 metres may be provided subject to the approval of both the local government and Department of Fire and Emergency Services.</p> <p><b>Public road design:</b><br/>All roads should allow for two-way traffic to allow conventional two-wheel drive vehicles and fire appliances to travel safely on them.</p>  <p>The diagram illustrates a cross-section of a public road. It features a central paved area labeled '4 m paving' with a dashed white line down the middle. On either side of the paving is a shoulder labeled '1 m shoulder either side'. To the left of the road, there is a vertical clearance structure labeled '4 m height clearance'. Trees are shown on both sides of the road, and a red fire truck and a blue car are depicted on the road surface.</p> |

| Cul-de-sac (including a dead-end road) |  |
|--|--|
| Acceptable solution A3.3               | <p>A cul-de-sac and/ or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/ or will need to be demonstrated by the proponent), the following requirements are to be achieved:</p> <ul style="list-style-type: none"> <li>• Requirements in Table 1, Column 2</li> <li>• Maximum length: 200 metres (if public emergency access is provided between cul-de-sac heads maximum length can be increased to 600 metres provided no more than eight lots are serviced and the emergency access way is no more than 600 metres)</li> <li>• Turn-around area requirements, including a minimum 17.5 metre diameter head.</li> </ul>  |
| Explanatory note E3.3                  | <p>In bushfire prone areas, a cul-de-sac subdivision layout is not favoured because they do not provide access in different directions for residents. In some instances it may be possible to provide an emergency access way between cul-de-sac heads to a maximum distance of 600 metres, so as to achieve two-way access. Such links must be provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency. A cul-de-sac in a bushfire prone area is to connect to a public road that allows for travel in two directions in order to address Acceptable Solution A3.1.</p>  <p>The diagram illustrates a cul-de-sac layout. A vertical road on the left connects to a horizontal cul-de-sac road. The cul-de-sac road has a width of 6m. It terminates in a semi-circular turn-around area with a diameter of 17.5m. The length of the cul-de-sac road from the main road to the turn-around area is 12-20m. The maximum length of the cul-de-sac road is 200m. The diagram also shows several residential lots along the cul-de-sac road, represented by brown rectangles and green circles.</p> |

| Emergency access way     |  |
|--------------------------|--|
| Acceptable solution A3.6 | <p>An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet all of the following requirements:</p> <ul style="list-style-type: none"> <li>• Requirements in Table 1, Column 4</li> <li>• No further than 600 metres from a public road</li> <li>• Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency</li> <li>• Must be signposted.</li> </ul>  |
| Explanatory note E3.6    | <p>An emergency access way is not a preferred option however may be used to link up with roads to allow alternative access and egress during emergencies where traffic flow designs do not allow for two-way access. Such access should be provided as a right-of-way or easement in gross to ensure accessibility to the public and fire emergency services during an emergency.</p> <p>The access should comply with minimum standards for a public road and should be signposted. Where gates are used to control traffic flow during non-emergency periods, these must not be locked. Emergency access ways are to be no longer than 600 metres and must be adequately signposted where they adjoin public roads.</p> <p>Where an emergency access way is constructed on private land, a right of way or easement in gross is to be established.</p>  |



| Technical requirement                             | 1           | 2          | 3                                 | 4                    | 5                          |
|---|-------------|------------|-----------------------------------|----------------------|----------------------------|
|   | Public road | Cul-de-sac | Private driveway longer than 50 m | Emergency access way | Fire service access routes |
| Minimum trafficable surface (m)                   | 6*          | 6          | 4                                 | 6*                   | 6*                         |
| Horizontal distance (m)                           | 6           | 6          | 6                                 | 6                    | 6                          |
| Vertical clearance (m)                            | 4.5         | N/A        | 4.5                               | 4.5                  | 4.5                        |
| Maximum grade <50 m                               | 1 in 10     | 1 in 10    | 1 in 10                           | 1 in 10              | 1 in 10                    |
| Minimum weight capacity (t)                       | 15          | 15         | 15                                | 15                   | 15                         |
| Maximum crossfall                                 | 1 in 33     | 1 in 33    | 1 in 33                           | 1 in 33              | 1 in 33                    |
| Curves minimum inner radius                       | 8.5         | 8.5        | 8.5                               | 8.5                  | 8.5                        |
| * Refer to E3.2 Public roads: Trafficable surface |             |            |                                   |                      |                            |

## **Appendix E Water technical standards of the Guidelines**

| Reticulated areas        |   |
|--------------------------|---|
| Acceptable solution A4.1 | The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.  |
| Explanatory note E4.1    | Water supply authorities in Western Australia include the Water Corporation, Aqwest and the Busselton Water Board.<br>The Water Corporation's 'No. 63 Water Reticulation Standard' is deemed to be the baseline criterion for developments and should be applied unless local water supply authorities' conditions apply. |



## **Appendix F City of Wanneroo Firebreak Notice**

# IMPORTANT FIRE MITIGATION NOTICE

**FIRE MITIGATION MEASURES MUST BE IN PLACE BY  
1 NOVEMBER AND MAINTAINED UNTIL 30 APRIL EACH YEAR.**

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.

## 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.

### 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](https://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 5297.

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

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](https://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](https://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.



© JBS&G Australia Pty Ltd T/A Strategen-JBS&G

This document is and shall remain the property of Strategen-JBS&G. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

#### Document Status

| Report version | Rev No. | Purpose  | Author                                 | Reviewed and Approved for Issue           |                     |
|----------------|---------|--|--|---|---------------------|
|                |         |  |  | Name                                      | Date                |
| Draft Report   | Rev A   | For review by client                                       | Ben Musitano                           | Louisa Robertson<br>(BPAD 36748, Level 3) | 22 December<br>2021 |
| Final Report   | Rev 0   | Issued for use: to<br>accompany subdivision<br>application | Zac Cockerill (BPAD<br>37803, Level 2) | Louisa Robertson<br>(BPAD 36748, Level 3) | 22 December<br>2021 |

