ENVIRONMENTAL MANAGEMENT PLAN

LOT 501 VASSE HWY, YALYALUP

NOVEMBER 2022

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Declaration of accuracy

I declare that:

1. To the best of my knowledge, all the information contained in, or accompanying the *Environmental Management Plan Lot 501 Vasse Hwy, Yalyalup, 12th November 2022* is complete, current and correct.

2. I am duly authorised to sign this declaration on behalf of the approval holder.

3. I am aware that:

    a. Section 490 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence for an approval holder to provide information in response to an approval condition where the person is reckless as to whether the information is false or misleading.

    b. Section 491 of the EPBC Act makes it an offence for a person to provide information or documents to specified persons who are known by the person to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) where the person knows the information or document is false or misleading.

    c. The above offences are punishable on conviction by imprisonment, a fine or both.

Signed/Full Name/ Organisation/Date

_____/_____/_____/_____

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Limitations

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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.

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The preparation of this report has been undertaken and performed in a professional manner, in consideration of the scope of services and in accordance with environmental consulting practices. No other warranty is made.

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1 INTRODUCTION

1.1 Background

Brian and Dorothy Blum (the proponent) are proposing to subdivide and develop Lot 501 Vasse Highway, Yalyalup. Lot 501 is located within the municipality of the City of Busselton, approximately 220 km south of Perth and 3.5 km north-east of Busselton (refer to **Figure 1**). The subdivision works will be undertaken in three Stages, with Stage 1 completed in October 2021. Stages 2 and 3 (herein referred to as the subject site) are yet to be completed and are the focus of this Environmental Management Plan (EMP). Stages 2 and 3 are comprised of the following:

- Stage 2 (north) is approximately 2 hectares (ha) in size and comprises four residential lots ranging in size from 4,006 m^2 to 4,077 m^2;
- Stage 2 (south) is approximately 3.6 ha in size and includes eight residential lots ranging in size from 4,179 m^2 to 5,097 m^2; and
- Stage 3 is approximately 3.4 ha in size and is comprised of 11 residential lots ranging in size from 2,000 m^2 to 4,855 m^2.

For the proposed Stage 2 and 3 works, the total clearing will be 4.75 ha which includes clearing within road reserves, indicative development footprints and Asset Protection Zones (APZs). Within the proposed lots, approximately 2.48 ha of remnant vegetation will be retained. In addition, Lot 2002 will be ceded to the City of Busselton as a Reserve for Recreation and Drainage to enable the protection in perpetuity of 6.6 ha of remnant vegetation within Lot 501.

1.2 Development Proposal

The proposed development for Stages 2 and 3 is comprised of 23 residential lots and two reserves; one Reserve for Recreation and Drainage (Lot 2002) and one Reserve for Landscape Buffer (2001) (refer to **Figure 2**).

The central and western portions of Lot 501 have been completely cleared of vegetation to enable historical agricultural activities. In accordance with the *Plan of Subdivision* (Able Planning and Project Management 2017) (refer to **Appendix A**), the Stage 1 development of 120 residential lots has previously been approved (WAPC No. 154145) within the cleared portions of Lot 501 and works have been completed. Further approvals have been obtained to develop the southern and northern portions of Lot 501 as Stages 2 and 3 (WAPC No. 156893 and EPBC 2018/8244). Remnant vegetation exists within the development footprint of these additional Stages.

1.3 Approvals

The majority of vegetation that will be subject to clearing is described as being in a 'Degraded' condition as a result of historical livestock grazing and weed infestation (Harewood 2016). Many of the trees present are relatively small in size, further suggesting regrowth from historical clearing. Accordingly, the fauna biodiversity within Stage 2 and 3 is low, however given the presence of peppermint and marri trees, the area retains some value as potential habitat for Western Ringtail Possums (WRPs) (*Pseudocheirus occidentalis*).

Accordingly, the proponent submitted a referral on the 26th June 2018 to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) (formerly the Department of the Environment and Energy) pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 1st August 2018, the DCCEEW determined that the proposed action was a 'controlled action', with the

controlling provision being "listed threatened species and communities", namely WRPs, with assessment by Preliminary Documentation.

The DCCEEW granted conditional approval under the EPBC Act (EPBC 2018/8244) for the clearing of 4.75 ha of vegetation to facilitate the subdivision and development of Stages 2 and 3 on 16th September 2019. In accordance with this approval, Condition No. 2 stipulates:

"*2. To mitigate the loss of Western Ringtail Possum habitat the approval holder must prepare and implement an Environmental Management Plan (EMP).*

The EMP must include:

a. details of clearing protocols, vegetation retention, measures to protect dreys and trees with hollows suitable for Western Ringtail Possum, and management and mitigation measures during construction and throughout the life of this approval to avoid impacts to the Western Ringtail Possum;
b. details of the revegetation that is to be carried out under the EMP of an area of at least 1.37 ha within Lot 2001 Reserve for Recreation and Drainage and an area of at least 6.6 ha within Lot 2002 Reserve For Recreation and Drainage with high quality Western Ringtail Possum habitat;
c. a diagram of the revegetation areas, showing their location boundaries in relation to the project area;
d. objectives, targets, timing and completion criteria for the revegetation to provide high quality Western Ringtail Possum habitat, including details of site preparation works, species selection and source, seedling planting program (planting density), protection of seedlings, success rates, details of replanting requirements if success rates are not achieved, and post planting maintenance;
e. arrangements for the enduring protection of the revegetation areas;
f. environmental management mechanisms;
g. descriptions of the roles and responsibilities of personnel associated with implementation of each of the above measures.'

This EMP is consistent with all relevant recovery plans, threat abatement plans and conservation advice and the Department's *Environmental Management Plan Guidelines.* These conditions along with the location in which they are addressed within the EMP are summarised in **Table 1**.

Table 1: Conditions of approval reference table

Condition No	Condition Requirement	EMP Reference	Key Commitments
(a)	Details of clearing protocols, vegetation retention, measures to protect dreys and trees with hollows suitable for Western Ringtail Possum, and management and mitigation measures during construction and throughout the life of this approval to avoid impacts to the Western Ringtail Possum.	**Section 4.2**	Direct impacts to WRPs occurring as a result of clearing and construction works are avoided.
(b)	Details of the revegetation that is to be carried out under the EMP of an area of at	**Section 4.3.3**	Vegetation groups appropriate to the locality are returned, and

Condition No	Condition Requirement	EMP Reference	Key Commitments
	least 1.37 ha within Lot 2001 Reserve for Recreation and Drainage and an area of at least 6.6 ha within Lot 2002 Reserve for Recreation and Drainage with high quality Western Ringtail Possum habitat.		habitat for local endemic native fauna species (with particular focus on WRPs) is provided.
(c)	A diagram of the revegetation areas, showing their location boundaries in relation to the project area	**Section 4.3.3**	Revegetation will occur in the area outlined within the diagram provided in **Figure 3**.
(d)	Objectives, targets, timing and completion criteria for the revegetation to provide high quality Western Ringtail Possum habitat, including details of site preparation works, species selection and source, seedling planting program (planting density), protection of seedlings, success rates, details of replanting requirements if success rates are not achieved, and post planting maintenance.	**Section 4.3.6**	Refer to **Table 9** and **Table 10**.
(e)	Arrangements for the enduring protection of the revegetation areas.	**Section 4.3.**	The vegetation retention and revegetation areas within Lot 2001 and 2002 are contained within Reserves for Recreation and Drainage which will be ceded to the Crown and managed by the City of Busselton.
(f)	Environmental management mechanisms.	**Section 4**	Potential impacts associated with vegetation clearing is minimised as far as practicable.
(g)	Descriptions of the roles and responsibilities of personnel associated with implementation of each of the above measures.	**Section 3**	All staff will be aware of the objectives and performance indicators for all management actions, mitigation measures and practices prescribed by the EMP.

1.4 Purpose and Scope

In consideration of the above, the purpose of this EMP is to describe procedures that will be implemented on behalf of the proponent to comply with the environmental objectives associated with Condition 2 of the EPBC approval for Stages 2 and 3. The EMP is a management tool that details the methods and procedures that will be applied in order to achieve the proponent's environmental commitments and regulatory obligations. A summary of the EMP objectives and commitments is provided below in **Table 2**

Table 2: EMP objectives and commitments.

Objective	Commitment	Where this Commitment is Addressed
Inductions		
The approved Lot 501 Vasse Hwy Environmental Management Plan (this plan) will be correctly implemented for the duration of approval.	All project staff are aware of the environmental management requirements in accordance with this plan.	**Section 3**
Vegetation Clearing		
There are no direct or indirect impacts to vegetation, or fauna, outside of the clearing footprint. Direct and indirect impacts to vegetation and fauna, within the clearing footprint are minimised where possible.	No clearing will be undertaken outside of the clearing footprint. No more than 4.75 ha of vegetation will be cleared. Clearing and construction works will be undertaken in accordance with this EMP.	**Section 4.1**
Western Ringtail Possum (WRP)		
Direct and indirect impacts to WRP within the clearing footprint are minimised. Dreys and trees with suitable habitat hollows are protected.	Direct impacts to WRP as a result of clearing and construction works are avoided. Vegetation retention areas are protected.	**Section 4.2**
Rehabilitation		
Rehabilitation of the revegetation area (minimum 1.37 ha within Lot 2001 and 6.6 ha within Lot 2002 'Reserve for Recreation and Drainage') successfully establishes the endemic vegetation community to provide habitat for native species.	Vegetation groups appropriate to the locality are returned, and habitat for local endemic native fauna species (with particular focus on WRP) is provided.	**Section 4.3**
Fire management		
No unplanned fires within Lot 501 Vasse Hwy, Yalyalup	Minimise fire risk within the subject site and the reserves for recreation and drainage.	**Section 4.3.1**
Monitoring		
All management measures are complied with.	Monitoring confirms compliance with management measures.	**Table 12** and **Table 13**

The management measures provided within this EMP are supported by the following technical studies:

- *Western Ringtail Possum Survey, Black Cockatoo Habitat Assessment and Kangaroo Census, Lot 501 Vasse Highway Yalyalup* (Harewood 2016)
- *Bush Fire Management Plan (Subdivision Application), Lot 501 Vasse Highway, Yalyalup (*Bushfire Prone Planning 2016)

- *Bush Fire Management Plan (Subdivision Application – Stages 2 & 3), Lot 501 Vasse Highway, Yalyalup (*Bushfire Prone Planning 2018)

2 BIOPHYSICAL ENVIRONMENT

2.1 Climate

The Busselton locality has a Mediterranean climate, which is classified as warm to hot summers and cool wet winters. The closest weather recording station is Busselton Shire (Station 9515). Temperatures are highest on average in January, with mean temperatures of approximately 29.3°C. July has the lowest average mean temperature of the year of 8°C.

Rainfall for the area is approximately 708.8 mm per annum with approximately 89% of the rain falling during the winter months, April to October inclusive. Evaporation exceeds rainfall in all but the wettest winter months.

During the summer months the dominant wind in the mornings is from the south-east at 10-14 knots, swinging to the south-west at 20-25 knots in the afternoon. During winter the winds are most commonly 10-14 knots with no dominant prevailing direction. During storms winds from the west and north-west can reach 40 knots (BoM 2021).

2.2 Topography, Landforms and Soils

The natural topography of the subject site increases in elevation in a southerly direction, away from the Multiple Use (MU) wetland located in the northern portion of the subject site. The elevation ranges from 4 metres (m) Australian Height Datum (AHD) to 6 m AHD (DPIRD 2019).

The landform and soil units of the areas underlying the subject site have previously been mapped within *The Geological Survey of Western Australia* (Belford 1987). These maps indicate that the landform and soil types underlying the Fluviatile Deposits of the Swan Coastal Plain, on which the subject site is located, are derived from Tamala Limestone. The dominant soil type is described as pale and olive yellow sand, with medium to coarse-grained sub angular quartz material that is moderately sorted. The sands are largely residual in origin, with some modification due to seawater intrusion (Belford 1987).

In accordance with the Department of Agriculture and Food's Natural Resource Information Database (NRInfo), the subject site is mapped within the Spearwood System which is described as 'sand dunes and plains. Yellow deep sands, pale deep sands and yellow/brown shallow sands'. Additionally, the majority of the subject site is mapped within the 'Ludlow wet flats Phase', and a small portion in the north-eastern corner of the subject site is mapped as 'Ludlow wet vales Phase'. The land Phases are described as follows:

- Ludlow wet flats Phase – Flats with poor subsoil drainage in winter. Deep yellow brown siliceous sands over limestone.
- Ludllow wet vales Phase – Narrow swampy small depressions. Sandy soils.

2.3 Hydrology

2.3.1 Groundwater

The principal groundwater aquifers for the subject site include the Superficial aquifer and the Leederville aquifer. The Superficial aquifer is unconfined, generally occurring with a thickness of less than 10 m. The water table occurs at depths of up to approximately 2.0 m and is predominantly recharged by direct infiltration of rainfall (DoW 2009). The Leederville aquifer is multi-layered and typically 150 m thick. It is recharged by direct infiltration and leakage from the above superficial aquifer.

Within the former Lot 18 Vasse Highway, Yalyalup, which is situated immediately to the south of the subject site, a two year groundwater monitoring program was undertaken (Cardno 2009). The monitoring indicated that the maximum groundwater levels ranged from approximately 7.0 m AHD to 4.6 m AHD. The depth to groundwater was therefore, approximately 0.80 m below ground surface (BGS). The data also indicated the groundwater flow was in a north westerly direction (Cardno 2009).

Groundwater quality analysis programs conducted in the vicinity of the subject site (Cardno 2010, JDA 2007) indicate that nitrogen and phosphorus concentrations are generally high, exceeding the values within the *Water Quality Improvement Plan – Vasse Wonnerup Wetlands and Geographe Bay* (WQIP) (2010) (DoW 2010) and the default trigger values for slightly disturbed ecosystems obtained from the *National Water Quality Management Strategy* (ANZECC 2000). These findings are typical of agricultural settings in the locality.

The subject site is located within the proclaimed Busselton-Capel Groundwater Management Area. To protect the State's drinking water resources the Department of Water and Environmental Regulation (DWER) has defined certain Priority Classification Areas within Public Drinking Water Source Areas (PDWSA), providing three levels of groundwater quality protection. The subject site does not lie within any existing or potential PDWSAs.

2.3.2 Surface Water

The topography of the subject site suggests that surface water drains in a north western direction, towards a drainage line that lies on the northern boundary of the subject site. The drainage line flows from the east towards the west and enters a set of box culverts underneath the Vasse Highway before ultimately draining into a tributary of the Lower Vasse River system.

Wetlands within Western Australia are classified on the basis of landform and water permanence pursuant to the Semeniuk (1995) classification system (refer to **Table 3**).

Table 3: Wetland classifications (Semeniuk 1995)

Water Longevity	Landform				
	Basin	Channel	Flat	Slope	Highland
Permanent Inundation	Lake	River	-	-	-
Seasonal Inundation	Sumpland	Creek	Floodplain	-	-
Intermittent Inundation	Playa	Wadi	Barlkarra	-	-
Seasonal Waterlogging	Dampland	Trough	Palusplain	Paluslope	Palusmont

Areas of wetlands have been mapped previously by Semenuik (1995) across the entire Swan Coastal Plain. This mapping has been converted into a digital dataset that is maintained by the Department of Biodiversity Conservation and Attractions (DBCA) and is referred to as the '*Geomorphic Wetland of the Swan Coastal Plain'* dataset. This dataset contains information on geomorphic wetland types and assigns management categories that guide the recommended management approach for each wetland area. The wetland management categories and management objectives are listed in **Table 4**.

Table 4: DBCA wetland management categories (Semeniuk 1995)

Category	Description	Management Objectives
Conservation (C)	Wetlands support a high level of ecological attributes and functions.	Highest priority wetlands. Objective is to preserve and protect the existing conservation values of the wetlands through various mechanisms including: • Reservation in national parks, crown reserves and State-owned land, • Protection under Environmental Protection Policies, and • Wetland covenanting by landowners. No development or clearing is considered appropriate. These are the most valuable wetlands and any activity that may lead to further loss or degradation is inappropriate.
Resource Enhancement (RE)	Wetlands which may have been partially modified but still support substantial ecological attributes and functions.	Priority wetlands. Ultimate objective is to manage, restore and protect towards improving their conservation value. These wetlands have the potential to be restored to Conservation category. This can be achieved by restoring wetland function, structure and biodiversity.
Multiple Use (MU)	Wetlands with few remaining attributes and functions.	Use, development and management should be considered in the context of ecologically sustainable development and best management practice catchment planning through landcare.

The northern portion of the subject site which includes the drainage line, is classified as dampland Multiple Use (MU) wetland (UFI 383) in accordance with the *Swan Coastal Plain Geomorphic Wetlands* dataset.

A search of the EPBC Act *Matters of National Environmental Significance* database revealed that the Vasse-Wonnerup System, a Ramsar wetland, is located approximately 1.3 km north of the subject site. It is noted that the Lower Vasse River drains into the Vasse-Wonnerup System.

2.4 Vegetation and Flora

The subject site lies on the Swan Coastal Plain Subregion of the Drummond Botanical Subdistrict within the southwest Botanical Province. It is described by Beard (1980) as predominantly consisting of Banksia Low Woodlands on leached sands with Melaleuca swamps (where poorly drained) and Woodlands of Eucalyptus spp. on less leached soils.

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30% of their pre- European extent remaining. The pre-European vegetation of the subject site is the Spearwood Complex, which is described as a low forest or Woodland. There is approximately 35% of the Spearwood vegetation complex remaining.

Based on site observations made during a site visit undertaken by Accendo Australia on 21st April 2020 and analysis of aerial photography, Lot 501 has been extensively cleared, resulting in highly degraded vegetation primarily consisting of introduced grasses. Areas of remnant vegetation have historically been

heavily grazed by livestock resulting in a parkland cleared setting. On this basis, the vegetation condition (Keighery 1994) is considered to range from 'Completely Degraded' to 'Degraded', with areas of remnant vegetation having a significantly altered structure given the absence of mid and understorey species.

Vegetation subject to clearing for the proposed development is depicted on **Figure 2**. A series of photographs of the vegetation are provided in **Plates 1-6** whereby the absence of understorey and high degree of weed invasion is evident. On this basis, the presence of any vegetation or flora of conservation significance within in the clearing footprint is considered very unlikely.

The predominant vegetation community identified within the proposed Reserve for Recreation and Drainage (Lot 2002) can be described as follows (refer to **Plate 7**):

- Marri/Flooded Gum Open Woodlands over Peppermint Low Open Forest – Open Woodlands of Marri (*Corymbia calophylla*) and/or Flooded Gum (*E. rudis*) over Low Open Forest of Peppermint (*Agonis flexuosa*). Small number of Swamp Banksia (*Banksia littoralis*). Midstory is absent. Groundcover is dominated by pasture grasses/weeds or bare sand.

The Reserve for Landscape Buffer (Lot 2001) has mostly been cleared, however there is still a small amount of vegetation remaining in the north, which is comprised of Marri/Flooded Gum Open Woodland over Peppermint Low Open Forest. Additional vegetation throughout Lot 2001 is comprised of non-endemic plants and gardens.

2.5 Fauna

A fauna assessment was undertaken over the parent Lot 501, including the subject site and proposed Reserves for Recreation and Drainage (Lots 2002 and 2001) (Harewood 2016). This included a Level 1 fauna survey as defined by the Environmental Protection Authority (EPA) (EPA 2016) and targeted searches for Western Ringtail Possums (WRPs). A summary of the results is provided below.

2.5.1 Western Ringtail Possums

Within the subject site, two WRP dreys, one artificial possum nest box and two trees with hollows possibly suitable for WRPs were recorded. The nocturnal survey resulted in the identification of ten WRPs and 23 common brushtail possums (CBPs) throughout the entire Lot 501, of which one WRP and seven CBPs were recorded within the subject site (Harewood 2016) (refer to **Figure 2**).

The remnant native vegetation present within subject site can be regarded as habitat for WRPs (i.e. habitat providing foraging, refuge and/or dispersal opportunities) to varying degrees. The density of WRPs within the subject site is low at less than one individual per hectare when compared to other areas of Busselton. The reason for this low level of occupancy is unclear, however given the absence of understorey, high levels of predation may represent a factor influencing the low WRP population levels.

3 ROLES AND RESPONSIBILITIES

The overall responsibility for the implementation of this EMP rests with the Construction Manager and Project Manager.

All employees and contractors shall meet the requirements of this EMP and associated procedures. Responsibility for some management actions stated in this EMP may be delegated to specific contractors if appropriate, which will be determined by the Project Manager.

Key project personnel including the Construction Manager, Project Manager and Supervisors will ensure that all management actions are undertaken to a satisfactory standard and that all personnel are aware of their responsibilities.

Project Manager

- Overall accountability for the auditing and assessment of compliance with this EMP and ensure it is maintained on site.
- Provide support to all project personnel as required ensuring this EMP is implemented and complied with.
- Provide advice to all key parties to ensure compliance with legal requirements, achievement of environmental objectives and improving environmental performance.
- Obtain relevant approvals for vegetation and flora disturbance, as required.
- Review the effectiveness and implementation of the EMP.
- Report as required to regulatory authorities.
- Conduct audits, inspections and raise corrective actions as required.

Construction Manager/Project Manager

- Overall accountability to ensure this EMP is implemented, reported and maintained on site.
- Ensure all personnel attend inductions and are aware of the requirements of this EMP and related procedures.
- Provide support to contractors and onsite project personnel required during the construction phase.
- Ensure appropriate resources and personnel are made available to meet the requirements of this EMP.
- Liaise with contractors to identify flora and/or fauna issues associated with day-to-day construction and pre-commissioning activities.
- Undertake inspections in liaison with site supervisors.
- Assist with investigating flora and fauna incidents and co-ordinating corrective actions, if required,
- Report any non-compliances with the EMP.

Contractors

- Comply with all legal requirements and the requirements specified in this EMP.
- Ensure all personnel are adequately trained in fauna management (as required).
- Seek advice from Project Manager when in doubt of their requirements.

All Personnel

- Comply with all legal requirements and the requirements of this EMP.
- Report vegetation, flora and fauna incidents to the Project Manager.

4 MANAGEMENT PLANS

To ensure that WRPs are managed appropriately within the subject site during the construction works, appropriate mitigation and management measures will be implemented. These measures are discussed below and will specifically include:

- Vegetation clearing and construction;
- WRPs; and
- Reserve management, including:
    - Fencing;
    - Weed management;
    - Revegetation;
    - Access controls;
    - Long term management and tenure.

4.1 Vegetation Clearing and Construction

4.1.1 Background

The proposed subdivision will involve vegetation clearing to allow for the construction of roads and to create bushfire APZs around each of the building footprints. Requirements for APZs are outlined in the *Guidelines for Planning in Bushfire Prone Areas* (WAPC 2017). These guidelines specify the requirement of a fine fuel load to be maintained at an average of two tonnes per hectare and less than 6 mm in thickness (WAPC 2017).

The clearing of vegetation will be as follows (refer **Figure 2**):

- Approximately 3.5 ha in the southern area; and
- Approximately 1.25 ha in the northern area.

The vegetation to be cleared is in a degraded condition and consists largely of an open forest of marri and peppermint trees. The understorey is almost wholly comprised of grasses and/or weeds (predominately *Zantedeschia aethiopica*).

4.1.2 Environmental Management

In order to ensure that the potential impacts associated with vegetation clearing is minimised as far as practicable, the following management measures are proposed.

Table 5: Vegetation clearing and construction

Responsibility • Project Manager • Contractors
Objectives • Prevent clearing outside of designated clearing envelope. • Minimise soil erosion and sedimentation.
Potential Impacts • Inadvertent additional clearing of vegetation • Impacts on fauna species • Potential loss of biodiversity • Weed and disease invasion

Management Strategies	Timing
• All site personnel will be inducted on the clearing controls for this project.	• Prior to clearing
• The clearing line is to be marked by the surveyor with white flagging tape attached to either pegs or tied to vegetation with each peg/marker clearly visible from the last. Trees with hollows/dreys to be retained will be marked so that they are clearly recognised by clearing contractors.	• Prior to clearing
• Clearing will be undertaken in accordance with the WRP clearing procedures provided within **Section 4.2**.	• During clearing
• The flagging tape which demarcates the clearing areas will be checked on a daily basis to ensure that the clearing boundaries remain clearly visible.	• During clearing
• No movement of vehicles or personnel within the vegetation retention areas will be allowed.	• During clearing
• No stockpiling of topsoil or other material is to occur outside of the clearing boundary.	• During clearing
• Cleared vegetation will be removed and stockpiled offsite.	• During clearing
• The location and area of vegetation cleared will be checked for WRP and other wildlife on a daily basis.	• During clearing
Performance Indicators	
• No unauthorised clearing is undertaken. • No significant fauna are impacted during clearing.	
Monitoring	
• Daily checks to ensure that clearing is consistent with approved clearing boundaries. • Daily checks to ensure that no significant fauna have been impacted.	
Reporting	
• The DCCEEW will be notified if clearing beyond the approved clearing boundaries occurs, or if WRP individuals are impacted.	

4.2 Western Ringtail Possums

4.2.1 Dreys

A total of six WRP dreys and an artificial possum nest box were recorded within Lot 501. Of these six, only two dreys and the artificial possum nest box were identified within the subject site (refer to **Figure 2**).

The drey identified within the proposed Lot 142 will be retained as it is located outside of the building footprint and APZ, within vegetation which has been earmarked for retention. The drey within the proposed Lot 133 and the artificial possum nest box within Lot 130 are both located within the APZ. Nonetheless, selective trees will be retained within the APZ and therefore the trees containing the drey and artificial possum nest box will be selected for retention.

4.2.2 Vegetation Retention

An APZ for each Lot will require modification of the vegetation within the subject site to ensure that the potential radiant heat from a bushfire to impact future buildings does not exceed 29 kW/m^2 (Bushfire Attack Level (BAL) 29).

Vegetation within the APZ is in a degraded condition and consists largely of an open forest of marri and peppermint trees. The understorey is almost wholly comprised of grasses and/or weeds (predominately *Zantedeschia aethiopica*). Accordingly, vegetation management within the APZ will be restricted to trees, whereby it will be necessary to achieve a canopy coverage of less than 15%. This will enable selective clearing to occur whereby all trees containing dreys and hollows will be retained (refer to **Figure 2**).

4.2.3 Environmental Management

A series of management and mitigation measures have been developed as documented below which will further support the protection of WRPs and other marsupials of conservation significance within the subject site.

Table 6: Western Ringtail Possum management

Responsibility • Project Manager • Contractors	
Objectives • Long term preservation of WRPs within the subject site. • Enhance existing habitat functions within the subject site in relation to WRPs.	
Potential Impacts • Reduction in available habitat and increased competition for resources. • Decline in quality of habitat due to increased grazing pressure. • Reduction and/or extinction of the onsite WRP population.	
Management Strategies	**Timing**
• Trees containing hollows and dreys will be clearly marked for retention.	• Prior to clearing
• The following clearing protocols will be implemented to avoid impacts to WRPs: o Immediately prior to any clearing commencing a qualified expert will undertake a pre-clearing inspection of the clearing zone and nearby areas to confirm the location of dreys and tree hollows currently or likely to be occupied by WRPs and mark these trees as necessary. The qualified expert should hold a *Biodiversity Conservation Act 2016* Section 40 'authorisation to disturb or handle threatened fauna'. o Prior to clearing commencing, the clearing operators will be briefed by the same qualified expert who will explain to operators which areas of the subject site are more sensitive in relation to the presence of WRPs and the technique and approaches that will need to be employed during the clearing operations. An agreed means of communication between the operators and the qualified expert will be established prior to clearing commencing to ensure the safety of the WRPs. Operators will be required to abide by this agreed means of communication at all times. o The operators will develop a spatial approach to clearing that does not result in isolated patches of remnant vegetation and that generally achieves a progression of clearing in the direction	• Prior to and during clearing

towards the areas of remnant vegetation to be retained. If there is suitable habitat adjoining the subject site, a clearing pattern that encourages movement of WRPs to this habitat will be adopted. o During clearing, the qualified expert will be present on the subject site to direct clearing operators, particularly with clearing trees are occupied by WRPs to ensure that these are cleared in a way that allows the animals to safely mobilise to adjacent areas. In addition, they will undertake any animal handling and the rescue of injured animals should this be required. o In the event that a WRP is observed in a tree that is about to be cleared and there is a tree/area marked for retention near the tree which is to be cleared then the tree will be gently lowered to the ground to enable the animal to safely evacuate. The animal/s will be encouraged to move towards and occupy the trees to be retained. o If there are no trees/areas to be retained within the proximity of a tree occupied by a WRP but needs to be cleared, then the qualified expert will rescue the animal prior to the tree being pushed down. o Dreys will be inspected prior to clearing and possibly removed. o Operators need to take care when clearing any midstorey vegetation as WRPs may be located within these areas. This can be achieved by undertaking a check on foot prior to machines entering the areas and clearing the vegetation. o If operators encounter injured WRPs during clearing then the qualified expert will make arrangements for the care and welfare of the injured animals. o Operators will be advised that displaced WRPs may shelter within stockpiled vegetation. To minimize any accidental injury or death or WRPs, personnel involved in the removal or disposal of stockpiles need to be made aware of and be prepared for the potential presence of WRPs. If WRPs are encountered they need to be removed by the qualified expert. Cleared vegetation will be removed from the site.	
• In relation to the qualified expert, the following requirements need to be met: o They need to have appropriate equipment to administer emergency care to any injured or displaced WRPs. o They need to have a suitable care facility of their own or have made prior arrangements with an appropriate carer who can rehabilitate any injured WRPs. o They need to be able to recognize suitable WRP habitat adjacent to the clearing. o They need to have demonstrated possum capture and animal handling experience, in addition to a Section 40	• Prior to clearing

'authorisation to disturb or handle threatened fauna', pursuant to the *Biodiversity and Conservation Act 2016*.
Performance Indicators • Persistence and increase of onsite WRP population. • Environmental induction and WRP clearing protocols implemented. • No WRP deaths occur during construction works. • Disturbance on site is limited to the approved footprint.
Monitoring • Pre-clearing monitoring to determine presence and locations of WRPs within the clearing footprint. • Daily checks to ensure that no WRPs have been impacted.
Reporting • The DCCEEW will be notified immediately if clearing beyond the approved clearing boundaries occurs, or if any WRPs are directly impacted.

4.3 Reserve for Recreation and Drainage (Lots 2001 and 2002)

Lot 501 contains two Reserves for Recreation and Drainage that are to retain remnant vegetation, namely Lot 2001 (1.37 ha) and Lot 2002 (6.6 ha) (refer to **Figure 2**). Lot 2001 and the adjacent Lot 2005 will be combined and ceded to the City of Busselton upon completion of revegetation works.

Rehabilitation of Lots 2001 and 2002 will involve revegetation, weed and disease management and access control, as discussed below. The revegetation will be completed in compliance with the specified conditions.

The vegetation retention and revegetation areas within Lot 2001 and 2002 are contained within Reserves for Recreation and Drainage which will be ceded to the Crown and managed by the City of Busselton.

The City of Busselton implements planning decisions based on the Local Planning Scheme (LPS) No. 21. In accordance with the LPS No. 21, once an area has been approved as a Reserve, the following actions are restricted:

- Demolish or damage any building or works;
- Remove or damage any tree;
- Change the use of the land or building;
- Excavate, spoil or use the land so as to destroy, affect or impair its usefulness for the purpose for which it is reserved; or
- Construct, extend or alter any building or structure, other than a boundary fence.

The Reserves will be managed by the proponent for a two-year period beyond the completion of construction. Within this two-year period, the proponent will undertake weed management, revegetation and general maintenance as specified within this EMP. These areas will subsequently be ceded to the Crown and managed by the City of Busselton whereby the vegetation will be retained in perpetuity in secure public tenure.

4.3.1 Site Preparation

To ensure the success of the revegetation works, site preparation should occur well before planting is undertaken. This includes measures such as the exclusion of all stock from the area, ploughing or ripping of the area to ensure a friable soil within the planting area, and the implementation of a weed control programme as outlined below.

In the event that compacted areas are identified within the revegetation area, deep ripping may be required. Ripping loosens soil aggregates and provides a softer soil surface for the establishment of plant roots. Ripping also promotes aeration of soil, assisting in the breakdown of organic matter and water infiltration. Loam or clay soils are more susceptible to compaction due to their lower porosity and therefore ripping may be required.

Furthermore, it may be necessary to incorporate compost in consideration of the limited organic matter content in soils within the planting areas, and mulch around plants to help retain soil moisture.

4.3.2 Weed Management

Weed Control

The primary objective of a weed control program is to prevent weed species competing with native plants for light, nutrients and moisture, and to remove declared and environmental weed species. Weeds within Lot 2001 and 2002 include both pasture and broadleaf species, particularly *Zantedeschia aethiopica*.

The two methods of weed control are chemical and non-chemical. Chemical controls can be applied by water spraying (from small back packs to large machinery operated systems), wiping and pasting (used in conjunction with manual cutting of woody weeds). Methods of non-chemical weed control include using steam, manual removal (mainly for woody weeds using either machinery or hand implements), soil scalping, soil cultivation and mulching.

Weed control events will be required both prior to and following planting. Weeds within the revegetation areas will be controlled approximately one month prior to planting. Weed control will be implemented thereafter once annually (in spring) for the first two years of the revegetation works in order to increase the survival of the tubestock species. In this instance, the application of chemical control is the most efficient method with a range of herbicides available for different weed species.

In consideration of the weed species and access to the site the most suitable method for weed control is chemical spraying. Based on the location and species of weeds present, the weed control methodology details in **Table 7** will be undertaken. Weed control will be undertaken between June to September and will commence upon completion of clearing.

Table 7: Weed control

Treatment	Suggested Constituents	Target Species
Glyphosate spray	2% Glyphosate including Pulse®, wetting agent and Chlorsulfuron	Broadleaf species and Woody Weeds e.g. *Pelargonium capitatum*
Selective grass spray	Fusilade and approved adjuvant (e.g. Pulse®)	Grass species e.g. *Ehrharta longifolia*
Geophyte spray	Metsulfuron methyl 0.4 g/15 L of water (or 5g /ha) + 225 mL glyphosate + Pulse®	Spring active bulb species e.g. *Zantedeschia aethiopica*

Hygiene Management

To reduce the potential introduction and/or spread of *Phytophthora* dieback and weeds within the subject site, the following hygiene practices will be employed during the revegetation works:

1. Handheld equipment, tools and footwear should be sterilised using methylated spirits;
2. The primary contractor shall inform all contractors that vehicles entering the subject site shall be free of soil and vegetative material to avoid the introduction of weeds and pathogens. Any

vehiclenot complying with this requirement must be denied access;

3. Any imported base materials such as gravel and/or limestone to be used in the subject site must be free of *Phytophthora* dieback and weed material.
4. Plants shall be sourced from a supplier who can demonstrate compliance with industry standardsfor dieback hygiene and plant disease.

4.3.3 Revegetation

Reserve for Drainage and Recreation Lot 2001 and Lot 2005

Lots 2001 and 2005 will be combined and ceded to the City of Busselton following completion of the proponent's management and maintenance period for the subdivision.

A 3 m wide fire break will be established on the periphery of Lot 2001 and Lot 2005. In addition, a 13 m wide and 3 m tall earth bund for noise attenuation will be constructed inside Lot 2001 and Lot 2005 (refer to **Figure 3**).

Excluding the firebreak, revegetation will occur throughout Lots 2001 and 2005, including on the earth bund, to a "Forest" classification as outlined in the Bushfire Management Plans (BMPs) for Stage 1, and Stages 2 and 3 (Bushfire Prone Planning (BPP) 2016 and BPP 2018). Within the areas of revegetation, the planting species and character will build on and reinforce the vegetation communities located within the surrounding vegetated landscape. A variety of species have been selected for planting within the subject site based on their preferred soil type, endemism to the locality and bushfire risk.

A list of suitable species for planting within the revegetation area is provided within **Table 8** below.

Table 8: Species for revegetation

Species	Common Name	Growth Form
Trees		
Agonis flexuosa	Peppermint Tree	Tree
Corymbia calophylla	Marri	Tree
Melaleuca rhaphiophylla	Swamp Paperbark	Tree
Eucalyptus gomphocephala	Tuart	Tree
Shrubs/Sedges		
Acacia cochlearis	Rigid Wattle	Shrub
Acacia cyclops	Coastal Wattle	Shrub
Acacia littorea		Shrub
Acacia pulchella	Prickly Moses	Shrub
Allocasuarina humilis	Dwarf Sheoak	Shrub
Banksia sessilis		Shrub
Clematis pubescens		Climber
Conostylis candicans	Grey Cottonhead	Herb
Diplolaena dampieri	Southern Diploleana	Shrub
Dryandra sessilis	Parrot Bush	Small tree
Eremophila glabra	Tar Bush	Shrub
Grevillea vestita		Shrub
Guichenotia ledifolia		Shrub
Harden comptoniana		Shrub

Species	Common Name	Growth Form
Hakea prostrata	Harsh Hakea	Shrub
Hibbertia cuneiformis	Cutleaf Hibbertia	Shrub
Hibbertia racemosa	Stalked Guinea Flower	Shrub
Kennedia prostrata	Scarlet Runner	Twiner
Leucophyta brownii	Cushion Bush	Shrub
Myoporum caprariodes	Slender Myoporum	Shrub
Myoporum insulare	Blueberry Tree	Shrub
Phyllanthus calycinus	False boronia	Shrub
Spyridium globulosum	Basket Bush	Shrub
Templetonia retusa	Cockie Tongues	Shrub
Westringia dampieri	Native Rosemary	Shrub
Bund Plantings		
Conostylis candicans	Grey Cottonhead	Herb
Eremophila glabra	Tar Bush	Shrub
Grevillea vestita		Shrub
Guchenotia ledifolia		Shrub
Hardenbergia comptoniana	Native Wisteria	Shrub
Hakea prostrata	Harsh Hakea	Shrub
Hibbertia cuneiformis	Cutleaf Hibbertia	Shrub
Hibbertia racemosa	Stalked Guinea Flower	Shrub
Kennedia prostrata	Scarlet Runner	Twiner
Leucophyta brownii	Cushion Bush	Shrub
Myoporum caprariodes	Slender Myoporum	Shrub
Myoporum insulare	Blueberry Tree	Shrub
Phyllanthus calycinus	False boronia	Shrub
Spyridium globulosum	Basket Bush	Shrub
Templetonia retusa	Cockie Tongues	Shrub
Westringia dampieri	Native Rosemary	Shrub

Reserve for Drainage and Recreation Lot 2002

Following a detailed site inspection of Lot 2002 (refer to **Plates 5 - 7**) and in consideration of the specifications of the BMP (Bushfire Prone Planning 2016) (refer to **Appendix B**), revegetation will occur within areas classified as Class A "Forest". This will include planting understorey species provided within **Table 8**, with particular focus on sedge species. Where possible, peppermint trees (*Agonis flexuosa*) will also be planted within the Class A "Forest" area. No further revegetation with understory species will occur in areas outside of the Class A "Forest" area. In addition, 50 *Agonis flexuosa* seedlings will be planted along the watercourse (refer to **Figure 3**).

4.3.4 Planting Method

Tubestock provide the most reliable method of establishment for the majority of plant species. The maximum stock size will be limited to tubestock size as larger stock is likely to require supplementary watering to ensure survival. All revegetation stock will be sourced from (preferably) local nurseries with NIASA accreditation to ensure that tubestock soil is disease free.

Planting will be undertaken by hand or by using a mechanical planter by skilled personnel who will avoid trampling on or otherwise damaging existing or recently planted seedlings. The planting hole will be

excavated vertically to accommodate the root ball of the plant, such that the top of the plant root ball finishes below the existing ground surface and creates a watering saucer suitable for the size of the plant.

The planting of seedlings will occur between the months of May to July after substantial rain has saturated the soil profile. Prior to planting the seedling, any tangled roots will be loosened and good soil to plant contact will be made. Non-phosphorous fertiliser granules will be used at the time of planting and seedlings will not be staked for support as free standing plants have increased durability and strength as opposed to staked plants.

Lot 2001 will be fenced to restrict grazing on young seedlings by rabbits and kangaroos. Accordingly, the use of tree guards may not be necessary but will be determined by the revegetation contractor upon site inspection of the fencing, and monitoring for browsing impacts on seedlings.

As Lot 2002 will not be fenced along the entire periphery, each seedling planted will have a biodegradable tree guard placed around them to reduce predation from rabbits and kangaroos. The tree guards will be held in place with three 60 cm to 80 cm bamboo sticks. These tree guards will be removed after one year which will prevent damage to the growing seedlings caused by constriction of outward growth. Should the tree guards prove to be ineffective against kangaroo grazing, additional management measures will be considered in consultation with the revegetation contractor. This may include fencing.

A map providing the location of the planted trees within Lot 2001 and 2002 will be produced for monitoring records, to guide infill planting and for final reporting at completion of the revegetation program.

It is expected that following revegetation there will be a maximum loss of 20% of the original plantings. Subsequently, replacement plantings are required to maintain the original planting numbers at a minimum 85% survivorship.

4.3.5 Access Control

The western boundary (abutting Vasse Highway) of Lot 2001 and 2005 is fenced with a 1.2 m timber post and plain / pre-fabricated wire fence. Where Lots 2001 and 2005 back on to private property, fencing consists of black pool fencing to 1.8 m high. Temporary ringlock (rabbit wire) fencing to 1.5 m will be installed on the northern and southern boundaries of the Lots to restrict grazing on young seedlings by rabbits and kangaroos.

Around the southern periphery of Lot 2002, it is proposed to install a 1.2 m high fence using black powder coated galvanised posts with high-tensile fencing consisting of five tensioned strands of wire. A hardstand limestone buffer of approximately 500 mm in width will be established along the fencing alignment to prevent vegetative damage to the fence and provide a weed barrier to the adjacent reserve. In accordance with the approved BMP (Bushfire Prone Planning 2016), a 3- 4 m wide mineral earth firebreak will also be created inside the fence-line, and maintained annually by the developer and the City of Busselton. As far as practicable, the firebreak will align with existing pathways/firebreaks to reduce clearing, and adjacent reserve firebreaks to avoid crossing wetlands/drainage lines. This approach will avoid the need for any unnecessary clearing.

Gates will be installed within Lots 2001 and 2002 to enable access to authorized personnel to conduct weed control, revegetation and fire management works. Gate specifications will be discussed with the City of Busselton prior to installation.

4.3.6 Completion Criteria

A program of monitoring of the revegetation works is required to ensure that the revegetation objectives are achieved. Monitoring will be undertaken within Lots 2002 and 2001 annually for a period of two years

following the completion of the revegetation works. The completion criteria, performance indicators and contingency measures associated with rehabilitation are summarised in **Table 9** and **Table 10.**

Table 9: Rehabilitation completion criteria for Reserve for Recreation and Drainage Lots 2001 and 2002

Criterion	Completion Criteria	Performance Indicator	Measurement Tool
Reserve for Drainage and Recreation Lot 2001			
1	Establish a native density of approximately 1 plant/2 m^2 in the revegetation area.	Minimum of 75% of native species returned. Vegetation condition is Good or higher.	Quantitative vegetation monitoring using monitoring plots within Lot 2001.
2	Reduce weed cover to less than 10% within revegetation areas.	Weed cover is reduced to less than 10%.	
Reserve for Drainage and Recreation Lot 2002			
3	Achieve an 85% survivorship rate for the planted *Agonis flexuosa* seedlings.	Survivorship rate of planted *Agonis flexuosa* seedlings is 85%.	Quantitative vegetation monitoring using monitoring plots within Lot 2002.
4	Reduce weed cover to less than 15% in revegetation areas.	Weed cover is reduced to less than 15%.	
5	Establish a native density of approximately 1 plant/2m^2 throughout the Reserve.	The revegetation site needs to achieve a minimum species density of approx. 1 plant/2m^2.	

Where the rehabilitation criteria are not met, the following contingency measures outlined in **Table 10** are proposed.

Table 10: Contingency measures

Issue	Actions
Monitoring indicates revegetation areas do not comply with the completion criteria.	• Identify revegetation shortfalls (via monitoring report). • Identify likely cause of failure (e.g. weeds, lack of water, inappropriate timing of revegetation, lack of nutrients, poor soil condition, lack of water, insect/fungus attack, dieback, predation by herbivore). • Address cause of failure (this may include watering strategies, mulching, soil stabilisation, pest control, tree guards). • Conduct infill planting/seeding to compensate for vegetation shortfalls.
Inadequate tubestock/seed available in the first year	• Commission alternative nurseries to germinate stock. • Identify alternative species in consultation with DCCEEW. • Plant additional tubestock/seed in subsequent years.

4.3.7 Monitoring and Reporting

The monitoring will include an assessment of seedling survival and health, weed impacts, pest attack, tree guard condition and a photo record. Specifically, this will involve an assessment of the following:

1. Seedling survival and health;
2. Persistence of weeds (including Declared and environmental weeds);
3. Pest attacks; and
4. Other factors affecting seedling survival.

A brief report will be prepared on the results from each monitoring event, addressing the criteria provided above in **Table 9**.

Monitoring results will be communicated to the DCCEEW on an annual basis in the format outlined above. Following the completion of the two-year management program (post initial planting), a final report will be prepared to assess compliance against the completion criteria specified above.

4.3.8 Rehabilitation Schedule

There will be a management period for a minimum of two years beyond the completion of the development works. Within this two-year period, the proponent will undertake weed management, revegetation, rubbish removal and general maintenance within Lot 2002. The Reserve will be ceded to the City of Busselton subject to the achievement of the revegetation targets provided within **Section 4.3.6**.

The following table provides an indicative schedule for the first two years of revegetation works.

Table 11: Schedule of revegetation activities

Timing	Action	Description	Responsibility
Prior to revegetation Year 1	Install fencing and access gate	Engage a contractor to install fencing in Lots 2001 and 2002 in accordance with this Plan	Proponent/Rehabilitation Contractor
Spring Year 1	Weed control	Engage weed control contractor to spray target weed species on two occasions, three weeks apart	Proponent/Rehabilitation Contractor
Summer Year 1/2	Order tubestock	Order seedlings from local nursery	Proponent/Rehabilitation Contractor
Autumn Year 2	Weed control	Engage weed control contractor to spray target weed species on two occasions, three weeks apart	Proponent/Rehabilitation Contractor
Early winter Year 2	Tubestock planting	Engage a suitably qualified contractor to plant seedlings in accordance with this plan	Proponent/Rehabilitation Contractor
Spring Year 2	Weed control	Engage weed control contractor to spray target weed species	Proponent/Rehabilitation Contractor
Summer Year 2/3	Watering	If required, water seedlings every second week from November to April at an	Rehabilitation Contractor

Timing	Action	Description	Responsibility
		approximate rate of four litres per plant	
Autumn Year 3	Monitoring	Undertake monitoring to determine the required maintenance measures (i.e. weed control and infill planting)	Rehabilitation Contractor
Autumn Year 3	Weed control	If required, engage weed control contactor to spray target weed species	Proponent/Rehabilitation Contractor
Early winter Year 3	Infill planting	Conduct infill planting depending on the survival rate of the seedlings	Rehabilitation Contractor
Spring Year 3	Monitoring	Undertake monitoring event to determine if completion criteria has been achieved. Continue cycle of monitoring, weed control infill planting until completion criteria are obtained	Rehabilitation Contractor

4.4 Summary of Management Measures

A summary of the proposed management measures, performance indicators and monitoring requirements is provided below in **Table 12**.

Table 12: Summary of environmental management measures

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
Inductions	Ensure all project staff are aware of the environmental management requirements.	• Site inductions and tool box meetings for construction staff and contractors should include details of the environmental management requirements.	Prior to works commencing	All staff undertake inductions.	Induction records.
Vegetation clearing	Minimise direct and indirect impacts to fauna and vegetation as far as practicable.	• All site personnel will be inducted on the clearing controls for this project. • The clearing line is to be marked by the surveyor with white flagging tape attached to either pegs or tied to vegetation with each peg/marker clearly visible from the last. Trees to be retained will be marked so that they are clearly recognised by clearing contractors. • Clearing will be undertaken in accordance with the WRP clearing procedures provided within **Section 4.2.** • The flagging tape which demarcates the clearing areas will be checked on a daily basis to ensure that the clearing boundaries remain clearly visible. • No movement of vehicles or personnel within the vegetation retention areas will be allowed. • No stockpiling of topsoil or other material is to occur outside of the clearing boundary.	Prior to and during operations	• No unauthorised clearing is undertaken. • No significant fauna are impacted during clearing.	• Daily checks to ensure that clearing is consistent with approved clearing boundaries. • Daily checks to ensure that no significant fauna have been impacted.

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
		• Cleared vegetation will be removed and stockpiled offsite. • The location and area of vegetation cleared will be checked for WRP and other wildlife on a daily basis.			
Western Ringtail Possum (WRP)	Long term preservation of WRPs within the subject site and enhance existing habitat functions within the subject site in relation to WRPs.	• Trees containing hollows and dreys will be clearly marked for retention. • The following clearing protocols will be implemented to avoid impacts to WRPs: o Immediately prior to any clearing commencing a qualified expert will undertake a pre-clearing inspection of the clearing zone and nearby areas to confirm the location of dreys and tree hollows currently or likely to be occupied by WRPs and mark these trees as necessary. The qualified expert should hold a *Biodiversity Conservation Act 2016* Section 40 'authorisation to disturb or handle threatened fauna'. o Prior to clearing commencing, the clearing operators will be briefed by the same qualified expert who will explain to operators which areas of the subject site are more sensitive in relation to the presence of WRPs and the technique and approaches that will need to be employed during the	Prior to and during clearing	• Persistence and increase of onsite WRP population. • Environmental induction and WRP clearing protocols implemented. • No WRP deaths occur during construction works. • Disturbance on site is limited to the approved footprint.	• Pre-clearing monitoring to determine presence and locations of WRPs within the clearing footprint. • Daily checks to ensure that no WRPs have been impacted.

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
		clearing operations. An agreed means of communication between the operators and the qualified expert will be established prior to clearing commencing to ensure the safety of the WRPs. Operators will be required to abide by this agreed means of communication at all times. o The operators will develop a spatial approach to clearing that does not result in isolated patches of remnant vegetation and that generally achieves a progression of clearing in the direction towards the areas of remnant vegetation to be retained. If there is suitable habitat adjoining the development site, a clearing pattern that encourages movement of WRPs to this habitat will be adopted. o During clearing, the qualified expert will be present on the subject site to direct clearing operators, particularly with clearing trees are occupied by WRPs to ensure that these are cleared in a way that allows the animals to safely mobilise to adjacent areas. In addition, they will supervise any animal handling and the rescue			

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
		of injured animals should this be required. o In the event that a WRP is observed in a tree that is about to be cleared and there is a tree/area marked for retention near the tree which is to be cleared then the tree will be gently lowered to the ground to enable the animal to safely evacuate. The animal/s will be encouraged to move towards and occupy the trees to be retained. o If there are no trees/areas to be retained within the proximity of a tree occupied by a WRP but needs to be cleared, then the qualified expert will rescue the animal prior to the tree being pushed down. o Dreys will be inspected prior to clearing and possibly removed. o Operators need to take care when clearing any midstorey vegetation as WRPs may be located within these areas. This can be achieved by undertaking a check by foot prior to machines entering the areas and clearing the vegetation. o If operators encounter injured WRPs during clearing then the qualified			

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
		expert will make arrangements for the care and welfare of the injured animals. o Operators will be advised that displaced WRPs may shelter within stockpiled vegetation. To minimize any accidental injury or death or WRPs, personnel involved in the removal or disposal of stockpiles need to be made aware of and be prepared for the potential presence of WRPs. If WRPs are encountered they need to be removed by the qualified expert. Cleared vegetation will be removed from the site.			
Weed Control Measures	Prevent weed species competing with native plants for light, nutrients and moisture, and to remove declared and environmental weed species.	• Vehicles, plant and equipment will be cleaned prior to exiting the site and will be inspected by the site manager or representative for soil, soil slurry or vegetation material. Inspections will include wheels, undercarriage, belly plates, buckets and tracks of all equipment. Machinery contractors will be advised of these requirements prior to coming to site. • Should any of the mentioned materials be present, the equipment/vehicle must be cleaned, and the material removed offsite. Dry conditions will require a brush down to	At all times	• Refer to **Table 9**.	• Daily inspections. • Quantitative vegetation monitoring.

Aspect	Objective	Management Measure	Timeframe	Performance Indicator	Monitoring
		remove dirt clods or vegetation. Construction works should be undertaken during dry conditions but if this is not practicable, under wet conditions, mud present on tyres, tracks, under carriages etc. will require a wash down with high pressure water offsite. It is recommended that all wash down activities are undertaken within the suitable cleaning facility provided. • All weed plant material containing seed heads, weeds that have allopathic properties and weeds that are able to reproduce vegetatively, including topsoil containing weed propagules will be disposed of to an appropriate waste management facility. Local council should be contacted for a list of disposal facilities within the local area; and • Weed free fill is to be used for on-site earthworks. • Undertake weed control as per **Section 4.3.2**.			
Rehabilitation	Rehabilitation of Lot 2001 and Lot 2002 'Reserve for Recreation and Drainage'..	• Undertake revegetation as per **Section 4.3.3**.	After clearing	• Achieve completion criteria as per **Table 9**.	• Quantitative vegetation monitoring using monitoring plots.

4.5 Summary of Remedial Actions and Reporting Requirements

A summary of the proposed management measures, remedial actions and monitoring and reporting requirements is provided below in **Table 13**.

Table 13: Summary of remedial actions and reporting requirements

Aspect	Objective	Monitoring	Triggers	Remedial Actions	Timing	Reporting
Inductions	Ensure all project staff are aware of the environmental management requirements.	• Induction records.	• Records indicate staff have not undertaken inductions. • Staff demonstrate limited understanding of environmental management requirements.	• Induction to be undertaken (or re-undertaken).	• Immediately	• Monitoring updates will be submitted to DCCEEW as component of the annual compliance report.
Vegetation clearing	Minimise direct and indirect impacts to fauna and vegetation as far as practicable.	• Daily checks to ensure that clearing is consistent with approved clearing boundaries. • Daily checks to ensure that no significant fauna have been impacted.	• Vegetation clearing is not undertaken as prescribed within **Section 4.1**. • Clearing occurs beyond boundary limits. • Impacts to significant (EPBC Act listed) fauna or flora occur.	• Vegetation clearing is undertaken as prescribed within **Section 4.1**. • Clearing boundaries will be re-marked if any uncertainty occurs.	• Immediately	• Monitoring updates will be submitted to DCCEEW as component of the annual compliance report.
				• A notification will be sent to DCCEEW.	• Within 2 business days of the incident occurring.	

Aspect	Objective	Monitoring	Triggers	Remedial Actions	Timing	Reporting
Western Ringtail Possum (WRP)	Long term preservation of WRPs within the subject site and enhance existing habitat functions within the subject site in relation to WRPs	• Pre-clearing monitoring to determine presence and locations of WRPs within the clearing footprint. • Daily checks to ensure that no WRPs have been impacted.	• WRP management measures are not undertaken as prescribed within **Section 4.2**. • Clearing boundaries are exceeded. • A WRP individual is impacted.	• WRP management measures are undertaken as prescribed within **Section 4.2.** • Works will cease and not recommence until boundaries have been re-established. • The fauna specialist will provide directions to be followed and ensure the best outcome for WRP individuals is achieved.	• Immediately	• A post clearing report will be prepared by the fauna spotter and submitted to the DCCEEW as a component of the annual reporting. • Monitoring updates will be submitted to DCCEEW as component of the annual compliance report.
				• A notification will be sent to DCCEEW.	• Within 2 business days of the incident occurring.	

Aspect	Objective	Monitoring	Triggers	Remedial Actions	Timing	Reporting
Weed Control Measures	Prevent weed species competing with native plants for light, nutrients and moisture, and to remove declared and environmental weed species.	Undertake daily inspections during construction works to identify evidence of vehicles or machinery leaving the agreed access route without permission.	• Weed control measures are not undertaken as prescribed in **Section 4.3.2**.	• Weed control measures are undertaken as per **Section 4.3.2**.	• Immediately	• Monitoring updates will be submitted to DCCEEW as component of the annual compliance report.
			• Hygiene control measures are not implemented.	• Retraining staff to be undertaken immediately if hygiene measures are not implemented.		
Rehabilitation	Rehabilitation of the revegetation area (minimum 1.37 ha within Lot 2001 and 6.6 ha within Lot 2002 'Reserve for Recreation and Drainage').	• Quantitative vegetation monitoring using monitoring plots.	• Revegetation activities are not undertaken as per **Section 4.3.3**.	• Revegetation activities are undertaken as per **Section 4.3.3**.	• Immediately	• Annual compliance report to be submitted to DCCEEW will include revegetation progress.
			• Revegetation shortfalls are identified (via monitoring report).	• Identify likely cause of failure (e.g. weeds, lack of water, inappropriate timing of revegetation, lack of nutrients, poor soil condition, insect/fungus attack, dieback, predation by herbivores).	• Within 3 months of the revegetation shortfall being identified in the monitoring report.	

5 RISK ASSESSMENT

Risk assessment is a process which determines the frequency of occurrence of an event and the probable magnitude of adverse effects. Risk identification involves identifying environmental aspects, related hazardous events, their causes and environmental impacts. Risk analysis examines the controls to prevent the environmental impact from occurring, or mitigate the severity of the impact (consequence). It also analyses the potential consequence and the likelihood of an impact of this severity occurring. Risk is the combination (or, in mathematical terms, the product) of consequence and likelihood.

A summary of the key potential impacts posed by the project is provided in **Table 14**. Further, their associated severity, likelihood and residual risk is also provided in **Table 14**. The parameters associated with the risk assessment are provided in **Appendix C**.

The residual risk (i.e. after the management measures proposed in the plan have been applied) has been determined to be minor.

Table 14: Risk assessment associated with the proposed works

Hazard	Source of Hazard	Potential Impacts	Mitigation	Likelihood	Consequence	Residual Risk
Creation of isolated remnant vegetation and direct impacts to fauna.	Vegetation Clearing	Restriction on movement of fauna out of the clearing area.	A qualified fauna expert, with an S40 permit, will be present to direct clearing operators, particularly when clearing trees that are occupied by fauna, to ensure that these are cleared in a way that allows the animals to safely mobilise to adjacent areas. In addition, they will supervise any animal handling and the rescue of injured animals should this be required.	1	3	Low
Clearing outside of the approved clearing area occurs.	Vegetation Clearing	Impacts on vegetation outside of the approved clearing area.	All site personnel will be inducted on the clearing controls for this project. The clearing line is to be marked by the surveyor with white flagging tape attached to either pegs or tied to vegetation with each peg/marker clearly visible from the last. Trees to be retained will be marked so that they are clearly recognized by clearing contractors.	1	2	Low

Hazard	Source of Hazard	Potential Impacts	Mitigation	Likelihood	Consequence	Residual Risk
			Clearing will be undertaken in accordance with the WRP clearing procedures provided in **Section 4.2**. No unauthorised movement of vehicles or personnel within the vegetation retention areas will be allowed. Enforce compliance with onsite speed limits at all times.			
Impacts to WRP	Vegetation cleating and construction works	Direct impacts to WRP as a result of vegetation clearing	Clearing will be undertaken as per **Section 4.2**. A suitably qualified expert will be onsite when clearing is being undertaken as per **Section 4.2**.	1	3	Low
		Indirect impacts to WRP as a result of the loss of habitat.	Maintain vegetation corridors and retain trees with dreys and hollows.	1	2	Low
Spread of dieback or weeds outside of the clearing area.	Unauthorised access to revegetation areas	Decrease in habitat quality due to weed and dieback incursion.	Undertake management measures as per Section **4.3.2**.	1	2	Low
Revegetation areas do not comply with the completion criteria.	Revegetation failure	Decrease in quality of habitat.	Identify revegetation shortfalls (via monitoring report). Identify likely cause of failure (e.g. weeds, lack of water, inappropriate timing of revegetation, lack of nutrients, poor soil condition, lack of water, insect/fungus attack, dieback, predation by herbivores).	1	2	Low

Hazard	Source of Hazard	Potential Impacts	Mitigation	Likelihood	Consequence	Residual Risk
			Address cause of failure (this may include watering strategies, mulching, soil stabilisation, pest control, tree guards). Conduct infill planting/seeding to compensate for vegetation shortfalls.			

REFERENCES

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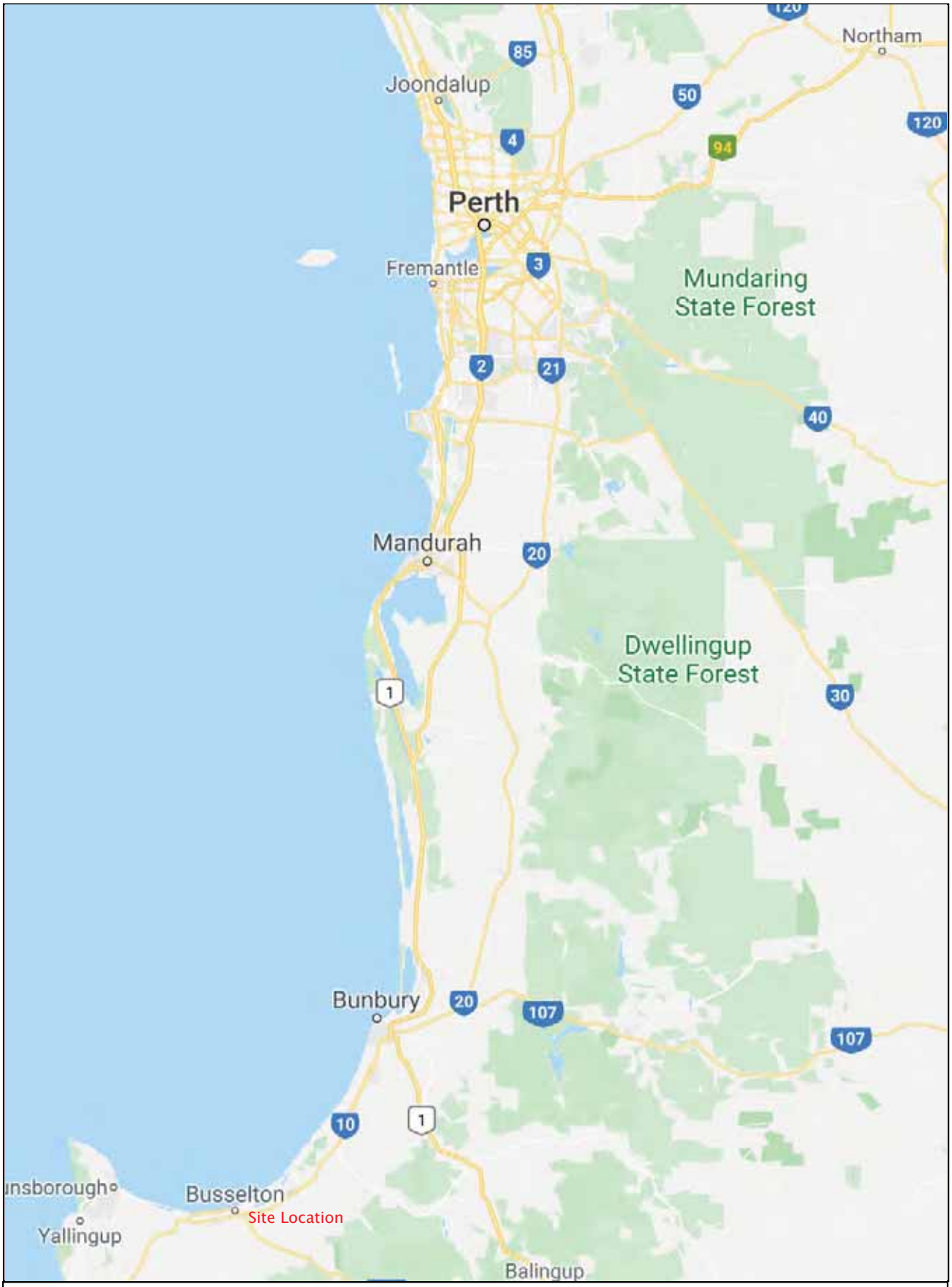
FIGURES



PROJECT	Lot 501 Vasse Highway, Yalyalup	Project Number	Drawing Number	Revision
		2007	Figure 1	A
DRAWING TITLE	Site Locality	Designed PN	Checked	
		Drawn PN	Approved	
CLIENT	Brian & Dorothy Blum	Date	24/04/2020	
		Local Authority	City of Busselton	
		Sheet 1 of 1		

accendo AUSTRALIA

PO Box 5178
West Busselton
Western Australia 6280
Mobile 0418 950 852

Legend

Stages 2 and 3

- Lot boundaries
- Vegetation to be retained
- Asset Protection Zone
- Vegetation to be cleared
- Reserve Lot 2001 boundary
- Reserve Lot 2002 boundary
- WRP sightings
- Possum nest box

Black cockatoo habitat trees

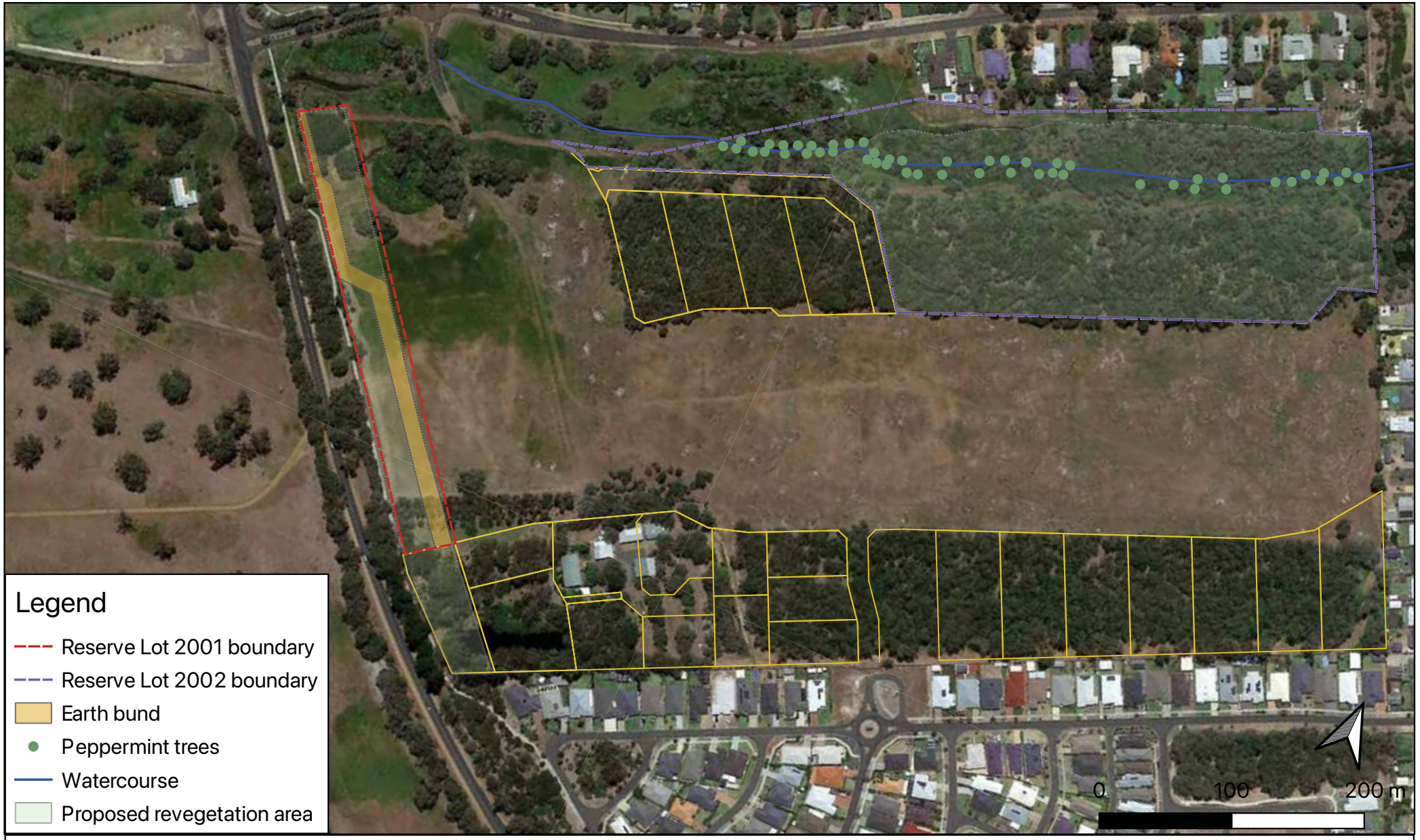
- Habitat trees with no hollows suitable for black cockatoos
- Habitat trees with hollows suitable for black cockatoos

PROJECT	Lot 501 Vasse Hwy, Yalyalup - Stages 2 & 3
DRAWING TITLE	Figure 2 - Site Extent
CLIENT	Brian & Dorothy Blum

accendo AUSTRALIA

PO Box 5178
West Busselton
Western Australia 6280
Mobile 0418 950 852

Project Number	2152	Designed	HB
Drawing Number	Figure 2	Drawn	HB
Revision	A	Checked	
Date	19/10/2021	Approved	
Sheet 1 of 1		Local Authority	City of Busselton



PROJECT	Lot 501 Vasse Hwy,Yalyalup - Stages 2 & 3
DRAWING TITLE	Figure 3 - Revegetation Areas
CLIENT	Brian & Dorothy Blum

accendo AUSTRALIA
West Busselton
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Project Number	2152	Designed	HB
Drawing Number	Figure 3	Drawn	HB
Revision	B	Checked	
Date	7/03/2022	Approved	
Sheet 1 of 1		Local Authority	City of Busselton

PLATES

Plate 1: *Agonis flexuosa* **over pasture grasses**

Plate 2: *Eucalypt spp.* **with no native understory.**

Plate 3: Remnant vegetation (largely *Agonis flexuosa*) over limited bracken understorey.

Plate 6: Vegetation to be retained in Reserve 2001.

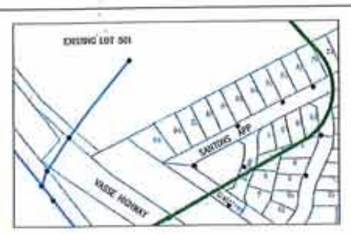
Plate 5: *E. rudis, Corymbia calophylla* **&** *Agonis flexuosa* **over weeds/bare ground.**

Plate 6: *E. rudis* **&** *Agonis flexuosa* **over weeds/bare ground.**

Plate 7: *Agonis flexuosa* **over weeds/bare ground.**

APPENDIX A - PLAN OF SUBDIVISION

A775795



UNDERGROUND LEGEND

Structures	
Pillar	UG Crossing *
Metal Pole	Ring Main Unit
Transformer Site	LV Distribution Frame
Distribution Cables	
High Voltage Cable (1kV - 33kV)	
Low Voltage Cable (< 1kV)	
Street Light Circuit (< 1kV)	
Street Light Pilot (< 1kV)	
Earth Wire	
Cable Pole Terminations	
HV Termination	LV Termination
Proposed Construction Assets	
Design Area *	
High Voltage Underground Cable	
Low Voltage Underground Cable	
Metal Pole	HV Termination
Pillar	LV Termination
Transformer site	
Feature	
Area of Interest	

OVERHEAD LEGEND

Structures	
Power Pole	Transmission Poles
Transmission Overhead Powerline	
Transmission (33kV - 330kV)	
Distribution Overhead Powerline	
High Voltage (1kV - 33kV)	
Low Voltage (< 1kV)	
Feature	
Area of Interest	

EXISTING LOTS = 1

TOTAL SUBDIVISION AREA = 31.4966 Ha

R-CODE	NUMBER OF LOTS	NET AREA (m2)	AVERAGE	LOT RANGE
R5	11	28,398	2,582	2,000 - 4,855
R2.5	12	52,448	4,371	4,008 - 5,097
BALANCE	1	225,885	-	-
TOTAL	24	-	-	-

PROPOSED RESERVES, ROADS, PEDESTRIAN ACCESS WAYS

RESERVE	PURPOSE	AREA (m2)
LOT 2005	LANDSCAPE BUFFER	3,621
LOT 2006	RECREATION & DRAINAGE	15
ROADS	PEDESTRIANS, CYCLES AND VEHICLES	4,598
TOTAL		8,234

LEGEND

- SUBJECT LOT
- STAGES 2 AND 3
- PROPOSED BOUNDARY
- PAVEMENT AND 300mm KERB
- RED ASPHALT
- RESIDENTIAL
- STREET TREES
- 2.5m WIDE FOOTPATH
- 2.0m WIDE FOOTPATH
- 3.8m WIDE FIREBREAK
- 6.0m WIDE FIRE SERVICE ACCESS ROUTE
- MAINTAINED OPEN SPACE - LOW FIRE THREAT

PROJECT: LOT 501, HOUSE 113 VASSE HIGHWAY

DRAWING TITLE: PLAN OF SUBDIVISION - SHEET 1 (STAGES 2 AND 3)

PRINCIPAL: BRIAN & DOROTHY BLUM

DEPARTMENT OF PLANNING, LANDS AND HERITAGE

DATE	FILE
02-Jul-2018	156893

ABLE
29 New River Ramble, West Busselton WA 6280
Mobile: 0438 521 419
Email: Aaron@ableplanning.com.au
Web: www.ableplanning.com.au

Date 02-07-18	Scale	1:1500	
Designed AB	Checked	AB	
Drawn DF	Approved		
Local Authority City of Busselton	Sheet 1	Of 1	
Plan/Diagram Number DP 23800	CT Number 2219-673	Revision B	

ORIGINAL A1

APPENDIX B – BUSHFIRE MANAGEMENT PLAN

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: Lot 501 Vasse Highway		
Suburb: Yalyalup	**State:** WA	**P/code:** 6280
Local government area: City of Busselton		
Description of the planning proposal: Subdivision of 1 Lot into a large number of Lots		
BMP Plan / Reference Number: 16680	**Version:** 1.2	**Date of Issue:** 27/04/2017
Client / Business Name: Able Planning & Project Management		

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)?	☐	☒
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)?	☐	☒

Is the proposal any of the following special development types (see SPP 3.7 for definitions)?

Unavoidable development (in BAL-40 or BAL-FZ)	☐	☒
Strategic planning proposal (including rezoning applications)	☐	☒
Minor development (in BAL-40 or BAL-FZ)	☐	☒
High risk land-use	☐	☒
Vulnerable land-use	☐	☒

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
Mick Whitelaw	Level 2	BPAD 37265	28/02/2018
Company Bushfire Prone Planning		**Contact No.** 6477 1144	

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

Signature of Practitioner  **Date** 27/04/2017

BPP Group Pty Ltd | ABN: 39 166 551 784
1/42 Victoria Street Midland WA 6056
PO Box 3489 Midland WA 6936
08 6477 1144 | admin@bushfireprone.com.au

Bushfire Management Plan (Subdivision Application)

Lot 501 Vasse Highway, Yalyalup

City of Busselton

Project Number:	16680
Assessment Date:	8 July 2016
Report Date:	5 August 2016

Plan Details

BMP Template v5.7	*©2017 BPP Group Pty Ltd*

Plan Version	Submitted to	Submitted Date
v1.0	Planner	15-Aug-16
Plan Version	**Amendment Record**	**Submitted Date**
v1.1	Subdivision Plan Update	20-Apr-17
v1.2	Minor text updates	27-Apr-17

Compliance Statement

This Bushfire Management Plan (the Plan) meets the requirements of both the *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) and the supporting *Guidelines for Planning in Bushfire Prone Areas* (WAPC v1.1 2017; the 'Guidelines').

Author	Bushfire Planning and Design (BPAD) Accreditation		Signature
Mick Whitelaw	Level 2 Bushfire Planning Practitioner	37265	

BPP Group Pty Ltd t/a Bushfire Prone Planning ACN: 39 166 551 784

Reviewed/Approved	Bushfire Planning and Design (BPAD) Accreditation		Signature
Mike Scott	Level 3 Bushfire Planning and Design Practitioner	27795	

BPP Group Pty Ltd t/a Bushfire Prone Planning ACN: 39 166 551 784

Contents

Appendices

Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the achievement of and level of implementation of bushfire management measures will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith on the basis of information available to Bushfire Prone Planning at the time.

All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences (whether or not due to the negligence of their consultants, their servants or agents) arising out of the services provided by their consultants.

Copyright Notice

1 Executive Summary

This Bushfire Management Plan (the Plan) has been prepared to accompany the subdivision application for Lot 501 Vasse Highway, Yalyalup. The subdivision site of approximately 31.4 ha (119 proposed lots) is within a designated bushfire prone area and the Proposal requires the application of State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7).

The assessed bushfire risk is considered to be manageable and will be achieved by the identified stakeholders implementing and maintaining the bushfire risk management measures that are presented in this Plan.

The Proposal, as set out in this Plan, has addressed all applicable legislation, policy, standards and guidelines including the four elements of the Bushfire Protection Criteria of location, siting and design, vehicular access and firefighting water supply. The determination is that the Proposal can meet all the requirements. Against the Bushfire Protection Criteria, the decision maker's assessment of this Proposal is to be on the basis of it being able to meet the acceptable solutions for all four elements once construction and landscaping is complete.

Indicative BAL ratings of BAL-29 or less are able to be achieved on all lots but will require the modification or removal of some classified vegetation within the development area to achieve the minimum separation distances from future buildings.

Future buildings within 100 metres of classified vegetation will be constructed to standards which correspond to the indicative BAL's, as required by AS 3959-2009 Construction of buildings in bushfire prone areas. As this proposal does not identify the actual location of building works within each lot, there may be a requirement to determine the BAL for individual building works once the actual building site has been identified.

With respect to this Proposal, the relevant decision maker (WAPC or local government), may condition any application approval with a requirement for the landowner/proponent to place a notification onto the certificate(s) of title and a notice of the notification onto the diagram or plan of survey (deposited plan). This will be done pursuant to Section 165 of the Planning and Development Act 2005 and applies to lots with a determined BAL rating of BAL-12.5 or above.

Existing buildings on the subject site have been assessed as having a BAL rating of BAL-FZ. To lower the potential exposure of these buildings to the effects of flames, radiant heat and embers, the separation distance between the existing building and the relevant classified vegetation should be increased. The recommended separation distances for the existing dwelling is a 'Target' BAL of BAL-29 as this is achievable.

2 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) provides the foundation for land use planning to address bushfire risk in Western Australia.

This Proposal must consider SPP 3.7 and, if required, comply with its policy measures. The determination of this requirement is presented below.

Application of SPP 3.7 Policy Measures – Primary Triggers	
The subject Proposal is a higher order strategic planning document, a strategic planning proposal or a subdivision or development application:	✓
The project site is in a designated bushfire prone area on the WA Map of Bushfire Prone Areas:	✓
The project site is not located in a designated bushfire prone area on the WA Map of Bushfire Prone Areas but the existing vegetation type and condition dictate that it should be:	
The project site is in an area not yet designated as bushfire prone but is proposed to be developed in a way that introduces a bushfire hazard (*Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017 s3.2.2*):	
Application of SPP 3.7 Policy Measures – Secondary Trigger/s	
The Proposal is a strategic planning proposal, subdivision or development application relating to land that has or will have a Bushfire Hazard Level above low and/or where a Bushfire Attack Level rating above BAL-LOW applies (SPP 3.7 s6.2):	✓
The subject Proposal is a development application for the construction or/and use of a single house or ancillary dwelling on a lot or lots greater than 1100m^2 and subject to BAL-40 or BAL-FZ (LPS Amendment Regulations 2015):	
The subject Proposal is a development application for the construction or/and use of a habitable building (other than a single house or ancillary dwelling), or a specified building on any lot size and subject to a BAL rating above BAL-LOW (LPS Amendment Regulations 2015):	

3 Commissioning and the Land Use Proposal

Bushfire Prone Planning (BPP Group Pty Ltd) has been commissioned to carry out the assessments and prepare the required bushfire planning documentation to accompany the proponent's planning submission associated with their proposed land use project.

Commissioning Record	
Landowner / Proponent:	Brian and Dorothy Blum
BPP Commissioned by:	Able Planning
Purpose:	To accompany a subdivision application
Project Location	
Subject Site and Address:	Lot No. (501) Vasse Highway, Yalyalup
Local Government:	City of Busselton
Zoning and R-Code:	Special Purpose
Project Description	
Description:	Subdivision Application
Lot Areas:	Refer to Table 3.1 & Table 3.2

Table 3.1: Existing lot

Existing Lot			
Lot	501	**Area**	31.4 Hectares

Table 3.2: Proposed Subdivision Lots

Proposed Subdivision Lots													
Lot	**Area** (m^2)	**Lot**	**Area** (m^2)	**Lot**	**Area** (m^2)	**Lot**	**Area** (m^2)	**Lot**	**Area** (m^2)	**Lot**	**Area** (m^2)	**Lot**	**Area** (m^2)
1	2318	21	660	41	728	61	648	81	810	101	611	2001	13,711
2	2407	22	660	42	781	62	836	82	810	102	663	2002	66,634
3	2028	23	660	43	840	63	867	83	810	103	648	9001	9.14 Ha
7	2028	27	689	47	648	67	837	87	848	107	648		
8	2028	28	660	48	648	68	810	88	666	108	648		
9	2029	29	660	49	648	69	810	89	648	109	648		
10	2029	30	660	50	739	70	837	90	648	110	648		
11	802	31	660	51	648	71	909	91	648	111	648		
12	690	32	660	52	666	72	810	92	648	112	648		
13	767	33	660	53	666	73	810	93	648	113	666		
14	806	34	660	54	648	74	810	94	648	114	622		
15	660	35	660	55	678	75	810	95	648	115	648		
16	660	36	660	56	648	76	810	96	648	116	648		
17	660	37	785	57	648	77	810	97	648	117	648		
18	660	38	717	58	648	78	810	98	648	118	648		
19	660	39	808	59	648	79	810	99	631	119	734		
20	660	40	793	60	648	80	810	100	579				

EXISTING LOTS = 1

TOTAL SUBDIVISION AREA = 31.4966 Ha

R-CODE	NUMBER OF LOTS	NET AREA (m2)	AVERAGE	LOT RANGE
R20	119	77,230	649	579 - 867
R5	10	20,950	2,095	2,028 - 2,407
BALANCE	1	91,399	-	-
TOTAL	130	189,579	1,458	579 - 91,399

PROPOSED RESERVES, ROADS, PEDESTRIAN ACCESS WAYS

RESERVE	PURPOSE	AREA (m2)
LOT 2001	RECREATION & DRAINAGE	13,711
LOT 2002	RECREATION & DRAINAGE	86,634
P.A.W. 1	PEDESTRIAN ACCESS WAY	3,067
ROADS	PEDESTRIANS, CYCLES AND VEHICLES	41,976
TOTAL		125,388

LEGEND

- SUBJECT LAND
- PROPOSED BOUNDARY
- PAVEMENT AND 300mm KERB
- RED ASPHALT
- RESIDENTIAL
- STREET TREES
- 2.5m WIDE FOOTPATH
- 2.0m FOOTPATH
- 13m HABITABLE BUILDING SETBACK (MAY BE REDUCED IF LOT-SPECIFIC B.A.L. ASSESSMENT INDICATES SO)

PROJECT: LOT 501, HOUSE 113 VASSE HIGHWAY

DRAWING TITLE: PLAN OF SUBDIVISION

PRINCIPAL: BRIAN & DOROTHY BLUM

ABLE
PLANNING & PROJECT MANAGEMENT
29 New River Rambler, West Busselton WA 6280
Mobile: 0438 521 419
Email: Aaron@ableplanning.com.au
ABN: 64 165 568 362

"Our subdivision experts in WA"

Date	21-01-16	Scale	1:1500
Designed	AB	Checked	AB
Drawn	DF	Approved	
Local Authority		Sheet	Of
City of Busselton		1	1
Plan/Diagram Number	CT Number		Revision
DP 23800	2219-673		0

ORIGINAL A1

Figure 3.2

Proposed Subdivision

Lot 501 Vasse Highway
Yalyalup

LEGEND

- Lot 501
- Proposed Subdivision

SCALE (A3)

0 50 100 150

Metres

LOCALITY

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator
Map created on: 12/04/2017
Map compiled by: Mick Whitelaw

4 The Planning Submission and the Documents Required

Policy measures in *SPP 3.7* (and further instruction in the associated document *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017*) set out the bushfire planning information (including bushfire risk assessments) that are to accompany a planning submission. It is dependent on the type of proposal and stage of the development process. In most circumstances this information is to be presented in the form of a Bushfire Management Plan (BMP).

The Planning Submission – Stage and Specific Land Use or Development	
Planning Stage:	Subdivision application
For Submission to:	City of Busselton
Project Type:	Subdivision - One lot into a large number of lots
'Vulnerable' Land Use:	No
'High Risk' Land Use:	No
'Minor' Development:	N/A
'Unavoidable' Development:	N/A

This Bushfire Management Plan will include the information indicated by the check mark. If an item is checked it is required by either: SPP 3.7 or by a local government variation. It may also have been prepared at an earlier planning stage and therefore re-included or included by the assessor as it improves the information presented in this Bushfire Management Plan.

Bushfire Hazard Level Assessment	Bushfire Attack Level Contour Map	Bushfire Attack Level Assessment	Identify any issues arising from the BAL contour map or BAL assessment	Identify and specifically address the list of issues related to strategic level planning and defined in the *Guidelines s5.2*	Demonstrate compliance with the Bushfire Protection Criteria can be achieved in subsequent planning stages	Demonstrate compliance with the Bushfire Protection Criteria
	✓		✓		✓	

5 Assessment of Bushfire Risk

5.1 Vegetation Assessment/Classification and Ground Slope

5.1.1 Existing Vegetation

All vegetation within 100 metres of the subject site been identified and classified or excluded and presented in Table 5.1.1. This has been done with accordance with *AS 3959-2009* and reference to the *Visual Guide for Bushfire Risk Assessment in WA* (WAPC February 2016).

The vegetation has been assessed as it will be in its mature state and where deemed appropriate, in its unmanaged state. The areas of classified vegetation that will determine bushfire risk are defined on the topography and vegetation map Figure 5.1. Representative photos of each vegetation area are presented after the table.

Table 5.1.1: Vegetation types identified, the applied classification and effective slope

All Vegetation Within 100 metres of Subject Site			
Vegetation Area	**Identified Types (AS3959) or Description if 'Excluded'**	**Applied Classification**	**Effective Slope Under Classified Vegetation (degrees)**
1	Open Forest A-03	Class A Forest	0
2	Open Forest A-03	Class A Forest	0
3	Grassland – Sown Pasture (G-26)	Class G Grassland	0
4	Open Woodland B-06	Class B Woodland	0
5	Open Woodland B-06	Class B Woodland	0
6	Excluded – Managed Areas	Exclusion AS 3959-2009 2.2.3.2 (f)	0
7	Open Woodland B-06	Class B Woodland	0
8	Open Woodland B-06	Class B Woodland	0
9	Excluded – Managed Areas	Exclusion AS 3959-2009 2.2.3.2 (f)	0
10	Open Forest A-03 (Planned Revegetation Area)	Class A Forest	0
Note: When more than one vegetation type is present each type is classified separately with the worst-case scenario being applied. The predominant vegetation is not necessarily the worst-case scenario.			

Vegetation Area 1 **Classification Applied: Class A Forest**

Assessment Comment: Open Forest (Eucalypt)

Photo ID: 1a

Photo ID: 1b

Vegetation Area 2 **Classification Applied: Class A Forest**

Assessment Comment: Open Forest – Significant weed infestation (Arum lily)

Photo ID: 2a

Photo ID: 2b

Vegetation Area 3 **Classification Applied: Class G Grassland**

Assessment Comment: Open Grassland (Paddock)

Photo ID: 3a

Photo ID: 3b

Vegetation Area 4 **Classification Applied: Class B Woodland**

Assessment Comment: Remnant Open Woodland (Eucalypt with Bracken understory)

Photo ID: 4a

Photo ID: 4b

Vegetation Area 5 **Classification Applied: Class B Woodland**

Assessment Comment: Mix of planted trees and remnant woodland

Photo ID: 5a

Photo ID: 5b

Vegetation Area 6 **Classification Applied: Exclusion AS3959-2009 2.2.3.2 (f)**

Assessment Comment: Existing dwellings/ roadways (Residential Area)

Photo ID: 6a

Photo ID: 6b

Vegetation Area 7 **Classification Applied: Class B Woodland**

Assessment Comment: Open Woodland (Eucalypts with no understory)

Photo ID: 7a

Photo ID: 7b

Vegetation Area 8 **Classification Applied: Class B Woodland**

Assessment Comment: Existing Revegetation area - Open Woodland (Melaleuca)

Photo ID: 8a

Photo ID: 8b

Vegetation Area 9 **Classification Applied: Exclusion AS3959-2009 2.2.3.2 (f)**

Assessment Comment: Managed Parklands and existing dwellings

Photo ID: 9a

Photo ID: 9b

Vegetation Area 9 **Classification Applied: Exclusion AS3959-2009 2.2.3.2 (f)**

Assessment Comment: Managed Parklands and existing dwellings

Photo ID: 9c

Photo ID: 9d

Vegetation Area 10 **Classification Applied: Class A Forest**

Assessment Comment: Planned Revegetation Area (Future Forest Vegetation)

Photo ID: 10a

Photo ID: 10b

5.1.2 Vegetation Excluded from Classification

Certain areas and vegetation within 100m of the subject site may be assessed as 'low threat or non-vegetated'. These are to be excluded from classification and are therefore rated BAL-LOW. They must be managed to maintain the specifications set out in AS3959-2009 s2.2.3.2 in perpetuity (refer to Appendix 3 'Vegetation Classification Exclusions').

This Proposal has two excluded vegetation areas within 100 metres of the subject site (Areas 6 & Area 9). The excluded areas are the managed areas and cultivated gardens of the existing residential dwellings that surround the proposed subdivision site.

5.1.3 Expected On-site Vegetation Changes Due to Proposed Subdivision

In assessing vegetation for bushfire threat, consideration must be given to possible future vegetation changes likely on the site that is being assessed, particularly those that would have the potential to increase the bushfire risk.

This may be due to growth of existing vegetation or growth of planned landscape plantings, including future roadside or water course re-vegetation. There must be careful consideration of the creation of vegetation corridors where they join offsite vegetation and may provide a route for fire to enter an area of future development.

For this Bushfire Management Plan, the future vegetation within the lot has been considered. Within the proposed development area, the majority of existing onsite vegetation is sown pasture and is classified Grassland. It is expected that in the future this will be maintained as low threat vegetation. It will meet *AS 3959-2009 s2.2.3.2* requirements (refer Appendix 3 'Vegetation Classification Exclusions'). The proposed development site has an area of remnant woodland (Area 4) that will be removed and become low threat as development progresses in this area.

The proposal also includes the provision of Lot 2001 – Reserve for Recreation and Drainage which is expected to be revegetated to a "Forest" classification (Vegetation Area 10). There will be an earth bund in lot 2001 (landscape buffer reserve), but this does not alter the effective 'slope' of the classified vegetation which is predominantly 'flat'. Figure 5.1 Topography and Classified Vegetation Map and Figure 5.2 BAL Contour Map have factored in the Forest vegetation classification, the earth bund and its impact on future development in the area.

Figure 5.1

Topography & Classified Vegetation

Lot 501 Vasse Highway
Yalyalup

LEGEND

- Lot 501
- Proposed Subdivision
- Area of Interest - 100m extent
- Elevation contour (m)
- Photo location & direction
- Class (A) Forest
- Class (B) Woodland
- Class (G) Grassland
- Managed - Min. Fuel

SCALE (A3)

0 50 100 150

Metres

LOCALITY

BUSHFIRE PRONE PLANNING

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator
Map created on: 12/04/2017
Map compiled by: Mick Whitelaw

5.2 Bushfire Attack Level (BAL) Assessment – BAL Contour Map

Bushfire Prone Planning's BAL Contour Map Guide

Description and Purpose of the BAL Contour Map ('Guidelines')

A Bushfire Attack Level (BAL) Contour Map identifies land suitable and unsuitable for development and guides the location of building envelopes within a development site. The BAL Contour Map is a scale map of a development site (which can include proposed or an existing lot layout), which identifies indicative BAL ratings across the development site and within the immediate surrounding area. The map illustrates potential bushfire attack levels and radiant heat impacts in relation to any classified vegetation that will remain within 100 metres of the assessment area once development is constructed i.e. when the land has been cleared and all the subdivision works have been undertaken. It needs to take into account any vegetation that will remain or will be introduced when the works are complete (source: *WAPC Factsheet "BAL Contour Maps" Version 2 January 2016*).

BAL Contour Map Interpretation

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels (BAL's) that exist as the distance increases away from the classified vegetation. Each BAL represents a set range of radiant heat flux (refer to Appendix 2) that can be generated by the bushfire in that vegetation. The width of each shaded contour interval (i.e. the applicable vegetation separation distances corresponding to a BAL rating) will vary and is determined by calculations involving vegetation type, fuel structure, ground slope, and climatic conditions (i.e. the expected fire behaviour). They are unique to a site and can vary across a site.

The Primary Use of BAL Contour Mapping - Planning

BAL contour mapping is primarily a planning tool that can give an overview as to the suitability of a site for development with respect to the extent to which bushfire is a potential threat to future buildings and persons on the subject land.

The mapping considers the development site (i.e. all existing or proposed lots) and does not consider the bushfire risk at an individual lot level or over different development time frames. Rather it is assessing the situation that will exist when the entire development has been completed, including any vegetation management that would reasonably be expected to take place as part of establishing buildings on the lots. On this basis, it helps decision makers determine the suitability of the proposed development for planning approval.

As a result, there will be situations where, for the purposes of planning, classifiable vegetation is not contoured (e.g. e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified). However, at a specific point in time (prior to full completion of a development) this vegetation may impact on a proposed buildings BAL rating.

A Secondary Use of BAL Contour Mapping - Building

Building approval (and the issue of a building permit) requires that a BAL rating is determined for an actual building and not just a lot or a building envelope (i.e. an 'area'). Determination of this BAL rating must consider the actual location of a building within an individual lot and its separation distance from any classified vegetation at the actual time of applying for building approval. It is a site-specific assessment based on the buildings design and location at a given point in time.

This specific assessment (BAL report and BAL certificate) required for a building application cannot always be derived from an assessment that is primarily designed to inform planning decisions. As a result, there are limitations to obtaining a single BAL rating for a future building of unknown location, from a BAL contour map assessment.

Nonetheless, there are limited specific situations where the required building application information (i.e. a BAL Certificate) might be obtained quickly and cost effectively from a BAL contour map assessment.

BAL Contour Maps and 'Class G Grassland'

Grassland vegetation types may have been identified and classified on the subject site (refer to the Vegetation and Topography Map in Figure 5.1). Where this is the situation for the subject Proposal, and it is considered appropriate by the assessor, the BAL contour map produced for this Plan will exclude the area of Class G Grassland. Therefore, the displayed BAL contours will exist for all classified vegetation types except Grassland.

The rationale for this approach is to be able to derive meaningful information from the contour map. If Grassland was to be contoured the entire mapped area could potentially be BAL-FZ and therefore be presented as a sole colour – providing no useful information.

Grassland is commonly not native vegetation. From a practical perspective, it can be easily managed to a low bushfire threat state and generally will not require approval for its removal. Section 7.3 of this Plan details the management measure required to reduce any classified Grassland to a BAL rating of BAL-LOW.

Figure 5.2

BAL Contour Map

Lot 501 Vasse Highway
Yalyalup

LEGEND

- Lot 501
- Proposed Subdivision
- Area of Interest - 100m extent

Bushfire Attack Levels (Method 1)

- BAL FZ (Indicative only)
- BAL 40 (Indicative only)
- BAL 29 (Indicative only)
- BAL 19 (Indicative only)
- BAL 12.5 (Indicative only)
- BAL LOW (Indicative only)

SCALE (A3)

0 50 100 150

Metres

LOCALITY

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator
Map created on: 12/04/2017
Map compiled by: Mick Whitelaw

5.2.1 Construction of the BAL Contours - Statement of Site Data and 'Separation Distance Range' Applied

For the subject site, the vegetation separation distance range that corresponds to each Bushfire Attack Level (and represented by Figure 5.2, the BAL Contour Map), has been derived from:

1. An AS3959-2009 Method 1 assessment and sourced from AS3959-2009 Table 2.4.3;

Table 5.2.1: Construction of the BAL contours

Statement of Site Data and 'Separation Distance Range' Applied			
Vegetation Area	BAL Assessment Method Used	Site Data Applied in the BAL Assessment	Separation Distance Range Applied/Determined
1	AS3959-2009 Method 1	Refer to Table 5.1.1	The distance corresponding to each BAL Rating as per AS3959-2009 Table 2.4.3
2			
3			
4			
5			
6			
7			
8			
9			
10			

5.2.2 BAL's as Indicated / Determined by the Contour Map

Bushfire Prone Planning's Interpretation of Deriving BAL Ratings from the BAL Contour Map

Indicative BAL Ratings

If the assessed BAL for a lot or building envelope (the 'area') is stated as being 'indicative', it is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the lot, or on adjacent lots, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified). In this report the indicative BAL is presented as either the highest BAL impacting the 'area' or as a range of achievable BAL's within the 'area' – whichever is the most appropriate.

The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent lots; and/or
3. the actual location of the future building within that 'area'.

A BAL Certificate cannot be provided for future buildings within an 'area' with an indicative BAL until the location of any future building has been determined. It usually requires an onsite visit and a BAL assessment report to be produced before the certificate can be issued.

Determined BAL Ratings

If the assessed BAL for a Lot or building envelope (the 'area') or existing building, is stated as being 'determined' it is because that 'area' or building is impacted by a single BAL contour interval. This has been determined by offsite classified vegetation, and no classifiable vegetation currently exists on the lot or on adjacent lots (i.e. it has been cleared to a minimal fuel, low bushfire threat state).

As a result, a determined BAL can be provided in this limited situation because:

1. No classified vegetation is required to be removed or modified to achieve the determined BAL, either within the lot or on adjacent lots (or if vegetation is excluded from classification, it is reasonable to assume it will be maintained in this state into the future); and
2. A future building can be located anywhere within the 'area' and be subject to the determined BAL rating; and
3. The degree of certainty is more than sufficient to allow for any small discrepancy that might occur in the mapping of the BAL contours.

A BAL Certificate (referring to the BAL Contour Map assessment) can be provided for a future building on those 'areas' assessed as having a determined BAL as long as the assessment is still valid and there is no requirement reassess the vegetation and update the contour map (this is a dependant on the time that has passed since the original assessment). Note also that a BAL Certificate will only remain valid for one year).

As there are no identified building envelopes or actual building locations being presented as part of this proposal, the Bushfire Attack Levels (BAL's) presented in Table 5.2.1 can only be indicative. They are derived from the contour map by estimating where a typical sized building could be located and stating the BAL it would be exposed too. Once actual building locations are determined at a later planning stage, the BAL ratings for specific buildings or building envelopes may need to be determined by an onsite visit with the actual vegetation separation distances being measured.

Table 5.2.1: Indicative BAL's for Proposed Lots

Indicative Bushfire Attack Levels for the Proposed Lots	
BAL Determination Method	Method 1 as per AS 3959-2009 s2.2.6 and Table 2.4.3. Refer to Appendix 2 this Plan
Proposed Lots (119) **Proposed Lot (Number)**	**Indicative BAL**
11-12 21-37 42-52 64-66 88-100 116-119	BAL-12.5
13-20 115	BAL-19
1-10 38-41 53-63 67-87 101-114	BAL-29
9001 (existing dwelling)	BAL - FZ

5.2.3 Identification of Specific Issues Arising from BAL Contour Map

Onsite Vegetation

Vegetation onsite is within the control of the subject site's landowner and therefore can potentially be removed or modified to lower the bushfire risk, subject to any approval being required by a local government.

For this Proposal, the majority of the classified vegetation onsite is Grassland which can either be removed or managed to a low threat state so as to achieve a BAL-Low rating with the limit of area being to the extent of the proposed subdivision area. The proposed subdivision site has an area of remnant woodland (Area 4) that will be removed and become low threat vegetation as development progresses in the area.

Offsite Vegetation

Vegetation offsite is not within the control of the subject site's landowner and therefore the vegetation cannot be removed or modified by the landowner and as a result the assessed BAL's determined by this vegetation are unable to be reduced. Vegetation Area 8 on an adjacent property is partly managed gardens and a native revegetation area which has been assessed as Class B Woodland. This area could foreseeably in the future have the vegetation managed so as to be considered a low bushfire threat.

It is recommended a "Local Development Plan" is created for lots 1 – 10 backing on lot 2001, plus lots 67 – 87 backing onto lot 2002, that enforces the setbacks (21 m and 13 m respectively) needed to achieve BAL-29, plus restrictions on the design and construction of the interface fencing.

There is a nominated 13 metre "Habitable Building Setback" that affects Lots 67-87 due to offsite vegetation (Lot 2002 – Reserve for Recreation and Drainage). These lots have been provided with a suitable amount of BAL 29 developable area outside of this habitable building setback.

Due to the planned revegetation of "Lot 2001 - Reserve for Recreation and Drainage" to a "Forest Classification" there may also be a requirement for Lots 1-10 to include a minimum 21 metre "Habitable Building Setback" from Vegetation Area 10. These lots have been provided with a suitable amount of BAL 29 developable area outside of this potential habitable building setback.

It is suggested that a strip of "Low Threat - Excludable vegetation" bordering the western edge of proposed Lots 1-10 be considered as a part of the revegetation plan of Lot 2001. The inclusion of a Low Threat Area in Lot 2001 and the installation of Firebreak access for emergency services vehicles will reduce the potential for the planned revegetation area to increase the bushfire risk to future occupants of the subdivision.

As this proposal does not identify the actual location of building works within each lot, there will be a requirement to determine the BAL for individual building works at the building permit application stage once the actual building site has been identified.

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: Lot 501 Vasse Highway		
Suburb: Yalyalup	**State:** WA	**P/code:** 6280
Local government area: City of Busselton		
Description of the planning proposal: Subdivision of 1 Lot into a large number of Lots		
BMP Plan / Reference Number: 16680	**Version:** 1.2	**Date of Issue:** 27/04/2017
Client / Business Name: Able Planning & Project Management		

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)?	☐	☒
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)?	☐	☒

Is the proposal any of the following special development types (see SPP 3.7 for definitions)?

Unavoidable development (in BAL-40 or BAL-FZ)	☐	☒
Strategic planning proposal (including rezoning applications)	☐	☒
Minor development (in BAL-40 or BAL-FZ)	☐	☒
High risk land-use	☐	☒
Vulnerable land-use	☐	☒

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
Mick Whitelaw	Level 2	BPAD 37265	28/02/2018
Company Bushfire Prone Planning		**Contact No.** 6477 1144	

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

Signature of Practitioner  **Date** 27/04/2017

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Bushfire Management Plan (Subdivision Application)

Lot 501 Vasse Highway, Yalyalup

City of Busselton

Project Number:	16680
Assessment Date:	8 July 2016
Report Date:	5 August 2016

APPENDIX C – RISK ASSESSMENT PARAMETERS

Table C1. Impact risk assessment descriptors.

Likelihood		
Level	**Description**	**Criteria**
1	Rare	The environmental event may occur or one or more conservation significant species or communities may be present in exceptional circumstances.
2	Unlikely	The environmental event could occur or one or more conservation significant species or communities may be present in exceptional circumstances.
3	Moderate	The environmental event should occur or one or more conservation significant species or communities should be present at some time.
4	Likely	The environmental event will probably occur or one or more conservation significant species or communities will be present in most circumstances.
5	Almost certain	The environmental event is expected to occur or one or more conservation significant species or communities is expected be present in most circumstances.
Consequences		
Level	**Description**	**Criteria**
1	Insignificant	Insignificant impact on species or communities of conservation significance or regional biodiversity, and the loss will be insignificant in the context of the availability of similar flora, vegetation or fauna in the area.
2	Minor	Impact on flora, vegetation or fauna will be localised and no significant impact on species or communities of conservation significance in the project area. Loss of species or communities at the local scale.
3	Moderate	An appreciable loss of flora, vegetation or fauna in a regional context or limited impact on species or communities of conservation significance in the project area.
4	Major	Significant impact on conservation significant flora, vegetation or fauna or their habitat in the project area and/or regional biodiversity and/or a significant loss in the biodiversity at the landscape scale.
5	Catastrophic	Loss of species or communities at the regional scale and/or a significant loss of species categorised as 'vulnerable' or 'endangered' under the EPBC Act at a regional scale.
Acceptability of Risk		
Level of Risk	**Management Action Required**	
1 to 4	**Acceptable, no action required**	
5 to 6	**Moderate, avoid if possible, routine management with internal audit and review of monitoring results annually**	

7 to 8	High, externally approved management plan to reduce risks, monitor major risks annually with external audit and review of management plan outcomes annually. May require referral to the Commonwealth under the EPBC Act
9 to 10	Extreme, unacceptable, project should be redesigned or not proceed. Requires a referral to the Commonwealth under the EPBC Act

Table C2. Level of acceptable risk.

		Likelihood				
		Rare or very low (1)	Unlikely or low (2)	Moderate (3)	Likely (4)	Almost certain (5)
Consequences	Insignificant	2	3	4	5	6
	Minor	3	4	5	6	7
	Moderate	4	5	6	7	8
	Major	5	6	7	8	9
	Catastrophic	6	7	8	9	10