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: Various lots, Woolstores Place

Suburb: Mount Elphinstone **State:** WA **P/code:** 6330

Local government area: City of Albany

Description of the planning proposal: Structure Plan

BMP Plan / Reference Number: 63062-148404 **Version:** R01 Rev 1 **Date of Issue:** 13/04/2023

Client / Business Name: Rowe Group

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	☐	☑
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.)?

The proposal is a Structure Plan, which is a strategic planning proposal.

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
Zac Cockerill	Level 2	BPAD37803	31/08/2023
Company		**Contact No.**	
JBS&G Australia Pty Ltd T/A Strategen-JBS&G		(08) 9792 4797	

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

Signature of Practitioner **Date** 13/04/2023

Rowe Group

Bushfire Management Plan (Structure Plan)

Woolstores Place,
Mount Elphinstone WA

13 April 2023

JBS&G63062-148404 (Rev 1)

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

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1. Proposal details

1.1 Background

Rowe Group, on behalf of the proponent (Mainbeam Pty Ltd), has prepared a Structure Plan over various lots at Woolstores Place, Mount Elphinstone in the City of Albany (refer to Figure 1).

The intent of the Structure Plan is to identify a mixture of tourist and quality medium to high density residential and commercial land uses, as well as areas of POS. The Structure Plan also recognises the rationalisation of land that will occur to facilitate the adjoining Albany Ring Road interchange, as well as the consolidation of land for development.

1.2 Site description

The Structure Plan area (hereon referred to as the project area) is situated approximately 3.5 km west of the Albany Central Business District. The project area straddles Woolstores Place (currently a no-through road) and is bound by the following (refer to Figure 2):

- future Albany Ring Road interchange (under construction), Frenchman Bay Road and private rural residential lots to the north and west
- foreshore reserve and waterfront to the south, southwest and southeast
- railway reserve and Princess Royal Drive to the east.

A small amount of native vegetation is retained on site but otherwise the project area is cleared for a mixture of land uses including rural small holdings lots, parks and recreation, general industry and local roads.

The majority of the project area is designated as bushfire prone on the *Map of Bush Fire Prone Areas* (DFES 2021; see Plate 1), due to its proximity to on-site and surrounding areas of vegetation.

1.3 Purpose

This Bushfire Management Plan (BMP) has been prepared to accompany submission of the Structure Plan and address requirements under Policy Measure 6.3 of *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015) in accordance with *Guidelines for Planning in Bushfire-Prone Areas Version 1.4* (the Guidelines; WAPC 2021).

1.4 Other plans/reports

Other relevant reports that have been prepared for the project area include:

- Environmental Assessment Report (EAR) (JBS&G 2023).

Consistency has been maintained with the abovementioned report where applicable. Strategen-JBS&G is not aware of any other bushfire or environmental reports or assessments that have been prepared previously for the project area.

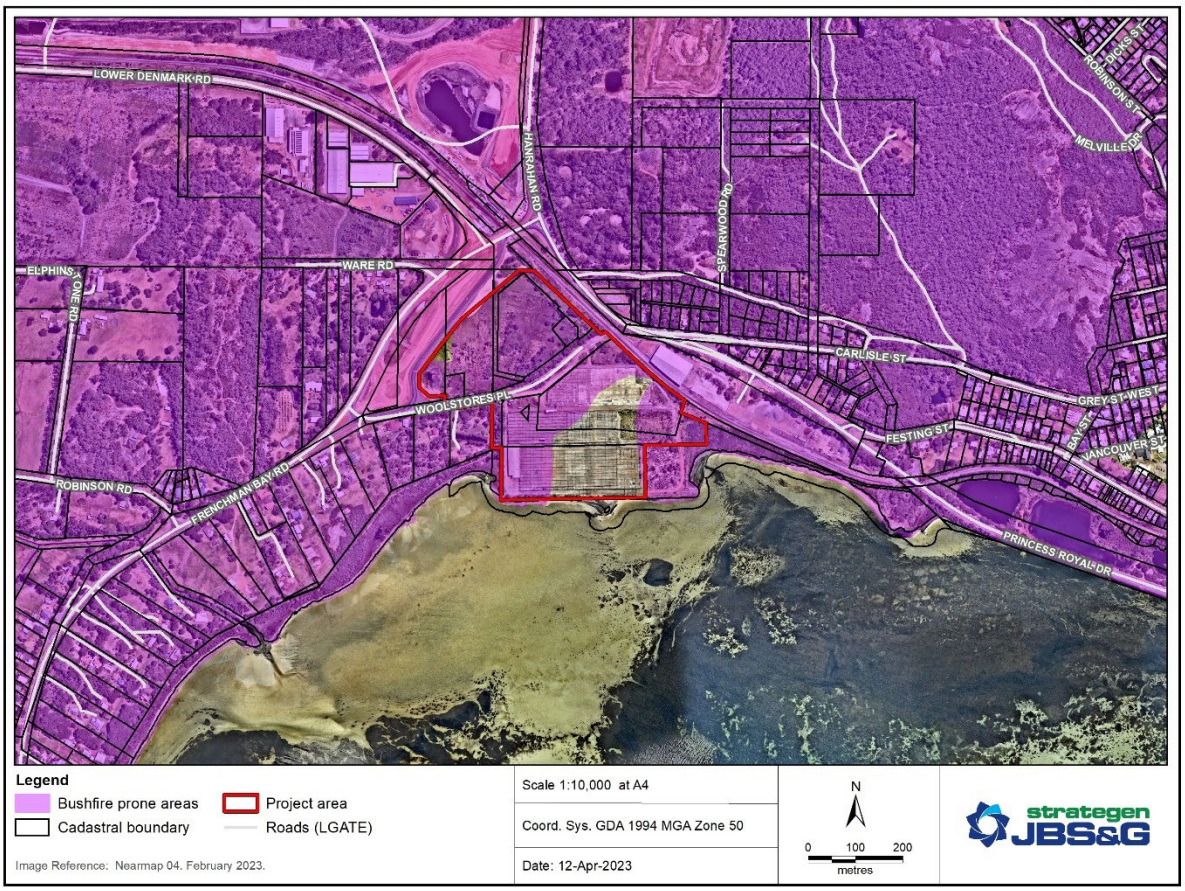

Plate 1: Map of Bush Fire Prone Areas (DFES 2021)

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STRUCTURE PLAN MAP

VARIOUS LOTS, WOOLSTORES PLACE
MOUNT ELPHINSTONE, ALBANY

DRAFT

N

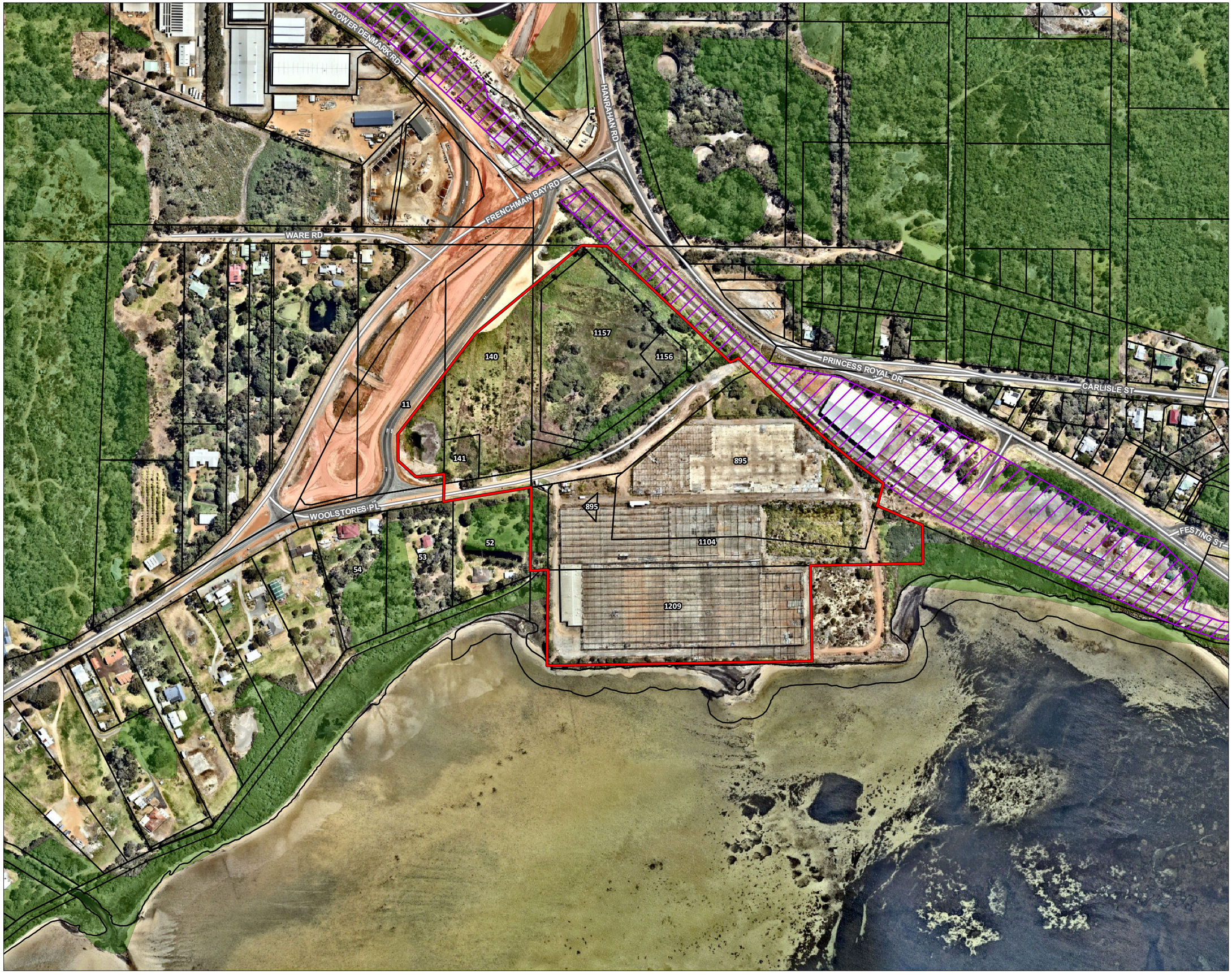
0 62.5 m

SCALE @ A3: 1:2500

9116-LSP-01-F

DRAWN:	VR
DATE CREATED:	2023.03.30
PROJECTION:	MGA50 GDA94
CADASTRE:	LANDGATE
SURVEY:	HARLEY DYKSTRA 23304-01A

ROWE GROUP DESIGN



Legend

- Project area
- Cadastral boundary
- Railway reserve
- Native vegetation (DPIRD)
- Roads (LGATE)

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Job No: 63062	
Client: Rowe Group	
Version: A	Date: 12-Apr-2023
Drawn By: jcrute	Checked By: CT

Scale 1:4,000 at A3

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metres

Coord. Sys. GDA 1994 MGA Zone 50

Woolstores Place,
Mt Elphinstone/Mt Melville, WA

SITE OVERVIEW

FIGURE 2

File Name: W:\Projects\1)Open\Rowe\63062 Woolstores Place Mt Elphinstone LSP BMP\GIS\Maps\R01_Rev_A\63062_02_A3_SiteOverview.mxd
Image Reference: www.nearmap.com© - Imagery Date: 04. February 2023.

2. Environmental considerations

2.1 Native vegetation - modification and clearing

The project area is predominantly comprised of cleared paddocks, access roads, fences, and the vacant footprints of previous industrial buildings that have now been removed. As such, the majority of on-site vegetation present is anticipated to be characterised as parkland cleared and classified as 'Completely Degraded' (JBS&G 2023). However, several pockets of fragmented vegetation remain within the project area, including some vegetation close to the waterfront. This vegetation is anticipated to have some level of degradation due to the impacts of land clearing and weed invasion (JBS&G 2023).

Whilst it is anticipated that some tree retention and small pockets of vegetation may be retained on-site to meet environmental and landscape amenity objectives (to be confirmed as part of future planning stages and environmental investigations), the current cleared and degraded nature of the site indicates that a non-vegetated/low threat managed outcome is readily achievable across the project area as part of proposed development.

With regards to potential environmental impacts to native vegetation, the JBS&G (2023) EAR concludes that on-site remnant vegetation may include the Subtropical and Temperate Coastal Saltmarsh' Threatened Ecological Community (TEC) and may contain habitat supporting a number of conservation significant flora and fauna species. Therefore, an ecological survey is recommended to ground truth and investigate these issues fully. It is noted that all relevant and necessary environmental and clearing approvals will be sought prior to undertaking any clearing works within the site.

A search of publicly available environmental data has been undertaken, along with review of the EAR (Strategen-JBS&G 2022) relating to the proposed development area. This information is summarised in Table 1.

Table 1: Summary of environmental values

Environmental value	Mapped as occurring within or adjacent to the project area		Description
	Within	Adjacent	
Environmentally Sensitive Area	✗	✗	N/A
Swan Bioplan Regionally Significant Natural Area	✗	✗	N/A
Ecological linkages	✗	✗	N/A
Wetlands	✗	✓	Three Conservation Category Wetlands (CCWs) were identified approximately 1.5 km northwest of the project area.
Waterways	✗	✓	Princess Royal Harbour (which is an embayment connected to King George Sound via a narrow channel) is situated adjacent south of the project area.
Threatened Ecological Communities listed under the EPBC Act	✓	✓	Remnant native vegetation within the site includes saltmarsh on the coastal margin of Princess Royal Harbour, which is part of the mapped extent of the Threatened Ecological Community – the Subtropical and Temperate Coastal Saltmarsh TEC.
Threatened and priority flora	Mapping not available	Mapping not available	Five Threatened flora species were assessed as being likely to occur within the project area (*Banksia verticillate*, *Caladenia harringtoniae*, *Calectasia cyanea*, *Conostylis misera* and *Isopogon uncinatus*).

Environmental value	Mapped as occurring within or adjacent to the project area		Description
	Within	Adjacent	
Fauna habitat listed under the EPBC Act	✓	✓	In addition, the project area is mapped as being within and adjacent to Carnaby's Cockatoo areas requiring investigation as feeding habitat. The project area is also mapped as being adjacent to Carnaby's Cockatoo confirmed roosting sites.
Threatened and priority fauna	Mapping not available	Mapping not available	Three threatened fauna species have been previously recorded within the project area (*Calidris canutus*, *Calidris tenuirostris* and *Charadrius leschenaultia*).
Bush Forever Site	✗	✗	N/A
DBCA managed lands and waters (includes legislated lands and waters and lands of interest)	✗	✗	N/A
Conservation covenants	Mapping not available	Mapping not available	No conservation covenants are expected to be in place over the project area.
Heritage Place	✗	✓	The Frenchman Bay Road Camp (Aboriginal Heritage Place No. 23288) is situated adjacent to the project area.

2.2 Revegetation / Landscape Plans

At this stage, no formal revegetation is proposed throughout the project area. Four POS lots are depicted on the Structure Plan for public recreation, amenity and access and these are expected to be landscaped to achieve low threat exclusions under Clause 2.2.3.2 of AS 3959-2018 *Construction of Buildings in Bushfire Prone Areas* (AS3959, SA 2018). This assumption is to be confirmed as part of future planning stages and landscape design. Should landscaping introduce unmanaged, classifiable vegetation, then development design at the subdivision stage will need to properly consider the necessary setbacks to avoid areas of BAL-40/FZ.

It is anticipated that all street verges/streetscapes throughout the project area will be landscaped to achieve relevant low threat exclusions under Clause 2.2.3.2 of AS 3959. This includes scope for some tree retention and low threat planting where practicable. A detailed Landscape Plan will be prepared following conditional subdivision approval to demonstrate compliance with the relevant low threat exclusion clauses.

With regards to the surrounding rationalisation of land that will occur to facilitate the adjoining Albany Ring Road interchange, all efforts have been made in this BMP to predict the future worst case revegetation extent along the roadside batters in accordance with the Draft Landscaping Plan provided by Main Roads WA (MRWA), as contained in Appendix A.

3. Bushfire assessment results

3.1 Assessment inputs

3.1.1 Vegetation classification

3.1.1.1 Methodology

Strategen-JBS&G assessed classified vegetation and exclusions within the project area and adjoining 150 m (the assessment area) through on-ground verification on 4–5 July 2022 in accordance with AS3959 and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix B. Vegetation classification results are outlined in Table 2 and Figure 3 (for pre-development conditions) and Table 3 and Figure 4 (for post-development conditions).

3.1.1.2 Classification

The project area and adjacent 150 m assessment area contains a variety of classified vegetation including:

- Class A forest in areas containing a three-tiered forest fuel profile with overstorey eucalypts, midstorey shrubs and understorey grasses. This vegetation is patchy and fragmented throughout adjacent rural small holdings lots to the southwest and northwest and becomes more intact and contiguous towards Mount Melville to the east.
- Class D scrub in areas containing tall shrubs with a horizontal fuel profile between 2–6 m in height. Whilst small degraded pockets occur on site, larger intact and contiguous sections of scrub occur throughout the foreshore reserve to the southeast and southwest.
- Class G grassland throughout cleared areas containing unmanaged grasses and weeds greater than 100 mm in height. Grassland is prevalent throughout the project area, adjacent rural small holdings lots to the southwest and adjacent road and rail corridor interfaces.

Land excluded from classification under Clauses 2.2.3.2 (e) and (f) was also identified throughout existing non-vegetated areas (i.e. buildings, other infrastructure, roads, footpaths, access tracks, sealed areas, earthworked land, etc) and low threat managed vegetation (managed turf and gardens, urban streetscapes, etc).

3.1.2 Effective slope

Strategen-JBS&G assessed effective slope under classified vegetation within the assessment area through on-ground verification on 4–5 July 2022 in accordance with AS3959. Results were cross-referenced with DPIRD 2m contour data and are depicted in Table 2 and Figure 3 (for pre-development conditions) and Table 3 and Figure 4 (for post-development conditions).

Assessment of topographical survey data (DPIRD 2019) indicates that the project area is primarily flat at 2 m Australian Height Datum (AHD), with an increase to 6 mAHD raised for the previous on-site infrastructure. The surrounding assessment area is either flat or upsloping to the northeast towards Mount Melville and northwest towards Mount Elphinstone.

3.1.3 Pre-development inputs

A summary of the assessed pre-development classified vegetation, exclusions and effective slope within the project area and adjacent 150 m are listed in Table 2 and illustrated in Figure 3.

Table 2: Pre-development vegetation classifications/ exclusions and effective slope

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class A Forest	Flat/upslope (0°)	Forest vegetation within and adjacent to the project area, 10–30 m in height with a multi-tiered fuel structure.
2	Class D Scrub	Flat/upslope (0°)	Scrub vegetation 2–6 m in height.
3	Class G Grassland	Flat/upslope (0°)	Grassland greater than 100 mm in height.
4	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated areas (buildings, other infrastructure, roads, footpaths, access tracks, sealed areas, earthworked land, etc) and low threat managed vegetation (managed lawns, gardens, verges, urban streetscapes, etc).

3.1.4 Post-development inputs

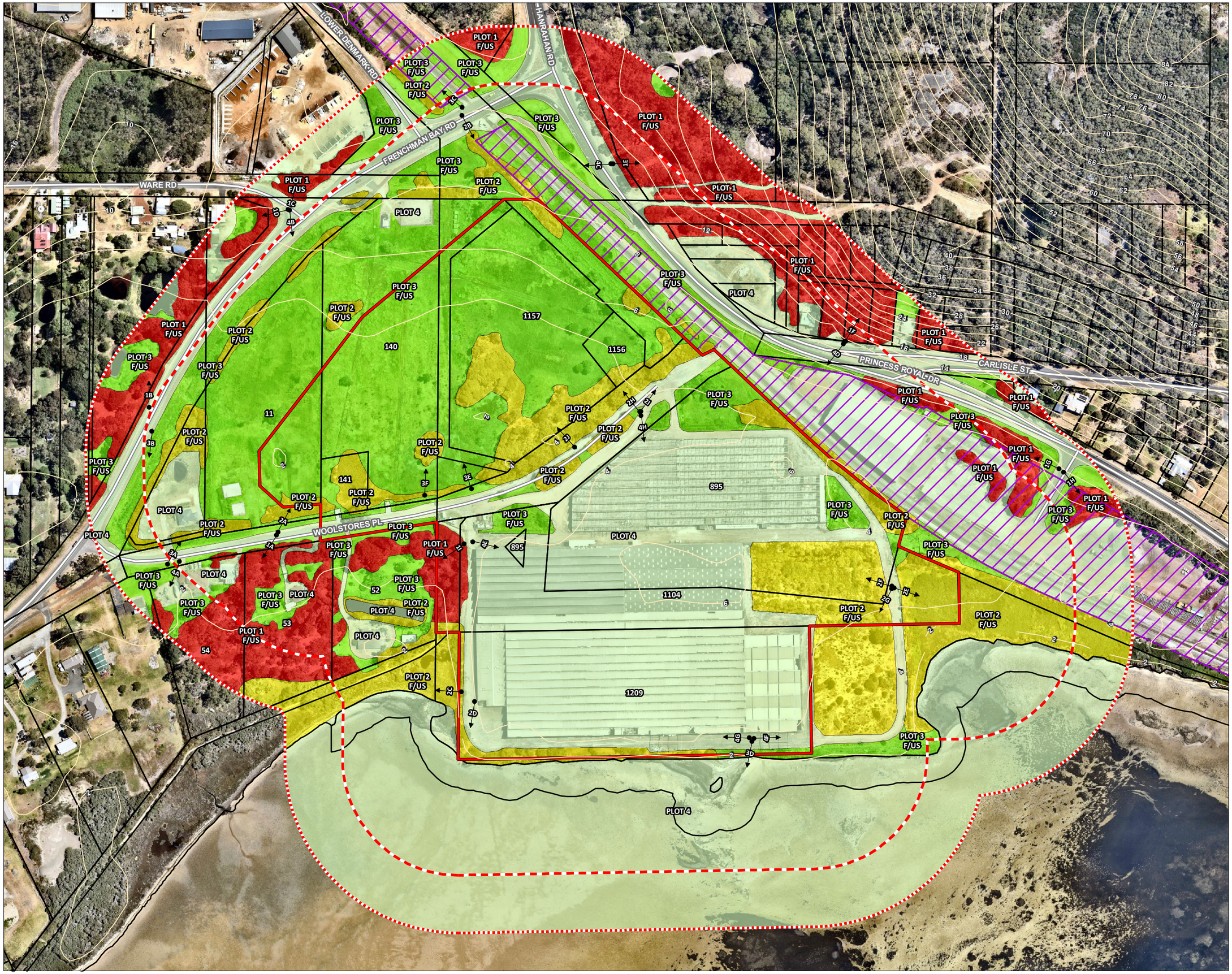
A summary of the anticipated post-development classified vegetation, exclusions and effective slope within the project area and adjacent 150 m are listed in Table 3 and illustrated in Figure 4.

As previously stated, the entire project area is expected to be modified as part proposed development to be excluded from classification in accordance with relevant exclusions under Clause 2.2.3.2 of AS3959. The indicative Structure Plan layout has been applied to Figure 4 to demonstrate the expected post-development footprint.

The post-development vegetation classifications and exclusions for land external to the project area are expected to remain the same as for the pre-development classifications/exclusions, except for potential areas of proposed revegetation along the roadside batters associated with the future Albany Ring Road to the west and north. As previously stated, all efforts have been made in this BMP to predict the future worst case revegetation extent along the roadside batters in accordance with the Draft Landscaping Plan provided by MRWA, as contained in Appendix A. The proposed batter planting mixes have been analysed and align with a combination of future Class A forest and Class D scrub, as represented in Figure 4.

Table 3: Post-development vegetation classifications/ exclusions and effective slope

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class A Forest	Flat/upslope (0°)	Forest vegetation within and adjacent to the project area, 10–30 m in height with a multi-tiered fuel structure.
2	Class D Scrub	Flat/upslope (0°)	Scrub vegetation 2–6 m in height.
3	Class G Grassland	Flat/upslope (0°)	Grassland greater than 100 mm in height.
4	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated areas (buildings, other infrastructure, roads, footpaths, access tracks, sealed areas, earthworked land, etc) and low threat managed vegetation (managed lawns, gardens, verges, urban streetscapes, etc).
5	Land to be modified in accordance with low threat exclusion Clause 2.2.3.2	N/A	Areas within the project area to be modified to a low threat state as part of proposed development.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary
- Railway reserve

Vegetation classification

- Class A
- Class D Scrub
- Class G Grassland
- Clause 2.2.3.2 (e) & (f)

- Photo point directions
- Topographic contours (mAHD)
- Roads (LGATE)

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Job No: 63062	
Client: Rowe Group	
Version: A	Date: 12-Apr-2023
Drawn By: jcrute	Checked By: CT

Scale 1:3,000 at A3

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metres

Coord. Sys. GDA 1994 MGA Zone 50

Woolstores Place,
Mt Elphinstone/Mt Melville, WA

PRE-DEVELOPMENT
VEGETATION CLASSIFICATION
AND EFFECTIVE SLOPE

FIGURE 3

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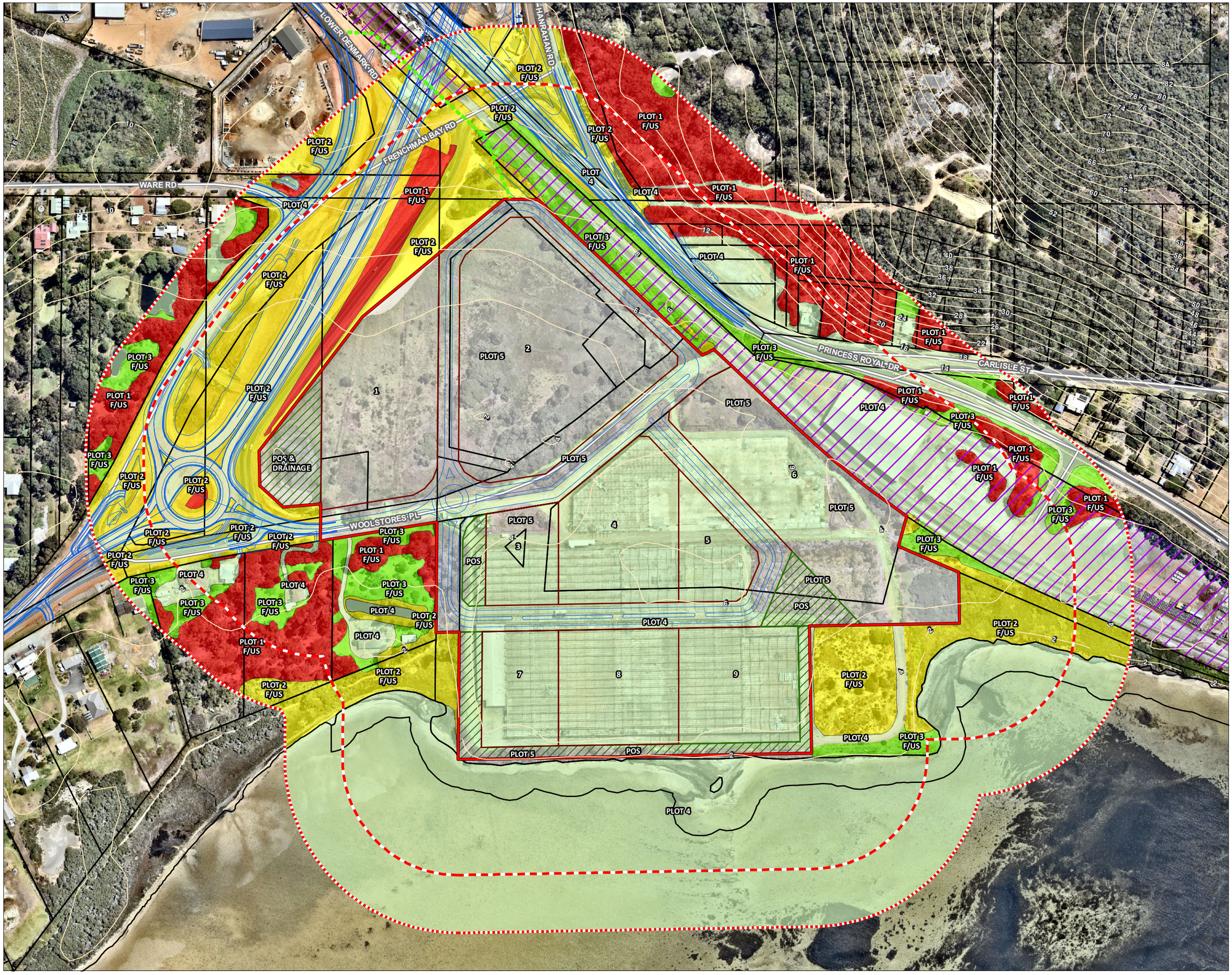

Legend

- Project area
- 100m assessment area
- 150m assessment area
- Railway reserve
- Proposed lots
- Proposed POS
- Cadastral boundary

Vegetation classification

- Class A Forest
- Class D Scrub
- Class G Grassland
- Clause 2.2.3.2 (e) & (f)
- Area to be modified to non-vegetated and low threat state
- Proposed roads
- Indicative 6m wide EAW alignment
- Topographic contours (mAHD)
- Roads (LGATE)

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Version: A	Date: 12-Apr-2023
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Scale 1:3,000 at A3

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metres

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POST-DEVELOPMENT VEGETATION CLASSIFICATION AND EFFECTIVE SLOPE

FIGURE 4

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3.2 Assessment outputs

3.2.1 Bushfire Hazard Level (BHL) assessment

Pre- and post-development vegetation extents have been assigned a bushfire hazard level in accordance with the methodology detailed in Appendix Two of the Guidelines as outlined in Table 4.

Table 4: Bushfire hazard levels and characteristics

Bushfire hazard level	Characteristics*
Extreme	• Class A Forest • Class B Woodland (05) • Class D Scrub • Any classified vegetation with a greater than 10° slope.
Moderate	• Class B Low woodland (07) • Class C Shrubland • Class E Mallee/Mulga • Class G Grassland, including sown pasture and crops • Class G Grassland: Open woodland (06), Low open woodland (08), Open shrubland (09) • Vegetation that has a low hazard level but is within 100 metres of vegetation classified as a moderate or extreme hazard, is to adopt a moderate hazard level.
Low	• Low threat vegetation may include areas of maintained lawns, golf courses, public recreation reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks • Managed grassland in a minimal fuel condition (insufficient fuel is available to significantly increase the severity of the bushfire attack). For example, short-cropped grass to a nominal height of 100 millimetre • Non-vegetated areas including waterways, roads, footpaths, buildings and rock outcrops.
*Vegetation classifications from AS 3959-2018 Table 2.3.	

3.2.1.1 Pre-development BHLs

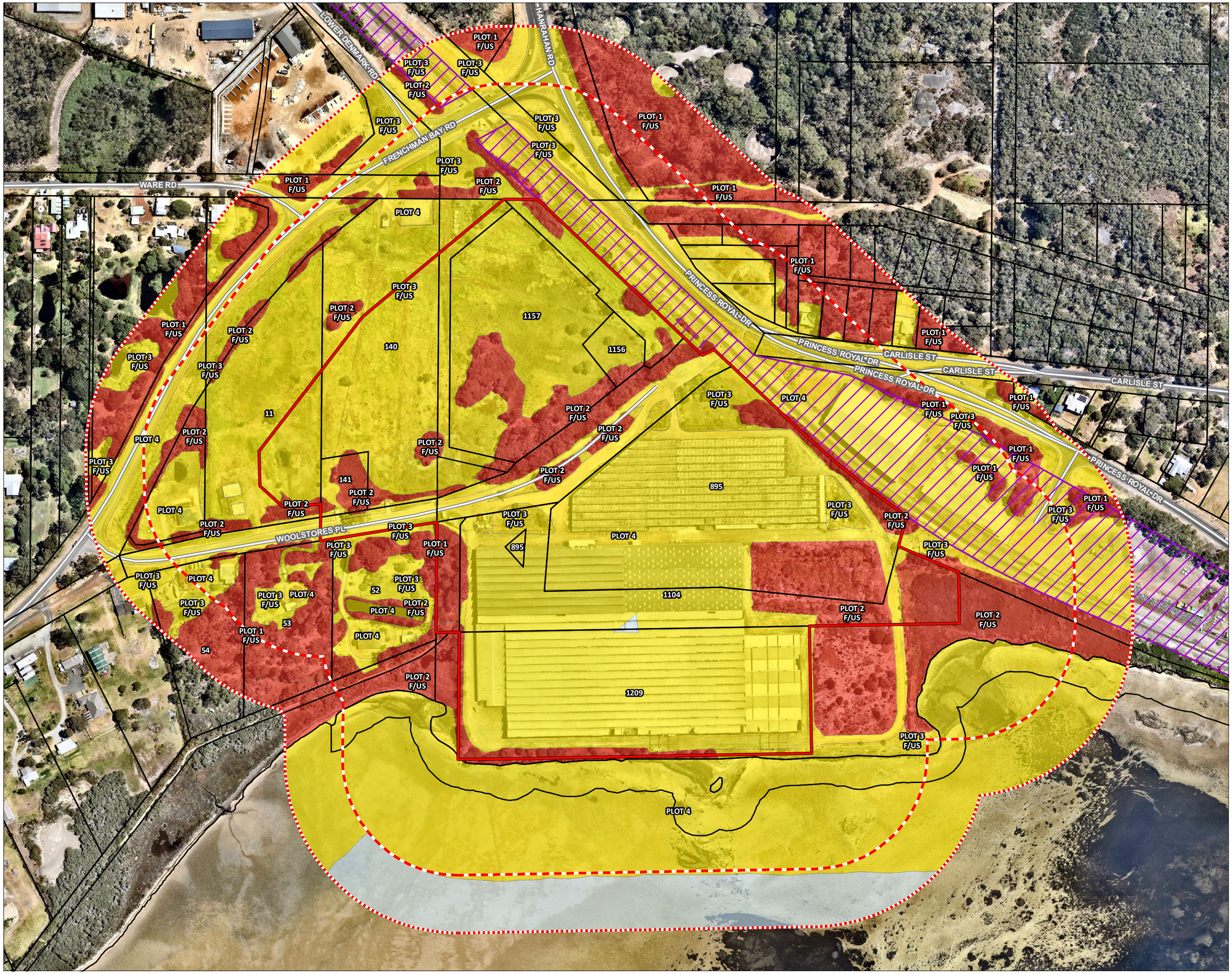
The pre-development bushfire hazard levels have been mapped within the project area and adjacent 150 m. The bushfire hazard levels have been assessed on the basis of the vegetation discussed in Section 3.1.3 (i.e. the current pre-development extent of vegetation within and surrounding the project area).

The pre-development BHL assessment (refer to Figure 5) indicates that based on the existing vegetation, the project area contains land with Moderate and Extreme bushfire hazard levels.

3.2.1.2 Post-development BHLs

The anticipated post-development bushfire hazard levels have been mapped to demonstrate that the future bushfire hazard levels will be acceptable for future development to occur within the project area. The bushfire hazard levels have been assigned based on the vegetation discussed in Section 3.1.4 and the future expected vegetation extent within and surrounding the project area.

The post-development BHL assessment (refer to Figure 6) demonstrates that all future habitable development within the project area will be located on land with Low and Moderate bushfire hazard levels.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary
- Railway reserve

Hazard level

- Extreme
- Moderate
- Low

Roads (LGATE)

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Client: Rowe Group	
Version: A	Date: 12-Apr-2023
Drawn By: jcrute	Checked By: CT

Scale 1:3,000 at A3

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metres

Coord. Sys. GDA 1994 MGA Zone 50

Woolstores Place,
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PRE-DEVELOPMENT
BUSHFIRE HAZARD LEVELS

FIGURE 5

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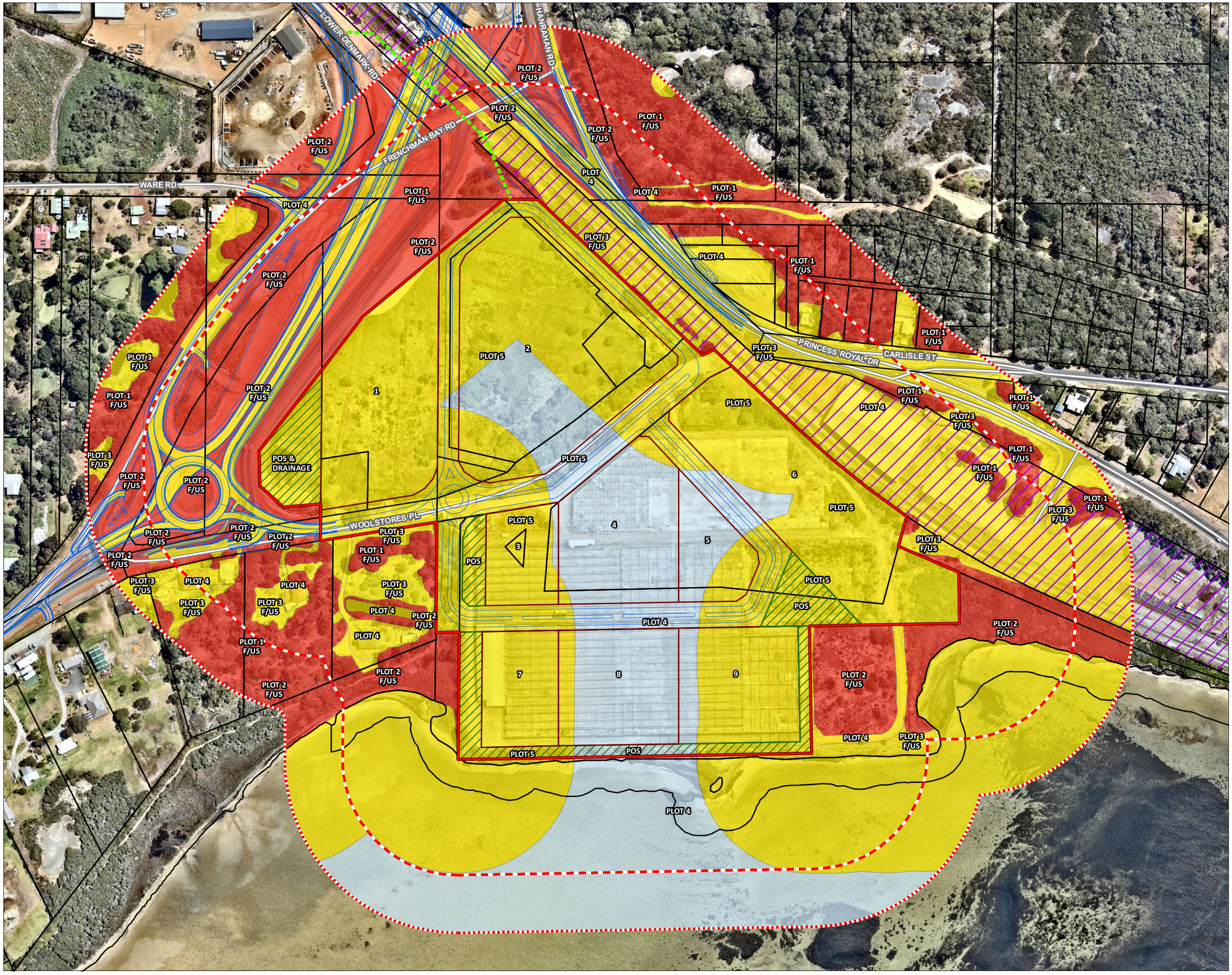

Legend

- Project area
- 100m assessment area
- 150m assessment area
- Railway reserve
- Proposed lots
- Proposed POS
- Cadastral boundary

Hazard level

- Extreme
- Moderate
- Low

- Proposed roads
- Indicative 6m wide EAW alignment
- Roads (LGATE)

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Client: Rowe Group	
Version: A	Date: 12-Apr-2023
Drawn By: jcrute	Checked By: CT

Scale 1:3,000 at A3

0 50 100
metres

Coord. Sys. GDA 1994 MGA Zone 50

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POST-DEVELOPMENT
BUSHFIRE HAZARD LEVELS

FIGURE 6

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4. Identification of bushfire hazard issues

4.1 Bushfire context

In the broader spatial context beyond 150 m of the project area, sources of bushfire risk occur to the north (around the CSBP facility, approximately 1.5 km fire run), northeast (Mount Melville, approximately 1.5 km fire run) and northwest (Mount Elphinstone, approximately 1 km fire run), while there is limited risk from the south due to the abutting foreshore of Princess Royal Harbour. Land to the north, northeast and northwest comprises varying degrees of forest vegetation upslope from the project area, fragmented by numerous land uses and infrastructure corridors. Whilst it is recognised that there is bushfire risk in the broader locality, these areas do not directly abut the project area and substantial buffers are either existing or proposed between the project area and these sources of bushfire risk, such that they can be sufficiently mitigated, including:

- existing rural small holdings lots to the west, northwest and east, where the on-site forest fuels have been partially cleared and fragmented
- existing Princess Royal Drive and railway corridor to the east and northeast, which provide significant fragmentation and buffering to the vegetation towards Mount Melville
- existing Frenchman Bay Road and Lower Denmark Road to the west, northwest and north, which provide significant fragmentation and buffering to the vegetation towards Mount Elphinstone and the CSBP facility
- proposed Albany Ring Road, which is currently under construction (see indicative alignment in Figure 4) and will establish a more substantial infrastructure corridor to the west, northwest, north and northeast beyond that already in place.

The remaining areas of bushfire risk occur at a local level, including fragmented forest, scrub and grassland fuels contained in the adjacent rural small holdings lots to the west, northwest and east of the project area; and the foreshore reserve to the southwest and southeast. In addition, new sources of classifiable vegetation are expected to be introduced along the batters of the proposed Albany Ring Road, adjacent to the project area. The fire runs associated with these local sources of risk are small (predominantly within 100 m) and can be managed at a local level through provision of compliant development design, as discussed below in Section 4.2.

Whilst there are significant road and rail corridors directly abutting the project area, this has resulted in a landlocked situation, with the only current source of public vehicular access available to the project area via Woolstores Place to the west, which is greater than 200 m in length from the nearest intersection where two access routes are available (i.e. intersection with Frenchman Bay Road). This legacy vehicular access limitation and non-compliance will only be further reinforced through construction of the Albany Ring Road, meaning there is no scope to provide a formal secondary public access road to the project area. Alternative arrangements for provision of a secondary access route for proposed development are discussed below in Section 4.2.

4.2 Bushfire hazard issues

Examination of strategic development design in accordance with the Structure Plan concept and pre- and post-development BHLs has identified the following bushfire hazard issues to be considered at future planning stages:

1. The project area currently contains on-site areas of Extreme BHL. However, the post-development BHL assessment demonstrates that on completion of development, all habitable development will be located on land with a Moderate or Low BHL that can sufficiently deliver BAL-29 or lower. A detailed BAL contour assessment will be undertaken at future planning stages (i.e. subdivision) to proof up lot design and demonstrate at a more detailed level that all

development will be located within areas of BAL-29 or below. Therefore, the development can comply with Acceptable Solution A1.1 of the Guidelines.

2. Based on the anticipated post-development vegetation classifications depicted in Figure 4, the following minimum separation distances will be required to deliver BAL-29 between any on-site or abutting vegetation and proposed habitable development. These separation distances may be delivered through designed low threat spaces such as roads and POS, or through specific Asset Protection Zone (APZ) setbacks to habitable development:
    a. Class A forest (flat/upslope): 21 m
    b. Class D scrub (flat/upslope): 13 m
    c. Class G grassland (flat/upslope): 8 m.
3. Consideration will need to be given to proposed landscape design, particularly for any POS, to ensure low threat outcomes are designed or appropriate BAL-29 separation is provided.
4. As previously mentioned, Woolstores Place provides legacy, non-compliant single access to the project area and there is no scope to provide a secondary public access road to the site. After review of multiple options and alternatives and significant analysis and consultation with relevant agencies, the most appropriate secondary access option is to establish a permanent Emergency Access Way (EAW) of approximately 225 m in length, linking the internal public road network in the north of the site, through to Lower Denmark Road further to the north. The justification and rationale for this EAW option is provided in Appendix C, as well as a plan of the indicative EAW alignment. At this stage, MRWA has provided 'in principle' support for the proposed access option (refer to Appendix D). The EAW will resolve the legacy non-compliant no-through road of Woolstores Place and provide a compliant secondary public access route for the project area through to multiple additional suitable destinations to the north and west.
5. Should development of the project area occur in stages, establishment of the abovementioned EAW will be triggered for any development occurring beyond 200 m from the Woolstores Place intersection with the Albany Ring Road. This will ensure that each stage of development is provided with compliant access in accordance with acceptable solution A3.2a of the Guidelines. This may also require provision of temporary staging measures such as temporary compliant no-through roads and/or EAWs to deliver compliant access outcomes for individual stages.
6. As the project area contains bushfire prone vegetation in a pre-development state, staged construction at the subdivision stage of planning is to consider the BAL impacts from adjacent future stages that have not yet been developed. Low threat staging buffers may need to be implemented around the active stages of development to ensure there is no residual BAL impact from vegetation that has not yet been cleared or landscaped to achieve a low threat state on surrounding future stages.
7. A reticulated water supply and network of street hydrants is expected to be readily achievable for the project area given the existing reticulated water and hydrant network along Woolstores Place, including three current street hydrants.

Based on the above, Strategen-JBS&G considers the bushfire hazards within and adjacent to project area and the associated bushfire risks are readily manageable through standard acceptable solution responses outlined in the Guidelines. These responses will be factored into proposed development as early as possible at all stages of the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

5. Assessment against the bushfire protection criteria

5.1.1 Compliance with Elements 1–4

Demonstration that the proposed development can comply with relevant acceptable solutions of Elements 1–4 of the bushfire protection criteria of the Guidelines (Version 1.4) is outlined in Table 5.

Table 5: Compliance with the bushfire protection criteria of the Guidelines

Bushfire protection criteria	Performance Principle	Method of compliance Acceptable solutions	Proposed bushfire management strategies	Compliance achievable at future planning stages
Element 1: Location	**P1** – The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL–29 or below, and the risk can be managed. For unavoidable development in areas where BAL–40 or BAL–FZ applies, demonstrating that the risk can be managed to the satisfaction of the decision-maker.	**A1.1 Development location** The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.	The pre-development BHL assessment (Figure 5) identifies that the project area currently contains land with Moderate and Extreme bushfire hazard levels. However, on completion of development, all on-site vegetation is expected to be cleared and/or managed and modified to a low threat state. Therefore, post-development bushfire hazard levels within the project area have been assessed to be Low or Moderate (Figure 6). Consideration will need to be given to any on-site and/or external classified vegetation and the appropriate separation distances necessary for habitable development to achieve BAL—29 or lower. The project area is considered of sufficient size such that any interface with post-development classified vegetation could be readily accommodated via compliant subdivision design to ensure all future habitable development can achieve BAL-29 or lower. This will be demonstrated through preparation of a subdivision stage BMP and accompanying BAL contour map.	✓
Element 2: Siting and design	**P2** – The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. The proposal incorporates a defendable space and significantly reduces the heat intensities at the building surface thereby minimising the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.	**A2.1 Asset Protection Zone** Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the requirements set out in Schedule 1.	APZs required for future habitable development to achieve BAL—29 are to be implemented for all relevant lots where required. The required APZs will be identified at future planning stages based on future subdivision/development design and following a BAL contour assessment. APZs are to be implemented and maintained in accordance with Schedule 1 of the Guidelines (Appendix F).	✓
Element 3: Vehicular access	**P3i** – The design and capacity of vehicular access and egress is to provide for the community to evacuate to a suitable destination before a bushfire arrives at the site, allowing emergency services personnel to attend the site and/or hazard vegetation.	**A3.1 Public roads** *The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads.* Public roads are to meet the minimum technical requirements in Table 6, Column 1. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.	The proposed Structure Plan concept indicates future public roads will meet the technical requirements of the Guidelines (see Appendix E). This will be confirmed at the subdivision stage of planning.	✓

Bushfire protection criteria	Performance Principle	Method of compliance Acceptable solutions	Proposed bushfire management strategies	Compliance achievable at future planning stages
		A3.2a Multiple access routes Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access). If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 metres from the subject lot(s) boundary to an intersection where two-way access is provided. The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met: • the no-through road travels towards a suitable destination; and • the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area – Figure 23.	On completion of development, the existing and future public road network and permanent EAW will provide all occupants with the option of travelling to multiple suitable destinations through the following vehicular access connections: • access to Frenchman Bay Road via Woolstores Place and future Albany Ring Road and then on to suitable destinations in Albany City Centre to the northeast or Little Grove to the south • access to Lower Denmark Road via EAW to the north and then on to suitable destinations in Albany City Centre (via South Coast Highway) to the north and east or Elleker or Denmark to the north and west. In this regard, the proposed development is provided with multiple access routes as per the requirements set out in Appendix E and will be confirmed at the subdivision stage of planning. A minimum of two compliant access routes are also to be provided during staging of development.	✓
		A3.2b Emergency access way *Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution.* An emergency access way is to meet all the following requirements: • requirements in Table 6, Column 2; • provides a through connection to a public road; • be no more than 500 metres in length; and • must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.	A permanent EAW is required linking the internal public road network in the north through to Lower Denmark Road. This represents the secondary access route for the proposed development and will need to comply with the relevant technical requirements of the Guidelines (see Appendix E). This will be confirmed at the subdivision stage of planning. In addition, any temporary EAWs required as a result of staged development are to be constructed to the relevant technical requirements of the Guidelines (see Appendix E).	✓
		A3.3 Through-roads All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where: • it is demonstrated that no alternative road layout exists due to site constraints; and • the no-through road is a maximum length of 200 metres to an intersection providing two-way access, unless it satisfies the exemption provisions in A3.2a of this table. A no-through road is to meet all the following requirements: • requirements of a public road (Table 6, Column 1); and • turn-around area as shown in Figure 24.	All proposed public roads will be through roads. Given the legacy non-compliant no-through road status of existing Woolstores Place and the demonstrated site constraints with regards to the landlocked nature of the site and Albany Ring Road construction, no alternative road layout exists that could convert Woolstores Place into a through road. On this basis, an EAW will be established to resolve the non-compliant no-through road of Woolstores Place by providing a public emergency access extension through to Lower Denmark Road, as previously discussed. This will be confirmed at the subdivision stage of planning. In addition, any temporary no-through roads required as a result of staged development are to be constructed to the relevant technical requirements of the Guidelines (see Appendix E).	✓
	P3ii – The design of vehicular access and egress provides: • access and egress for emergency service vehicles while allowing the community to evacuate; • a defendable space for emergency services personnel on the interface • between classified vegetation and development site; and • hazard separation between classified vegetation and the subject site to reduce	**A3.4a Perimeter roads** A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of: • separating areas of classified vegetation under AS3959, which adjoin the subject site, from the proposed lot(s); and • removing the need for battle-axe lots that back onto areas of classified vegetation. A perimeter road is to meet the requirements contained in Table 6, Column 1. A perimeter road may not be required where:	A substantial perimeter public road network, both externally through construction of Albany Ring Road and internally through provision of internal public roads, will be provided for the project area at the key interfaces to the west, north and east. Whilst some minor sections of proposed development do not contain a perimeter road at the direct interface with surrounding areas of classified vegetation (such as the foreshore vegetation interface at the southeast and southwest corners of the site), the internal public access network navigates within close proximity to these interfaces and is considered to provide a sufficient perimeter access response to the adjacent vegetation extent.	✓

Bushfire protection criteria	Performance Principle	Method of compliance Acceptable solutions	Proposed bushfire management strategies	Compliance achievable at future planning stages
	the potential radiant heat that may impact a lot(s).	• the adjoining classified vegetation is Class G Grassland; • lots are zoned for rural living or equivalent; • it is demonstrated that it cannot be provided due to site constraints; or • all lots have frontage to an existing public road.		
	P3iii – Vehicular access is provided which allows: • access and egress for emergency service vehicles; • defendable space for emergency services • personnel on the interface between classified vegetation and development; and • hazard separation between classified vegetation and the site to reduce the potential radiant heat that may impact a lot(s).	**A3.4b Fire service access route** *Where proposed lots adjoin classified vegetation under AS3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation.* A fire service access route is to meet all the following requirements: • requirements in Table 6, Column 3; • be through-routes with no dead-ends; • linked to the internal road system at regular intervals, every 500 metres; • must be signposted; • no further than 500 metres from a public road; • if gated, gates must open the required horizontal clearance and can be locked by the local government and/or emergency services, if keys are provided for each gate; and • turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres.	No permanent fire service access routes (FSARs) are proposed; however, if development and construction of vehicular access is to be staged, any proposed temporary FSAR is to be constructed to the relevant technical requirements of the Guidelines (see A3.4b and Appendix E).	✓
	P3iv – Vehicular access is provided which allows emergency service vehicles to directly access all habitable buildings and water supplies and exit the lot without entrapment.	**A3.5 Battle-axe access legs** *Where it is demonstrated that a battle-axe cannot be avoided due to site constraints, it can be considered as an acceptable solution.* There are no battle-axe technical requirements where the point the battle-axe access leg joins the effective area of the lot, is less than 50 metres from a public road in a reticulated area. In circumstances where the above condition is not met, or the battle-axe is in a non-reticulated water area, the battle-axe is to meet all the following requirements: • requirements in Table 6, Column 4; and • passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres).	Battle-axe provisions are a subdivision stage consideration. However, no battle-axes are expected to be proposed as part of future subdivision design and the project area is not serviced by an existing battle-axe.	N/A
		A3.6 Private driveways There are no private driveway technical requirements where the private driveway is: • within a lot serviced by reticulated water; • no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and • accessed by a public road where the road speed limit is not greater than 70 km/h. In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following requirements: • requirements in Table 6, Column 4;	Private driveways are a Development Application stage consideration.	N/A

Bushfire protection criteria	Performance Principle	Method of compliance Acceptable solutions	Proposed bushfire management strategies	Compliance achievable at future planning stages
		• passing bays every 200 metres with a minimum length of 20 metres and a minimum • additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and • turn-around area as shown in Figure 28 and within 30 metres of the habitable building.		
Element 4: Water	No performance principle applies	**A4.1 Identification of future water supply** Evidence that a reticulated or sufficient non-reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2. Where the provision of a strategic water tank(s) is required a suitable area within a road reserve or a dedicated lot the location should be identified, should be identified on the structure plan, to the satisfaction of the local government.	The proposed development will be connected to a reticulated water supply and street hydrant network via connection with the existing services along Woolstores Place that will meet the specifications of Water Corporation (Design Standard DS 63).	✓
	P4 – Provide a permanent water supply that is: • sufficient and available for firefighting purposes; • constructed from non-combustible materials (e.g. steel), or able to maintain its integrity throughout a bushfire; and • accessible, with legal access for maintenance and re-filling by tankers and emergency service vehicles.	**A4.2 Provision of water for firefighting purposes** Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies: • The provision of a water tank(s), in accordance with the requirements of Schedule 2; and • Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: – land to be ceded free of cost to the local government for the placement of the tank(s); – the lot or road reserve where the tank is to be located is identified on the plan of subdivision; – tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and – a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above.	The provision of water for firefighting purposes is a subdivision/Development Application stage consideration. Notwithstanding, the proposed development will be connected to reticulated water supply as mentioned above.	N/A

6. Responsibilities for implementation and management of the bushfire measures

This BMP has been prepared as a strategic guide to demonstrate how development compliance will be delivered at future planning stages in accordance with the Guidelines. Aside from the preparation of future BMPs to accompany future subdivision and development applications where appropriate, there are no further items to implement, enforce or review at this strategic stage of the planning process.

Future BMPs prepared for subsequent subdivision and development applications are to meet the relevant commitments outlined in this strategic level BMP where applicable, address the relevant requirements of SPP 3.7 (i.e. Policy Measures 6.4 and 6.5 respectively) and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions or meet the performance requirements of the Guidelines. Future BMPs are to include the following detailed information:

- proposed lot/development layout
- landscaping details for POS areas that adequately demonstrate the anticipated low threat vegetation outcomes or alternatively, depict proposed areas of classifiable vegetation to inform the required design and separation response
- confirmation of post-development classified vegetation extent, effective slope, exclusions and separation distances to inform BAL contour mapping
- detailed BAL contour mapping demonstrating that proposed habitable development areas will achieve a rating of BAL–29 or lower
- width and alignment of compliant APZs (if applicable), including any APZ setback requirements for individual lots
- confirmation of how bushfire management will be addressed regarding temporary vegetation/bushfire hazards on adjacent future development stages, including low threat staging buffers or temporary quarantining of lots where required
- vehicular access provisions, including demonstration that a minimum of two access routes will be achieved for each stage of development, including consideration of any temporary compliant access provisions such as no-through roads and EAWs
- confirmation of the final alignment and necessary agency agreements for the permanent EAW to Lower Denmark Road to the north
- reticulated water supply provisions
- future requirements for any identified vulnerable land uses, such as provision of a Bushfire Emergency Evacuation Plan at the DA stage for any proposed tourism land uses
- provisions for notification on Title for any future lots with a rating of BAL-12.5 or greater as a condition of subdivision
- compliance requirements with the annual City of Albany Fire Management Notice (as contained in Appendix G)
- assessment against the bushfire protection criteria of the Guidelines demonstrating compliance within the boundary of the subdivision/development site
- proposed audit and compliance program outlining all measures requiring implementation and the appropriate timing and responsibilities for implementation.

Based on the information contained in this BMP, Strategen-JBS&G considers the bushfire hazards within and adjacent to the project area and the associated bushfire risks are readily manageable through standard acceptable solution responses outlined in the Guidelines. Strategen-JBS&G considers that on implementation of the proposed management measures, the project area will be able to be developed with a manageable level of bushfire risk whilst maintaining full compliance with SPP3.7, the Guidelines and AS 3959.

7. References

Department of Fire and Emergency Services (DFES) 2021, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: https://maps.slip.wa.gov.au/landgate/bushfireprone/, [1/11/2022].

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

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

JBS&G 2023, *Albany Woolstores Detailed Environmental Studies (EAR)*, report prepared for Rowe Group, April 2023.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth.

Western Australian Planning Commission (WAPC) 2021, *Guidelines for Planning in Bushfire Prone Areas*, Version 1.4 December 2021, Western Australian Planning Commission, Perth.

8. Limitations

Scope of services

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

Reliance on data

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

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

Environmental conclusions

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

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

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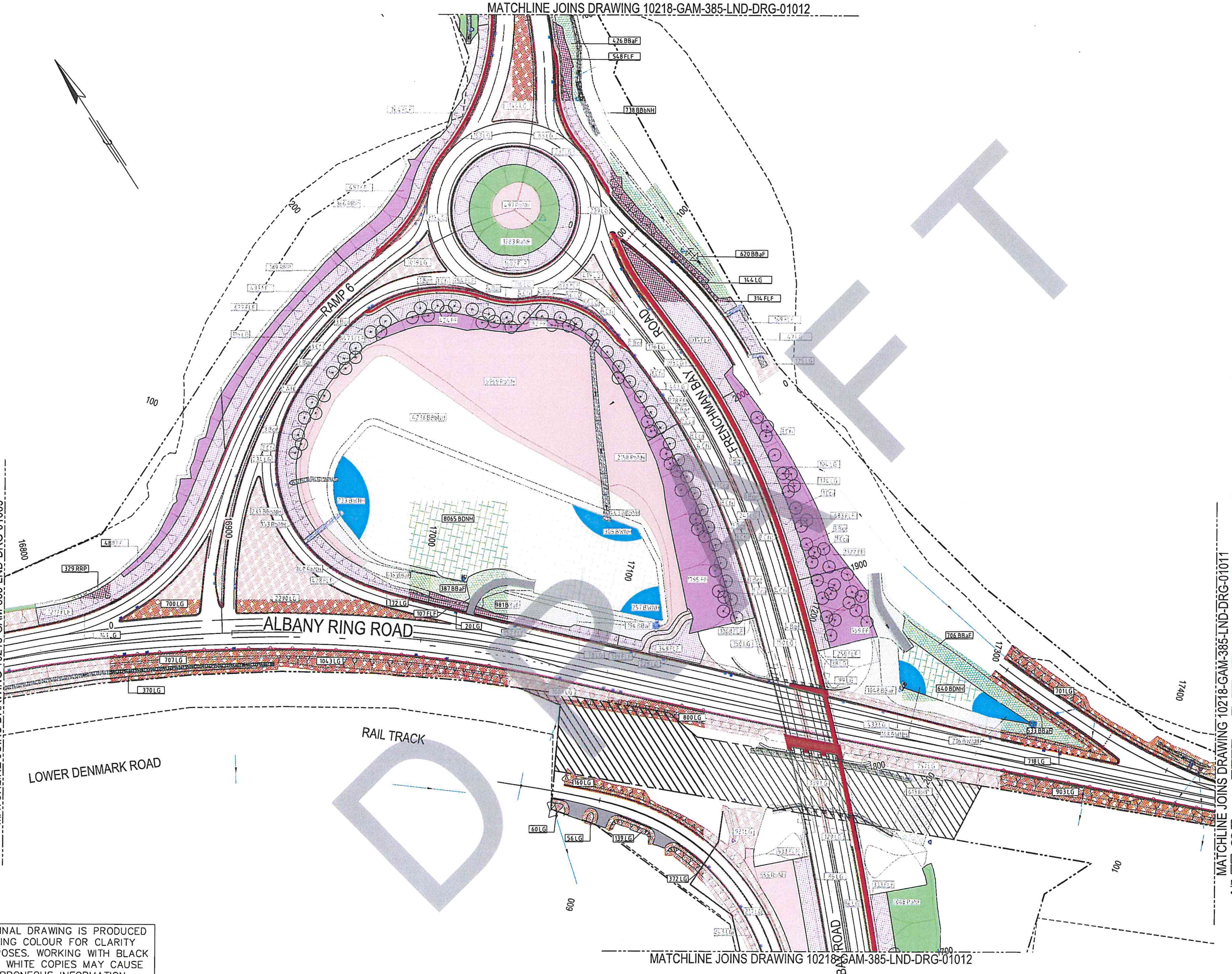
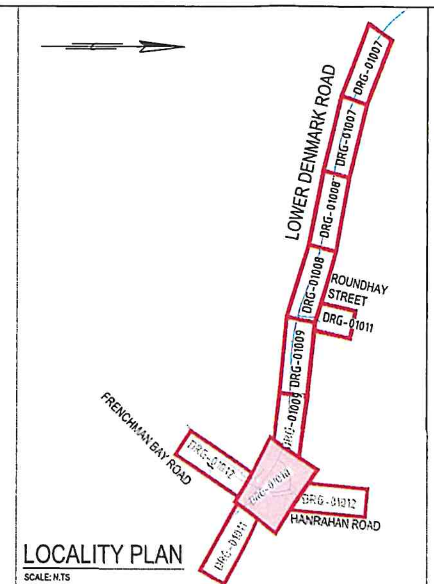
Appendix A Albany Ring Road Draft Landscaping Plan





LOCALITY PLAN
SCALE: N.TS

LEGEND

PROJECT BOUNDARY
ENVIRONMENT BOUNDARY

PLANTING MIXES

FEATURE TREE (50MM depth mulch / Tubestock as shown / Non Frangible)
FLF - FEATURE LOW MIX (50MM depth mulch / Tubestock at 2.5/m² and Direct Seeding at 3kg/Ha / Frangible)
FF - FEATURE MIX (50MM depth mulch / Tubestock at 1/m² and Direct Seeding at 3kg/Ha / Frangible)
RaNH - REVEGETATION MIX A (50MM depth gravel / Tubestock at 0.5/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
RbNH - REVEGETATION MIX B (No mulch / Tubestock at 0.5/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
BBaF - BASIN BATTER MIX A (No mulch / Tubestock at 0.5/m² and Direct Seeding at 4kg/Ha / Frangible)
BBbNH - BASIN BATTER MIX B (NF) (No mulch / Tubestock at 0.5/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
BDNH - BASIN DRYLAND MIX (No mulch / Tubestock at 0.5/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
BWNH - BASIN WETLAND MIX (No mulch / Tubestock at 4/m² / Non Frangible / Habitat Species)
RRP - ROAD RESERVE PLANTING (No mulch / Tubestock at 0.12/m² / Non Frangible / Habitat Species)
FaF - FAUNA CROSSING MIX A (50MM depth gravel / Tubestock at 2/m² and Direct Seeding at 4kg/Ha / Frangible)
FbNH - FAUNA CROSSING MIX B (50MM depth gravel / Tubestock at 2/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
SMNH - SCREENING MIX (No mulch / Tubestock at 3/m² and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)
TP - UNTREATED TOPSOIL RESPREAD

HARD LANDSCAPE

LG - COMPACTED LATERITE GRAVEL
RP - ROCK PITCHING REFER CIVIL
ACCESS TRACK - REFER CIVIL
PSP / CYCLE PATH - REFER CIVIL

EXISTING

EXISTING TREES TO BE RETAINED
EXISTING VEGETATION AREA TO BE RETAINED & PROTECTED. AREA TO BE SPRAYED FOR WEEDS.
EXISTING VEGETATION AREA TO BE RETAINED.
AREA TO BE RETAINED IN CURRENT CONDITION.
MRWA LAYDOWN AREA - EXISTING SOIL PROFILE.

NOTE:
- REFER URBAN AND LANDSCAPE DESIGN MODEL DRAWINGS FOR REVEGETATION AND MATERIAL AREAS AND LABELS.

SCALE 1:1000 (A1) / 1:2000 (A3)

NOT FOR CONSTRUCTION

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No.	DESCRIPTION	APPROVED & DATE
C	ISSUED FOR 100% DESIGN REVIEW	M.O 04/10/22
B	ISSUED FOR 15% DESIGN REVIEW	M.O 02/03/22
A	ISSUED FOR 15% DESIGN REVIEW	M.O 14/02/22
	AMENDMENTS	

METADATA	
GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA
ecoscape

DRAWN	A.DUNDAS	10/22
DESIGNED	N.CROUDACE	10/22
CHECKED	N.CROUDACE	10/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

DECMIL

mainroads WESTERN AUSTRALIA
INFRASTRUCTURE DELIVERY DIRECTORATE

IVAN MARTINOVICH
LINDSAY McCARTIN
DAVID CLARKSON

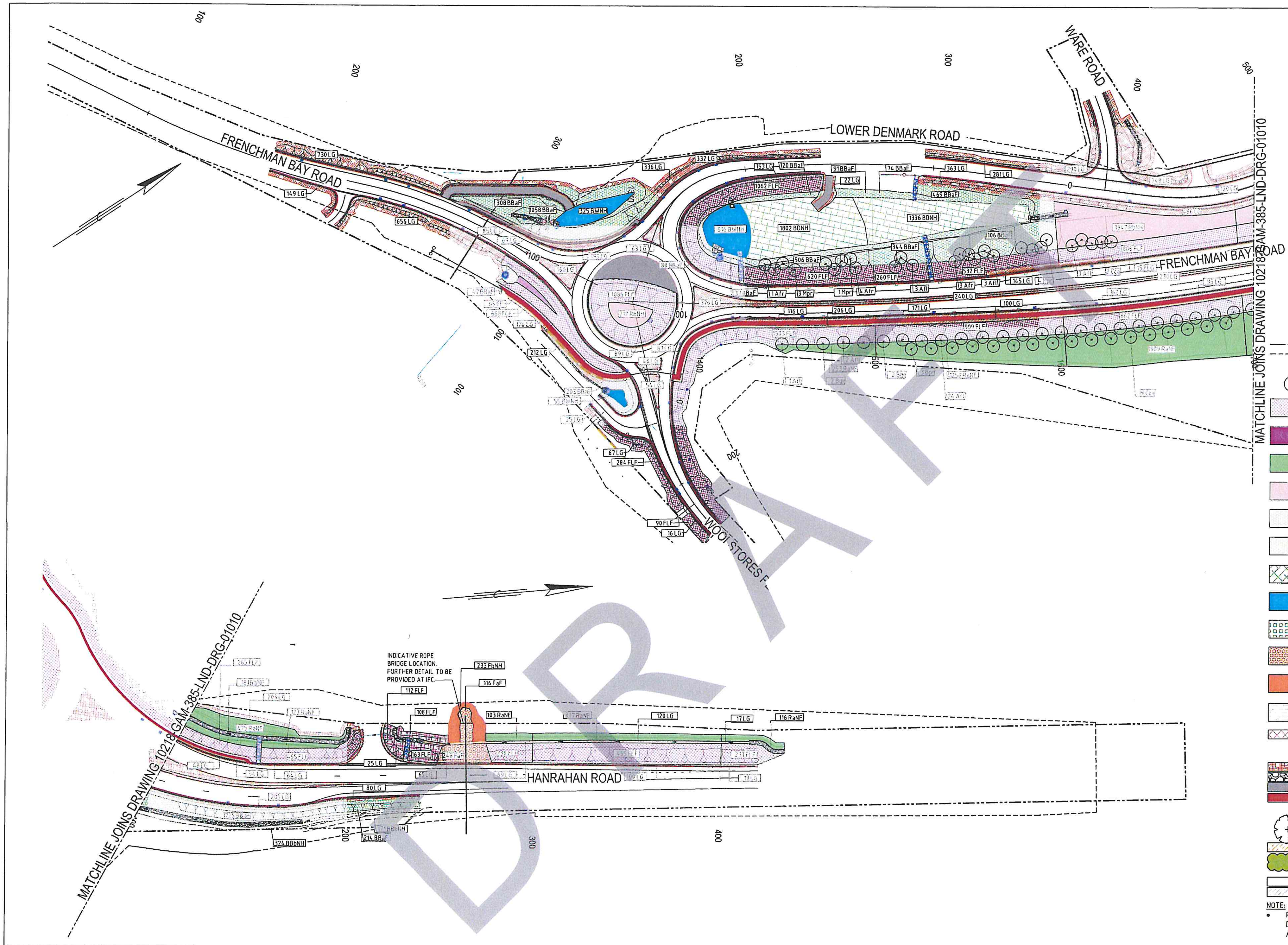
LOCAL AUTHORITY: (302) CITY OF ALBANY
MAIN ROADS RESPONSIBILITY AREA: GREAT SOUTHERN REGION

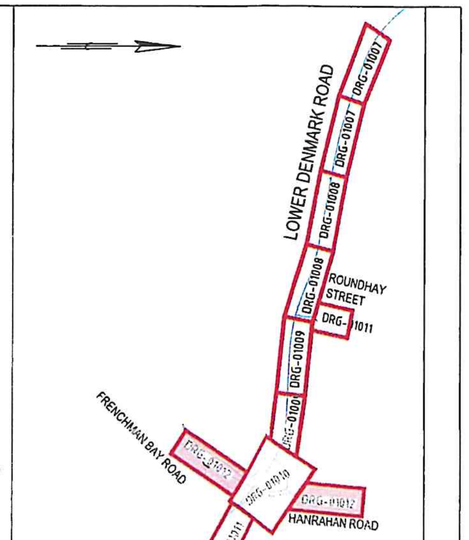
PROJECT TITLE: ALBANY RING ROAD (H054)

DRAWING TITLE: SP3 CHAINAGE 13500 TO CHAINAGE 17600
LOT 385 - URBAN AND LANDSCAPE DESIGN
URBAN AND LANDSCAPE PLAN
SHEET 10 OF 12

SHEET: A1

DRAWING STATUS: 100% DESIGN
DRAWING No.: 10218-GAM-385-LND-DRG-01010
REV: C





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SCALE N.T.S

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RaNH - REVEGETATION MIX A (50MM depth gravel / Tubestock at $0.5/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

RbNH - REVEGETATION MIX B (No mulch / Tubestock at $0.5/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

BBaF - BASIN BATTER MIX A (No mulch / Tubestock at $0.5/m^2$ and Direct Seeding at 4kg/Ha / Frangible)

BBbNH - BASIN BATTER MIX B (NF) (No mulch / Tubestock at $0.5/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

BDNH - BASIN DRYLAND MIX (No mulch / Tubestock at $0.5/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

BWNH - BASIN WETLAND MIX (No mulch / Tubestock at $4/m^2$ / Non Frangible / Habitat Species)

RRP - ROAD RESERVE PLANTING (No mulch / Tubestock at $0.12/m^2$ / Non Frangible / Habitat Species)

FaF - FAUNA CROSSING MIX A (50MM depth gravel / Tubestock at $2/m^2$ and Direct Seeding at 4kg/Ha / Frangible)

FbNH - FAUNA CROSSING MIX B (50MM depth gravel / Tubestock at $2/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

SMNH - SCREENING MIX (No mulch / Tubestock at $3/m^2$ and Direct Seeding at 4kg/Ha / Non Frangible / Habitat Species)

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ACCESS TRACK - REFER CIVIL

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EXISTING VEGETATION AREA TO BE RETAINED & PROTECTED. AREA TO BE SPRAYED FOR WEEDS.

EXISTING VEGETATION AREA TO BE RETAINED.

AREA TO BE RETAINED IN CURRENT CONDITION.

MRWA LAYDOWN AREA - EXISTING SOIL PROFILE.

NOTE:

- REFER URBAN AND LANDSCAPE DESIGN MODEL DRAWINGS FOR REVEGETATION AND MATERIAL AREAS AND LABELS.

1:2000 (A3) / 1:1000 (A1)

ORIGINAL DRAWING IS PRODUCED USING COLOUR FOR CLARITY PURPOSES. WORKING WITH BLACK AND WHITE COPIES MAY CAUSE ERRONEOUS INFORMATION.

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No.	DESCRIPTION	APPROVED & DATE
C	ISSUED FOR 100% DESIGN REVIEW	M.O 04/10/22
B	ISSUED FOR 15% DESIGN REVIEW	M.O 02/03/22
A	ISSUED FOR 15% DESIGN REVIEW	M.O 14/02/22

AMENDMENTS

METADATA	
GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA

ecoscape

DRAWN	A.DUNDAS	10/22
DESIGNED	N.CROUDACE	10/22
CHECKED	N.CROUDACE	10/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

DECMIL

mainroads WESTERN AUSTRALIA

INFRASTRUCTURE DELIVERY DIRECTORATE

CONTRACT MANAGER: LINDSAY McARTIN

PROJECT DIRECTOR: DAVID CLARKSON

LOCAL AUTHORITY: (302) CITY OF ALBANY

MAIN ROADS RESPONSIBILITY AREA: GREAT SOUTHERN REGION

PROJECT TITLE: ALBANY RING ROAD (H054)

DRAWING TITLE: SP3 CHAINAGE 13500 TO CHAINAGE 17600 LOT 385 - URBAN AND LANDSCAPE DESIGN URBAN AND LANDSCAPE PLAN SHEET 12 OF 12

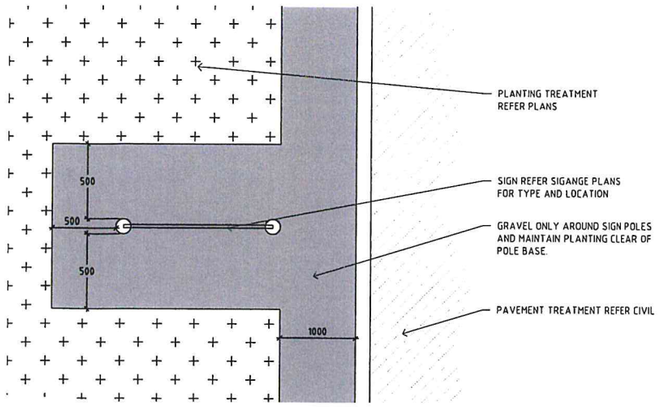
SHEET: A1

DRAWING STATUS: 100% DESIGN

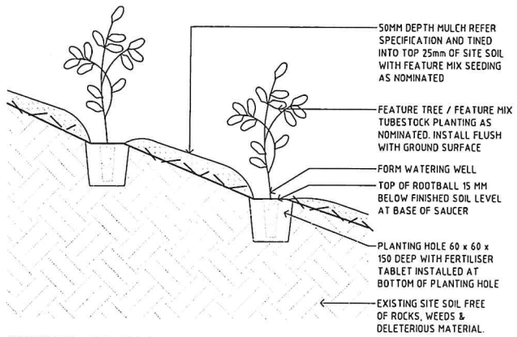
DRAWING No.: 10218-GAM-385-LND-DRG-01012

REV: C

NOTE:
1. REFER TO DRAINAGE DRAWINGS FOR GRAVEL DEPTH IN SWALE DRAINS.

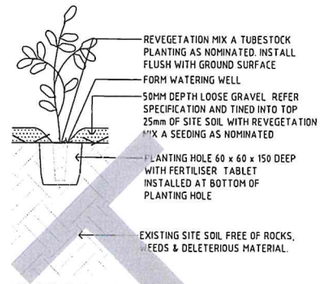


01 SIGNAGE HARD LANDSCAPE OFFSETS
TYPICAL PLAN — SCALE 1:20 @ A1



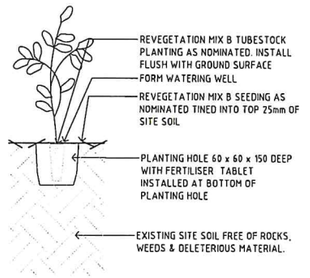
NOTE: USE MINIMAL CUT INTO EMBANKMENT & FILL TO SLOPE BELOW PLANT TO CREATE LEVEL PLANTING AREA FOR EACH INDIVIDUAL PLANTING. DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT.

04 FEATURE TREE / FEATURE MIX EMBANKMENT PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1



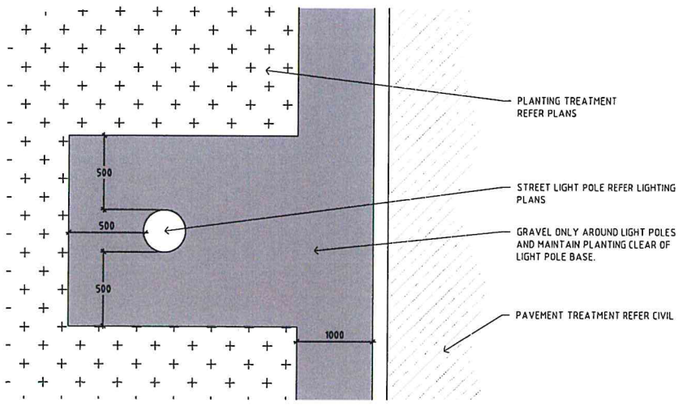
NOTE: DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT CONTRACTOR TO PROOF ROLL AND TRIM DIRECT SEEDED AREA TO ACHIEVE EVEN GRADES THROUGHOUT

07 REVEGETATION MIX A PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1

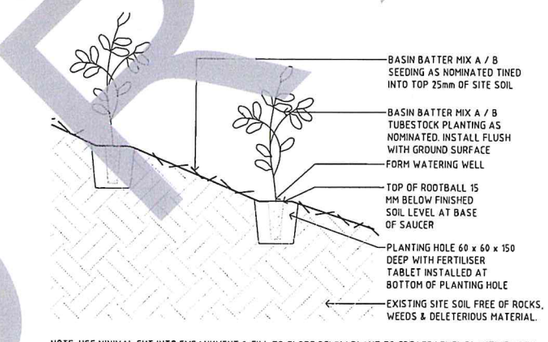


NOTE: DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT

08 REVEGETATION MIX B PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1

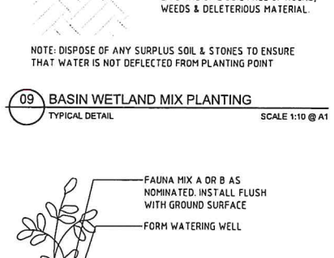


02 LIGHT POLE HARD LANDSCAPE OFFSETS
TYPICAL DETAIL — SCALE 1:20 @ A1



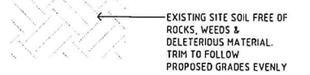
NOTE: USE MINIMAL CUT INTO EMBANKMENT & FILL TO SLOPE BELOW PLANT TO CREATE LEVEL PLANTING AREA FOR EACH INDIVIDUAL PLANTING
DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT.
CONTRACTOR TO PROOF ROLL AND TRIM DIRECT SEEDED AREA TO ACHIEVE EVEN GRADES THROUGHOUT

05 REVEGETATION MIX A EMBANKMENT PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1

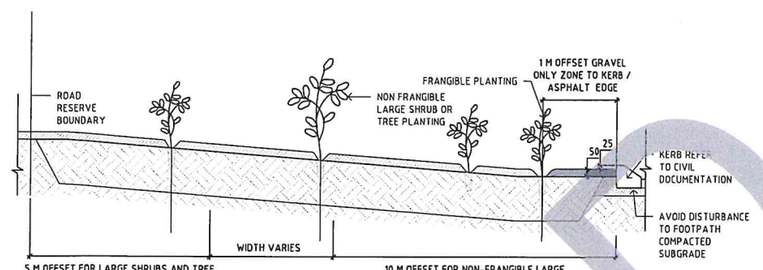


NOTE: DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT

09 BASIN WETLAND MIX PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1



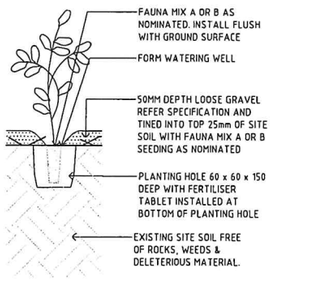
10 LATERITE GRAVEL
TYPICAL DETAIL — SCALE 1:10 @ A1



03 PLANTING OFFSETS
TYPICAL DETAIL — SCALE 1:20 @ A1

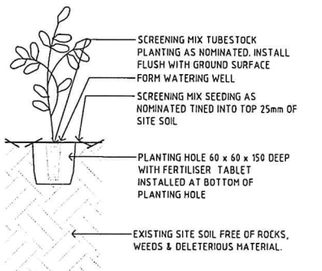
NOTE: USE MINIMAL CUT INTO EMBANKMENT & FILL TO SLOPE BELOW PLANT TO CREATE LEVEL PLANTING AREA FOR EACH INDIVIDUAL PLANTING. DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT. CONTRACTOR TO PROOF ROLL AND TRIM DIRECT SEEDED AREA TO ACHIEVE EVEN GRADES THROUGHOUT

06 BASIN BATTER MIX A & B EMBANKMENT PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1



NOTE: DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT CONTRACTOR TO PROOF ROLL AND TRIM DIRECT SEEDED AREA TO ACHIEVE EVEN GRADES THROUGHOUT

11 FAUNA MIX A & B PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1



NOTE: DISPOSE OF ANY SURPLUS SOIL & STONES TO ENSURE THAT WATER IS NOT DEFLECTED FROM PLANTING POINT

12 SCREENING MIX PLANTING
TYPICAL DETAIL — SCALE 1:10 @ A1

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No.	DESCRIPTION	APPROVED & DATE
	AMENDMENTS	
C	ISSUED FOR 100% DESIGN REVIEW	MO 04/10/22
B	ISSUED FOR 15% DESIGN REVIEW	MO 02/03/22
A	ISSUED FOR 15% DESIGN REVIEW	MO 14/02/22

METADATA

GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA ecoscape

DRAWN	A.DUNDAS	10/22
DESIGNED	N.CROUDACE	10/22
CHECKED	N.CROUDACE	10/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		VERIFIED DATE

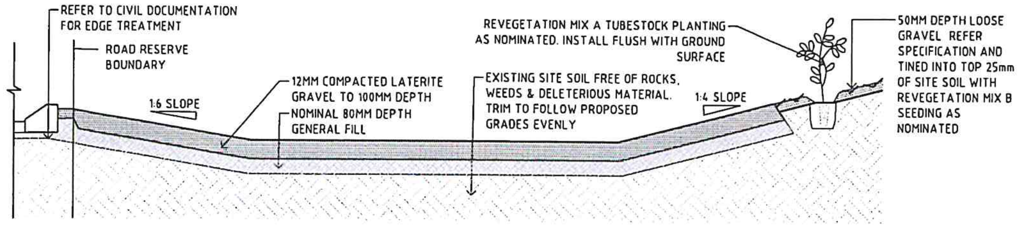
DECMIL

PROJECT MANAGER	IVAN MARTINOVICH	DATE
PROJECT DIRECTOR	TENDAI CHIKORE	DATE
CONTRACT MANAGER	TRESAY MCLARTIN	DATE
DESIGN MANAGER	DAVID CLARKSON	DATE

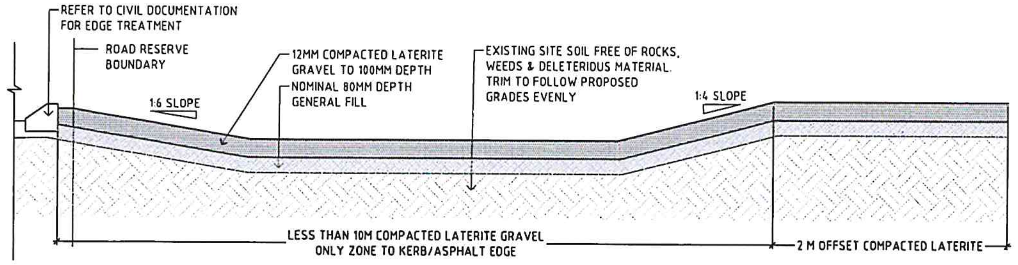
THE GOVERNMENT OF WESTERN AUSTRALIA
mainroads WESTERN AUSTRALIA
INFRASTRUCTURE DELIVERY DIRECTORATE

LOCAL AUTHORITY: (302) CITY OF ALBANY
MAIN ROADS REGIONAL OFFICE: ONE ALBANY SOUTHERN REGION
MRWA DRAWING NUMBER:
PROJECT TITLE: ALBANY RING ROAD (H054)
DRAWING TITLE: SP3 LOT 385 - URBAN AND LANDSCAPE DESIGN URBAN AND LANDSCAPE - TYPICAL DETAILS SHEET 1 OF 2
SHEET: A1
DRAWING STATUS: 100% DESIGN
DRAWING No.: 10218-GAM-385-LND-DRG-02001
REV: C

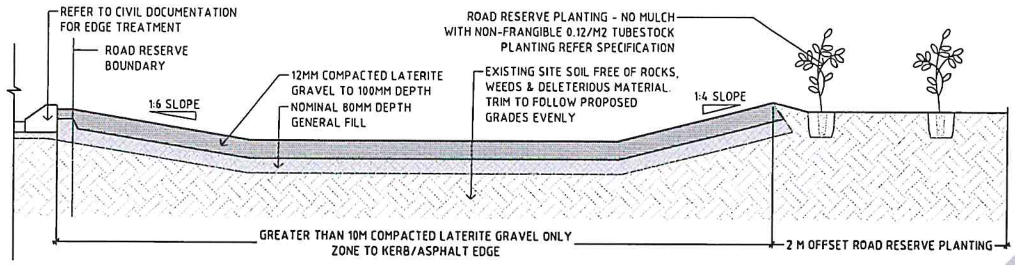
NOTE:
1. REFER TO DRAINAGE DRAWINGS FOR GRAVEL DEPTH IN SWALE DRAINS.



01 GRAVEL DRAINAGE SWALE
TYPICAL DETAIL SCALE 1:20 @ A1



02 2M OFFSET WITHIN 10M OF ROAD RESERVE
TYPICAL DETAIL SCALE 1:20 @ A1



03 2M OFFSET OUTSIDE 10M OF ROAD RESERVE
TYPICAL DETAIL SCALE 1:20 @ A1

DRAFT

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C	ISSUED FOR 100% DESIGN REVIEW	MO 04/10/22
B	NOT ISSUED	–
A	NOT ISSUED	–

AMENDMENTS

METADATA	
GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA
ecoscape

DRAWN	A.DUNDAS	10/22
DESIGNED	N.CROUDACE	10/22
CHECKED	N.CROUDACE	10/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

DECMIL

INFRASTRUCTURE DELIVERY DIRECTORATE

mainroads WESTERN AUSTRALIA

CONTRACT MANAGER IVAN MARTINOVICH
PROJECT DIRECTOR KENDAL CHKOTIE
CONTRACT MANAGER LINDSAY McCARTIN
PROJECT DIRECTOR DAVID CLARKSON

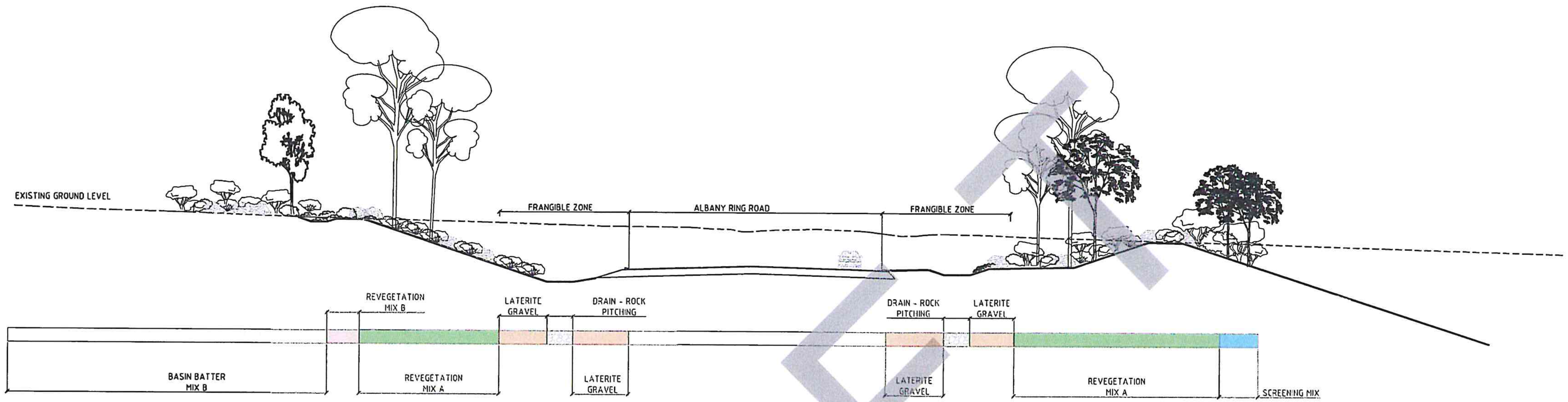
LOCAL AUTHORITY (302) CITY OF ALBANY
MAIN ROADS RESPONSIBILITY AREA GREAT SOUTHERN REGION
MRWA DRAWING NUMBER

PROJECT TITLE ALBANY RING ROAD (H054)

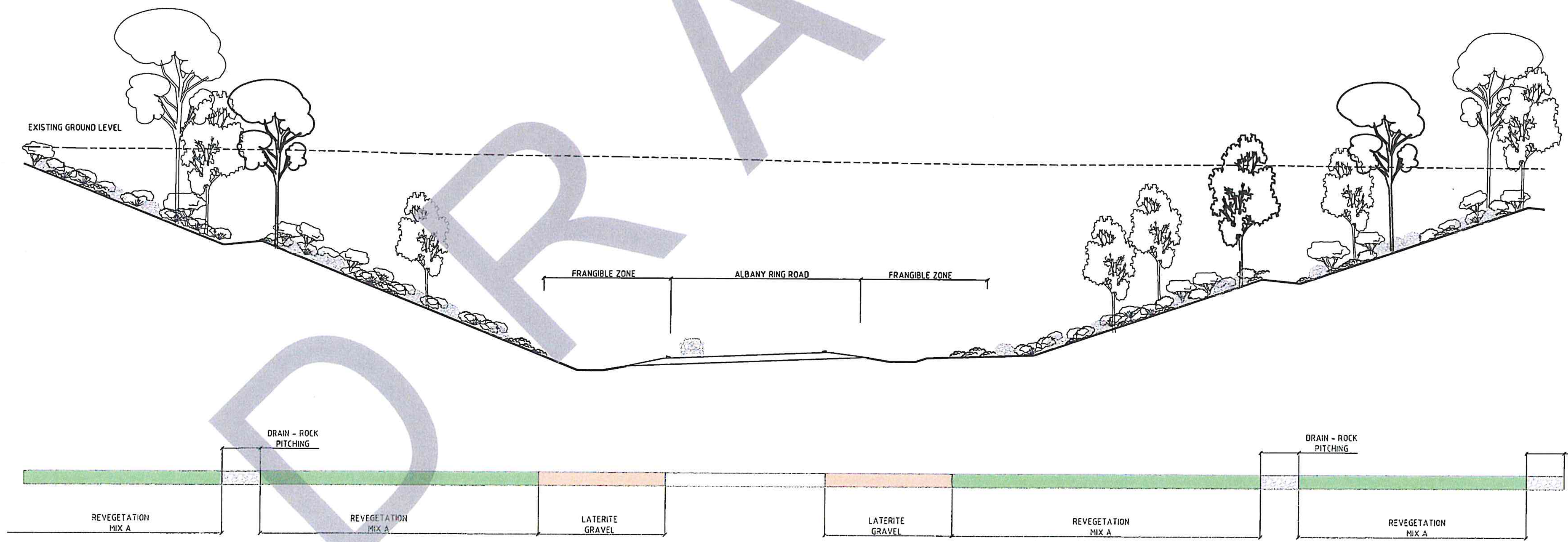
DRAWING TITLE SP3
LOT 385 - URBAN AND LANDSCAPE DESIGN
URBAN AND LANDSCAPE - TYPICAL DETAILS
SHEET 1 OF 2

SHEET A1

DRAWING STATUS 100% DESIGN
DRAWING No. 10218-GAM-385-LND-DRG-02002
REV C



CROSS SECTION CHAINAGE 11400
SCALE 1:200



CROSS SECTION CHAINAGE 12600
SCALE 1:200

DRAFT

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C	ISSUED FOR 100% DESIGN REVIEW	MO 04/10/22
B	ISSUED FOR 15% DESIGN REVIEW	MO 02/03/22
A	ISSUED FOR 15% DESIGN REVIEW	MO 14/02/22
	AMENDMENTS	

METADATA

GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

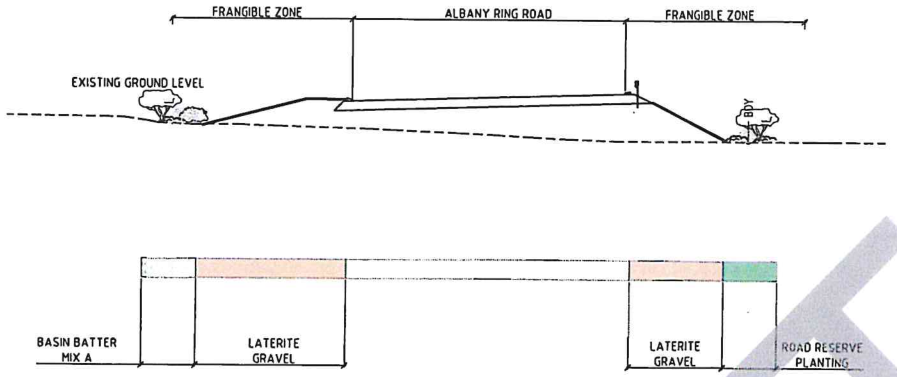
GAMBARA
ecoscape

DRAWN	A.DUNDAS	03/22
DESIGNED	A.DUNDAS	03/22
CHECKED	N.CROUDACE	09/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

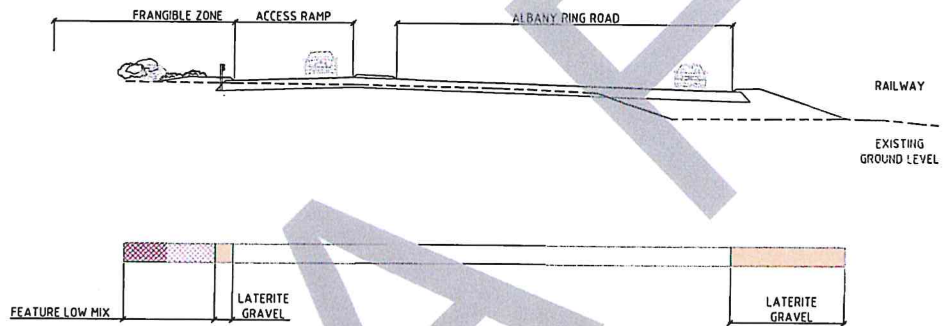
DECMIL

mainroads WESTERN AUSTRALIA
INFRASTRUCTURE DELIVERY DIRECTORATE
LINDSAY McCARTIN
DAVID CLARKSON

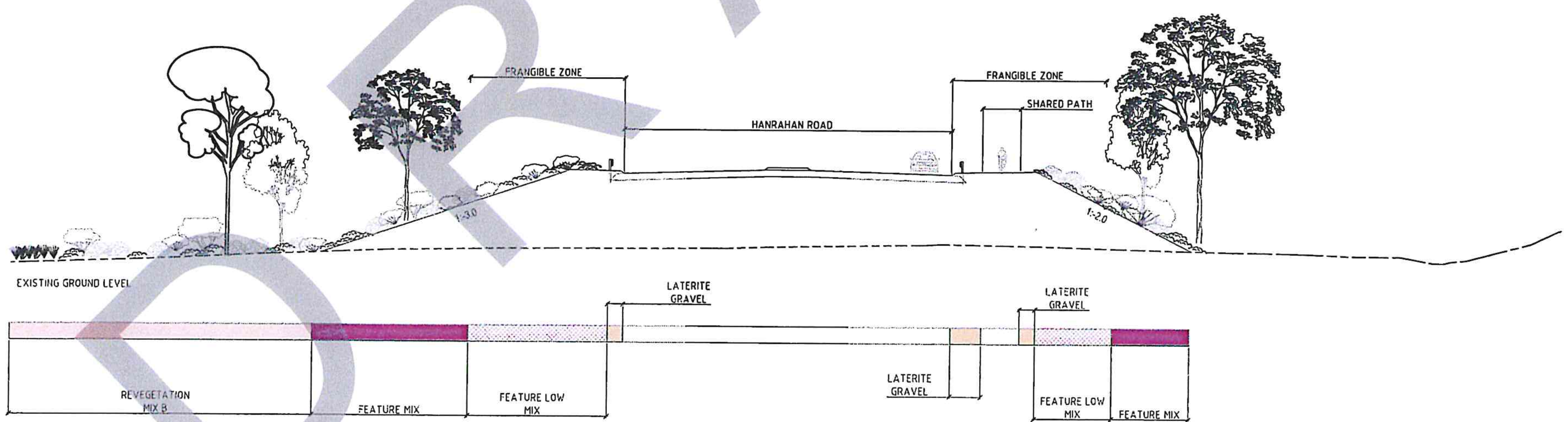
LOCAL AUTHORITY: (302) CITY OF ALBANY
MAIN ROADS REGION: GREAT SOUTHERN REGION
MRWA DRAWING NUMBER:
PROJECT TITLE: ALBANY RING ROAD (H054)
DRAWING TITLE: SP3
LOT 300 - ROAD ALIGNMENT
URBAN AND LANDSCAPE - CROSS SECTION
SHEET 1 OF 2
SHEET: A1
DRAWING STATUS: 100% DESIGN
DRAWING No.: 10218-GAM-385-LND-DRG-03001
REV: C



CROSS SECTION CHAINAGE 14000
SCALE 1:200



CROSS SECTION CHAINAGE 17000
SCALE 1:200



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CROSS SECTION CHAINAGE 2000
SCALE 1:200

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No.	DESCRIPTION	APPROVED & DATE
C	ISSUED FOR 100% DESIGN REVIEW	MO 04/10/22
B	ISSUED FOR 15% DESIGN REVIEW	MO 02/03/22
A	ISSUED FOR 15% DESIGN REVIEW	MO 14/02/22

AMENDMENTS

METADATA

GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA
ecoscape

DRAWN	A.DUNDAS	03/22
DESIGNED	A.DUNDAS	03/22
CHECKED	N.CROUDACE	09/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

VERIFIED
DATE

DECMIL

mainroads WESTERN AUSTRALIA

INFRASTRUCTURE DELIVERY DIRECTORATE

CONTRACT MANAGER IVAN MARINOVICH DATE
PROJECT DIRECTOR TENDAI CHIKOTE DATE
CONTRACT MANAGER LINDSAY McCARTIN DATE
PROJECT DIRECTOR DAVID CLARKSON DATE

LOCAL AUTHORITY (302) CITY OF ALBANY
MAIN ROADS RESPONSIBILITY AREA GREAT SOUTHERN REGION
MRWA DRAWING NUMBER

PROJECT TITLE ALBANY RING ROAD (H054)

DRAWING TITLE SP3
LOT 385 - URBAN AND LANDSCAPE DESIGN
URBAN AND LANDSCAPE - CROSS SECTION
SHEET 2 OF 2

SHEET A1

DRAWING STATUS 100% DESIGN

DRAWING No. 10218-GAM-385-LND-DRG-03002

REV C

Feature Tree	Common Name	Noongar Name	symbol	QTY tubestock
Agonis flexuosa	WA Peppermint	Wonnil	Afl	38
Allocasuarina fraseriana	Sheoak	Condil	Afr	8
Banksia Grandis	Bull Banksia	Boongura	Bgr	30
Banksia praemorsa	Cut Leaf Banksia	Kodjet	Bpr	37
Corymbia calophylla	Marri	Marri	Cca	27
Corymbia ficifolia	Red-flowering Gum	Yorgum	Cfi	12
Melaleuaca preissiana	Stout Paperbark	Moonah	Mpr	8
Total Plants				**160**

Feature Mix (FF)	Common Name	Noongar Name	Tubestock Mix 10,000 / Ha	Seeding Mix 3.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					0.6503	0.6503
Acacia littorea	Shark tooth wattle		750	250	488	0.16
Acacia myrtifolia var angustifolia	Myrtle wattle		250	250	163	0.16
Adenanthos cuneatus	Coastal Jugflower		750		488	0.00
Agonis theiformis	Summer snowflakes		500	500	325	0.33
Anigozanthos flavidus	Tall Kangaroo Paw	Kurulbrang	950	250	618	0.16
Banksia coccinea	Scarlet Banksia	Waddib	250		163	0.00
Callistemon glaucus	Albany Bottlebrush	Birdak	1250		813	0.00
Calothamnus sanguineus	Silky-leaved Blood	Boolgalla	500		325	0.00
Daviesia flexuosa	Bitter peas		350		228	0.00
Gompholobium scabrum			125		81	0.00
Hypocalymma angustifolium	Painted lady	koodgeed or kudjid	500	250	325	0.16
Isopogon cuneatus	White Myrtle		250		163	0.00
Isopogon formosus	Coneflower		250		163	0.00
Melaleuca pentagona	Honey myrtle	Mindiyet	500	500	325	0.33
Melaleuca thymoides	Sand wattle myrtle		750	500	488	0.33
Melaleuca striata			500	250	325	0.16
Oleana axillaris	Coastal Daisybush	Yoont Djet	250	250	163	0.16
Patersonia occidentalis	Purple Flag		250		163	0.00
Taxandria parviceps			325		211	0.00
Westringia dampieri	Shore Westringia		500		325	0.00
Verticordia plumosa	Plumed Featherflower		250		163	0.00
Total Plants					**6503**	**1.95**

Feature Low Mix (FLF)	Common Name	Noongar Name	Tubestock Mix 25,000 / Ha	Seeding Mix 3.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					2.4602	2.4602
Acacia luteola	Tall Kangaroo Paw		3000	1000	7381	2.46
Anigozanthos flavidus	Catspaw	Kurulbrang	2000	500	4920	1.23
Anigozanthos humulis	Coastal Jugflower		500		1230	0.00
Adenanthos cuneatus 'Coral Carpet'	Bitter peas		2500		6151	0.00
Daviesia flexuosa			1500	500	3690	1.23
Grevillea pulchella	Beautiful Grevillea		1500	500	3690	1.23
Hibbertia cuneiformis			1200		2952	0.00
Hypocalymma cordifolium	Cutleaf Hibbertia		1000	500	2460	1.23
Patersonia occidentalis	The Golden Veil	Kooma	2500		6151	0.00
Pimelea ferruginea	Purple Flag		2000		4920	0.00
Westringia dampieri			3300		8119	0.00
Verticordia plumosa	Plumed Featherflower		4000		9841	0.00
Total Plants					**61505**	**7.38**

Revegetation Mix A (RaNH)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					13.7986	13.7986
Acacia browniana	Brown's wattle		750	250	10349	3.45
Acacia myrtifolia	Myrtle Wattle		525	750	7244	10.35
Agonis flexuosa	Peppermint	Wonnil	350	500	4830	6.90
Allocasuarina humilis	Dwarf sheoak		250	750	3450	10.35
Banksia formosa	Showy Dryandra		125	0	1725	0.00
Banksia grandis	Bull Banksia	Beera	125	75	1725	1.03
Calothamnus quadrifidus	One-sided Bottlebrush	Kwowdjard	500	0	6899	0.00
Eucalyptus megacarpa	Bullich	Bullich	250	250	3450	3.45
Eucalyptus staeri	Albany Blackbutt		250	0	3450	0.00
Gompholobium scabrum	Painted lady		250	0	3450	0.00
Hakea ferruginea	Rusty Hakea		250	0	3450	0.00
Kunzea recurva	Purple Kunzea		250	250	3450	3.45
Melaleuca violacea			125	250	1725	3.45
Melaleuca diosmifolia	Honey Myrtle		250	425	3450	5.86
Melaleuca pentagona	Honey myrtle	Mindiyet	500	250	6899	3.45
Olearia axillaris	Coastal Daisybush		250	250	3450	3.45
Total Plants					**68993**	**55.19**

Revegetation Mix B (RbNH)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					3.0900	3.0900
Agonis flexuosa	Peppermint	Wonnil	250	250	773	0.77
Allocasuarina humilis	Dwarf sheoak		250	750	773	2.32
Allocasuarina lehmanniana			250	250	773	0.77
Banksia formosa	Showy Dryandra		125	0	386	0.00
Banksia grandis	Bull Banksia	Beera	250	75	773	0.23
Calothamnus quadrifidus	One-sided Bottlebrush	Kwowdjard	500	0	1545	0.00
Corymbia calophylla	Marri	Marri	125	250	386	0.77
Eucalyptus staeri	Redheart moit		250	250	773	0.77
Ficinia nodosa	Knotted Club Rush		500	500	1545	1.55
Gompholobium scabrum			125	250	386	0.77
Hypocalymma angustifolium		koodgeed or kudjid	500	250	1545	0.77
Melaleuca lateritia	Robin redbreast bush		850	250	2627	0.77
Melaleuca diosmifolia	Green Honey Myrtle		250	500	773	1.55
Melaleuca viminea		Mohan	525	425	1622	1.31
Taxandria linearifolia	Swamp peppermint		250	0	773	0.00
Total Plants					**15450**	**12.36**

Basin Batter Mix A (BBaF)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					1.5153	1.5153
Acacia littorea	Shark tooth wattle		600	750	909	1.14
Anigozanthos flavidus	Tall Kangaroo Paw	Kurulbrang	750	750	1136	1.14
Allocasuarina humilis	Dwarf Sheoak		375	500	568	0.76
Beaufortia anisandra	Dark Beaufortia		125	0	189	0.00
Billardiera fusiformis	Australian Bluebell		500	0	758	0.00
Calothamnus sanguineus	Silky-leaved Blood flower		500	250	758	0.38
Crowea angustifolia			250	500	379	0.76
Ficinia nodosa	Crowea		750	500	1136	0.76
Hibbertia cuneiformis	Knotted Club Rush		150	0	227	0.00
Kennedia prostrata	Cutleaf Hibbertia	Wollung	500	500	758	0.76
Olearia axillaris	Scarlet Runner	Yoont Djet	250	250	379	0.38
Viminaria juncea	Coastal Daisybush		250	0	379	0.00
Total Plants					**7577**	**6.06**

Basin Batter Mix B (BBbNH)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					5.2351	5.2351
Acacia hastulata			500	0	2618	0.00
Acacia myrtifolia var angustifolia	Myrtle Wattle		250	750	1309	3.93
Agonis flexuosa	WA Peppermint	Wonnil	250	250	1309	1.31
Banksia littoralis	Swamp Banksia	Pungura	100	0	524	0.00
Banksia ilicifolia	Holly-leaved Banksia		75	0	393	0.00
Corymbia calophylla	Marri	Marri	250	0	1309	0.00
Eucalyptus angulosa	Ridge-fruited Mallee	Mallee	250	500	1309	2.62
Eucalyptus cornuta	Yate	Yate	200	250	1047	1.31
Eucalyptus staeri	Albany Blackbutt		250	250	1309	1.31
Beaufortia sparsa	Swamp Bottlebrush	Kwowdjard	75	75	393	0.39
Callistemon glaucus	Albany bottlebrush	Birdak	500	750	2618	3.93
Hakea trifurcata	Two-leaf Hakea		125	125	654	0.65
Hakea varia	Variable-leaved Hakea	Berrung	75	50	393	0.26
Hypocalymma angustifolium	White myrtle	Koodgeed or Kudjidi	250	250	1309	1.31
Kennedia prostrata	Scarlet Runner	Wollung	750	0	3926	0.00
Melaleuca cuticularis	Saltwater Paperbark		250	250	1309	1.31
Melalauaca preissiana	Moonah	Moonah	500	250	2618	1.31
Melalauca striata			250	250	1309	1.31
Taxandria linearifolia	Swamp peppermint		100	0	524	0.00
Total Plants					**26176**	**20.94**

Basin Dryland Mix (BDNH)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					2.7923	2.7923
Acacia hastulata			250	250	698	0.70
Astartea corniculata			250	250	698	0.70
Banksia littoralis	Swamp Banksia	Pungura	125	125	349	0.35
Beaufortia sparsa	Swamp Bottlebrush	Kwowdjard	75	0	209	0.00
Callistemon glaucus	Albany bottlebrush	Birdak	500	125	1396	0.35
Callistachys lanceolata	Wonnich		250	125	698	0.35
Crowea angustifolia	Crowea		500	250	1396	0.70
Eucaltpus megacarpa	Long-flowered Marlock	Twet	250	125	698	0.35
Eucalyptus patens	Swan River Blackbutt	Djarraly	250	150	698	0.42
Ficinia nodosa	Knotted Club Rush		500	500	1396	1.40
Hakea fumiginea	Rusty Hakea		250	250	698	0.70
Hypocalymma cordifolium			250	75	698	0.21
Kennedia coccinea	Coral Vine		125	250	349	0.70
Kunzea recurva	Purple Kunzea		125	250	349	0.70
Lepidosperma gladiatum	Coast Sword-sedge	Kerbein	125	0	349	0.00
Melaleuca lateritia	Robin redbreast bush		250	275	698	0.77
Melaleuca thymoides	Sand wattle myrtle		250	500	698	1.40
Pericalymma ellipticum	Swamp Tealree		250	250	698	0.70
Taxandria parviceps	Tea tree		200	0	558	0.00
Viminaria juncea	Swishbush		225	250	628	0.70
Total Plants					**13962**	**11.17**

Basin Wetland Mix (BWNH)	Common Name	Noongar Name	Tubestock Mix 40,000 / Ha	QTY tubestock
Area (Ha)				0.6681
Baumea articulata	Joint Rush		7500	5011
Baumea juncea	Bare Twigrush		7500	5011
Baumea vaginalis	Sheath Twigrush		5000	3341
Carex appressa	Tall Sedge		5000	3341
Juncus kraussii	Sea Rush		7500	5011
Juncus pallidus	Pale Rush		2500	1670
Gahnia trifida	Coast Saw-sedge		2500	1670
Leptocarpus scariosus			2500	1670
Total Plants				**26724**

Fauna Mix A (FaF)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					0.5968	0.5968
Acacia hastulata			450	750	269	0.45
Allocasuarina humilis	Dwarf Sheoak		500	500	298	0.30
Astartea fascularis	Recherche Astartea		450	250	269	0.15
Agonis *theiformis*	Summer snowflakes		250	250	149	0.15
Beaufortia decussata	Gravel Bottlebrush		125	250	75	0.15
Billardieria fusiformis	Australian Bluebell	Gumug	250	0	149	0.00
Callistemon glaucus	Albany Bottlebrush	Irdak	500	250	298	0.15
Dryandra formosa	Snowy Dryandra		250	0	149	0.00
Hakea ceratophylla	Horned Leaf Hakea		250	250	149	0.15
Kennedia prostrata	Scarlet Runner	Wollung	750	750	448	0.45
Kunzea recurva	Purple Kunzea		550	500	328	0.30
Patersonia occidentalis	Purple Flag	Kooma	325	0	194	0.00
Taxandria fragrans			350	250	209	0.15
Total Plants					**2984**	**2.39**

Fauna Mix B (FbNH)	Common Name	Noongar Name	Tubestock Mix 5,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					0.5624	0.5624
Astartea fascularis	Recherche Astartea		750	500	422	0.28
Agonis flexuosa	WA Peppermint	Wonnil	525	300	295	0.17
Banksia grandis	Bull Banksia	Boongura	250	500	141	0.28
Callistachys *lanceolata*	Wonnich		750	450	422	0.25
Calothamnus quadrifidus	One-sided Bottlebrush	Kwowdjard	750	550	422	0.31
Hakea cucullata	Hood-leaved Hakea		350	250	197	0.14
Hakea oleifolia	Dungyn		350	250	197	0.14
Hibbertia cuneiformis	Cutleaf Hibbertia		125	0	70	0.00
Hypocalymma cordifolium	The Golden Veil		650	750	366	0.42
Melaleuca violacea			500	450	281	0.25
Total Plants					**2813**	**2.81**

Road Reserve Planting (RRP)	Common Name	Noongar Name	Tubestock Mix 1,200 / Ha	QTY tubestock
Area (Ha)				4.6312
Agonis flexuosa	WA Peppermint	Wonnil	75	347
Allocasuarina fraseriana	Sheoak	Condil	225	1042
Allocasuarina lehmanniana	Dune Sheoak		25	116
Banksia grandis	Bull Banksia	Boongura	75	347
Calothamnus lateralis			175	810
Callistemon glaucus	Albany bottlebrush	Birdak	125	579
Corymbia calophylla	Marri	Marri	75	347
Eucalyptus cornuta	Yate	Yate	75	347
Eucalyptus marginata	Jarrah	Djarraly	75	347
Kunzea recurva	Purple Kunzea		125	579
Melaleuaca preissiana	Moonah	Moonah	150	695
Total Plants				**5557**

Screening Mix (SMNH)	Common Name	Noongar Name	Tubestock Mix 30,000 / Ha	Seeding Mix 4.0 kg / ha	QTY tubestock	QTY seed kg
Area (Ha)					0.5924	0.5924
Adenanthos sericeus	Woolly Bush		10000	1500	5924	0.89
Callistemon glaucus	Albany bottlebrush	Birdak	10000	1500	5924	0.89
Corymbia ficifolia	Red-flowering Gum	Yorgum	10000	1000	5924	0.59
Total Plants					**17772**	**2.37**

Quantities

Symbol	Mix	Plant Size and Density			Quantity (M2)	Quantity (Ha)	Quantity # (Tubestock)	Quantity kg (Seed)
		TOTAL	Tube	Seed				
	New Tree Planting				160			
Afl	Agonis flexuosa	50MM depth mulch / Tubestock as shown	as shown	n/a	38	n/a	n/a	n/a
Afr	Allocasuarina fraseriana	50MM depth mulch / Tubestock as shown	as shown	n/a	8	n/a	n/a	n/a
Bgr	Banksia Grandis	50MM depth mulch / Tubestock as shown	as shown	n/a	30	n/a	n/a	n/a
Bpr	Banksia praemorsa	50MM depth mulch / Tubestock as shown	as shown	n/a	12	n/a	n/a	n/a
Cca	Corymbia calophylla	50MM depth mulch / Tubestock as shown	as shown	n/a	27	n/a	n/a	n/a
Cfi	Corymbia ficifolia	50MM depth mulch / Tubestock as shown	as shown	n/a	37	n/a	n/a	n/a
Mpr	Melaleuaca preissiana	50MM depth mulch / Tubestock as shown	as shown	n/a	8	n/a	n/a	n/a
	Planting Mixes							
FF	Feature Mix	50MM depth mulch / Tubestock at 1/m2/ and Direct Seeding at 3kg/Ha	10000/Ha	3kg	6503	0.6503	6503	1.95
FLF	Feature Low Mix	50MM depth mulch / Tubestock at 2.5/m2/ and Direct Seeding at 3kg/Ha	25000/Ha	3kg	24602	2.4602	61505	7.38
RaNF	Revegetation Mix A	50MM depth gravel / Tubestock at 0.5/m2/ and Direct Seeding at 4kg/Ha	5000/Ha	4kg	137986	13.7986	68993	55.19
RbNH	Revegetation Mix B	No mulch / Tubestock at 0.5/m2/ and Direct Seeding at 4kg/Ha	5000/Ha	4kg	30900	3.09	15450	12.36
BBaF	Basin Batter Mix A	No mulch / Tubestock at 0.5/m2/ and Direct Seeding at 4kg/Ha	5000/Ha	4kg	15153	1.5153	7577	6.06
BBbNH	Basin Batter Mix B	No mulch / Tubestock at 0.5/m2/ and Direct Seeding at 4kg/Ha	5000/Ha	4kg	52351	5.2351	26176	20.94
BDNH	Basin Dryland Mix	No mulch / Tubestock at 0.5/m2/ and Direct Seeding at 4kg/Ha	5000/Ha	4kg	27923	2.7923	13962	11.17
BWNH	Basin Wetland Mix	No mulch / Tubestock at 4/m2	40000/Ha	n/a	6681	0.6681	26724	n/a
RRP	Road Reserve Planting Mix	No mulch / Tubestock at 0.12/m2	1200/Ha	n/a	46641	4.6641	5597	n/a
SMNH	Screening Mix	No mulch / Tubestock at 3/m2/and Direct Seeding at 4kg/Ha	30000/Ha	4kg	5924	0.5924	17772	2.37
FaF	Fauna Mix A	50MM depth gravel / Tubestock at 0.5/m2/and Direct Seeding at 4kg/Ha	5000/Ha	4kg	5968	0.5968	2984	2.39
FbNH	Fauna Mix B	50MM depth gravel / Tubestock at 0.5/m2/and Direct Seeding at 4kg/Ha	5000/Ha	4kg	5624	0.5624	2812	2.25
	Surface Finishes							
	Total Area requiring mulch only 50mm depth mulch		n/a	n/a	31105	3.1105	n/a	n/a
	Total Area requiring mulch only 50mm depth loose gravel mulch		n/a	n/a	149578	14.9578	n/a	n/a
TP	Untreated Topsoil Respread		n/a	n/a	0	0	n/a	n/a
DAT	Dryseed Application - *Pennisetum clandestinum*		n/a	50kg	0	0	n/a	0.00
	Hard Landscape							
LG	Compacted Laterite Gravel				192835	19.2835	n/a	n/a

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No.	DESCRIPTION	APPROVED & DATE
C	ISSUED FOR 100% DESIGN REVIEW	MO 04/10/22
B	NOT ISSUED	N/A
A	NOT ISSUED	N/A
	AMENDMENTS	

METADATA

GROUND SURVEY STANDARD:	67-08-43
DATE OF CAPTURE:	02-03/2018
MAPPING SURVEY STANDARD:	67-08-44
DATE OF CAPTURE:	04/2018
MAIN ROADS PROJECT ZONE:	ALB 94
HEIGHT DATUM:	AHD 71

GAMBARA

ecoscape

DRAWN	A.DUNDAS	10/22
DESIGNED	N.CROUDACE	10/22
CHECKED	N.CROUDACE	10/22
APPROVED	M.OSWALD	04/10/22
VERIFIED		
DATE		

DECMIL

CONTRACT MANAGER IVAN MARINOVICH
PROJECT DIRECTOR JENDAI CHIROTE

mainroads WESTERN AUSTRALIA

INFRASTRUCTURE DELIVERY DIRECTORATE

CONTRACT MANAGER LINDSAY McCARTIN
PROJECT DIRECTOR DAVID CLARKSON

LOCAL AUTHORITY (302) CITY OF ALBANY
MAIN ROADS RESPONSIBILITY AREA GREAT SOUTHERN REGION
MRWA DRAWING NUMBER

PROJECT TITLE ALBANY RING ROAD (H054)

DRAWING TITLE SP3
LOT 385 - URBAN AND LANDSCAPE DESIGN
MATERIAL & PLANTING SCHEDULES
SHEET 1 OF 1

SHEET A1

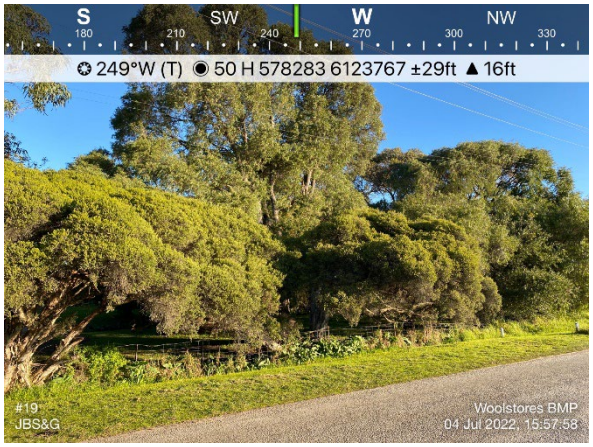
DRAWING STATUS 100% DESIGN
DRAWING No. 10218-GAM-385-LND-DRG-04001
REV C

Appendix B Vegetation plots – photographs and descriptions

Plot 1		
Vegetation classification	**Pre-development**	Class A Forest
	Post-development	Combination of Class A Forest and Modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or [f])

Description / justification

Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey



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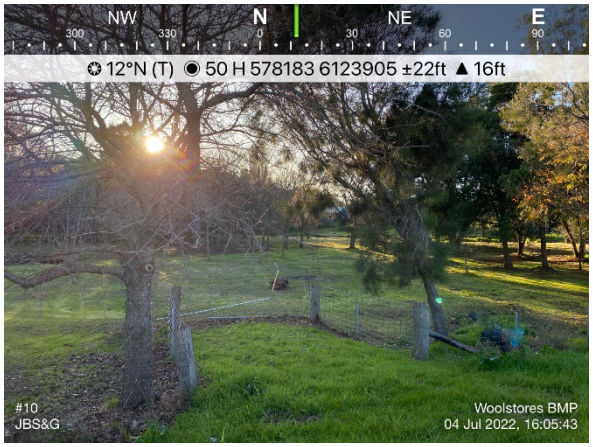

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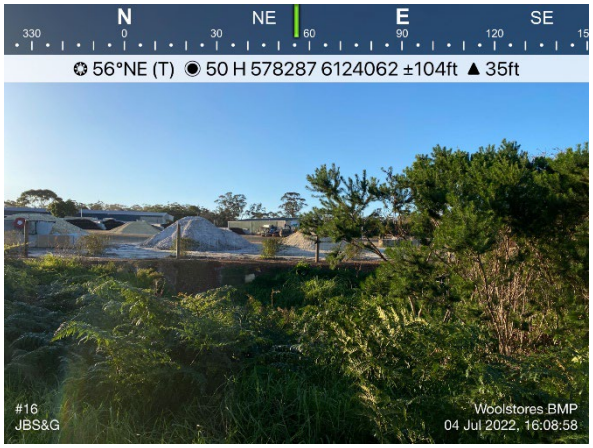

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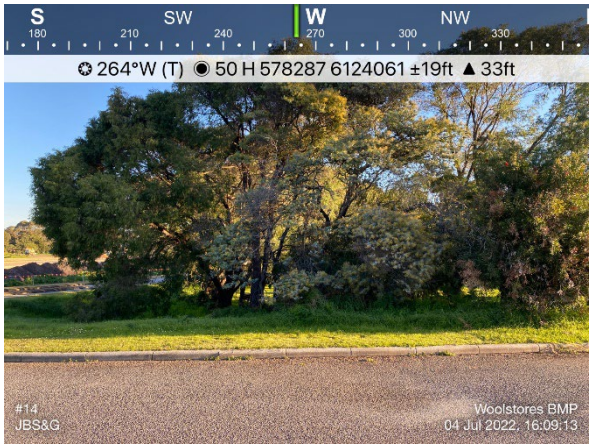

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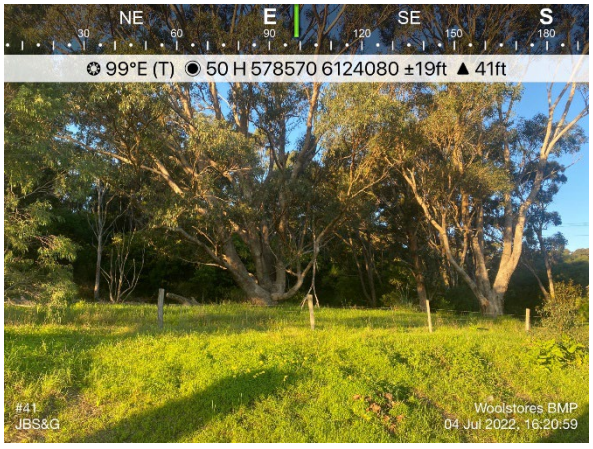
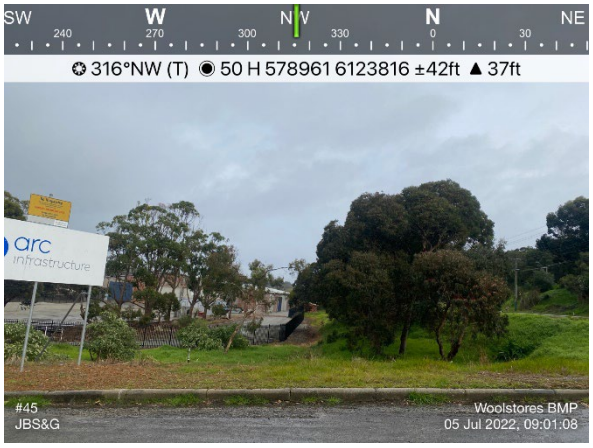


Photo ID: 1E

Photo ID: 1F

Plot 1	
 **Photo ID:** 1G	 **Photo ID:** 1H
 **Photo ID:** 1I	

Plot 2		
Vegetation classification	**Pre-development**	Class D Scrub
	Post-development	Combination of Class D Scrub and Modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or [f])
Description / justification		
Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity		

Photo ID: 2A

Photo ID: 2B (in background)

Photo ID: 2C

Photo ID: 2D

Photo ID: 2E

Photo ID: 2F

Plot 2

Photo ID: 2G

Photo ID: 2H

Photo ID: 2I

Photo ID: 2J

Plot 3		
Vegetation classification	**Pre-development**	Class G Grassland
	Post-development	Combination of Class G Grassland and Modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or [f])
Description / justification		
Grassland at maturity, greater than 100 mm in height		

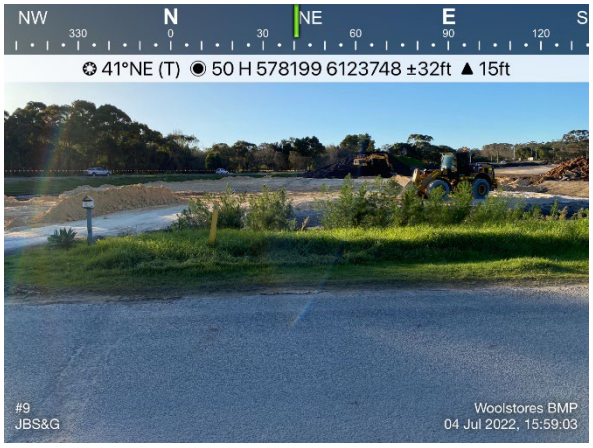


Photo ID: 3A

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Photo ID: 3C

Photo ID: 3D

Photo ID: 3E

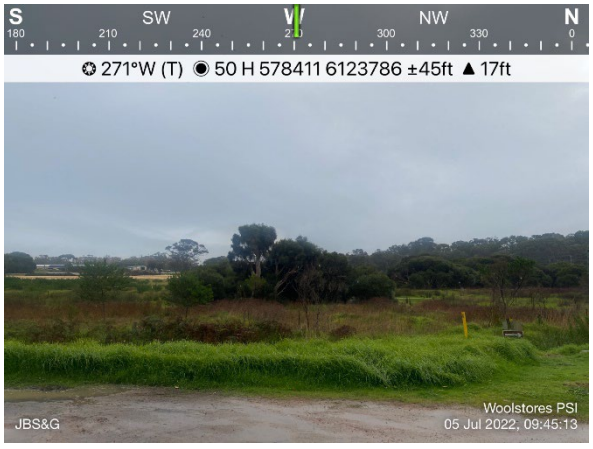


Photo ID: 3F

Plot 4		
Vegetation classification	**Pre-development**	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		

Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Photo ID: 4A

Photo ID: 4B

Photo ID: 4C

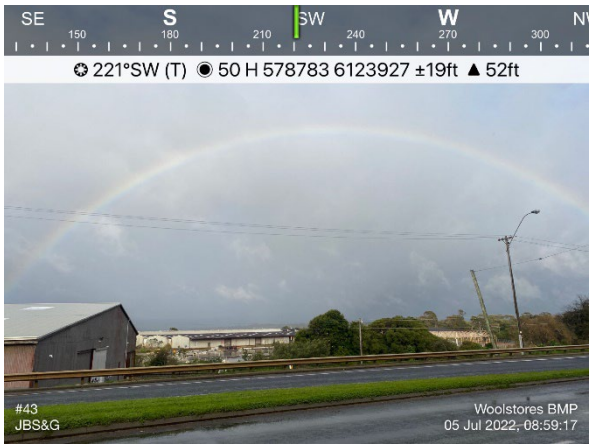
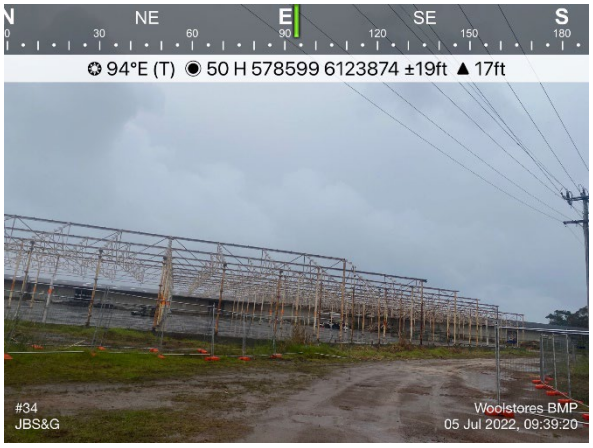


Photo ID: 4D

Photo ID: 4E

Photo ID: 4F

Plot 4	
	
Photo ID: 4G	**Photo ID:** 4H

Appendix C Emergency Access Way report and plan

Level 3
369 Newcastle Street
Northbridge 6003
Western Australia

p: 08 9221 1991
f: 08 9221 1919
info@rowegroup.com.au
rowegroup.com.au

Job Ref: 9116
13 October 2022

Ms Shelley Brindal
Third Party Stakeholder Interface Manager
Public Transport Authority
VIA EMAIL: Shelley.Brindal@pta.wa.gov.au

Dear Shelley

Wool Stores Structure Plan – Emergency Access
Frenchman Bay Road and Woolstores Place, Mount Elphinstone and Mount Melville, Albany

As you are aware, Rowe Group represents the landowner of various lots fronting Frenchman Bay Road and Woolstores Place, Mount Elphinstone and Mount Melville in Albany (subject site).

There is a need to properly plan for and coordinate future subdivision, zoning and development of the subject site and surrounding land by way of a detailed planning process. On behalf of the landowner, Rowe Group has assembled a multi-disciplinary team of experts to undertake detailed planning for the area with the view to prepare and submit a structure plan to the City of Albany (City).

As was subject to discussion recently with you, one of the matters being progressed is bushfire management in accordance with State Planning Policy 3.7 – Planning for Bushfire Prone Areas ('SPP 3.7'). Due to the location of the Albany Ring Road, the subject site is isolated with only one access road available (Woolstores Place). This requires our accredited bushfire consultant, Strategen-JBS&G, to propose a second point of emergency access, should a fire occur at the subject site and/or surrounding land.

Based on our conversation and agreed process, the purpose of this correspondence is to seek consent for a proposed emergency access point that would traverse land owned by the State of Western Australia but is managed by Main Roads Western Australia (MRWA) and the Public Transport Authority (PTA), with Arc Infrastructure as tenant of the freight rail reserve. We have copied in Lindsay McCartin, Albany Ring Road Project Manager from MRWA and understand each of you will liaise with necessary persons in order to have this correspondence considered and provided with a response.

The background to the structure planning process, the requirement for emergency access, the options explored with our bushfire consultant and the proposed location of this emergency access and why it is considered logical and appropriate will be outlined below for your consideration and response.

As noted, this correspondence will only outline the general arrangement of the proposed access point to facilitate the planning process for the lodgement and assessment of a structure plan and enable the specific management and operation of the access point for future development stages. This is important, as the Structure Plan is only an enabler as part of the town planning framework, with possible future subdivision and development applications the appropriate planning processes to arrange the detailed mechanisms.

Structure Plan Area

At this stage, the Structure Plan Area proposed includes the following properties:

1. Lots 895 and 1209 (No. 34) Woolstores Place, Mount Melville;
2. Lots 402, 501, 1104, 1156, 1157 and 1350 (no street address details);
3. Lot 140 and 141 (No. 23) Woolstores Place, Mount Elphinstone;
4. Lot 11 (No. 15) Woolstores Place, Mount Elphinstone;
5. Lot 492 (No. 7) Woolstores Place, Mount Elphinstone;
6. Lot 52 (No. 22) Woolstores Place, Mount Elphinstone;
7. Lot 53 (No. 18) Woolstores Place, Mount Elphinstone; and
8. Lot 54 (No. 10) Woolstores Place, Mount Elphinstone.

The Structure Plan Area is illustrated in Attachment 1.

Site Context

The Structure Plan Area is located in the City of Albany (the 'City'), west of the town centre in the locality of Mount Elphinstone and Mount Melville. The Structure Plan Area is straddled by Woolstores Place and generally positioned between Frenchman Bay Road, the railway line, Princess Royal Drive and the shores of Princess Royal Harbour.

The Structure Plan Area is surrounded by rural residential land to the west, industrial land to the north and Mount Melville to the east.

The Albany Ring Road is currently under construction and will ultimately allow large freight trucks to bypass local traffic to and from the Port of Albany. The Albany Ring Road will link the existing major arterial main roads and highways radiating from Albany, including Hanrahan Road, Frenchman's Bay Road and Lower Denmark Road, adjacent to the Structure Plan Area. Adjacent to the Structure Plan Area, a new roundabout and bridge structure will be constructed to link Frenchman's Bay Road and Hanrahan Road over the freight rail reserve.

Strategic Planning Background

The City's Local Planning Strategy (Strategy) was endorsed by the WAPC in November 2019. The Structure Plan Area is identified by the Strategy as 'Investigation Area 2 – Wool Stores'. The Strategy states that investigation areas are identified to acknowledge that additional research needs to be undertaken to determine appropriate strategic and statutory planning responses. More specifically Investigation Area 2 includes a strategic direction to facilitate the preparation of a structure plan that shows how the site can be redeveloped and address a number of matters, including, but not limited to the following:

- Potential mixed use development, with a focus on tourism; and
- Interface with future Albany Ring Road.

As a result, and to enable future redevelopment of the Structure Plan Area, a structure plan is being prepared for the land.

Bushfire Management Options

The Structure Plan Area as well as adjoining land has a moderate to extreme hazard level applicable, with the extreme level largely relating to uncleared land adjacent to the Structure Plan Area. While bushfire risk within the Structure Plan Area can be managed through future development in terms of the extent of clearing, management of remnant vegetation (undergrowth) and location and management of new landscaping, emergency access is the key aspect identified.

The current cul-de-sac configuration of Woolstores Place is non-compliant with SPP 3.7 and a second point of emergency access is required via a 6m wide trafficable access road.

Due to the placement of the Albany Ring Road, there are only three potential solutions, with each having been considered as part of the structure plan process and outlined below:

1. Access north to the Albany Ring Road or under this infrastructure to Lower Denmark Road – Either access to Albany Ring Road or under this infrastructure has been considered below.
    a. Road access direct to Albany Ring Road would require the road access point to achieve an appropriate grade to ensure it complies with relevant Australian Standards. However, given the infrastructure is under construction, redesign of the infrastructure to account for an access point is not considered feasible without delaying the entire works programme.
    b. The alternate option under the Albany Ring Road would either be located:
        i. under the proposed bridge infrastructure of the ring road and adjacent to the freight rail (as illustrated within Attachment 1); or
        ii. through the road embankment to the west of the bridge infrastructure via a 6m wide by 4.5m high culvert/tunnel. Option 1b(ii) is far more involved (and unnecessarily so) than Option 1b(i) in terms of expense, time and process. Importantly, given the infrastructure is under construction, redesign of the infrastructure to account for an access point is not considered feasible without delaying the entire works programme.

Option 1b(i) is considered the preferred option and will be explained further below.

2. Access south-east along Princess Royal Harbour and to Princess Royal Drive via lot 807 and 403 – Due to the narrowness of the foreshore in this location and the need for a 6m trafficable road in all conditions, this point of egress is not compliant with SPP 3.7 as it will not be viable long term due to sea level rise and storm surges.
3. Access east across the freight rail – This would commence at the termination of Woolstores Place. Access across a railway line is not compliant with SPP 3.7 and is will not be palatable to the Department of Fire and Emergency Services.

Preferred Bushfire Management Option

Option 1b(i), being an emergency access point that commences at the northern most point of the Structure Plan Area, across Unallocated Crown Land beyond this, under the Albany Ring Road bridge infrastructure and accesses the new Lower Denmark Road reserve beyond, is the only option able to be pursued for the proposed structure plan.

Option 1b(i) has merit for the following reasons:

- The option would have the least impact on the Albany Ring Road infrastructure itself (when constructed) and would not interrupt the construction programme;
- We understand the option can account for any potential future plans to increase rail services and therefore the number of rail lines in this location due to the area available under the future bridge infrastructure;
- In practice, the option would be safe in use as in the event of a bushfire, trains would not be in operation and therefore this would not represent a safety issue for trains, emergency vehicles or persons attempting to flee a fire; and
- The option would not mean the railway line is crossed as all users of the emergency access route would be required to travel in a north-south (generally) direction. Barriers could be employed to ensure access across the railway lines does not occur.

Next Steps

As raised earlier, at this juncture we require MRWA and PTA's (and Arc Infrastructure) consent to the use of Option 1b(i) as part of a proposed Bushfire Management Plan that will accompany the Structure Plan when lodged with the City.

Should the Structure Plan be approved, and subdivision and development application(s) be considered in order to redevelop the land, formalisation of Option 1b(i) can be explored. This may require the following to be considered:

- Easements to be considered over land tenure to enable access by the general public in an emergency; and
- How access is prevented across the railway lines. Fencing to contain access would appear a logical response.

However, it is important to note that a structure plan is approved for a period of ten (10) years and may not be acted upon within this timeframe.

In this regard, we only require MRWA and PTA consent to the proposal to enable the planning process to continue and for a Structure Plan to be lodged, assessed and determined.

Summary

The purpose of this correspondence is to seek consent for a proposed emergency access point that would traverse land owned by the State of Western Australia but is managed by MRWA and the PTA, with Arc Infrastructure as tenant of the freight rail reserve. The emergency access point is required due to the placement of the Albany Ring Road and the existing cul-de-sac arrangement of Woolstores Place.

Option 1b(i), being an emergency access point that commences at the northern most point of the Structure Plan Area, traverses across Unallocated Crown Land beyond this, under the Albany Ring Road bridge infrastructure and accesses the new Lower Denmark Road reserve is the only option able to be pursued for the proposed structure plan.

We look forward to your favourable consideration and response to this correspondence, however, should you require any further information or clarification in relation to this matter, please contact the undersigned on 9221 1991.

Yours faithfully,

Andrew Cumming
Rowe Group

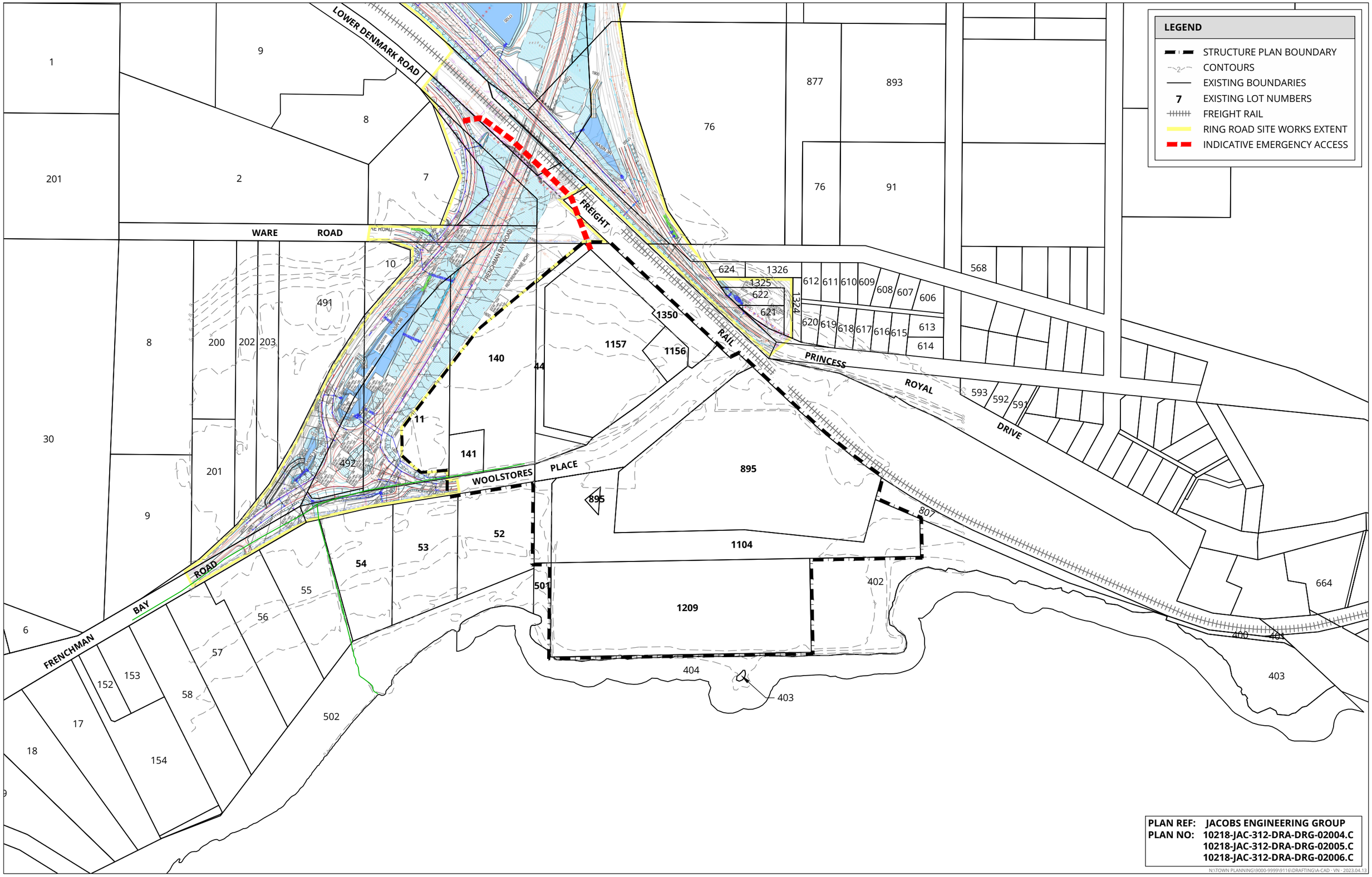
CC:

Mainbeam C/- Quality Wool

Strategen-JBS&G

Main Roads Western Australia

City of Albany



PLAN REF: JACOBS ENGINEERING GROUP
PLAN NO: 10218-JAC-312-DRA-DRG-02004.C
10218-JAC-312-DRA-DRG-02005.C
10218-JAC-312-DRA-DRG-02006.C

N:\TOWN PLANNING\9000-9999\9116\DRAFTING\A-CAD - VN - 2023.04.13

ALBANY RING ROAD OVERLAY

VARIOUS LOTS, WOOLSTORES PLACE
MOUNT ELPHINSTONE, ALBANY

DRAFT

N

0 100 m
SCALE @ A3: 1:4000

9116-FIG-13-C

DRAWN: VR
DATE CREATED: 2023.04.13
PROJECTION: MGA50 GDA94
CADASTRE: LANDGATE

ROWE GROUP DESIGN

Appendix D Main Roads WA support for EAW

FW: ARR - Stakeholders - MainBeam - Albany Wool Stores Site - Emergency Access (9116)

AC Andrew Cumming <Andrew.Cumming@rowegroup.com.au>
To Zac Cockerill
You replied to this message on 31/10/2022 9:17 AM.

9116_22Oct01L_ac - Emergency Access.pdf
.pdf File

9116_FIG13B_20221003_Mount Elphinstone (Ring Road Overlay)-A3L.pdf
.pdf File

From: WEB Great Southern Region <gsreg@mainroads.wa.gov.au>
Sent: Friday, 28 October 2022 3:01 PM
To: Andrew Cumming <Andrew.Cumming@rowegroup.com.au>
Cc: MCCARTIN Lindsay (PM) <lindsay.mccartin@mainroads.wa.gov.au>
Subject: ARR - Stakeholders - MainBeam - Albany Wool Stores Site - Emergency Access (9116)

Hi Andrew

Thank you for the email and attached details of the Wool Stores Structure Plan – Emergency Access proposal.

I am pleased to advise that Main Roads GSR is happy to support the proposed emergency access point where it traverses land managed by MRWA in principle.

The challenge will be getting support from the portion crossing into the Public Transport Authority (PTA) freight rail reserve and the potential impact on Arc Infrastructure operations.

I trust that this is satisfactory, however if you wish to discuss this matter further please feel free to contact he Region directly.

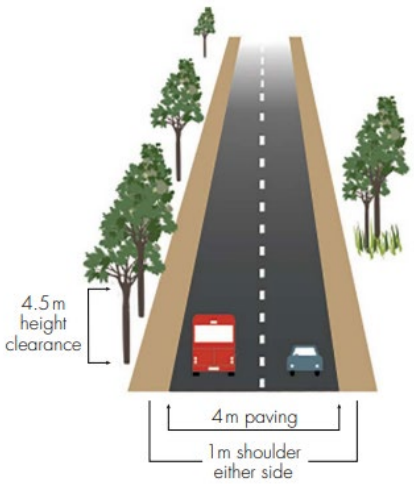
Regards

Brad Lenton
NETWORK MANAGER
Regional Management & Operations Directorate / Great Southern Region
p: +61898920555 | **m:** +6141791662
w: www.mainroads.wa.gov.au

mainroads WESTERN AUSTRALIA

METRO TRAFFIC REGIONAL TRAFFIC

Appendix E Vehicular access – explanatory notes from the Guidelines

Acceptable Solution A3.1 – Public Roads
Explanatory Note E3.1
These Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area. The IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards do not prescribe a horizontal clearance. However, it is recommended that a traversable verge is provided to allow for emergency services vehicles to stop and operate on the side of the public road, specifically where the public road may traverse large areas of classified vegetation. Where local government roads are proposed to be widened by the proponent, they must obtain approval from the local government.    Figure 20: Example of a public road

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Acceptable Solution A3.2a – Multiple access routes
Explanatory Note E3.2a

Two-way public road access is public road access from a lot in at least two different directions to two suitable destinations, and provides residents and the community, as well as emergency services, with access and egress from both the subdivision and individual habitable buildings/development in the event of a bushfire emergency. A single road provides no alternative route if the access becomes congested or is unable to be traversed due to smoke and/or fallen trees during a bushfire.

Two-way public road access applies to access/egress routes leading into a subdivision, as well as those within a subdivision. A road that loops back onto itself does not constitute the option of two different directions.

Two-way public road access should always be the first option. Where the site is not able to achieve two-way access within 200 metres of the lot boundary, due to demonstrated site or environmental constraints, the proponent should identify options for an emergency access way from the subject site to a suitable destination. Where an emergency access way cannot be provided, the proponent should demonstrate compliance with the performance principle.

Subject sites or proposed lots greater than 200 metres from an intersection, which provides two-way access, do not satisfy the requirement for two-way access unless they meet the provisions which allow for no-through roads greater than 200 metres in A3.2a.

To demonstrate compliance with the performance principle for two-way access, the bushfire planning practitioner may have regard to:

a. the extent of the bushfire hazard, location and vegetation classification, the likelihood, potential severity and impact of bushfire to the subject site and the road network;
b. time between fire detection and the onset of conditions in comparison to travel time for the community to evacuate to a suitable destination;
c. available access route(s) travelling towards a suitable destination; and
d. turn-around area for a fire appliance for no-through roads.

Figure 21: Example of compliant and non-compliant two-way

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Acceptable Solution A3.2b – Emergency access way
Explanatory Note E3.2b

An emergency access way is not a preferred alternative to through public road access and should only be considered acceptable where it has been demonstrated that it will provide the safety and performance needs of emergency services and the community, including consideration for future needs, and that public road access to satisfy A3.2a cannot be achieved due to site constraints, such as an established road network with no opportunity to provide a public road for secondary access. Acceptance of an emergency access way should also consider the ability to accommodate reasonable worst-case vehicle volumes.

The principle function of the emergency access way is to provide a contingency (second) community evacuation route and simultaneously provide access for emergency services, in the event of a bushfire emergency. Where an emergency access way traverses classified vegetation, which has the potential to create a bushfire hazard, an emergency access way performs the secondary function of providing access by emergency services to this vegetation.

Emergency access ways should connect to a public road to allow alternative two-way through access. An emergency access way should not exceed 500 metres in length as they may not be as safe for road-use due to not being designed or constructed to the full requirements of a public road and may present uncertainties to emergency service personnel and the public as they are not part of the daily road network and not identified on Maps.

Permanent public emergency access way

An emergency access way can be provided as either a public easement in gross or a right-of-way. In both approaches, the management of the emergency access way is by the local government as the grantee of the easement or management body of the right-of-way. The proponent must obtain written consent from the local government that the local government will accept care, control and management of the easement or right-of-way; this must be provided to the decision-maker prior to granting planning approval. The approach taken is at the discretion of the decision-maker and/ or the local government and is also dependent on whether the land is to remain in private ownership or be ceded to the Crown. Consultation with Land Use Management at the Department of Planning, Lands and Heritage should also be considered if the land is to be ceded to the Crown or if the local government is uncertain of which approach to take.

If the emergency access way is provided as an easement, it should be provided as a public easement in gross under sections 195 and 196 of the Land Administration Act 1997 in favour of the local government and/or public authority, to ensure accessibility for emergency services and the public at all times. To be provided as a right-of-way the emergency access way should be vested in the Crown under section 152 of the Planning and Development Act 2005 as a right-of-way and such land to be ceded free of cost and without any payment or compensation by the Crown. If gates are used to control traffic flow during non-emergency periods, these will be managed by the local government and must not be locked. Gates should be double gates wide enough to access the full pavement width and accommodate Type 3.4 fire appliances with the design and construction to be approved by the relevant local government.

Temporary public emergency access way

A temporary emergency access way may be proposed to facilitate the staging arrangements of a subdivision. The provision of two public roads may not be possible in the first stage of the subdivision and an emergency access way can be provided as an interim access route until the second public road is developed and gazetted in a subsequent stage of the subdivision (see figure 22). The emergency access way should be provided in the same manner as a permanent emergency access way, but it should be removed from the certificate of title once the public road is developed and gazetted. Where an emergency access way is proposed as an alternative to a public road, the Bushfire Management Plan should provide thorough justification for its use.

Restricted public emergency access way

There may be some instances where a restricted emergency access way is proposed as a performance principle based solution where access is only available to the public in the event of a bushfire emergency. This option can only be considered where the local government or Main Roads WA have advised that vehicular access on the emergency access way is not allowed during non-emergency periods, as it provides an additional thoroughfare and entry point on a local or State road. In this scenario, the emergency access way can be provided as an easement under section 195 of the Land Administration Act 1997, as public access in the event of a bushfire emergency or vested in the Crown as a reserve under section 152 of the Planning and Development Act 2005. Such land is to be ceded free of cost without any payment or compensation by the Crown. The proponent must obtain written consent from the local government that the local government will accept care, control and management of the proposed reserve and agree to the terms of the Management Order Conditions (if applicable); this must be provided to the decision-maker prior to granting planning approval.

The purpose of the reserve should be for a public purpose specified in the condition related to the subdivision, for example for emergency access only, or for emergency access and recreation. A reserve for emergency access and

Acceptable Solution A3.2b – Emergency access way

Explanatory Note E3.2b

recreation can optimise the land-use as a dual purpose where it provides vehicular access in the event of a bushfire emergency, but can be accessed by the public (on foot) on a day-to-day basis as a recreation link. Appropriate signage can ensure the general public is aware of the purpose of the reserve. The approach taken is at the discretion of the decision-maker and/or local government.

Right-of-carriageway emergency access way

There may be some instances where a right-of-carriageway easement is proposed as a performance principle-based solution. This may be where particular landowner(s) and emergency services, but not the public, require access over a neighbouring lot(s). A right-of-carriageway easement should be provided under section 195 of the Land Administration Act 1997. The easement is to provide alternative access for the particular landowner(s) in the event of a bushfire emergency and not for use by the public. In this scenario, support will be necessary from the adjoining lot owner(s). The easement is to be granted to the local government and it is to agree with the landowner on the arrangements of the management of the easement area by deed. These management arrangements will be at the discretion of the local government. If gated, the easement area can be locked to restrict day-to-day vehicular access.

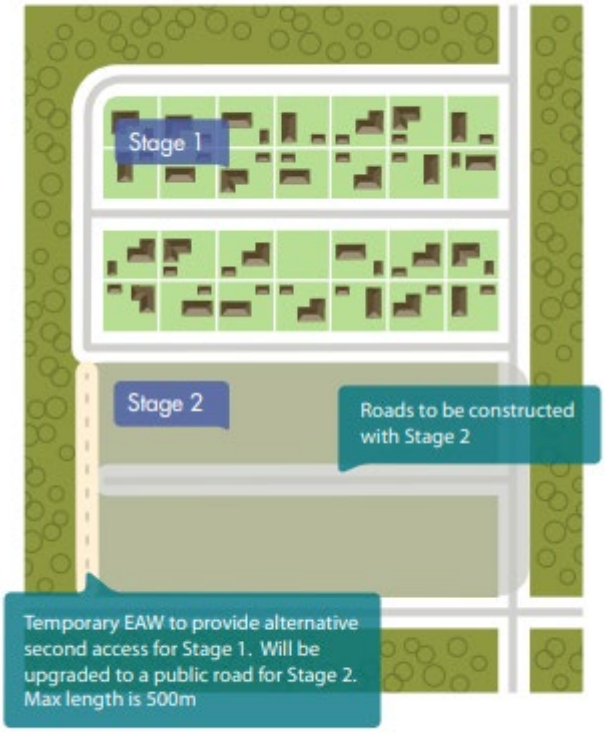


Figure 22: Example of an emergency access way

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Acceptable Solution A3.3 – Through roads

Explanatory Note E3.3

In bushfire prone areas, a proposed structure plan or subdivision that incorporates no-through roads should be avoided because they do not provide a connected and legible design that allows for easy access and egress by the community, residents and emergency services in the event of a bushfire. No-through roads also reduce the options available for access and egress in the event of a bushfire emergency.

There will however be situations where a subject site is accessed via an existing or proposed no-through road and alternative access cannot be provided. In these situations, the proponent should demonstrate to the decision-maker, that all efforts have been made with the local government and/or adjoining landowners to secure alternative public road access or an emergency access way and that a redesign has been explored. The bushfire planning practitioner may need to develop a performance principle-based solution or address the non-compliance and demonstrate to the decisionmaker why discretion should be exercised in accordance with section 2.6 of these Guidelines.

No-through roads will only be considered an acceptable solution where it is demonstrated by the proponent, to the satisfaction of the decision maker, that a no through-road cannot be avoided due to site constraints. For example, the internal road design of a structure plan or subdivision where site constraints, such as a water body or Bush Forever, prevent the ability to create a through-road and a no through road may be a more appropriate road layout.

No-through roads should be a maximum of 200 metres from the lot(s) boundary to an intersection where two-way access is provided and may only exceed 200 metres if it meets the provisions which allow for no-through roads greater than 200 metres in A3.2a.

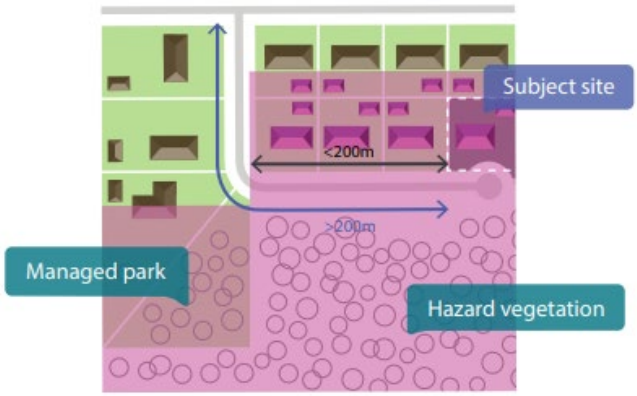


Figure 23: Example of a site on a no-through road greater than 200 metres from the intersection, but within 200 metres of BAL-LOW

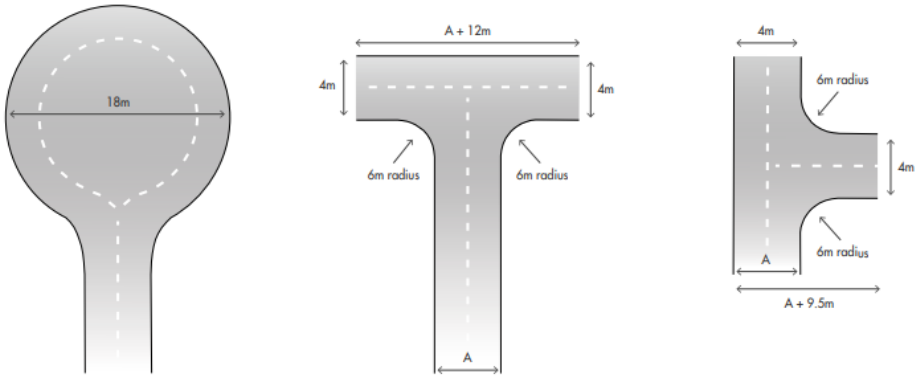


Figure 24: Turn-around area dimensions for a no-through road

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Acceptable Solution A3.4a – Perimeter roads
Explanatory Note E3.4a

Where a planning proposal includes the creation of 10 or more lots adjacent to each other, which adjoin classified vegetation under AS 3959 with the exception of Class G Grassland, as part of a greenfield development or large urban infill site, hazard separation and defendable space should be provided in the form of a perimeter road. Greenfield is 'undeveloped or minimally developed areas that have been identified for urban development'; and urban infill is 'the redevelopment of existing urban areas at a higher density than currently exists'. The creation of 10 or more lots includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision.

A perimeter road should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area as per the requirements of a public road in Table 6, Column 1.

As the road is likely to function as a key neighbourhood distributor, or similar, consideration should be given to the provision of additional width to allow for emergency services vehicles to stop and operate on the side of the perimeter road, whilst simultaneously proving for the evacuation of the community (Figure 20).

When designing a strategic planning proposal and/or subdivision, creating a large setback between classified vegetation and proposed lots with a perimeter road, and orientating habitable buildings to front onto (rather than back onto) areas of vegetation has many benefits, including:

- passive surveillance;
- defendable space for firefighting and emergency management purposes;
- reducing the potential radiant heat that may impact a habitable building in a bushfire event;
- reducing the need for battle-axe lots; and
- unconstrained public access/egress for the community in the event of a bushfire.

In developments where no perimeter road exists, property defence in a bushfire event is difficult and can be impossible. Where proposed lots have frontage to an existing public road and abut the hazard at the rear or side, it may be an undesirable planning outcome to create lots which front the existing public road and back onto a perimeter road. In this instance, consideration should be given to a fire service access route. Refer to E3.4b below.

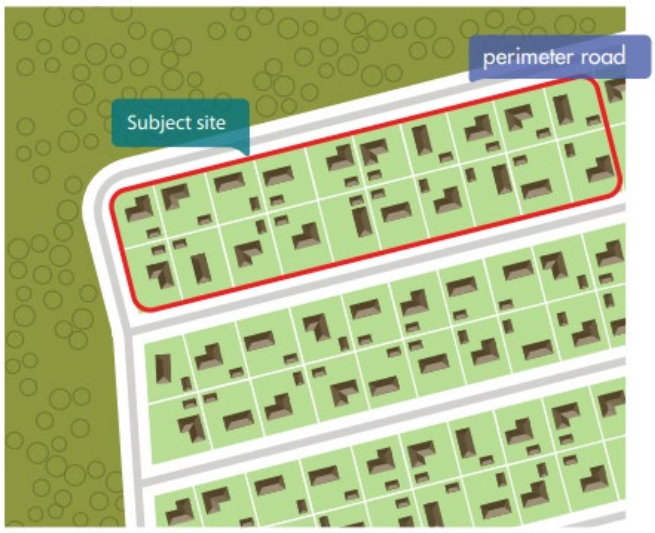


Figure 25: Example of a perimeter road

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Acceptable Solution A3.4b – Fire service access route
Explanatory Note E3.4b

Where a subdivision adjoins classified vegetation and where A3.2a has been satisfied, hazard separation and defendable space across multiple lots may be required in the form of a fire service access route.

A fire service access route is not intended to provide residents and the general public with emergency egress and therefore is not a suitable second access or substitute for a public road. A fire service access route is to provide access for emergency services to classified vegetation for firefighting and fire management purposes.

A fire service access route can be provided as either an easement in gross over private or Crown land, or ceded to the Crown as a reserve. In both approaches, the management of the fire service access route is by the local government as the grantee of the easement or management body of the reserve. Determining which approach to take is dependent on what the intended tenure of the fire service access route is, which is explained further below. The proponent must obtain written consent from the local government that the local government will accept care, control and management of the easement or reserve and agree to the terms of the Management Order Conditions (if applicable); this must be provided to the decision-maker prior to granting planning approval. The approach taken is at the discretion of the decision-maker and/or the local government. Consultation with Land Use Management at the Department of Planning, Lands and Heritage should also be considered if the land is to be ceded to the Crown or if the local government is uncertain of which approach to take.

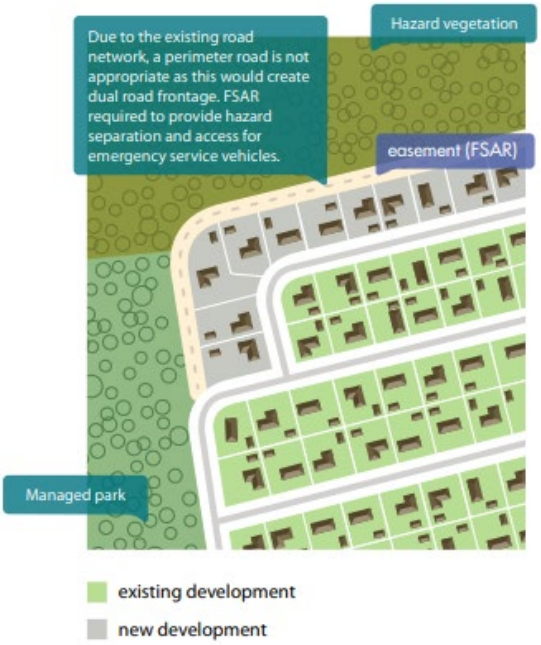


Figure 26: Example of a fire service access route

Where gates are used, these should be double gates wide enough to access the full required horizontal clearance and accommodate type 3.4 fire appliances with the design and construction to be approved by the relevant local government. Gates on fire service access routes may be locked to restrict access, provided a common key system is used, and such keys are made available for emergency services and designated fire officers within the local government area and/or surrounding district. Gates should be installed where fences cross fire service access routes. If an easement in gross is proposed, such arrangements for gates should be included in the deed of easement and be agreed to by the local government.

Fire service access route to remain in private ownership of multiple landowners

Where a fire service access route is proposed to traverse multiple private lots and they are intended to remain in the private ownership of the multiple landowners, it should be provided as an easement in gross under section 196 of the Land Administration Act 1997, to ensure accessibility for fire emergency services and not for use by the public. The easement is to be granted to the local government and/or public authority for firefighting and emergency management purposes.

Fire service access route to be created under State ownership

Where a fire service access route is proposed to traverse multiple private lots, but the decision-maker and/or local government prefer for the fire service access route to remain in one ownership under the State for management purposes, the fire service access route can be vested in the Crown under section 152 of the Planning and Development Act 2005 as a reserve, such land to be ceded free of cost without any payment or compensation by the Crown. The purpose of the reserve should be for a public purpose specified in the condition related to the subdivision, for example for vehicular access for emergency services and the local government only, or for vehicular access for emergency services and the local government and recreation. A reserve for emergency services access and recreation can optimise the land-use as a dual purpose, where it provides vehicular access for emergency services, but can be accessed by the public (on foot) on a day-to-day basis as a recreation link. Appropriate signage will ensure the general public is aware of the purpose of the reserve. The approach taken is at the discretion of the decision-maker and/or local government.

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

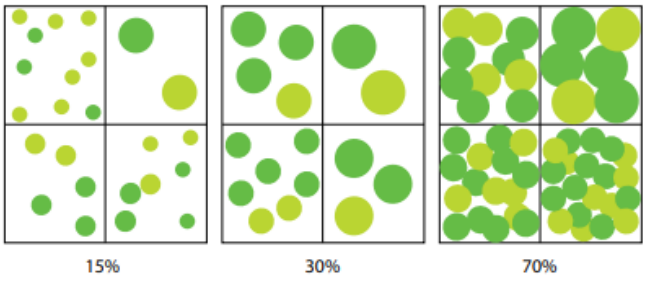
Technical requirement	1	2	3	4
	Public road	Emergency access way[1]	Fire service access route[1]	Battle-axe and private driveways[2]
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5	4.5	4.5	4.5
Minimum weight capacity (t)	15	15	15	15
Maximum grade unsealed road[3]	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%, 6°)	1:10 (10%, 6°)	1:10 (10%, 6°)
Maximum grade sealed road[3]		1:7 (14.3%, 8°)	1:7 (14.3%, 8°)	1:7 (14.3%, 8°)
Maximum average grade sealed road		1:10 (10%, 6°)	1:10 (10%, 6°)	1:10 (10%, 6°)
Minimum inner radius of road curves (m)		8.5	8.5	8.5

[1] To have crossfalls between 3 and 6%

[2] Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision

[3] Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

Appendix F Asset Protection Zones – standards (Schedule 1) and explanatory notes from the Guidelines

Schedule 1: Standards for Asset Protection Zones	
Object	**Requirement**
Fences within the APZ	• Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	• Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	• Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. **Figure 19:** Tree canopy cover – ranging from 15 to 70 per cent at maturity 
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	• Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	• Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
Grass	• Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.

Schedule 1: Standards for Asset Protection Zones	
Defendable space	Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	• Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Element 2 Explanatory Notes
E2 Landscaping and design of an Asset Protection Zone

Landscaping, design, and maintenance of an APZ in a bushfire prone area can significantly improve the bushfire resilience of a building. An APZ should not be seen as an area entirely cleared of vegetation, but as a strategically designed space that gives holistic consideration to how existing or proposed vegetation or non-combustible features interact with, or affect the building's bushfire resilience.

A well designed APZ provides a greater level of vegetation management within the first few metres of a building with, for example, less vegetation or inclusion of non-combustible materials. The vegetation within the remainder of an APZ can increase further away from the building with carefully considered plant selection and landscaping techniques.

Strategic landscaping measures can be applied, such as replacing weeds with low flammability vegetation (refer to E2 Plant Flammability) to create horizontal and vertical separations between the retained vegetation. The accumulation of fine fuel load from different plants is an important consideration for ongoing maintenance in accordance with Schedule 1. For example, when planting ground covers under deciduous trees within an APZ, the total fine fuel load prescribed in Schedule 1 will include any dead plant material from ground covers and leaf litter from the trees.

Plant density and final structure and form of mature vegetation should be considered in the initial landscaping stages. For example, clumps of sapling shrubs planted at a density without consideration of future growth, may increase the bushfire risk as a clump will quickly grow to exceed 5m2. It should be noted that in some cases, a single shrub in a mature state may be so dense as to fill a 5m2 clump alone.

The location of plants within an APZ is a key design technique. Separation of garden beds with areas of low fuel or non-combustible material, will break up fuel continuity and reduce the likelihood of a bushfire running through an APZ and subjecting a dwelling to radiant heat or direct flame contact. It is important to note, where mature trees are separated from a building by six metres, but the canopy has grown to extend or overhang a building, maintenance and pruning to remove the overhanging branches should be undertaken without the entirety of the tree being removed.

Mulches used within the APZ should be non-combustible. The use of stone, gravel, rock and crushed mineral earth is encouraged. Wood mulch >6mm in thickness may be used, however it is recommended that it is used in garden beds or areas where the moisture level is higher by regular irrigation. These materials could be sourced from non-toxic construction and demolition waste giving the added benefit of reducing the environmental impact of any 'hard landscaping' actions.

Combustible objects, plants, garden supplies such as mulches, fences made from combustible material, should be avoided within 10 metres of a building. Vines or climbing plants on pergolas, posts or beams, should be located away from vulnerable parts of the building, such as windows and doors. Non-flammable features can be used to provide hazard separation from classified vegetation, such as tennis courts, pools, lawns and driveways or paths that use inorganic mulches (gravel or crushed rock). Consider locating firewood stacks away from trees and habitable buildings.

Incorporation of landscaping features, such as masonry feature walls can provide habitable buildings with barriers to wind, radiant heat and embers. These features can include noise walls or wind breaks. Use of Appendix F of AS 3959 for bushfire resistant timber selection within areas of 29kW/m² (BAL-29) or below, or the use of non-combustible fencing materials such as iron, brick, limestone, metal post and wire is encouraged.

Element 2 Explanatory Notes

In addition to regular maintenance of an APZ, further bushfire protection can be provided at any time by:

- ensuring gutters are free from vegetation;
- installing gutter guards or plugs;
- regular cleaning of underfloor spaces, or enclosing them to prevent gaps;
- trimming and removing dead plants or leaf litter;
- pruning climbing vegetation (such as vines) on a trellis, to ensure it does not connect to a building, particularly near windows and doors;
- removing vegetation in close proximity to a water tank to ensure it is not touching the sides of a tank; and/or
- following the requirements of the relevant local government section 33 fire break notice, which may include additional provisions such as locating wood piles more than 10 metres from a building.

Preparation of a property prior to the bushfire season and/or in anticipation of a bushfire is beneficial even if your plan is to evacuate. As embers can travel up to several kilometres from a bushfire and fall into small spaces and crevices or land against the external walls of a building, best practice recommends that objects within the APZ are moved away from the building prior to any bushfire event. Objects may include, but are not limited to:

- door mats;
- outdoor furniture;
- potted plants;
- shade sails or umbrellas;
- plastic garbage bins;
- firewood stacks;
- flammable sculptures; and/or
- playground equipment and children's toys.

E2 Plant flammability

There are certain plant characteristics that are known to influence flammability, such as moisture or oil content and the presence and type of bark. Plants with lower flammability properties may still burn during a bushfire event, but may be more resistant to burning and some may regenerate faster post-bushfire.

There are many terms for plant flammability that should not be confused, including:

- Fire resistant – plant species that survive being burnt and will regrow after a bushfire and therefore may be highly flammable and inappropriate for a garden in areas of high bushfire risk.
- Fire retardant – plants that may not burn readily or may slow the passage of a bushfire.
- Fire wise – plants that have been identified and selected based on their flammability properties and linked to maintenance advice and planting location within a garden.

Although not a requirement of these Guidelines, local governments may develop their own list of fire wise or fire retardant plant species that suit the environmental characteristics of an area. When developing a recommended plant species list, local governments should consult with ecologists, land care officers or environmental authorities to ensure the plants do not present a risk to endangered ecological communities, threatened, or endangered species or their habitat.

When selecting plants, private landholders and developers should aim for plants within the APZ that have the following characteristics:

- grow in a predicted structure, shape and height;
- are open and loose branching with leaves that are thinly spread;
- have a coarse texture and low surface-area-to-volume ratio;
- will not drop large amounts of leaves or limbs, that require regular maintenance;
- have wide, flat, and thick or succulent leaves;
- trees that have bark attached tightly to their trunk or have smooth bark;
- have low amounts of oils, waxes, and resins (which will often have a strong scent when crushed);
- do not produce or hold large amounts of fine dead material in their crowns; and/or
- will not become a weed in the area.

Element 2 Explanatory Notes
Refer to the WAPC Bushfire and Vegetation Fact Sheet for further information on clearing and vegetation management and APZ landscaping, design and plant selection reference material.

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Appendix G City of Albany Fire Management Notice

FIRE MANAGEMENT NOTICE
2022 - 2023

FIRST AND FINAL NOTICE IS HEREBY SERVED TO ALL LAND OWNERS AND OCCUPIERS IN THE CITY OF ALBANY

These are your legal requirements. Please read carefully and retain for future reference.

This Notice constitutes the City of Albany Fire Management Notice and is issued under Section 33 of the *Bush Fires Act 1954*.

You are required to prepare and maintain your property for the fire season. This Notice sets out the actions you must take.

All fire mitigation measures **must remain in place until the completion of the fire season.**

PENALTIES MAY APPLY

City of Albany officers are authorised to enter private property, without notice to the owner, in order to confirm compliance with this notice. If you fail to comply with the requirements contained within this Notice, penalties under the *Bush Fire Act 1954* may apply.

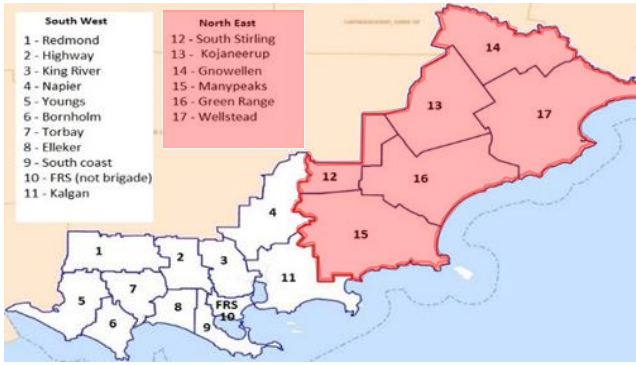
CITY OF Albany

Significant Dates

NORTH EAST SECTOR FIRE SEASON	
1 October 2022 – 14 November 2022	Restricted Burning permits required
1 October 2022	Requirements of Fire Notice MUST be in place and maintained
15 November 2022 – 15 February 2023	BURNING PROHIBITED
16 February 2023 – 30 April 2023	Restricted Burning permits required

SOUTH WEST SECTOR FIRE SEASON	
1 November 2022 – 14 December 2022	Restricted Burning permits required
1 December 2022	Requirements of Fire Notice MUST be in place and maintained
15 December 2022 – 14 March 2023	BURNING PROHIBITED
15 March 2023 – 14 May 2023	Restricted Burning permits required

These dates are subject to change. Any changes will be published in local newspapers and on the City of Albany website at www.albany.wa.gov.au



Prohibited Burning Times

It is an offence to light an unauthorised fire during the Prohibited Burning Time.

Penalties of up to $25,000 or 12 months imprisonment, or both, may apply under the *Bush Fires Act 1954*.

Restricted Burning Times

You must not light a fire without a permit during the Restricted Burning Time. All permit holders must comply with the requirements of the *Bush Fire Act 1954* and any additional conditions imposed.

These dates are subject to change depending on the prevailing weather conditions. Any changes will be published in local newspapers and on the City of Albany website at www.albany.wa.gov.au

Variations to Requirements

If you cannot meet the fire management requirements listed in this Notice, you must apply for a variation or submit a Bush Fire Management Plan.

If approved, the conditions of the approval and application are to be complied with.

For details, please visit the City's website at www.albany.wa.gov.au

Bush Fire Management Plans

Approved Bushfire Management Plans are a strategy for specific fire risk management and can encompass singular or multiple properties. The City will only accept plans completed by an accredited Bush Fire Planning and Design practitioner. Where an approved Bushfire Management Plan is in place, all properties covered by the Plan are to comply with the conditions of the plan. Please contact the City of Albany Planning Department on 6820 3000 for more details.

Definitions

Brigade zone- the designated response area for specific volunteer bush fire brigades. A larger map than the one in this notice is available at www.albany.wa.gov.au

Fine fuel- Grasses and combustible dead vegetation matter less than 6mm in thickness reduced to and maintained at an average of 2 tonnes/hectare or below. Does not include processed mulch below an average depth of 50mm

Harvest and Movement Bans- A municipality specific prohibition on the use of combustion powered vehicles driven in paddocks or bush areas, harvesting, and 'hot works' (includes welding, grinding, soldering and gas cutting) in the open air. Christmas Day and New Year's day are automatically declared as harvest and movement ban dates.

Hazard Specific Fire Break- a 3 metre low fuel area around flammable hazards with vegetation maintained below 50mm. Includes but is not limited to; Haystacks, non-dwelling sheds, green power domes, power poles and fuel storage areas.

North East/ South West Sector- division of brigade boundaries in relation to where they are located within the Albany region. A map is available at www.albany.wa.gov.au

Perimeter fire break- a continuous access track that has standard dimensions of 3 metres wide with 4 metres vertical clearance, located within 20 metres of the property boundary & with the capacity to allow a firefighting truck to safely navigate the interior perimeter of the property. All vegetation on the break is to be maintained below 50mm in height.

Strategic fire break- a designated emergency access route included into subdivisions at a planning stage. Contact the City of Albany Planning Department to see if your subdivision has specific fire mitigation requirements.

Total fire ban- a DFES declaration on days of extreme weather or when widespread fires are seriously stretching firefighting resources. Certain activities and the lighting of any fires are restricted or prohibited. Refer to www.dfes.wa.gov.au for more information.

Asset Protection Zones

All properties, regardless of size must meet Asset Protection Zone (APZ) (building protection zone and hazard separation zones) requirements.

An Asset Protection Zone is an area of at least 20 metres (as far as practicable) within a property boundary that surrounds all habitable buildings to reduce the bushfire hazard and create a defendable space.

Under new legislation, properties with dwellings built before 2015 may be able to clear APZ vegetation regardless of scheme or zoning restrictions. *A copy of the Bush Fire Treatment Standards can be obtained at the DFES website www.dfes.wa.gov.au*

For all other properties the following applies:

- Fine Fuel (*refer to definitions*) and other dead vegetation must be removed or reduced so that, in opinion of an inspecting City Of Albany officer, it does not constitute an unacceptable fire risk
- Branches that have the potential to fall on the house must be removed
- Clearance of 2.5 metres between trees and power lines

Vegetable gardens, tended lawns, landscaped gardens and trees are acceptable if maintained.

Additional recommendations on how to prepare your APZ to mitigate fire risk are available on the City of Albany and the Department of Fire and Emergency services (DFES) websites.

Conservation, Special Residential & Rural Residential (Special Rural) Zones

Properties located in these zones may be subject to specific fire mitigation requirements contained in the Albany Local Planning Scheme, a subdivision guide plan (structure plan) or an approved Bush Fire Management Plan.

All bush fire mitigation conditions that apply to your property are to be complied with.

Conditions may include (but are not limited to):

- Additional Asset Protection Zone (APZ) requirements.
- Compliant access to dwellings.
- Permanent water supply.
- Maintenance of Strategic Fire Access Routes.
- Vegetation protection. *(may not apply to clearing for APZ installation, refer APZ section of this notice)*

Any zoned properties without the above fire mitigation provisions are to comply with the conditions of this notice.

Paddock and grassed areas are to be maintained to reduce fine fuel loading.

For more information or to check your properties zoning, please contact the City of Albany Planning Department on 6820 3000.

Properties up to 4,000m²

(*May exclude some Conservation, Special Residential and Rural Residential zoned properties.*)

The following mitigation requirements apply to vacant and developed land with an area of 4,000m² or less:

- Asset Protection Zone conditions
- Fine fuel load (see definitions) is to be reduced and maintained to an average of no more than two tonnes per hectare across the whole property
- Install hazard specific fire breaks

Properties 4,000 m² to 50 Ha

(May exclude some Conservation and Rural Residential zoned properties.)

The following fire mitigation measures apply to vacant and developed land with an area between 4,000m² and 50 Ha:

- Perimeter fire breaks.
- Hazard specific fire breaks.
- Asset Protection Zone conditions.
- Maintain fine fuel load to an average of 8 tonnes per hectare or less across the whole property.

Properties over 50 Ha

Non-agricultural Properties

Non-agricultural properties with an area over 50 Ha require the following measures:

- Hazard specific breaks, Asset Protection Zone conditions and perimeter fire breaks.

You can apply for a Variation to Requirements if your property is managed in a way that:

- reduces the risk of bush fire; or
- You have additional capacity for preventing the outbreak and/or spread of bushfire.

Agricultural properties

During **restricted and prohibited burning times**, all harvesting machinery, including tractors and trucks that are involved in harvesting operations must carry a fire extinguisher

You can apply for a Variation to Requirements if your property is managed in a way that:

- reduces the risk of bush fire; or
- you have additional capacity for preventing the outbreak and/or spread of bushfire.

If a Variation is not granted the following requirements apply:

- Asset Protection Conditions.
- Hazard specific fire breaks.
- Perimeter fire breaks.
- Cropping paddocks must be broken into compartments not exceeding 250Ha in area each separated by internal fire breaks.
- During harvest operations, a fully operational self- propelled (i.e. not trailer mounted) firefighting unit with a minimum water capacity of 600 litres is to be located in the paddock being harvested. Where two or more harvesting machines are operating, the minimum water capacity is to be 1,000 litres.

Plantations & Regeneration Lots

Owners and lessees of plantation and regeneration lots must comply with the conditions detailed in DFES *Guidelines for Plantation Fire Protection*. (Available from the DFES website at www.dfes.wa.gov.au

The following measures are also required (unless a variation has been granted by the City of Albany):

- Provide a red PVC container at the main entry point to the property containing map(s) showing water points, tracks and contact details.
- Ensure the property is broken into compartments not exceeding 250Ha in area and separated by internal fire breaks 6 metres wide and with 4 metres vertical clearance.
- Install a 15 metres wide fire break devoid of vegetation with a height above 50mm under all power lines.

Cooking Fires

NO COOKING FIRES ARE TO BE LIT DURING A TOTAL FIRE BAN

Public land

Unauthorised fires are prohibited on all City of Albany land throughout the year.

This includes

- City of Albany reserves.
- Campsites.
- Beaches.
- Council road verges.

Gas appliances can be utilised and the City provides free BBQ facilities at multiple locations for public use.

Private land

Cooking or BBQ style encapsulated fires (solid fuel) can be used on private land during the fire season under the following conditions:

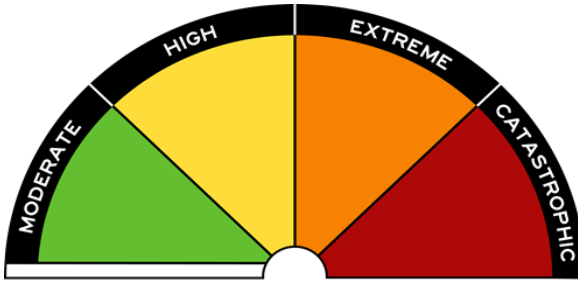
- the fire is not lit on a day where the Fire Danger Forecast is “very high” or above (approval from the City of Albany can be granted in special circumstances).
- the fire has a 3 metre zone clear of flammables.
- the fire is fully contained to prevent escape.
- the fire is attended at all times.
- sufficient water is available to extinguish fire.
- the fire and any remnants are completely extinguished with no possibility of re-ignition.

Fire Danger Rating

The Australian Warning System (AWS) is an easy-to-understand warning system to help you stay safe during an emergency, no matter where you are. Recent changes to this system include changes to the bushfire warning colours, as well as new nationally consistent hazard icons on www.emergencywa.gov.au (refer page 9)

Fire Danger Ratings (FDRs) tell you how dangerous a fire would be if one started. The higher the FDR, the more severe the bushfire will be. They are based on weather conditions forecast by the Bureau of Meteorology.

Western Australia has joined with other states and territories to deliver nationally consistent emergency information through the implementation of the Australian Warning System.



Fire Danger	Key Message	Fire Behaviour	Supporting Messages
MODERATE	Plan and prepare.	Most fires can be controlled.	• Stay up to date and be ready to act if there is a fire.
HIGH	Be ready to act.	Fires can be dangerous.	• There's a heightened risk. Be alert for fires in your area. • Decide what you will do if a fire starts. • If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.
EXTREME	Take action now to protect your life and property.	Fires will spread quickly and be extremely dangerous.	• Do not wait for a fire to start- Act now to protect people and property. • Monitor official sources for warnings. • Fires will move quickly and threaten your life. • Leaving before a fire threatens your community is the safest option for your survival. • Only stay if you and your home are prepared*. • Consider whether you need to be in or travel through these areas
CATASTROPHIC	For your survival, leave bushfire risk areas.	If a fire starts and takes hold, lives are likely to be lost.	• Homes are not built to withstand fires in these conditions. • Protect your life by leaving early. • Do not travel into or through high-risk areas. • Lives and properties are likely to be lost if a fire starts.

Disclaimer:

The City of Albany, or a contractor engaged by the City, may enter your land to install fire breaks or reduce fuel loads with any expenses incurred charged to the landowner.

Any 'variation to requirements' approval you hold may be declared void.

Clearing or the removal of native vegetation beyond the requirements of this notice may require permission from other legislative authorities.

The City of Albany may vary a requirement or condition of this Notice at its discretion.

This notice is issued and authorised by:

Andrew Sharpe
Chief Executive Officer

102 North Road, Yakamia
PO Box 484, ALBANY WA 6330
Phone 6820 3000 Fax 6820 3888
Email staff@albany.wa.gov.au
www.albany.wa.gov.au

Document Status

Report version	Rev No.	Purpose	Author	Reviewed and Approved for Issue	
				Name	Date
Draft Report	Rev A	For review by Client	Zac Cockerill (BPAD 37803, Level 2)	Zac Cockerill (BPAD 37803, Level 2)	3 November 2022
Final Report	Rev 0	Issued for use: to accompany Structure Plan submission	Zac Cockerill (BPAD 37803, Level 2)	Zac Cockerill (BPAD 37803, Level 2)	3 November 2022
Final Report	**Rev 1**	**Issued for use: updated consistent with final Structure Plan boundary and EAR**	**Zac Cockerill (BPAD 37803, Level 2)**	**Zac Cockerill (BPAD 37803, Level 2)**	**13 April 2023**

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