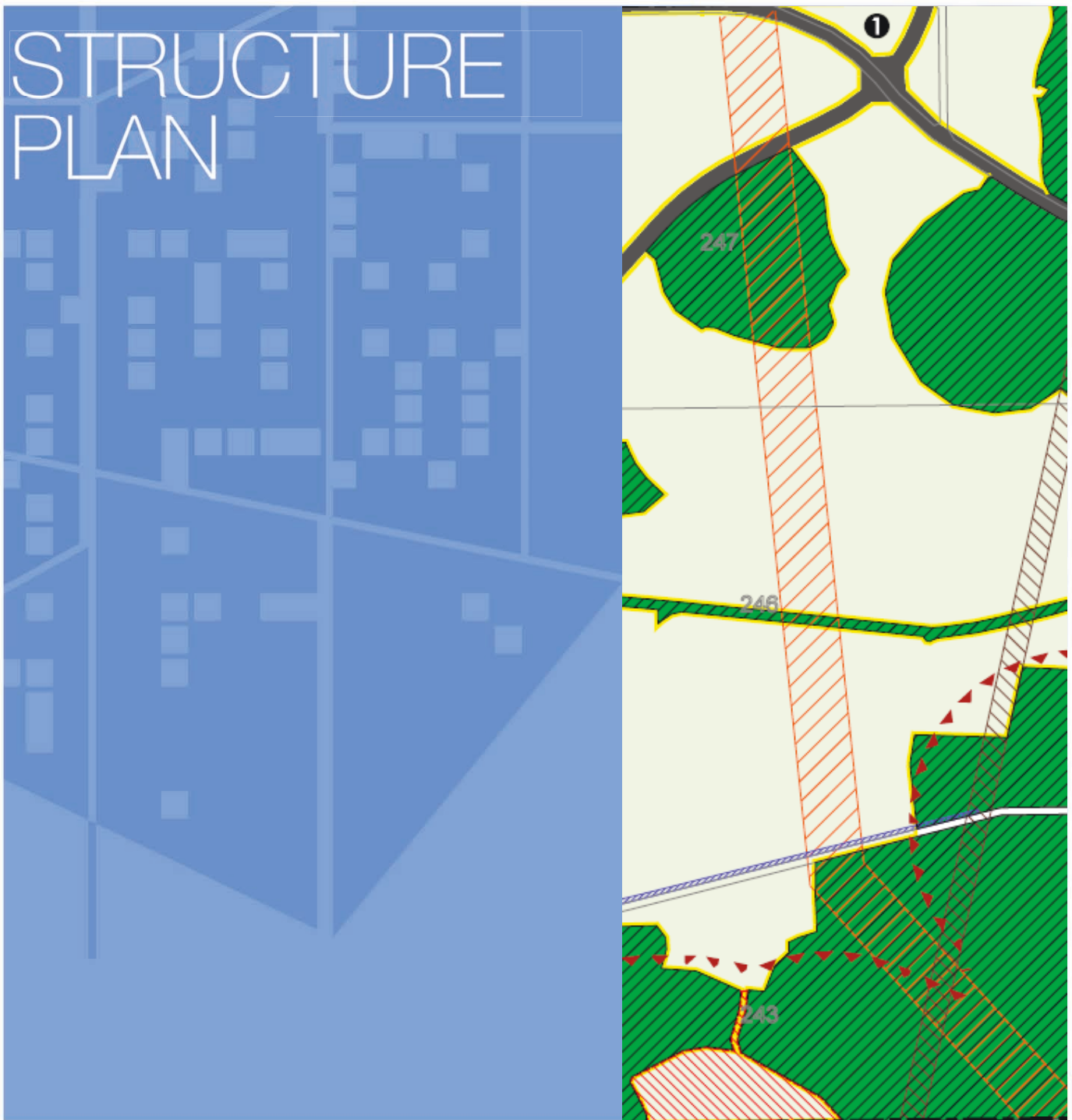


Golden Lake View (Nambeelup)



Prepared for **The Golden Group**  
Prepared by **Taylor Burrell Barnett**



August 2019



# DOCUMENT HISTORY AND STATUS

**Golden Lake View  
Local Structure Plan**

Revision	Reviewer	Date Issued
0	LB	20/10/2017
1	DR	31/01/2019
2	DR	19/08/2019

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# ENDORSEMENT

This Structure Plan is prepared under the provision of the **Shire of Murray Local Planning Scheme No.3.**

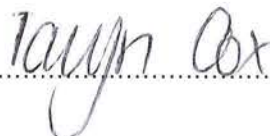
IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE  
WESTERN AUSTRALIAN PLANNING COMMISSION ON:

27 August 2019  
..... Date

Signed for and on behalf of the Western Australian Planning Commission

  
.....

an officer of the Commission duly authorised by the Commission pursuant to section 16 of the Planning and  
Development Act 2005 for that purpose, in the presence of:

  
..... Witness

28 August 2019  
..... Date

27 August 2029  
..... Date of Expiry



# TABLE OF AMENDMENTS

Each time a Structure Plan is amended, the amendment is to be recorded in the table of amendments at the front of the Structure Plan, including the amendment type (minor or major).

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC



# EXECUTIVE SUMMARY

This Structure Plan represents a comprehensive revision of the Explanatory Report that accompanied and informed Scheme Amendment No.236, which when gazetted in February 2017, rezoned the subject land from 'Rural' to 'Special Rural' consistent with the outcome and recommendations of the *Nambeelup-North Dandalup Rural Land Use Strategy (NNDRLS)*.

Evolving from the 'Subdivision Guide Plan' that accompanied and was advertised as part of the Scheme Amendment process, the plan has been adjusted to respond directly to issues raised during finalisation of the Scheme Amendment process, in particular additional technical reports required by **Special Provision 31** applicable to Special Rural Zone No.40, including:

- A Spring Survey of areas likely to be cleared (refer **Appendix C**);
- A Black Cockatoo Habitat Tree Study (refer **Appendix D**);
- An updated Bushfire Management Plan (refer **Appendix E**);
- A Traffic Noise Assessment relating to Lakes Road (refer **Appendix F**);
- A Water Supply Study (refer **Appendix H**); &
- An Asset Management Plan (refer **Appendix I**).

Earlier comprehensive studies relating to environmental assessment and water management remain valid and have been reattached. The **Part One: Implementation** section of this report goes on to lists the further investigations and reporting required to support the downstream subdivision and development phases of the overall development process.

Item	Data		Structure Plan Ref. (Section No.)
Total area covered by the Structure Plan	1,035.76 ha		1.1
Area of each land use proposed:	<b>Hectares</b>	<b>Lot Yield</b>	
• Rural Residential	669.36 ha	300 – 400	3.1
Total Estimated Lot Yield	300 – 400		3.1
Estimated No. of Dwellings	300 – 400		3.3.1
Estimated Residential Site Density	0.45 – 0.60 Dwellings per site/ha		3.3.1
Estimated Population	810 – 1,080 (@2.7/dwelling)		3.3.1
No. of High Schools	-		-
No. of Primary Schools	-		-
Estimated area and percentage of Public Open Space given over to:			
• Regional/District Open Space	174.75 ha	56.5%	3.2
• Foreshore Reservations	19.73 ha	6.4%	
• Neighbourhood Parks	114.95 ha	37.1%	
Estimated percentage of natural area	309.43ha	29.9%	3.2.2

**Table 1: Landuse Summary**



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# PART ONE: IMPLEMENTATION

# 1 STRUCTURE PLAN AREA

This plan applies to:

- Lot 223 Lakes Road;
- Lot 243 Benden Road;
- Lot 245 Benden Road;
- Lot 246 Scott Road;
- Lot 247 Lakes Road; &
- Lot 248 Lakes Road;

otherwise referred to as the Golden Lakeview (Nambeelup) Local Structure Plan (LSP), being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan Map (**Plan 1**).

## 2 OPERATION

The Structure Plan will become operative following approval by the Western Australian Planning Commission pursuant to Clause 21 of Part 4 of the deemed provisions for Local Planning Schemes, as set out in the *Planning and Development (Local Planning Scheme) Regulations 2015*.

## 3 STAGING

It is anticipated that development will commence in the northern part of the site (inclusive of POS Area #5), where approximately 70 lots can be readily connected to and serviced via the Water Corporation's existing reticulated water supply network. Subsequent staging will depend on a variety of matters, most notably the timing and costs associated with extending the water distribution main along Lakes Road and the requirements of the Bushfire Management Plan.

Development reliant on access from Benden Road will need to be preceded by Local Government conversion of the existing reservation to a gazetted public road.

## 4 LAND USE, SUBDIVISION & DEVELOPMENT REQUIREMENTS

Decision making authorities shall have due regard to the contents of this Structure Plan, including technical appendices, when considering future proposals to subdivide and/or develop any portion of the site.

### 4.1 LAND USE ZONES & RESERVES

The Shire of Murray *Local Planning Scheme No.4 (LPS4)* specifies the zoning, land use and development requirements for the structure plan area. Preparation of a Structure Plan is a specific requirement outlined in **Special Provision 1**, applicable to Special Rural Zone No.40 in Schedule 4 of LPS4 which states:

*"Subdivision and development of the land should be generally in accordance with a structure plan approved by the Western Australian Planning Commission."*



## 4.2 RESPONSE TO HAZARDS & SEPARATION AREAS

Stage specific Bushfire Management Plans inclusive of an indicative Bushfire Attack Level (BAL) assessment and contour plan, based on the full extent of designated building envelopes and surrounding Asset Protection Zones (APZs), must accompany subdivision applications within the structure plan area, demonstrating compliance with the requirements of *State Planning Policy 3.7: Planning in Bushfire Prone Areas*.

Certification of the subdivision BAL assessments and contour plan, based on the final placement of development within designated building envelopes, must then accompany all development applications within the structure plan area. Dwellings located in areas identified as requiring increased building protection measures are to be constructed in accordance with the requirements of *Australian Standard 3959: Construction of Buildings in Bushfire-Prone Areas*. The Developer shall supply a copy of the latest approved Bushfire Management Plan to each new landholder.

The landowner/applicant is required to undertake a review of the surrounding rural land uses prior to lodging a subdivision application to determine if there is a requirement for separation distances and/or vegetation buffers as part of the subdivision design. This information is required to be provided as part of the subdivision application.

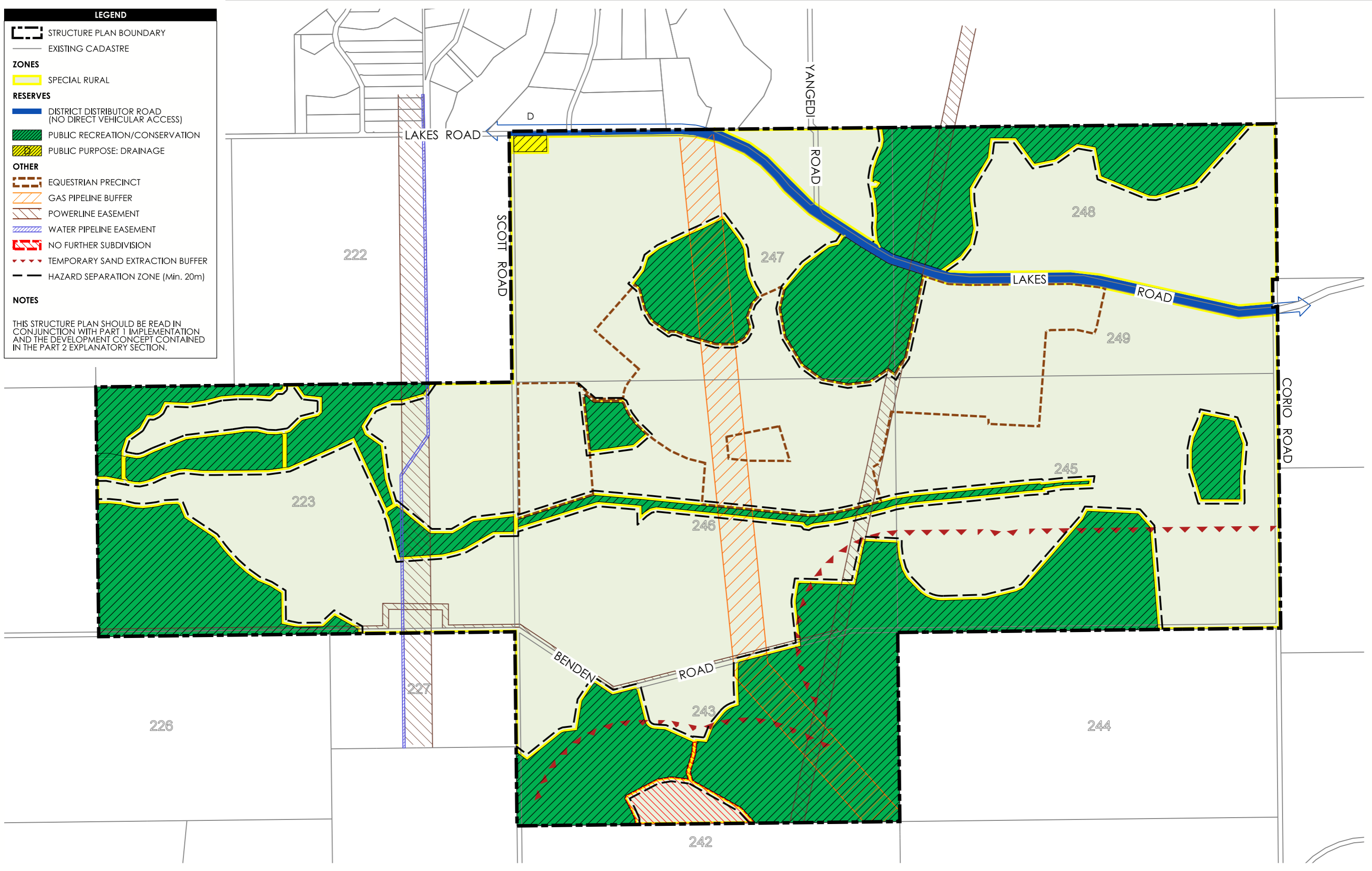
# 5 ADDITIONAL INFORMATION

**Table 2** below outlines additional information that will be required, as a minimum, at future stages of development.

Additional Information	Approval Stage	Consultation Required
<b>Environment</b>		
Stage Specific - Bushfire Attack Level Assessment	Prior to Subdivision	SoM
Sand Extraction Buffer Study	Prior to Subdivision <i>(Within Generic 500m Buffer Only)</i>	SoM, DBCA
Landscape & Environmental Management Plan <ul style="list-style-type: none"> <li>Wetland Management Plan</li> <li>Vegetation Management Plan</li> <li>Revegetation Plan &amp; Landscaping Planting Program</li> <li>Nambeelup Brook Foreshore Management Plan</li> </ul>	Condition of Subdivision	SoM, DBCA
Mosquito Risk Assessment	Condition of Subdivision	SoM
Stage Specific Mosquito Management Plan	Condition of Subdivision	SoM
Stage Specific Asset Management Plan	Condition of Subdivision	SoM
Site Specific Transportation Noise Assessment	Prior to Development	SoM
Review of Surrounding Land Uses to determine if there is a requirement for separation or buffers.	Prior to Subdivision Application	SoM & Other Agencies (as required)
<b>Aboriginal Heritage</b>		
Section 18 Clearance	Prior to Development	DPLH
<b>Engineering</b>		
Gas Pipeline Risk Management Workshop	Prior to Subdivision	Pipeline Operator
Pipeline Risk Management Plan (approved by the Pipeline Operator)	Prior to Subdivision Application (for any land within 300m of the pipeline easement)	Pipeline Operator
Urban Water Management Plan	Condition of Subdivision	SoM, DoWER
Detailed Road & Engineering Drawings	Condition of Subdivision	SoM
<b>Planning</b>		
Stage Specific Building Envelope Plan	Prior to Subdivision	SoM

**Table 2: Additional Information**





# Plan 1: Structure Plan Map

LOTS 247 & 248 LAKES ROAD, LOTS 223 & 246 SCOTT ROAD, LOT 243 BENDEN ROAD AND LOT 245 CARLA ROAD, NAMBEELUP  
 A GOLDEN GROUP PROJECT

**TAYLOR BURRELL BARNETT**

date: 14/05/2015B	designed: DR	scale: 1:15000@A3   1:7500@A1
date: 28/06/2019	checked: DR	0 150 300m
projection: MGA 94	drawn: BK	

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## PART TWO: EXPLANATORY INFORMATION

# 1 PLANNING BACKGROUND

## 1.1 LAND DESCRIPTION

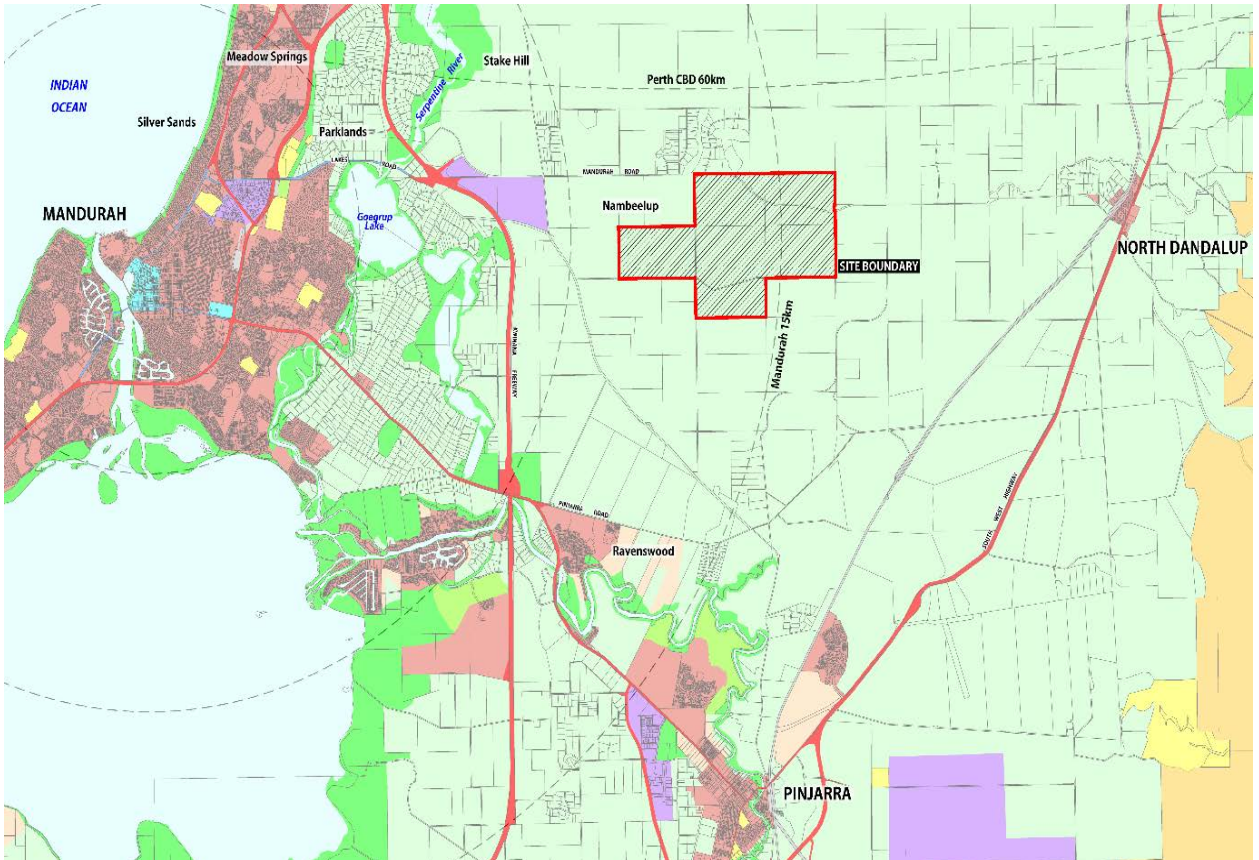
This Structure Plan area comprises of the following lots, whose legal description, ownership and current use are outlined in the following table (full copies of the Certificates of Title appear at **Appendix A**):

Lot No.	Road	Volume / Folio	Plan	Owner	Current Use	Area (Ha)
223	Lakes Road	1136 / 354	P2087	New Vista Pty Ltd	Broad Acre Grazing	193.04
243	Benden Road	1594 / 972	P2087	Lot 243 Pty Ltd	Broad Acre Grazing	117.18
246	Scott Road	1118 / 338	P2087	New Vista Pty Ltd	Broad Acre Grazing	197.15
245	Benden Road	1332 / 627 (Multi-Lot Title)	P2087	New Vista Pty Ltd	Broad Acre Grazing & Pine Plantations	179.25
247	Lakes Road					173.71
248	Lakes Road					175.43
<b>TOTAL Area:</b>						<b>1,035.76</b>

**Table 3: Land Ownership Details**

The Structure Plan also includes a number of existing road reservations, which are to be retained and constructed/upgraded where appropriate, with the above area calculations relating solely to the existing freehold properties.

The spatial extent of the Structure Plan is best depicted on the Location Plan (**Figure 1**) below:



**Figure 1: Location Plan**

## 1.2 PLANNING FRAMEWORK

### 1.2.1 NAMBEELUP NORTH DANDALUP LOCAL RURAL STRATEGY

Adopted by the Shire of Murray in March 2010 and subsequently endorsed by the WAPC in March 2012, the land is identified in the Nambeelup North Dandalup Local Rural Strategy (NNDLRS) as the substantive portion of Rural Residential Precinct No.2 (refer **Figure 2** below).

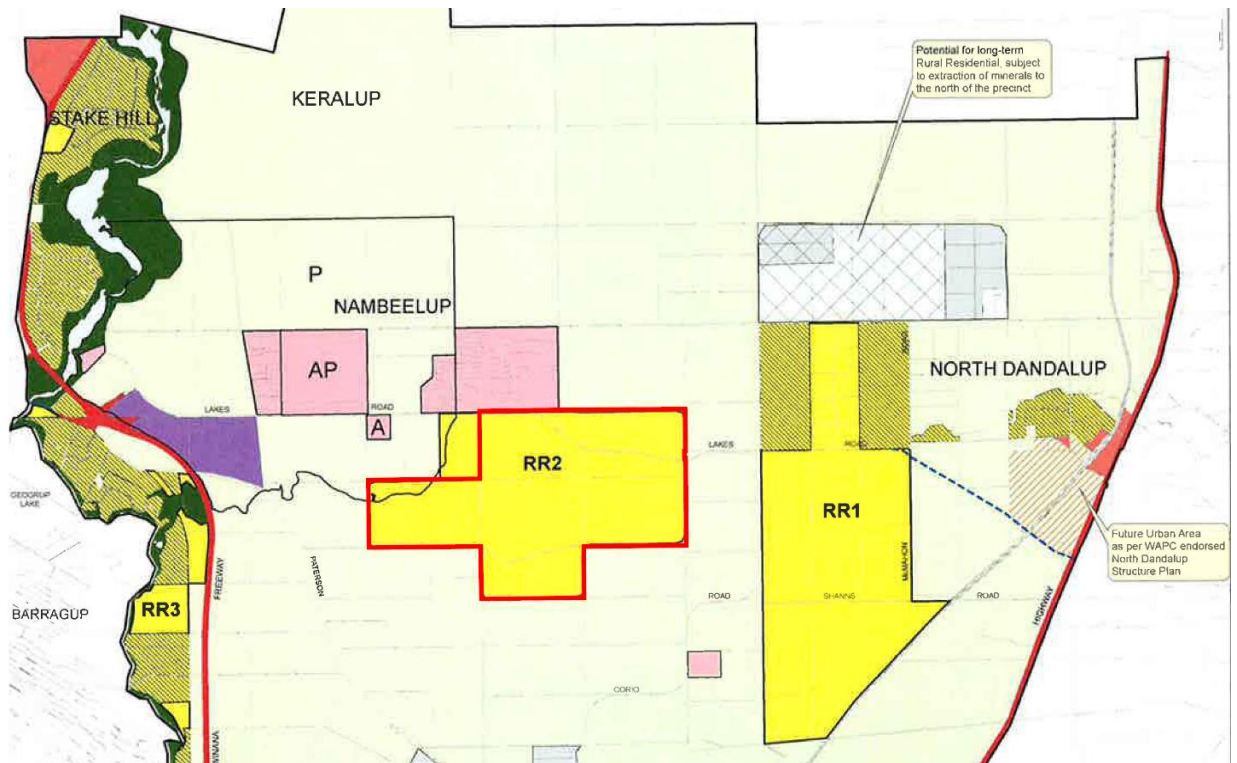


Figure 2: Local Rural Strategy (Extract)

Incorporating over 1,000 hectares of land concentrated largely south of Lakes Road, the precinct is identified as being suitable for an equine themed rural residential/lifestyle estate incorporating substantive wetland protection areas and lot sizes ranging between 1-9ha. Designation of the land for this purpose had regard for the land's close proximity to the Kwinana Freeway extension and its complementary nature to a number of adjacent land uses such as the Special Use precinct north of Lakes Road, which incorporates the airport, a number of kennel properties and a home-based business estate.

### 1.2.2 SPECIAL RURAL ZONE NO.40

The Structure Plan area is zoned 'Special Rural' in the Shire's Local Planning Scheme No.4 (LPS4) having formed the subject of Amendment No.236 (gazetted February 2016). It is identified in Schedule 4 of LPS4 as 'Special Rural Zone No.40' (SR40), within which a number of site specific provisions apply to future subdivision and development of the land, including the need for development to be in accordance with an approved LSP. Other key matters include:

- Restricted land use permissibility (including the keeping of animals to prevent overstocking);
- Buildings and on-site effluent disposal systems being restricted to within nominated Building Envelopes;
- Preparation and implementation of various environmental/revegetation/hydrological management plans; &
- Investigation and implementation of mitigation strategies to deal with known on-site and external impacts.



## 2 SITE CONDITIONS & CONSTRAINTS

Environmental considerations are comprehensively addressed in the *Environmental Assessment and Justification Report* (EAJR - refer **Appendix B**). The EAJR demonstrates the environmental capability of the subject land to accommodate closer settlement, with the core environmental considerations summarised in the following sections.

### 2.1 BIODIVERSITY & NATURAL AREA ASSETS

#### 2.1.1 VEGETATION & FLORA

The majority of the site has been historically cleared for and as a result of grazing, with isolated vegetated areas in variable condition. Approximately 29% of the site contains remnant vegetation.

As part of the Scheme Amendment (and former Subdivision Guide Plan) process, two rounds of flora and vegetation surveys were completed over the site. The first round of survey was undertaken by Bioscience in 2006, and involved a number of survey events spanning across spring and summer. The second round of survey was completed by botanists from Emerge in 2011 and was undertaken to update and refine the Bioscience vegetation condition mapping to be consistent with the Keighery (1994) scale (following comments from the OEPA on the Bioscience survey) and also to infer the vegetation communities (Floristic Community Types) when compared against the Gibson et al (1994) Swan Coastal Plain survey. Most importantly, the Emerge survey was based on an intensive survey grid that involved 254 separate survey locations across the total area. This is considered to be a very intensive survey effort and was undertaken deliberately to derive very accurate vegetation community and condition mapping across the site.

In summary the key findings of the earlier flora surveys in terms of values were that the site contained:

- Vegetation representative of the Bassendean Complex (south & central) and Southern River Complex;
- No Declared Rare Flora, however one Priority 3 species, *Stylidium longitubum* was encountered in the more recent Emerge surveys. This species is known to be associated with the wetland areas within Lot 243;
- Vegetation representing a Priority Ecological Community (banksia woodlands of the Swan Coastal Plain), which is now considered a Threatened Ecological Community (TEC) under the *Environment Protection and Biodiversity Conservation Act 1999*; &
- Potential black cockatoo foraging habitat, principally the Emerge identified Plant Community 3 (described as woodland to open forest of Banksia spp. *Allocasuarina fraseriana* and *Nuytsia floribunda* over tall shrub land of *Kunzea glabrescens* over forbland of *Dasypogon bromeliifolius* and *Desmocladius flexuosus*).

Prior to finalisation of the preceding Scheme Amendment, **Special Provision 31(b) of SR40** was inserted to require a spring survey to be undertaken for declared rare flora in native vegetation areas that are proposed to be cleared for building envelopes, roads, access ways, firebreaks, fence lines and building protection.

In response, detailed flora and vegetation surveys were undertaken by Emerge botanists across the site in 2017. These included a reconnaissance survey in autumn and detailed winter and spring surveys to sample vegetation via plots, map vegetation and conduct targeted searches for conservation significant flora species, particularly *Drakaea elastica*, which is most conspicuous between July and August. Other threatened and/or priority flora species flowering during this time were also searched for. Vegetation within the site was traversed on foot and the composition and condition of vegetation recorded (refer **Appendix C**).

Due to the large size of the site, the detailed sampling and targeted searches focused on native vegetation within areas identified in the proposed subdivision layout as comprising lots, roads, access ways, firebreaks, fence lines and building protection zones (the 'development footprint').

Those areas of vegetation proposed to be retained in conservation reserves were largely not subject to detailed sampling or targeted searches due to time constraints, however the vegetation was assessed for floristic community type. The Spring Flora and Vegetation Survey also included 10 sampling plots previously undertaken by Emerge in December 2011.

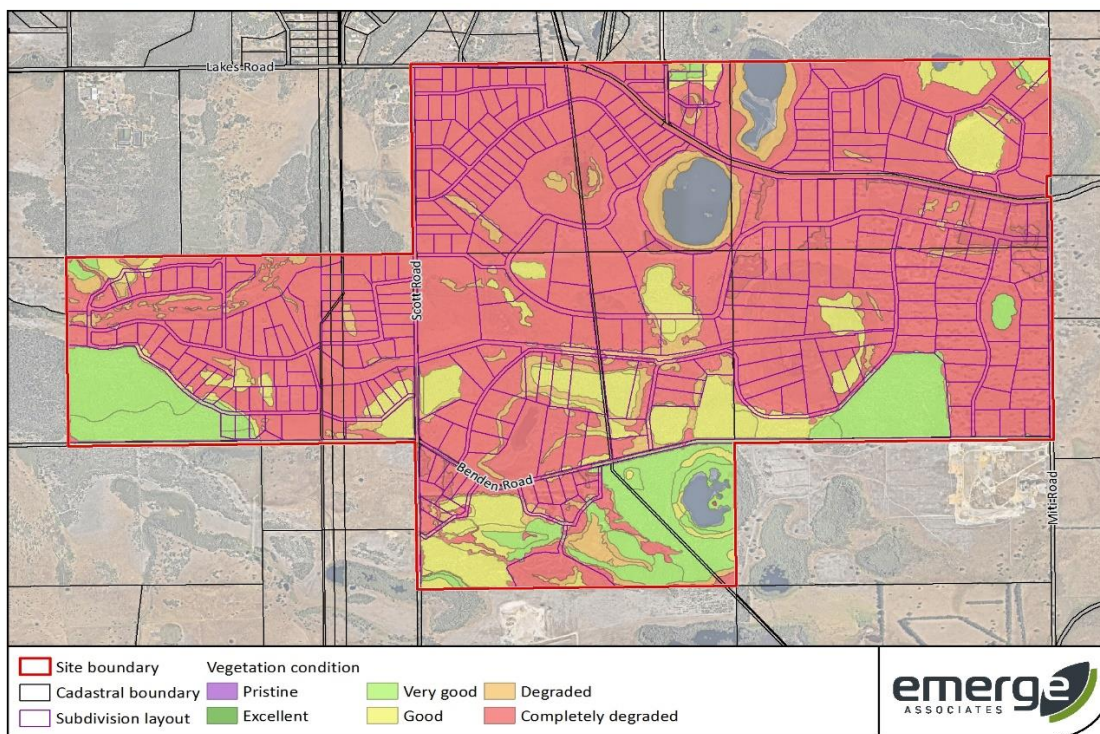


Figure 3: Vegetation Conditions (2017)

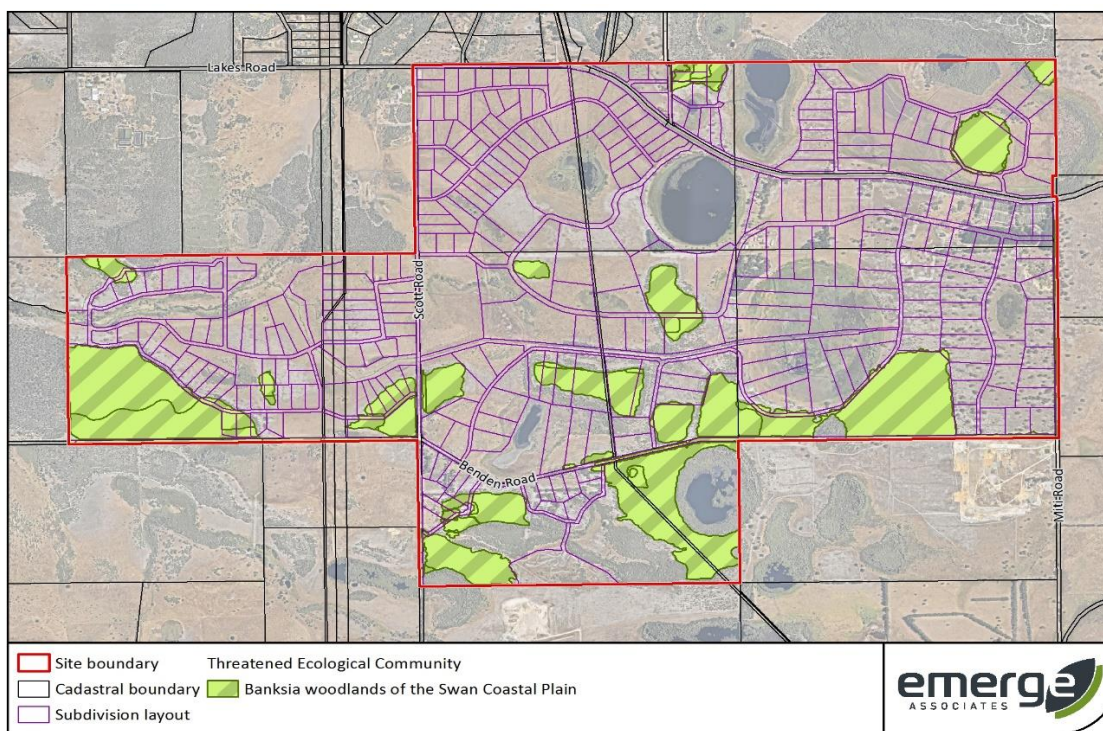


Figure 4: Threatened Ecological Communities (2017)



The following provides a summary of the key results:

- Non-native vegetation is present across 759.66 ha (71%) of the site.
- Remnant native vegetation is present across 312.61 ha (29%) of the site in varying levels of condition.
- A total of 234 native and 45 non-native (weed) species were recorded in the site.
- One threatened flora species (*Drakaea elastica*) was recorded in one patch of vegetation within the site. A total of 74 individuals of this species were recorded in two populations approximately 75m apart. *D. elastica* is listed as 'endangered' under the Commonwealth *Environmental Protection and Biodiversity Conservation Act* (1999).
- Four priority species were also recorded within the site; *Acacia lasiocarpa* var. *bracteolata long peduncle* variant (G.J. Keighery 5026) (P1), *Johnsonia pubescens* subsp. *cygnorum* (P2), *Dillwynia dillwynioides* (P3) and *Stylidium longitubum* (P4).
- No other threatened or priority flora species are considered likely to occur outside of the proposed conservation reserves as intensive targeted searches were conducted in areas of potential habitat and none were found.
- The native vegetation within the site was classified into 19 plant communities that are present in 'very good', 'good', 'degraded', and 'completely degraded' condition (refer **Figure 3**).
- Based on the relevant criteria, the plant community BaBm represents the 'banksia woodlands of the Swan Coastal Plain' threatened ecological community (TEC), which is listed as 'endangered' under the EPBC Act (refer **Figure 4**).
- Approximately 180.7 ha of banksia woodland is present within the site. The BaBm community also represents the state listed PECs 'banksia dominated woodlands of the Swan Coastal Plain IBRA region' and 'low lying Banksia attenuata woodlands or shrublands'.
- Large trees present in parts of the site may be locally and regionally significant due to their potential as black cockatoo habitat and close proximity to wetlands and waterways.

In response, to avoid disturbing the two recorded populations of the threatened flora species *Drakaea elastica*, Conservation Reserve #1 on both the Structure Plan and Development Concept has been increased to ensure a 50m buffer around its two known locations. By excluding the threatened flora from the LSP's development footprint, it will be adequately protected. Any additional management measures regarding this conservation area can be addressed during future subdivision design.

## 2.1.2 FAUNA

A fauna survey was conducted over the site in 2009. The report indicated that a number of species of conservation significance may occur within or potentially use the subject site, however, the fauna survey only directly observed two species: Forest Red-tailed Black Cockatoo and the Quenda. The extensive retention of native vegetative and wetlands over the site proposed as part of the Structure Plan will allow the fauna habitat values of the site to largely be retained.

In accordance with the requirements of **Special Provision 31(c) of SR40**, field surveys were undertaken in June and September 2017 to identify habitat trees (defined as a tree of suitable species with a trunk diameter at breast height greater than 50cm), for black cockatoos (refer **Appendix D**).

A total of 543 trees were recorded during the survey, comprising 244 *Corymbia calophylla* (marri), 220 *Eucalyptus marginata* (jarrah) trees and 79 dead stag trees, the majority of which are scattered paddock trees located in the eastern portion of the site (refer **Figure 5**). Up to 143 of these trees contain hollows, with at least 86 considered to be potentially suitable for use by black cockatoos (refer **Figure 6**). Further examination of these trees by an experienced fauna specialist occur as part of the red during the anticipated EPBC Act referral process, prior to development works taking place on the ground.



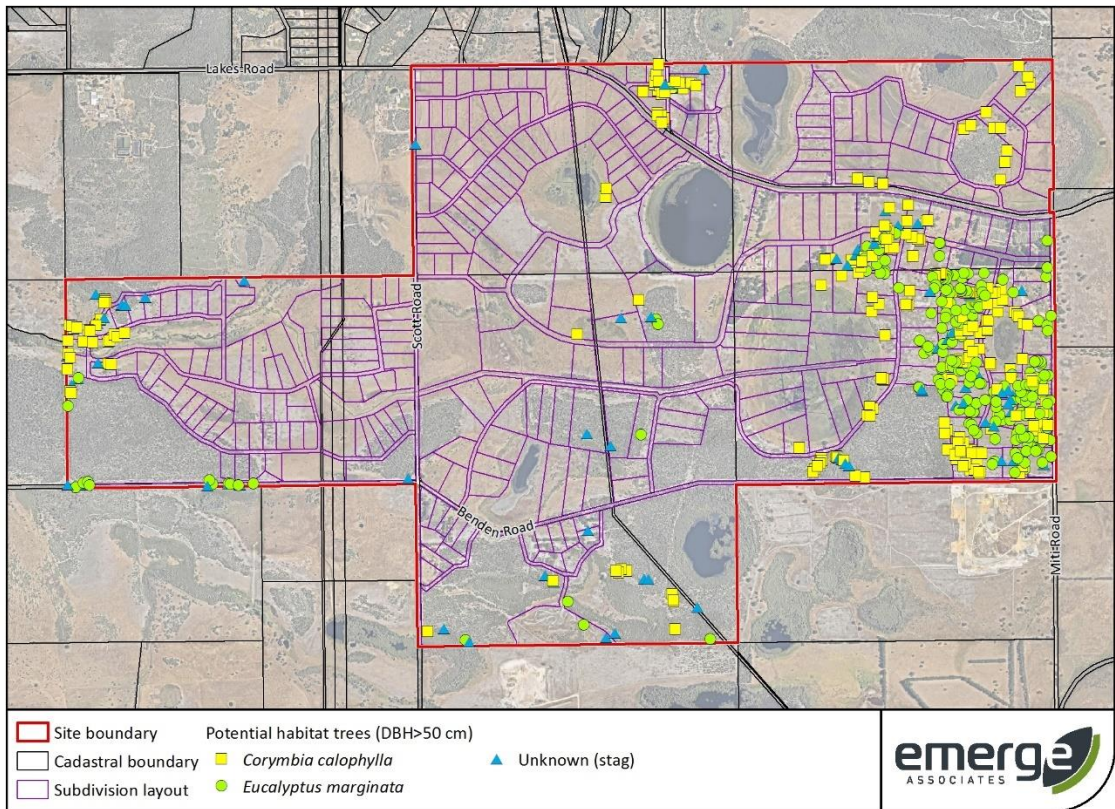


Figure 5: Large Trees (DBH > 50 cm) Species (2017)

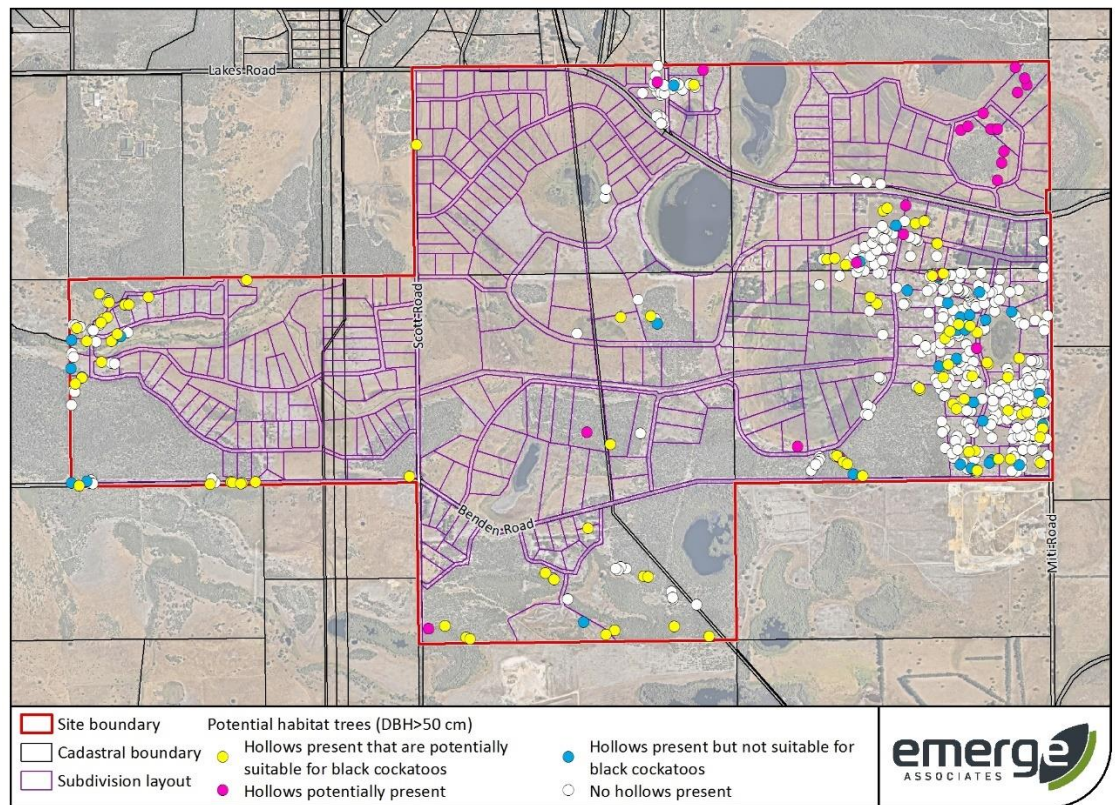


Figure 6: Large Trees with Hollows Potentially Suitable for Black Cockatoos (2017)



## 2.2 LANDFORM & SOILS

The site is generally flat with some low lying areas where wetlands are present. The land slopes gently from east to west towards Nambeelup Brook. The highest elevation is in the eastern area of the site, south of Lakes Road at 24m AHD. The lowest elevation corresponds with the wetland areas across the site with a minimum elevation of 12.5 metres AHD in the mid-southern wetland on Lot 246 (Emerge Associates, EAJR, August 2014).

Based on mapping by the Department of Industry and Resources (1999) and the Department of Agriculture (2007), the site is located within the Perth sedimentary basin and is overlain by the superficial formation comprising Bassendean Sand and the Guildford formation. The Superficial formation overlies the Leederville formation which in turn overlies the South Perth Shale. On-site soil investigations found the soils to be largely Bassendean Sand interspersed with a sequence of clay and clayey sand. The depth of Sand varies with relief, being deeper on and hills. The Leederville formation on site was interpreted to lie between 9m and 18m BGL. Within the wetlands the soil is peat over sand for the larger more permanent wetlands and silty clay over sand for the more ephemeral wetlands.

The phosphorus retention index (PRI) of a soil indicates its ability to bind phosphorus which reduces the amount of phosphorus leaching into the groundwater. With the exception of one location to the south of the site, the PRI of the soils on site are weakly absorbing.

## 2.3 HYDROLOGY

### 2.3.1 GROUNDWATER

Information from the Department of Water indicates the groundwater beneath the site is a multi-layered system comprising a superficial aquifer and the Leederville aquifer. The superficial aquifer is a consideration for this site due to its proximity to the natural surface and interactions with the surface water features and runoff. The Nambeelup Brook acts as a local groundwater discharge point from the site.

A hydrological assessment, including groundwater monitoring, was carried out for the site by Bioscience in 2009. Groundwater levels vary across the site with maximum groundwater levels (MGL) that were recorded ranging between 9.2m AHD and 18.6m AHD.

Mapping was carried by Groundwater Consulting Services in 2007 to calculate the average annual maximum groundwater level (AAMGL). Further monitoring has been undertaken since 2007 and the MGL has been calculated as part of the LWMS. The conclusion has been drawn that the depth to MGL varies between 0m Below Ground Level (BGL) and 9.3m BGL across the site.

The Leederville aquifer is not significant to the hydrological processes that will affect the proposed development, other than as a potential water source. The Lower Leederville aquifer is a potential groundwater source for irrigation purposes.

### 2.3.2 INUNDATED AREAS

Areas where the MGL is at the surface are considered to be inundated. This definition of "inundation" has been adopted following feedback from the Department of Water and the Shire of Murray subsequent to the submission of the earlier version of the LWMS in 2012.

Inundation mapping has been used to guide the subdivision design process to ensure that the proposed lots will have a sufficient area available for building and equestrian uses that is not affected by inundation (in addition to identifying what portion of the lots may from time to time be subject to inundation).

### 2.3.3 NAMBEELUP BROOK

Nambeelup Brook is an ephemeral stream running along the northwest corner of the site, flowing into the Serpentine River and ultimately into the Peel Harvey Estuary. Nambeelup Brook is hydraulically connected to groundwater and acts as both a discharge and recharge location depending on groundwater levels. Flows within the Brook are highly variable, depending on the winter rainfall. Flows ceases during the summer months, however pockets of standing water can be seen in low lying sections connected to the groundwater.

The small portion of Nambeelup Brook within the subject land is severely degraded and the majority of the riparian vegetation has been removed. There is minimal over storey and the understorey is dominated by weeds. The Brook is confined to a small channel and continues to be impacted through stock grazing and watering.

Regional scale flood mapping for Nambeelup Brook was carried out as part of the *Murray Drainage and Water Management Plan* (Department of Water, 2011). The proposed Development Concept locates all building envelopes outside of the identified 100 year floodplain.

In accordance with a number of policies, a buffer is required to waterways to maintain their diversity, ecological function and to provide flood protection. These policies and various guidelines promote a biophysical assessment approach to assess the “area of influence” of the waterway. A desktop biophysical assessment of Nambeelup Brook has been conducted and is detailed in the EAJR. The conclusion of this assessment was that the values of Nambeelup Brook can be accommodated within a 100m foreshore corridor. The 100m foreshore corridor incorporates the riparian vegetation and a significant area of the floodplain.

### 2.3.4 EXISTING DRAINAGE NETWORK

An extensive network of man-made ‘rural’ drains traverses the site conveying surface and groundwater towards Nambeelup Brook. The drainage network can be broadly described as two main sections: a large network to the south of Lakes Road and a smaller network to the north. Each has an east-west ‘main drain’ that discharges into the Nambeelup Brook. The large central ‘main drain’ running east-west through the centre of the site leads from the large wetland within Lot 245.

Inefficient design and construction, poor maintenance and condition of drain banks, channels and culverts have considerably reduced the efficiency of the drainage network across the site. As part of the rural residential development proposed for the site, these drains are proposed to be appropriately designed and re-instated to function as groundwater controls, avoiding low lying points which trap water within the drain for an extended period of time.

### 2.3.5 WETLANDS

There are a number of wetlands across the site ranging from completely degraded through to wetlands in “Good” to “Excellent” condition. A range of wetland classifications also exist over the site, including Conservation Category, Resource Enhancement and Multiple Use. Conservation Category wetlands require a 50 metre buffer whilst Resource Enhancement wetlands require a 30 metre buffer. Multiple Use wetlands are not required to be protected or retained and have thus been included within the development area.



## 2.4 BUSHFIRE HAZARD

In recognition of the significant changes in Bushfire Planning Policy and associated Guidelines in recent years, **Special Provision 31(a) of SR40** requires the preparation of an updated Bushfire Management Plan.

Bushfire hazard mapping is included in the DFES Approved Bushfire Management Plan (BMP) prepared by Emerge & Associates dated January 2019 (refer **Appendix E**). Broadly speaking, patches of remnant vegetation classified as scrub, or that have established a multi-layer fuel load consistent with a woodland or forest classification have been mapped as an 'extreme' bushfire hazard, whereas the extensive pasture/grassland areas (inclusive of isolated paddock trees) have been mapped as being of 'moderate' risk (refer **Figure 7** below).

The Bushfire Mitigation Strategy detailed in Section 3 of the BMP, is summarised in Section 3.8 of this report.

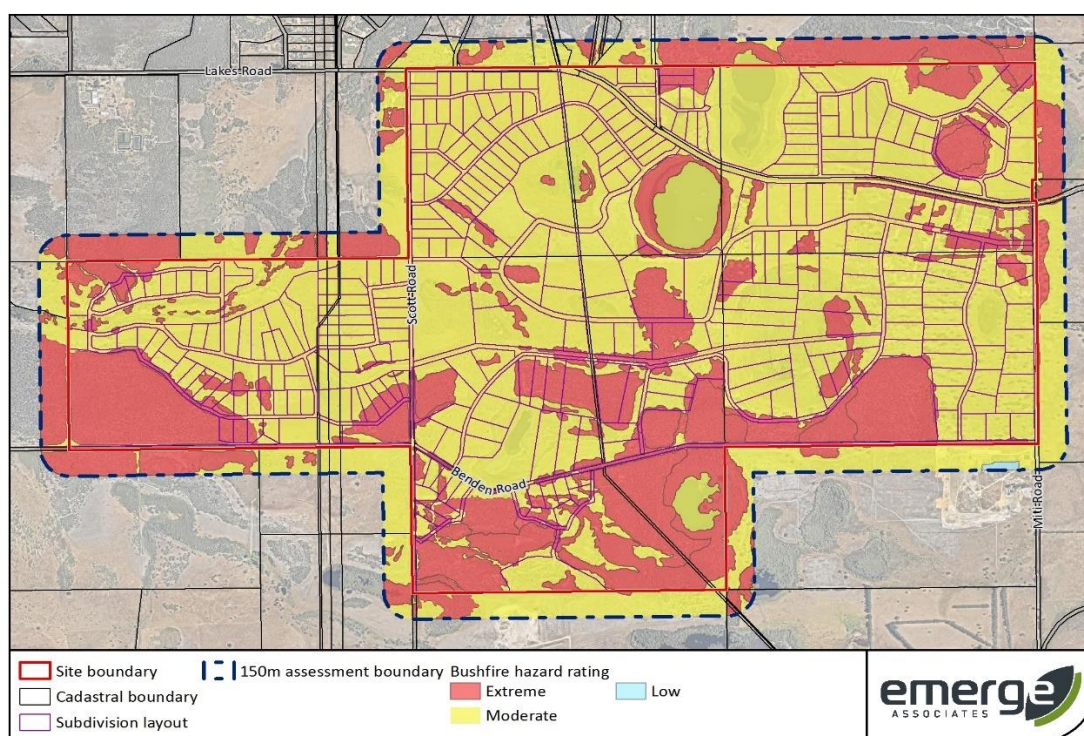


Figure 7: Existing Site Conditions – Bushfire Hazard Assessment (2017)

## 2.5 HERITAGE

An online search for relevant Aboriginal heritage information was undertaken using the Department of Indigenous Affairs (DIA) Aboriginal Heritage Inquiry System (AHIS). One registered site was found. This is an "Artefact/Scatter" site known as Drain (DIA 4110), of which only a small portion is mapped within the site. As the mapping for this site is large (approximately 1km<sup>2</sup>), it is possible that the actual site does not extend into the subject land. Nevertheless, this matter will be further investigated as part of the subdivision process.

The AHIS lists three 'heritage places' over the subject land: Tortoise Swamp, Nambeelup Brook and Natgas 126. These "heritage places" do not require Section 18 consent for disturbance. An aboriginal site survey, undertaken by Yates Heritage Consultants in 2006, identified an additional three scar trees and an artefact scatter which are not listed in the AHIS. The artefact scatter has been located within a Public Recreation/Conservation Reserve on the Structure Plan Map. One of the three scar trees is also located within a Conservation Reserve whilst the other two are located within private lots. The management response for those scar trees will be further investigated at a later stage of the development process.

## 2.6 CONTEXT & OTHER LAND USE CONSTRAINTS & OPPORTUNITIES

### 2.6.1 MOVEMENT NETWORK

The Forrest Highway is located approximately 5km to the west of the site and South Western Highway is located approximately 10km to the east of the site. The subject land is accessed principally from Lakes Road, a sealed rural road proposed to be elevated Regional Road status under the South Metropolitan Peel Sub-Regional Planning Framework by virtue of providing a direct connection between these primary freight routes.

Consistent with earlier WAPC advice, widening of the Lakes Road reservation has been shown on the Structure Plan Map, however in recognition of the outcome of the Sub-Regional Planning Framework, the previously muted 'north-south' arterial route connecting the existing Yangedi and Scott Road reservations through the western portion of the site has been removed.

The land also fronts Scott, Yangedi, Benden and (recently upgraded) Corio Roads, all of which are rural standard gravel roads, and abuts unconstructed road reservations along the southern boundary of Lot 223 (west of Scott Road).

### 2.6.2 INFRASTRUCTURE EASEMENTS & BUFFERS

The site is affected by a number of infrastructure easement corridors. The Parmelia high pressure gas transmission pipeline traverses the centre of the site in a north-south direction, within a 12.2m wide easement. Along its western edge is a 6.1m wide easement (making the collective easement width 18.3m) in favour of Alcoa, although at present no infrastructure exists within that easement.

In accordance with the guidance contained within the WAPC's Planning Bulletin No.87, all building envelopes on the Development Concept Plan (refer **Plan 3**) have been setback a minimum distance of 65 metres from the edge of the collective pipeline easements. In accordance with the proposed requirements of the WAPC's DRAFT Development Control Policy 4.3 (Planning for High-Pressure Gas Pipelines), the arrangement of development within the pipeline policy trigger area (approximately 270m either side of the pipeline easements) has formed the subject of a Pipeline Risk/Safety Management Study prepared in consultation with, and ultimately approved by the pipeline operator.

A water pipeline traverses Lot 223 in a north-south direction within a 10m wide easement that can be retained within rural-residential lots. The Water Corporation has advised this easement may need to be widened in the future, and have requested that no building envelope be located within 10m of the existing pipeline easement.

A number of powerline easements affect the site, including:

- 1 x double circuit 330kV transmission line [Muja-Southern Terminal/Kemerton & Kwinana Kemerton (MU-ST/KEM 91/KW-KEM/OLY 91)] traversing Lot 223 in a north-south direction (within a 60m wide easement);
- 1 x single circuit 330kv transmission line [Shotts-Southern Terminal (SHO-ST 91)] also traversing Lot 223 in a north-south direction (within a 60m wide easement), parallel to the above transmission line;
- 1 x single circuit 132kv transmission line [Cannington Terminal-Pinjarra/Meadow Springs (CTMSS/PNJ 81)] traversing the centre of the site in a north-south direction (within a 60m wide easement); &
- A spur of CT-MSS/PNJ along Benden Road (within a 26m wide easement).

A further transmission line (1 x single circuit 132kV transmission line – Cannington Terminal – Marriot Road) also runs through the centre of the site, however, Western Power has confirmed its intention to remove this line. Accordingly, the powerline has not been shown on the mapping incorporated in this report.

Powerline easements can be located within private allotments so long as operator rights to access and maintain the transmission lines are practically accommodated. Gates will therefore need to be installed at each property boundary that crosses the easement. Roads and infrastructure may also be located within easement areas however Western Power advises that the details will be further assessed at the subdivision stage of development.



### 2.6.3 SURROUNDING LAND USE

Surrounding land use is predominantly rural aside from the following exceptions.

Expansion of the nearby Peel Business Park northwards and eastwards towards the subject land, is identified in the WAPC's *Economic and Employment Lands Strategy: Non-Heavy Industrial: Perth Metropolitan and Peel Regions* as a potential non-heavy industrial site to be developed in 4–10 years. Steady progress has been made including the 2016 approved Nambelup Industrial Area District Structure Plan and 2018 approved Local Structure Plan, which require all proposed industrial land uses to be assessed for compliance with the *EPA Guidance Statement No.3 Separation Distances Between Industrial and Sensitive Land Uses (2005)*, at the development application stage. No external buffers are therefore expected to affect this land.

Murrayfield Airport is located a 2km north-west of the site, however it poses no impact on development of this land in terms of noise exposure buffers.

A Kennel zone is located slightly closer to the north west of the site. *EPA Guidance Statement No.3* recommends a 500 metre separation distance between dog kennels and residential development within a rural setting. In recognition of this, **Special Provision 30 of SR40** requires Memorials to be placed on the title of all lots affected by the 500m buffer that extends slightly within the north western corner of Lot 247.

Lot 242 Scott Road and Lot 244 Corio Road, immediately adjacent the south east corner of the Structure Plan Area contain sand extraction operations. Whilst both operations are expected to have exhausted their resource well in advance of development proceeding in this area, **Special Provision 32 of SR40** requires a buffer study to be undertaken prior to any subdivision or sensitive development occurring within 500m of those operations.

In anticipation of its future regional role, **Special Provision 31(d) of SR40** requires a traffic noise assessment to be prepared to measure the likely impact of Lakes Road in accordance with *State Planning Policy 5.4: Road and Rail Transport Noise and Freight Consideration in Land Use Planning*. The Transportation Noise Assessment undertaken by Lloyd George Acoustics (included at **Appendix F**), identifies the need for some sections of noise walls (or similar), in addition to future dwellings within the building envelopes immediately adjacent Lakes Road (anticipated to experience volumes that exceed the noise target, but not the noise limit), as requiring typically 'Package A' façade treatments at ground floor, or a combination of 'Package A-C' or 'Specialist Input' façade treatments at first floor level. As a result notifications are to be placed on affected Titles at subdivision, warning future purchasers of the potential for noise impacts and the need to incorporate 'Quiet House' design strategies at likely additional expense.

The site was subject to a number of development influences which are summarised in this section and graphically shown on **Plan 2: Constraints Plan**. The constraint mapping has been used to inform preparation of both the Structure Plan Map and the underlying Development Concept. Section 3 of this report provides a more detailed understanding of how these constraints have been addressed.

# 3 LAND USE & SUBDIVISION REQUIREMENTS

## 3.1 LAND USE

**Plan 1: Structure Plan Map** incorporates the following land use elements:

### Zones

- Special Rural  
(developable portion of the site inclusive of limited opportunities for commercial and equestrian activity);

### Reserves

- Other Regional Roads  
(Future widening of Lakes Road plus allowance for a new north-south District Distributor Road);
- Public Recreation / Conservation Reserves  
(encompassing the highest value environmental features plus passive recreational opportunities);
- Public Purpose: Drainage

**Plan 3: Development Concept Plan** provides an understanding of the form of development that could be achieved in accordance with the above zoning, as informed by the Shire's Local Planning Framework and relevant State Planning Policies. Discussed in further detail in the following sections, the Development Concept anticipates subdivision and development of the Structure Plan Area into the following:

### Special Rural Zone

- 296 x Rural Residential/lifestyle Lots (ranging between 1–9ha), with potential for greater yield on the basis of connection to a reticulated water supply;
- 26 x Equestrian Lots (ranging between 2–15ha), being the maximum permitted within the precinct identified following detailed land suitability analysis;

### Reserves

- 1 x Foreshore Reserve (approx. 19.73ha) encompassing Nambeelup Brook;
- 5 x Conservation Reserves (approx. 174.75ha) encompassing the best quality vegetation on-site (including all potential DRF sites and the majority of identified TEC's);
- 9 x Public Open Space Reserves (approx. 114.95ha) encompassing 'good or better' quality vegetation, the main drain and all conservation/resource enhancement wetlands and their associated buffers;
- A Comprehensive Movement Network (an integrated local access street network inclusive key connections to the existing/proposed regional road network); &
- 1 x Drainage Reservation (approx. 1ha located at the intersection of Lakes and Scott Roads as included within the Department of Water approved Local Water Management Strategy).

Collectively the Structure Plan, as then elaborated by the Development Concept Plan, represent an effective response to the site constraints outlined in **Plan 2: Constraints Plan** and Section 2.6 of this report.



## 3.2 PUBLIC RECREATION/CONSERVATION

### 3.2.1 FORESHORE RESERVE

In accordance with **Special Provision 27 of SR40** a Foreshore Reserve is provided along the full length of the Nambeelup Brook (within the site) no less than 100 metres in width. **Special Provision 28 of SR40** requires a Foreshore Management Plan to be prepared and implemented for this land as part of a comprehensive *Landscape and Environment Management Plan* as a condition of subdivision approval.

### 3.2.2 OTHER PUBLIC OPEN SPACE/ CONSERVATION RESERVES

The other reserves also focus primarily upon protecting the significant environmental values of the site by incorporating the following:

- All Conservation Category Wetlands (CCW's), inclusive of a minimum 50m buffer;
- All Resource Enhancement Wetlands (REW's) inclusive of a minimum 30m buffer; and
- Large consolidated areas of significant remnant vegetation, including Peel Regional Significant Natural Areas (PRSNA's) and other natural vegetated areas as per the Shire's Local Biodiversity Strategy.

The wetland buffer outcomes accord with the requirements of **Special Provision 8 of SR40**. Further details regarding the investigation and rationale regarding which remnant vegetation is to be protected is included within the EAJR (refer **Appendix B**). Once implemented, development in accordance with this Structure Plan will result in the protection of a significant amount of vegetation within a combination of public reservations, with the most important areas transferred into the management of the Department of Biodiversity Conservation and Attractions (DBCA) for long term conservation.

### 3.2.3 RESERVATION INTERFACE TREATMENT & MANAGEMENT

A road interface has been provided to all POS and Conservation reserves wherever practical. Where a public road has not been provided an Emergency Access Way has been shown in the BMP and reflected on the Development Concept to provide a clear delineation between private and public land and to allow access for management and maintenance purposes.

The final treatment and management of the various reserves will be addressed as part of the subdivision process through the preparation and implementation of a variety of management plans, addressing wetland and vegetation treatment, rehabilitation and revegetation, fencing requirements, ongoing maintenance and the timing and responsibilities for each of the above.

## 3.3 RURAL-RESIDENTIAL

### 3.3.1 BUILDING ENVELOPES

In accordance with **Special Provisions 15-16 of SR40**, the Development Concept Plan identifies a 2,000m<sup>2</sup> building envelope on each proposed lot, large enough to accommodate special rural, lifestyle and/or equine uses (where allowable) to be established including a dwelling, outbuildings and associated facilities. Each building envelope has been setback a minimum of 20 metres from the front lot boundary, and 10 metres from all side and rear boundaries (unless a wider distance is required by the *Bushfire Management Plan* to accommodate an Asset Protection Zone entirely within the same site).



All structures and effluent disposal systems (with the exception of fencing) are to be constructed within the building envelope. **Special Provisions 17-18 of SR40** outlines means by which Building Envelopes can be adjusted at Subdivision, and/or relocated at the request of landowners through a subsequent Application for Planning Approval. Notwithstanding this ability, building envelopes are specifically precluded from being relocated within:

- a) the Parmelia Gas Pipeline easement and buffer;
- b) the powerline easements and corridors;
- c) areas containing significant remnant vegetation;
- d) within the floodplain of Nambeelup Brook; and
- e) drainage easements and channels.

Wherever possible, the Development Concept locates building envelopes wholly outside of areas subject to inundation (i.e. where the MGL is at the surface). Where this has been unavoidable, **Special Provision 14 of SR40** requires envelopes to be considered in greater detail at the subdivision stage of development. Subject to Council approval, stables can be constructed on Equestrian Lots outside of nominated building envelopes, although this may be subject to conditions requiring revegetation of an equal or greater area to that being cleared for construction.

Except in cases where they are located within an inundated area identified as requiring fill, building envelopes are not to be cleared by the subdivider, but by the future lot owner once the building envelope and associated development is confirmed to the satisfaction of the owner and Shire of Murray. Future owners are also responsible for ensuring house pads are sufficiently separated (by at least 1.2m) from the maximum groundwater level (MGL) and ensuring adequate depth for the infiltration component of the ATU (> 0.5m clear of the MGL).

In addition, to ensure protection from flooding, all building envelopes will be required to ensure the finished ground levels have a minimum of 0.5m clearance from the 100 year ARI flood levels within the Nambeelup Brook, the drainage network and the surrounding wetlands.

**Special Provision 20 of SR40** requires any and all fencing located outside approved building envelopes to be open post and rail or post and wire, except as otherwise approved by Council. **Special Provision 3 of SR40** similarly requires Council Approval to construct a dam on any part of each lot.

### 3.3.2 LOTS SUBJECT TO INUNDATION

The Development Concept shows the lots that are affected by inundation, being any land that has a ground surface level below the MGL. Where affected, an indicative fill area has been shown (around and including the building envelope) in order to ensure an appropriate amount of land is capable of being used and developed within each lot. This is referred to as the 'Inundation Free Area' and will be filled as necessary by the subdivider (prior to the creation of the lot) so that at least 5,000m<sup>2</sup> of each lot is no longer subject to inundation.

### 3.3.3 RETAINED REMNANT VEGETATION AREAS

The Development Concept identifies areas of vegetation in "Good" or better condition for protection within private allotments as "Retained Remnant Vegetation Areas". Lots larger than 7 hectares containing "Retained Remnant Vegetation Areas" are to form the subject of conservation covenants to ensure the retention of this vegetation over the longer term. Conservation covenants will be progressed through either the Nature Conservation Covenanting Program (administered by the DBCA) or the Conservation Covenant program (administered by the National Trust).



### 3.3.4 OTHER REMNANT VEGETATION

**Special Provision 12 of SR40** goes on to specifically preclude the felling or clearing of remnant vegetation outside of the “Retained Remnant Vegetation Areas” without the prior written approval of the Council. Exceptions to this rule are strictly limited to specific circumstances, being the erection of a single house, outbuildings, stables, effluent disposal systems, access ways, fences and firebreaks (as approved by the Shire), or in instances where the trees and/or vegetation is in a dead, dying or dangerous state.

## 3.4 STRATEGIC REVEGETATION

In accordance with the Shire of Murray’s *Vegetation Management Policy (2009)* special rural developments require 15% of the area of each lot to be planted, although this can be reduced for lots with ATU’s. In consultation with the Shire, the proponent has committed to undertaking strategic revegetation over the site.

The Shire’s *Vegetation Management Policy* is focused on soil conservation and land management and is not intended to achieve ecological restoration outcomes. Revegetation of the site is therefore strategically focused upon maximising environmental and water quality benefits, while still providing soil conservation and land management outcomes. Revegetation is therefore focused within wetland buffer areas; along the central drain (and all other drains within private allotments); and the equestrian precinct (in part, to provide a readily identifiable visual feature to clearly distinguish the area).

**Special Provision 13 of SR40** requires a Landscape Planting Program to be included within the Landscape and Environment Management Plan for each stage of subdivision. This will show in detail the location of proposed revegetation areas including species, planting density, site preparation and after-care methods. Revegetation species will be locally native species and the species recorded within the various Flora and Vegetation Surveys will form the basis of the revegetation species list.

Each stage of subdivision will aim to meet the 15% planting target (or equivalent planting numbers). Planting may occur outside the subdivision area, but within the Structure Plan Area. Revegetation efforts will principally target POS reservations, Nambelup Brook and Retained Remnant Vegetation Areas (within private allotments), and will be installed in such as way so as not to increase the fire risk to nearby dwellings.

## 3.5 EQUESTRIAN PRECINCT

As recognised in **Special Provision 4 of SR40**, a detailed land capability assessment has established the suitability (or otherwise) of lots for carrying horses, and appropriate stocking rates for each lot. A detailed methodology for the land capability assessment is included at Appendix 3 within the EAJR. Key factors considered in the assessment were:

- soil types;
- vegetation coverage and condition;
- surface and groundwater features; &
- areas subject to inundation.

Based on the results of that assessment, 26 lots are identified on the Development Concept as ‘Equestrian Lots’. Consolidated centrally within the Structure Plan Area, all other lots were assessed as unsuitable for this purpose.

**Special Provisions 5 & 6 of SR40** require an Equine Management Plan (EMP) to be prepared by the applicant and approved by the Shire of Murray prior to stocking the land with horses.

The Department of Primary Industries and Regional Development (DPIRD) have developed a factsheet *Equine Management Plans and Your Local Shire* which outlines why an EMP is required and the information required to be addressed in an EMP. In particular EMP's should focus on:

- Manure Management;
- Fertiliser Management;
- Stormwater Management
- Wastewater Management;
- Pasture Management;
- Stable locations, general frequency, construction, and management; &
- Irrigation (including the):
  - Area to be irrigated;
  - Design of irrigation system;
  - Quantity, quality and availability of source; &
  - Scheduling to avoid run-off and leaching.

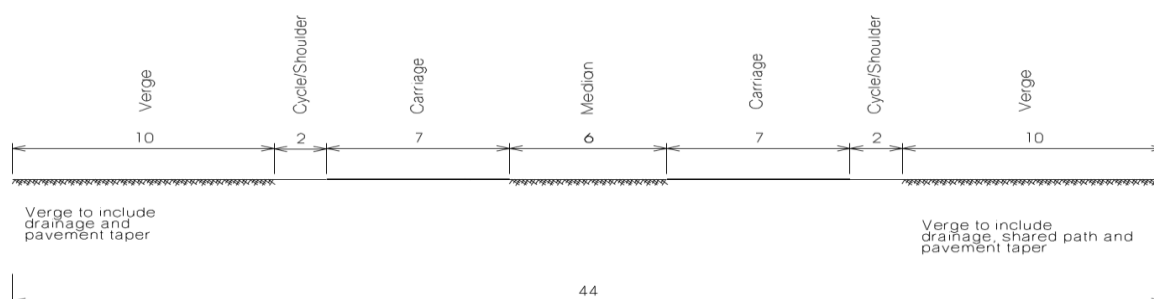
Consistent with the requirements of **Special Provision 7 of SR40** a bridle trail network is identified on Development Concept through the equestrian precinct. The trail follows road reserves, will be located in the road verges and constructed in a manner to manage and control nutrient run-off. A wider reserve width of approximately 28m is proposed to accommodate this additional purpose.

### 3.6 MOVEMENT NETWORK

Whilst only the arterial roads appear on the Structure Plan Map, a comprehensive movement network is identified on the Development Concept inclusive of connections (and access restrictions) to the regional road running through the site. Special attention has been applied to minimising the number of gas pipeline crossings in recognition of the pipeline operator's requests through the completed Pipeline Risk/Safety Management Study.

#### 3.6.1 ARTERIAL ROADS

Consistent with requirements identified through the preceding Scheme Amendment process, widening of Lakes Road from 20m to 44m has been accommodated to facilitate long term upgrading to a divided carriageway (see **Figure 8**). A wider reserve may be required at the subdivision stage of development, in the event the road is reliant upon significant earthworks, fill and/or battering that needs to be retained within the reservation.



**Proposed 44m Road Reservation**

**Figure 8: Lakes Road Cross Section**

Direct vehicular access from Lakes Road is strictly prohibited in accordance with **Special Provision 26 of SR40**.



### 3.6.2 ACCESS STREETS

All lots are provided with direct access and frontage to a public road (Access Street C or D), within varying 18-20m wide reservations. The winding nature of the roads responds to the topography and rural nature of the site, correlating generally with the existing drainage flows and pathways within the site.

In the limited instances where culs-de-sac (greater than 200m in length) are proposed, emergency access ways have been provided linking back to a public road to ensure compliance with the WAPC's *Planning for Bushfire Protection Guidelines*. In order to overcome the various site specific constraints detailed earlier in this report, only 2 proposed lots require access via battle-axe legs greater than 50m (necessitating the future provision of a fire appliance turn around area during housing construction), but less than 200m in length (negating the need to provide vehicle passing opportunities).

Within existing Lot 223, two local access street/creek crossing routes are shown to ensure the developer is capable of independently delivering two-ways in-and-out when seeking to subdivide and develop this area (in accordance with the requirements of the DFES Approved BMP). Potential may exist to rationalise these connections, in the event that a crossing is constructed in close proximity to existing Lot 223, as depicted on the District Structure Plan for the adjoining Peel Business Park project.

### 3.7 BUSHFIRE MANAGEMENT

In response to the outcomes of Bushfire Hazard Assessment outlined in Section 2.4 of this report, an indicative Bushfire Attack Level (BAL) assessment has been undertaken as part of the BMP (refer **Appendix E**), in order to demonstrate that, with the provision of appropriate Asset Protection Zones (APZs), none of the designated building envelopes within individual lots are exposed to an unacceptable level of bushfire risk.

The outcomes of the BAL Assessment will be confirmed and implemented as part of the future subdivision approval/clearance processes. Dwelling specific BAL ratings will then be certified and applied through the building licence process, ensuring future dwellings are constructed to appropriate standards in accordance with *AS3959: Construction of Buildings in Bushfire Prone Areas*.

It's important to note that the BAL assessment included in the BMP (refer **Figure 10**), presents a conservative assessment of the potential bushfire risk posed to future dwellings as the designated building envelopes provide a 2000m<sup>2</sup> area within which the lot owner may construct a dwelling and the APZ surrounds the building envelope. Depending on the ultimate placement of the dwelling within the building envelope, there may be an opportunity for future lot owners to reduce the BAL rating applicable to their dwelling where additional setback is provided and maintained from nearby classified vegetation which may be greater than that assumed within the BAL assessment.

The provision of hydrants every 200m along the reticulated water supply network will be necessary for firefighting purposes. The development will be staged within the site to ensure sufficient vehicular access is available to and from the site via existing or proposed road reserves and/or emergency access ways (where required), enabling residents and fire fighters to respond appropriately in the event of a bushfire within or in the vicinity of the site and/or future dwellings.

The BMP therefore demonstrates that bushfire risk to future development within the site can be mitigated through the provision of appropriate APZs combined with increased construction standards in accordance with AS 3959, two forms of access for residents and emergency personnel, and an adequate water supply. These mitigation measures are in line with the acceptable solutions outlined in the *Bushfire Protection Guidelines* (2017).

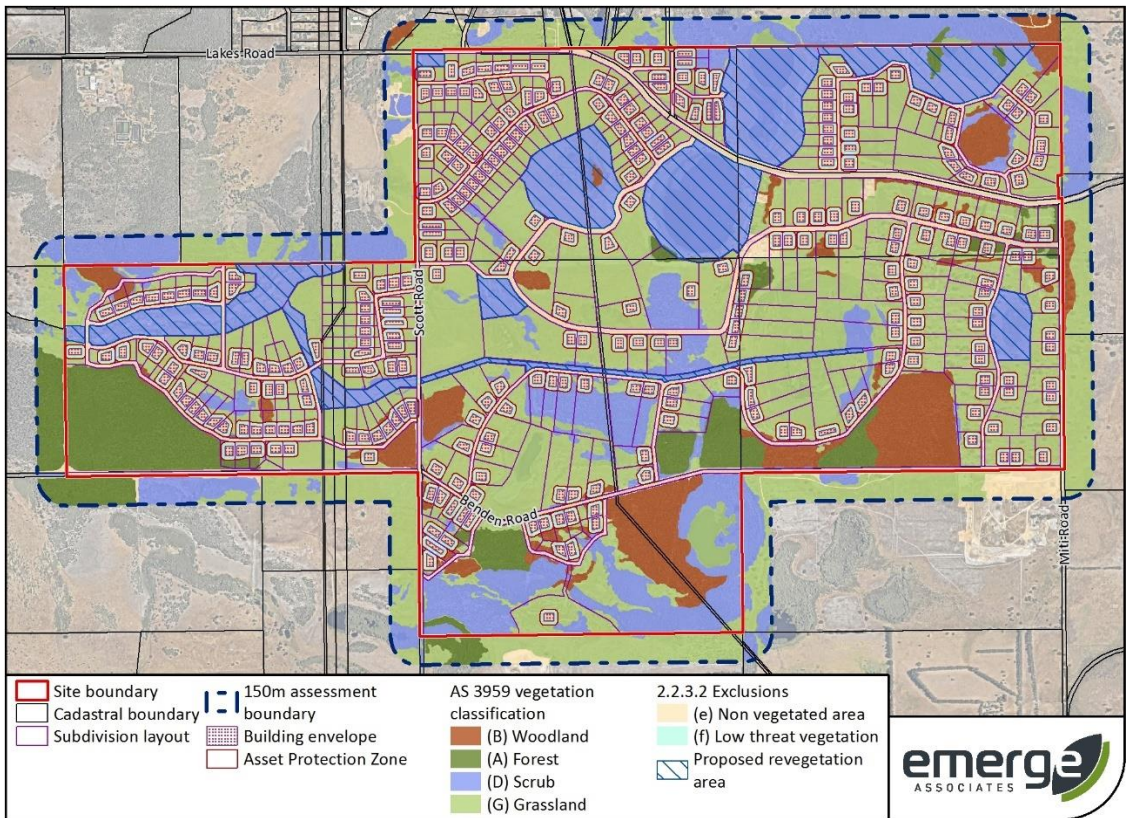


Figure 9: Post Development Site Conditions – AS 3959 Vegetation Classification

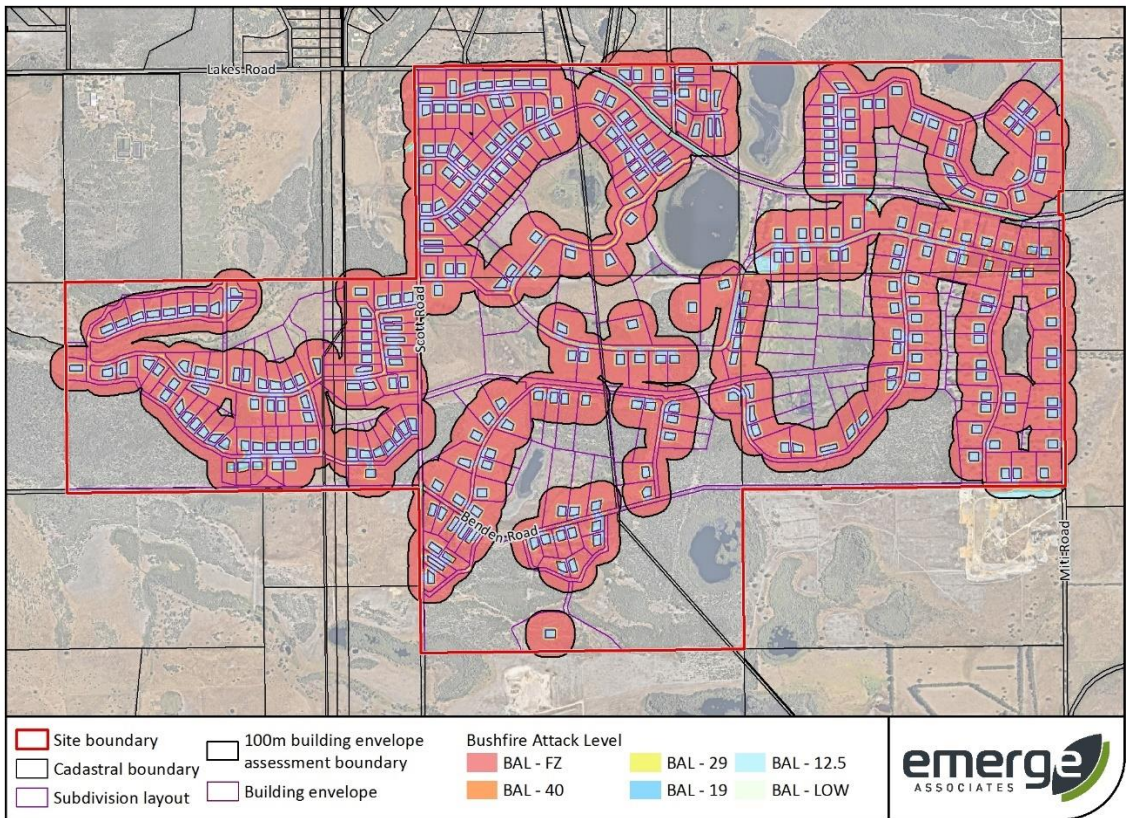


Figure 10: Bushfire Attack Level Contour Plan (2019)



### 3.8 WATER MANAGEMENT

It is intended that this project sets high benchmarks with regard to water management in low lying areas affected by seasonal 'inundation'. A comprehensive water management approach has been prepared and presented in the Local Water Management Strategy (LWMS - refer **Appendix H**). Key matters addressed by the LWMS are outlined below.

The LWMS proposes management criteria for water conservation, groundwater, stormwater quantity and water quality. The criteria proposed are based on the characteristics of the existing environment, the proposed development, a contemporary best-practice approach to total water cycle management and a pragmatic implementation of the principles of total water cycle management.

The approach to water conservation includes the use of fit-for-purpose water across the development with efficiency measures implemented to minimise use of water resources. Water sources include potable scheme water supplied by Water Corporation through the integrated water supply scheme network, non-potable groundwater for irrigation of garden areas of lots and POS, and the potential for rainwater to be utilised on lots (internally and externally) where they are installed. Water use will be minimised through the use of water efficient fixtures and fittings on lot, and implementation of waterwise garden practices on lots and in POS areas.

The groundwater management approach aims to maintain and improve the existing system and avoid any additional intersection with groundwater. No new groundwater drains are proposed and development will be required to maintain adequate distances to groundwater through the use of fill where necessary. The LWMS has adopted the use of Maximum Groundwater Level (MGL) as the datum (rather than the Average Annual Maximum Groundwater Level – AAMGL) that was used as the baseline data for the September 2012 version of the LWMS), which has been accepted and agreed by the Shire and DWER. Groundwater quality will be managed by restricting equestrian lots to appropriate areas across the site, removing nutrient inputs from equestrian waste and controlling nutrient inputs from any surface runoff infiltrated onsite. Measures to address groundwater quality are consistent with those proposed for water quality, discussed below.

Stormwater quantity management for the development aims to retain the existing drainage network across the site whilst providing additional drainage in road reserves and bridle trails. Fundamental design flaws within surface drains will be rectified according to the Shire's engineering standards. Stormwater quality measures are consistent with those proposed for water quality.

The water quality management approach aims to reduce the potential for nutrient contamination of surface and ground water by ensuring appropriate land uses and by implementing management plans for each proposed land use. A land capability assessment has identified appropriate uses for lots considering the environmental restrictions of the site. Lots that are suitable for equestrian use will be required to prepare an Equine Management Plan (EMP) for approval by the Shire detailing waste management measures. Bio-retention swales will provide treatment of surface water runoff from the bridle trail network. Final polishing of surface runoff will be provided within the southern main drain prior to discharge to Nambelup Brook via use of nutrient stripping vegetation within the drain.

The proposed development will not significantly alter the current hydrological regime given the low density special rural form of development and the LWMS demonstrates that the land is capable of being development for the proposed use from a hydrological perspective.

The LWMS also outlines the information that will be required within an Urban Water Management Plan that will need to be prepared (pursuant to **Special Provision 29 of SR40**), prior to subdivision of the land, including any ongoing management, maintenance and monitoring requirements to ensure the water management strategy is achieving the desired outcomes.

## 3.9 INFRASTRUCTURE COORDINATION, SERVICING & STAGING

The Structure Plan Area can be serviced with an appropriate level of services commensurate with the expectations for rural residential development, as summarised in the following sections.

### 3.9.1 WATER SUPPLY

**Special Provision 31(e) of SR40** requires the preparation of an updated report detailing the intended method of supplying water to the estate, having regard for the latest WAPC policy requirements. 2016 Amendments to *State Planning Policy 2.5: Rural Planning* (SPP2.5) reduced the default lot size requirement for connection to a reticulated potable water supply from 4ha to 2ha. Given the majority of the lots shown on the Development Concept Plan are less than 4ha in area, connection to a reticulated water supply service is an anticipated requirement of future subdivision applications.

The Water Corporation has recently updated their planning for the North Dandalup and Nambeelup Region, and as recently as in November 2018 confirmed that a potable water supply for the Nambeelup Rural Residential area has now been included in their planned servicing strategy.

Beyond the potential initial development of seventy lots from the existing PRV scheme (north of the site), at or above the operation limit of 15m AHD, an extension of an existing DN200 dia water main will be required from McMahon Road, North Dandalup to the site along Lakes Road. Currently approximately 3.7km from the eastern boundary of the site, the Water Corporation has confirmed the extended DN200 dia water main from the North Dandalup system will have sufficient capacity and elevation to service the proposed development in its entirety.

Water Corporation's ultimate water strategy for the Nambeelup region includes a series of replacements and upgrades to the existing North Dandalup scheme and ultimately linking the North Dandalup and Nambeelup schemes through the DN200 dia water main in Lakes Road. The Water Corporation also intend to integrate the existing Nambeelup PRV scheme with the North Dandalup Scheme once linked by the DN200 dia water main along Lakes Road.

Further detail on the existing situation and proposed future servicing arrangements are outlined in the Water Supply Report prepared by Cossill & Webley attached as **Appendix H**.

### 3.9.2 WASTEWATER DISPOSAL

**Special Provision 21 of SR40** requires all dwellings to be connected to an Aerobic Treatment Unit (ATU) in accordance with Department of Health and Environmental Protection Authority guidelines and practices. It is the responsibility of the lot owner to ensure that ATU's are installed appropriately, have adequate separation from the groundwater and treated wastewater is correctly disposed of.

**Special Provision 22 of SR40** specifically ensures that no effluent disposal systems are to be constructed within 50m of the Nambeelup Brook creek line.

### 3.9.3 POWER

Depending on the project staging as well as the rate of development in the area, it is likely that the existing Western Power infrastructure will have near sufficient capacity to supply this development. This can only be confirmed however, upon receipt of further information regarding the staging of the project and application of a feasibility analysis to Western Power.

High Voltage (HV) reticulation will be by means of 400mm sq AL cabling, feeding into 3 x "2+3" HV switches located on public open spaces where possible. Each HV switch will supply a maximum of 15 x 63kVA transformers, with an approximate total of 32 transformers located throughout the development.



Low Voltage (LV) reticulation will be by means of 240mm LV cabling which supplies mini and uni-pillars in accordance with Western Power requirements. It is likely that there will be a requirement to install minimum street lighting at major intersections.

### 3.9.4 GAS

ATCO Gas has provided the following information regarding the potential for reticulating the site with gas:

- Existing major gas pipelines within the vicinity of Lakes Road are unable to be directly connected into for servicing this development.
- There is no useable gas distribution infrastructure close to the site. The nearest distributing infrastructure is north of the site approximately 2km away. This main is a recently constructed high pressure steel gas trunk main connecting the Mandurah network to the Dampier to Bunbury Natural Gas Pipeline. This main will have the capacity to service this site, however a Pressure Reducing Station (PRS) would be required to be installed on the main to reduce the pressure within the main to general distribution operating levels. A headworks main would then need to be constructed to connect the development to this point of connection. Whilst this would be technically feasible, it would not seem economically viable at this stage.

Gas is considered a non-essential service and further analysis is required to evaluate whether the Developer chooses to adopt a reticulated internal network for this service. At this stage of planning it would appear that bottled gas would be the preferred choice of supplying gas to the end users of this development.

### 3.9.5 TELECOMMUNICATIONS

Telstra previously advised that there is existing infrastructure along Lakes Road with capacity to service this development, however it was unable to advise for how long the existing capacity in the lines would be available.

Telstra also confirmed that optic fibre is located at the corner of Gull Road and Lakes Road, which can be extended to the first stage of the development. To facilitate this extension, the Developer must provide a trench to the site. Once brought to site, the optic fibre will have the capacity to provide standard telecommunication services to the development.

NBNCo mapping currently indicates that the site is within the Fixed Wireless footprint of the NBN network. NBNCo may choose to service an area in this fashion where distances between premises is extensive, however with the number of lots proposed within this development and other nearby subdivisions a Fixed Line NBN service may become available. Further discussions within NBNCo will be required at the time of subdivision to ascertain their requirements.

### 3.9.6 INFRASTRUCTURE EASEMENTS

In part as necessitated by **Special Provision 24 of SR40**, both the Structure Plan Map and the Development Concept highlight those areas and allotments affected by existing, necessary infrastructure easements.

With specific regard to the gas pipeline corridor, where it is not protected via inclusion within public reserves, both the collective easement areas and the anticipated buffer area (currently 65m from the edge of the collective easements) are to be retained within a small number of private allotments, however the building envelopes on all affected lots have been strategically located outside that area. The final treatment and management of the pipeline corridor will abide to the outcomes of the Pipeline Risk/Safety Management Study prepared in consultation with the pipeline operator (*refer Appendix I*).

**Special Provision 25 of SR40** requires a Memorial to be placed on the Titles of all lots affected by this pipeline, as formal notification highlighting its existence to prospective purchasers and future land owners.



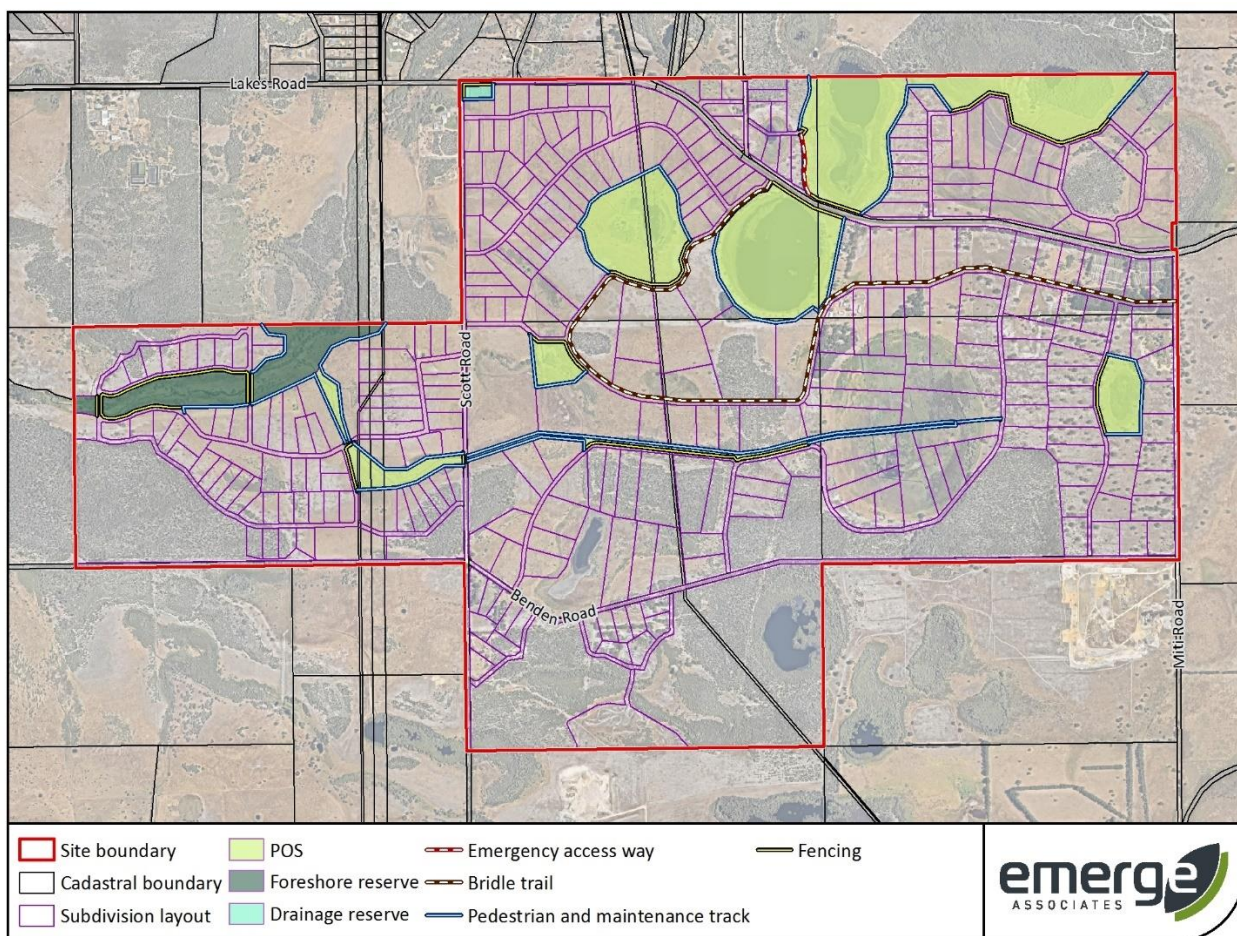
### 3.10 MANAGEMENT OF PUBLIC ASSETS

In recognition of the large tracts of land identified for transfer into public ownership, **Special Provision 31(f) of SR40** requires an Asset Management Plan to accompany the Structure Plan to determine the likely cost to the Shire of maintenance.

Included at **Appendix J** is an *Asset Management Plan* prepared in accordance with the Shire’s *Parks Asset Management Plan* (2015), and supported by the various environmental assessment reports undertaken as part of the preceding Scheme Amendment and Structure Planning process. The report specifically addresses the assets that will ultimately be managed by the Shire including the public open space areas and foreshore reserve, revegetation and monitoring, pedestrian and maintenance tracks, emergency access ways, drainage reserves and bridle trail facilities.

The report will also be used to inform preparation of the *Landscape and Environmental Management Plans* for each stage of subdivision and will provide further detail on the location of revegetation and completion criteria for revegetation work.

The installation of assets will be completed on a staged basis as development progresses. **Figure 11** indicates the general location of the various assets, whilst **Table 4** outlines the maintenances tasks to be undertaken by the developer during the 3-year maintenance period for each asset, and then by the Shire following handover at the completion of the maintenance period. The shire has indicated that it may introduce a Specified Area Rating to fund its future asset maintenance obligations.

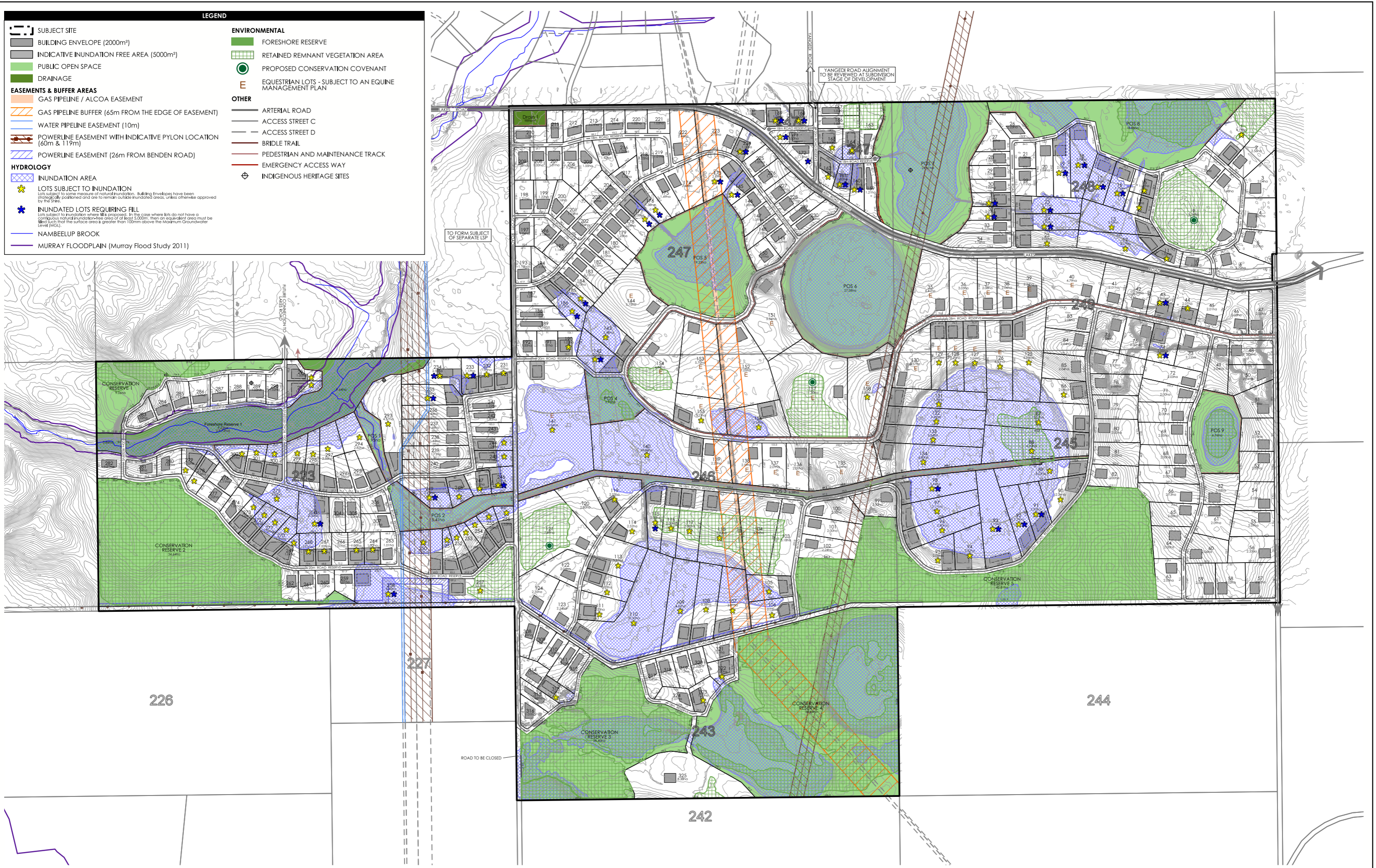


**Figure 11: Asset Management Locations**



Element and/or task as shown in Figure 7	Approximate size/length/quantity	Standard maintenance requirements	Additional maintenance costs/requirements for SoM
POS maintenance	100 ha of grass	Slashing required at least once per year in late Spring, early Summer. Possible requirement in early Autumn dependent on summer rains. Estimated cost: \$25,000 per visit based on \$250 per ha	No additional costs associated with slashing are expected to be required.
Revegetation and weed management	19.2 ha of revegetation	Inspection and maintenance of revegetation is not anticipated to be required.	Additional infill revegetation may be required every ten years. This is estimated to require a full day of work and costs associated with purchasing plants.
		Weed control is not anticipated to be required.	Weed control may be required in the future as part of any additional infill revegetation.
Pedestrian and Maintenance Tracks	12,439 metres	Inspection by maintenance staff required annually or after heavy rainfall/flooding. Annual inspection for tracks, fencing, trails and tanks expected to require a half day.	Additional costs may be required associated with the repairing of tracks. Repair costs dependent on damage.
Fencing	6,615 metres	Inspection by maintenance staff required annually. Annual inspection for tracks, fencing, trails and tanks expected to require a half day.	Additional costs may be required associated with the repairing of fencing. Repair costs dependent on damage.
Bridle trail	4,674 metres	Inspection by maintenance staff required annually. Annual inspection for tracks, fencing, trails and tanks expected to require a half day.	Replacement of soil required every ten years depending on levels of use. Estimated cost: \$140k to replace track.
Emergency Access Way	271 metres	Inspection by maintenance staff required annually. Annual inspection for tracks, fencing, trails and tanks expected to require a half day.	Additional costs may be required associated with the repairing of tracks. Repair costs dependent on damage.
Drainage (including POS 1-3 and Drainage Reserve)	Length of drainage along POS 1- 3: 3550 metres	Conveyance inspection by maintenance staff required annually. Annual inspection for tracks, fencing, trails and tanks expected to require a half day.	Additional costs may be associated with the improvement of conveyance. Costs dependent on extent of works required.
		Water quality and sediment inspection by maintenance staff required annually. Expected to require a half day of suitable qualified personnel.	Additional costs may be associated with the improvement of water quality and sediment. Costs dependent on extent of works required.

Table 4: Indicative Maintenance Schedule



# Plan 3: Development Concept

LOTS 247 & 248 LAKES ROAD, LOTS 223 & 246 SCOTT ROAD, LOT 243 BENDEN ROAD AND LOT 245 CARLA ROAD, NAMBEELUP  
 A GOLDEN GROUP PROJECT

date:	14/05/2009L	designed:	DR	scale:	1:15000@A3   1:7500@A1
date:	21/01/2019	checked:	DR	0	150 300m
projection:	MGA 94	drawn:	BK		

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