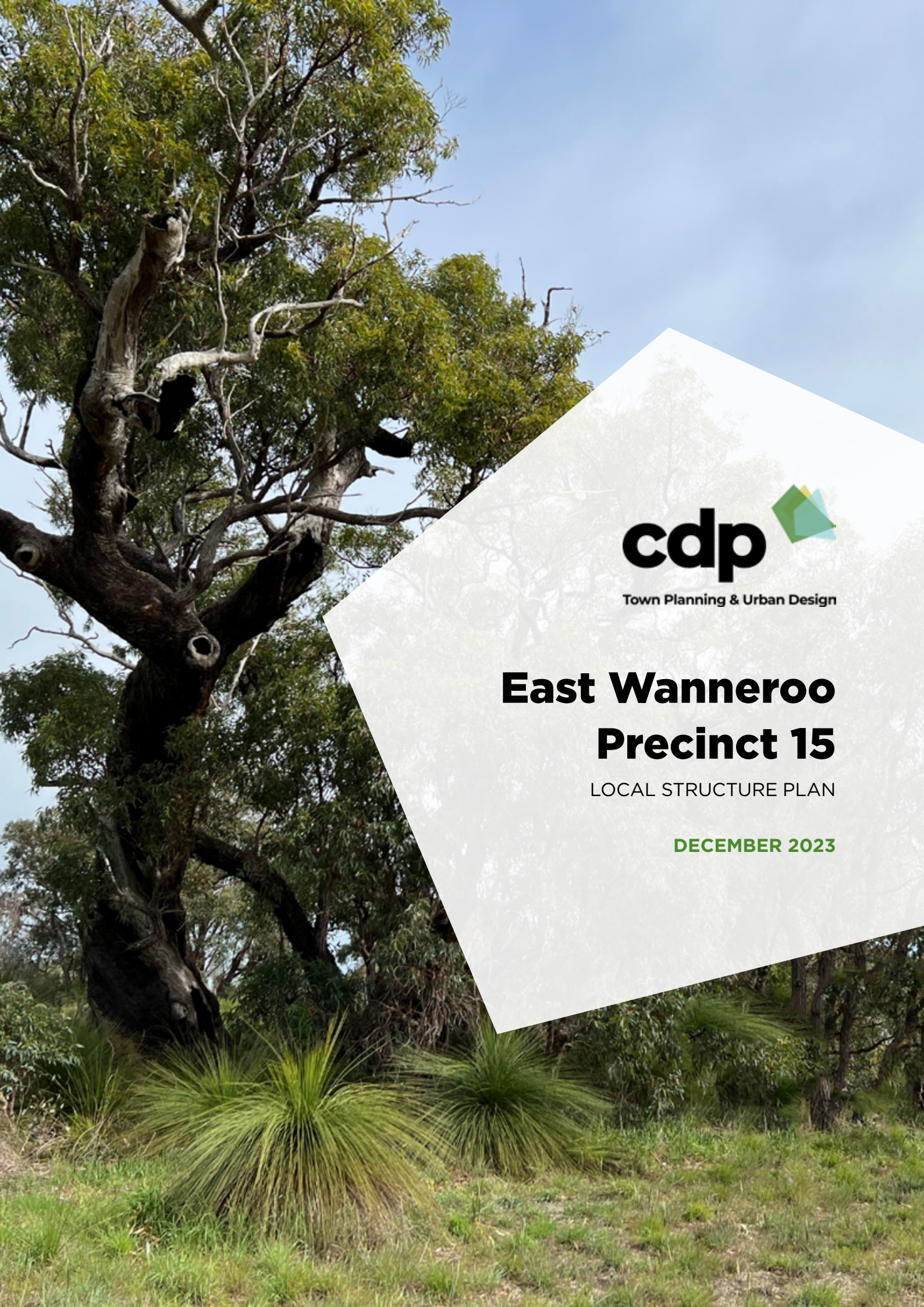


cdp

Town Planning & Urban Design

East Wanneroo Precinct 15

LOCAL STRUCTURE PLAN

DECEMBER 2023

East Wanneroo Precinct 15.

LOCAL STRUCTURE PLAN

DECEMBER 2023

Prepared by.

CDP Town Planning & Urban Design

2/464 Murray Street

PERTH WA 6000

p. +61 8 6333 1888

e. info@cdpaus.com.au

w. www.cdpaus.com.au

Prepared for.

STOCKLAND

Level 12 Durack Centre

263 Adelaide Terrace

Perth WA 6000

p. +61 8 6141 8000

w. www.stockland.com.au

In Collaboration with.

Emerge Associates

Transcore

Pentium Water

Cossill & Webley Consulting Engineers

Pracsys

Horizon Heritage

Herring Storer Acoustics

Document Status.

Version	Comment	Prepared	Reviewed	Issued
1.		C.H	K.B	19 Dec 2023

Endorsement.

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

_____ Date

Signed on and 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

_____ Date

_____ Date of Expiry

Table of Amendments.

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

Table of Density Plans.

Density Plan No.	Area of Density Plan Application	Date Endorsed by WAPC

Executive Summary.

The *East Wanneroo Precinct 15 Local Structure Plan* (Structure Plan) has been prepared to guide the subdivision and development of approximately 310 ha of land in Mariginiup, within the City of Wanneroo municipality. The expected dwelling yield is between 3,200 – 3,500 dwellings, developed across a range of densities (R25 – R80) and located in response to community infrastructure and amenity to provide for housing and lifestyle diversity. The Structure Plan provides for the development of key community infrastructure including regional playing fields, regional open space, a railway station and transit corridor, a neighbourhood centre, a high school and two primary schools.

The Structure Plan has been prepared on behalf of Stockland Pty Ltd by the following specialist consultant team:

- CDP Town Planning and Urban Design – Urban design, Town planning
- Pentium – Hydrology
- Emerge – Environment, Landscaping and Bushfire
- Cossill & Webley – Engineering
- Horizon Heritage – Heritage analysis
- Pracys – Economic and employment analysis
- Transcore – Traffic and transport analysis

Purpose

This Structure Plan provides an overarching planning framework to guide and facilitate the development of the Structure Plan area for urban purposes and has been prepared in accordance with the East Wanneroo District Structure Plan and the provisions of Schedule 2 Part 4 of the Planning and Development (Local Planning Scheme) Regulations 2015.

The plan provides for an integrated and coordinated approach to the delivery of urban land uses and infrastructure pursuant to the over-arching East Wanneroo District Structure Plan. The land uses and connectivity networks proposed by the Precinct 15 Structure Plan will create a new, vibrant residential community in East Wanneroo.

Design Approach

The design approach has been a rigorous multidisciplinary process with continuous reflection upon the purpose of the Structure Plan and improving project outcomes. Key design principles and considerations which have informed the design approach include:

- Retention of the western ridgeline, eastern wetland and a number of significant trees onsite to convey a strong sense of place.
- A strong Parkland Link and pedestrian network connecting the retained ridgeline, neighbourhood centre, train station, schools and regional open space.
- Capitalising on opportunities to co-locate community and educational land uses within a 'Community Hub', being Transit Station, Neighbourhood Centre, K-12 School, Regional Playing Fields and Regional Open Space.
- Neighbourhood Centre to become the focal point of commercial and community activity for the structure plan area and surrounding residents, providing opportunities for medium to higher-density residential living to deliver housing affordability and diversity.
- Creation of a pedestrian focused main street within the neighbourhood centre creating a strong spine between the transit station and the regional sporting complex to the east.

Table 1 - Land Use Summary

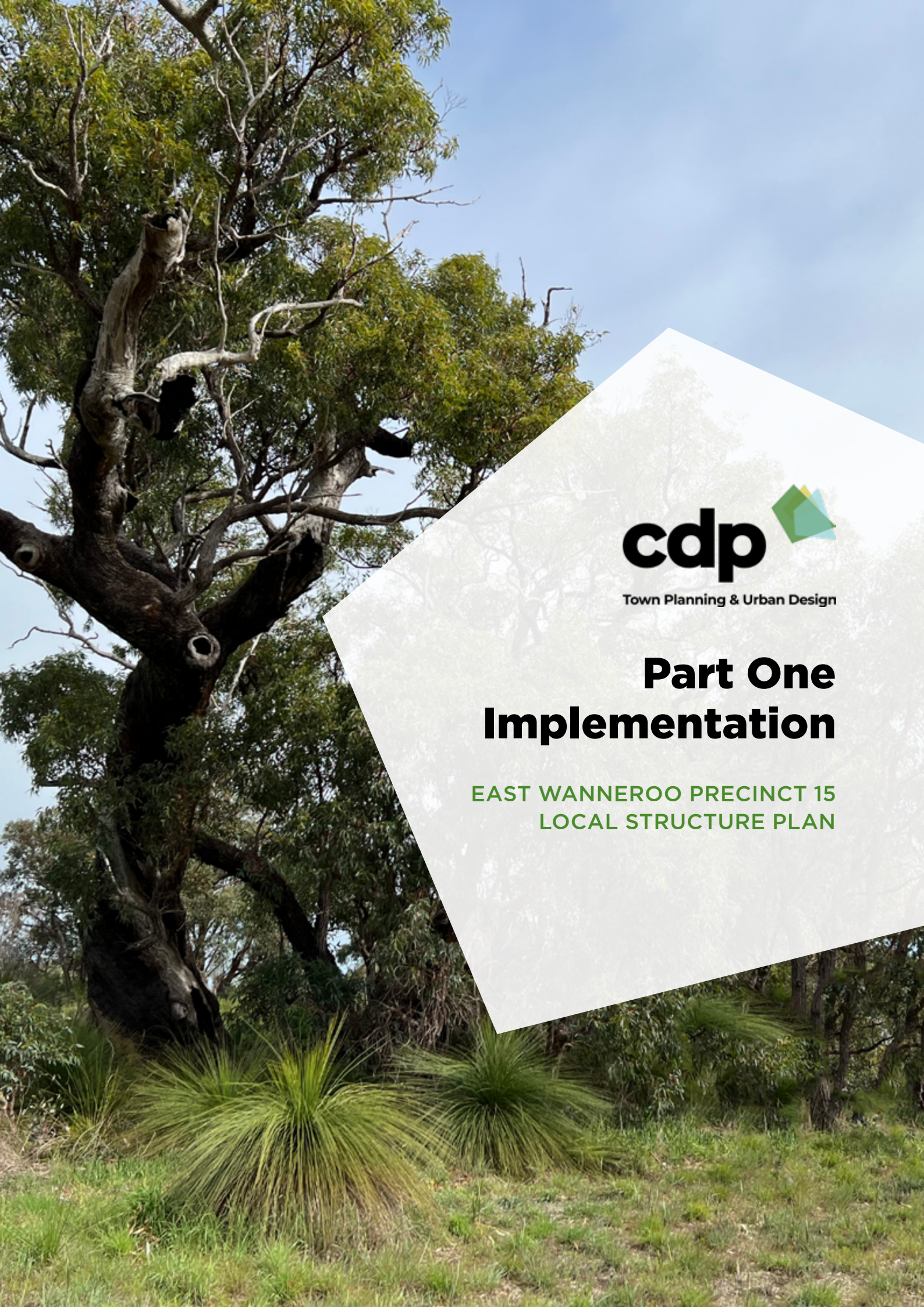
Item	Data	LSP Reference
Total Structure Plan Area	310.537 ha	Table 2
Area of each land use proposed: • Residential • Neighbourhood Centre • High School • Primary School • Transport corridor • Rural (Tourism Opportunities)	 185 ha 6.5 ha 8.0 ha 3.5 ha 8.87 ha 1.15 ha	Part 2
Estimated Lot Yield	3,200 – 3,500	4.2
Estimated Residential Density	15 – 25 dwellings/gross urban zone	4.2
Estimated Population	9,000 – 10,000	4.2
Number of High Schools	1	4.4
Number of Primary Schools	2	4.4
Estimated Commercial Floor Space (for activity centres if appropriate)	6,000m^2 GLA	4.3
Employment Self Sufficiency Targets	60%	4.12
Estimated number and area of Public Open Spaces: • Regional Open Space • District Open Space • Neighbourhood / Local Parks	 1 @ 74.5 ha 0 @ 0 ha 22 parks @ 22.5 ha	4.5 and 4.6
Estimated number and area of natural area and biodiversity assets	2 x REW core and buffer @ 29.73 ha	4.5

Table of Contents.

PART ONE: IMPLEMENTATION

PART TWO: EXPLANATORY SECTION

PLAN AND FIGURES



cdp

Town Planning & Urban Design

Part One Implementation

EAST WANNEROO PRECINCT 15 LOCAL STRUCTURE PLAN

1. STRUCTURE PLAN AREA

This Structure Plan applies to the land contained within the inner edge of the line denoting the Structure Plan boundary on **Plan 1 - Structure Plan Map**. The Structure Plan is identified as the East Wanneroo Precinct 15 Local Structure Plan.

2. OPERATION

The date the Structure Plan comes into effect is the date the Structure Plan is approved by the Western Australian Planning Commission (WAPC). The structure plan is to be given due regard when considering applications for subdivision and development approval.

3. STAGING

Development staging will follow an orderly sequence supported by the extension of essential servicing infrastructure or constructed road access. The first stages are intended to be developed as an extension of existing residential development to the northwest of the site.

4. SUBDIVISION & DEVELOPMENT REQUIREMENTS

4.1 LAND USE PERMISSIBILITY

- Land use permissibility within the Structure Plan area is to be in accordance with the corresponding zone or reserve under City of Wanneroo's District Planning Scheme No.2 (DPS2), or as otherwise outlined in this Structure Plan.

- Land identified as 'Additional Use – Local Centre' on the Structure Plan Map may also be used for the following additional uses as though they were 'D' uses in the zoning table of the City of Wanneroo's District Planning Scheme No.2:
    - Convenience Store;
    - Fast Food Outlet;
    - Lunch bar;
    - Office;
    - Restaurant/Café; and
    - Shop.

and such uses, in aggregate, shall not exceed 500m^2 of net lettable area.

4.2 ENVIRONMENTAL & HERITAGE FEATURES

- Resource Enhancement Wetlands UFI 14261, UFI 14254, UFI 15443 and UFI 14244 are located within the proposed Parks & Recreation Reserve. These wetlands, with a 30m buffer, are to be retained and protected. The development of Regional Playing Fields is to occur outside of the 30m buffer of these wetlands.

- A Parkland Link is to be provided in the general location shown on the Structure Plan. This will comprise well defined linkages through open spaces and landscape boulevards using tree canopies, landscaping and well designed pedestrian and cyclist infrastructure.

4.3 HAZARDS & SEPARATION DISTANCES

- Residential lots identified within a Bushfire Prone Area as designated under the Department of Fire and Emergency Services Mapping of Bushfire Prone Areas will require a Bushfire Attack Level assessment to be undertaken at subdivision stage.

- Subdivision and development on land identified as containing a medium to high risk of Acid Sulphate Soils under the Department of Water and Environmental Regulation ASS mapping portal will require an Acid Sulphate Soil Management Plan.

- At subdivision stage an Acoustic Assessment & Noise Management Plan is to be prepared and implemented in accordance with State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning for land identified as affected by rail or road noise.

- Subdivision and development on land within 500m of existing market gardens, orchards and plant or tree nurseries etc will require management strategies to be prepared and implemented as appropriate to address any impacts of these land uses on residential land uses.

- Subdivision and development on land within 500m of an operational sand or limestone extractive industry or within 500m of a site mapped by State Planning Policy 2.4 as an 'extraction site' will require management strategies to be prepared and implemented as appropriate to address any impacts of these land uses on residential land uses.

4.4 RAILWAY INFRASTRUCTURE

- Prior to a subdivision application for land within 500m of the proposed Railways Reserve, the applicant is to liaise with the Public Transport Authority (PTA). The funding and construction of the railway is not the responsibility of the developer. Subdivision design is to ensure optimum lot orientation and road positioning to accommodate the proposed railway.

- Prior to a subdivision application for land that incorporates a proposed Railway Station, the applicant is to liaise with the Public Transport Authority (PTA) on all relevant matters including the provision of Park & Ride facilities. The funding and construction of the railway station and Park & Ride facility is not the responsibility of the developer. Subdivision design is to accommodate the proposed railway station and a Park & Ride facility if required.

4.5 NEIGHBOURHOOD CENTRE

- Prior to subdivision or development of the Neighbourhood Centre, a Precinct Structure Plan is to be prepared for the Neighbourhood Centre (land shown in the Centre Zone on **Plan 1 – Structure Plan Map**) and endorsed by the WAPC.

- The estimated floorspace (retail and commercial) required at the Neighbourhood Centre is 6,000m^2 pursuant to the East Wanneroo District Structure Plan. In accordance with the requirements of *State Planning Policy 4.2 Activity Centres*, any proposal to increase this indicative activity centre floorspace must be supported by a Net Benefit Test that demonstrates that the additional floorspace has a net benefit to the community.

4.6 PARKS & RECREATION RESERVE

- Subdivision applications will be required to set aside the Parks & Recreation Reserve generally in accordance with Plan 1, with an indicative area of 74.5 hectares. The Resource Enhancement Wetlands (UFI 14261, 14254 and 15443, 14244) are to be wholly contained, including a 30m buffer, within the Parks & Recreation Reserve.

- The Parks & Recreation Reserve is to be set aside for acquisition by the State and will be subsequently reserved under the Metropolitan Region Scheme and developed as Regional Open Space and Regional Playing Fields. The funding of the construction of the Regional Open Space and Playing Fields facility is not the responsibility of the developer.

- Subdivision design is to ensure optimum lot orientation and road positioning to accommodate the proposed Regional Open Space and Regional Playing Fields.

4.7 PUBLIC OPEN SPACE

- The provision of a minimum of 10% POS being provided across the Structure Plan area, generally in accordance with that shown in **Plan 1**.

- An updated Public Open Space schedule is to be provided at the time of subdivision for determination by the WAPC upon advice of the City of Wanneroo.

- Variations to the location, size and function of POS areas can be considered as part of subdivision applications and in response to detailed design processes.

4.8 RESIDENTIAL

4.8.1 DENSITY AND DWELLING TARGETS

- The Structure Plan area is to target the provision of between 3,200 and 3,500 dwelling units.
- Subdivision and development within the Structure Plan area will target 15 dwellings/gross urban hectare. Subdivision and development will target 20 - 25 dwellings/gross urban hectares in areas within 200m of the neighbourhood centre and railway station.

4.8.2 DENSITY

- Plan 1 defines the residential density ranges that apply to specific areas within the Structure Plan. Lot specific residential densities, will be subsequently assigned in accordance with a Residential Code Plan approved by the WAPC at subdivision stage.
- A Residential Code Plan is to be submitted at the time of subdivision to the WAPC and shall be consistent with the Structure Plan, and the Residential Density Ranges identified on Plan 1 and the locational criteria contained in Clause 4.8.3.
- The Residential Code Plan is to include a summary of the proposed dwelling yield of the subdivision.
- Approval of the Residential Code Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. The approved Residential Code Plan shall then form part of the Structure Plan and be used for the determination of future development applications.
- Variations to the Residential Code Plan will require further approval of the WAPC.
- Residential Code Plans are not required if the WAPC considers that the subdivision is for one or more of the following:
    - The amalgamation of lots;
    - Consolidation of land for 'superlot' purposes to facilitate land assembly for future development
    - Purpose of facilitating the provision of access, services or infrastructure; or
    - Land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

4.8.3 LOCATIONAL CRITERIA

A base density code of R25 applies to all residential lots.

A R25 – R80 density range applies to the Structure Plan area. Any areas of Residential density above R25 should generally be located based on the following locational criteria:

Table 2 - Residential Density Criteria

Density Code	General Location Principles
R30	• No locational criteria applies
R40	• Lots that front POS or have a clear view of POS • Lots abutting integrators and neighbourhood connectors

Density Code	General Location Principles
R60	• Lots fronting or directly abutting POS • Lots fronting Regional Open Space • Lots within 800m of neighbourhood centre • Lots within 800m of future high frequency public transport
R80	• Lots fronting or directly abutting POS • Lots fronting Regional Open Space • Lots within 400m of neighbourhood centre • Lots within 400m of future high frequency public transport

4.9 LOCAL DEVELOPMENT PLANS

Local Development Plans are to be prepared for the Structure Plan areas pursuant to the WAPC's Local Development Plan Framework and Schedule 2, 'Deemed Provisions for Local Planning Schemes' of the Planning and Development (Local Planning Schemes) Regulations 2015.

Local Development Plans are to be required as a condition of subdivision approval, for the following:

- Lots that directly abut Regional and Public Open Space to address: built form orientation, visually permeable fencing and window openings from habitable rooms to overlook POS and provide for passive surveillance.
- Lots which are affected by rail and road noise, to address quiet house design in accordance with the recommendations of the Acoustic Assessment prepared at subdivision.

4.10 OTHER REQUIREMENTS

4.10.1 NOTIFICATIONS ON TITLE

In respect of applications for the subdivision of land the City of Wanneroo shall recommend to the WAPC that a condition be imposed as part of a subdivision approval for a notification to be placed on the Certificate of Title to advise that lots are, or may in the future, be affected by transport noise. This notification should be applied in accordance with the Acoustic Assessment submitted with the subdivision application.

4.10.2 DEVELOPER CONTRIBUTIONS

The Structure Plan area will be included within a District Development Contribution Area (DCA) via a future Local Planning Scheme Amendment and will be required to make contributions under a District Developer Contribution Scheme (DDCP) to district level infrastructure. The DDCP will be guided by the following documents the East Wanneroo District Structure Plan and the City of Wanneroo Community Facilities Plan.

4.11 ADDITIONAL INFORMATION

The following technical reports / documents to be prepared and submitted at the time of lodgement of a subdivision application (where applicable):

- Bushfire Management Plan (BAL Assessment)
- R Code Plan
- Acoustic Assessment
- Servicing Strategy

LEGEND

- STRUCTURE PLAN BOUNDARY

METROPOLITAN REGION SCHEME RESERVES

- PARKS AND RECREATION
- OTHER REGIONAL ROADS
- K-12 — PUBLIC PURPOSE - KINDERGARTEN TO YEAR 12 SCHOOL

LOCAL SCHEME ZONES

- CENTRE
- RESIDENTIAL
- PS — EDUCATION - PRIMARY SCHOOL
- PUBLIC OPEN SPACE
- RURAL
- LOCAL ROAD

LAND USE PLANNING ELEMENTS THAT INFORM THE STRUCTURE PLAN

- TRANSPORT CORRIDOR
- INTEGRATOR A
- INTEGRATOR B
- NEIGHBOURHOOD CONNECTOR A
- NEIGHBOURHOOD CONNECTOR B
- ACCESS STREET B
- ACCESS STREET C
- 1 — DISTRICT COMMUNITY CENTRE (INDICATIVE LOCATION, LAND AREA AND SITE DIMENSIONS ONLY. SUBJECT TO DETAILED DESIGN.)
- 2 — DISTRICT INDOOR RECREATION CENTRE (INDICATIVE LOCATION, LAND AREA AND SITE DIMENSIONS ONLY. SUBJECT TO DETAILED DESIGN.)
- RESOURCE ENHANCEMENT WETLAND FOR RETENTION
- TRANSIT STATION (INDICATIVE LOCATION)
- ADDITIONAL USE - LOCAL CENTRE
- PARKLAND LINK
- TOURISM OPPORTUNITIES
- R-CODES

PRECINCT 15 STRUCTURE PLAN

Various Lots, MARIGINIUP

A Stockland Project

NORTH

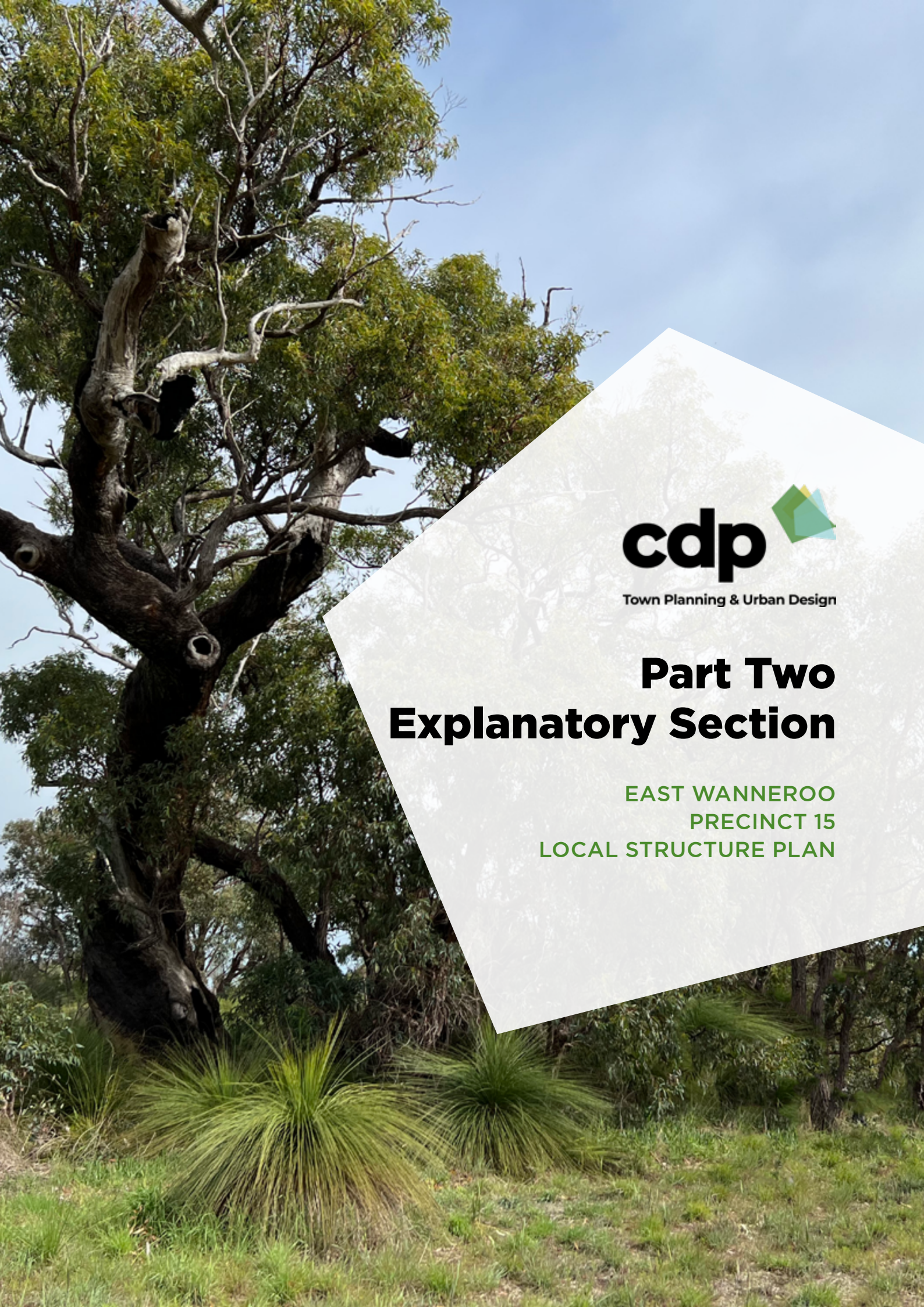
Scale: 1:10 000 @ A3

0 100 200 300m

PLAN: STOMA-2-001 REVISION: F
DATE: 06/08/2024 DRAWN: JP
PROJECTION: MGA 50 PLANNER: BK
DATUM: AHD CHECK: JH

cdp
Town Planning & Urban Design

Unit 2, 464 Murray Street
Perth WA 6000
(08) 6333 1888
info@cdpaus.com.au
www.cdpaus.com.au



cdp
Town Planning & Urban Design

Part Two
Explanatory Section

EAST WANNEROO
PRECINCT 15
LOCAL STRUCTURE PLAN

1. PLANNING BACKGROUND

1.1 INTRODUCTION & PURPOSE

The purpose of the East Wanneroo Precinct 15 Local Structure Plan is to provide for the orderly and proper subdivision and development of the Structure Plan area for 'Urban' purposes. The information contained in this section provides justification and support for the comprehensive and co-ordinated design response provided for the Structure Plan.

This report, consistent with the Western Australian Planning Commission's Structure Plan Framework (2015), comprises a Part 1 section outlining implementation requirements and the plan, with Part 2 outlining the background, policy context and rationale for Part 1. Technical Appendices have been prepared to inform and support Part 1 and 2.

The Technical Appendices are as follows:

- Environmental Assessment Report
- Transport Impact Assessment
- Engineering & Servicing Report (including Basic Raw Materials Assessment)
- Transportation Acoustic Assessment
- Bush Fire Management Plan
- Local Water Management Strategy
- Landscape Master Plan
- Aboriginal Heritage Assessment Report
- Economic Development and Employment Report

The LSP has been prepared in the context of the East Wanneroo District Structure Plan (EWDSP), which covers the site and surrounding area. Its objective is to facilitate coordinated development of the site in conjunction with the surrounding area, taking into consideration the specific attributes of the site, the intentions of the landowner and the various policy requirements impacting its design and delivery as an urban development site.

1.2 LAND DESCRIPTION

1.2.1 LOCATION

The Structure Plan area is located within the municipality of the City of Wanneroo and in the locality of Mariginiup (refer **Figure 1 – Location Plan**), generally bound by Coogee Road to the North and Lakeview Street to the south. The Structure Plan area is situated approximately 45km north of Perth CBD and 6km north east of the Joondalup Regional Activity Centre.

1.2.2 AREA AND LAND USE

The Structure Plan area encompasses 310.537ha of land that has historically been cleared and used for grazing and semi-rural activities. The site has been subject to extensive historical disturbance, primarily associated with clearing of most vegetation across the site. Some remnant vegetation remains today, along with areas that have naturally regenerated over time. Overall however, the site is primarily vacant land with there being limited semi-rural and market garden activities and homesteads within the southern portion.

Refer **Figure 2 – Orthophoto**.

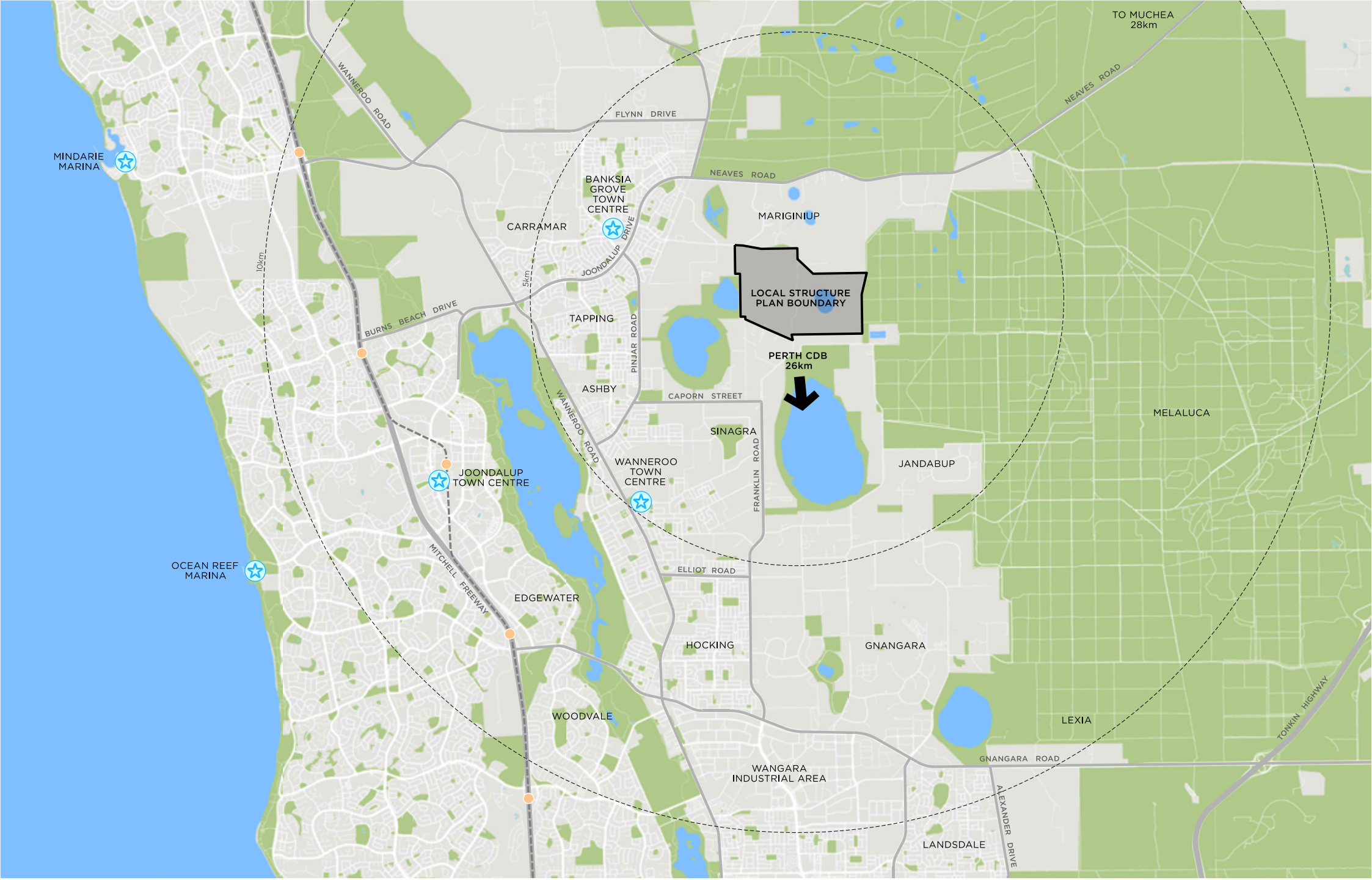


Figure 1 - Location Plan

Figure 2 - Orthophoto

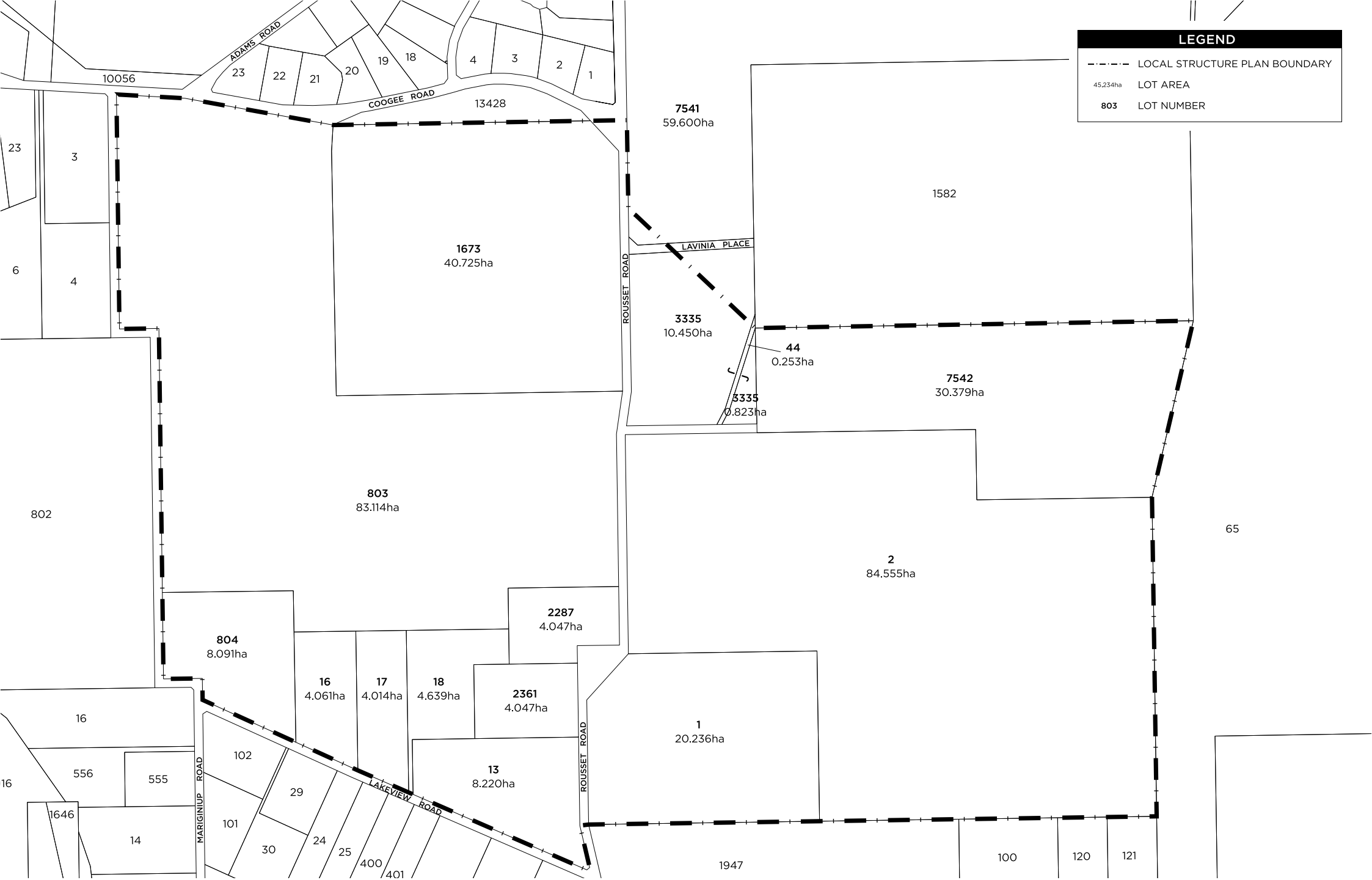


Figure 3 - Site Plan

1.2.3 LEGAL DESCRIPTION AND OWNERSHIP

The Structure Plan area incorporates lots defined in **Table 3** below.

A site plan is included at **Figure 3 – Site Plan**.

A small portion of land from Precinct 16 as mapped by the EWDSP is also incorporated in the Structure Plan, being the north-eastern corner of Lot 1673 and equates to an area of 2.54 hectares.

Table 3 - Lot Details

Lot	Owner	Area (ha)
803	Shafto Pty Ltd & Justin Corporation Pty Ltd	83.114
1673	Ramat Pty Ltd & Milino Pty Ltd	40.725
804	Shafto Pty Ltd & Justin Corpoation Pty Ltd	8.091
16	Andrew J. Tedesco	4.061
17	Lakewood Estate Development (No 2) Pty Ltd	4.014
18	Vincenzo & John Guida	4.639
13	Lakewood Estate Development (No 1) Pty Ltd	8.22
2361	Mara & Dujo Delich	4.047
2287	Kevin Stubbs	4.047
1	Agostino Nominees Pty Ltd & Natalina Agostino	20.236
2	Justin Corporation Pty Ltd	84.555
7542	Michael Neil Pty Ltd	30.379
3335 (part)	Milino Pty Ltd & Leghorn Pty Ltd	9.586
7541 (part)	John E. Squarcini & Shafto Pty Ltd	0.3407
44 (part)	State of Western Australia	0.253
Lavinia Road	Road Reserve	0.2104
Rousett Road	Road Reserve	4.0189
	TOTAL AREA	**310.537**

1.2.4 *SURROUNDING LAND USE AND CONTEXT*

The land surrounding the Structure Plan area is predominantly semi-rural and vacant land. Rural residential development is established in the area to the north west in the vicinity of Lake Adams. State Forest land and pine plantations exist to the immediate east. All surrounding land is encompassed by the EWDSP which will guide future urbanisation of the area.

1.3 PLANNING FRAMEWORK

1.3.1 *ZONING & RESERVATIONS*

METROPOLITAN REGION SCHEME

The Structure Plan area is zoned 'Urban Deferred' under the Metropolitan Region Scheme (MRS), with the exception of a small area at the eastern extent of the site which is zoned 'Rural – Water Protection' (refer **Figure 4 – Metropolitan Region Scheme**).

In order for development to proceed, a Lifting of Urban Deferment is required and a MRS Amendment is required to rezone the 'Rural-Water Protection' land to 'Urban'. Lifting of Deferment process for a portion of the Structure Plan area will be lodged with the Western Australian Planning Commission concurrently with this Local Structure Plan. MRS Amendments to rezone the 'Rural Water Protection' land and to implement public purpose reservations will be pursued by others subsequent to the approval of this Local Structure Plan. It is only at this point that the exact extent of the required public purpose reservations can be known with enough certainty to inform an MRS Amendment.

LOCAL PLANNING SCHEME

The Structure Plan area is zoned 'General Rural' and 'Rural Resource' under the City of Wanneroo's District Structure Plan No.2. Refer to **Figure 5 – District Planning Scheme No.2**.

Rezoning to 'Urban Development' under DPS2 is expected to occur concurrently and automatically as part of the Lifting of Urban Deferment process. This will allow for the implementation of the Structure Plan.

1.3.2 *NORTHWEST SUB-REGIONAL PLANNING FRAMEWORK*

The Framework identifies the Structure Plan area as Urban Expansion.

1.3.3 *EAST WANNEROO DISTRICT STRUCTURE PLAN*

The Structure Plan area is located within the East Wanneroo District Structure Plan (EWDSP), within Precinct 15 and a small area of Precinct 16 at the north eastern corner (Refer **Figure 6 – East Wanneroo District Structure Plan Precincts**).

The EWDSP was prepared to guide the progressive urbanisation of 8,300ha of land in East Wanneroo and to guide more detailed local structure planning of the area. The EWDSP was endorsed by the WAPC in August 2021.

The EWDSP references a dwelling target of 3,800 dwellings. Precinct 15 is defined as a shopping and community hub that services the northern areas of East Wanneroo, The Precinct should comprise a neighbourhood centre and urban neighbourhoods integrated carefully with natural features and a 50ha regional sporting facility in the eastern areas of the Precinct.

The EWDSP provides for the following land uses within the Structure Plan area:

- Centre
- Urban Neighbourhood
- Suburban Neighbourhood
- Parkland and Parkland Link
- Regional Sporting Fields
- Neighbourhood Connector roads
- Transit Station
- Transport corridor
- Groundwater holding facility
- High school

Refer **Figure 7 and 8 – East Wanneroo District Structure Plan**.

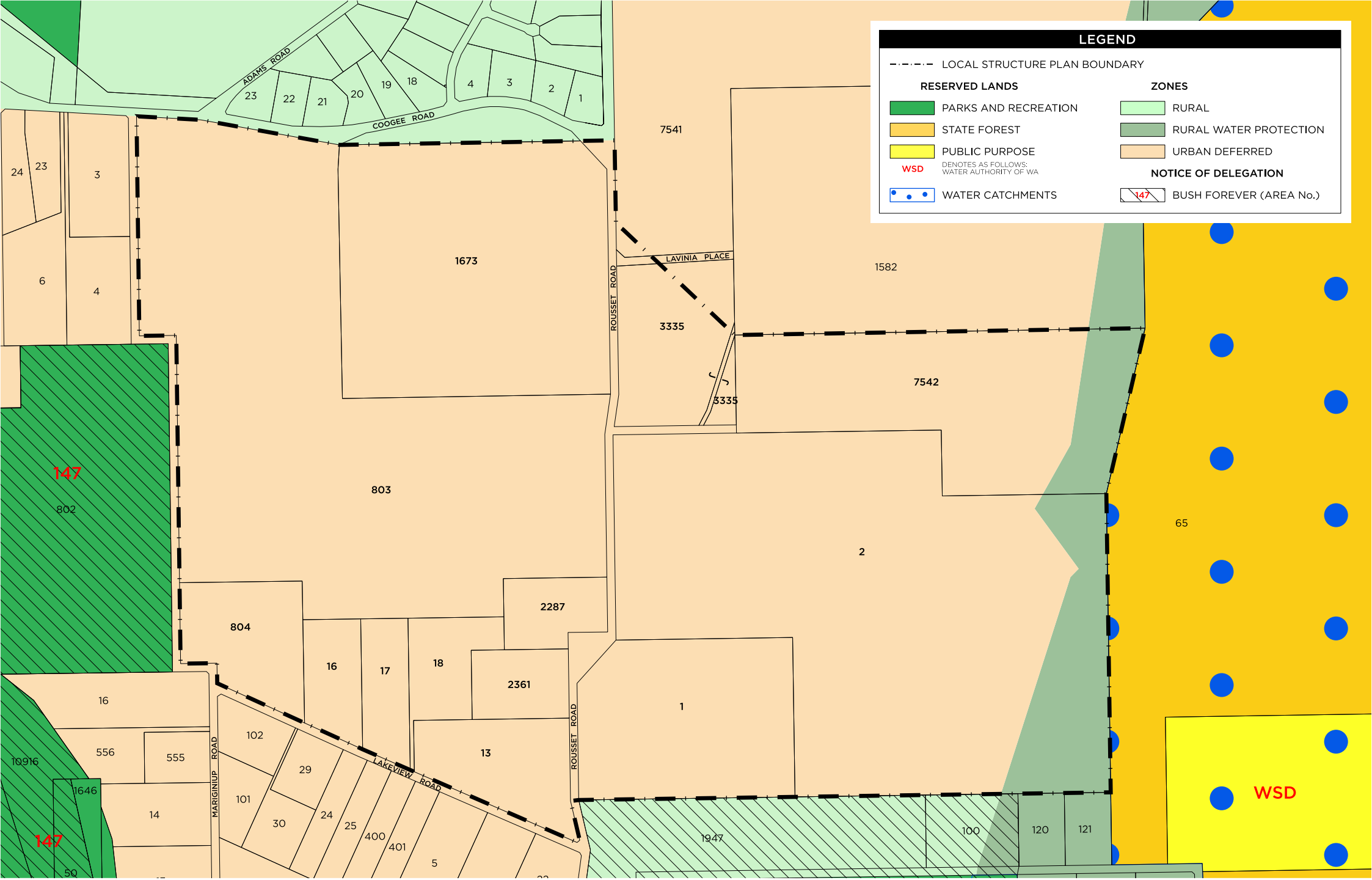


Figure 4 - Metropolitan Region Scheme Zoning

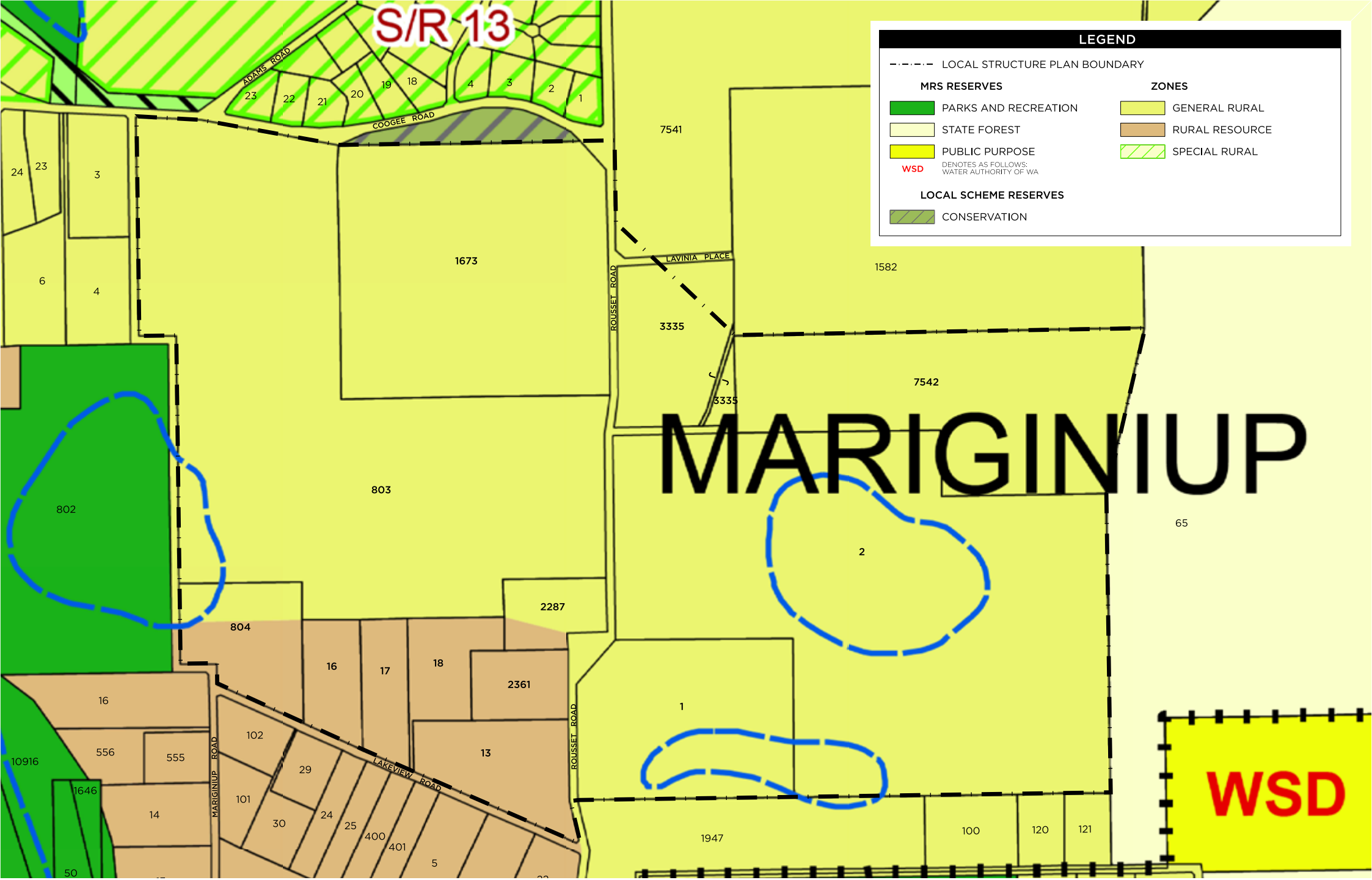


Figure 5 - District Local Planning Scheme No.2 Zoning

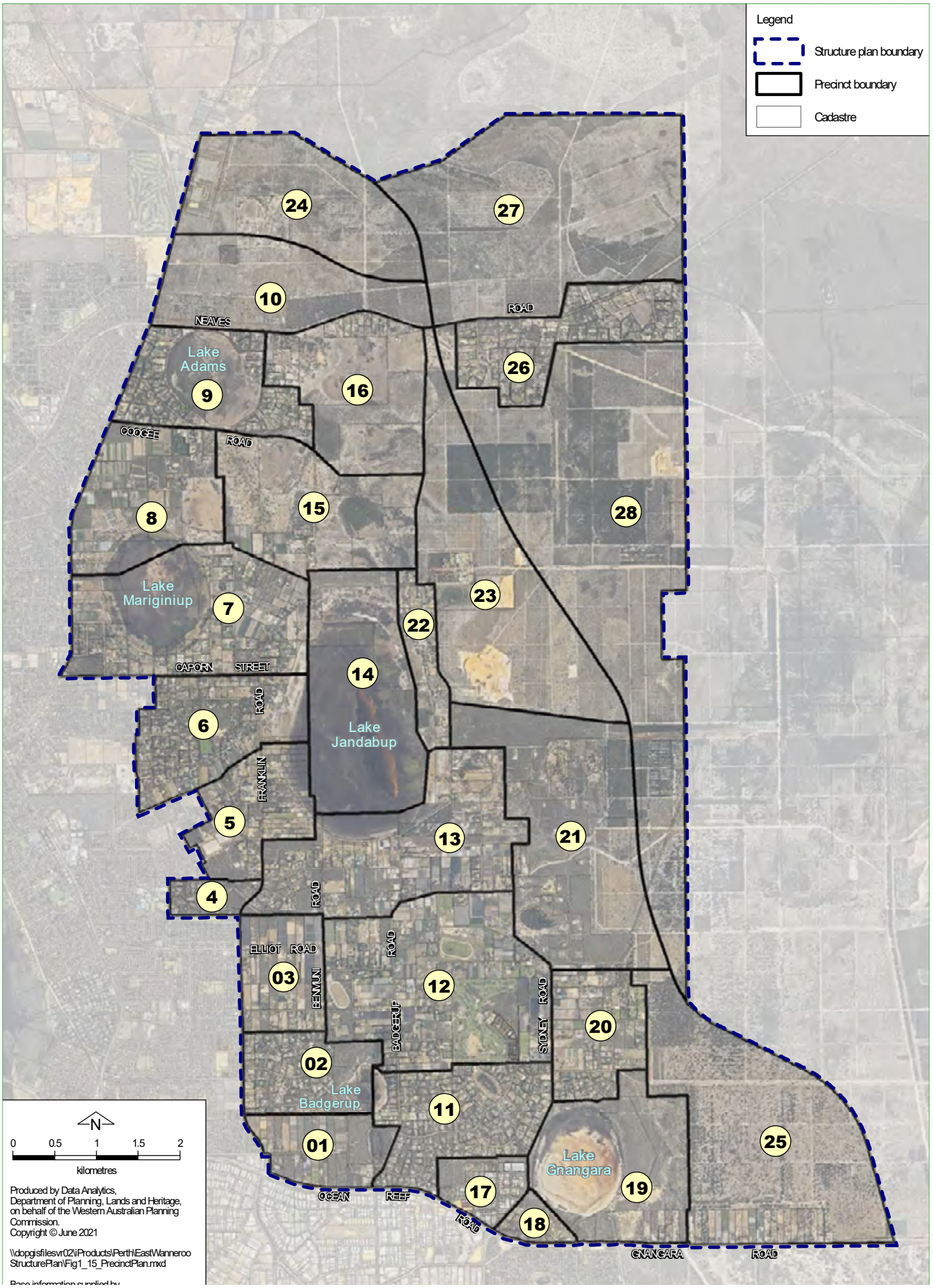


Figure 6 - East Wanneroo District Structure Plan Precincts

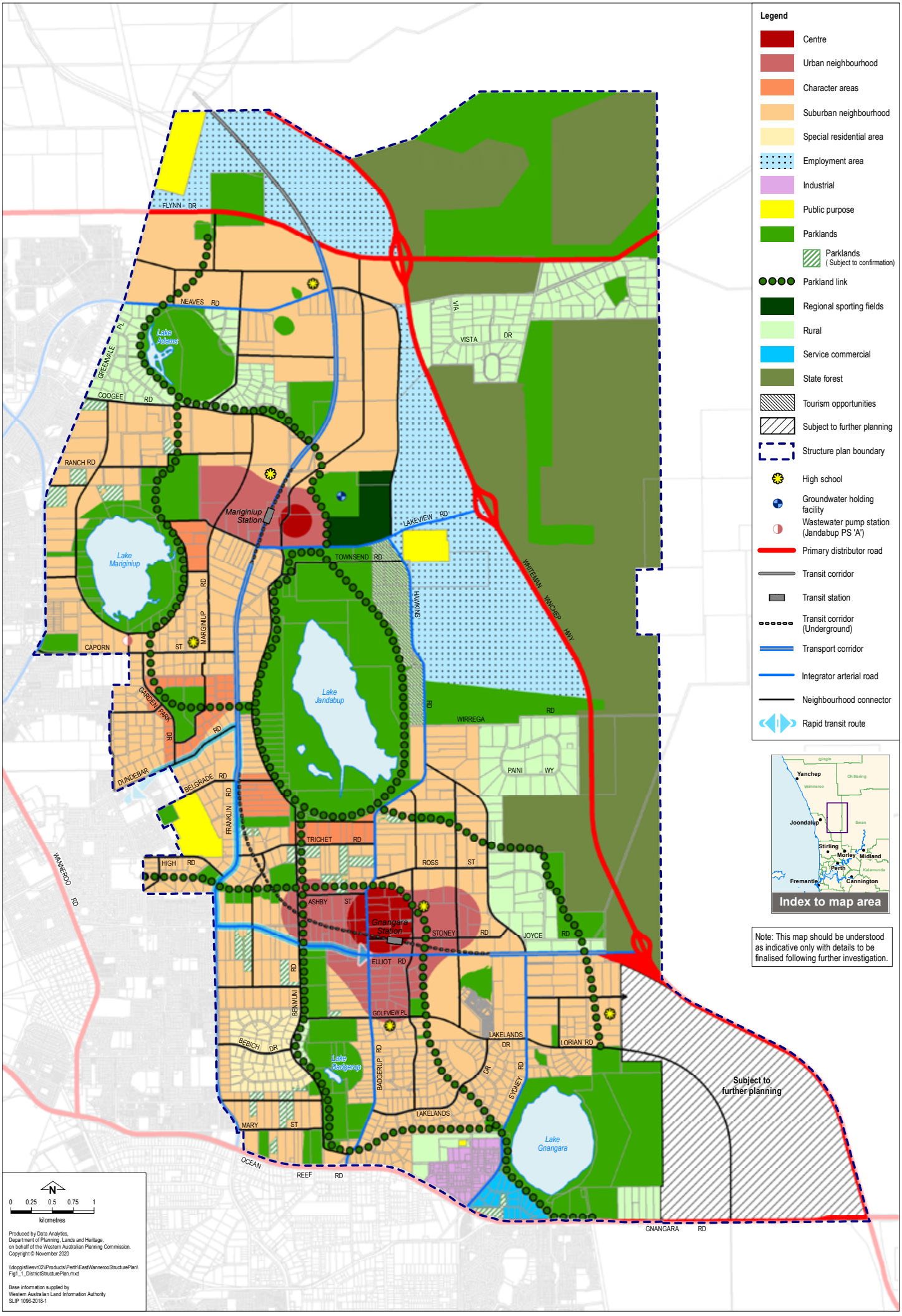


Figure 7 - East Wanneroo District Structure Plan

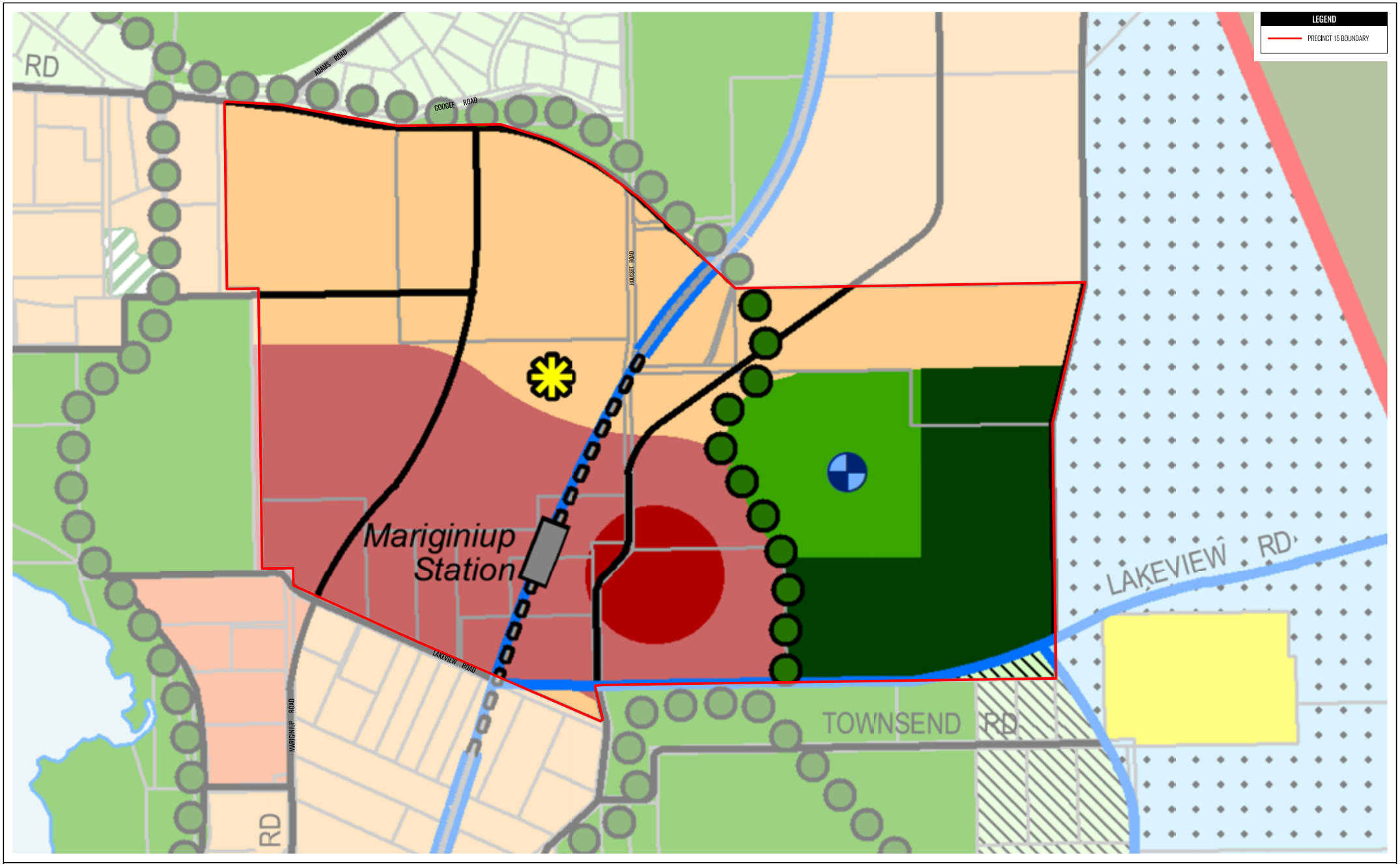


Figure 8 - East Wanneroo District Structure Plan (Precinct 15)

1.3.4 CITY OF WANNEROO LOCAL PLANNING POLICY 5.3 - EAST WANNEROO

Local Planning Policy 5.3 provides guidance on the consideration of planning proposals within the EWDSP area. The policy aims to ensure that any subdivision and development will not compromise the progression of development in accordance with the EWDSP.

The policy notes that the following matters are to be considered for proposals within the EWDSP area:

- The impact of the proposal on the staging of the EWDSP and the likely timeframe for the planning and development of the related precinct and surrounding areas to progress in accordance with the EWDSP;
- The impact of urbanisation on existing lawful rural land uses, particularly where urbanisation is proposed ahead of the staging plan outlined in the EWDSP.

It is noted that the policy also states that City will not accept any local structure plans for assessment until the district level development contribution scheme is substantially commenced (including public consultation) and an amendment to DPS 2 to rezone the precinct to an urban development zone is substantially commenced (including public consultation). The East Wanneroo District Developer Contribution Plan has been prepared and is currently being assessed by the DPLH and the City. An amendment to DPS2 to rezone the Structure Plan area to Urban Development Zone is proposed to occur automatically and concurrently with the Lifting of Urban Deferment application.

The policy requires local structure plans include a Local Sense of Place Statement. This has been included at Section 3.

1.3.5 PRE-LODGEMENT CONSULTATION

The LSP has been prepared in consultation with a range of stakeholders including:

- City of Wanneroo;
- Department of Planning, Lands and Heritage;
- Water Corporation;
- Public Transport Authority;
- Department of Biodiversity and Conservation;
- Department of Water and Environmental Regulation;
- Department of Education.

2. SITE CHARACTERISTICS & CONSTRAINTS

The site conditions and constraints have been detailed and mapped within the Environmental Assessment Report (EAR) prepared by Emerge to support this Structure Plan (refer **Appendix 1**). The below sections are a summary of the more detailed information in this EAR, in addition to the information contained in the Local Water Management Strategy where appropriate.

2.1 BIODIVERSITY AND NATURAL AREA ASSETS

2.1.1 FLORA & VEGETATION

Emerge completed a detailed flora and vegetation assessment of the site on multiple dates between August 2022 and February 2023, including during the spring flowering period. The survey recorded 17 broad plant communities within the site and determined that vegetation condition within the site ranges from 'Very Good' to 'Completely Degraded'.

Refer **Figure 9 – Vegetation Condition** (Source: Emerge)

The structure, composition and patch sizes of portions of plant communities within the site indicates that it represents 12.1 ha of the Commonwealth listed Banksia Woodlands Threatened Ecological Community (TEC) across four patches. Within this, there is approximately 6.9ha of low lying Banksia attenuata shrubland Priority Ecological Community (PEC). No other TECs or PECs occur within the site.

One priority flora species was recorded within the site, namely Jacksonia sericea (P4), during the detailed survey. Jacksonia sericea (P4) is locally common within the western portion of the site. The species is also common across calcareous and sandy soils of the Swan Coastal Plain from the south of Mandurah to the north of Joondalup, with numerous records occurring within 10 km of the site. No other priority or threatened flora species were recorded within the site.

Refer **Figure 10 – Conservation Significant Flora and Vegetation** (Source: Emerge)

2.1.2 BUSH FOREVER

No Bush Forever sites occur within the site. Bush Forever Site 147 (Mariginiup Lake and Adjacent Bushland, Mariginiup) directly abuts the south-western corner of the site, and Bush Forever Site 324 (Jandabup Lake and Adjacent Bushland, Jandabup/Mariginiup) lies adjacent to the southern boundary.

2.1.3 ECOLOGICAL LINKAGES

The Perth Biodiversity Project have identified and mapped regional ecological linkages within the Perth Metropolitan Region. Regional Ecological Linkage No. 16 extends over the south eastern portion of the site further to the south and east intersecting with Ecological Linkage No. 12, which runs in a north to south direction adjacent to the western site boundary. However, review of aerial imagery indicates that native vegetation within the site is contiguous with smaller patches of native vegetation to the north-west, north and south of the site, but is otherwise disconnected from vegetation in the broader area likely due to intensive historical agricultural uses in the area.

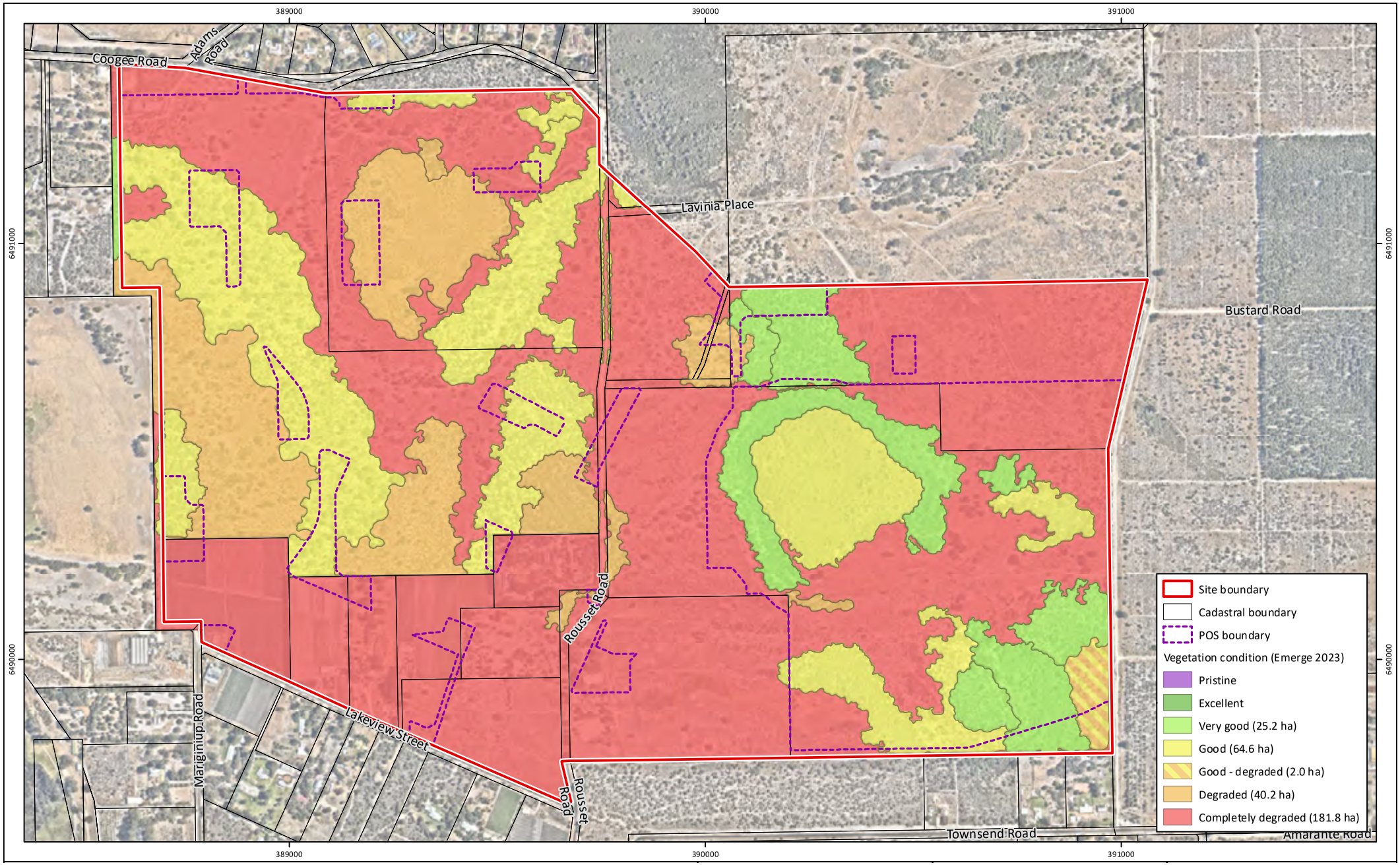


Figure 9 - Vegetation Condition (Source: Emerge)

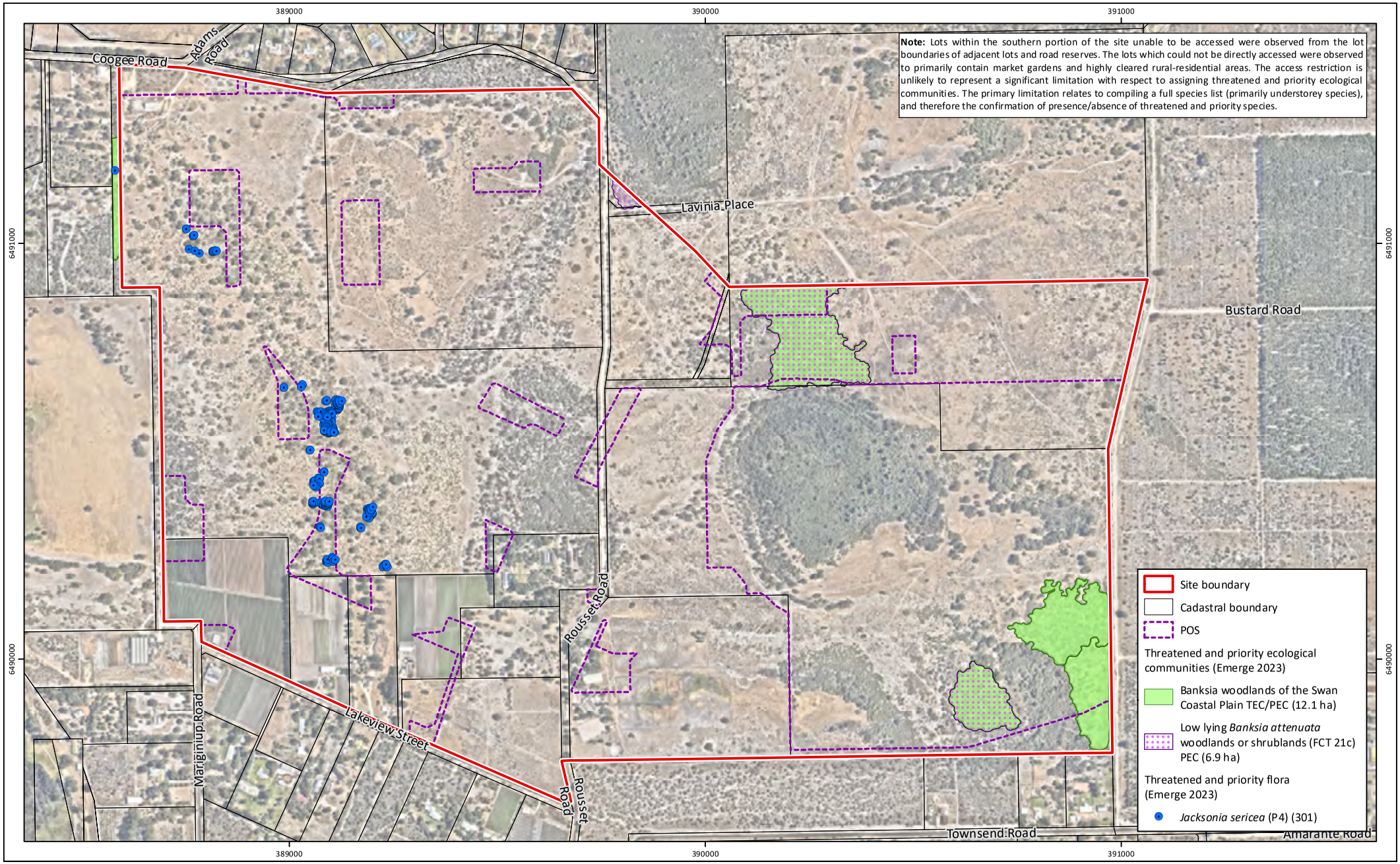


Figure 10 - Conservation Significant Flora and Vegetation (Source: Emerge)

2.1.4 FAUNA

Emerge completed a detailed fauna and targeted black cockatoo assessment of the site between 28 March and 12 December 2022. The survey identified 11 broad fauna habitats within the site.

The majority of the site (59%) comprises cleared fauna habitat, which consist of heavily disturbed areas of grassland with the occasional scattered native tree or shrubs and would potentially only provide suitable habitat for common and widespread non-native species. The highest fauna habitat values are associated with the jarrah forest, banksia woodland, and jarrah woodland habitats which occur over approximately 12.05% of the site. The remainder of the site comprises various forest, woodland and shrubland habitats with little to no understorey.

Emerge recorded four fauna species of conservation significance within the site: Caranby's black cockatoo (CBC), Forest red-tailed black cockatoo(FRTBC), black striped burrowing snake and quenda.

A total of up to 38.5 ha of potential primary foraging habitat for CBC and up to 19.5 ha of secondary foraging habitat for CBC was recorded within the site. Up to 29.2 ha of potential native primary foraging habitat for FRTBC was recorded within the site, These areas are likely an over-estimation of actual CBC foraging habitat, given they are based on broad fauna habitat type mapping which does not exclude cleared areas between patches of vegetation and trees (which are common across this highly disturbed site), nor does it exclude flora species within these areas which are not known to be foraged upon by black cockatoos.

Carnaby's black cockatoo (CBC) were observed flying over the site, Forest red-tailed black cockatoo (FRTBC) were observed foraging within the site. A total of 365 black cockatoo habitat trees were recorded within the site. An internal hollow inspection was undertaken for 37 habitat trees that were determined to potentially contain suitable hollows based on the initial inspection from ground level. Of the 37 trees inspected, none were determined to contain suitable hollows. The remaining trees also contained no suitable hollows for breeding by black cockatoos. In addition, no evidence of roosting activity was observed within the site.

Refer **Figure 11 and 12 – Conservation Significant Fauna Habitat Cockatoos (Source: Emerge)**

Quenda inhabit vegetation with dense understorey. Thus, occurrence of the species within the site would likely be limited to where vegetation provides suitable habitat, likely excluding any areas comprising sparse grassland with little to no native vegetation cover. However, quenda may also forage across or traverse other habitats within the site.

The banksia woodland habitat is considered ideal for the black-striped burrowing snake. The banksia woodland vegetation, which is common across the local area, has likely supported a healthy population of this species for some time.

2.2 LANDFORM AND SOILS

2.2.1 SOILS

The site occurs within the transition between the Spearwood dune system and the Bassendean dune system. The Spearwood Dunes system typically consists of siliceous sands over limestone, with hilly to undulating terrain, whilst the older Bassendean Dune system is characterised by lower relief, with variable depth to groundwater, consisting of lower sandy hills interspersed with permanent and seasonal wetlands.

Geotechnical investigations in 2022 over a large portion of the site indicate that the site is generally underlain by sand derived from tamala limestone and Bassendean sands. Ground conditions across the site generally comprise a layer of sandy topsoil between 0.05 - 0.2 m thick followed by a 1 - 3 m thick layer of sand, whilst localized cement soils and organic soils were also encountered in portions of the site.

No restricted landforms or unique geological features within the site have been identified to date, with the exception of a prominent dunal ridgeline in its western extent.

2.2.2 TOPOGRAPHY

The Structure Plan Area is generally flat with the exception of the dunal ridgeline in the western portion of the site marking the transition from the Bassendean to the Spearwood dunal system.

Elevations across the site range from a minimum of 46 m Australian height datum (AHD) in the central portion of the site, largely associated with existing wetland features, to 59 mAHD along the dunal ridgeline in the western portion.

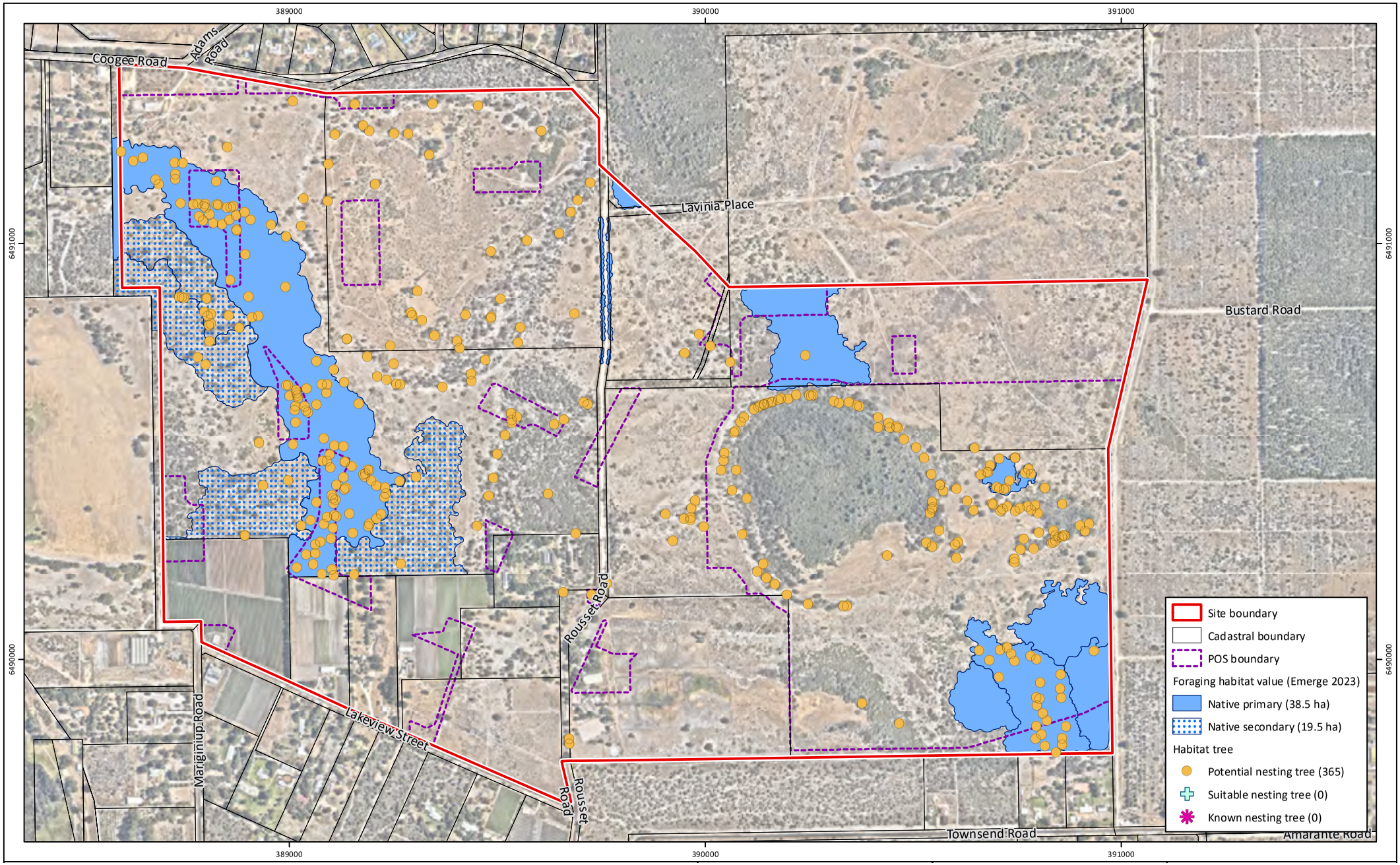


Figure 11 - Conservation Significant Fauna Habitat Carnaby's Cockatoos (Source: Emerge)

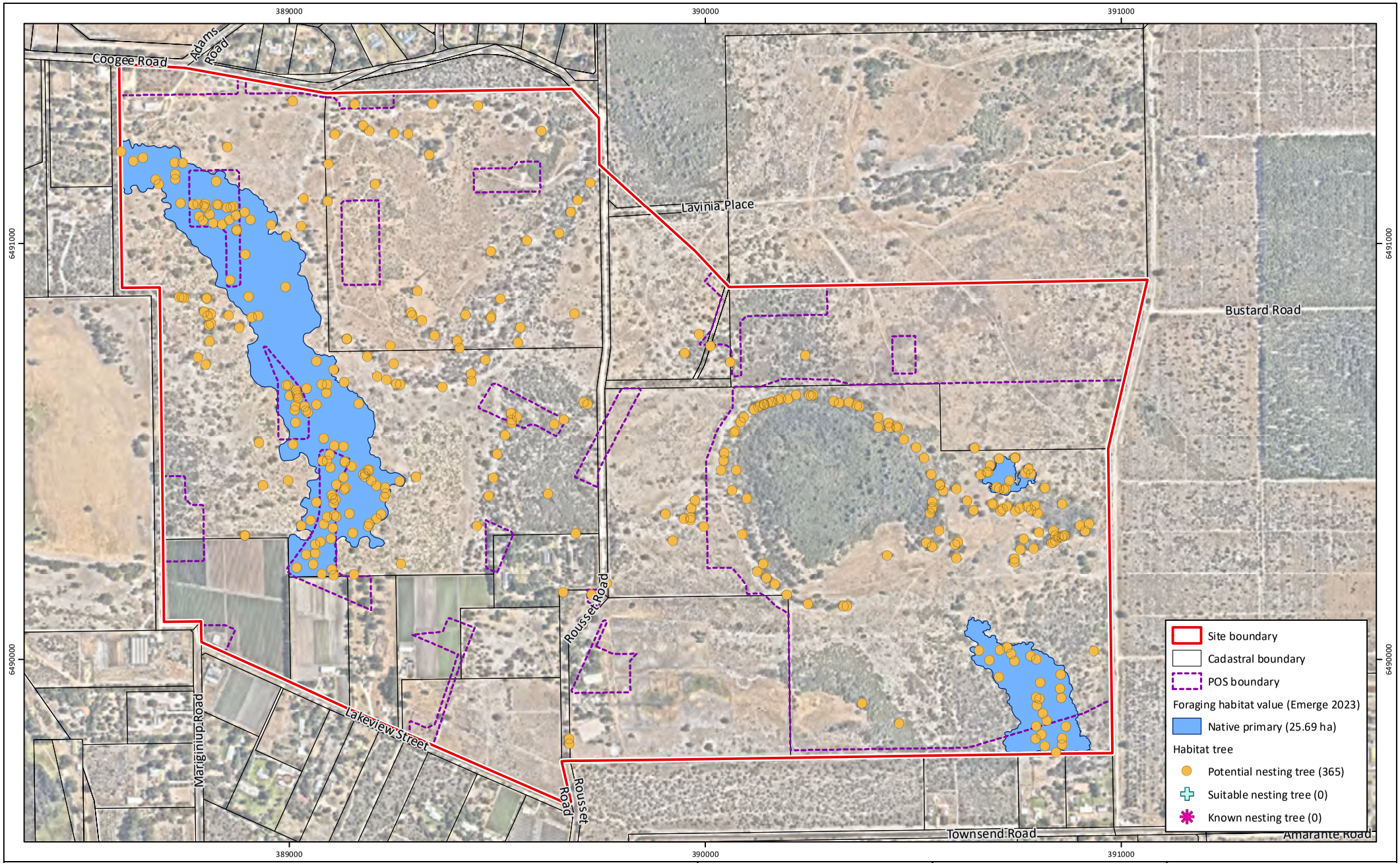


Figure 12 - Conservation Significant Fauna Habitat Forest Red Tailed Black Cockatoos (Source:Emerge)

2.2.3 *ACID SULFATE SOILS*

A review of the Department of Water and Environmental Regulation (DWER) broad-scale mapping of potential Acid Sulfate Soils (ASS) risk indicates that discrete areas in the eastern portion of the site are classified as having a 'high to moderate' risk of ASS occurring within 3 m of the natural soil surface, which generally aligns with mapped resource enhancement wetland features within the site. Additionally, a large portion of the site is classified as having a 'moderate to low' risk of ASS occurring within 3 m of the natural soil surface but 'high to moderate' risk of ASS beyond 3 m of the natural soil surface. The western portion of the site associated with the ridgeline is classified as having no known risk of ASS occurring. Management of ASS will occur as an ongoing part of subdivision and development processes.

2.2.4 *CONTAMINATION*

A review of the DWER Contaminated Sites Database indicates that the site is not registered as a contaminated site.

2.3 GROUNDWATER

The site is underlain by a multi-layered aquifer system – Superficial Swan, Leederville, Yarragadee North. The Perth Groundwater Map (DWER 2022a), which provides an indication of regional groundwater levels, shows the historic Maximum Groundwater Level (MGL) at the site to be approximately 48 mAHD in the north-easternmost corner of the site. The lowest historic MGL on site is approximately 43 mAHD and is mapped in the south-westernmost corner of the site.

Groundwater bores were installed by Pentium in May and August 2022 for the purpose of pre- and post development monitoring, with groundwater monitoring being undertaken on site monthly during winter and otherwise quarterly since installation. Relative to existing surface levels, the measured groundwater levels ranged from a minimum of 0.86 metres below ground level (mbgl) to a maximum of 8.63 mbgl. Groundwater flows generally east to west.

2.4 WETLANDS & SURFACE WATER

There are a number of Resource Enhancement Wetlands and Multiple Use Wetlands occurring within the site.

Refer **Figure 13 – Wetlands (Source: Emerge)**

2.5 PUBLIC DRINKING WATER SOURCES

The eastern portion of the site zoned 'Rural – Water Protection' under the MRS (refer **Figure 4**) is associated with the Priority 2 (P2) Gnangara Underground Water Pollution Control Area. This Public Drinking Water Source Area (PDWSA) runs through the eastern part of Precinct 15. There is also a Wellhead Protection Zone for bores in the area. Parts of multiple wellhead protection zones intersect the eastern portion of the site, associated with the nearby location of the Wanneroo Groundwater Treatment Plant (WGTP).

A review of the Water Quality Protection Note (WQPN) 25 Landuse Compatibility Tables for Public Drinking Water Source Areas (DoW 2016) indicates that subdivision of land for residential purposes within a P2 in an area zoned 'Urban Residential' or 'Urban Deferred' and the creation of recreational parks and/or sporting ovals is incompatible. However, it is envisaged that the rezoning of the land within the PDWSA to the future urban land use will trigger reclassification of the areas of P2 to P3* (areas that are changed from P1 or P2 as a result of government-approved strategic planning for urban development in the MRS), as outlined in WQPN 38 (DWER 2018). All developments will require connection to deep sewerage.

2.6 BUSHFIRE HAZARD & MANAGEMENT

The majority of the Structure Plan area is identified within a 'bushfire prone area'. State Planning Policy 3.7 (SPP 3.7) requires structure plans to include a bushfire hazard level assessment. A Bushfire Management Plan (BMP) has been prepared by Emerge (refer **Appendix 2**).

The BMP identified a variety of bushfire hazards within and surrounding the site, including different patches of forest, woodland, scrub and grassland hazards. The BMP provides an assessment of how future development within the site can satisfy the policy measures of SPP 3.7.

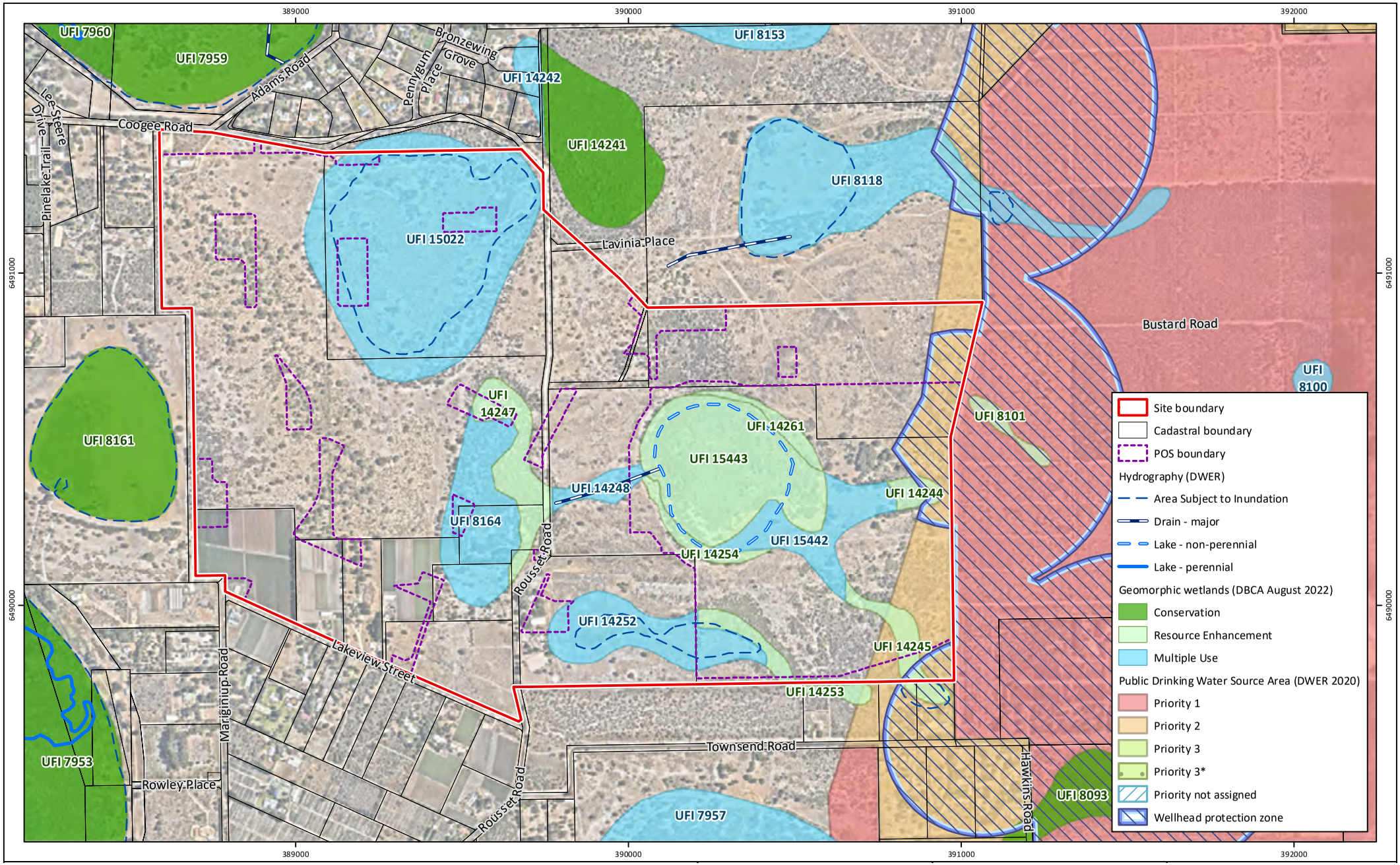


Figure 13 - Wetlands (Source: Emerge)

2.7 HERITAGE

2.7.1 ABORIGINAL HERITAGE

A desktop assessment of the DPLH's Aboriginal Heritage Inquiry System (AHIS) did not identify any registered Aboriginal Heritage Sites within the site. Three other features are mapped in proximity to the site, whilst one slightly intersects into the northern site boundary. Place ID 22160 Marrynginup is mapped on the DPLH register with a large polygon, which restricts publicly displaying its reliable location and site boundary.

Horizon Heritage Management completed an Aboriginal Heritage Desktop Assessment of the site and surrounding area in January 2023 (refer **Appendix 3**). The custodian of Place ID 22160 gave Horizon Heritage Management permission to access and geographically define the actual site boundary. Refer **Figure 14 – Aboriginal Heritage (Source: Emerge)**.

The Aboriginal Heritage Desktop Assessment completed by Horizon Heritage Management finds and concludes as follows:

- The true extent and spatial boundary of Place ID 22160 Marrynginup is largely associated with the Conservation Category Wetland to the north of the site and only slightly intersects into the north central portion of the site.
- It was determined to be a very significant and sensitive area (healing area) important for Aboriginal spiritual health and cultural well-being.
- It is recommended Place ID 22160 is afforded protection under the Aboriginal Heritage Act 1972.
- The site-specific assessment determined that no registered archaeological sites are within the site.
- However, it is possible that surface expressions of in situ cultural material (artefacts) could be present. These are potentially around the margins of landscape features like lakes, swamps, wetlands and any sand hill features that may occur within the site.
- Any wetland features within and surrounding the site have been determined to be of particular significance as numerous camp sites have previously been identified in proximity of freshwater lakes in the broader Wanneroo area.
- A small southern portion of Place ID 22160 intersects the site and extends beyond the extent of the conservation wetland feature to the north of the site. This area has been subject to historical vegetation clearing and ground disturbances and therefore it is unlikely in situ cultural materials (artefacts) would be present.
- An Aboriginal Cultural Heritage Management Plan will be developed in consultation with the Whadjuk People in accordance with the relevant Act(s) and legislation prior to vegetation clearing and other ground disturbance works associated with the development of the site.

2.7.2 NON-INDIGENOUS HERITAGE

A desktop search of the Australian Heritage Database (Department of the Environment 2019), the State Heritage Office database indicates there are no registered non-Indigenous heritage sites located within, or in proximity to the site.

2.8 ACOUSTIC CONSIDERATIONS

Pursuant to the EWDSP, the Structure Plan contains a future passenger rail line. This railway is proposed to be underground with the exception of the section located in the northern area of the Structure Plan area. Herring Storer prepared an acoustical assessment of the Structure Plan in this regard the compliance with State Planning Policy 5.4 Road and Rail Noise (SPP 5.4) (refer **Appendix 4**). The acoustic assessment was conducted over that portion of the railway that will not be underground pursuant to the EWDSP. Noting that the railway does not yet exist, predictive noise modelling software was utilised for the purpose of assessing future noise levels.

The results of the acoustic assessment indicate that noise received at residences located adjacent to the passenger rail line would exceed the "Noise Targets" as outlined in SPP 5.4. To address this the possible noise amelioration options that are can be considered at subdivision stages are setbacks or buffer areas, noise bunds and / or barriers (noise walls) and "Quiet House" design.

The acoustic assessment is provided as overall guidance for the Structure Plan. Once detailed information is available at subdivision stage, such as final levels heights, lot placements etc, more detailed acoustic advice can be provided.

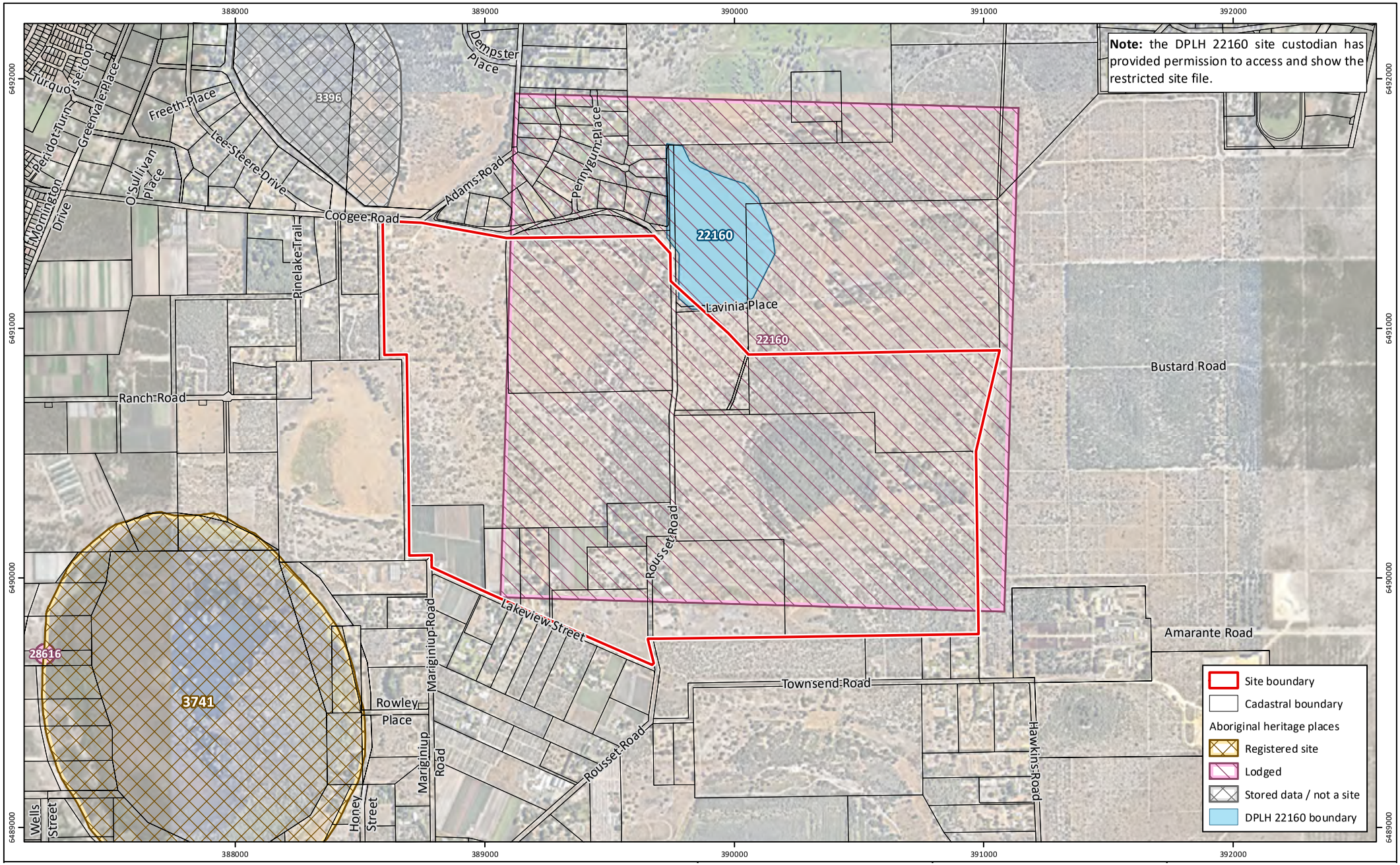


Figure 14 - Aboriginal Heritage (Source: Emerge)

2.9 SURROUNDING LAND USES

The East Wanneroo area supports a variety of exiting land uses, some of which may be incompatible within sensitive urban land uses due to the potential for amenity impacts associated with dust, noise, gaseous or odour emissions. Such land uses applicable to the site and surrounding area include existing poultry farms, basic raw materials extraction, market gardens, turf farms and nurseries. Refer **Figure 15 – Surrounding Land Uses (Source: Emerge)**.

2.9.1 POULTRY FARMS

No existing poultry farms are known to occur within or nearby to the site. The closest known poultry farm operation is situated approximately 1.3 km west of the site, this being greater than the generic separation distance of 300-1000m recommended by the EPA.

2.9.2 MARKET GARDENS AND NURSERIES

The south-western portion of the site contains existing market garden land uses, which will ultimately transition to urban land uses through implementation of the Structure Plan. However, a range of market gardens, orchards and plant or tree nurseries occur in proximity to the site, some within 500m (refer Figure 15 of EAR). The EPA's recommended generic separation varies between 100 – 500m for such uses. This matter will be addressed as required as part of subdivision applications.

2.9.3 BASIC RAW MATERIALS

State Planning Policy (SPP) 2.4 Basic Raw Materials (BRM) (WAPC 2021) provides a policy framework to ensure BRM and extractive industries matters are considered during planning and development decision-making, to facilitate the responsible extraction and use of the State's BRM resources. No SPP 2.4 Significant Geological Supplies (SGS) or extraction sites are mapped within the site. The nearest SPP 2.4 SGS is approximately 5km south-east of the site, part of which is subject to active sand resource extraction.

Large areas immediately east of the site are mapped within a SPP 2.4 'extraction site'. Two existing sand quarries currently operate within a small portion of the mapped SPP 2.4 'extraction site', one approximately 0.9 km east of the site and the other approximately 1.2 km south-east of the site.

The EPA (2005) recommends a generic separation distance of 300-500 m between sensitive land uses and extractive industries – sand and limestone. This matter will be addressed as required as part of subdivision applications.

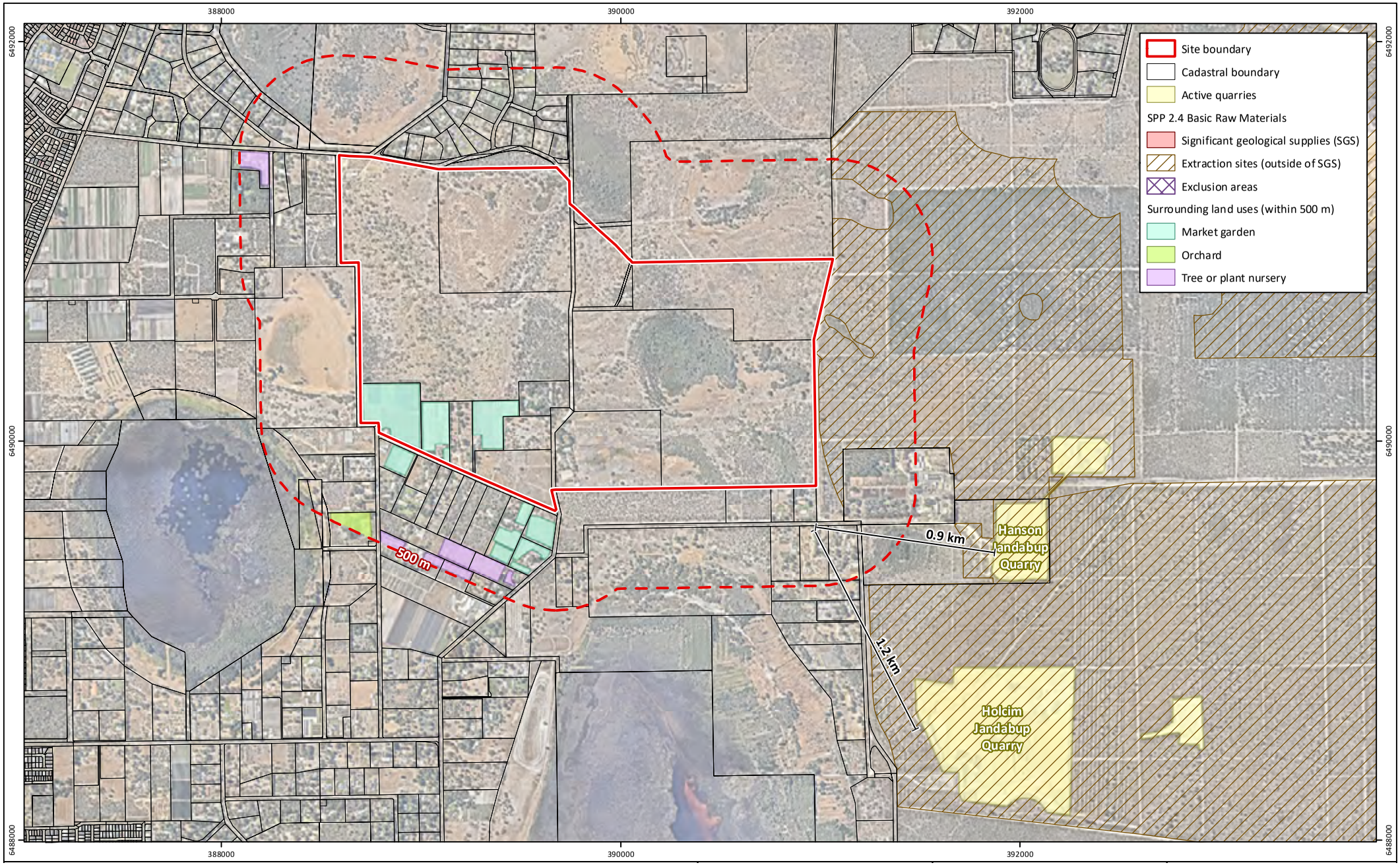


Figure 15 - Surrounding Land Uses (Source: Emerge)

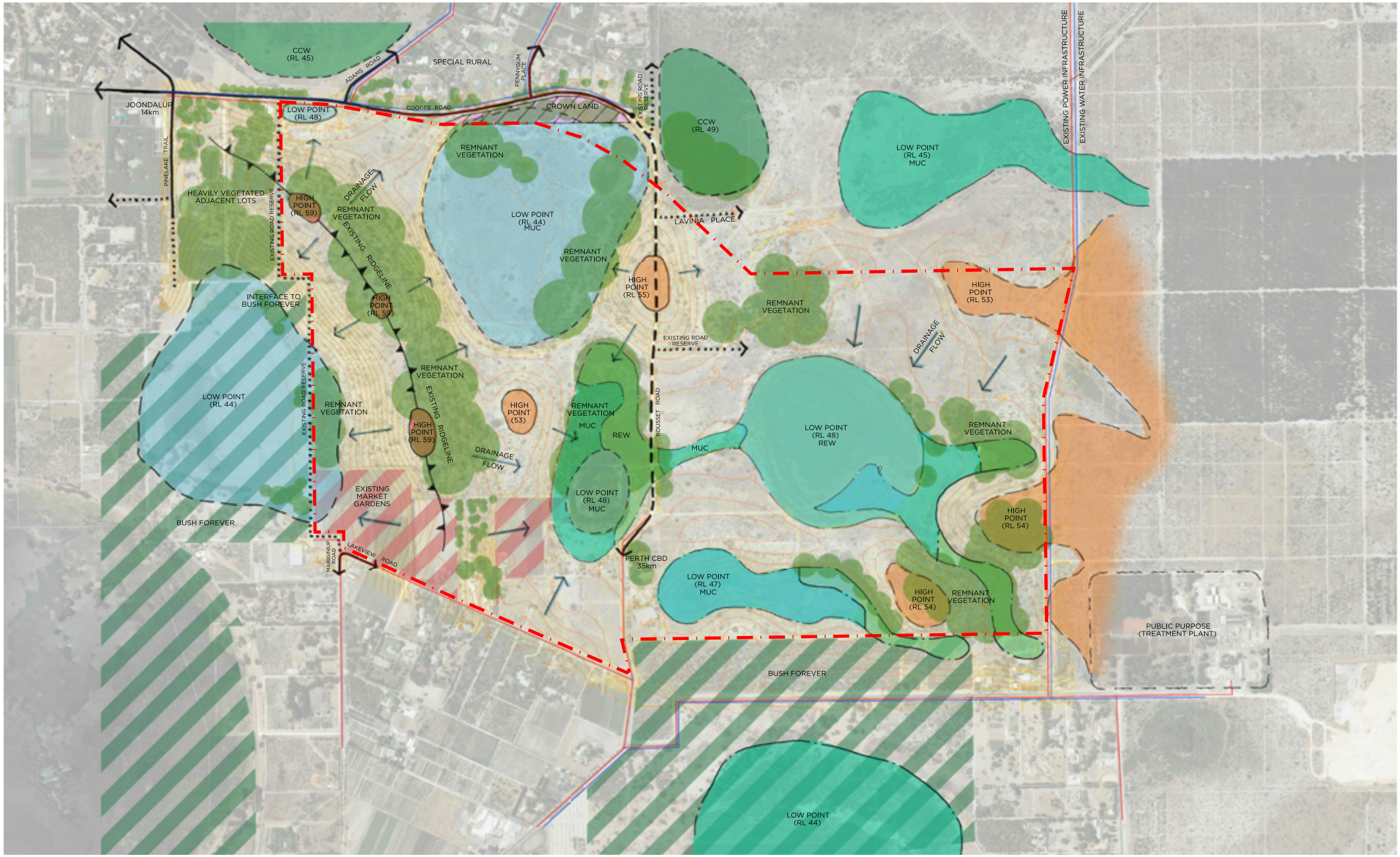


Figure 16 - Site Analysis Plan

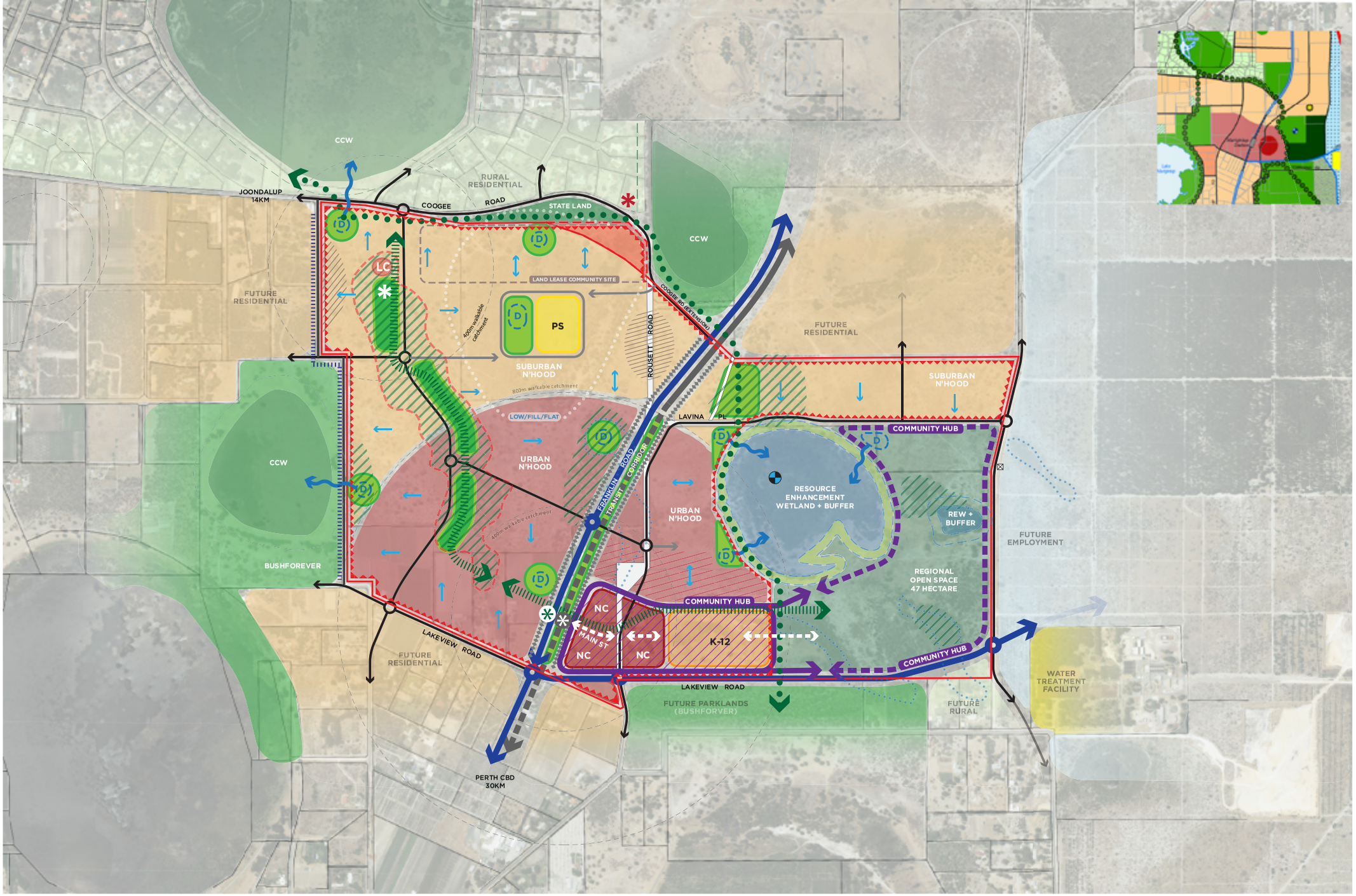


Figure 17 - Opportunities and Constraints Plan

2.10 OPPORTUNITIES AND CONSTRAINTS

An Opportunities and Constraints Plan has been prepared to inform the planning and design of the Structure Plan (refer **Figure 16 & 17**). The identified opportunities and constraints are listed in **Table 4** below:

Table 4 - Opportunities and Constraints

OPEN SPACE & DRAINAGE		
Plan Reference	**Opportunity/ Constraint**	**Comment**
1.	Opportunity	Major opportunity to retain the natural topography (north-south ridgeline) and protect significant existing jarrah trees within key open space linkages and road reserves – **Creating a strong sense of place which builds upon the natural features of the are**a.
2.	Opportunity	Opportunity to provide a strong pedestrian/cycle pathway along the retained ridgeline through to the transit station/ neighbourhood centre and connecting up with the 'parkland linkage', ultimately creating a pedestrian/cycle circuit throughout the entire structure plan area – **Creating a strong sense of place which builds upon the natural features of the area**.
3.	Opportunity	The retained ridgeline will offer long views and vantage points towards the natural REW and surrounding lakes – **Creating a strong sense of place which builds upon the natural features of the area**.
4.	Opportunity	The eastern side of the development is characterized by a large REW, and smaller REW further east, that will be enhanced through revegetation while retaining a number of significant Flooded Gum and Melaleuca trees – **Creating a strong sense of place which builds upon the natural features of the area**.
5.	Opportunity	Opportunities to locate Public Open Spaces at natural low points to assist with co-locating drainage whilst retaining existing vegetation.
6.	Opportunity	Opportunity to co-locate open space/drainage (at natural low point) with 3.5-hectare primary school.
7.	Opportunity	General drainage direction informing location of POS/Drainage areas and orientation of street blocks.
8.	Opportunity	Opportunity to outflow larger storm-event drainage into adjacent CCW/REW areas.
9.	Opportunity	Opportunity to strengthen the (DSP) Parkland Linkage within open spaces, REW buffers and regional open space.
10.	Constraint	Retention of existing MUC and REW areas at risk due to containing degraded vegetation, whilst being compromised by planned DSP infrastructure.
11.	Constraints	CCW buffers encroaching into existing road reserves to be considered.
12.	Opportunity	Fauna/Pedestrian overpass/underpass to be considered: • Size, location and functionality of public open space areas to be considered.

LANDUSE		
Plan Reference	**Opportunity/ Constraint**	**Comment**
13.	Opportunity	Opportunity to create a mixed-use Neighbourhood Centre adjacent to the Transit station, creating a vibrant shopping and community core that services the daily needs of the local residents. Considerations include: • Retail core to be approximately 5 hectares in area with around 6,000m² (net) of commercial floor area including community facilities. • Highly activated main street, extending into the transit station, to support a mix of uses and small-scale businesses at street level. • Highway commercial land uses located along Lakeview Road benefiting from high exposure, being essential for commercial success. • Park and Ride site to be carefully integrated within the Neighbourhood centre, to minimise effect on walkable catchment. • Transit orientated development supports medium-high density residential/mixed-use development on the periphery of the centre.
14.	Opportunity	Opportunity to co-locate second Primary School with High School into one consolidated K-12 site, leveraging off the amenity of the adjacent neighbourhood centre and regional sporting facilities, with the aim of sharing facilities with both.
15.	Opportunity	Regional scale sporting fields, providing the community with signification facilities, offering a unique setting and opportunity for interaction and education – **Creating a strong sense of place which builds upon the natural features of the area**.
16.	Opportunity	Opportunity to ultimately create an extensive and vibrant 'Community Hub' by co-locating, consolidating and optimising synergies between the following land uses - retail, education services, civic/community uses and regional sporting facilities/ recreation nodes. A strong east-west pedestrian connection to be promoted from the transit station through to the recreational facilities further in the east, supported by the main street and retail core, civic and community uses and educational services (K-12).
17.	Opportunity	Opportunity to locate Primary School on flat land and central to the western school catchment, whilst optimising connectivity & walkability to the surrounding area.
18.	Opportunity	Linear strip of State Land providing a parkland 'buffer' between Coogee Road and proposed 'Suburban neighbourhood' development, whilst providing an opportunity to strengthen the parkland linkage.
19.	Opportunity	Opportunity to create a local activity node (off Coogee Road) by co-locating a local commercial use (e.g. café, sales office or other) with a landmark entry parkland, exploiting synergies between the two land uses, ultimately fostering the local community and creating a sense of place.
20.	Opportunity	Potential provision of Land Lease Community site, providing opportunity for additional housing affordability and diversity, whilst boosting the precincts population.

MOVEMENT		
Plan Reference	**Opportunity/ Constraint**	**Comment**
21.	Opportunity	'Transport Corridor' alignment (as per EWDSP) with Transit Corridor located on southern side to enable transit station to be adjacent to Neighbourhood Centre.
22.	Opportunity	Existing roads (Coogee, Lakeview and Rousett) providing legal road frontage access to site.
23.	Opportunity	Opportunity to realign DSP Coogee Road along existing alignment and extend through to integrator, diverting higher traffic volumes around low-key suburban neighbourhood.
24.	Opportunity	Opportunity to realign DSP Neighbourhood Connector along 'jarrah ridge' optimising driver/pedestrian experience.
25.	Opportunity	Opportunity to realign DSP Neighbourhood Connector to prioritise connection to eastern site boundary, maximising alignment within existing road reserves (Rousett and Lavina), regularise residential development and optimise exposure to regional open space.
26.	Opportunity	Opportunity to landscape over sunken Rail line/reserve improved green amenity and pedestrian/cycle movement.
27.	Opportunity	Opportunity for DSP Neighbourhood Connector to provide good connectivity to/from Primary School.
28.	Opportunity	Opportunity to introduce Neighbourhood Connector to provide improved accessibility across Franklin Road (Integrator) to amenity east of transport corridor.
29	Constraint	Roundabouts to be generally located at intersections of integrator and neighbourhood connectors, whilst being mindful of impeding pedestrian/cycle permeability.
30.	Constraint	Interface to Transport Corridor to be considered in relation to both acoustics and lot/road access
31.	Constraint	Access and circulation to Primary and K-12 to be provided/ considered.
32.	Opportunity	Opportunity for a strong pedestrian connection from transit station and pedestrian focused main street, past K-12 to the regional sporting fields to the east.
33.	Opportunity	Opportunity to utilise existing road reserves (Rousett and Lavina) to avoid lengthy and costly road closure processes. Road closure of (portion of) Rousett Road inevitable to achieve a regular urban structure. • The development will be connected through a network of pedestrian and dual-use paths, promoting an active lifestyle and integrating the development across both sides of the railway reserve.

BUILT FORM

Plan Reference	Opportunity/ Constraint	Comment
34.	Opportunity	DSP 'Suburban Neighbourhood' generally located outside 800m of Transit Station/Neighbourhood Centre, to provide low to medium density housing. DSP states minimum target of 15 dwellings per gross hectare.
35.	Opportunity	'Urban Neighbourhoods' generally located within 800m of Transit Station/Neighbourhood Centre, to provide medium to high density housing. DSP states minimum target of 20 dwellings per gross hectare, providing opportunity to deliver housing affordability and diversity.
36.	Opportunity	Opportunity to provide additional medium to high density housing adjacent to Neighbourhood Centre. DSP states minimum target of 25 dwellings per gross hectare, providing further opportunity to deliver housing affordability and diversity.
	Opportunity	Opportunity to realign DSP Neighbourhood Connector along 'jarrah ridge' optimising driver/pedestrian experience.

GENERAL

Plan Reference	Opportunity/ Constraint	Comment
37.	Opportunity	Opportunity for minor amendment to Precinct 15 boundary, to align with boundary of Parent Lot 1673.
38.	Constraint	Wellhead and associated WHPZ (300m buffer) to sensitive uses to be considered.
39.	Opportunity	Opportunity for road interface to periphery of site, wetland buffer, retained vegetation, etc to mitigate against bushfire threat.
40.	Opportunity	Proposed water main infrastructure within existing road reserve along western edge of site, to be considered.
41.	Constraint	Natural high points subject to earthworks.

3. LOCAL SENSE OF PLACE STATEMENT

A Local Sense of Place Statement has been developed for Precinct 15 and reflects the vision and the District Sense of Place Statement for East Wanneroo that has been developed by the City of Wanneroo. The Local Sense of Place Statement outlines how protection of the environmental, cultural and historical elements of Precinct 15 will be balanced with future development to establish a sense of place.

3.1 PRECINCT 15 CHARACTERISTICS

Precinct 15 is characterised by connections to bush and green spaces and a rural history of agriculture, cattle grazing and cultivating the land. The area has a village, small country town feel underpinned by a laid back lifestyle. The existing natural environment will be critical to create the sense of place, significant existing trees will be protected, topography will be retained and connections to wetlands will be strengthened.

The land has a gentle undulating landform with a predominant north-south ridgeline located on the western portion of the site. On the eastern portion of the site, the land is characterised by two low lying areas.

An existing ridgeline in the western area of Precinct 15, populated with large Jarrah trees, will be largely retained as public open space. The topography and significant existing trees (some in excess of 20m tall) will make this a prominent aspect of the development and will offer views and vantage points to the eastern wetland and Mariginiup Lake. Amongst the ridge line it is proposed to develop multiple shelters and picnic opportunities for community gatherings as well as playgrounds targeted at all age groups. The ridge line will be a feature of the development, offering opportunities for various user groups within a natural setting. The development will be connected through a network of pedestrian and dual-use paths, promoting an active lifestyle and integrating the development across both sides of the railway reserve.

The eastern side of the development is characterized by a large wetland that will be enhanced through revegetation while retaining a number of significant Flooded Gum and Melaleuca trees. Surrounding the wetland will be a regional scale sporting complex, offering a unique setting and opportunity for interaction and education The connection to the wetland will be celebrated, with boardwalks, loose gravel trails and interpretive signage explaining the history of the site from an Indigenous and colonial perspective as well as educational signage regarding native flora and fauna. This ensures the development has a strong connection with the surrounding existing environment both visually and culturally.

Sustainability will be a major component of the design over Precinct 15. This will be visually evident in the development through water management and conservation of the natural assets. As the new development introduces a range of modern materials these will be underpinned with a palette of earthy tones and the use of materials that reference the natural environment. Material choices will strongly reflect the existing Mariginiup character, use of crushed limestone, recycled timber and rural materials salvaged from site throughout the public realm shall compliment existing trees and landforms being retained.

The planting palette will contain predominately native and endemic species, the species will be selected in the context of the existing environment. The site also contains thousands of Grass Trees, which will be retained where possible and if not possible will be transplanted within public open space. This will create a sense of character within the development, reflective of the natural landscape.

The Structure Plan responds to the relevant place outcomes identified by EWDSP including:

- Parkland link,
- Regional playing fields,
- Large wetland feature,
- Neighbourhood centre,
- Railway and rail station, and
- High school.

The Parkland Link is part of a network that is of critical importance to East Wanneroo to ensure the wetlands, native vegetation and land forms are retained, and tell the story of the place. The Parkland Link in Precinct 15 will connect Lake Adams to the north with Lake Jandabup to the south. To maximise sense of place, the parkland links is proposed to be separate from on-road networks and connected to the open space network, however they may be adjacent to the road where this supports vegetation retention alongside road reserves.

The Structure Plan proposes the co-location of many community facilities – rail station, neighbourhood centre, high school and regional playing fields. Co-located community facilities tell the story of the local place through its design and surrounding public realm. These facilities and places will be focal points for the community and will deliver the sense of place for the area.

The Structure Plan incorporates the following elements that will contribute to the creation of a strong sense of place:

- Integrating POS with legibility, recreation, movement networks, tree and habitat conservation and WSUD
- Providing a range of recreational experiences through a hierarchy of POS and integrated with green links.
- Responding to key environmental and topographical features of the site,
- Design to create distinctive neighbourhoods/ villages defined by:
    - Clear edges and boundaries;
    - Distribution of POS provision;
    - Landscaping and tree retention; and
    - Built form and density.

4. LAND USE AND SUBDIVISION REQUIREMENTS

4.1 LAND USE

The Structure Plan provides the framework for urban development at a level of detail that builds upon and refines the principles of the EWDSP whilst also remaining flexible in recognition of more detailed stages of planning as part of subdivision design.

The Local Structure Plan is included at **Figure 18**. It proposes the following land uses:

- Residential ranging from R25 to R80 in density
- Neighbourhood Centre
- Parks & Recreation Reserve (Regional Playing Fields / Regional Open Space)
- K-12 High school
- Primary School & co-located public open space
- Parkland Link
- Transit corridor - future railway line and regional road
- Railway station
- Additional Use – Local Centre
- Rural land with Tourism Opportunities
- Major road networks

An Illustrative Master Plan has been prepared to demonstrate how development could occur based on the principles and requirements of the LSP (refer **Figure 19**). It is important to note that the Master Plan represents only one way future development could occur. The design and lot layout will likely be refined at the time of subdivision.

Table 5: Land Use Summary

Land Use	Area (ha)
Residential	185
Neighbourhood Centre	6.5
Parks & Recreation Reserve	74.5
K-12 School	8
Primary School	3.5
Transit Corridor	8.87
Rural – Tourism Opps	1.15

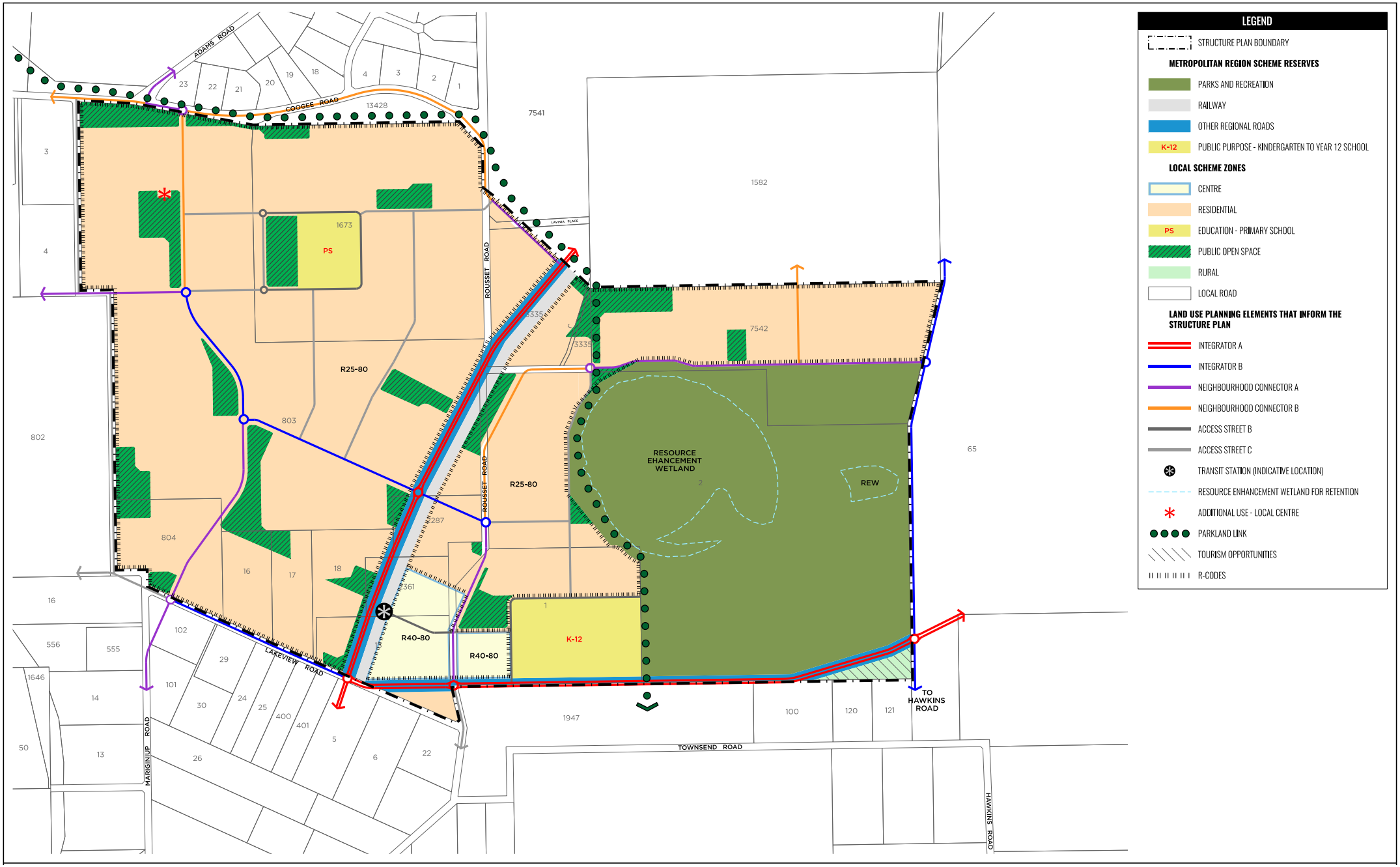


Figure 18 - Local Structure Plan Map

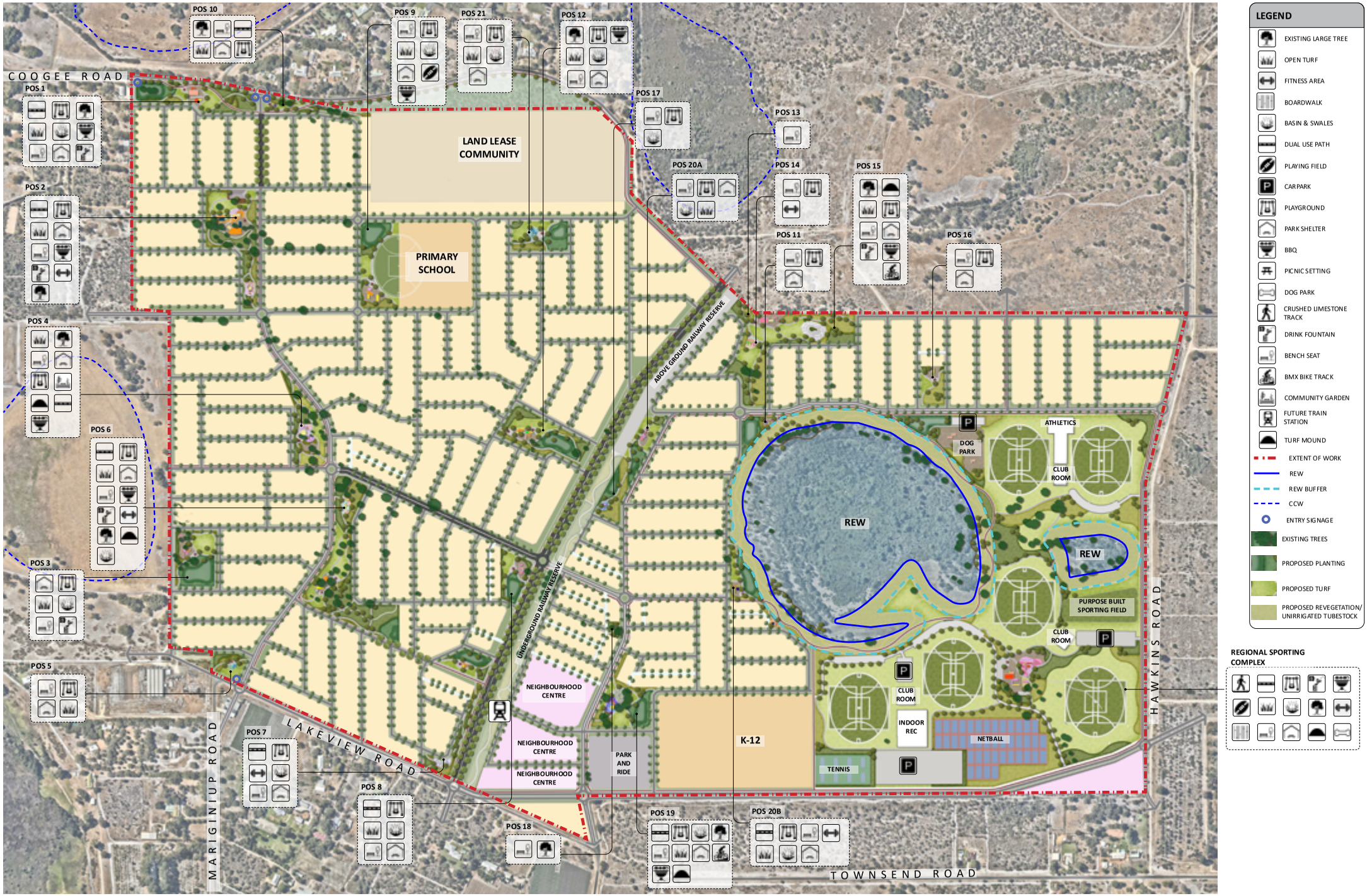


Figure 19 - Illustrative Master Plan (Source: Emerge)

4.2 RESIDENTIAL

A residential density range of R25 – R80 is proposed across the Structure Plan, with the exception of the Neighbourhood Centre which has a R40-R80 density range allocated. It is intended that the highest densities are located in proximity to the future train station, proposed neighbourhood activity centre and the regional open space. This is proposed to be controlled via location criteria included in Part 1.

A broad R Code range over the majority of the Structure Plan area is proposed in order to provide the necessary flexibility for subdivision design to respond to market demand and other issues as they arise over a development period that will likely be more lengthy than other structure planning areas. Comprehensive locational criteria are included in Part 1 of this Structure Plan that will guide how the higher densities can be applied over the site during the subdivision process. Part 1 of this Structure Plan also outlines the requirement for a Residential Code Plan to accompany a subdivision application. The Residential Code Plan will nominate the R Code for all proposed lots, and the Residential Code Plan is approved by the WAPC as part of the subdivision.

The EWDSP provides for a large area of 'Urban neighbourhood' in the southern area of Precinct 15 surrounding the activity centre and the future train station. The balance of the residential areas are nominated as 'Suburban neighbourhood' by the EWDSP. The EWDSP nominates the 'Urban neighbourhood' as medium to high density with R codes ranging from R25 – R-AC4, whilst 'Suburban neighbourhood' is nominated as low to medium density with R Codes ranging from R5 – R60. The R Codes proposed by the Structure Plan generally align with that provided for by the EWDSP in regard to 'Urban neighbourhood' and 'Suburban neighbourhood'.

This Local Structure Plan facilitates both higher density and lower densities, with the location of higher density to be guided by locational criteria. It is proposed that the higher density areas are provided for in areas surrounding the train station, neighbourhood centre and regional open space / playing fields.

4.2.1 DWELLING YIELDS AND DENSITY TARGETS

The Structure Plan provides for an estimated dwelling yield of 3,200 – 3,500 dwellings. The broad district level of planning undertaken as part of the EWDSP identified a dwelling yield of 3,800 dwellings within Precinct 15. More detailed land use planning undertaken as part of this Structure Plan has resulted in a slightly reduced dwelling yield due to greater certainty in land areas required for specific non-residential land uses. Based on an average of 2.9 persons per dwelling, the Structure Plan is likely to accommodate a future population of between 9,000 – 10,000 people.

Consistent with the EWDSP, the Structure Plan nominates a density target of 15 dwelling / gross urban hectare across the Structure Plan area, and targets higher densities of 20 -25 dwellings/ gross urban hectare in areas within 200m of the future train station and neighbourhood centre.

4.3 LAND LEASE COMMUNITY

The Illustrative Master Plan shows a potential Land Lease Community at the northern boundary of Precinct 15, This is an over-50's lifestyle community concept that differs from traditional models of retirement housing. These lifestyle communities are exclusively for owner-occupiers aged over 50. Residents purchase a stand-alone home and sign a lease (site agreement) to pay rent (site fees) on the freehold land on which the home sits. The land remains the property of Stockland. Owners hold their land lease in perpetuity, meaning the lease agreements lasts as long as their ownership. The site agreement provides a contractual right to occupy the land and gives residents non-exclusive use of the community's common areas and communal facilities.

Land lease communities are very popular overseas and in other Australian states, with more than 900 such communities already successfully operating in Australia. The community is designed to look very similar to a regular suburban development.

4.4 NEIGHBOURHOOD CENTRE

Consistent with the EWDSP, a Neighbourhood Centre is proposed to be located immediately east of the future train station. The location of the Neighbourhood Centre will provide it with good exposure and accessibility for residents within the East Wanneroo area. The location at the corner of Lakeview and Franklin Roads (both integrator arterial roads) maximises passing trade opportunities.

The Neighbourhood Centre encompasses an area of approximately 6.5 hectares. The EWDSP identifies this neighbourhood centre as accommodating in the order of 6,000m^2 of

total commercial floorspace. This encompassing approximately 4,200m^2 shop/retail floorspace, with the balance 1,800m^2 accommodated by office uses. It is anticipated that the neighbourhood centre will deliver community, education and health services as well as a residential component. It is estimated that a 6,000m^2 neighbourhood centre will be viable by 2030 based on expected population growth and spending in the catchment.

The layout of the neighbourhood centre shown on the Illustrative Master Plan was largely based on the six principles of economic activation:

- Purpose of place,
- Access – arrival points,
- Origins – car parking and transport nodes,
- Exposure – pedestrian movement,
- Destinations - major attractions, and
- Control – strategic sites.

The key element is the location of the neighbourhood centre between the future railway station and the Park & Ride facility and High School and the definition of a strong "main street" through the neighbourhood centre connecting these land uses. This will bring people through the neighbourhood centre to access the train station and maximise the potential vibrancy of the centre and supports walkability for multi-purpose trips. Further detail regarding the six principles of economic activation is included in the Precinct 15 East Wanneroo Economic Development and Employment Report prepared by Pracsys (refer **Appendix 5**).

Prior to subdivision or development of the Neighbourhood Centre, a Precinct Plan is to be prepared for the Neighbourhood Centre (land shown in the Centre Zone on **Plan 1 – Structure Plan Map**) and endorsed by the WAPC. This is required to provide built form and public realm design guidance.

4.5 LOCAL CENTRE

The Structure Plan provides for an 'Additional Use – Local Centre' at the north western area of the site. The intent is to allow for local centre land uses to be developed within the initial stages of residential development to service the emerging residential community. Land uses envisaged would include convenience store, office, restaurant/café and shop. This area is likely to be the first stage of subdivision and development and therefore such uses could be integrated as part of a sales centre development that will service the land release programme within Precinct 15.

4.6 EDUCATION FACILITIES

Based on the estimated dwelling yield of 3,200 – 3,500 dwellings, the Structure Plan area is required to provide 2 primary schools and 1 high school.

The Structure Plan proposes one primary school and one co-located primary school and high school site (K-12), this achieving one high school and 2 primary schools. It is noted that the EWDSP indicates that three (3) primary schools may be required within Precinct 15. However, consultation with the Department of Education during the preparation of the Structure Plan has confirmed that the provision of 2 primary schools is adequate based on the estimated dwelling yield.

4.6.1 K-12 SCHOOL

The EWDSP requires a high school to be provided within Precinct 15 with an indicative site located north west of the future railway station and neighbourhood centre. An alternative location for the high school is proposed in order to encapsulate the opportunity to co-locate the high school with the regional playing fields and provide for sharing of facilities and infrastructure across these two land uses.

The high school is proposed as an 8 hectare co-located primary and high school site (K-12). The K-12 school is to be located abutting the Regional Playing Fields at the southern boundary of Precinct 15, adjacent to Lakeview Road.

It is noted co-located primary and high school sites are expected to be provided at 10 – 12 hectares in area. However, the location of this K-12 school site immediately adjacent to the regional playing fields enables the school site area to be reduced as the school can use the Regional Open Space as its oval space during school hours when the space is not utilised by the public.

It is noted that the location of schools adjacent to retail activity center is not preferred by the Department of Education. Accordingly, the proposed high school site will be separated and buffered from the proposed Neighbourhood Centre with the medium density residential or a Park & Ride area should the rail proceed (refer **Figures 18 and 19**).

It is noted that the EWDSP shows the indicative location of the high school with Suburban Neighbourhood whilst the Local Structure Plan proposes the high school within an EWDSP Urban Neighbourhood area. However, the Structure Plan provides for higher densities in the Neighbourhood Centre and immediate surrounds and also provides for higher densities, up to R80, in all other areas which can be designed into subdivisions based on the locational criteria included in Part 1 of this Structure Plan. Therefore, it is submitted that the proposed location of the high school will not prejudice the ultimate provision of 'Urban neighbourhood' densities within the Local Structure Plan area in the appropriate spaces based on locational criteria that espouse orderly and proper planning.

Consultation has occurred with the Department of Education and the Department of Planning, Lands and Heritage regarding the proposed location of the high school. In principle support has been received from both stakeholders to co-location of the high school adjacent to the regional playing fields in the interests of achieving efficient land use synergies and providing logical opportunities to share facilitates and infrastructure. Preliminary consultation has also been undertaken with the Department of Education in regard to the proposed K-12 school format and this will continue during the advertising and assessment stages of this Local Structure Plan.

4.6.2 PRIMARY SCHOOL

A second primary school is proposed in the north western portion of the Structure Plan area. The site is proposed at 3.5 hectares and is shown to be co-located with an adjacent area of public open space. The primary school is central to the residential area and will be provided with road frontage on all sides.

4.7 TREE RETENTION

Tree retention along the natural ridgeline has been the key focus during the Structure Plan design. The Structure Plan design allows for the retention of the natural ridgeline and protection of these trees within public open space(s) and appropriate road reserves. The intention is to retain and protect these significant trees to the extent that is practical and feasible at subdivision design. These trees will make a most significant contribution to the local sense of place at Precinct 15, as discussed at Section 3.1.

4.8 REGIONAL PLAYING FIELDS/ OPEN SPACE

As required by the EWDSP, the Structure Plan provides 74.5 ha of Regional Playing Fields and Open Space at the south eastern corner of Precinct 15. This includes approximately 47 hectares of space for Regional Playing Fields and the balance of space for Regional Open Space and the protection of the large resource enhancement wetland. This land will ultimately be reserved under the MRS for Parks & Recreation as part of a MRS Amendment for public lands, following approval to this Structure Plan.

This space contains a large Resource Enhancement Wetland (REW) in the north western corner which is to be retained. The smaller REW in the eastern area can also be retained as part of the space, subject to detailed design and the priority need for this space to function as regional playing fields.

The Illustrative Masterplan (**Figure 16**) provides an indicative layout. The sporting facilities shown are consistent with those listed within the City of Wanneroo's East Wanneroo Community Facilities Plan.

4.9 PUBLIC OPEN SPACE

The Structure Plan (**Figure 18**) establishes a framework for the delivery of 10% public open space (POS) that can serve a variety of functions balancing active and passive recreational pursuits and delivering key drainage functions. POS areas are well distributed and designed to create local amenity and identity. The location and form of the POS areas have also be determined taking into consideration retention of mature trees.

Variations to the location, size and function of POS areas can be considered as part of subdivision applications and in response to detailed design processes.

4.9.1 PUBLIC OPEN SPACE SCHEDULE

Based on the Illustrative Masterplan, a POS Plan has been prepared order to demonstrate the delivery of 10% POS across the Structure Plan area (refer **Figure 19**). A POS Schedule has been prepared incorporating drainage requirements embedded in the Local Water Management Strategy (refer **Figure 20 - POS Schedule**). The Schedule demonstrates compliance with the 10% creditable POS requirement in accordance with Liveable Neighbourhoods guidance and

WAPC's Development Control (DC) *Policy 2.3 Public Open Space in Residential Areas*.

The POS Schedule will be continually reviewed during more detailed subdivision and engineering design stages, as drainage provision, earthworks and nett residential development cells are further adjusted.

4.9.2 PARKLAND LINK

Consistent with the EWDSP, a Parkland Link has been provided generally aligning with the northern boundary of the Structure Plan area, then running southwards along the western boundary of the retained wetland and proposed regional playing fields. It links the conservation category wetlands to the north of the site with the wetland and regional playing fields within the Structure Plan area. The link will take the form of landscaped boulevard style roads and linear pedestrian and cyclist movement networks within public open spaces to enhance the amenity and connectivity through the Structure Plan area.

4.9.3 FORESHORE STRATEGY

A Foreshore Strategy has been prepared as part of the Environmental Assessment Report prepared by Emerge (refer **Appendix 1**). The foreshore areas include:

- Wetland core areas;
- Wetland buffer areas; and
- Public open space areas adjacent to wetland buffers.

The Foreshore Strategy describes the proposed function, intended land uses and infrastructure, conservation areas and management approach for the foreshore areas.

4.9.4 POS MASTERPLAN

A POS Masterplan has been prepared by Emerge to provide a conceptual landscape layout and spatial activity plan for the Regional Playing Fields and all POS areas (refer **Appendix 6**).

The POS Masterplan rationalises the POS land areas, POS hierarchy, required drainage provision and suggested landscape form and intended long term development. An indicative layout is shown across the regional playing fields, all local POS areas and the underground train corridor.

PUBLIC OPEN SPACE SCHEDULE (Ha.) MARIGINIUP - PRECINCT 15 (based on Plan STOMA-1-010M)		
Precinct 15 Gross Area		
TOTAL Tranch 1 (Stockland Landholding)		121.294
TOTAL Tranch 2 (Balance)		186.698
Total Precinct 15 Gross Area		307.992
ADD Area outside of Precinct 15 - Lot 1673 (part of)		2.545
Gross Site Area		310.537
Minus Deductions		
Neighbourhood Centre		4.761
Sales/Café Site		0.080
Park and Ride		1.784
Land Lease		12.468
Employment Area		0.000
Regional Sporting Fields (RSF) Area - excludes small and large REWs + buffers		44.764
REW Core (larger REW)		20.203
REW Core (smaller REW)		1.207
Transport Corridor (29.5m Rail Reserve)		3.816
Transport Corridor (40.5m Integrator Arterial Road - Franklin Road Extention)		5.052
Other Regional Road (Lakeview Road)		3.709
One (1) Primary School		3.500
One (1) K-12		8.000
Rural		1.154
(part) Lot 44 (reserve through POS 14)		0.151
Lavinia Road Reserve		0.000
Rousset Road Reserve (minus road closure)		2.940
First 15mm Bioretention Basin Area (Pentium 1m/day infiltration - 7 June 2023)		1.590
Surplus Restricted Open Space		
20% AEP exclusive of first 15mm Bioretention Basin Area (Pentium 1m/day infiltration - 7 June 2023)	2.173	
REW Buffer (larger REW)	6.7010	
REW Buffer (smaller REW)	1.6200	
Total Surplus Restricted Open Space		10.494
Total Deductions		125.673
Gross Subdivisible Area		184.865
Maximum 2% Restricted POS Permitted		3.697
Minimum 8% Unrestricted POS Required		14.789
10% POS Requirement		18.486

RESTRICTED POS Provided	
REW Buffer	0
20% AEP exclusive of First 15mm Bioretention Basin Area (Pentium 1m/day infiltration - 7 June 2023) (maximum 2% Restricted POS)	3.697
Creditable Restricted POS Provided	**3.697**
Surplus 20% AEP exclusive of first 15mm Bioretention Basin Area (Pentium 1m/day infiltration - 7 June 2023)	**2.173**

TOTAL POS Provided

POS Area	Gross POS Area	Pentium Drainage (7 June 2023)			Creditable Restricted POS (20% AEP)	Creditable Unrestricted POS	TOTAL CREDITABLE POS
		First 15mm Bioretention Basin Area	20% AEP Drainage (incl.Bio)	20% AEP Drainage (excl. Bio) [1]			
POS 1	1.431	0.175	0.175	0.000	0.000	1.256	1.256
POS 2	2.022					2.022	2.022
POS 3	1.322	0.268	0.268	0.000	0.000	1.053	1.053
POS 4	1.134					1.134	1.134
POS 5	0.366					0.366	0.366
POS 6	2.945	0.035	0.463	0.428	0.269	2.482	2.751
POS 7	1.173	0.108	0.580	0.472	0.298	0.593	0.891
POS 8	0.660	0.114	0.552	0.438	0.276	0.108	0.384
POS 9	1.819	0.167	1.600	1.434	0.903	0.219	1.122
POS 10	0.423	0.000	0.000	0.000	0.000	0.423	0.423
POS 11	0.446	0.121	0.121	0.000	0.000	0.325	0.325
POS 12	1.401	0.167	1.230	1.064	0.670	0.171	0.841
POS 13	0.149					0.149	0.149
POS 14	0.600					0.600	0.600
POS 15	1.921					1.921	1.921
POS 16	0.494					0.494	0.494
POS 17	0.448	0.067	0.423	0.356	0.224	0.025	0.249
POS 18	0.102					0.102	0.102
POS 19	1.281	0.121	1.041	0.920	0.579	0.240	0.819
POS 20A	0.633	0.035	0.246	0.211	0.133	0.387	0.520
POS 20B	0.827	0.135	0.135	0.000	0.000	0.692	0.692
POS 21	0.900	0.077	0.626	0.549	0.346	0.274	0.620
TOTALS	**22.496**	**1.590**	**7.461**	**5.871**	**3.697**	**15.035**	**18.732**
					PERCENTAGE POS PROVIDED		**10.13%**
						POS Surplus	**0.2458**

[1] >First 15mm Bioretention from POS catchment 1, 3, 11, 16 & 20B to overflow into adjacent REW/CCW/13428.

Figure 20 - POS Schedule

Figure 21 - Public Open Space Provision Plan

4.10 MOVEMENT NETWORK

A Transport Impact Assessment has been prepared by Transcore, refer **Appendix 7**. The Transport Impact Assessment demonstrates that Precinct 15 can be supported by the movement and traffic network depicted on the Structure Plan. This section provides a summary of the key elements of the Transport Impact Assessment including details of the existing and proposed road networks, the road hierarchy and traffic generation. Further consideration is also given to public transport, cyclist and pedestrian network provision.

4.10.1 EXISTING ROAD NETWORK

The existing road network within and abutting the Precinct 15 comprises the following:

Coogee Road is an east-west road that abuts the northern boundary. It is constructed as a two-lane rural road with sealed width of approximately 6m and unsealed shoulders. It terminates as a cul-de-sac near the Rousett Road reserve.

Rousset Road is a north south road that traverse through the centre of Precinct 15. It extends northwards from the Franklin Rd / Caporn St intersection as a two-lane rural road with sealed width of approximately 6m and unsealed shoulders. The sealed section of Rousset Road ends approximately 500m north of the Lakeview Road intersection. The remainder of Rousset Road is an unsealed road.

Lakeview Street abuts the southern boundary. It is constructed as a two-lane rural road with sealed width of approximately 5.5 to 6m and unsealed shoulders.

4.10.2 DISTRICT STRUCTURE PLAN ROAD NETWORK

The EWDSP provides an overall plan to ensure coordination of future development of the subject site and the surrounding area. This structure plan respects the principles and external connections of the EWDSP to ensure that good connectivity and integration with the surrounding area are achieved.

The future arterial road network within the EWDSP area embodies the following key features that are of particular relevance to Precinct 15:

- Lenore/Franklin Road (integrator arterial) – north south arterial road running through the centre of Precinct 15;
- Lakeview Road (integrator arterial) – east west arterial road along the southern boundary of Precinct 15 from Lenore/Franklin Road to Whiteman Yanchep Highway;
- Hawkins Road (integrator arterial) – north south arterial south of Lakeview Road; and
- Boundary Road (neighbourhood connector) – eastern boundary of Precinct 15.

4.10.3 RAILWAY

The EWDSP shows a future underground / above ground railway corridor along the Lenore/ Franklin Road alignment within Precinct 15. However, it should be noted that the EWDSP also identifies an alternative alignment for this future railway line within a 22-metre median along the Whiteman Yanchep Highway located outside of and east of Precinct 15. This local structure plan provides for the Lenore/Franklin transit corridor alignment to accommodate this option pending a final decision on this future rail alignment.

4.10.4 PROPOSED ROAD NETWORK

The proposed hierarchy of roads in and around Precinct 15 is illustrated in **Figure 22**. The classification of roads is based on preliminary analysis of future traffic flows provided within the TIA (refer **Appendix 7**).

Proposed road cross-sections for the Integrator A roads are provided in the East Wanneroo District Structure Plan Road Planning Study report (11 Sept 2019). Two cross-sections for this section of Franklin Road are included at Appendix B of the TIA. Option 1 (outside of neighbourhood and district centres) has 6m median, 3.5m traffic lanes and 2m cycle lanes in a 35m road reserve. Option 5 (through the neighbourhood centre) adds two 3m parking lanes and increases the road reserve to 40.5m.

Standard cross-sections from the WAPC Liveable Neighbourhoods policy for the Integrator B, Neighbourhood Connectors and Access Streets are shown in Appendix B of the TIA.

4.10.5 TRAFFIC IMPACT AND VOLUMES

Daily traffic flows generated by the local structure plan and through traffic generated by the rest of the EWDSP area have been assigned on the proposed road network to determine future, full development, daily traffic flows. The traffic flows generated will result in approximately 32,000vpd of internal-to-external

trips or external-to-internal trips across the Precinct 15 boundary, as well as internal traffic flows between land uses within Precinct 15.

The resultant total daily traffic flows on the proposed road network are shown in **Figure 23**. The component of these total traffic flows that has an origin or destination within the structure plan area is shown in brackets.

4.10.6 *INTERSECTIONS*

The East Wanneroo District Structure Plan Road Planning Study report (2019) identifies the Franklin Road / Lakeview Road 4-way intersection and the Lakeview Road / Hawkins Road / Boundary Road 4-way intersection as future signalised intersections. The EWDSP indicates the Franklin Road / Lakeview Road 4-way intersection and the Lakeview Road / neighbourhood connector 4-way intersection as future signalised intersections but does not indicate a signalised intersection at the Lakeview Road / Hawkins Road / Boundary Road intersection. Accordingly, those two major 4-way intersections on Lakeview Road at the neighbourhood centre should be planned as signalised intersections, which will also facilitate pedestrian and cyclist movements across Lakeview Road to this activity centre.

Other major intersections on the arterial roads would either require traffic signals or a roundabout to provide sufficient capacity for right turn movements. There is generally a preference for roundabouts at these intersections unless it can be demonstrated that traffic signals would operate at a better level of service than signals. Accordingly, those other intersections will generally be indicated as roundabouts in the LSP.

Other minor 4-way intersections at intermediate locations can be treated with threshold treatments such as raised plateaus or brick-paved sections on the minor road legs to reduce speed and raise driver awareness of the intersection and the need to give way on those minor road approaches.

The location and type of intersection treatment of key intersections are shown in **Figure 24**. The results of the SIDRA analysis are summarised in Appendix C of the TIA and satisfactory intersection performance is shown for each of the intersections assessed.

4.10.7 *DIRECT ACCESS*

The WAPC Liveable Neighbourhoods policy requires that *"Development along integrator B and neighbourhood connector streets with ultimate vehicle volumes over 5,000 vehicles per day should be designed either so vehicles entering the street can do so travelling forward, or are provided with alternative forms of vehicle access."*

There is to be no direct driveway access to residential development from the Integrator A roads – Franklin Road and Lakeview Road. Driveway access to car parks for the K-12 school and regional sporting facilities would be appropriate subject to detailed design of access arrangements as part of those future development applications.

Other roads carrying more than 5,000vpd include each of the Integrator B roads and some of the Neighbourhood Connector A roads, particularly around the neighbourhood centre. Residential subdivisions along those roads would typically involve lot access via side roads or rear laneways. Another alternative suggested in Liveable Neighbourhoods involves wider lots with paired driveways and protected reversing areas in the parking lane but this would need to be coordinated by local development plans for those local areas.

All of the other roads are expected to carry less than 5,000vpd, so no restriction on vehicular access is required.

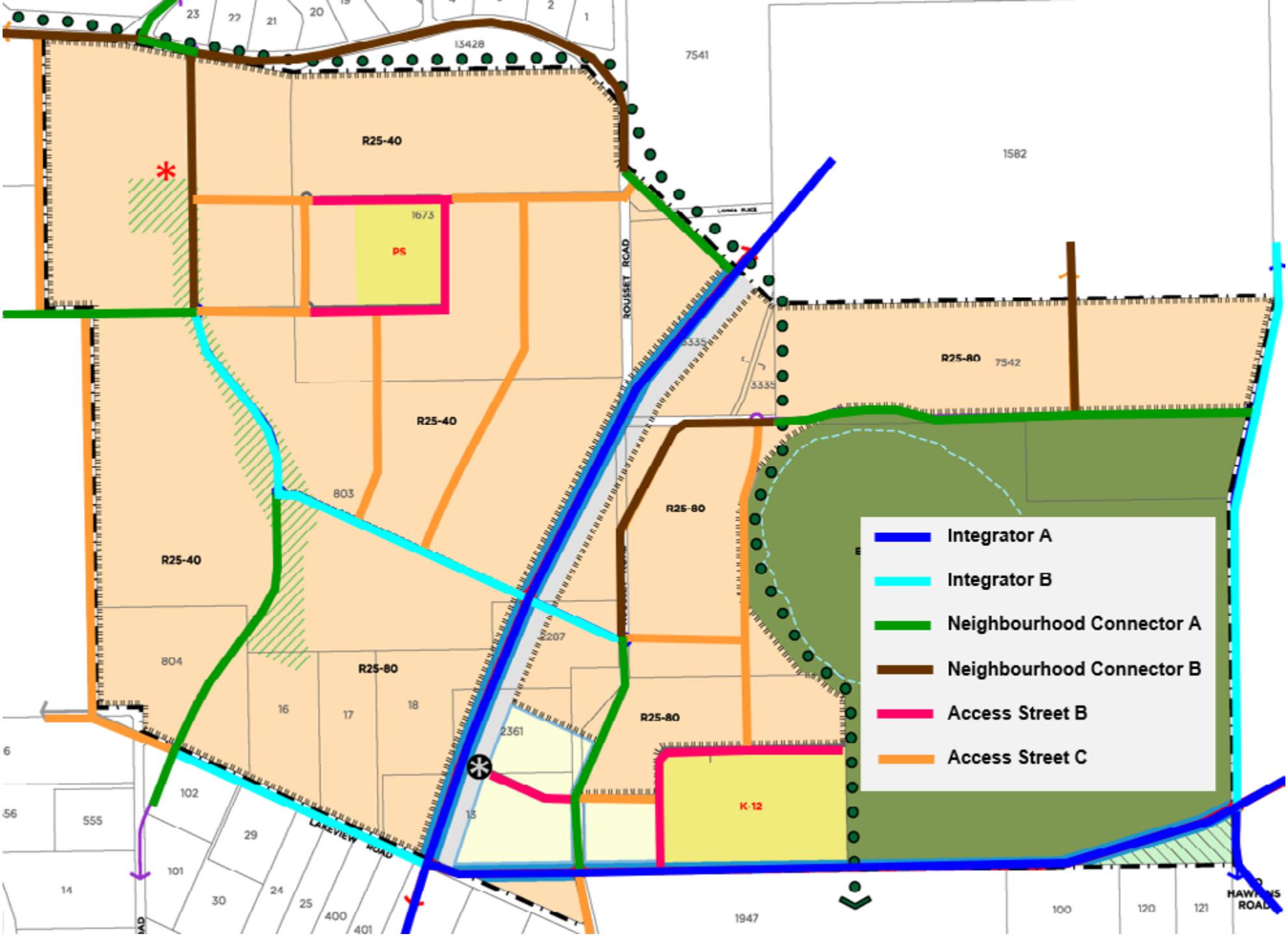


Figure 22 - Road Hierarchy (Source: Transcore)

Figure 23 - Traffic Volumes (Source: Transcore)

Figure 24 - Intersection Treatments (Source: Transcore)

4.10.8 PUBLIC TRANSPORT

The closest existing bus routes to the subject site include:

- Route 389: Perth – Wanneroo (closest stop Steven St before Dundebar Rd, Wanneroo)
- Route 390: (Joondalup Station – Banksia Grove (closest stop Joondalup Dr before Pinjar Rd, Banksia Grove)
- Route 467: Whitfords Station – Joondalup Station (closest stop Elizabeth Rd before Dundebar Rd, Wanneroo)

The closest bus stop for route 390 is approximately 2.5km west of the LSP area and the closest bus stops for routes 389 and 467 are approximately 4km southwest of the LSP area.

All of the proposed neighbourhood connectors and integrator arterial roads would have paths on both sides in accordance with Liveable Neighbourhoods guidelines, including a shared path on one side. Paths would be required on at least one side of all roads in accordance with Liveable Neighbourhoods guidelines.

The structure plan accommodates the underground / above ground railway corridor indicated in the EWDSP running north south through the middle of this precinct with a future Mariginiup Station and associated park & ride facility located adjacent to the neighbourhood centre site. This transit corridor runs along the Lenore/ Franklin Road alignment and will be the main public transport spine. The Park & Ride car park has been sized to accommodate 2,000 car bays.

All of the proposed neighbourhood connectors and integrator arterial roads would be of suitable standard to accommodate bus services through this area, providing suitable options for future feeder bus routes to the station and neighbourhood centre to service this area. This allows suitable flexibility for the Public Transport Authority to plan future bus routes within this area.

4.10.9 PEDESTRIANS AND CYCLISTS

High-level future planning for cycling facilities is now set out in Western Australia's Long Term Cycle Network (LTCN). The LTCN in the East Wanneroo area shows future primary routes, secondary routes and local routes. A primary route is planned on the north south arterial / transit corridor through the LSP area. A north south secondary route is planned on Boundary Road – Hawkins Road (eastern boundary) and an east west secondary route is planned on Townsend Road – Lakeview Road and diagonally northwest across the corner of Precinct 15 to Coogee Road. A number of local routes are also shown within the LSP area.

On-street cycle lanes are normally included only on Neighbourhood Connector A roads and above, due to traffic flows above 3000vpd on these categories of roads.

The resultant path network associated with the road network is indicated in **Figure 25**. This does not include paths outside of the road network, such as within public open space.

The proposed network of footpaths and shared paths for pedestrians and cyclists will provide an excellent level of accessibility and permeability for pedestrians and cyclists, and connections to neighbouring precincts at strategic locations.

The WAPC *Transport Impact Assessment Guidelines (2016)* provides guidance on the levels of traffic volumes that are likely to affect the ability for pedestrians to cross various types of road. Based on that guidance an undivided two-lane road should be acceptable for pedestrians crossing traffic volumes of up to approximately 11,000 vpd and this threshold can be increased to around 28,000 vpd by adding a central median or pedestrian refuge islands. On a four-lane road, because of its greater carriageway width, this threshold is lower; even with a median island the threshold is only around 16,000 vpd.

Only Franklin Road and Lakeview Road are expected to carry future traffic flows above these levels. The future K-12 school site north of Lakeview Rd, the railway station east of Franklin Road, the neighbourhood centre and the regional sporting facility will all be significant generators of pedestrian and cyclist movements across Franklin Road and Lakeview Road.

The signalised intersections at Franklin Rd / Lakeview Rd and at the north south neighbourhood connector intersection on Lakeview Road will include appropriate pedestrian facilities to assist pedestrians and cyclists crossing those roads at those locations. An additional pedestrian crossing facility should be provided on Franklin Road at the future rail station location to assist pedestrian and cyclist movements from residential areas west of Franklin Road to access the station, neighbourhood centre main street, K-12 school

Figure 25 - Path Network (Source: Transcore)

and regional sporting facilities. This could be in the form of a signalised pedestrian crossing when traffic and pedestrian numbers warrants for that type of facility, or potentially a pedestrian underpass as part of a future underground rail line project.

4.11 NOISE MANAGEMENT

Pursuant to the EWDSP, a future passenger rail line is proposed to be underground with the exception of the section located in the northern area. Herring Storer prepared an acoustical assessment to review the compliance with *State Planning Policy 5.4 Road and Rail Noise (SPP 5.4)* (refer **Appendix 4**). The acoustic assessment was conducted over that portion of the railway that will not be underground pursuant to the EWDSP. Noting that the railway does not yet exist, predictive noise modelling software was utilised for the purpose of assessing future noise levels.

The results of the acoustic assessment indicate that noise received at residences located adjacent to the passenger rail line would exceed the "Noise Targets" as outlined in SPP 5.4. To address this the possible noise amelioration options that are can be considered at subdivision stages are setbacks or buffer areas, noise bunds and / or barriers (noise walls) and "Quiet House" design.

The acoustic assessment is provided as overall guidance for the Structure Plan. Once detailed information is available at subdivision stage, such as final levels, lot placements etc, more detailed acoustic assessment should be undertaken to account for noise emanating from the transit corridor comprising the railway and the Other Regional Road.

4.12 WATER MANAGEMENT

A District Water Management Strategy (DWMS) was prepared on behalf of DPLH to support the EWDSP in 2021. The DWMS provides a summary of the existing water resources and environmental conditions within the EWDSP area to demonstrate that the land is capable of development. The DWMS highlights the need for a more detailed investigation for individual precincts including the preparation of a local water management strategy (LWMS) and urban water management plans at later planning stages.

This DWMS confirmed that groundwater across the EWDSP is likely to rise approximately 4-5 metres post development. The DWMS anticipates that groundwater rise should be managed by "Controlled Groundwater Levels" and dealt with through a network of subsoil pipes gravitating to strategically located tanks and pumps that controls future groundwater levels to the pre-development levels (or existing levels).

4.12.1 LOCAL WATER MANAGEMENT STRATEGY

A LWMS has been prepared for the site by Pentium Water and provides a comprehensive assessment of the existing hydrological settings within the site. Refer **Appendix 8**.

The LWMS demonstrates that the land has the capacity to support the proposed land use change with best practice water management outcomes in terms of water supply, stormwater, surface water and groundwater management. The LWMS will recognise the principles, objectives, and requirements of total water cycle management as outlined in the *State Planning Policy 2.9 Water Resources (Government of WA, 2006)*, *Liveable Neighbourhoods (WAPC, 2007)* and the *Stormwater Management Manual for WA (DWER, 2004 – 2007)*, including the *Decision process for stormwater for stormwater management in WA (DWER, 2017)*.

The LWMS also broadly states the water quantity and quality management objectives to be achieved.

The proposed development will include total water cycle management principles and objectives guided by the *Better Urban Water Management Framework (WAPC 2008)*. The LWMS also provides a synthesis of the project methodology and provides a detailed strategy to address all key issues associated with the project delivery.

4.12.2 GROUNDWATER MANAGEMENT

A district groundwater management scheme will control post-development groundwater level rise through subsoil drainage in areas that are likely to either become inundated or have shallow depth to groundwater if no groundwater control measures are implemented. The groundwater management scheme is to be informed by a detailed groundwater model that is currently under development. In the absence of the groundwater model results and the groundwater management scheme design, planning must follow requirements stipulated in the *DWMS (Urbaqua, 2021)*. The structure plan will accommodate the outcomes of the future engineering design and has allowed for

additional land area and infrastructure within road reserves to manage additional pipelines used to convey groundwater.

4.12.3 GROUNDWATER CONTROL

The DWMS proposed the controlled groundwater level (CGL) be represented by the 1986 to 1995 AAMGL, but notes:

- The impacts of using an AAMGL rather than MGL (maximum groundwater level) as the CGL near wetlands and important environmental values will require further consideration when detailed modelling is undertaken for the preparation of the local water management strategy for each precinct.

The DWMS also states:

- Where local structure planning is proceeding in advance of the detailed local groundwater modelling being available, the local structure plan must:
    - Install groundwater management systems (subsoil drains) at invert levels based on the determined controlled groundwater level (CGL) in areas where the predicted future groundwater level is within 2m of the future design surface.

The CGL, clearance of the drainage basins to CGL, and subsoil drainage extent have been assessed in accordance with the requirements specified in the DWMS.

4.12.4 GROUNDWATER MANAGEMENT RESPONSES

Subsoil drains will be located beneath road reserves and POS areas to aid infiltration. The detailed design of the subsoil drainage network has not yet been undertaken.

The subsoil drainage design response will also consider the subsoil drainage pipe sizing in response to an appropriate infiltration rate at each POS area. Currently, the flood storage basins have been sized based on an assumed infiltration rate (continuing loss) of 1 m/d.

The DWMS describes a groundwater management scheme that will be controlled by subsoil drainage. Precinct 15 is an undulating area with several post-development surface water catchments draining internal to the precinct and not draining to major lakes or wetlands. The project team understands that these internally draining catchments will be governed by the groundwater management scheme and subsoil drainage abstraction during rainfall events will be critical.

The current earthworks design and subsoil drainage design allows for catchments to drain surface water and subsoil drainage to low points in the landscape where it is anticipated a pumping system will abstract or transfer subsoil drainage to a disposal or final use location. The engineering drawings appended to the LWMS illustrate the preliminary design as it relates to the subsoil drainage networks and its likely abstraction and transfer locations.

The current urban design and engineering drainage design supports flexibility to respond to the future groundwater management scheme and is consistent with the known design principles. The urban design responds to the likely infrastructure demands and land take of the groundwater management scheme.

4.13 BUSHFIRE MANAGEMENT

The majority of the Structure Plan area is identified within a 'bushfire prone area'. State Planning Policy 3.7 (SPP 3.7) requires structure plans to include a bushfire hazard level assessment. A Bushfire Management Plan (BMP) has been prepared by Emerge providing an assessment of how future development within the site can satisfy the policy measures of SPP 3.7 (refer **Appendix 2**). The BMP identified a variety of bushfire hazards within and surrounding the site, including different patches of forest, woodland, scrub and grassland hazards.

This BMP has followed the requirements of SPP 3.7 to identify bushfire risk and the bushfire protection measures that will make the land suitable for its intended purpose. As part of this, a Bushfire Attack Level (BAL) assessment involving the classification and condition of vegetation within 150 m of the site has been undertaken. The outcomes of this BMP demonstrate that as development progresses, it will be possible for an acceptable solution to be adopted for each of the applicable bushfire protection criteria outlined in the SPP. The management/mitigation measures to be implemented through the proposed development of the site have been outlined as part of this BMP.

4.14 ECONOMIC DEVELOPMENT AND EMPLOYMENT

An Economic and Employment Development Report has been prepared by Pracsys (refer **Appendix 5**) to consider the economic and employment impacts associated with the development of the Structure Plan area. During construction, a total of 9,544 total jobs (direct and indirect) are forecast to be created by the development of Precinct 15. Operational employment generated by the development of Precinct 15 is predicted to be 728 total jobs in the broader region.

In addition, Pracsys has prepared an Economic Analysis to support the concurrent proposed lifting of urban deferment for the first stage of Precinct 15 (refer **Appendix 1**). This includes an employment self-sufficiency (ESS) assessment for this area based on the employment within a 5km catchment radius of Precinct 15. The employment offered in the catchment achieves an ESS of 555% when compared to the additional labour force at the site. While the surrounding areas may develop as urban, the identified employment areas within the catchment area can support an increase labour force of approximately 20,000 working persons and still meet the sub-regional ESS target of 60% by 2050. In summary, Precinct 15 is located with high levels of access to employment including a mix of population driven and potentially strategic industries. The area will be able to achieve high levels of employment self-sufficiency, even with significant population growth.

4.15 INFRASTRUCTURE CO-ORDINATION, SERVICING AND STAGING

An Engineering Report has been prepared by Cossill & Webley (refer **Appendix 9**).

4.15.1 EARTHWORKS

The earthworks across Precinct 15 have been designed in accordance with the following objectives:

- To allow for the retention of existing vegetation and topography within the designated open space, chiefly along the elevated ridge line in the western parts of the precinct and within the large central wetland of the eastern precinct
- To allow for roads and development sites to be graded to best follow the existing topography and to best reflect the existing landscape.

A preliminary earthworks design generally allows for the retention of vegetation along the elevated ridge line in the western parts of the Precinct and within the large wetland. The design also maintains a cut-fill balance west of the rail line site to make best use of Basic Raw Materials (BRM) and to minimise the need to import fill to the site east of the rail line.

4.15.2 BASIC RAW MATERIALS

It is preferable to minimise the importation of clean fill sand to the site, not only to reduce costs (imported fill can typically equate to around 30% - 40% of development costs), but also to ensure the most appropriate use of basic raw materials. Considerations that have been investigated to minimise the need to import clean fill sand include the following:

- Establishing a subsoil network and creating a controlled groundwater level, this has the net effect of reducing the volume of imported material brought to a development to maintain clearance from groundwater, and also has the potential of assisting with irrigation.;
- Adopting a planning layout which is sympathetic to existing natural contours, to ensure that stormwater drainage design is optimised such that required development levels do not require excessive filling over the existing topography.
- Optimising the location of any critical sewer infrastructure (such as Waste Water Pumping Stations), to ensure that sewer controls minimise the need to fill areas of the development.

The above controls will be reviewed in further detail as part of the design process to ensure that the volume of imported fill necessary for development is minimised.

4.15.3 SEWER

The Water Corporation planning indicates that the site falls within the catchment of five proposed future Waste Water Pumping Stations (WWPS).

- The north-west corner of the site is proposed to be serviced by the future Jandabup WWPS X, located north-west of the Site across Coogee Road and adjacent Lake Adams;
- A small portion of the site along the western boundary is proposed to gravitate west to

the future Jandabup WWPS Z located west of the Site at the eastern end of Ranch Road adjacent Little Mariginiup Lake;

- Western edge of the site is proposed to gravitate south via Collector Sewer to the future Jandabup WWPS A located south of the site at the southern end of Mariginiup Lake;

- The majority of the western portion of the site and a portion of the north-eastern part of the site, which captures wastewater flows within the site to gravitate to the proposed Jandabup WWPS D. Jandabup WWPS D would then pump flows west to the future collector sewer w described above for Jandabup WWPS A; and

- The majority of the eastern portion of the site, which captures wastewater flows within the site to gravitate to the proposed Jandabup WWPS Q. Jandabup WWPS Q would then pump flows west to the future collector sewer described above for Jandabup WWPS A.

Cossill & Webley have prepared a preliminary sewer design and catchment plan. Based upon the preliminary design levels completed, the majority of the western portion of the Site will be serviced by the Jandabup WWPS D, largely in line with the Water Corporation's Wastewater Planning. All of the eastern portion of the site and a portion of the west will be serviced by Jandabup WWPS Q. Along the western extremities of the Site, a portion of the NW corner of the site will likely fall into the catchment of future Jandabup WWPS X. The majority of land on the western periphery of the Site will ultimately grade out to Jandabup WWPS A.

Development of the site in an ultimate sense requires the delivery of a number of higher order infrastructure items, which are not currently available, so it is likely an interim solution will be required to service the site. It has been confirmed that there is capacity within the existing wastewater network nearby. An interim connection to the existing network is physically possible from Precinct 15, and would allow progression of the development in the area whilst the necessary planning and implementation of upgrades required to the existing network for additional capacity is undertaken concurrently by the Water Corporation to ensure that the balance of the EWDSP area can be delivered unimpeded as it progresses.

4.15.4 WATER SUPPLY

Precinct 15 is proposed to be serviced with water from the Wanneroo Reservoir tank site located on Steven Street in Wanneroo. This tank is currently fed from the existing Wanneroo Groundwater Treatment Plant (GWTP) located to the east of the Precinct 15.

Ultimately, an additional bore main from the GWTP to the Wanneroo Reservoir is proposed, which will be augmented via a new supply from the proposed Alkimos Desalination plant. From discussions with the Water Corporation the route of the proposed desalination trunk main is still at a planning stage, and a route external to the EWDSP area is under consideration.

As part of the consideration of future development of the EWDSP area, the Water Corporation has completed high level planning over the EWDSP which has determined that a series of large volume trunk mains connecting the Wanneroo Reservoir to other regional water storage facilities within the Integrated Water Supply Scheme will be required as development progresses. The construction of these mains will be deferred until such time as water supply demand requires the Water Corporation to construct the mains. The optimal route for the construction of these mains will be assessed by the Water Corporation ahead of delivery of the mains, and will consider development within the EWDSP at that point in time. Within the Precinct 15 area, should distribution mains be required they will likely follow routes of higher order roads where there is a greater reserve width which more readily accommodates retrofit of infrastructure.

There is existing water infrastructure west of Precinct 15 area at the intersection of Coogee Road and Mornington Drive that includes both larger reticulation mains as well as a distribution main. Connection to the existing network should provide adequate water supply to allow initiation of development in the area.

4.15.5 POWER

There is an existing high voltage underground power cable in Coogee Road which extends power from the existing "Wanneroo Zone Substation" located at the intersection of Wanneroo Road and Clarkson Ave west of Precinct 15. There is 25 to 30MVA projected to be available from this sub-station, which will be sufficient to service future development of Precinct 15.

It is anticipated that the local network will be incrementally extended from the existing HV feeder located in Coogee Road. A series of HV feeds, switch stations and transformers will be required throughout Precinct 15 to meet individual site requirements.

4.15.6 TELECOMMUNICATIONS

The Site is within NBN's fixed line footprint, and hence can be serviced with optic fibre under their roll-out scheme for greenfield developments. The current design practice for road reserves, pavement and verge provisions will make adequate allowance for services including broadband in accordance with the agreed Utilities Service Providers handbook. There will be some local land requirements for equipment sites, similar to current provisions which will be accommodated at detailed subdivision stage.

4.15.7 DEVELOPMENT STAGING

Initial stages of subdivision and development are likely to be located within the north western areas of the Precinct, accessed via Coogee Road. Subdivision and development will then move southwards and eastwards in line with market demand.

4.16 DEVELOPER CONTRIBUTION ARRANGEMENTS

The East Wanneroo District Developer Contribution Plan is being prepared for the entire EWDSP area. This will require contributions from all development in the EWDSP to district infrastructure items.

Given the predominately large land holdings in Precinct 15 and the limited ownership, it is not anticipated that formal developer contributions will be required towards local infrastructure items. Rather, any cost sharing required for other local infrastructure items can be arranged through land owner legal agreements without the need for a formal local DCP.

4.17 IMPLEMENTATION

4.17.1 LIFTING OF URBAN DEFERMENT

Implementation of the Structure Plan requires the Lifting of Urban Deferment across the site. A request to Lift Urban Deferment across a portion of the site has been lodged concurrently with this Structure Plan.

4.17.2 MRS AMENDMENTS – PUBLIC LANDS

The MRS is required to be amended to reserve public lands within the Structure Plan area for regional roads, railways, parks and recreation reserves and high school. These public lands are defined by the proposed Structure Plan and it is submitted as logical that an MRS Amendment for public lands is pursued subsequent to this Local Structure Plan process. The WAPC is the responsible authority for preparing and initiating amendments to the MRS for public lands.

4.17.3 DPS2 AMENDMENT

Pursuant to Section 126(3) of the Planning and Development Act 2005, it is proposed that the site is rezoned under City of Wanneroo District Planning Scheme No.2 to 'Urban Development' concurrent with the Lifting of Urban Deferment.

4.17.4 FURTHER MANAGEMENT PLANS

As part of the future subdivision and development process, the following management plans may be necessary, the implementation of which would further minimise potential environmental impacts that have the potential to arise through implementation of the LSP:

- Acid Sulfate Soil and Dewatering Management Plan
- Construction Environmental Management Plan
- Urban Water Management Plan/s
- Foreshore Management Plan
- Aboriginal Heritage Management Plan
- Bushfire Management Plan.
- Acoustic Assessment