


LEGEND

LOCAL PLANNING SCHEME

RESERVES

 Parks and Recreation

ZONES

 Residential (R40)

 Residential (R60)

OTHER CATEGORIES

 Structure Plan Boundary

 Neighbourhood Connector 'B'

 Future Integrator 'B'

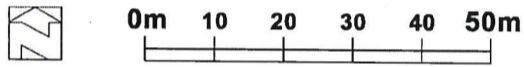
 Access Street

 Preferred Location for proposed Child Care Premises

 No Vehicle Access

NOTES

1. Further investigations to occur before subdivision and/or development in consultation with the City of Cockburn to determine the requirement for potential upgrades to Hammond Road to provide for a left-turn deceleration lane to the Structure Plan area.



It is certified that this Structure Plan was approved by resolution of the Western Australian Planning Commission on 28/2/2023
 This Structure Plan expires on 3/3/2033
 Signed [Signature]
 Director, Planning and Development
 File No. 110/229

500

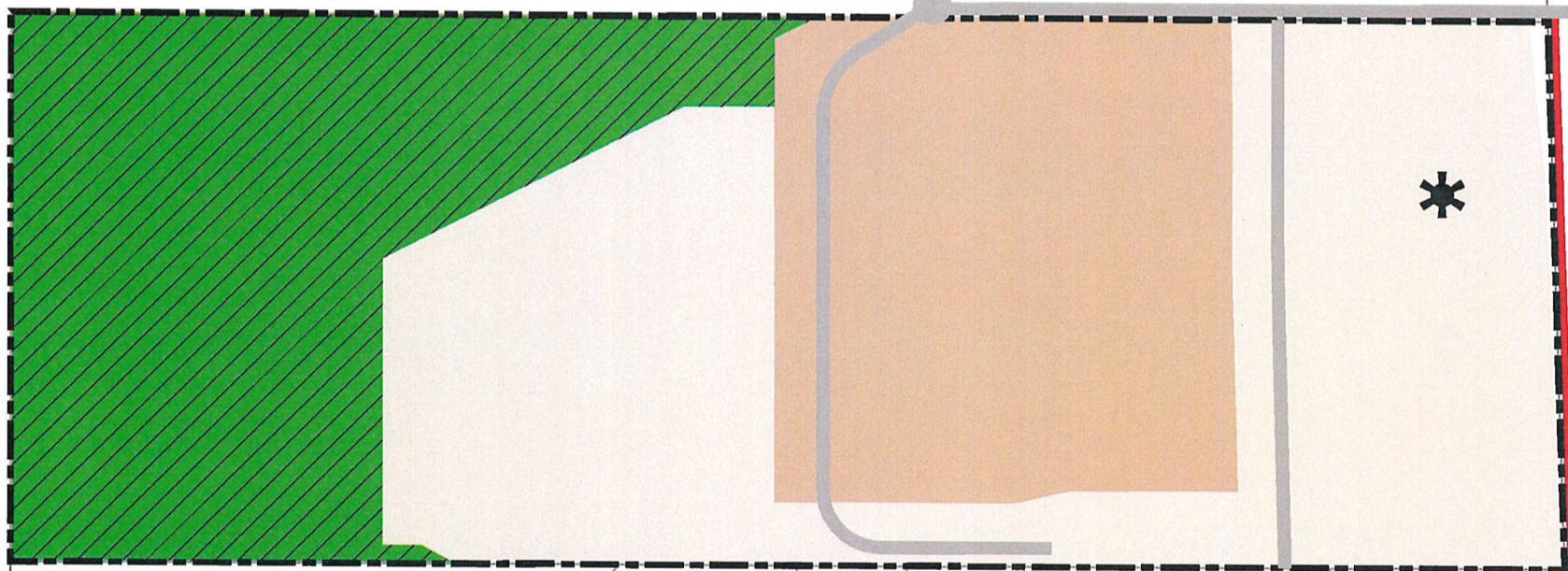
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HIRD RD

HAMMOND ROAD

CALYTRIX CR

9001



27

26

25

24

23

21

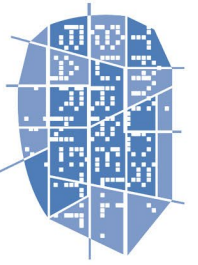
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22

PLAN 1 - Structure Plan Map

Lot 7 Hammond Road, Success

Taylor
Burrell
Barnett



STRUCTURE PLAN



Prepared for **Goddard Property Group**
Prepared by **Taylor Burrell Barnett**



August 2021



ENDORSEMENT

This Structure Plan is prepared under the provisions of the **City of Cockburn Town Planning Scheme No.3.**

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

28 February 2023 Date

Signed for and on behalf of the Western Australian Planning Commission



.....

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



..... Witness

03 March 2023 Date

03 March 2033 Date of Expiry



TABLE OF AMENDMENTS

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

TABLE OF DENSITY PLANS

Each time a density plan is approved, the plan is to be recorded in the table of density plans at the front of the Structure Plan.

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



EXECUTIVE SUMMARY

This Structure Plan has been prepared to guide future subdivision and development of Lot 7 (No.222) Hammond Road, Success (hereafter referred to as 'subject land').

The subject land is located:

- Within the municipality of the City of Cockburn;
- Approximately 23 km south of the Perth Central Business District (CBD);
- Approximately 1.3 km west of the Cockburn Secondary Metropolitan Centre; and
- Adjacent to the Thomson's Lake Nature Reserve.

The Structure Plan proposes development of land for:

- Residential purposes comprising a mix medium residential densities; and
- Ancillary uses such as public open space, drainage and local access arrangements.

Item	Data	Structure Plan Ref. (Section No.)
Total area covered by the Structure Plan	2.0462 ha	1.2.3
Area of each land use proposed:		3.3
• Zones		
• Residential	0.9922 ha	
• Reserves	N/A	
• Road Reserve	0.38105 ha	
• Public Open Space & Drainage	0.63318 ha	
Total Estimated Lot Yield	25 lots	3.3.1
Estimated No. of Dwellings	53 dwellings	3.3.1
Estimated Residential Site Density	53.4 dwellings per site/ha	3.3.1
Estimated Population	Approximately 134 people (Based on 2.72 persons / single dwelling, and 2.2 persons / multiple dwelling)	3.3.1
No. of High Schools	N/A	3.8
No. of Primary Schools	N/A	3.8
Estimated Commercial Floor Space	0.2005 ha (land area)	3.3.2
Estimated area and percentage of public open space given over to:		3.4.1
• Regional open space	N/A	
• District open space	N/A	
• Neighbourhood parks	N/A	
• Local parks	0.6331 ha	
Estimated percentage of natural area	0.4679 ha (20.3% of Total Area)	3.4.1

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PART ONE IMPLEMENTATION

1 STRUCTURE PLAN AREA

This Structure Plan shall apply to Lot 7 (No.222) Hammond Road, being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan map (**Plan 1**).

2 OPERATION

This Structure Plan commences operation on the date it is approved by the Western Australian Planning Commission (WAPC).

3 STAGING

Staging and development will be influenced by market forces, connection to infrastructure and the timing of improvements to the surrounding road network. It is likely that the subject land will be developed in two stages; with the child care site constructed first, followed by the construction of the single and multiple dwellings, however this is indicative only.

4 SUBDIVISION & DEVELOPMENT REQUIREMENTS

4.1 LAND USE

The Structure Plan Map (**Plan 1**) identifies the following zones and reserves applicable to the Structure Plan area:

- Residential (R40 & R60); and
- Parks and Recreation Reserve;

Land use permissibility within the Structure Plan area shall accord with the land use permissibility of the corresponding zone/reserve in the *City of Cockburn Town Planning Scheme No.3 (TPS3)* (as amended).

Notwithstanding this, 'Child Care Premises' is a preferred land use in the location as identified on the Structure Plan Map, within the 'Residential (R40)' zone.

4.1.1 RESIDENTIAL

(i) Dwelling Target

Objective: *To provide for a minimum 15 dwellings per gross hectare of urban zoned land within the Structure Plan area.*

- a) Subdivisions are generally to achieve the following:
 - i. 15 dwellings per gross urban ha.

(ii) Residential Density

The Structure Plan Map (**Plan 1**) defines the residential density that applies within the Structure Plan.

(iii) Development and built form

Development of land identified by the Structure Plan Map for R60 shall be of a minimum scale of two stories and guided by a local development plan, prepared in accordance with section 5 of this Structure Plan.

Development of land which abuts the conservation reserve and public open space is to have regard to the recommendations of the Bushfire Management Plan contained within Appendix D and shall ensure that all habitable components of the development is located within areas identified as BAL-29 or below.

(iv) RMD Codes

The Medium-density Single House development standards as outlined in WAPC Planning Bulletin 112/2016 apply to lots within the Structure Plan. Development of residential lots will be undertaken in accordance with the Local Planning Policy adopted by the local government.

4.1.2 PUBLIC OPEN SPACE

The proposed Structure Plan includes:

- (i) ceding of the CCW Buffer and Local Open Space with a management order to the City of Cockburn for the purposes of 'Recreation and Conservation'.

4.2 NOTIFICATION ON TITLE

In respect of applications for the subdivision of land, the Local Government shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificate of Titles to advise the following:

- (i) Land or lots to be affected by an identified noise impact as outlined within the 'Transportation Noise Assessment' contained within **Appendix F**.
- (ii) Land or lots deemed to have a Bushfire Attack Level (BAL) rating of 12.5 or above as outlined within the Bushfire Management Plan contained within **Appendix D**; and/or
- (iii) Land or lots deemed to be impacted by midge nuisances as identified in Local Planning Policy 1.11 Residential Rezoning and Subdivision Adjoining Midge Infested Lakes and Wetlands.
- (iv) Proximity of the land to known mosquito breeding areas where the predominant mosquito species are known to carry viruses and other diseases.

4.3 WETLAND/FORESHORE PROTECTION MANAGEMENT PLAN

In respect of all applications for the subdivision of land, the local government shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval that the recommendations in the Wetland Conservation Area Management Plan contained in **Appendix C**, be implemented.

5 LOCAL DEVELOPMENT PLANS

Local Development Plans (LDPs) are required to be prepared and implemented for lots affected by one or more of the following:

- Where they directly abut a Public Open Space reservation;
- Where they are less than 260m²; and/or
- Quiet House Design requirements in accordance with the requirements of SPP 5.4.
- Minimum two-storey built form for land identified as Residential R60 by the Structure Plan Map (**Plan 1**).

Imposed as a condition of subdivision approval, the LDPs shall be prepared in a manner and form in accordance with Part 6, Clause 48(1) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

6 OTHER REQUIREMENTS

6.1 DEVELOPMENT CONTRIBUTIONS

The developer is to make satisfactory arrangements with the City of Cockburn to provide proportional contributions towards those items of development infrastructure defined by TPS3 for Development Contribution Area No.1 (DCA1) and Development Contribution Area No.13 (DCA13).

DCA1 requires a proportionate contribution towards the widening and upgrading of Hammond Road between Beeliar Drive and Bartram Road. DCA13 requires a per lot/dwelling contribution towards the provision of Community Infrastructure within various areas in the City of Cockburn.

6.2 UPGRADES TO HAMMOND ROAD (DECELERATION LANE)

Prior to subdivision and/or development, further investigations will be required to assess and determine the need for the upgrading of Hammond Road to provide for a deceleration lane into the Structure Plan area; and the appropriate length if determined to be required; in consultation with the City of Cockburn.

Should investigations determine that upgrades are required, the City of Cockburn may recommend to the Western Australian Planning Commission that conditions be imposed on the grant of subdivision approval regarding the upgrading of Hammond Road, to provide for the construction of a left-turn deceleration lane of an appropriate length to ensure safe vehicular access to the site.

7 ADDITIONAL INFORMATION

Prior to any subdivision or development of the land being supported, the following management plans, reports and strategies are to be prepared, as applicable, to the satisfaction of the relevant authority and provided at the relevant submission stage nominated in **Table 1**.

TABLE 1: MANAGEMENT PLANS, REPORTS AND STRATEGIES

Additional Information	Approval Stage	Approving Authority
Water Management		
Local Water Management Strategy / Urban Water Management Plan Recommendations	Condition of Subdivision	DWER, City
Environment		
Bushfire Management Plan Recommendations	Condition of Subdivision <i>(Notification on Title)</i>	City
Wetland Conservation Area Management Plan Recommendations	Condition of Subdivision	DBCA, City
Mosquito and Midges	Condition of Subdivision <i>(Notification on Title)</i>	City
Transportation Noise Assessment Recommendations	Condition of Subdivision <i>(Implemented through LDP's where necessary)</i> <i>(Notification on Title)</i>	City
Engineering		
Detailed Engineering Drawings	Condition(s) of Subdivision	City, WC, WP


Additional Information	Approval Stage	Approving Authority
Other		
Local Development Plan (or in the case of a child care centre, Development Approval)	Condition of Subdivision <i>(If deemed necessary by City)</i>	City

- City** City of Cockburn
- DBCA** Department of Biodiversity Conservation & Attractions
- DWER** Dept. of Water & Environmental Regulation
- WC** Water Corporation
- WP** Western Power


LEGEND


LOCAL PLANNING SCHEME

RESERVES

 Parks and Recreation


ZONES


 Residential (R40)


 Residential (R60)

OTHER CATEGORIES

 Structure Plan Boundary

 Neighbourhood Connector 'B'

 Future Integrator 'B'

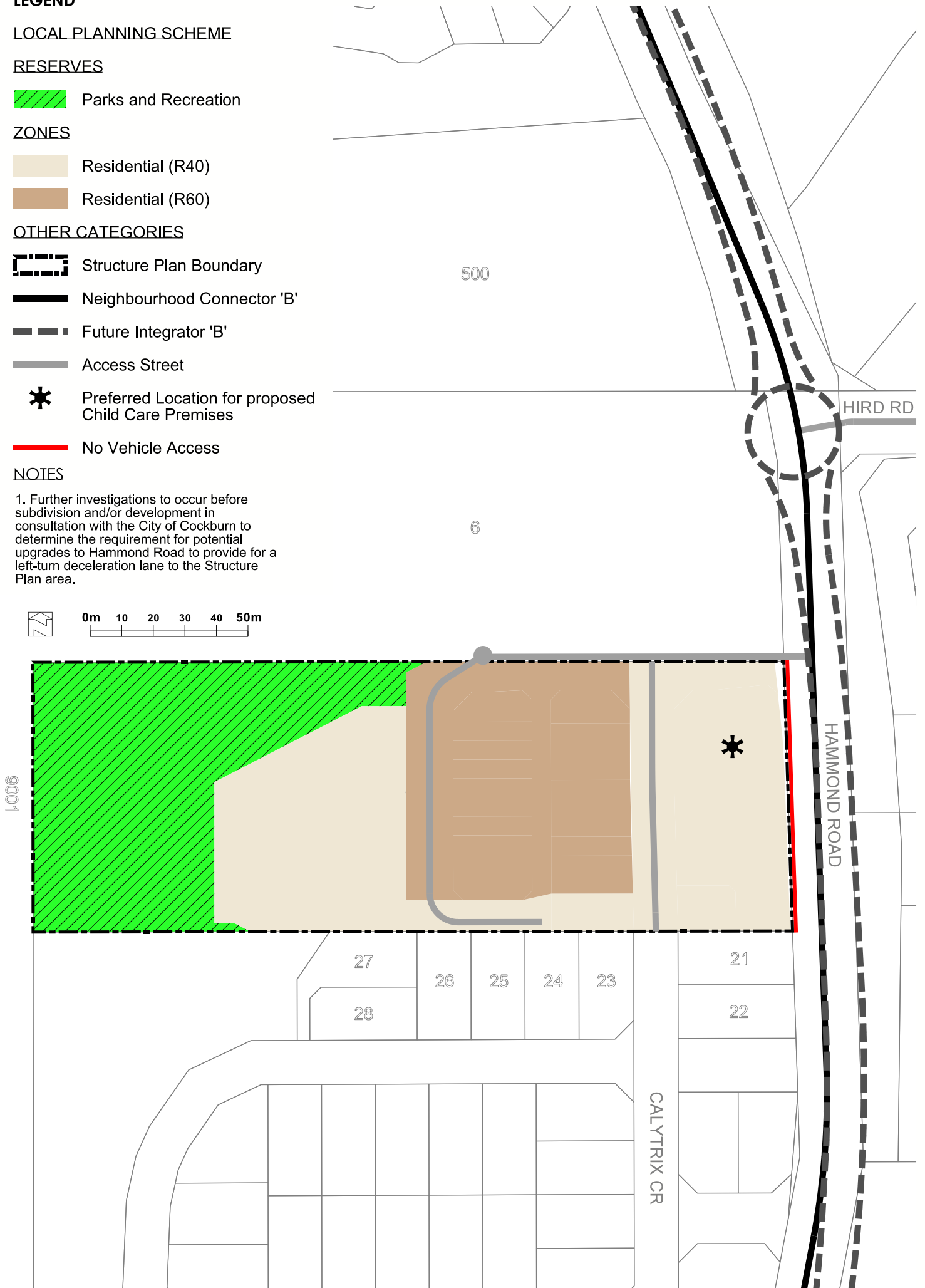
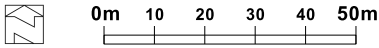
 Access Street

 Preferred Location for proposed Child Care Premises

 No Vehicle Access

NOTES

1. Further investigations to occur before subdivision and/or development in consultation with the City of Cockburn to determine the requirement for potential upgrades to Hammond Road to provide for a left-turn deceleration lane to the Structure Plan area.



PLAN 1 - Structure Plan Map

PART TWO EXPLANATORY INFORMATION

1 PLANNING BACKGROUND

1.1 INTRODUCTION AND PURPOSE

This documentation has been prepared by Taylor Burrell Barnett and the project team, on behalf of Goddard Property Group, to facilitate the assessment and approval of a Structure Plan for Lots 7 (No.222) Hammond Road, Success.

The Structure Plan outlines the vision for development of the subject land and establishes key requirements. The Structure Plan also includes information assessing the proposed development in context with the surrounding physical and natural environment. The Structure Plan has been prepared to address the requirements of the City of Cockburn Town Planning Scheme No.3 (TPS 3) and the *Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations)*.

The Project Team responsible for preparing the information contained within this report is detailed in **Table 2**.

TABLE 2: PROJECT TEAM AND RESPONSIBILITIES

Project Role	Consultant
Town Planning and Urban Design	Taylor Burrell Barnett
Environmental Assessment	PGV Environmental
Bush Fire Management	Bushfire Prone Planning
Civil Engineering	Serling
Water Management	Urbaqua
Traffic and Transport	DVC
Environmental Noise Assessment	Lloyd George Acoustics

1.2 LAND DESCRIPTION

1.2.1 LOCATION

The subject land falls within the municipal boundaries of the City of Cockburn, approximately 23 km south of the Perth CBD (refer to **Figure 1**).

The land is situated within the suburb of Success and is bounded by Hammond Road to the east, residential development to the south, the Thomson's Lake Reserve to the west, and Development zoned land to the north, which is identified for Residential (R60) under the approved Lot 6 Hammond Road Structure Plan.

The land enjoys excellent access to the regional road network, with Hammond Road (Other Regional Road) providing a direct connection to Beelias Drive to the north and Russell Road to the south, both of which connect to the Kwinana Freeway.

Fremantle is the closest Strategic Metropolitan Centre (15km northwest), and Cockburn Central the nearest Secondary Centre (1.3km east), accommodating the weekly shopping requirements of future residents. The Beelias Drive Mixed Business Area is also located approximately 1.5km to the north of the subject site, providing employment opportunities for future residents.

Jandakot Primary School is located a short walk (approximately 200m) to the south.

LEGEND

 Subject Land



0m 200 400 600 800m



Figure 1 Context Plan

1.2.2 LAND USE

The subject site has been extensively cleared of native vegetation with an existing dwelling located in the centre of the lot, and a shed located on the eastern edge of the lot adjacent to Hammond Road. Historical aerial photography illustrates the site was almost totally cleared prior to 1953, and does not appear to have been used for any intensive land use that would contaminate the soil or groundwater.

Surrounding land comprises regional reserves to the west, with a mixture of low and medium density residential development south, transitioning to higher density residential development to the east and north between Cockburn Central the Beeliar Drive Mixed Business Area.

Immediately north of the subject site, subdivision approval has been granted to create two multiple dwelling sites and one grouped housing site.

1.2.3 LEGAL DESCRIPTION AND OWNERSHIP

The legal description, ownership and size of the subject land (refer **Figure 2**) is described in **Table 3** below:

TABLE 3 - LAND TENURE

Lot	Landowner	Plan Number	Volume / Folio	Area (ha)
7	ANDERSON, GARY ROBERT ANDERSON, KATRINA MICHELLE	D 029141	1386/940	2.0462
TOTAL				2.0462

LEGEND

 Subject Land



0m 10 20 30 40 50m



Figure 2 Subject Land

1.3 PLANNING FRAMEWORK

1.3.1 ZONING AND RESERVATIONS

METROPOLITAN REGION SCHEME

The subject site is zoned 'Urban' under the *Metropolitan Region Scheme* (MRS).

Land to the north and south is similarly zoned 'Urban', whilst land to the west is reserved for 'Parks and Recreation' and included within Bush Forever Site No. 391. A portion of land to the south is also reserved for 'Parks and Recreation'. To the east, Hammond Road is reserved as an 'Other Regional Road', with a continuation of the urban zone beyond.

CITY OF COCKBURN TOWN PLANNING SCHEME NO. 3

The subject site is zoned 'Development' under the City of Cockburn *Town Planning Scheme No. 3* (TPS 3).

The same land falls within 'Development Area 13' (DA13) which is intended to facilitate residential development. Table 9, contained within Schedule 11 (Development Areas) of TPS3 outlines the provisions applicable to DA13, requiring an approved Structure Plan to guide future subdivision and development decision making in accordance with clause 27(1) of the *Deemed Provisions*.

The same land is also located within two Development Contribution Areas, being 'Development Contribution Plan Area No.1' (DCA1), which requires a proportionate contribution towards the widening and upgrading of Hammond Road between Beeliar Drive and Bartram Road, and 'Development Contribution Plan Area No.13' (DCA13), which requires a per lot/dwelling contribution towards the provision of Community Infrastructure across various areas in the City of Cockburn. Further information on the special details that apply to land are set out in Table 10 contained within Schedule 12 (Development Contribution Plans) of TPS3.

1.3.2 STRATEGIC PLANNING FRAMEWORK

PERTH AND PEEL @ 3.5MILLION (& SUB-REGIONAL FRAMEWORKS)

Published in March 2018, the *Perth and Peel @ 3.5 Million* suite of documents articulate:

- where future homes and jobs should be located;
- how to protect important environmental assets;
- how to best utilise existing and proposed infrastructure; and
- appropriate areas for greater infill development and residential density.

The subject land is located within the *South Metropolitan Peel Sub-Regional Planning Framework*, which reflects the land's existing reservation for 'Open Space' and zoning for 'Urban' purposes. The minimum urban infill dwelling targets identified for the City of Cockburn are 2,790 dwellings in 2016-21 and 1,690 dwellings from 2021-26. Approval to this Structure Plan will assist the City of Cockburn in achieving its infill dwelling targets.

LOT 6 (210) HAMMOND ROAD, SUCCESS STRUCTURE PLAN

The Lot 6 (210) Hammond Road, Success Structure Plan, located to the north of the subject land, was adopted by the City of Cockburn on 9 October 2014, and endorsed by the WAPC on 16 June 2015. The Structure Plan provides for residential (R60) development, and a Parks and Recreation reserve. The Structure Plan identifies a cul-de-sac on the southern boundary of the Structure Plan area. Subsequent to the approval of the Lot 6 Structure Plan, a subdivision approval was granted by the WAPC which included the cul-de-sac, albeit in a slightly different alignment, being partially within the subject land (WAPC Ref: 158113). The alignment of the cul-de-sac approved under the subdivision application has been reflected in the proposed Structure Plan (refer **Plan 1 – Structure Plan Map**).

LEGEND

 Structure Plan Boundary

METROPOLITAN REGION SCHEME

RESERVES

 Parks & Recreation

 Other Regional Roads

ZONES

 Urban

NOTICE OF DELEGATION

 Bush Forever Area

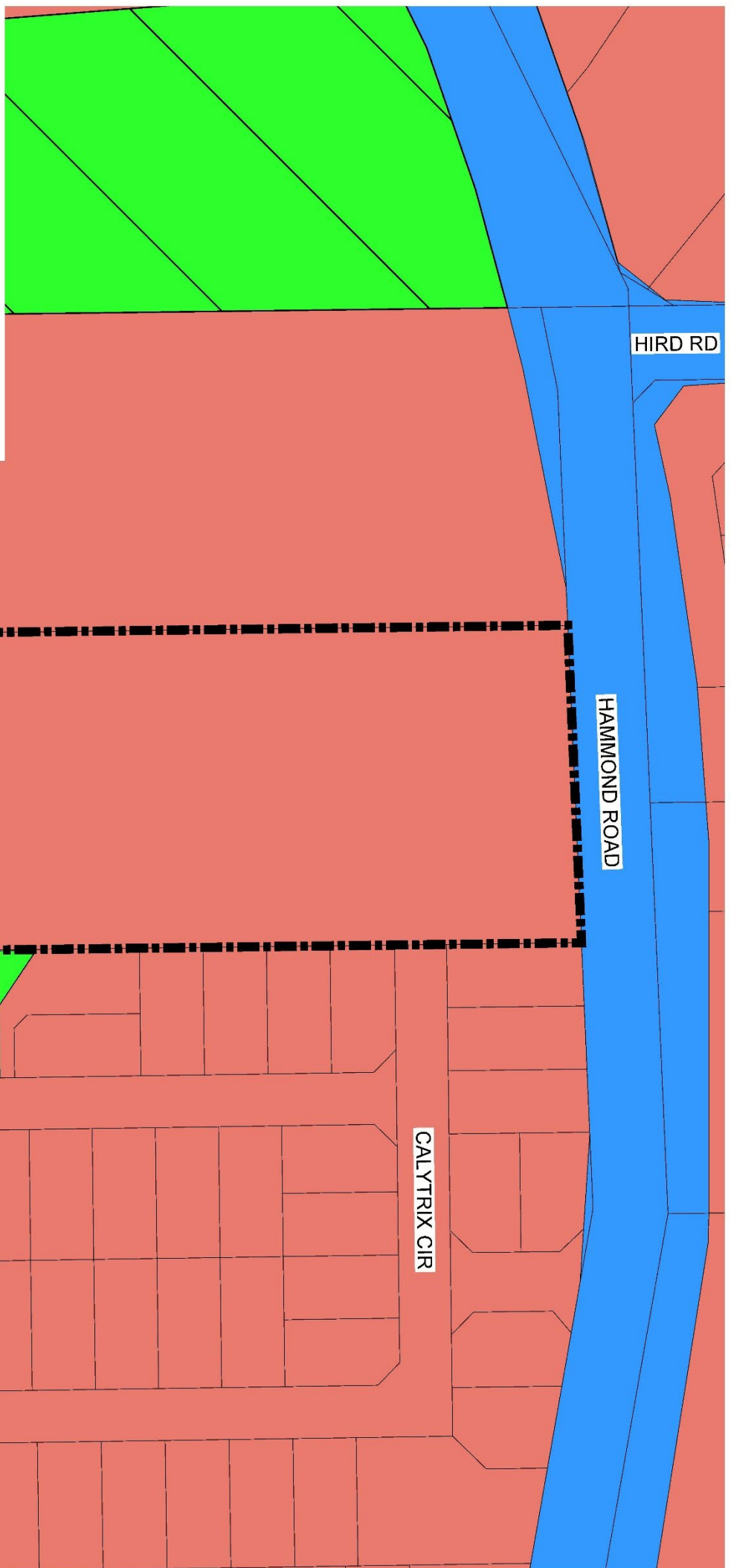



Figure 3 Metropolitan Region Scheme Extract


LEGEND

 Structure Plan Boundary

METROPOLITAN REGION SCHEME


RESERVES

 Parks & Recreation

 Other Regional Roads

LOCAL PLANNING SCHEME

RESERVES


 Public Purpose : Primary School

ZONES

 Development

OTHER

 DA1 Development Area

 Development Contribution Area



0m 10 20 30 40 50m

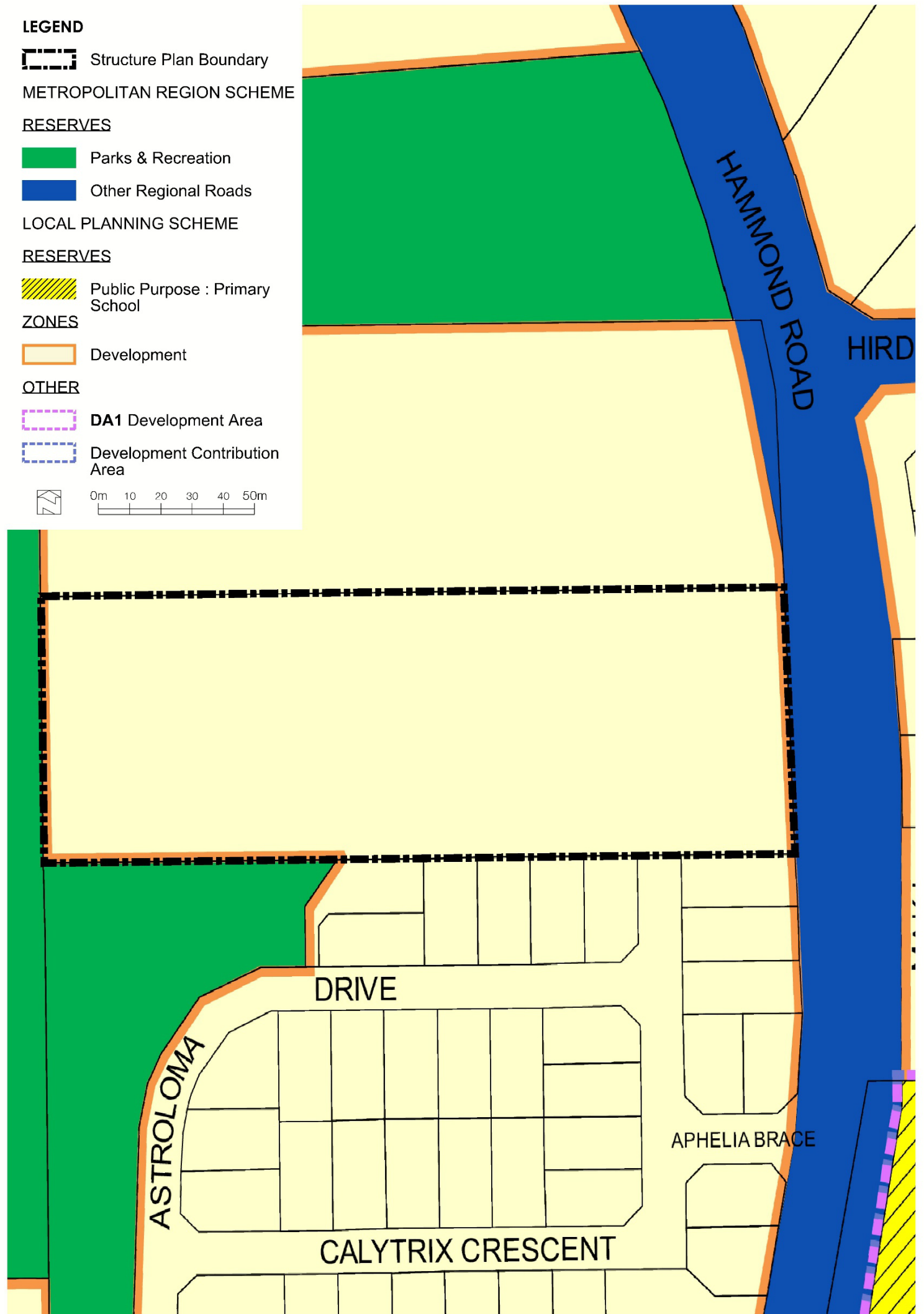


Figure 4 City of Cockburn Town Planning Scheme No.3 Extract

1.3.3 PLANNING POLICIES

STATE PLANNING POLICIES

SPP 2.9 WATER RESOURCES

State Planning Policy 2.9 – Water Resources (SPP 2.9) provides guidance to the planning decision-makers for consideration of water resources in land use planning, and directly relates to the overarching State Planning Policy 2 – Environment and Natural Resources. The policy applies where development is proposed on or abutting water resources, or potentially impacting on water resources.

In the case of this Structure Plan, a 24m² portion in the north-western corner of the subject site, and the surrounding land to the north and west, is mapped as a Conservation Category Wetland (CCW). Through the structure planning process, the CCW will be protected through the implementation of a buffer to minimise the impact of future urban development within the remainder of the subject land. The CCW buffer is identified as a Local Open Space reserve on the Structure Plan map, and the protection of the wetland and its buffer is addressed in both the LWMS/UWMP (**Appendix G**) and the Wetland and Wetland Conservation Area Management Plan (**Appendix C**). The Structure Plan therefore addresses the relevant policy measures of SPP 2.9.

SPP 3.7 PLANNING IN BUSHFIRE PRONE AREAS

State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP 3.7) and its associated guidelines seek to reduce the risk of bushfire to people, property, and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development, and other planning decisions proposed in bushfire-prone areas.

SPP 3.7 applies to all land which has been designated as bushfire prone by the Commissioner for Fire and Emergency Services (FES) on his Map of Bush Fire Prone Areas (as is the case in this instance). Accordingly, a Bushfire Management Plan (BMP) has been prepared and used to inform the structure plan design. A copy of the Bushfire Management Plan is included at **Appendix D** and is discussed in further detail at **Section 2.4**.

SPP 5.4 TRANSPORT NOISE CONSIDERATIONS IN LANDUSE PLANNING

State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP 5.4) seeks to minimise the adverse impact of transport noise, at the same time as protecting critical transport routes from the incursion of adjoining noise-sensitive residential development.

Due to the expected nature and volume of traffic along the future duplication of Hammond Road south of Bartram Road, an Environmental Noise Assessment has been undertaken in accordance with the requirements of SPP 5.4 to inform the structure plan design. A copy of the Environmental Noise Assessment prepared by Lloyd George Acoustics is included at **Appendix F**.

PLANNING BULLETINS

RMD CODES

Residential Medium Density Codes (RMD) density codes shown on **Plan 1** are to correspond with the associated RMD Codes within Appendix 1 of *Planning Bulletin 112/2016*, which set out variations to the *Residential Design Codes* that are deemed to constitute 'deemed-to-comply' Development within the Structure Plan area and which do not therefore, require neighbour consultation and/or planning approval to implement.

The provisions set out in Appendix 1 (*Residential Medium Density Codes*) act as a replacement to existing R-Codes standards for building and garage setbacks (Clauses 5.1.2, 5.1.3 and 5.2.1), open space (Clause 5.1.4), parking (Clause 5.3.3), visual privacy (Clause 5.4.1) and solar access (Clause 5.4.2).

LOCAL PLANNING POLICIES

LPP 1.10 SUBDIVISION AROUND THOMSONS LAKE

Local Planning Policy 1.10 – Subdivision around Thompsons Lake (LPP 1.10) seeks to address the problem of mosquitos around Thomsons Lake.

The subject site falls within the 2km buffer from Thomsons Lake and is therefore subject to the requirements of LPP 1.10.

Reflective of the outcome of subdivision and development proposals adjacent to Thomsons Lake to the north, an anticipated condition of subdivision approval will require a Notification pursuant to Section 165 of the *Planning and Development Act 2005* to be placed on the Certificate of Title of all the proposed lots, advising of the existence of a hazard of other factors. The anticipated wording on the Notification is as follows:

“Land or lots deemed to be impacted by a risk of mosquito born disease in the area.”

Additionally, it is anticipated a condition of subdivision approval will require the preparation and implementation of a Mosquito Management Plan.

LPP 1.11: MIDGE BUFFER ZONES

Local Planning Policy 1.11 – Residential Rezoning and Subdivision Adjoining Midge Infested Lakes and Wetlands (LPP 1.11) seeks to address the problem of seasonal midge swarms in the vicinity of lakes and wetlands which can adversely affect the quality of life of nearby residents by restricting residential subdivision and development in areas considered most likely to be subjected to midge nuisance, and/or advising future residents of the potential nuisance prior to purchase.

The subject land falls entirely within the 500m & 800m buffers of the Branch Circus Lakes 15 wetland chain and is therefore subject to the requirements of LPP 1.11.

Reflective of the outcome of subdivision and development proposals adjacent the same wetland chain the north, an anticipated condition of subdivision approval will require a Notification pursuant to Section 165 of the *Planning and Development Act 2005* to be placed on the Certificates of Title of all the proposed lots, advising of the existence of a hazard or other factors. The anticipated wording of the Notification is as follows:

“This lot may be affected by seasonal midge activity from nearby lakes. Enquiries can be made with the City of Cockburn Environmental Health Services.”

LPP 1.14: WASTE MANAGEMENT IN MULTIPLE UNIT DEVELOPMENTS

Local Planning Policy 1.14 – Waste Management in Multiple Unit Developments seeks to achieve consistent, safe, efficient, orderly and proper practices in relation to the management and minimisation of waste associated with larger residential and non-residential developments.

The policy provides mandatory and preferred guidance on waste management requirements, to be addressed in applications for development approval.

In accordance with the policy, a Waste Management Plan will be required to be submitted at the development application stage where four or more grouped dwellings are proposed, or in the case that bin presentation for road side collection is not possible or desirable in any groped dwelling proposal.

LPP 1.16: SINGLE HOUSE STANDARDS FOR MEDIUM DENSITY HOUSING IN THE DEVELOPMENT ZONE

Local Planning Policy 1.16 – Single House Standards for Medium Density Housing in the Development Zone (LPP 1.16) provides guidance on how the acceptable variations to the single house deemed-to-comply provisions of the R-Codes outlined in the WAPC’s *Planning Bulletin 112/2016*, can be applied to future development in TPS3.

It does so by replacing the deemed-to-comply requirements of the following clauses of the R-Codes with those set out in the provisions of the policy:

- Building and Garage setbacks – Clauses 5.12, 5.13 and 5.21;
- Open Space – Clause 5.1.4;
- Parking – Clause 5.3.3;
- Visual Privacy – Clause 5.4.1; and
- Solar Access – Clause 5.4.2.

As stated in Section 4.1.1 of **Part 1** of this report, the Medium-Density Single House development standards as outlined in the WAPC *Planning Bulletin 112/2016* apply to lots within the Structure Plan. Development of residential lots will be undertaken in accordance with *Planning Bulletin 112/2016* or an applicable local planning policy adopted by the local government. All other R-Codes standards apply.

LPP 1.17 NON-RESIDENTIAL USES IN RESIDENTIAL ZONES

Local Planning Policy 1.17 – Non Residential Uses in Residential Zones provides guidance in the assessment of planning applications for non-residential development in a residential zone, where discretion is required to be applied by the City.

Although the policy is only applicable at the development application stage, it is worth noting that the preferred “Child Care Premises” land use identified in the Residential zone on the Structure Plan complies with the locational criteria detailed in the policy, being:

- The preferred child care use is located in proximity (approximately 1km) from the Cockburn Central Secondary Centre. It is also located approximately 150m north of the Jandakot Primary School site, providing convenience for parents seeking to utilise both services in a single trip.
- The child care site is located approximately 280m from a bus stop on Hammond Road. There are also other bus stops located in proximity to the site.
- The child care site is located on Hammond Road, which is classified as a District Distributor Road, providing suitable access to the wider regional road network.

The rest of the policy provisions regarding traffic, parking, noise, signage, landscaping, lighting, waste and built form are achievable on the proposed child care site, and will be addressed at the development application stage.

2 SITE CONDITIONS AND CONSTRAINTS

An *Environmental Assessment Report* was prepared by PGV Environmental to inform preparation of the Structure Plan. A full copy of the report is included at **Appendix B**, with the relevant extracts summarised below.

2.1 BIODIVERSITY AND NATURAL AREA ASSETS

2.1.1 CONSERVATION SIGNIFICANT FLORA

Desktop searches of the Department of Biodiversity and Conservation (DBCA) Naturemap database and the EPBC Act Protected Matters Search Tool database, identified a total of 45 conservation significant species that have been recorded within 10km of the site, or may have habitat within 5km of the site.

However, the flora and vegetation survey undertaken by an experienced Botanist confirmed the small area of regrowth vegetation on the western part of the site is too disturbed to contain conservation significant species.

2.1.2 THREATENED ECOLOGICAL COMMUNITIES

The flora and vegetation survey undertaken confirmed that the vegetation on the site is too degraded to be assigned to a Floristic Community Type and is therefore not representative of any Threatened or Priority Ecological Communities.

2.1.3 CONSERVATION SIGNIFICANT FAUNA

Desktop searches of the DBCA Naturemap database and EPC Act Protected Matters Search Tool database were undertaken to identify conservation significant species potentially present on the site.

None of these species are likely to utilise the site or rely on it for survival due to the highly degraded nature of the habitat.

2.2 LANDFORM AND SOILS

2.2.1 LANDSCAPE AND TOPOGRAPHY

The site slopes from the eastern end at approximately 26m Australian Height Datum (AHD) down to the western end at approximately 18m AHD.

The subject site is mapped as part of the Bassendean System, the oldest of three dune systems on the Swan Coastal Plain. The Bassendean System consists of very low relief, leached, grey siliceous Pleistocene sand dunes, intervening sandy and clayey swamps and gently undulating plains. These occur immediately west of, and partly overlie, the Pinjarra Plain. These soils are very leached, infertile and mildly acidic.

Soil subsystems mapping indicates the subject land is within the **Bassendean B1 Phase** subsoil system (*deep bleached grey sands sometimes with a pale-yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2m*) on the eastern part of the site, and the **Bassendean B2 Phase** (*deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2m*) on the western part of the site.

2.2.2 ACID SULFATE SOILS

A review of DWER's *ASS Risk Maps* indicates a 'Moderate to Low' risk of ASS located within 3m from the natural soil surface, however, the presence of wetland soils may indicate ASS could be present.

2.2.3 CONTAMINATED SITES

The subject site has historically been cleared and is not identified on *DWER's Contaminated Sites Register*. The past and present land use on the site is not considered a constraint to development.

2.3 GROUND AND SURFACE WATER

2.3.1 GROUNDWATER

DWER's *Perth Groundwater Map* indicates that maximum groundwater levels decrease from 22mAHD to 18mAHD over the site, sloping in a north-west direction. Minimum groundwater levels show less variation decreasing from 20mAHD to 18mAHD across the site in a north-west direction.

Modelling indicates that the depth to groundwater varies from approximately 5m in the south-western corner of the site to less than 1m in the north-western corner of the site towards the CCW.

Groundwater flows toward Kogolup Lake which is ecologically linked to Thomson's Lake, which is located approximately 600m to the south-west of the subject site.

2.3.2 SURFACE WATER

A Conservation Category Wetland (CCW) is located in the north-western corner of the site (UFI 15740). The wetland is connected to a larger conservation category wetland to the north and which, which is mapped as Bush Forever.

There are no other surface water features on the subject site, with the permeable soils leading generally to infiltration, with groundwater flowing towards the wetland.

2.3.3 WETLAND INTERFACE

The Geomorphic Wetlands Swan Coastal Plain dataset identifies a Conservation Category Wetland (CCW) (UFI 15740) mapped over a few metres on the north-west corner of the subject site. The wetland mostly occurs within the Thomson's Lake Reserve and private property abutting the site.

The CCW and CCW buffer is mapped as an Environmental Sensitive Area.

2.3.4 WETLAND MANAGEMENT MEASURES

Due to the relative proximity of the CCW to the proposed urban development, a Wetland Conservation Area Management Plan has been prepared in relation to the CCW buffer over the subject site, and is included in **Appendix C**. The Management Plan includes appropriate management measures to ensure the wetland and the interface between the wetland and the urban development is appropriately managed to ensure there are no adverse impacts to the CCW.

The Management Plan has been prepared in accordance with the requirements of the City of Cockburn and DBCA and includes details to manage the following aspects:

- Native vegetation;
- Fauna habitat;
- Water quality;
- Surface water;
- Development works;
- Revegetation works including weed control.

The Management Plan also includes a monitoring and management program, completion criteria, timeframes and the responsible parties.

2.4 BUSHFIRE HAZARD

In recognition that the entirety of the subject land has been designated as bushfire prone on the WA Map of Bush Fire Prone Areas (DFES 2017), a Bushfire Management Plan (BMP) has been prepared by Bushfire Prone Planning to accompany the Structure Plan (refer to **Appendix D**).

The BMP is a strategic level plan which identifies necessary bushfire protection measures to be applied at nominated steps in the development process to accommodate compliance with:

- *SPP 3.7 – Planning in Bushfire Prone Areas*;
- *Guidelines for Planning in Bushfire Prone Areas*; and
- *Australian Standard for Construction of Buildings in Bushfire-Prone Areas (AS3959-2009)*.

2.4.1 BUSHFIRE ATTACK LEVEL ASSESSMENT

As part of the BMP, a Bushfire Attack Level (BAL) Contour Map has been prepared which outlines the predictive BAL lines having regard for future development and management arrangements on the subject land and immediate surrounds.

The BAL contour assessment over the project area indicates that the majority of the proposed lots are affected by a BAL-12.5 rating, with those closest to the north-western portion of the site increasing to BAL-19. The south-western corner of Lot 604 is subject to a BAL-FZ and BAL-40 rating; however, this portion of the lot would be utilised for common property, as demonstrated in **Figure 6**. BAL ratings for individual lots can be revalidated at subdivision application if any design changes have occurred. BAL ratings for individual buildings can be confirmed post-completion of subdivision works prior to lot title/sale, or at the building permit application stage.

The bushfire construction provisions of the National Construction Code will be applied to proposed buildings in accordance with the assessed BAL under AS 3959 standards.

The BAL contour assessment is considered suitable for the purposes of informing future planning/building stages; however, acceptance of the BAL contour map at future planning/building stages is at the discretion of the City and reassessment of the BAL may be required at future planning/building stages of development.

Further investigations and discussions will be required between the proponent and the City of Cockburn to determine whether the implementation of the recommendations of the BMP, including the extension of the proposed fire service access route over the adjoining Reserve 48161, would require further approvals, including under the Metropolitan Region Scheme.

2.5 HERITAGE

2.5.1 ABORIGINAL HERITAGE

A search of the Aboriginal Heritage Inquiry System (DPLH 2021) confirmed no Registered Aboriginal Sites or Other Aboriginal Heritage Places are located within, or immediately adjacent to the subject site.

2.5.2 EUROPEAN HERITAGE

A search of the relevant heritage databases has confirmed there are no registered places of World, National or State Heritage significance on the subject site.

2.6 SURROUNDING LAND USES

The site is located in proximity to Thomsons Lake to the south-west, and Kogolup Lake to the west of the site, which form part of the Beeliar Regional Park. Residential land is located east of the site beyond Hammond Road and south of the site. A review of the City's IntraMaps System has confirmed that the subject site is not impacted by any other land use buffers from nearby land uses.

2.7 EXISTING MOVEMENT NETWORK

A *Transport Impact Statement* was prepared by DVC Consultants to inform preparation of the Structure Plan. A full copy of the report is included at **Appendix E**, with relevant extracts summarised below.

2.7.1 REGIONAL ROADS

The subject land is connected to the primary regional road network via Hammond Road, a north-south distributor road connecting to Beeliar Drive to the north and Russell Road to the south, both of which connect to the Kwinana Freeway.

2.7.2 DISTRICT AND LOCAL ROADS

HAMMOND ROAD

Hammond Road is classified as a District Distributor B under Main Road WA's (MRWA) Function Road Hierarchy. Hammond Road is currently a two-lane single carriageway, with a posted speed limit of 60km/h in the vicinity of Coojong Link, north of Hird Road. There is a 40km/h school speed zone south of the site, associated with Jandakot Primary School, and to the north associated with Emmanuel Catholic College. Average daily traffic volumes are 10,140 vehicles (Monday - Friday).

The City of Cockburn has planned to upgrade Hammond Road between Branch Circus and Bartram Road to a dual carriageway configuration with two lanes per direction before the end of 2021.

HIRD ROAD

Hird Road is located to the north of the subject site, on the northern side of the adjacent Lot 6 Structure Plan area. Hird Road is classified as a Local Distributor under MRWA's Functional Road Hierarchy, with a sealed carriageway of approximately 7.5m in width and is subject to the default 50km/h speed limit.

APHELIA BRACE AND CALYTRIX CRESCENT

Aphelia Brace and Calytrix Crescent, located south of the subject site, are both classified as Access Roads under MRWA's Function Road Hierarchy, with sealed carriageway widths of 6m, and default speed limits of 50km/h.

2.7.3 PEDESTRIAN NETWORK AND CYCLING

There is a footpath which services the subject site along the eastern side of Hammond Road. On-road cycle lanes are also service the subject site, providing links to Cockburn Central Station and Cockburn Gateway Shopping Centre.

With the upgrade and duplication of Hammond Road between Bartram Road and Branch Circus, 2.5m wide concrete shared paths will be constructed on both sides of the road and on-road cycle lanes.

2.7.4 PUBLIC TRANSPORT

There are two bus stops of Hammond Road within a 5-minute walk to the subject site. Both stops (one northbound, one southbound) service route 525 and 531, providing connections to Fremantle and Cockburn Central Train Station. The Cockburn Central Train Station is also located approximately 3km north-east of the subject site, providing connections to Perth and Mandurah.

2.7.5 NOISE

A Noise Assessment has been prepared by Lloyd George Acoustics to support this Structure Plan and is contained in **Appendix F**. The purpose of this assessment was to anticipate the impact noise received within the development from vehicles travelling along Hammond Road, once it is duplicated in the future. Where noise levels are expected to exceed determined criteria, attenuation measures have been identified in order to reduce noise intrusion to acceptable levels.

Noise received at the residences within the subject site are expected to exceed SPP 5.4 "Noise Target." However, it is noted that development on the eastern portion of the subject site (including a Child Care centre and residential development), will provide significant screening effects from Hammond Road, and therefore will result in lower noise levels across the subject site. Mitigation measures, including use of architectural treatment packages ("Quiet House Design"), and the use of a noise wall be required to achieve compliance with SPP5.4. Landowners will be made aware of this requirement via notifications on relevant Certificates of Titles.

The requirement for architectural treatment packages will also be addressed in an LDP, or in the case of a child care centre a Development Application, as outlined in **Part 1**. The preparation of an LDP and notifications on relevant Certificates of Title are anticipated conditions of subdivision approval.

3 STRUCTURE PLAN

3.1 DESIGN PRINCIPLES

Fundamental design principles that underpin the proposed Structure Plan, are summarised below:

- Provide for lot diversity that will enable the construction of a diverse range of housing types to accommodate different housing demands;
- Integration of the surrounding natural environment into the development with appropriate interface to the CCW;
- Accommodation of passive recreational opportunities, via the provision of local reserves; and
- Provision of attractive, safe and convenient local roads.

3.2 DEVELOPMENT CONCEPT PLAN

In addition to the Structure Plan Map included within Part 1 – Implementation (**Plan 1**), a Development Concept Plan (**Figure 5**) has been prepared to provide an illustration of the development intent. Whilst this graphical representation is indicative only, it indicates how the streetscapes and residential development will occur.

The Development Concept Plan has been prepared based on the following key design considerations:

- **Road Structure** – The plan utilises the cul-de-sac which is currently being constructed along the northern boundary of the site, which will provide access from Hammond Road. The plan also proposes an extension of the existing Calytrix Crescent Road reserve to the south of the site. A local access street connection from the cul-de-sac is also proposed, providing a permeable and legible vehicular network.
- **Residential Development** – The Structure Plan provides for a variety of housing choices through the designation of R40 and R60 density codings and the application of the Medium-Density Single House development standards as outlined in WAPC *Planning Bulletin 112/2016*. A range of lot sizes and housing types is achievable based on the proposed arrangement.
- **Public Open Space** – The plan accommodates local wetland buffers in the POS network in order to enhance its amenity and accessibility, and interlink the POS with the surrounding network to the north and south with a robust pedestrian pathway network.
- **Relationship with Natural Surrounds** - The Development Concept Plan demonstrates how the development enhances the relationship with the natural surrounds, including adjacent wetlands and bushlands.

3.3 LAND USE

The primary land use within the Structure Plan area is 'Residential.' A summary of the land uses and areas is provided in **Table 4**:

TABLE 4 – LAND USE

Zone / Reserve	Area (ha)
Residential	0.99215
Roads	0.38105
Public Open Space & Drainage	0.63318
Total	2.00638

LEGEND

-  Structure Plan Boundary
 -  Residential (R40)
 -  Residential (R60)
 -  Public Open Space
 -  Public Open Space (CCW Buffer)
 -  Conservation Category Wetland
 -  Conservation Category Wetland Buffer
 -  Grouped or Multiple Dwelling Development Site
 -  Preferred Location for Child Care Premises
-  0m 10 20 30 40 50m



3.3.1 RESIDENTIAL

The Structure Plan provides for a variety of housing choices through the designation of a range of residential density codes (R-Codes). The density codes and their applicable lot typology are detailed in **Table 5**.

TABLE 5 – ESTIMATED DWELLING YIELD

Density Coding	Yield
R40 (single dwellings – average 220m ²)	3
R60 (single dwellings -150m ² average)	20
R40 (multiple dwellings - 75m ² average dwelling unit)	30
TOTAL	53

A description of the rationale of the density codes and their intent is outlined below:

RESIDENTIAL R60

This density code will apply to the land within the western portion of the Structure Plan area. The density provides for the necessary flexibility to accommodate lots of a consistently smaller and more affordable size. This is consistent with the residential density code to the north of the site in the Lot 6 Structure Plan, as well as the lots to the south in Hammond Park, which include pockets of R60 development. The density is also appropriate given the site's proximity to a range of amenities including the Cockburn Gateway Shopping Centre 2km to the east, the Cockburn Central Train Station 2.5km to the north-east, Beeliar Regional Parklands immediately to the west, in addition to a range of other POS areas, as well as a number of primary and high schools surrounding the site.

This density will provide the opportunity for attached terrace housing outcomes, located in proximity to the extensive area of conservation and POS areas, which will provide high amenity to these lots. Expected two-storey development in this location will provide a desirable and consistent streetscape character. It is intended the terrace housing will be strata-titled, constructed by a single builder, which will further ensure a consistent streetscape outcome. Examples of the intended terrace housing product in this location is illustrated in **Figures 7 and 8**.

RESIDENTIAL R40

This density code will apply to the eastern portion of the Structure Plan area and the western portion of the structure plan area, and provides flexibility for the design to respond to market conditions and demand. It is intended to accommodate battle-axe lots in the southern portion of the R40 zone, providing a suitable transition to the existing residential lots to the south.

The north-eastern portion of the R40 area is intended to accommodate a child care centre, however, the residential R-40 coding provides flexibility to accommodate additional residential development, in the case of changing market conditions. If a child care centre is provided, the R40 density will provide a suitable interface between the boundary of the child care centre and residential development. The child care site would yield approximately 10 grouped dwellings if the child care centre does not proceed.

The R40 density also applies to the western portion of the site to provide the opportunity for a grouped dwelling or apartment living opportunities, to diversify the housing typology and maximise affordable living opportunities. It will provide for appropriate built form opportunities directly interfacing with the POS and conservation areas. At this stage, a multiple dwelling development is preferred in the western portion of the site. **Figure 6** shows the western portion of the site with the BAL-Contours, and demonstrates there is sufficient area for a suitable development outside of the BAL-FZ and BAL-40 contours. The final development will be determined as part of a Development Application submitted for this site.

The proposed residential densities will assist the City achieve its minimum urban infill dwelling target of 1,690 dwellings from 2021-26, stipulated in the *South Metropolitan Peel Sub-Regional Planning Framework*.

POPULATION TARGET

The Development Concept Plan suggests a potential yield of 25 lots. This could accommodate a total population of up to 134 based on 2.72 people per household in the single residential lots (equating to 68 people in 25 single dwellings), and 2.2 people per household in apartments (equating to 66 people in 30 multiple dwellings).

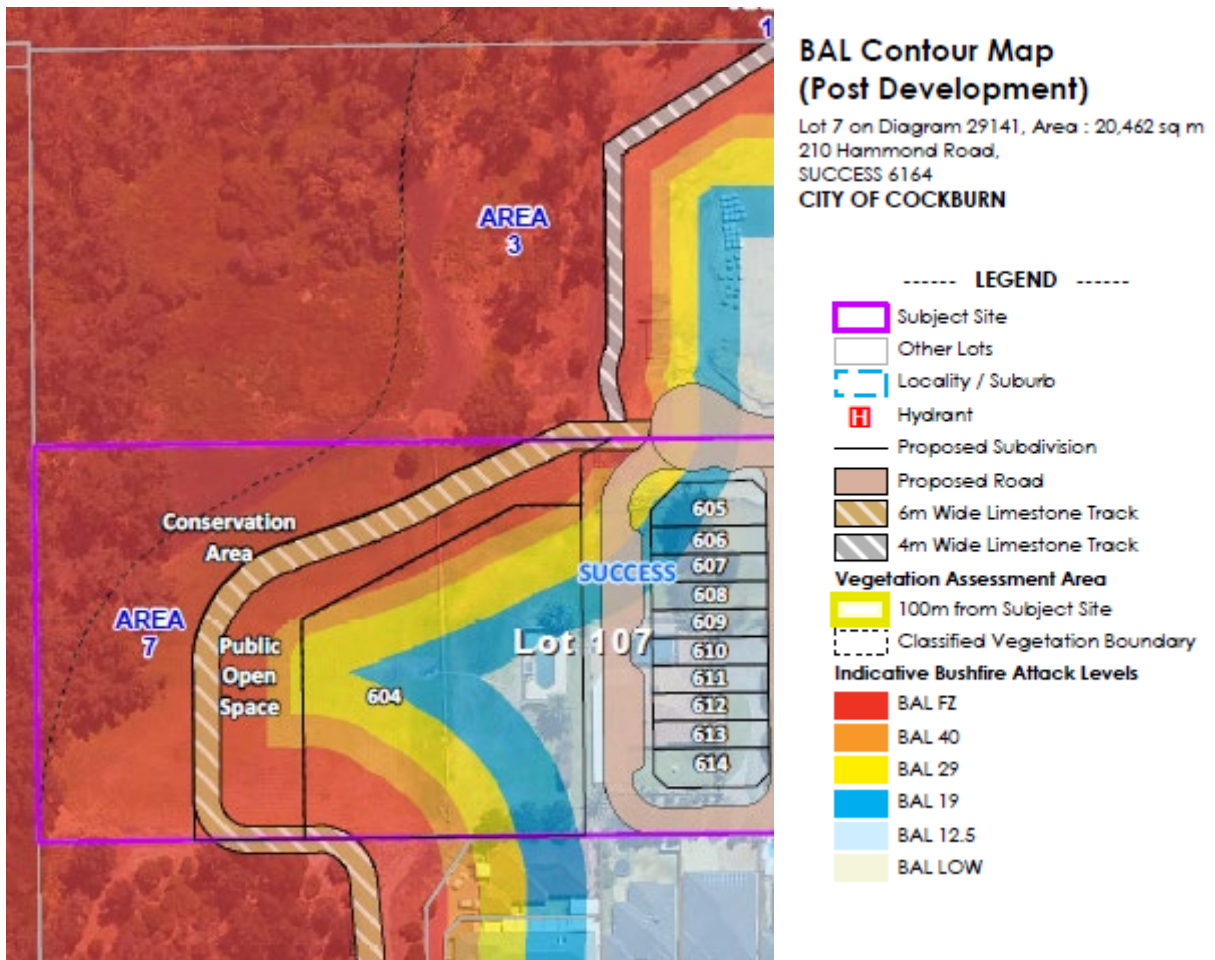


Figure 6 Potential Multiple Dwelling Development adjacent to POS and BAL-Contours



Figure 7 Terrace Housing Render Example – R60 Laneway Lots



Figure 8 Example of Floor Plan which may be accommodated of R60 Laneway Lot

3.3.2 CHILD CARE PREMISES

A “Child Care Premises” has been identified in the north-eastern corner of the subject site, on the corner of Hammond Road and Road 1. The child care will service the future residents in the subject site, as well as surrounding residents including those in the grouped and multiple dwellings which are currently being planned immediately to the north in Lot 6.

The structure plan notes the north-east corner as the preferred location for the child care premises. This has been identified having regard to the guidance contained in both the WAPC Planning Bulletin 72/2009, and the City’s local planning framework including:

- The site is situated adjacent to Hammond Road, meaning it be visible at the entrance to the Structure Plan precinct, rather than being hidden within the residential area that will form its primary catchment;
- The site is highly accessible, and whilst it adjoins a regional road, the use can be readily protected from that activity with the proposed extension of Calytrix Circuit, providing a ready and appropriate alternative means of access by virtue of its corner location;
- The site is within walking distance of public transport, in the form of bus stops on Hammond Road (servicing bus route 525 and 531);
- The site is within walking distance of the Jandakot Primary School, being approximately 200m to the south;
- The site has been specifically positioned and orientated in a manner, to minimise any potential impacts on a limited number of adjoining residential properties. The site only shares one of its boundaries with residential zoned land, which has purposely been assigned a lower residential density (R40) compared to the balance of the Structure Plan, and is therefore anticipated to accommodate only two lots; and
- Being 2000m², and rectangular in shape, the site is of a suitable size and dimension to accommodate a child care centre building, parking, outdoor play areas and landscaping, without affecting the amenity of the area.

Considerations to the acoustic impacts of the child care site have also been considered in **Appendix F**, which confirms the potential noise from the child care centre can be mitigated through the detailed site design and positioning of buildings, along with the provision of a noise wall between the child care centre and two adjoining residential lots. The acoustic assessment will be updated at the development application stage based on the detailed design, which will confirm the noise mitigation measures required.

3.4 OPEN SPACE

3.4.1 PUBLIC OPEN SPACE

The location and purpose of each area of POS has addressed site constraints generally associated with the CCW adjacent to, and encroaching the subject site. The POS areas are located within the walkable catchments of each residence; providing only a short walking distance for all residents to passive recreation areas.

In addition to the CCW buffer, an area of Local Open Space is proposed to the east of the CCW buffer, adjacent to the residential development, comprising reticulated lawn areas, as a playground and park seating areas (refer **Appendix I – Landscape Design**). The POS provides a linear link back to the cul-de-sac to the north, and provides for a shared fire access track and pedestrian path which connects all the way through to the reserve to the south and north of the site. The outcome is the creation of some active, but principally passive recreational opportunities.

A public open space calculation has been prepared in accordance with Liveable Neighbourhoods, as detailed in **Table 6**. The Structure Plan provides 10% creditable Public Open Space.

TABLE 6 - PUBLIC OPEN SPACE SCHEDULE

Public Open Space	(ha)
Gross Site Area	2.0462
DEDUCTIONS	
Hammond Road Widening	0.0248
Surplus Restricted Public Open Space	0.3721
CCW Core	0.0024
Total Deductions	0.3993
Net Subdivisible Area	1.6459
Creditable Public Open Space Required @ 10%	0.1646
Public Open Space Requirements	
Unrestricted Public Open Space - minimum 80%	0.1317
Restricted Public Open Space - maximum 20%	0.0329
Total	0.1646
Public Open Space Provision	
Unrestricted Public Open Space	
POS 1	0.2283
Total Unrestricted POS	0.2283
Restricted Public Open Space	
POS 2 (CCW Buffer)	0.4050
Total Restricted POS	0.4050
Restricted POS Not Credited	0.3721
Total Credited Restricted POS	0.0329
Total Credited Unrestricted POS	0.2283
Total Credited Restricted POS	0.0329
Total Credited Restricted and Unrestricted POS	0.2612
PUBLIC OPEN SPACE PROVISION	15.87%

At the subdivision stage, detailed landscape plans will be required to be prepared and submitted to the City of Cockburn as a condition of subdivision approval. The landscaping plan(s) is to address the following matters:

- planting densities per square metre and the area to be turfed;
- gradient of batters between residential land and the public open space and conservation lot, including a maximum 1:6 gradient to irrigated turfed areas;
- demonstrate how the landscape design accords with bushfire mitigation requirements as specified by the Bushfire Management Plan;
- arrangements for planting of verge trees; and
- landscaping details for the proposed playground area.



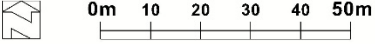
3.5 WETLANDS AND BUFFERS

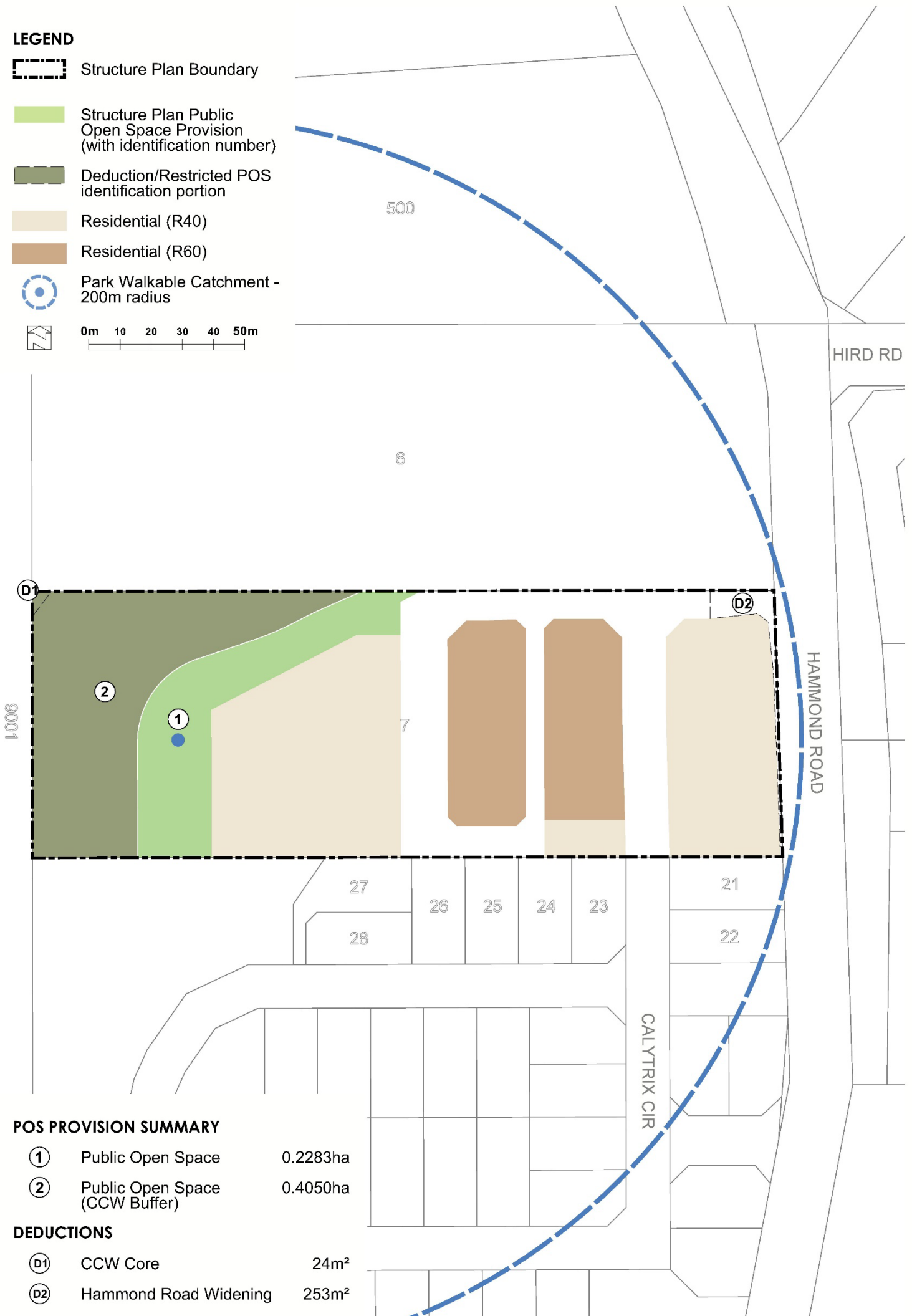
As mentioned, a 24m² area of CCW is located in the north-western corner of the subject site. The existing area in the subject site buffering the CCW is predominantly cleared with the presence of several weed species and a small area of Completely Degraded native vegetation. In its current state, the existing buffer area does not provide any ecological protection to the CCW.

The Structure Plan proposes a conservation area which will provide a buffer to the CCW, and ranges from 39.7m to 51.7m. This represents a slight reduction on the normal 50m buffer to CCWs, however, the buffer will be revegetated to remove weeds, and replanted with native vegetation, improving its environmental value. The revised buffer also provides more a more usable area of POS to local residents. Therefore, the slight reduction in the 50m buffer is offset by the increased environmental function of the buffer, and better provision of public amenity in the area.

The wetland buffer provides an extension of Local POS, and consist of native revegetation planting consisting of rushes, sedges and shrubs, across permanent and seasonal planting zones, following initial weed management. Dense stands of native sedges and reeds will be planted along the boundary of the wetland buffer and the adjacent POS, to deter access, and enable revegetation within the buffer itself.

LEGEND

-  Structure Plan Boundary
-  Structure Plan Public Open Space Provision (with identification number)
-  Deduction/Restricted POS identification portion
-  Residential (R40)
-  Residential (R60)
-  Park Walkable Catchment - 200m radius
- 



POS PROVISION SUMMARY

①	Public Open Space	0.2283ha
②	Public Open Space (CCW Buffer)	0.4050ha

DEDUCTIONS

ⓍD1	CCW Core	24m ²
ⓍD2	Hammond Road Widening	253m ²

3.6 MOVEMENT NETWORK

3.6.1 ROAD NETWORK AND TRAFFIC VOLUMES

LOCAL ACCESS STREETS

The subject site will be serviced via the provision of a cul-de-sac (Road 1) along the northern portion of the site, which is currently being constructed in accordance with the subdivision approval obtained for the Lot 6 development north of the subject site. The cul-de-sac falls across the two structure plan boundaries, and will form a T-intersection with Hammond Road, with a left-in/left-out arrangement. The cul-de-sac has been positioned a minimum distance of 70m from the adjacent Hird Road and Hammond Road intersection. The road is Classified as a local "Access Street D" on the basis it is expected to carry volumes below 1,000 vpd. It is expected the proposed development within both the adjacent Lot 6 Structure Plan area and the subject site will generate up to 760 vpd, with 114AM and 114PM peak hour trips.

Calytrix Crescent will also be extended from the south to service the subject site, connecting into the cul-de-sac, in addition to a 15m wide local road on the western edge of the residential area, and a 6m wide laneway in the centre of the site. The laneway will connect to the western road via a 10m wide road on the southern portion of the site, which is of a sufficient width to accommodate waste collection vehicles.

HAMMOND ROAD AND ROAD 1 INTERSECTION

A SIDRA analysis was undertaken for the ultimate scenario +10 years which demonstrates that Road 1, with its left in/left out restriction, will operate at an acceptable level of service (LOS A) as a simple T-intersection for both peak periods.

The TIA also considers the need for an auxiliary left-turn lane on Hammond Road into Road 1, to allow vehicles to continue travelling northbound, without needing to slow down to accommodate left-turning vehicles. The analysis suggests a left turn pocket is warranted based on traffic volumes under *Austroads Guide to Road Design (AGRD)*, however the SIDRA analysis shows that the T-intersection operates well as a simple left-in/left-out T-intersection with no auxiliary left-turn lane.

The analysis further considers that from a road safety point of view, an auxiliary left-turn lane is not required, as the duplication of Hammond Road roadworks being undertaken by the City includes the construction of a roundabout at Hird Road (approximately 80m north of the Hammond Road / Road 1 intersection), which will require drivers to slow down when approaching the roundabout in any case.

Additionally, left-turn lanes off Hammond Road are not located nearby other major attractors, and would unnecessarily introduce another point of conflict.

In conclusion, an auxiliary left-turn lane is not considered to be required from an operational capacity or safety viewpoint.

The above notwithstanding, further investigations will be required prior to subdivision/development, in consultation with the City of Cockburn, to determine the need to upgrade to Hammond Road to provide for a left turn deceleration lane into the Structure Plan area to ensure safe vehicular access. This may warrant the preparation of an updated Traffic Impact Assessment at subsequent stages of planning.

3.6.2 PEDESTRIAN AND CYCLING NETWORK

To complement the existing path network, a footpath will be constructed on the southern side of Road 1, and link into the proposed shared paths on Hammond Road.

The emergency fire access track required in the POS will also be utilised as a pedestrian / cyclist track, providing connections to the open space areas to the north and south of the subject site.

3.6.3 DELIVERY AND SERVICE VEHICLES

The roads have been designed in accordance with the turning circle requirements of delivery and service vehicles.

Rubbish collection for the residential development will be undertaken by the City of Cockburn waste collection service vehicles with suitable bin pad provision.

The child care centre may utilise the City's waste collection process or arrange for private contractors for waste collection. Suitable arrangements will be made at the detailed design stage.

3.7 WATER MANAGEMENT

A combined Local Water Management Strategy (LWMS) / Urban Water Management Plan (UWMP) has been prepared by Urbaqua in support of the Structure Plan (refer to **Appendix G**). The LWMS provides the framework for total water cycle management within the proposed development has been prepared in accordance with the Australian Standards and regulatory requirements inclusive of the City of Cockburn's Local Planning Strategy and typical Stormwater Management requirements.

Development within the subject site will result in additional impervious areas which require management to prevent detrimental water quality outcomes downstream and/or erosion within the reserve area. The total volume of water reaching the wetland is not anticipated to change with the increased impervious areas, however there will be a shift from infiltration and groundwater through-flow towards surface runoff.

The drainage system will include a treatment train approach, with soakwells on lots and raingardens along roads. Runoff generated from impervious areas will be conveyed through this treatment train approach before being discharged to the downstream wetland with improved water quality outcomes.

Subsoil drainage will be installed within the road reserves, at the maximum pre-development groundwater levels to prevent groundwater from rising uncontrolled through imported fill material. Fill material will be imported to provide separation above controlled groundwater levels.

Finished lot levels and fill requirements are a detailed design issue to be addressed during the preparation of the detailed engineering design drawings and preparation of the UWMP.

3.8 EDUCATION FACILITIES

The subject land lies within the catchment of Jandakot Primary School, located approximately 650m south-east of the site, which is capable of accommodating the long-term educational needs generated by this development.

Additional existing education facilities located within close proximity to the subject land include:

- Emmanuel Catholic College (850m north);
- Mater Christi Primary School (2km north-west); and
- South Metropolitan TAFE- Munster Campus (8km west).

3.9 ACTIVITY CENTRES AND EMPLOYMENT

Given the subject land's strategic location to existing employment opportunities within the Cockburn, Melville, Fremantle, Kwinana and Perth areas, additional employment generated land uses are not considered necessary.

3.10 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

The project's civil engineering consultant, Serling Consulting, has prepared an Infrastructure Servicing Report, which confirms the site can readily be serviced via extensions to the surrounding service infrastructure. The report is attached as **Appendix H**, with a summary of the relevant utility infrastructure advice outlined below:

3.10.1 WATER SUPPLY

Water supply to the site will be provided via connections to an existing 100P-12 water main proposed within the cul-de-sac on the northern edge of the subject site. The main will be extended along Calytrix Circuit and within the proposed laneway and Road 2, on the standard alignment.

3.10.2 WASTEWATER

The proposed development is capable of being serviced by an existing 150mm gravity sewer which runs along the middle of the subject site, and the southern verge of the cul-de-sac being relocated as part of the adjoining Lot 6 development, immediately north of the subject site. The sewer is required to be relocated to a standard alignment within the verge of the proposed Road 2 in the Structure Plan.

3.10.3 UNDERGROUND POWER & STREET LIGHTING

HV/LV Western Power infrastructure will be constructed within the cul-de-sac to the north of the site, to service the Lot 6 Hammond Road development. The infrastructure includes a new transformer on the proposed Lot 603 north of the site.

The proposed transformer on Lot 603 either has sufficient capacity, or may be required to be upgraded to provide sufficient power to service the subject site off the cul-de-sac.

3.10.4 TELECOMMUNICATIONS

Telecommunication services are proposed to be extended into the cul-de-sac in the northern portion of the subject site to service the adjacent Lot 6 development, and located in Calytrix Circuit. It is anticipated a connection will be made to the existing Telstra network to service the subject site.

3.10.5 GAS SUPPLY

Existing ATCO Gas infrastructure is located along Hammond Road, in the cul-de-sac in the northern portion of the subject site, and in Calytrix Crescent to the south. It is anticipated that the site will be serviced with gas via an extension from the existing ATCO Gas infrastructure in these locations.

3.10.6 EARTHWORKS & RETAINING WALLS

The subject site has mostly been previously cleared, and existing dwelling is located on the site. It is anticipated that some minor cut to fill earthworks operations will be required across the subject site and proof rolling undertaken prior to the importation of clean engineered fill to achieve the appropriate lot levels and grades and adequate separation from the maximum water table level.

3.11 DEVELOPER CONTRIBUTION ARRANGEMENTS

The developer is to make satisfactory arrangements with the City of Cockburn to provide proportional contributions towards those items of development infrastructure defined by the TPS3 for Development Contribution Area No's 1 and 13 (DCA1 and DCA13).

DCA1 requires a proportional contribution towards the widening and upgrading of Hammond Road between Beeliar Drive and Bartram Road, Success, whilst DCA13 requires a per lot/dwelling contribution towards the provision of Community Infrastructure within the Success catchment.

3.12 TECHNICAL STUDIES APPENDICES INDEX

Appendix	Document Title	Assessment Agency	Approval Status
B	Environmental Assessment Report	Dept. of Water & Environmental Regulation	Submitted with LSP
C	Wetland Conservation Area Management Plan	City of Cockburn & DBCA	Submitted with LSP
D	Bushfire Management Plan	City of Cockburn	Submitted with LSP
E	Transport Impact Statement	City of Cockburn	Submitted with LSP
F	Transport Noise Assessment	City of Cockburn	Submitted with LSP
G	Local Water Management Strategy / Urban Water Management Plan	Dept. of Water & Environmental Regulation	Submitted with LSP
H	Engineering Servicing Report	City of Cockburn	Submitted with LSP
I	Landscape Design	City of Cockburn	Submitted with LSP