Structure Plan Report

Lot 176 (119) Hammond Road
Success, WA

PLANNING SOLUTIONS
URBAN & REGIONAL PLANNING
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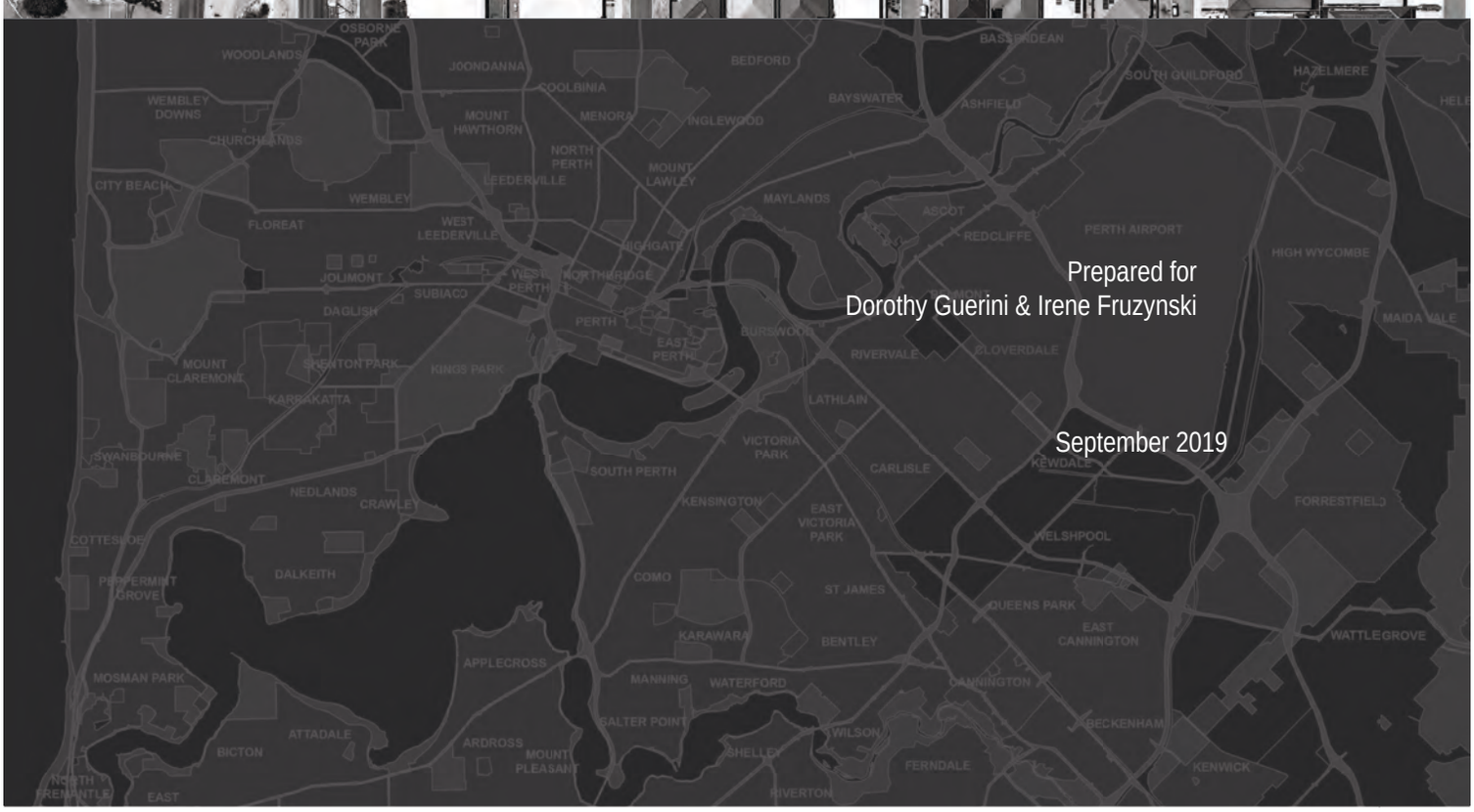

Prepared for
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September 2019

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Project details

Job number	4900	
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	Geotechnical	Brown Geotechnical
	Acoustic	Lloyd George Acoustics
	Landscaping	LD Total

Document control

Revision number	File name	Document date
Rev 0	190111 4900 Structure Plan - Rev 0 (final - lodged)	11 January 2019
Rev 1	190926 4900 Structure Plan - Rev 1	26 September 2019

Endorsement page

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 ADOPTED BY
RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON

3 October 2019
.....Date

Signed for and on behalf of the Western Australian Planning Commission

.....Signature

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:

M. Wreclaw
..... Witness

4 October 2019
..... Date

3 October 2029
..... Date of Expiry

Table of amendments

Amendment No.	Summary of the Amendment	Amendment type	Date approved by WAPC

Executive summary

This Structure Plan applies to Lot 176 (119) Hammond Road, Success (subject site), located within the municipality of the City of Cockburn. It forms part of a broader development area that is progressively being developed for residential purposes.

The proposed Structure Plan is intended to facilitate the subdivision of the subject site for residential purposes. The justification and rationale for the proposed mix of residential densities, street block and road layout, and positioning of public open space is contained within this Structure Plan, with details provided on the planning background, site conditions and proposed concept plan.

This Structure Plan is intended to provide the necessary information and justification to support the subject site being subdivided and developed for a mix of single and grouped residential lots.

Table (i) below provides a summary of the proposed development of the subject site.

Table (i) – Structure Plan summary

Item	Data	Structure Plan Ref (section no.)
Total area covered by the structure plan	2.0493 hectares (excludes 330m² portion of lot reserved Other Regional Roads)	Part 1, Section 1 Part 2, Section 1.2
Area of each land use proposed: • Residential • Public open space (unrestricted) • Roads	 1.2432ha 2,130m² 5,925m²	Part 1, Section 4.1 – 4.2 Part 2, Section 3
Estimated lot yield	35 lots	Part 2, Section 3.3
Estimated number of dwellings	40 dwellings	Part 2, Section 3.3
Estimated residential site density	32 dwellings per site hectare	Part 1, Section 4.8
Estimated population	112 people (assumes 2.8 persons per dwelling)	Part 2, Section 3.3
Number of high schools	Nil	N/A
Number of primary schools	Nil	N/A

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Plans

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Technical appendices index

Appendix No.	Document title	Approval required OR supporting document only	Approval status	Approval agency
1	Feature Survey	Supporting document	N/A	N/A
2	Certificate of Title and Deposited Plan	Supporting document	N/A	N/A
3	Traffic Impact Statement	Supporting document	N/A	N/A
4	Drainage Strategy	Approval required	Approved (enclosed)	Department of Water and Environmental Regulation and City of Cockburn
5	Environmental Assessment Report	Supporting document	N/A	N/A
6	Bushfire Management Plan	Supporting document	N/A	N/A
7	Transport Noise Assessment	Supporting document	N/A	N/A
8	Landscape Concept Plan	Supporting document	N/A	N/A
9	Servicing Report	Supporting document	N/A	N/A

Part One: Implementation

1 Structure Plan area

This Structure Plan applies to Lot 176 (119) Hammond Road, Success, being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1), herein referred to as the Structure Plan area.

Refer to Plan 1 – Structure Plan Map.

2 Operation

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

3 Staging

Subdivision is likely to occur in a single stage, continuing north from the existing residential subdivision immediately south of the subject site.

Servicing of the Structure Plan area is capable through the extension of existing services.

4 Subdivision and development requirements

4.1 Zones and reserves

The Structure Plan Map (Plan 1) outlines zones and reserves applicable within the Structure Plan area. Decisions relating to the future subdivision and development of the land within the Structure Plan area shall have due regard to the detail contained within this Structure Plan including the technical appendices.

The Structure Plan consists of the following zones and reserves:

- Residential (R30, R40 and R60)
- Parks and Recreation
- Local Road

4.2 Land use permissibility

Land use permissibility within the Structure Plan area shall be in accordance with the corresponding zone or reserve under the City of Cockburn Town Planning Scheme No. 3 (TPS3).

4.3 Development requirements

The City of Cockburn's Local Planning Policy 1.16 – Single House Standards for Medium Density Housing in the Development Zone (LPP 1.16) sets out acceptable variations to the deemed-to-comply provisions of the Residential Design Codes (R-Codes) for single dwellings on lots coded R25-R60 in areas zoned 'Development' under TPS3. Except in a situation where an approved Local Development Plan imposing R-Code variations for lots coded R60 or less applies, the variations set out in LPP 1.16 apply to this Structure Plan and thereby constitute acceptable development within the Structure Plan area.

4.4 Bushfire hazard

The Structure Plan area is located within an area where the surrounding bushfire hazard is assessed as being 'Extreme', 'Moderate' and 'Low', and is designated as a bushfire prone area on the Department of Fire and Emergency Services *Map of Bushfire Prone Areas 2018.* The staged clearing of the Structure Plan area, adequate separation of future built assets from classified vegetation, and ongoing fuel management will be undertaken to ensure future dwellings will be located in areas with an appropriate Bushfire Attack Level rating.

A bushfire management plan (BMP) has been prepared in support of this Structure Plan, which identifies the bushfire management measures required to be implemented by the developer in the initial stages of subdivision to ensure the relevant standards and performance criteria are met.

4.5 Transportation noise

The Structure Plan area is affected by transportation noise emanating from Beeliar Drive and Hammond Road. Any development proposal for noise-sensitive uses (e.g. residential) must be accompanied by a site-specific noise assessment undertaken by a qualified acoustic consultant, consistent with *State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning.* As such, a noise management plan will be required at subdivision stage to implement noise attenuation measures.

4.6 Protection of environmental features

The Structure Plan area currently consists of areas of native vegetation and cleared areas. Intact remnant vegetation [trees] are to be retained in the nominated POS area where possible, to the satisfaction of the local government.

A fauna Relocation Management Plan may be required as a condition of subdivision approval.

Advice note: *The City of Cockburn recommends the landowner/proponent liaise with the Department of the Environment and Energy in relation to compliance with the Environment Protection and Biodiversity Conservation Act 1999.*

4.7 Interface to adjoining land

The Structure Plan provides for an extension to Langano Chase and two new access streets extending from Delaronde Drive within the adjoining residential area to the south. A priority T-junction is the proposed form of control for the two new intersections with Delaronde Drive.

The Structure Plan has been designed to integrate seamlessly with the adjoining land, and provides a logical progression of residential development extending from the south.

4.8 Density targets

Strategy / Policy Document	Density Target	Provided (based on 40 lots)
Directions 2031 and Beyond	15 dwellings per gross urban zoned hectare	19.5 dwellings per gross hectare

Perth and Peel @ 3.5 million	26 dwellings per residential site hectare	32 dwellings per residential site hectare
Liveable Neighbourhoods	22 dwellings per site hectare	

5 Local Development Plans

Local Development Plan/s are to be prepared in accordance with Part 6 of the *Planning and Development (Local Planning Schemes) Regulations 2015* – Schedule 2 – Deemed Provisions. The main issues to be addressed include:

- Road noise amelioration requirements for dwellings.
- Building orientation to public open space.

6 Other requirements

6.1 Infrastructure upgrades

The Structure Plan area is capable of being serviced through the extension of existing services in the vicinity. No infrastructure upgrades are required to support the subdivision of the land.

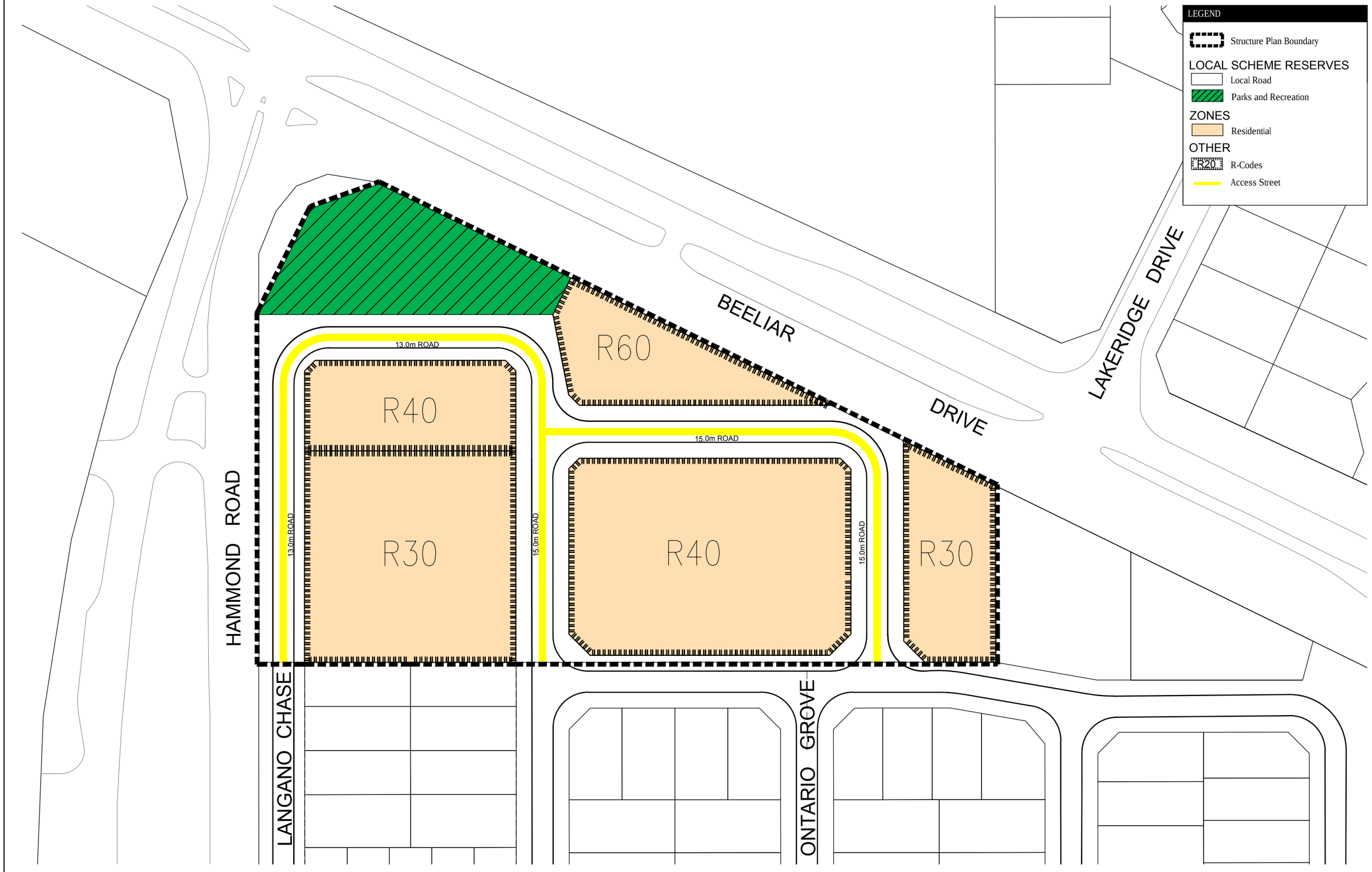
6.2 Developer contributions

Pursuant to the City of Cockburn Town Planning Scheme No. 3, the subject site is located within existing Development Contribution Area 1 (Success North) and Development Contribution Area 13 (Community Infrastructure).

7 Additional information

The following additional information is required to be submitted at the subdivision or development stage.

Additional information	Approval stage	Consultation required
Bushfire Attack Level Assessment (if required)	Subdivision and/or Development Application for identified lots	City of Cockburn
Mosquito Management Plan (if required)	Subdivision Approval Condition	City of Cockburn
Acid Sulfate Soils investigation (if required)	Subdivision Approval Condition	City of Cockburn



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SCALE	1: 750 @ A3
DATE	07 January 2019
FILE	190107 4900 Structure Plan.dwg
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STRUCTURE PLAN

LOT 176 (119) HAMMOND ROAD,
SUCCESS, WA

PLAN
01

Part Two: Explanatory Section

1 Planning background

1.1 Introduction and purpose

This Structure Plan has been prepared in accordance with the City of Cockburn (City) Town Planning Scheme No. 3 (TPS3) and the relevant Deemed Provisions of the *Planning and Development (Local Planning Scheme) Regulations 2015* (Planning Regulations). The purpose of the Structure Plan is to facilitate the urban development of Lot 176 (119) Hammond Road, Success (subject site).

With the support of the technical data, the proposed Structure Plan provides for the following:

- Pattern of land use.
- Network and hierarchy of roads.
- Public open space.
- Bushfire management.
- Water management.
- Servicing strategy.

Once endorsed, the proposed Structure Plan will guide the subdivision, land use and residential density for the subject site. In accordance with the Planning Regulations, the proposed Structure Plan does not seek to provide detailed development standards, nor does it seek to vary the requirements of the Residential Design Codes (R-Codes). Local Development Plans are able to fulfil this role if required.

As required by the Department of Planning, Lands and Heritage (DPLH), the proposed structure plan has been prepared in accordance with the requirements of *Liveable Neighbourhoods* (LN), and has been structured in accordance with the requirements of TPS3 and the WAPC's *Structure Plan Framework* (August 2015).

1.2 Land description

1.2.1 Location and regional context

The subject site has a street address of 119 Hammond Road, Success, and is located within the City of Cockburn local government area. It is situated approximately 20km south of Perth City Centre, 12km south east of Fremantle City Centre and 1km west of Cockburn Central Town Centre. Cockburn Central Station is approximately 1.5km east of the subject site, providing train services between Perth and Mandurah, and local bus services to surrounding areas.

The subject site is bound by Hammond Road to the west, Beeliar Drive to the north and Delaronde Drive to the south. Langano Chase abuts the south west corner of the subject site. All roads are sealed and gazetted. The Armadale Road / Beeliar Drive interchange to the Kwinana Freeway is located approximately 1.5km east of the subject site, providing convenient access to metropolitan Perth and Peel and regions beyond.

Abutting the subject site to the south is the Lakeside Success Structure Plan area, comprising a mix of residential zoned land and public open space. The Lakeside Success Structure Plan was originally adopted by Council in July 2012 and endorsed by the WAPC in March 2013, and the land is now largely built out.

1.2.2 Area and land use

The subject site comprises a single lot, with an area of approximately 2.0823 hectares and frontages of approximately 196m to Beeliar Drive, 116m to Hammond Road and 136m to Delaronde Drive.

The subject site is currently vacant, containing areas of native vegetation with clearing around the former residential dwelling and associated structures. The land is surrounded by a mix of residential and non-residential land uses. The land immediately north of the subject site on Beeliar Drive generally comprises commercial development, with a BP service station and car wash facility, storage facility and tavern located directly opposite the subject site. The land at the north west corner of the Beeliar Drive / Hammond Road intersection is broadly undeveloped, and identified for future mixed business and local centre development. The western side of Hammond Road comprises commercial development and educational facilities, with an 'Anytime Fitness' gym, various bulky goods retailing tenants and Emmanuel Catholic College located directly opposite the subject site to the west. The southern side of Delaronde Drive generally comprises low to medium density residential development and areas of open space and conservation to protect wetlands. Land adjoining the subject site to the east is currently cleared and zoned for residential development.

The topography of the subject site is generally flat, with height ranging between approximately 25m AHD in the south west and grading up to 28m AHD in the east (refer Appendix 1, Feature Survey).

Refer Figure 1, Aerial Photograph.

1.2.3 Legal description and ownership

The subject site is currently held in single land ownership. The lot details are outlined in Table 1.

Table 1 – Lot details

Lot	Deposited Plan	Volume	Folio	Area (hectares)
176	36818	2547	33	2.0823

Refer Appendix 2 for a copy of the Certificate of Title and Deposited Plan.

The north-west corner of the subject site is reserved 'Other Regional Roads' under the Metropolitan Region Scheme. This portion of the lot, comprising an area of approximately 330m², does not form part of the Structure Plan area.

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DATE	23 November 2018
FILE	01 1811123 4900 Aerial Photograph.dwg
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AERIAL PHOTOGRAPH

LOT 176 (119) HAMMOND ROAD,
SUCCESS, WA

FIGURE 01

1.3 Planning framework

1.3.1 Zoning and reservations

1.3.1.1 Metropolitan Region Scheme

Under the provisions of the Metropolitan Region Scheme (MRS) the subject site is predominantly zoned Urban. The subject site fronts Beeliar Drive and Hammond Road, which are reserved Other Regional Roads under the MRS.

The north west corner of the subject site is affected by the Other Regional Roads reserve, which has been excluded from the Structure Plan area.

The proposed Structure Plan applies only to the Urban zoned portion of the subject site, and is therefore consistent with the provisions of the MRS.

Refer Figure 2, MRS zoning map.

1.3.1.2 City of Cockburn Town Planning Scheme No. 3

The subject site is zoned Development under the provisions of the City of Cockburn Town Planning Scheme No. 3 (TPS3). Refer Figure 3, TPS3 zoning map. Clause 3.2 states the objective of the Development zone is:

> *To provide for future residential, industrial or commercial development to be guided by a comprehensive Structure Plan prepared under the Scheme.*

The proposed Structure Plan facilitates the coordinated development of the subject site for residential purposes. It takes into consideration future development and the existing land uses surrounding the subject site. The proposed Structure Plan has been prepared with due regard to the amenity of the existing locality and will demonstrate how integration with the surrounding land has been achieved. As such, the proposed Structure Plan is consistent with the objectives of the Development zone.

Under Table 9 of TPS3, the subject site is identified as Development Area 13 (DA13) – Hammond Road (Development Zone). The following provisions therefore apply:

1. *An approved Structure Plan together with all approved amendments shall be given due regard in the assessment of applications for subdivision, land use and development in accordance with clause 27(1) of the Deemed Provisions.*
2. *To provide for Residential development.*

Schedule 2 of the Planning Regulations provide a set of deemed provisions which automatically form part of every local planning scheme in the State. Clause 27 of the deemed provisions relates to the effect of a structure plan, with clause 27 (1) stating:

> *A decision-maker for an application for development approval or subdivision approval in an area that is covered by a structure plan that has been approved by the Commission is to have due regard to, but is not bound by, the structure plan when deciding the application.*

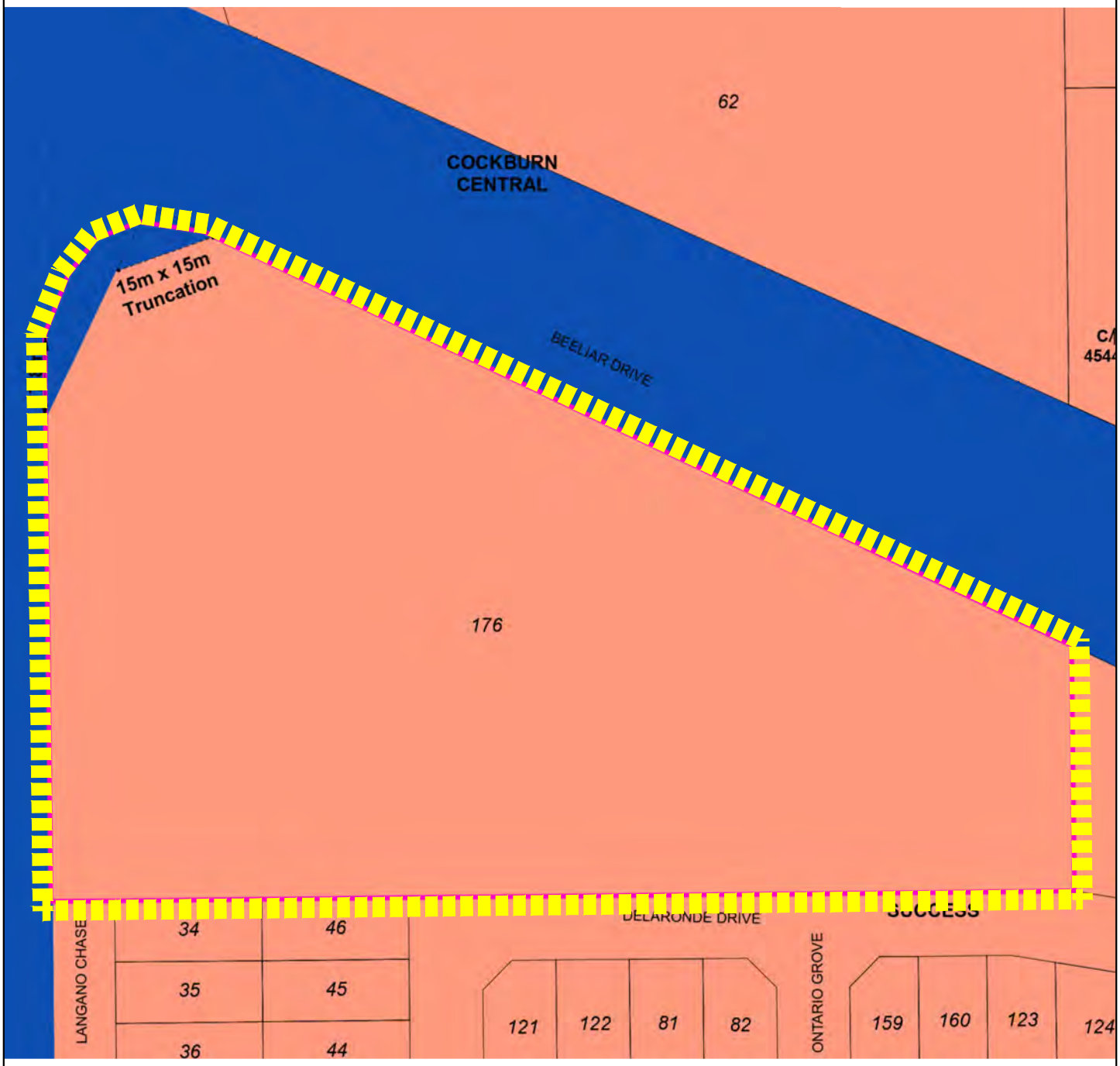
Consistent with the provisions of the Planning Regulations and TPS3, the proposed Structure Plan will guide the future subdivision and residential development of the subject site.

Under the provisions of TPS3, the subject site is also identified as being within Development Contribution Area 1 – Success North (DCA 1) and Development Contribution Area 13 (DCA 13).

Under Table 10 of TPS3, all landowners within DCA 1 are required to make a proportional contribution to the widening and upgrading of Hammond Road between Beeliar Drive and Bartram Road, Success. The developed contribution rate is calculated on a per hectare basis.

DCA 13 covers regional, sub-regional and local community infrastructure across the City of Cockburn, and applies to all land within the City which is to be subdivided and/or developed for residential purposes. Under DCA 13, rates are different for each suburb, with the contribution calculated on the basis of the number of lots/dwellings created.

Developer contributions will apply at the point of subdivision and/or development of the subject site.



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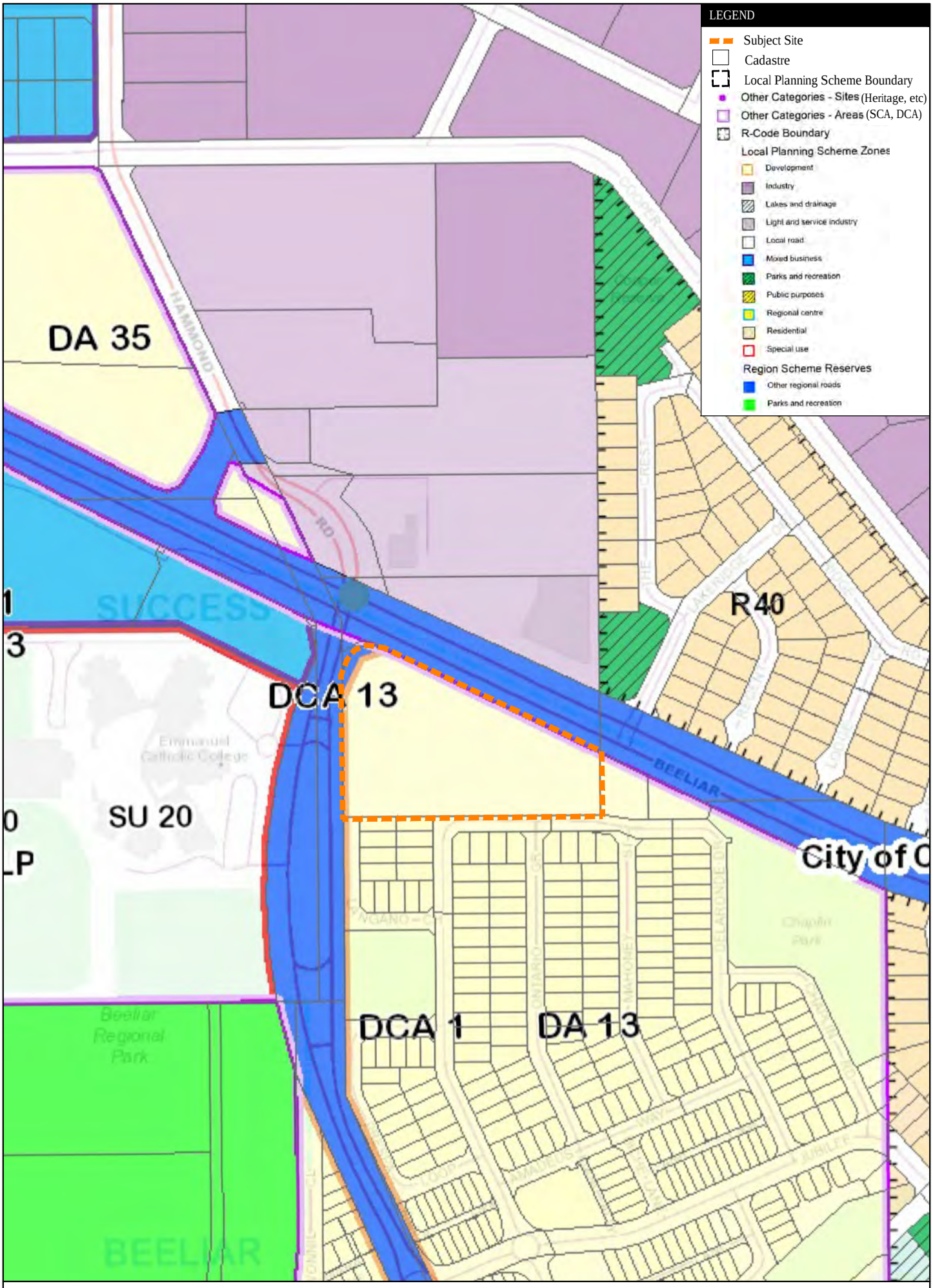
DATE	08 January 2019
FILE	02 190108 4900 Zoning Map.dwg
REVISION	1/DR/First Draft/23.11.2018 2/DR/2ND rev/08.01.2019

MRS ZONING MAP
METROPOLITAN REGION SCHEME
LOT 176 (119) HAMMOND ROAD, SUCCESS, WA

FIGURE 02



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SCALE	1:4,000 @ A4
DATE	23 November 2018
FILE	02 181123 4900 Zoning Map.dwg
REVISION	1/DR/First Draft/23.11.2018

LPS ZONING MAP
LOCAL PLANNING SCHEME

LOT 176 (119) HAMMOND ROAD,
SUCCESS, WA

FIGURE
03

1.3.2 Planning strategies

1.3.2.1 Directions 2031 and Beyond

Directions 2031 and Beyond (Directions 2031) is the overarching spatial framework and strategic plan that establishes a vision for the future growth of the Perth and Peel regions. It provides the framework to guide detailed planning and delivery of housing, infrastructure and services for a variety of growth scenarios. A medium density connected city model is put forward as the preferred means to achieve a liveable, prosperous, accessible, sustainable and responsible city.

In relation to the proposed structure plan, Directions 2031 promotes a diversity of dwelling types and increases in choice for residential areas. Directions 2031 seeks to address population growth scenarios and land use patterns for the medium to long-term increase of more than half a million people in Perth and Peel by 2031, as well as being prepared to provide for a city of 3.5 million people after 2050.

Directions 2031 sets a target of 15 dwellings per gross urban zoned hectare of land in new development areas. The residential portion of the proposed Structure Plan provides for approximately 40 dwellings, including single residential R30 and R40 lots, and R60 grouped dwellings, equating to a density of approximately 19 dwellings per gross urban zoned hectare, exceeding the target set under Directions 2031.

Due to the size and complexity of strategic planning for the metropolitan area, sub-regional strategies are prepared to provide guidance at the local level. The subject site falls within the south-west sub-region, which has a dwelling target of an additional 41,000 dwellings by 2031.

The proposed residential densities within this structure plan are in accordance with the Directions 2031 objectives and density targets.

1.3.2.2 Perth and Peel @ 3.5million and South Metropolitan Peel Sub-Regional Planning Framework

The *Perth and Peel @3.5million* strategy was published in draft form in 2015, and ultimately approved in final form in March 2018. The final version of the strategy was accompanied by a suite of sub-regional planning frameworks, defining the spatial plan of the Perth and Peel regions for the next 30 years in order to accommodate a population of 3.5 million people. The Strategy sets an increased residential density target of 26 dwellings per residential site hectare.

The South Metropolitan Peel Sub-Regional Planning Framework (Sub-Regional Framework) is a strategic planning document intended to guide the delivery of the objectives of Directions 2031. The Sub-Regional Framework covers an area of almost 5,000 square kilometres, and sets out proposals to meet future housing, employment and infrastructure needs while protecting environmental and landscape values. In order to progress urban growth in a coordinated and sustainable manner, the Sub-Regional Framework suggests the development of land zoned Urban and Urban Deferred is to accommodate increased urban infill development and higher densities in undeveloped areas already zoned for urban use.

Within the Sub-Regional Framework, Cockburn is identified as a Secondary Centre in the hierarchy of Activity Centres, and the subject site is identified as 'Urban'. The Sub-Regional Framework also identifies Cockburn as an area required to accommodate increased infill development in established urban areas, with a minimum urban infill dwelling target of 14,680 dwellings by 2050. The proposed residential infill development within this structure plan is in accordance with the Sub-Regional Framework urban infill objectives and dwelling targets for the Cockburn local government area.

1.3.3 Planning policies

1.3.3.1 State Planning Policy 3.0 – Urban Growth and Settlement

State Planning Policy 3.0 – Urban Growth Settlement (SPP 3.0) applies to all development throughout Western Australia. The policy notes that orderly planning of urban growth and settlement should be facilitated by structure plans, which should take into account the strategic and physical context of the locality, provide for the development of safe, convenient and attractive neighbourhoods which meet the diverse needs of the community, and facilitate logical and timely provision of infrastructure and services. The Structure Plan is consistent with the intent of SPP 3.0 in terms of attaining the policy's stated objectives. Accordingly, the proposed Structure Plan for the subject site warrants the support and endorsement of the determining authorities.

1.3.3.2 State Planning Policy 7.3 – Residential Design Codes Volume 1

State Planning Policy 7.3 – Residential Design Codes Volume 1 (R-Codes) applies to residential development in Western Australia. Clause 4.2.2 of TPS3 requires the development of land for residential purposes to conform to the provisions of the R-Codes.

The R30, R40 and R60 density codes identified on the proposed Structure Plan are interpreted by the R-Codes. Future subdivision and residential development across the subject site is to comply with the requirements of the R-Codes.

1.3.3.3 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7) seeks to implement effective, risk-based land use planning and development to preserve life and reduce the impact of bushfires on property and infrastructure, and is supported by the *Guidelines for Planning in Bushfire Prone Areas*. The policy contains objectives and policy measures, which apply to all land-use development proposals at varying stages of the development process. Refer to Section 2.4 of this report for further detail in relation to bushfire risk management.

1.3.3.4 State Planning Policy 3.6 – Development Contributions for Infrastructure

State Planning Policy 3.6 – Development Contributions for Infrastructure (SPP 3.6) outlines the relevant considerations and principles for developer contributions for infrastructure, and the preparation of development contribution plans. The subject site is located within the City of Cockburn's DCA 1 and DCA 13, as outlined previously. The subject site is capable of being developed independently through the extension of surrounding roads and services, and no further developer contribution arrangements are proposed.

1.3.3.5 State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning

State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP 5.4) aims to promote a system in which sustainable land use and transport are mutually compatible. Under SPP 5.4, Beeliar Drive is classified as a primary freight route, under Main Roads jurisdiction. According to Main Roads Trafficmap, Beeliar Drive (west of North Lake Road) carried an average 34,113 vehicles per day Monday to Friday in 2014/15, with Hammond Road (south of Beeliar Drive) carrying 8,395 vehicles per day in the same period. A Transport Noise Assessment has been prepared to assess the potential impact of traffic noise on future dwellings; refer to Section 2.6 of this report for further detail.

1.3.3.6 Liveable Neighbourhoods

The proposed Structure Plan has been prepared in accordance with the current (January 2009) version of Liveable Neighbourhoods (LN) as outlined in Section 3.3 of this report.

An updated version of LN was released by the DPLH for the purposes of public review in October 2015. Section 3.3 of this report only refers to the draft LN where necessary.

1.3.3.7 Development Control Policy 5.1 – Regional Roads (Vehicular Access)

The WAPC's Development Control Policy 5.1 Regional Roads (Vehicular Access) (DC 5.1) sets out the principles to be applied when considering proposals for vehicle access to or from developments abutting regional roads. DC 5.1 includes the following considerations:

> *3.3.1 In considering applications for access on regional roads, the effects of the proposals on traffic flow and road safety will be the primary consideration. The more important the regional road, the greater the importance attached to these factors. In general, the Commission will seek to minimise the creation of new driveways on regional roads and rationalise existing access arrangements.*
>
> *3.3.5 In determining applications for development involving the formation, laying out or alteration of a means of access to regional roads, the following must be considered:*
>
> *i) the effects of the development on traffic flow and safety, the character and function of the road, the volume and speed of traffic, the width of the carriageway and visibility; and*
>
> *ii) the volume and type of traffic generated by the development.*

No direct vehicular access between the subject site and Beeliar Drive or Hammond Road is proposed. Vehicles will access the subject site via Delaronde Drive to the south, which connects to Jubilee Avenue and beyond to Hammond Road and Wentworth Parade via Alabaster Drive.

Refer to Appendix 3 Traffic Impact Statement for consideration of the above factors.

1.3.3.8 Planning Bulletin 112/2016 – Medium-density single house development standards – Development Zones

Planning Bulletin 112/2016 – Medium-density single house development standards – Development Zones (R-MD Codes) outlines acceptable variations to the deemed-to-comply provisions of the R-Codes for medium-density single houses in development areas for consistent application across the State. Implementation of the R-MD Codes can be either through incorporation into a local planning scheme or by the adoption of a local planning policy. The basis for implementation of the R-MD Codes is provided for under the City's LPP 1.16, adopted in December 2017. Part One of this Structure Plan identifies that the R-MD Codes apply, consistent with the provisions of LPP 1.16.

1.3.3.9 Local Planning Policies

The City's planning framework comprises a suite of local planning policies pertaining to various matters and planning considerations. Relevant are the following local planning policies, which have been paid due regard in the preparation of the proposed Structure Plan:

- Local Planning Policy 1.12 – Noise Attenuation
- Local Planning Policy 1.16 – Single House Standards for Medium Density Housing in the Development Zone
- Local Planning Policy 5.1 – Public Open Space
- Local Planning Policy 5.5 – Local Development Plans
- Local Planning Policy 5.15 – Access Street Road Reserve Pavement Standards
- Local Planning Policy 5.18 – Subdivision & Development – Street Trees

1.3.4 Pre-lodgement consultation

1.3.4.1 City of Cockburn

Consultation and pre-lodgement engagement has occurred with the City of Cockburn (City) with respect to this structure plan.

On 9 January 2018, Planning Solutions contacted the City regarding the proposed subdivision of the subject site. On 17 January 2018, the City advised that a structure plan is required for the subject site prior to considering a subdivision proposal, and provided the following preliminary comments with respect to the proposal:

- Structure Plan report is to comply with the WAPC's current framework.
- Structure Plan report appendices are to include:
    - Traffic Impact Statement
    - Acoustic report
    - Bushfire Management Plan
    - Servicing report
    - Local Water Management Strategy
    - Appropriate Flora Survey reports
- Subdivision / Structure Plan is to provide for 10% public open space.

Further to receiving the City's preliminary advice, Planning Solutions contacted the Department of Planning, Lands and Heritage seeking their comments on the proposed subdivision of the subject site. The outcomes of these consultations are detailed in the section below.

In the following months, various co-consultants were engaged to undertake the necessary assessments and reporting for the subject site, in accordance with the City's instructions. All required reporting is provided in support of this structure plan, including a Drainage Strategy which was approved by the Department of Water and Environmental Regulation (DWER) on 20 September 2018, in lieu of a Local Water Management Strategy. The Drainage Strategy was also submitted to the City's engineering department for review and acceptance, with acceptance provided by the City on 8 October 2018 (via email). Refer to Appendix 4, approved Drainage Strategy and DWER letter of advice.

On 27 November 2018, Planning Solutions attended a meeting with senior planning officers at the City to discuss the draft Structure Plan concept, which proposed 31 single residential lots zoned Residential R30 and R40. The City provided feedback on various matters with respect to the proposed structure plan for the subject site, which was subsequently updated to address the City's feedback, including:

- Provision of an area of public open space equating to 10% of the total site area;
- A modified internal road layout; and
- Adjustments to the residential densities across the site.

A follow up meeting with the City's officers on 7 December 2018 highlighted the City's general acceptance of the updated structure plan concept plan, and the co-consultant reporting intended to support the Structure Plan.

1.3.4.2 Department of Planning, Lands and Heritage

Consultation and pre-lodgement engagement has occurred with the DPLH with respect to this structure plan. The DPLH provided various written correspondence in April and May 2018 confirming the requirement for a Structure Plan for the subject site, addressing the following:

- Threatened ecological communities
- Remnant Vegetation and Black Cockatoo Habitat
- Banksia Woodlands
- Bushfire Risk
- Public Open Space
- Transport Noise
- Residential Density

The Structure Plan has been prepared with regard to the DPLH's preliminary advice.

2 Site conditions and constraints

2.1 Biodiversity and natural area assets

2.1.1 Vegetation and Flora

The Structure Plan area currently consists of areas of native vegetation and cleared areas. A site visit conducted by Eco Logical Australia identified two vegetation associations within the subject site, comprising EmBaBm vegetation (*Banksia attenuata, Eucalyptus marginata* subsp. *marginata* and *Banksia menziesii* woodland) and Planted Pines (*Pinus pinaster*). Significant disturbance was also found throughout the site in the form of cleared areas, modified vegetation and weed infested areas.

No threatened flora species were recorded within the subject site, as listed under section 178 of the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) or pursuant to Schedule 1 of the *Wildlife Conservation Act 1950* and as listed by Department Biodiversity, Conservation and Attractions (DBCA) or Priority flora species as listed by Western Australian Herbarium.

Vegetation condition within the subject site ranged from Completely Degraded to Very Good based on the *EPA Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment.* The areas associated with EmBaBm vegetation were mapped as being in Very Good (0.39 ha), Good (0.53 ha) and Degraded (0.32 ha) conditions. The areas associated with the Planted Pines vegetation were mapped as being in Completely Degraded condition (0.43 ha). The cleared areas were mapped as being in Completely Degraded condition (0.41 ha).

With regard to Threatened Ecological Communities (TEC), the site is designated in an area where the Banksia Woodlands of the Swan Coastal Plain TEC may occur. The EmBaBm vegetation recorded on site contained banksia species known to be associated with this TEC. Accordingly, a diagnostic assessment (see Appendix D of Appendix 5) was conducted to determine if the proposal is required to be referred to the Department of Environment and Energy under the EPBC Act. For EPBC Act referral, assessment and compliance purposes, the national ecological community is limited to patches that meet key diagnostic characteristics, condition thresholds, and minimum patch sizes. The minimum patch sizes are assessed on the condition of the vegetation. For vegetation assessed as being in Very Good and Good condition, the minimum patch sizes are 1 ha and 2 ha respectively. The EmBaBm patch on site covers a total area of 1.24 ha and is not considered to form part of a larger patch outside of the structure plan site. As the patch consists of 0.53 ha of EmBaBm in Very Good condition and 0.39 ha in Good condition, it does not meet the minimum patch size requirements to be considered as part of the Banksia Woodlands of the Swan Coastal Plain TEC. In respect of this, the proposal has not been referred to the Department of Environment and Energy under the EPBC Act.

Refer Appendix 5, Environmental Assessment Report prepared by Eco Logical Australia.

2.1.2 Black Cockatoos

Eco Logical Australia undertook a targeted habitat assessment for black cockatoos listed as Threatened under the *Environmental Protection and Biodiversity Conservation Act 1999*, being the Carnaby's Black-Cockatoo, Baudin's Black-Cockatoo and Forest Red-tailed Black-Cockatoo.

No black cockatoos were observed within the site at the time of assessment however evidence of foraging was observed. Vegetation within the site provides potential suitable foraging habitat for all three species of black cockatoos, however the quality of this habitat is predominantly poor.

Eleven potential significant trees for black cockatoos were recorded throughout the site. Only one tree was observed to have a hollow of suitable size for breeding purposes, however no signs of use were observed. There was no evidence of black cockatoo breeding activity at the time of assessment.

Refer Appendix 5, Environmental Assessment Report.

2.2 Landform and soils

2.2.1 Topography

The subject site is generally flat, with site levels ranging between approximately 25m AHD in the south west and grading up to 26m AHD in the north west and 28m AHD in the north east.

Refer to Appendix 1, Feature Survey.

2.2.2 Soils

Geological mapping shows the subject site to be underlain by the sands of the Bassendean Formation.

A geotechnical investigation of the subject site found topsoil present across much of the site to a depth of about 0.1m. The material is unsuitable for foundation support and should be removed from the site prior to development or stockpiled for later use in landscaping. The topsoil is underlain by well-draining, medium grained, grey and orange brown, cohesionless sand to a depth of at least 2m. The in-situ sand contains low fines content and zero plasticity. Laboratory gradings with in-situ permeability tests show drainage characteristic of the sand to be good, with a permeability of approximately $1x10^{-3}$m/s. The sand is typical of the Bassendean Formation. No uncontrolled fill was encountered in the test holes.

The site classification will be Class 'A', in accordance with AS 2870 – 2011, with the foundation defined as *"most sand and rock sites with little or no ground movement from moisture changes".* The land is therefore suitable for development.

Refer Appendix 4, Drainage Strategy prepared by Porter Consulting Engineers, which includes a copy of the Geotechnical Investigation report prepared by Brown Geotechnical.

2.2.3 Acid sulfate soils

A search of the Acid Sulfate Soil (ASS) Risk Map, Swan Coastal plan (DWER-055) shows that the whole site is at moderate to low risk of ASS occurring within 3m of natural soil surface, but high to moderate risk of ASS beyond 3m of natural soil surface (DWER 2018). An ASS assessment may be required at subsequent stages of subdivision/development, where there is risk of disturbing ASS.

2.2.4 Contamination

The subject site is not listed as a contaminated site on the DWER database.

2.3 Groundwater and surface water

No groundwater was encountered during the geotechnical investigation fieldwork. The Perth Groundwater Map indicates the historical maximum groundwater level for the site to be approximately

23m AHD. The site level falls from approximately 28m AHD in the east to 25m AHD in the west. Groundwater levels are therefore expected to be at least 3m below the existing ground level.

Refer to Appendix 4, Drainage Strategy and Geotechnical Investigation report.

2.4 Bushfire hazard

The Bushfire Management Plan (BMP) for the subject site has been prepared by Eco Logical Australia. Refer to Appendix 6, Bushfire Management Plan. The purpose of the BMP is to address the fire protection risks within the subject site. Implementation of the BMP will reduce the threat to the landowners, residents, visitors and firefighters in the event of a bushfire within or near the site. It achieves this by presenting the minimum requirements to be implemented.

Eco Logical Australia undertook a bushfire assessment of the vegetation within the subject site and surrounding 150m, in accordance with the *Guidelines for Planning in Bushfire Prone Areas v 1.3* (Guidelines) and AS 3959-2009 *Construction of Buildings in Bushfire Prone Areas.* The bushfire assessment identified two vegetation classes and exclusions within the assessment area, comprising Class B woodland and Class G grassland, and exclusions of single areas of vegetation less than 1 hectare in size, and non-vegetated areas and low-threat vegetation.

As part of the subdivision process, the on-site vegetation extent is proposed to be predominantly cleared to enable the residential development of the land, with managed landscaping in the area of public open space. Bushfire hazards can therefore be managed through a staged clearing process, adequate separation of future built assets from classified vegetation, and ongoing fuel management within the site.

As outlined in the BMP, the pre-development bushfire hazard level (BHL) assessment of the Structure Plan area was mapped as a moderate and extreme bushfire hazard, as defined under the Guidelines. The post-development BHL assessment mapped the Structure Plan area as a low bushfire hazard for the majority of the site, with only a minor portion of the subject site (where POS is proposed) mapped as a moderate hazard. The BMP includes a list of bushfire protection requirements which will provide for an adequate standard of bushfire protection for the Structure Plan area. The BMP concludes that the proposed development of the subject site is consistent with the aims and objectives of SPP3.7 and associated Guidelines for the site, and should be supported accordingly.

2.5 Heritage

2.5.1 Aboriginal heritage

A search of the DPLH Aboriginal Heritage Inquiry System has confirmed there is a Registered Aboriginal Site affecting the Structure Plan area. The subject site is within the 'Yangebup Lake' registered site (site ID 18937). Development of the land will not compromise the cultural and heritage values of this site.

2.5.2 European heritage

There are no sites of European heritage significance listed for the subject site on any Commonwealth, State or Local heritage lists and inventories. The subject site is not constrained from development in this regard.

2.6 Transport noise

A Transport Noise Assessment (TNA) for the subject site has been prepared by Lloyd George Acoustics, as the Structure Plan area is located adjacent to two major roads (Beeliar Drive and Hammond Road). The assessment was undertaken in accordance with the requirements of SPP5.4. Refer Appendix 7, Transport Noise Assessment.

As outlined in the TNA, with no noise control, the road traffic noise levels for future dwellings at the subject site will be above the daytime target of 55 db $L_{Aeq(Day)}$. As such, the following noise controls are required to comply with the provisions of SPP5.4:

- Construct a solid 1.8m high (relative to finished lot levels) noise wall along the Beeliar Drive boundary to the extent of the proposed residential lots, as an extension of the existing acoustic wall located to the east of the subject site, with a minor extent of the noise wall to wrap around the north western portion of the proposed R60 grouped dwelling lot.
- Where residences are predicted to experience future noise levels between, and including, 55 db and 60 db $L_{Aeq(Day)}$, Package A architectural treatments are to be incorporated, as defined under the Implementation Guidelines for SPP5.4.
- Where residences are predicted to experience future noise levels between, and including, 61 db and 63 db $L_{Aeq(Day)}$, Package B architectural treatments are to be incorporated, as defined under the Implementation Guidelines for SPP5.4.
- All affected lots are to have notifications on lot titles as per the SPP5.4 requirements.
- Where an affected lot is to be of double storey construction, specialist advice must be sought since the upper level will not receive the same level of attenuation provided by the walls or other dwellings.

The TNA states that outdoor entertaining areas will be generally within the 5db margin and therefore considered acceptable.

2.7 Context and other land use constraints and opportunities

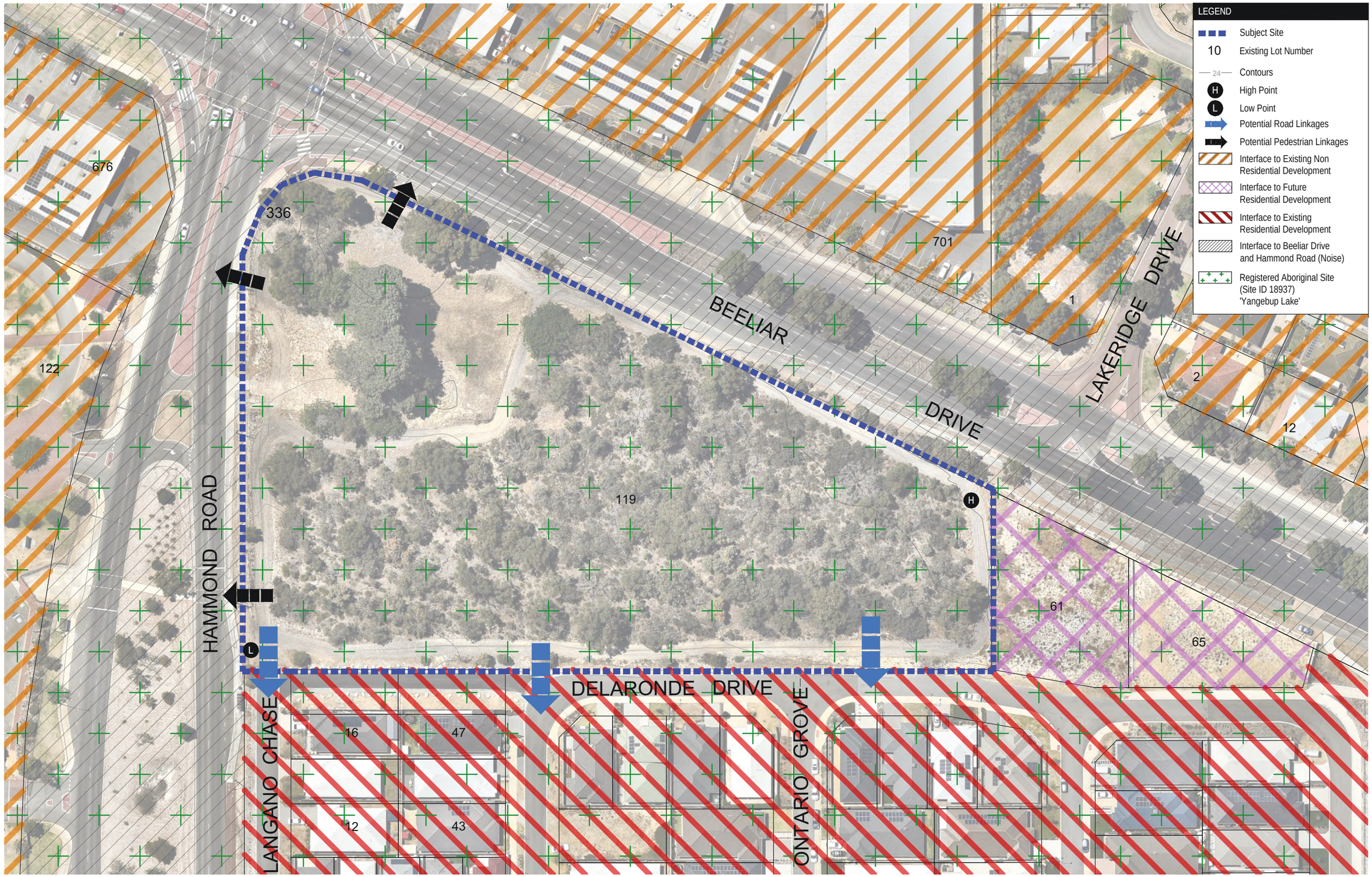
The site context and constraints have been identified and are discussed below. Refer to Figure 4, context and constraints map.

2.7.1 Residential interface

The subject site abuts residential development to the south and future residential development to the east. Integration with the surrounding residential development is an important factor which has been considered in the preparation of the Structure Plan. The existing approved road network through the land to the south has influenced the road configuration through the subject site to ensure seamless connectivity. The layout of the structure plan allows the adjoining land to the east to be subdivided and developed in the future, in a coordinated and integrated manner. The mix of residential densities of R30, R40 and R60 proposed under the Structure Plan are compatible with the land to the south and the east of the site with corresponding densities.

2.7.2 Beeliar Drive and Hammond Road interface

The subject site fronts Beeliar Drive to the north and Hammond Road to the west, both of which are reserved 'Other Regional Roads' under the provisions of the MRS. There is a general presumption against providing individual lot access or multiple road intersections with major arterial routes such as these, which is reflected in LN and DC5.1. Accordingly, all vehicular access to the Structure Plan area is intended to be taken through extension to the existing internal road network to the south.



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SCALE	1: 750 @ A3
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FILE	190109 4900 Context and Constraints.dwg
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CONTEXT AND CONSTRAINTS

LOT 176 (119) HAMMOND ROAD,
SUCCESS, WA

FIGURE
04

3 Structure Plan

3.1 Land use

The proposed Structure Plan (refer to Plan 1) provides for the development of the subject site for residential purposes, consistent with the intent of the 'Development' zoning of the subject site under TPS3 and the 'Urban' zoning under the MRS. The proposed Structure Plan will facilitate the development of single and grouped housing across the subject site, designating the following reserves, zones and residential densities:

Zones and Residential Design Codes Densities

- Residential (R30, R40 and R60)

Reserves

- Parks and Recreation
- Local Road

The proposed land uses integrate with the existing use of the land in the vicinity for residential purposes, and proposes a logical extension of urban development extending from the south. The proposed land use complements and integrates with the current and future use of the surrounding land for residential purposes.

3.2 Open space

The proposed Structure Plan contains one defined area of Public Open Space (POS), within the north-western corner of the subject site, fronting the intersection of Beeliar Drive and Hammond Road. The POS comprises an area of 2,130m², and is intended to provide for local passive and recreational activities. The POS will be attractively landscaped and will form a feature entrance statement to the estate, reducing the visual impact of the busy Beeliar Drive / Hammond Road intersection.

It is noted that LN has been reviewed by the WAPC, with the *Draft Liveable Neighbourhoods 2015* document being released for public comment in October 2015. Under the Draft LN document, the proposed POS is classified as a Small Park, which are identified as being up to 4,000m² (0.4 ha) in size, with an accessibility catchment of 300m. Small Parks are designed to contribute to the landscape character and amenity of the neighborhood and make walking through the area more enjoyable and appealing to residents. These parks are primarily designed to be used as linkages in a network of green, shaded streetscapes and linear parklands, and facilitate ease of access for local residents to recreational opportunities.

The total proportion of POS provided is 10.4% of the gross subdivisible area of subject site – refer to Table 2, Public Open Space Schedule. This exceeds the minimum requirement for 10% of the gross subdivisible area to be provided as POS under LN. Minor adjustments to the ultimate size and configuration of the POS may be made at the subdivision stage, subject to complying with the minimum 10% requirement of LN.

Table 2 – Public Open Space Schedule

Total site area (ha)		2.0823
Deductions		
'Other Regional Roads' Reserve	0.0336	
Total Deductions		0.0336
Gross subdivisible area (total area minus deductions)		2.0487
Public open space @ 10 per cent		0.2049
May comprise:		
Minimum 80% unrestricted public open space	0.1639	
Maximum 20% restricted use public open space	0.0410	0.2049
Breakdown of POS provided		
Restricted use public open space	0	
Unrestricted public open space	0.2130	
Total public open space provision		0.2130
POS Provision as Percentage of Gross Subdivisible Area		10.4%

Given the approved Drainage Strategy (refer Appendix 4) does not rely on drainage within the POS, the entire area is classified as 'Unrestricted POS' under LN. Consistent with the objectives of LN, the POS provided will serve a number of functions, including recreation activities and enhancing the amenity of the area. The local park is intended to incorporate a mix of trees and garden beds along its frontages to Beeliar Drive and Hammond Road, providing an enhanced outlook from within the subject site. A mix of spaces for passive and active recreation will be provided, such as picnic areas and kickabout areas. A feature footpath through the POS will link the residential estate with the existing external path network.

The POS is bordered by roads on all sides, with a small portion adjoining the R60 grouped housing site. The layout of the proposed Structure Plan provides for future dwellings on adjacent lots to be oriented towards the POS to benefit from the amenity of the natural features and to encourage surveillance of the space. All of the proposed lots within the Structure Plan area are located within 200m walking distance of the POS via the internal pedestrian path network. The lots are also located in close proximity to other areas of POS, including Delaronde Park, Lakeridge Park and Chaplin Park, which provide for additional recreational functions for future residents.

The POS is intended to be ceded free of cost to the Crown under Section 152 of the *Planning and Development Act 2005*. The POS will be developed to acceptable standards.

Refer Appendix 8 for a copy of the landscape concept plan prepared by LD Total, depicting the proposed landscaping of the POS.

3.3 Residential

The proposed Structure Plan will achieve a variety of residential densities to ensure a diversity of housing. The subject site is proposed to be zoned Residential with a mix of R30, R40 and R60 density codings. The R30 and R40 densities are reflective of the existing and proposed surrounding residential development, which generally ranges from R30 to R40.

A higher density R60 grouped housing site is proposed adjacent to the POS and Beeliar Drive. Due to the unusual configuration of this site and the required noise wall along the northern boundary, a grouped housing development is considered to be the most appropriate development outcome for the site, as it will allow for an innovative and site-responsive design to be considered.

A Structure Plan concept plan has been prepared to demonstrate one way in which the subject site could be subdivided in accordance with the proposed Structure Plan (refer to Figure 5).

Residential lots will be oriented toward the primary street and POS where possible, and all single lots will gain direct access from the internal road network.

The proposed Structure Plan will provide for the development of approximately 34 single residential lots and one R60 grouped housing lot. The potential residential lot and dwelling yield is summarised in Table 3 below.

Table 3 – Yield summary

Zoning	Average lot size	Estimated number of lots	Estimated number of dwellings
Residential R30	450m²	12	12
Residential R40	300m²	22	22
Residential R60	150m²	1	6 grouped dwellings
	Total	35	40

Assuming an average household size of approximately 2.8 based on current and future trends within Success, the estimated population within the subject site equates to approximately 112 people.

The proposed residential densities are in accordance with the objectives of State-level strategic planning documents, which advocate increased housing diversity, adaptability, affordability and choice. The Structure Plan concept plan (Figure 5) has been prepared in accordance with *Liveable Neighbourhoods* design principles and provides for increased residential densities in areas of high amenity.

The dwellings capable of being achieved under the Structure Plan exceed the applicable density targets set out under the State planning framework, as outlined in Table 4 below.

Table 4 – Structure Plan density calculations

Strategy / Policy Document	Density Target	Structure Plan area	Density Achieved (based on 40 lots)
Directions 2031 and Beyond	15 dwellings per gross hectare	2ha gross urban zoned area	19.5 dwellings per gross hectare
Perth and Peel @ 3.5 million	26 dwellings per residential site hectare	1.2ha residential site area (excludes local road reserves and POS)	32 dwellings per residential site hectare
Liveable Neighbourhoods	22 dwellings per site hectare		

The proposed Structure Plan will deliver a variety of lot sizes and types to facilitate housing diversity and choice, and meet the projected requirements of people with different housing needs.

LEGEND

Structure Plan Boundary

LOCAL SCHEME RESERVES

Local Road

Parks and Recreation

ZONES

Residential

OTHER

R20 R-Codes

Access Street

2130 m²

BEELIAR DRIVE

LAKERIDGE DRIVE

HAMMOND ROAD

13.0m ROAD

15.0m ROAD

R60 (GROUPED HOUSING)

23.2

4.2

71.5

R40

25.6

10.0

R30

30.0

30.0

15.0

R40

17.0

25.0

28.0

10.0

8.5

R30

25.1

26.1

12.5

DELARONDE DRIVE

LANGANO CHASE

ONTARIO GROVE

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SCALE	1: 750 @ A3
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REVISION	1/DR/First Draft/07.01.2019

CONCEPT PLAN

LOT 176 (119) HAMMOND ROAD,
SUCCESS, WA

FIGURE 05

3.4 Movement network

A Traffic Impact Statement (TIS) has been prepared by Porter Consulting Engineers to address the traffic implications of the proposed Structure Plan, including estimation of the traffic which would be generated by the subject site and the resultant impacts on the surrounding road network. The TIS includes a capacity analysis of the proposed Structure Plan access system and the key local intersections as well as making recommendations for any traffic management measures that may be required to ensure satisfactory traffic operations. Refer Appendix 3 for the complete Traffic Impact Statement.

3.4.1 Road hierarchy

Traffic projections for the subject site show that, in accordance with LN, all internal roads can be classified as Access Street D. The maximum desirable traffic volume for this type of road is 1,000 vehicles per day (vpd). The typical road reserve for Access Street D under the current LN provisions entails a width of 14.2m with 6m wide trafficable carriageway pavement and 4.1m wide verges on both sides. If fronting POS, access street verges adjacent to the POS may be reduced to 1.0m. However, in considering the draft LN requirements and in order to ensure consistency with the existing road network to the immediate south, the Structure Plan proposes road reserves of 15.0m, and 13.0m adjacent to POS and where dwellings are located on one side of the road only.

The street network provides a high level of internal connectivity and good external linkages for local vehicle, pedestrian and bike movements. The layout of streets enables development to front all streets and areas of POS.

3.4.2 Traffic projections and distribution

The subject site is expected to generate approximately 378 total daily vehicular trips for a typical weekday. The total daily vehicular traffic includes both inbound and outbound trips. Trip generation during the AM and PM peak periods for the subject site is estimated to be in the order of 36 trips per hour.

Of the generated daily traffic, 189 vehicle movements are assumed to be inbound and 189 vehicle movements are assumed to be outbound. Based on the connectivity of the surrounding road network, various trip purposes and the surrounding land uses, it is expected that proportionally more traffic from the subject site will access the distributor road network using the intersection of Hammond Road/Jubilee Avenue (75%) compared to Jubilee Avenue and Alabaster Drive (25%). The additional increase in traffic from the Structure Plan area can be readily accommodated within the spare capacity of the surrounding road network, and the additional peak hours increase will have an insignificant impact on the existing operation of the roundabout at the Jubilee Avenue / Hammond Road intersection.

Based on the above, it is concluded that the adjacent road network has the capacity to accommodate the anticipated Structure Plan traffic.

3.4.3 External intersections

The proposed road network will result in the creation of two new intersections along Delaronde Drive, which have been assessed to operate satisfactorily. A priority T junction is the proposed form of control for each of the intersections. The former bend along Delaronde Drive is to become a T-junction and a new T-junction is to be created 20m to the east of the existing T-junction of Delaronde Drive and Ontario Grove. The proposed layout is the preferred arrangement for closely staggered T-junctions.

3.4.4 Public transport

The subject site has good access to public transport, with bus stops located on Beeliar Drive and Hammond Road within 200m walking distance of the site. Bus service Routes 530 and 531 travel along Hammond Road and bus service Routes 522, 530, 531 and 532 travel along Beeliar Drive. These bus services connect the subject site to Coogee beach to the west, Fremantle Strategic Metropolitan Centre to the north, and Cockburn Central Regional Centre and Cockburn train station to the east.

3.4.5 Pedestrian and cycling facilities

Beeliar Drive and Hammond Road both have dual use paths in proximity to the subject site. The signalised intersection of these roads has pedestrian signals to accommodate the crossing of pedestrians. The local access streets immediately south of the subject site typically have a footpath on one side to accommodate the local residential pedestrian and cyclist movements. The path network will be extended through the subject site, and integrated with the existing surrounding path network.

Due to the relatively low level of traffic forecast for internal Structure Plan roads, cyclists and vehicles can be expected to safely share the road network, and no dedicated cyclist facilities are proposed or required for the Structure Plan area.

3.5 Water management

A Drainage Strategy has been prepared by Porter Consulting Engineers in support of this Structure Plan, in lieu of a Local Water Management Plan, which the Department of Water and Environmental Regulation (DWER) determined was not required due to the small, infill nature of the Structure Plan. Refer Appendix 4 Drainage Strategy and DWER letter of advice dated 20 September 2018.

The proposed subdivision layout and drainage network has been designed to meet best practice water management requirements and promote the integration of stormwater management into the urban form.

Flat level lots will be provided with low retaining walls as required. All roads will sit above the adjacent road level. Runoff from lots up to the 5% annual exceedance probability (AEP) storm event will be contained onsite via soakwells installed at building stage. Excess lot runoff up to 1% AEP storm event will be stored and disposed of within the adjacent road reserve. The existing drainage network along Delaronde Drive will manage the excess lot runoff from the eight residential lots fronting Delaronde Drive.

The development will consist of a kerbed road network with paths that follow the natural lay of the land. The road network will free drain with no trapped lows. Standard drainage inlet arrangements are proposed.

The road reserve runoff will be stored and infiltrated onsite via soakwells and an approved underground leach tank system. The drainage system has been sized to cater for road reserve runoff and excess lot runoff up to the 1% AEP storm event.

Based on the proposed development layout and existing soil properties of the subject site, the site can hold and dispose of runoff from the 1% AEP storm event onsite via standard inlet and below ground drainage system. Excess runoff from extreme storm events will be directed away from the site and to the natural low to the south.

3.6 Education facilities

There are no education facilities proposed as part of this Structure Plan. The subject site is located opposite Emmanuel Catholic College to the west, which is a religious school catering for Years 7 to 12. The subject site is located within the local intake areas for Jandakot Primary School and Atwell College, which are both Independent Public Schools. Jandakot Primary School is located approximately 1.2km south of the subject site, catering to Kindergarten – Year 6. Atwell College is located approximately 2.6km to the south east of the subject site, catering to Years 7 – 12. Other non-government schools within close proximity to the subject site include Mater Christi Catholic Primary School and Divine Mercy College.

The existing education facilities located in the surrounding area are considered adequate to cater to the primary and secondary schooling needs of the community.

3.7 Activity centres and employment

There are no activity centres proposed as part of this Structure Plan. The subject site is located in close proximity the recently approved Hammond Road North Structure Plan (HRNSP) area, which is sited on the opposite corner of Beeliar Drive and Hammond Road to the north-west. The HRNSP is intended to facilitate the development of a neighbourhood centre, and is identified as a 'Strategic Employment Centre' under the City's Local Commercial Activity Centre Strategy. This future neighbourhood centre will provide for the daily convenience shopping needs and opportunities for local employment for future residents. The subject site is also located less than 1km from the Cockburn Gateway Shopping Centre, which is the main activity centre for the broader region, providing a range of services, facilities and employment opportunities.

The residential zoning of the land within the Structure Plan area will allow for home-based businesses, home occupations and home offices to be established within the subject site, pursuant to separate approval by the City of Cockburn.

3.8 Infrastructure coordination, servicing and staging

Investigations into the engineering works and civil infrastructure required to develop the site has been undertaken by Porter Consulting Engineers. Refer to Appendix 9 for the complete Servicing Report.

3.8.1 Siteworks and earthworks

Clearing of existing structures and/or vegetation will be required to accommodate development. Top soil across the site is not suitable for foundation support and will be removed and/or screened to remove any root material and re-used in landscaping areas. Alternatively, the topsoil could be screened to remove all coarse organic material and blended with clean sand fill material for use as engineering fill.

It is anticipated that imported fill will be required to achieve suitable site classifications in accordance with Australian Standard AS2870-1996.

Minor cut and fill may be required depending to shape the site. It is expected a Class A site will be achieved. Minor retaining walls may be required to account for level differences between lots.

3.8.2 Water supply

Direct connections to the existing water mains to the south will be made to service the subject site. Standard water reticulation mains and pre-laid taps will be required to service each of the proposed lots.

3.8.3 Sewer reticulation

The subject site will be serviced off the existing sewer reticulation mains to the south. Standard reticulation infrastructure will be required to service each of the proposed lots.

3.8.4 Power supply

Western Power mapping indicates the area has spare capacity in the order of 5MVA (2019). This is sufficient to service a residential development of this size.

High voltage infrastructure, including transformers and switchgears, may be required to service the subject site with low voltage servicing each lot. It is anticipated direct connections to the adjoining existing infrastructure can be made.

3.8.5 Telecommunications

The subject site will be serviced via direct connections to the existing NBN infrastructure to the south.

3.8.6 Gas

The existing gas network to the south will be extended north into the subject site to service all lots.

3.9 Developer contribution arrangements

Developer contributions are to be made in accordance with City's requirements, as detailed in section 1.3.1.2 of this report. No further developer contributions are proposed or required to facilitate the future subdivision and development of the subject site.

Appendix 1
Feature Survey

Appendix 2
Certificate of Title and Deposited Plan

Appendix 3
Traffic Impact Statement

Appendix 4
Drainage Strategy & DWER letter of advice

Appendix 5
Environmental Assessment Report

Appendix 6
Bushfire Management Plan

Appendix 7
Transport Noise Assessment

Appendix 8
Landscape Concept Plan

Appendix 9
Servicing Report