

Harley Dykstra

PLANNING & SURVEY SOLUTIONS

Structure Plan

Lots 71, 72, 73 & 500 Fawcett Road, Lake Coogee (Munster)

Local Structure Plan

Prepared by Harley Dykstra Pty Ltd

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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 APPROVED BY RESOLUTION OF
THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

.....**28 September 2022**.....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

.....**04 October 2022**.....Date

.....**04 October 2032**.....Date of Expiry

TABLE OF AMENDMENT(S)

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

DOCUMENT STATUS

Revision	DATE	Status	Distribution	Comment
A	5/10/2016	Draft	Client	For client review
B	6/02/2017	Draft	Local Authority	For preliminary review by Local Authority
C	30/09/2017	Draft	Local Authority	Revised following preliminary review by Local Authority
D	14/2/2018	Final for formal lodgement	Local Authority	Revised following further review by Local Authority
E	10/3/2022	Final for Endorsement	Local Authority and WAPC	Updated in accordance with WAPC schedule of modifications

PROJECT DETAILS

Proponent		In collaboration with	
Prepared for:	The Landowners (Tolich, Monastra, Scidone)	LWMS Environmental	Bayley Environmental Services
Prepared by:	Harley Dykstra	Bushfire Management Plan	RUIC

DOCUMENT REFERENCE

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Date: 10 March 2022	
Job No: D10/757	
Ref: Structure Plan Lots 71-73 & 500 Fawcett Rd, Lake Coogee	

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Executive Summary

Structure Plan

Lots 71, 72, 73 & 500 Fawcett Road, Lake Coogee

This report represents an application to the Western Australian Planning Commission to consider a proposed Structure Plan over Lots 71, 72, 73 & 500 Fawcett Road, Lake Coogee ('the subject land').

The Structure Plan comprises a total area of 5.5742ha (including the 8m² portion of Lot 71 zoned 'Urban Deferred' and 810m² portion of existing road reserve) and is situated approximately 20km due south-west of the Perth CBD, 2.5km east of the Indian Ocean coastline and 7km west of Cockburn Central and the Kwinana Freeway.

The proposed Structure Plan will provide for the future development of the subject lots at the R30 density with areas to be developed at the R40 density subject to criteria outlined in Part 1 of this Structure Plan report. Additionally, the Structure Plan demonstrates how the proposed use of the land will enable the management and conservation objectives for Bindjar Reserve (formerly Market Garden Swamp No. 3) to be achieved.

The Structure Plan Summary Table below details the nature and key outcomes of the Structure Plan.

Table 1

Item	Data	Section number referenced within the Structure Plan Report (Part 2)
Total area covered by the Structure Plan	5.5742 ha	Section 1.2.1, 3.1.1
Area of each land use proposed		
Residential	1.1332 ha	Section 3.3.1
Total estimated lot yield	R30 37 lots	Section 3.3.1
Estimated number of dwellings	R30 37	Section 3.3.1
Estimated Residential Density	R30	Section 3.1.3
- Dwellings per gross urban hectare	6.64	
- Dwellings per site hectare	33.3	
Estimated area and percentage of Public Open Space given over to: - Local Parks	2620m ² (14.85%)	Section 3.2.2
Estimated percentage of natural area (includes POS)	4.07ha (73%)	Section 3.2.2
Urban Deferred Portion of Lot 71	8m ²	Section 1.3.1.1
Drainage and Reserves	0.0322ha	Section 3.5

Table of Contents

PART ONE - IMPLEMENTATION

1.0	STRUCTURE PLAN AREA	1
2.0	OPERATION	1
3.0	STAGING	1
4.0	SUBDIVISION AND DEVELOPMENT REQUIREMENTS	1
4.1	Land Use Permissibility	1
4.2	Residential Densities	1
4.2.1	Residential Density	1
4.2.2	Locational Criteria	2
4.3	Public Open Space	2
4.4	Notifications on Title	2
4.5	Wetland Rehabilitation Management Plan	3
4.6	Site Contamination Investigation	3
4.7	Acid Sulphate Soils Investigation	3
4.8	Groundwater	3
4.9	Road Network	3
4.10	Bushfire Management	3
5.0	LOCAL DEVELOPMENT PLANS	3
6.0	OTHER REQUIREMENTS	4
	STRUCTURE PLAN MAP	

PART TWO - EXPLANATORY REPORT

1	PLANNING BACKGROUND	1
1.1	Introduction and Purpose	1
1.2	Land Description	2
1.2.1	Location	2
1.2.2	Area and land use	2
1.3	Planning Framework	3
1.3.1	Zoning and Reservations	3
1.3.1.1	Metropolitan Region Scheme	3
1.3.1.2	City of Cockburn Town Planning Scheme No. 3	3
1.3.2	Planning Strategies	4
1.3.2.1	Perth and Peel@3.5million	4
1.3.3	Statutory Planning Framework	5
1.3.3.1	Munster – Phase 3 Local Structure Plan	5
1.3.4	Planning Policies	5
1.3.4.1	SPP 2.8 Bushland Policy for the Perth Metropolitan Region	5
1.3.4.2	State Planning Policy 3.7 – Planning in Bushfire Prone Areas	6
1.3.4.3	Better Urban Water Management Guidelines	7
1.3.4.4	Liveable Neighbourhoods	7
1.3.4.5	Local Planning Policies	8
1.4	Pre-Lodgement Consultation	8
2	SITE CONDITIONS AND CONSTRAINTS	9
2.1	Biodiversity and Natural Area Assets	9
2.1.1	Vegetation	9
2.1.2	Wetlands	9
2.2	Landform and Soils	9
2.2.1	Topography	9
2.2.2	Soils and Geology	9
2.3	Groundwater and Surface Water	10
2.4	Bushfire Hazard	10
2.5	Site Contamination	10
2.6	Heritage	11

3	LANDUSE AND SUBDIVISION REQUIREMENTS	12
3.1	Land Use	12
3.1.1	Design Overview	12
3.1.2	Integration with Adjoining Lots	12
3.2	Public Open Space	13
3.2.1	Existing POS	13
3.2.2	Proposed POS	13
3.3	Residential	15
3.3.1	Land Use and Residential Density	15
3.3.2	Residential Development Layout	16
3.3.3	Streetscape Considerations	16
3.4	Movement Networks	17
3.4.1	Existing Movement Network	17
3.4.1.1	Regional Road Network	17
3.4.1.2	Local Road Network	17
3.4.1.3	Public Transport Network	17
3.4.1.4	Cycle Network and Pedestrian Network	17
3.4.2	Traffic generation	18
3.5	Water Management	18
3.6	Education Facilities	19
3.7	Activity Centres and Employment	19
3.8	Infrastructure Coordination, Servicing and Staging	20
3.8.1	Servicing	20
3.8.1.1	Sewer Reticulation	20
3.8.1.2	Water Reticulation	20
3.8.1.3	Local Roads	20
3.8.1.4	Gas Supply	20
3.8.1.5	Electrical Supply and Telecommunications	20
3.8.1.6	Earthworks and Site Levels	20
3.8.2	Staging	20
3.9	Other Requirements	22
3.9.1	Bushfire Management	22
3.9.2	Location of Development	22
3.9.3	Siting and Design of Development	22
3.9.4	Vehicular Access	22
3.9.5	Water Supply	22
3.10	Developer Contribution Arrangements	22
3.11	Implementation	23

APPENDICES:

Appendix 1 -	Certificates of Title (4)
Appendix 2 -	Local Water Management Strategy (LWMS)
Appendix 3 -	Summary of Pre-Lodgement Consultation
Appendix 4 -	Bushfire Management Plan
Appendix 5 -	Department of Aboriginal Affairs Site Search
Appendix 6-	Opportunities and Constraints Plan
Appendix 7-	Urban Design Principles to Inform Local Development Plan
Appendix 8 -	Market Garden Swamp Environmental Management Plan Extract

Part One - Implementation

1.0 Structure Plan Area

This Structure Plan shall apply to Lots 71, 72, 73, & 500 Fawcett Road, Lake Coogee being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1).

2.0 Operation

The date the Structure Plan comes into effect is the date the Structure Plan is approved by the WAPC.

3.0 Staging

In accordance with R42, Element 4 of Liveable Neighbourhoods, the Western Australian Planning Commission will require the entirety of the area shown on the Structure Plan Map (Plan 1) as public open space to be ceded at the first stage of subdivision approval of any of the lots to which this structure plan relates.

Any proposal involving the creation of public open space shall be supported by the appropriate reporting (as required under section 4.6 of this Structure Plan) to indicate that the necessary preliminary site investigations for potential contamination have occurred, and if required, arrangements being made for its satisfactory rehabilitation.

In order to achieve the objectives of the Structure Plan, the Western Australian Planning Commission may support an application for subdivision approval of the land in order to achieve the necessary level of land assembly/rationalisation to realise the intent of the Structure Plan, provided that it is appropriately demonstrated by the proponent that such a proposal will not prejudice the future implementation of the Structure Plan having regard to the subdivision and development requirements applicable to the land as specified in Section 4 of this report, including obligations for the ceding and (potential) rehabilitation of public open space and measures for the continuation of Preston Drive.

This may require the proponent to enter into suitable arrangements with the City of Cockburn regarding the timing of delivery of items, including but not limited to land rehabilitation and management measures, ceding and construction of roads.

4.0 Subdivision and Development Requirements**4.1 Land Use Permissibility**

The land use permissibility within the structure plan area shall be in accordance with the zones and reserves identified by the Structure Plan Map (Plan 1) and the corresponding zone or reserve under the City of Cockburn Town Planning Scheme No. 3.

4.2 Residential Densities**4.2.1 – Residential Density**

The residential density ranges applicable to the structure plan area are shown on the Structure Plan Map (Plan 1). Specific residential density codes will be subsequently assigned in accordance with a Residential Density Code Plan, approved by the Western Australian Planning Commission at the subdivision stage.

The Residential Density Code Plan:

- a) Is required to be submitted with each subdivision application/s, and shall be consistent with the density ranges and locational criteria contained within this structure plan.

Structure Plan**Lots 71, 72, 73, & 500 Fawcett Road, Lake Coogee**

- b) Is to include a summary of the proposed lot yield of the subdivision application to which it relates.
- c) Forms part of this structure plan once it has been approved by the Western Australian Planning Commission (as part of its determination of the respective subdivision application).
- d) May be varied subject to the further approval of the Western Australian Planning Commission. A varied Residential Density Code Plan will replace (either entirely or partially) the previously approved Residential Density Code Plan.
- e) May not be required if the Western Australian Planning Commission considers that the subdivision application is for one or more of the following scenarios:
 - i. Amalgamation of lots (including land assembly);
 - ii. Provision of access, services or infrastructure;
 - iii. Non-residential land uses, with reference to the zone or reserve indicated on this structure plan; or
 - iv. In accordance with an already approved Residential Density Code Plan.

4.2.2 – Locational Criteria

The allocation of residential densities shall be generally in accordance with the following criteria:

- a) A base residential density coding of R30 applies across the structure plan area.
- b) An R40 coding may be applied for lots that:
 - i. Abut, or have an outlook towards, areas of public open space; and/or
 - ii. where vehicular access is proposed via a rear laneway or shared accessway.

4.3 Public Open Space

- a) Land comprised within Bush Forever site 429 and mapped as a resource enhancement wetland (UFI: 6369) by the Department of Biodiversity, Conservation and Attractions is to be ceded free of cost to the Crown.
- b) A minimum 10 percent public open space is to be provided generally in accordance with *Liveable Neighbourhoods* and in the location identified on the Structure Plan Map (Plan 1), the Public Open Space Schedule contained within Part 2 of this document and having regard to Clause 5.1.2.2(vii) of *State Planning Policy 2.8 – Bushland Policy for the Perth Metropolitan Region* which provides for a portion of the proposed conservation reserve to make up the shortfall in public open space. The suitability of the land identified by Plan 1 for public open space purposes is to be confirmed by the preliminary site contamination investigation requirements as required under section 4.6, below.
- c) At the subdivision stage, the public open space shall be ceded free of cost to the Crown and vested with a management order to the City of Cockburn. If, subject to section 4.6, remediation works are required, the land shall be suitably remediated prior to ceding.
- d) Public open space shall be developed in accordance with an approved wetland management plan and an approved landscape management plan, and subject to the findings of the preliminary site investigations required under section 4.6, a contaminated sites remediation management plan (if required).

4.4 Notifications on Title

In respect of applications for the subdivision of land the local government shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificate(s) of Title(s) to advise of the following:

Structure Plan**Lots 71, 72, 73, & 500 Fawcett Road, Lake Coogee**

1. Land or lots deemed to be affected by a Bush Fire Hazard as identified in a Bushfire Management Plan as outlined within the Bushfire Management Plan (14 December 2017).
2. Land or lots deemed to be impacted by midge nuisances as identified by the City of Cockburn Local Planning Policy 1.11 Residential Rezoning and Subdivision adjoining Midge Infested Lakes and Wetlands.

4.5 Wetland Rehabilitation Management Plan

In respect of applications for the subdivision of land the local government shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval that a Wetland Rehabilitation Management Plan shall be prepared and implemented.

4.6 Site Contamination Investigation

A preliminary site investigation for site contamination shall be required prior to subdivision and/or development to determine that the land is capable of accommodating its intended development and shall inform subsequent applications for subdivision and/or development approval over the land.

4.7 Acid Sulphate Soils Investigation

In respect of applications for the subdivision of land the local government shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval that an acid sulphate soils self-assessment be provided and if required, an acid sulphate soils investigation and management plan submitted to and approved by the Department of Water and Environmental Regulation.

4.8 Groundwater

Prior to subdivision and/or development, confirmation being obtained from the Department of Water and Environmental Regulation that a non-potable water source sufficient for the irrigation requirements of the public open space, or a substantial groundwater allocation being demonstrated, is available.

4.9 Road Network

- a) Prior to subdivision and/or development, the landowner/applicant shall prepare a Traffic Impact Statement to inform the design of an appropriate intersection treatment for the intersection of Fawcett Road and Preston Drive extension.
- b) The subdivision and development of the land may necessitate the suitable upgrading of Fawcett Road, and the Western Australian Planning Commission may impose a condition of subdivision approval to this effect on the advice of the City of Cockburn.

4.10 Bushfire Management

Future subdivision and/or development of the land shall be supported by an updated Bushfire Management Plan, addressing the bushfire protection criteria when lot layout is known. The updated bushfire management plan shall demonstrate that the proposed lots are capable of accommodating development in accordance with the objectives of *State Planning Policy 3.7 – Planning in Bushfire Prone Areas*.

5.0 Local Development Plans

At the subdivision stage, the local government may request that the Western Australian Planning Commission impose a condition(s) of subdivision approval requiring a local development plan(s) to be prepared for lot(s) which:

- a) are of an irregular shape or less than 260m² in area;

Structure Plan**Lots 71, 72, 73, & 500 Fawcett Road, Lake Coogee**

- b) derive vehicular access from a laneway or right of way;
- c) abut areas of public open space; and
- d) requires additional special conditions to be set, or where otherwise deemed appropriate.

Local development plans are required to be prepared in accordance with Part 6 of Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015*. The local government may have regard to the Principles Plan, contained within this structure plan as Appendix 7, in its consideration of any local development plan prepared for the land.

6.0 Other Requirements

The Structure Plan area is the subject of the requirements of Development Contribution Areas 6 (DCA 6) and Development Contribution Area 13 (DCA 13), as detailed in Clause 5.3 and Table 10 of the City of Cockburn Town Planning Scheme No. 3. The developer shall make satisfactory arrangements with the local government at the subdivision stage towards those items of development infrastructure in accordance with the requirements of DCA 6 and DCA 13.

PLAN 1

Structure Plan Map



LEGEND

Local Scheme Zones

- Residential R30/40

Local Scheme Reserves

- Parks and Recreation
- Local Roads

Other Elements that Inform the Structure Plan

- Structure Plan Area Boundary
- Bushforever Site 429

Lot 8

STRUCTURE PLAN MAP

Lots 71 - 73 & 500
Fawcett Rd, LAKE COOGEE

Plan No. | 10757-SP-70904, **PERTH OFFICE:**
Date | 15/12/21
Drawn | NP
Checked | BH
Revision | K

Scale | 1:1000@A3

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NOTE: This plan has been prepared for planning purposes. Assets, contours and dimensions shown are subject to survey.

Harley Dykstra
 PLANNING & SURVEY SOLUTIONS

Part Two - Explanatory Report

1 PLANNING BACKGROUND

1.1 Introduction and Purpose

This submission has been prepared by Harley Dykstra on behalf of the landowners of Lots 71, 72, 73, & 500 Fawcett Road, Lake Coogee ("the subject land").

This report represents an application to the Western Australian Planning Commission to consider a proposed Structure Plan over the subject land. The proposed Structure Plan will provide for the future development of the subject lots at the R30 density with areas to be developed at the R40 density subject to criteria outlined in Part 1 of this Structure Plan report. Additionally, the Structure Plan demonstrates how the proposed use of the land will enable the management and conservation objectives for Bindjar Reserve (formerly Market Garden Swamp No. 3) to be achieved.

The adoption of the proposed Structure Plan will facilitate the progressive redevelopment of land in this precinct, which has already proceeded to the north, west and east of the Structure Plan Area.

This proposal is accompanied by a Structure Plan Map (Plan 1) prepared in accordance with the *Planning and Development (Local Planning Schemes) Regulations, 2015*, which is included at Part One of this Report. The Structure Plan has been prepared following extensive consultation with the City of Cockburn, the (former) Department of Planning and (former) Department of Parks and Wildlife as summarised in Section 1.4 of this Report.

The Explanatory Section of this Structure Plan Report includes a detailed description of the proposal, provides an evaluation of the relevant town planning, local water management, bushfire hazard, environmental and servicing considerations applicable to the land, and details the rationale supporting the proposed Structure Plan.

The Structure Plan has been formulated by Harley Dykstra in collaboration with a team of specialist consultants, who have provided technical input in relation to matters as follows:

Bayley Environmental Services:	Local Water Management Strategy and Wetland Investigations
RUIC Fire:	Bushfire Management Plan

Copies of the relevant consultant Reports are appended to this submission and key findings incorporated within the body of the Report. The Consultants' Reports confirm there are no significant constraints to progressing urban development of the land. This Structure Plan Report also acknowledges previous planning, environmental and engineering work undertaken on land in the locality which has informed the preparation of this proposal.

1.2 Land Description

1.2.1 Location

The subject land is located within the suburb of Lake Coogee, between Bindjar Reserve (formerly Market Garden Swamp No.3) to the east and Lake Coogee (to the west of Fawcett Road). The land is situated approximately 7km west of the Kwinana Freeway, and the Cockburn Central commercial precinct. The land is 20km due south-west of the Perth Central Business Area. The subject land is situated approximately 2.5km east of the coast (**Figure 1 below**).

The Structure Plan contains four lots and a portion of existing road reserve, comprising a total area of 5.5669ha. The Structure Plan area has its primary frontage to Fawcett Road adjacent to its western boundary.

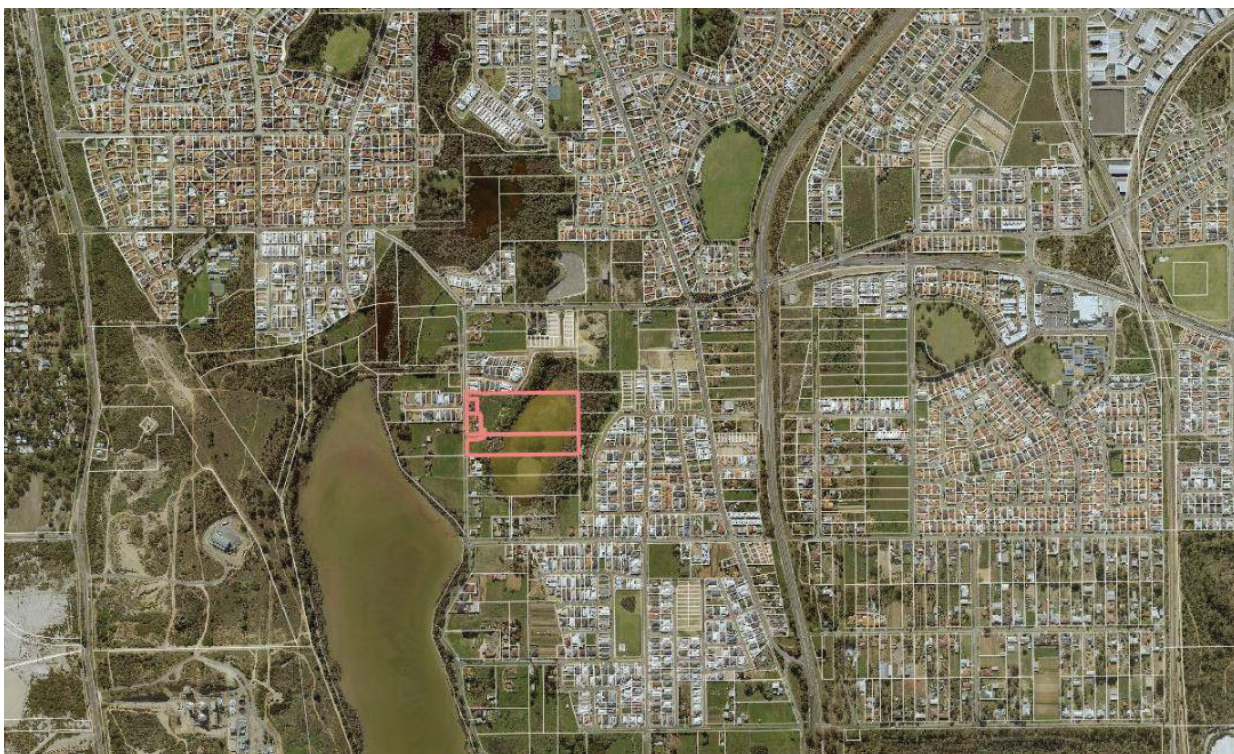


Figure 1: Location Plan (subject land outlined in red)

1.2.2 Area and land use

Lot 73 currently contains a single dwelling on its western part fronting Fawcett Road. Lot 500 contains a two-storey grouped dwelling (comprising strata Lots 1 and 2) fronting Fawcett Road and Lot 72 accommodates a single dwelling. Lot 71 is generally vacant with the western portion of the lot adjacent to Bindjar Reserve (formerly Market Garden Swamp No. 3) having been used for storage of materials in the past. The cleared western part of Lot 71 has previously been used to graze sheep, primarily for grass control. The Aerial Photograph at **Figure 2** depicts the location of the dwellings and associated infrastructure, as well as the nature of existing land use over the balance part of the site.



Figure 2: Subject Land - Aerial Photograph

1.3 Planning Framework

1.3.1 Zoning and Reservations

1.3.1.1 Metropolitan Region Scheme

The Structure Plan area is predominately zoned Urban under the Metropolitan Region Scheme, and hence is appropriately zoned to support residential subdivision. A small area (approximately 8m²) of Lot 71 is zoned Urban Deferred under the Metropolitan Region Scheme which relates to the odour buffer for the Woodman Point Wastewater Treatment Plant. The portion of Lot 71 which is zoned Urban Deferred is limited to the southwestern corner of Lot 71 and is less than two metres wide at its widest extent. In this respect, the Water Corporation, in consultation with the Department of Planning Lands and Heritage, may proceed to redefine the boundaries of the Woodman Point Wastewater Treatment Plant buffer to exclude this small 8m² portion of Lot 71 which may be followed by a subsequent amendment to the Metropolitan Region Scheme to include this land within the Urban zone.

1.3.1.2 City of Cockburn Town Planning Scheme No. 3

The subject land is zoned Development under the City of Cockburn Town Planning Scheme No. 3 (TPS 3). The objective of the Development Zone is to provide for future residential, industrial or commercial development in accordance with a comprehensive Structure Plan prepared under the Scheme. Thus, this proposal is consistent with the intention of the Development Zone and will facilitate future residential development at the subject land.

Schedule 11 – *Development Areas* enables additional provisions applicable to subdivision and development to be incorporated into the Scheme. The subject land is located within Development Area 5 for which the following provisions apply:

Ref No.	Area	Provisions
DA 5	Munster (Development Zone)	<ol style="list-style-type: none"> 1. An approved Structure Plan together with all approved amendments shall apply to the land in order to guide subdivision and development. 2. To provide for residential development except within the buffers to the Woodman Point WWTP, Munster Pump Station and Cockburn Cement. 3. The local government will not recommend subdivision approval or approve land use and development for residential purposes contrary to Western Australian Planning Commission and Environmental Protection Authority Policy on land within the Cockburn Cement buffer zone.

The Structure Plan Area is not affected by any of the above-mentioned buffers.

In addition, the land is included within a Special Control Area – Development Contribution Area 6 (DCA6) and Development Contribution Area 13 (DCA13) of the Scheme, which details common infrastructure costs applicable to DCA 6 and DCA 13. Special provisions apply to the subject land as set out in Schedule 12 – *Development Contributions Plans*.

1.3.2 Planning Strategies

1.3.2.1 Perth and Peel@3.5million

The WAPC’s Perth and Peel@3.5million document establishes the vision for future growth of the Perth and Peel Metropolitan Regions and provides a framework to guide the delivery of housing, infrastructure and services necessary to accommodate anticipated population growth over the next 35 years.

The document includes the Sub-Regional Planning Framework consisting of three sub-frameworks, namely for the North-West, the North-East and the South Metropolitan Region. The subject land has been identified as ‘Urban’ under the South Metropolitan Peel Sub-Regional Planning Framework as have surrounding properties. Land further south-west along the eastern edge of Lake Coogee is identified as ‘Industrial Investigation’ due to this land’s location within the Woodman Point WWTPB. Thus, development of the subject land for residential land use is consistent with the South Metropolitan Peel Sub-Regional Planning Framework and works to consolidate existing and planned residential development in the locality.

1.3.3 Statutory Planning Framework

1.3.3.1 Munster – Phase 3 Local Structure Plan

The Munster-Phase 3 Structure Plan has been adopted by the City of Cockburn and endorsed by the WAPC in relation to the immediately adjoining land to the north of Lot 73, extending up to Beeliar Drive. The portion of the Munster Phase 3 Structure Plan immediately adjoining Lot 73 has been implemented and developed with residential dwellings. The Structure Plan depicts a future road link between Preston Drive over Lot 73 connecting into the portion of road reserve between Lot 72 and Lot 71 which in turn intersects with Fawcett Road.

1.3.3.2 Munster – Phase 1 Consolidated Structure Plan

A Structure Plan has been adopted by the City of Cockburn and endorsed by the WAPC over the land on the east side of Bindjar Reserve (formerly Market Garden Swamp No. 3), north of West Churchill Avenue and up to Rockingham Road. The staged subdivision of this land has been implemented, and is being developed with residential dwellings.

1.3.4 Planning Policies

1.3.4.1 SPP 2.8 Bushland Policy for the Perth Metropolitan Region

A large portion of the subject land is affected by Bush Forever Site (BFS) 429 as illustrated at Appendix B of the LWMS included at **Appendix 2** of this Report.

SPP 2.8 – *Bushland Policy for the Perth Metropolitan Region* under clause 5.1.2.2 (vii) provides that the WAPC may accept whole or part of a conservation area as a component of the 10 percent open space contribution where:

- *the conservation area or portion serves a local passive recreational function which is consistent with the values of the bushland and the conservation management objectives for the site;*
- *management infrastructure and other measures are provided that support the use and management of the conservation area in accordance with an endorsed management plan;*
- *it is acceptable to the future proposed management body, relevant environmental agencies and local government;*
- *the overall “land take” for open space is likely to jeopardise the overall development viability of the project, based on evidence supplied to the decision making body; and*
- *other planning and environmental considerations and policies of the WAPC have been taken into account.*

Further consideration of clause 5.1.2.2 (vii) is given in section 3.2.2 of this structure plan report in relation to public open space provision.

1.3.4.2 State Planning Policy 3.7 – Planning in Bushfire Prone Areas

State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) directs how land use planning should address bushfire risk management in Western Australia, and applies to all land declared bushfire prone by the Commissioner for Fire and Emergency Services, pursuant to s.18P of the *Fire and Emergency Services Act 1988*. The entirety of the structure plan area is declared bushfire prone as illustrated in **Figure 3**.

The structure plan responds to *State Planning Policy 3.7: Planning in Bushfire Prone Areas* by the preparation of a bushfire management plan (**Appendix 4**). Section 2.4 of this report outlines bushfire hazard outcomes.

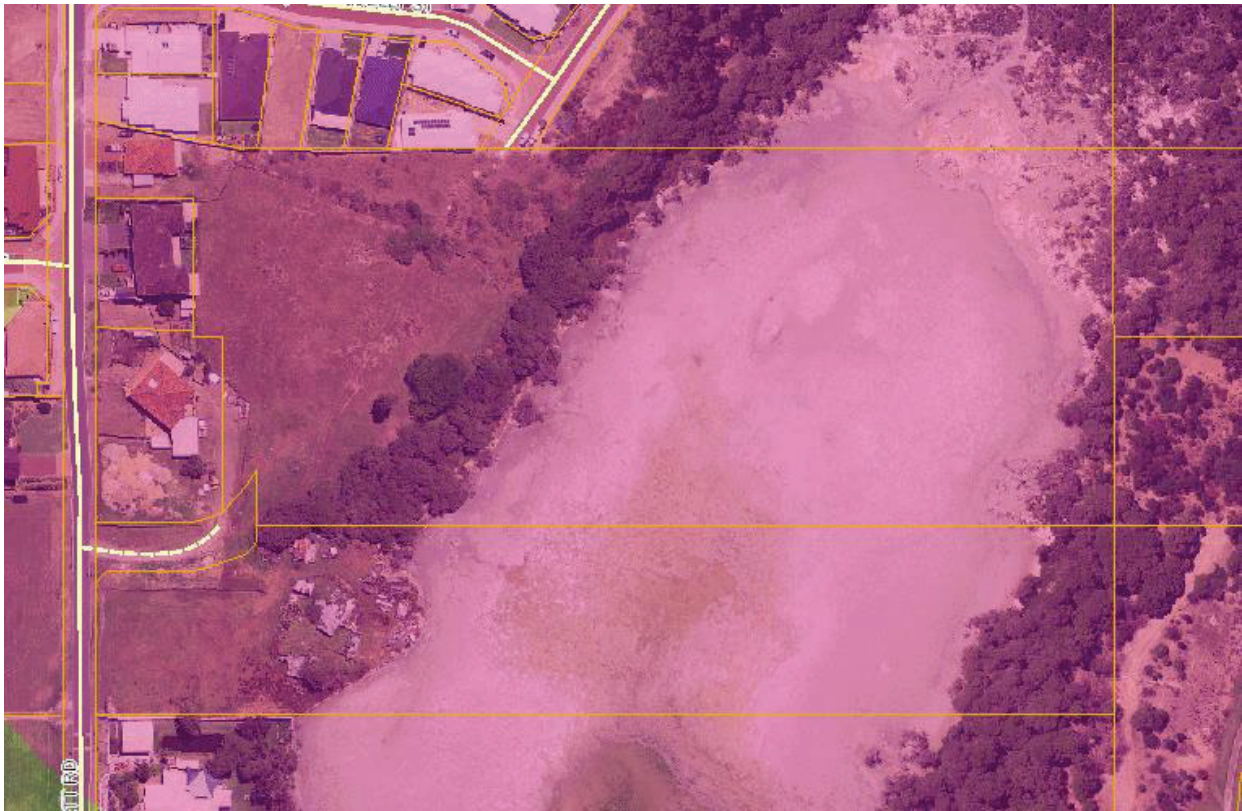


Figure 3: Bushfire Prone Areas Mapping

1.3.4.3 Better Urban Water Management Guidelines

The WAPC's Better Urban Water Management Guidelines (BUWVG) document identifies a general requirement to prepare an LWMS to support a proposed Structure Plan.

An LWMS (**Appendix 2**) has been prepared by Bayley Environmental Services over the LSP area in support of the proposal.

The scope of this LWMS is to:

- Document the existing environment on the site in relation to soils, drainage, erosion, groundwater and water-dependent ecosystems.
- Briefly describe the proposed development in relation to water management.
- Address relevant regulatory requirements and design criteria for water harvesting, setbacks to water bodies, groundwater management and drainage.
- Describe the strategies to be implemented for water conservation, watercourse protection, groundwater management and stormwater drainage.
- Develop and document a drainage design for the subdivision/development.
- Outline the proposed water monitoring program.

Given the small size of the development area, this LWMS has been prepared with the aim of satisfying most of the requirements of an Urban Water Management Plan (UWMP) as well as those of an LWMS. The only item outstanding is the detailed design of the infiltration swales, which will be provided to the City of Cockburn at the time of detailed subdivision design.

1.3.4.4 Liveable Neighbourhoods

The WAPC's Liveable Neighbourhoods is an operational policy that guides the design and assessment of structure plans (regional, district and local) and subdivision for new urban neighbourhoods in the metropolitan area and country centres, on greenfield and large urban infill sites.

Liveable Neighbourhoods outlines that Local Structure Plans should depict:

- walkable neighbourhood catchments of approximately 400m–450m radius around proposed commercial centres;
- density targets expressed as dwellings per hectare;
- existing and proposed commercial centres;
- natural features to be retained;
- proposed street block layout;
- proposed street network, including street types and path networks;
- proposed transportation corridors, public transport network and cycle and pedestrian networks;
- proposed land uses, including distribution of higher, medium and lower density residential;
- proposed schools and community facilities;
- public parkland; and
- proposed urban water management measures.

Tables 1 and 2 identify the elements that are required to be addressed by the structure plan and/or subdivision application to allow assessment under Liveable Neighbourhoods.

Relevant considerations pertaining to the abovementioned planning elements have been addressed in this Report, in order to demonstrate compliance with the intent of Liveable Neighbourhoods.

Element 4 – Public Parkland is of particular relevance to this proposal and has guided the preparation of the Landscape Concept Plan forming part of the LWMS at **Appendix 2**. This in turn has informed the Structure Plan design, including the manner by which Public Open Space shall be provided, managed and credited at subdivision stage. Further details are provided at Section 3.2 of this Report.

The proposed Structure Plan is considered to comply with Liveable Neighbourhoods in relation to the provision of Public Open Space.

1.3.4.5 Local Planning Policies

Relevant Local Planning Policies prepared by the City of Cockburn have been considered during the preparation of the proposed Structure Plan design and documentation.

The land is located within 500 metres of Bindjar Reserve (formerly Market Garden Swamp No. 3).

LPP 1.11: Residential Rezoning & Subdivision Adjoining Midge Invested Lakes & Wetlands states:

“The City will require subdivider(s)/developer(s) of land between 500 meters and 800 metres of the lake or wetland edge to impose a Notification, pursuant to Section 165 of the Planning and Development Act 2005 on the title of each new residential lot advising prospective purchaser(s) that the land may be affected by midge infestation. Notice of this Notification is to be included on the Deposited Plan and shall state the following: This land may be affected by midge from nearby lakes and/or wetlands. Enquiries can be made with the City of Cockburn Environmental Services.”

The above notification will also be required to be imposed on any infill residential subdivision, strata and development on land already zoned ‘Residential’ within 500 metres. The Notification will be included on the Deposited Plan(s) of all new lots created at subdivision stage, in accordance with the recommendation of the City’s local planning policy framework.

1.4 Pre-Lodgement Consultation

Extensive consultation has been undertaken with the City of Cockburn’s Strategic Planning and Environmental officers both prior to and following lodgement of the original Structure Plan proposal. Detailed discussions and meetings provided guidance on a range of issues including:

- Appropriate residential densities;
- Rationalisation of redundant portions of existing road reserves; and
- Appropriate development buffers from the Resource Enhancement Wetland having regard to the planned continuation of Preston Drive.

On 28 April 2015, the City of Cockburn provided initial comments on the submitted Structure Plan. A meeting was subsequently attended by the City of Cockburn, (former) Department of Planning and Harley Dykstra to review and clarify the initial comments. Further feedback was sought from the (former) Department of Planning and City of Cockburn subsequently to the joint meeting and a follow up meeting was attended between the City of Cockburn and Harley Dykstra on 30 June 2016 to discuss urban design principles that should be addressed as part of resubmitting the Structure Plan. This submission responds to the initial comments provided by the City and (former) Department of Planning and the outcomes of subsequent discussions. A summary of previous consultation with the City of Cockburn, (former) Department of Planning and (former) Department of Parks and Wildlife is included as **Appendix 3**.

2 SITE CONDITIONS AND CONSTRAINTS

2.1 Biodiversity and Natural Area Assets

2.1.1 Vegetation

Bindjar Reserve (formerly Market Garden Swamp No. 3) and fringing vegetation occurs within Bush Forever site 429. A vegetation assessment was conducted over Lots 71 and 73 by Dr Arthur Weston in May 2013, as referenced in the LWMS at **Appendix 2**. The Vegetation Report identified vegetation types around the western edge of the wetland mainly comprises Saltwater Paperbark/Freshwater Paperbark, woodland which varies between completely degraded to very good condition. The north and east fringe of the wetland includes Melaleuca woodland, Flooded gum and Tuart tall open woodland. The rest of the site is cleared and pastured and used for sheep grazing. The central bed of MGS3 is bare of vegetation due to its salinity and seasonal inundation. Around the south-west and south edge of the wetland, vegetation is absent or limited to scattered native and introduced trees and shrubs, with rubble and grass covering the rest of the ground. The south-west side also has an infestation of a serious environmental weed (*Juncus acutus*) that invades wetlands. The report advises once this weed is established, it can render the area impenetrable to humans and most animals, posing a serious threat to environmental, economic, aesthetic and recreational values.

2.1.2 Wetlands

The eastern part of Bindjar Reserve (formerly Market Garden Swamp No. 3) occupies a large portion of Lots 73 and 71 as evident by the Aerial Photograph at **Figure 2**. Bindjar Reserve (formerly Market Garden Swamp No. 3) is classified as a Resource Enhancement Wetland in the Department of Biodiversity, Conservation and Attractions (DBCA) geomorphic wetlands database. A preceding Wetland Boundary and Buffer Definition study referenced in the LWMS, describes Bindjar Reserve (formerly Market Garden Swamp No. 3) and notes the existing geomorphic wetlands mapping is inaccurate in several areas. A recommended amendment to the mapped boundary is included in the Bayley Report, which was submitted to the former Department of Parks and Wildlife (DPAW) for consideration on 17 January 2014. Correspondence received from DPAW is included within the LWMS.

The proposed alignment of Preston Drive road reserve impedes into the proposed wetland buffer recommended by DPAW. However, the City of Cockburn's environmental officer has confirmed the extension of Preston Drive through to Fawcett Road is desirable and the interface between the road reserve and the wetland area can be appropriately managed (**Appendix 3**).

2.2 Landform and Soils

2.2.1 Topography

Bindjar Reserve (formerly Market Garden Swamp No. 3) is located approximately at sea level, with the edge of the lake bed at 0m AHD. To the south-west, north and east, the land rises slowly at a gradient of about 3%. To the north-west, the subject land rises moderately steeply at about 10% to the highest point of Lot 73 at about 11m AHD.

2.2.2 Soils and Geology

Details relating to site geology and soils are included within the Local Water Management Strategy at **Appendix 2** prepared by Bayley Environmental Services.

The portion of the site proposed for residential development is situated on limestone derived soils of the Spearwood Dunes association. Bindjar Reserve (formerly Market Garden Swamp No. 3) and

its immediate surrounds are situated on limestone-derived soils overlain by lacustrine peaty and clay sediments. The Geological Survey of Western Australia maps most of the low-lying lake surrounds as peaty clay with swamp soils. The high dune in Lot 73 north-west of the lake is mapped as Tamala Limestone with a surface of Limestone and Safety Bay Sand.

Bore-hole logs associated with groundwater and environmental investigations near the lake and at the high point of Lot 73 showed profiles typical of these map units, with holes near the lake having a silty clay profile and the bore hole on the dune being yellow-brown sand over limestone.

Bindjar Reserve (formerly Market Garden Swamp No. 3) is mapped by the Department of Water and Environmental Regulation (DWER) as having a High Risk of Acid Sulphate Soil (ASS) occurrence. The High Risk mapping extends across about 70% of the proposed development site. The ASS mapping is based upon geological mapping by the GSWA; however comparison of the two shows that the ASS mapping is misaligned with the GSWA mapping by about 80m to the north-west. Correctly aligning the two maps, places the edge of the high ASS risk zone roughly on the edge of the proposed wetland buffer around MGS3 and outside the development zone.

The ASS mapping is based on the low elevation (<5m) of the site and the presence of lacustrine sediments in the lake; however the occurrence of limestone and limestone derived soils beneath both the development site and the lake suggest that ASS is highly unlikely to be present. This is supported by the results of groundwater analysis from bores in the site and adjacent to the lake, which show high or neutral pH, high alkalinity and very low acidity: alkalinity ratios. In any event, the Structure Plan requires a condition be imposed on the grant of subdivision approval for an acid sulphate soils self-assessment to be provided and if required, an acid sulphate soils investigation and management plan to be submitted to and approved by the Department of Water and Environmental Regulation.

2.3 Groundwater and Surface Water

The investigation by Bayley Environmental Services advises the groundwater level around Bindjar Reserve (formerly Market Garden Swamp No. 3) fluctuates little between summer and winter. DoW mapping suggests a seasonal variation of less than 0.5m, fluctuating from 0.385 to 0.759 meters. The ground water level to the west of the lake is higher than the lake level, indicating that the groundwater is flowing into the lake from the west. Bindjar Reserve (formerly Market Garden Swamp No. 3) dries out in most summers and has historically been used for grazing and recreation by the owners.

The site is well drained due to its sloping topography and porous surface soils. There is no defined surface drainage. Surface flow may occur over short distances for short periods during and immediately after very heavy rainfall. There is no shallow groundwater, surface waterlogging or ponding within the development area.

2.4 Bushfire Hazard

The Structure Plan area is identified as being Bushfire Prone on the *Map of Bushfire Prone Areas* as referenced in section 1.3.4.2 of this report. Hence, a Bushfire Management Plan has been prepared to support the Structure Plan in accordance with SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas*. A copy of the Bushfire Management Plan is included at **Appendix 4**. The Bushfire Management Plan confirms a BAL-29 or lower can be achieved for all habitable buildings, subject to an Asset Protection Zone along the eastern boundary of the residential development area including a mandatory 2m setback. The Bushfire Management Plan will be implemented at subdivision/development stage.

2.5 Site Contamination

Market gardening was carried out on parts of the land from 1953 or earlier until at least 1981. During the same period, market gardening was also carried out to the west between Fawcett Road and

Lake Coogee, continuing until after 1995. Since 1985 the subject land has been used for broadacre grazing. Market gardening is regarded by the Department of Water and Environmental Regulation as a potentially contaminating land use. On the south-east part of Lot 71, is an area that is used for stockpiling timber, steel and building materials which shall be removed prior to the subdivision or development of the land. A preliminary site investigation for soil and groundwater contamination is to be undertaken prior to subdivision and/or development with a report to accompany any application for subdivision and/or development approval.

2.6 Heritage

The Department of Aboriginal Affairs (DAA) Aboriginal Heritage Sites Database shows a registered Aboriginal heritage site over the subject land which is associated with Lake Coogee and Bindjar Reserve (formerly Market Garden Swamp No. 3). The development of the subject land will not involve any direct or indirect disturbance of the Aboriginal Heritage Site. A copy of the DAA site search is *attached* as **Appendix 5**.

The City's Municipal Heritage Inventory does not list any sites of relevance to the preparation of the Structure Plan.

3 LANDUSE AND SUBDIVISION REQUIREMENTS

3.1 Land Use

3.1.1 Design Overview

The Structure Plan design has been developed in consultation with the City of Cockburn having regard to the evolving strategic planning objectives for the locality, site specific environmental and bushfire hazard assessment, local water management planning, and the interface with adjacent Structure Plan areas and undeveloped land parcels.

The Structure Plan has been prepared to guide the development of the 5.5669ha site for urban purposes. The Structure Plan will facilitate the progressive development of a high quality, liveable urban precinct offering residents a diversity of lot products, and hence, housing choice. Residents will have access to the full range of established and planned urban services including primary and high schools, public open space and neighbourhood centres.

The design has been prepared having particular regard to the following considerations;

- The constructed subdivision layout to the north of Lot 73;
- The indicative road layout depicted over Lots 73 and the adopted Local Structure Plan – Munster (Phase 3);
- Opportunities for medium density development adjacent to the proposed Public Open Space fringing Bindjar Reserve (formerly Market Garden Swamp No. 3);
- The opportunity for rationalisation and closure of redundant road reserves;
- The opportunity to achieve functional areas of POS which can be integrated with adjoining residential land use;
- The prevailing low density (R20) subdivision pattern in the immediate locality and the opportunity to achieve additional housing diversity via an increased range of dwelling types;
- Site inspections;
- Specialist consultant inputs;
- Clarification of wetland boundaries and appropriate environmental buffers; and
- Meetings and discussions with City of Cockburn technical officers.

Collectively, these factors have influenced the proposed road and lot layout distribution of residential densities, and location of public open space as depicted on the Structure Plan Map included as **Plan 1** in the Implementation Section of this Report and the Opportunities and Constraints Plan at **Appendix 6**. Further details relating to the relevant design opportunities and constraints as described below.

3.1.2 Integration with Adjoining Lots

The Structure Plan design recognises the location and alignment of the local road network connecting to the northern boundary of Lot 73 brought about by the adopted Munster – Phase 3 LSP.

The road layout provides for the continuation of Preston Drive in a south-westerly direction to enable a connection through to Fawcett Road. Lots to the south of the Structure Plan area on the east side of Fawcett Road through to the west are constrained from further residential development due to the Woodman Point WWTPB and wetland buffers/environmental constraints. Accordingly, the Structure Plan area boundary does not include these lots to the south.

In addition to road connectivity, the Structure Plan design also provides for a permeable network of dual use paths and footpaths.

3.2 Public Open Space

3.2.1 Existing POS

The Structure Plan area is well served by regional open space and recreation opportunities afforded by a chain of regional wetlands and the site's proximity to the coast. The site is located within close proximity to Lake Coogee Reserve, providing passive and conservation recreation opportunities. Bindjar Reserve (formerly Market Garden Swamp No. 3) is within the site and a system of dual use paths and passive recreation areas are progressively being developed around the perimeter of the wetland as adjoining residential subdivision proceeds. The site is located approximately 2km from Coogee Beach, a swimming and recreation beach and 1km from the Woodman Point Regional Park.

Beeliar Park (Radonich Park) is located approximately 1.3km north-east of the subject land and provides for active recreation activities. Santich Park is also located approximately 1km north-east of the subject land and provides for active recreational activities. Solta Park is located approximately 600m from the subject land and provides for passive recreational use.

3.2.2 Proposed POS

The table *below* illustrates the Structure Plan area is required to provide 1,466m² of land for Public Open Space, in accordance with the 10% contribution required by Liveable Neighbourhoods.

The portions of the Structure Plan area identified as Bushforever will be ceded free of cost to the Crown for reservation for Parks and Recreation purposes.

The Structure Plan proposes the creation of an easily accessible area of public open space, which will be integrated with existing public open space fringing Bindjar Reserve (formerly Market Garden Swamp No. 3) to the north. Unrestricted POS comprises 392m² which is equivalent to 2.69% of the subdivisible area as illustrated by the POS Schedule below.

It is noted clause 5.1.2.2(vii) of SPP 2.8 has been applied in the calculation of public open space within the Structure Plan area, which allows the WAPC to accept whole, or part, of a conservation area as a component of the 10 percent public open space contribution. This approach is considered acceptable in this instance as:

- the conservation reserve will serve a passive recreation function;
- a wetland and revegetation management plan will be required as a condition of subdivision approval; and
- Bush Forever site 429 covers approximately 73% of the structure plan and will be ceded free of cost which will provide for an improved environmental outcome, consistent with the policy objectives of SPP 2.8.

The use and design of the POS area has regard to the City of Cockburn Market Garden Swamps Environmental Management Plan, 2009 ("the Environmental Management Plan"). The Environmental Management Plan establishes management objectives for the wetlands in this locality, including Bindjar Reserve (formerly Market Garden Swamp No. 3) and identifies various management zones, including:

- Conservation and Protection;
- Nature Focus; and
- Recreation.

Figure 6 (Map D) of the Environmental Management Plan (**Appendix 8**) includes a large portion of the Structure Plan area comprising Bindjar Reserve (formerly Market Garden Swamp No. 3) within a Conservation and Protection zone, with a Recreation zone providing an interface with future residential land use.

Public Open Space Contributions

Public Open Space Schedule (AS PER LIVEABLE NEIGHBOURHOODS 4)			
	Gross Area (ha)	(ha)	(ha)
	Lots 71, 72 , 73 and 500	5.5742	
A	TOTAL		5.5742
	Less Environmental Assets		
	Bush Forever	3.7821	
	Deductions		
	1 Year ARI Bio-Retention Areas	0.0322	
	Additional Restricted Open Space (above Maximum 20%)	0.2943	
B	TOTAL		4.1086
C	Net Subdivisible Area (A - B = C)		1.4656
D	10% Requirement (10% of C = D)		0.1466
	POS Requirement		
E	<i>Minimum 80% Unrestricted POS (80% of D = E)</i>	0.1172	
F	<i>Maximum 20% Restricted Open Space (20% of D = F)</i>	0.0293	
	TOTAL		0.1466
	POS PROVISION		
	Unrestricted Open Space (Minimum 80%)		
	Unrestricted POS Areas (Excludes 1 Year ARI)	0.0392	
G	SUB-TOTAL		0.0392
	Restricted Open Space (Maximum 20% or 0.029ha)		
	Bushforever (excluding portion deducted as Environmental Asset)	0.00	
	REW Buffer Outside Bushforever boundary	0.3236	
H	SUB-TOTAL	0.3236	
I	Credited Restricted Open Space (Maximum 20%)		0.0293
J	Additional Credited Restricted Public Open Space To Make up 10% POS		0.0781
K	Total Credited POS (G + I + J)		0.1466
L	Surplus POS (K - D = K)		0.0000
	Percentage of POS Provided (K as % of D)		10.00%

Given the size, configuration and conservation value of the proposed POS, it is anticipated the public open space shall be developed as part of a linear local park system primarily for passive recreation use. This is considered consistent with the function of the recreation zone reflected in the Environmental Management Plan. The use and management of the proposed POS is considered in the Landscape Concept Plan at Appendix C of the LWMS (**Appendix 2**) and is also reflected on the Opportunities and Constraints Plan at **Appendix 6** of this Structure Plan Report. It is anticipated preparation of a Wetland Rehabilitation Management Plan will be required to satisfy a condition of subdivision or development approval. Accordingly, the Landscape Concept Plan would be subject to future modifications and detailed design at this stage.

3.3 Residential

3.3.1 Land Use and Residential Density

The residential density ranges applicable to the structure plan area are shown on the Structure Plan Map (Plan 1). Specific residential density codes will be subsequently assigned in accordance with a Residential Density Code Plan, approved by the Western Australian Planning Commission at the subdivision stage.

The Residential Density Code Plan:

- f) Is required to be submitted with each subdivision application/s, and shall be consistent with the density ranges and locational criteria contained within this structure plan.
- g) Is to include a summary of the proposal lot yield of the subdivision application to which it relates.
- h) Forms part of this structure plan once it has been approved by the Western Australian Planning Commission (as part of its determination of the respective subdivision application).
- i) May be varied subject to the further approval of the Western Australian Planning Commission. A varied Residential Density Code Plan will replace (either entirely or partially) the previously approved Residential Density Code Plan.
- j) May not be required if the Western Australian Planning Commission considers that the subdivision application is for one or more of the following scenarios:
 - i. Amalgamation of lots (including land assembly);
 - ii. Provision of access, services or infrastructure;
 - iii. Non-residential land uses, with reference to the zone or reserve indicated on this structure plan; or
 - iv. In accordance with an already approved Residential Density Code Plan.

The allocation of residential densities shall be generally in accordance with the following criteria:

- c) A base residential density coding of R30 applies across the structure plan area.
- d) An R40 coding may be applied for lots that:
 - i. Abut, or have an outlook towards, areas of public open space; and/or
 - ii. where vehicular access is proposed via a rear laneway or shared accessway.

The actual lot yield/dwelling yield from the structure plan area will be subject to more detailed design and preparation of a Residential Density Code Plan in accordance with the above requirements. Therefore, it is not practical at this stage to determine specifically how the structure plan satisfies the dwelling targets under the South Metropolitan Peel Sub-regional Planning Framework.

In this regard, the Sub-Regional Planning Framework encourage new urban development/structure plan areas to achieve a residential density target of 15 dwelling units per gross hectare of Urban zoned land. Further, a residential site density of 26 dwellings per residential site hectare is to be achieved.

Using a base R30 density, it is estimated the structure plan area may provide approximately 37 dwellings, which would equivalent to:

- 6.64 dwelling units per gross hectare of Urban zoned land; or
- 33.3 dwellings per residential site hectare.

Whilst it would be expected that the final dwelling yield would be increased due to the demonstration of suitable R40 coded areas (as per the above criteria) the variation from the

residential density target of 15 dwelling units per gross hectare of Urban zoned land in particular can be explained by the fact that approximately 73% of the structure plan area is covered by BFS 429. This will result in approximately 37,821m² of the overall structure plan area being ceded for environmental purposes at subdivision stage.

Comparatively, if the part of the structure plan area identified within BFS 429 was reserved under the MRS for Parks and Recreation, the structure plan would deliver 20.65 dwelling units per gross hectare of Urban zoned land, consistent with/more consistent with the residential density target intended under the South Metropolitan Peel Sub-regional Planning Framework.

3.3.2 Residential Development Layout

The road network has been designed to be integrated with the existing local road network. This, along with the environmental considerations affecting the site has guided the Structure Plan layout. Detailed design will be progressed at a later planning stage and in the case of lots seeking the R40 density, a local development plan may be necessitated to guide specific development outcomes.

3.3.3 Streetscape Considerations

The Structure Plan area has a frontage of approximately 165m to Fawcett Road and approximately 200m along the extension of Preston Drive hence, it will be important to ensure a high quality streetscape is achieved.

These considerations will be reflected in a Local Development Plan(s) based on the Urban Design Principles for the Structure Plan area, which would guide future development applications.

3.4 Movement Networks

3.4.1 Existing Movement Network

3.4.1.1 Regional Road Network

The subject site is well connected with the metropolitan and wider regional road network, given its close proximity to the Kwinana Freeway, Stock Road/Rockingham Road and Beeliar Drive. The regional road network provides efficient access to the wider Perth Metropolitan Region including commercial and employment centres.

3.4.1.2 Local Road Network

The subject land has a 183.7m frontage to Fawcett Road along its western boundary. The approved Munster (Phase 3) Structure Plan adjoins the subject land and has established a road layout which will facilitate an extension of the existing local road network (Preston Drive) over the subject. Preston Drive will continue from the recently completed subdivision to the immediate north, passing through Lot 73 and connecting through to Fawcett Road. This creates an additional direct road access that can service the future development within the Structure Plan area, as well as providing an appropriate interface with Bindjar Reserve (formerly Market Garden Swamp No. 3). The existing road network to the north is evident on the Aerial photograph at **(Figure 2)**.

The internal road within the subject land required to service new development lots will be standard kerbed asphalt roads in accordance with City of Cockburn requirements.

A traffic impact statement will be required at the subdivision stage to inform appropriate intersection treatments at the intersection of Fawcett Road and the Preston Drive extension.

3.4.1.3 Public Transport Network

Transperth operates the Perth to Mandurah passenger rail service seven days a week. The closest station, Cockburn Central Station, is located at the intersection of the Kwinana Freeway and Armadale Road/Beeliar Drive approximately 7kms east of the site. The service operates:

- Monday to Friday from 5.00am to 1.00am,
- Saturday from 5.30am to 3.00am and
- Sundays & Public Holidays from 6.30am to 12.30am.

Transperth bus route 532 provides connections to the Cockburn Central Train Station/Cockburn Gateway City Shopping Centre and the suburb of Lake Coogee.

The service operates Monday to Friday from 5.51am to 11.17pm, on Saturday from 6.04am to 11.47pm and on Sundays and Public Holidays from 7.17am to 11.17pm. The service is timed to connect to the Mandurah to Perth passenger rail service.

3.4.1.4 Cycle Network and Pedestrian Network

The site is located within relatively close proximity to a cycle network including Perth Bicycle Network (PBN) routes and a Principle Shared Path (PSP) running adjacent to the western side of the Kwinana Freeway.

The PSP connects the site with destinations along the entire north-south length of the Kwinana Freeway and Mitchell Freeway, stretching from Mandurah to Joondalup, where PBN routes provide connections to destinations located east and west of the PSP.

Mayor Road is located 300m to the north of the site and is identified as a bicycle friendly road. Rockingham Road is 600m to the east of the site and has certain parts with dedicated bike trails. West Churchill Avenue continuing onto Fawcett Road is located 300m to the south of the site and also has dedicated bike trails.

The progressive residential development in this locality will provide for additional local connections to the regional cycle network. Similarly, the progressive development of the area will facilitate the provision of a significantly upgraded pedestrian network, linking to destinations such as school sites, parkland and shopping centres.

Bicycle and pedestrian linkages will also be provided for via an extension of the dual use path system within the Public Open Space around the perimeter of Bindjar Reserve (formerly Market Garden Swamp No. 3) and also via pedestrian links between Fawcett Road and the wetland areas as illustrated by the Urban Design Principles Plan (**Appendix 7**).

3.4.2 Traffic generation

The proposed extension of Preston Drive shall be designed to service future subdivision and development within the Structure Plan area to accommodate the increased traffic associated with residential development of the subject land. Access to development over the subject land will be derived from two different roads (Fawcett Road and Preston Drive) and thus vehicles will be dispersed across the local road network minimising traffic impact.

A traffic impact statement will be required at the subdivision stage to determine the appropriate intersection treatment for the Fawcett Road and Preston Drive extension intersection.

3.5 Water Management

The WAPC's Better Urban Water Management (BUWM) document identifies the requirement to prepare a Local Water Management Strategy (LWMS) to support a proposed Structure Plan. An LWMS (**Appendix 2**) has been prepared to support the proposed Structure Plan in accordance with the requirements of the BUWM document. The Urban Water Management framework within the locality has been established by the implementation of adjoining subdivisions. The development of the subject land for residential purposes is able to be integrated with the existing drainage infrastructure established as part of the previous residential subdivisions to the north.

The drainage system will be designed to maintain surface flow rates and volumes within and from the developed site at or below their predevelopment levels. The drainage design presented is conceptual and will be refined during the subdivision design stage.

The drainage characteristics of most of the site will be unchanged by the development. Within private lots, the runoff from building roofs and other impervious surfaces from storms up to 20-year ARI 5-minute duration (about 12mm) will be either captured for domestic water supply or disposed of by means of soakwells. The only runoff to be managed by the site drainage system from storms of less than 20 year ARI will be that generated from the single internal road reserve, having a total area of about 2,690m². In storms over 20-year ARI, the drainage system will also receive excess runoff from some private lots, with a total area of about 8,760m².

The road reserve has been divided into two catchments based on the existing topography. In the eastern part, where the road runs roughly along the contour, the road will have standard mountable kerbing. A side entry pit (SEP)/gully pit shall be installed at a low point and connected to a bubble pit within the drainage swale. Runoff will be captured and infiltrated in a 0.3m deep bioretention swale within the road reserve. This arrangement is similar to that which exists on the already-constructed northward extension of this road.

The western part of the road runs downhill from east to west, reaching a low point where it curves west to join Fawcett Road. This section of road will be kerbed and runoff will be directed to a 0.5m deep linear swale located on the bend.

3.6 Education Facilities

Coogee Primary School and St Jerome's Primary School are located 1.6km east and 800m north-west of the subject land respectively. Newton Primary School is located 2.1km north-east of the site. Spearwood Primary School is 2.9km to the north and Southwell Primary School 4.2km to the north of the subject land.

Lakeland Senior High School is located 6.0km to the north-east and Fremantle Senior High School is located 6.6km to the north-west of the subject land.

3.7 Activity Centres and Employment

The site is located in relatively close proximity to the industrial areas of Henderson, Naval Base and Kwinana Beach, which generate significant employment opportunities at a local and regional level across a range of trades, professions, and industries. The Latitude 32 Industrial Precinct approximately 2km to the south-east of the site will also provide extensive employment opportunities as this Precinct is developed.

Regional employment opportunities in the commerce, retail and service sectors are located within relatively close proximity at Rockingham and Fremantle. Locally, the Cockburn Central Commercial Precinct provides employment opportunities.

Professional and office based employment opportunities within the Perth Central Business Area are also readily accessible via public transport network, including the Cockburn Central train station.

A small local centre is located approximately 700m south-east of the site at the corner of West Churchill Avenue and Rockingham Road.

Weekly shopping needs of residents will be met at Stargate Shopping Centre 1.8km north of the site on Rockingham Road and at Cockburn Central Commercial Precinct, located approximately 7km east of the site. Phoenix Park shopping centre is 3.5km north of the site.

3.8 Infrastructure Coordination, Servicing and Staging

3.8.1 Servicing

3.8.1.1 Sewer Reticulation

The existing residential dwellings on Lots 73, 500, and 72 are not currently connected to the pressure sewer main located within Fawcett Road. It is envisaged development within the Structure Plan area can be connected to the existing reticulated sewer within Fawcett Road and via an extension of the existing sewer pipe work within the proposed continuation of Preston Drive.

3.8.1.2 Water Reticulation

A reticulated water supply is currently available to service the Structure Plan area within the Fawcett Road reserve. A scheme supply is also available within the Preston Drive servicing the existing residential subdivision immediately to the north, which could be extended to service the Structure Plan area.

3.8.1.3 Local Roads

All road networks will be designed according to the City of Cockburn standards and will meet the existing road network construction philosophy. The pavement composition would be required to meet the City of Cockburn specifications.

3.8.1.4 Gas Supply

Gas is readily available in the vicinity of these subdivisional works and additional pipes will be installed as required to provide these lots with a gas supply.

3.8.1.5 Electrical Supply and Telecommunications

Power and telecommunications infrastructure is available to service the Structure Plan area via the Fawcett Road reserve and proposed extension of the Preston Drive reserve.

3.8.1.6 Earthworks and Site Levels

Site levels will be determined at subdivision and/or development stage, having regard to the requirements of an Urban Water Management Plan, earth work and retaining considerations and sewer design. In addition, lot levels will need to facilitate vehicular access via the proposed road layout as envisaged by the Structure Plan. A condition of subdivision or development approval can require the preparation of an earthwork and site levels plan to ensure proper integration between the levels of residential development, roads and POS if required.

3.8.2 Staging

In accordance with R42, Element 4 of Liveable Neighbourhoods, the Western Australian Planning Commission will require the entirety of the area shown on the Structure Plan Map (Plan 1) as public open space to be ceded at the first stage of subdivision approval of any of the lots to which this structure plan relates.

Any proposal involving the creation of public open space shall be supported by the appropriate reporting (as required under section 4.6 of this Structure Plan) to indicate that the necessary

preliminary site investigations for potential contamination have occurred, and if required, arrangements being made for its satisfactory rehabilitation.

In order to achieve the objectives of the Structure Plan, the Western Australian Planning Commission may support an application for subdivision approval of the land in order to achieve the necessary level of land assembly/rationalisation to realise the intent of the Structure Plan. Support from the Western Australian Planning Commission would be subject to the proponent demonstrating that such a proposal will not prejudice the future implementation of the Structure Plan. Accordingly, any such proposal should have regard to the subdivision and development requirements applicable to the land as specified in Part 1, Section 4 of this report, including obligations for the ceding and (potential) rehabilitation of public open space and measures for the continuation of Preston Drive.

This may require the proponent to enter into suitable arrangements with the City of Cockburn regarding the timing of delivery of items, including but not limited to land rehabilitation and management measures, ceding and construction of roads.

3.9 Other Requirements

3.9.1 Bushfire Management

The Structure Plan design has been prepared having regard to the requirements of the Bushfire Management Plan prepared for the subject land (**Appendix 4**). A summary which outlines how each of the key elements of the *Guidelines for Planning in Bushfire Prone Areas* have been satisfied, is included below.

3.9.2 Location of Development

Upon completion of development and subject to the requirements of the Bushfire Management Plan, all habitable buildings will be subject to BAL-29 or lower.

3.9.3 Siting and Design of Development

No BAL for future dwellings will exceed BAL-29. A mandatory 2m setback will be required for habitable buildings from the eastern boundary of the residential development area.

3.9.4 Vehicular Access

The proposed Structure Plan area is connected to an extensive public road network and will receive direct access from Fawcett Road and an extension of Preston Drive. At least two different vehicular access routes connecting to the public road network to provide egress to two different destinations will be available at all times, including during staging of the development.

3.9.5 Water Supply

The development is provided with a reticulated water supply, together with fire hydrants, in accordance with the specifications of the Water Corporation and the Department of Fire and Emergency Services.

3.10 Developer Contribution Arrangements

Under the City of Cockburn Town Planning Scheme No.3, clause 5.3 *Development Contribution Areas* provides for a cost contribution scheme to be established, to ensure the equitable sharing of costs between owners towards infrastructure required as a result of the subdivision and development of land within the Developer Contribution Area (DCA). The subject land is included within Development Contribution Area 6 (DCA6) and Development Contribution Area 13 (DCA13), which details common infrastructure costs applicable to DCA 6 and DCA 13. Special provisions apply to the subject land as set out in Table 10 – *Development Contributions Plans*.

3.11 Implementation

The proposed Structure Plan has been prepared in accordance with the requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015*. Further, the Structure Plan complies with the applicable State and Local Planning Policy Framework as set out in section 1.3 of this Report.

The *Planning and Development (Local Planning Schemes) Regulations 2015* stipulates the manner by which the Structure Plan will be processed by the City of Cockburn and thereafter, the Western Australian Planning Commission to enable final approval.

Following adoption of the Structure Plan, Local Development Plans, Development and Subdivision Applications can be considered and approved where they comply with the Structure Plan.

APPENDICES INDEX

Appendix No.	Nature of Document	Assessment Agency	Approval Status
1	Certificates of Title	N/A	For Information
2	Local Water Management Strategy (Bayley Environmental Services)	Local Authority/DWER	For Assessment
3	Summary of Pre-Lodgement Consultation	Local Authority/WAPC	For Information
4	Bushfire Management Plan (RUIC Fire)	Local Authority/DFES	For Assessment
5	Department of Aboriginal Affairs Site Search	N/A	For Information
6	Opportunities and Constraints Plan	Local Authority/WAPC	For Information
7	Urban Design Principles	Local Authority/WAPC	For Information
8	Market Garden Swamp Environmental Management Plan Extract	N/A	For Information

APPENDIX 1

Certificates of Title

APPENDIX 2

Local Water Management Strategy (Bayley Environmental Services)

APPENDIX 3

Summary of Pre-Lodgement Consultation

APPENDIX 4

Bushfire Management Plan December 2017

(RUIC Fire)

APPENDIX 5

Department of Aboriginal Affairs Site Search

APPENDIX 6

Opportunities and Constraints Plan

APPENDIX 7

Urban Design Principles to Inform Local Development Plan

APPENDIX 8

Market Garden Swamp Environmental Management Plan Extract