

LOCAL STRUCTURE PLAN

Lot 502 Tamblyn Place, Wellard

Prepared by Development Works for Ascari Developments Pty Ltd

15 August 2016



DOCUMENT CONTROL

Prepared by Development Works Pty Ltd
PO Box 6846 East Perth WA 6892
Phone: 0412 955 505

Revision	Author	Reviewer	Date
1	FF	FF	25.9.2015
2	FF	FF	15.8.2016

TABLE OF AMENDMENTS

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

This structure plan is prepared under the provisions of the City of Kwinana Town Planning Scheme No.2

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON: 2 November 2016

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

2 November 2016

Date

Date of Expiry: 2 November 2026

EXECUTIVE SUMMARY

The preparation of this Local Structure Plan has been undertaken to fulfill the statutory obligations of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the *City of Kwinana Town Planning Scheme No. 2* for the subdivision and development of Lot 502 Tamblyn Place, Wellard (Lot 502).

Lot 502 is located within the City of Kwinana and situated within the suburb of Wellard. Lot 502 is a total of 10.7428ha in area, with approximately 4.4378ha zoned Urban under the Metropolitan Region Scheme. The balance of Lot 502 is zoned Rural. Lot 502 is predominantly cleared over the Urban zoned portion, with the majority of the Rural zoned portion forming part of the Bollard Bulrush Swamp wetland system.

The Local Structure Plan has been prepared for the Urban zoned portion of Lot 502 only to accommodate subdivision and development for residential purposes, including supporting areas of public open space and drainage.

The Local Structure Plan is consistent with the established strategic planning framework including the Western Australian Planning Commission's recently released *South Metropolitan Peel Sub-regional Planning Framework*; *Jandakot District Structure Plan*; and *City of Kwinana Eastern Residential Intensification Concept District Structure Plan*.

Local Structure Plan particulars:

Item	Data	Section number
Total area covered by the Structure Plan	4.4378 hectares	1.2 CTs – Appendix A
Area of each Land Use Zone		
<ul style="list-style-type: none"> Residential 	2.5237 hectares 68 lots	3.3
Reserves		
<ul style="list-style-type: none"> Road and Drainage Public Open Space 	0.916 hectares 1.0442 hectares	
Estimated Lot and Dwelling Yield	65-70 lots / dwellings	3.1 Subdivision Plan Concept – Figure 4
Estimated Residential Density (based on 65 lots)		
<ul style="list-style-type: none"> Dwellings per gross hectare (as per Directions 2031) Dwellings per site hectare (residential zoned land) (as per Liveable Neighbourhoods and Perth and Peel@3.5million) 	14.6 dwellings per gross hectare (includes wetland buffer) 38.8 dwellings per site hectare	3.3
Estimated Population	182 people @ 2.8 people/household	3.3
Estimated area and percentage of Public Open Space to be ceded:		
<ul style="list-style-type: none"> Local Parks 	0.3055 hectares or 10.0% Creditable POS	3.3 POS Calculation Table / Figure 5

Item	Data	Section number
<ul style="list-style-type: none"> Other Parks (wetland buffer) 	0.7387 hectares or 16.54% (0.0755 hectares credited)	
Estimated percentage of natural area	1.0442 hectares or (23.3%)	3.3

Table of Contents

DOCUMENT CONTROL.....	1
ENDORSEMENT.....	2
TABLE OF AMENDMENTS.....	3
EXECUTIVE SUMMARY.....	4
PART ONE – IMPLEMENTATION	8
1. Structure plan area.....	9
2. Operation.....	9
3. Staging.....	9
4. Subdivision and development requirements.....	9
5. Local Development Plan.....	10
6. Other requirements	10
PART TWO – EXPLANATORY SECTION	11
1 Background	12
1.1 Introduction and purposes.....	12
1.2 Land description.....	12
1.2.1 Location.....	12
1.2.2 Area and land use.....	13
1.2.3 Legal description and ownership	13
1.3 Planning framework	14
1.3.1 Zoning	14
1.3.2 Regional and sub-regional structure plans.....	15
1.3.3 Planning Strategies and Structure Plans.....	16
1.3.4 Planning policies	17
2 Site conditions and constraints.....	19
2.1 Biodiversity and natural area assets	19
2.1.1 Flora and vegetation	19
2.1.2 Fauna	20
2.1.3 Wetlands	20
2.2 Landform and soils.....	20
2.2.1 Topography, soils and geology.....	20
2.3 Groundwater and surface water	21
2.4 Bushfire hazard considerations.....	21
2.5 Aboriginal and European Heritage	21
3 Land use and subdivision requirements	22
3.1 Local Structure Plan	22
3.1.1 Design response to site constraints.....	22

3.1.2	Subdivision Concept Plan	22
3.2	Land Use	23
3.2.1	Residential	23
3.2.2	Public Open Space	24
3.3	Movement Network	26
3.3.1	Road Network	26
3.3.2	Tamblyn Place Road Closure	27
3.3.3	Path Network	28
3.3.4	Public Transport	28
3.4	Water Management	28
3.5	Education	28
3.6	Activity centres and employment	28
3.7	Infrastructure coordination, servicing and staging	29
3.7.1	Road works	29
3.7.2	Sewer	29
3.7.3	Water	29
3.7.4	Power	29
3.7.5	Gas	29
3.7.6	Telecommunications	29
3.7.7	Drainage	29
3.7.8	Summary	29
3.8	Consultation	30
APPENDICES	31
Appendix A	– Certificate of Title	32
Appendix B	– Environmental Report – ENV	33
Appendix C	– Environmental Assessment – EPA	34
Appendix D	– Combined LWMS / UWMP – PDC	35
Appendix E	– Bushfire Management Plan – RUIC Fire	36
Appendix F	– Engineering Servicing Report – PDC	37

PART ONE – IMPLEMENTATION

1. STRUCTURE PLAN AREA

This Structure Plan applies to the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map.

2. OPERATION

This Structure Plan comes into effect on the date it is approved by the Western Australian Planning Commission (WAPC).

3. STAGING

Subdivision is likely to occur in a single stage extending from the eastern portion of the land which is provided with existing road access from Tamblyn Place, to the western portion of the land containing POS and the wetland buffer.

4. SUBDIVISION AND DEVELOPMENT REQUIREMENTS

- a) Residential densities for the structure plan area are the residential densities shown on the Structure Plan Map.
- b) Public open space is to be provided in accordance with the Structure Plan Map.
- c) Land use permissibility within the structure plan area shall accord with the corresponding land use classification in the City of Kwinana Town Planning Scheme No. 2.
- d) This structure plan is supported by a Bushfire Management Plan (BMP), (*Ref. 5434 V1.1 August 2016*) by RUIIC Fire, as amended. Any land falling within 100 metres of a bushfire hazard identified in the BMP is designated as a Bushfire Prone Area for the purpose of the Building Code of Australia.
- e) Notifications on Title

The Council 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 of Title to suitably respond to the following:

- That a lot(s) with a bushfire attack level (BAL) rating of 12.5 or higher is subject to a *Bushfire Management Plan*.

- f) Management plans

The Council shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval to respond to the following as identified by the structure plan:

- The preparation, approval and implementation of a wetland management plan providing for the protection of the adjoining conservation category wetland; and
- A mosquito and midge management plan.

5. LOCAL DEVELOPMENT PLAN

Local Development Plan(s) are to be prepared for lots with one or more of the following attributes:

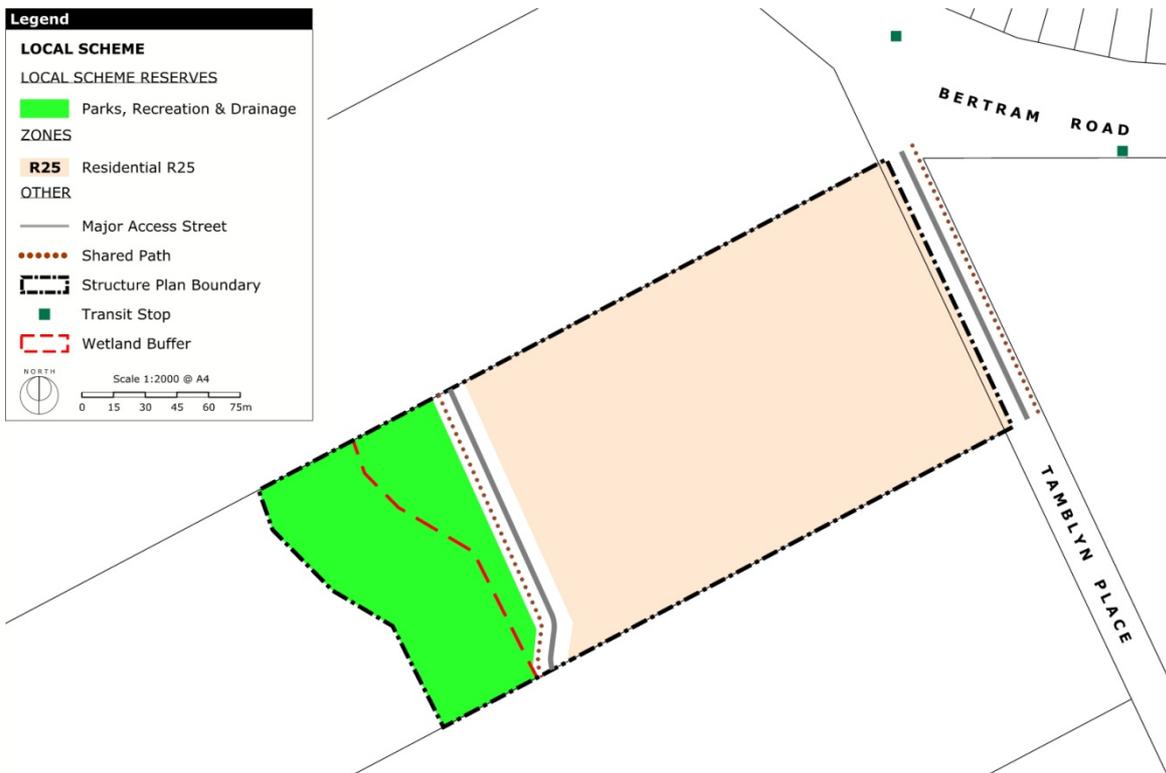
- a) rear-loaded vehicle access;
- b) having the potential for grouped and/or multiple dwellings;
- c) with frontages of less than 12 metres;
- d) abutting public open space; and
- e) with a bushfire attack level of 12.5 or greater.

6. OTHER REQUIREMENTS

- a) Development Contribution Arrangements

Under the City of Kwinana Town Planning Scheme No. 2, the following development contribution arrangements apply and/or are contemplated:

- Development Contribution Area 1 for the funding of the traditional infrastructure;
- Development Contribution Area 7 – Standard infrastructure for a district sporting ground; and
- Development Contribution Area 12 for community infrastructure.



Lot 502 Tamblin Place, Wellard Local Structure Plan

PART TWO – EXPLANATORY SECTION

1 BACKGROUND

1.1 Introduction and purposes

The LSP has been prepared by Development Works on behalf of the registered proprietor of Lot 502, Ascari Developments Pty Ltd.

The LSP will cover the Urban zoned portion of Lot 502 which is located east of the wetland associated with the Bollard Bulrush Swamp, and extends to Tamblyn Place.

The LSP will establish the guiding principles for the subdivision and development of Lot 502 for residential purposes. This will be in the form of a structure of Residential land use, Public Open Space (POS) and local roads, building on the established strategic planning framework under the WAPC's recently released South Metropolitan Peel Sub-regional Planning Framework; Jandakot District Structure Plan; and City of Kwinana Eastern Residential Intensification Concept District Structure Plan (ERIC).

The LSP addresses the requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the *City of Kwinana Town Planning Scheme No. 2 (TPS 2)*. The LSP and associated report is prepared in accordance with the WAPC's Structure Plan Framework (August 2015).

Extensive technical reporting has been prepared over the land located east of the Peel Main Drain extending to Johnson Road in the east as part of Lot 502's rezoning from Rural to Urban under the Metropolitan Region Scheme (MRS). This technical documentation has been used in support of the LSP and is supplemented with a combined Local Water Management Strategy / Urban Water Management Plan (prepared by PDC) which addresses drainage associated with the residential development of Lot 502.

1.2 Land description

1.2.1 Location

Lot 502 is located east of the Peel Main Drain and west of Tamblyn Place in Wellard. Tamblyn Place connects with Bertram Road and Johnson Road with the former connecting into the Kwinana Freeway via the Mortimer Road intersection (Figure 1).

Surrounding Lot 502 is:

- Urban zoned land to the north and south which is similarly undeveloped and is currently being used for rural residential purposes.
- Land east of Tamblyn Place and Johnson Road has been developed for residential purposes, including Emerald Park estate and smaller residential subdivisions undertaken by independent developers.
- Land west of the Peel Main Drain which is predominately associated with the Bollard Bulrush Swamp wetland system.

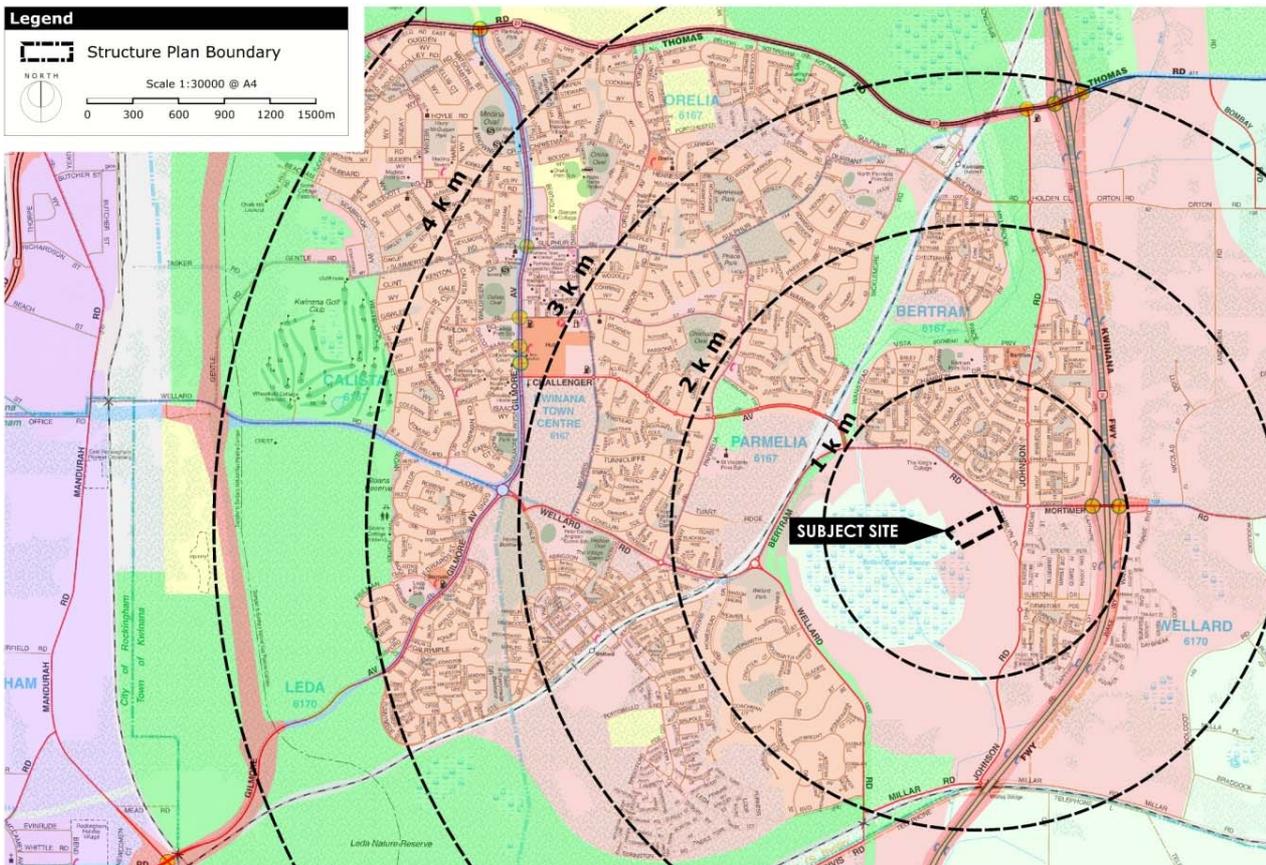


FIGURE 1: LOCATION

1.2.2 Area and land use

Lot 502's overall area of 10.7428ha consists of 4.4378ha zoned Urban and 6.205ha zoned Rural. Lot 502 is predominantly cleared and has been grazed in the past. There is an existing dwelling located on it which is likely to be removed as part of future subdivision (Figure 2).

1.2.3 Legal description and ownership

Lot 502 is legally described as Lot 502 on Deposited Plan 70999, Volume 2796 Folio 131 (Appendix A).

The registered proprietor is Ascari Developments Pty Ltd.

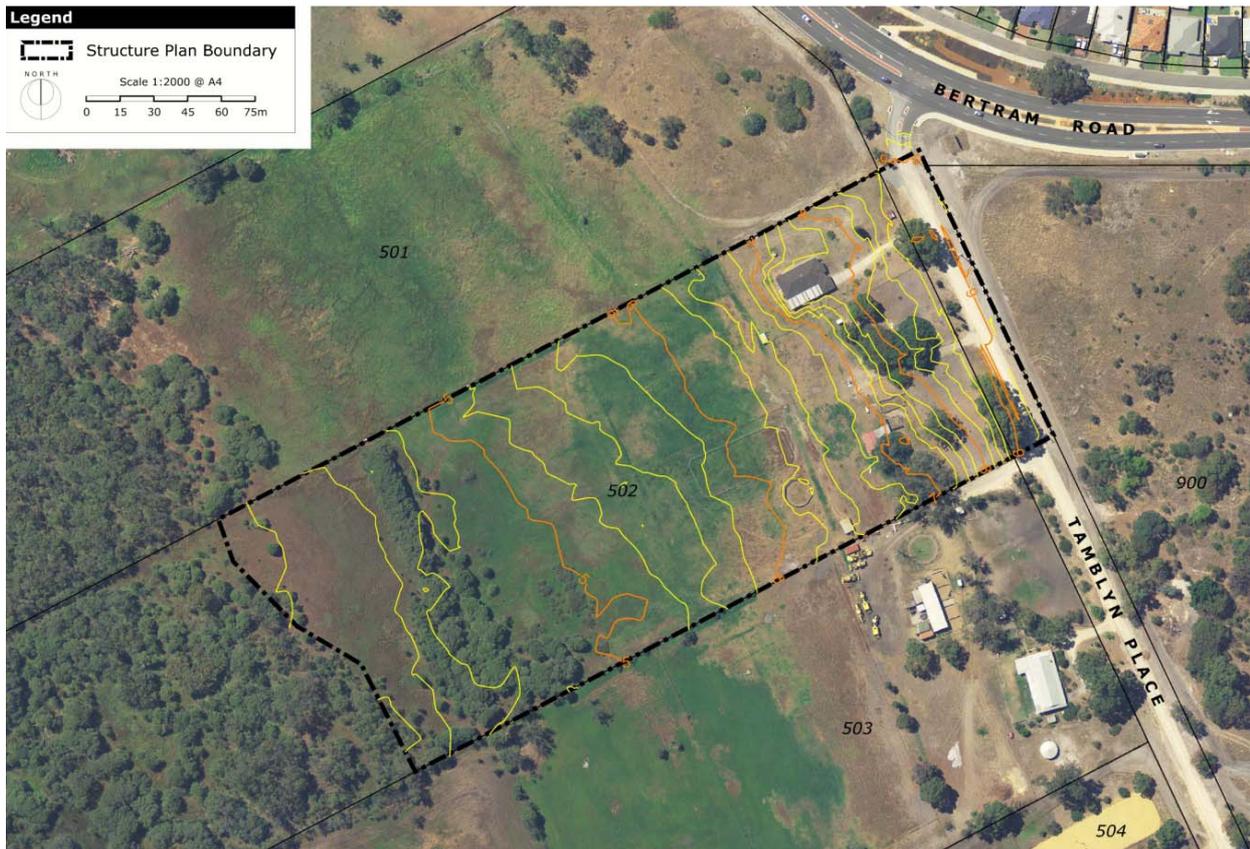


Figure 2: Lot 502

1.3 Planning framework

1.3.1 Zoning

Metropolitan Region Scheme

Lot 502 is zoned Urban and Rural and under the *Metropolitan Region Scheme* (MRS) (Figure 3). The delineation between the Urban and Rural zone was determined as part of MRS Amendment No 1158/57. As part of the Environmental Protection Authority’s (EPA) environmental assessment, the extent of the developable area and wetland covering the western portion of Lot 502 were confirmed. The EPA’s advice resulted in the WAPC determining the wetland be retained in the Rural zone with the Urban zone accommodating a 50m buffer to the wetland.

City of Kwinana Town Planning Scheme No. 2

Consistent with the MRS, Lot 502 is zoned Development and Rural under TPS 2.

Under TPS 2 the Development zone requires an LSP to be prepared prior to the subdivision and development of land; Clause 16.17.2.1 of TPS 2 states:

“Within the Development Zone or a Development Area, or the relevant portion of the Zone or Area, unless there is an adopted Structure Plan the Local Government is not to:

- a) consider recommending subdivision; or*
- b) approve an application for Planning Approval.”*

This LSP has been prepared to fulfill the obligations under TPS 2 for the future subdivision and development of Lot 502.

The other applicable requirements under TPS 2 relating to the future subdivision and development of Lot 502 include the subdivider meeting its obligations relating to Developer Contributions. In this regard, Lot 502 is included within:

- Development Contribution Area 1 (DCA 1) relating to traditional infrastructure (hard);
- Development Contribution Area 7 (DCA 7) – Standard infrastructure for a district sporting ground; and
- Development Contribution Area 12 (DCA 12) – Wellard West relating to community infrastructure (soft).



FIGURE 3: METROPOLITAN REGION SCHEME

Planning and Development (Local Planning Schemes) Regulations 2015

The WAPC has recently released the *Planning and Development (Local Planning Schemes) Regulations 2015* (the Regulations). The LSP will be considered by Council during a transition phase, awaiting the Regulations to come into effect on 19 October 2015. In this regard, the LSP will be considered by the WAPC and Council under the provisions of Schedule 2 Part 4 of the Regulations. The content of the LSP has been prepared in accordance with the Regulations, with its further consideration and approval to follow the deemed provisions under the Regulations.

1.3.2 Regional and sub-regional structure plans

Directions 2031 and Beyond

Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon provides the high level spatial strategic planning framework for the development and growth of the metropolitan Perth and Peel regions. Its primary purpose is to provide a framework which guides further planning and then the delivery of housing, infrastructure and services, necessary to accommodate a range of growth scenarios.

Lot 502 is contained within the south-west sub-region of Directions 2031 which has experienced considerable economic and population growth driven by its coastal locations. Directions 2031 suggests:

“Under the connected city scenario it is estimated that by 2031 the population of the south-west sub-region will have grown by 34 per cent to 278,000. The sub-region currently enjoys a relatively strong employment self-sufficiency rate of 60 per cent; however, with the intensification of Rockingham and progressive development of the Latitude 32 industrial area, Directions 2031 expects the sub-region to increase its employment self-sufficiency rate to 70 per cent, which will require 41,000 new jobs by 2031.”

Perth and Peel@3.5 Million and South Metropolitan Peel Sub-regional Planning Framework

The Department of Planning recently released *Perth and Peel@3.5 Million* to engage the community on the expectations of what Perth should look like in the future and how the population’s valued lifestyle can be maintained through the substantially increasing population. In addition to the primary document four draft sub-regional planning frameworks for the Perth and Peel metropolitan regions were released. These will be converted to Sub-regional Structure Plans as part of the approval process to guide the development of the regions into the future.

Lot 502 is contained within the *South Metropolitan Peel Sub-regional Planning Framework* with the eastern portion of Lot 502 identified as “Urban”; reflecting the Urban zone under the MRS. The Rural zoned portion of Lot 502 is identified as “*proposed open space – nature / passive recreation*”.

1.3.3 Planning Strategies and Structure Plans

City of Kwinana Local Planning Strategy

The City of Kwinana’s *Local Planning Strategy 2015* identifies Lot 502 as “*Future Residential Areas*”. We understand the City of Kwinana is currently reviewing the Planning Strategy.

Jandakot Structure Plan

The *Jandakot Structure Plan* was adopted in 2007 and was prepared as a broad planning framework at the regional level. The Structure Plan addresses future land use and infrastructure planning and development expectations, while balancing environmental issues.

The Urban zoned portion of Lot 502 is identified under the Structure Plan as “*short-term urban*”. Given the wetland considerations pertinent to Lot 502 and its surrounds, the Structure Plan also indicates “*further investigations to determine specific areas that may be available for future urban land uses.*”

Significant investigative work was undertaken as part of locality’s rezoning under the MRS which included environmental assessment by the EPA, culminating in a defined area agreed to as suitable for residential development.

City of Kwinana Eastern Residential Intensification Concept Plan

ERIC was prepared by the City of Kwinana as an additional level of strategic planning detail building on the recommendations of the Jandakot Structure Plan. ERIC identifies Lot 502 as part of a larger area subject to the Bollard Bulrush Swamp wetland system, identified specifically as “*Future urbanisation may be considered following full technical environmental review of impacts of urbanisation on wetland area (to be undertaken by landowner/developer in consultation with DoE).*” As mentioned above, environmental review and assessment was undertaken as part of the locality’s rezoning under the MRS.

Local Structure Plans

Lot 502 forms part of a larger area located west of Johnson Road which requires local structure planning. Contact has been made with representatives of the adjoining landowner who is undertaking the development of the land directly south of Lot 502. They have advised that a Local Structure Plan has recently been submitted to the City of Kwinana for consideration. The subject LSP has been prepared to fit seamlessly with the Local Structure Plan to the south providing a north-south road connection along the eastern edge of the wetland buffer.

Contact has also been made with the landowners of Lots 500 and 501 to the north of Lot 502, with an offer presented for a joint LSP to be prepared. However, this offer was declined and it is understood the adjoining landowners will prepare a separate LSP in the future. The land to the north will be able to connect with Lot 502 with the north-south road along the eastern edge of the wetland buffer.

1.3.4 Planning policies

State Planning Policy 2.1 – Peel-Harvey Coastal Plan Catchment

As a result of land use change from Rural to Residential over Lot 502 as will be accommodated under the LSP, the requirements of *State Planning Policy 2.1 – Peel-Harvey Coastal Plain Catchment* apply.

The objectives of this policy are to:

- Improve the social, economic, ecological, aesthetic, and recreational potential of the Peel-Harvey coastal plain catchment.
- Ensure that changes to land use within the catchment to the Peel-Harvey estuarine system are controlled so as to avoid and minimise environmental damage.
- Balance environmental protection with the economic viability of the primary sector.
- Increase high water-using vegetation cover within the Peel-Harvey coastal plain catchment.
- Reflect the environmental objectives in the draft Environmental Protection Policy (Peel-Harvey Estuarine System) 1992.
- Prevent land uses likely to result in excessive nutrient export into the drainage system.

Through the design of the LSP and the supporting drainage management, the objectives and requirements of State Planning Policy 2.1 are addressed.

State Planning Policy 3.7 – Planning in Bushfire Prone Areas

State Planning Policy 3.7 – Planning in Bushfire Prone Areas has been prepared to assist in reducing the risk of bushfire to people, property and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development and other planning decisions proposed in bushfire-prone areas. Specifically, the State Planning Policy:

- addresses land use planning elements of the Keelty report;
- elevates bushfire issues to be addressed by the highest level of planning policy available, giving it clear status and effect in the land use planning policy framework;
- emphasises the need to consider bushfire management measures in strategic level policy documents, including regional and local planning schemes, sub-regional and local planning strategies and structure plans, as well as during statutory planning processes for subdivision and development applications; and
- seeks to achieve the consistent implementation of bushfire management measures across the community.

State Planning Policy 3.7 will be addressed through the LSP design and implemented through the Bushfire Hazard Assessment and Bushfire Management Plan, which form part of this report.

Liveable Neighbourhoods

Liveable Neighbourhoods has been adopted by the WAPC as operational policy, and is to be followed in the design and approval of urban development. Liveable Neighbourhoods applies to structure planning and subdivision for greenfield sites and for the redevelopment of large brownfield and urban infill sites. The requirements of Liveable Neighbourhoods have been applied in the preparation of the LSP through the design of the road network, location of public open space and application of residential densities.

2 SITE CONDITIONS AND CONSTRAINTS

Extensive environmental analysis and review has been undertaken as part of the locality's rezoning under the MRS which has included:

- Environmental Report prepared to support the land's rezoning under MRS Amendment 1188/57 (Appendix B).
- Environmental Assessment by the EPA as part of the rezoning process under MRS Amendment 1188/57 (Appendix C).
- Determination of the extent of Urban development area appropriate under MRS Amendment 1188/57, which included defining the extent of the wetland.
- District Water Management Strategy prepared as part of the lifting of Urban Deferred zone for the land rezoned under MRS Amendment 1188/57.

The EPA's assessment of the MRS Amendment clearly defined a developable area through analysis of the environmental conditions of the Bollard Bulrush Swamp and the surrounding land. The EPA's recommendation to the Minister for Environment was:

1. That the Minister notes that the scheme amendment being assessed proposes to rezone the site from 'Rural' to 'Urban Deferred' under the Metropolitan Region Scheme.

2. That the Minister considers the report on the key environmental factor and principles as set out in Section 3.

3. That the Minister notes that the EPA has concluded that Metropolitan Region Scheme Amendment 1188/57 Wellard Urban Precinct East can meet the EPA's environmental objective for Inland Waters Environmental Quality.

4. That the Minister notes that the EPA has not included in this report "conditions and procedures to which Metropolitan Region Scheme Amendment 1188/57 should be subject, if implemented", because the EPA holds the view that the amendment as proposed can meet the EPA's environmental objective.

5. That the Minister notes the EPA's other advice presented in Section 4 in relation to a future Metropolitan Region Scheme amendment to reserve the wetland area, the rehabilitation of the Resource Enhancement Wetland area, and Acid Sulfate Soils.

Of particular relevance, it was clearly identified that a 50m buffer from the wetland boundary, within the Urban zone, would be sufficient to protect the Conservation Category Wetland function and the wetland habitat.

The existing environmental reporting and determinations described above have been applied in the preparation of the LSP. The existing site conditions and constraints summarized below are referenced from the Environmental Report prepared by ENV as part of the Environmental Review for MRS Amendment 1188/57 (Appendix B) and the combined LWMS/UWMP prepared by PDC (Appendix D).

2.1 Biodiversity and natural area assets

2.1.1 Flora and vegetation

ENV's Environmental Report identifies the western extent of the Urban zoned portion of Lot 502, extending into the wetland, as containing "*Scattered Melaleuca raphiophylla*"; with the majority of the wetland area consisting of "*Low Woodland Melaleuca raphiophylla, Eucalyptus rudis subsp. Rudis *Rubus anglocandicans,*Zantedeschia aethiopica,*Paspalum dilatatum,*Holcus lanatus, Centella asiatica, *Rumex crispus and Baumea articulate*".

The Urban zoned portion of Lot 502 has been mapped by ENV as “*Completely Degraded*” with the majority of the wetland identified as “*Good to Degraded*”.

ENV found no Threatened or Priority species, nor Threatened or Priority Ecological Communities within the Urban zoned portion of Lot 502.

2.1.2 Fauna

The only habitat contained on Lot 502 is “*Melaleuca Dampland*” which covers the majority of the wetland outside of the Urban zoned portion of Lot 502. ENV suggest that the “*Melaleuca Dampland*” is degraded with limited midstorey and understorey and a high level of weed infestation. The remainder of Lot 502 is considered of low value given its cleared nature and previous use for grazing.

ENV undertook a search of State and Federal databases for the area which resulted in 28 conservation significant fauna species identified as potentially occurring.

Based on the ecological requirements, known distributions and the type and quality of fauna habitats, only two species listed were considered as “*Likely*” to occur within Lot 502. These being bird species, including the Cattle Egret and Eastern Great Egret. These two bird species are unlikely to be impacted by future development as they are highly mobile and can easily move to other areas.

The Southern Brown Bandicoot was recorded on site, and there is a long historical presence of the species on the Swan Coastal Plain. Lot 502 is not considered to be capable of supporting a large population due to the lack of native understorey species and the inundation of low lying areas during rain events.

2.1.3 Wetlands

Lot 502 is contained within the Department of Parks and Wildlife geomorphic wetland system with the western portion categorised as a Conservation Category Wetland, corresponding with the Rural zoned portion of Lot 502, and the eastern portion categorised as a Multiple Use Wetland, corresponding with the Urban zoned portion of Lot 502. During the Environmental Assessment associated with MRS Amendment 1188/57 the wetland was reviewed resulting in reclassification from Resource Enhancement to Conservation Category.

As part of the environmental review a clearly defined boundary was set defining a developable area. The Conservation Category Wetland was to be retained in the Rural zone for protection with a 50m buffer. The resulting developable portion of Lot 502 was zoned Urban. The LSP adheres to the recommendations of the EPA.

2.2 Landform and soils

2.2.1 Topography, soils and geology

Lot 502 declines from Tamblyn Place in the east to the wetland area in the west. Tamblyn Place is approximately 9m AHD with the western portion of Lot 502, near the wetland at approximately 4.2m AHD (Figure 1).

A geotechnical investigation has been undertaken by CMW Geosciences to review ground conditions and provide recommendations relating to a ground remediation strategy to achieve a Class A footing for future residential development. The geotechnical investigation is attached to the combined LWMS/UWMP document (Appendix D).

The eastern portion of Lot 502 is characterised by poorly developed sandy topsoils layer typically 0.2m thick, overlaying medium dense Bassendean sand interbedded with silt, sand and clay

alluvium of the Guildford Formation (below 8m from existing ground level). Over the western portion of Lot 502 (below 6.5m AHD) the topsoil layer is dominated by clayey/peat to 0.5m thick. The Upper Bassendean sand across Lot 502 is loose to medium dense with relative density increasing with depth.

The majority of Lot 502 is mapped as a “*high risk area for ASS occurring within 3m of the natural surface*” by *The Perth Metropolitan Acid Sulphate Soils Map* (Department of Environmental Regulation).

2.3 Groundwater and surface water

Lot 502’s hydrology is influenced by its proximity to the Peel Main Drain, the low permeability topsoil and the gently inclined topography. The low permeability of the clayey / peaty topsoil results in low infiltration and high volumes of runoff in the form of sheet flow travelling towards the wetland.

Groundwater contours based on local and regional data over the Urban zoned portion of Lot 502 range from 4-5m+. There is a substantial set of existing data available for Lot 502 and surrounding area relating to groundwater levels with additional monitoring being undertaken specifically for Lot 502 by Ascari Development Pty Ltd. Sufficient clearance to groundwater will be provided as part of the development, with the finished lot levels based on providing suitable separation (0.5m) to the 100 year flood level of the Peel Main Drain (5.6m).

2.4 Bushfire hazard considerations

A Bushfire Management Plan has been prepared by RUIC Fire (Appendix E) to address the requirements of *State Planning Policy 3.7 – Planning in Bushfire Prone Areas*. The BMP suggests the subdivision and development of the Lot 502 can be appropriately mitigated against bushfires in accordance with the BMP. It should be noted that a conservative approach has been applied to assessing Bushfire Attack Levels and with the development of adjoining land and finalised of the landscape strategy for the abutting wetland buffer, the BALs can be reassessed at the subdivision stage and or building permit stage.

2.5 Aboriginal and European Heritage

A search of the Department of Aboriginal Affairs Aboriginal Inquiry System was undertaken on 24 September 2015 and no matches were recorded.

A search of the Heritage Council’s inHerit database was undertaken with one match recorded for Bollard Bulrush Swamp. Given a defined developable area with a 50m buffer to the wetland was set through MRS Amendment 1188/57, this matter has been addressed.

3 LAND USE AND SUBDIVISION REQUIREMENTS

3.1 Local Structure Plan

The LSP has been prepared over the Urban and Development zoned portions of Lot 502 under the relevant Planning Schemes. As agreed with the City of Kwinana's town planning officers, the LSP will cover Lot 502 only. This approach is on the basis of fitting seamlessly with the Structure Plan prepared over the adjoining land to the south; and providing suitable connections to Lot 501 to the north, which a separate Structure Plan will be prepared over prior to subdivision and development.

3.1.1 Design response to site constraints

The main constraints and factors influencing the future subdivision of Lot 502 include:

- the location of the wetland and associated buffer over the western portion of Lot 502;
- Lot 502's topography and the resultant drainage strategy incorporating the treatment of stormwater in an east to west direction;
- the location of Tamblyn Place; and
- the north-south road connection from the abutting land to the south.

The LSP and accompanying Subdivision Concept Plan as detailed in section 3.1.2, respond to the site constraints by:

- incorporating a 50m buffer to the wetland into POS;
- an east to west road layout which will accommodate the treatment of stormwater, which will then overflow into POS and the wetland area;
- local road network connecting to Tamblyn Place; and
- north-south road connecting with the LSP layout for the land to the south whilst providing an opportunity for connection to the north. This road will also provide a public interface to the POS and wetland buffer continuing the approach required by Council surrounding the Bollard Bulrush Swamp wetland system.

3.1.2 Subdivision Concept Plan

A Subdivision Concept Plan (Figure 4) has been prepared to depict an indicative subdivision layout in support of the LSP, encompassing a hypothetically compliant subdivision. The Subdivision Concept Plan depicts:

- a grid road layout based on a predominately east to west configuration;
- 68 freehold lots;
- predominately north and south facing lots;
- major access street (17m wide) along the western edge of the subdivision area providing a continuous north-south link along the wetland buffer's edge;
- access streets of 15m wide;
- a lot typology which will accommodate a range of lot types all with access from the primary street, whilst providing opportunities for future refinement as part of the subdivision stage, if necessary. The lot typology, includes:
 - 12.5m x 25m
 - 15m x 25m
 - 12.5m x 30m
 - 15m x 30m
- a single, consolidated open space area comprising a 50m buffer to the adjoining wetland area and unrestricted open space area which will accommodate passive recreation uses.

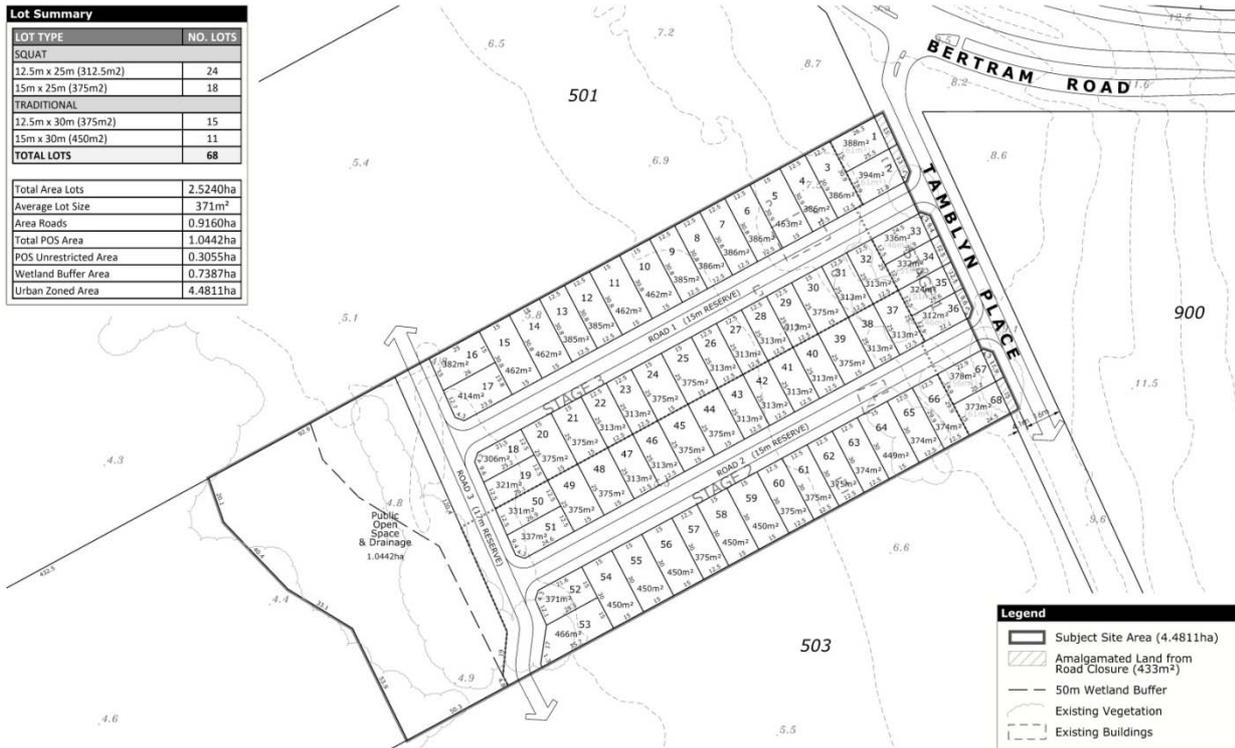


FIGURE 4: SUBDIVISION CONCEPT PLAN

3.2 Land Use

This LSP provides an extension of the Structure Plan prepared over the land to the south, which, with the land to the north, forms a residential urban cell located between Johnson Road, Bertram Road and the Bollard Bulrush Swamp wetland system. The land use structure is based on residential with a supporting open space network accommodating protection of the sensitive natural environment. The land use composition on the LSP consists of:

Land use	Area (ha)
Residential	2.5240
Public Open Space	1.0442
Road and Drainage	0.9160

3.2.1 Residential

The Residential zone will form the basis of the subdivision area and will include the R25 density code to control future subdivision and built form. The R25 density code will be the predominant density code accommodating the lot typology as detailed on the Subdivision Concept Plan and which will be consistent with the prevailing density code in the area, thereby ensuring a seamless fit with the adjoining structure plan to the south.

As detailed under Part One, the density targets specified for new residential areas under key strategic documents such as Directions 2031 and Beyond; South Metropolitan Peel Sub-regional Structure Plan, under Perth and Peel@3.5million; and Liveable Neighbourhoods are addressed as follows:

Strategy	Density Target	Provided (based on 65 lots)
Directions 2031 and beyond	15 dwellings per gross hectare	14.6 dwellings per gross hectare (includes wetland buffer)
Perth and Peel@3.5million	26 dwellings per residential site hectare	38.8 dwellings per site hectare
Liveable Neighbourhoods	22 dwellings per site hectare	

A potential population of approximately 182 persons could be accommodated within the subdivision based on 2.8 people per household (65).

3.2.2 Public Open Space

The location of POS on the LSP has been determined by the location of the wetland and the need to accommodate a 50m buffer to this wetland in accordance with the EPA's recommendation as part of the assessment of MRS Amendment No. 1188/57. The wetland buffer will logically form part of the open space network surrounding the Bollard Bulrush Swamp through a local reserve managed and maintained by the City of Kwinana. For efficiencies and to accommodate a greater open space area, unrestricted open space has been located adjacent the wetland buffer, providing a consolidated POS area. POS in this location will also ensure additional fill is not required and will compliment the drainage strategy.

In accordance with the requirements of Liveable Neighbourhoods a POS calculation has been prepared which coincides with the areas depicted on the POS plan (Figure 5).

A Landscape management strategy will be prepared at the subdivision stage to guide the development of the open space areas, noting the minimum requirements of Liveable Neighbourhoods. It should also be noted that any re-vegetation works undertaken will be in accordance with AS3959-2009 relating to low threat vegetation so as to not create a further fire hazard.

TABLE – Public Open Space Calculation

Lot 502 – Structure Plan area	4.4378	
Land obtained from Tamblyn Place Road Closure	0.0433	
Gross Site Area		4.4811
Deductions		
Drainage Reserves - N/A as contained within road reserves		
Surplus Restricted Public Open Space	0.6632	
Total	0.6623	
Gross Subdivisible Area		3.8188
10% Required Public Open Space		0.3819
PUBLIC OPEN SPACE COMPOSITION		
Unrestricted (minimum 80% of total)	0.3055	
Restricted (maximum 20% of total)	0.0764	
Total		0.3819
PUBLIC OPEN SPACE PROVISION		
Unrestricted Public Open Space		
Formalised Public Open Space provided	0.3055	
Total		0.3055
Restricted Public Open Space		
Wetland Buffer	0.7387	
Total		0.7387
Total Credited Restricted Public Open Space		0.0764
Total Credited Public Open Space Provided		0.3819
Percentage of Public Open Space Provided		10%



Figure 5: Public Open Space

3.3 Movement Network

3.3.1 Road Network

Lot 502 is influenced by Tamblyn Place which connects to the existing district road network including Bertram Road (District Distributor B) and Johnson Road (Local Distributor). Whilst we understand a slight modification to the southern end of Tamblyn Place will occur as depicted on the adjoining landowner's LSP, this will not impact the traffic environment to Lot 502 as access will be taken from the northern section of Tamblyn Place where it intersects with Bertram Road.

A localised network of streets will be applied to the future subdivision of Lot 502 with a Major Access Street (17m wide) depicted on the LSP along the edge of the wetland buffer / open space area, that will surround the Bollard Bulrush Wetland (Figure 6). Details relating to the cross section of this road are contained within the LWMS / UWMP. This road will form a public interface to the open space network and will join seamlessly with future subdivision to the north and south. This road will run parallel with Tamblyn Place, which is likely to form a similar Major Access Street function.

It is likely two access streets (15m wide) will connect the new Major Access Street and Tamblyn Place forming an efficient localised road network without impacting the subdivision of the adjoining land.



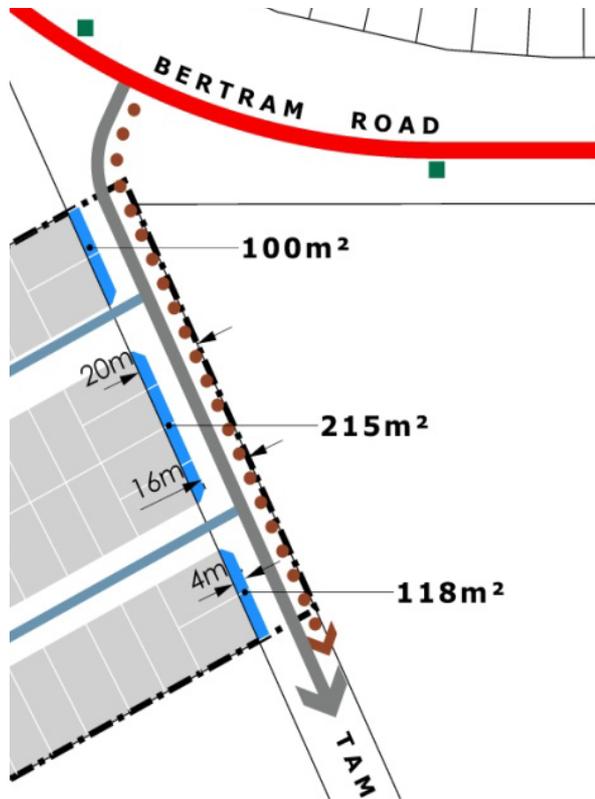
FIGURE 6: MOVEMENT NETWORK

3.3.2 Tamblyn Place Road Closure

Through discussions with the adjoining landowner and City of Kwinana, a reduction in the width of Tamblyn Place is being applied as the existing 20m wide road reserve is surplus to the infrastructure needs under the road hierarchy. Consequently, a 4m wide closure along the western side of Tamblyn Place will be undertaken to match that applied by the adjoining landowner. A request to close the relevant portion of Tamblyn Place as detailed in Figure 6 was formally lodged with Council.

The matter was considered at the Ordinary Council Meeting held on 13 April 2016, whereby Council resolved – *“That Council in accordance with Section 58(1) of the Land Administration Act 1997, formally request that the Minister for Lands grant the request to close the portions of road reserve detailed...”*.

The matter is currently being finalized by the Department of Land.



3.3.3 Path Network

A shared path is depicted along the new Major Access Street which will connect with the shared path to be provided within Lot 503. This path will then continue into the future development of Lot 501 to the north. We understand a shared path will be provided on the eastern side of Tamblyn Place to be constructed by the landowner as part of the subdivision of Lot 900.

Links to the shared path network which extend along Bertram and Johnson Roads will be provided by footpaths along the new access streets, constructed as part of the subdivision of Lot 502.

3.3.4 Public Transport

There are two bus stops located 50-150m from Lot 502 on Bertram Road. One of these stops also provides a direct link to the Kwinana Train Station. Consequently, Lot 502 is well served by the public transport system which residents will be able to utilise via the path network.

3.4 Water Management

As a result of the localised nature of the subdivision of Lot 502 it was agreed with the Department of Water and City of Kwinana that a combined Local Water Management Strategy (LWMS) and Urban Water Management Plan (UWMP) be prepared (Appendix D). The drainage strategy provides management techniques to address the following:

- compliance with the design objectives in the DWMS;
- detailed stormwater management design including the size, location and design of public open space area, integrating flood management capability;
- specific structural and non-structural best management practices and treatment trains;
- management of groundwater levels;
- management of groundwater contamination and other specific site conditions;
- protection of waterways, wetlands (and associated buffers), remnant vegetation and ecological linkages;
- measures to achieve water conservation and efficiencies of use;
- management of subdivision works (to ensure no impact on conservation areas and management of dust);
- management of disease vector and nuisance insects (mosquitoes and midges);
- monitoring programme and / or contribution; and
- implementation including roles, responsibilities, funding and maintenance arrangements.

The combined LWMS and UWMP for Lot 502 was approved by both the City of Kwinana and Department of Water on 5 May 2016.

3.5 Education

Lot 502 is located approximately 1,000m from a planned primary school located to the south of *Emerald Park* on Johnson Road. The Department of Education has committed funding to this school to be completed by 2018. This school will form the primary education facility for future residents. Lot 502 is also located approximately 300m from a private high school to the north and there are other schooling opportunities within the suburbs of Bertram and Kwinana in close proximity to Lot 502.

3.6 Activity centres and employment

Lot 502 is located approximately 1,000m to a planned Local Centre adjacent to the future primary school to the south of *Emerald Park*. Residents will utilise the Kwinana Town Centre for their major shopping needs. Neighbourhood and Local centres also exist in close proximity to Lot 502 at *The Village* in Wellard and within the suburbs of Wellard and Bertram.

3.7 Infrastructure coordination, servicing and staging

An engineering service report (Appendix F) has been prepared by PDC in support of the LSP, which provides a preliminary assessment of the engineering aspects required for servicing the subdivision of Lot 502.

3.7.1 Road works

Tamblyn Place which is currently of an unsealed standard will require upgrading to accommodate vehicle and pedestrian access to Lot 502.

3.7.2 Sewer

The subdivision of Lot 502 is reliant on a wastewater pump station 'M' being constructed within Lot 503 abutting Lot 502 to the south. This pump station is currently being considered by the Water Corporation following design and lodgement of a scoping report by the adjoining landowner. The pump station will be pre-funded and forms part of Water Corporation's five year capital works; programmed to be constructed by 2018.

Sewer will be delivered to Lot 502 and new lots as part of the Water Corporation's standard detailed design process.

3.7.3 Water

Water Corporation has advised that Lot 502 is located within the current boundary for the Water Supply Scheme and overall planning has made allowance for residential development within the area.

Water supply will be provided to Lot 502 and the new lots as part of the Water Corporation's standard design requirements, via a new connection to the future main in Tamblyn Place.

3.7.4 Power

A new switchgear unit and transformer will be required for the subdivision of Lot 502 and new lots.

3.7.5 Gas

To service the subdivision of Lot 502 and the new lots a medium pressure main extension will be required to be constructed in Tamblyn Place. The main extension will connect to the existing medium pressure network in Johnson Road. The medium pressure network has sufficient capacity to service the subdivision.

3.7.6 Telecommunications

NBN is not planned for the development area in the next 12 months. Therefore, Telstra is considered the 'Infrastructure Provider of Last Resort'.

3.7.7 Drainage

The proposed drainage strategy which is detailed under Section 3.4 addressing the LWMS/UWMP, has been prepared to follow Water Sensitive Urban Design principles to promote infiltration of stormwater at the source and to minimise the pit and pipe network. Roadside rain gardens are proposed to address these requirements in addition to providing aesthetic amenity for the development.

3.7.8 Summary

In summary, it is achievable and feasible to provide all essential servicing infrastructure to accommodate the subdivision and development of Lot 502. This will occur through standard

infrastructure extensions and upgrade of existing services through the relevant design and approval processes.

3.8 Consultation

The project team prior to and during the preparation of the LSP has engaged with the following stakeholders:

- City of Kwinana;
- Department of Water;
- Water Corporation;
- ATCO Gas; and
- Adjoining landowners.