



LOCAL STRUCTURE PLAN

LOT 64 WOOLCOOT ROAD,
WELLARD (EAST)



ROWEGROUP

ENDORSEMENT PAGE

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

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

20 JULY 2015

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

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This report has been authorised by;



George Hajigabriel General
Manager



Rebecca Cumming Designer



Jamie Baxter Quality Control

CONTACT PERTH OFFICE

p 9221 1991 e info@rowegroup.com.au w rowegroup.com.au a 3/369 Newcastle Street, Northbridge 6003

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TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by the WAPC
1.	Amendments to public open space and developable area.	Minor	





EXECUTIVE SUMMARY

The Local Structure Plan (LSP) addresses an area of 11.7 hectares identified as 'Development Zone' within the 'Wellard (East) Urban Cell', approximately 5 kilometres east of the Kwinana Town Centre. The site is bound by Woolcoot Road to the east, Peel Sub N Drain to the south and west, as well as the 'Sunrise' development to the further west.

The LSP area was transferred to the Urban zone in December, 2009.

The purpose of this LSP is to facilitate the development of the subject site for residential purposes. This LSP is therefore prepared to satisfy the requirements of Town Planning Scheme No.2 to facilitate subdivision and development of the site.

The Wellard East LSP was approved in August 2011 and provides an indicative framework for the entire cell, however specifically focuses on a consolidated area adjacent to the Kwinana Freeway. Local Structure Planning for the balance of the Wellard East Cell has therefore been progressed incrementally, in sub-precincts. This LSP referred to as the 'Lot 64 Woolcoot Road, Wellard (East) Local Structure Plan' therefore comprises a portion of the balance of the Wellard East area. This area is considered an appropriate sub-precinct being disconnected from the western portion of the Cell by the central Conservation Category Wetland and the Peel Sub Drains. An Amendment to the 'Lot 64 Woolcoot Road, Wellard (East) Local Structure Plan' was undertaken in May 2016 to include additional land within the LSP boundary, facilitating the urban development of that land.

The preparation of this Local Structure Plan has been undertaken in liaison with the City of Kwinana and government authorities.



Local Structure Plan Summary

Item	Data	Section number referenced in report
Total area covered by the Structure Plan	11.7 hectares	1.2
Area of each land use proposed		
<u>Zones</u>		
Residential	6.48 hectares	3.1
<u>Reserves</u>		
Road Reserve	2.56 hectares	
Park Recreation and Drainage (Inclusion of WP Easement 0.48ha)	2.66 hectares	
Estimated lot yield	203 lots	3.3
Estimated number of dwellings	206 dwellings	3.3
Estimated residential site density		
Dwellings Per Gross Urban hectare	17.3 dwellings	3.3
Dwellings Per Site hectare	31.7 dwellings	
Estimated population	543 people @2.8 people per household	3.3
Number of high schools	0 high schools	3.6
Number of primary schools	0 primary schools	3.6
Estimated area and % of public open space		
Total Public Open Space	2.66 hectares (13.1%, excluding 1:1 year drainage)	3.2
Unrestricted Public Open Space	0.82 hectares (8.1%)	
Restricted Public Open Space	0.39 hectares (wetland core) 0.85 hectares (wetland buffer) 0.48 hectares (western power easement)	
1:1 yr Drainage Deduction From Net Area	0.05 hectares	
Peel Sub Drain Widening	0.06 hectares	
Composition of Public Open Space:		
Neighbourhood Park	1.66 hectares, 1 park	3.2
Local Parks	0.48 hectares, 1 park	





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TECHNICAL APPENDICES

Appendix Number	Document Title	Nature of Document	Referral/Approval Agency	Summary of Document Modifications
1.	Certificate of Title			
2.	Environmental Assessment Report	Environmental	DPaW	
3.	DPaW Correspondence	Environmental	DPaW	
4.	Local Water Management Plan	Hydrology	City of Kwinana/ DoW	
5.	Fire Management Plan	Fire	City of Kwinana	
6.	EPR/LFI Hazard Assessment Report	Electrical Voltage	Western Power	
7.	Landscape Master Plan	Landscape Design	City of Kwinana	
8.	Transport Impact Assessment	Traffic Management	City of Kwinana	
9.	Sightline Assessment	Engineering	City of Kwinana	
10.	Servicing Report	Engineering	City of Kwinana	



Part One

IMPLEMENTATION



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1. Structure Plan Area

This Structure Plan shall apply 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 day it is approved by the Western Australian Planning Commission.

3. Staging

Figure 10 of Part Two depicts indicative staging for the subdivision of the structure plan area.

4. Subdivision and Development Requirements

- a) Residential densities for the structure plan area are the residential densities shown on the Local Structure Plan Map.
- b) Public open space is to be provided in accordance with the Local 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), *Fire Management Plan – Woolcott Road Local Structure Plan* (April 2014) 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 within a designated bushfire prone area and 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 wetland; and
- A mosquito and midge management plan.



5.

5.1

Local Development Plans

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) Frontages of less than 12 metres; and
- d) Lots deemed to be affected by a recognised Bush Fire Hazard, as identified under the *Fire Management Plan – Woolcoot Road Local Structure Plan* as amended (April 2015).

5.1.1 Local Development Plan(s) are to address the following design criteria:

- a) Relationship of proposed dwellings to the public realm and in particular the provision of visual surveillance;
- b) Built form variety through the use of design features and materials;
- c) Mitigation of dominating garage structures; and
- d) Quiet house design.

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 11 for the funding of community infrastructure, and
- Development Contribution Area 2 for 'hard' infrastructure.



LEGEND

RESIDENTIAL ZONES

- Residential (R25)
- Residential (R30)
- Residential (R40)
- Residential (R60)

LOCAL SCHEME RESERVES

- Parks, Recreation and Drainage

OTHER

- Structure Plan Boundary
- Conservation Category Wetland Core
- Wetland Buffer
- Access Street B
- Access Street C
- LaneWAY
- Western Power Easement
- Existing Lot Number

0 50 100 Metres

REVISIONS

Rev	Date	Drawn
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J	2016.01.12	M. Sullivan
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ROWEGROUP
PLANNING DESIGN DELIVERY
w: www.rowegroup.com.au
e: info@rowegroup.com.au
p: 08 9221 1991

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Wellard East

Lot 64 Woolcott Road, Wellard (East) Local Structure Plan

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Part Two

EXPLANATORY SECTION



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Planning Background

1.1 Introduction and Purpose

The Local Structure Plan (LSP) has been prepared on behalf of Sienna Properties Pty Ltd (ABN Group) for land located within Wellard East Urban Cell. The purpose of the Lot 64 Woolcoat Road, Wellard East Local Structure Plan (LSP) is to refine the provisions under the district framework and ensure a comprehensive approach to planning and development is undertaken with input from landowners, government agencies and other key stakeholders.

This Part 2 of the Structure Plan provides explanation for the Implementation (Part 1) provisions.

1.2 Land Description

1.2.1 Location

The site is located within the south west metropolitan corridor, approximately 37.3km from the Perth CBD.

The site is located 5km east of the Kwinana Town Centre and 15km from Kwinana Beach.

The site is bound by Woolcoat Road on its eastern boundary and the Peel Sub N Drain to its western and southern.

The site is located adjacent to 'Special Rural' to the west of Woolcoat Road and undeveloped land zoned 'Development' zone to its northern, southern and eastern boundaries.

Refer to Figure 1 – Regional Plan.

Refer to Figure 2 – Location Plan.

1.2.2 Area and Land Use

The site is approximately 11.7 hectares in size and is characterised as low lying farmland with a vacant residential and associated outbuildings.

The majority of the site comprises degraded paddocks from its previous grazing activity, with a small area within the north western portion of the site retaining remnant vegetation associated with the larger wetland area within the Wellard East Urban Cell.

1.2.3 Legal Description and Ownership

The amendment area comprises of one land parcels, being:

- ▲ Lot 64 on Deposited Plan 202645, Certificate of Title Volume 1895 and Folio 599;

Refer to Appendix 1 for a copy of the Certificates of Title, identifying owners of the site.

Refer to Figure 3 for a copy of the existing site plan.



1.3 Planning Framework

1.3.1 Regional Planning

1.3.1.1 Metropolitan Region Scheme Zoning

The site is currently zoned 'Urban' under the provisions of the Metropolitan Region Scheme (MRS).

Refer Figure 4 – MRS Zoning.

1.3.2 Regional and Sub-Regional Structure Plan

1.3.3 Directions 2031 and Beyond

The Commission's Directions 2031 and Beyond Metropolitan Planning Beyond the Horizon (Directions 2031) provides a spatial framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate the anticipated population growth of the Metropolitan and Peel regions. The site is located in the south-west sub-region identified as 'Urban Deferred – Undeveloped' under the Outer Metropolitan Perth and Peel Sub-Regional Strategy'.

Since the release of the Sub-Regional Strategy, the Wellard East Urban Cell has been rezoned to 'Urban' under the MRS with developed commenced. The LSP is therefore consistent with the identification of the cell for urban development.

1.3.4 Jandakot Structure Plan

The Local Structure Plan is situated within the Jandakot Structure Plan area.

The Jandakot Structure Plan was finalised in August 2007 and provides strategic direction to co-ordinate the development of the region while ensuring environmental, social and economic objectives are met.

Previously, the major constraint to urban development within this corridor was in relation to groundwater and stormwater management. With the preparation of the Jandakot District Water Management Plan (JDWMP) however, these issues have now been resolved and have been accommodated in current planning for the Cell under the Local Structure Plan, and subsequently the Local Water Management Strategy which accompanies this LSP.

The district level requirements of the Jandakot Structure Plan, such as the identification and preservation of natural areas, the allocation of public open space and public purpose areas, road network and hierarchy, the allocation of school sites and the allocation of commercial activity have been further refined through the preparation of the Local Structure Plan and subsequent amendments.

The proposed Local Structure Plan amendment is consistent with the intent and requirements of the Jandakot Structure Plan.

1.3.5 Policies

1.3.5.1 Liveable Neighbourhoods

Liveable Neighbourhoods (LN) is a WAPC operational policy for the design and assessment of structure plans and subdivision for new urban areas, it seeks to create a more vibrant, self sufficient and interactive communities that provide a wide range of residential, employment, recreational and business opportunities within a reasonable catchment.



The aims of LN can be summarised as follows:

- ▲ To promote an environment for safe, efficient and pleasant walking, cycling and driving;
- ▲ To facilitate mixed use urban development which provide a wider range of living, employment and leisure opportunities;
- ▲ To provide for a flexible neighbourhood structure capable of adapting over time as a community changes;
- ▲ To provide for a variety of lot sizes for housing choice and diversity;
- ▲ To provide a comprehensive approach to the design of open space and water management.

The LSP has been prepared in accordance with LN.

1.3.6 Local Planning Framework

1.3.6.1 City of Kwinana Town Planning Scheme No.2

The site is zoned 'Development' under the provisions of the City of Kwinana's Town Planning Scheme No.2 (TPS 2). The preparation of a Local Structure Plan is therefore required to guide future subdivision/ development of the site.

The north western portion of the site is also identified under TPS 2 as a 'Landscape Protection' Area. The objective of the Landscape Protection is to:

"...conserve areas of natural ecological value or landscaping amenity whilst at the same time allowing development as provided in the Zoning Table of the Scheme."

None of the following may take place unless prior Council has been sought:

- ▲ Clear any trees or other vegetation;
- ▲ Carry out filling, dredging or changes to the contour of the land;
- ▲ Erect any advertising signage;
- ▲ Erect or construct any buildings or outbuildings;
- ▲ Degrade any of the natural wetland system;
- ▲ Detract from the amenity of the locality in any way.

Refer Figure 5 – TPS 2 Zoning.

1.3.6.2 City of Kwinana Eastern Residential Intensification Concept (ERIC)

The City of Kwinana's draft District Structure Plan, referred to as the 'Eastern Residential Intensification Concept' (ERIC) was prepared by the City of Kwinana in 2005 to provide strategic direction and refinement of the future urban areas identified under the Jandakot Structure Plan. Whilst ERIC has yet to be finally adopted by Council, it was used as an informal guide in the preparation of the Local Structure Plan.

The LSP is consistent with the provisions of ERIC which identifies the site for residential development and a local park.



1.3.7 Other Approvals and Decisions

The Wellard East Local Structure Plan was lodged for the area currently referred to as 'Sunrise Estate' to the west of the subject site, abutting the Kwinana Freeway. The LSP was approved in August, 2011.

The LSP was approved for the land only within Sunrise Estate, however also provides an indicative layout for the balance of the Wellard East Cell for noting.

Site Conditions and Constraints

The following provides a summary of the environmental site conditions and constraints, however for further information it is recommended the reader consult the Environmental Assessment Report provided at Appendix 2.

2.1 Biodiversity and Natural Area Assets

A Level 1 Spring Survey was undertaken in November 2013 by 360 Environmental, in accordance with the EPA Guidelines. Two remnant vegetation associations were mapped within the site with vegetation ranging from 'Degraded' to 'Completely Degraded' with the majority of the site (approximately 77%) classified as 'Completely Degraded'.

Three rare and six priority flora are identified by the DER for the general locality, however on the basis of the Level 1 Spring Survey undertaken confirming the degraded nature of the site the lack of native vegetation, with the exception of the wetland species *Cyathochaeta teretifolia*, it is highly unlikely that any conservation significant species would occur on site.

Two wetlands are recorded for the subject site being:

- ▲ UFI 12918: Sumpland Conservation Category Wetland – within the north western portion of the site;
- ▲ UFI 12921: Dampland Multiple Use Wetland – Within the western portion of the site.

The portion of the CCW within the north western corner has been assessed by 360 Environmental and classified as 'Degraded' and 'Completely Degraded'.

2.1.1 Wetland Reclassification

Further to a reclassification request being progressed by the Project Team, DPaW has provided correspondence dated 26th February, 2105 confirming the reclassification and boundary realignment of both UFI 12918 and UFI 12921 (Refer to Attachment 3).

The reclassification reflects a reduction to the area of Conservation management category (UFI 12918) and the extension of the Multiple Use management category (UFI 12921) to encompass a portion of the degraded dampland. As such, the portion of the 'wetland core' within the site is reduced.

Further to the reclassification, subsequent consultation was undertaken with the City and formalised through the approved Wetland Management Plan which identifies an agreed buffer, revegetation area and landscape treatment.

2.1.2 Fauna

A search of the DER database indicates three rare taxa, four priority taxa and eight taxa protected under the international agreement within the general Wellard locality.

The wetland habitat within the LSP area may provide limited habitat for the Curlew Sandpiper, Common Sandpiper, Cattle Egret, Eastern Great Egret, Red-necked Stint, White-bellied Sea Eagle, Wood Sandpiper and Common Greenshank. All of these species are however highly mobile and are not considered to be dependent on the habitat within the LSP area.



The flora survey identified approximately 0.97ha of potential Black Cockatoo foraging and breeding habitat is found on site. The majority of this habitat is however found within the CCW and is therefore proposed to be retained through the design response for the site.

No other habitat values are identified for the site given the predominantly cleared and degraded nature of the site.

2.2 Landform and Soils

The site gently slopes from 18m AHD in the northeast corner of the site as it abuts Woolcott Road to 10m AHD in the northwest corner of the site. The lowest areas of the site coincide with the mapped Conservation Category Wetland (CCW) which extends to the north western corner of the site.

The site falls within two soil sub-units as follows:

- ▲ 212BsW_SWAMP: Wet soils (pale deep sands and peaty sands); and
- ▲ 22Bs_B1: Deep bleached grey sands sometimes with pale yellow B horizon on a weak iron-inorganic hardpan generally at depths greater than two metres.

The site is identified under the Swan Coastal Plain Acid Sulphate Soils Mapping as being classed as moderate to low risk of ASS occurring within 3m of ground level. A small portion of the site associated with the wetland is classed as moderate to high risk of ASS occurring within 3m of ground level.

2.3 Groundwater and Surface Water

360 Environmental commenced a groundwater monitoring in August 2013. Please refer to Appendix 3 for the Local Water Management Strategy for further details.

2.3.1 Groundwater

Groundwater mapping indicates groundwater underlying the LSP area ranges from RL 9.67m AHD to 10.78m AHD and flows in a westerly direction towards the Peel Sub Drain. The drain acts as a control on the groundwater by lowering levels in a localised manner. The seasonal variation in groundwater is up to 1.5m annually.

2.3.2 Surface Water

The LSP area is situated within the catchment for the Peel Main Drain. Two Peel Sub Drains are located adjacent to the western and southern boundaries of the site being, the Peel Sub N Drain and the Peel Sub N2 Drain which dissects the CCW within and to the north of the LSP area, and abuts the western boundary of the site.

It is understood that whilst the Peel Sub Drain network is currently a Water Corporation asset, ownership will be transferred to the City of Kwinana following the urbanisation of the ERIC corridor, specifically the drainage network which is proposed to be upgraded and urbanised as part of residential development.

2.4 Bushfire Hazard

The combination of remnant and proposed revegetation within the site, in addition to a number of vegetated areas surrounding the site, have required consideration of bushfire hazards within the LSP design response. Emerge Associates and Bushfire Safety Consulting has therefore prepared the Fire



Management Plan (FMP) – Woolcoot Road (as amended (REV C)), to address fire management requirements for the site.

Refer to Appendix 4 – Fire Management Plan.

Vegetation within and surrounding the site has been classified according to *AS3959 Construction of Buildings in Bushfire-prone Areas* (Standards Australia, 2009). Hazard ratings have been based on different vegetation classifications which inform the FMP response and therefore the LSP layout.

Vegetation that is to be permanently retained surrounding the site will pose permanent bushfire hazard considerations. Conversely, vegetation that is to be cleared for future urban development purposes in the short to medium term will pose only temporary bushfire management considerations for the LSP area. Considerations associated with the classified vegetation within and surrounding the site is outlined in the FMP.

Within the northwest corner and further north of the site, the retention of 'forest' vegetation associated with the Conservation Category Wetland (CCW) and the proposed revegetation will pose an 'Extreme' bushfire hazard. A 20m building protection zone (BPZ) from the edge of the vegetation can be achieved through a combination of 'low threat' vegetation within the POS and adjacent road reserve. With the exception of small areas of woodland and scrub in the adjacent development (Wellard East LSP area) to the west of the site, the majority of this area is currently grassland.

Future development of the LSP area includes retention of existing vegetation and revegetation within the Western Power easement and CCW buffer area. Revegetation will elevate the bushfire hazard from 'Low' to 'Moderate' and 'Extreme' and influence building standards for dwellings. The upgrading of the drain from rural to urban standard which separates the neighbouring lot to the site will result in the removal of vegetation of 'Extreme' bushfire hazard currently in the drain and this may possibly extend to immediately adjacent areas, but in the meantime is considered a temporary hazard and will require BPZ considerations.

To the north of the site areas of scrub and woodland represents an 'Extreme' bushfire hazard. The area closest to the site and outside the CCW buffer is planned for future urban development to include residential lots and road abutting the CCW buffer. While this hazard remains, associated BPZ requirements fronting vegetation to the north can be considered temporary pending the development of the area and the removal or maintenance of the vegetation.

Located to the east and south of Woolcoot Road, 'Rural' zoned land contains areas of woodland vegetation determined as 'Extreme' bushfire hazard, interspersed by small managed grasslands areas. There is no planning context for future urban development and a permanent BPZ requirement will apply which can be achieved within the Woolcoot Road reserve.

The 'Extreme' bushfire hazard to the west, northeast, north, east and south of the site is likely to pose increased Bushfire Attack Levels (BAL) to proposed dwellings within the LSP area. Dwellings within 100m of permanently retained vegetation (west, northeast, north, east and south of the site) will have increased building requirements to meet the increased BAL's. Indicative permanent and temporary BPZ requirements have been incorporated into the LSP (outlined in Appendix 4), however future BAL assessments are recommended (to be included with the LDP provisions) given the temporary nature of some areas of the applicable hazards. The future assessment would determine the specific BAL assessment for all lots currently determined to be 'Bushfire Prone Areas'.

The site will deliver Public Open Space (POS) areas will therefore comprise the retention of the CCW, a CCW buffer and landscaped areas. Retained existing vegetation within the CCW will pose a bushfire



threat. The CCW buffer, a 'low fuel zone' will be revegetated to satisfy the requirement of a 'hazard separation zone' [WAPC et al. 2010] and will require minimal management to maintain low fuel in the long-term. POS areas comprised of turf, paths, parkland trees and activity nodes will be landscaped and maintained as 'managed parkland' and will comply with the definition of 'low threat' vegetation in accordance to AS3959.

2.5 Heritage

A search of the Heritage Council State Register and the Department of Indigenous Affairs Inquiry System did not identify any sites of cultural significance for the LSP area.

No record exists under the City's Municipal Heritage Inventory for the site.

2.6 Western Power Easement

The Lot 64 Woolcoat Road LSP area is adjacent to 330kV powerlines. An investigation into Earth Potential Rise (EPR) and Low Frequency Induction (LFI) related voltage hazards has been conducted.

The EPR LFI Hazard Assessment concludes EPR/LFI hazards have been found to be in compliance with safety standards and limits, therefore no further risk mitigation strategies are necessary.

For further information regarding the EPR/LFI hazard assessment report refer to Appendix 5.

2.7 Context and Other Land Use Constraints

The LSP area has historically been utilised for grazing purposes however currently comprises of disused pasture and is largely cleared with the exception of a storage shed in the eastern portion of the site.

Livestock uses south of Millar Road (within the City of Rockingham) exist, the LSP area is however located outside of the 1000 metre separation distance as per the Environmental Protection Authority's (EPA) *Guidance Statement 3: Separation Distances between Industrial and Sensitive Land Uses* and as such, no notification regarding odour issues is recommended.

Given the LSP areas distance from the Kwinana Freeway and the Mundijong Freight Railway, noise generated from these sources are not considered to impact the development.

Land Use and Subdivision Requirements

The structure plan sets out land use, residential densities, public open space, public and private transport provision, environmental considerations and servicing requirements.

The following describes the proposal set out in the LSP and addresses the relevant elements of LN.

3.1 Land Use

The LSP comprises predominantly residential development (6.48ha), of densities ranging R25 to R60. Two public open space areas are also provided, one of which encompasses and retains the portion of Conservation Category Wetland within the subject site.

Please refer to the Land Use Summary table provided within the Executive Summary of this report.

3.2 Open Space

Under the provisions of LN a range of site responsive urban parkland is required, which appropriately addresses district, neighbourhood and local needs of residents, comprising a mixture of unrestricted and restricted open space.

Within the LSP area, public open space (POS) is predominately provided in one consolidated area, encompassing the portion of CCW within the north western area of the site and the Peel Sub Drain. This POS area therefore performs both a passive and active open space function.

The Peel Sub N Drain abutting the western portion of the site, currently exists as a rural v-drain with a steep batter profile. Under the LSP, the drain is proposed to be urbanised and therefore modified on its eastern boundary to create a living stream. The treatment of the drain will comprise planted slopes utilising native sedges and rushes to assist with nutrient stripping and midge and mosquito control. Boulders may also be utilised to act as minor weirs to control the flow of storm water through the living stream.

The modified sub drain will be unfenced and landscaped in accordance with LN to allow for informal active and passive recreational uses. In the event of large storm events (greater than 1:100), the living stream will convey the event from the site into the arterial drainage network as per the provisions of the Jandakot Regional Water Management Strategy.

As previously discussed, the portion of mapped wetland within the LSP area is heavily degraded, and for the most part represents cleared paddock. The LSP therefore identifies the portion of the wetland which remains relatively intact for retention, with additional re-vegetation proposed within the agreed buffer. This buffer ranges from 30m to 50m and responds to the existing site characteristics. The edge of the buffer will comprise a 3m fire break with conservation fencing to restrict public access from the wetland in accordance with the City's requirements. Planting beyond the conservation fencing will comprise of reticulated native planting and grassed areas. The Department of Parks and Wildlife (DPaW) has advised of its support to the reduced wetland buffer from 50m to 30m.

The Wellard East Cell presents a highly constrained urban area to deliver unrestricted POS, predominantly due to the extensive wetlands and their associated buffer, the Western Power Easements and the Peel Sub Drain network. Unrestricted POS within the LSP area therefore comprises a local and neighbourhood park. The neighbourhood park is associated with the large POS area provided in response to the Peel Sub Drain and the wetland retention area. This will comprise of a



formalised play area and areas of turf. The local park is provided within the Western Power Easement and will comprise path connection through to adjacent (future) residential areas and an open grassed area.

A primary school site is also identified in the southern portion of the Wellard East Cell and whilst the size of the site has yet to be formalised through local structure planning, it is anticipated that the playing fields associated with the primary school will serve formalised sporting activity function (district) for the locality. Large district open space is identified for the Casuarina Cell north of Mortimer Road associated with the High School Site and further north in a formal district playing fields facility. The Public Open Space Schedule has been prepared in accordance with Liveable Neighbourhoods requirements.

Please refer to Figure 6 – Public Open Space Schedule, and Figure 7 – Public Open Space Plan.

The indicative Landscape Master Plan provided at Appendix 5 depicts the proposed uses and layout for the public open space within the amendment area.

3.3 Residential

The LSP achieves an average residential density of 31.7 dwellings per site hectare and 17.3 dwellings per gross urban hectare. This is consistent with Liveable Neighbourhoods requirements, which stipulates a minimum average of 22 dwellings per site hectare for Greenfields subdivision areas, and Directions 2031 targets of a minimum 15 dwellings per gross urban hectare.

Density has been calculated based on an indicative subdivision plan prepared for the site, yielding approximately 203 lots and 206 dwellings.

There is a diversity of lot product across the amendment area, providing for a range of dwelling types and therefore affordability. Where the site configuration permits, the amendment area is likely to deliver the following standard lot typologies:

- ▲ 17 m x 30 m front loaded;
- ▲ 15 m x 30 m front loaded;
- ▲ 12.5 m x 30m front loaded;
- ▲ 10.5 m x 30m front loaded;
- ▲ 6m x 25m rear loaded;
- ▲ 10m x 30m rear loaded;
- ▲ 7.5 m x 30m front and rear loaded;
- ▲ 12.5m and 15m x 25m front loaded;
- ▲ 12.5m and 15m x 20 m front loaded;

3.3.1 Climate Responsive Design

Under Liveable Neighbourhoods lots should be oriented to facilitate the siting of dwellings and private open space to optimise solar access. Despite the configuration of the parent lot, the amendment area achieves relatively good solar access, with approximately half of lots having their long axis within the range N10°W to N30°E or E10°N to E30°S. The balance of sites whilst located outside of the solar



range, are aligned to a North/ South or East/ West orientation to allow for the built form to achieve solar access.

Figure 8 depicts the solar orientation achieved within the LSP area.

3.4 Movement Networks

The following provides a summary of the movement network. For further information it is recommended the reader consult the Transport Assessment Report provided at Appendix 6.

3.4.1 Existing Road Network

Woolcoot Road

Woolcoot Road abuts the LSP area on its eastern boundary.

Woolcoot Road is currently classified as an Access Road in the Main Roads WA Functional Road Hierarchy. It is currently constructed to a rural standard with a 7.0m wide carriageway and a road reserve width of 20m.

Mortimer Road

Mortimer Road is classified as a Regional Distributor road in the Main Roads WA Functional Road Hierarchy. It is currently constructed to a rural standard with a 7.0 metre wide carriageway.

Mortimer Road provides an east-west connection from the Wellard East and Casuarina Cells to the Kwinana Freeway and further west, to the Kwinana Town Centre.

Millar Road

Millar Road is located to the south of the Wellard East Cell and connects through the western side of the Kwinana Freeway.

Millar Road is currently classified as an Access Road in the Main Roads WA Functional Road Hierarchy. It is currently constructed to a rural standard with a 7.0m wide carriageway and a road reserve width of 20m.

3.4.2 Proposed Road Network

Road classifications for the LSP area have been determined on the basis of modelling undertaken by DVC. Road cross-sections are proposed generally in accordance Liveable Neighbourhoods for the relevant corresponding road type.

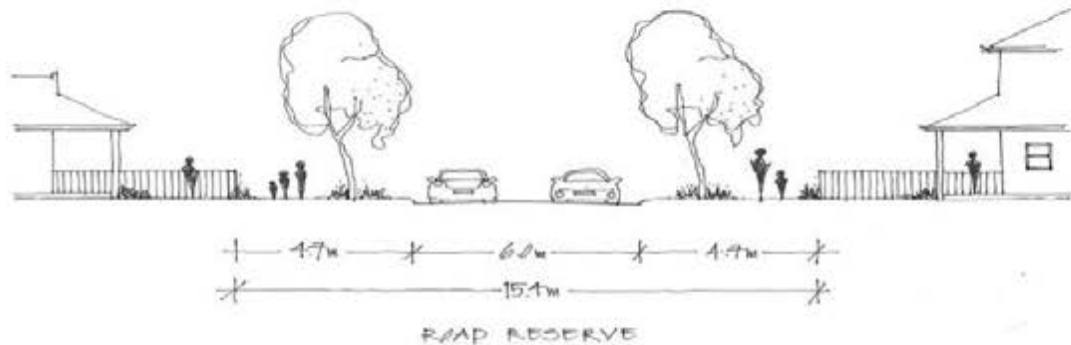
The LSP area primarily consists of Access Street C roads, designed to a 15.4 metre cross-section, with a widened reserve width reflecting an Access Street B section (17.9m) for the main entry off Woolcoot Road.

A widened Access Street C road section of 16.4m is also provided along the northern boundary of the site to accommodate the anticipated level difference between the adjacent neighbouring lot and the finish development levels.

An Access Street D road is proposed along a portion of the site adjacent to public open space, where servicing is only required along one side and therefore a reduced verge width is appropriate. Whilst a reduction in the road reserve width to 13.2m is proposed, sufficient width exists to enable public open space side on street parking.

The following image depicts the typical Access Street C road cross-section for the LSP area.

TYPICAL ACCESS STREET C ROAD CROSS-SECTION



Refer to Figure 9 Movement Network Plan.

The LSP is anticipated to generate approximately 1,530 vehicle movements per day, with projected traffic volumes on Woolcoat Road expected to be 420 (south of site) and 2,200 (north of site) vehicle movements per day. The existing Woolcoat Road reserve (20m) is considered to adequately accommodate the ultimate traffic volume however will be subject to upgrades to an urban standard in accordance with the City's requirements.

Two intersections are proposed from the development to Woolcoat Road, comprising the Access Street B entry road central to the site, aligned with the existing intersection of Arundel Drive and a secondary access within the southern portion of the LSP area. These intersections are proposed as full movement intersections and have been assessed under the Transport Impact Assessment report.

3.4.3 Truncation Variation – Small Lot Product

Under the provisions of LN, Element 2 – Movement Network R55, truncations of 3m x 3m are to generally be provided on corner lots. Notwithstanding, truncations of 6m x 6m have been the traditional standard applied by Local Governments in greenfield areas.

With the introduction of small lot product, the traditional 6m x 6m truncation utilises an excessive proportion of the site. As such, discussions with the City's Technical Services have indicated that reduced truncations of 3m x 3m in accordance with LN may be entertained at subdivision, subject to an assessment of appropriate sightlines in accordance with Austroads Standards.

Appendix 7 includes a generic assessment of varied truncations as they apply to the proposed smaller lot, higher density areas. Further assessment may need to be undertaken at detailed subdivision, should intersections/ truncations proposed deviate from the generic sightline assessment provided.

3.5 Water Management

The Jandakot Drainage Water Management Plan (DoW, 2009) provides the District Framework for urban water management across the ERIC District Structure Plan area, with specific reference to the Peel Main Drain System.

The LWMS in support of this LSP report has been prepared to meet the objectives of the Jandakot Drainage and Water Management Plan as well as Better Urban Water Management (WAPC, 2008) and Department of Water (DoW) guidelines.



Key elements of the stormwater management concept are as follows:

- ▲ Maintain the existing catchments and flow paths to the west of the site through earthworks and alignment of road networks. A large POS area at the downstream side of the site will feature informal drainage infrastructure.
- ▲ Adopt a treatment train approach to water quality management and protection of receiving environments, including infiltration of frequent events close to source, bio-retention areas to strip nutrients and modification of the Peel Sub N2 Drain into a living stream concept.
- ▲ Frequent events (≤1yr ARI Event) infiltrated within lots through the use of soakwells, with runoff from roads infiltrated via a bio-retention system within the POS.
- ▲ Major events will be discharged offsite at near pre-development peak flow rates. Attenuation of discharge offsite to the Peel Sub N2 Drain will be achieved with the use of an informal depression along the eastern boundary of the POS.
- ▲ Modification of the Peel Sub N2 Drain from a deep, V-shaped profile to a living stream concept which provides nutrient stripping capabilities and an amenity to the community with similar hydraulic performance.
- ▲ Importation of fill to ensure at least 1.2m of clearance between lots and maximum groundwater levels.
- ▲ Implementation of 30m buffers around the wetland to provide protection from development impacts.

The LWMS was approved by the DoW in September, 2015.

3.5.1 Groundwater Management

Based on the groundwater monitoring data and analysis there is greater than 1m clearance between the groundwater and the natural surface across the LSP area where development is proposed. No direct measures, including subsoil drainage, lowering of the groundwater or importation of fill, are proposed for managing groundwater.

Although it is not anticipated that subsoil drainage will be utilised, local site conditions or engineering design may result in the requirement for direct measures. Final lot levels and clearance to groundwater will be provided in the UWMP following refinement of the earthwork design.

3.6 Education Facilities

Two school sites are identified under ERIC within proximity to the LSP area, the Wellard East Primary School Site within the southern portion of the Wellard East Cell and the Casuarina High School Site north of Mortimer Road.

As such, the LSP area is appropriately serviced by both primary and high school sites.

3.7 Activity Centres and Employment

ERIC identifies two centres within proximity to the LSP area, the Wellard East Local Centre located centrally to the cell and the Casuarina Neighbourhood Centre located on the northern boundary of Mortimer Road.



The Casuarina Neighbourhood Centre is identified in the City's Draft Local Commercial and Activity Centres Strategy (Draft LCACS) which recently concluded advertising. The Draft LCACS proposes approximately 5000m² of retail NLA for this centre.

The Draft LCACS identifies two potential local centre sites of 800m² retail NLA comprising a central site adjacent to the primary school and an alternate southern location. The Concept Plan for the Wellard East Cell has identified a 'Homestore' of a maximum area of 100m² adjacent to the primary school.

The LSP area is also located within proximity to existing centres within Wellard West and Bertram for local convenience shopping and the Kwinana Town Centre for weekly shopping needs.

3.8 Infrastructure Coordination, Servicing and Staging

The following provides a summary of the infrastructure and servicing for the amendment area, however for further information it is recommended the reader consult the Engineering Services Report provided at Appendix 8.

3.8.1 Water Supply

The Water Corporation has made provision for water supply to the Wellard East Cell in its planning for servicing the south-east corridor. The amendment area is located within the Water Corporation's Medina gravity water supply scheme.

The LSP area may be initially be serviced by an extension of the existing 250mm diameter main within the adjacent Sunrise Estate. Upon commencement of construction an extension of the 250mm diameter main within Mortimer Road via Woolcott Road may be required.

3.8.2 Sewer

The Water Corporation has made provision for a reticulated sewerage scheme for the Wellard East Cell in its planning for servicing the south-east corridor. The amendment area is located within a sub-catchment of the Water Corporation's Sewerage Catchment denoted '54-042' and is proposed to be serviced by the 'Moonstone Parkway' sewerage pump station west of the Kwinana Freeway.

This system is constructed and operating under the management and maintenance responsibility of the Water Corporation.

3.8.3 Gas and Electricity

All lots within the LSP area will be serviced with underground power, of which the cost of works will be fully developer funded. Electricity connections will be via an extension of existing services within the Honeywood development.

Currently no existing reticulated gas infrastructure exists in the immediate locality. The closest existing main is located within Mortimer Road approximately 1.2km from the site. Should gas be provided as part of the development an extension of this main would be required.

3.8.4 Telecommunications

The LSP area is anticipated to be serviced by the NBN-Co under the 'Fibre to the Home' Scheme. The NBN-Co infrastructure exists in the area and has capacity to service the proposed development.

Headwork charges for Telecommunication service extensions are anticipated.

3.8.5 Development Staging

The LSP area will comprise of an anticipated three stages of development.

Preliminary bulk earthworks will be undertaken for the site in one stage, with civil construction occurring in three separate stages.

An indicative staging plan for the amendment area is provided at Figure 10.

3.9 Developer Contribution Arrangements

The LSP area is situated within the Wellard East Cell for the purposes of Developer Contribution Arrangements, and forms part of Development Contribution Area 11 (DCA 11) for community infrastructure.

DCA 11 was introduced to TPS 2 by way of Scheme Amendment 115 (Gazetted on 19 June, 2012), and is intended to have an operation period of 20 years (2011 to 2031).

The following items are currently listed under TPS 2 as being subject to funding by DCA 11.

DCA 11	Item
Sub-Regional	Community Knowledge and Resource Centre (excluding leasable office space and cafe component)
	Destination Park (Calista)
	Wells Beach Foreshore Upgrade (Park and Boating facility)
District B	Sports Pavilion
	Community Centre
	Youth Centre
	Dry Recreation Centre
	Branch Library
Local	Local Community House/Centre
	Local Sporting Pavilion 2
Admin	Administrative Costs

Notwithstanding the above, the revised *Community Infrastructure Plan 2011-2015* was advertised in November, 2015. This is likely to result in a reduced need for facilities to be provided within the Wellard East Cell.

In addition to DCA 11, a Scheme Amendment (Amendment 100A) was initiated by the City of Kwinana concurrently with Amendment 115 to introduce 'hard' infrastructure items to the Scheme. This amendment has recently been superseded by Amendment 100A. Upon gazettal of Amendment 100A, the Wellard East Cell will also be subject to Development Contribution Area 2 (DCA 2). Amendment 100A is still under review by the City, and is yet to be approved by Council, the WAPC or the Minister. Timing for the Gazettal of Amendment 100A is unknown at this stage.

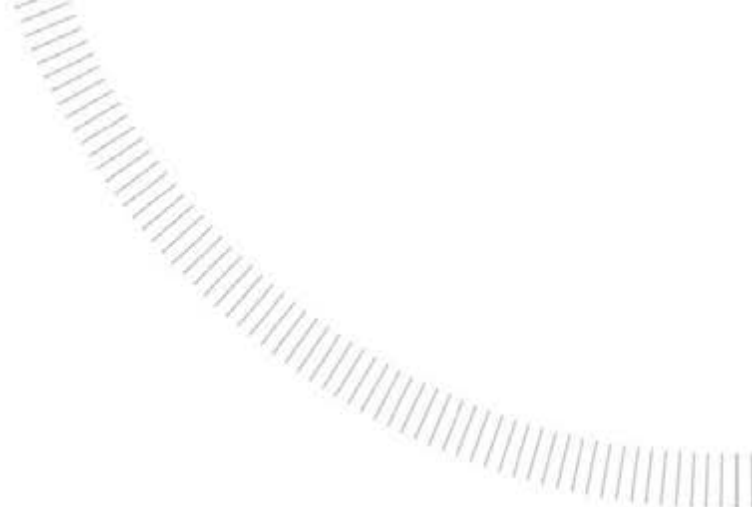
Whilst the items to be included within DCA 2 are yet to be determined, it is understood the indicative list of items includes the following:

- 
- ▲ Millar Road Upgrade;
 - ▲ Mortimer Road Upgrade;
 - ▲ Public Open Space 10% (this may however be redundant should all landowners provide 10% per LSP area); and
 - ▲ Regional Drainage.

Should the review of both DCA 11 and DCA 2 not be complete prior to subdivision within the LSP area, it is likely a legal agreement will be entered into between the City of Kwinana and the Developer for the payment of interim costs, to be reconciled upon Gazettal of Amendment 100A and any amendments to the existing DCA 11.



FIGURES

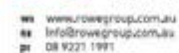


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Figure 1

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LEGEND

--- Subject Site

0 275 Meters

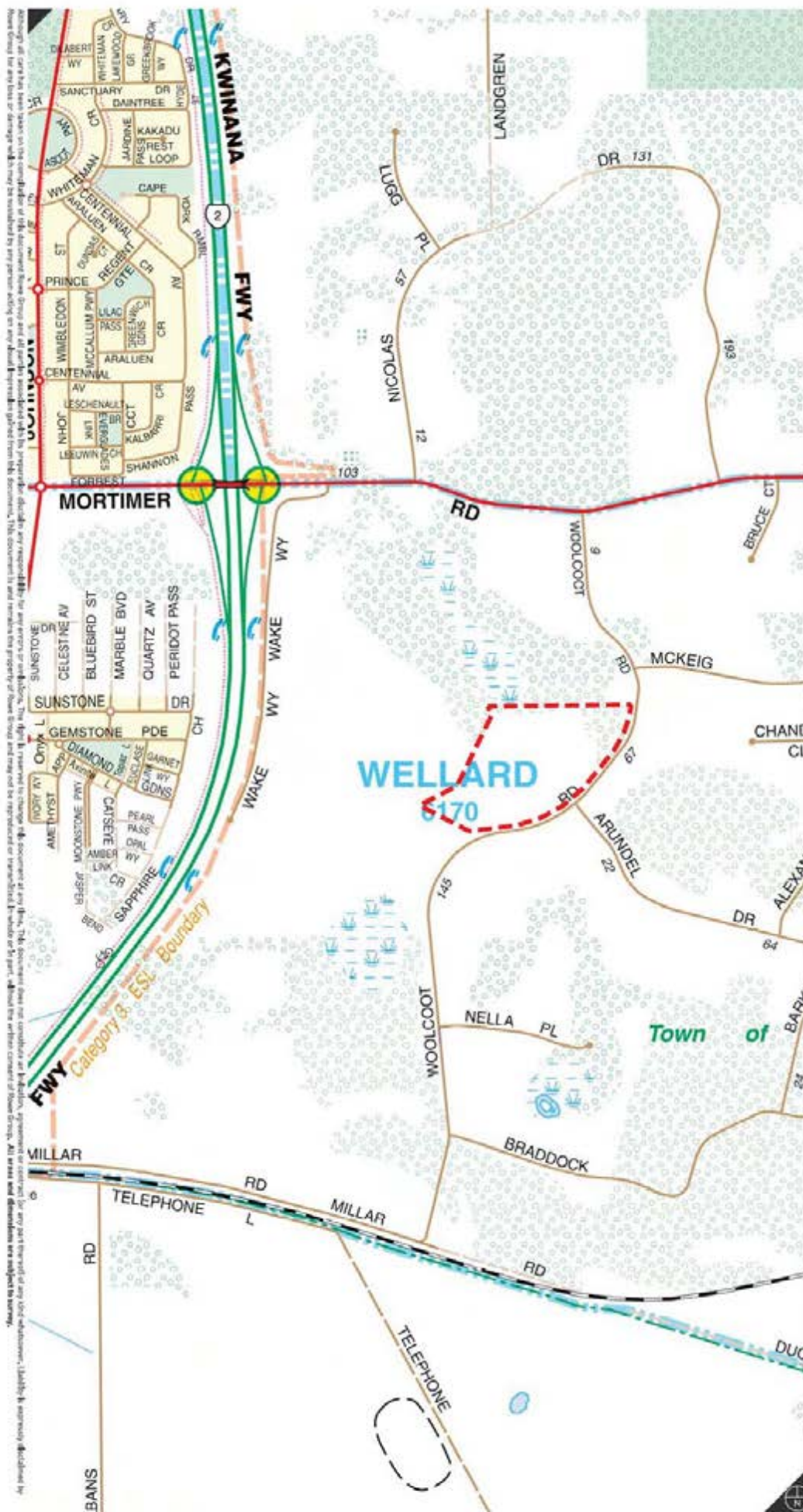
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Designer: K. Kyle
Drawn: K. Trenberth
Projection: MOSS DATUM
Plan ID: 8035-FIG-15-A
Map supplied by StreetSmart



Local Location

Lot 64 Woolcoot Road, Wellard East

Figure 2

 Subject Site
 Contours
 Existing Lot Numbers
 Existing Boundaries
 Proposed Boundaries
 Existing Building



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 Projection: MQASD GDA94
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 Aerial captured and supplied by Nearmap

Site Plan

Lot 64 Woolcoat Road, Wellard East
Figure 3



LEGEND

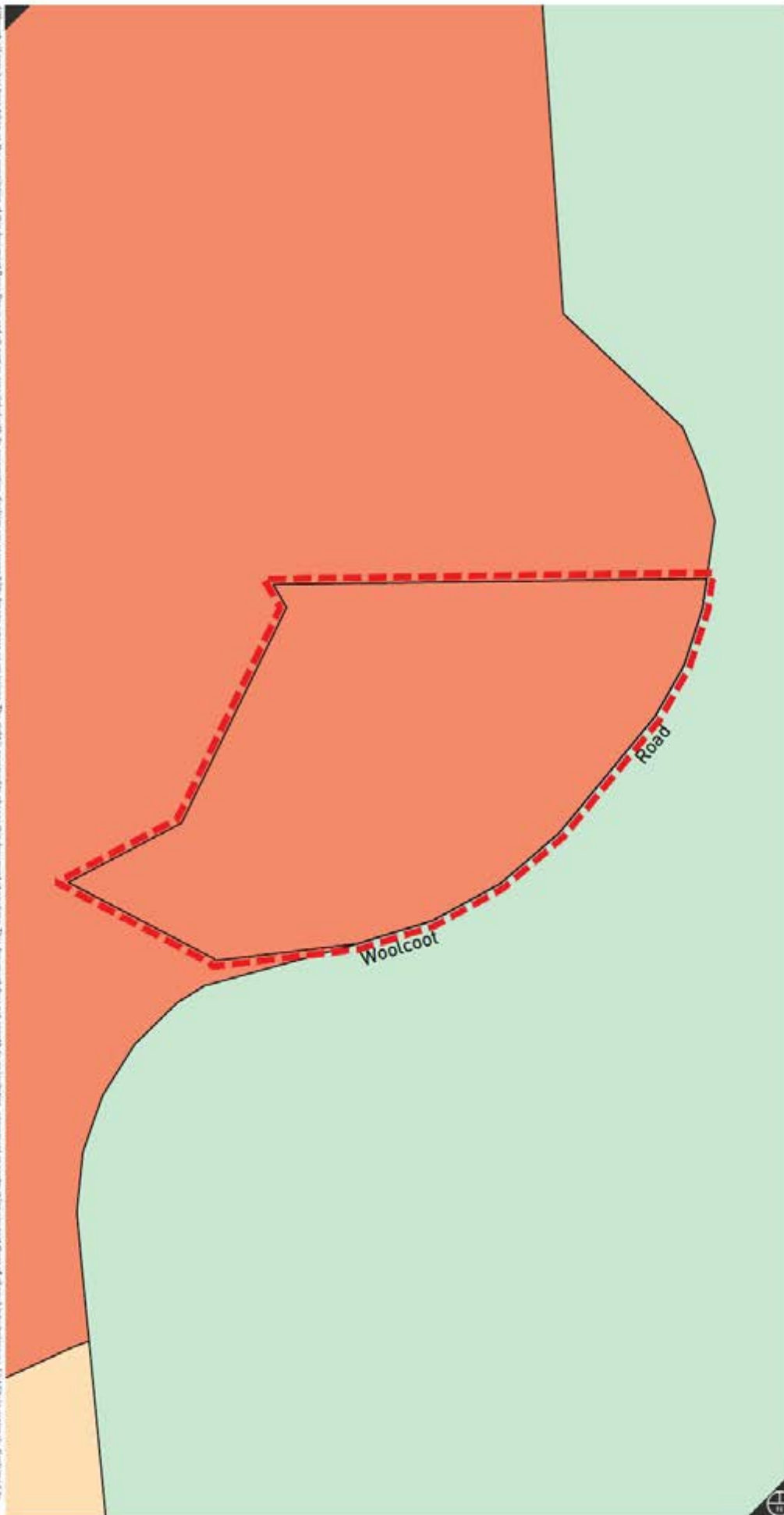
--- Subject Site

ZONES

Urban

Urban Deferred

Rural



0 125 Metres

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Zoning supplied by WAPC

MRS Zoning

Lot 64 Woolcoat Road, Wellard East

Figure 4



LEGEND

--- Subject Site

LOCAL SCHEME RESERVES

■ Park Recreation & Drainage

ZONES

■ Development

■ Cluster/Commercial

■ Rural Settlement

■ Special Rural

OTHER

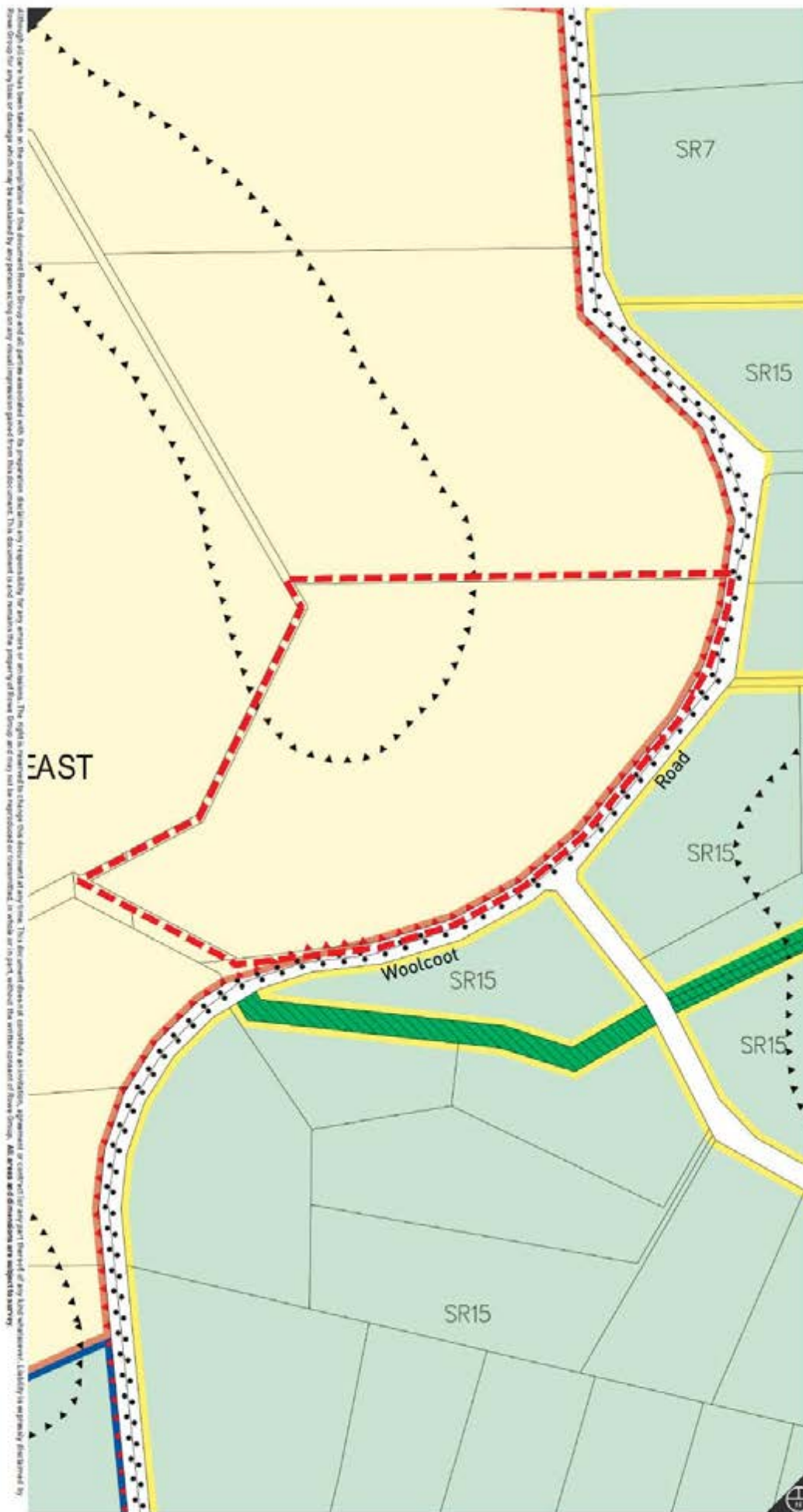
■ Development Contribution Area (See Scheme Text)

▲▲▲▲ Area of Landscape Protection

SR2 Special Rural Area (See Scheme Text)

14 Policy Areas (See Scheme Text)

□ No Zone



0 125 Metres

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Zoning supplied by MRC

TPS Zoning

Lot 64 Woolcoat Road, Wellard East

Figure 5



Lot 64 Wellard (East) Local Structure Plan – Public Open Space Schedule

Site Area (Local Structure Plan boundary)		11.7 ha
Less		
CCW Core	3,926m ²	
Drain Widening	610m ²	
Drainage 1:1yr	500m ²	
Total	5,036m²	
Net Site Area		11.19 ha
Deductions		
Nil		
Gross Subdivisible Area		11.2 ha
POS @10%		1.12 ha
Public Open Space Contribution		
May comprise:		
- Min 80% unrestricted POS	0.89 ha	
- Min 20% restricted use POS	0.23 ha	
Total Required POS		1.12 ha
POS Reference Number	Unrestricted POS sites (m²)	Restricted POS sites (m²)
POS 1 – 17286m ²	8,258	8,528
POS 2 Western Power Easement – 4820m ²		4,820
Total	8,258m²	13,348m²
	(0.82ha)	(1.33ha)
Restricted POS Surplus		1.1ha
Revised Unrestricted POS Calculation 8%		
(10.1ha revised Gross Subdivisible Area) – 8,080m ²		
	8,258m ²	
TOTAL POS PROVIDED:		
	8,258 m²	13,348m²
	(0.82 ha) 8.1%	(1.33ha) 13.1%

REVISIONS

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E	2015.09.18	M. Sullivan
F	2016.01.12	M. Sullivan
G	2016.02.04	M. Sullivan
H	2016.07.07	M. Sullivan



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 Drawn: M. Winfield
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 Plan ID: 8035-FIG-12-H

POS Schedule

Lot 64 Woolcot Rd, Wellard East
 Figure 6



- LEGEND**
- Subject Site
 - Existing Lot Numbers
 - Proposed Boundaries
 - POS - Unrestricted (12,922m²)
 - POS - Restricted (8,528m²)
 - Wetland Core
 - 30m Wetland Buffer
 - Peel Sub Drain Widening
 - Western Power Easement

0 50 100 Metres

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F	2015.09.18
G	2015.12.15
H	2016.01.11
I	2016.02.04

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Plan ID: 8035-FIG-08-I

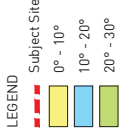
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Lot 64 Woolcott Road, Wellard East
Figure 7

Public Open Space

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10 50 100 Metres

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A	2014.04.02	M. Winfield
B	2015.04.30	W. Clements
C	2015.08.11	W. Clements
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8035-FIG-10-D

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Lot 64 Woolcoat Rd, Wellard East
Figure 8

Solar Orientation Plan

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- LEGEND
- Subject Site
 - Existing Lot Numbers
 - Proposed Boundaries
 - Access Street B
 - Access Street C
 - Access Street D
 - Laneway

10 50 100 Metres

REVISIONS

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B	2014.04.07	K. Trenberth
C	2015.04.30	W. Clements
D	2015.08.11	W. Clements
E	2016.02.25	M. Sullivan



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Projection: MGASD GDAS4
Plan ID: 8035-FIG-07-E

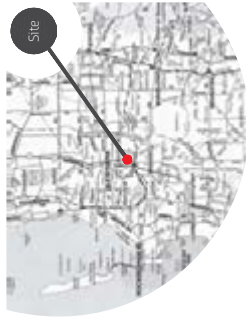
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Lot 64 Woolcoot Road, Wellard East
Figure 9

Movement Network

NSW GOVERNMENT
PLANNING AND BUILDING
4 JULY 2016



LEGEND

Subject Site

Staging Boundary

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900E FIC 10 D

Plan ID: 8035-FIG-19-D

Cadastral Surveying by Landgate



Lot 64 Woolcoot Rd, Wellard East

Staging Plan

MILITARY PLANNING (0000-0777)03/03/04 FTINVA-CAD785J5_FIG19D_20160225_WELLARD EAST (STAGION) DWG

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