



NORTH BALDIVIS LOCAL STRUCTURE PLAN

Lot 30 & 31

Kerosene Lane and

Lot 308 Fifty Road

BALDIVIS

March 2014

Prepared For:

Baldivis North Pty. Ltd.

Prepared By:



Table of Modifications to Local Structure Plan

Amendment No.	Description of Amendment	Adopted by City of Rockingham	Approved by WAPC
2	Amendment to Increasing the density of the residential land east of Nairn Road from R20 to R40; Conversion of part of the Commercial land use (Neighbourhood Centre) to Residential R40; and Conversion of the Commercial land use (Neighbourhood Centre) to Community Purpose	25 th June 2013	10 th March 2014

Document Status

VERSION	COMMENT	REVIEWER	REVIEW DATE	APPROVED BY	ISSUE DATE
1	Updated to reflect modified LSP	MS	26.03.14		

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1.0 Introduction

This Local Structure Plan (LSP) document for Lots 30 and 31 Kerosene Lane and Lot 308 Fifty Road, North Baldivis is presented to the Rockingham City Council and Western Australian Planning Commission for approval.

The purpose of this Local Structure Plan document is to provide a general planning framework for guiding the future development of the subject land into an integrated residential estate. The outcome is a subdivisional and lot product approach, which conforms to good design principles including maximising solar access and energy efficiency standards for residential dwellings.

2.0 Existing Site

2.1 Ownership and Description

LOT NO.	CERTIFICATE OF TITLE	AREA (HA)
Lot 30	1646/489	5.5826
Lot 31	1646/490	5.5826
Lot 308	1693/675	21.1044
TOTAL		32.2696

The subject land is wholly owned by Baldivis North Pty Ltd. Copies of the Certificates of Title are included in **Appendix 1**.

The subject site was previously used for market gardening purposes and as a poultry farm. The poultry operation has since ceased, with all associated equipment and sheds able to be removed from the site at the time of development. There are existing homes on each of the lots (fronting Kerosene Lane) which are to be retained as part of the subdivision and development of the land.

2.2 Location

The composite land holdings are located some 39 kilometres south of the Perth CBD, 6 kilometres east of the Rockingham Regional Centre, 5 kilometres north east of the future Warnbro Railway Station, 3 kilometres north of the future Baldivis Town Centre and 2 kilometres west of the Kwinana Freeway (refer **Plans 1 and 2**).

The developed nature of the 'coastal strip' in Rockingham to the west of the subject land provides a high level of service and amenity to

the Baldivis area. The Rockingham/Kwinana District Hospital and the Rockingham Family Hospital are located 3.5 kilometres to the north west of the site and provide general health care services to the area.

The composite site is bound by Kerosene Lane to the north and Fifty Road to the south. The Baldivis Primary School is located immediately to the east of Lot 308 (refer **Plan 3**).

2.3 Access

As noted, the site abuts Kerosene Lane to the north and Fifty Road to the south. Both roads intersect Mandurah and Baldivis Roads. Mandurah Road connects onto Gilmore Avenue and Dixon Road providing access to the Kwinana Town Centre and Rockingham Regional Centre. Baldivis Road connects to Safety Bay Road to the south, which links to Mandurah Town Centre via Ennis Avenue and the Kwinana Freeway. Accordingly, the site is highly accessible to the surrounding road network and the Freeway. The Mundijong Road on and off ramps to the freeway are located only some 2 kilometres from the site.

2.4 Topography

The site generally slopes from east to west with elevations ranging from 18 -19 metres along the eastern boundary of Lot 31 to 13 – 17 metres AHD along the western boundary of Lot 30 Kerosene Lane. Lot 308 is slightly more elevated with a maximum elevation of 24 metres AHD in the north eastern corner and a minimum elevation of 9 metres AHD along the western boundary.

2.5 Soils

Regional mapping indicates two geological units present on the site:

- Sand (S7) – a pale yellowish brown sand comprising medium to coarse grains of sub-angular to sub-rounded quartz with traces of feldspar, derived from Tamala Limestone.
- Limestone (LS1) – Tamala Limestone and Safety Bay Sand in part. Pale, yellowish fine to coarse grained, sub-angular to well rounded quartz.

Both these soils units are compatible with urbanisation with few geotechnical limitations.

A typical soil profile identified during soil sampling comprised brown/grey fine to medium grain sand overlying orange/brown fine to medium grained sand.

2.6 Groundwater

Regional mapping indicates that the average groundwater level is relatively uniform across the site at approximately 2 metres AHD (7 – 20 metres below ground level in the south western corner to the north eastern corner respectively).

The groundwater flows in a westerly direction towards Lake Cooloongup.

2.7 Surrounding Land Uses

An existing limestone and sand quarry operated by WA Limestone is situated on land immediately opposite Lots 30 and 31 (on the northern side of Kerosene Lane). The Quarry, which has been operating for approximately 30

years, contains a further 2-3 million tonnes of resource which is intended to be extracted over the next 10 to 20 years pursuant to demand. There is no current truck access/egress from the quarry via Kerosene Lane and no intention for this to occur in the future. The City of Rockingham has recently approved an Extractive Licence for the operation which is valid until 2011 and was also in receipt of a Development Application for extension of the quarry including further extraction from the existing buffer along Kerosene Lane.

In light of the Development Application lodged by WA Limestone, Development Planning Strategies, on behalf of Baldivis North Pty Ltd, lodged a comprehensive submission expressing concern over the application at that time (refer **Appendix 2**). The proposal did not acknowledge the presence of existing residential dwellings along Kerosene Lane, nor the Urban and Development zoning of the land on the southern side of Kerosene Lane, nor the approved Baldivis (North) Structure Plan which prescribes urban development for this land.

The EPA's Guidance Statement No. 3 - Separation Distances between Industrial and Sensitive Land Uses recommends a buffer distance of 300-500 metres for quarries to residential lots for noise and dust impacts. The current industry and government focus has been on protecting basic raw materials which facilitate land supply.

In order to further investigate the interface of the quarry operation and residential development proposed by the subject LSP and

negotiate an appropriate outcome, a meeting was chaired by the DPI on 12 September 2007 and attended by representatives of Council, WA Limestone and Baldivis North Pty Ltd. It was confirmed that potential noise and dust impacts would be easily manageable as the quarry excavation occurs below the level of Kerosene Lane, and further minimised by existing 'earth bunds' and vegetation, and there being no direct truck access from Kerosene Lane. Consequently both WA Limestone and Arbitrage suggested development within the buffer may be suitable however, that notification on titles may be necessary.

An arrangement whereby the quarry operator would concentrate on the removal of resource material within the southern portion of its site (i.e. along Kerosene Lane) over the two year period commencing in 2007, was subsequently reached. As a further safeguard, some memorials advising of possible noise/dust impact from the quarry operation are to be placed on selective proposed lots on the residential land.

In light of the preceding information, the presence of the existing quarry north of the subject site is deemed to be manageable, and not restrict the approval of the proposed Structure Plan over this area. The agreements that have been reached are to be dealt with at the time of subdivision, and will be dependant upon the circumstances at that time.

Market gardens are located to the east and west of Lots 30 and 31 Kerosene Lane. The

EPA's recommended buffer from market gardens to residential areas is 300 – 500 metres depending on the size of the facility. The Western Australian Planning Commission Planning Bulletin No.63 – Policy for Dealing with Potential Conflicts Between Residential Subdivisions and Market Gardens in East Wanneroo outlines that for residential subdivision on land that is zoned Urban or Urban Deferred under the MRS and is in the vicinity of a market garden, the WAPC will approve the subdivision subject to the following:

- Specially designed fencing for residential lots abutting the market garden as well as a protected and maintained vegetation buffer of one line of evergreen trees or bushes of a minimum height of 1.5 metres;
- Suitable rural fencing of good standard on the boundary of the market garden where it abuts roads or open space;
- Prospective purchasers within 300 metres of the boundary of the market garden being advised of the existence of the market gardens on the contract of sale;
- Memorials to be included on the titles of all residential lots within 300 metres of the boundary of the market garden advising of the location and potential impacts of the market garden on amenity; or
- Other measures which it can be demonstrated meet the objectives of

the policy to the satisfaction of the Western Australian Planning Commission.

All of the above can be implemented as required when the subject land is subdivided.

To the east of Lot 308 is the Baldivis Primary School and the Baldivis Recreational Park consisting of remnant bushland, a recreational hall and sporting facilities.

Lot 18 located to the west of Lot 308 and Lot 53 located to the east of Lot 31, are both being planned for residential development. The Local Structure Plan shows a conceptual (draft) layout for both these lots. The Local Structure Plan also shows the future POS and primary school located to the west of Lot 30 in accordance with the Baldivis (North) District Structure Plan.

3.0 Environmental Overview

An Environmental Assessment Report has been undertaken by RPS Bowman Bishaw Gorham and is attached at **Appendix 3**. The following sections are summaries of this report. The report concludes that there are no significant environmental issues that preclude the residential development of the site.

3.1 Contamination

The site is identified by the Department of Environment Acid Sulphate Soils Mapping as having low to no risk of actual acid sulphate soils (AASS) and potential acid sulphate soils (PASS).

Given the use of the subject land in the past as a market garden and a poultry farm, it is acknowledged that there is the potential that the land has become contaminated. Soil testing was therefore undertaken at various sites across the subject land to determine the extent, if any, of contamination. The results of this investigation revealed that there is minimal contamination and no constraints to urban development of the subject land.

Further detail on this matter is included in the Environmental Assessment Report.

Preliminary groundwater contamination assessment indicates that past site activities and surrounding land uses have not caused significant groundwater contamination and the site is suitable for residential development.

3.2 Vegetation

The site lies within the Cottesloe vegetation complex. As identified in the assessments, no Declared Rare Flora species or priority vegetation species were found on site. The condition of the vegetation on site varies from Completely Degraded to Degraded due to stock grazing and weed infestation. The subject land is not included in any Bush Forever sites and the site does not contain any vegetation identified as regionally significant.

A Significant Tree Assessment Report was undertaken in April 2006 with a further Detailed Tree Survey was completed in October 2006. Both assessments were undertaken by a qualified botanist to accurately assess the flora, vegetation communities and significant trees located on site. Copies of both reports are attached (refer **Appendix 4 and 5**).

A total of 67 trees of significance were identified based on an assessment of size, species type, health and relativity to other trees present on site. The remaining significant tree species were identified based on sustaining biodiversity and in terms of amenity and habitat potential. This has resulted in the larger trees (Jarrah and Marri) having a greater representation.

A total of 9 trees were identified for conservation and retention, representing retention of 13% of all significant trees within the subject site.

An additional 14 trees that have not been identified as significant are also proposed to be retained due to their location in drainage

swales and POS reserve areas. Many of these trees are healthy Tuarts which will add to the environmental value of the development.

Although an increased level of significant tree retention was previously proposed, this has been compromised to ensure an improved interface with the proposed development to east by Peet Limited at the request of the City of Rockingham.

This intention however was reduced to 23 trees as a result of the Council endorsed revised interface of Lot 308 with the neighbouring land to the west. The subdivision application plan covering Lot 308 depicts the location of the trees recommended for retention (refer WAPC Subdivision Ref: 133489). A copy of the Subdivision Plan is included as **Appendix 6**.

3.3 Fauna

As a result of grazing over the site, fauna habitat has been predominantly removed. CALM's Threatened Fauna Database identified Carnaby's Black Cockatoo as potentially using the area. However, the range of the Carnaby's Black Cockatoo extends throughout the south west of Western Australia. As the habitat on site is degraded, bushland outside of the properties boundaries would better accommodate populations of Carnaby's Black Cockatoo.

4.0 Statutory and Strategic Planning Considerations

4.1 Metropolitan Region Scheme Zoning

Lot 30 and 31 are zoned "Urban" under the Metropolitan Region Scheme (MRS). It is understood that the urban deferment over Lot 308 was recently lifted at the June 2006 Metropolitan Region Planning Committee meeting and Lot 308 is now zoned Urban. The future Nairn Road which traverses the eastern side of Lot 308 is designated as an "Other Regional Road" under the MRS.

4.2 Local Authority Zoning

The whole of the subject land is zoned "Development" under the City of Rockingham's Town Planning Scheme No.2. For land within this zone a Structure Plan must be approved prior to subdivision and development.

4.3 Baldivis (North) District Structure Plan

In recognition of the general designation of the North Baldivis Locality as a suitable candidate for accommodating future residential development, the City of Rockingham embarked on a comprehensive 'district level' structure planning exercise in the late 1990's over the potential urban cell east of Baldivis Road and spanning from Kerosene Lane in the north to the future Baldivis Town Centre to the south. This exercise culminated in the release of the Baldivis (North) Structure Plan as formally adopted by Council in July 2000 (refer **Plan 4**).

The District Structure Plan outlined the preferred broad land use and district road framework for the study area. The land subject of this Local Structure Plan was identified in the District Structure Plan for a variety of land uses as follows:

- A large proportion of a Neighbourhood Centre, including an area of Mixed Use development, in the south eastern corner of Lot 308;
- Medium density residential (R40 – R60) surrounding the Neighbourhood Centre/Mixed Use area; and
- Low density R20 residential over the remainder of the site.

5.0 Local Structure Plan

The proposed Local Structure Plan is attached at **Plan 5**.

5.1 Design Philosophy

The Local Structure Plan proposes a subdivisional layout that aims to foster an efficient and permeable (inter-connective) pattern of residential subdivision arranged in distinctive precincts offering a direct relationship to strategically located public open spaces and a variety of lot product.

In addition, the design philosophy is predicated upon the following objectives:

- Provision of road links to the south (Fifty Road) and north (Kerosene Lane) in a manner that discourages the creation of 'rat runs' with north-south traffic movements to be promoted along Nairn Road;
- Provision of road connections to the land to the east and west and to Nairn Road;
- Provision of usable and visually aesthetic public open space areas that can be used for both passive and some active recreation pursuits;
- Creation of attractive entry statements from both Fifty Road and Kerosene Lane;

Delivery of a safe pedestrian and cyclist environment with pathways linking residential neighbourhoods and

associated local parks as well as providing for external connectivity to regional facilities outside of the site such as the Baldivis Primary School;

- Provision of a diverse range of lot product;
- Integration with existing and planned developments on adjacent land, particularly in relation to the open space areas on the land to the west;
- Retention of existing houses on the subject land in such a manner that facilitates future subdivision of the house lot on Lot 308;
- The retention of significant mature trees within public open space and road reserve areas. This objective was however relaxed at request of the City of Rockingham to ensure better connection with the proposed development with Peet Limited to the east; and
- Accommodate stormwater drainage within public open space areas in accordance with accepted practice and Council and WAPC policy.

5.2 Density and Lot Product

The LSP is predicated upon a base Residential Density Coding of R20 across the overall Estate with strategically located pockets of 'R25', 'R30' (invariably smaller lots located near public open space) and R40 housing. The intention is to provide a variety of lot product for an increasingly diversifying market place.

The proposed allotments range in size from 272m² to 710m². Lot modules typically comprise frontages of 13 - 18 metres and depths of around 30 - 32 metres. Lots with rear laneway access comprise smaller frontages of 10 – 14 metres as the garage is located at the rear of the property. Particular effort has been taken to ensure lot orientation is north-south/east-west (or within 15 degrees thereof) to facilitate solar passive design of homes.

Some pockets of R25 have been inter-dispersed with the R20 product to provide for a slightly smaller product that is not reliant on rear loading access.

The proposed R30 and R40 pockets are generally located overlooking public open space or in very close proximity to public open space. The majority of the R30 lots will be rear loaded meaning that they are to be accessed exclusively from rear laneways or roadways in order to achieve a non-garage dominated front elevations and also to facilitate direct frontage to public open space areas. The proposed R40 lots are to be located adjacent to Park 4, Baldivis Reserve and the Community Purpose site, making it a suitable candidate for high-density development. These lots abut, Nairn Road and are within close proximity to the proposed major bus route that will run directly through the site along future Nairn Road.

Design Guidelines and Detailed Area Plans will be prepared for R30 and R40 lots to:

- ensure high level of integration between the POS and the built form;

- aid appropriate separation of public and private space;
- maintain fire management requirements pursuant to the WAPC's Bush Fire Protection Guidelines (2010) and the Fire Management Plan Lot 9009 Fifty Road (refer **Appendix 7**); and
- support correct orientation and design of homes while ensuring passive surveillance over public open space is achieved.

The standard treatment for all lots which directly front the parks will be to elevate the lots at least 0.5 metres above the park and to provide uniform open style fencing along the boundary with the POS. Importantly, the POS areas will all be developed to a high standard to ensure high levels of amenity for the lots directly abutting the POS and also to enhance the use of the POS (as discussed further in Section 5.3).

Three large 'homestead' lots are proposed in order to retain the existing homes on each of the parent lots. Two lots will be created on Kerosene Lane, each being 1,200m² in area, to accommodate the homes on Lot 30 and 31. A larger lot will be created to accommodate the home on Lot 308. The lot is proposed to be 7,000 to 8,000m² in area however it has been configured and designed in such a manner that this lot can be easily subdivided in the future. Importantly, the public open space requirement for each of those lots has been met by the proposed POS provision shown by the LSP for the overall estate.

As a consequence of reconfiguring the lot layout to facilitate the improved interface with land to the west of Lot 308, there has been a need to introduce a row of Lots that 'back onto' Nairn Road along the eastern periphery of Lot 308. This in turn has necessitated an appropriate fencing / interface arrangement for these lots comprising of masonry walling to a height of 1.5 to 1.7 metres with 'open style' aluminium slats above to an overall height of 1.8 to 2.0 metres. This treatment provides for noise attenuation and security without the undesirable visual impact of a continuous blank wall along this interface. **Appendix 8** details the walling treatment in further detail.

Table 1 below provides a summary of proposed residential lot product for the LSP.

NO. OF SINGLE RESIDENTIAL R20 LOTS	NO. OF SINGLE RESIDENTIAL R25 LOTS	NO. OF R30 LOTS	NO. OF R40 LOTS	RETAINED HOME LOTS	TOTAL
205	68	54	54	3	384

Table 1

5.3 Public Open Space

The Baldivis (North) District Structure Plan does not depict any public open space (POS) on the subject land, with POS earmarked on other surrounding land parcels.

However, in the absence of a formal development contribution arrangement, Council has required POS to be provided on a stand alone basis with respect to the subject land.

As illustrated by **Plan 6**, the Local Structure Plan proposes the creation of four areas of POS to create amenity and recreational opportunities for the future residents, as well as accommodate the retention of mature Tuart, Bull Banksia and Jarrah trees and a stormwater drainage function. The public open space proposed equates to 9.4 % of the site.

In line with 'Liveable Neighbourhoods 2', this is proposed instead of the normal 10% contribution on the basis that all public open space areas will be developed and landscaped to a high standard by the proponent for the benefit of the future community. Inclusive of drainage, in excess of 10% of the site will be developed as 'green space'

It is noted that due to the configuration of the parent allotments, the positioning and shape of the open space areas have been constrained. The areas of open space have been positioned so as to maximise their usability, provide maximum walkability and benefit to the majority of dwellings within the estate through equally distributed green spaces approximately 200-300m apart.

Importantly, POS areas have been located and designed to ensure the conservation of mature Tuart, Bull Banksia and Jarrah trees on site. The location of the trees to be retained is shown on the Public Open Space Plan (**Plan 6**).

Consistent with current practice, the POS system has been designed to accommodate most of the stormwater drainage in the form of 'dry' shallow basins.

Dry shallow basins are proposed to accommodate the 1 in 10 year storm in Parks 1 and 4. Park 1 will incorporate a basin of about 2,600m², while Park 4 will have a basin of 3,400m². This figure for the size of the basin is preliminary only and subject to review at more detailed planning stages. It is acknowledged however that the basins will occupy about 1/3 of the respective POS areas in which they are to be located. This proportion is in excess of Council's standard policy of 25%. Special dispensation is therefore sought as the increased drainage components will allow drainage of what is a particularly topographically challenging site to be accommodated on site (without the need for any sumps) as was previously contemplated.

We submit that Council has the discretion to approve this variation under its policy.

Under Council policy, such facilities also attract a 50% POS credit for the area required for the 1:10 storm containment (providing it does not exceed 25% of the POS area in which they are located).

Each public open space area is described below. Concept designs for all POS areas are included in **Appendix 9**.

Park 1

Park 1 is located at the entry point to the site from Kerosene Lane to the north. There is no native vegetation or trees existing in this location.

The park is approximately 4,661m² in area. From a landscape design perspective the park

is to be divided into three spaces: a central, open grassed area with shelter and seating and two smaller grassed areas defined by surrounding landscaping.

A number of residential lots will directly abut Park 1. Uniform and open style fencing will form the boundary between the private and public space. In addition, the residential lots will be slightly elevated (by at least 0.5m) from the level of the park. Direct staired access to the park from the residential lots will be incorporated into the design of the retaining wall and fencing between the lot and the park.

The park will also perform a partial stormwater drainage function as it will incorporate a 'dry' shallow swale of 2,600m² in surface area to cater for the 1 in 10 year storm event.

Park 2

Park 2 is located centrally within Lots 30 and 31. The park falls approximately 5 metres from the southern boundary to the northern boundary. This provides opportunities to create views through and beyond the park.

The park is approximately 6,680m² in area, surrounded by roads on all sides and rectangular in shape.

Park 3

Park 3 is a north-south linear park with an area of about 4,283m². A large portion of existing significant trees (Tuart, Marri and Bull Banksia) will be retained within Park 3 and the understorey will be replanted with local and WA native ground covering species. The

detailed tree survey will inform the landscape design.

At both the northern and southern ends of the park a decorative paved entry area, linked by a north-south flowing path around the large trees, is proposed using natural stone in organic patterns. Small leaf shaped lawn areas will be established between the bushland and tree areas to link the central path to the road network.

As there is an 8 metre level difference between the northern and southern ends of the park, low retaining walls will be necessary. These will be developed on the edges of the lawn areas to provide informal seating areas and a separation between the grass and bushland.

This park will serve mostly as a bushland conservation and passive recreation function and it will also establish some amenity in the area.

Again, the park's proposed size and width (about 35-45m) although not in complete conformity with Council's policy are justified in light of the high level development proposed as outlined above.

Park 4

This park is located at the entry at the southern extremity of the estate from Fifty Road. It is a large circular park with an area of approximately 9,363m². The park is located adjacent to R40 density and along the main north-south road traversing the estate. The park will therefore become an important visual and community focus point.

Most existing trees within this park are to be retained where possible. This is the largest park in the estate and will be grassed between the existing and planted trees to facilitate passive and informal active recreation activities. A children's playground and shade structure is proposed in the centre of the park to provide a focal point and rest area. A winding path network will be developed through the park. Fitness circuit equipment may be provided along the length of the paths.

The park will also perform a partial stormwater drainage function. As the park is located at a natural low point of the site, a 'dry' shallow swale of 3,400m² in surface area will be located in the eastern area of the park to cater for the 1 in 10 year storm event. The swale will have shallow 1:6 sloping grassed banks which will form play areas for informal active recreational pursuits. Areas of steeper slope will be terraced to form large grass steps for informal seating and play. A large tree adjacent to the drainage swale will be retained and its root area protected with the terracing.

The park will be part of the entry statement into the estate from Fifty Road. Accordingly, low, sloping entry walls and mounded landscaped areas are proposed at the southern end of the park is to highlight entry into the estate.

A number of residential lots will directly abut Park 4. Uniform and open style fencing will form the boundary between the private and public space. In addition, the residential lots will be slightly elevated from the level of the park. Direct access to the park from the residential lots will be incorporated into the design of the

retaining wall and fencing between the lot and the park.

Community Purpose Site

In accordance with the Baldivis (North) District Structure Plan, a 5,000m² Community Purpose site has been allocated on the eastern side of Nairn Road adjacent to the Baldivis Primary School. This area qualifies for a full 100% POS credit.

Overall POS Status

The overall public open space status for the LSP is summarised in Table 2 on the following page. Based on the deductions and assumptions made, a 10% POS commitment across the Estate is confirmed.

It should also be noted that in addition to the specific works specified above, selected street trees will be planted on all roads within the Local Structure Plan.

TABLE 2

LOT 30, 31 AND 308 PUBLIC OPEN SPACE SCHEDULE – MARCH 2014			
<i>Liveable Neighbourhoods and Council Policy</i>			
Lot 30			5.58
Lot 31			5.58
Lot 308			21.10
TOTAL AREA (HECTARES)			32.26
Deductions			
Nairn Road Reserve			2.25
Neighbourhood Centre/Commercial Zone (east and west of Nairn Road minus 0.85ha set aside for R40 group housing purposes)			0.11
Total			2.36
NETT SUBDIVISABLE AREA			29.90
10% Public Open Space Requirement			2.99
PUBLIC OPEN SPACE			
Park 1	Total POS Area	0.47	
	Drainage Swale = 0.2600		
	(Assumed 50% POS credit)	0.13	0.34
Park 2	Total POS Area	0.67	0.67
Park 3	Total POS Area	0.43	0.43
Park 4	Total POS Area	0.94	
	Drainage Swale = 0.3400		
	(Assumed 50% POS credit)	0.17	0.77
Community Purposes Site (east of Nairn Road)		0.50	0.50
Total			2.72 (9.1%)
Deficit			0.27

5.4 Commercial Zone

5.4.1 Existing Retail Policy

Regional level shopping facilities are located only 8 kilometres to the west of the area at the Rockingham Regional Centre. A large District Centre/Town Centre is proposed 3 kilometres to the south of the subject land at the future Baldivis Town Centre. The size of the site for the town centre is 43 hectares which is more than double the size recommended for district centres with a component of mixed business alongside. It has been allocated 25,00m² NLA plus a mixed business area. Accordingly, the regional and district level retail needs of the future residents have been provided for.

The Baldivis (North) District Structure Plan (DSP) prepared in 2000 identified the need for neighbourhood and local shopping facilities in the north Baldivis area. It is acknowledged that the location of the neighbourhood centre is not consistent with the Baldivis North District Structure Plan which shows the neighbourhood centre in a location further north, at the intersection of Fifty Road and the future Nairn Road. The relocation of the neighbourhood centre and departure from the DSP is justified on the following grounds:

- The residential catchment for the proposed relocated centre is similar;
- The proposed site for the neighbourhood centre has the same high standard of access opportunities and connectivity to the surrounding area as that currently shown on the DSP. The site remains on Nairn Road and will continue to enjoy the exposure to passing trade opportunities;
- The City's Local Commercial Strategy recognises that there are planned neighbourhood centres in the City which have not eventuated or not reached their predicted size and thus, the planning, size and location for such centres is important to ensure their viability. The relocation of the Neighbourhood Centre further south on Nairn Road is a better location as it would be more central to the future residential community to the east. This will assist the short term viability of the neighbourhood centre;
- The relocation of the Commercial land use further south provides for a more viable commercial development, given the existing sites proximity to the commercial site approved as part of the existing Structure Plan Lots 14, 15 & 299 Kerosene Lane, Baldivis approved by the WAPC February 2011 and adopted by Council July 2011.

- The location of the neighbourhood centre within the North Baldivis area would be developed ahead of much of the surrounding area, rendering the large area of the 'Neighbourhood Centre' currently designated on the property as vacant for many years until it is considered commercially viable to develop. It is considered an unreasonable impost to require the proponent to land back such a large area of land for up to 5-10 years before the development of a large neighbourhood centre becomes commercially viable and attractive to investors.

The respective land owners have agreed to the proposed relocation of the Neighbourhood Centre. Confirmation of the agreement between the land owners to this affect has been provided in **Appendix 10**.

5.4.2 Proposed Commercial and Community Purpose Zone

The LSP assigns the south eastern corner of Lot 308 as Commercial and Community Purpose. The Commercial site on the intersection of Nairn and Fifty Road forms part of the larger primary school site and abutting community purpose site, and is to be utilised as an expansion to these areas. Both the Commercial and Community Purpose sites are ideally placed to provide for non-retail land uses, community uses and other social infrastructure such as a child care centre.

This prospect is enhanced by adjacent land uses to the proposed sites including a large POS

area and a primary school. The built form solution for the sites will require careful consideration and design particularly in relation to the interface and relationship with Nairn Road and Fifty Road.

5.5 Schools

The Baldivis (North) District Structure Plan does not require any schools to be provided within the subject site. The existing Baldivis Primary School is located to the east of the subject land on Fifty Road. The District Structure Plan identifies another primary school site to the west of Lots 30 and 31 (refer **Plan 7**). With regard to private schools, Kolbe Catholic College, Tranby College and Mandurah Christian Community School are all located within 5 kilometres of the subject site. Murdoch University and TAFE Rockingham Campuses are also located within 5 kilometres of the subject site.

5.6 Movement Network

A portion of Nairn Road, an 'Other Regional Road' under the MRS, will be created as part of the subdivision of the subject land. Currently, the reservation for Nairn Road is 40 metres but it is understood that the reservation width is undergoing review at present and maybe reduced to 36 metres in width. However, a 40 metre reservation is proposed by the Local Structure Plan. A Clause 42 Certificate for Lot 308 is attached at **Appendix 11**.

In addition to the 4 way intersection at Fifty Road and Nairn Road, the Local Structure Plan proposes one full intersection and one left in

left out intersection with Nairn Road. No lots will obtain direct access from Nairn Road given its status as an 'Other Regional Road'. With regard to the proposed lots on the eastern side of the future Nairn Road directly abutting Lot 309, access will be obtained via a subdivisional road being developed as part of the development of Lot 309.

The Local Structure Plan proposes one road connection to Fifty Road and Kerosene Lane. The position of each entry relative to existing roads has been checked to ensure safe sight line distances are achievable in both directions. A number of lots will have direct access to Fifty Road.

A Controlled Access Place (CAP) is proposed to cater for those lots fronting Fifty Road as it will function as a neighbourhood connector and will have a full intersection with Nairn Road. These represent an alternative but now widely accepted approach for the interfacing of residential estates along district level distributor roads. This approach is one of a number of mechanisms that has been used to eliminate the need for lots to 'back on' to major roads and makes use of the excessive road verge area available within the existing reserve. This CAP can be accommodated within the existing road reserve.

A CAP is not considered necessary for those lots fronting Kerosene Lane as the predicted traffic volumes do not necessitate CAP's. Accordingly, lots will obtain direct access to Kerosene Lane.

The internal road network and road hierarchy proposed within the LSP represents a site responsive road layout that embraces the road network elements outlined in the Western Australian Planning Commission's Liveable Neighbourhoods Community Code and Council's road and traffic requirements.

Major north-south traffic movements will be catered for by Nairn Road as this is the main north-south distributor in the area. Accordingly, the main north-south road connections through the Local Structure Plan area have been designed in such a manner to encourage the use of Nairn Road for regional and district trips, and to discourage the use of local roads as 'rat runs', reduce traffic speeds and emphasise that the road is intended for use by local traffic only.

The internal north-south local distributor road is proposed to be 20 metres in width at its intersection with Fifty Road and will be reduced to 18 metres at the point where the road veers east around Park 4. A wider road reserve has been proposed for a section of this road in order to retain some mature Tuart trees within the road reserve. The location of these trees is illustrated on **Plans 5 and 6**.

The internal north-south local distributor forms a T-junction at the proposed central east west distributor. A left or right turn is required to continue north or south. Ideally, the large majority of traffic should use the east west distributor to access Nairn Road and continue their journey northwards or southwards. However, the journey northwards can be continued via a less direct north south route

through Lots 30 and 31. This is via a road along the western boundary of Lot 30.

The ultimate road network in this specific area is dependant upon the contribution of land for road reserve purposed by adjoining land owners, particularly Lot 18. It is understood that a prominent development company has secured this neighbouring property and intends on developing this north eastern corner at about the same time that this portion of Lots 308 and 30 are proposed to be developed (mid 2008). Thus, concurrent development staging ultimately provides the best solution for securing continuous north south movement of local traffic. **Plan 7** shows the ultimate road network in this area and the provision for regional, district and local north south traffic movement.

In accordance with the District Structure Plan, the east west local distributor road is proposed along the boundary between Lot 308 and Lot 30 and 31 to the north. This road will have a full intersection with Nairn Road. The total width of this road (18 metres) is to be ultimately shared between the land to the north and south, though construction of the road reserve and associated pavement within Lot 308 is capable in the interim. The development of this road is to be proposed by the subdivision of Lot 308, and will not require land associated with Lot 58 Kerosene Lane for its initial development.

The Local Structure Plan proposes 6 east west road connections to the land to the west. In addition to the road connections to Nairn Road discussed above, the Local Structure Plan

proposes 3 east west road connection to Lot 53 to the east.

The balance of the road network has been designed at a width of 15 metres. The exception to this are as follows:

- The north-south road abutting Lot 15. As the total width of this road (16 metres) is to be shared with Lot 15, the Local Structure Plan proposes a road reserve of 12 metres. The balance 4 metres is to be provided by Lot 15 when it is developed.
- Roads abutting public open space have a reduced verge on one side (given there is no need for services on that side of the road) and have a total width of 12.5 metres.
- Laneways have been designed at a width of 6 metres. Visitor parking will be accommodated via the provision of parking embayments adjacent to those lots having rear lane access. Indicative locations for those bays are shown on the LSP.
- The proposed road to the east of Nairn Road which will service the east-west lots abutting Lot 309 is proposed to be 12 metres in width as it is effectively a one-sided road and directly abuts Nairn Road.
- The 'T-head' cul-de-sac proposed near Park C are proposed at 12 metres given that there is no direct lot access from these roads.

5.7 Pedestrian/Cyclist Network

Given the highly permeable nature of the subdivisional road design proposed, a pedestrian/cycle network can easily be accommodated within the local street layout.

Plan 8 illustrates the proposed pedestrian/cycle network to be provided in the form of dual use paths. The proposed paths link the residents with the local parks and both primary schools to the east and west of the subject land.

5.8 Public Transport

The Southern Suburbs Railway will provide transit opportunities at Wellard, Rockingham and Warnbro Stations. Wellard Station will be located 4.5 kilometres to the north, Rockingham station will be 5.2 kilometres west and Warnbro station 5 kilometres to the south west. Travel times are anticipated to be 26, 30 and 33 minutes between each respective station and the Perth CBD. Train travel times from the Rockingham station to Mandurah is anticipated to be approximately 15 minutes. Combined Park and Ride facilities will be available at all three stations. Train services are anticipated to commence service in July 2007.

Both Wellard and Rockingham stations will offer integrated interchange capability with surrounding bus services. It is anticipated that future bus routes will be accommodated along Fifty Road and Nairn Road.

6.0 Servicing Overview

6.1 Earthworks and Retaining

The land will be earth worked to provide level lots for building purposes. As the northern area of the site has already been earth worked in the past for agricultural purposes, this landform will generally be retained.

Modifications to site levels have been proposed within the southern portion of the structure plan area to direct drainage to the proposed swales in Park 1 and 4 and to negate the need to drain into adjoining areas beyond the local structure plan area. An indicative lot level plan has been prepared and is provided at **Appendix 12**.

The proposed levels necessarily require some roadside retaining along the northern boundary of Lot 18 (owned by Peet Limited) and Lot 15 where the future primary school oval is to be located (owned by Galatti). The proposed retaining has been 'signed off' by these owners. A lot level plan and section for the retaining along Nairn Road is depicted as part of **Appendix 13**.

6.2 Sewerage

The site is contained within one main sewer catchment. The Water Corporations sewer planning for this area provides for a permanent pumping station south of Fifty Road and a pressure main to discharge some 8 kilometres north at the Bertram road pumping station in Wellard. Therefore, the subject land will be serviced by a temporary pumping station to be

located adjacent near Fifty Road and to discharge into the Water Corporation system described above.

The temporary pumping station requires a 30 metre buffer to the nearest house. This will be taken into account during the release of lots.

6.3 Drainage/Stormwater Management

Stormwater management at the site will be undertaken in accordance with the Department of Water Guidelines and Best Management Practices as detailed in the Stormwater Management Manual for Western Australia (Department of Environment, 2004). The drainage system will be designed to manage both minor and major events and will focus on infiltration and water sensitive design methods. The system will incorporate the following elements:

- Retaining and infiltrating the 1 year ARI events as close to source as possible;
- Conveying runoff from rainfall events up to 5 year ARI by a network of pipes, swales and temporary sumps;
- Conveying the major events (greater than 5 year ARI) by a network of roads and drainage swales within the open space areas and temporary sumps.

The drainage disposal strategy for various events is as follows:

- 1 year ARI event to be retained on site;

- 1 year to 10 year ARI events to be directed to the drainage swales and temporary sumps for infiltration; and
- 10 year to 100 year ARI events to be retained within the drainage swales and surrounding POS areas and temporary sumps.

The site has been divided into three drainage catchments (refer **Plan 9**).

The southern catchment (generally all land south of the central east west distributor road) will drain to the drainage swale proposed in Park 4. The drainage swale will be dry for the vast majority of the year as it is positioned well above the groundwater level. Some below ground storage is proposed to be installed to ensure that the basin remains dry after minor rainfall events. It will only be inundated (for 1 to 2 days) in heavy rainfall events. It will be constructed as a shallow landscaped swale and designed to cope with the 1 in 10 year storm event. The 1 in 100 year storm will be contained within the swale above the 1 in 10 year level. The practice of installing baseless manholes and maximising infiltration prior to outflow to the main drainage system will be utilised.

The middle catchment area will drain to a temporary drainage sump at the south western corner of Lot 30. An option to locate this drainage sump further to the west in Lot 15 which is designated as a future POS area is currently being discussed with the owner of Lot 15.

The northern catchment (generally all land north of Park 2) will drain to a temporary drainage sump along the western boundary of Lot 30. Again, an option to locate this temporary sump on Lot 15 to the west is currently being discussed with the land owner. The sump is temporary, as when the land to the west (including Lot 15), is developed and subdivided, stormwater will be directed to the low point and future POS area to the west.

Where suitable roads abut POS, flush kerbs are also proposed to be installed to maximise infiltration opportunities.

The focus for stormwater quality will be on source control and sequential treatment rather than the traditional emphasis on end-of-pipe treatment. Structural controls such as gross pollutant traps and swales will be used alongside non-structural controls such as native planting.

6.4 Roadworks

Nairn Road is reserved under the Metropolitan Region Scheme as an Other Regional Road. The construction of this road is subject to further discussions with the Western Australian Planning Commission and the City of Rockingham.

Both Kerosene Lane and Fifty Road will be upgraded from the uncurbed rural style road to a curbed and drained urban standard road. This will involve resurfacing and some reconstruction in conjunction with intersection works.

Internal roads are proposed to be constructed to a high standard using red asphalt treatments and brick paved intersections.

6.5 Underground Power

There is sufficient capacity within the existing overhead network for power supply to this development.

All power to the development will be underground, including the existing pole lines where they front the development.

High aesthetic standard street lighting poles will be installed to Western Power's street vision system. The entire system will be maintained by Western Power in the future.

6.6 Water Reticulation

The site is proposed to be served from a 250mm reticulated main to be extended from the Water Corporation's reservoir on Eighty Road.

The main will extend south along Eighty Road and Fifty Road to service the subject site. These works will be at the developers cost. Liaison with the Water Corporation, the ultimate service main (greater than 300mm) is to be provided in the future along a similar alignment when necessary. This will be provided at the cost of the proponent.

6.7 Telecommunications

Telstra has major communications network on Baldivis Road to serve the needs of the development.

6.8 Gas

Gas services can be extended along Baldivis Road from Safety Bay Road and along Fifty Road to service this development.

7.0 Staging

A Staging Plan is included as **Plan 10**. Lot 308 will be developed as Stage 1, excluding the Residential R40 and Community Purpose sites. Lots 30 and 31 will be developed as Stage 2. The Residential R40 and Community Purpose sites will be developed as Stage 3.

8.0 Conclusion

It is submitted that the Local Structure Plan for the site provides for the creation of an integrated residential Estate.

Council and the Western Australian Planning Commission's approval to the LSP is now sought which will then form the basis for future development and subdivision of the site.



PLANS



APPENDICES



APPENDIX 1



APPENDIX 2



APPENDIX 3



APPENDIX 4

APPENDIX 5



APPENDIX 6



APPENDIX 7



APPENDIX 8



APPENDIX 9



APPENDIX 10



APPENDIX 11

APPENDIX 12



APPENDIX 13