

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS
STRUCTURE PLAN
2018

PART 1 IMPLEMENTATION SECTION



LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS

STRUCTURE PLAN

PART 1 IMPLEMENTATION SECTION

Prepared by:



PO Box 796
Subiaco WA 6904
t: 9382 1233
f: 9382 1127
www.cleplan.com.au

2342Rep30N
January 2018

IT IS CERTIFIED THAT AMENDMENT NO. 3 TO LOT 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS STRUCTURE
PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:
9 JANUARY 2018

Signed for and on behalf of the Western Australian Planning Commission:



.....
an officer of the Commission duly authorised by the Commission pursuant to section 16 of
the *Planning and Development Act 2005* for that purpose.

TABLE OF CHANGES OR DEPARTURES FROM STRUCTURE PLAN

Change or Departure No.	Description of Change or Departure	Date Adopted by the Council	Date Approved by the WAPC (if required)	Date Structure Plan commences operation
1	Insert Residential Design Code Variations - Single House (RMD) Standards for Medium Density Housing	27 August 2015	—	7 September 2015
2	Minor lot boundary and access road rationalisation	1 September 2015	—	14 September 2015
3	<p>Modify Plan 1: Structure Plan map to:</p> <ul style="list-style-type: none"> Extend the Structure Plan boundary to include Lot 20 Sixty Eight Road, Baldivis; Allocate a 'Residential' zone to cover the northern portion of Lot 20 Sixty Eight Road; Allocate density coding of R25 and R40 to the northern portion of Lot 20 Sixty Eight Road; Allocate a 'Development' zone to cover the southern portion of Lot 20 Sixty Eight Road to correspond with the zoning over the balance of the future high school site; Allocate a density coding of R60 to an area currently coded R40 adjoining open space and rationalise the boundary between the residential area and open space to reflect lot product; and Increase the size of the Utilities / Infrastructure Local Reserve to support Water Corporation pump station infrastructure. 			

EXECUTIVE SUMMARY

The Sixty Eight Road Structure Plan allows for the continued growth of the South Baldivis community, contributing to the existing and planned public open space network, creating a portion of a high school site, establishing a well connected and legible road network and expanding service infrastructure.

The Structure Plan area measures approximately 53 hectares, comprising of lots 569 and 1263 Baldivis Road and lots 20 and 21 Sixty Eight Road, Baldivis, and is located within the City of Rockingham. The site has been set aside for urban development, and is zoned 'Urban' and 'Development' under the Metropolitan Region Scheme and City of Rockingham Town Planning Scheme No. 2 and includes provision of a portion of a high school site, to be appropriately reserved under the MRS at a future date. The Sixty Eight Road Structure Plan is lodged pursuant to clause 4.2.4 of the City's Scheme, which requires a structure plan prior to development or subdivision for land zoned 'Development'.

The Sixty Eight Road Structure Plan draws on the vital elements of the South Baldivis District Structure Plan, which provides a clear framework for future land use and development for the site. The Sixty Eight Road Structure Plan also recognises a preceding structure plan adopted by the City of Rockingham for the site in 2012, and while the Structure Plan refines and supersedes this earlier adopted structure plan, all key principles previously supported by the City of Rockingham Council have been retained.

Once developed, the Sixty Eight Road Structure Plan will provide a broad range of housing choice and variety of lot typologies, allowing for the creation of an estimated 640 to 660 lots, or 680 to 700 dwelling units. Five hectares (approx) of both passive and active public open space will be provided to complement the existing and planned public open space network within South Baldivis, and balances recreational pursuits and drainage requirements.

The Sixty Eight Road Structure Plan road network provides a clear hierarchy of roads, with permeable east-west and north-south connections via neighbourhood connectors and local access streets to ensure traffic flows and volumes are uniformly distributed.

Sixty Eight Road Structure Plan demonstrates that the site can be readily serviced, with essential infrastructure located within proximity and easily extended to the structure plan area. The Structure Plan also provides an important increase to the South Baldivis catchment for the expansion of services and infrastructure, and for existing and planned activity centres and employment nodes. Sixty Eight Road Structure Plan provides a 6.8 hectare portion of a high school site, consistent with the South Baldivis District Structure Plan.

In preparation of the structure plan, a number of reports were prepared, which are summarised in Part 2 of the structure plan report, with complete copies of these reports included as technical appendices:

1. Pipeline Risk Assessment
2. Environmental Assessment
3. Bushfire Management Plan
4. Landscape Masterplan
5. District and Local Water Management Strategy
6. Transport Assessment Report
7. Engineering Servicing Report

These reports thoroughly address all the relevant planning considerations and show that the subject site is suitable for urban development in the form proposed by the Structure Plan.

Table 1 provides a land use summary of the Structure Plan.

Table 1 – Land Use Summary

Item	Data	Section number referenced within the Structure Plan Report
Gross Structure Plan Area	52.6 hectares	Section 1.2.2
Area of each land use proposed Zones (as per the Scheme) - Residential Reserves (as per the Scheme and MRS) - Road Reserve - Public Open Space Reserve - Public Purposes (High School & Water Corporation)	28.2 hectares 12.5 hectares 5.0 hectares 6.9 hectares	Section 3.1
Estimated Lot Yield	640 - 660 lots	Section 3.2.2
Estimated Number of Dwellings	680 - 700 dwellings	Section 3.2.2
Estimated Residential Density - dwellings per gross hectare As per Directions 2031 - dwellings per site hectare As per Liveable Neighbourhoods	15.1 dwellings per gross hectare 24.1 dwellings per site hectare	Section 3.2.2
Estimated Population	1904 - 1960 people @ 2.8 people/household	
Number of Secondary Schools	6.8ha of a high school site	Section 3.6
Number of Primary Schools	None	N/A
Amount of Public Open Space	4.7 hectares (Total) 10.3% 3.8 hectares (Unrestricted) 80% 0.9 hectares (Restricted) 20%	Section 3.3

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PART ONE – IMPLEMENTATION SECTION

1.0 STRUCTURE PLAN AREA

This Structure Plan shall apply to lots 569 and 1263 Baldivis Road and lots 20 and 21 Sixty Eight Road, Baldivis being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan Map (Plan 1).

The Structure Plan is identified as the Sixty Eight Road Structure Plan.

2.0 STRUCTURE PLAN CONTENT

This Structure Plan comprises:

- Part One – Implementation Section
- Part Two – Explanatory Report
- Appendices – Technical Reports

Part One of the Structure Plan comprises the structure plan map and planning provisions. Part Two of the Structure Plan is the Planning Report component which can be used to interpret and implement the requirements of Part One.

3.0 INTERPRETATION AND RELATIONSHIP WITH TOWN PLANNING SCHEME NO.2

This Structure Plan constitutes a Structure Plan pursuant to Section 4.2 of the City of Rockingham Town Planning Scheme No. 2 ('the Scheme') and the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 - Deemed provisions for local planning schemes.

The Structure Plan Map (Plan 1) outlines future land use, zones and reserves applicable within the structure plan area. Pursuant to the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 - Deemed provisions for local planning schemes, a decision maker of an application for development approval or subdivision approval is to have due regard to the provisions of this Structure Plan, including the Structure Plan Map, Implementation Report, Explanatory Report and Technical Appendices.

4.0 MAJOR AMENDMENT 3

This Structure Plan comprises major Amendment 3 which extended the boundary of the Structure Plan area to include Lot 20 Baldivis Road and allocate the appropriate zoning and density coding of this land. As a consequence, this (Part 2) Structure Plan Report has been updated to include the 'Amendment 3 Addendum', providing the explanatory information relating to Amendment 3.

This Part 2 explanatory report should be read in its entirety including the 'Amendment 3 Addendum.'

5.0 OPERATION

5.1	Operation Date	This Structure Plan comes into effect on the date that it is endorsed by the Western Australian Planning Commission.
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6.0 LAND USE

6.1	Structure Plan Map	The subdivision and development of land is to generally be in accordance with the Structure Plan and any associated provisions contained in Schedule No.9.
6.2	Residential Density	Residential densities applicable to the Structure Plan Area shall be those residential densities shown on the Structure Plan Map.
6.3	Land Use Permissibility	Land use permissibility within the Structure Plan Area shall be in accordance with the corresponding Zone under the Scheme.

7.0 SUBDIVISION / DEVELOPMENT

7.1	Notifications on Title	<p>In respect of applications for the subdivision of land 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(s) of Title(s) to advise of the following: -</p> <ol style="list-style-type: none"> 1. Land or lots deemed to be affected by a Bush Fire Hazard as identified in the Bushfire Management Plan contained within appendix 3. 2. Building setbacks and construction standards required to achieve a Bushfire Attack Level (BAL) of BAL-29 or lower in accordance with Australian Standards (AS3959-2009): Construction of buildings in bushfire prone areas.
7.2	Local Development Plans	<ol style="list-style-type: none"> 1. Local Development Plans (LDP's) are required to be prepared and implemented pursuant to Clause 4.23 of the Scheme for lots comprising one or more of the following site attributes: <ol style="list-style-type: none"> (i) Lots with rear-loaded vehicle access; and/or (ii) Lots with direct boundary frontage (primary or secondary) to an area of Public Open Space.



LEGEND

ZONES

- Residential R25
- Residential R40
- Residential R60
- Development

LOCAL RESERVES

- Public Open Space
- Utilities / Infrastructure
Water Corporation

OTHER

- Structure Plan Boundary
- District Distributor B
- Neighbourhood Connector
- Access Street



LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS
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2018

PART 2 EXPLANATORY REPORT
(INCLUDES AMENDMENT 3 ADDENDUM)



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LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS

STRUCTURE PLAN

**PART 2 EXPLANATORY REPORT
(INCLUDES AMENDMENT 3 ADDENDUM)**

Prepared by:



PO Box 796
Subiaco WA 6904
t: 9382 1233
f: 9382 1127
www.cleplan.com.au

2342Rep32J

January 2018

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PROJECT TEAM
.....

Planning and Urban Design – CLE Town Planning + Design

Environmental Assessment – Bayley Environmental Services

Groundwater and Drainage – JDA Hydrologists

Engineering Infrastructure and Services – Pritchard Francis

Traffic and Transport – Uloth and Associates

Bushfire Protection – Natural Area Consulting

Landscaping – LD Total Landscaping

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SIXTY EIGHT ROAD STRUCTURE PLAN

1.0 INTRODUCTION AND PURPOSE

The "Lot 569 & 1263 Baldivis Road and Lot 21 Sixty Eight Road Structure Plan" (the Sixty Eight Road Structure Plan) has been prepared by CLE Town Planning + Design, on behalf of the ABN Group. The Structure Plan is lodged pursuant to Clause 4.2 of the City of Rockingham Town Planning Scheme No. 2, which requires a structure plan for land zoned 'Development'.

The purpose of this structure plan is to provide a planning framework to guide future subdivision and development of the subject site, and draws upon the current strategic planning framework, including the Baldivis South District Structure Plan.

This Structure Plan follows a preceding local structure plan for the site, which was adopted by the City of Rockingham Council in September 2012, and which was referred to the WAPC for final endorsement. The Sixty Eight Road Structure Plan retains all the agreed key design principles, yet represents additional refinement to the planning of this land.

1.1 Report Structure

The format of the LSP follows that set out in the Western Australian Planning Commission's (WAPC) Structure Plan Framework (August 2015), consisting of three parts:

Part 1: Implementation Section: Contains the LSP Map and outlines the requirements that will be applied when assessing subdivision and development applications.

Part 2: Explanatory Section: Discusses the key outcomes and planning implications of the background and technical reports and describes the broad vision and more detailed planning framework being proposed. Part 2 is based on detailed site specific analysis of opportunities and constraints and the following Technical reports:

- Pipeline Risk Management Plan (8 October 2010) - Worley Parsons
- Environmental Assessment (9 July 2014) - Bayley Environmental Services
- Bushfire Management Plan (10 April 2015) - Natural Area Consulting
- Landscape Masterplan (June 2014) - LD Total Landscaping
- District & Local Water Management Strategy (July 2014) – JDA Consulting Hydrologists
- Transport Assessment Report (April 2015) - Uloth & Associates
- Servicing Report (August 2013) - Pritchard Francis

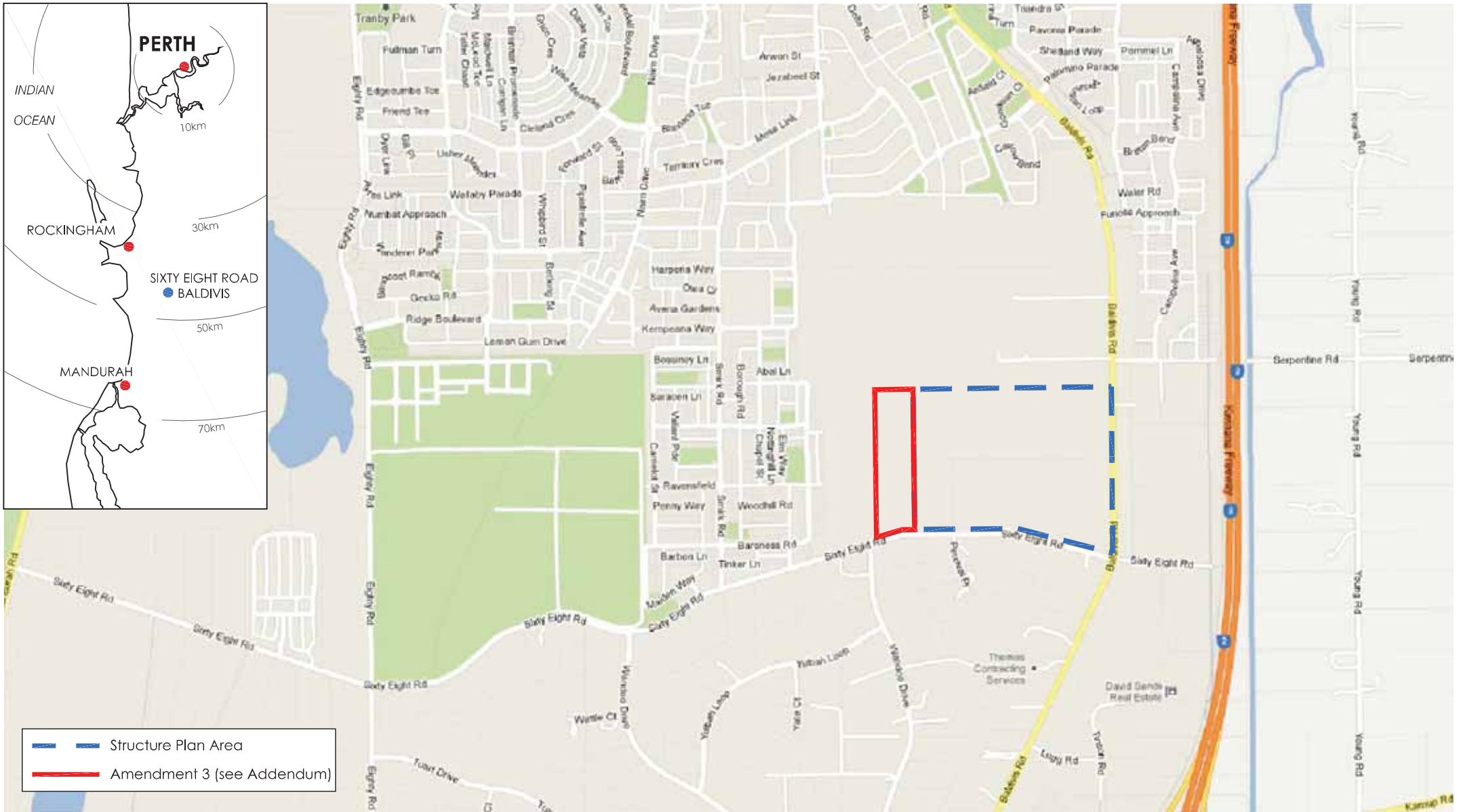
Part 3: Technical Appendices: Includes the technical reports and supporting plans and maps as prepared by the project team.

AMENDMENT 3 ADDENDUM (MARCH 2017)

This Part 2 report was originally prepared in support of the Sixty Eight Road Structure Plan, which was subsequently approved by the WAPC on 13 July 2015.

Amendment 3 to the Sixty Eight Road Structure Plan (dated March 2017) has subsequently extended the boundary of the Structure Plan area to include lot 20 Sixty Eight Road, Baldivis and allocate the appropriate zoning and density coding of this land.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS STRUCTURE PLAN



As a consequence, this (Part 2) Structure Plan Report has been updated to include the 'Amendment 3 Addendum', providing the explanatory information relating to Amendment 3. This in turn is supported by a number of subsequent technical reports, which include:

- Lot 20 Environmental Assessment (7 September 2015) – Bailey Environmental Services;
- Lot 20 Landscape Concept (April 2016) - LD Total;
- District and Local Water Management Strategy (December 2015) - 360 Environmental;
- Lot 20 Bushfire Management Plan (20 November 2015) – Natural Area Consulting;
- Transport Impact Assessment (November 2015) – KCTT; and
- Servicing Report (July 2016) – Pritchard Francis.

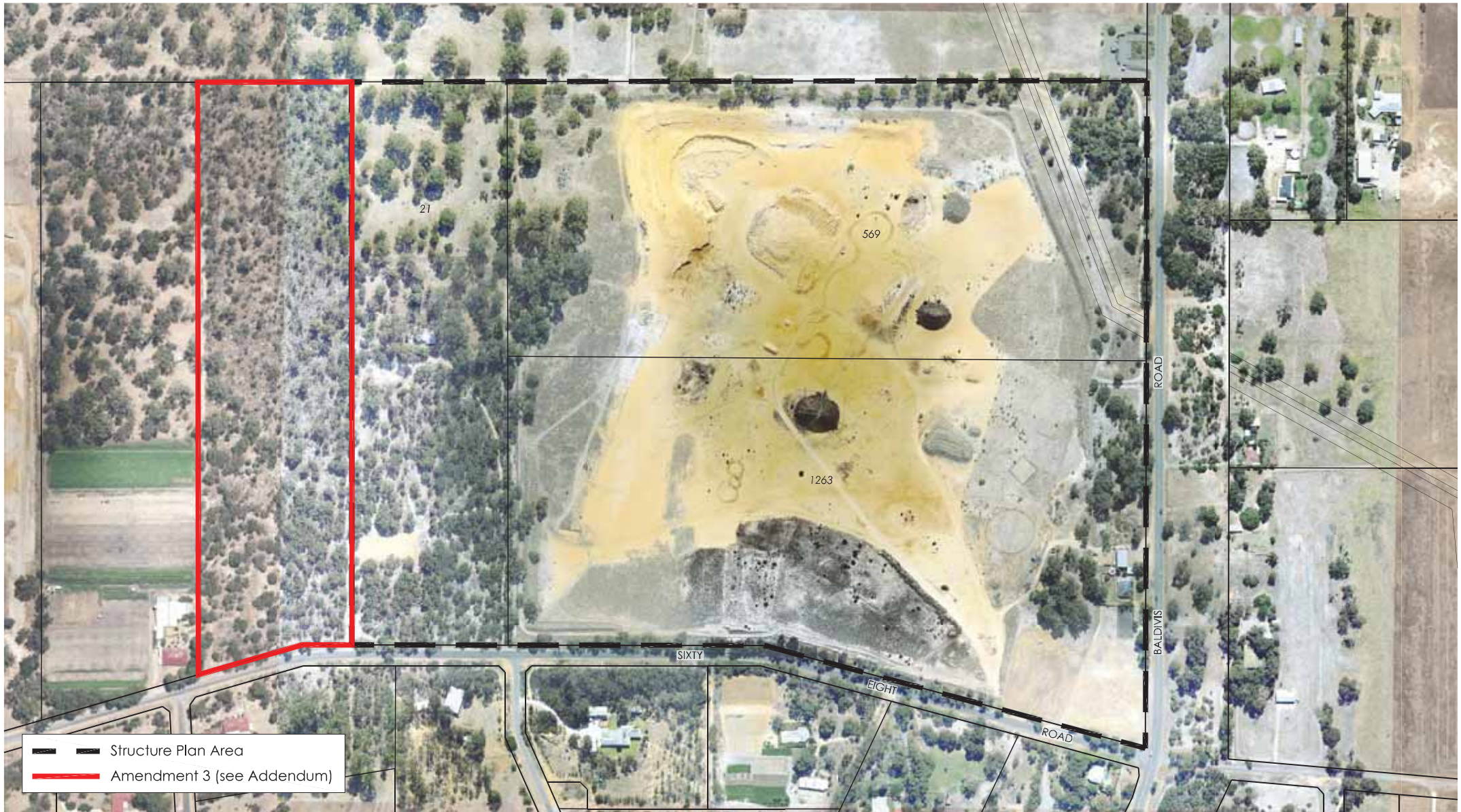
This Part 2 explanatory report should be read in its entirety including the 'Amendment 3 Addendum' and all associated technical reports.

1.2 Land Description

1.2.1 Location and Land Area

The Sixty Eight Road Structure Plan is located within the City of Rockingham, at the corner of Baldivis Road and Sixty Eight Road, Baldivis. The site is approximately 44 hectares in area and is located 10 kilometres south-east of the Rockingham town centre and 44 kilometres south of the Perth CBD. The Kwinana Freeway is located approximately 450m to the east, running in a north-south direction. Figure 1: Location Plan shows the Structure Plan in context.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS STRUCTURE PLAN



--- Structure Plan Area
--- Amendment 3 (see Addendum)



1.2.2 Ownership and Title Details

The Structure Plan area comprises of three separate titles, being lot 21 Sixty Eight Road and lots 569 and 1263 Baldivis Road.

This land is legally described as follows:

Lot Number	Plan	Volume	Folio
21	8420	1720	135
569	152941	2212	746
1263	152941	1394	7

Lot 21 (measuring approximately 8.32ha) is owned by Yellenday Pty Ltd, lot 569 (measuring approximately 16.78ha) by Jacaranda Springs Private Estate Pty Ltd and lot 1263 (measuring approximately 19.18ha) by Caversham Land Co Pty Ltd, all being subsidiary companies of the ABN Group.

1.2.3 Existing and Surrounding Land Use

The Structure Plan area is generally cleared of all vegetation, with the site having been host to past sand mining operations; undertaken by Rocla Pty Ltd in support of their concrete manufacturing services. This sand mining activity has now ceased. A single dwelling with an associated shed is fronting onto Baldivis Road. The Structure Plan site is shown as Figure 2: Site Plan.

The Parmelia Gas Pipeline, being a high pressure gas main, passes across the north-eastern corner of the site, with there being an easement in favour of the pipeline owners.

The land located immediately north and west of the Structure Plan area is identified and zoned for future urban development, and is at various stages of the planning process.

Baldivis and Sixty Eight Roads run along the eastern and southern side of the Structure Plan area respectively, with land located on the opposite sides of these roads currently being used for rural and rural lifestyle living. The Kwinana Freeway is located approximately 450m east of the Structure Plan area.

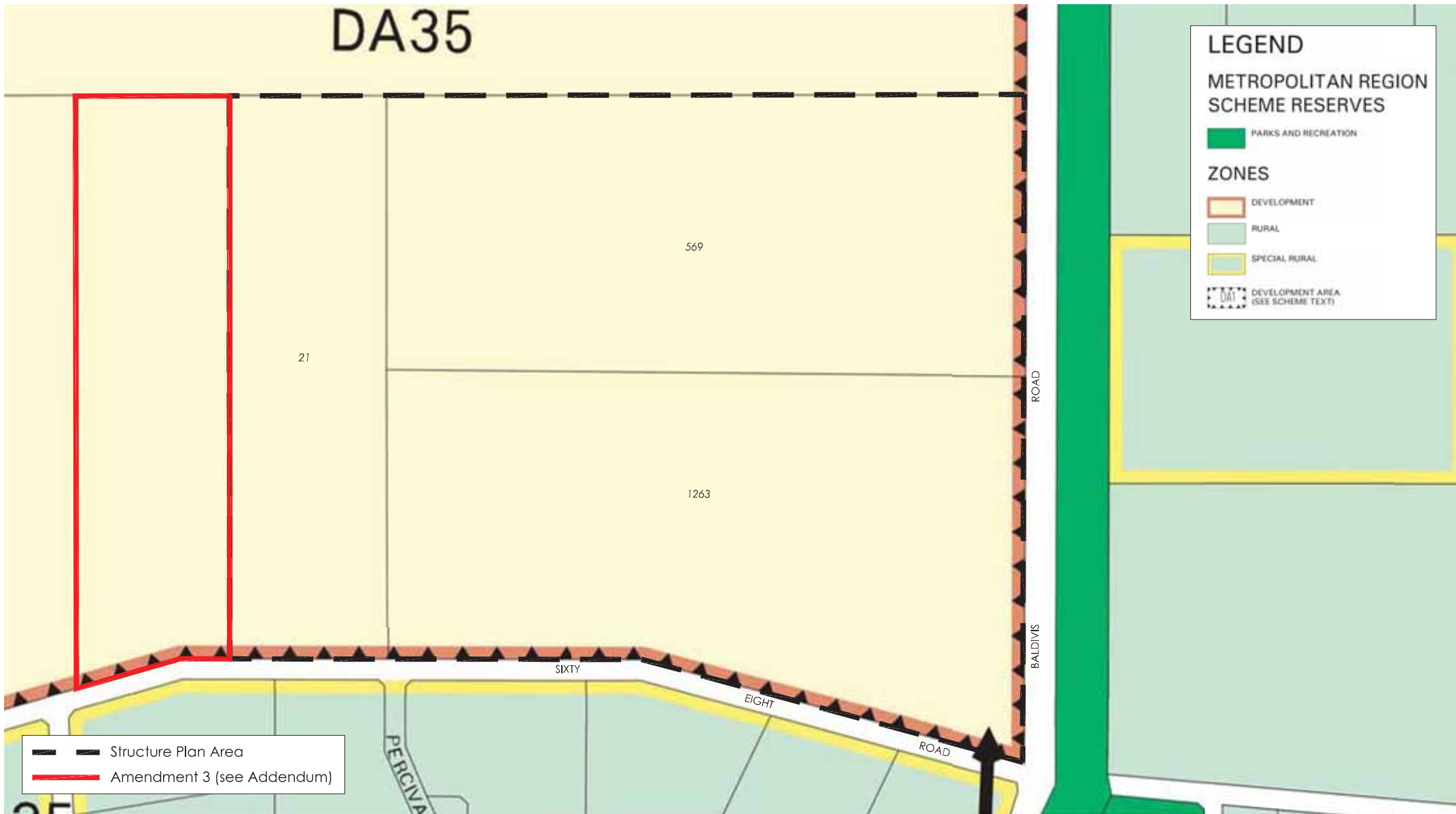
1.3 Planning Framework

1.3.1 MRS Zoning

The Structure Plan is zoned 'Urban' under the Metropolitan Region Scheme.

The subject land is bound by 'Urban' zoned land to the north and west, and 'Rural 'and 'Special Rural' land situated to the south and east. A 'Parks and Recreation' reserve runs parallel with Baldivis Road to the eastern boundary of the Structure Plan area.

The MRS zoning for the area is shown as Figure 3.



Structure Plan Area
 Amendment 3 (see Addendum)

LEGEND

METROPOLITAN REGION SCHEME RESERVES

- PARKS AND RECREATION

ZONES

- DEVELOPMENT
- RURAL
- SPECIAL RURAL
- DA1 DEVELOPMENT AREA (SEE SCHEME TEXT)



1.3.2 City of Rockingham Town Planning Scheme No. 2

The Sixty Eight Road Structure Plan area is zoned 'Development' (Development Area 35) under the City of Rockingham Town Planning Scheme No. 2. A map showing the current local scheme zoning is shown as Figure 4: TPS Zoning.

In accordance with Clause 4.2.3 of the Scheme, the purpose of the 'Development' zone is:

- To identify areas requiring comprehensive planning prior to subdivision and development.
- To coordinate subdivision, land use and development in areas requiring comprehensive planning.

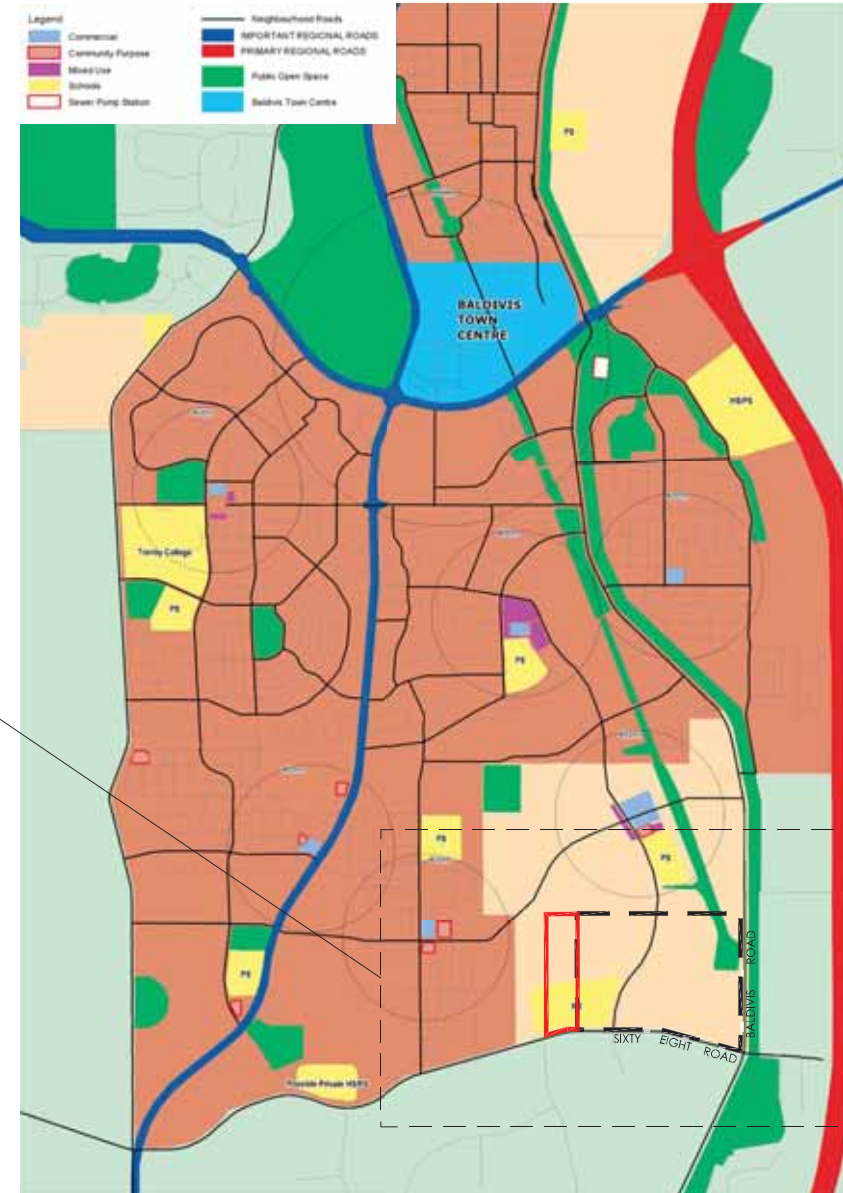
The Sixty Eight Road Structure Plan is lodged in accordance with Clause 4.2.4 of the Scheme, where a structure plan is required prior to subdivision or development within the 'Development' zone.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS
STRUCTURE PLAN



Source: City of Rockingham

- Structure Plan Area
- Amendment 3 (see Addendum)



BALDIVIS SOUTH DISTRICT STRUCTURE PLAN

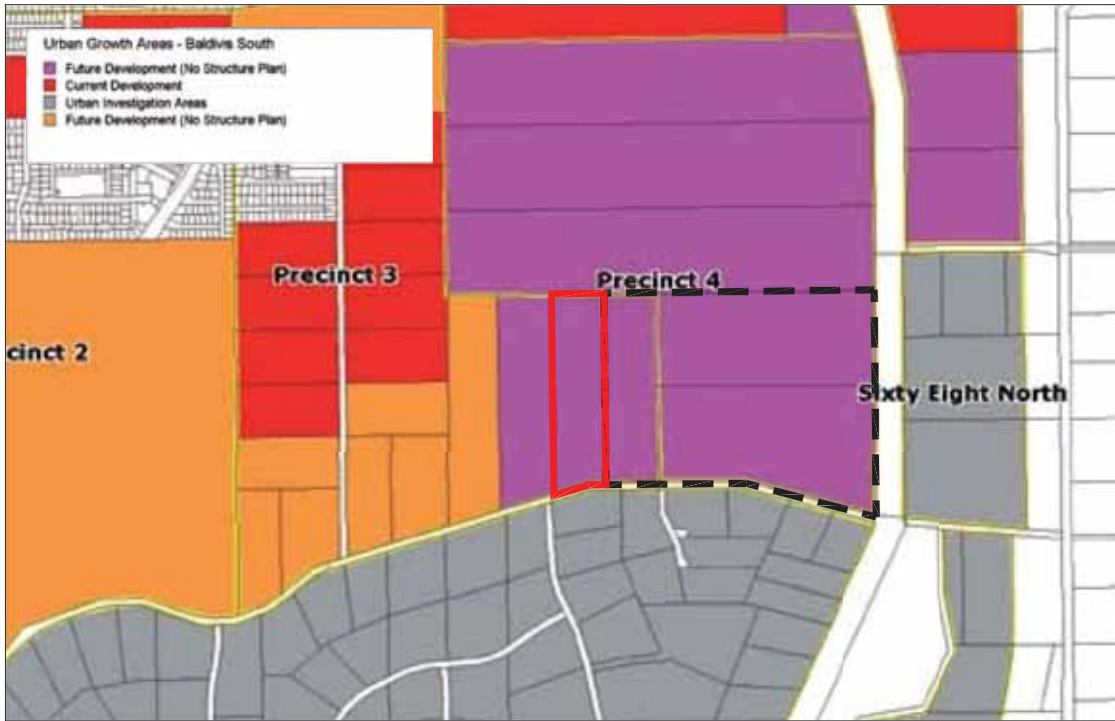


1.3.3 Baldivis South District Structure Plan

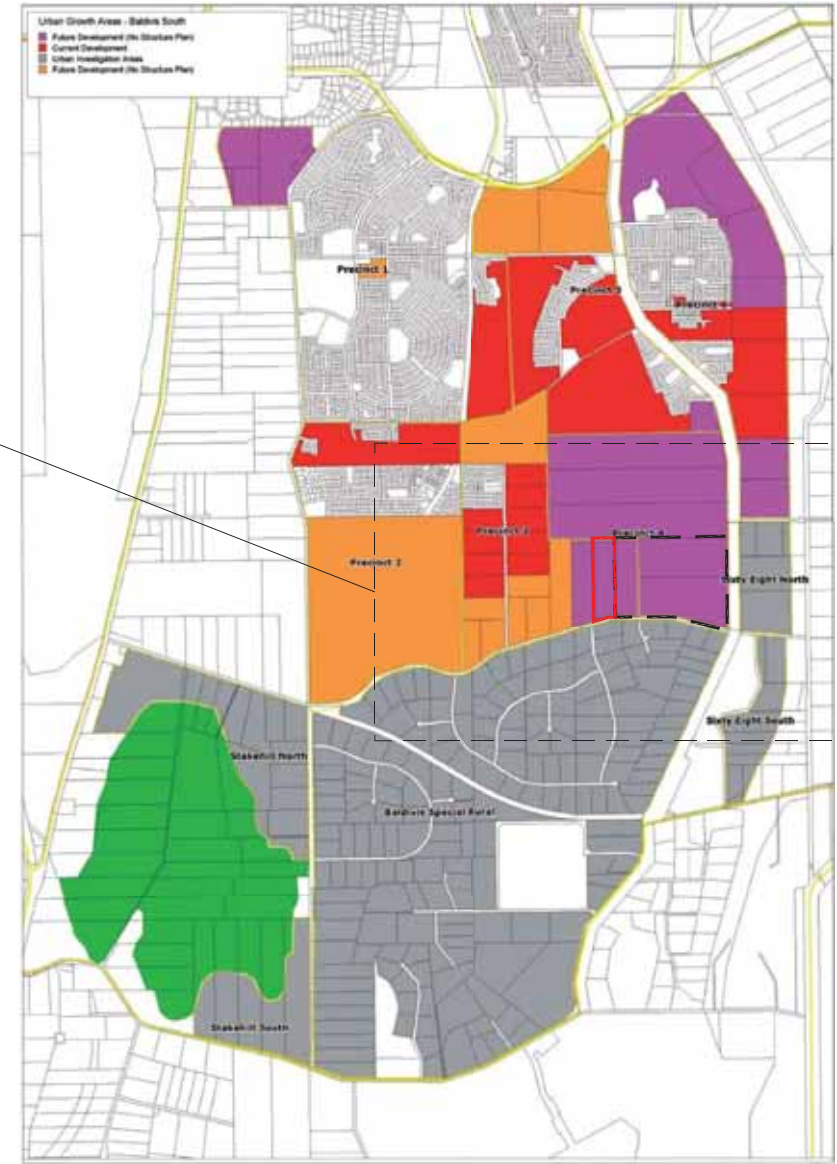
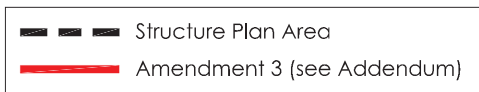
The Sixty Eight Road Structure Plan is the south-eastern most portion of land set aside for urban development under the Baldivis South District Structure Plan. This District Structure Plan serves as the district level planning framework for the locality, setting out the broad outlook for of land use, major roads, commercial centres, community infrastructure and public open space. The District Structure Plan is intended to guide the preparation of subsequent local structure plans, and is shown as Figure 5.

The Sixty Eight Road Structure Plan is consistent with the District Structure Plan, incorporating:

- Predominately residential development;
- Creating a portion of the identified high school site;
- Providing a staggered north-south connector road, in lieu of a curved alignment, allowing connectivity between Sixty Eight Road, the high school site and future development to the north; and
- An area of public open space coinciding with the high pressure Parmelia Gas Pipeline, which traverses the north-eastern corner of the site.



Source: City of Rockingham



1.3.4 City of Rockingham Urban Growth Programme (2009)

The City of Rockingham Urban Growth Programme was prepared to assist Council in understanding the likely pattern of urban growth within the City of Rockingham, and considered existing population and dwelling statistics, existing structures plans and forecasts future urban growth patterns.

The Programme provides the City with a summary of expected urban development area to help guide Council in its decision making processes.

The Sixty Eight Road Structure Plan falls within Precinct 4 of South Baldivis, identifying this area as being for future development, albeit with no structure plan in place. The Programme suggests that development of Precinct 4 of South Baldivis has the capacity to accommodate approximately 1850 dwellings. The Sixty Eight Road Structure Plan area makes for approximately one-third of this Precinct.

The subject Structure Plan represents the fulfilment of the expected urban growth within Baldivis South, as projected by the Programme. The South Baldivis locality of the Urban Growth Programme is shown as Figure 6.

1.3.5 WAPC Planning Bulletin 87 High Pressure Gas Transmission Pipelines

The Parmelia Gas Pipeline, being one of the high pressure gas transmission pipelines that passes through the Perth metropolitan region, crosses the north-eastern corner of the Sixty Eight Road Structure Plan. As such, the Sixty Eight Road Structure Plan was considered in the context of the WAPC Planning Bulletin 87: High Pressure Gas Transmission Pipelines in the Perth Metropolitan Region, and has been designed to accommodate the pipeline, with no development proposed within the associated easement.

A Pipeline Risk Assessment was prepared by Worley Parsons as part of the previous structure plan (2012) for the site, with this assessment undertaken in accordance with Planning Bulletin 87 and Australian Standard AS2885 Pipelines – Gas and Liquid Petroleum. This Pipeline Risk Assessment was confirmed by the APA Group, being the owner of the Parmelia Gas Pipeline.

The current Sixty Eight Road Structure Plan was referred back to the APA Group, to confirm if the Worley Parsons Pipeline Risk Assessment remains current and adequately addressed the proposed development for the area.

The APA Group, in a response dated 22 August 2013, has confirmed that a review of the amended plan and its proposed changes do not introduce any new risk to the pipeline, or alter the location classification of the proposed development. APA is satisfied that the risk assessment still applies, and that no further conditions or actions are required.

The Worley Parsons Pipeline Risk Assessment and the subsequent response from the APA Group are included as Appendix 1.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS STRUCTURE PLAN



Adopted by City of Rockingham
September 2012



1.3.6 Other Approvals and Decisions

At its Ordinary Meeting on 25 September 2012, the City of Rockingham Council resolved to adopt a local structure plan for the site, prepared by Urban Endeavour, which incorporated the following:

- 403 single residential lots, coded R20
- 77 single residential lots, coded R30
- 1 grouped housing site, coded R40, with the potential for 58 dwellings.
- A portion of the envisaged high school site (3.5ha); and
- 5 areas of public open space totalling 4.07has, including a 1.37ha linear POS that coincided with the high pressure gas pipeline.

In accordance with the resolution of Council, the Structure Plan was referred to the WAPC and is awaiting final endorsement. This preceding structure plan is shown as Figure 7.

Following the referral of this previous structure plan for the site, ABN Group asked CLE Town Planning + Design, to rationalise the structure plan design in order to provide for more efficient land use and a more legible movement network. The updated structure plan also conforms to the format set out in the WAPC's Structure Plan Preparation Guideline.

The proposed Sixty Eight Road Structure Plan will supersede this earlier adopted structure plan, but still retains all the key principles previously supported by Council, including:

- Maintaining all agreed road connections to adjacent landholdings.
- Retaining the location and size of the lot which will form part of the high school site, this in turn being consistent with the Baldivis South District Structure Plan.
- Providing the agreed 2.2m road widening to Sixty Eight Road, and respecting the interface between this road and future development.
- Developing the site wholly for residential purposes, with the exception of the high school site.

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1.4 Context Analysis

The Sixty Eight Road Structure Plan is the south-eastern most parcel of land that has been identified for urban development by the South Baldivis District Structure Plan; and is a refinement of the key principles set out in this District Structure Plan. With the site having no significant environmental constraints due to past mining activities, the Sixty Eight Road Structure Plan provides the opportunity to bring the South Baldivis urban front to its logical conclusion, and transition between the urban development and the rural lifestyle land to the east and south. Many of the contextual matters have been identified and addressed by the South Baldivis District Structure Plan, summarise as follows:

Movement Networks

The Sixty Eight Road Structure Plan has frontage to both Baldivis and Sixty Eight Roads, offering excellent connections to a range of retail, commercial and community facilities, employment nodes and public transport. The Kwinana Freeway is readily access via the Safety Bay Road interchange to the north, with Sixty Eight Road connecting directly to Mandurah Road to the west. This allows for convenient access to the Rockingham and Mandurah Strategic Metropolitan Centres.

The Baldivis South District Structure Plan establishes a key neighbourhood road that passes through the Structure Plan area in a north-south direction, creating a connection between Sixty Eight Road, the proposed high school (within the Structure Plan area) and other existing and planned facilities, including local and neighbourhood centres and primary school located to the north and east. This north-south neighbourhood road connection was confirmed by the preceding Local Structure Plan for the site, which was endorsed by the City of Rockingham on 25 September 2012.

This 2012 structure plan also has a second east-west neighbourhood connector road which further reinforces this permeability with adjacent urban development.

Activity Centres and Employment Nodes

The Sixty Eight Road Structure Plan is located in close proximity to a number of existing and proposed activity centres and employment nodes, ensuring excellent accessibility to commercial services, and providing good opportunities to meet employment self-sufficiency targets set out in Directions 2013 and Beyond.

The Rockingham and Mandurah Strategic Metropolitan Centres, the Kwinana Secondary Centre and the Baldivis District Centre on Safety Bay Road are all easily accessible from the Structure Plan area, and offer employment opportunities and access to retail, commercial and community services. A small neighbourhood and a local centre planned by the Baldivis South District Structure Plan, located north and west of the structure plan area respectively, will add to local conveniences for future residents

This hierarchy of existing and emerging centres, as well as a number of major existing and proposed employment nodes in proximity to the structure plan area (including Western Trade Coast, Kwinana Industrial Area and the Australia Marine Complex, Latitude 32 Industrial Estate and North-East Baldivis) provide opportunities for residents, and a much needed increase to the employment catchment for these important employment nodes.

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Open Space and Education

With the Sixty Eight Road Structure Plan forming part of the emerging South Baldivis development front, it will be provided with excellent access to a range of existing and planned open space areas and schools.

Currently there are a range of public open space areas located northwards within Baldivis, including Arpenteur Park and Tranby Park; with a number of planned open space areas to further improve accessibility to local open space for future residents. The existing road network also gives convenient access to a number of higher order spaces, including the Rockingham Lakes Regional Park, a number of sporting facilities and a number of coastal destinations such as Safety Bay, Shoalwater and the Rockingham Foreshore.

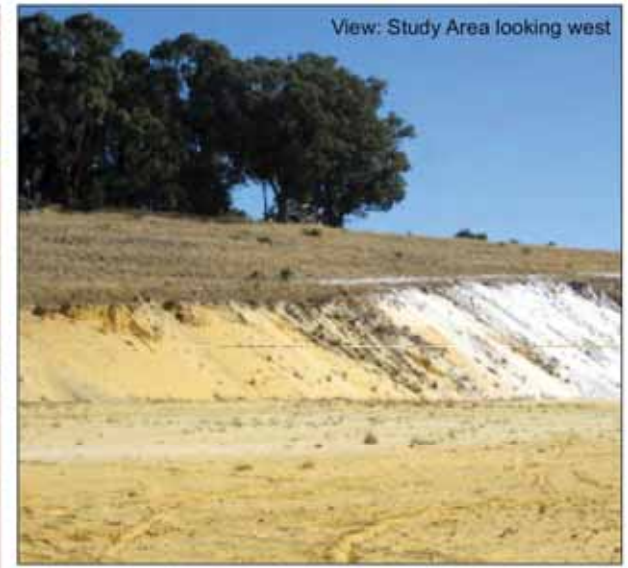
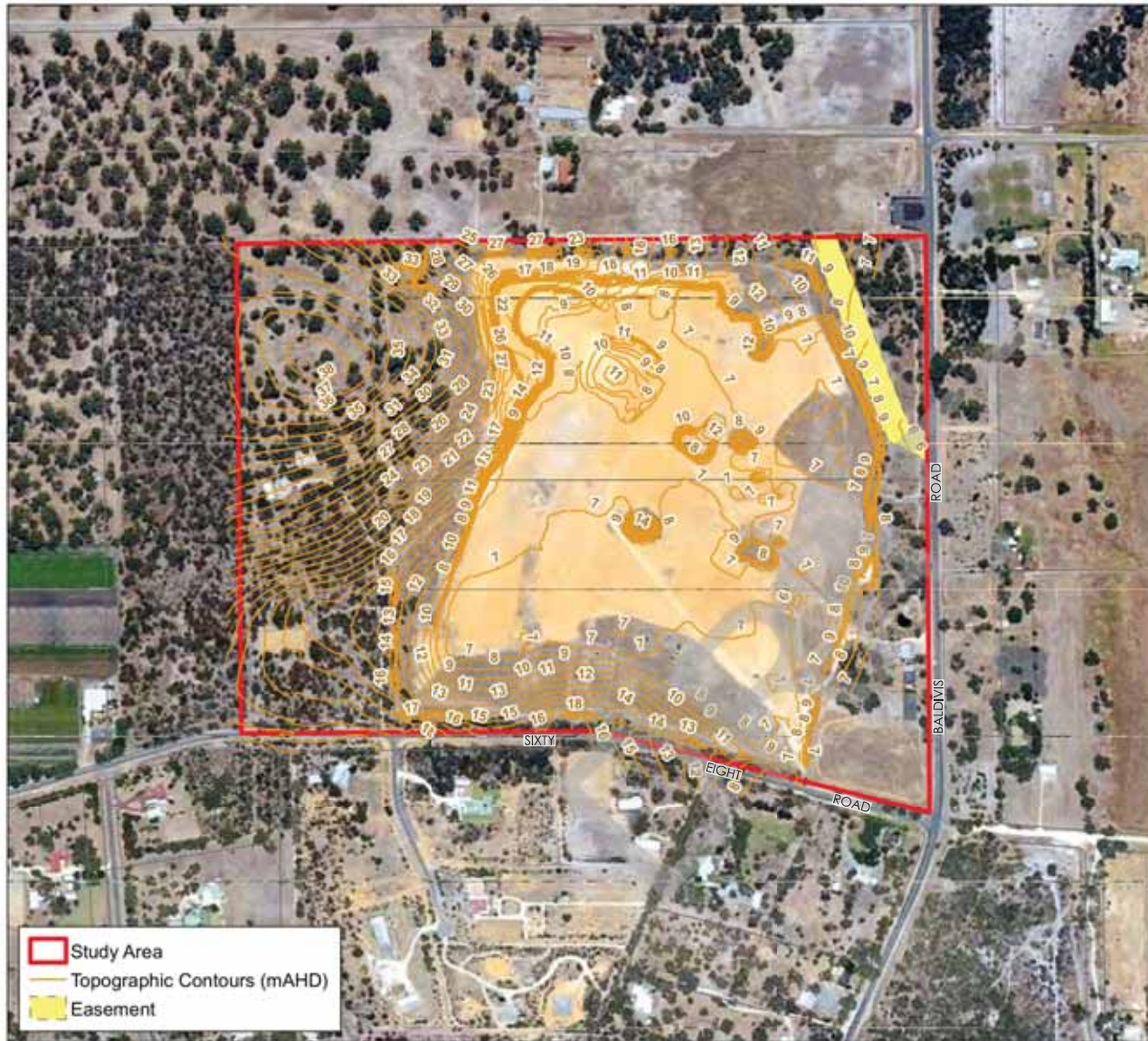
The Sixty Eight Road Structure Plan is, and will be serviced by a number of existing and proposed educational establishments. Currently a number of government primary and high schools are in proximity to, and easily accessible from the Structure Plan area, including Settler Primary School, Makybe Primary School and Rivergums Primary and High Schools. Additionally, an existing private K-12 school (Tranby College) is also located in nearby Settlers Hill.

The number of planned schools, as outlined in the South Baldivis Structure Plan, will further improve the accessibility to future residents, with three government primary schools site located within approximately 1 kilometre of the Structure Plan area, along with a potential site for a private high/primary school located westwards along Sixty Eight Road. The Sixty Eight Road Structure Plan itself partially accommodates a government high school site.

Servicing Infrastructure

All essential service infrastructure can be extended to the Structure Plan area. A Servicing Report has been prepared by Prichard Francis and is discussed further in Section 3.6; with this Servicing Report demonstrating that infrastructure can be provided in a timely and integrated manner as part of servicing the wider South Baldivis locality.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS STRUCTURE PLAN



2.0 SITE CONDITIONS AND CONSTRAINTS

2.1 Biodiversity and Natural Area Assets

The Structure Plan area is largely unconstrained as a result of the past use of the land for sand mining, with the site extensively cleared of vegetation.

An Environmental Assessment Report (EAR) was undertaken for the structure plan area by Bayley Environmental Services and is include as Appendix 2. This EAR concluded:

- There are no Declared Rare Flora, Priority Flora of Threatened or Priority Ecological Communities within or close to the Structure Plan area.
- There are no fauna species of conservation significance within the Structure Plan area.
- There is limited remnant vegetation on the site due to past sand mining, with the little remaining vegetation predominately classified as 'Completely Degraded', with only a small pocket of Jarrah-Banksia Low Open Forrest located on lot 21 to the western side of the structure plan area classified as 'Good' to 'Very Good.'

The ABN Group has referred the Structure Plan area to the Commonwealth Department of the Environment (DoE, formerly the Department of Sustainability, Environment, Water, Population and Communities) as a non-controlled action with the DoE formally confirming the non-controlled status in September 2012. A copy of the DoE decision is included as an appendix to the EAR.

Amendment 3

Lot 20 Sixty Eight Road, as part of Amendment 3 to the Sixty Eight Road Structure Plan, is subject to a subsequent Lot 20 Environmental

Assessment Report, also prepared by Bailey Environmental Services. Discussion on this Lot 20 Environmental Assessment (2 March 2017) can be found in the Amendment 3 Addendum, with the Lot 20 Environmental Assessment report provided in its entirety as Appendix 5 of the Addendum.

2.2 Landform and Soils

With the Structure Plan area previously being the subject of sand mining activities, there is a significant opportunity to earthworks the site, to suit urban development.

The eastern portion of the site is generally flat with a ground level of approximately 7m AHD. This level rises dramatically towards the centre of the Structure Plan area to the west, southwest and northwest, up to a maximum elevation of approximately 30m AHD. The topography of the Structure Plan area is shown in Figure 8: Topographical & Aerial Plan.

A geotechnical study was undertaken by Golder Associates which has determined that the site is underlain by superficial formations which in turn overlie the Leederville Formation, with the Leederville Formation comprising of sandstone, siltstone and shale. The superficial formations primarily consist of sand overlying Tamala Limestone, which abuts and overlies Bassendean Sand towards the eastern edge of the site.

The sand found over most of the Structure Plan area is medium to course grained, with the Bassendean Sand along the eastern edge being fine to medium grained, with both sand types found to have high permeability that is well suited to the infiltration of runoff.

The Department of Environmental Regulation (DER) maps show that the Acid Sulphate Soils (ASS) risk over the area is identified as having a low to zero risk of potential acid sulphate soils, with the exception of the eastern edge having a low to moderate risk. Based on this level of risk mapping, no further assessment of ASS is necessary.

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2.3 Hydrology

The District and Local Water Management Strategy (D&LWMS), prepared by JDA Hydrologists, provides detail on the management of ground and surface water, demonstrating that neither is an impediment to development. The existing hydrology conditions for the area are as follows:

2.3.1 Groundwater

JDA Hydrologists have confirmed that groundwater across the eastern portion of Structure Plan area is at least 1.5 metres below the natural surface, with the majority of the site exceeding 3 metres of clearance. The groundwater level in the western portion of the Structure Plan area was not examined due to the significantly higher elevation of this land when compared to the eastern side.

The Structure Plan area is located on the north-eastern corner of the Stakehill Mound, being a local water mound. The natural flow of groundwater is eastwards towards the Serpentine River, with the seasonal variation to the water table being about 2-3 metres, with the maximum being during the months of September and October and the minimum during April and May. The aquifer is recharged directly by infiltrating rainfall and upward leakage from the underlying Leederville Formation, being a major regional aquifer.

2.3.2 Surface Water

There is no natural surface water or drainage within the Structure Plan area, with the sandy soils allowing rapid infiltration of rainfall, with any surface run off only occurring for short distances under extreme rainfall conditions. These sandy soils make the site highly permeable, ideal for at source infiltration.

Amendment 3

360 Environmental, as part of Amendment 3 to the Sixty Eight Road Structure Plan, reviewed and expanded upon the D&LWMS previously prepared by JDA Hydrologists. Discussion on the revised D&LWMS can

be found in Section 4.1.4 of the 'Amendment 3 Addendum', with the D&LWMS provided as Appendix 7 of the Addendum.

2.4 Bushfire Management

Natural Area Consulting has prepared a Bushfire Management Plan in accordance with the WAPC's Planning in Bushfire Prone Areas with a copy included as Appendix 3.

The Bushfire Management Plan concludes that bushfire risk is not an impediment to the development of the Sixty Eight Road Structure Plan, and that any risk can be managed through the implementation of an adequate building protection zone, and by requiring a minimum Bushfire Attack Level (BAL) standard of construction for those dwellings that are in proximity to an identified hazard.

The manner in which the Sixty Eight Road Structure Plan responds to bushfire hazard is discussed in further detail in Section 3.4.

Amendment 3

Amendment 3 to the Sixty Eight Road Structure Plan is supported by a Lot 20 Bushfire Management Plan, prepared by Natural Area Consulting. Further details on the Lot 20 Bushfire Management Plan can be found in Section 4.1.5 of the 'Amendment 3 Addendum', with a complete copy of the Bushfire Management Plan provided as Appendix 8 of the Addendum.

2.5 Heritage

The Department of Indigenous Affairs Sites Database lists no registered Aboriginal heritage sites within the Structure Plan area, with the closest registered site being associated with the Serpentine River, located well south of the subject site and having no effect on the land.

There are no listed European sites of heritage significance located in the Structure Plan area.

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3.0 STRUCTURE PLAN

3.1 Plan Overview and Land Use

The Sixty Eight Road Structure Plan provides a framework for the creation of a robust urban development that forms an important part of the South Baldivis community.

The design of the Structure Plan affirms the key elements of the South Baldivis District Structure Plan, as well as current state and local policy, while retaining flexibility that can respond to changing markets and the timeframe for development.

The following summarises the key elements of the Sixty Eight Road Structure Plan:

- Transition between existing rural land to the south and east of the Structure Plan area, while seamlessly integrating with planned urban development to the north and west.
- Allow for the creation of a range of housing choice, providing for social diversity and market price points.
- Ensure a clear urban development is achieved through road and lot layout, the high school site and public open space areas.
- Provide accessible, aesthetic and multi-functional use areas of open space that accommodate drainage requirements.
- Contribute to the coordinated extension of services and infrastructure for South Baldivis.

- Provide a responsive design that recognises the landform of the subject site, a result from past sand mining activities.

LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS
STRUCTURE PLAN



— Amendment 3 (see Addendum)



Based on these key principles, the structure plan provides a framework for:

- Approximately 570 - 590 lots across the structure plan area, with density codes ranging from R25 through to R60. Higher densities will generally be located about neighbourhood connectors, future public transport routes and areas of local amenity while providing a suitable transition to the rural lifestyle properties located to the south and east of the structure plan area, recognising they do not provide a context for high density development.
- Approximately 4.5ha of open space distributed across the structure plan area, meeting local active and passive recreational and drainage needs, while providing protection for the Parmelia High Pressure Gas Pipeline.
- Retention of mature vegetation within an entry statement area of passive open space.
- Creating a grid of permeable neighbourhood connectors and local access streets that provide an efficient and interconnected movement network, with future opportunities for public transport and pedestrian routes.
- A 2.2 metre wide road widening opportunity along Sixty Eight Road, agreed to with the City of Rockingham.
- A 3.3ha portion of a future high school site, in accordance with the South Baldivis District Structure Plan.
- Retaining all connections to adjacent land holdings to the north and west, as agreed as part of the preceding 2012 structure plan for the site.

A Development Concept Plan is included as Figure 9, and demonstrates a possible development outcome for the site, which may eventuate from the structure plan. While this Development Concept Plan is indicative in nature, it is consistent with the statutory provisions contained in Part 1 of this structure plan.

3.2 Residential

3.2.1 Housing Principles

This section outlines the broad range of lot and housing typologies that may be created under the statutory provisions of the Sixty Eight Road Structure Plan.

An objective of the Structure Plan is to deliver diversity in both lot and quality housing product that responds to the challenging landform of the site (resulting from past sand mining). There are also opportunities for the proponent to build out pockets of housing to deliver this range of housing types.

The following provides a brief description of the envisaged housing typologies that may be delivered within the structure plan area, although it is important to note that this should not be viewed as being prescriptive or exhaustive, but rather is provided for information purposes.



LARGE HOME SITES	
TYPICAL FRONTAGE	15m to 17m
TYPICAL DEPTH	30m
TYPICAL LOT AREA	450m ² to 510m ²
VEHICLE ACCESS	Primary or Secondary Street
RESIDENTIAL DENSITY CODE	R25
DEVELOPMENT CONTROL	Residential Design Codes Design Guidelines optional
BUILT FORM DELIVERY	Single dwellings Typically sold as land only Generally single storey, potential for two storey development
LOCAL CONTEXT	Suburban character \ rural interface



TRADITIONAL HOME SITES	
TYPICAL FRONTAGE	13m to <15m
TYPICAL DEPTH	25m to 30m
TYPICAL LOT AREA	325m ² to <450m ²
VEHICLE ACCESS	Primary or Secondary Street
RESIDENTIAL DENSITY CODE	R25
DEVELOPMENT CONTROL	Residential Design Codes Design Guidelines optional
BUILT FORM DELIVERY	Single dwellings Typically sold as land only, but opportunity for developer build outs Generally single storey, potential for two storey development
LOCAL CONTEXT	Suburban character \ rural interface



CONTEMPORARY FRONT LOADED SITES	
TYPICAL FRONTAGE	8m to <13m
TYPICAL DEPTH	25m to 30m
TYPICAL LOT AREA	200m ² to 390m ²
VEHICLE ACCESS	Primary or Secondary Street
RESIDENTIAL DENSITY CODE	R40
DEVELOPMENT CONTROL	Residential Design Codes Design Guidelines optional
BUILT FORM DELIVERY	Single and grouped dwellings Typically sold as land only, but opportunity for developer build outs Generally single storey Opportunities for housing in proximity to POS
LOCAL CONTEXT	Suburban character, mixed with larger lots Opportunities to 'step down' sloping sites



CONTEMPORARY COMPACT SITES	
TYPICAL FRONTAGE	15m
TYPICAL DEPTH	20m
TYPICAL LOT AREA	300m ²
VEHICLE ACCESS	Primary or Secondary Street
RESIDENTIAL DENSITY CODE	R40
DEVELOPMENT CONTROL	Residential Design Codes Design Guidelines optional
BUILT FORM DELIVERY	Single and grouped dwellings Typically sold as land only, but opportunity for developer build outs Generally single storey Opportunity to provide density while presenting a traditional streetscape character.
LOCAL CONTEXT	Suburban character, mixed with larger lots High amenity areas and neighbourhood connectors



REAR LOADED COTTAGE SITES	
TYPICAL FRONTAGE	7.5m to 10m
TYPICAL DEPTH	30m
TYPICAL LOT AREA	225m ² to 300m ²
VEHICLE ACCESS	Rear laneway
RESIDENTIAL DENSITY CODE	R40
DEVELOPMENT CONTROL	Residential Design Codes Detailed Area Plans Design Guidelines optional
BUILT FORM DELIVERY	Single and grouped dwellings Lots less than 10m typically built out and sold as finished house and land package Generally single storey Opportunities for terraced housing adjacent to POS Opportunities for innovative housing design
LOCAL CONTEXT	High amenity areas and neighbourhood connectors Limited opportunities in areas subject to significant slope



GROUPED HOUSING SITES	
TYPICAL FRONTAGE	Variable
TYPICAL DEPTH	Variable
TYPICAL LOT AREA	Density sites (greater than 800m ²)
VEHICLE ACCESS	Variable - typically side or rear access to common parking area
RESIDENTIAL DENSITY CODE	R60
DEVELOPMENT CONTROL	Residential Design Codes ¹
BUILT FORM DELIVERY	Grouped and multiple dwellings (survey or built strata) Typically built out by single builder
LOCAL CONTEXT	High amenity areas and neighbourhood connectors Built form response to localised site restraints (ground level differences) Built form to appropriate interface with any adjacent public open space (where applicable)

¹ City of Rockingham Town Planning Scheme No.2 requires planning approval be obtained prior to development for multiple dwellings and grouped housing proposals that exceed 2 dwellings.

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3.2.2 Yield Estimates

The Sixty Eight Road Structure Plan delivers a range of densities, housing types and tenures to facilitate residential yields that reflect the present strategic and statutory planning framework, and which responds to the inherent constraints of the site.

The Structure Plan has the potential to create approximately 570 to 590 residential lots (approximately 610 – 630 dwelling units) with density coding ranging from R25 to R60, based on the following principles:

- R25 coding allocated for the majority of the Structure Plan area, delivering traditional front loaded lots ranging in area from approximately 300m² to 600m².
- R40 coded lots allocated:
 - Immediately adjacent or abutting public open space;
 - On street corners or at the end of street blocks;
 - Lots serviced by a rear access laneway; or
 - Lots immediately adjacent to the high school site.

The R40 coding will provide an opportunity to deliver contemporary compact and cottage lots; both front and rear accessed.

- R60 coded lot to provide an opportunity for a grouped or multiple housing development in the north-eastern corner of the Structure Plan.

Directions 2031 and Beyond (Directions 2031) recommends a minimum density target of 15 dwellings per gross urban zoned hectare, with the objective of this density target being to encourage more efficient use of infrastructure and housing; however, this target must be considered

in the context of local site constraints and the ability or suitability to deliver this target within the Structure Plan area:

- The need to provide a high school site, which results in the loss of a proportionally higher amount of developable (residential) land, given the small size of the Structure Plan area.
- The lack of any activity centres, rail stations or employment generators that warrant the inclusion of higher residential densities.
- The significant gradient of the Structure Plan area (resulting from the past sand mining activities) which is a considerable impediment in providing smaller lot types that help achieve higher yields.
- The need to set aside land affected by the Parmelia Gas Pipeline (corridor) as restricted use public open space.

The location of the Sixty Eight Road Structure Plan within the Baldivis South District Structure Plan also needs to be considered, where higher densities are being provided about the commercial centres (located outside the Structure Plan area) which will offset the more traditional based neighbourhood being proposed within the Sixty Eight Road Structure Plan.

It is on this context that the Sixty Eight Road Structure Plan achieves a density target of 15.1 dwellings per gross urban zoned hectare, meeting the minimum target set by Directions 2031. Importantly, the Sixty Eight Road Structure Plan does deliver approximately 24.5 dwellings per site hectare across the Structure Plan area, exceeding the Liveable Neighbourhoods requirement of an average of 22 dwellings per site hectare (being the pure residential area, excluding open space, roads and other non-residential uses).

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3.2.3 Development Requirements

Local Development Plans (LDPs) will be required for a number of lot types within the Sixty Eight Road Structure Plan, as these lot types need specific development requirements to deliver an suitable built form response to their site context.

These LDPs will be required as a condition of subdivision approval, to be approval by the City of Rockingham in accordance with section 4.23 of Town Planning Scheme No. 2.

The lot types that will required LDPs are as follows:

- Lots with rear loaded vehicle access.
- Lots abutting areas of Public Open Space.
- Lots affected by an approved Bushfire Management Plan.

3.2.3.1 Lots with rear loaded vehicle access

LDPs will be prepared for all residential lots with rear (vehicle) laneway access, to allow the built form to respond to this lot typology.

This will include mandating vehicle access to be solely from the (rear) laneway and prescribing a 0.5m rear setback to the garage, ensuring adequate space for vehicle manoeuvring (including City rubbish truck movements).

3.2.3.2 Lots abutting areas of Public Open Space

Typically the interface to public open space will be via roads; however, in some instances direct lot frontage is appropriate as it provides increased surveillance, activity and diversity to public spaces. Liveable Neighbourhoods and the City's Planning Policy 3.4.1 (Public Open Space) support residential lots directly abutting open space, where the useability of the POS is not compromised and where the dwelling appropriately addresses the open space providing adequate visual surveillance.

To ensure these public open spaces are not compromised subsequent subdivision design and engineering detail will ensure that visitor parking opportunities are provided along adjacent streets, and the adjacent residential lots are elevated a minimum of 500mm above the POS ground level to create a visible separation between the private and public realm.

The adjoining dwellings must address and add value and safety to the open space in accordance with the City's Policy.

This will include mandating (via LDPs) appropriate setbacks and major openings facing the open space with any form of blank or boundary wall explicitly prohibited to this interface, ensuring the dwelling design increases rather than undermines the amenity of the interface. In conjunction with these dwelling design elements, the use of open style fencing along the shared boundary with the POS will maximise the surveillance of the space.

Where lots interface with open space LDPs will need to be prepared to ensure the appropriate built form outcome. These LDPs will address:

- minimum setbacks to the public open space.
- mandating major openings (other than bedrooms) to address the space.
- provision of permeable fencing only to ensure constant surveillance.

These design solutions, both in terms of the physical interface (that is those implemented by the developer) between the lots and the POS and mandatory dwelling design elements, will improve the usability and quality of the public space. This POS will be provided with increased surveillance, additional activity and a diversity, in turn improving the quality and amenity of the open space for both users of the open space and residents. This approach has been implemented across a number of local authorities and has been widely accepted by the building industry, local authorities and the WAPC.

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3.2.3.3 Lots affected by an approved Bushfire Management Plan

LDPs will be prepared for lots identified at risk of bushfire attack by the Bushfire Management Plan in Appendix 2 of this Structure Plan.

These LDPs will ensure that landowners will be notified of the property being affected by bushfire risk, and that subsequent dwellings will be constructed to an appropriate Building Attack Level (BAL). Mandatory boundary setbacks can also form part of any required building protection zone (if applicable).

TABLE 2: SIXTY EIGHT ROAD LOCAL STRUCTURE PLAN LAND USE SCHEDULE
(Based on plan 2342-19M-01; Sept 2014)

TABLE 2: SIXTY EIGHT ROAD LOCAL STRUCTURE PLAN LAND USE SCHEDULE			
(Based on plan 2342-19M-01; Sept 2014)			
Gross Site Area¹			44.30ha
Less			
High School Site	3.34ha		
Pump Station	0.10ha		
Sixty Eight Road widening (2.2m)	0.17ha		
Total		3.61ha	
Net Site Area			40.69ha
Deductions²			
Total drainage area up to the 1:1 year event	0.42ha		
Total		0.42ha	
Gross Subdivisible Area			40.26ha
Public Open Space @ 10%		4.02ha	
Public Open Space Contribution			
Unrestricted Open Space²			
Western Open Space	0.59ha		
Central Open Space	0.95ha		
Southern Entry Open Space	0.31ha		
Northern Entry Open Space ³	1.41ha		
Total Unrestricted Use		3.30ha	
Restricted Open Space			
Drainage area between 1:1 and 1:5 year events not exceeds 20% of total open space area ²	0.09ha		
Area of Parmelia Gas Pipeline corridor ⁴	0.75ha		
Total Restricted Use Open Space		0.84ha	
Summary			
Unrestricted Open Space Provided	3.30ha (80%)		
Restricted Open Space Provided	0.84ha (20%)		
Total Unrestricted & Restricted Public Open Space Provision			4.14ha
Total Public Open Space Provisions as a % of Gross Subdivisible Area			10.3%

Notes:

1. The Gross Site Area comprises the total area of lots 569 & 1263 Baldivis Road and lot 21 Sixty Eight Road, Baldivis.
2. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrence interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval is restricted open space up to 20%, the area greater than 20% is a deduction (not applicable in this case) (LN R26 & Table 11); areas for the detention of stormwater for a greater than five year average recurrence interval is within unrestricted open space (LN R25).
3. Northern Entry Open Space excludes the area of the Parmelia Gas Pipeline corridor.
4. The Parmelia Gas Pipeline corridor has been taken as forming restricted open space, while open space falling within the associated gas pipeline setback is considered as unrestricted.

3.3 Public Open Space

3.3.1 Public Open Space and Schedules

The Sixty Eight Road Structure Plan will provide approximately 4.4 hectares of open space, by way of 4 multi-purposed local parks located throughout the structure plan area. Once Liveable Neighbourhoods credits are applied the open space provisions is 10.3%, meeting the minimum credited public open space requirement, as shown in Table 2 (Land Use Schedule), Table 3 (Public Open Space and Drainage Schedule) and Figure 10.

The following summarises the key elements of public open space provision based on Liveable Neighbourhoods requirements, with a further description of each open space outlined in Section 3.3.3 below.

- Based on a Net Site Area (gross site area less the high school site, Water Corporation pump station and widening of Sixty Eight Road) of 40.7 hectares, the 10% open space requirement is approximately 4 hectares.
- The Sixty Eight Road Structure Plan provides 4.5 hectares of open space, distributed across the structure plan area via four distinct parks, which serve a shared drainage function whilst not compromising the active and passive recreational uses.
- The planned distribution of the open space ensures all future residents are located no more than 300m from at least one of these spaces.
- Approximately 0.42 hectares of the open space will receive drainage from storm events occurring more frequently than the 1 in 1 year (1 hour) event, with this area being taken as a deduction from the Net Site Area, as set out in Liveable Neighbourhoods (LN33).
- Based on the principles of Liveable Neighbourhoods, no more than one-fifth (20%) of the public open space contribution can be made up of restricted use open space.
- Approximately 0.5 hectares (approximately 1% of the total POS contribution) will take drainage from the 1 in 1 year to the 1 in 5 year drainage events into landscaped infiltration swales and bio-retention area, in accordance with water sensitive urban design principles. The 1 in 1 year to the 1 in 5 year drainage event is treated as restricted use open space in accordance with Liveable Neighbourhoods.
- The Parmelia Gas Pipeline corridor (which measures approximately 0.75ha) has been taken as forming restricted open space, while open space falling within the associated gas pipeline setback is considered as unrestricted.
- A Landscape Concept has been prepared by LD Total Landscaping as part of the structure plan, showing the planned landscaping response for the four areas of open space. This Landscaping Concept can be found as Appendix 4.

TABLE 3: SIXTY EIGHT ROAD STRUCTURE PLAN - PUBLIC OPEN SPACE SCHEDULE

(Based on plan 2342-19M-01; Sept 2014)

Local Open Space Area	Gross Area	Deductions ²	Restricted Use Open Space ³				Unrestricted Open Space ⁴		
		1:1 year Drainage Area ²	Gross Area less 1:1 year Drainage Area	1:5 year Drainage Area ²	1:1 – 1:5 year Drainage Area ³	1:1 – 1:5 year Drainage Area as a % of Total Opens Space Area	Area not receiving drainage for <5 year event	1:10 year Drainage Area ²	1:5 – 1:10 year Drainage Area ³
Western Open Space	6,600m ²	681m ²	5,919m ²	870m ²	189m ²	3.2%	5,730m ²	1,070m ²	200m ²
Central Open Space	11,900m ²	2034m ²	9,866m ²	2,440m ²	406m ²	4.1%	9,460m ²	3,670m ²	1,230m ²
Southern Entry Open Space	4,600m ²	745m ²	3,855m ²	900m ²	155m ²	4.0%	3,700m ²	1,120m ²	220m ²
Northern Entry Open Space	22,500m ²	756m ²	21,744m ²	870m ²	114m ²	0.5%	21,630m ²	1,180m ²	310m ²

Notes:

1. The 1:1, 1:5 and 1:10 year drainage volumes have been sourced from the JDA LWMS (dated May 2014).
2. Areas subject to inundation more frequently than a one year average recurrence interval rainfall event are not included as restricted or unrestricted open space and are a deduction from the net site area.
3. Areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval are treated as restricted open space up to 20%.
4. Areas for the detention of stormwater for a greater than five year average recurrence interval are within unrestricted open space and receive a full open space credit.

SUPERSEDED
-see Amendments Appendix

3.3.2 Water Management

The Sixty Eight Road Structure Plan will create a sustainable urban environment in which water sensitive design principles will be adopted to best manage water use and efficiency.

In accordance with the WAPC's Better Urban Water Management Guidelines, a District and Local Water Management Strategy (D&LWMS) has been prepared by JDA Consultant Hydrologists for the Sixty Eight Road structure plan area, and has received support from the Department of Water. The D&LWMS, and supporting correspondence from the Department of Water is contained in its entirety as Appendix 5.

The D&LWMS establishes key principles for the management of groundwater quality and stormwater runoff, with these principles to be refined and implemented as part of Urban Water Management Plans (UWMP); which will be prepared at the time of subdivision.

Stormwater Management

The D&LWMS proposes stormwater management and groundwater recharge in a manner that is consistent with water sensitive design practices; comprising of a series of pipes, bio-retention areas, and water retention areas to infiltrate and provide water quality treatment for stormwater runoff.

- Maximise infiltration opportunities through using soakwells on individual lots and perforated manholes and retention basin for road reserve and other associated runoff.

- Rainfall from the 1 year event will be retained within bio-retention areas located within areas of public open space; allowing for nutrient stripping as runoff collected infiltrates onsite. Roof and road drainage will be connected to soak wells to promote at-source infiltration.
- For high frequency Average Recurring Interval (ARI) storms (up to 5 years ARI), stormwater runoff will flow via a local pipe (or swale) drainage system leading to catchment swales within areas of public open space.
- For greater than the 5 year ARI, and up to the 100 year ARI, stormwater will be collected within retention basins, located within designated areas of public open space for infiltration.

Ground Water Management

Through implementing the stormwater management strategies described above, the separation distance of at least 1.5m between the surface and the groundwater and the nature and infiltration rates of the soils within the area, groundwater contamination is unlikely, and subsoil drainage and imported fill is not required for the site.

Local site conditions may determine a requirement for fill for some lots, however, this will be established and reported during the UWMP stage, given the detailed design issues involved.

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Sustainable Initiatives

The D&LWMS includes water sustainable initiatives, both at development and household scale, to minimise the use of water and maximise the efficiency of its use wherever possible across the development.

Development Scale: Public open spaces and streetscapes will be designed to minimise irrigation requirements, and will be finished using only waterwise landscaping practices. Further water conservation will be achieved by using non-potable water taken from the superficial aquifer to irrigate areas of public open space, through the transfer of an existing license.

Household Scale: Water conservation at the household scale will be encouraged through the promotion of water wise gardens and the requirement to construct homes consistent with the current Building Codes of Australia water efficiency and standards, and the Stage Government 6 Star Plus Scheme. This also includes encouraging the use of AAA rated appliances such as toilets, washing machines, dishwashers, taps and showerheads, with the Water Corporations' Waterwise Rebate Program also assisting in encouraging the purchase of water wise rated products.

3.3.3 Description of Public Open Space

The Landscape Master Plan prepared by LD Total Landscaping shows how the four areas of open space will be landscaped and finished to provide attractive and functional environments for future residents. It is important to note the landscaping design is conceptual and will be confirmed at development stage in consultation with the City of Rockingham. The Landscape Master Plan is shown as Figure 11.

The following provides a summary of the key characteristics of each of these spaces:

Western Open Space

- Approximately 0.6 hectares of intimate community open space that responds to the landform found at this western end of the structure plan area.
- Creates a view corridor, reinforcing the natural landform of the site.
- Allows for the provision of shelter and playground equipment, accessible from safe pedestrian connections within the street.
- Provides an opportunity for a grassed area, creating an active space for younger age groups.
- Drainage conveyed to a landscaped swale, allowing for onsite infiltration which can serve as an informal passive recreational space.

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Central Open Space

- 1.2 hectares of open space, allowing for the provision of shelter, playground equipment and picnic facilities.
- Western portion of the open space to comprise of a large turf space that creates opportunities for informal play and sport through the provision of a kick-about area.
- Eastern portion of the space is to accommodate drainage conveyed to a landscaped swale, allowing for onsite infiltration. This area will be landscaped with native vegetation and add to the diversity and character of this space.
- Creates an opportunity for pedestrian pathways and seating, connecting the turf space and the landscaped areas within this central open space.

Northern Entry Open Space

- 2.2 hectares of open space, retaining existing mature trees wherever possible
- Provides the northern part of the landscaped entry statement from Baldivis Road.
- Southern portion of this open space is to serve a drainage function, and is to be intensely planted with native species, to create a natural environment feel to the entry statement.
- Walk trails, along with fitness station, to form part of a wider exercise and walking circuit.

- Waterwise native landscaping to keep irrigation requirements to a minimum.
- No structural development within the gas pipeline corridor, with the development of this space to be undertaken in consultation with the APA Group (pipeline owners).

Southern Entry Open Space

- 0.4 hectares of open space, retaining existing mature trees wherever possible.
- Provides part of the landscaped entry statement from Baldivis Road, giving the area an established feel and aesthetic amenity;
- Comprises of a turf space, providing for an informal play and kick about area;
- Opportunities for an integrated pedestrian pathway network surrounding with adjacent fitness station, forming part of a wider circuit connecting into the open space to the north;
- Allows for the provision of a children's play area, nestled within the retained trees;
- Conveys drainage for 1 in 1 year event in the form of a vegetated swale; to be landscaped with native species to add to the natural character of the entry statement and keep irrigation requirements to a minimum.

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3.3.4 City of Rockingham Local Planning Policy 3.4.1: Public Open Space

The City of Rockingham Local Planning Policy 3.4.1: Public Open Space indicates that a maximum of 25% of an area of open space can be affected by inundation from the 1:10 year storm event unless it can be shown that the useability and amenity of the space will not be compromised.

While the Central and Southern Entry Open Spaces of the Sixty Eight Road Structure Plan meet the requirements of Liveable Neighbourhoods, it is acknowledged that the area of these spaces affected by the inundation of the 10 year storm event exceeds the limit set out by City Policy; however both these spaces will be useable and of high amenity:

- The Central and Southern Entry Open Spaces have been designed to contain the 10 year storm events primarily in vegetated swales and drainage infrastructure.
- The area affected by the 10 year storm event will not reduce the useability of these spaces, with permeation rates of the sandy soils expected to allow for very rapid onsite infiltration.
- The challenging topography of the Structure Plan area (from the past sand mining) has required these two areas of open space to disproportionately accommodate the 10 year storm event drainage, with the other two areas of POS only being moderately affected.

- All significant drainage over the Parmelia Gas Pipeline Corridor has been avoided in favour of slight increases to the Central and Southern Entry Open Space areas.
- The future high school site, when developed, will provide for additional open space in the form of an oval.
- The addition land required to accommodate the 25% limit (for the 10 storm year event) would result in a provision of approximately 13% POS, well exceeding the 10% required under Liveable Neighbourhoods and resulting in an inefficient use of developable land.

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Note this Bushfire Hazard Assessment should be read in conjunction with the Bushfire Hazard Assessment provided in the Amendment 3 Addendum & the Lot 20 BMP (Appx)

Legend

- BAL-12.5 rated areas
- BAL 19 or 29 rate areas (to be determined at a later stage of the development process)
- 29 m setback from classified vegetation
- 20 m setback from classified vegetation
- 14 m setback from classified vegetation
- Lots within 100 m of classified vegetation
- Land parcels
- Public open space
- Future school site
- Enlargements shown on Figure 12
- Site boundary

Note:
 Figure 12 shows enlarged sections for areas numbered 1, 2 and 3



3.4 Bushfire Management

The Sixty Eight Road Structure Plan provides a statutory framework and design response that addresses bushfire hazard, demonstrating that the risk from bushfire is not an impediment to development and that this risk can be managed through a combination of road reserves, building protection zones, mandatory dwelling setbacks and appropriate construction standards.

In accordance with the WAPC's Planning for Bush Fire Protection Guidelines, a Bushfire Management Plan has been prepared by Natural Area Consulting to accompany the Structure Plan and includes a Bushfire Hazard Assessment. This Hazard Assessment shows that potential bushfire risks are restricted to the perimeter of the Structure Plan area; from small pockets of remnant vegetation on the eastern and southern sides of Baldivis and Sixty Eight Roads respectively and (in the interim) from vegetation found on the adjacent (western) landholding. This risk from the adjacent landholding is expected to be removed once development of this site occurs.

The Hazard Assessment requires a minimum 20m Building Protection Zone (BPZ) to be maintained between any (future) dwelling and areas that pose a moderate or extreme bushfire hazard in order to achieve a Bushfire Attack Level (BAL) of 29 or less.

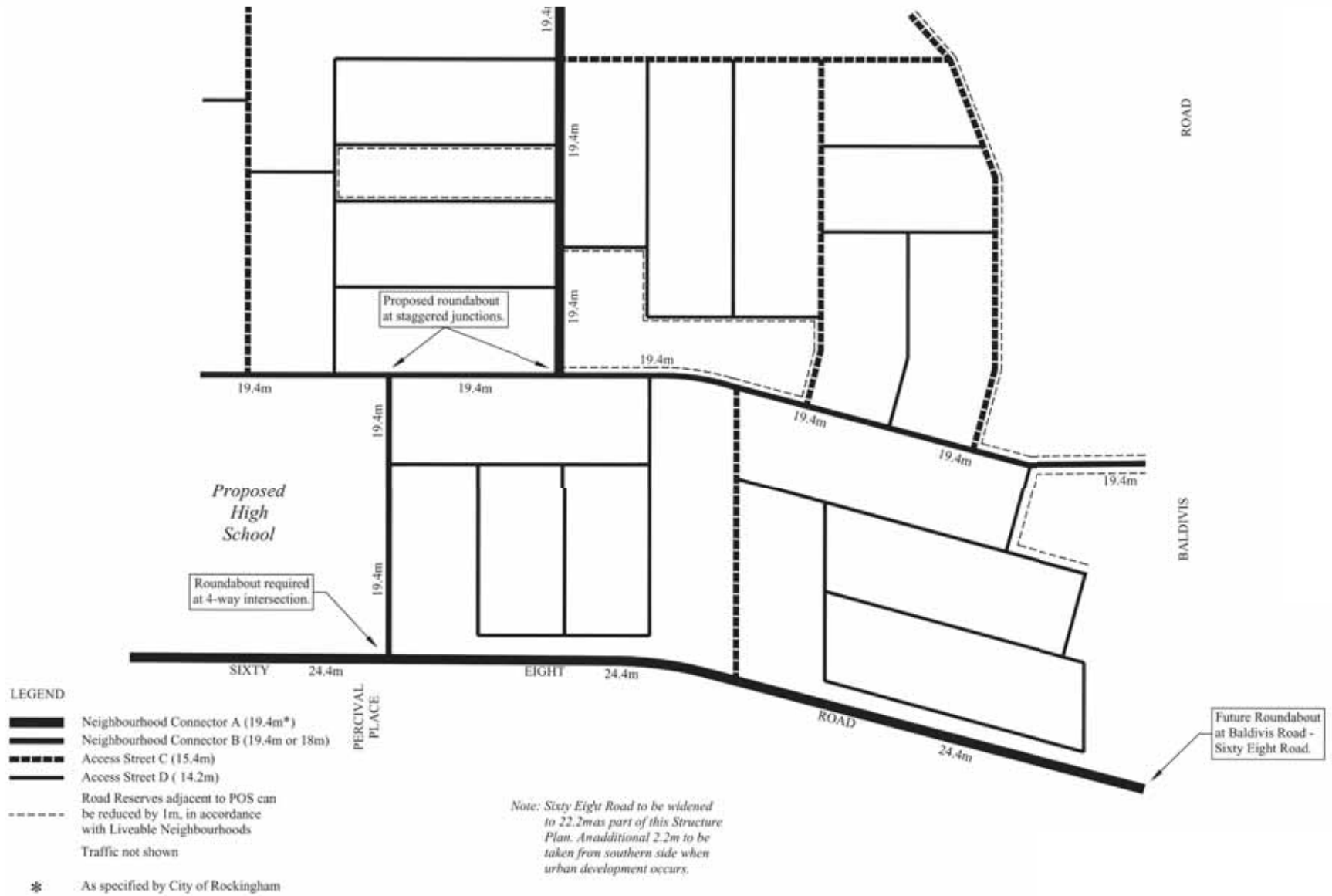
The Sixty Eight Road Structure Plan provides at least a 20m BPZ along the southern and eastern boundaries by way of Baldivis and Sixty Eight Roads that run adjacent to identified hazards, in conjunction with a combination of access roads and mandatory building setbacks within the affected lots to increase any separation distance between a dwelling and an identified fire risk, as shown on Figure 12. This will ensure BAL-40 and BALFZ construction standards are not required.

Furthermore, any dwelling that falls within 100m from an identified bushfire risk will be subject to appropriate notifications on titles to inform landowners of the need to construct dwellings to higher (BAL) construction standard in accordance with relevant Australian Standards. Any mandatory dwelling setbacks and constructions standards will also be implemented via Detailed Area Plans at the time of subdivision approval.

Amendment 3

Natural Area Consulting has prepared a Lot 20 Bushfire Management Plan in support of Amendment 3 to the Sixty Eight Road Structure Plan. Further details on the Lot 20 Bushfire Management Plan can be found in Section 4.1.5 of the 'Amendment 3 Addendum', with a complete copy of the Bushfire Management Plan provided as Appendix 8 of the Addendum.

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3.5 Movement Network

A comprehensive Transport Assessment Report for the Sixty Eight Road Structure Plan has been prepared by Uloth & Associates (traffic engineers), with this report drawing on key elements of the Baldivis South District Structure Plan and provides updated traffic modelling for the Structure Plan area. A complete copy of the Uloth & Associates Transport Assessment Report can be found as Appendix 6 in the technical appendices.

3.5.1 Existing Movement Network

The key aspects of the existing road network that surround the Sixty Eight Road Structure Plan area are as follows:

- Baldivis Road runs along the eastern boundary of the structure plan area and is constructed as a 2 lane undivided carriageway, with a posted speed limit of 80km/h, reducing to 70km/h north of the subject site. Baldivis Road is classified as a Regional Distributor Road adjacent to the Sixty Eight Road Structure Plan, then as a Distributor B Road north of Serpentine Road (approximately 400m north of the structure plan area).
- Sixty Eight Road abuts the southern boundary of the structure plan area and is constructed as a 2 lane undivided carriageway, with a posted speed limit of 80km/h. Sixty Eight Road is classified as a Local Distributor Road.
- Baldivis Road provides a connection to Safety Bay Road to the north, while Sixty Eight Road connects directly to Mandurah Road to the west. Connection to the Kwinana Freeway, located approximately 400m east of the structure plan area, is via Safety Bay Road (north) and Karnup Road (south).

- Traffic counts carried out by Main Roads WA show Baldivis Road, north of Sixty Eight Road, carried 4300 vehicles per day in May 2013.
- Public bus services 564 and 567 currently serve residential catchments to the north of the structure plan area along Baldivis Road and to the east along Smirk Road. Both services run at 30-60 minute intervals, and connecting Baldivis and Warnbro to Warnbro Train Station. Bus route 564 travels via Arpenteur Drive, while bus route 567 travels along Rivergums Boulevard.

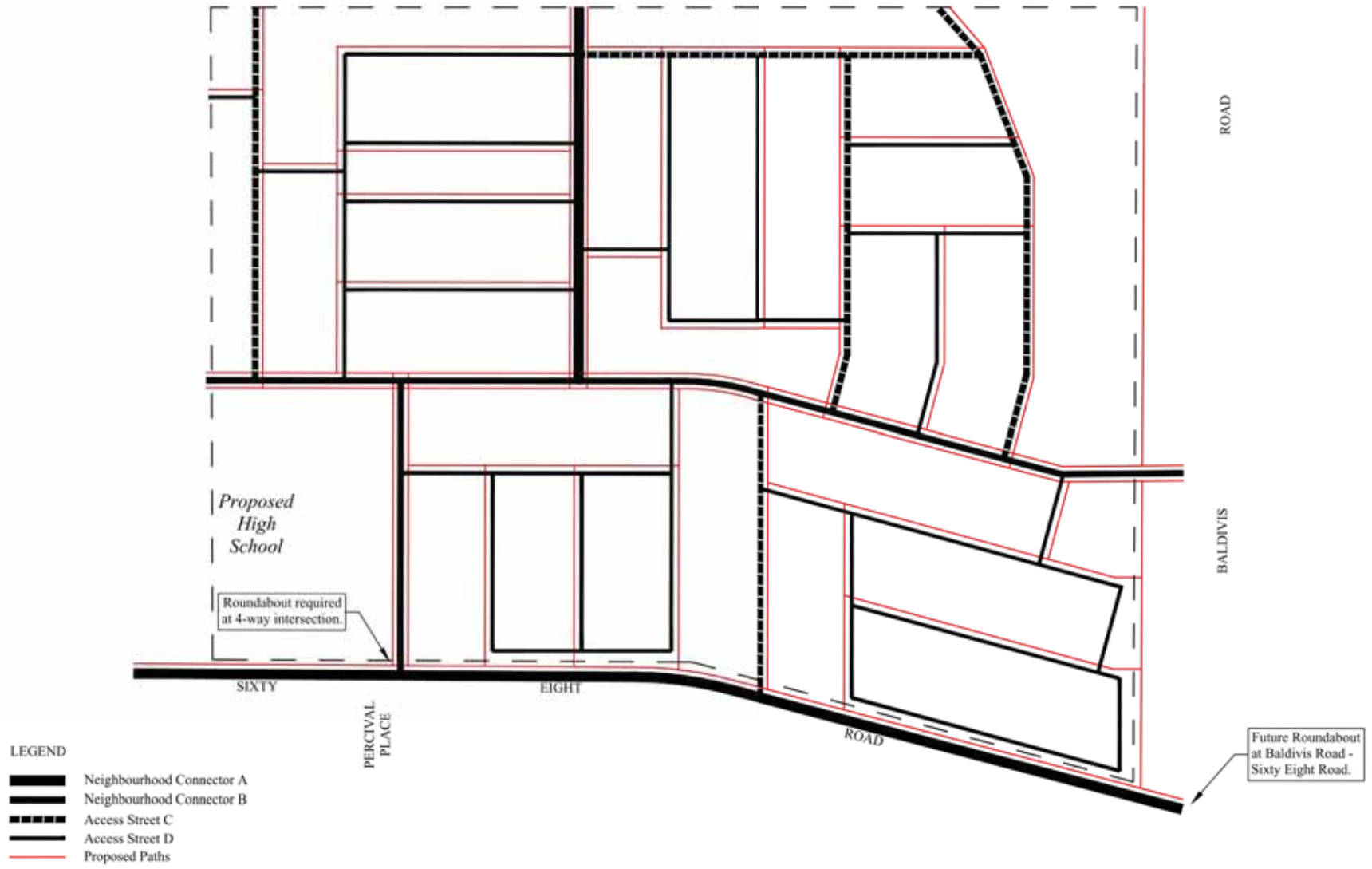
3.5.2 Proposed Movement Network

Road Network

The design of the road network for the Sixty Eight Road Structure Plan has been guided by the South Baldivis District Structure Plan, Liveable Neighbourhoods and previous agreements with the City of Rockingham with respect to connections into the adjoining landholdings. The design of the road network will create a robust and permeable layout throughout the structure plan area, connecting into Sixty Eight and Baldivis Roads, as well as with future urban development to the north and west of the site.

The road network has been planned and modelled based on known and forecast traffic volumes, and will be refined further at the time of subdivision.

The Uloth & Associates Hierarchy and Road Reserves Plan, seen as Figure 13, shows the road network planned for the Sixty Eight Road Structure Plan, which is in accordance with Liveable Neighbourhoods.



The key aspects of the planned road network are as follows:

- **Baldivis Road** is a dedicated road reserve, classified as a Regional Distributor Road adjacent to the Sixty Eight Road Structure Plan and as a Distributor B Road north of Serpentine Road, and will remain as a 2 lane undivided carriageway.
- **Sixty Eight Road** is recommended to be reclassified as a Neighbourhood Connector A, with the current road reserve to be widened by 2.2m along its northern side to provide an initial road reserve width of 22.2m. Subject to the development of land to the south, an additional 2.2m can be provided along the southern side of Sixty Eight Road, to allow for an ultimate road reserve width of 24.4m, at which time this road would be reclassified as a Neighbourhood Connector A.
- **Neighbourhood Connector A** road passing through the Sixty Eight Road Structure Plan in a north-south direction will have a reserve width of 19.4m, providing a connection between Sixty Eight Road and the land abutting the Structure Plan area to the north. This neighbourhood connector is at a location generally consistent with the Baldivis South District Structure Plan, except the proposed road network now includes a right-left stagger junction in lieu of a curved alignment as shown in the District Structure Plan.
- **Neighbourhood Connector B** road passing through the Structure Plan area will have a road reserve width of 19.4m, based on the forecast traffic volumes falling well within acceptable limits of Liveable Neighbourhood principles.
- **Access Streets** within Sixty Eight Road Structure Plan will range in width from 14.2m to 15.4m road reserves; with these road reserve widths to be reduced by 1m when the access street is adjacent to public open space.

- **Roundabout** upgrade is proposed for the 4-way intersection created at Sixty Eight Road / Percival Place. On the advice of the City of Rockingham, roundabout upgrades are proposed at the following locations:
 - Intersection of Baldivis Road and Sixty Eight Road;
 - Intersection of the east-west neighbourhood connector and the northern portion of the north-south neighbourhood connector; and
 - Intersection of the east-west neighbourhood connector and the southern portion of the north-south neighbourhood connector abutting the high school site.

The planned road network, as summarised above, will be refined further at the time of subdivision.

Pedestrian Facilities

The Sixty Eight Road Structure Plan will be provided with excellent pedestrian and cyclist facilities that are consistent with Liveable Neighbourhoods:

- Shared pathways to be constructed on both sides of the two Neighbourhood Connector Roads.
- Roads adjacent to the high school site will be provided with a 2.5 metre shared pathway.
- Footpaths to be provided on at least one side of all access roads, constructed to a minimum width of 2 metres.
- Pathways provided along the northern side of Sixty Eight Road and the western side of Baldivis Road.

The Uloth & Associates Path Network Plan is shown as Figure 14.

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Integration with Surrounding Areas

The Sixty Eight Road Structure Plan will extend the planned road network into the adjoining landholdings to the north and west as well as connect into Baldivis and Sixty Eight Roads primarily via two key roads. A number of lower order access streets will provide further connectivity throughout the Structure Plan area.

The first of the key roads is a Neighbourhood Connector which is planned to pass through the site in a north-south direction; connecting Sixty Eight Road (to the south) with the adjacent landholding to the north. This north-south road was identified in the Baldivis South District Structure Plan as having a continuous, curved alignment; however, to provide for a more efficient use of the site that responds to the topography, this road is planned as having a right-left staggered junction.

The second of the key roads is a Neighbourhood Connector B which will pass through the Structure Plan area in an east-west direction, connecting Baldivis Road (to the east) with the adjacent land to the west. This road also passes by the planned high school site.

In addition to the two key (neighbourhood connector) roads, a number of lower order access streets provide further connections into the abutting (residential) land to the north and west. An access road off Baldivis Road provides access to the future residential development in the north-eastern corner of the Structure Plan area.

All of these roads have been considered in the traffic modelling, demonstrating that these will operate within appropriate limits.

It is important to note that the Sixty Eight Road Structure Plan is simply rationalising the internal road network (within the Structure Plan area) and that the planned connections into the adjacent land holdings are identical to those adopted by the City of Rockingham as part of the previous (2012) structure plan for the site.

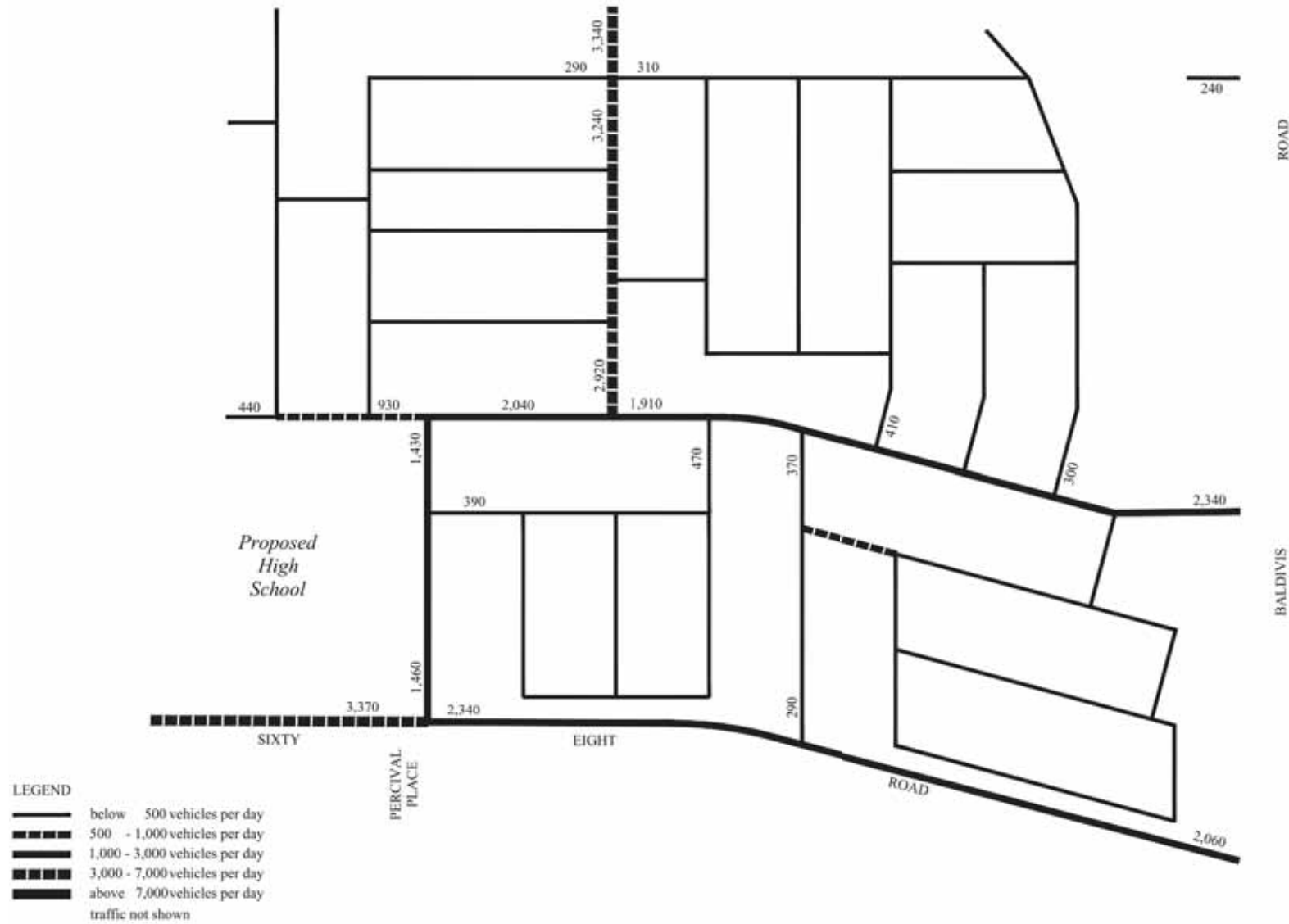
Public Transport

The Sixty Eight Road Structure Plan, along with the ongoing development of the wider South Baldivis locality, will provide a critical mass for the extension of public bus services in the area, with the proposed road network having the flexibility to extend these services in response to this growth and development.

As discussed in section 3.6.1, two public bus services currently serve the residential catchments to the north of the structure plan area along Baldivis and Smirk Roads.

It is recommended that these bus services be extended southwards into the structure plan area, passing by the planned high school site. The planned neighbourhood connectors that pass through the structure plan area provide a good east-west and north-south link to facilitate these future services.

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3.5.3 Transport Network Analysis

Uloth & Associates have undertaken detailed traffic modelling for the planned road network within the Sixty Eight Road Structure Plan, demonstrating that the road hierarchy and road reserve widths are appropriate for the expected traffic volumes at ultimate development. The Uloth & Associates modelled future traffic flows is shown as Figure 15.

In undertaking this traffic modelling, Uloth & Associates adopted the following assumptions:

- A traffic generation rate of 8 vehicle trips a day (vpd) as recommended by the WAPC Transport Assessment Guidelines for Development (2006)
- An additional 600 vehicle trips anticipated from outside the structure plan area, as a result of the high school site.
- 25% of all vehicle trips generated by the residential development will remain within the South Baldivis District Structure Plan area, accessing the local and neighbourhood centres and school sites planned for this area.
- The remaining 75% of all vehicle trips will travel to external destinations beyond the South Baldivis District Structure Plan area. Of these external trips, it is estimated that 25% will travel to and from the Baldivis District Centre, 25% will travel to and from the Rockingham City Centre and Kwinana Industrial Area, and with 30% accessing the Kwinana Freeway.

Taking the forecast traffic volumes and distributions, all vehicle movements fall within the acceptable limits outlined by Liveable Neighbourhoods for the respective road categories proposed by the Sixty Eight Road Structure Plan.

The north-south Neighbourhood Connector is forecast to experience the highest volumes, carrying 4010 vpd at the northern boundary of the structure plan area, but decreasing to 3000 vpd at the east-west Neighbourhood Connector intersection and 1380 vpd at the Sixty Eight Road intersection.

Similarly the east-west Neighbourhood Connector is expected to carry a maximum of 980 vpd adjacent to the planned high school, increasing to 2650 vpd at the Baldivis Road intersection.

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3.5.4 Future Development of Sixty Eight Road

The Uloth & Associates Traffic Report acknowledges that if development occurs to the south of Sixty Eight Road, traffic volumes for this road will increase accordingly, but that this scenario is more likely bring forward the planned extension to Karnup Road, located further south.

As a result, should development occur south of Sixty Eight Road, envisaged traffic volumes for Sixty Eight Road are expected to be in the order of 7000 vehicle per day, falling within the acceptable limits of a Neighbourhood Connector A, meaning a road reserve width of 24.4m

The structure plan does allow for a 2.2m wide strip to be provided, to allow for an interim road reserve width of 22.2m.

Future development to the south, which would bring about the demand for Sixty Eight Road to be widened, should then provide for the remaining 2.2m wide strip, allowing Sixty Eight Road to be constructed to its ultimate form.

3.5.5 Intersection Spacing

All intersection spacing within the Sixty Eight Road Structure Plan have been designed in accordance with Austroads Safe Intersection Site Distance (SISD), being the minimum separation distance between intersections, as set out in 'Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections'.

For both Baldivis and Sixty Eight Roads, the minimum SISD for roads with a speed limited of 90km/h and 80km/h respectively have been maintained.

For all internal intersections, including the north-south Neighbourhood Connector, a minimum distance of 40m will be provided (20m for laneways), which is consistent with the design principles of Liveable Neighbourhoods.

A roundabout will be required at the four-way intersection created at Sixty Eight Road /Percival Place intersection, as a result of the structure plan.

The City of Rockingham has advised that a roundabout upgrade will be required at the intersection of Baldivis and Sixty Eight Roads.

Amendment 3

A Traffic Impact Assessment has been undertaken by KCTT (traffic engineers) as part of Amendment 3 to the Sixty Eight Road Structure Plan. Detail discussion on the movement network of Lot 20 can be found in Section 4.1.6 the 'Amendment 3 Addendum', and should be read in conjunction with the original Uloth & Associates Transport Assessment Report. A complete copy of the KCTT Traffic Impact Assessment provided as Appendix 9 of the Addendum.

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3.6 Activity Centres and Employment

As outlined in section 1.4 of this report, the Sixty Eight Road Structure Plan is in close proximity to a number of existing and planned commercial centres.

The City of Rockingham Local Commercial Strategy (2004) established a three-tiered hierarchy of shopping centres across the City:

1. The Rockingham City Centre being the strategic regional centre serving the entire City of Rockingham, with a focal point of retail, commercial, mixed business, cultural, entertainment and administrative activities;
2. Four District Shopping Centres located at Rockingham Beach, Warnbro, Secret Harbour and Baldivis; and,
3. Neighbourhood and local centres servicing the suburban neighbourhoods.

Based on this hierarchy, the Strategy recommended that the Baldivis Precinct in which the Sixty Eight Roads Structure Plan sits within, be provided with one District Centre (the Baldivis District Centre), along with 9 neighbourhood and local centres.

The North Baldivis and the South Baldivis District Structure Plans collectively refined the recommendations of the Local Commercial Strategy, setting out the Baldivis District Centre and 11 neighbourhood centres across the Baldivis Precinct.

The South Baldivis District Structure Plan does not allocate a centre for the Sixty Eight Road Structure Plan area, but instead places two centres to the north and west of the structure plan area on adjacent landholdings.

The Sixty Eight Road Structure Plan will improve the viability for these planned centres through increasing the residential catchment and extending a permeable road network that will increase opportunities for patronage and passing trade.

Any provision of a separate commercial centre within the structure plan area would only introduce direct commercial competition to the planned commercial nodes set out in the South Baldivis District Structure Plan, thereby reducing the viability of these future centres.

3.7 Education Facilities

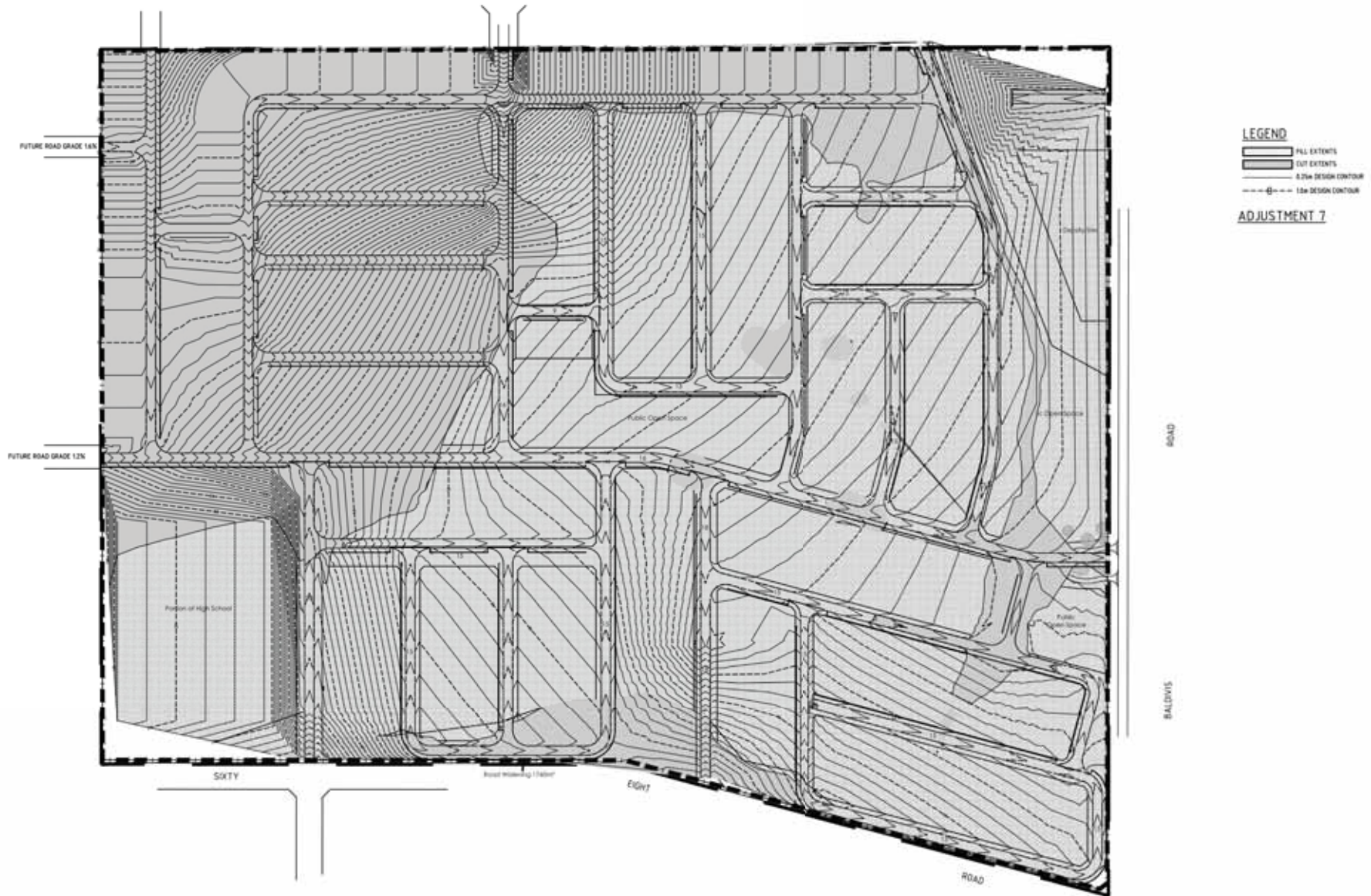
The Baldivis South District Structure Plan shows a 3.3 hectare high school site to be partially located within the Sixty Eight Road Structure Plan area.

This location of the high school site is consistent with the South Baldivis District Structure Plan and has previously been supported by the City of Rockingham as part of the preceding (2012) structure plan for the site.

A preliminary earthworks strategy prepared by Pritchard Francis demonstrates that the site will be level and will appropriately interface with adjacent residential development and Sixty Eight Road.

This portion of the high school site within the Sixty Eight Road Structure Plan area is surrounded by Sixty Eight Road to the south, and two neighbourhood connectors to the north and east, which in conjunction with the future development on the adjoining (western) lot, will provide the school with good access and circulation, consistent with the principles of Liveable Neighbourhoods.

The Department of Education has indicated its support for the size and location of the high school site.



3.8 Earthworks and Servicing

The following section summarises the engineering considerations for the Sixty Eight Road Structure Plan, based on the Servicing Report prepared by Prichard Francis, dated August 2013 (Revision 3). This report demonstrates that the site can be readily earth worked and serviced. A complete copy of the Prichard Francis Servicing Report is included as Appendix 7.

3.8.1 Earthworks Strategy

A bulk earthwork concept plan has been prepared showing that site works within the Structure Plan area will generally comprise of earth working the existing ground surface to facilitate the required levels for development.

In order to accommodating the considerable differences in ground levels found across the site due to past sand mining, level sites terraced between retaining walls are generally being proposed by the earthworks concept plan. This will provide for level building lots which directly reduce housing costs and provide for more affordable housing.

The key items of the earthworks concept plan are:

- Provide for a balanced cut to fill scenario, to reduce or eliminate the need to import or export earth.
- Consider the existing levels found across the site from past sand mining, and create level lots within the Structure Plan area using retained lots that step down the site.
- Match into ground levels proposed for the adjoining landholdings situated immediately to the north and west of the Structure Plan area.

- Create finished levels within the Structure Plan area that accommodates gravity-reliant infrastructure to facilitate appropriate servicing (sewer and drainage).
- Provide opportunities for future development to appropriately interface with Sixty Eight Road, as well as providing for selected vehicle access points.

Due to the past sand mining activities carried out, the LSP area is for the most part, devoid of any significant vegetation that will be affected by the earthworks.

A copy of the bulk earthwork concept plan is shown as Figure 16.

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INDICATIVE STAGING PLAN



3.8.2 Staging and Timing

The Sixty Eight Road Structure Plan will be constructed in a manner that meets market demand. The first stage of development is to be focused about the Baldivis Road entry, with sales expected to begin in late 2014, subject to subdivision design and approvals being in place.

The remainder of the structure plan area will be staged as demand grows, typically progressing east to west, with the final lot release expected in 2018. An indicative staging plan is shown as Figure 17, but should be taken as indicative only, and may be subject to change depending on market and other variable.

3.8.3 Waste Water

The LSP area will be serviced by the East Rockingham Wastewater Treatment Plant (WWTP), with government funding now allocated for construction of this treatment plant and which is expected to be operational in early 2015.

The Water Corporation sewer planning for the area shows a 450mm diameter sewer main being constructed along Sixty Eight Road which will then extend into the LSP area to service the future residential development. This 450mm main is planned to gravity flow to a 1350mm diameter main which will be constructed on the eastern side of Baldivis Road, which in turn will flow to an existing pump station located near the Baldivis Road and Safety Bay Road intersection. This pump station will then pump waste water to the East Rockingham WWTP.

The Water Corporation has advised that as the 1350mm main is not presently on the Corporation's capital works programme, as an interim measure, a Type 90 pump station could be constructed in the LSP area which could pump discharges to an existing access chamber at the

corner of Makybe Drive and Baldivis Road where from there a gravity main would feed back to the to an existing pump station located near the Baldivis Road and Safety Bay Road intersection.

3.8.4 Water Supply

The Water Corporation planning has taken in account reticulated water for the LSP area, with water supply to be from the Tamworth Supply Area, which already services existing residential development within the vicinity.

The Water Corporation planning shows that a 250mm diameter main is proposed to be located along the southern boundary of the site, with a 150mm diameter main proposed for the eastern boundary. Once constructed, these mains will be sufficient to service the structure plan area.

3.8.5 Electricity Supply

The existing power network within the vicinity will be extended to provide electricity supply to the LSP area.

A review of the Western Power Distribution Facilities Information System has identified a 25kVA transformer eastwards along Sixty Eight Road, which can be used to connect the development into the existing high voltage network.

In addition, there are 22kV distribution poles located along Baldivis Road, including a 50kVA pole top transformer which may be used for interconnection.

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3.8.6 Gas Supply

The LSP area will be serviced from a gas main which will be installed along Baldivis Road, extended from the corner of Highbury Boulevard and Baldivis Road.

Atco Gas, being the service provider responsible for the gas main, advised that once extended, this gas main will have capacity to service future development in the area.

3.8.7 Telecommunications

Current Federal Government telecommunication policy has seen the National Broadband Network Company (NBN Co) becoming the wholesale telecommunications provider for greenfield developments which exceed 100 lots.

The LSP area meets the NBN Co criteria and it is anticipated that telecommunications will be provided through the NBN Co. The design and installation of 'fibre-ready' pit and pipe infrastructure will be undertaken at the cost of the developer with the installation of optic fibre to be funded by the NBN Co.

Amendment 3

A revised Engineering Services report has been prepared by Pritchard Francis in support of Amendment 3 to the Sixty Eight Road Structure Plan. Updated earthworks and servicing information, including Lot 20, can be found in Section 4.4.7 of the 'Amendment 3 Addendum', with a complete copy of the (Lot 20) Engineering Servicing Report provided as Appendix 10 of the Addendum.

3.9 Developer Contributions

A Development Contribution Plan is not required for the provision of service infrastructure, as the Sixty Eight Road Structure Plan is under the single ownership of the ABN Group who will take responsibility for the pre-funding and construction of all necessary infrastructure upgrades.

Contributions towards community infrastructure will be in accordance with the existing Development Contribution Plan No.2, as set out in the City of Rockingham Town Planning Scheme No 2.

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LOTS 569 & 1263 BALDIVIS ROAD AND LOTS 20 & 21 SIXTY EIGHT ROAD, BALDIVIS

STRUCTURE PLAN

AMENDMENT 3 ADDENDUM

Prepared by:



PO Box 796
Subiaco WA 6904
t: 9382 1233
f: 9382 1127
www.cleplan.com.au

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AMENDMENT 3

1.0 INTRODUCTION

The purpose of the Amendment 3 is to extend the boundary of the 'Brightwood at Baldivis' Structure Plan map to include Lot 20 Sixty Eight Road, Baldivis and allocate the appropriate zoning and density coding to this land. The Amendment also modifies the size of the 'Utilities/ Infrastructure' Local Reserve to accommodate Water Corporation infrastructure requirements and allocates a density coding of R60 to an area currently shown as R40 adjoining open space.

2.0 AMENDMENT DETAILS

Amendment 3 will modify the 'Brightwood at Baldivis' Structure Plan map as follows:

- Extend the Structure Plan map boundary to include Lot 20 Sixty Eight Road;
- Allocate a 'Residential' zone to cover the northern portion of Lot 20 Sixty Eight Road;
- Allocate density codings of R25 and R40 for the northern portion of Lot 20 Sixty Eight Road;
- Allocate a 'Development' zone to cover the southern portion of Lot 20 Sixty Eight Road to correspond with zoning over the balance of the future high school site;

- Allocate a density coding of R60 to an area currently coded R40 adjoining open space and rationalise the boundary between the residential area and open space to reflect lot product; and
- Increase the size of the Utilities / Infrastructure Local Reserve to support Water Corporation pump station infrastructure.

There are no textual amendments to the 'Brightwood at Baldivis' Structure Plan proposed.

The 'Brightwood at Baldivis' Structure Plan map, inclusive of the proposed modifications, is shown as Appendix 1 of this Addendum.

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3.0 BACKGROUND

The 'Brightwood at Baldivis' Structure Plan ('the Structure Plan') was endorsed by the WAPC on 7 July 2015 and serves as the planning framework to guide subdivision and development of ABN Group's 'Brightwood' Estate.

The Structure Plan currently comprises lots 569 and 1263 Baldivis Road and lot 21 Sixty Eight Road, Baldivis and establishes the planning provisions and development requirements for the site, including allocating land use zonings and density codes.

On 8 September 2015 the WAPC approved subdivision 151913 over lots 569 and 1263 Baldivis Road and lot 21 Sixty Eight Road, Baldivis, providing for 589 residential lots, four areas of public open space, a portion of a future high school site and a Water Corporation pump station site. Subdivision work associated with approval 151913 has commenced. A copy of approved subdivision plan 151913 is shown as Appendix 3 of this Addendum.

3.1 Lot 20 Ownership

Lot 20 Baldivis Road was recently purchased by KEC Nominees Pty Ltd (a subsidiary company of the ABN Group), and is legally addressed as Lot 20 on Plan 8420, Volume 1366; Folio 284.

Accordingly, the ABN Group is now looking to include lot 20 within the Structure Plan area, to facilitate future subdivision and development.

4.0 JUSTIFICATION OF THE AMENDMENT

4.1 Concept Plan

A Concept Plan has been prepared in support of Amendment 3, showing one possible way in which lot 20 could be developed in accordance with the Structure Plan (as amended). The Concept Plan is shown as Appendix 4.

The Concept Plan follows the design principles set out in Liveable Neighbourhoods, with key aspects as follows:

- Road connections to the land abutting lot 20 to the west (lot 19), east (Brightwood Estate) and north (Novalee) in accordance with approved structure plans and/or subdivision approvals.
- Residential density that is congruent with its surrounds.
- A portion of a future high school site identified in the Baldivis South District Structure Plan and the 'Brightwood at Baldivis' Structure Plan, with the appropriate road interface.
- Continuation of the neighbourhood connector road (19.4m in width) from Brightwood Estate, abutting the high school site, in accordance with approved subdivision 151913.
- Public open space that generally equates to 10% of the net developable area, as required under Liveable Neighbourhoods.

Supporting technical work has been undertaken, demonstrating that there are no impediments to the Amendment.

**TABLE 1: "BRIGHTWOOD AT BALDIVIS" STRUCTURE PLAN LAND USE SCHEDULE
(Inclusive of Modification No.3)**

Gross Site Area¹			52.63ha
Less			
High School Site	6.83ha		
Pump Station	0.12ha		
Sixty Eight Road widening (2.2m)	0.20ha		
Total		7.15ha	
Net Site Area			45.48ha
Deductions²			
Total drainage area up to the 1:1 year event	0.44ha		
Total		0.44ha	
Gross Subdivisible Area			45.03ha
Public Open Space @ 10%			4.50ha
Public Open Space Contribution			
Minimum 80% unrestricted POS	3.60ha		
Maximum 20% restricted POS able to be credited	0.90ha		
Unrestricted Open Space²			
Western Open Space	0.57ha		
Central Open Space	0.98ha		
Southern Entry Open Space	0.37ha		
Northern Entry Open Space ³	1.41ha		
Lot 20 Open Space	0.47ha		
Total Unrestricted Use		3.80ha	
Restricted Open Space			
Drainage area between 1:1 and 1:5 year events not exceeds 20% of total open space area ²	0.11ha		
Area of Parmelia Gas Pipeline corridor ⁴	0.75ha		
Total Restricted Use Open Space		0.86ha	
Unrestricted Open Space Provided	3.80ha	(81%)	
Restricted Open Space Provided	0.90ha	(19%)	
Total Unrestricted & Restricted Public Open Space Provision			4.78ha
Total Public Open Space Provisions as a % of Gross Subdivisible Area			10.4%

Notes:

1. The Gross Site Area comprises the total area of lots 569 & 1263 Baldivis Road and lots 20 & 21 Sixty Eight Road, Baldivis.
2. In accordance with Liveable Neighbourhoods: the area subject to inundation more frequently than a one year average recurrence interval rainfall event is not included as restricted or unrestricted open space and is a deduction from the net site area (LN R33); areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval is restricted open space up to 20%, the area greater than 20% is a deduction (not applicable in this case) (LN R26 & Table 11); areas for the detention of stormwater for a greater than five year average recurrence interval is within unrestricted open space (LN R25).
3. Northern Entry Open Space excludes the area of the Parmelia Gas Pipeline corridor.
4. The Parmelia Gas Pipeline corridor has been taken as forming restricted open space, while open space falling within the associated gas pipeline setback is considered as unrestricted.

4.1.1 Environment

An Environmental Assessment has been undertaken by Bailey Environmental Services to show that lot 20 has no significant environmental constraints that will impede development.

Key findings of the Environmental Assessment are as follows:

- The condition of remnant vegetation is identified as mostly 'Degraded' to 'Good' in the northern half of the lot and 'Degraded' in the southern half, a result of past timber logging.
- The vegetation onsite is too degraded and species too poor to positively identify it as belonging to any particular Floristic Community.
- A Fauna and Habitat Survey found an overall lack of fauna onsite, reflecting the loss of habitat and the presence of invasive species onsite.
- There is no natural surface drainage, wetlands or damplands on the site.

The Assessment acknowledges evidence of past foraging from Carnaby and Forrest Redtail Black Cockatoos; however, due to the degraded condition of remnant vegetation, potential feeding and roosting for these species can be provided for and improved upon via planting appropriate tree species in public open space and street verges.

In accordance with the *Environmental Protection and Biodiversity Conservation Act 1998*, an application was submitted to the Commonwealth Department of the Environment and Energy (DoEE), to clear native vegetation from the Amendment area. The DoEE has subsequently granted approval for this clearing, approval dated 1 February 2017, A copy of the DoEE approval is included as Appendix 5.

A copy of the Environmental Assessment prepared by Bailey Environmental Services is provided as Appendix 6.

4.1.2 Zoning and Dwelling Yields

Congruent with the land adjacent to lot 20 (within Brightwood Estate), the Amendment seeks the extension of the 'Residential' zoning over this land, with a predominant density coding of R25.

Noted exceptions are:

- Selected pockets of R40 density coding, to allow for medium density lots that front onto the adjoining future high school site and public open space areas, where a higher level of local amenity exist;
- An area of public open space, identified as a local reserve; and
- 'Development' zone being extended over the planned high school site, consistent with the zoning applied in the approved 'Brightwood at Baldivis' Structure Plan.

Amendment 3 has the potential to create approximately 75 single residential lots from Lot 20. This equates to 25.9 dwellings per site hectare, exceeding the Liveable Neighbourhoods requirement of an average 22 dwellings per site hectare.

While creating only a moderate number of dwellings, Amendment 3 nonetheless provides a future residential population with access to a number of existing and planned centres and employment nodes, including a small neighbourhood and local centre planned by the Baldivis South District Structure Plan located to the north and west of the Amendment area respectively. This increases the catchments to, and viability of these commercial centres.

The manner in which the movement network, drainage strategy and service and infrastructure responds to Amendment 3 is discussed in further detail within subsequent sections of this report.

**TABLE 2: "BRIGHTWOOD AT BALDIVIS" STRUCTURE PLAN - PUBLIC OPEN SPACE SCHEDULE
(Inclusive of Modification No.3)**

Local Open Space Area	Gross Area	Deductions ⁴	Restricted Use Open Space ⁵			Unrestricted Open Space ⁶		
		1:1 year Drainage Area ²	Gross Area less 1:1 year Drainage Area	1:5 year Drainage Area ²	1:1 – 1:5 year Drainage Area ³	Area not receiving drainage for <5 year event	1:10 year Drainage Area ²	1:5 – 1:10 year Drainage Area ³
Western Open Space	6,600m ²	681m ²	5,919m ²	870m ²	189m ²	5,730m ²	1,070m ²	200m ²
Central Open Space	12,200m ²	2,034m ²	10,166m ²	2,440m ²	406m ²	9,760m ²	3,670m ²	1,230m ²
Southern Entry Open Space	4,600m ²	745m ²	3,855m ²	900m ²	155m ²	3,700m ²	1,120m ²	220m ²
Northern Entry Open Space	22,500m ²	756m ²	21,744m ²	870m ²	114m ²	21,630m ²	1,180m ²	310m ²
Lot 20 Open Space	5,148m ²	230m ²	4,918m ²	490m ²	260m ²	4,658m ²	600m ²	110m ²

Notes:

1. Gross areas of public open space taken from CLE Plan 2342-19M-01 and CLE Plan 2342-88B-01.
2. Area of Central Open Space increased in area by 300m², to reflect cottage lot modification.
3. The 1:1, 1:5 and 1:10 year drainage volumes have been sourced from the JDA LWMS (dated May 2014) with the exception of the Lot 20 Open Space drainage volumes which have been sourced from the 360 Environmental D&LWMS (dated December 2015).
4. Areas subject to inundation more frequently than a one year average recurrence interval rainfall event are not included as restricted or unrestricted open space and are a deduction from the net site area.
5. Areas for the detention of stormwater for a greater than one year average recurrence interval up to the five year recurrence interval are treated as restricted open space up to 20%.
6. Areas for the detention of stormwater for a greater than five year average recurrence interval are within unrestricted open space and receive a full open space credit.

4.1.3 Public Open Space

The Amendment will provide one additional area of public open space of approximately 5,000m², centrally located within lot 20 and north of the future high school site.

An updated POS Schedule has been provided for the entire Structure Plan area demonstrating that a revised total POS of approximately 4.8 hectares is provided throughout Brightwood Estate. Once Liveable Neighbourhoods credits are applied, the open space provision is 10.4%, meeting the minimum credited public open space requirements, as shown in Table 1 (Land Use Schedule) and Table 2 (Public Open Space and Drainage Schedule).

A Landscape Concept has been prepared by LD Total showing the planned landscaping for this additional area of POS within lot 20. The Concept provides for a grassed area, creating an area of active open space with drainage conveyed to a landscaped bio-retention area to the eastern edge for onsite infiltration. This retention area will be landscaped with native vegetation and will add to the character of this space.

The LD Total (Lot 20) Landscape Concept is shown as Appendix 7.

4.1.4 Water Management

In accordance with the WAPC's Better Urban Water Management Guidelines, 360 Environmental have prepared a District & Local Water Management Strategy (D&LWMS) in support of the Amendment, outlining the key principles for the management of stormwater runoff and groundwater quality.

The D&LWMS continues with the principles established in the 'Brightwood at Baldivis' D&LWMS and considers the site holistically, proposing stormwater management and groundwater recharge in a manner that is consistent with water sensitive design practices.

The management principles set out in the D&LWMS will be refined and implemented as part of subsequent Urban Water Management Plans (UWMP) which will be prepared at the time of subdivision.

The D&LWMS is provided as Appendix 8.

4.1.5 Bushfire Management

In accordance with the WAPC's 'Planning in Bushfire Prone Areas', Natural Area Consulting has prepared a Bushfire Management Plan (BMP) that includes a Bushfire Hazard Assessment identifying bushfire prone areas.

The Bushfire Management Plan concludes that bushfire risk is not an impediment to the development of lot 20, and that any risk can be managed through the implementation of an adequate building protection zone, and by requiring a minimum Bushfire Attack Level (BAL) standard of construction for those dwellings that are in proximity to an identified hazard.

The BMP requires an Asset Protection Zone (APZ) to be of sufficient size to ensure that all dwellings can achieve a Bushfire Attack Level (BAL) of 29 or less in accordance with AS3959 'Construction of buildings within bushfire prone areas'. The Amendment responds by creating an APZ via positioning roads between these identified bushfire prone areas and future residential development, with mandatory building setbacks to be applied (if required). This will ensure that BAL-40 and BAL-FZ construction standards will not be necessary.

A copy of the Natural Area Consulting Bushfire Management Plan is included as Appendix 9.

4.1.6 Traffic

KCTT (traffic engineers) have undertaken a Transport Impact Assessment based on the Development Concept Plan, showing that the surrounding (existing and planned) movement network can support the development of lot 20.

To ensure a robust assessment, the Transport Impact Assessment has considered the ultimate development of Brightwood Estate (in accordance with the approved subdivision 151913), the Novalee Estate to the north and all land to the west.

The Assessment concludes that all roads will carry less than 3000 vehicles per day can be categorised as Access Roads, with the exception of the east-west road abutting the high school site, which is categorised as a Neighbourhood Connector B. Designated road widths will accommodate forecast traffic movements and the development of lot 20 does not posing a significant impact upon the wider road network.

Sixty Eight Road, which runs along the southern edge of the high school site, will be upgraded as a Neighbourhood Connector A. This road future categorisation has been confirmed via a planning approval issued by the Joint Development Assessment Panel for the development of the high school and associated conditions from subdivision approval 151913, dated 8 September 2015.

The KCTT Transport Impact Assessment can be found as Appendix 10.

4.1.7 Servicing

Lot 20 can be connected to all essential services, which typically involve extending the infrastructure network from the adjacent Brightwood Estate. An Engineering Servicing report prepared by Pritchard Francis engineers can be found as Appendix 11.

Sewer

Waste water from lot 20 will connect into the network of the adjacent lot 21, and flow eastward with a Water Corporation Scoping Report planning for a future water pump station on lot 1263 Baldivis Road.

Water Supply

Water supply service planning carried out by the Water Corporation has already assumed the development of lot 20. Potable water will be provided through the extension of the network from the adjacent lot 21 (Brightwood Estate), which in turn is supplied via a 250mm water main that is being constructed within Sixty Eight Road reservation.

Power Supply

Power supply will be extended to lot 20 through the development of Brightwood Estate, which in turn connects to existing high voltage overhead power lines located on the southern side of Sixty Eight Road.

Gas Supply

An existing medium pressure gas main is located at the corner of Sixty Eight and Baldivis Roads, with this gas main to be extended through Brightwood Estate into lot 20.

Telecommunications

There is a current NBN Master Developer Agreement for the development of Brightwood Estate, and the NBN network will be extended into lot 20 as development proceeds westwards.

4.2 Water Corporation Pump Station Reserve

The current Structure Plan sets aside a 0.1 hectare 'Utilities/Infrastructure' local reserve that accommodates all aboveground infrastructure associated with the planned Water Corporation 'Brightwood' sewer pump station (i.e. sewer pump service boxes and maintenance vehicle hammerhead).

The Water Corporation has since refined its sewer planning for the broader Baldivis locality, identifying the need for a larger reservation for the Brightwood pump station.

Amendment 3 refines the 'Utilities/Infrastructure' local reserve in the Structure Plan, increasing it from 0.1ha to 0.12ha in size. The purpose of the reserve remains to accommodate all aboveground infrastructure associated with the Brightwood pump station.

Belowground infrastructure associated with the pump station (i.e. storage cells) and the emergency (aboveground) overflow basin will extend beyond the 'Utilities/Infrastructure' reserve boundary, into the adjacent public open space. This infrastructure will be protected by an easement in favour of the Water Corporation, granting access rights for maintenance purposes. This infrastructure will be buried approximately 1.5m below the ground surface and landscaped to ensure the POS remains fully functionality, whilst the aboveground emergency overflow basin will be sculptured into the POS adjacent to the belowground emergency overflow cells, to provide further emergency capacity in the unlikely circumstance of a pump station failure. The aboveground basin will rarely, if ever, be used as there is inherent capacity within the sewer network to provide the Water Corporation's maintenance crews ample opportunity to tend to any pump station failures prior to any discharge.

In the unlikely event that any sewer is discharged into the basin, it is the responsibility of the Water Corporation to clean and remediate the space for public safety purposes.

Table 1 (Land Use Schedule) and Table 2 (Public open Space and Drainage Schedule) demonstrates an overall POS provision of 10.4%.

The Landscape Concept provided by LD Total as part of the 'Brightwood at Baldivis' Structure plan demonstrates how the reserve can be landscaped, including the overflow basin, providing a fully functional, safe, high quality open space that may be (subject to Water Corporation consent) used by and provide amenity for future residents.

4.3 Cottage Development

A recent review in light of current market conditions and trends has found the emergence of the 6m wide (rear loaded) two storey dwelling design.

In response to this review, it was found that in order to accommodate this product and existing pocket of R40 density coding adjoining open space, it is required to be modified to an R60 density coding. In addition, the boundary between the subject area and the adjoining open space shall be modified to reflect the lot product depth. The surplus land has been shown as public open space (local reserve), increasing the open space by approximately 300m².

5.0 CONCLUSION

This Amendment extends the 'Sixty Eight Road' Structure Plan to include lot 20 Baldivis Road, and allocate the applicable zoning and density to this land. The Amendment also proposes to increase the size of the Utilities / Infrastructure public local reserve and includes modifying the existing R40 coded area.