

SPIRES

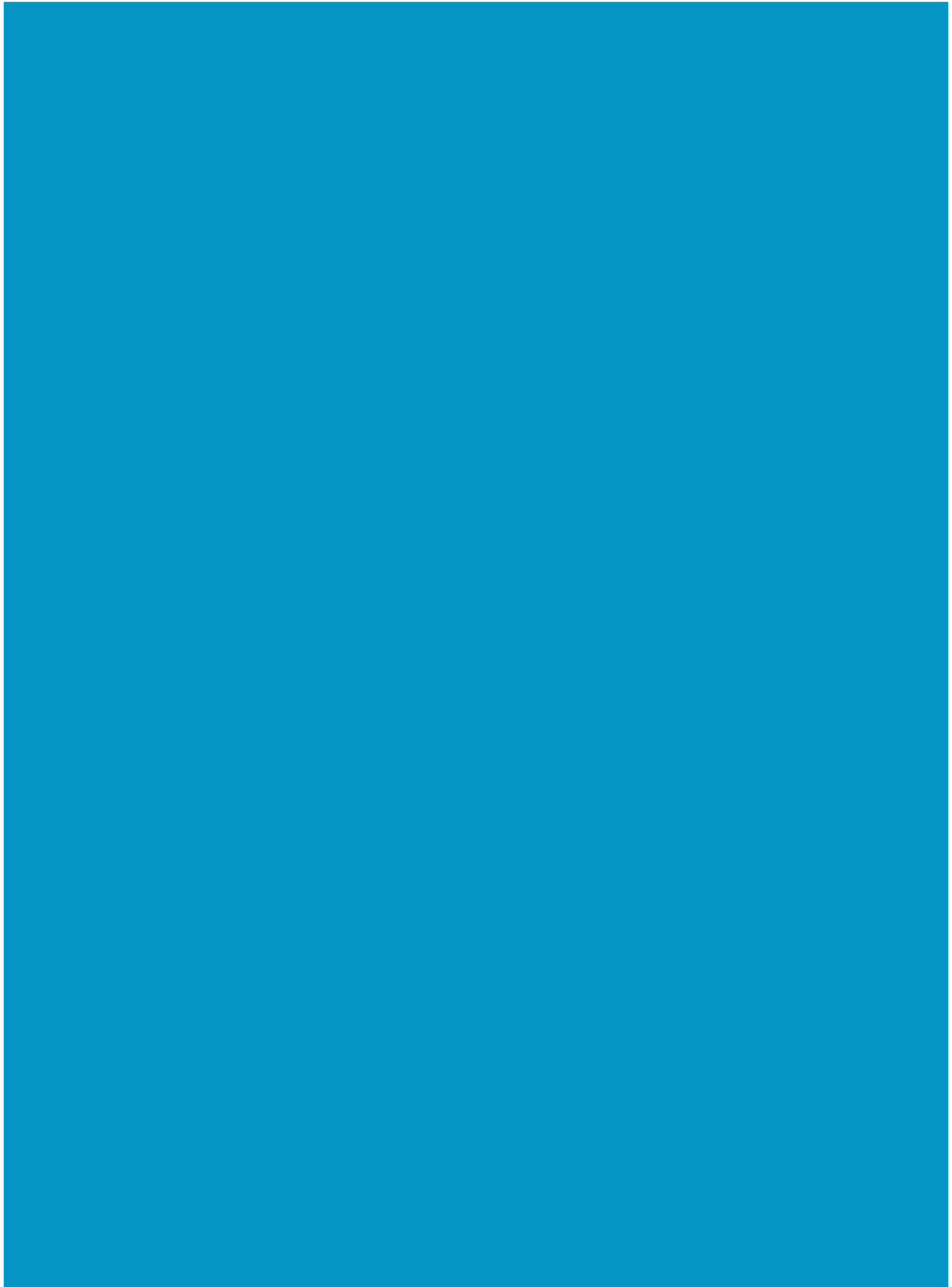
Kerosene Lane Structure Plan

Prepared For Spatial Property Group

October 2019



SPATIAL
Property Group™



ENDORSEMENT PAGE

This Structure Plan is prepared under the provisions of the
City of Rockingham Town Planning Scheme No. 2.

Certified that the Spires – Kerosene Lane Structure Plan
was approved by resolution of the
Western Australian Planning Commission on

..... Date

Signed for and on behalf of the Western Australian Planning Commission

.....

An officer of the Commission duly authorised by the Commission pursuant to
Section 16 of the *Planning and Development Act 2005* for that purpose, in the
presence of:

..... Witness

..... Date

..... Date of Expiry

TABLE OF AMENDMENTS

Amendment no.	Summary of amendment	Amendment Type	Date endorsed by WAPC
1			
2			

Table of Density Plans

Density Plan no.	Area of density plan application	Date endorsed by WAPC
1		
2		

Document Status

Revision	Purpose	Author	Approved by	Issue Date
A	Issued for Client Review	Eric Denholm	Dan Pearce	28.01.2016
B	Issued for Client Review	Eric Denholm	Dan Pearce	03.02.2016
C	WAPC Modifications for endorsement	Dan Pearce	Eric Denholm	03.10.2019

Project Details

Project lead		In collaboration with	
Prepared for_	Spatial Property Group	Traffic and transport_	Transcore
Prepared by_	RobertsDay	Servicing and Infrastructure_	Development Engineering Consultants
		Environmental_	Emerge
		Water management_	Emerge
		Bushfire_	Emerge

EXECUTIVE SUMMARY

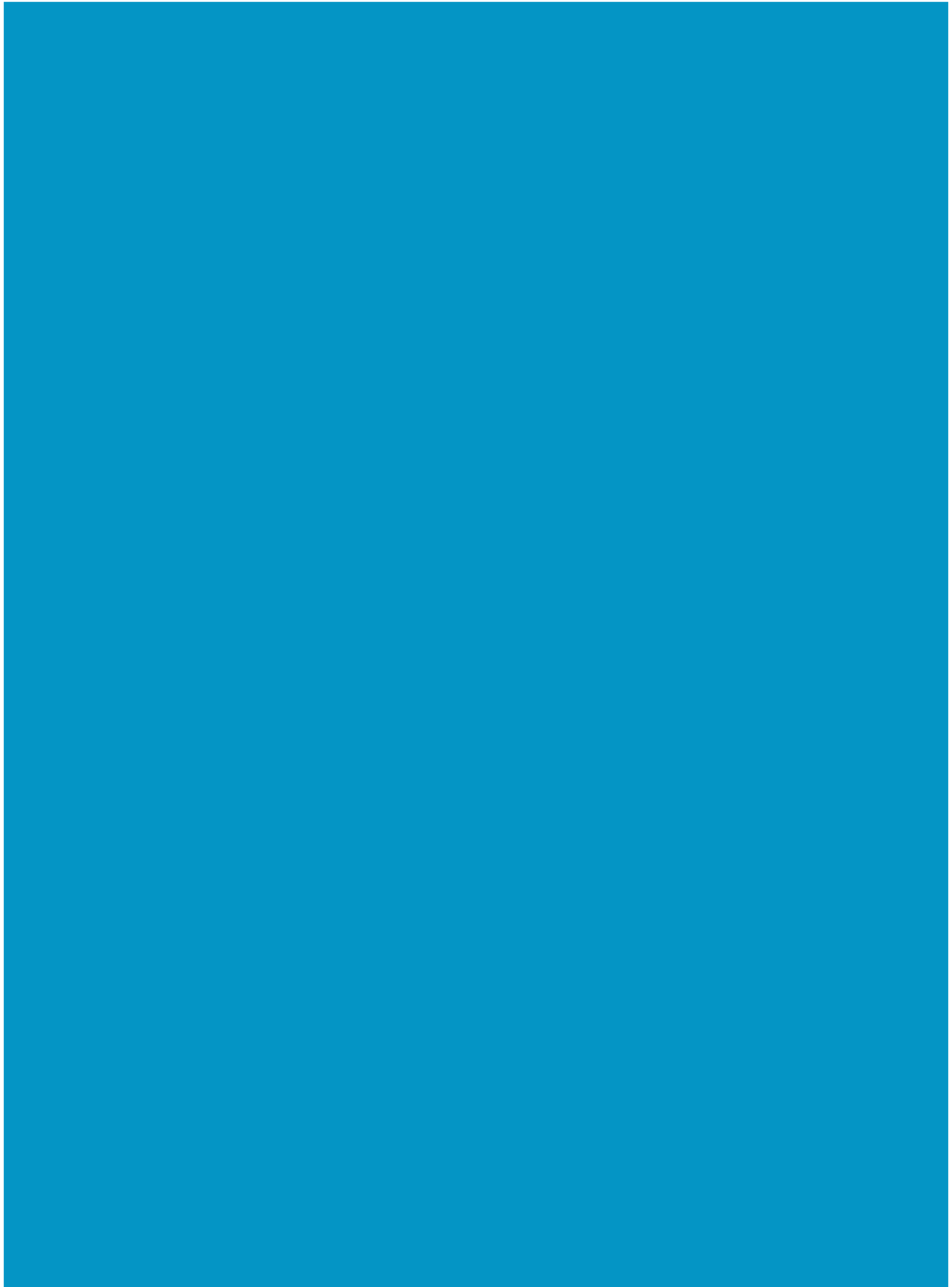
The Spires – Kerosene Lane Structure Plan (SP) has been prepared to guide the subdivision and development of Lots 55, 56, 294 & 772 Kerosene Lane and Lot 295 Baldivis Road, Baldivis (site), comprising 47.2727 hectares. The Structure Plan area is entirely within the City of Rockingham municipality.

The SP provides an overarching planning framework to ensure urban development is undertaken in a coordinated and systematic manner, as required by the site's 'Development' zoning under the City's Town Planning Scheme No. 2 (TPS2). The SP supports a mix of residential lot sizes, complemented by a highly legible movement network and quality public open space areas. The SP is consistent with the function and land use recommended within the North Baldivis District Structure Plan, which provides the high level development framework for the broader area.

It is anticipated that the Structure Plan area will accommodate approximately 1,847 people on 684 lots.

This Structure Plan supersedes the formally approved Comprehensive Development Plan made under the former Town Planning Scheme No. 1.

Item	Data	Section number referenced within the structure plan report
Total area covered by the Structure Plan	47.2727 hectares	1.3.2
Area of each land use proposed: Residential	30.2297 hectares	3.1
Estimated lot yield	684 lots	1.4.2.4
Estimated number of dwellings	684 dwellings	1.4.2.4
Estimated residential site density	22.6 dwellings per residential site hectare	3.3
Estimated population	1,847 people	1.4.2.4
Estimated area and number: Neighbourhood parks.	5.1633 hectares 5 parks	3.2



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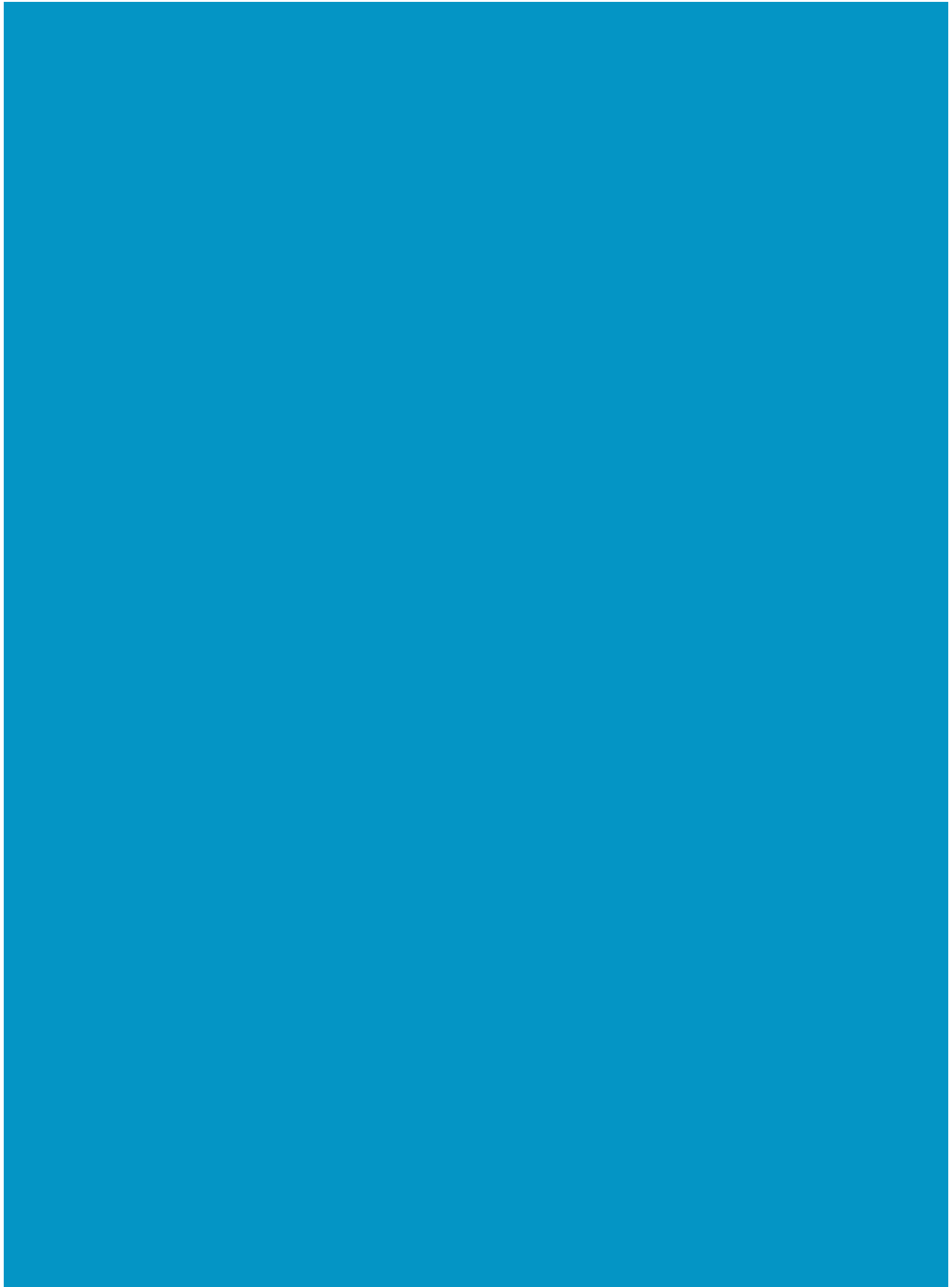
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D	Bush Fire Management Plan
E	Transport Impact Assessment
F	Engineering Services Report
G	Acoustic Assessment
H	Landscape Management Strategy



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Implementation

PART ONE_ IMPLEMENTATION

1.0 Structure Plan Area

This Structure Plan shall apply to Lots Lot 55, 56, and 294 Kerosene Lane and Lot 295 Baldivis 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).

2.0 Operation

This Structure Plan shall come into operation on the date it is approved by the Western Australian Planning Commission (WAPC).

3.0 Staging

Staging of development will rely on key development parameters, primarily relating to:

- The extension of available services from existing development to the south.
- The timing for the upgrade of Kerosene Lane and extension of Nairn Drive.
- The phase, activity and level of disturbance (if any) caused by the sand and limestone quarry to the north.
- Ensuring an appropriate interface is maintained between land zoned Urban Deferred and adjacent land being developed in accordance with this Structure Plan. The WAPC will not consider the subdivision of land zoned Urban Deferred until the zoning is amended to Urban in the Metropolitan Region Scheme.

4.0 Subdivision and Development Requirements

4.1 Land Use Zones and Reserves

The Structure Plan Map (Plan 1) outlines land use, zones and reserves applicable within the Structure Plan area.

4.2 Residential Density

Residential densities applicable to the Structure Plan Area shall be generally in accordance with the residential densities shown on the Structure Plan Map.

4.3 Development Affected by Land Use Buffers

A notification is to be placed on the titles of all lots within 300 metres of the limestone quarry located on Lot 800 north of Kerosene Lane to advise of the potential amenity impacts of the quarry and associated landfill operations.

4.4 Transportation Noise

A Noise Management Plan is to be prepared to support subdivision applications for land identified in the Acoustic Assessment (Appendix G) as being the subject of noise levels exceeding the 'noise target' of State Planning Policy 5.4 'Road and Rail Transport Noise and Freight Considerations in Land Use Planning'.

4.5 Management of Environmental Assets

In respect of applications for the subdivision of land the City shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval that:

- Prior to the commencement of subdivisional works, measures being taken to ensure the identification and protection of any vegetation on the site worthy of retention in streetscapes and public open space that is not impacted by subdivisional works.
- Prior to the commencement of subdivisional works a Fauna Management Plan including information on relocation of native fauna species is to be prepared and approved with satisfactory arrangements being made for the implementation of the approved plan.

4.6 Bushfire Management

- No buildings or structures shall be permitted to encroach within an Asset Protection Zone identified in the Bushfire Management Plan (Appendix D).
- A notification is to be placed on the titles of all lots identified in the Bushfire Management Plan (Appendix D) as being affected by a Bush Fire Hazard.
- Each stage of development will be provided with at least two access routes, comprising either gazetted road reserves and / or temporary emergency access ways, to allow access and egress for residents and emergency vehicles in the event of a bushfire.
- A 100 metre Hazard Separation Zone of managed vegetation from the perimeter of each stage of development will be provided.

PART ONE_ IMPLEMENTATION

4.7 Public Open Space

- The provision of a minimum of 10% public open space being provided in accordance with the WAPC's Liveable Neighbourhoods. Public open space is to be provided in accordance with Plan 1 and Table 1, with an updated public open space schedule to be provided at the time of subdivision for determination by the WAPC, upon the advice of the City of Rockingham.
- To facilitate delivery of POS 3, the City will accept a variation to the requirements of Section 4.7.3 of its 'Planning Policy 3.4.1 - Public Open Space', enabling a portion of the site area of each parcel of POS to be covered by any body of water at a frequency of inundation of 1 in 10 years, with restricted and unrestricted POS being provided generally in accordance with Table 1.
- The central area of POS being located as per Plan 1 on land up to and including 35 metres AHD.

Table 1: Public Open Space Schedule

Site Area				47.2727 ha
Deductions				
Dedicated drainage not included in POS				0.3134 ha
Kerosene Ln road widening				0.4670 ha
Gross subdivisible area				46.4923 ha
Public open space @ 10 per cent				4.6492 ha
May comprise:				
- minimum 80% unrestricted POS				3.7194 ha
- maximum 20% restricted use POS				0.9298 ha
Public Open Space Contribution	Open Space Area (Nett)	Unrestricted	Restricted (1:1 to 1:5)	Dedicated Drainage not included in POS (1:1)
POS 1 (Basin B)	1.0204 ha	0.9346 ha	0.0396 ha	0.0462 ha
POS 2 (Basin C)	1.1695 ha	1.0180 ha	0.0612 ha	0.1372 ha
POS 3 (Basin D)	1.3373 ha	1.2593 ha	0.0284 ha	0.0496 ha
POS 4 (Basin A)	1.0651 ha	0.9565 ha	0.0282 ha	0.0804 ha
POS 5	0.6164 ha	0.6164 ha	-	-
Sub-Total	5.2087 ha	4.7848 ha	0.1574 ha	0.3134 ha
Total Public Open Space Provision				4.9422 ha (10.45%)

4.8 Major Infrastructure

- At the time of the relevant subdivision stage, or as otherwise needed, upon the advice of the City of Rockingham or Main Roads WA, road upgrades and major intersection treatments shall be implemented to Baldivis Road, Kerosene Lane and Nairn Drive as generally depicted at Figure 17 and described in detail at Section 6.4 of the accompanying Traffic Impact Assessment (Appendix E).
- Any land required for upgrading and construction of Nairn Drive, Kerosene Lane and/or Baldivis Road generally in accordance with provision 4.8.a will need to be ceded as part of the subdivision process.

PART ONE_ IMPLEMENTATION

5.0 Local Development Plans

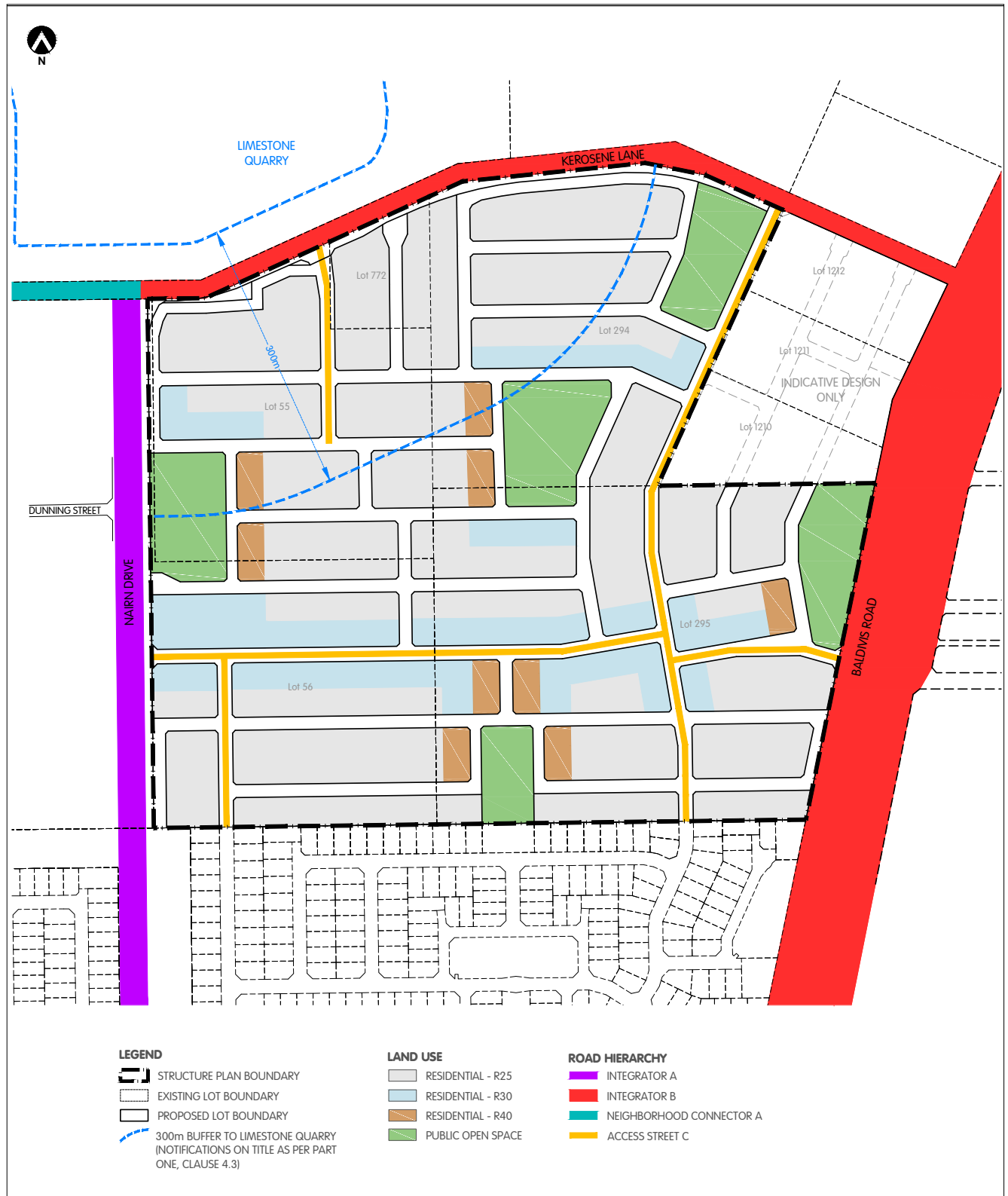
- a. Local Development Plans are to be prepared in accordance with Part 6 of Schedule 2 – Deemed provisions for local planning schemes, Planning and Development (Local Planning Schemes) Regulations 2015, prior to any subdivision and/or development that is affected by the following design considerations:
 - i. Lots with an interface or outlook toward Public Open Space.
 - ii. Lots that obtain access from a laneway or right-of-way.
 - iii. Any lots that propose grouped or multiple dwelling development.
 - iv. Lots identified in the Acoustic Assessment (Appendix G) as being the subject of subject of noise levels exceeding the 'noise target' of State Planning Policy 5.4 'Road and Rail Transport Noise and Freight Considerations in Land Use Planning'.
- b. Local Development Plans may address (but are not limited to) consideration of fencing abutting POS, street setbacks, lot boundary setbacks, boundary wall height and length, location and setbacks of garages and carports, restrictions to vehicle access, building height, parking standards, dwelling orientation, outdoor living areas and open space, overshadowing, visual privacy and quiet house design requirements for lots impacted by traffic noise.

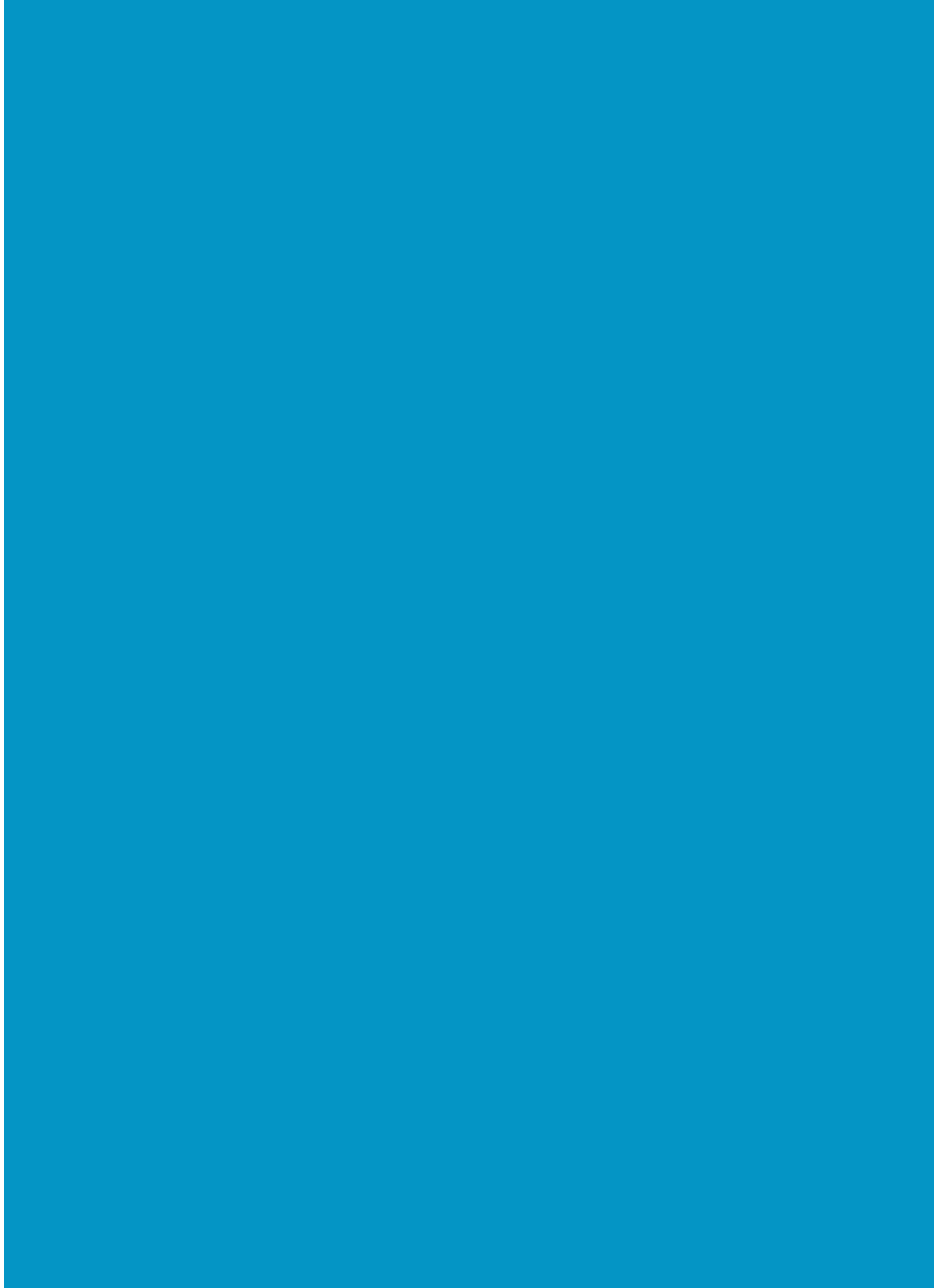
6.0 Other Requirements

The Structure Plan area is subject to the Development Contribution Area No. 2 (DCA2) pursuant to the City of Rockingham Town Planning Scheme No.2.

PART ONE_ IMPLEMENTATION

Plan 1: Structure Plan Map (RD1200H)





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Explanatory

PART TWO_ EXPLANATORY

1.0 Planning Background

1.1 Introduction and Purpose

This Structure Plan (SP) has been prepared by RobertsDay on behalf of Spatial Property Group, representing the landowners of five landholdings in the North Baldivis district, comprising an aggregate area of approximately 47.2727 hectares. The landholdings subject of this SP are within the City of Rockingham municipality and are listed as (site):

1. Lot 55 (204) Kerosene Lane, Baldivis.
2. Lot 56 (192) Kerosene Lane, Baldivis.
3. Lot 294 (294) Kerosene Lane, Baldivis.
4. Lot 772 (214) Kerosene Lane, Baldivis.
5. Lot 295 (266) Baldivis Road, Baldivis.

All lots subject of the SP are zoned Urban under the Metropolitan Region Scheme (MRS), with the exception of Lot 294 which contains a portion of Urban Deferred zoning. The entire site is zoned Development under the City of Rockingham Town Planning Scheme No. 2 (TPS2). TPS2 requires the preparation and endorsement of a SP for land zoned Development prior to subdivision and development. The North Baldivis District Structure Plan (NBDSP) provides the strategic framework for the coordination and preparation of SP's in this locality.

The SP design proposes the creation of 684 residential lots, with densities ranging from R20 through to R40. The design provides numerous areas of strategically located public open space, set within a highly legible road network connecting the development to the adjoining residential estates and the surrounding district.

This report includes a description and analysis of the land, details about the development and confirmation that the proposal is consistent with the State's strategic objectives and the City of Rockingham's planning framework for this locality.

The purpose of the SP is to provide an agreed planning framework and design response to facilitate subdivision and development. The SP is prepared in accordance with the requirements and provisions of the Planning and Development (Local Planning Schemes) Regulations 2015 and the Western Australian Planning Commission's Structure Plan Framework, with due consideration given to Clause 4.2 of TPS2 and the City's Planning Procedure 1.6: Preparation and Assessment of Structure Plans.

1.2 Background

Lot 295 was subject to MRS Amendment 1259/27 gazetted 10 June 2014, which transferred the zoning from Urban Deferred to Urban.

A Comprehensive Development Plan (CDP), facilitating low and medium density urban development, was approved by the Western Australian Planning Commission (WAPC) on 18 September 1998. The CDP affects the entire site, as well as adjoining Lot 1212 (268) Kerosene Lane and Lots 1210 (256) and 1211 (250) Baldivis Road.

Development in accordance with the CDP was not progressed and the site is used for rural purposes.

Due to the time elapsed since the original CDP's 1998 adoption, and the significant changes in the planning framework and market expectations, Spatial Property Group seek to develop the site in a manner that better responds to contemporary planning practices. This will ensure urban development is in accordance with current WAPC and City of Rockingham policy positions.

1.3 Land Description

1.3.1 Location

The site is approximately 8 kilometres west of the Rockingham Central Business District and approximately 3 kilometres north of the Baldivis Town Centre. The Kwinana Freeway is within 1 kilometre to the east of the site, with access obtained from the Mundijong Road interchange via Baldivis Road.

Refer Figure 1, context plan.

PART TWO_ EXPLANATORY

Figure 1: Context Plan

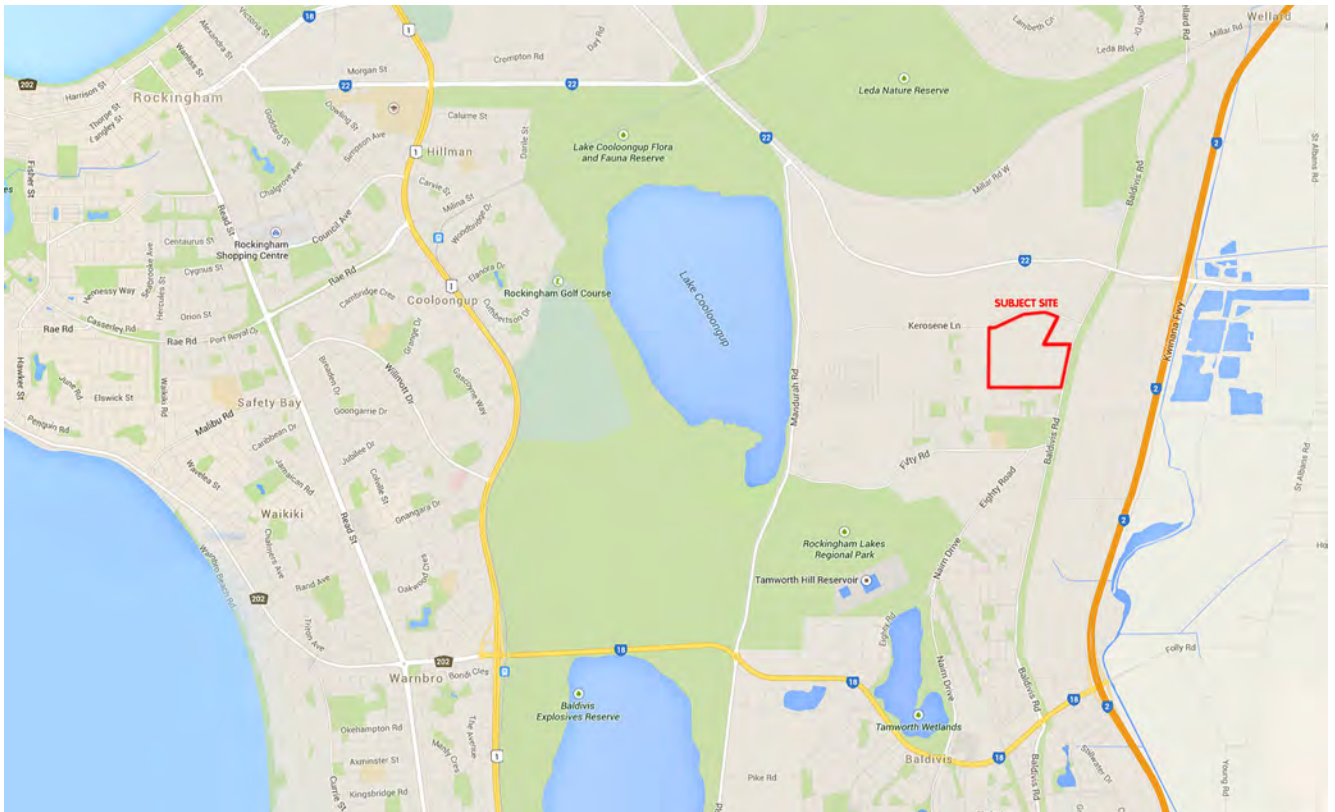
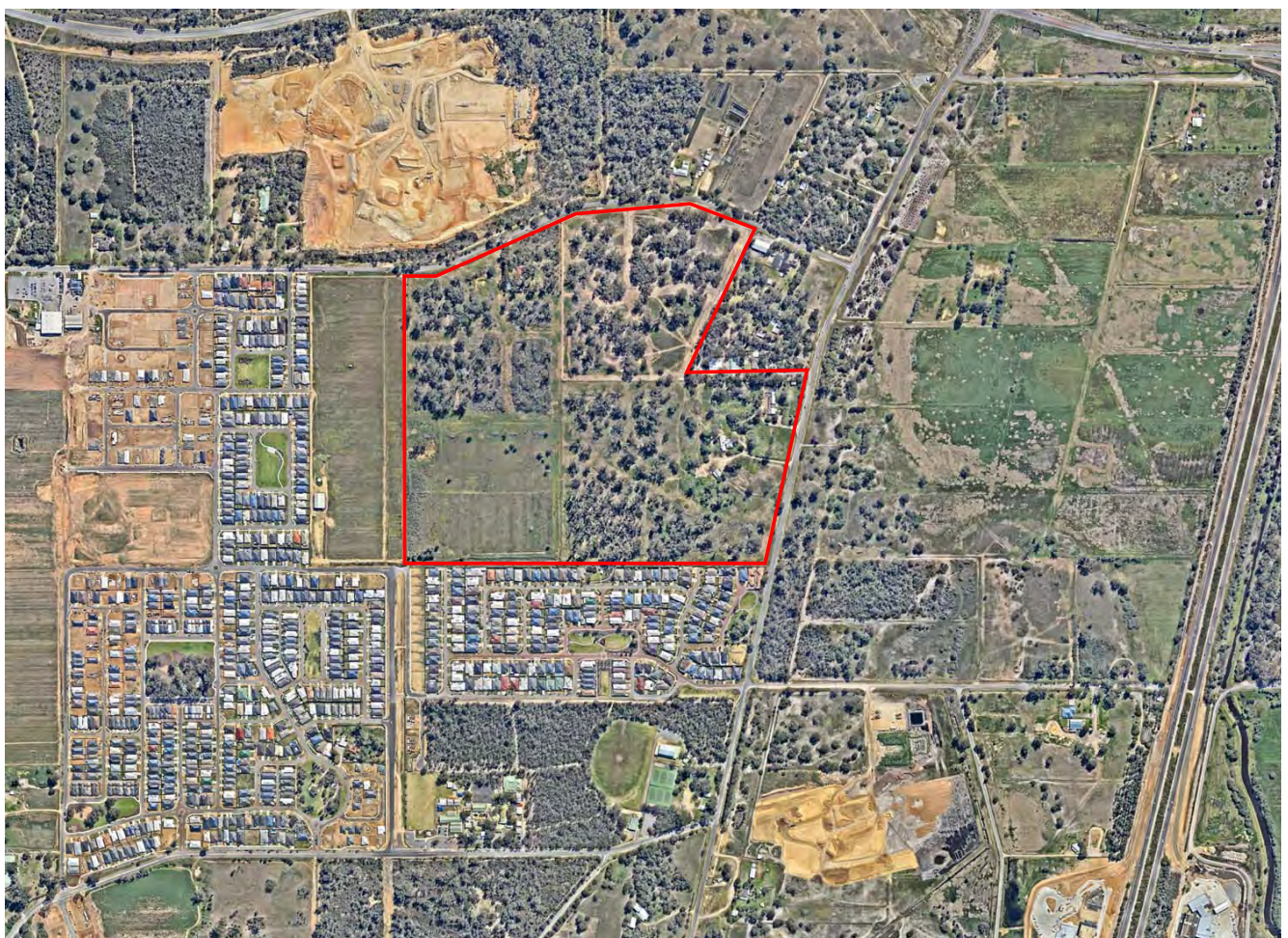



Figure 2: Aerial



 SUBJECT SITE

PART TWO_ EXPLANATORY

1.3.2 Area and Land Use

As outlined in Table 1, the site comprises approximately 47.2727 hectares.

Table 2: Land area

Lot	Area
55	8.9340 ha
56	9.3045 ha
294	11.1100 ha
295	16.5920 ha
772	1.3322 ha
Total	47.2727 ha

The land is sparsely vegetated, with residual overstorey, having been used for grazing for many years. The basic landform is undulating sand hills of free draining sand underlain in parts by some pinnacle limestone. The Environmental Geology map of the Geological Survey of Western Australia classifies this site as being suitable for urbanisation.

The site is generally vacant with Lot 295 containing two dwellings, accessed from Baldivis Road, and Lot 772 containing a single dwelling, accessed from Kerosene Lane. All structures will be removed as development progresses.

Refer Figure 2, aerial photograph.

1.3.3 Legal Description and Ownership

Table 2 outlines the land details and ownership of lots subject of the SP. Spatial Property Group is developing the site on behalf of all landowners listed.

Table 3: Land Details and Ownership

Description	Street Address	CT Folio-Volume	Landowner/s
Lot 55 on Diagram 53074	204 Kerosene Lane, Baldivis	1490-899	Applecross Land Pty Ltd
Lot 56 on Diagram 53074	192 Kerosene Lane, Baldivis	1490-900	High Ride Pty Ltd
Lot 294 on Deposited Plan 202704	294 Kerosene Lane, Baldivis	1591-498	Waikiki Land Pty Ltd
Lot 295 on Deposited Plan 202704	266 Baldivis Road, Baldivis	1694-854	Norfolk Holdings Pty Ltd
Lot 772 on Deposited Plan 202704	214 Kerosene Lane, Baldivis	1238-930	St Gabriel Investments Pty Ltd

Refer to Appendix 1 for a copy of the Certificates of Title.

PART TWO_ EXPLANATORY

Figure 3: Metropolitan Region Scheme Zoning

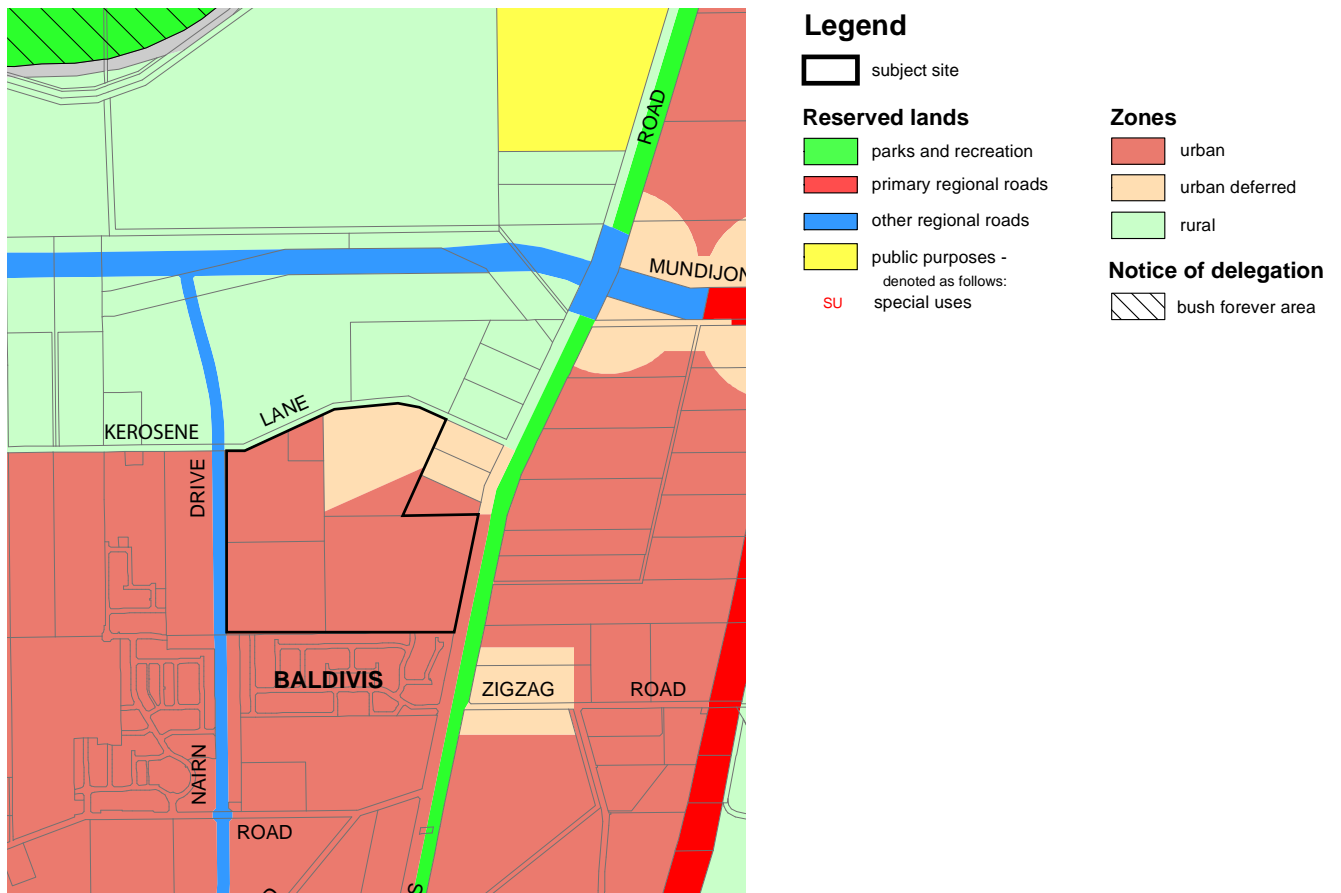
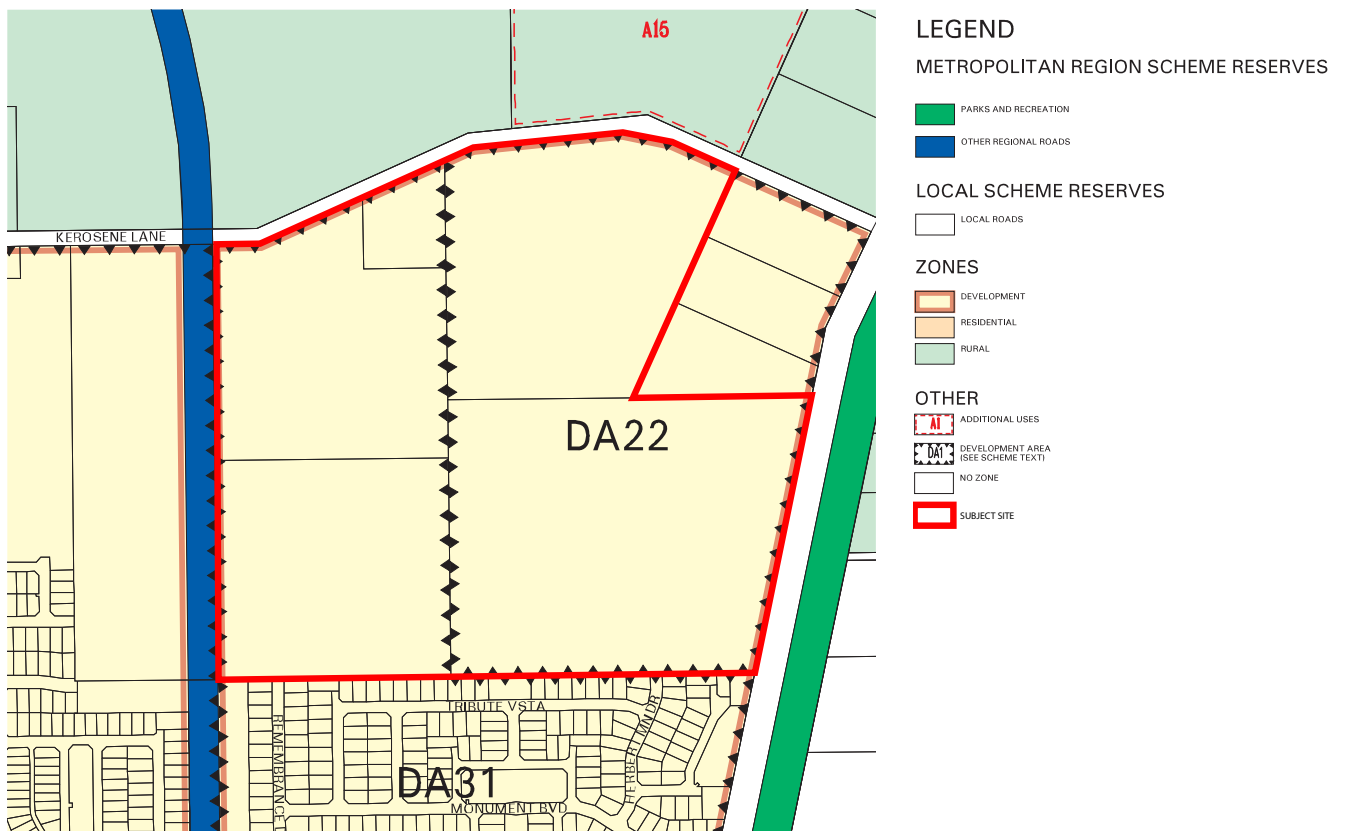


Figure 4: Town Planning Scheme No. 2



1.4 Planning Framework

1.4.1 Zoning and Reservations

1.4.1.1 Metropolitan Region Scheme

The majority of the site is zoned 'Urban' under the Metropolitan Region Scheme (MRS), with the exception of a 9.0769 hectare portion of Lot 294 which is zoned 'Urban Deferred'. The site abuts land reserved 'Other Regional Roads' to the west, being the future Nairn Drive extension.

The land surrounding the site is generally zoned 'Urban' or 'Urban deferred', with the exception of land north of Kerosene Lane which is zoned 'Rural'.

Refer Figure 3, MRS zoning.

1.4.1.2 Town Planning Scheme No. 2

The site is zoned 'Development' under TPS2, meaning the preparation of a Structure Plan is required. The site is also subject to Development Contribution Area (DCA) No. 22 (for Lots 294 and 295) and DCA No. 31 (for Lots 55, 56 and 772), meaning that some contributions are required at the time of subdivision in accordance with Clause 5.6 of TPS2.

The land surrounding the site is generally zoned 'Development', and is subject to various other SPs prepared in accordance with the North Baldivis District Structure Plan.

Refer Figure 4, Town Planning Scheme No.2 zoning.

1.4.2 Regional and Sub-Regional Structure Plans

1.4.2.1 Directions 2031 and Beyond (WAPC 2010)

Directions 2031 and Beyond (Directions 2031) provides an overarching strategic framework for the detailed planning and delivery of housing, infrastructure and services for the Perth and Peel regions to support an estimated population of 3.5 million people in 2031. Directions 2031 seeks a 50 per cent increase from the current average residential density of 10 dwellings per gross urban zoned hectare to 15 dwellings per gross urban zoned hectare in new development areas.

The site is located within the 'South-west sub-region' that in accordance with the connected city scenario, is forecast to grow by an additional 70,000 people to an estimated population of 278,000 by 2031. An additional 41,000 dwellings are required to accommodate this growth.

Development of the site will contribute to meeting the forecast housing needs of the region consistent with the sites zoning under the MRS.

1.4.2.2 Draft Outer Metropolitan Perth and Peel Sub-Regional Strategy (WAPC 2010)

The draft Outer Metropolitan Perth and Peel Sub-Regional Strategy (Draft Sub-Regional Strategy) provides a strategic framework for the planning of urban growth consistent with Directions 2031. The Draft Sub-Regional Strategy focuses on achieving the greenfield target of 15 dwellings per gross urban zoned hectare through a range of planned and future urban growth areas.

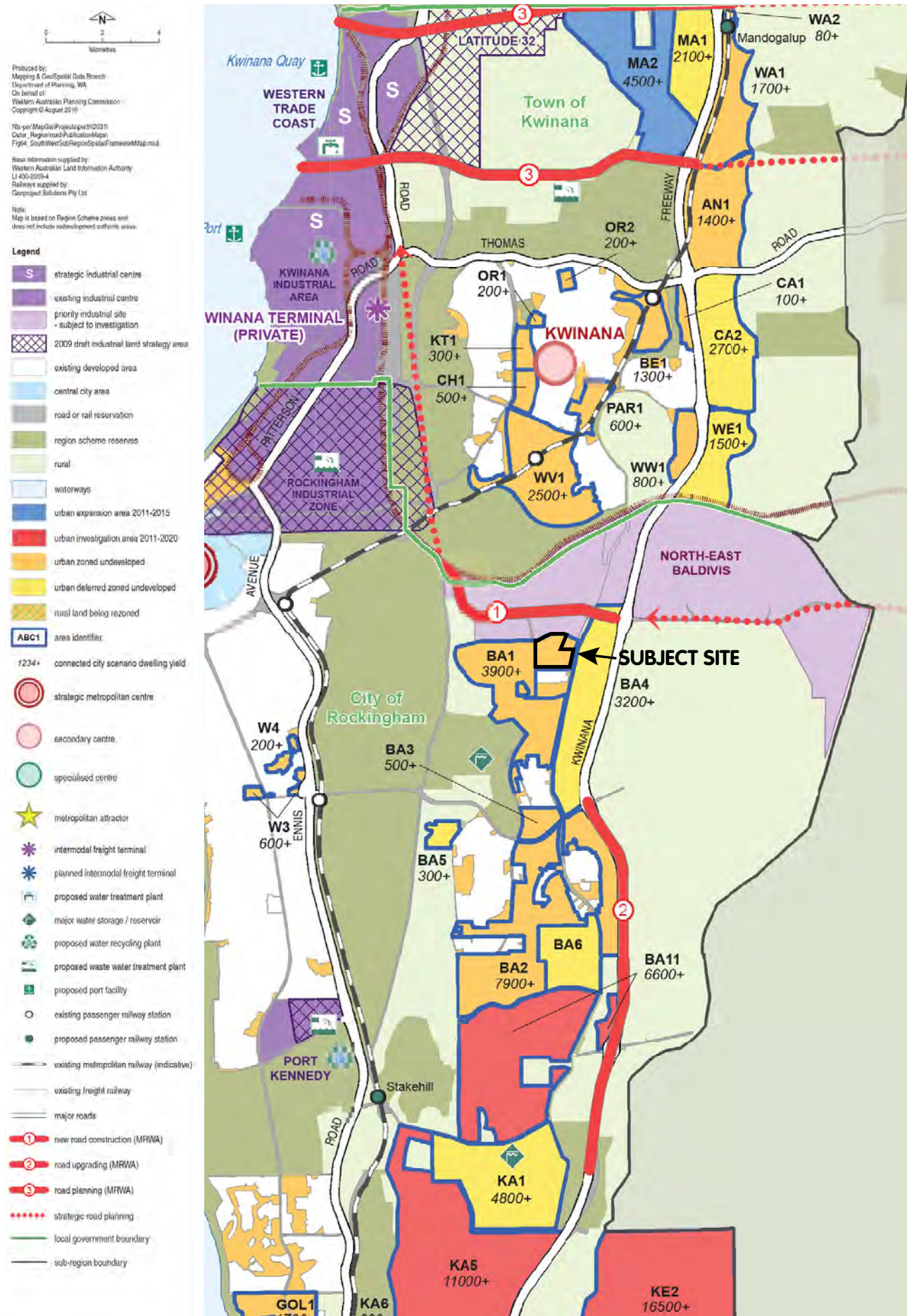
The South-west sub-region spatial framework map identifies the site as 'urban zoned undeveloped', with an area identifier designated as 'BA1'. The spatial framework map specifies a connected city scenario dwelling yield of 3900+ for the wider area, which includes larger landholdings and more recent developments in the locality.

The 684 dwellings proposed in the SP will contribute significantly to the broader sub-regional target of 41,000 dwellings. Further discussion regarding the Directions 2031 density target is provided at Part 3.3 of this report.

Refer Figure 5, South-west sub-region spatial framework map.

PART TWO_ EXPLANATORY

Figure 5: South-West Sub-Region Spatial Framework Map



PART TWO_ EXPLANATORY

1.4.2.3 Draft South Metropolitan Peel Sub-regional Planning Framework (WAPC 2015)

The Draft South Metropolitan Peel Sub-regional Planning Framework (Sub-regional Framework), released for public comment 1 May 2015, forms part of the strategic framework stipulated within the WAPC's Draft Perth and Peel @ 3.5 Million. The purpose of the framework is to describe where population growth can be best accommodated and where employment options should be located, while conserving areas of significant environmental value.

The Sub-regional Framework outlines population and dwelling projections to 2050, with the following growth identified for the Rockingham municipality – Table 3.

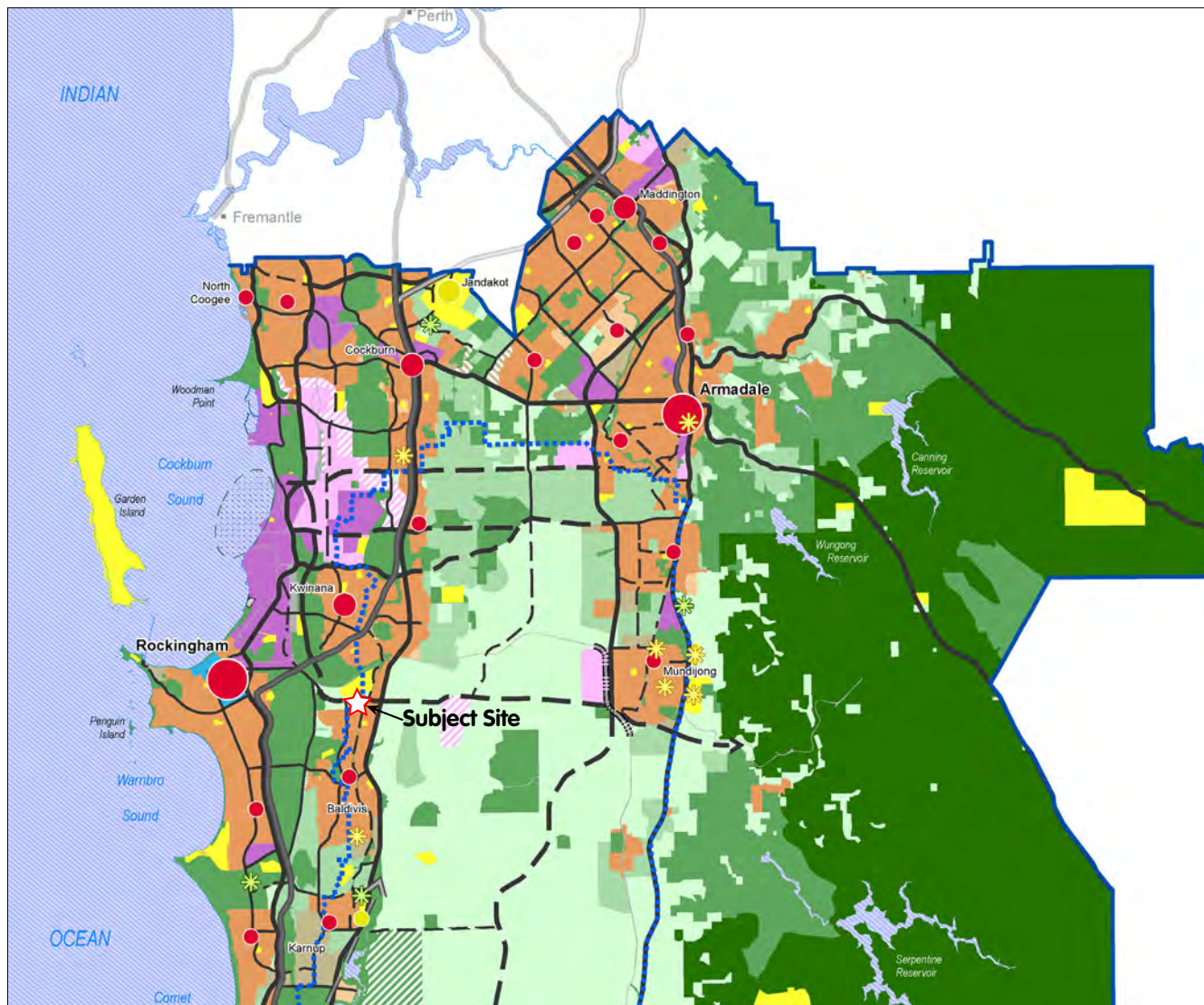
Table 4: Sub-Regional Framework Projections

Local Government	Existing dwellings	Existing population	Additional dwellings	Additional population	Total dwellings	Total population
Rockingham	42,461	109,415	51,131	126,520	93,592	235,935

The site is identified as 'Urban' and 'Urban Deferred', aligning with the current MRS zoning, and has no regional open space or conservation obligations. Kerosene Lane and Baldvis Road one identified or possible future regional roads. Development of the site is consistent with the intent of the Sub-regional Planning Framework, and will assist the City to deliver the additional dwellings to accommodate the anticipated population growth.

Refer Figure 6, Sub-Regional Framework extract.

Figure 6: Sub-Regional Framework extract



PART TWO_ EXPLANATORY

1.4.2.4 North Baldvis District Structure Plan (City of Rockingham 2000, modified 2006)

The North Baldvis District Structure Plan (NBDSP) provides the strategic framework for the coordination and preparation of SP's in this locality. The site is within Precinct 1 of the NBDSP, which provides for:

- A gross area of 123.21 hectares, with a total developable area of 117.08 hectares.
- Approximate gross yield of 1,264 lots, based on the assumption of 12 lots per hectare.
- An estimated population of 3,414 people, based on the assumption of 2.7 people per household.
- A total retail floorspace of 1,809m² (now likely to have been increased as a result of Commercial zoning within the Paradiso Estate SP, which falls within Precinct 1 of the NBDSP). Calculated using the assumption that 1 person generates 0.53m² of retail floorspace.
- A primary school.
- Approximately 11.71 hectares for public open space and drainage (equating to 10% of developable area).

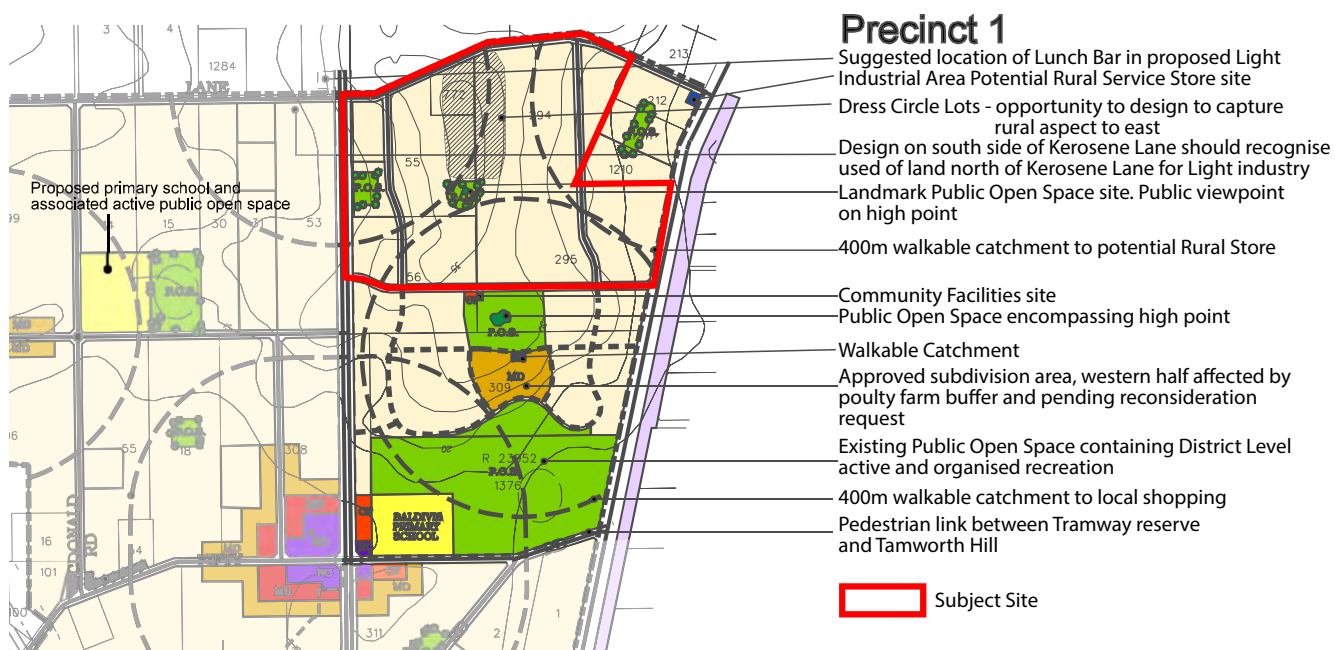
The SP comprises approximately 38% by area of Precinct 1. On a proportional basis it satisfies the requirements of the DSP as follows:

Requirement	Precinct 1 of DSP	SP	Relative Proportion
Gross area	123.21 hectares	47.2727 hectares	38.3%
Dwelling Yield	1,264 lots	684 lots	54.1 %
Population (2.7ppl/dwelling)	3,414 people	1,847 people	54.1 %
Retail Floorspace (0.53m ² /person)	1,809m ² retail generated	1032m ² retail generated	2500m ² retail approved at Paradiso Estate SP to the west
Primary School	1	0	Achieved (on other sites)
POS and Drainage	11.71 hectares	5.1634 hectares	44.1 %

The SP is therefore consistent with the strategic direction provided by the NBDSP and its requirements pertaining to the site.

Refer Figure 7, North Baldvis District Structure Plan Map.

Figure 7: North Baldvis District Structure Plan Map



PART TWO_ EXPLANATORY

1.4.3 Planning Policies and Statements

1.4.3.1 State Planning Policy 3.1 – Residential Design Codes (WAPC 2015)

The State Planning Policy 3.1 – Residential Design Codes (R-Codes) is the basis for the control of residential development throughout Western Australia. In accordance with conventional planning practice in Western Australia, the R-Codes are the agreed mechanism to control density within residential zones, through the application of R-Code densities on local planning scheme maps. The R-Code density primarily controls the allowable average and minimum lot size, with built form performance standards and ‘deemed-to-comply’ examples, specific to the stipulated density, outlined within Part 5 & 6 of the R-Codes.

The SP map designates R-Code densities, as a response to certain locational and design criteria. Further discussion regarding R-Code density is provided at Part 3.3 of this report.

1.4.3.2 Liveable Neighbourhoods (WAPC 2009)

Liveable Neighbourhoods (LN) is the WAPC’s operational policy guiding the design of structure plans. The objective of LN is the delivery of new developments that provide high quality living, working and recreational environments, thereby contributing to the successful implementation of the State Planning Strategy and State Sustainability Strategy.

The SP meets the requirements of LN with a particular focus on the following key aims:

- An urban structure based on interconnected, safe and walkable neighbourhoods;
- Creating a sense of community, identity and a sense of place;
- Providing a variety of lot sizes and housing types to cater for the diverse housing needs of the community;
- Maximising land efficiency wherever possible; and
- Achieving a residential density of approximately 22.6 dwellings per residential site hectare, which exceeds the upper threshold of Liveable Neighbourhoods target of 22 dwellings per residential site hectare.

Further discussion regarding density targets is provided at Part 3.3 of this report.

1.4.3.3 Planning Bulletin 112/2015 – R-MD Codes (WAPC 2015)

Planning Bulletin 112/2015 – Medium-density single house development standards – Structure plan areas (R-MD Codes) articulates the WAPC’s position for a consistent set of R-Code variations to be ‘trialled’ within new SP areas. Specifically, the R-MD Codes provide a suite of agreed R-Code variations to ‘deemed-to-comply’ built form criteria, including street and lot boundary setbacks, open space, garage setback and width and vehicular access, parking, overshadowing and privacy. The R-MD Codes focus on single dwellings and grouped dwellings for lots coded R25 – R60.

Section 11 of the Structure Plan Framework (WAPC, 2015) states that R-Code variations can be undertaken in three ways, including Local Development Plans, Local Planning Policies or Scheme Amendments. The City is preparing a Local Planning Policy for these purposes and has expressed its preference for SPs to have regard to the policy once adopted.

1.4.3.4 City of Rockingham Planning Policy 3.4.1 – Public Open Space

The Policy sets out the “the objectives and policy provisions which the ‘Council’ shall have due regard to in assessing the provision, location, design and development of public open space (POS) in the City of Rockingham.” Some of the key policy statements include:

- Requirement for the lodgement of a POS Concept Plan, POS Schedule and Local Water Management Plan to accompany proposed Structure Plans;
- Criteria for the provision of restricted POS, community purpose sites and the joint use of POS;
- Criteria for the location, design, development and maintenance of POS; and
- Provisions for cash in lieu and urban water management.

The proposed SP meets the requirements of the Policy. Detailed consideration is provided at Part 3.2 of this report.

PART TWO_ EXPLANATORY

1.4.4 Other Policies and Statements

1.4.4.1 EPA Position Statement No. 3 – Guidance for the Assessment of Environmental Factors: Separation Distances Between Industrial and Sensitive Land Uses (EPA)

Both State Planning Policy 2.4 – Basic Raw Materials (SPP 2.4) and State Planning Policy 4.1 – State Industrial Buffer Policy (SPP 4.1) reference EPA Position Statement No. 3 (EPA PS3) for guidance on separation distances between industrial and sensitive land uses. In this case, this provides guidance for the appropriate separation distance between the sand and limestone extractive activities and inert landfill uses that occur on Lot 800 Kerosene Lane (formerly Lots 290 and 291) to the north of the site and residential development proposed within the SP area. The separation distance is intended to mitigate potential noise, dust, and general amenity impacts for residential land uses.

As outlined in Appendix 1 of EPA PS3 the following buffer distances are recommended between sensitive land uses and the relevant industry activities on Lot 800 to the north of the site:

- 300-500 metres for sand and limestone extractive land use.
- 150 metres for inert landfill land use.

Some residential lots within the Structure Plan are located within the recommended separation distances. The Structure Plan depicts lots located within the recommended 300 metre separation distance to the limestone extractive land-use, specifying that notifications on title are required for these lots.

This approach is consistent with other recent approvals for surrounding land on Kerosene Lane adjacent the quarry, which have progressed on the basis that potential impacts on residential uses were considered low risk given information available about the specific nature and historic management of the quarry operation.

Detailed consideration is provided at Part 2.6 of this report.

1.4.4.2 State Planning Policy 2.1 Peel-Harvey coastal plain catchment

The site is located within the Peel Harvey Coastal Plain Catchment Area subject to the provisions of State Planning Policy 2.1 – The Peel Harvey Coastal Plain Catchment.

The Peel Harvey Catchment Council supports urbanisation of land within the catchment based on completion of water management strategies in accordance with regional water management strategies and design criteria to minimise nutrient export into the Peel-Harvey Estuarine System.

A Local Water Management Plan (LWMS) has been prepared in support of the Structure Plan, that achieves this requirement, refining district and local drainage and groundwater quality objectives to maximise the consumption and retention of drainage on site in accordance with the requirements of the Policy.

The proposal also achieves the Specific Policy provisions for the development of residential land into allotments less than 4,000sqm (as proposed in this Structure Plan), which include connection to a reticulated sewerage system (achieved), retention of vegetation outside of building envelopes (not applicable) and approval requirements for stocking (not applicable).

1.4.5 Other approvals and decisions

1.4.5.1 Lot 295 (266) Baldivis Road, Baldivis MRS Amendment 1257/27

MRS Amendment 1257/27 was gazetted on 10 June 2014, and altered the zoning of Lot 295 (266) Baldivis Road from 'Urban Deferred' to 'Urban'. MRS Amendment 1257/27 was a result of a successful application that, in the WAPC's view, appropriately addressed detailed planning issues and constraints to urban development.

Lot 294 (294) Kerosene Lane is the only landholding within the SP area that contains an 'Urban Deferred' zoning under the MRS.

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1.4.5.2 Comprehensive Development Plan North Baldivis Precinct 1

The original Comprehensive Development Plan North Baldivis Precinct 1 (CDP) was approved by the City in August 1997 and WAPC in September 1998. The CDP was suspended in late 2004 and modified in early 2006. The most recent amendments were proposed in the interest of undertaking residential development on Lot 309 adjoining the site to the south. The CDP applies to a broader area that includes the SP area, as shown in Figure 8, and was approved under the City of Rockingham Town Planning Scheme No. 1. Under clause 4.2.11.1 of TPS2, "Any Comprehensive Development Plan duly approved by the Council and the Commission under clause 5.25 of Town Planning Scheme No. 1, is to have the full force and effect as if it were approved as a Structure Plan under clause 4.2.6.15."

Notwithstanding the above, correspondence with the Planning Manager Perth and Peel at the Department of Planning (DoP) dated 16 October 2014 notes that the approved CDP does not address a number of contemporary planning issues and design considerations that have since been articulated in more recent planning frameworks, strategies, and statutory documents. That is:

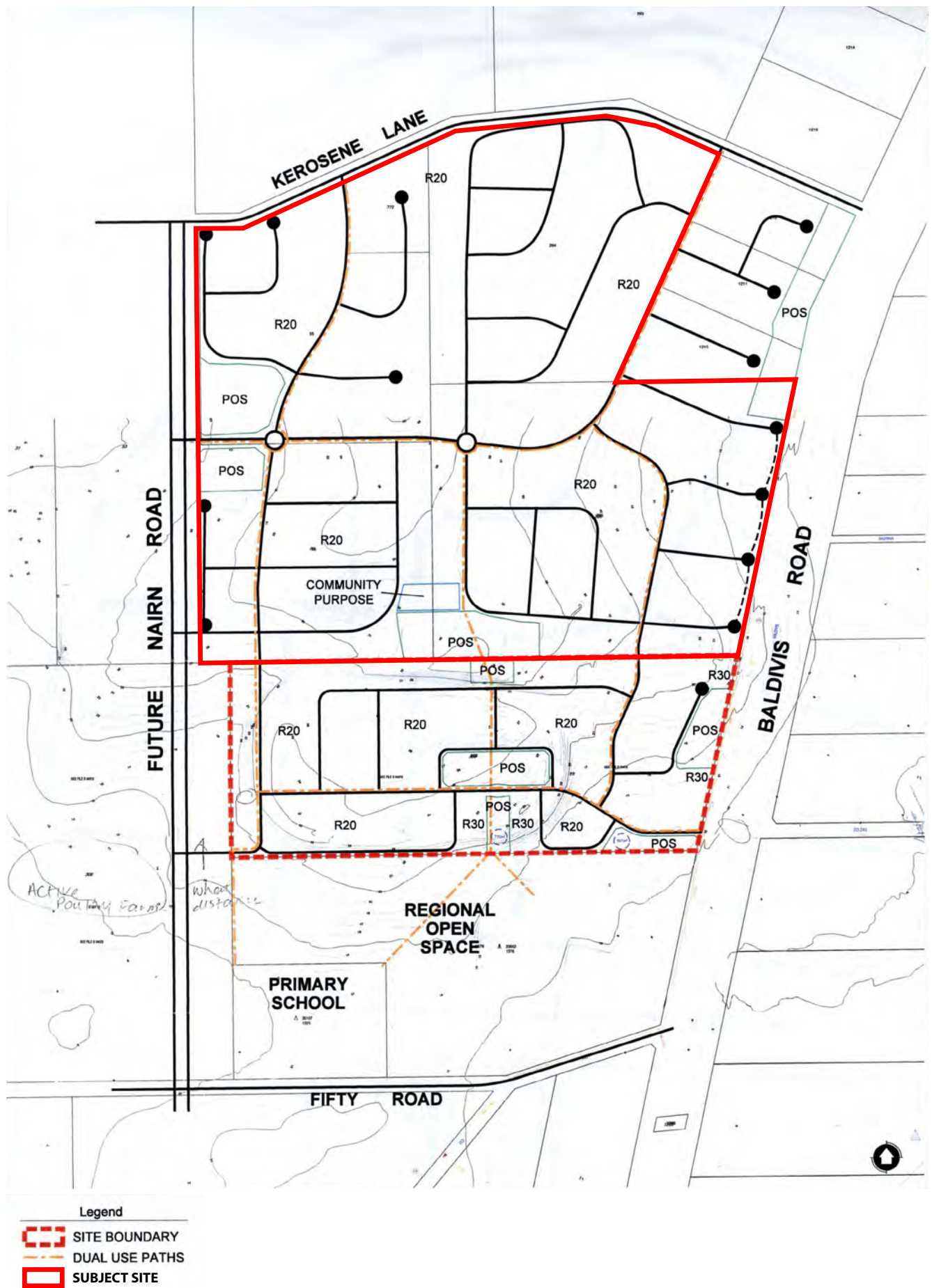
- Buffers to residential development in particular from nearby sand mining activities; (addressed in section 2.6.1)
- Impact of market garden activities on residential development; (addressed in section 2.6.2)
- Mechanism/s for equitable contributions or cost recovery for future services and facilities; and (addressed in section 5.3.9)
- Interface with established and soon to be constructed (approved) adjoining residential developments to the south and west. (addressed in section 5.3.1)

This SP systematically responds to current planning controls, and addresses the identified deficiencies of the approved CDP. In addition, preparation and review enables a contemporary planning response to the site's specific characteristics, given that much of the broader area, including landholdings to the south and west of the site subject of the formerly approved CDP, have now been developed and no longer require further planning.

Refer Figure 8, Approved Comprehensive Development Plan (2006).

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Figure 8: Approved Comprehensive Development Plan (2006)



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1.4.5.3 Planning Approval for Inert Landfill use on Lot 800 Kerosene Lane, Baldivis

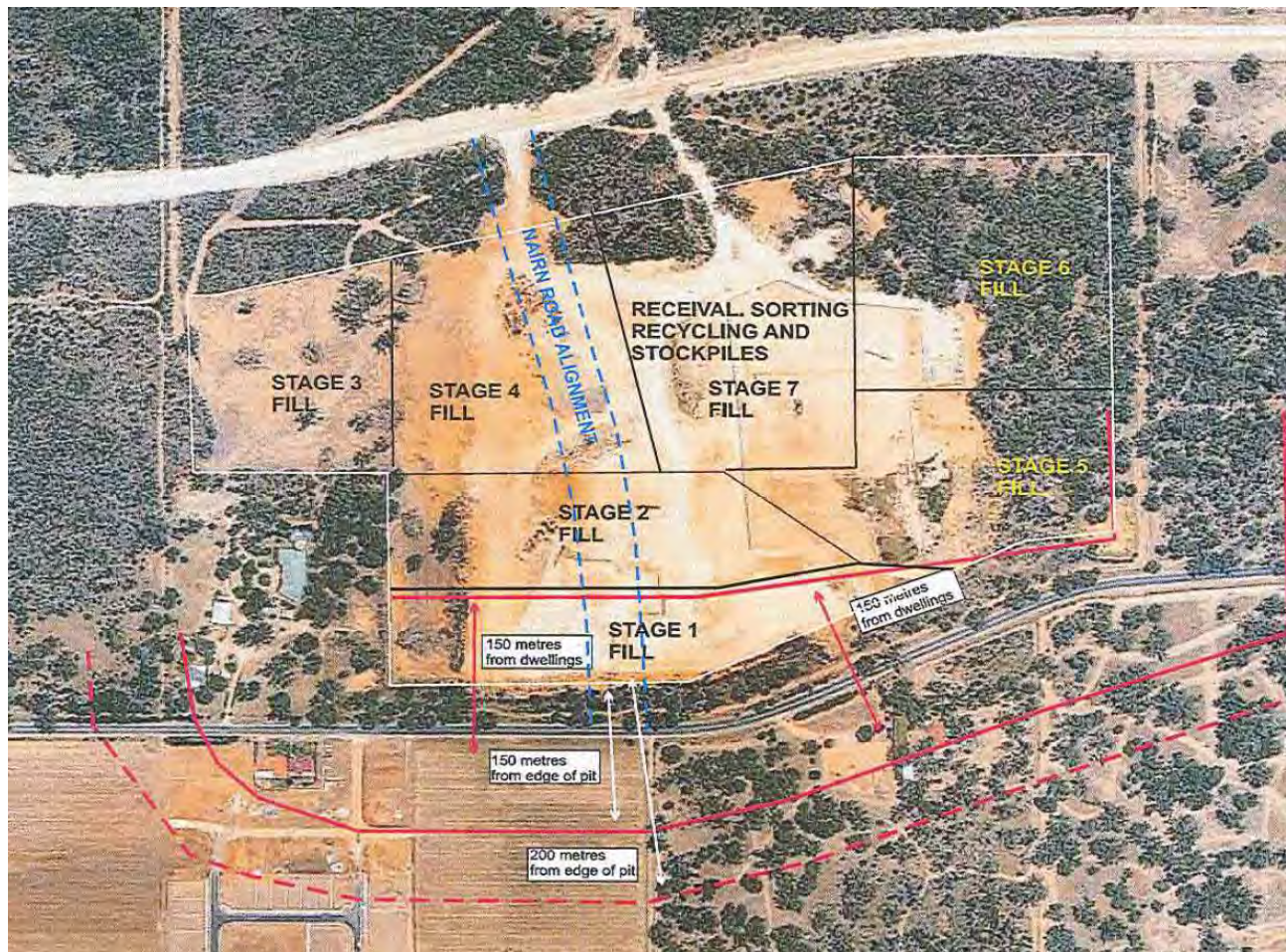
Lot 800 Kerosene Lane (Formerly Lots 290 and 291) has approval for sand and limestone extraction until June 2024 (granted 24th June 2014).

On 27 January 2015 the City issued a Planning Approval for Inert Landfill on Lot 800 Kerosene Lane, Baldivis, immediately north of the site, for the purposes of landform reconstruction and rehabilitation. This allows WA Limestone Pty Ltd to fill areas of excavation that are now depleted, to enable site levels to be appropriately finished for the accommodation of the Nairn Drive extension and future urban development.

Landform reconstruction and rehabilitation will occur in stages. Notably, Stage 1 involves a portion of the quarry closest to Kerosene Lane – refer Figure 9. The approval and the cessation of excavation activities in this area facilitates the lifting (and/or reconsideration of extent) of the Urban Deferred MRS zoning on portion of Lot 294. Specifically by way of reduced buffer requirements for inert landfill activities of a recommended 150 metres, as opposed to 300-500 metres recommended for sand and limestone. In the City's report to Council dated 27 January 2015 for the Approval on Lot 800, it was stated:

"The City considers that the proposal is unlikely to adversely affect the amenity of existing and future residents, if the applicant complies with the submitted management plans."

Figure 9: Lot 800 Sand Quarry Inert Landfill Staging



Source: City of Rockingham Council Report 27 January 2015

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1.4.5.4 Other Planning Approvals Allowing Urban Development Within the Extractive Industry Buffer

Both the Paradiso Estate SP (Lots 14, 15 and 299 Kerosene Lane) and the Baldivis North SP (Lots 30 and 31 Kerosene Lane) just west of the site have been approved within the land use buffer for the extractive industry on Lot 800. Residential dwellings have been constructed within the Baldivis North SP and subdivision works have begun on the Paradiso Estate SP. The Paradiso Estate SP was originally approved by the WAPC on 11/2/2011 and the Baldivis North SP on 18/6/2007.

In the preparation of both the Paradiso and Baldivis North SPs, it was assumed that potential noise and dust impacts were manageable as excavation occurs below the level of Kerosene Lane, and existing earth bunds and vegetation mask visual and noise impacts for landholdings south of the quarry. Further, the existing quarry has no direct access to Kerosene Lane, meaning there are no potential conflicts with heavy vehicle traffic.

The WAPC has approved various subdivisions within these two SP areas subject to notifications on titles advising current and prospective purchasers of the potential hazard and amenity impacts associated with the existing sand and limestone extractive industry on Lot 800 to the north.

2.0 Site Conditions and Constraints

The following summary outlines the site's existing environmental conditions and is taken from the comprehensive Environmental Assessment and Management Strategy (EAMS) provided at Appendix B to this report. The objectives of the EAMS are to:

1. Outline the key environmental characteristics of the site;
2. Identify the relevant characteristics of the proposed development and structure plan design;
3. Detail any potential environmental impacts associated with the development; and
4. Outline how these impacts are to be managed throughout the planning and development process.

2.1 Biodiversity and Natural Area Assets

2.1.1 Flora and Vegetation

The flora and vegetation values of the site have been determined based on a preliminary (level 1) flora and vegetation survey undertaken by Emerge Associates.

Generally, vegetation across the site is sparse and of relatively low quality. The vegetation across the property consists of overstorey only as a result of the land being used for grazing and private recreational purposes for many years.

Approximately 39 flora species were recorded within the site, including 19 native species and at least 20 introduced (weed) species. No Threatened or Priority Flora species or Threatened or Priority Ecological Communities were found to occur within the site.

While this conclusion is based on a preliminary survey, none of these significant values are expected to occur within the site due to the high level of historical disturbance which has resulted in the removal of almost all native understorey species, and subsequent widespread weed invasion.

The site is not subject to any Bush Forever controls.

Much of the central portion of the property is at topographic elevations greater than 30 metres Australian Height Datum (AHD); a height above which potable water will not be able to service future lots. The Water Corporation has advised that there is a need to reduce the levels across the site to a maximum of 32 metres AHD. This will result in no opportunity to retain native trees across the affected portions of the site. Wherever possible, existing native trees will be retained in public open space areas, particularly focusing on retaining those species providing preferred habitat for significant fauna species.

Refer Figure 10, Opportunities for Tree Retention.

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Figure 10: Opportunities for Tree Retention



- LEGEND**
- SUBJECT LAND
 - EXISTING LOT BOUNDARY
 - PROPOSED LOT BOUNDARY
 - 32m EXCAVATION ABOVE 32m AHD
 - TREES PROPOSED TO BE RETAINED WITHIN POS (WHERE POSSIBLE)

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2.1.2 Fauna

A preliminary (Level 1) fauna survey and a targeted black cockatoo survey (Greg Harewood 2015) was undertaken to understand the fauna habitat values within the site and potential for conservation significant fauna to occur within the site.

The survey found that fauna habitat values have been historically compromised by the total or partial clearing of native vegetation, livestock grazing and weed invasion, and any fauna species present would be generally common and widespread species with non-specific requirements which allow them to persist in highly disturbed habitats. Mature remnant trees within the site are considered potentially suitable habitat for Forest Red-Tailed and Carnaby's Black Cockatoos. Notwithstanding this the foraging value of this habitat is limited, the site does not support breeding activity and there is no known roosting habitat/activity within the site. The removal of potential Black Cockatoo habitat and the related obligations under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) will be addressed prior to any development of subdivision works progressive within the Structure Plan.

Refer Appendix B, Environmental Assessment and Management Strategy.

2.2 Topography, Landform and Soils

The site contains a prominent ridgeline, generally situated within with the centre of the site and falls away on either side to the eastern and western site boundaries. Elevation ranges from approximately 7 metres Australian Height Datum (m AHD) at its lowest point in the north-east of the site, to approximately 42 m AHD in the central-west portion of the site at the peak of the ridgeline.

Regional landform mapping by Churchward and McArthur (1980) indicates that the site comprises two landform formations: the Cottesloe formation in the west of the site; and the Karrakatta formation in the east. Both the Cottesloe and Karrakatta formation are of Aeolian origin. The Cottesloe formation is described as a low hilly landscape with shallow brown sand over limestone, with much exposed limestone. The Karrakatta formation consists of an undulating landscape with deep yellow sands over limestone.

Environmental geology (surface soils) across the site has been mapped by the Geological Survey of Western Australia. The geological units are listed in Table 4 below.

Table 5: Geological Units located within the site

Geological Unit	Equivalent on Geological Maps	Description
S ₇	Sand	Sand derived from Tamala Limestone (Qts). Pale yellowish brown, medium to coarse-grained, sub-angular quartz, trace of feldspar, moderately sorted, of residual origin.
LS ₁	Limestone	Tamala Limestone (Qtl) and Safety Bay Sand (Qhs) in part. Pale yellowish brown, fine to coarse-grained, sub-angular to well-rounded quartz, trace of feldspar, shell debris, variably lithified, surface kankar, of eolian origin.

Proposed bulk earthworks attempt to make use of the site's topography undulation generally, with drainage to be captured in Public Open Space (POS) at low points where possible. This is further discussed in Part 3.5.

Generally, the landform and soil type is suitable for development as they are stable and highly permeable. The sandy soils will ensure high rates of filtration of stormwater and provide a good opportunity for development for residential purposes.

The Department of Environment Regulation (DER) Contaminated Sites Database does not list any of the landholdings within the site.

The DER Acid Sulfate Soils (ASS) risk maps, available through Landgate's Shared Land Information Platform (SLIP), does not depict an ASS classification, suggesting the risk of the site containing ASS is relatively low.

Refer Figure 11, Topography.

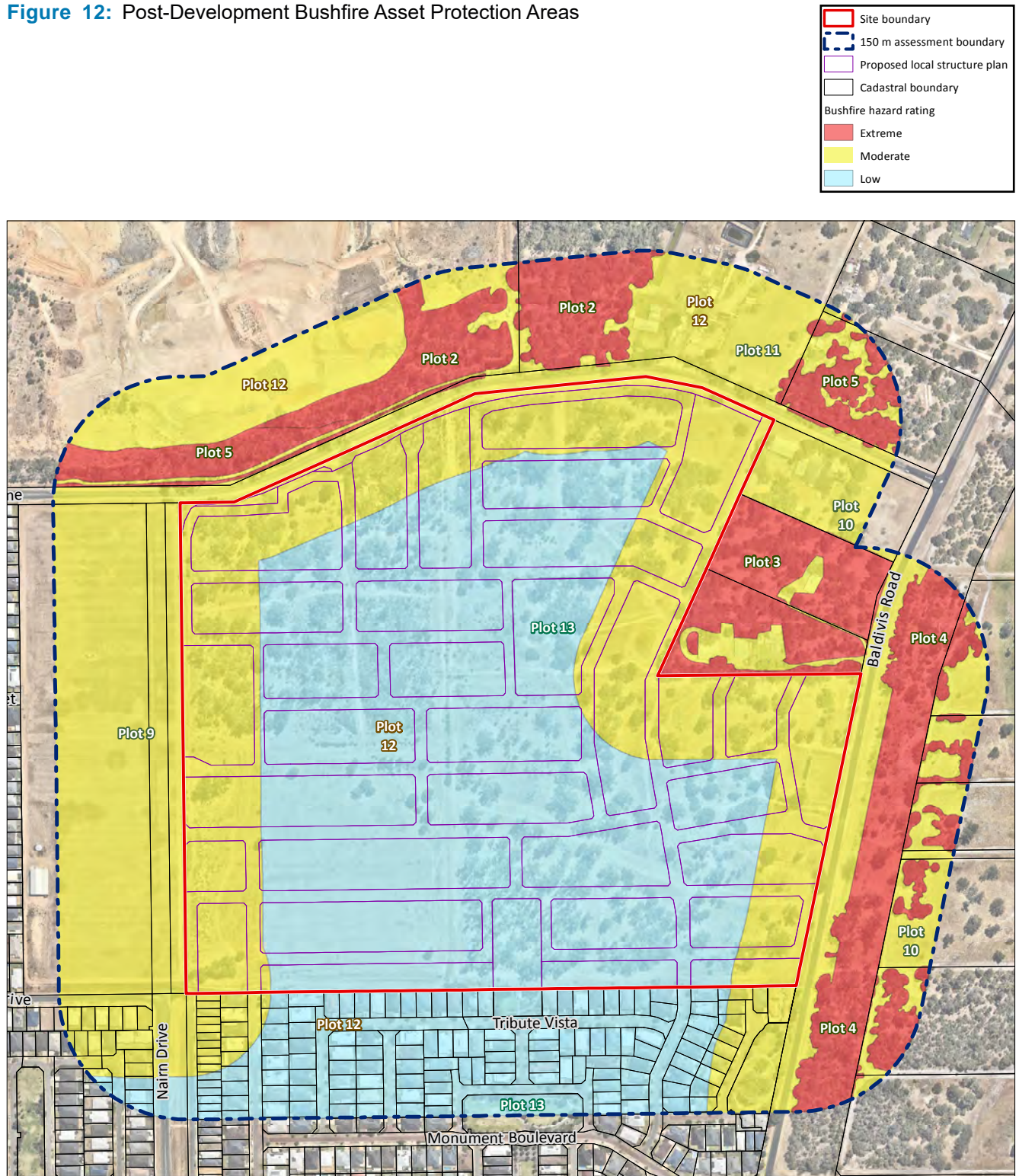
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Figure 11: Landform Map



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Figure 12: Post-Development Bushfire Asset Protection Areas



2.3 Hydrology

The large depth to groundwater means the residential land use is unlikely to impact groundwater resources post-development.

Urban water management strategies will be implemented in accordance with the Local Water Management Strategy prepared by Emerge in 2016. This prescribes water conservation strategies, as well as mechanisms to protect hydrological characteristics on site and off site.

Refer Appendix C, Local Water Management Strategy.

2.4 Bushfire Hazard

Bushfire hazard management is a requirement in accordance with the WAPC's State Planning Policy 3.7 Planning in Bushfire Prone Areas (WAPC 2015), and has been addressed through the preparation of a Bushfire Management Plan (Emerge Associates 2019), in accordance with the WAPC's Guidelines for Planning in Bushfire Prone Areas (WAPC and DFES 2017), and the Australian Standard AS3959-2009 Construction of buildings in bushfire prone areas (AS 3959) (Standards Australia 2009). The Bushfire Management Plan (BMP) responds to relevant bushfire hazards to minimise the potential impact of bushfires within and surrounding the site.

All areas within the site and immediately surrounding 150 metres have been assessed for the presence of bushfire prone vegetation and, where it occurs, its classification determined as per Table 2.4.3 of AS 3959 to derive the associated bushfire hazard rating levels. An indicative BAL assessment for exposed areas of the development has been undertaken for the site using the methodology in Appendix A of AS 3959, to ensure that future dwellings in the SP will fall within the acceptable level of bushfire risk.

Overall, the potential risks to future development from the identified bushfire hazards can be accommodated as part of future development, through the use of Building Asset Protection Zones and increased building construction standards in accordance with AS 3959.

Refer Appendix D, Bushfire Management Plan.

Refer Figure 12, Post-Development Bushfire Asset Protection Areas.

2.5 Heritage

A search of the Department of Indigenous Affairs Heritage Register indicated that there are no known archaeological or ethnographic Aboriginal sites recorded on the site. The near known site lies approximately 1.8 kilometres south of the SP area, nearest the intersection of Eight Road and Nairn Drive. If any archaeological material is discovered during subdivision or development, construction within that area will cease immediately and the findings will be reported to the Department of Indigenous Affairs.

There are no areas of European Heritage recorded as being on, or within the vicinity of, the site. The closest are the Baldivis Primary School, and a natural bush reserve at the rear of the school, approximately 270 metres south of the site, and the Group Settler's home located along Fifty Road approximately 1 kilometre west of the site.

2.6 Land Use Buffers

2.6.1 Sand and Limestone Quarry

A basic raw material 'Priority Resources Location' and 'Extraction Area' is located to the north of the site, north of Kerosene Lane, and currently supports active sand and limestone extraction operations undertaken by WA Limestone. This quarry operates under development approval and an extractive industry licence issued by the City of Rockingham, and a prescribed premises licence pursuant to Part V of the Environmental Protection Act 1986. The development approval and extractive industry licence has recently been issued for a period of 10 years, and the prescribed premises licence (category 12) period extends to 2019.

Structure planning has had regard for the requirements of Statement of Planning Policy 2.4 – Basic Raw Materials (SPP2.4) relating to the designated 'Priority Resource Location' and 'Extraction Area', specifically clauses 6.2 and 6.3.

Clause 6.2 of SPP2.4 recommends that priority resource areas and extraction areas should be identified as a Special Control Area in local planning schemes, setting out appropriate land use and development controls, arrangements for the referral of applications where appropriate, and specify matters to be considered before deciding on a planning proposal. While TPS2 does not include such a designation, in practice protection of the extraction operation is maintained by imposition of notifications on title for lots located within the EPA's recommended 300 metre separation distance to the quarry.

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Clause 6.3 of SPP2.4 specifies relevant consideration for the determination of applications for sensitive land uses, such as residential within 1000 m of a basic raw materials extraction area, which include the significance of the resource in terms of whether it is a key extraction area, priority resource area or extraction area and the likely effects of vehicular traffic, noise, blasting, dust and vibration arising from the extractive industry on the proposed use or development.

Based on publicly available information, it is evident that as part of processing and ultimately issuing the most recent approvals for the quarry, detailed consideration was given to the potential noise and dust emissions arising from the quarry operations. This was particularly the case in relation to existing sensitive premises immediately south of Kerosene Lane and also future urban development within North Baldivis.

Based on the City of Rockingham's assessment, historic noise and dust issues and complaints arising from the operation of the quarry over the past 30 years have been limited. A noise assessment undertaken to support these approvals indicated that the quarry complies with the Environmental Protection (Noise) Regulations 1987 at residences immediately south of Kerosene Lane within the site. It was also suggested that potential dust emissions were mitigated through ongoing site management practices and the presence of vegetated bunds interfacing with adjacent property boundaries and/or public roads. The quarry pit is set back 40 metres from Kerosene Lane which also contains a 3 metre high vegetated bund. The prescribed premises licence requires the operator to ensure that no visible dust emissions leave the premises boundaries.

The City of Rockingham and Western Australian Planning Commission recently approved residential development with the 300 metre generic buffer distance for the quarry based on EPA Guidance Statement No. 3 Separation Distances between Industrial and Sensitive Land Uses (EPA 2005). This development was immediately to the south of Kerosene Lane and west of the site within the North Baldivis Structure Plan, which is within 100 metres of the quarry operation. It was deemed that this was a low risk given the information available regarding the specific nature and historic management of the quarry operations.

In relation to the SP over the site, once sand extraction is complete, subdivision will commence in the southern extents of the site and progress north over time. Therefore it would be a number of years until residential development approaches

the extent of the 300 metre generic buffer from the operational quarry. In addition it is understood that quarry operations closer to Kerosene Lane have been completed and are progressing north. It is envisaged that notifications on titles may be necessary for any new lots created within 300 metres of the active quarry operations, and therefore the quarry is not a constraint in terms of urban development within the SP area.

Recent approval to filling of the depleted section of the site adjacent Kerosene Lane is discussed at Section 1.4.5.3 of this Report. While filling of the site with inert waste will continue beyond the lifetime of the quarry, EPA Guidance Statement No. 3 Separation Distances between Industrial and Sensitive Land Uses (EPA 2005) recommends a lesser buffer (compared to the quarry) of 150 metres between inert landfill and sensitive land uses. This buffer should prevail over the greater buffers required for the extraction operation.

Activities at the quarry are therefore manageable and do not restrict approval of the proposed SP.

2.6.2 Market Gardens

Landholdings immediately west of the site previously supported market gardening activities, however, this land use appears to have been discontinued sometime around 2006. This area is zoned 'Urban' under the MRS and is intended for future urban development under the City of Rockingham's Baldivis (North) District Structure Plan. It is understood that the landowner is currently progressing planning for the urban development of this area. Therefore this historic land use is not a consideration or constraint to urban development within the SP area.

2.7 Acoustic Assessment

Future development has the potential to be affected by road noise that will be transmitted from future traffic flows projected for Baldivis Road (to the west) and Nairn Drive (to the east). Kerosene Lane (to the north) has future traffic flows significantly below the threshold for which State Planning Policy 5.4: Road and Rail Transportation Noise and Freight Consideration in Land Use Planning (SPP 5.4) is applicable.

The applicant has undertaken an Acoustic Assessment (Herring Storer Acoustics 2016) which recommends the following noise amelioration measures be applied:

- 1.8m high barriers constructed where proposed lots share a boundary with Baldivis Road.
- 2.2m high barriers constructed where proposed lots share a boundary with Nairn Drive.
- Quiet House Design Package A construction techniques to be mandatory for any dwellings above the 'Noise Target', outlined in SPP 5.4, but below the 'Noise Limit'.
 - Quiet House Design Package B construction techniques to any lots above the 'Noise Limit' (only affects lots nearest Nairn Drive).
 - Notification on Titles can be used for any lots affected by road noise above the Noise Target.

Refer Appendix G, Acoustic Assessment completed by Herring Storer Acoustics.

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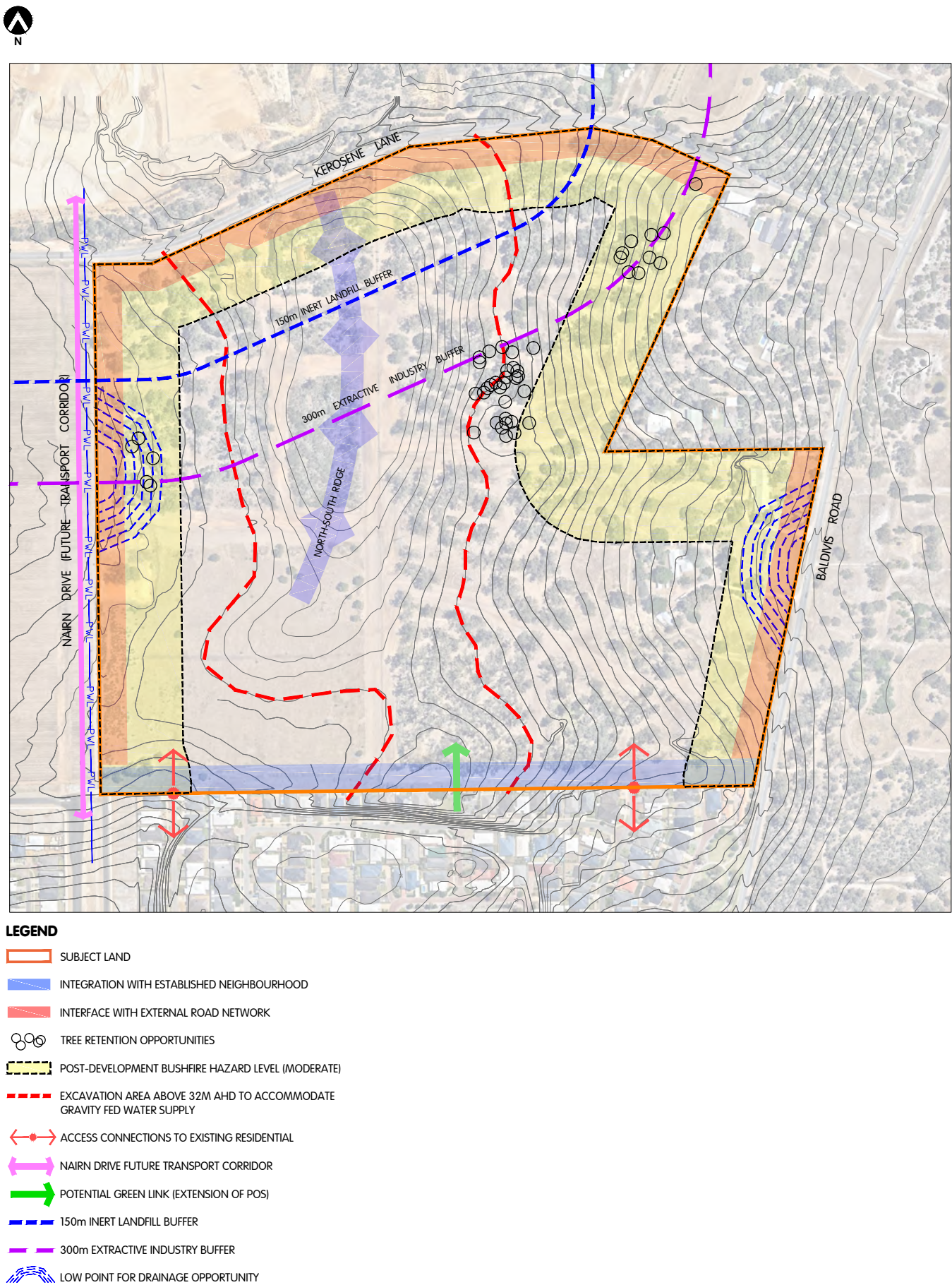
2.8 Summary of Issues and Opportunities

Integration_	With existing residential development to the south and with future residential to the north-east and the other regional road reservation and Kerosene Lane.
Sand Quarry Buffer_	150 metre buffer from approved inert landfill activities taking place on Lot 800 to the north, once stage 1 of landform reconstruction and rehabilitation has taken place.
Public Transport_	Future Transperth bus services identified for Nairn Drive.
External Road Network_	Regional connections to Nairn Drive future extension to the west, Kerosene Lane including future upgrades to the north, and Baldivis Road to the east. Two local connections can be provided into the existing residential estate to the south.
Interface_	With external road network and consideration of noise, traffic, and amenity impact.
Existing Vegetation_	Generally sparse and of low quality; not worthy of retention. Where possible existing vegetation of moderate quality and above to be captured in POS.
Bushfire risk_	Generally minimal across the site. External risks requiring a response include fuel loads and potential hazards to the south east, within the tramway reserve, to north east, within abutting Lot 1210 (256) Baldivis Road, and to the north, within Lots 800 and 293 (249) Kerosene Lane.
North-South Ridge_	Located toward the centre of the site to the north, provides opportunities for views, to the extent allowed by earthworks necessary for the provision of gravity-fed water and sewer services.
Topography_	Will need to be a maximum of 32 metres AHD, as advised by the Water Corporation, to allow for gravity fed water supply and reticulated sewer services to function adequately.
Gradient_	To the extent allowed by earthworks necessary for the above, will dictate the alignment of streets, running perpendicular with contour lines to minimise the use of expansive retaining walls.
Low Points_	Scattered throughout the site provide opportunity for the location of drainage within POS.
Power Lines_	High voltage (1kV – 33kV) overhead distribution lines run along Nairn Drive, Kerosene Lane, and Baldivis Road.
Services_	Can be connected from the existing development to the south, including gas, power, water, sewer, telephone services.
Local employment and services_	The nearest commercial centre will be located within 800 metres to the west of the site, along Kerosene Lane, being the local centre within the soon to be constructed Paradiso Estate.
Regional employment and services_	The nearest regional employment and services are located approximately 3 kilometres south of the site, being the Baldivis Activity Centre, which includes a District level shopping centre, mixed use areas close and bulky goods retail.
Schools_	x 3 are located within proximity of the site. These include Baldivis Primary School 250 metres to the south, future Primary School and High School immediately adjacent to the east, and future Primary School within 800 metres to the west (within the Paradiso Estate).
Noise_	Road noise from Baldivis Road and Nairn Drive, generally affecting lots nearest these roads. The submitted Acoustic Assessment identifies various measures to mitigate these noise impacts to facilitate development.

Refer Figure 13, Issues and Opportunities Map

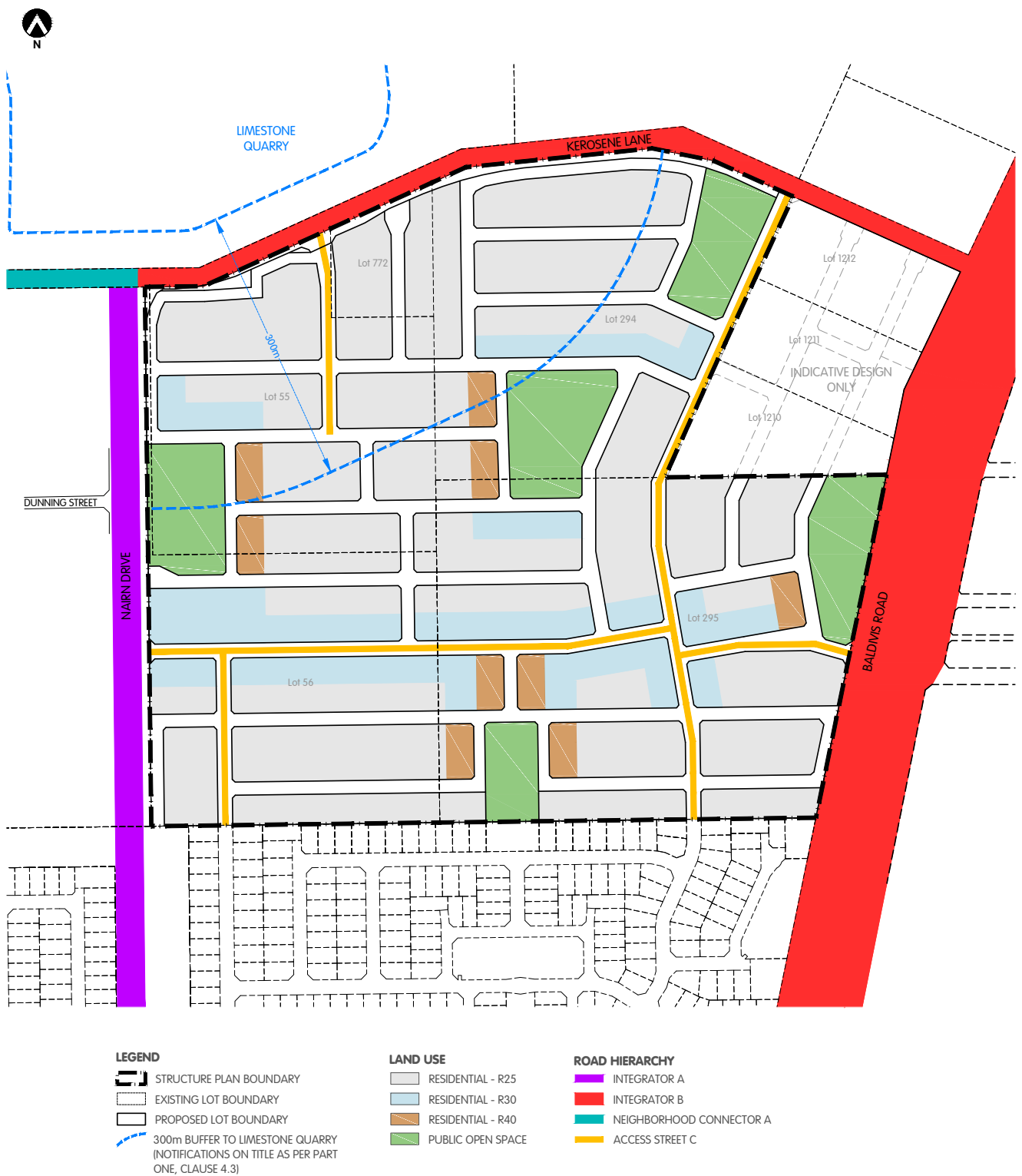
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Figure 13: Issues and Opportunities Map.



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Figure 14: Structure Plan Map (RD1200H)



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3.0 Land Use and Subdivision Requirements

3.1 Land Use

Consistent with Liveable Neighbourhoods, the design objectives for the SP include the following:

- To respond to the topography and site conditions of the land;
- To provide a walkable, interconnected street network that is integrated with adjoining development;
- To integrate the drainage with POS for the aesthetic and recreational value of future residents
- To ensure a balanced mix of lot sizes and dwelling types appropriate to the locality that contribute to affordable housing options; and
- To maximise the solar orientation of residential lots.

The SP incorporates a subdivision layout based on a loose grid pattern, adjusted where necessary to respond to the topography, which integrates with the lot design and road network of surrounding and approved development. The design delivers a range of residential densities between R20 – R40. All lots are within 400 metres or a five minute walk of POS.

As outlined in Part 2.7, the site has access to three primary schools, one high school, and one local centre, all within 800 metres of the SP.

Surrounding land within the NBDSP comprises a number of approved and constructed residential estates, including the Chase estate immediately south and Baldivis North to the south west and west. Land abutting the site to the west (Lot 53) is currently used for rural purposes, but is intended to be developed for urban purposes as identified in the NBDSP. Land to the east is separated by Baldivis Road and a former tramway reserve and is currently used for rural purposes. This land is being developed for urban purposes in accordance with the East Baldivis District Structure Plan. Land to the north is separated by Kerosene Lane and is currently used for a mix of rural land uses (Lots 293 and 1213) and a sand and limestone quarry (Lot 800).

The residential land use proposed on the site is consistent with the recommendations and framework of the NBDSP and the intent of its 'Development' zoning under TPS2 and its 'Urban' zoning under the MRS.

3.2 Open Space

In accordance with clause 4.1.1(a) of the City's Local Planning Policy 3.4.1 (POS Policy), a POS Concept Plan (Figure 15), POS Schedule (Table 5) and Local Water Management Strategy (LWMS) (Appendix E) are provided as part of this SP.

The location of POS is influenced by a number of factors including drainage, topography, the interface with adjoining developments, the design of the road network, and the need to provide for local amenity within proximity to the majority of residents. The POS Schedule provided at Table 6 demonstrates that the required minimum 10% open space is provided, distributed in accordance with the requirements of Liveable Neighbourhoods.

POS areas meet the size and location criteria established in Liveable Neighbourhoods and clause 4.3 of the City's POS Policy; specifically:

- All areas of POS are greater than 2,000m²; and
- The spatial distribution of local, neighbourhood parks meet the required proximity and servicing targets, providing equitable access to a diverse array of Open Space areas;
- POS areas integrate required urban water management functions in accordance with the approved LWMS;
- POS areas are fronted by adjacent residential development to maximise surveillance opportunities;
- POS has been located to protect significant trees and to incorporate an agreed point of elevation on the site; and
- Additionally, the amount and location of POS meet the proportional obligations stipulated within the NBDSP.

Refer Figure 15, Public Open Space Concept Plan and Table 5, Public Open Space Schedule.

Refer Appendix H, Landscape Management Strategy.

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Figure 15: Public Open Space



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Table 6: Public Open Space Schedule (Endorsed May 2019)

Site Area				47.2727 ha
Deductions				
Dedicated drainage not included in POS				0.3134 ha
Kerosene Ln road widening				0.4670 ha
Gross subdivisible area				46.4923 ha
Public open space @ 10 per cent				4.6492 ha
May comprise:				
- minimum 80% unrestricted POS				3.7194 ha
- maximum 20% restricted use POS				0.9298 ha
Public Open Space Contribution	Open Space Area (Net)	Unrestricted	Restricted (1:1 to 1:5)	Dedicated Drainage not included in POS (1:1)
POS 1 (Basin B)	1.0204 ha	0.9346 ha	0.0396 ha	0.0462 ha
POS 2 (Basin C)	1.1695 ha	1.0180 ha	0.0612 ha	0.1372 ha
POS 3 (Basin D)	1.3373 ha	1.2593 ha	0.0284 ha	0.0496 ha
POS 4 (Basin A)	1.0651 ha	0.9565 ha	0.0282 ha	0.0804 ha
POS 5	0.6164 ha	0.6164 ha	-	-
Sub-Total	5.2087 ha	4.7848 ha	0.1574 ha	0.3134 ha
Total Public Open Space Provision				4.9422 ha (10.45%)

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3.3 Residential

The design proposes 684 residential lots within a residential density range of R20-R40, providing a variety of housing options and lot mix (Figure 14).

The development achieves a residential density of 22.6 dwellings per residential site hectare, complying with the density target of 22 dwellings per residential site hectare set by Liveable Neighbourhoods.

The yield represents an increase to the density yield assumptions used within the NBDSP, which assumed 12 dwellings per gross urban zoned hectare, as well as a significant increase relative to the approved CDP.

Subdivision and development will be undertaken in accordance with the City's "Planning Policy 3.3.22 - Medium Density Single house Development Standards - Development Zones."

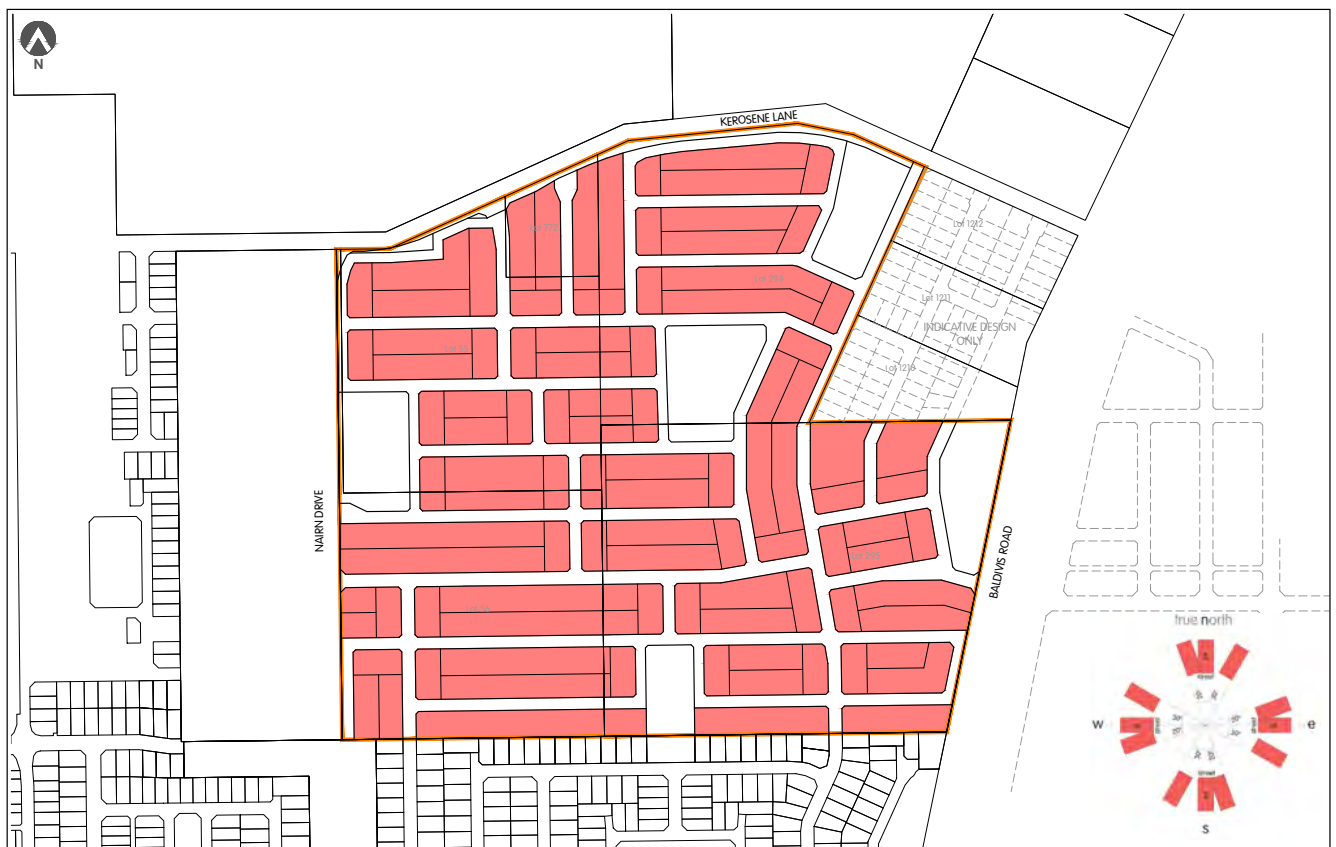
The alignment of streets allows vistas to be captured, where possible, toward points of visual interest such as parkland and views from higher ground. These measures result in an attractive and safe pedestrian environment with high levels of passive surveillance.

The placement of lots looking south, as dictated by the local road network, achieves a highly desirable solar orientation outcome, with the majority of lots aligned on an east-west or north-south axis as recommended by Liveable Neighbourhoods (Figure 16).

Local Development Plans (LDPs) (formerly Detailed Area Plans) can be used in specific areas where it is necessary that solar orientation, built form and/or streetscape issues be addressed in a uniform and coordinated manner. Areas where LDPs are required include:

1. Lots with a direct interface with Public Open Space.
2. Any lots that propose grouped or multiple dwelling development.
3. Lots deemed to be affected by a recognised bushfire hazard, as identified spatially in Spires - Kerosene Lane Bushfire Management Plan (Appendix D).

Figure 16: Solar orientation



3.4 Movement Network

The SP road network design provides for regional connections to Nairn Drive to the west, Kerosene Lane to the north, and Baldivis Road to the east. The connection to Baldivis Road to the east will provide access to a proposed primary school immediately east of the site. Additionally, direct local connections to the existing residential estate to the south are provided.

Generally, the road layout is based upon a grid system that permits safe and legible movement throughout the site and to adjoining development. The road network is highly connected, maximising pedestrian permeability. The site's movement network, facilitated by a series of local access streets, works in harmony with the alignment and hierarchy of roads identified in the NBDSP and the Baldivis Road Needs Study.

Nairn Drive abuts the site to the west and will be a future north-south Integrator A road connecting through to the broader NBDSP area. Nairn Drive will eventually connect through to Mundijong Road (Kulija Road) to the north, which provides access to the Rockingham CBD to the west and the Kwinana Freeway to the east. Regional road planning for the broader district suggests that Nairn Drive will carry the majority of north-south vehicles through the North Baldivis locality, with a projection of 30,000 vehicles per day. The current Baldivis Road connection to Mundijong Road to the north will be disconnected with a fly over intersection at some point in the future, further emphasising the primacy of north-south movements along Nairn Drive.

Kerosene Lane abuts the site to the north and provides access to the nearest local activity centre, approximately 800 metres west of the site. Kerosene Lane is designed to a rural standard to accommodate a low volume of vehicles travelling at 80km/h, with no footpaths provided. It is anticipated that Kerosene Lane will require upgrading to an urban condition, similar to the works that have occurred immediately adjacent the Paradiso Estate to the west. Specifically, Kerosene Lane west of Nairn Drive is identified as a Neighbourhood Connector A, and is anticipated to carry 5,000 vehicles per day. Kerosene Lane east of Nairn Drive, abutting the SP area, is identified as an Integrator B, but will carry only 5,000 vehicles per day.

The vertical interface between the Structure Plan area and Kerosene Lane will vary depending on the relative levels between the two which vary along the entire length. Discussions have been undertaken with the City of Rockingham and a profile for Kerosene Lane has been agreed. This has been resolved based on a combination of Austroads requirements, land availability and tree retention. The agreed plans are shown in Drawings BDVCAN80 K-02 – K-08 which

are included in the Engineering Services Report at Appendix F. These drawings are by necessity complex but are based on accurate site survey to ensure that the roadway can be reasonably accommodated. The general standard cross section is shown in Drawing K-03 provided at Figure 19 with more specific cross sections shown in Drawings K-0 to K-08 for the entire length of the roadway between Nairn Drive and Baldivis Road detailed in Appendix F.

As the site is bound by regional and district road connections, a series of internal access streets, arranged in a grid formation, is sufficient to handle local traffic, pedestrian and bicycle movements. It is predicted that the SP area will generate a total of 5,800 vehicle movements per day that can be disbursed within the planned external road network described above in an efficient manner.

The application of Access Street C roads (16 metre wide reserves) are proposed for connections that distribute traffic to the external road network, including Nairn Drive, Kerosene Lane, and Baldivis Road. Access Street C roads will carry less than 3,000 vehicles per day. Access Street D roads (14.2 metre wide reserves) are used for all other internal roads that will accommodate less than 1,000 vehicles per day.

Dual use paths will be provided on higher order local access streets. Lower order access streets will carry minimal traffic and can therefore safely accommodate on street pedestrian movement, in addition to neighbourhood cycling movements. Regional cycle movements will be accommodated along Nairn Drive, Kerosene Lane and Baldivis Road.

The WAPC's (2006) Transport Assessment Guidelines for Developments advocates that 90 per cent of dwellings should be within 400 metres of a bus route. Although the current nearest bus route (Transperth Bus Route No. 568) terminates over 2 kilometres south of the site along Nairn Drive, Transperth plans on extending this route along Nairn Drive to connect with Kerosene Lane. In addition, future bus route no. 569 is expected to run along Kerosene Lane. Both future public transport connections will provide access to the broader Baldivis locality and the Rockingham CBD, with bus route no. 569 anticipated to terminate at Wellard Rail Station.

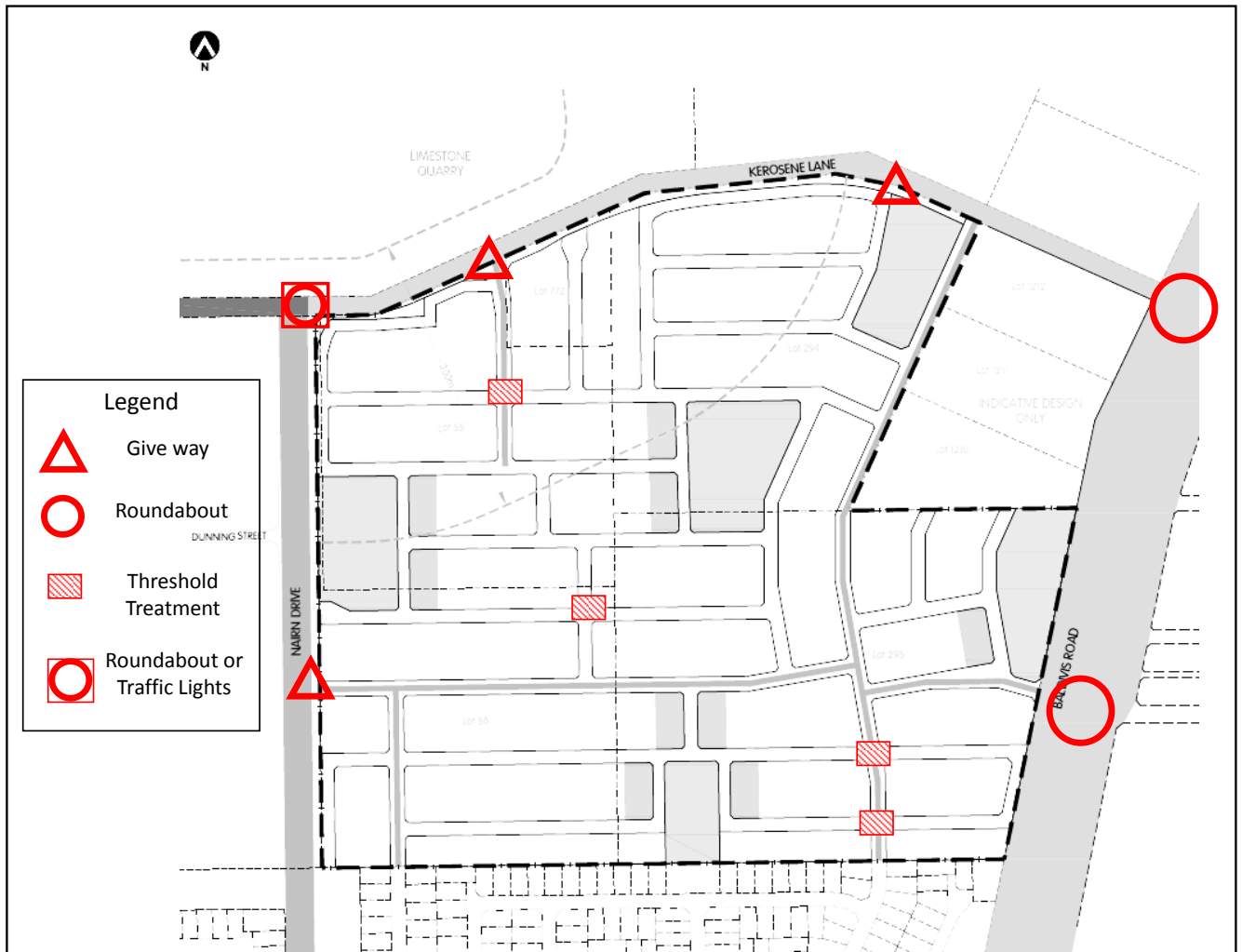
Proposed intersection treatments to Baldivis Rd, Kerosene Lane and Nairn Drive are depicted at Figure 17 and described in detail at Section 6.4 of the accompanying Traffic Impact Assessment (Appendix E).

Any land required for the upgrading and construction of Nairn Drive, Kerosene Lane and Baldivis Road will need to be ceded at the point of subdivision.

PART TWO_ EXPLANATORY

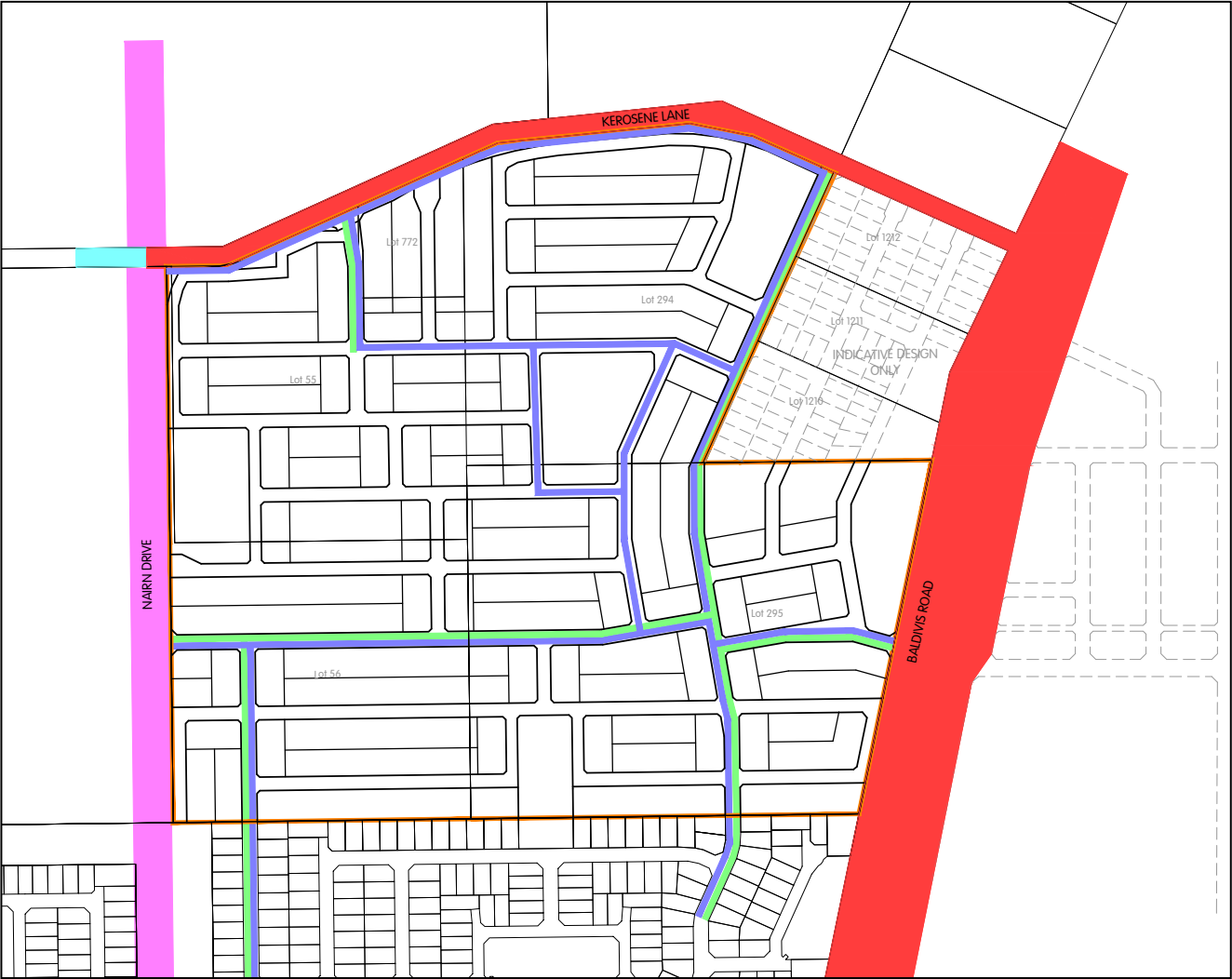
Refer Figure 18, movement network.

Figure 17: Intersection Treatments



PART TWO_ EXPLANATORY

Figure 18: Movement network



- LEGEND**
- SUBJECT SITE
 - ON ROAD CYCLE LANE
 - SHARED PATH
 - INTEGRATOR A (WITH DUAL USE PATH & ON-ROAD CYCLE LANES)
 - INTEGRATOR B (WITH DUAL USE PATH & ON-ROAD CYCLE LANES)
 - NEIGHBORHOOD CONNECTOR A (WITH DUAL USE PATH & ON-ROAD CYCLE LANES)
 - ACCESS STREET C
 - ACCESS STREET D

PART TWO_ EXPLANATORY

3.5 Water Management

Experience with this land form in developments south of the site shows the soils to be free draining, meaning that all stormwater can be retained on site by soakage in swales in line with current best practice as outlined in Liveable Neighbourhoods and Better Urban Water Management (WAPC, 2008).

Refer to the LWMS at Appendix C.

3.6 Education Facilities

Three primary schools and one high school are located within close proximity to the site. These are the Baldivis Primary School 250 metres to the south, future Primary School and High School immediately adjacent to the east, and future Primary School within 800 metres to the west (within the Paradiso Estate). The use of this site for residential purposes is consistent with the broader planning done for the wider area within both the NBDSP and EBDSP, which involved extensive consultation with the Department of Education.

3.7 Activity Centres and Employment

The nearest local activity centre is located 800 metres west of the site within the Paradiso Estate. This will provide for local convenience retail and amenities for future residents. The Baldivis District Shopping Centre is located 3 kilometres south of the site and will be accessible via Nairn Drive.

The proximity of the site to the Kwinana Freeway (giving high speed access to Perth and Mandurah) and the Rockingham CBD ensures good access to employment opportunities for future residents.

3.8 Infrastructure Coordination and Servicing

The land can be connected to all services, either by extension from the neighbouring subdivision abutting the site on its southern boundary, or by extension of extra services to the site from the south and west as described below. Power and telephone services already pass along the site frontage.

The Water Corporation has given advice that any land above the RL 32m AHD level will require a booster facility to enable water services to be provided.

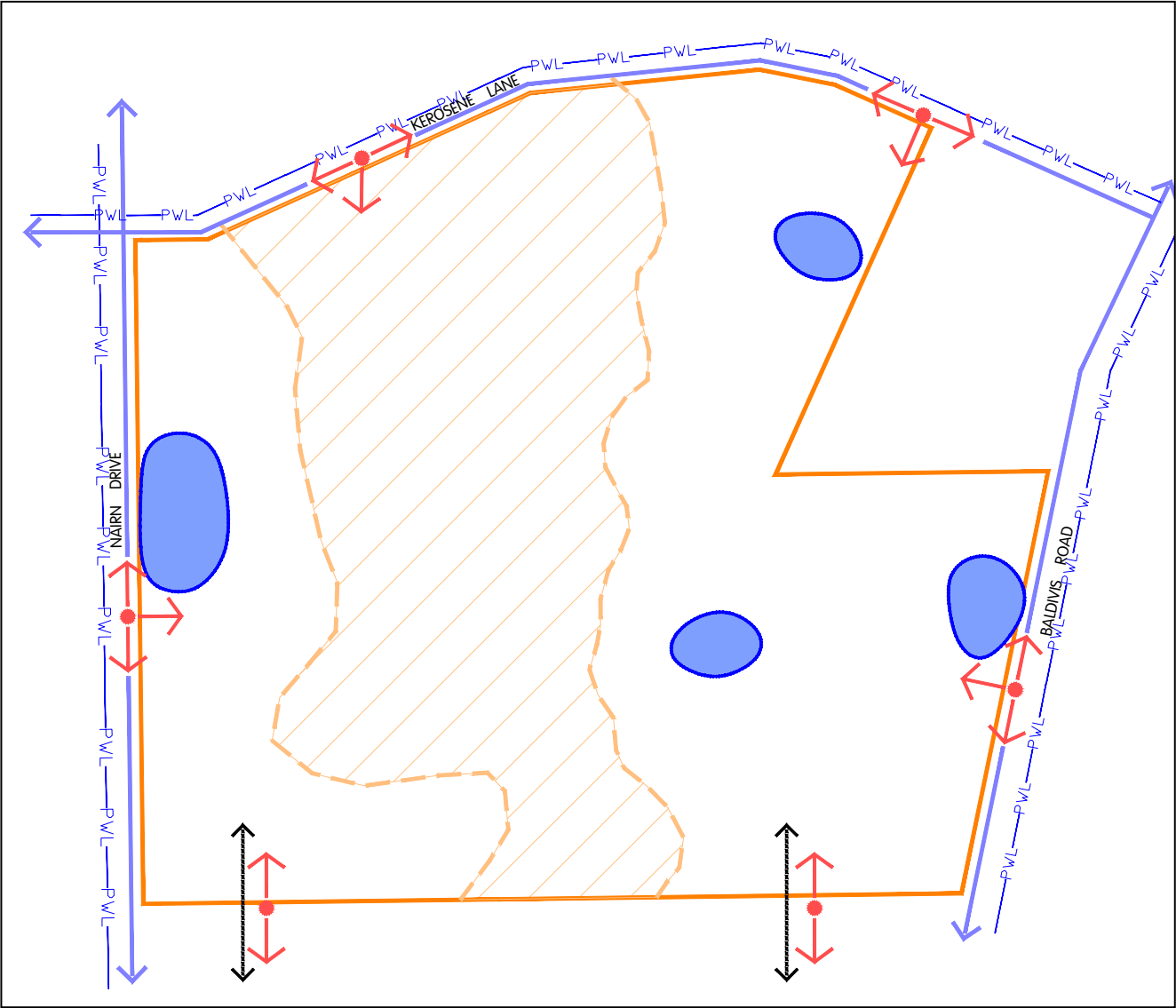
The Water Corporation has advised that sewer services are available, and that the land can be connected to existing sewer infrastructure.

All storm water discharging from the development will be contained on site in drainage swales proposed in POS areas throughout the site, and specifically at the north east corner of Lot 294 Kerosene Lane, the north east corner of Lot 295 Baldivis Road and centrally on the western boundary. These basins will retain the 1 in 100 year storm runoff on the site.

Refer to Appendix F, Engineering Services Report.

Refer Figure 19, Infrastructure and Servicing Plan

Figure 19: Infrastructure and Servicing Plan



- LEGEND**
- SUBJECT LAND
 - STORMWATER DRAINAGE AREAS
 - EXCAVATION AREA ABOVE 32M AHD TO ACCOMMODATE GRAVITY FED WATER SUPPLY
 - ATCO GAS/UNDERGROUND POWER CONNECTION
 - KEY CONNECTION ENTRY POINTS
 - OVERHEAD POWER LINE

3.9 Developer Contribution Arrangements

The LSP area is subject to the Development Contribution Area No. 2 (DCA2) pursuant to TPS 2. In accordance with DCA2 a financial contribution of \$1,963 per dwelling created applies for the Baldivis North locality. These contributions will assist the City in providing a range of district, sub-district, and local facilities, community services and infrastructure for the benefit of all residents.

3.10 Staging

Development will most likely occur in the following order, based on current circumstances and assumptions:

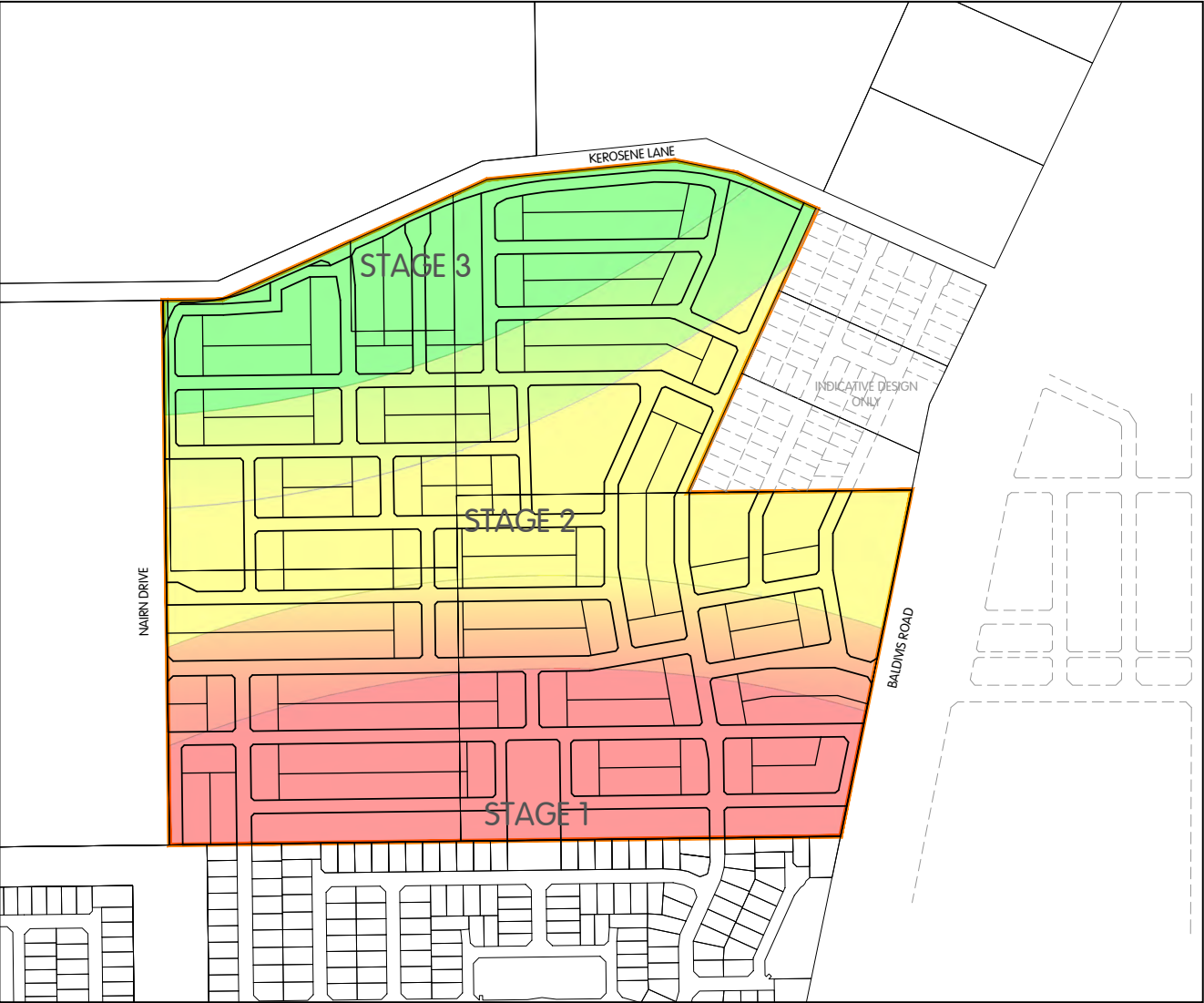
1. The extension of readily available services from existing development to the south;
2. The timing for the upgrade of Kerosene Lane and extension of Nairn Drive; and
3. The phase, activity, and level of disturbance (if any) caused by the sand and limestone quarry to the north.

The first stage will occur abutting the existing development to the south, with subsequent subdivision applications likely to facilitate development moving north across the site as the timing of external elements permits.

Any earthworks undertaken over the site will be subject to approval from the City of Rockingham. Prior to commencement of works, a project management plan will be prepared, which will cover matters such as dust, noise, vibration and safety management. These plans are prepared once the detailed design is completed and an earthworks strategy has been resolved. These plans include such measures as regular road sweeping, potential installation of rumble strips to minimise sand trafficked onto the roadways by vehicles.

Refer Figure 20, Staging Plan

Figure 20: Staging Plan



LEGEND

- STAGE 1
- STAGE 2
- STAGE 3

4.0 Conclusion

The Spires – Kerosene Lane Structure Plan represents an improvement to the Comprehensive Development Plan, formerly approved on the land, accommodating development that responds to contemporary planning policy and market expectations. The SP will facilitate residential development complemented by high quality and accessible public open space, consistent with the land use intention set by the local strategic planning context.

It is expected that the SP will accommodate approximately 684 dwellings, generally consisting of single dwellings on freehold lots, facilitating the residence of 1,847 people. Future residents will be well serviced by the internal public open space, surrounding road network, the availability of retail and employment land nearby (Neighbourhood Centre within 800 metres to the west and Baldivis District Centre 3 kilometres to the south), and education facilities within close proximity, including 3 primary schools and 1 high school site within 800 metres of the SP area.

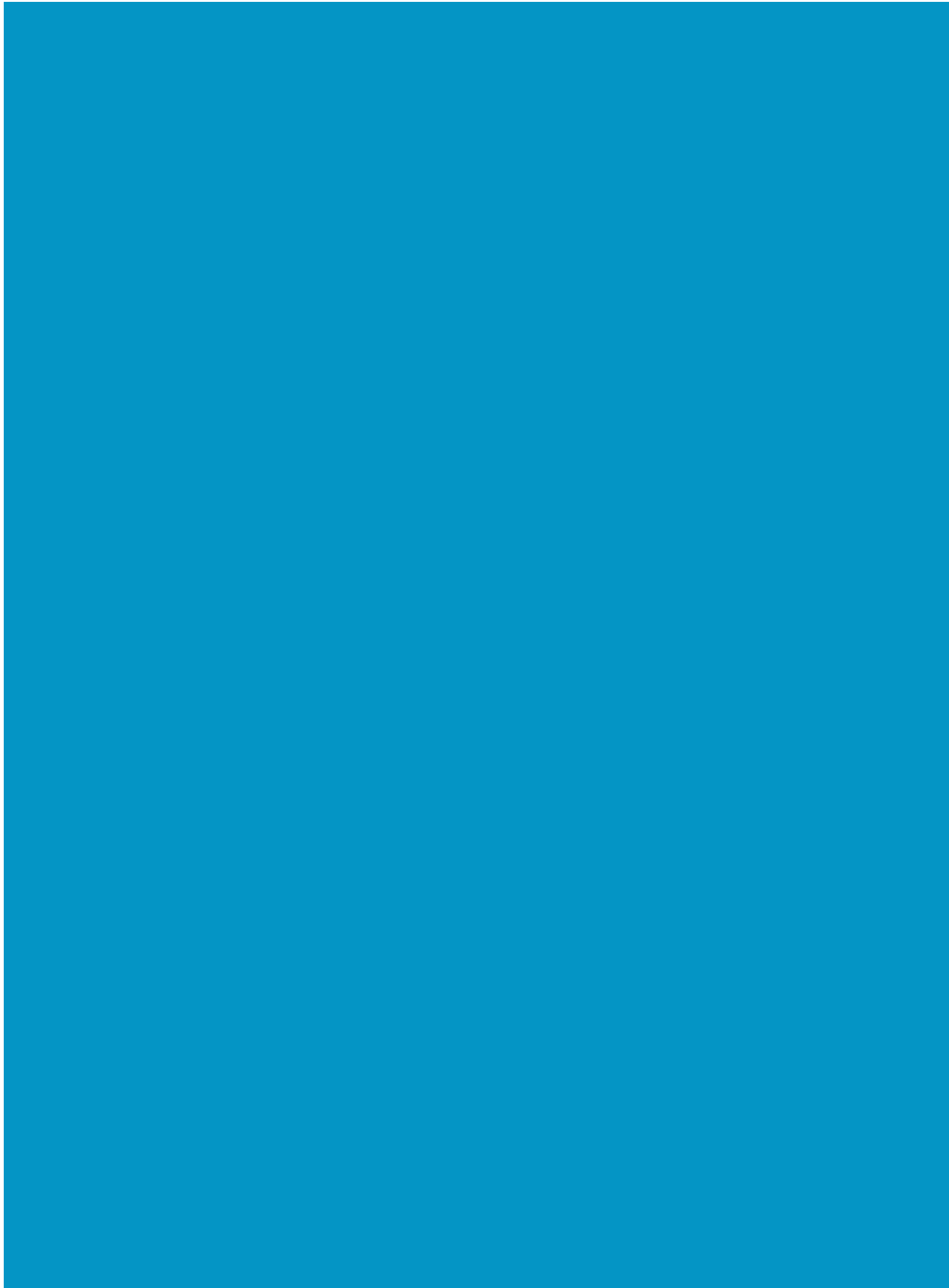
To summarise, the SP achieves the objectives of:

- State directed density targets outlined in Directions 2031 and Beyond and the Draft South Metropolitan Peel Sub-Regional Planning Framework, by contributing density at a level appropriate for greenfield urban areas and the local planning context.
- The higher order strategic planning outlined in the North Baldivis District Structure Plan, by contributing 54.1% of the required dwellings, despite contributing only 38.3% of the land relative to Precinct 1 of the DSP.
- The Liveable Neighbourhood density target of 22 dwellings per residential site hectare, by providing 22.6 dwellings per residential site hectare.
- The City of Rockingham and EPA's expressed desire to avoid land use conflict between sensitive land uses and industry activities, by staging development from south-north to allow the operational sand and limestone quarry to exhaust the resource closest to Kerosene Lane, moving the necessary buffer outside of the SP area.



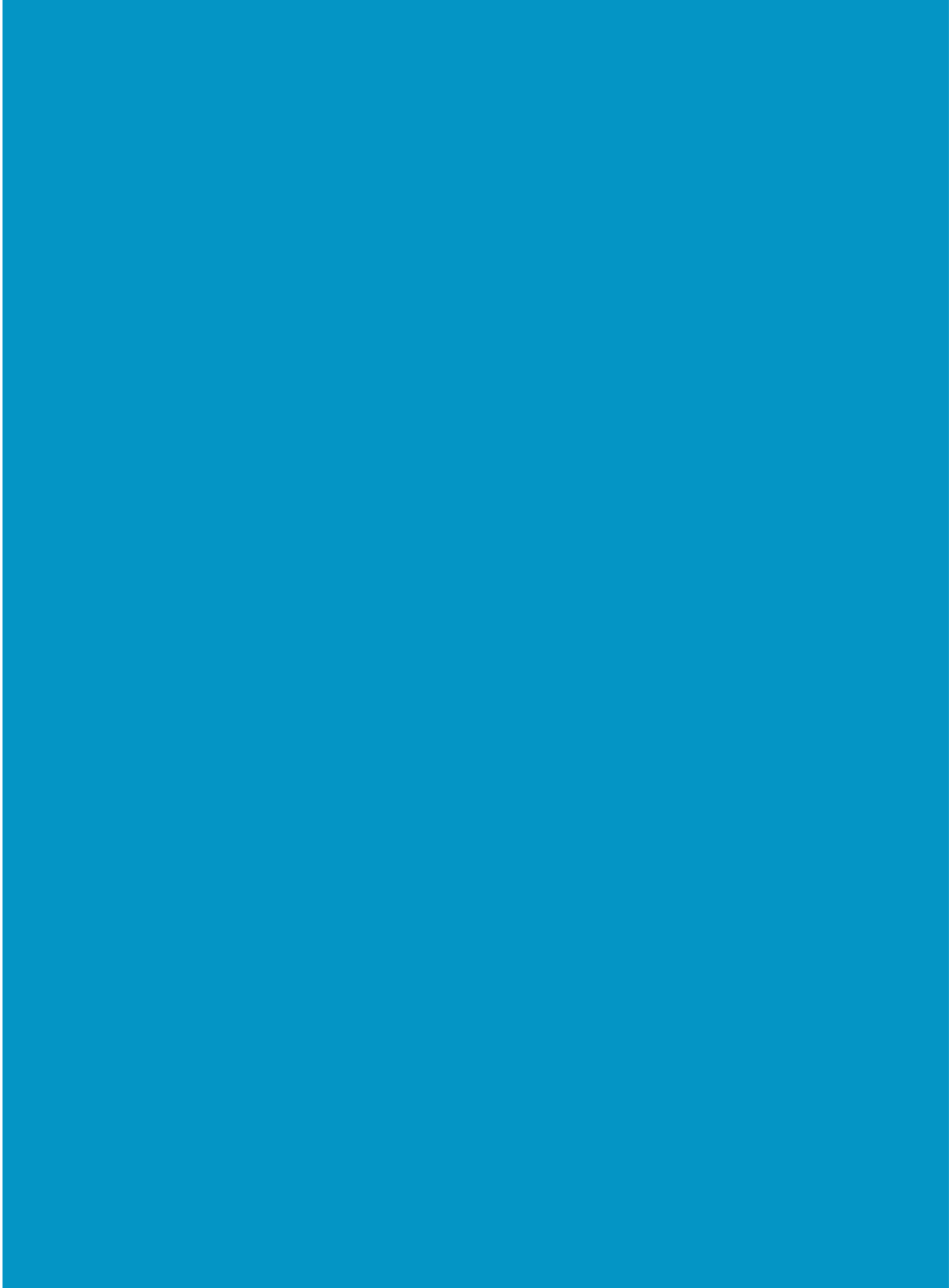


Certificates of Title



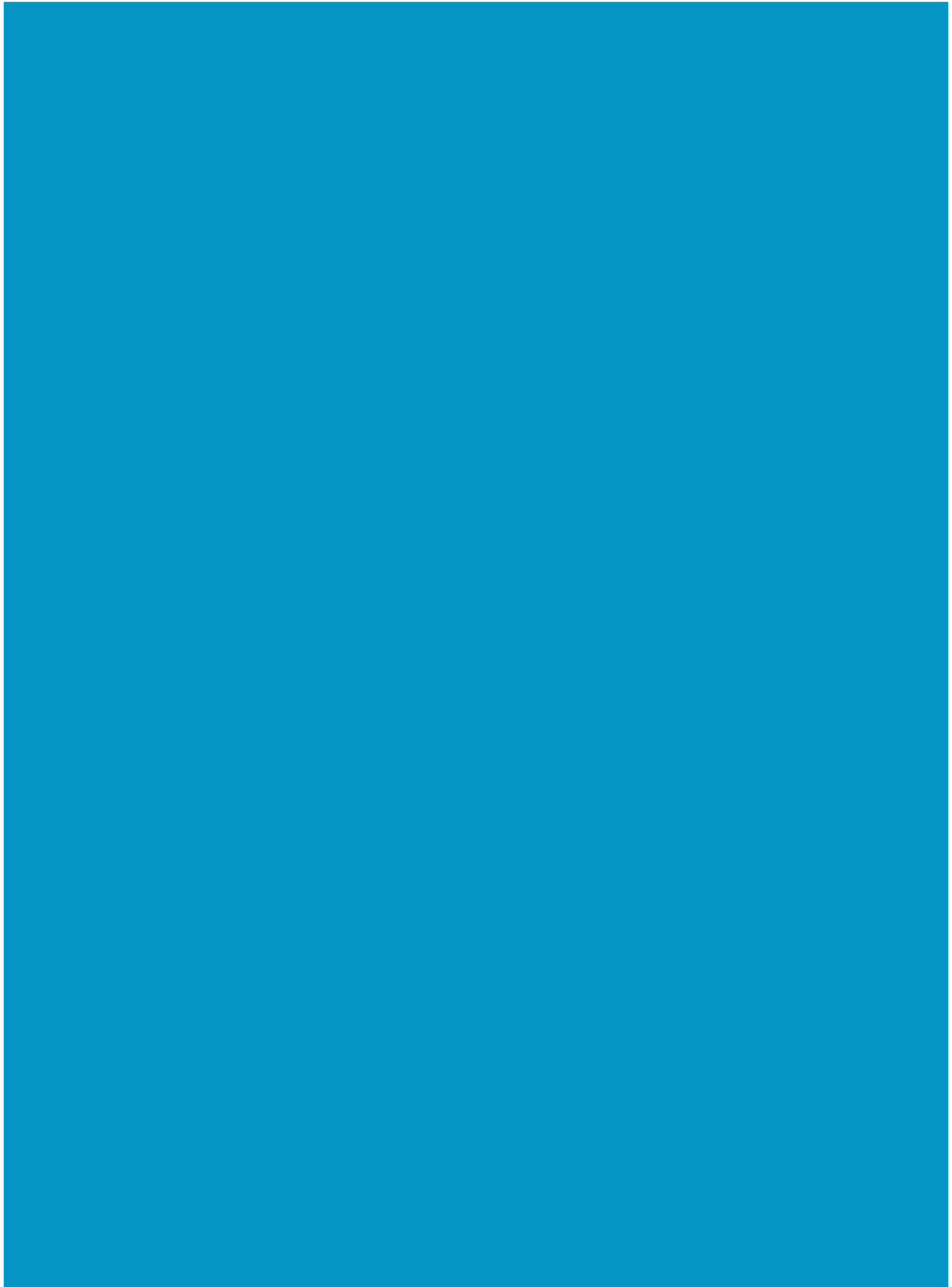


Environmental Assessment and Management Strategy





Local Water Management Strategy



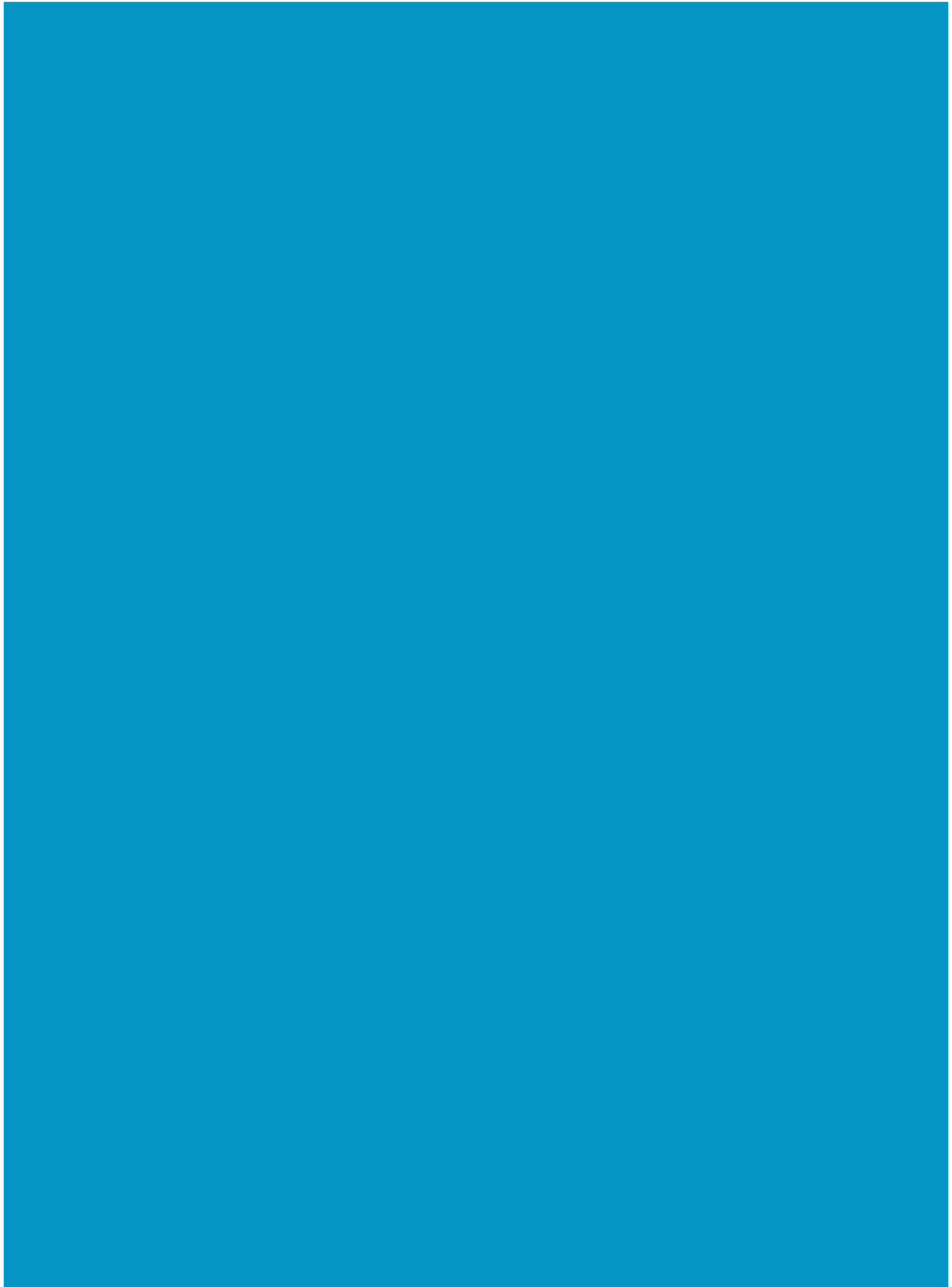


Bushfire Management Plan





Transport Impact Assessment

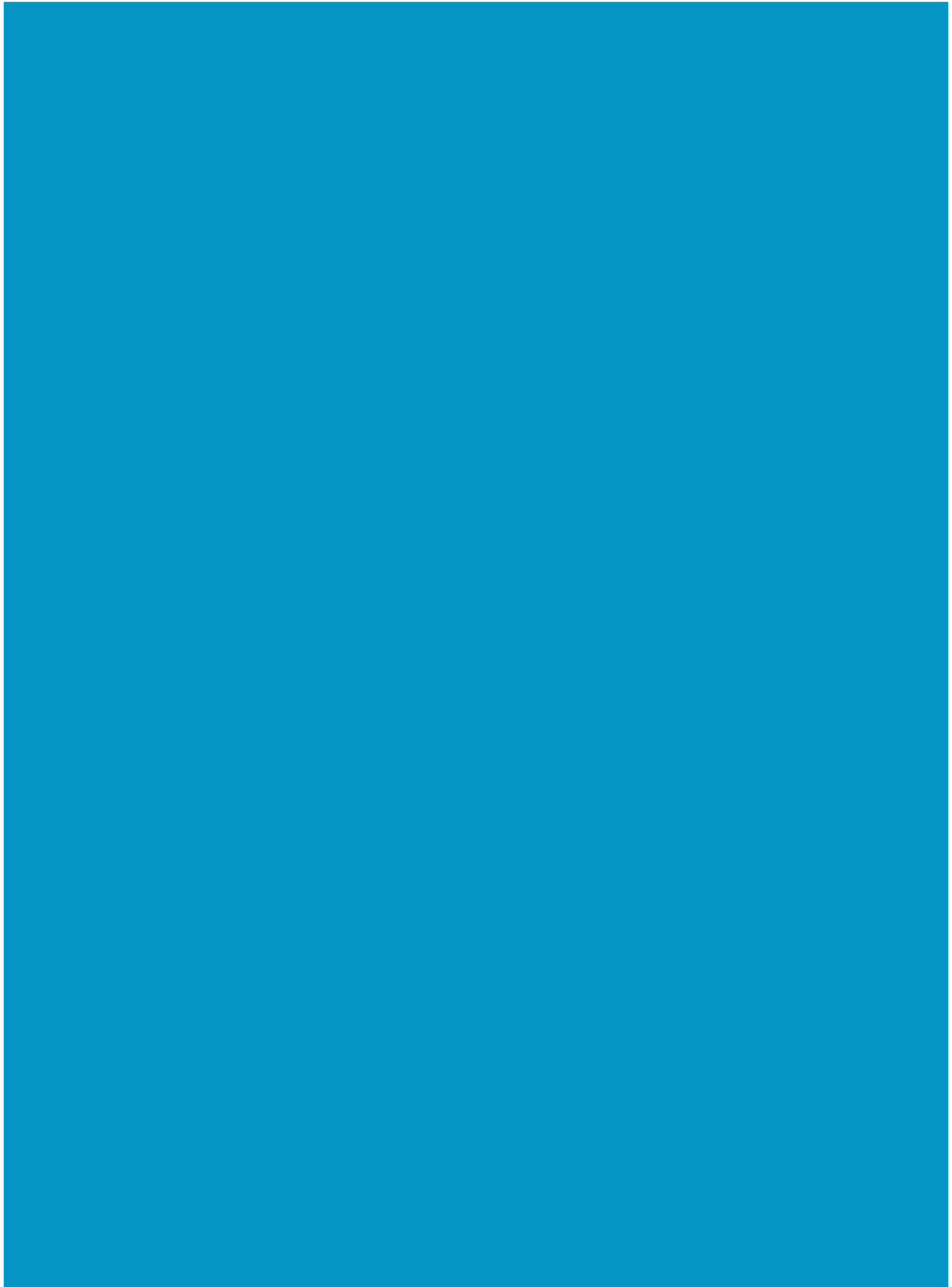


Engineering Services Report





Acoustic Assessment



Landscape Management Strategy

