Shire of Irwin

Springfield Structure Plan

Prepared for the Shire of Irwin by GHD Pty Ltd



This structure plan is prepared under Clause 15 and Clause 16, Schedule 2 Part 4 of the Deemed Provisions – Planning and Development (Local Planning Schemes) Regulations 2015

IT IS CERTIFIED THAT THIS 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

DRAFT

Table of amendments

Amendment No.	Summary of the Amendment	Amendment type	Date approved by the WAPC

DRAFT

Executive Summary

Springfield is located west/south-west of the Dongara and Port Denison towns, within the Shire of Irwin. The area currently contains rural residential lots and a few local businesses within the north and south of the structure plan area, divided by an undulating natural dune system. The structure plan aims to coordinate the development of land, and proposes bushfire and water management requirements at the subdivision and development stage to minimise risk in the event of a bushfire event, ensure adequate provision of water and appropriate disposal of wastewater. The structure plan proposes an indicative road layout to improve access within Springfield and connectivity to the broader road network, and allow for future development of rural residential lots. The final road layout is subject to further detailed design and will be dependent on subdivision by landowners.

This Springfield Structure Plan supersedes the 1994 Subdivision Guide Plan – Springfield Special Rural Zone.

Item	**Data**		**Structure Plan Ref (section no.)**
Total area covered by the structure plan	1351.67 hectares		Part 2, section 2.8.
Area of each land use proposed:	Hectares	Lot yield	
• Rural residential	1270.28	1080	Part 2, section 2.8
• General farming	3.16	1	Part 2, section 2.8
Total estimated lot yield	1080		Part 2, section 2.8
Estimated number of dwellings	1080		Part 2, section 2.8
Estimated residential site density	1 dwelling per hectare		Part 2, section 2.8
Estimated population	2,592 persons*		Part 2, section 2.8
Number of high schools	0		N/A
Number of primary schools	0		N/A
Estimated commercial floor space	0 net lettable area		N/A
Estimated area and percentage of public open space given over to:	5 % cash in lieu required pursuant to Local Planning Scheme		Part 2, section 2.9
• Regional open space	Nil		N/A
• District open space	Nil		N/A
• Neighbourhood parks	Nil		N/A
	Nil		N/A
• Local parks	Nil		N/A
	Nil		N/A
Estimated percentage of natural area	5.08 hectares		Part 2, section 2.6
	0.3 %		

*based on 2011 Census, average person per household for the Irwin local government area

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Appendices

Appendix A: Local Water Management Strategy

Appendix B: Transport Report

Appendix C: Engineering Services Report

Appendix D: Preliminary Environmental Impact Assessment

Appendix E: Bushfire Attack Level

Appendix F: Pre-Lodgement Consultation

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Part One – Implementation

1. Structure Plan Area

The Springfield Structure Plan applies to the land contained within the inner edge of the broken line as shown on the structure plan map (Figure 1).

2. Content

This structure plan comprises:

- Part 1 – Implementation
  This section contains the structure plan map and planning provisions and requirements.
- Part 2 – Explanatory Report
  This section provides the background and explanatory information to support the structure plan and implementation of Part 1.
- Technical reports (Appendices to Part 2)

3. Operation

The Springfield Structure Plan comes into effect on the date approved by the Western Australian Planning Commission (WAPC).

4. Staging

The staging of subdivision and development will primarily be influenced by capacity constraints relating to power infrastructure, timing of adjoining subdivisions and consequent availability of connections to the road network.

Due to topographical and environmental constraints, further detailed investigations may be required to support subdivision of the land.

5. Land use, subdivision and development requirements

5.1. Land use

Land use permissibility within the Structure Plan area shall be in accordance with the corresponding zone or reserve under the Local Planning Scheme.

5.2. Public Open Space

Pursuant to the Local Planning Scheme, a five percent cash-in-lieu contribution to public open space shall be provided at time of subdivision.

5.3. Subdivision Requirements

Pursuant to the provisions of the Local Planning Scheme lot sizes on land zoned for Rural Residential purposes within the structure plan area are to be between 1.0 to 4.0 hectares.

Subdivision requirements within the structure plan area shall be in accordance with the Local Planning Scheme. In addition, at the time of lodgement for subdivision, a building envelope plan, identifying suitable building areas for each lot, shall be prepared to the specifications of the Shire of Irwin. The siting of building envelopes shall be cognisant of Scheme setback requirements, bushfire planning requirements and the need to minimise vegetation clearing. No building envelope is to be located within the Wastewater Treatment Plant buffer.

5.4. Development provisions

Development provisions within the structure plan area shall be in accordance with the Local Planning Scheme. In addition, the following specific development provisions apply:

Irwin River

- Proposed development within the river's flood fringe will be required to maintain a minimum habitable floor level of 0.5 m above the 1 in 100 annual exceedance probability flood level.
- Development within the floodway and/or obstructions to major river flows as a result of development will not be supported.

Mobile Dune Buffer

- No development is to be supported within 500 metres of the mobile dune buffer.

Cockburn Cement Buffer

- No development is to be supported within 1.25 kilometres of the Cockburn Cement Lime Sand Processing Plant

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Brand Hwy

Kailis Dr

LEGEND

Railway Crossing

Existing Road

Indicative Future Road

Primary Distributor

Local Distributor

BUFFER

Railway

Structure plan boundary

Cadastre

Local Planning Scheme

General farming

Local reserve

Local road

Public purposes

Railway

Rural residential

Paper Size A3

0 200 400 600 800 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Shire of Irwin
Springfield Structure Plan

Structure Plan

Job Number	61-35102
Revision	A
Date	08 Jun 2017

Figure 1

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Data source: GHD; Structure Plan Boundary - 20161101: Landgate; Roads, Imagery (Virtual Mosaic), Watercourse, Waterbody - 20161108; DPaW: Managed Lands and Water - 20161003, Threatened and Priority Flora, PEC - 20161221; DER: ASS (Estuaries) - 20140922. Created by:afeeney

6. Other requirement

6.1. Bushfire management

This structure plan is supported by a Bushfire Attack Level (BAL) assessment. Subdivision and development shall have regard to the BAL Assessment contained in the structure plan and demonstrate compliance with *Statement of Planning Policy 3.7 – Planning in Bushfire Prone Areas*. This may require, *inter alia*, provision of water tanks and associated facilities for firefighting purposes which may require vesting in the local government.

In addition, and in accordance with the Scheme, the development of a dwelling is required to demonstrate that a suitable water supply for land management and firefighting purposes will be provided.

6.2. Water and wastewater

Adequate potable water for domestic use is to be provided to all development within the structure plan area. In addition a minimum 10,000 litres of water supply for fire fighting purposes is to be provided to all development within the structure plan area.

Reticulated sewerage is not available within the structure plan area. On site effluent disposal will be required to meet the requirements of the Local Water Management Strategy prepared to support this structure plan and the State Government Sewerage Policy as appropriate.

6.3. Road upgrades

Minimum road reserve widths are recommended to provide for future traffic volumes (based on subdivision of the structure plan to a minimum lot size of one hectare), in accordance with the Transport Assessment contained in Appendix B. The following intersection upgrades are also identified:

- The provision of a right hand turning lane from Kailis Drive to Springfield Drive.
- The provision of a right hand turning pocket at Point Leander Drive to St Dominics Road.

6.4. Indigenous Heritage

The structure plan area contains one registered Indigenous Heritage Site. Prior to any subdivision or development, within the boundary of the heritage site, investigations should be undertaken to ascertain whether approval is required under the *Aboriginal Heritage Act 1972.*

6.5. Biological Survey

Prior to any subdivision or development a biological survey is required to be undertaken to inform any requirements including clearing permits and the need for referral to State Government and Commonwealth environmental agencies. The type and level of biological survey required will depend on the extent of vegetation to be cleared.

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7. Additional Information

Prior to the relevant approval stage as shown in Table 1, the following information is to be prepared, as applicable, to the satisfaction of the relevant authority.

Table 1 Additional information

Additional information	Approval stage	Consultation required
Bushfire Management Plan	Prepared and lodged with subdivision application	Shire of Irwin Department of Fire and Emergency Services
Urban Water Management Plan	Condition of subdivision	Shire of Irwin Department of Water
Acid Sulphate Soils	Condition of subdivision	Department of Environment Regulation
Environmental Management Plan	Condition of subdivision	Department of Environment Regulation
Noise Impact Assessment	Prepared and lodged with subdivision application.	Department of Environment Regulation Western Australian Planning Commission.
Biological Survey	Lodged with the subdivision application.	Department of Environment Regulation Western Australian Planning Commission Shire of Irwin Department of the Environment and Energy (Commonwealth)

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Part Two – Explanatory Report

1. Planning background

1.1. Introduction and purpose

The Springfield Structure Plan (the structure plan) has been prepared to address the requirements of the Shire of Irwin Local Planning Scheme No. 5 and the *Planning and Development (Local Planning Schemes) Regulations 2015*. The structure plan and report has been prepared in accordance with the Western Australian Planning Commission's (WAPC) *Structure Plan Framework August 2015*. The structure plan is supported by the following technical studies:

- Transport Impact Assessment;
- Local Water Management Strategy;
- Bushfire Attack Level Assessment;
- Engineering Servicing Report; and
- Environmental Assessment Report.

The purpose of the structure plan is to review the existing Springfield Subdivision Guide Plan and provide a framework to:

- Guide and facilitate proper and orderly land use planning, subdivision and development within the structure plan area.
- Guide movement and access through the precinct and facilitate greater connectivity that aligns with future subdivision.
- Ensure adequate bushfire management measures are in place to protect development from the risk of fire.

1.2. Land description

1.2.1. Location

The Springfield Structure Plan is located within the suburb of Springfield in the Shire of Irwin (Figure 2).

The structure plan area is located south east of the Dongara and Port Denison towns, and approximately 70 km south of Geraldton.

1.2.2. Area and land use

The structure plan area consists primarily of rural lifestyle land uses, including:

- Large areas of vacant land
- Single household rural residential lots
- Several small businesses

In addition, the structure plan area accommodates pastoral and agriculture land uses, the Wastewater Treatment Plant (WWTP) operated by the Water Corporation and a portion of crown reserve adjacent to the Irwin River to the north.

There are several buffers within the structure plan area that impact surrounding land uses, including the WWTP, Cockburn Cement and Dune buffers. Schedule 12 of the Shire of Irwin Local Planning Scheme No. 5 sets out provisions for subdivision and development within and in proximity to the buffers.

The towns of Dongara and Port Denison sit to the west of the Springfield Structure Plan area. The structure plan is bordered by the Beekeepers Nature Reserve to the south and the Dongara-Eneabba Railway to the east. The reserve is a "C" Class Nature Reserve managed by the Department of Parks and Wildlife.

The total area of the site is approximately 1351 ha.

1.2.3. Legal description and ownership

The structure plan is made up of 146 freehold lots and one Crown reserve.

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295,000 300,000 305,000

6,765,000 6,760,000 6,755,000

Bonniefield Rd East
Wimpole Rd
Pettit Rd
Francisco Rd
Brennand Rd
Philbey Rd
Tulloch Dr
Waldeck St
North Shore Dr
Church St
Moreton Tce
Moore Rd
Vincent St
St Dominics Rd
DONGARA
Ocean Dr
Richardson Rd
Henry Rd
Point Leander Dr
Blenheim Rd
Springfield Dr
Mallee Rd
Dawson Lane
Brand Hwy
Midlands Rd
Ellery Rd
Acacia Rd
Sheoak Rd
Stock Route Rd
Cattle Dr
Duval St
George St
Commonage Rd
Kailis Dr
Hamersley Rd
Pye Rd

DRAFT

DRUMMOND COVE
GERALDTON
MINGENEW
DONGARA
THREE SPRINGS
ENEABBA
LEEMAN
GREEN HEAD

295,000 300,000 305,000

LEGEND

Major Road
Minor Road
Structure Plan Boundary
Cadastre

Paper Size A3
0 0.5 1 1.5 2
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

GHD
SHIRE OF IRWIN DONGARA-PORT DENISON A BRILLIANT BLEND
SLIP POWERED BY LANDGATE

Shire of Irwin
Springfield Structure Plan

Locality Map

Job Number 61-35102
Revision A
Date 01 May 2017

Figure 2

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1.3. Planning framework

1.3.1. Zoning and reservations

The Shire of Irwin Local Planning Scheme No. 5 (LPS5) was gazetted on 7 May 2008. The Springfield Structure Plan area is primarily zoned 'Rural Residential' as shown in Figure 3. The objectives of the Rural Residential zone under LPS5 are to:

- Provide for the use of land for residential purposes in a rural setting for alternative residential lifestyle.
- Preserve the amenity of such areas and control land use impacts.

The Draft Local Planning Strategy categorises the Irwin River as a volatile waterbody, the scheme map identifies a local reserve along the river's foreshore within the north of the structure plan area.

The original Floodplain Development Strategy (1987) has been reviewed and subsequently incorporated into the Dongara – Port Denison District Structure Plan and Draft Flooding Study commissioned by the Shire of Irwin. These reports propose planning measures to assist in flood mitigation.

Development within the Rural Residential zone is to be in accordance with Schedule 12 (referenced as Schedule 13 in LPS5) and clause 5.30 of the scheme text.

A small portion of land to the north of the structure plan, east of Springfield Drive is zoned 'General Farming'.

A public purpose reserve accommodating the Water Corporation's Waste Water Treatment Plan (WWTP) is located within the structure plan area The WWTP is protected by a buffer as defined in LPS5. The structure plan area is also impacted by buffers associated with the adjacent Cockburn Cement plant, and active (mobile) dunes which are subject to quarrying operations (see Figure 5 on page 11).

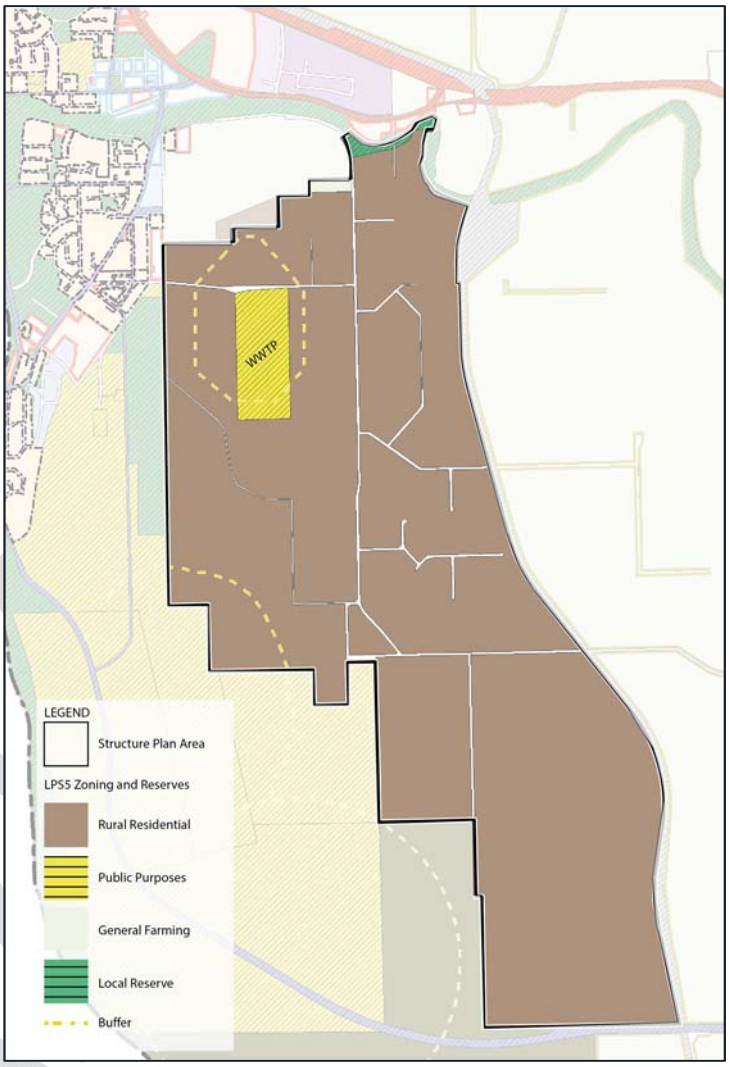


Figure 3 Local Planning Scheme No. 5

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1.3.2. Regional and sub-regional structure plan

Dongara – Port Denison District Structure Plan

The Dongara – Port Denison District Structure Plan (DSP) was released in November 2015, with the purpose of providing a strategic framework for the growth of the Dongara and Port Denison townsites.

The DSP identifies the majority of the structure plan area as rural living as shown in Figure 4. Two Integrator A roads are identified for future development within the structure plan area, one traversing from north to south and the second turning off the north-south road to the west.

A portion of land in the north-west corner of the structure plan area is designated for 'Future Urban/Residential'. Development buffers for the Cockburn Cement plant, dune and agreed mining activities have been increased and impact a larger portion of the structure plan area than depicted in LPS5.

The DSP does not propose any changes to the WWTP buffer.

The Springfield Structure Plan is generally consistent with the DSP, with the exception of the southernmost east-west road link. This has been modified as a result of topographical constraints.

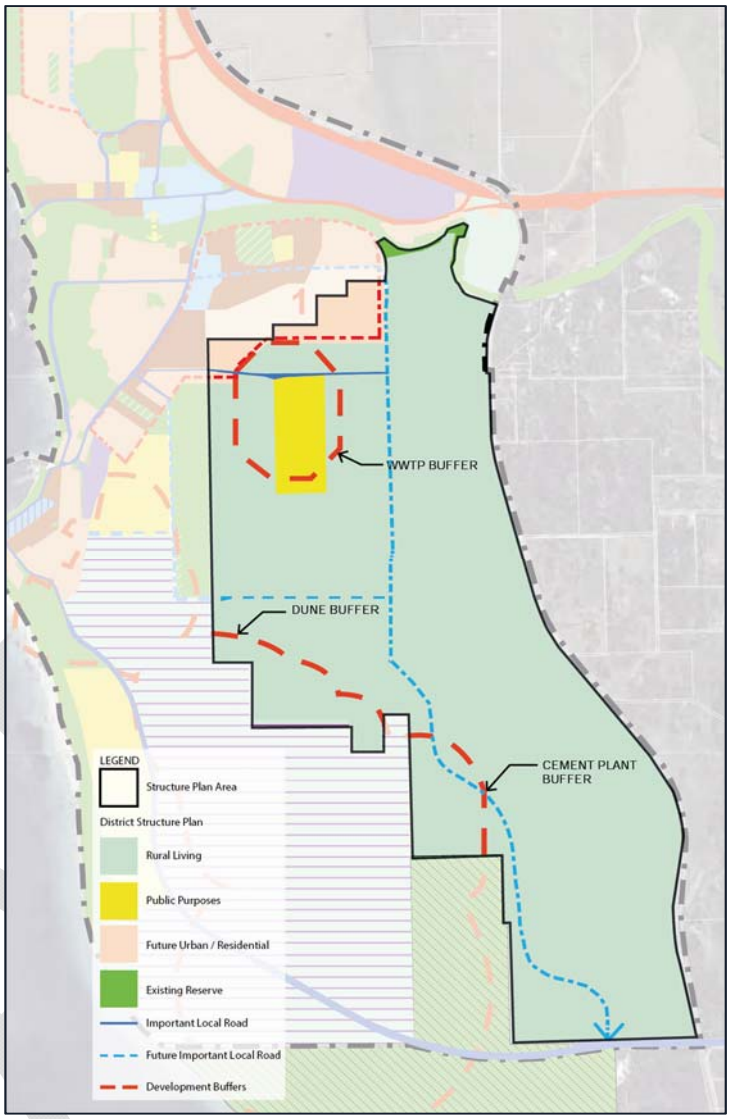


Figure 4 Dongara - Port Denison District Structure Plan

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1.3.3. Planning strategies

Local Planning Strategy

The Shire of Irwin's Draft Local Planning Strategy (the strategy) was adopted by Council in August 2015 and is currently under consideration by the WAPC.

The strategy identifies the Springfield Structure Plan area as predominantly 'Rural Living' under 'Policy Area F' as shown in Figure 5. The northern portion of the site sits within the 100 year Floodplain Development Control Area. Several areas are affected by buffers, including the WWTP buffer, Cockburn Cement Buffer and mobile dune buffer. Policy actions within the Strategy propose amendments to LPS5 to reflect the current buffer requirements.

An area of land located in the north-west of the structure plan area is identified for future rezoning to 'Development' to facilitate residential development. The strategy notes the requirement for detailed structure plans to be prepared for urban expansion areas.

In addition, the Strategy notes the fragmented nature of subdivision within the Springfield estate, and calls for structure planning to be undertaken prior to any further subdivision.

The strategy further recommends, in relation to Springfield Structure Plan area, the establishment of a framework to deliver a coordinated approach to subdivision of land zoned Rural Residential. A corresponding action requires the preparation of a structure plan to address issues including; coordination of access, lot sizes, environmental constraints, public open space and facilities, servicing, infrastructure contributions, bushfire hazard planning, and preparation of an LWMS and staging of delivery of land.

Section 2 addresses the above matters to the extent possible, recognising further detailed studies will be required prior to subdivision and development.

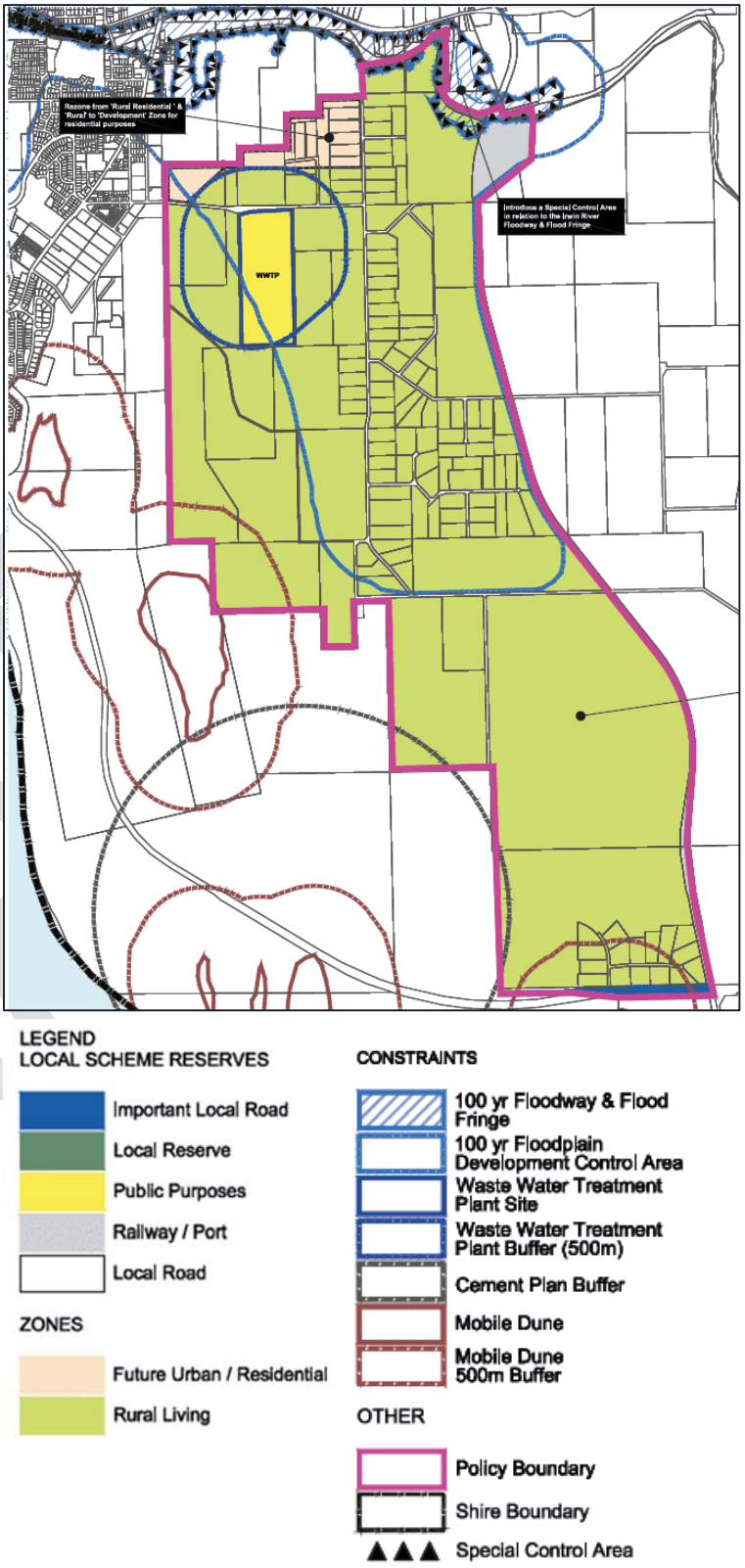


Figure 5 Shire of Irwin Local Planning Strategy

1.3.4. Planning policies

The following State Planning Policies are considered applicable to the development of the Springfield Structure Plan.

The Shire of Irwin's Local Planning Policies support the State Planning Framework.

State Planning Policy No. 2 – Environment and Natural Resources (SPP2)

SPP2 is the overarching state policy for environment and natural resource management within broader land use planning. The objective of the policy relates to the protection, conservation and enhancement of the natural environment and promotion of sustainable management of natural resources. The Springfield Structure Plan has been developed to comply with the measures set out in SPP2.

A key challenge of the area is managing and protecting the natural environment while achieving acceptable measures prescribed in other planning policies, specifically State Planning Policy No. 3.7. This plan seeks to achieve a balance between providing adequate measures to mitigate bushfire risk, as outlined in section 2.4, while maintaining the need to protect, and where possible enhance the natural environment (see section 2.1).

State Planning Policy No. 2.5 – Rural Planning (SPP2.5)

SPP2.5 applies to rural zoned land and rural land uses in Western Australia. The majority of the Springfield Structure Plan area is land identified for rural living land uses under the local scheme and strategy. The structure plan has been developed to comply with the policy measures outlined in SPP2.5, specifically those under section *5.3 Rural living*. Section 5.3 which identify the need to ensure access to services, facilities and amenities and minimisation of environmental impacts.

In the absence of reticulated water, a fit -for-purpose water supply for domestic and firefighting use will be required. Provisions for a sustainable potable water supply, consistent with appropriate water and health standards, are set out in Section 2.3 below. In addition, the structure plan is supported by analysis of bushfire risk (section 2.4), transport access (section 2.10), a local water management strategy (section 2.11) and a servicing infrastructure report (section 2.12).

State Planning Policy No. 2.9 – Water Resources (SPP2.9)

SPP2.9 provides a policy basis for planning proposals and decisions to respond to integrated water cycle management. The policy is re-enforced through detailed planning guidelines – Better Urban Water management (2008). The guidelines provide a model for developers to address water related management issues at various stages of planning. This structure plan is supported by an integrated land use and local water management strategy discussed in section 2.11.

State Planning Policy No. 3 – Urban Growth and Settlement (SPP3)

SPP3 sets out principles and considerations when planning for urban growth and settlement in Western Australia. The relevant section of the policy, 5.6, refers to the management of rural-residential growth through the application of SPP2.5.

State Planning Policy No. 3.4 – Natural Hazards and Disasters (SPP3.4)

SPP3.4 ensures planning for natural disasters as a fundamental element in preparing a local structure plan. The Shire of Irwin draft Local Planning Strategy identifies the Irwin River as a volatile waterbody, noting the need for a Special Control Area. This structure plan responds to the policy through consideration of flood and inundation risk from the Irwin River and bushfire risk as discussed in sections 2.3 and 2.4, respectively.

State Planning Policy No. 3.7 – Planning in Bushfire Prone Areas (SPP3.7)

SPP3.7 together with the *Guidelines for Planning in Bushfire Prone Areas* provide guidance on the implementation of effective risk-based land use planning to mitigate bushfire impact. A bushfire attack level assessment identifying bushfire hazards within the structure plan area has been undertaken. Recommendations to manage bushfire risk as the structure plan area is developed are also

outlined in section 2.4. In accordance with SPP3.7, subidivision and development applications will be required to undertake a BAL assessment to confirm the specifica BAL that applies to proposed development.

State Planning Policy No. 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP5.4)

SPP5.4 provides a policy framework to manage conflicts that arise between sensitive land uses and road and rail transport noise.

The Dongara-Eneabba narrow gauge railway runs along the eastern boundary of the Springfield Structure Plan area. The policy identifies measures to be adopted to reduce conflict between new noise-sensitive development in proximity of an existing major transport corridor. A noise impact assessment will need to be undertaken prior to the lodgement of subdivision applications for lots located adjacent to the railway.

Draft Government Sewerage Policy 2016

The State Government's draft Sewerage Policy promotes reticulated sewerage as the best disposal mechanism for wastewater. Due to a lack of existing or proposed future sewerage system within the vicinity of the site area, rural residential development within the structure plan will be required to demonstrate suitable on-site effluent disposal. The north east portion of the structure plan is identified as being within a sewage sensitive area, due to its proximity (within 2 km) of the Irwin River.

The structure plan responds to the draft policy through subdivision and development provisions requiring on-site effluent disposal that meets requirements of the Springfield LWMS and State Government Sewerage Policy.

Shire of Irwin Local Planning Policy – Water Sensitive Urban Design

The Shire of Irwin's Local Planning Policy – Water Sensitive Urban Design aims to ensure subdivision and development effectively addresses and manages stormwater through integrated land and water planning. The relevant section of the policy relates to the prerequisite of a local water management plan to be developed for a Local Structure Plan. A LWMS has been developed, consistent with local and state government requirements, to support the Springfield Structure Plan (see Appendix A). See Section 2.11.

1.3.5. Other approvals and decisions

Planning and Development (Local Planning Schemes) Regulations 2015

The Regulations set out the statutory requirements for local planning strategies, schemes and amendments. Schedule 2 part 4 of the Regulations outlines the requirements relating to when and how a structure plan is to be prepared. Additionally, the structure plan framework specifies the manner and form in which a structure plan is to be prepared under Schedule 2, Part 4, clause 16(1)(a). Preparation of the Springfield Structure Plan has been undertaken in accordance with the Regulations.

Development Control Policy No. 1.1 – Subdivision of Land (DCP1.1)

DCP1.1 sets out the general principles used by WAPC in determining applications for the subdivision of land. This will be applicable when future subdivision is undertaken.

1.3.6. Pre lodgement consultation

Pre-lodgement consultation has occurred between the project team, key service and referral authorities and landowners during the preparation of this structure plan.

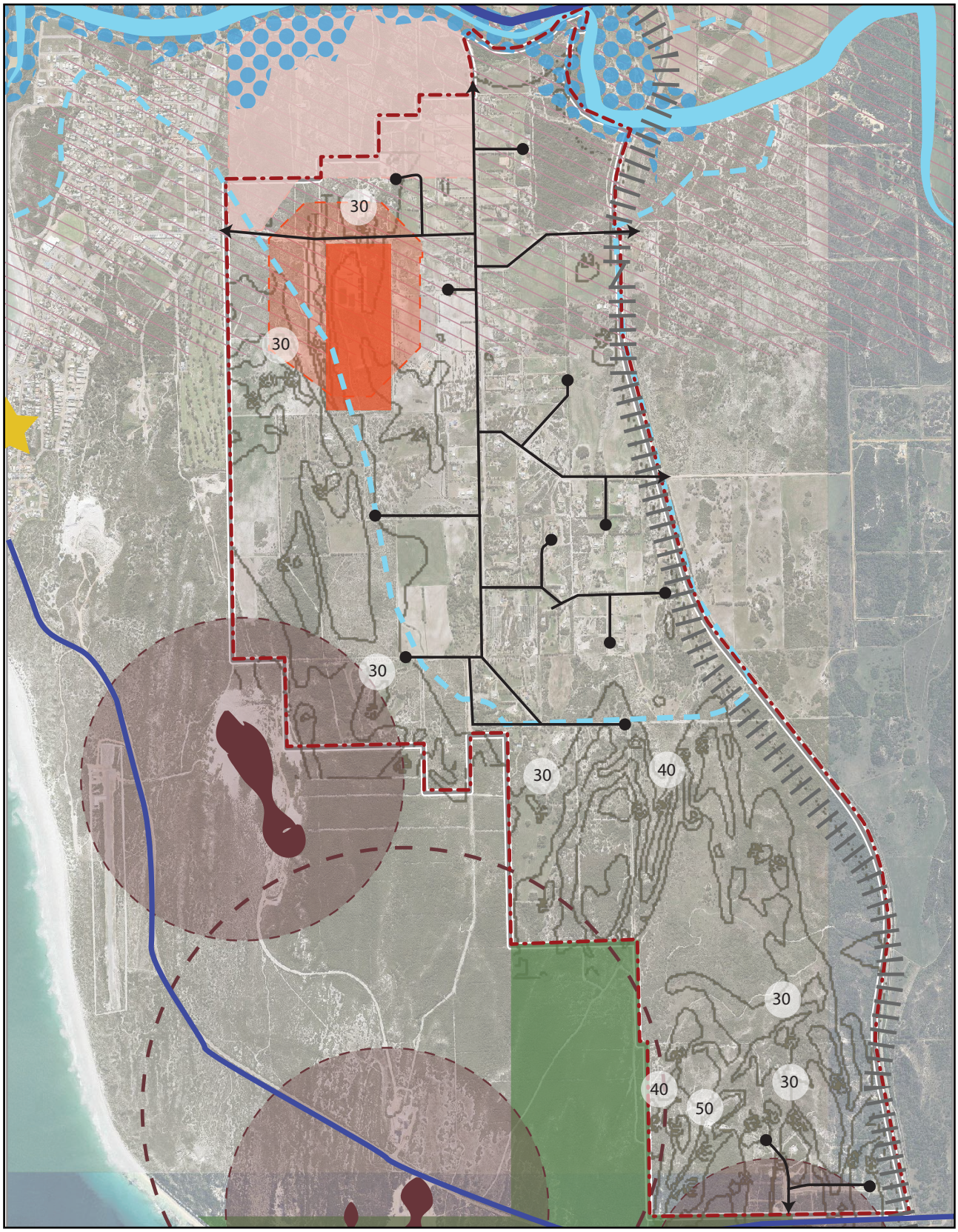
A summary of the key pre-lodgement consultation undertaken is included in Appendix F.

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2. Site conditions and constraints

Local site conditions were reviewed as part of the preparation of this document, these have been described in the following pages and illustrated in Figure 6.

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LEGEND

- Nature Reserve
- 100 yr Floodway
- Active dune buffer
- Cockburn Cement buffer
- Wastewater treatment plant
- WWTP Buffer
- Site area
- 100 yr Floodplain DCA
- Future residential
- Town centre
- Major road
- Important local road
- Existing road
- Rail
- Irwin River
- Active dune
- Dune system
- Heritage site Irwin River (SC04)
- 40 Dune elevation

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Paper Size A4

NOT TO SCALE

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Shire of Irwin
Springfield Structure Plan

Job Number 61-35102
Revision 0
Date 20 Apr 2017

Opportunities and Constraints

Figure 6

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Data source: GHD: Structure Plan Boundary - 20161101; Landgate: Roads, Contours, Imagery (Virtual Mosaic) - 20161108.

2.1. Biodiversity and natural area assets

The Irwin River, in the north of the structure plan area, comprises Riparian Eucalypts considered to be a medium constraint, due to its potential as a habitat for the Carnaby's Black-Cockatoo and Western Spiny-tailed Skink. Obstructing any riparian vegetation associated with the Irwin River will be subject to possible referral under the *Environment Protection and Biodiversity Conservation Act 1999* and require a permit under the *Country Areas Water Supply Act 1947* to clear native vegetation near water.

The sand dune systems maintain remnant native bushland throughout the assessment area. To the south of the structure plan is the Beekeepers Nature Reserve, a "C" Class Nature Reserve managed by the Department of Parks and Wildlife.

A Preliminary Environmental Impact Assessment undertaken as part of this structure plan identified a number of protected flora and fauna species that may exist in the area. A detailed flora and fauna assessment will be required to be undertaken prior to subdivision to identify the location of protected flora and fauna. Future subdivision within the structure plan area should identify opportunities to protect and retain existing vegetation and natural assets where possible. A Tree Planting and Maintenance Program is to be prepared at the time of subdivision, to the satisfaction of the Shire of Irwin, to ensure adequate protection of existing vegetation and to minimise the environmental impact of development.

2.2. Landform and soils

The southern and western portion of the site are characterised by an undulating sand dune system with steep sloping faces rising between 20 and 50 metres above sea level. Many of the dunes within the western area have been partially modified for development purposes.

The northern portion of the site is predominantly located on a plain, modified for development at approximately 10 m above sea level.

The majority of the structure plan area sits within the Quindalup Central Subsystem of the Greenough Province, characterised by relict dunes and some limestone outcrops overlying calcareous shallow and deep sands. To the north-east, two different soils subsystems are present, including the Greenough Alluvium Irwin Phase 2 subsystem and Tamala South 4 subsystem.

There is an extremely low possibility of acid sulphate soils (ASS) within the structure plan area. The areas subject to moderate to high risk of acid sulphate soils are near the Irwin River, as shown in Figure 7. Development in this area may require ASS management measures once the level of disturbance is known (if any).

2.3. Water

Groundwater and hydrology

The structure plan area sits within the Yarragadee North Formation aquifer in the Perth Basin. Groundwater salinity is variable and near the coast in the Dongara area groundwater is saline (ranging from 7000 to 14,000 mg/L total dissolved solids).

Due to the sandy nature of soil on Springfield, it is anticipated that there will be little interaction with groundwater in the structure plan area. Notwithstanding, geotechnical investigations are recommended prior to any earthworks due to the lack of historical groundwater data.

No scheme water supply exists within the structure plan area. Data from groundwater monitoring samples taken between 1996 and 1998 indicate that the water is unsuitable for irrigation due to high salinity levels. In the absence of a potable water supply, rainwater harvesting will provide the bulk of the water supply for Springfield's residents.

With appropriate maintenance and management, the rainwater quality would be of a sufficient standard to be used for potable in-house use without further treatment.

Surface water and drainage

The Springfield Structure Plan area is located approximately 2 km from the coast. The Irwin River located on the northern boundary of the

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structure plan area flows in a westerly direction towards the coast.

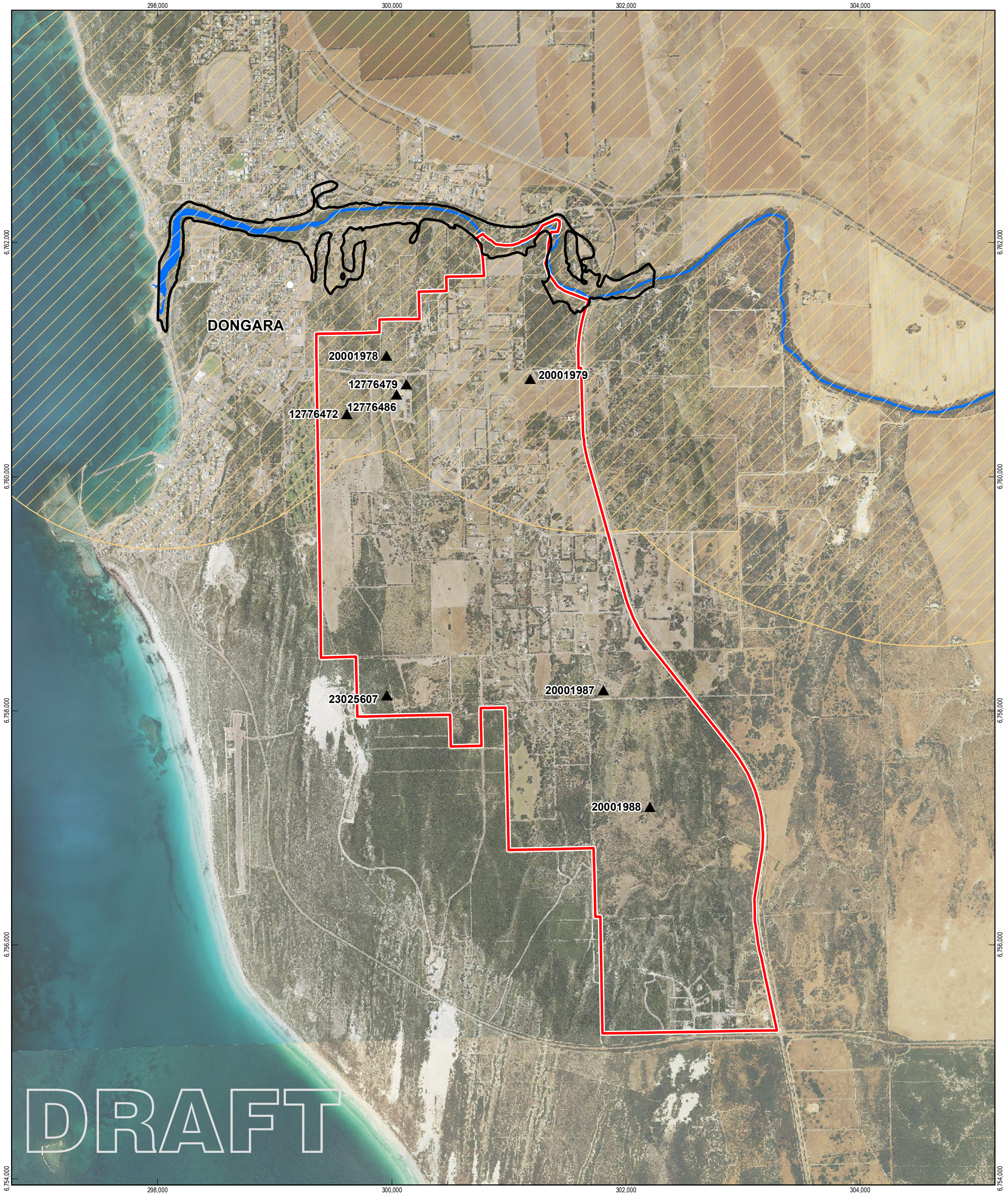
There are no existing proclaimed Rights in Water and Irrigation (RIWI) Groundwater Areas within the structure plan area. However, the Department of Water is currently reviewing proclaimed RIWI Groundwater Areas within the Springfield locality. In the event that groundwater areas are proclaimed, it is likely that groundwater abstraction will require an abstraction license, which may include assigned allocations limiting groundwater abstraction.

The northern end of the structure plan area falls within the 1 in 100 AEP floodplain (Figure 8, as determined by the Department of Water's Floodplain Control Areas mapping). Other than that, the rest of the study area is not expected to experience any flooding up to the 1 in 100 AEP event.

Proposed development within the flood fringe (including building, filling etc.) will be required to maintain a minimum habitable floor level of 0.5 m above the 1 in 100 AEP flood level (WRC 2000). Furthermore, development within the floodplain obstructing major river flows will not be supported (WRC 2000).

It is understood that the Shire of Irwin has commissioned consultants to undertake further hydrologic and hydraulic modelling to redefine the Irwin River floodplain. This is expected to be completed by late 2017, and should be used for setting flood protection levels once approved by the Department of Water and Shire of Irwin.

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LEGEND

- Groundwater Bore
- Structure Plan Boundary
- 1 in 100 AEP Flood Extent
- Sewage Sensitive Area
- Watercourse

Paper Size A3

0 0.5 1 1.5

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

Shire of Irwin
Springfield Structure Plan

FDCA and Groundwater Bore Locations

Job Number 61-35102
Revision A
Date 01 May 2017

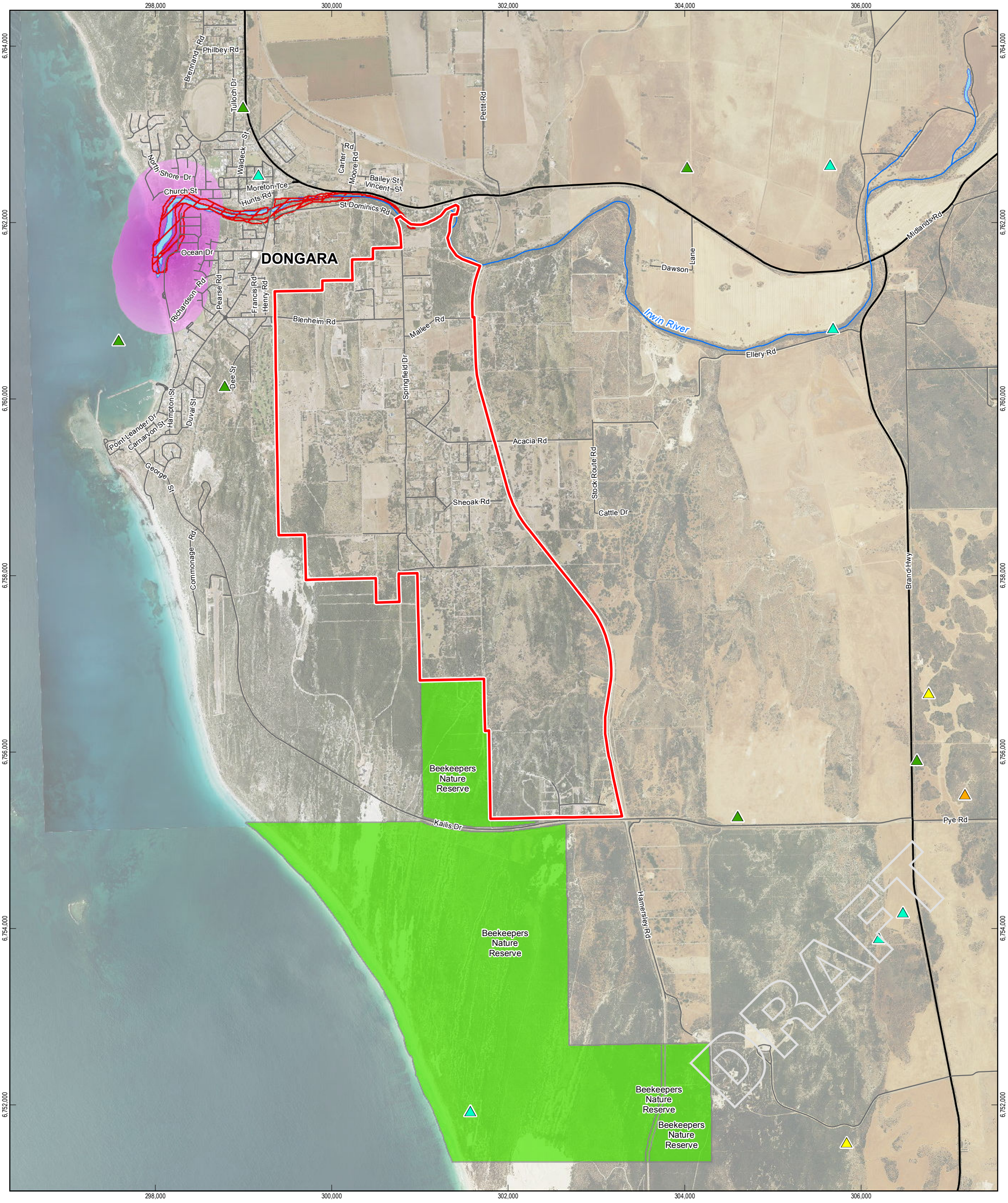
Figure 8

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Data source: GHD: Structure Plan Boundary - 20161101, Sewage Sensitive Area - 20170109: DoW: Groundwater Bores, Watercourse; Landgate; Imagery (Virtual Mosaic). Created by:afeeney



LEGEND

Threatened (Declared Rare) & Priority Flora

- Priority 1 - Poorly Known Taxa
- Priority 2 - Poorly Known Taxa
- Priority 3 - Poorly Known Taxa
- Priority 4 - Poorly Known Taxa

- Watercourse
- Major Road
- Minor Road
- Structure Plan Boundary
- Nature Reserve
- Waterbody
- Priority Ecological Community

Acid Sulphate Soil - Risk Category

- High to moderate risk

Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Shire of Irwin
Springfield Structure Plan

Job Number	61-35102
Revision	A
Date	01 May 2017

Environmental Constraints

Figure 7

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Data source: GHD; Structure Plan Boundary - 20161101: Landgate; Roads, Imagery (Virtual Mosaic), Watercourse, Waterbody - 20161108; DPaW: Managed Lands and Water - 20161003, Threatened and Priority Flora, PEC - 20161221; DER: ASS (Estuaries) - 20140922. Created by:afeeney

2.4. Bushfire management

2.4.1. Bushfire hazard

The majority of the Springfield Structure Plan is designated as a bushfire prone area (Figure 9). A bushfire hazard assessment (Appendix E) was undertaken as part of the structure planning process and provides recommendations to ensure that any subdivision and development is within acceptable bushfire hazard levels (BAL-29 or below).

Bushfire Hazard Level

The Bushfire Hazard Map in Figure 10 identified the bushfire hazard level of the subject area (including 100 m buffer) in accordance with the *Guidelines for Planning in Bushfire Prone Areas Appendices* (the Guidelines, Western Australian Planning Commission 2015).

The northern portion of the site is mostly managed grassland/existing rural use or low shrubland. The shrubland is situated to the outer edges of the northern portion, ith relatively small pockets of remnant low shrubland in the north-east and south-west corners of the northern portion. The shrubland is classified as a *moderate hazard level* under the Guidelines.

It is noted that with development undertaken in accordance with the structure plan, the hazard will likely decrease as clearing is undertaken and the landscape is progressively managed.

The existing rural residential area adjacent to Springfield Drive and managed pasture areas in the northern portion (typically outside the bushfire prone areas as indicated in Figure 1) are classified as a *low hazard level*.

The topmost vegetation, located along the Irwin River, is classified as woodland vegetation with a multi-tiered scrub understorey. This area is reserved under the Shire of Irwin Local Planning Scheme No. 5 encompassing the Irwin River and foreshore. The area is classified as an *extreme bushfire hazard*. Development in areas with an *extreme hazard level* will not be supported under SPP3.7, however as a local reserve, no development is expected within these areas.

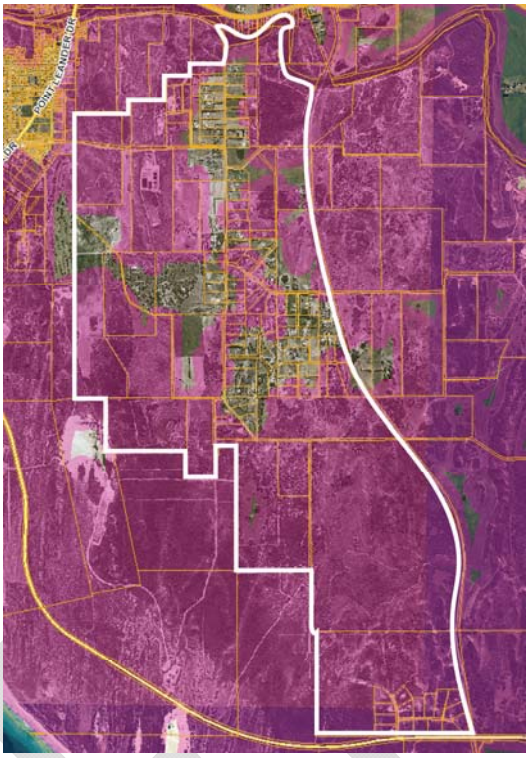


Figure 9 Bushfire Prone Areas (DFES 2016)

The southern portion is almost entirely classified as *moderate hazard level*, with the exception of a small pocket of land within the existing rural residential estate. The flatter sections of the southern portion are mostly low shrubland in degraded, partially cleared conditions. The more undulating dune sections support denser less degraded low shrublands with scattered patches of taller shrubs.

Bushfire Attack Level

In Western Australia, all new subdivisions require a lot layout which achieves a BAL rating of BAL-29 or less (Western Australian Planning Commission 2015a).

The Springfield Structure Plan does not identify lot layouts or areas of clearing; this does not enable development of a BAL contour map. The bushfire hazard assessment, therefore, confirms the extent of the asset protection zone required for future lots to achieve the BAL classifications required to facilitate development. In accordance with State Planning Policy No. 3.7, subdivision and development applications will be required to undertake a BAL assessment to confirm the specific BAL that applies to proposed development. The BAL discussion confirms that, with appropriate asset protection zones, a

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BAL rating of BAL-29 or less can be achieved in later development.

A BAL -29 can be achieved where dwellings setback from vegetation, in the form of an asset protection zone, can achieve at least the minimum distances identified in Table 2. This means, for example, that 19m of vegetation clearing in the form of an asset protection zone is required between the dwelling (and associated structures) and the Type D scrub vegetation located on a 10-15 degree slope.

In addition, areas identified as asset protection zones (as well as other mitigation measures applying to the subdivision) must meet all the performance principles and acceptable solutions identified in Appendix 4 of the Appendices of Guidelines for Planning in Bushfire Prone Areas (Western Australian Planning Commission 2015a).

Table 2 Minimum asset protection zone to achieve BAL-29

Slope	Shrubland (Class C)	Scrub (Class D)	Woodland (Class B)
Up slopes and flat land	9 m	13 m	14 m
Downslope >0 to 5 degrees	10 m	15 m	17 m
Downslope >5 to 10 degrees	11 m	17 m	22 m
Downslope >10 to 15 degrees	13 m	19 m	28 m
Downslope >15 to 20 degrees	15 m	21 m	35 m

2.4.2. Water tanks

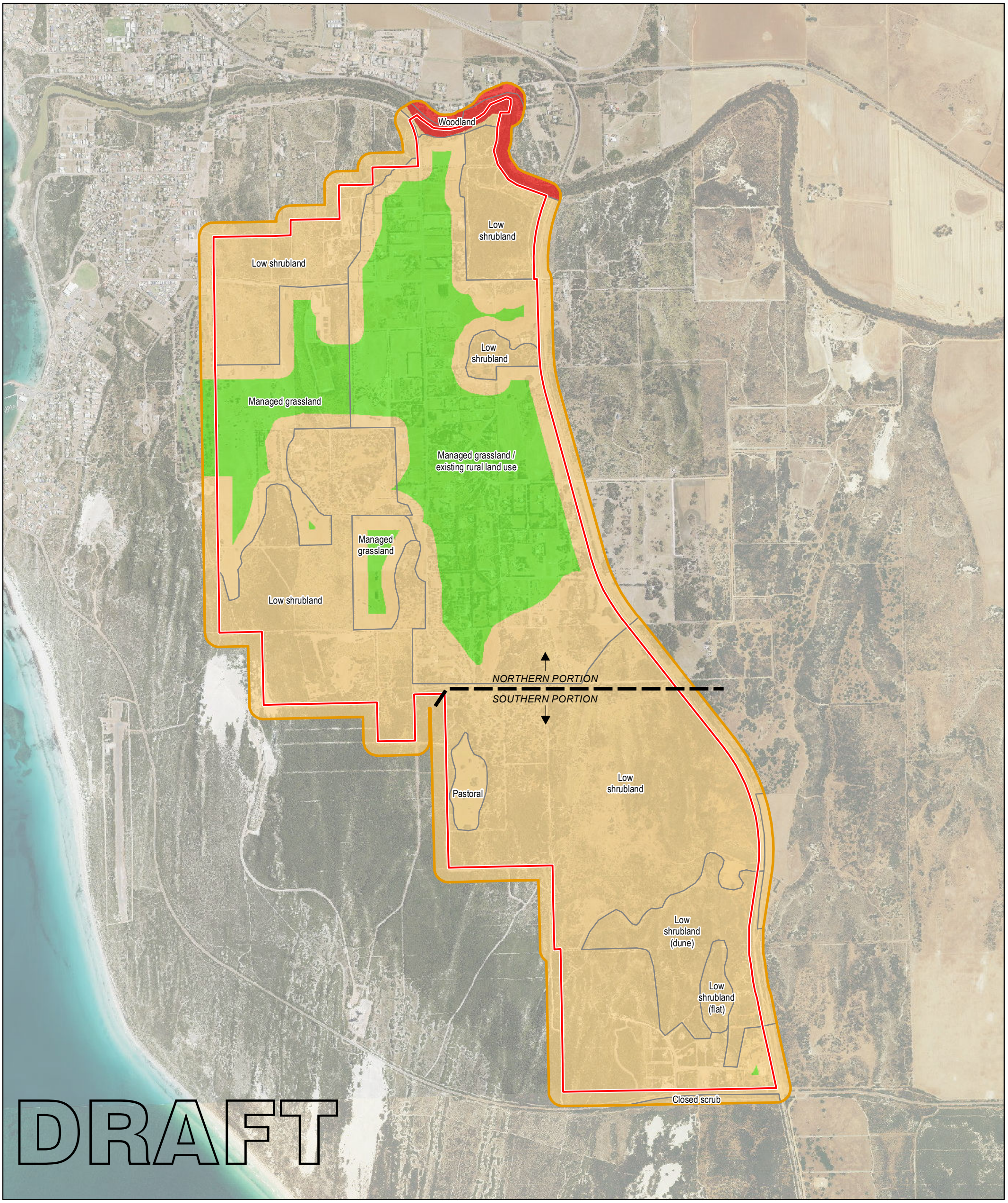
In the absence of reticulated water, Bushfire Management Plans will be required, at the time of subdivision, to address the need to provide water tanks and associated facilities for firefighting purposes in accordance with *Guidelines for Planning in Bushfire Prone Areas – Appendices* (the Appendices).

In addition, and in accordance with the Scheme, the development or creation of a dwelling on any Rural Residential zoned lot not connected to reticulated water shall provide a separate water supply for land management and firefighting purposes.

2.4.3. Road layout

The proposed movement network responds to bushfire planning requirements in Element 3 of the Appendices for greater connectivity and safety in emergencies. The indicative road layout builds on the existing network to increase vehicular access through provision of two access routes and removing cul-de-sacs, where possible. While the indicative road network is not optimal, it recognises the existing road networks and constraints to improve the existing network. Public roads, when constructed are to meet the requirements as described in Table 4, Column 1 of the Appendices.

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LEGEND

- Assessment area (100m from the external boundary of the subject site)
- Structure Plan Boundary
- Vegetation Type Boundary

Bushfire Hazard Level

- Extreme
- Moderate
- Low

Paper Size A3

0 200 400 600 800 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

N

Shire of Irwin
Springfield Structure Plan

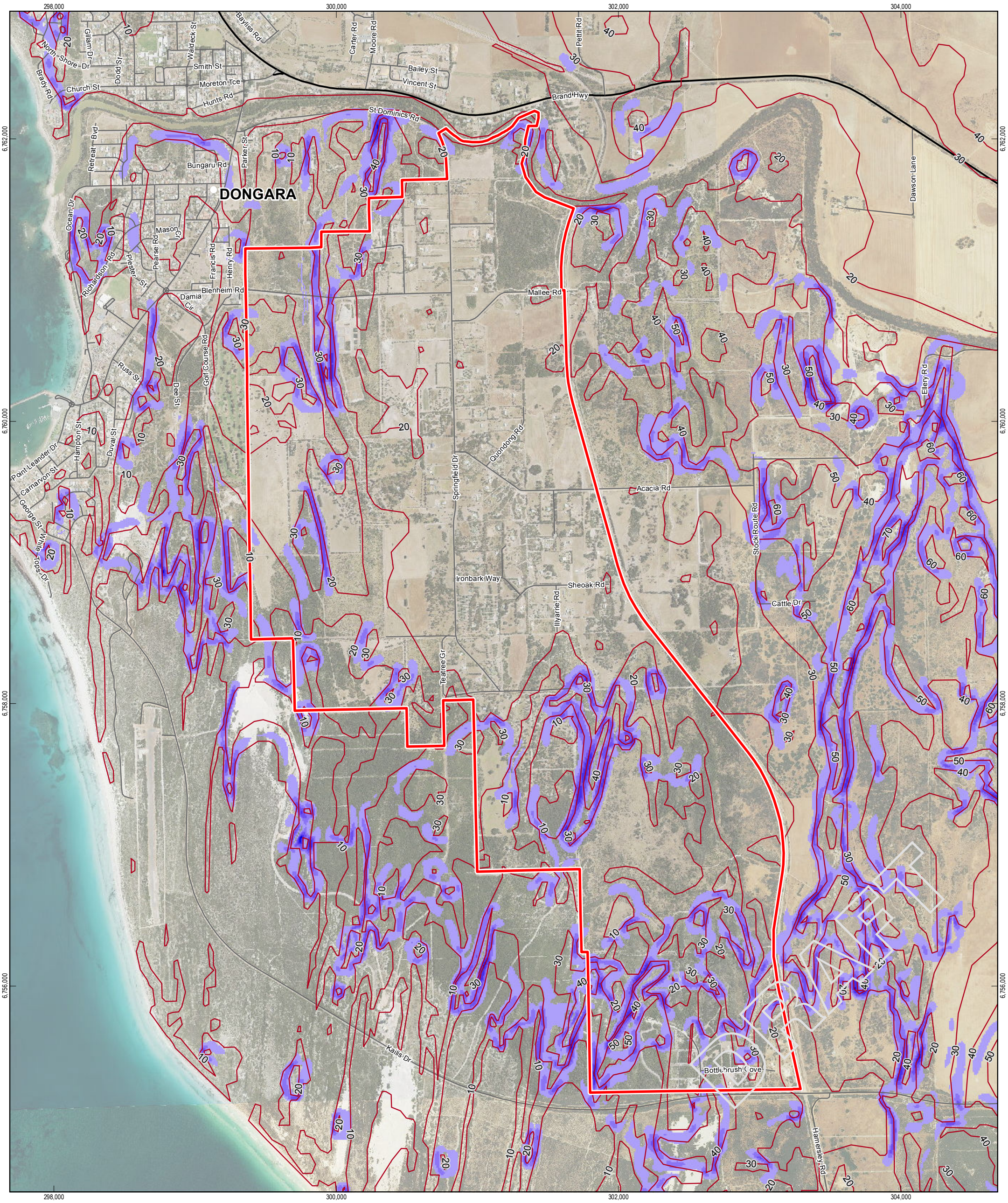
Vegetation Types and Bushfire Hazard Level

Job Number	61-35102
Revision	A
Date	22 Jun 2017

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Data source: GHD: Structure Plan Boundary - 20161101, Bushfire Hazard Level, Assessment Area, Vegetation Type Boundary - 20170622: Landgate: Imagery (Virtual Mosaic) - 20161108. Created by:afeeney



LEGEND

- Major Road
- Minor Road
- Contour (10m)
- Structure Plan Boundary

Slope (Degrees)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- >25

Paper Size A3

0 200 400 600 800 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 50

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Shire of Irwin
Springfield Structure Plan

Slope - Degrees

Job Number	61-35102
Revision	A
Date	01 May 2017

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Data source: GHD; Structure Plan Boundary - 20161101: Landgate; Roads, Imagery (Virtual Mosaic), Contours - 20161223; DAFWA: Soil Subsystem - 2007;. Created by:afeeney

2.5. Heritage

Aboriginal Heritage

Sites listed as Aboriginal heritage sites under the *Aboriginal Heritage Act* 1972 are protected from development or impact except with the approval of the Department of Aboriginal Affairs (DAA) and the relevant Aboriginal custodians of the land.

One Registered Aboriginal Site is present in the structure plan area, this being the Irwin River (SC04) (Table 3)

While it is understood that the Aboriginal Heritage site has already been disturbed through previous subdivision, any future development within the heritage site boundary is required to have due regard to and comply with the requirements of the *Aboriginal Heritage Act 1972*.

Table 3 Registered Aboriginal Sites within Springfield Structure Plan

ID	Name	Restriction	Status	Type
18907	Irwin River (SC04)	No gender restrictions	Registered Site	Historical, Mythological, Camp, Natural Feature, Water Source

Other Heritage

While there are several registered heritage sites to the north of Springfield, no other heritage sites are listed within the structure plan area.

2.6. Coast and foreshores

The structure plan area is not impacted by the coast. The Irwin River flows along the northern part of the structure plan area. There is a foreshore reserve adjacent to the river as depicted in the structure plan. .

The Springfield LWMS describes key water sensitive urban design (WSUD) measures to be incorporated in subdivision and development design to ensure post development water quality is maintained at pre-development levels, where possible. The LWMS is to be supported by the preparation of UWMPs at the time of subdivision.

2.7. Context and other land use constraints and opportunities

Surrounding Development

Development surrounding the Springfield Structure Plan to the east is consistent with the rural smallholdings zoning. Land to the north west of the structure plan area is predominantly vacant, but is identified for future urban expansion in the draft Local Planning Strategy. The Springfield Structure Plan acknowledges the potential for higher density in this area to facilitate development once the local planning scheme has been updated to reflect the local planning strategy recommendations.

The majority of land directly to the west of the structure plan area is reserved for public purposes, with development primarily related to mining activities.

Relationship to nearby settlements

The Dongara town centre is less than two kilometres from the north of the Springfield Structure Plan area. The town centre is characterised by residential development along the coast stretching from Dongara towards Port Denison to the east of the structure plan area. Springfield is connected to the townsites via Kailis Drive to the south and Brand Highway and Blenheim Road to the north.

Residents of Springfield currently utilise Dongara and Port Denison as their primary service centres, it is likely that the townsites will continue to service the Springfield area as development continues.

Key Opportunities

The Springfield Structure Plan area has a number of characteristics that positively contribute to the future development of the area. These are described below:

- Rural amenity and access to natural features including the Irwin River and Beekeepers Nature Reserve
- Proximity to the Dongara – Port Denison town centres and related services
- Proximity to the coast and coastal amenity
- Connectivity to the broader region via access to Kailis Drive and Brand Highway

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Key Challenges

Limitations and challenges also exist that influence the development of the Springfield Structure Plan area. These are described below:

- Reduced development potential and development exclusion areas enforced through land use buffers
- Amenity issues related to the wastewater treatment plant
- Restricted connectivity from north to south due to prominent dune system
- Fragmented movement network
- Noise impacts from major roads to the north and south, and rail to the east
- High proportion of bushfire prone areas
- Lack of servicing to the area with limited power and telecommunications, and no water, sewer or drainage infrastructure.
- Potential environmental impacts from development and compliance with SPP3.7.

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2.8. Land use and density

The structure plan proposes an ultimate lot yield based on the minimum rural residential lot size of one hectare as prescribed by the Scheme. This is to ensure the structure plan provides a framework to accommodate the maximum potential development of the site. Nevertheless, it is expected that due to topographical, environmental and land use constraints and existing rural residential characteristics, it may not be possible to achieve the optimal lot yield. In line with provisions of the scheme, this structure plan only permits one dwelling per lot.

Matters influencing density may include, but are not limited to:

- Minimising amenity issues from surrounding land uses, including noise, odour and dust.
- Topographical constraints.
- Compliance with requirements of the WWTP buffer, Cockburn Cement buffer and mobile dune buffer.
- Consideration of development impacts on existing flora and fauna and remnant vegetation.
- Ensuring development does not negatively impact existing water bodies, such as the Irwin River.
- Compliance with provisions under the operative local planning scheme and local planning policies.
- Provision of adequate bushfire management.
- Provision of adequate water management.

A small portion of land to the west of St Dominics Road, abutting the northern boundary of the structure plan area is zoned General Farming. The lot is included in the area identified for urban expansion in the draft Local Planning Strategy and is likely to be rezoned in the future. It is unlikely that subdivision will occur prior to rezoning of the site.

2.9. Public Open Space

There are no requirements for the provision of public open space for development of areas zoned rural residential under current state planning policies or Liveable Neighbourhoods. Nevertheless, in accordance with provisions set out under LPS5, a cash-in-lieu contribution of five percent of the gross value of applicable land area is to be provided by the developer/landowner to the local authority at the time of subdivision.

The cash-in-lieu may, where appropriate, be used to provide additional recreational or open space linkages. This may provide opportunities for the development of passive recreation linkages that have the dual benefit of providing ecological linkages between the structure plan area and the Beekeepers Nature Reserve to the south.

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2.10. Movement Network

The Springfield Structure Plan proposes several indicative future roads to enable development of rural residential lots, increase connectivity within the structure plan area and assist in mitigating bush fire risk. In addition, the proposed road layout seeks to rationalise the existing road network and provide greater ease of access both between the south and north Springfield areas, and to the broader regional network.

The 1994 Subdivision Guide Plan – Springfield Special Rural Zone identified additional future roads and the closure of existing roads to facilitate subdivision. The proposed layout identified the need for environmental assessment at subdivision stage to ensure appropriate engineering and subdivision design. Subsequent subdivision approvals deviated from the plan and have led to a fragmented road layout with approved subdivision roads inconsistent with the guide plan, informal roads not reflected in the scheme, and conversely, road reserves in the scheme that do not correspond to existing road alignments.

The indicative road layout builds on the existing movement network and reflects previous subdivision approvals while responding to bushfire planning requirements for greater connectivity and access in emergencies. The following sections describe the existing road hierarchy and the rationale for the indicative road network.

2.10.1. Existing road hierarchy

The Brand Highway Primary Distributor extends across the north of the Springfield Structure Plan and Kailis Drive, a Local Distributor, to the south. Local roads within the structure plan area are classified as Access Roads (Figure 12).

The sand dune system stretching across the south of the structure plan area presents a considerable constraint to joining the existing development to the south-west with the northern road system. Nevertheless, the southern development has access to Kailis Drive, which connects to the Port Denison townsite and broader regional transport network.

The Dongara-Eneabba Rail to the east of the structure plan area has three formal rail crossings, as indicated on the structure plan map.



Figure 12 Existing Road Heirarchy (MRWA)

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2.10.2. Indicative road hierarchy

The following matters were taken into consideration when developing the rationale to identify the indicative road hierarchy:

- Topography
- The existing road network
- Previous subdivision approvals
- The road layout identified in the 1994 Subdivision Guide Plan – Springfield Special Rural Zone
- Vehicular access guidelines as per SPP3.7
- The existing road reserves under LPS5
- Outcomes of the preliminary public consultation

The indicative road layout identifies a network of access roads to provide a connected framework for access and movement within the structure plan area. Additional roads may be required dependent on proposed subdivision. Roads shown on the structure plan map (Figure 1) are indicative only and to be confirmed at subdivision, subject to further detailed design.

2.10.3. Traffic generation and management

A Transport Report was prepared as part of this structure plan (Appendix B). Potential improvements to the existing movement network, and recommended street types are discussed in this section based on findings of the report.

Based on a total rural residential yield of 1080 lots at full development (based on one hectare minimum lot area), 9720 vehicle trips per day (vpd) are estimated. The likely trip distribution from the structure plan area is indicated in Table 4 below.

Table 4 Trip distribution

Destination	Total trip distribution
Port Denison	40%
Dongara	40%
Northern Destinations	10%
Southern Destinations	10%

From the above distributions, the forecast daily traffic volumes on the network is shown in Table 5, and assumes no initial north-south connection. The analysis assumes 60 percent of development will occur in the north and 40 percent in the south.

Table 5 Estimated traffic volumes on key connections

Traffic generation	Road connection	Likely percentage	VPD
3,888 vpd (Southern Sector)	Springfield Drive to Kailis Drive	98%	3,810 vpd
5,832 vpd (Northern Sector)	Blenheim Road to Point Leander Drive	65%	3,790 vpd
5,832 vpd (Northern Sector)	St Dominics Road to Point Leander Drive	33%	1,925 vpd
9,720vpd (whole structure plan area)	East-West Connection to Brand Highway across rail crossing	2%	78 vpd + 116 vpd *

*(could be up to 190 vpd with good connectivity and able to serve whole structure plan)

The Dongara – Port Denison District Structure Plan indicates a projected population growth of eight percent between 2016 and 2026. It is therefore assumed that existing traffic volumes on the network are likely to increase by around eight percent over the same period.

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To accommodate forecast traffic volumes, services and drainage requirements it is recommended that the higher volume roads (Springfield Drive and Blenheim Road) are accommodated within a **20-22 m** road reserve.

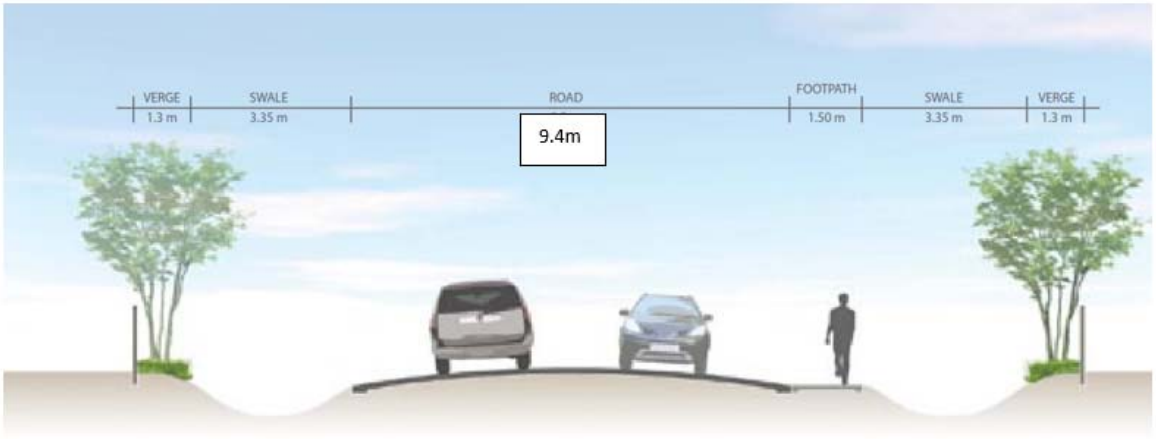


Figure 13 Indicative cross section within a 20-22 m reserve

All other roads are anticipated to carry less than 3000 vpd and could be accommodated within a **17-18 m** reserve. Indicative cross sections are shown in Figure 8. The carriageway width will vary depending on the road function and the values shown are indicative only, widths are likely to be 6 m (plus 2 x 1.2 m shoulders) to 7 m (plus 2 x1.2 m shoulders).

It should be noted that these are general minimum reserve requirements, and may need to be wider where open drains, services, footpaths and earthworks dictate requirements in any particular case.

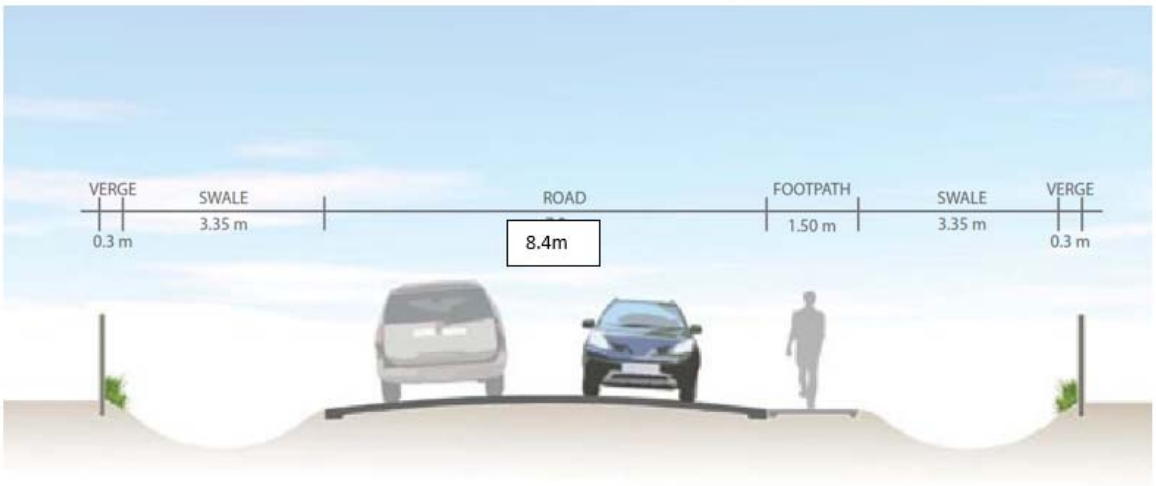


Figure 14 Indicative cross section within a 17-18 m reserve

Springfield Drive/Kailis Drive

The existing intersection has localised widening on Kailis Drive to allow through-traffic to pass right turning traffic. A left turn lane is also in place. In view of the increased traffic volumes (3810 vpd) using the intersection on ultimate development and the fact Kailis Drive is a RAV 7 route, it is recommended that a right turn lane is constructed from Kailis Drive to Springfield Drive. Kailis Drive has a posted speed limit of 110km/h, in view of the increased activity due to the development within the structure plan area it is recommended that the speed limit on Kailis Drive be reduced to 80km/h on the approach to Springfield Drive.

Blenheim Road/Point Leander Drive

The intersection is currently a five-way roundabout. Estimated traffic volumes on Blenheim Road on full development are 3790 vpd. No other traffic volumes are available on the local roads but it is anticipated the roundabout will operate within capacity. However, traffic volumes should continue to be monitored as development within the Structure Plan area occurs.

St Dominics Road/Point Leander Drive

The intersection is currently a three-way T intersection. Estimated traffic volumes on St Dominics Road at full development are 1925 vpd. No other traffic volumes are available on the local roads but it is anticipated the intersection will operate within capacity. In order to facilitate the turning volumes and improve the safety of the intersection a right turn pocket from Point Leander Drive to St Dominics Road is recommended.

Brand Highway/Kailis Drive

The intersection is currently a three-way T intersection. Existing volumes on Brand Highway are around 2000 vpd with 22 percent heavy vehicles. The intersection includes a left turn lane in Brand Highway and widening to allow southbound traffic on Brand Highway to pass right turning traffic. Growth on Brand Highway over the next 10 years is likely to be relatively low. It is anticipated that full development of the structure plan area will add approximately 970 vpd to the intersection. No other traffic volumes are available on Kailis Drive but it is anticipated the intersection will operate within capacity. There have been no reported crashes in five years. Traffic volumes should continue to be monitored as development within the structure plan area occurs to ensure the intersection continues to operate satisfactorily. It is recommended that Main Roads WA review the safety and operation of the staggered T intersections including Pye Road to the east, to assess the need for right turn lanes from both directions on Brand Highway in the longer term.

Internal intersections

It is considered that all internal intersections should operate under give way control. No additional intersection treatments are anticipated to be required.

Pedestrian facilities

It is considered that all internal roads should have a footpath on at least one side to accommodate pedestrians.

Cycling facilities

In view of the relatively low traffic volumes over the network it is considered that cycling will occur on the access roads or shared paths where provided.

Rail crossings

As part of the Structure Plan, three rail crossings are included. The southernmost crossing connects to Brand Highway. In the longer term the route should be formalised and clearly identified as having access to Brand Highway. The level of protection required at the crossing(s) will need to be confirmed in view of the increased crossing activity.

Internal roads – traffic calming

It is noted that there has been some community concern about the opportunities for traffic ‘rat running’ through the Structure Plan area from Kailis Drive to Dongara should a North-South Road be developed. In view of the likely geometry of the road due to the sand dunes, it would seem unlikely to be attractive to through traffic. However, the option to install traffic calming measures including lateral deflection devices should be considered in the future.

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2.11. Water Management

A Local Water Management Strategy (LWMS) has been prepared for the structure plan and provided as Appendix A in accordance with Better Urban Water Management (Western Australian Planning Commission, 2008). This document forms part of the structure plan, and should be used by developers and planning authorities in designing and considering applications for subdivision and development.

The LWMS sets out the design criteria and water management strategies to ensure development in the Springfield area meets the key principles of integrated water cycle management. These principles are:

- Minimise total water use in the development area
- Protect infrastructure and assets from inundation and flooding
- Manage groundwater levels to protect infrastructure and assets
- Protect environmental values of receiving water bodies

In the absence of other sources, the LWMS notes that future rural residential development will require rainwater tanks to meet potable and non-potable demands and will necessitate strict water conservation.

As the site will not be connected to a centralised sewage treatment plant, proposed development will be serviced by onsite effluent disposal systems, such as septic tanks or aerobic treatment units (ATUs).

Stormwater management will employ a strategy for managing water quantity and quality where all design events up to the 100-year ARI will be infiltrated close to the source using WSUD measures such as infiltration swales.

Urban Water Management Plans will be required at the time of subdivision as informed by the LWMS.

2.12. Service Infrastructure

An Engineering Services Report (Appendix C) was prepared as part of this structure plan. The report identified that the capacity of existing services will need to be increased to adequately service the potential future rural residential lot yield.

Power

The 33 KiloVolt (kV) overhead power line currently servicing the structure plan area emanates from the Geraldton zone substation some 60 km away. Due to length of these feeders there are distribution loading and capacity constraints. Augmentation could be required to increase the feeder's capacity to service additional loads. There are two 3 3kV feeders that head south from Geraldton towards Dongara being the GTN 619 Narngulu West and GTN 610.0 Dongara feeder.

Based on current Western Power Network Capacity Mapping Tool information, available capacity will likely support at least 250 lots until 2019. At current growth rates, it is anticipated that Western Power should be able to plan and upgrade their network organically to meet the proposed ultimate demand. It is recommended that a feasibility study request be submitted to Western Power to obtain more accurate and up to date information on the existing power network.

Any existing power line that traverses newly created lots that are less than 10 ha in size need to have the overhead power converted to underground and/or removed.

Telecommunications

The majority of existing lots within the Springfield structure plan area have telecommunication services. It is anticipated Telstra will continue to grow the overall system to ensure appropriate levels of service are maintained.

Developers will be responsible for providing pit and pipe for any proposed development, and may be responsible for backhaul charges for the provision of the additional capacity.

Water

The Springfield Structure Plan area is not currently service with reticulated water. The only Water Corporation water services within this area are in the form of a DN100 extension along Blenheim Road from Dongara which serves solely as a connection for the WWTP.

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Planned assets for the area, obtained from the Water Corporation, include the creation of two additional ring mains north of Blenheim Road and west of Powder Bark Loop. This ring main area represents only a small portion of the Springfield area, which is further constrained by the buffer zone around the WWTP. It appears no further provisions for servicing the area are planned.

In the absence of scheme water, each rural residential lot will be required to provide adequate potable water for household and firefighting use.

Wastewater

Wastewater is currently managed by on-site effluent systems and are the responsibility of each property owner.

The WWTP located within Springfield treats wastewater from the catchment in Dongara and does not extend to Springfield. Future planning from the Water Corporation encompasses only the area north of Blenheim Road and west of Powder Bark Loop, as with the provision of scheme water.

In the absence of reticulated sewerage, future development will need to ensure appropriate on site effluent disposal is maintained.

Roads

The structure plan map includes future indicative roads, to be confirmed at subdivision through further assessment and detailed design. The road infrastructure ensures adequate access and movement for future development and is the responsibility of the developer/landowner.

Staging

Extension of services and infrastructure will be influenced by access, site conditions, and funding. The direction of staging is not a statutory requirement of the structure plan and in reality staging will be largely be dependent on the development aspirations of landholders. Landowners and/or developers will be responsible for extension of services and the provision of water and wastewater facilities to support their stages of development.

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Appendices

Appendix A: Local Water Management Strategy

Appendix B: Transport Report

Appendix C: Engineering Services Report

Appendix D: Preliminary Environmental Impact Assessment

Appendix E: Bushfire Attack Level

Appendix F: Pre-Lodgement Consultation

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