KEMERTON STRATEGIC INDUSTRIAL AREA

STRUCTURE PLAN

LANDCORP AND DEPARTMENT OF STATE DEVELOPMENT

APRIL 2017

tpg PLACE MATCH

Document Control

Document ID: PG 2010/710-065 Kemerton Industrial Estate/7 Final Documents/3 Approved/710-065 Part 2 - Kemerton SIA Structure Plan_MS 23.02/710-065 Part 2 - Kemerton SIA Structure Plan_2017.04.26.indd						
Issue	Date	Status	Prepared by		Approved by	
			Name	Initials	Name	Initials
1	28.11.14	Draft TPG	Matt Raymond		Tony Paduano	
2	23.12.14	Draft Client	Matt Raymond		Tony Paduano	
3	19.02.15	Final 1	Matt Raymond		Tony Paduano	
4	08.04.15	Final 2	Matt Raymond		Tony Paduano	
5	03.08.15	Final 3	Matt Raymond		Tony Paduano	
6	23.02.17	Final 4	Matt Raymond		Tony Paduano	
7	26.04.17	Final 5	Matt Raymond		Tony Paduano	

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the Shire of Harvey District Planning Scheme 1.

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

~~[DATE]~~ 24TH MAY 2017

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

24 May 2017

Date

24TH MAY 2027

Date of Expiry

Table of Modifications

Table of modifications to the Kemerton Strategic Industrial Area Structure Plan.

MODIFICATION NO.	DESCRIPTION OF AMENDMENT	DATE ENDORSED BY SHIRE OF HARVEY	DATE ENDORSED BY THE WAPC

Contents

The Appendices listed below are provided as separate technical reports on the attached CD.

Figures

This page has been left blank intentionally.

Executive Summary

Covering approximately 7508 hectares of land (including its buffers), the Kemerton Strategic Industrial Area (KSIA), also known as the Kemerton Industrial Park, is located approximately 160km south of the Perth metropolitan region and 17 kilometres north east of Bunbury and its deepwater port, within the Shire of Harvey. It was established in 1985 primarily for major (heavy) industry to provide for downstream processing and value-adding to the South West region of Western Australia's extensive primary resources, especially its substantial mineral resources, for both export and domestic markets.

The purpose of this Structure Plan is to provide a planning framework and the implementation requirements to guide the future development of the KSIA. The Structure Plan has been prepared in accordance with the requirements of clause 9.14 of the Shire of Harvey District Planning Scheme No.1 (DPS1) and applies to the entire KSIA.

The KSIA is comprised of the following areas:

- 2024 ha of Kemerton Strategic Industry zone (the Core) – for the establishment of major industries.
- 284 ha of Kemerton Ancillary Industry zone – industry in this area will be ancillary to the heavy industry in the Core; ancillary meaning that the proposed development must demonstrate that the major portion of the source material, finished product, or services provided are oriented within the Kemerton area.
- 5200 ha of Kemerton Industry Buffer zone (the Buffer) – not intended to accommodate industry but used to ensure that the impacts of industries located in the Kemerton Strategic Industry zone do not adversely impact on properties beyond the boundary of the KSIA.

The subject area currently supports cleared former grazing land, forestry plantations, semi-rural residential land holdings and areas of native vegetation and wetlands. In addition, a number of existing industries and utilities are located within the KSIA. Landownership in the KSIA can be considered in three key categories:

- LandCorp ownership (approximately 57% ownership within the Kemerton Strategic Industry zone, approximately 24% within the Kemerton Industry Buffer zone).
- Department of Parks and Wildlife (DPaW) ownership (approximately 10% ownership within the Kemerton Strategic Industry zone, approximately 44% within the Kemerton Industry Buffer zone).
- Other ownership (private ownership, local government authorities, Infrastructure Service Agencies): approximately 33% ownership within the Kemerton Strategic Industry zone, approximately 32% within the Kemerton Industry Buffer zone).

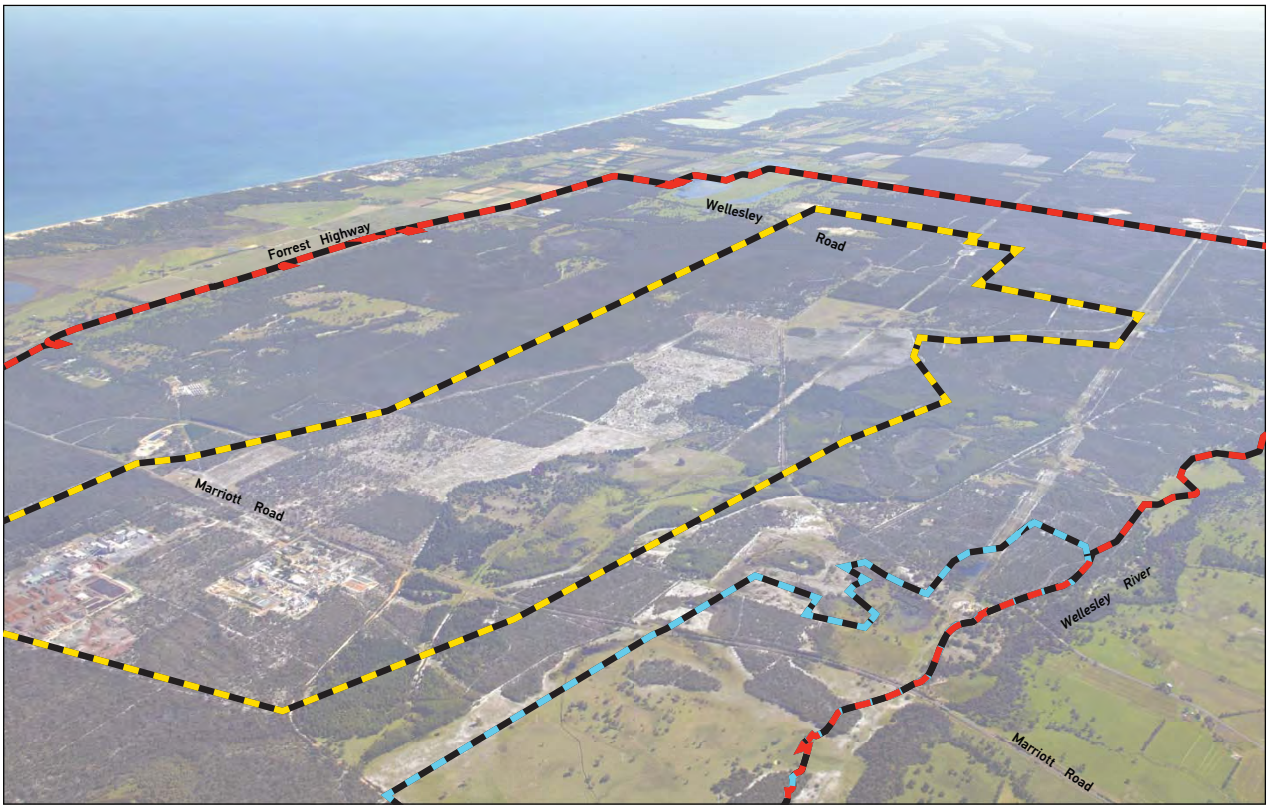
The objectives of the KSIA Structure Plan are to provide a spatial planning framework:

a. To enable the establishment of resource processing industries and associated supporting activity in order to fulfill its designated role as a strategic industrial area for the South-West region.

b. To provide industrial development areas that:
    - are identified for subdivision and Strategic and Ancillary development;
    - are sufficiently flexible to accommodate the varying needs of future proposals including the need for flexible servicing arrangements for industry within the Strategic Industry zone;
    - achieve beneficial economic, environmental and community outcomes;
    - encourage synergic interactions between business activities consistent with the principles of industrial ecology;
    - are protected from the encroachment of incompatible uses;
    - respect visual management considerations;
    - enable environmental protection and management arrangements that minimise impact on the natural environment; and
    - respect sites of Aboriginal heritage significance.

The Department of State Development (DSD) and LandCorp are implementing the *Heavy Use Industrial Land Strategy* which provides the framework for bringing priority Strategic Industrial Areas, including the KSIA, to a 'project-ready' status. This is done by undertaking necessary land-based assessments of the Strategic Industrial Area to inform future site-specific approval requirements for proponent led proposals. The development of the KSIA is expected to occur over a long-term time-frame, depending on the demand for industrial sites. Due to the uncertain nature of strategic industry demand for land areas and servicing requirements, development of sites is intended only when required by a future proponent. Proponents will be responsible for the construction of all infrastructure required to service their sites. Where necessary, this infrastructure may extend beyond their own landholdings. The benefits associated with shared services are acknowledged and LandCorp and DSD will require a proponent's servicing strategy to investigate the opportunity for the construction of shared services to benefit the whole of the KSIA.

Part One - Implementation



Kemerton Strategic Industry

Kemerton Ancillary Industry

Kemerton Industry Buffer

1. Part One - Implementation

1.1 Structure Plan Area

1.1.1 This Structure Plan applies to the Kemerton Strategic Industrial Area (KSIA), being the land contained within the inner edge of the dotted line denoting the Structure Plan boundary on the Structure Plan map (Plan 1), herein referred to as the Structure Plan area.

Refer to Plan 1 – Structure Plan Map

1.2 Structure Plan Content

1.2 .1 This Structure Plan comprises:

- Plan 1 - Structure Plan Map. The Plan outlines the land use classifications applicable within the Structure Plan boundary. Due regard is to be given to these land use classifications when determining subdivision and development applications applicable to the Structure Plan
- Part One – Implementation. The provisions, standards and requirements specified under Part One of this Structure Plan, shall be given due regard in any planning decision making.
- Part Two – Explanatory Section including Technical Appendices. The Explanatory Section of this Structure Plan and all Appendices are to be used as a reference only to clarify and guide interpretation and implementation of Part One.

1.3 Interpretation and Relationship with the Scheme

1.3.1 Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the Shire of Harvey District Planning Scheme No.1 (the Scheme) including any amendments gazetted thereto.

1.3.2 This Structure Plan is to replace the existing Kemerton Park Industrial Area Structure Plan provided under Schedule 18 of the Scheme.

1.3.3 This Structure Plan outlines the land use classifications applicable within the Structure Plan boundary. Due regard is to be given to these land use classifications when determining subdivision and development applications applicable to the Structure Plan.

1.4 Operation

1.4.1 In accordance with clause 9.13.5.14 of the Scheme, this Structure Plan shall come into operation when it is approved by the Western Australian Planning Commission (WAPC).

1.5 Objectives

1.5.1 The objectives of the KSIA are to provide a spatial planning framework:

- To enable the establishment of resource processing industries and associated supporting activity in order to fulfill its designated role as a strategic industrial area for the South-West region.
- To provide industrial development areas that:
  - are identified for subdivision and Strategic and Ancillary development;

- are sufficiently flexible to accommodate the varying needs of future proposals including the need for flexible servicing arrangements for industry within the Strategic Industry zone, and the Ancillary Industry Zone;
- achieve beneficial economic, environmental and community outcomes;
- encourage synergic interactions between business activities consistent with the principles of industrial ecology;
- are protected from the encroachment of incompatible uses;
- respect visual management considerations;
- enable environmental protection and management arrangements that minimise impact on the natural environment; and
- respect sites of Aboriginal heritage significance.

1.6 Subdivision Principles

1.6.1 The nature of Strategic Industry Development and the servicing requirements of particular future industries means that conventional reticulated servicing requirements may not be applicable in all circumstances. As proponents' requirements can vary considerably between projects and from one site to another, the types and methods of service provision should be considered on a case-by-case basis. Where proposals require services to be extended to the site, this should be undertaken in a coordinated way with the rest of the KSIA.

1.6.2 In the Kemerton Strategic Industry area (the Core) proponents will be required to investigate, fund and implement the specific infrastructure and services they require for their developments (i.e. power, water, telecoms, and wastewater solutions).

1.6.3 The delivery of Industrial development within the Kemerton Ancillary Industry area will be different to the approach applied to land within the Kemerton Strategic Industry area (the Core). In the Kemerton Ancillary Industry area the subdivision proponent will be responsible for subdividing lots and preparing site(s) ready for industrial development, as per the standard subdivision process through the WAPC. This will include providing infrastructure (sewer, reticulated water, underground power and telecommunications) to subdivided lots. A Local Development Plan shall be prepared for any proposal where 3 lots or more are being created.

1.7 Land Use Requirements

1.7.1 Land use permissibility within the Structure Plan area shall be in accordance with the corresponding zones and reserves under the Scheme:

- Kemerton Strategic Industry zone;
- Kemerton Ancillary Industry zone;
- Kemerton Industry Buffer zone;
- Regional Open Space; and
- Public Purposes.

1.8 Subdivision and Development Requirements

1.8.1 Prior to subdivision or development the proponent shall prepare and submit the following details to the satisfaction of the relevant authorities as required:

- A Detailed Bushfire Management Plan in accordance with SPP 3.7 and reflecting the outcomes of the Bushfire Management Plan at Appendix G;
- A Water Management Plan as per the Over-arching Water Management Strategy at Appendix F;
- A proposal specific Environmental Management Plan as per the Over-arching Environmental Management Plan at Appendix C.

This may include:

- A Landscape and Visual Amenity Assessment for any proposals within the area identified in the Structure plan as 'Ridge landscape priority' or 'In evident visual alteration';
- A Foreshore Management and Landscaping Plan for any proposals involving development of the Ancillary Industry area to ensure buffering of the land to the east of the Wellesley River, south of Devlin Road and the Wellesley River; and
- Detailed flora and fauna surveys as per the EPA Guidance Statement 51 and 56.

1.8.2 Development within the Structure Plan area is subject to planning approval by the Shire of Harvey under District Planning Scheme No. 1, or where applicable, the WAPC under the Greater Bunbury Region Scheme.

1.8.3 As proponents' development requirements can vary considerably based on the type of industry, associated operational requirements and site-specific characteristics, the imposition of generic Development Approval conditions will not always be appropriate and may not reflect the flexibility required in the KSIA. Conditions of Development Approval should therefore be considered on a case-by-case basis and have due regard to the objectives and provisions of this Structure Plan.

1.9 Environmental Management

1.9.1 The Overarching Environmental Management Plan (EMP) establishes the deferred environmental factors, to be addressed by a proponent through a proposal specific EMP before a subdivision or development application can be considered by the Local Authority and/or the Department of Planning.

1.9.2 A proposal specific EMP will only be required as a condition at either the Subdivision or Development Application stages if the proposal will have an impact on the deferred environmental factors.

1.9.3 Any conditions in a proposal specific EMP must be capable of being complied with during the execution of the proposal and not create ongoing obligation beyond the completion of the proposal.

1.9.4 A strategic assessment of the proposed Kemerton Strategic Industrial Area under the *Environmental Protection and Biodiversity Act 1999* has not been undertaken. As a result individual proponents will be required (as necessary) to obtain any necessary Commonwealth Environmental approvals on a case by case basis in addition to any environmental approvals required under State Environmental Legislation (including the *Environmental Protection Act 1986*, and associated Regulations).

1.10 Matters to be Considered

1.10.1 When considering applications within the Kemerton Industry Buffer area, Local Government shall have regard to:

(a) the Kemerton Strategic Industrial Area Structure Plan;

(b) whether the proposal is compatible with any existing or proposed future use or development within the Kemerton Strategic Industry zone and the Kemerton Ancillary Industry zone;

(c) the existing, proposed or likely risks, hazards and nuisance (including but not limited to noise, odour and light) associated with the Kemerton Strategic Industry zone;

(d) the potential impacts of the proposal on the efficient development of the Kemerton Strategic Industrial Area;

(e) any other relevant planning and environmental considerations including, but not limited to, provisions of the State Planning Framework;

(f) recommendations of the chief executive officer of the Department of Mines and Petroleum in the administration of the *Mining Act 1978* and the chief executive officer of the Environmental Protection Authority in the administration of the *Environmental Protection Act* 1986; and

(g) any other issue Local Government deems relevant.

This page has been left blank intentionally.

KEMERTON ROAD

TREASURE ROAD

FORREST HIGHWAY

ROSAMEL RD

35m RESERVE

95m WIDE SERVICE CORRIDOR

WELLINGTON ROAD

WELLESLEY RIVER

Rail to connect with Southwest main line and Bunbury Port

SU

W.W.T.P

MARRIOTT ROAD 50m RESERVE

35m RESERVE + 10m PIPELINE

20m RESERVE

DEVLIN ROAD

BRUNSWICK RIVER

LEGEND

- Kemerton Strategic Industrial Area Structure Plan Boundary
- Existing lot cadastre
- Conceptual local road and lot layout
- Indicative railway
- Indicative Perth to Bunbury fast train alignment
- EPP 1992 SCP Wetlands
- Conservation/Resource Enhancement Wetlands
- Wetland buffer
- Landscape Control Areas - landscape and visual amenity implementation measures apply – refer 1.8.1
- Primary Regional Road
- Regional Open Space
- Public Purpose
- Kemerton Strategic Industry
- Kemerton Ancillary Industry
- Kemerton Industry Buffer
- Special Control Area No. 2

NOTES:

1. The alignment of all existing road reserves may be subject to further assessment at the subdivision stage to assess whether the alignment is suitable or whether an alternative alignment would be preferred/required.
2. Lot sizes, configuration and development 'footprint' are to be determined at the subdivision stage based upon detailed assessment of a range of criteria including the OWMS, bushfire management, biodiversity measures (including wetland management and habitat protection) and the extent of clearing required to implement the proposal.

Plan 1

Structure Plan

Kemerton Strategic Industrial Area

Date: 28 March 2017

Scale: 1:35,000 @ A3

Project Manager: MR

Checked: MR

Drawn: LC

Drawing No. 710-065 ST1E 2017-03-28.dgn

0 1500m

TOWN PLANNING
URBAN DESIGN AND HERITAGE

This page has been left blank intentionally.

TREASURE ROAD

KEMERTON ROAD

95m WIDE SERVICE CORRIDOR

WELLINGTON ROAD

WELLESLEY RIVER

WELLESLEY ROAD

MARRIOTT ROAD

DEVLIN ROAD

BRUNSWICK RIVER

, 1999)

aints of the site. It is possible that some of these areas will not
tal values present. The mapping should be used as a guide,
ts needed for individual development areas. Approval
l be determined through the necessary approvals process.

Plan 2

Vegetation Considerations

Kemerton Strategic Industrial Area

Date: 27 February 2017

Scale: 1:35,000 @ A3

Project Manager: MR

Checked: MR

Drawn: LC

Drawing No. 710-065 ST2A 2017-02-27.ai

0 1500m

Source: Ecological Australia

TOWN PLANNING
URBAN DESIGN AND HERITAGE

This page has been left blank intentionally.

Part Two - Explanatory Section

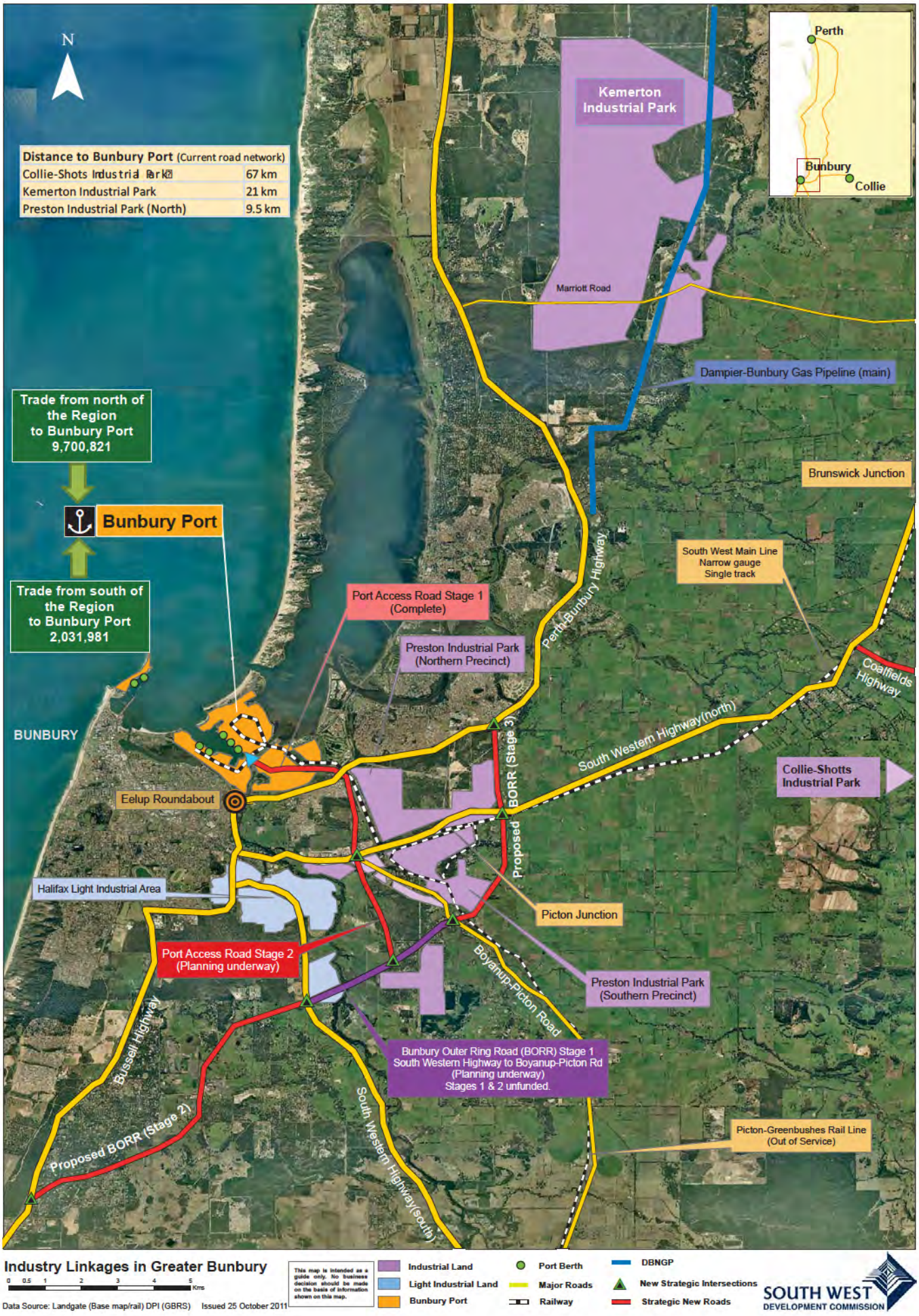


Figure 1 Industry Linkages in Greater Bunbury. Source: South West Development Commission

Part Two - Explanatory Section

2. Introduction

2.1 Introduction

The Kemerton Strategic Industrial Area (KSIA), also known as the Kemerton Industrial Park, is the largest heavy industrial area in the South West of Western Australia and is one of the State's designated 'Strategic Industrial' areas. The KSIA Structure Plan has been prepared to enable the coordinated delivery of heavy and general industrial development by establishing a coordinated planning framework and conceptual designs.

2.2 Purpose, Scope and Structure of Documents

The principle purpose of the KSIA Structure Plan is to provide an agreed design and management framework which will enable the KSIA to be implemented in a logical and responsible manner, coordinating land use, services and infrastructure.

The Structure Plan has been prepared in accordance with Clause 9.14 (Structure Plans) of the Shire of Harvey's District Planning Scheme No.1. It provides a broad framework to guide the Shire of Harvey and the Western Australian Planning Commission when it considers subsequent subdivision and development proposals.

2.3 Overview of the KSIA

The KSIA was established in 1985 primarily for major (heavy) industry to provide for downstream processing and value-adding to the region's extensive primary resources, especially its substantial mineral resources, for both export and domestic markets. The KSIA was established with a large buffer to cater for heavy industries requiring a large buffered area for containing operational elements (including air, noise and risk emissions).

The site is uniquely located to take advantage of the South West Region's mineral sands and alumina industries. It is ideally located to support some of the area's other resources industries including coal, tantalum and spodumene mining and for downstream processing of the region's timber industries. The KSIA is accessible to the Port of Bunbury by road and planned rail link and is well located in relation to the hinterland of the South West region and its substantial primary industries. The KSIA also benefits from good highway access to the metropolitan area and to other industrial areas in the region, including the Preston Industrial Park and Shotts Strategic Industrial Area.

It is expected that the industries that locate in the Kemerton Strategic Industry zone (the Core) will be those that support existing south west industries and strengthen the economic base of the region by adding value to primary and secondary resources. Future industries in the KSIA are anticipated to belong to one or more of the following categories:

- Chemical and resource processing (e.g. existing Cristal Pigment and Simcoa silicon smelter);
- High technology (e.g. titanium applications);
- Downstream processing (e.g. silicon applications); and
- Power generation (e.g. gas fired, biomass fired).

The KSIA is anticipated to generate significant wages and salaries for the employees. According to the economic and social analysis undertaken by Syme Marmion

and Co (refer to Appendix A - Economic and Social Analysis Report), the KSIA will also generate additional employment off-site in other areas of the South West, Perth and regional Western Australia.

Refer to Figure 1 - Industry Linkages in Greater Bunbury

2.4 Consultant Team

The KSIA Structure Plan has been prepared on behalf of LandCorp and the Department of State Development (DSD) with input from the following consultants:

Table 1 - Consultant Team Inputs

Consultant	Report/Data
TPG Town Planning, Urban Design and Heritage	KSIA Structure Plan Report (2015)
Ecological Australia	KSIA Over-arching Environmental Management Plan (2014)
RUIC Fire	Strategic Overarching Bushfire Management Plan Kemerton Industrial Area
RPS Environmental	Overarching Water Management Strategy, KSIA
Wood and Grieve Engineers	KSIA Civil Servicing and Engineering Report
Syme Marmion and Co	Kemerton Industrial Park Economic and Social Analysis (2011)
Parsons Brinkerhoff	Kemerton Industrial Park – Acid Sulfate Soil and Dewatering Management Plan Kemerton Industrial Park –Wetland Management Plan Kemerton Industrial Park – Waste Disposal Management Strategy
Transcore	Kemerton Industrial Park –Updated Local Structure Plan Transport Assessment (2014)
GHD	KSIA Sidings and Spur Rail Design Report (2014)
Douglas Partners	Report on Preliminary Geotechnical Investigation, Kemerton Industrial Park (2011)
Brad Goode and Associates	A Site Identification Aboriginal Heritage Survey of the Proposed Kemerton Industrial Park In the Shire of Harvey, Western Australia (2011)
Herring Storer Acoustics	Kemerton Industrial Park Environmental Noise Assessment (2014)
William James Landscape Architect	Kemerton Strategy Plan Landscape Assessment Study (2007)
Air Assessments and Environmental Alliances	Air quality modelling for the expansion of the Kemerton Industrial Estate (2010)
ERS Environmental Risk Solutions	Kemerton Risk Modelling (2011)
McMullen Nolan Group	KSIA Surveying Data (2014)

3. Site Context and Land Description

3.1 Location

The KSIA is located within the Shire of Harvey approximately 160km south of the Perth metropolitan region and 17 kilometres north east of Bunbury and its deepwater port. The subject site is bound to the east and southeast by the Wellesley River and to the west and southwest by Forrest Highway.

Refer to Figure 2 – Location Plan

3.2 Area and Land Use

The KSIA is 7,508 hectares (ha) in total size, comprising the following land areas as identified on the Structure Plan:

- 2,024 ha as the Kemerton Strategic Industry zone;
- 284 ha as the Kemerton Ancillary Industry zone; and
- 5,200 ha as the Kemerton Industry Buffer zone (which includes 234 ha as Public Purpose and 195 ha as Regional Open Space.)

The area identified as the KSIA currently contains cleared former grazing land, forestry plantations, semi-rural residential land holdings and areas of native vegetation and wetlands. In addition, a number of existing industries and utilities are located within the KSIA. These include:

South of Marriott Road

- Simcoa Operations Pty Ltd (silicon smelter);
- Cristal Pigment (titanium dioxide plant);
- Nufarm-Coogee Pty Ltd (chlorine gas and sodium hydroxide plant);
- BOC Gases (oxygen and nitrogen);
- Cockburn Cement (lime hydration plant); and
- Western Power zone substation.

North of Marriott Road

- Kemerton Silica Sand (quarry);
- Transfield Services Kemerton Power Station (north east corner of the Strategic Industry zone);
- Western Power electricity transmission terminal (northern end of the Strategic Industry zone); and
- Tesla Corporation.

Refer to Figure 3 - Landownership and Existing Industries

The Kemerton Ancillary Industry zone comprises a mix of cleared former grazing land, areas of native vegetation and wetlands, pockets of forestry plantations and several small rural land holdings.

The Kemerton Industry Buffer zone is generally void of development and largely retained as natural vegetation. Land uses in the Buffer include regional open space, conservation areas, rural uses (including agriculture and quarrying), forestry plantations and landfill sites.

There are two areas identified as Public Purpose on the Structure Plan for “Special Uses”. The Kemerton Wastewater Treatment Plant (KWWTP) which services the nearby urban areas of Eaton and Australind is located on Water Corporation owned land to the west of the Strategic Industry zone, on the northern side of Marriot Road. The second area is the City of Bunbury and Shire of Harvey Regional Council Tip Site, located within the Buffer to the south of the Strategic Industry zone.

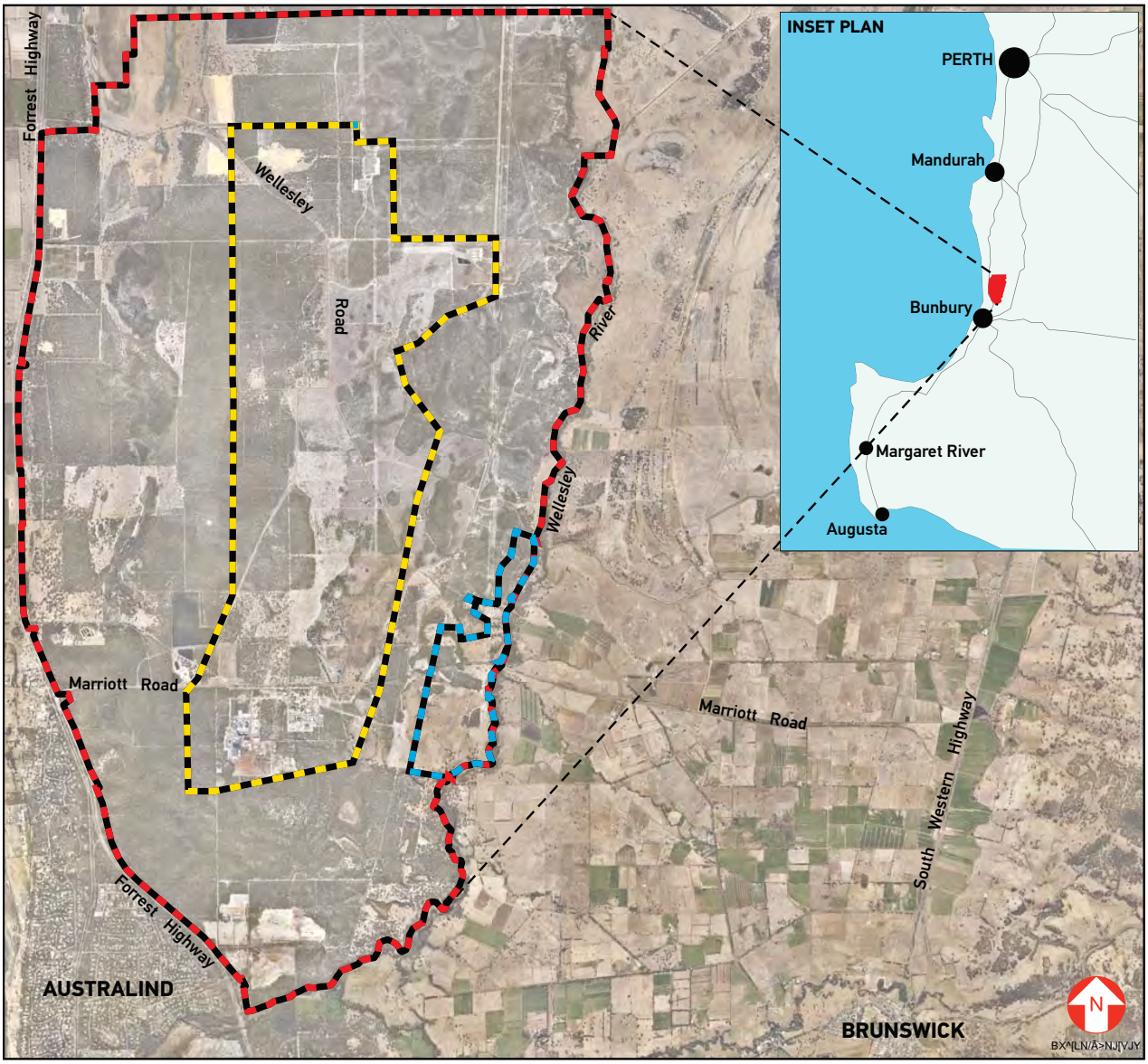


Figure 2 Location Plan

Two areas of Regional Open Space (ROS) associated with existing wetland areas are located within the KSIA. A large area of ROS is located on the north-eastern boundary of the Kemerton Strategic Industry zone, adjacent to Treasure Road and west of Wellington Road. A second smaller ROS is located north-west of the Kemerton Ancillary Industry zone, spanning across Wellesley Road. ROS also abuts the eastern boundary of the KSIA along the Wellesley River.

3.3 Legal Description and Ownership

Landownership in the KSIA can be considered in three key categories:

- LandCorp ownership (approximately 57% ownership within the Kemerton Strategic Industry zone, approximately 24% within the Kemerton Industry Buffer zone).
- Department of Parks and Wildlife (DPaW) ownership (approximately 10% ownership within the Kemerton Strategic Industry zone, approximately 47% within the Kemerton Industry Buffer zone). It is expected that over time DPaW will become responsible for the management of increasing portions of the Buffer zone, as land is progressively protected for conservation purposes.
- Other ownership (private ownership, local government authorities, Infrastructure Service Agencies): approximately 33% ownership within the Kemerton Strategic Industry zone, approximately 32% within the Kemerton Industry Buffer zone).

Refer to Figure 3 - Landownership and Existing Industries

Table 2 - Land Areas and Tenure

Land Area Summary	Ha	Tenure	%
TOTAL AREA OF KSIA	7508		
Kemerton Strategic Industry Zone			
Total Area	2024*		
	1146	LandCorp	57%
	678	Other ownership (private ownership, local government authorities, Infrastructure Service Agencies and road reserves):	33%
	200	Department of Parks and Wildlife	10%
Kemerton Ancillary Industry Zone			
Total Area	284		
		LandCorp	10%
Kemerton Industry Buffer			
Total Area	5200		
	1247	LandCorp	24%
	1689	Other ownership (private ownership, local government authorities, Infrastructure Service Agencies and road reserves):	32%
	2264	Department of Parks and Wildlife	44%

* Total area includes existing road reserve areas.

3.3.1 Kemerton Strategic Industry Zone (the Core)

The majority of land within the proposed Kemerton Strategic Industry zone (formerly referred to in the Kemerton Industrial Park Strategy Plan, 2005 as 'the Core') is owned by the WA Land Authority (trading as LandCorp). The southern portion of the Core (south of Marriott Road) is owned or leased largely by private industry. Landholdings located along the western side of the Core (added as a result of the Kemerton Expansion Study and shown under the GBRS) are owned by the Department of Parks and Wildlife (DPaW).

3.3.2 Kemerton Industry Buffer (the Buffer)

The majority of the Buffer is owned by the DPaW (44%). LandCorp owns approximately 24% of the Buffer area which is located largely along the eastern side of the KSIA, adjacent to the Wellesley River. LandCorp also owns landholdings within the existing Inter Industry Buffer zone (proposed to be merged with the Kemerton Industry Buffer zone as part of a proposed local scheme amendment to the Shire of Harvey District Planning Scheme No.1). The Water Corporation, the Bunbury-Harvey Regional Council and the Shire of Harvey control other Buffer land in public ownership. Private landowners are mostly located in the northern part of the Buffer (such as Kemerton Silica Sands). A number of power, gas and water easements also apply to landholdings within the KSIA. The proponent is to make direct contact with the private landowners within the buffer and to provide information in relation to the future zoning of their land and the ramifications of the future zoning

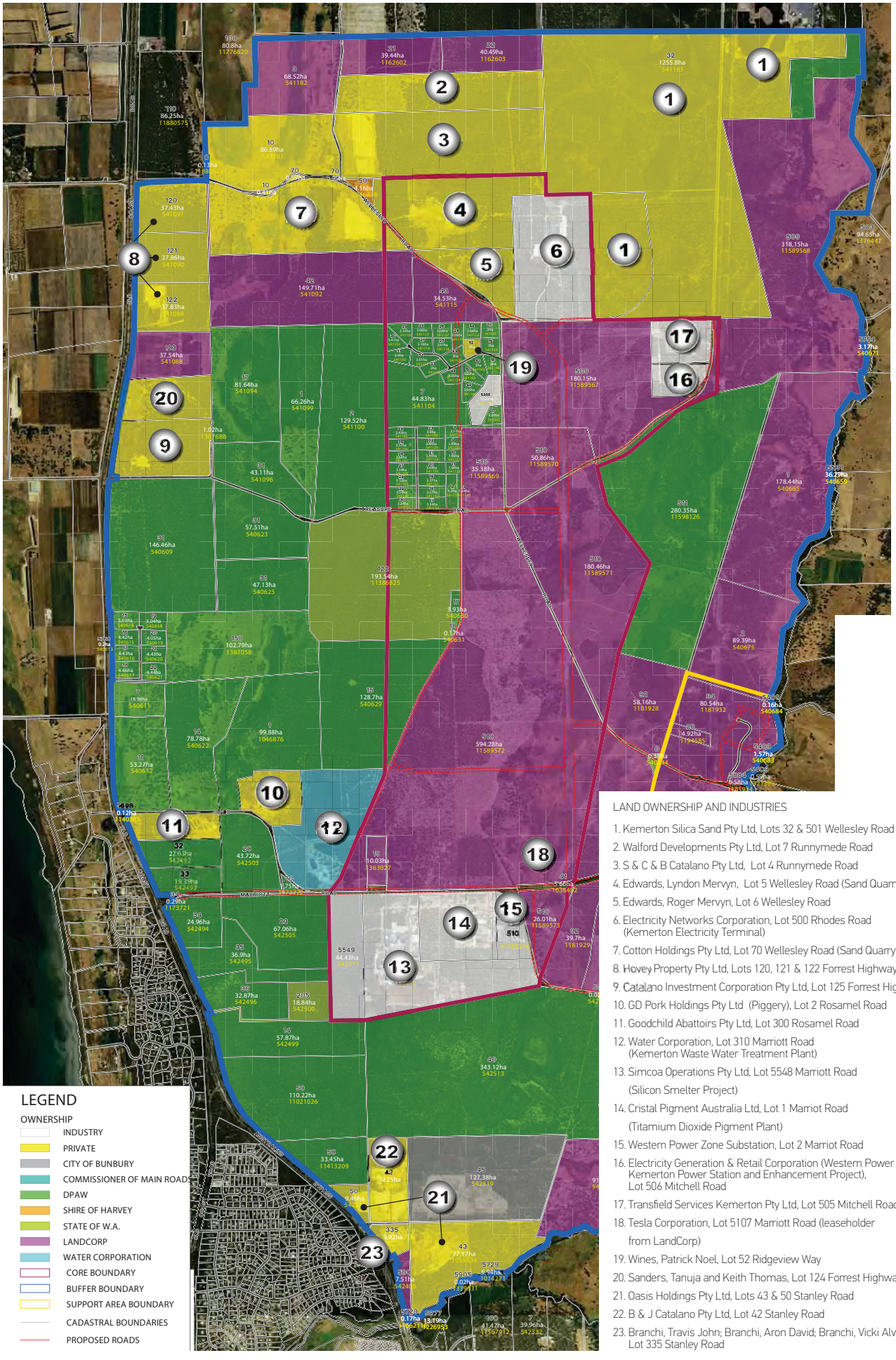


Figure 3 Landownership and Existing Industries: Source McMullen Nolan

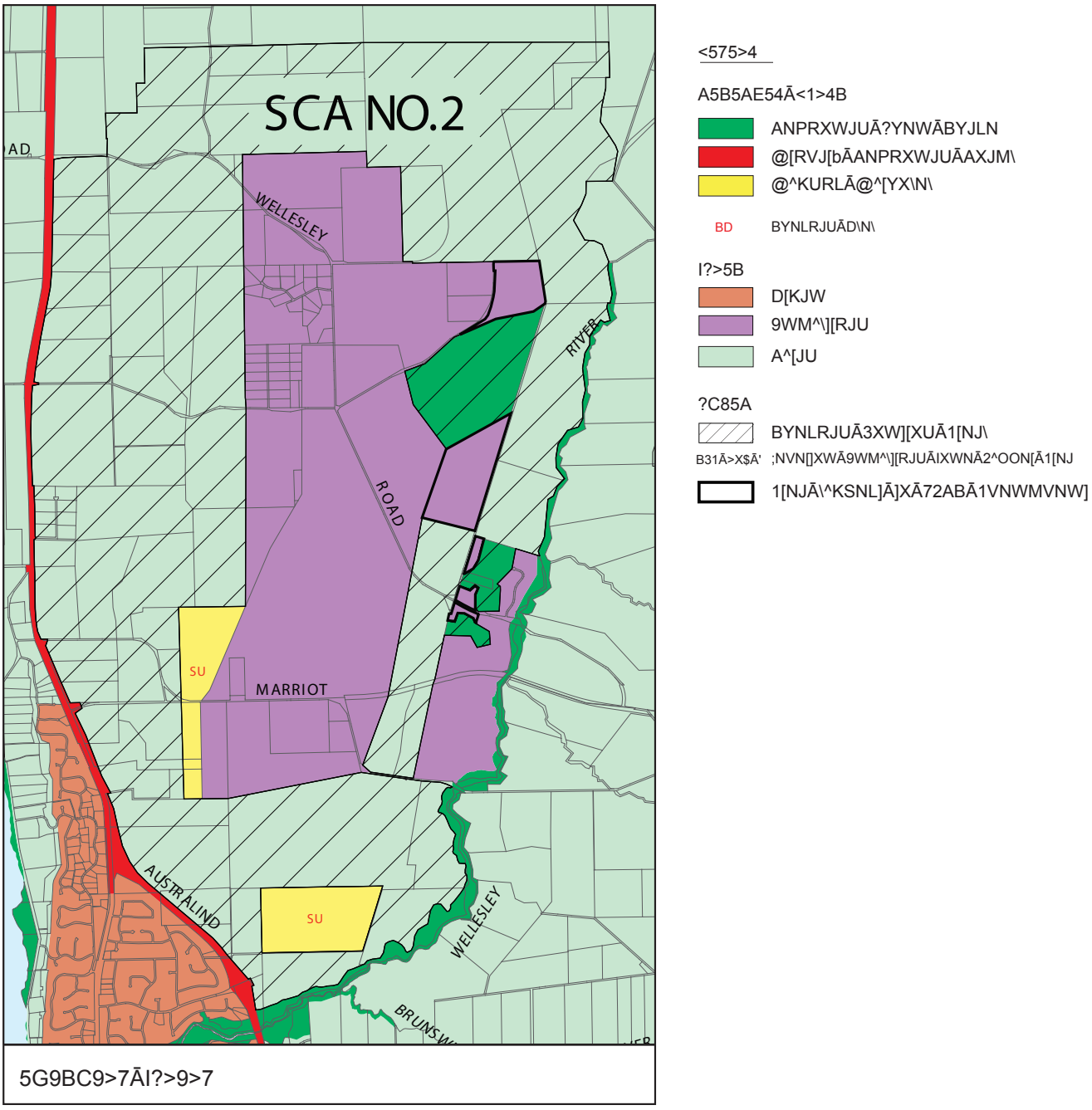


Figure 4 Extract of Existing Greater Bunbury Region Scheme which Shows the Extent of the Special Control Area No.2

4. An Overview of the KSIA's History

In 1985 the Core was established as 1,151 ha with a surrounding Buffer (to mitigate indirect effects from the industrial development on surrounding residents/ sensitive premises) of approximately 4278 ha. By 1997 an additional 963 ha of industry land was proposed, based on the Kemerton Expansion Study (BSD Consultants 1997). The study proposed an expansion of the Core to a total of 2114 ha and the Buffer to 5429 ha. This study was one of the investigations included in a report entitled Industry 2030 – Greater Bunbury Industrial Land and Port Access Planning, prepared by the WAPC. The report included a final concept plan for the expansion of the KSIA based on the Kemerton Expansion Study.

The Western Australian Planning Commission (WAPC) also reflected the expanded KSIA in the draft Greater Bunbury Region Scheme (2000) which was subsequently adopted and has been in operation since November 2007.

Refer to Figure 4 which shows the extent of the industrial zoned areas and the prescribed Buffer 'Special Control Area No.2 – Kemerton Industry zone Buffer Area' which currently apply under the Greater Bunbury Region Scheme.

By late 2005, LandCorp in association with the Department of Industry and Resources (now Department of State Development) engaged Thompson McRobert Edgeloe, Coffey Environments and William James Landscape Architect to prepare a strategy plan which would facilitate progressive development of the KSIA. The Kemerton Industrial Park Strategy Plan (TME, 2009) brought together the key elements of various studies and investigations prepared for the site over the years into an up-to-date plan.

A full list of the previously completed studies for the Kemerton Industrial Park Strategy is provided as Appendix B.

Substantial public consultation was undertaken over 2007 and early 2008. The Kemerton Industrial Strategy Plan concluded and acknowledged that ongoing environmental, heritage, and engineering investigations would be required. A number of recommendations were made as part of the Strategy. These recommendations and the responses to each of these recommendations are provided in Table 3 overleaf.

Refer to Figure 5- Kemerton Industrial Park Strategy Plan

Table 3 – Kemerton Industrial Park Strategy Recommendations and Responses

Item	Strategy Recommendation	Response
1	The Strategy Plan be adopted and utilised by the Western Australian Planning Commission, Environmental Protection Authority, other State Government agencies and the Shire of Harvey as the overall guide to development of the Kemerton Industrial Park.	The Strategy Plan has been used as a key reference document to guide the preparation of the proposed Structure Plan and supporting studies.
2	Relevant State Government departments and agencies prepare suitable documentation, and seek Western Australian Planning Commission and State Government support, to amend the Greater Bunbury Region Scheme (GBRS) to remove areas of inconsistency between the Strategy Plan and the GBRS.	Amendment documentation seeking to rectify inconsistencies in the GBRS mapping has been prepared and is to be processed after the lodgement of the local Scheme Amendment..
3	Relevant State Government departments and agencies prepare suitable documentation, and seek Harvey Shire Council initiation, of an amendment(s) to District Planning Scheme No. 1 to facilitate implementation of the KIP Strategy Plan, including preparation and approval of a Structure Plan.	Completed. A local scheme amendment was adopted in 2011 by the Minister for Planning to amend the Shire's scheme text to include provisions to enable the assessment and implementation of Structure Plans.
4	LandCorp and the Department of State Development commission a review of the historical quantitative assessment work (risk, air, noise impacts) to ensure that the data, modelling and conclusions accurately reflect current policy and practice and confirm adequacy or otherwise of the Buffer to contain impacts of future industry within the Core.	A body of work has been undertaken by appointed consultants to review and update risk, air and noise impact studies. These works confirm that the data and modelling meets current policy and practice requirements, and confirms that the Buffer is adequate to contain the potential impacts of future industry within the Core.
5	New baseline datasets and modelling be established and regularly updated for the following parameters: • Meteorological data in a form acceptable to the Air Quality Branch of Department of Environment and Conservation; • Site topography and depth to ground water; • Noise and air quality data and cumulative modelling of both (including odour); • Cumulative risk data and modelling; • Vegetation, flora and fauna; and • Wetland and groundwater quality. The modelling should be regularly updated using actual industries as they are proposed, built and operated.	These works have been undertaken, with ongoing monitoring and management strategies identified within the overarching Environmental Management Plan.
6	The State Government re-affirm: • responsibility of the Kemerton Industrial Park Co-ordinating Committee (KIPCC) for overseeing environmental monitoring of the industrial park as a whole and for advising on management of public land within the Buffer; and • the role of the Kemerton Community Committee (KCC) in providing information to the community and providing feedback and advice to the KIPCC should also be re-affirmed.	The KIPCC oversees the planning and management of the KSIA. The committee provides advice to the Western Australian Minister for State Development through the DSD. The key roles of the KIPCC are to support the planning and development of the KSIA, to provide input into the management of the KSIA and to share information at a local and regional level. There will be an on going responsibility for the KIPCC to review cumulative industry air and noise emissions. The KIPCC will stay in its current format. This will enable a clear path of communication for the government organisations involved in the project and a forum for community participation. It will also be an advisory and overseeing body. This is separate from the Working Group, which will have terms of reference as outlined in the State Heavy Industrial Policy.

Item	Strategy Recommendation	Response
7	Relevant State Government departments and agencies be adequately resourced to ensure appropriate environmental monitoring of the KSIA and support to the KIPCC.	LandCorp and DSD, are responsible for coordinating activities related to the KSIA. This will be done in coordination with the various agencies outlined in Section 13.4.
8	The KIPCC to ensure that as more industries locate in Kemerton that an integrated spill and emergency response system similar to the Kwinana Integrated Emergency Management System in the Kwinana industrial area is developed by industry.	Each industry will be responsible for preparing an integrated spill and emergency response system.
9	The EPA and Department of Health set appropriate restrictions on industries locating in the site in relation to stockpiling of hazardous wastes (such as limits on the quantity, storage requirements and duration of storage prior to treatment) to provide greater public confidence in management of hazardous waste.	The Waste Disposal Management Strategy addresses the key potential issues and needs associated with the waste generated by the KSIA.
10	Land vested in the Department of Environment and Conservation (now Department of Parks and Wildlife) within the Core identified for industry purposes (i.e. - excluding Significant Vegetation/Wetland Management Areas as identified in the Strategy Plan) be transferred to LandCorp following completion of the District Planning Scheme amendment process.	Land areas shall be transferred upon the adoption of the Structure Plan and associated local scheme amendment.
11	Land owned by LandCorp within the Buffer (excluding the Inter Industry Buffer) that is not required for infrastructure purposes as identified in the Strategy Plan be transferred from LandCorp to DPaW following completion of the District Planning Scheme amendment process.	Land areas shall be transferred between DPaW and LandCorp upon the adoption of the proposed Structure Plan and associated local scheme amendment.
12	DSD and LandCorp commission a comprehensive archaeological and ethnographic survey of Aboriginal heritage over the Core and Support Industry area, as a matter of priority.	A site identification Aboriginal heritage survey was completed in 2011. Details of these findings and recommendations are provided within Section 6.5 of this Structure Plan.
13	LandCorp to support and progressively implement the landscape management guidelines set out in the Strategy Plan and in the Kemerton Strategy Plan Landscape Assessment Study (James, 2007) including planning guidelines relating to the north-west ridge area.	These guidelines have been considered and applied as part of this Structure Plan by the incorporation of landscape corridors along road reserves. Individual industrial lot landscape provisions are currently enforced under the Shire of Harvey's planning scheme. Development adjacent to the ridge will be subject to site design and landscape planting requirements.
14	The KIPCC, in conjunction with the Department of State Development, LandCorp, Department of Water and the Water Corporation progress investigation of an integrated water cycle management strategy for the site that includes water supply and wastewater management options; and drainage management as part of a Local Water Management Strategy.	A overarching water management strategy has been prepared in response to these elements.
15	LandCorp and the DER establish a program to monitor and maintain the environmental qualities of the Buffer, particularly areas identified for Vegetation Management and River and Wetland Conservation and maintenance of regional ecological linkages.	DER will take the lead role in managing land within the Buffer. It may also accept vesting conservation areas within the KSIA, should this be a logical addition or have links to other land managed on behalf of the State Government.

Item	Strategy Recommendation	Response
16	The DSD and LandCorp, in consultation with the Shire of Harvey, liaise with the owners of the private road known as the Kemerton Silica Sands Haul Road to formalize it as a gazetted public road.	This shall be undertaken following Structure Plan and scheme amendment approval.
17	In relation to those private landowners in the Buffer who are desirous of having their properties purchased by the State Government, it is recommended that the Government review the current policy on land acquisition so that the criterion that has to be met for acquisition is more flexible.	Following finalisation of the scheme amendment and Structure Plan, LandCorp and DSD shall seek to review the land acquisitions of private properties within the KSIA,
18	As part of implementation LandCorp progress planning and secure approvals for medium-size industrial lots adjacent to, and on the northern side of, Marriott Road as a matter of priority.	On 21 September 2009 the WAPC approved the creation of 9 lots on the northern side of Marriott Road ranging in area between 5 ha to 20 ha and 2 conservation lots of 9.77 ha and 2.25 ha.

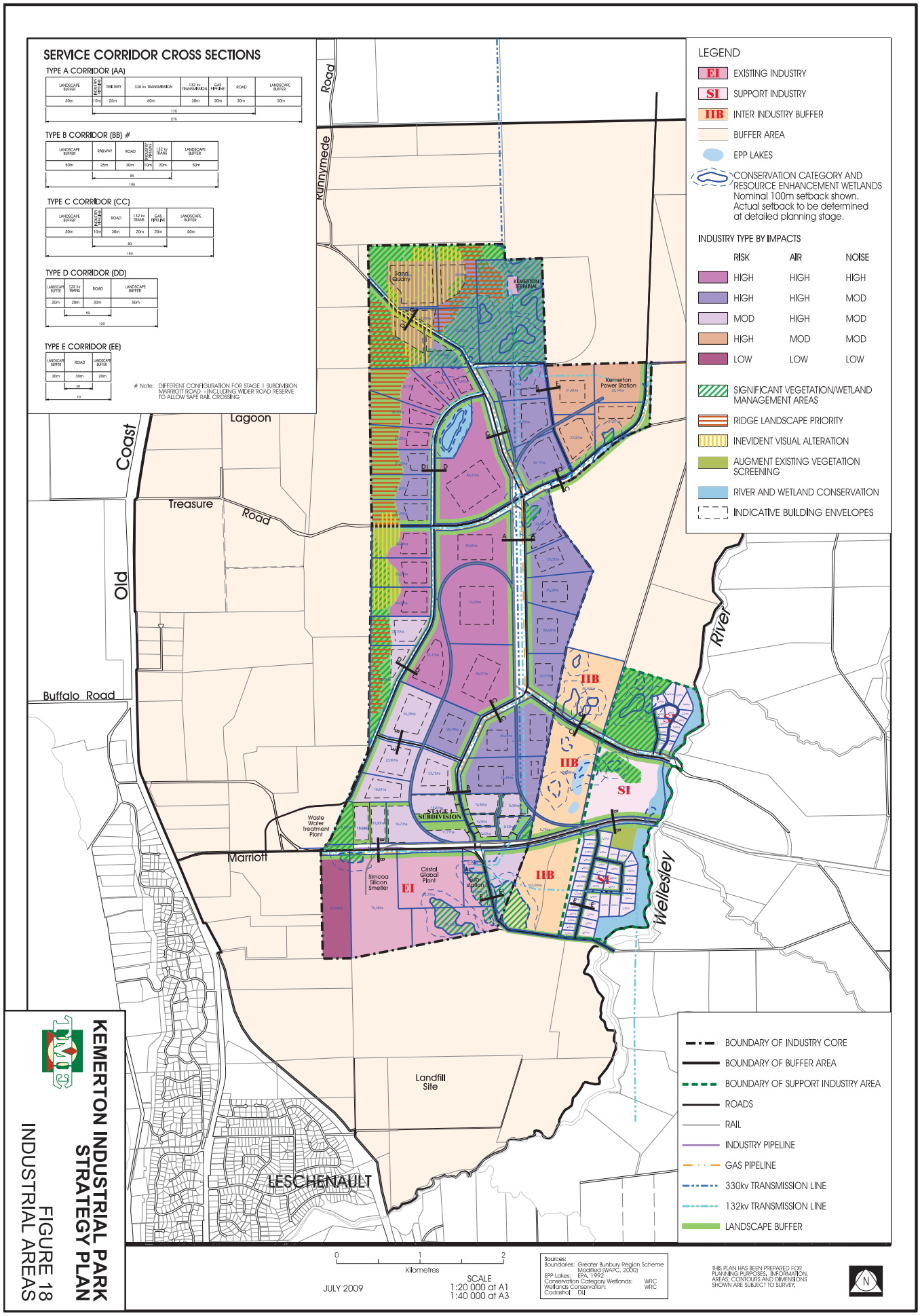


Figure 5 Kemerton Industrial Park Strategy Plan

This page has been left blank intentionally.

5. Planning and Environmental Framework

5.1 Strategic Planning Framework

5.1.1 State Planning Strategy 2050

The State Planning Strategy 2050 is an Overarching strategic document that provides direction for all State, regional and local planning strategies, policies and approvals. It identifies mining and downstream processing to be a key economic driver for the South West sector. The KSIA is identified under the Strategy as a designated strategic industrial area. Strategic industrial areas are recognised as being of significant economic and strategic importance for the State, and require suitable and appropriate integration with surrounding compatible land uses and buffer areas to ensure long-term sustainability.

The following strategic approaches of the Strategy are relevant to the development of the KSIA:

- Project-ready (see 13.4.1 p.94) industrial land is to meet the demands of the resources sector.
- Appropriate strategic industrial land and infrastructure to be provided to support priority sectors throughout the State.
- Strategic industrial lands are to be developed to acceptable environmental standards to ensure ongoing investment and sustainable economic growth.
- Industrial ecology is to be maximised in the planning and operation of all strategic industrial areas .
- Land is to zoned or reserved for economic activity including strategic industrial sites and supporting infrastructure and buffers.
- Industrial areas are structure planned to produce optimal output with minimal waste.
- Clusters of industry drive productivity and stimulate new ancillary businesses.
- Research and technology clusters support and foster economic diversity.
- All strategic industrial areas are developed to an approved Structure Plan.

The development of the KSIA aligns with the objectives of the State Planning Strategy. The Structure Plan facilitates the supply of strategic industrial land for the southwest region.

5.1.2 Greater Bunbury Strategy 2013

The Greater Bunbury Strategy has been prepared by the Department of Planning in collaboration with the local governments of Bunbury, Capel, Dardanup, and Harvey and in consultation with service providers. It addresses the key elements within the Greater Bunbury sub-region to inform and guide planning and management of urban growth and infrastructure delivery from 2011 to 2031 and beyond.

The Strategy incorporates the Greater Bunbury Structure Plan 2011 – 2031, which aims to represent the outcomes of the Strategy spatially by identifying and providing appropriate areas for industry, locations of key infrastructure, environmental significant areas and locations for residential growth. The Strategy acknowledges the appropriately zoned industrial land currently available in the KSIA as one of three Strategic Industrial Centres. The Strategy aims to ensure that these centres are well serviced by road and rail infrastructure, and are provided with ‘fit for purpose’ water, and are accessible to a skilled workforce. The KSIA is identified as a strategic location for larger or heavier industrial uses that cannot be accommodated elsewhere.

One of the policy measures of the draft Greater Bunbury Strategy is that industrial expansion areas are required to have a structure plan endorsed by the WAPC prior to any development occurring to ensure sites are developed in an efficient and sustainable way.

The Strategy also proposes that large scale opportunities exist for water recycling and reuse, such as major wastewater treatment facilities at KSIA with water being cleaned to a standard fit for purpose and reused for industrial, agricultural, landscaping and domestic use.

Refer to Figure 6 - Greater Bunbury Strategy 2013

5.1.3 Bunbury-Wellington Region Plan (1995)

The Bunbury-Wellington Region Plan (1995) was adopted by the WAPC as the Regional Plan to guide statutory planning decision-making in the Bunbury-Wellington region. Amongst its recommendations relating to the KSIA were:

- Installing the KSIA rail spur adjacent to Marriott Road;
- Supporting new industries such as the production of tonnage glass, special ferrous metals, rare earths and peculiar metals from heavy minerals and processes related to chlor-alkalis;
- Identify and protect buffer zones around industrial areas from encroachments by incompatible land uses such as residential; and
- Provide the community with adequate information about proposed industrial developments at an early stage.

The region plan incorporates the Greater Bunbury Structure Plan (1995) which identified the Core, Support Industry Area and Buffer at the KSIA. 'Planning Unit CO3 – Kemerton' specifically provides for development to proceed in accordance with the approved Kemerton Industrial Park Plan.

5.1.4 South West Industrial Land Study (2010)

The South West Industrial Land Study (SWILS) is a joint initiative involving the departments of Planning, State Development and Agriculture and Food; LandCorp; and South West Development Commission. The study will guide the future of industrial land supply in the South-West region during the next 20 years. While the region offers sufficient industrial land suitable for both heavy, general and light industries to meet short-term demand, supply is expected to diminish in the medium to long term. The study will offer valuable insight to ensure an optimum supply of suitable industrial land - heavy, light general and special is available and appropriately zoned to meet long-term demand. The rationale for the study is to ensure that adequate supply is available to provide for the population growth.

Refer to Figure 7 - South West Region Industrial Land Study – Key Regional / State Linkages

The SWILS sets the planning framework for the general and light industry land requirements and needs to be implemented accordingly so as to protect the KSIA from encroachment by general or light industry uses. It is expected that a small number of uses for general and light industry may need to be located within the KSIA to provide adequate on site services to the strategic industry operators.

The SWILS established that the key influence on the development of KSIA as a site for strategic and special industries was the ability to provide highly serviced (particularly freight and power), project ready, large, flat sites as unencumbered by constraints as possible. The study concluded that KSIA was otherwise ideally placed in terms of proximity to port (containerisation potential) and labour supply.

The main heavy strategic growth industries with land requirements were identified as those associated with mineral extraction and natural resources, advanced processing and refining (nano technologies) and some associated manufacturing in the Bunbury-Wellington sub-region. Resource extraction and renewable energy industries emerging in the surrounding sub-regions of Vasse and warren-Blackwood may also increase demand

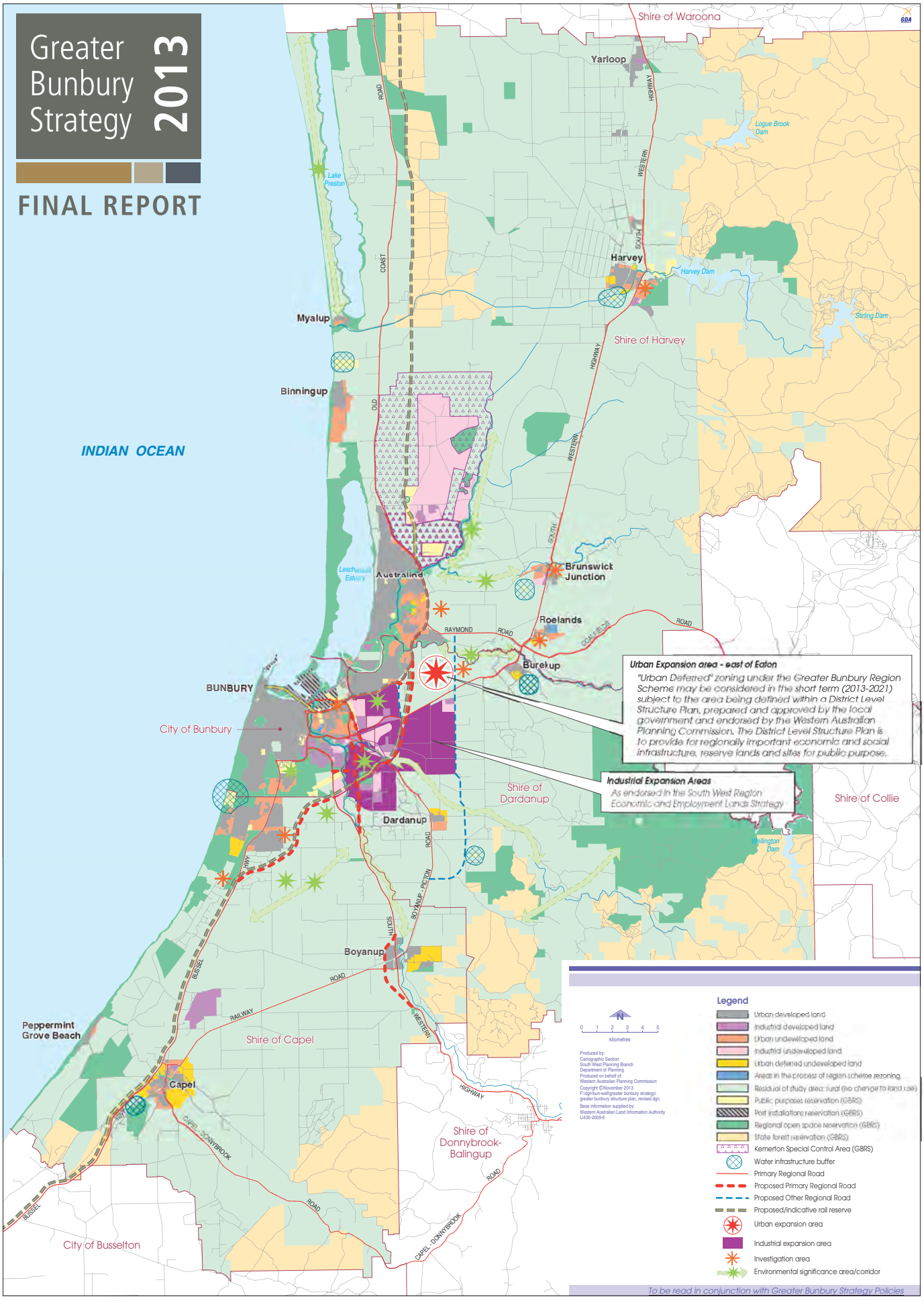


Figure 6 Greater Bunbury Strategy 2013

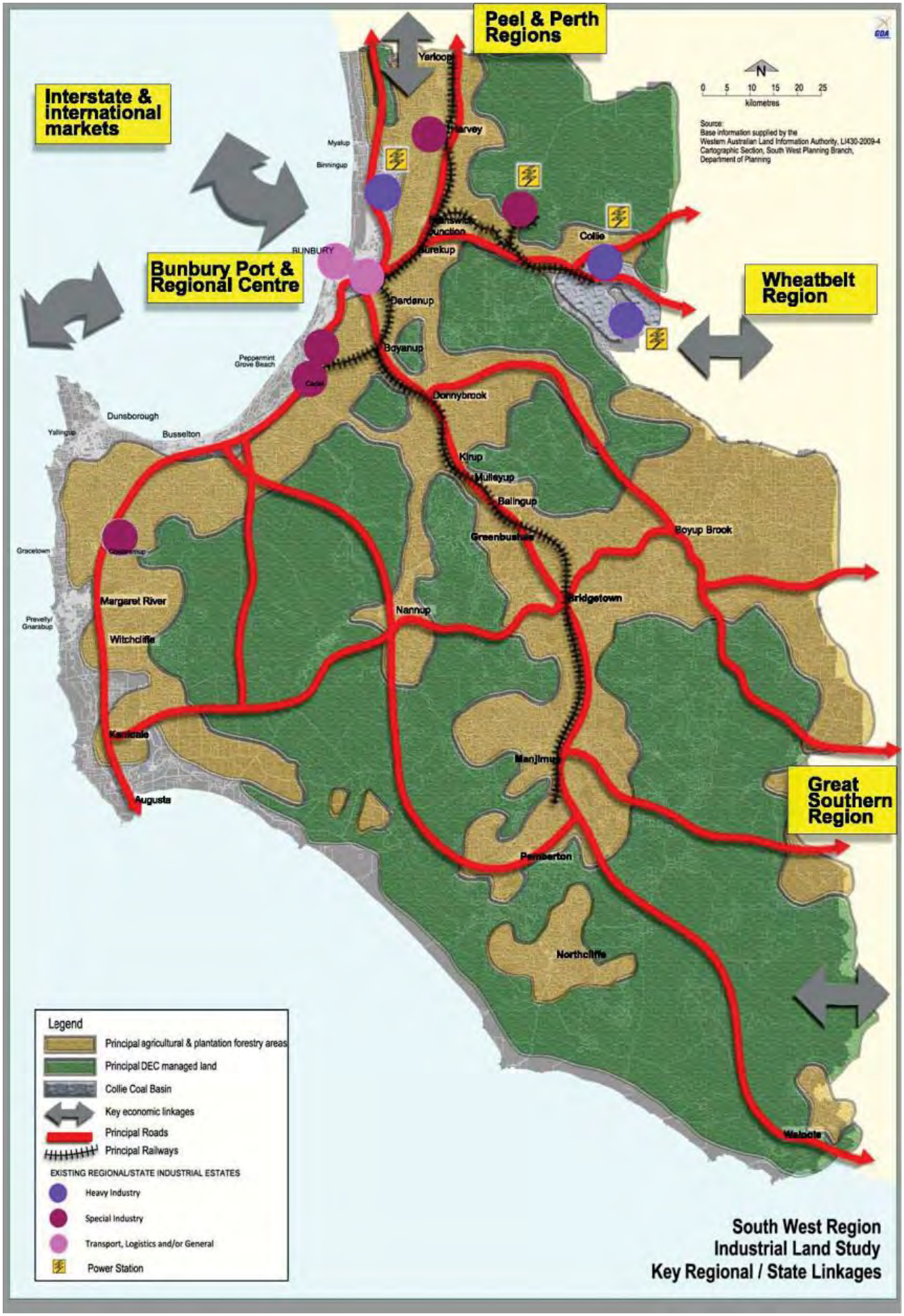


Figure 7 South West Region Industrial Land Study – Key Regional/State Linkages

for land at KSIA. It was also entirely possible that there would also be spin –off from special industries in high technology, agriculture, waste and resource recycling and construction.

The SWILS study concluded that under a regional economic growth scenario of 3-4% and the ongoing development of the inherent regional economic assets including containerisation of the Bunbury Port and successful attraction of large strategic industries under the DSD strategy, that the existing 'developable' land supply at KSIA could be consumed within or at least allocated a use even if not fully developed and occupied, within 5-10 years.

5.1.5 Industry 2030 – Greater Bunbury Industrial Land and Port Access (2000)

This strategy document referred to as "Industry 2030" was adopted by the WAPC and the State Government in 2000 as the planning response to the industrial land and port access needs of the Greater Bunbury region over the next 30 years and beyond. The strategy combines planning for the Kemerton Expansion Study and the Preston Industrial Park area with the Bunbury-Kemerton Transport (Rail) Corridor Study and the Bunbury Port Access Road concept report.

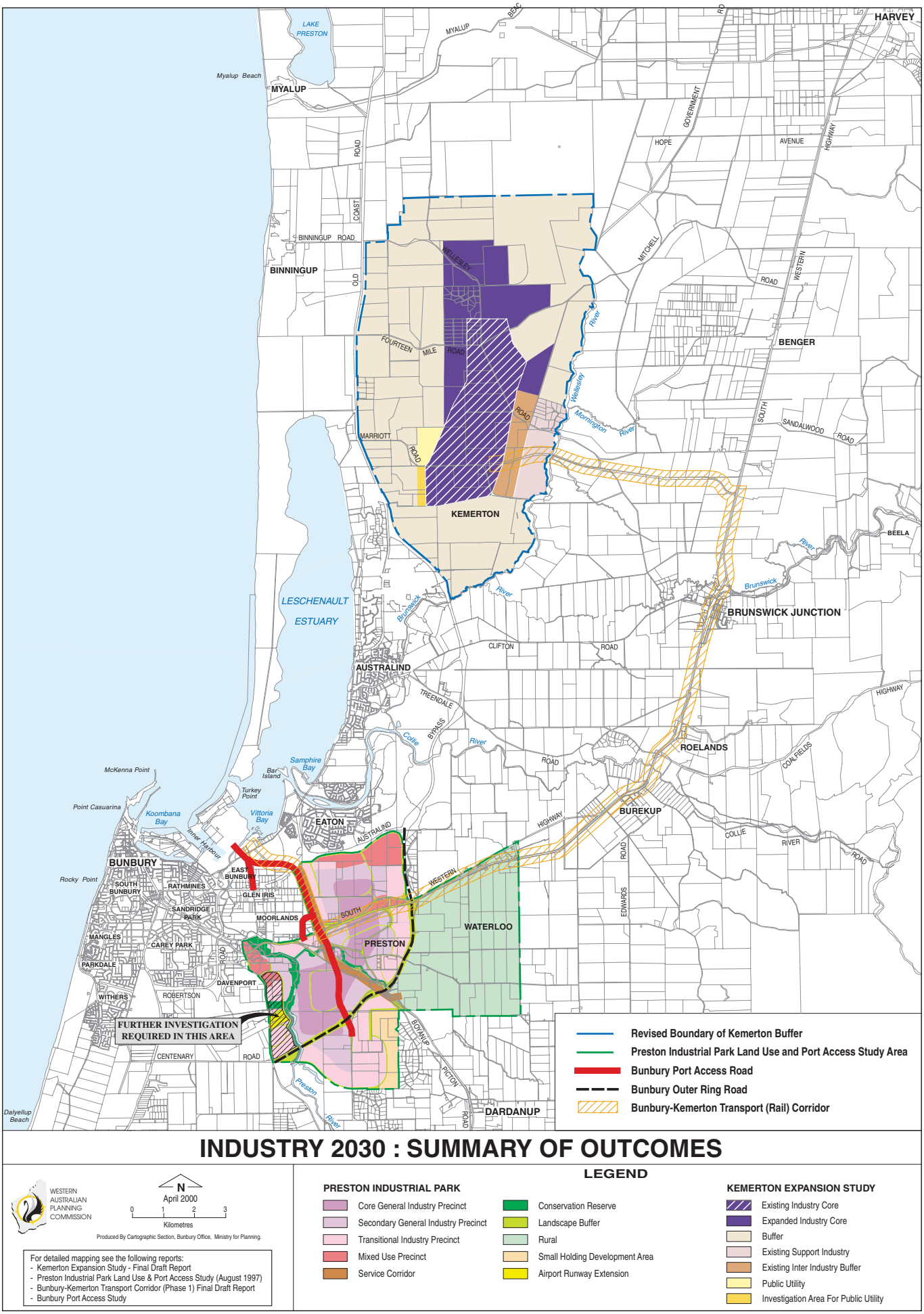
Refer to Figure 8 – Industry 2030

South West Regional Blueprint (2014)

The objective of the South West Regional Blueprint (SWRB) is to build prosperity through jobs and population within the South West region. Prepared by the South West Development Commission and Regional Development Australia, the visionary document identifies the KSIA as a strategic industrial area which shall play an important role in ensuring the availability of strategic industry land in the region. The following priorities of the SWRB relate to the KSIA:

Regional Priorities	Objectives	Actions
• Land for industry • Create sufficient land to generate employment across industry sectors.	• Sufficient land is set aside for industry needs to 2050.	• Within 1-3 years complete structure planning for Kemerton, Shotts and Preston industrial land areas. Within 3-15 years, provide a rail link to the Kemerton Industrial Park. • Provide reticulated industrial water supply and waste water treatment to Kemerton.
• Water security • Ensure the South West has long term water security for agriculture, industry and domestic purposes.	• Collie-Kemerton water management • Distribute surplus saline water from the upper Collie to industrial centres including Worsley and Kemerton.	• Government and industry construct the Collie to Kemerton ocean saline water pipe and holding dam.
• Ready export/ import hubs supported by safe, efficient interconnected transport networks • The South West is connected to national domestic and international road, rail, sea and air routes. • Ensure the region's hubs are capable of supporting export and import growth both in the South West and Perth metropolitan area.	• Bunbury Port • Expand Bunbury Port to meet South West and State export/ import needs for bulk cargoes, container cargoes and roll-on roll-off cargo including refrigerated and food grade cargo • Construct road and rail linkages to the Bunbury Port capable of meeting export growth and distributing on a national scale	• Build Kemerton rail freight link to Bunbury Port. • Complete construction of Forrest Highway to freeway standard. • Improve South West Main Railway Line to increase axle loads and crossing loop extensions.

The KSIA Structure Plan responds directly to the first priority of the SWRB where the Structure Plan will be progressed and implemented to facilitate the supply of industrial land.



INDUSTRY 2030 : SUMMARY OF OUTCOMES

WESTERN AUSTRALIAN PLANNING COMMISSION

N

April 2000

0 1 2 3 Kilometres

Produced By Cartographic Section, Bunbury Office, Ministry for Planning.

For detailed mapping see the following reports:
- Kemerton Expansion Study - Final Draft Report
- Preston Industrial Park Land Use & Port Access Study (August 1997)
- Bunbury-Kemerton Transport Corridor (Phase 1) Final Draft Report
- Bunbury Port Access Study

LEGEND

PRESTON INDUSTRIAL PARK

- Core General Industry Precinct
- Secondary General Industry Precinct
- Transitional Industry Precinct
- Mixed Use Precinct
- Service Corridor
- Conservation Reserve
- Landscape Buffer
- Rural
- Small Holding Development Area
- Airport Runway Extension

KEMERTON EXPANSION STUDY

- Existing Industry Core
- Expanded Industry Core
- Buffer
- Existing Support Industry
- Existing Inter Industry Buffer
- Public Utility
- Investigation Area For Public Utility

Figure 8 Industry 2030

5.2 Statutory Planning Framework

5.2.1 Greater Bunbury Region Scheme

The Greater Bunbury Region Scheme (GBRS) is a statutory region scheme administered by the WAPC. The KSIA is subject to the overarching provisions of the GBRS. Planning controls for the KSIA are reflected in the GBRS in the following manner:

- The 'Kemerton Strategic Industry' zone of the Structure Plan and DPS1 (as amended) is included in an 'Industrial' zone;
- The 'Kemerton Industry Buffer' zone area of the Structure Plan and the Shire of Harvey DPS1 (as amended) is included in a 'Rural' zone with a 'Special Control Area No. 2 (SCA No. 2)' designation applied over it. Under the GBRS, "SCA No. 2 will ensure that development within the special control area does not prejudice the use of the Kemerton Core for industrial purposes, and local government in considering development applications within the area will be required to have due regard to the purpose of the "SCA No. 2".

Within SCA No.2 development proposals are considered and determined by the WAPC in the context of compatibility with industry operations within the KSIA. The GBRS specifically provides that in considering applications for planning approval, the WAPC is to have regard to:

- whether the proposal is compatible with any existing or proposed future use or development within the KSIA;
- any other relevant planning and environmental considerations including, but not limited to, provisions of the State Planning Framework; and
- recommendations of the chief executive officer of the department principally assisting in the administration of the *Mining Act 1978* and the chief Executive officer of the environmental protection department.

The following uses are not permitted in SCA No. 2:

- residential accommodation including single residential dwellings and grouped dwellings;
- hospitals;
- schools; institutional or other uses involving residential accommodation, including temporary, short stay or holiday accommodation; and
- general noxious, hazardous and light industry uses as defined in State Planning Policy 4.1: State Industrial Buffer Policy.

5.2.2 Shire of Harvey District Planning Scheme No. 1 (DPS1)

The KSIA is subject to the provisions of the Shire of Harvey District Planning Scheme No.1 (DPS1), where four zones currently apply:

- Kemerton Park Industry (Heavy);
- Kemerton Ancillary Industry;
- Kemerton Buffer; and
- Inter Industry Buffer.

5.2.2.1 Kemerton Park Industry (Heavy)

Under DPS1 the intent of the existing Kemerton Park Industry (Heavy) zone is to accommodate strategic heavy industrial development which is sufficiently separated from sensitive land uses, and meets the environmental development and operational criteria of the Environmental Protection Authority and the Local Government.

5.2.2.2 Kemerton Ancillary Industry

The Kemerton Ancillary Industry zone is intended to be developed as a support area to the heavy industry zone. Proposed development must demonstrate that the major portion of the source material, finished product, or services provided are oriented within the KSIA area.

5.2.2.3 Kemerton Buffer

The primary purpose of this zone is to serve as a low intensity use area between the Kemerton Heavy and Ancillary Industry zone and the surrounding land uses. No further residential or incompatible development shall take place in this zone and where possible public recreation and flora and fauna conservation shall be encouraged.

5.2.2.4 Inter Industry Buffer

DPS1 states that the primary purpose of this zone is to provide a low intensity use zone between the Kemerton Heavy Industry and Ancillary Industry zones.

5.2.2.5 Proposed Local Scheme Amendment No.114

Amendment No.114 to DPS1 seeks to:

- Update the DPS1 map so that it aligns with the GBRS;
- Rationalise the existing number of zones applied to the subject site from four to three zones by incorporating the land currently zoned 'Kemerton Inter-Industry Buffer' into the 'Kemerton Industry Buffer' zone;
- Remove existing policy statements and schedules relating to the Kemerton Industrial Park, which shall be replaced by the proposed KSIA Structure Plan;
- Align the DPS1 use class table with those land uses listed within the GBRS and the intentions of the Kemerton Strategic Industry and Industry Buffer zones; and
- Add and amend DPS1 textual provisions to provide clarity regarding the intent of the KSIA and the assessment process for planning applications.

In order to assist in protecting the development and operation of the KSIA, additional controls are to be introduced as part of an amendment to DPS1. These new provisions include:

- Clarification regarding the prohibition of sensitive uses being developed within the buffer area; and
- Clarification regarding the referral of development applications to the government agencies for comment, including DSD and LandCorp.

The Structure Plan has applied the zones proposed under Amendment No.114 as part of this documentation, as the intended ultimate configuration. These are:

- Kemerton Strategic Industry zone;
- Kemerton Ancillary Industry zone; and
- Kemerton Industry Buffer.

It is evident that the majority of the land located within the existing Kemerton Inter Industry Buffer zone of DPS1 is constrained from future development due to the existing environmental assets through this area.

This includes a string of Resource Enhancement and Conservation category wetlands, including EPP 1992 SCP Lakes Register boundaries. Therefore there is some uncertainty regarding the viability of developing within this buffer area. This zone is therefore proposed to be deleted as part of the local scheme amendment, and the land be included as part of the broader Kemerton Industry Buffer zone.

5.2.3 Environmental Assessment and Approvals History

Formal advice and recommendations from the Environmental Protection Authority (EPA), specific to the KSIA, has only been issued in regard to the GBRS and Industry 2030 through EPA Bulletins 902, 1108 and Ministerial Statement No.697. These are discussed in the following headings.

5.2.3.1 EPA Bulletin 902

The WAPC's Industry 2030 document (which sought an increase in the industrial core area of the KSIA to 2106 ha was the subject of section 16(j) advice by the EPA under the *Environmental Protection Act 1986* (*EP Act)*, with the following recommendations made specifically in regard to the Kemerton Expansion Study component of the Industry 2030 document (EPA Bulletin 902; August 1998):

The EPA advises that the following modifications should be made to the Structure Plan in order to adequately protect the environment:

- *the western boundary of the industrial expansion area should be modified to provide an appropriate buffer distance to the adjacent EPP Lakes (Mialla Lagoon);*
- *land to be ceded to the Crown for conservation purposes by Kemerton Silica Sand Pty Ltd in accordance with the Minister's environmental conditions (Bulletin 741) should be shown as Conservation on the Structure Plan; and*
- *the Structure Plan should be modified to protect vegetation of regional significance pending the outcome of vegetation survey in the Kemerton area.*

The EPA also advises:

- *prior to finalisation of the Structure Plan a vegetation survey should be conducted in the Kemerton area, on advice of the EPA, to determine the extent of regionally significant vegetation; and*
- *prior to finalisation of the Structure Plan, criteria for water management (including water supply) and a drainage management plan should be adopted due to the high water table and presence of significant wetlands and watercourses adjacent to the proposed industrial core. The criteria should aim to protect water levels and water quality in important wetlands and protect water quality in Wellesley River.*

A range of other issues associated with the KSIA were discussed in EPA Bulletin 902 including buffer requirements for noise, air quality and risk; protecting regionally significant wetlands, watercourses and vegetation; maintaining a sustainable groundwater balance; protecting water quality in Wellesley River and Leschenault Inlet; solid and liquid waste disposal; and transport corridor locations. A number of these issues were deferred for assessment at the subsequent statutory planning stages.

EPA Bulletin 902 also outlined that it was expected that the proposed Bunbury Region Scheme, future town planning schemes, any amendments to these schemes and specific project proposals will incorporate the EPA's advice contained in the report and undertake the recommended studies. Future schemes and projects would also need to be assessed by the EPA pursuant to the provisions of the EP Act.

5.2.3.2 EPA Bulletin 1108 and Ministerial Statement No.697

The GBRS was referred to the EPA under the *EP Act* by the WAPC in August 1996. The EPA decided to formally assess (under s48A of the EP Act) the new land use zones and reserves proposed by the GBRS, being those zones and reserves that differ from the zone or reserve shown in an existing town planning scheme for the subject land. The progress of this assessment was delayed by the Kemerton Expansion Study and Industry 2030 document, with the EPA Bulletin 1108 on the GBRS not being issued until September 2003.

The two areas of the EPA Bulletin 1108 that particularly relate to the KSIA include the Kemerton Industrial Park Expansion and SCA No. 2 – Kemerton Industrial zone Buffer. The Bulletin outlines the EPA's position that:

- the Kemerton Industrial Expansion Area and SCA No. 2 can be managed to meet the EPA's objectives provided a condition is imposed on the GBRS requiring that prior to subdivision or development being approved, whichever comes first, within the Kemerton Industrial Area or the SCA No. 2 an Environmental Management Plan is to be prepared and implemented to manage the potential impacts of the subdivision or development on remnant vegetation, wetlands, fauna and visual amenity;
- areas of regionally significant bushland within SCA No. 2 should be reserved as Regional Open Space (ROS) as a future amendment to the GBRS;
- SCA No. 2 provides adequate separation between proposed industrial development and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors;
- the environmental factors noise, air quality, remnant vegetation, groundwater quality, surface water quality and solid/liquid waste disposal should be deferred until the land is subdivided and/or developed for industrial purposes so that the EPA can conduct a detailed environmental assessment pursuant to Part IV of the EP Act.

This advice is reflected in Ministerial Statement No 697, subsequently issued on 31 October 2005 for the GBRS, which outlines the requirements for various management plans for the KSIA.

5.2.3.3 Commonwealth Assessment

The KSIA has not been referred or considered under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act)* either strategically, as a plan for an industrial park, or as an overall industrial project. As such, no overall Commonwealth approval applies to development within the KSIA.

Environmental Management Plans may be required in accordance with the specifications set out in the Minister for the Environment's "Statement that a Scheme may be Implemented" No. 000697 published on 31 October 2005, and shall be subsequently implemented in accordance with the provisions of the Management Plans, to the satisfaction of the WAPC. Refer to Section 13.2 for further information.

This page has been left blank intentionally.

6. Site Conditions

6.1 Biodiversity and natural area assets

Numerous biological surveys have been undertaken within and surrounding the KSIA in the past. A list of the 18 biological surveys is provided in section 3 of the Overarching Environmental Plan (ELA,2014), refer to Appendix C.

The most recent survey undertaken at the KSIA was conducted by Eco Logical Australia in 2014 and focused on threatened flora, vegetation and Black Cockatoo values. The following sections which describe the existing environmental values have been summarised from these previous survey reports.

Refer to Appendix C - Overarching Environmental Management Plan

6.1.1 Vegetation

Seven vegetation communities have been identified as occurring within the site, including three wetland communities. Two Priority Ecological Communities (PECs) and one Threatened Ecological Community (TEC) have been identified as occurring within the site:

- Southern Swan Coastal Plain Eucalyptus gomphocephala – Agonis flexuosa woodlands (PEC), represented by vegetation communities EgAf and EmEdAf. The degraded areas of EgAf were not considered to be extant occurrences of the Southern Swan Coastal Plain Eucalyptus gomphocephala – Agonis flexuosa woodlands PEC due to the poor vegetation condition and were mapped as such.
- Low lying Banksia attenuata woodlands or shrublands (PEC), represented by vegetation communities EmCcBa and BaBiKg.
- Shrublands and Woodlands on Muchea Limestone of the Swan Coastal Plain (TEC).

Refer to Figure 9 – Vegetation Communities

The majority of the vegetation within the site is mapped as being in excellent condition (approximately 40%) and nearly a third is mapped as completely degraded (*Refer to Figure 10 - Condition of Vegetation Communities*). The remainder of the vegetation is mapped as mainly very good condition, with smaller areas in good or degraded condition, or are mapped as plantations. Areas mapped as being in excellent condition mostly coincided with vegetation community boundaries in the northern, southern and western portions of the site. Degraded or completely degraded areas mainly occurred on the outside edges of the Buffer, generally coinciding with parklands and other cleared areas.

Substantial areas of the vegetation communities present in the Buffer have been historically cleared from the Swan Coastal Plain. As such, the presence of these contiguous and excellent/very good/good condition vegetation communities in the Buffer is significant as they support a range of habitat types for flora and fauna species. In addition, the two PECs occurring in the site are not well represented outside of National Parks and Conservation Reserves (Coffey 2007).

6.1.2 Flora

A total of five Threatened flora species (all orchids) are known to occur within the site (ELA, 2014):

- Caladenia procera1 (EPBC Act: Critically Endangered, WC Act: Threatened)
- Diuris drummondii (EPBC Act: Vulnerable, WC Act: Threatened)
- Diuris micrantha (EPBC Act: Vulnerable, WC Act: Threatened)
- Drakaea elastica (EPBC Act: Endangered, WC Act: Threatened)
- Drakaea micrantha (EPBC Act: Vulnerable, WC Act: Threatened).

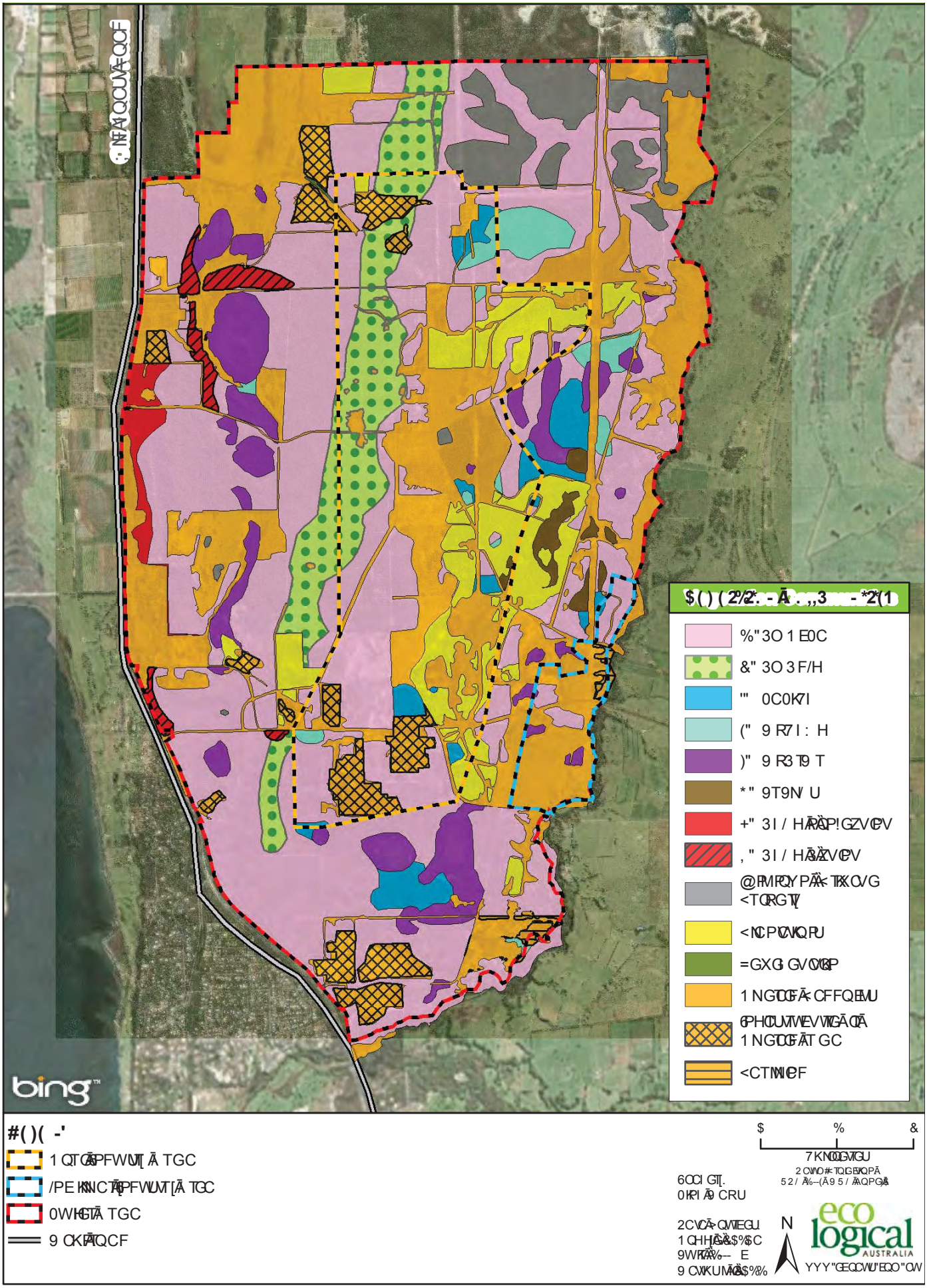


Figure 9 Vegetation Communities

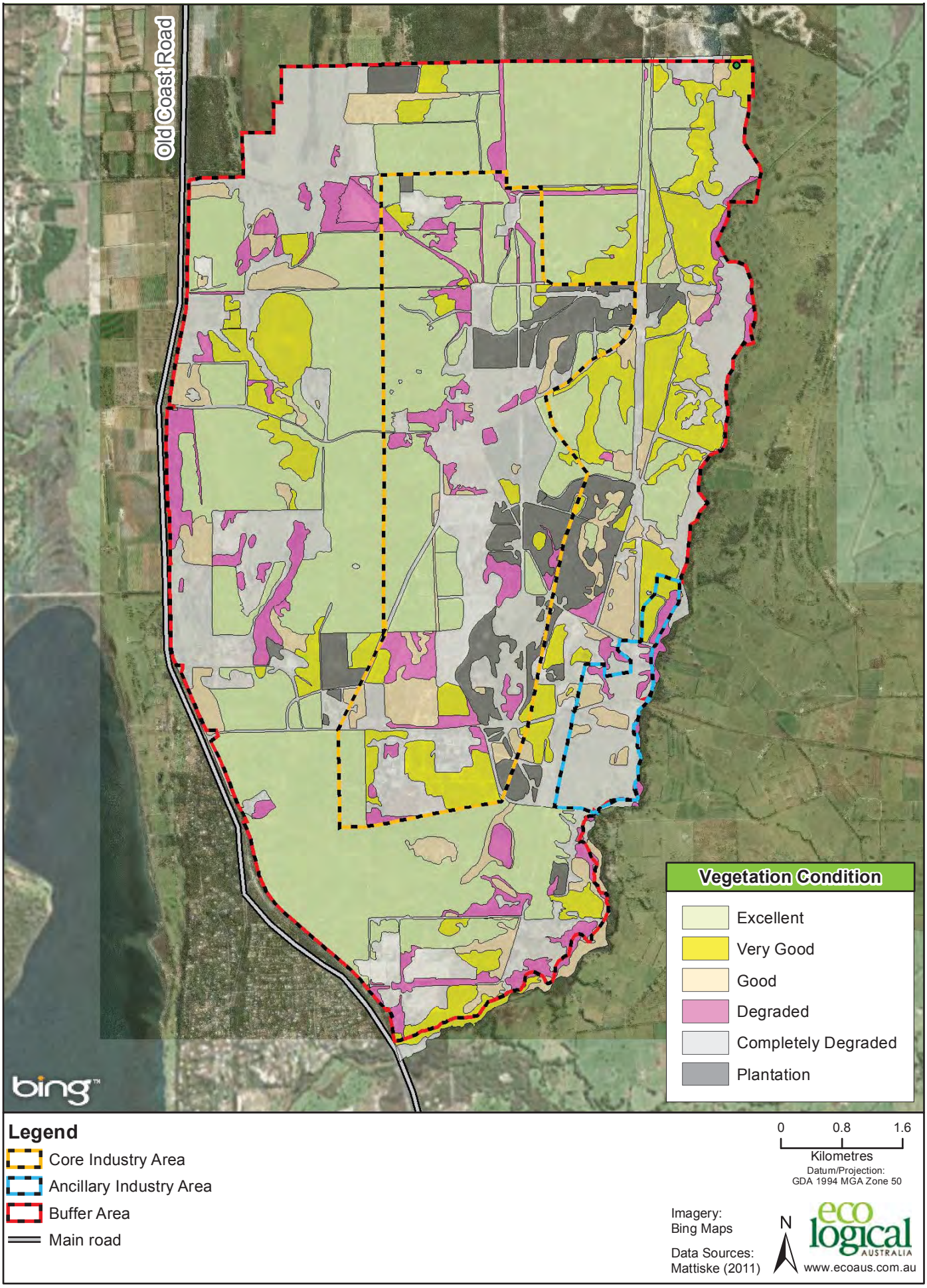


Figure 10 Condition of Vegetation Communities

One additional Threatened flora species; Caladenia huegelii (EPBC Act: Endangered, WC Act: Threatened) could potentially occur within the site as it has been recorded approximately 3 kilometres south-west of the site along the Leschenault Estuary (DEC 2012).

The following eight Priority flora species are known to occur within the site:

- Boronia juncea subsp. juncea (Priority 1)
- Dillwynia dillwynioides (Priority 3)
- Lasiopetalum membranaceum (Priority 3)
- Acacia semitrullata (Priority 4)
- Acacia flagelliformis (Priority 4)
- Caladenia speciosa (Priority 4)
- Microtis quadrata (Priority 4)
- Pultenaea skinneri (Priority 4).

Refer to Figure 11 – Significant Flora Locations

6.1.3 Terrestrial Fauna

A total of 103 species of vertebrate fauna including 56 birds, 10 mammals, 21 reptiles, five frogs and six introduced species have been recorded at the KSIA. A total of 10 conservation significant fauna species listed under the *EPBC Act* and/or the *WC Act* have been recorded within the site:

- Carnaby's Black Cockatoo (Calyptorhynchus latirostris) (EPBC Act: Vulnerable, WC Act: Schedule 1)
- Baudin's Black Cockatoo (Calyptorhynchus baudinii) (EPBC Act: Vulnerable, WC Act: Schedule 1)
- Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) (EPBC Act: Vulnerable,WC Act: Schedule 1)
- Chuditch (Dasyurus geoffroii) (EPBC Act: Vulnerable, WC Act: Schedule 1)
- Rainbow Bee-eater (Merops ornatus) (EPBC Act: Marine, Migratory, WC Act: Schedule 3)
- Fork-tailed Swift (Apus pacificus) (EPBC Act: Marine, Migratory)
- Cattle Egret (Ardea ibis) (EPBC Act: Marine, Migratory)
- Southern Brush-tailed Phascogale (Phascogale tapoatafa sp. tapoatafa) (WC Act: Schedule 1)
- Southern Carpet Python (Morelia spilota imbricata) (WC Act: Schedule 4)
- Peregrine Falcon (Falco peregrina) (WC Act: Schedule 4).

One additional conservation significant fauna species has the potential to occur; the Western Ringtail Possum (Pseudocheirus occidentalis), as populations of this species are known to occur nearby and there is suitable habitat available.

A total of four Priority fauna species have been recorded within the site:

- Perth Lined Lerista (Lerista lineata) (Priority 3)
- Western Brush Wallaby (Macropus irma) (Priority 4)
- Western False Pipistrelle (Falsistrellus mackenziei) (Priority 4)
- Quenda (Isoodon obesulus fusciventer) (Priority 5).

Potential habitat occurs within the site for the Barking Owl (Ninox connivens connivens) (Priority 2) and the Masked Owl (Tyto novaehollandiae novaehollandia) (Priority 3), however, these two species have not been recorded.

6.1.4 Black Cockatoos

Foraging evidence of all three Black Cockatoo species has been observed within the site and was recorded at 76 locations during the most recent survey, comprising chewed Banksia, Jarrah, Marri and Pinus (Pine) cones (ELA 2014). Black Cockatoos were also observed opportunistically within the site during the ELA (2014) survey at 19 locations. These records include Forest Red-tailed Black Cockatoos feeding on Jarrah and Marri, and Carnaby's Cockatoos flying in small to medium sized flocks through the site.

Due to the range of land use practices and vegetation condition, foraging and potential breeding habitat for Black Cockatoos within the site is highly variable. However, high quality habitat is extensive within the Buffer and Core due to a number of vegetation communities being dominated by Eucalyptus and Banksia species. Many potential breeding trees recorded during the ELA (2014) survey (particularly Marri, Jarrah and Tuart) within the site had hollows considered to be potentially suitable for Black Cockatoo breeding, although no signs of nesting or breeding behaviour were observed.

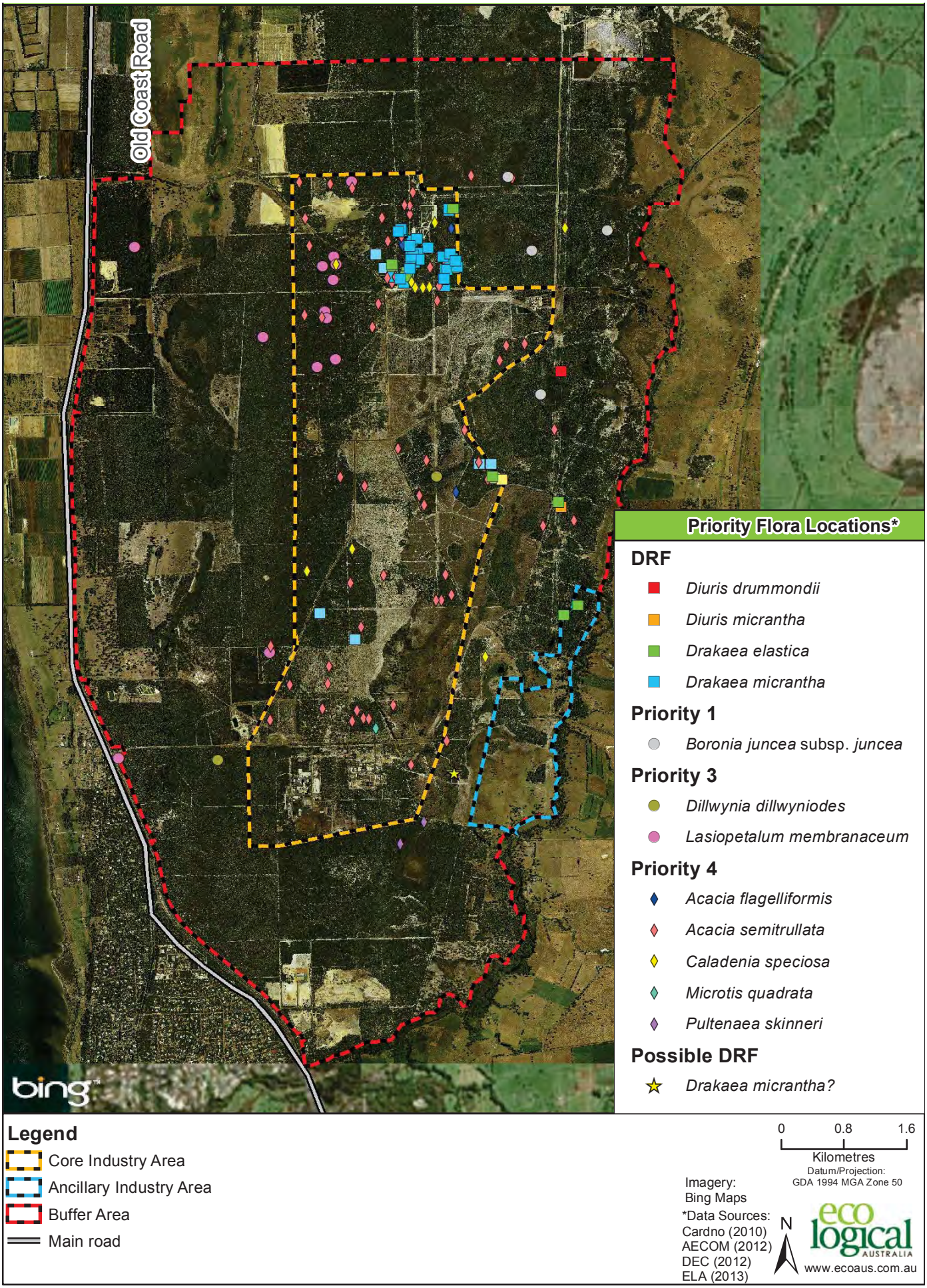


Figure 11 Significant Flora Locations

6.2 Landform and Soils

6.2.1 Topography

The topography across the Strategic Industry zone and Ancillary Industry zone generally slope downwards in a south-easterly direction from a dunal ridge in the west to the Wellesley River in the east.

The dunal ridge is situated along the western and northern boundaries of the Strategic Industry zone, with heights varying from 15.0m to 20.0m AHD between dunes to approximately 45.0 to 50.0m AHD at the crest of dunes. Levels grade down quickly on both sides of the dunal ridge leaving the majority of the Strategic Industry zone and Ancillary Industry zone with a relatively level topography of approximately 12.0 to 16.0m AHD, with isolated areas undulating up to approximately 20.0m AHD (Source: Wood and Grieve 2014).

Along the eastern boundary of the site, the central-eastern and north-eastern areas remain fairly level at approximately 14.0m to 16.0m AHD. Along the south-eastern boundary adjacent to the Wellesley River, levels slope rapidly down from approximately 12.0m to 16.0m AHD on the plain to approximately 6.0m to 8.0m AHD at the river's edge.

Refer to Figure 12 - Topography

6.2.2 Soils

The underlying geology consists of superficial sands resting on the Leederville Formation which overlies the Yarragadee Formation and/or the Cattamarra Coal Measures. According to Wood and Grieve (2014) the profile of the superficial formation generally comprises topsoil overlying sand with sub-surface conditions varying across the site, including Tamala Limestone in the west transitioning to Bassendean Sand, Guildford Formation, Swamp Deposits and Alluvium adjacent to the Wellesley River in the east. There is a noticeable variation in lithology both vertically and laterally, and the thickness ranges from about 20m to 50m.

The Leederville Formation consists of sandstone, siltstone and shale and extends across most of the Coastal Plain. The formation is divided into an upper sandy section and a lower section which is predominantly shale.

The Yarragadee Formation underlies the Leederville formation in the southern part of the site and consists predominantly of sandstone. The Cattamarra Coal Measure lies unconformably beneath the Leederville formation in the central to northern areas of the KSIA and underlies the Yaragadee Formation in the south. The formation consists of weakly cemented quartz sandstone and weakly consolidated siltstone and shale.

6.2.3 Acid Sulphate Soils

The Landgate WA Atlas Acid Sulfate Soils (ASS) Risk Mapping for the KSIA indicates that the majority of the site has a "moderate to low risk" of ASS being present in the surface soils. Isolated areas of "high to moderate risk" of ASS associated with Swamp Deposits and Alluvium soils occur across the site. Soils along the western extent of the Core associated with Tamala Limestone areas are mapped as "no known risk" of ASS.

Prior to development proceeding, further detailed investigation will be carried out to better assess the location, extent and severity of potential acid sulfate soils across the site. If the site is found to contain ASS which may be disturbed by the development, an Acid Sulfate Soils and Dewatering Management Plan (ASSDMP) will be required to address the specific management and treatment of potential ASS and resulting dewatered effluent during the construction phase of the project.

6.2.4 Geotechnical Investigations

Douglas Partners were commissioned to undertake a geotechnical investigations across the Strategic Industry zone and Ancillary Industry zone portions of the site. The results of this are summarised below, with the full report attached at Appendix D - Civil Servicing and Engineering Report.

The soil profile encountered in the boreholes during site investigations generally comprised of topsoil overlying sand. Some exceptions to this profile were encountered including silty sand, peaty sand, clayey sand, coffee rock and fibrous root material.

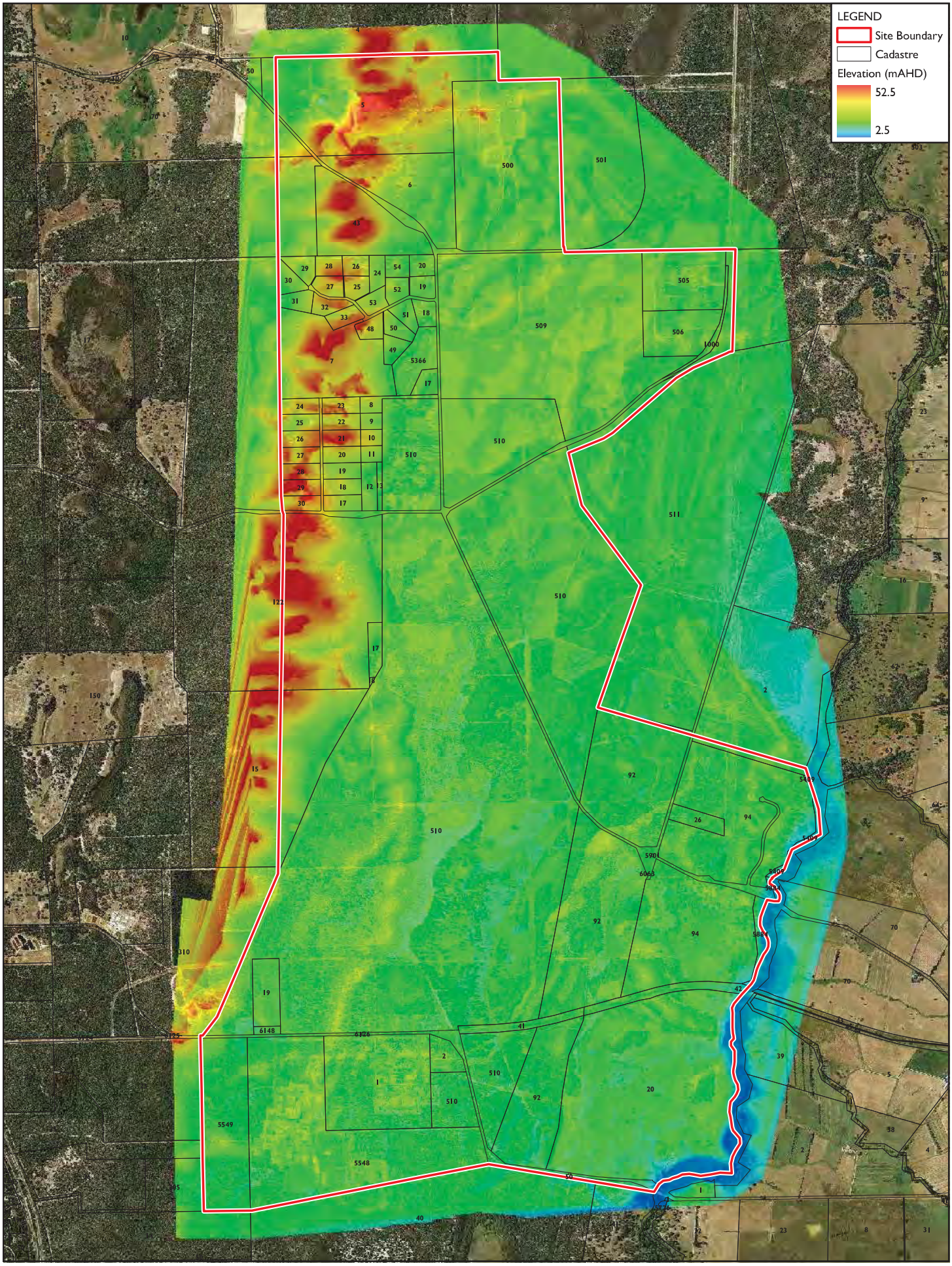


Figure 12 Topography

The site classification in accordance with AS 2870-2011 for most of the site was found to be Class A, with some areas Class P and Class S. It is likely that some Class M and Class H areas may be found within the Guilford Formation and Alluvium areas. With some minor areas of earthworks remediation, it is likely that the majority of the development should be able to achieve a site classification of 'A'.

Douglas Partners have provided the following site preparation and earthworks recommendations for all building envelopes and pavement areas:

- Removal of deleterious material including topsoil, vegetation and tree roots;
- Removal of peaty material and replacement with suitable structural fill;
- Proof compaction of exposed subgrade areas including, where necessary, removal of material in areas showing excessive deformation and replacement with suitable compacted structural fill;
- Naturally occurring sand excavated from the site should generally be suitable for re-use as structural fill, and should be compacted in layers of not more that 300mm;
- Areas should be compacted to achieve a dry density ratio of not less than 95% relative to modified compaction; and
- Re-compaction of top 300mm using a vibratory plate compactor in all foundation excavations, prior to construction of any footings.

6.3 Groundwater and Surface Water

6.3.1 Groundwater

The groundwater in the KSIA subareas is divided into four distinct groundwater resources based on the hydrogeology of the:

- Superficial aquifer;
- Leederville aquifer;
- Yarragadee aquifer; and
- Cattamarra Coal Measures aquifer.

A range of groundwater monitoring programs have been completed at the KSIA and are detailed in the Overarching Water Management Strategy prepred by RPS Environmental contained in Appendix F. The groundwater mapping of the AAMGLs indicates that the average maximum groundwater level is at approximately 6 m AHD to 14 m AHD, which represents groundwater generally being 40 m below ground level (bgl) at the ridge and 0 to 5 m bgl through the central to east of the site.

Nutrient concentrations have been found to vary considerably across the site with higher levels associated with the agricultural areas with lower clearance from groundwater. Concentrations across the site were generally moderate but higher than the reference values outlined in ANZECC (2000) for wetland ecosystem protection.

The existing prescribed industrial sites located in the KSIA, are required to provide Annual Environmental Reports, which amongst other topics includes a discussion of the onsite monitoring data. The 2010 Millennium Inorganic Chemicals Annual Environmental Report shows through a series of hydrographs that the groundwater levels beneath the Plant have been declining since 1994 which is attributed to the low rainfall and recharge occurring in the south west region.

6.3.1.1 Groundwater Management Areas and Allocations

The KSIA extends across two DoW Groundwater Management Areas, being the South West Coastal in the north and the Bunbury Groundwater Management Area in the South. Groundwater in the KSIA area is currently used for industry, agriculture and public water supply.

A recent (Nov 2014) Groundwater Allocation Report was obtained by RPS Environmental from the Department of Water (DOW) to confirm the volumes of water currently available from the DoW for allocation. This report indicates that a total allocation of 9.787 GL is currently available from the groundwater management areas at the KSIA. Three GL of groundwater still remains available in the Cattamarra Coal Measures in KSIA South.

Further investigations into the required quality of water for industrial use and possible treatment options need to be investigated, along with drilling of the aquifers in order to accurately establish the availability and quality of groundwater in each Aquifer.

6.3.1.2 Wellesley River

The main surface feature in the vicinity of the KSIA is the Wellesley River, located outside the eastern and south eastern boundaries of the KSIA. The River flows in a south-westerly direction into the Brunswick River which then merges with the Collie River prior to discharging into the Leschenault Inlet to the south-west.

Due to its low topography and deep, well drained sands, there is limited natural surface water drainage within the KSIA. A number of artificial drains have been constructed to drain the Multiple Use wetlands and inundated palusplain areas. These drains generally flow to the east and south discharging to the Wellesley River.

6.3.1.3 Leschenault Estuary

The Leschenault Estuary is located approximately 1 km east of the Buffer and approximately 2.5 km from the most eastern extent of the Strategic Industry zone.

The Leschenault Estuary is a shallow, elongated water bogy lying roughly north south and separated from the Indian Ocean by a sand dune peninsula. The Estuary is approximately 13.5 km long, up to 2.5 km wide and has a surface area of approximately 25 km^2. The Leschenault water catchment encompasses the Wellesley, Brunswick, (lower) Collie, Ferguson and Preston River sub catchments.

6.3.1.4 Wetlands

According to the Overarching Water Management Strategy approximately 43 geomorphic wetlands (or part thereof) are located within the Kemerton Strategic Industry zone. Ten are classified as Conservation category wetlands, 4 are Resource Enhancement wetlands and 29 are Multiple Use wetlands.

There are 5 wetlands (or part thereof) located within the Kemerton Ancillary Industry zone area, including 1 Resource Enhancement wetland and 4 Multiple Use wetlands.

None of the wetlands located within the Kemerton Strategic Industry zone or Kemerton Ancillary Industry zone are protected by the South West Agricultural EPP. All wetlands protected by the Lakes EPP are contained within the Buffer zone or reserved as Regional Open Space.

Refer to Figure 13 – Rivers and Geomorphic Wetlands

The majority of the wetlands within the KSIA are groundwater-dependent ecosystems, many of which are maintained by perched water tables and supported by surface runoff and direct rainfall. Drainage within the KSIA occurs at regional and local scales. Regionally, surface water drains towards the Wellesley River on the KSIAs eastern boundary, and locally, due to its low topography and relatively high water tables, surface water within the KSIA drains into the ephemeral wetlands.

6.3.1.5 Wetland Buffers

It has been State Government policy that Conservation Category Wetlands should have buffers at least 50m wide and Resource Enhancement Wetlands should have buffers between 30-50m. This buffer width is a guideline and its adequacy or otherwise is determined based on site characteristics and other factors such as the presence of Declared Rare Flora (DRF) or priority listed species, a wetland's geographical configuration, association with other wetlands, quality of vegetation within the wetland buffer, surrounding land use threats, and management strategies for the wetland.

There are a number of Conservation Category Wetlands and Resource Enhancement Wetlands located within the Kemerton Strategic Industry zone and the Kemerton Ancillary Industry zone. The Structure Plan design accommodates buffers to each of these wetlands where practical. There are several instances where mapped wetland boundaries are significantly affected by infrastructure corridors (existing roads and power lines). These include:

- Wetland No.14545 on the corner of Rhodes Road and Wellesley Road North (impacted by existing road reserve).
- Wetland No.14485 on Rhodes Road (impacted by existing road reserve).
- Wetland No.1682 on Mitchell Road/Wellesley Road (impacted by existing road reserve and 132 Kv transmission line corridor).
- Wetland No.1858 on Marriott Road(impacted by existing road reserve).
- Wetland No.1529 on Marriott Road(impacted by existing road reserve).
- Wetland No.1530 and 1716 on unnamed road (impacted by existing road reserve).

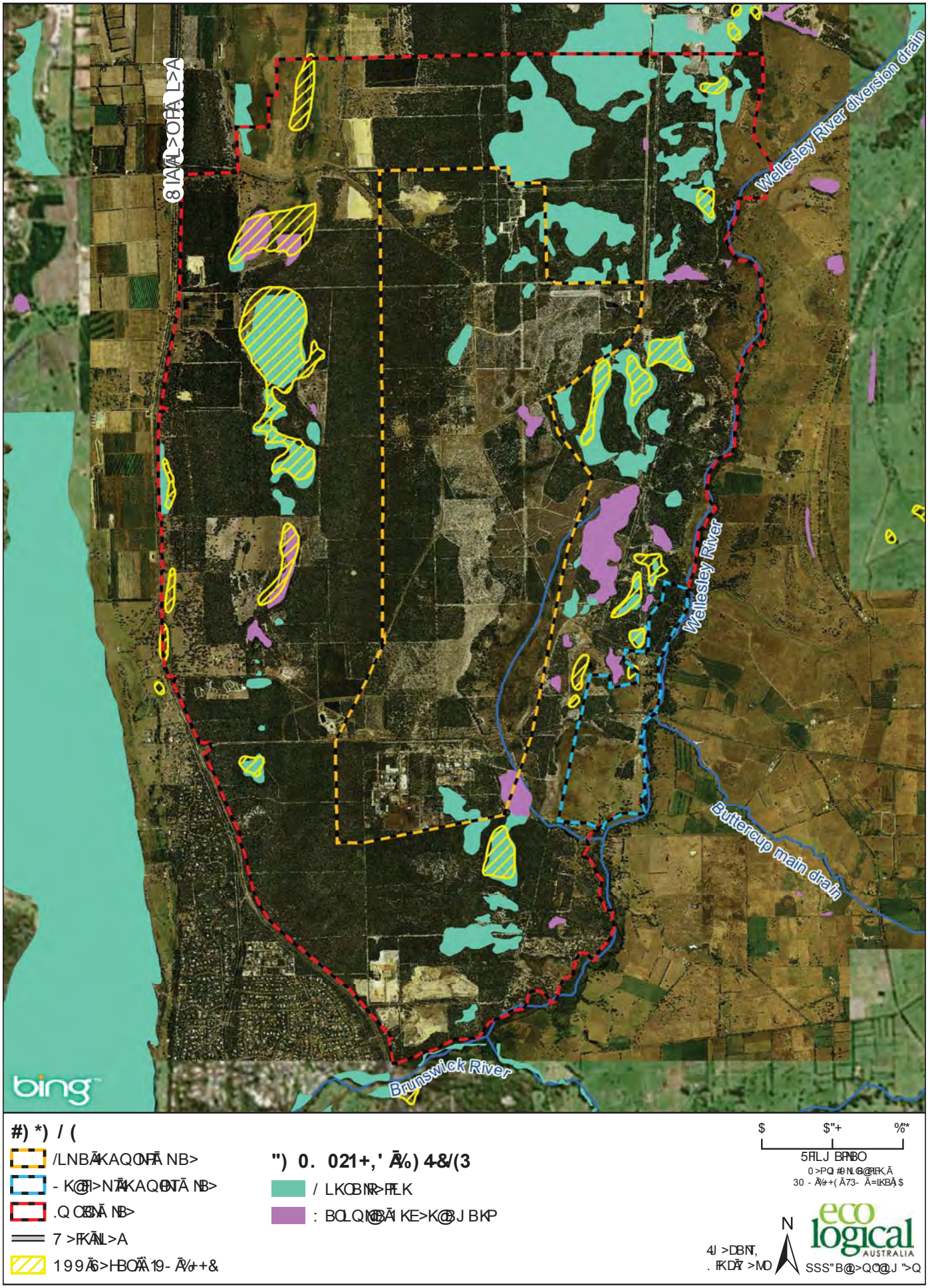


Figure 13 Rivers and Geomorphic Wetlands

The wetland, its buffer and any associated vegetation will be protected through the mechanisms outlined under the Overarching Environmental Management Plan, where individual Environmental Management Plans will be required for the protection and management of these wetlands.

6.4 Bushfire Hazard

A Strategic Overarching Bushfire Management Plan (SOBMP) has been prepared by RUIC Fire for the Structure Plan as it contains and is adjacent to significant tracts of bushfire prone land. Bushfire prone land is land that contains or is within 100 m of bushfire prone vegetation, being unmanaged grassland, scrub or wooded vegetation of certain size and spatial characteristics.

During the course of the Structure Plan assessment process the WAPC's SPP 3.7 – Planning in Bushfire Prone Areas document has been finalised. Subsequently, a Bushfire Management Plan (BMP) has been prepared in response to the updated SPP 3.7 and feedback provided by the Department of Fire and Emergency Services and DPaW during the assessment of the Structure Plan. Where proposed lots are located within bushfire prone areas, proponents are required to prepare a Detailed Fire Management Plan prior to development, having regard to the BMP prepared in support of this Structure Plan (refer to Appendix G).

Figure 14 illustrates the strategic Bushfire Hazard Level Assessment for the assessment area. The site contains low, moderate and extreme bushfire hazard level areas. The KSIA Structure Plan acknowledges that it is possible that some of the Core will not be able to be developed due to the environmental values present. Future lot sizes, configuration and development 'footprints' are to be determined at the subdivision stage based upon detailed assessment of a range of criteria including the Overarching Water Management Strategy, bushfire management, biodiversity measures (including wetland management and habitat protection) and the extent of clearing required to implement the proposal. Existing mapping should be used as a guide, with a case-by-case analysis of site specific constraints needed to support future individual development areas. The development and maintenance of Asset Protection Zones (APZs) and all other bushfire management strategies outlined in the BMP are to be undertaken in a manner that preserves the identified priority flora and fauna species. Priority flora species may be retained within the APZs as part of low bushfire threat landscaping.

6.5 Heritage

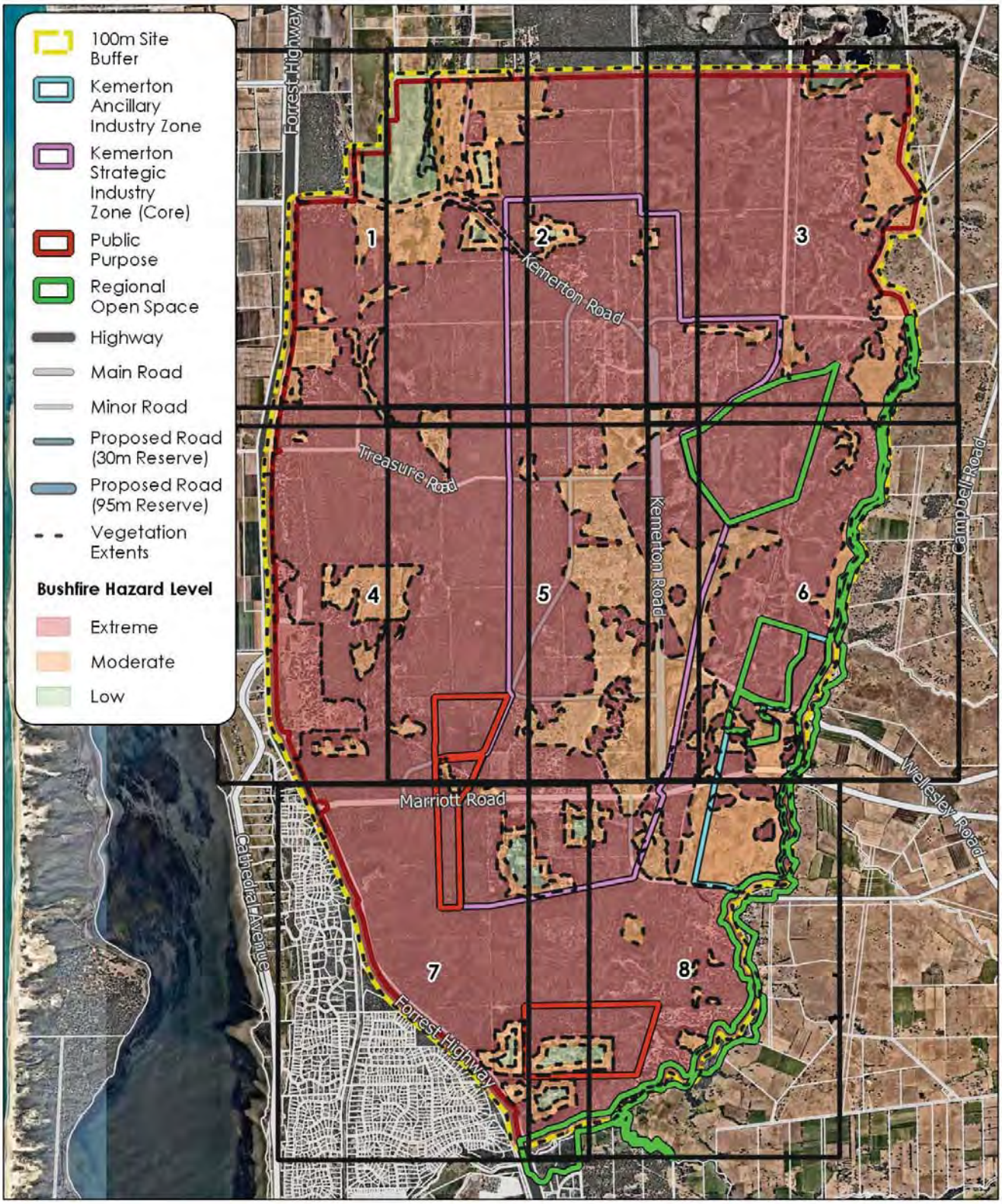
An Aboriginal Heritage Survey of the Core was conducted in 2011 by Brad Goode and Associates (2011). The report was prepared for the South West Aboriginal Land and Sea Council on behalf of LandCorp. As a result of consultations with nominated members of the Gnaala Karla Booja WC98/58 Native Title Claim group no ethnographic sites of significance, as defined by section 5 of the *Aboriginal Heritage Act 1972* were identified.

One registered archaeological site was confirmed to occur within the Core; Department of Aboriginal Affairs (DAA) 4887 Marriott Road consisting of artefact scatters. The site is located on the south-western side of the river in an exposed yellow sandbank at the junction of Wellesley River and Devlin Road. No other archaeological sites were found. The South West Aboriginal Land and Sea Council has been consulted regarding the KSIA and have endorsed the findings of the 2011 report undertaken by Brad Goode and Associates.

Refer to Appendix H - Aboriginal Heritage Management Plan

It is noted that a historical camp occupied by Mr Bob Wallam and his family during the 1960's is known to be located within the Inter Industry Buffer area. The Nyungar informants requested that this area be reported as a site of 'special significance' as a 'cultural marker', under section 5a of the AHA. It was further requested that the proponents recognise the importance of this place by the provision of a plaque that acknowledges the Wallam family and the social history of the Nyungar community as an agrarian labour force that contributed to the success of the development of agriculture in the region.

During the survey the Nyungar consultants also reported the Wellesley River and the chain of wetlands within the survey area to be significant as places of customary use, as a path of migration, as potential birthing areas, and as places of generalised spiritual value. While it was requested that these areas be reported as sites of significance it is unlikely that they would receive a positive assessment under section 5b of the AHA, as the information was of a generalised nature, no specific myth could be determined and no actual firsthand accounts of these activities were given. Despite these places being unlikely to be sites under the AHA, the cultural values reported should nevertheless be considered and protected, as these areas are also of considerable environmental value. An Aboriginal Heritage Cultural Management Plan (AHCMP)



RUIC FIRE

1300 797 607
ruicfire.com.au

BUSHFIRE MANAGEMENT PLAN MAP
Kemerton Strategic Industrial Area

Bushfire Hazard Assessment - Map Index

Kemerton Industry Buffer Outer Boundary
KSIA Structure Plan Boundary
Cadastre (outside site)

N
Size: A4
Scale: 1:60,000
0 500 1000 1500 2000 m

Ref: 5549_002_01_VegHazard_20160906
Projection: GDA94 MGA50
Author: MM - RUIC | Date: 2016-09-13
Data Source: Cadastre - Landgate; Imagery - Nearmap; Roads, Site Boundary, Veg, BAL, Buffers, BMS - RUIC.

Disclaimer: Although the data within this map is considered accurate at the time of creation, RUIC Fire does not guarantee, and accepts no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any data used within this map.

Figure 14 Bushfire Hazard Level Assessment – Map Index

could detail strategies to protect the cultural values identified outside the parameters of the AHA.

A recent search of the Department of Aboriginal Affairs Aboriginal Heritage Inquiry System indicates that there may be archaeological/ethnographic sites in the Buffer, which was excluded from the 2011 survey.

The KSIA does not contain any sites on the Register of the Western Australian Heritage Commission (now Heritage Council of Western Australia). The Florries Cottage Group site (P3757) is currently being assessed for possible inclusion in the State Register of Heritage Places.

Refer to Figure 15 - Map of the survey area in relation to Aboriginal Heritage Sites

6.6 Priority Basic Raw Materials and Mining Tenements

6.6.1 Mining Tenements

The KSIA contains a number of mining tenement applications over the Core. A summary of these tenements is provided in Table 4.

Table 4 - Mining Tenements within the KSIA

TENID	TYPE	TENEMENT STATUS	HOLDER
E 7003894	EXPLORATION LICENCE	PENDING	IMAGE RESOURCES NL
M 7000871	MINING LEASE	PENDING	BMax Cristal
M 7000986	MINING LEASE	PENDING	BMax Cristal
M 7000987	MINING LEASE	PENDING	BMax Cristal

These tenement applications confer first right of grant to the applicant. To date, these mining tenements have not been granted by the Department of Mines and Petroleum. Mining these tenements would impact on wetlands and would require clearing of native vegetation (Jarrah/Marri/Banksia). The deposits are deep and would require a deep and wide pit. The location of the mining tenements is shown in Figure 16 - Location of Strategic Mineral Resource Protection Areas.

Refer to Figure 16 - Location of Strategic Mineral Resource Protection Areas.

6.6.2 Extraction Operations

The WAPC State Planning Policy 2.4 - Basic Raw Materials sets out the matters which are to be taken into account by the WAPC and local governments in considering zoning, subdivision and development applications for the extraction of basic raw materials (e.g. sand and limestone). The policy requires quarry operators to submit Management Plans that set out proposals for landscaping to screen activity on the site, providing suitable vehicle access to the site, and the progressive and ultimate rehabilitation of the site for its intended long-term use.

The Policy states that “any proposed land use or development that would potentially be incompatible with or sensitive to mining activities or the extraction of basic raw materials” should be resisted within the 500m buffer.

Any quarry operations will therefore impact on how and when areas of the KSIA can be developed. Monitoring of these Management Plans against the Structure Plan will be important so as to minimise the potential for extractive operations to adversely impact future industrial development.

Presently there is one extractive licence application within the KSIA, located on private land owned to the north (Refer to Table 5). Silica Sands operates a sand extraction operation just north east of the KSIA. Silica Sands mines 400,000 to 500,000 tonnes per annum (tpa) silica sand which is exported for glass making. The mining comprises a dredging operation from which sand is pumped to a processing plant, which extracts heavy minerals by an electromagnetic process. The silica sand mining is on “Minerals to Owner” land where this type of mining does not fall under the *Mining Act* and there is no requirement to obtain a mining or exploration licence. This mining is therefore not monitored by the Department of Mines and Petroleum but is monitored by the EPA under Ministerial Statement 366.

Table 5 - Extractive Industries (Sand)

Lot	Location
4	Runnymede Road
7	Runnymede Road
11	Runnymede Road
5	Wellesley Road
70	Wellesley Road

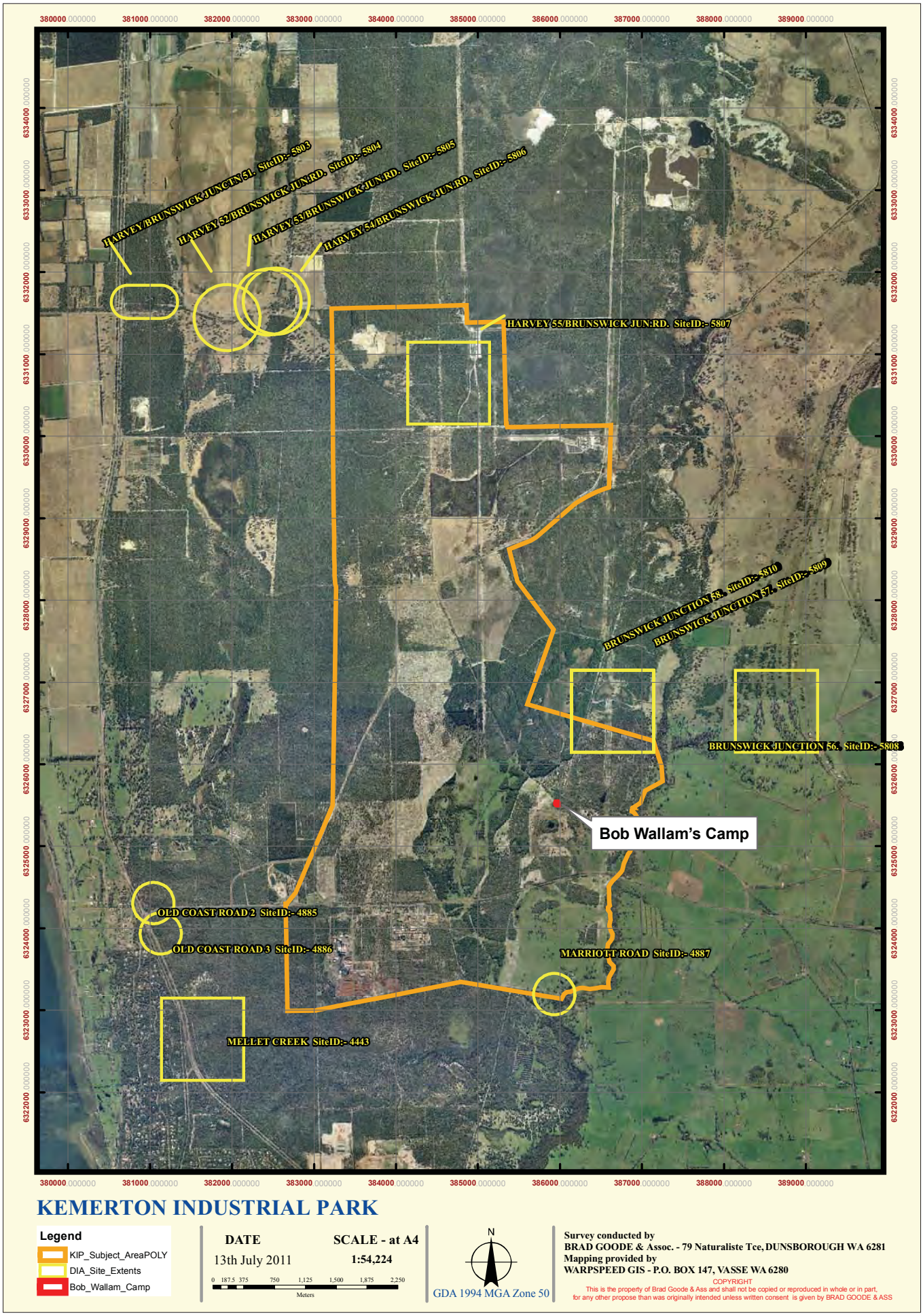


Figure 15 Map of the Survey Area in Relation to Aboriginal Heritage Sites

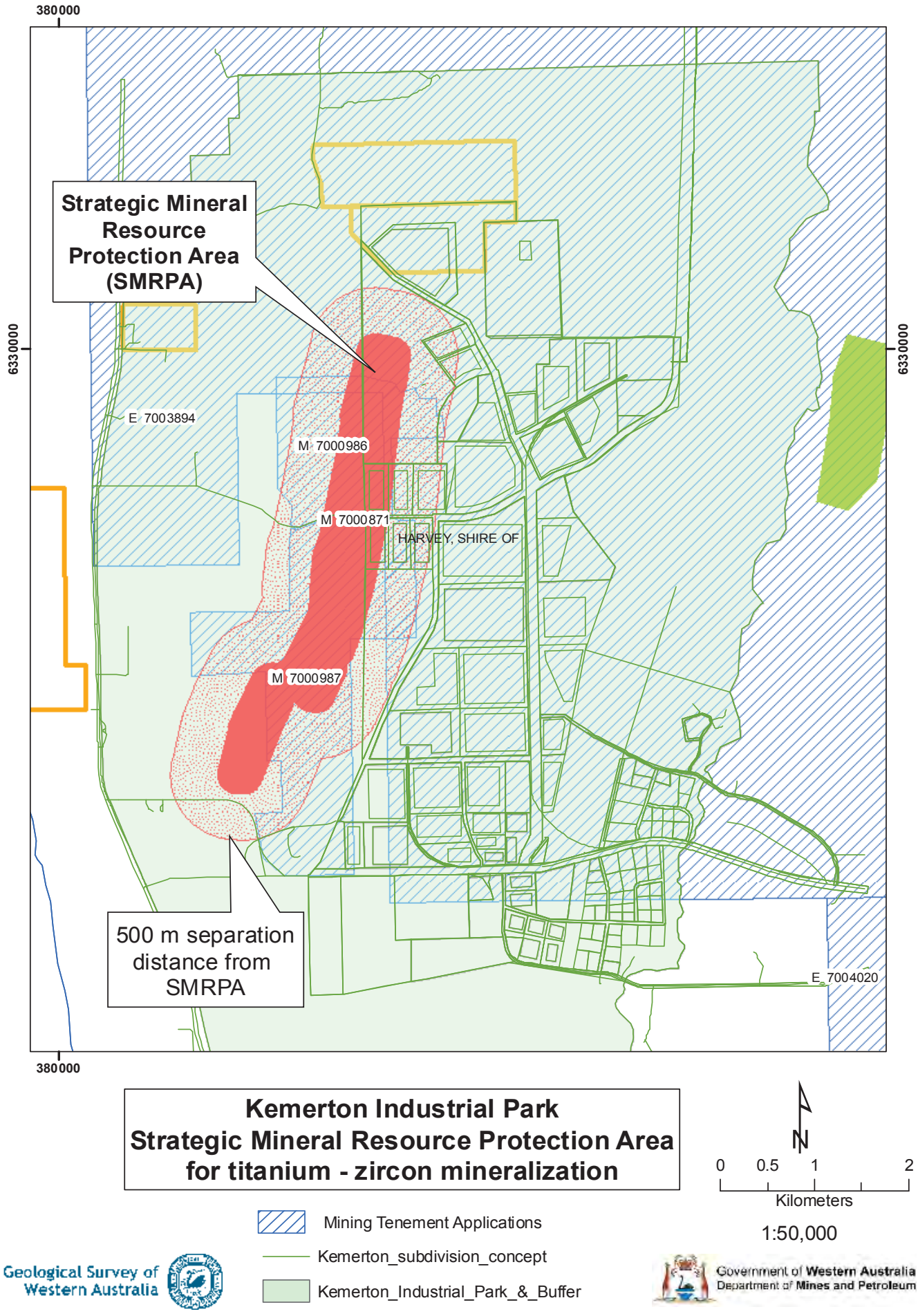


Figure 16 Location of Strategic Mineral Resource Protection Areas.

This page has been left blank intentionally.

7. Opportunities and Challenges

This section provides an overview of the opportunities and challenges presented in delivering the KSIA project. The issues raised under the Opportunities and Challenges section are discussed in further detail in the subsequent sections of this report.

A summary of the key Opportunities and Challenges are outlined below, and shown graphically in Figure 17.

Refer to Figure 17 - Opportunities and Challenges Mapping

Table 6 - Opportunities and Challenges

Opportunity	Structure Plan Design Response
Maximising connectivity to Port, Road and Rail The KSIA is strategically located in close proximity to major road, rail and port infrastructure. It has good transport links to the South West region and its substantial primary industries, and international transport routes through the deep water Port of Bunbury by planned road and rail, the Perth Bunbury Highway, and the South Western Highway.	There is an opportunity to integrate a dedicated rail spur line from the south west main rail line, linking to the Bunbury Port. This would be determined by the definitive requirements of a major rail- served industry within the KSIA, rather than any needs of the railway network as such. The Structure Plan integrates three east-west road connections (Kemerton Road, Treasure Road and Marriot Road) into Forrest Highway. East-west connections are also provided to the South-Western Highway via Marriott Road and Wellesley Road.
Employment Generator for Industry The KSIA is the largest industrial area in the South West of Western Australia and is one of the State's designated 'strategic industrial' areas, and one of only two heavy industrial estates in the South West Region. The KSIA is ideally placed to process primary resources closer to source, to add value to exports and to promote regional economic development and employment. The KSIA provides an important staging post for a wide catchment of processing, refining and export based industries. Industrial Land Strategies for the Perth, Peel and SW Region have identified the general scarcity of supply of heavy and strategic industrial sites, particularly those with large, flat, unencumbered sites.	The KSIA is a scarce resource and therefore potentially sought after by Trans-National or 'footloose'* industries seeking a WA location. The KSIA Structure Plan design framework provides for the supply of large lot product to the market, servicing those industries which require a larger development footprint and/or operational separation distances. Spatially, the KSIA benefits from an established substantial Buffer, which is protected through statutory mechanisms of the Special Control Area No.2 under the GBRS and the DPS1 'Kemerton Industry Buffer' zone provisions (as amended through Amendment No.114). * *Footloose industry is a general term for an industry that can be placed and located at any location without effect from factors such as resources or transport.* *These industries often have spatially fixed costs, which means that the costs of the products do not change despite where the product is assembled.*

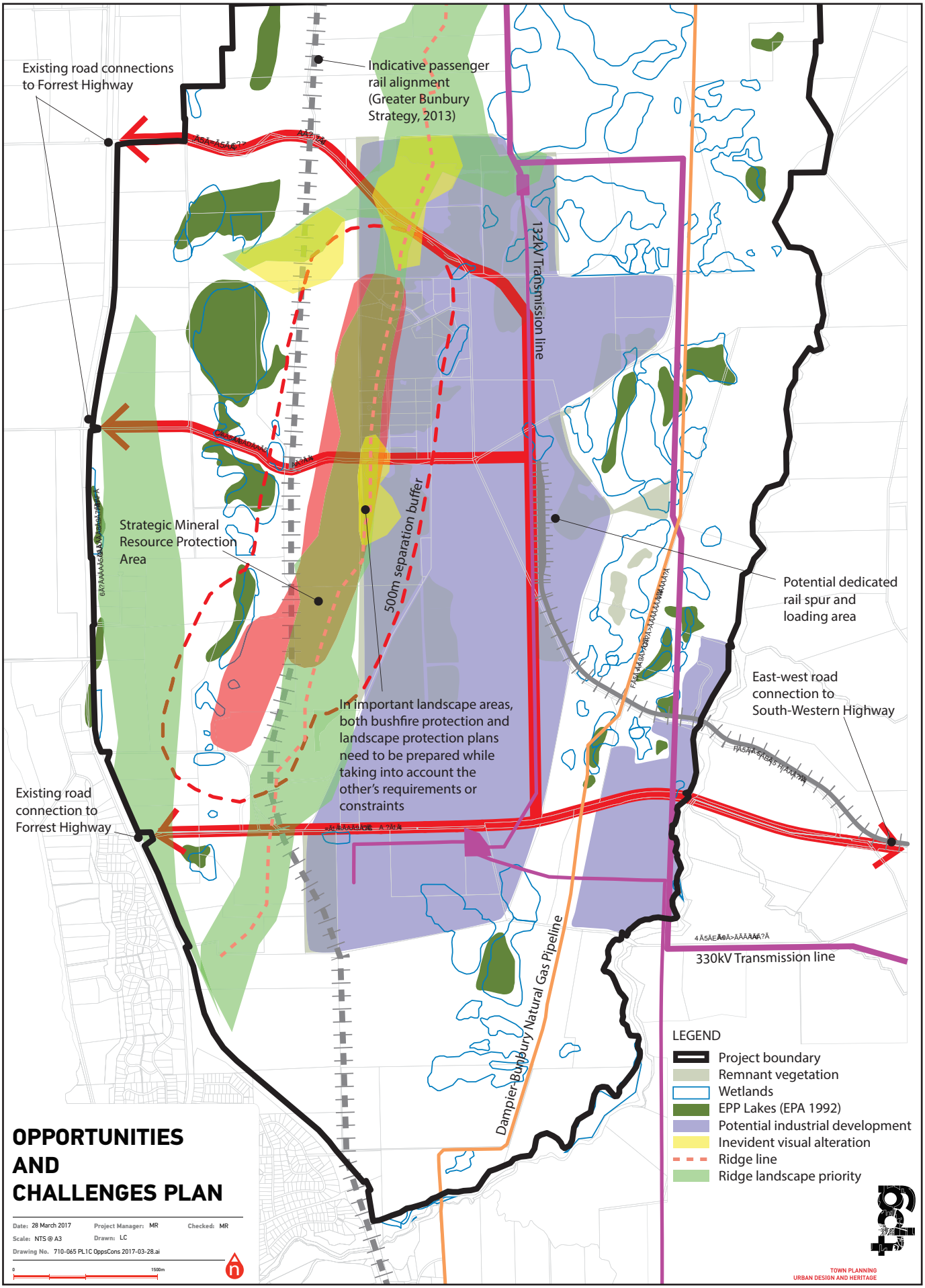


Figure 17 Opportunities and Challenges Mapping

Opportunity	Structure Plan Design Response
Natural Environment The development of the KSIA provides an opportunity to protect and enhance the environmental features of the site through the rehabilitation of existing wetlands and the creation of new open space corridors.	There are several instances where mapped wetland boundaries are significantly affected by existing infrastructure corridors (constructed roads and power lines and associated easements). In this context, the Structure Plan road network and indicative lot layout has been designed, where practical, to follow existing road reservations and service corridors in order to minimise any potential impacts on existing wetland boundaries. Wetlands Within the Strategic Industry zone and Ancillary Industry zone There are a number of wetlands located within the Ancillary Industry zone, including Conservation Category wetlands, Resource Enhancement wetlands and a series of Multiple Use wetlands. A designated 100m wetland buffer has been accommodated in the design layout for the Conservation Category wetland (No.14489) located on land owned by the Shire of Harvey. Other wetlands located within industrial zoned land will be subject to site-specific buffer requirements, as determined at the detailed development stage. Existing wetland values will be maintained and buffers formally preserved as part of the mechanisms implemented by the Overarching Environmental Management Plan. The Department of Environment Regulation's general buffer expectations for Resource Enhancement wetlands are between 30 metres to 50 metres from the wetland boundary, whilst Conservation Category wetlands should have buffers at least 50m wide. South West Agricultural EPP Wetlands It is noted that none of the wetlands located within the Strategic Industry zone or Ancillary Industry zone are protected by the South West Agricultural EPP. All wetlands protected by the Lakes EPP are contained within the Industry Buffer zone or reserved as Regional Open Space.
Industrial Ecology A number of options exist for cooperative development of facilities that will be provide for: • treatment of biological wastewater produced in the KSIA; • treatment and disposal or recycling of domestic wastewater from the surrounding residential uses; • production of adequate quantities of treated wastewater that can be used by industries or irrigation areas within the KSIA in preference to scheme or groundwater; and • the use of externally sourced industrial wastewater, including the ocean outfall from the Collie Power Station, located near Buffalo Road.	Development will be progressed using the principles of Industrial Ecology to optimise resource use and encourage recycling and reuse of resources between industries, reducing discharges to the local environment at the Development Application stage.
The protection of significant environmental attributes, where deemed appropriate within the designated Strategic Industry zone and Ancillary zone. This includes, but is not limited to, TEC's and high value wetlands and associated buffers. Figure 18 shows the areas of significant remnant vegetation in the Buffer (as recommended by the EPA to be provided with a high level of protection through the planning system) and the areas of significant vegetation or wetland values within the Core. *Refer to Figure 18 - Environmental Constraints*	The design framework of the Structure Plan provides the necessary flexibility to create large lot product, whilst incorporating and protecting significant environmental features through the preparation and implementation of Individual Environmental Management Documents (as prepared by Proponents). The constraints mapping should be used as a guide, with a case by case analysis of likely constraints needed for individual development areas. Approval requirements such as avoidance and offsets will be determined through the necessary approvals process. One or more of the aspects of constraint may apply to an area of land; the type and complexity of the individual constraint/s will influence the level and ease of approvals. Refer to Appendix C – Over-arching Environmental Management Plan, page 58 for further information on how the environmental constraints mapping was derived.

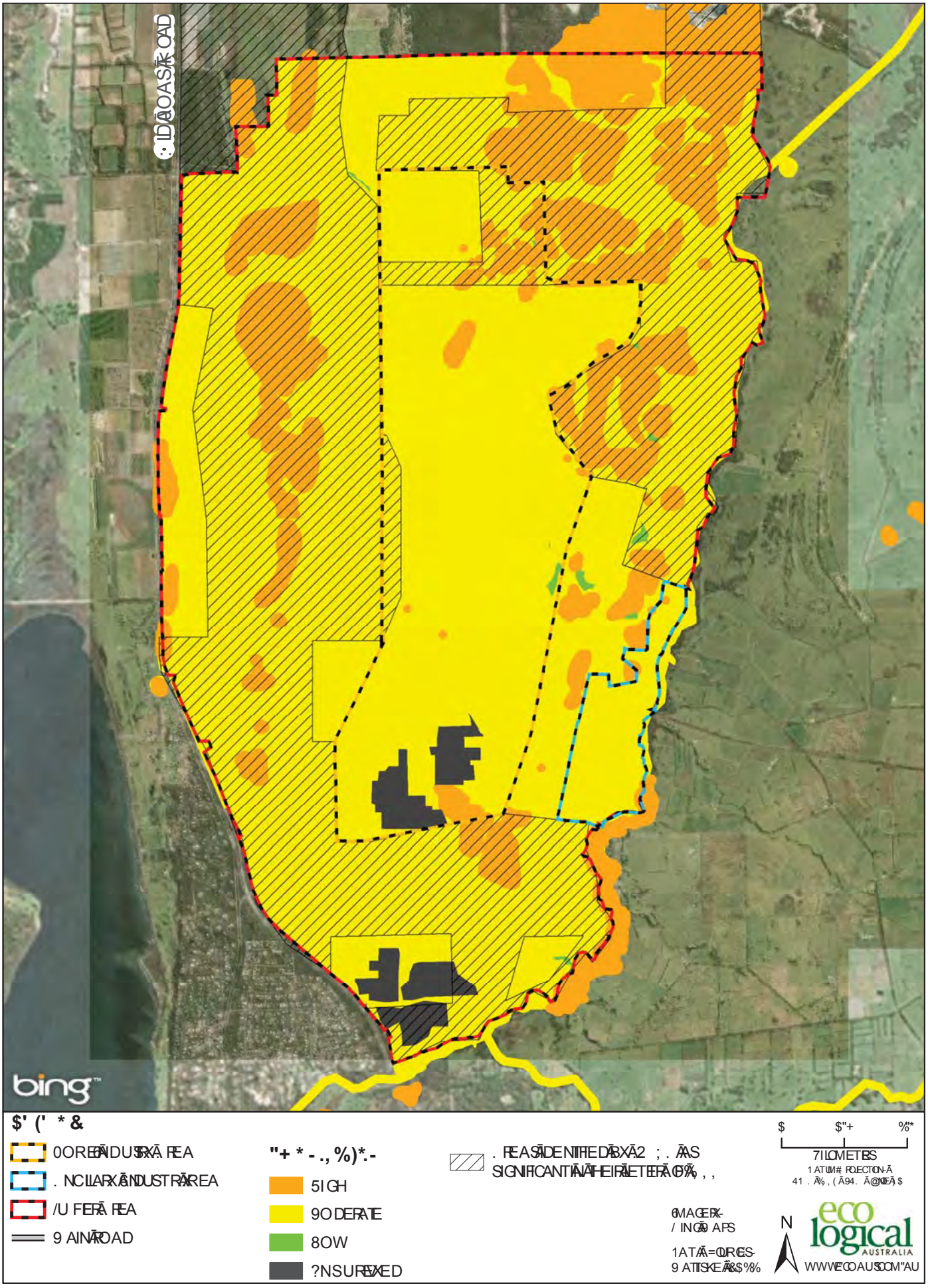


Figure 18 Environmental Constraints

Challenges	Structure Plan Design Response
Existing infrastructure Corridors The orderly design and development of the KSIA needs to accommodate the existing infrastructure corridors which need to be maintained across the area. These include: • Dampier to Bunbury Gas Pipeline High; • 330kV overhead lines; and • existing road reserves which service established industry.	The Structure Plan has incorporated these existing infrastructure corridors and consolidated these alignments to achieve efficiencies in land area by: • Integrating common service corridors for existing and future industry pipe conduits; • Integrating a potential rail spur line immediately adjacent to existing and proposed road reserves; and • Integrating drainage swales as part of these corridors. The Structure Plan design accommodates the fixed levels of the DBNGP and associated setbacks.
Quarry Operators Portions of the site are subject to quarry operations. Ongoing quarrying and the resulting earthworks levels will need to be coordinated to achieve useable grades for future industry. Any quarry operations will impact on how and when areas of the KSIA can be developed. Presently there is one extractive licence application within the KSIA located on private owned land to the north.	The Structure Plan accommodates the existing quarry operations north of Treasure Road. Monitoring of Management Plans against the Structure Plan will be important in order to minimise the potential for extractive operations to adversely impact future industrial development and operations.
Service Infrastructure The KSIA is not within a planned Water Corporation sewer reticulation service area. All works would need to be fully developer funded, including requisite pump stations, pressure mains, and wastewater treatment plant. a	Alternative servicing models are being investigated. Similarly, the KSIA is not within a planned water reticulation service area. However, a number of options exist for potable and process water supplies.
Mining Licences Four mining tenement applications apply over the KSIA, where all tenements are pending (they have not been granted by the Department of Mines and Petroleum). The tenement applications confer first right of grant to the applicant. These mining tenements potentially impact on wetlands and would require the clearing of native vegetation. Should these tenements be approved, the mining would require deep and wide pits to access the deposits.	Should mining occur across the KSIA this would fundamentally affect how and when the KSIA would be developed for industrial purposes. Appropriate staging of the KSIA would need to be considered if this mining were to occur.
Landscape Priority Areas The landscape assessment undertaken for LandCorp and DSD (Kemerton Strategy Plan Landscape Assessment Study, James, 2007) identified 'Landscape Priority Areas' within the KSIA. The assessment demonstrated a higher level of visual significance for the western slopes of the north-western ridge than the eastern slopes, although the ridgeline itself is also important. The western slopes are constrained for industry, suitable only for limited earthworks to provide for industrial sites in selected locations. The report suggests that such sites may need to be supplemented with landscape planting to aid visual screening and the appearance of structures nestled into the ridge landscape.	LandCorp and DSD shall progressively implement the landscape management guidelines set out in the Kemerton Strategy Plan Landscape Assessment Study including planning guidelines relating to the north-west ridge area. This will include site design and landscape planting requirements by proponents at the Development Application stage.

This page has been left blank intentionally.

8. Structure Plan Design

The Structure Plan is an important planning instrument to inform and facilitate the future staged development of the KSIA. The Structure Plan has been prepared to provide a logical and robust design framework for the future subdivision and subsequent site development of the KSIA. The design represents a logical and efficient layout, utilising existing road reserves and service corridors where feasible, providing good connectivity to existing surrounding road networks, whilst providing strong internal linkages.

Refer to Figure 19 – KSIA Structure Plan

8.1 Land Use

Land use permissibility within the Structure Plan area shall be in accordance with the corresponding existing and proposed zones and reserves under DPS1 (as amended under proposed Amendment No.114):

- Kemerton Strategic Industry zone;
- Kemerton Ancillary Industry zone;
- Kemerton Industry Buffer zone;
- Regional Open Space; and
- Public Purposes.

8.1.1 Kemerton Strategic Industry Zone (the Core)

The objective of this zone is to establish a heavy industrial park buffered by large areas of natural parkland in which all industrial development adheres to strict environmental development and operational criteria approved by the EPA and Council.

8.1.2 Kemerton Ancillary Industry Zone

Industry within this zone shall be General Industry, being ancillary to the heavy industry in the KSIA. Ancillary in this respect means that the proposed development must demonstrate that the major portion of the source material, finished produce, or services provided support or have some form of synergy with industries established in the Strategic Industry zone.

8.1.3 Kemerton Industry Buffer Zone

The primary purpose of this zone is to serve as a low intensity use area between the Strategic Industry zone and Ancillary Industry zone and where possible public recreation and flora and fauna conservation shall be encouraged. Proposed land uses within this zone must not compromise the noise, air and risk modeling emissions for existing and projected industry within the KSIA.

8.2 Indicative Subdivision Concept

The Indicative Subdivision Concept has been prepared to demonstrate one of many potential design iterations, where multiple lot creation can occur within the Strategic Industry zone (the Core) and the Kemerton Ancillary Industrial zone based on the Structure Plan's broad design framework. It demonstrates the designs ability to accommodate a wide range of lot sizes and configurations. As per the advice of the WAPC's DC Policy 4.1, lot size requirements are difficult to predict at the initial planning stage, and hence lot design should allow for flexibility in the later planning and development stages.

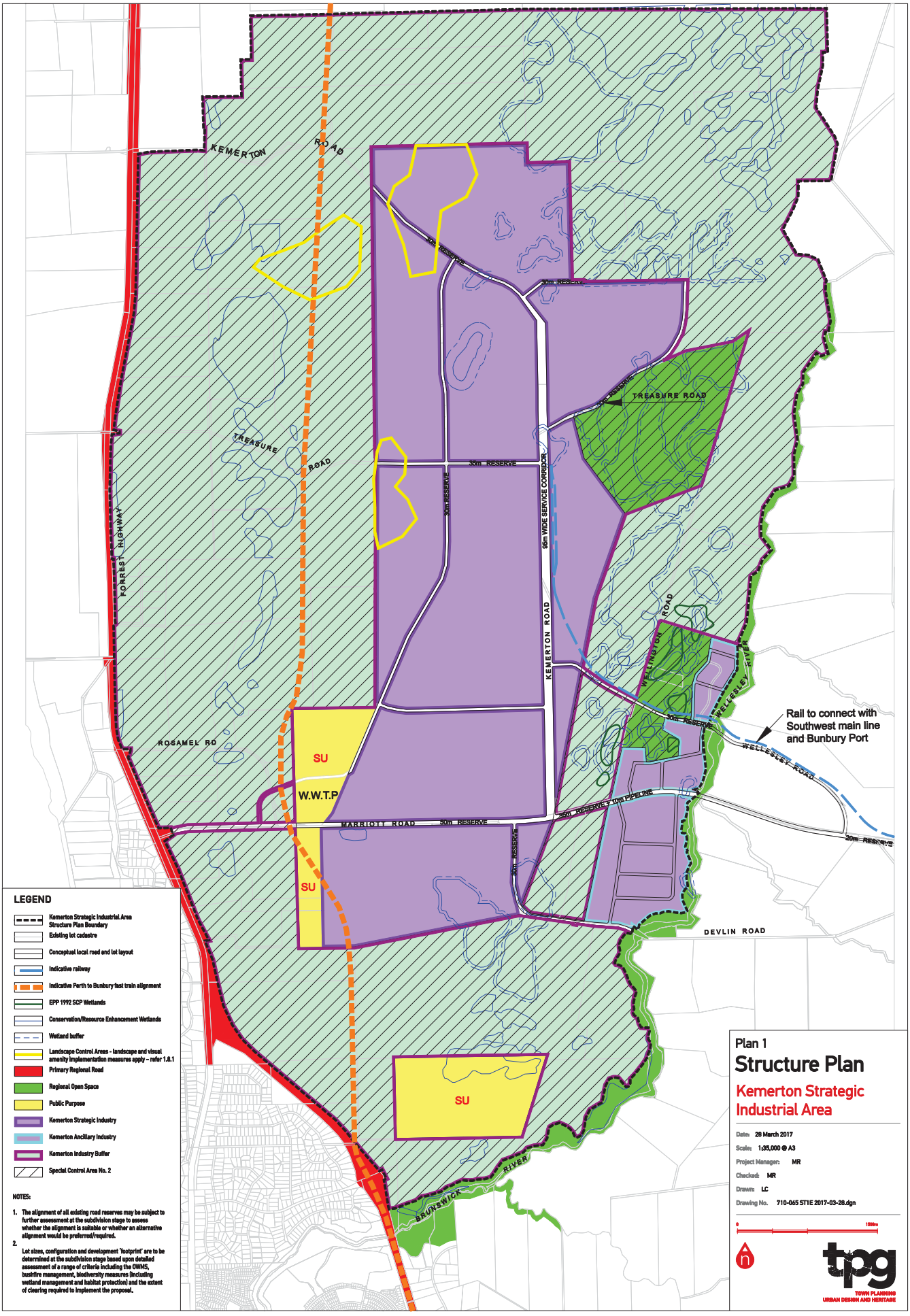


Figure 19 KSIA Structure Plan

The Structure Plan incorporates a logical local road layout, providing the needed flexibility to respond to industry needs. The design allows the future subdivision of areas into a series of modules for subsequent lot creation and site development. The final lot layouts will be proponent driven and will therefore evolve over time as the KSIA is progressively developed. It is noted there are a number of State and Commonwealth environmental values that occur throughout areas zoned for development within the Strategic Industry zone and the GBRS 'Industrial' zone. However, this does not necessarily assure that disturbance can occur in all of these areas. It is possible that some of these areas will not be able to be developed due to the environmental values present.

Refer to Figure 20 – KSIA Indicative Subdivision Concept

8.2.1 Kemerton Strategic Industry Zone (the Core)

The Indicative Concept Subdivision shows lots ranging from approximately 5 ha to 71ha in size. The larger lots generally coincide with the higher impact use categories located centrally within the Core and should be reserved for major industries. Related downstream processing or specialist industries may be suited to medium sized lots. There is potential to amalgamate several lots if there is a need for larger sites. Alternatively, some larger lots could be subdivided into medium sizes depending on industrial demand.

8.2.2 Kemerton Ancillary Industry Zone

There are three distinct areas of land allocated for this zone. The northern parcel, north of Wellesley Road and adjacent to the Wellesley River, has previously been subdivided and has been partly developed for rural residential purposes, although substantial remnant vegetation remains. An opportunity exists for re-subdividing the area with lots in the order of 5000m^2 to 2ha.

The remaining areas are located between Wellesley Road and Marriot Road, and between Marriott Road and Devlin Road. These areas accommodate the existing infrastructure corridors including the north-south and east-west running 132kv power lines and associated easements, the 330kv north-south running power line and easement, and the high pressure gas pipeline which runs along the western boundary. Indicative lot sizes within this area range between approximately 4000m^2 to 5.5ha, with the majority around the 1.5ha size. The final lot configurations for this area will be subject to subsequent subdivision applications prepared in response to the end users specific needs.

8.2.3 Kemerton Industry Buffer Zone

Landholdings located within the Kemerton Industry Buffer zone are included within the Special Control Area No.2 of the Greater Bunbury Region Scheme. The Structure Plan does not propose any conceptual subdivision or development within this zone. When considering development applications with respect to land wholly or partly within the Kemerton Industry Buffer zone, applicants are required to satisfy the provisions of Part 5 – Division 3 – Kemerton Industrial Zone Buffer Area and Part 7 – Applications for Planning Approval of the Greater Bunbury Region Scheme.

8.3 Industry Precinct Plan

The Structure Plan provides long-term guidance for the staged development of the Structure Plan area undertaken by proponents. The Industry Precinct Plan which forms part of this document is intended to guide the potential location of industry types within the Structure Plan area based on individual operational criteria including, but not limited to, operational risk, noise emissions, air emissions and infrastructure requirements.

Figure 20 includes an indicative layout of industries using 'Industry Type by Impacts' based on Risk, Noise, and Air emissions cross-referenced to High, Medium and Low impacts. These classifications are a guide to industry location based on the investigations undertaken by Air Impact Assessment (Air Assessments), QRA Assessment (ERS), Acoustic Impact Assessment (Herring Storrer). Refer to Appendix I, J and K for respective reports.

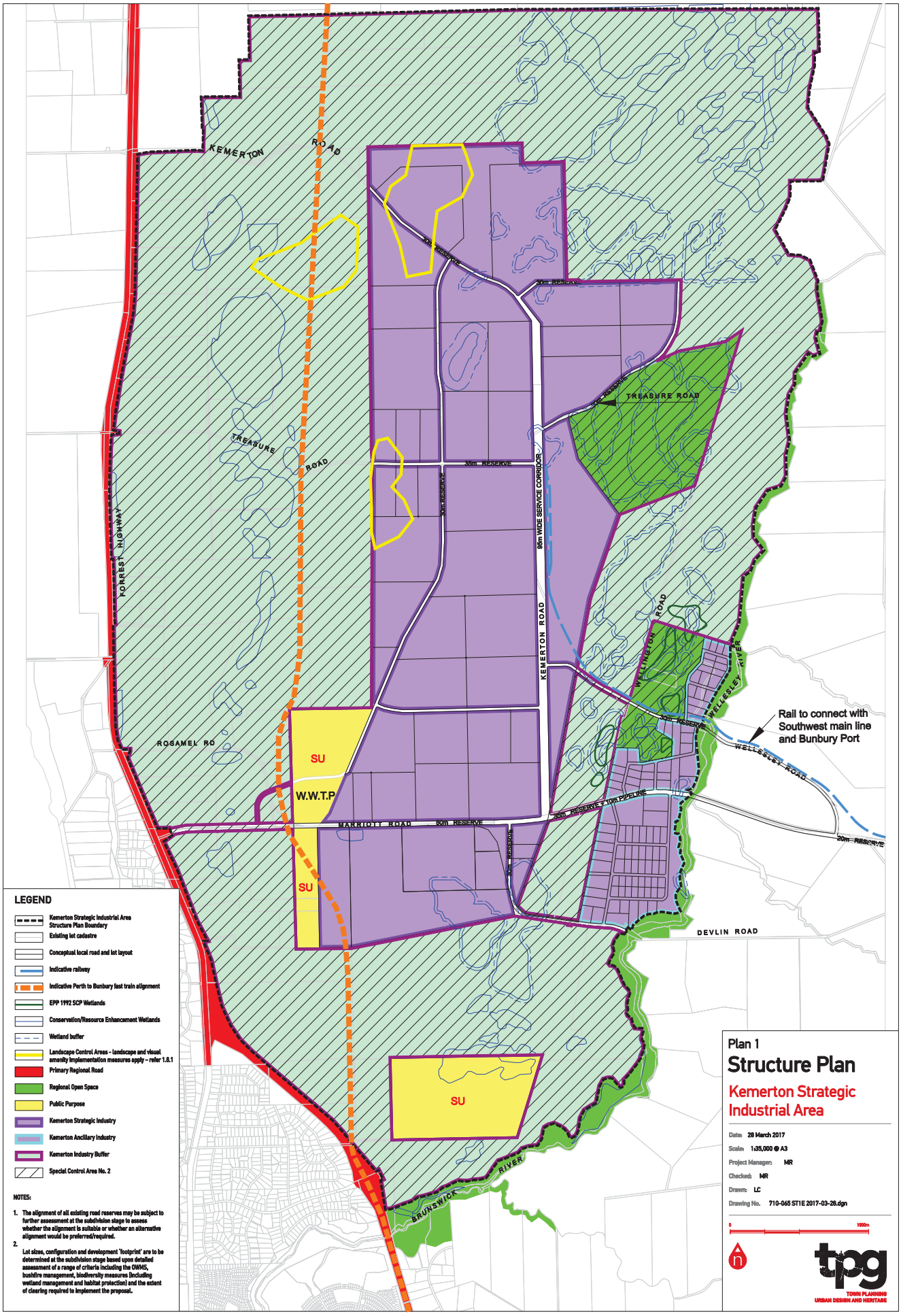


Figure 20 KSIA Indicative Subdivision Concept

Refer to Figure 21 - KSIA Industry Precinct Plan - Industry Type By Impact

Each future industry proposal will be subject to environmental assessment including the need to demonstrate to the satisfaction of the EPA that it meets the respective environmental standards for risk, noise and air emissions within the Kemerton Strategic Industry zone and at the Kemerton Industry Buffer Zone boundary. The elongated north – south orientation of the Core reflects the ideal orientation to minimise environmental impacts given the climatic, topographical and environmental features of the area. The highest impact uses (High Risk, High Air, High Noise) are confined to the main north-south spine of the KSIA allowing the greatest separation distances from land uses outside the Kemerton Industry Buffer zone and the best layout for minimising cumulative impacts.

The assessment of environmental impacts of industrial development shall take account of cumulative impacts of existing industry and shall be subject to environmental assessment and licensing by the EPA prior to the commencement of construction. To ensure the continued acceptance of industry, all development shall be subject to an ongoing program of self-monitoring subject to EPA audit.

The Industry Precinct Plan may need to evolve over time in response to the type and scale of industries which shall establish within the area. If an industrial developer demonstrates it should be located in an alternative location to the preferred precinct, this may occur subject to business case approval by the DSD and LandCorp.

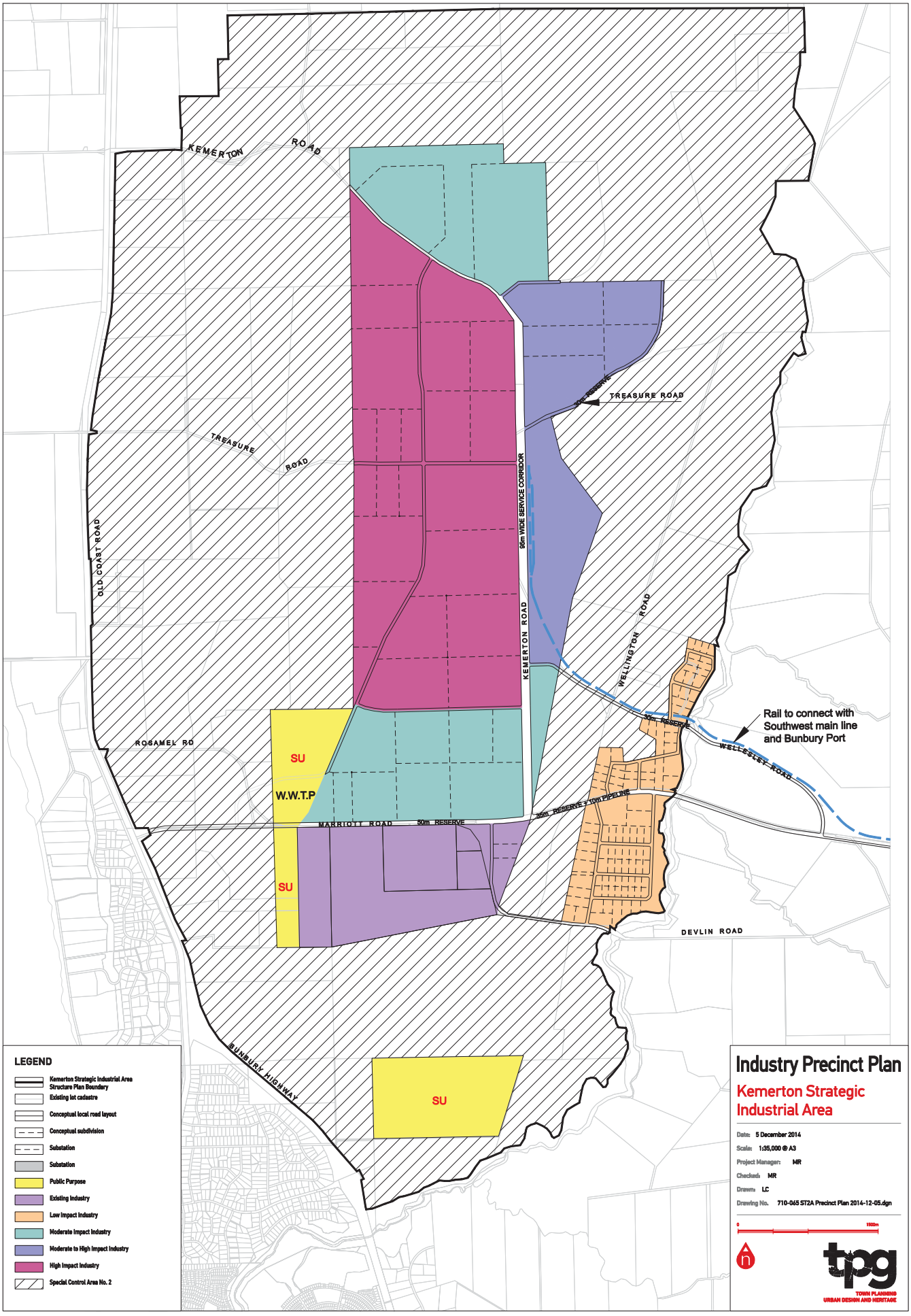


Figure 21 KSIA Industry Precinct Plan - Industry Type by Impact

9. Visual Impact

The visual impact of the KSIA, particularly the prominent ridge located along the north-western boundary of the Kemerton Strategic Industry zone, has been identified in previous planning documents including Industry 2030 - Greater Bunbury Industrial Land and Port Access Planning, WAPC 2000:

> *Some areas of vegetation/landscape interest remain in the core, including the ridgeline. In order to minimise impacts on these values, consideration will be given to landscape protection in the form of building setbacks, recontouring, screen planting requirements and other measures (particularly when viewed from Old Coast Road) at the detailed structure planning, subdivision and development stages. In particular, development along the northwest ridge of the new core will be subject to special planning controls so as to ensure visual impacts are minimised. This will be done in extensive consultation with the local community.*

Accordingly, a landscape assessment study directs particular attention to the northwest ridge, but also assesses values across the whole of the KSIA. The Kemerton Strategy Plan Landscape Assessment Study (2007) establishes visual management objectives. These objectives were formulated based on the feedback provided at a community workshop held on 11 February 2006. The workshop included a site visit as well as facilitated information and group feedback sessions. The most significant concerns raised at the workshop were:

- views from the north on Forrest Highway from the east should be protected. Views from the future residential subdivision to the west should be considered;
- development along the ridge and on the west side should be inevident;
- screen planting should be implemented in the early stages of KSIA's development so that it is effective when development takes place; and
- it is acceptable to undertake significant earthworks on the eastern side of the ridge to ensure the visual impact of the development is reduced.

Refer to Figure 22- Landscape Priority Areas

These objectives have been carried through and applied to the Structure Plan. The following opportunities for managing visual amenity impacts have been identified and incorporated as part of the Structure Plan design:

- the western ridge is an area of high visual aesthetic significance and accordingly has been identified primarily as an area of retained vegetation and will not be developed;
- the areas of high visual aesthetic significance coincide with areas of high conservation value, in particular, the wetlands located within the Buffer. This provides opportunities for conservation of both ecological and visual aesthetic values and for the restoration of values in degraded areas; and
- landscape corridors forming the edges of road reserves and service corridors have been designated within the Kemerton Strategic Industry zone.

LandCorp and DSD supports the planting of additional vegetation along the corridor east of the proposed Ancillary Industry zone, subject to the Shire's endorsement.

The application of landscape implementation measures and visual screening principles (outlined in 9.1 and 9.2) will ensure the development of the KSIA upholds visually aesthetic values.

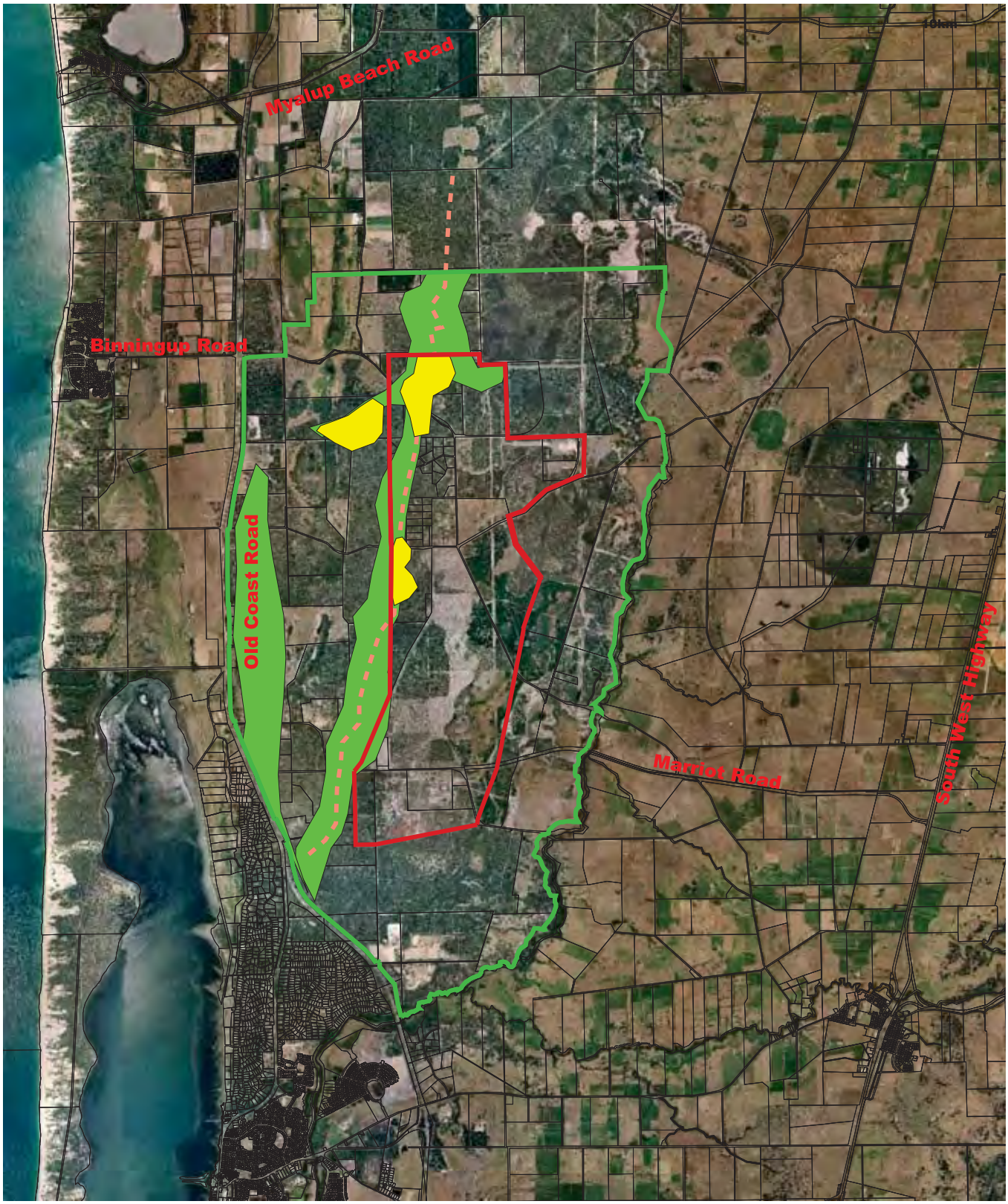


Figure 22 Landscape Priority Areas

9.1 Landscape Implementation

- Plant tall trees within the Simcoa site to partially obscure views of the main building when viewed from Australind;
- establish tall tree plantations on the eastern edge of the Buffer adjacent to Wellesley River to provide maximum and permanent screening of views from farmland to the east;
- implement conservation management in the Buffer and on the western side and ridge within the Kemerton Strategic Industry zone; and
- the existing landscape provisions of DPS1 will be applied at the subdivision and development application stages to enforce suitable vegetation screening along Devlin Road, should it be deemed required by the Shire.

9.2 Visual Design Principles

- Locate only small scale structures (in terms of building height) west of the ridge within the Buffer so that they are “inevident” from Sensitive locations in the distant middle ground (3-6km) or closer. Inevident visual alteration does not preclude change of use, but requires that developments or changes of use shall be of similar form, scale and pattern to the existing landscape;
- at the development application stage to locate the tallest structures in the central area of the Kemerton Strategic Industry zone where practical;
- at the development application stage, provide adequate setbacks on individual lots to enable the retention of remnant vegetation and space for screen planting; and
- where visual aesthetic objectives cannot be met through design or siting, they should be screened from view where possible. Design guidelines shall be developed for signs, planting, fencing, lighting and hard landscaping elements which will be visible from public roads within the Kemerton Strategic Industry zone. Individual industrial lot landscape provisions are currently enforced under the Shire of Harvey’s DPS1.

This page has been left blank intentionally.

10. Movement Network

10.1 Road

The Core needs to be serviced by an effective road hierarchy that takes into account the provision of safe conditions for transport of dangerous/ hazardous goods and the workforce. The proposed internal road layout retains the existing road alignments of Marriott Road, the Kemerton Silica Sands Haul Road and parts of Wellesley Road. The proposed north-south road (referred to as Kemerton Road) will be the main spine road, providing direct connectivity through the Core from Marriot Road up to Treasure Road and through to Old Coast Road. This road will also form an important role as a major service corridor through the KSIA (refer to Section 11.5).

Traffic consultants, Transcore, were commissioned by LandCorp to undertake a Traffic Assessment Report for the KSIA in support of the Structure Planning (refer to Appendix D which contains the Traffic Assessment Report). Transcore has completed detailed modelling of the traffic environment based on projected traffic volumes and usage types in order to assess road design parameters. Their report outlines:

- traffic modelling for the KSIA;
- investigations into proposed road reserve and pavement widths and respective cross sections;
- advice on existing road infrastructure upgrades, where applicable;
- investigations into road treatments, including intersection configurations; and
- external site requirements, where applicable.

In summary, Transcore has recommended the following infrastructure treatments and upgrades:

- traffic lights or roundabouts constructed to Forrest Highway at intersections with Marriott Road, Treasure Road and KSIA Road (formerly Wellesley Road);
- no upgrade to the existing intersection of Marriott Road and South West Highway is anticipated;
- roundabout constructed to Treasure Road / North-South Road four-way intersection;
- intersections of Kemerton Road/Marriot Road and Wellesley Road/Marriott Road to be constructed as priority controlled T-intersections with channelised right turn/channelised left turn treatments;
- other key priority controlled T-intersections within the KSIA area to be channelised right turn/basic left turn;
- all other internal T-intersection treatments to be basic right turn/basic left turn;
- Marriott Road between Forrest Highway and Devlin Road to be upgraded to a 10m carriageway to industrial standard within the existing 60m road/rail reserve; with provision for future upgrade to a dual carriageway within a 50m road reserve;
- Marriott Road between Devlin Road and the eastern KSIA boundary to be upgraded to a 10m industrial standard carriageway with a 35m road reserve;
- Marriott Road between the eastern KSIA boundary and South West Highway to be upgraded to 7.0m rural standard carriage ways within the existing road reserve;
- Treasure Road and Kemerton Road (formerly Wellesley Road) between Forrest Highway and the western boundary of the Strategic Industry zone to be upgraded to 7.0m rural standard carriageways within the existing road reserves;
- Treasure Road between the western boundary of the Strategic Industry zone and Kemerton Road to be upgraded to a 10m industrial standard carriageway with a 35m road reserve;
- Kemerton Road (relocated section of former Wellesley Road) from Marriott Road to approximately 500m north of Treasure Road to be constructed as a 10m industrial standard carriageway with a 35m road reserve;
- Kemerton Road (formerly Wellesley Road) from north of Treasure Road to the western boundary of the Strategic Industry zone to be upgraded to a 10m industrial standard carriageway with a 30m road reserve; and

- all other internal roads within the industrial core, including existing roads and newly created roads, to be upgraded or constructed to 10m carriageways within 30m road reserves.

In order to accommodate proposed stormwater drainage swales, it will be necessary to widen some of the road reserve widths proposed by Transcore. Initial indications are that Marriot Road between Forrest Highway and Kemerton Road will require a 60m road reserve width. Any additional changes that may be required will be determined during detailed design. Preliminary cross-sections for the various proposed road reserve widths have been prepared by Wood and Grieve Engineers.

The road upgrades identified in the Traffic Assessment Report will be undertaken progressively as the KSIA is developed over time. The road infrastructure will be delivered according to the specific requirements at that time.

Further details regarding these intersections, including schematics, can be found within Appendix D – Civil Servicing and Engineering Report.

10.2 Rail

The Greater Bunbury Strategy recognises that for both passenger and freight rail to achieve its full potential in the sub-region, there will need to be a significant increase in rail infrastructure to provide for future industrial growth in the Greater Bunbury sub-Region. It earmarks potential future works to alleviate future freight capacity issues, including the potential duplication of the lines, grade separated road intersections, and the reactivation of lines from Manjimup, Collie and Busselton.

The Australind passenger service currently uses the same line as the freight services. This may be unsuitable in the future as the line reaches full freight capacity.

A spur line into the KSIA from the Bunbury to Perth line, just north of Brunswick Junction, has been planned for some time. The provision of rail access to the KSIA will significantly improve its utility as an efficient strategic industrial area.

The October 2010 document Roads to Export:Greater Bunbury Infrastructure Investment Plan (South West Development Commission et al) concludes that there are significant benefits for shifting Kemerton-Bunbury transport from road to rail for silica sands, silicon metal, and the bulk feedstocks used in titanium dioxide production. The new infrastructure also has the benefit that it will encourage new industry, which might be considering KSIA as a base, but is currently concerned at the lack of rail and port access.

Further rail studies have been undertaken as part of the preparation of the KSIA Structure Plan. The objectives of the studies were to provide the basis for securing a rail freight corridor from the KSIA to the Port of Bunbury and to achieve long term compatibility between transport activity, land use planning, the community and the environment. The report undertaken by GHD (KSIA Strategic Industrial Area Sidings and Spur – Rail Design Report refer to Appendix E) compared the advantages and disadvantages of the following rail design options:

- KSIA Core Rail Alignment: (Internal rail alignment servicing the Industrial Core);
- KSIA to Bunbury Port Rail Alignment: (Options of linking the KSIA to Bunbury Port);
- South West Main Line/Marriott Road Spur Link: (Spur link onto South West Highway).

The following criteria were considered in the preparation of the rail alignment options:

- minimise crossings with existing/future transport network;
- reduce impact on existing properties and residences;
- utilise land holdings in government ownership; and
- minimise impact on significant environmental features (such as wetlands, native vegetation).

The favoured internal rail design alignment (known as Option 1) has been applied to the Structure Plan because it services the entire KSIA without interfering with the fundamental operations of the core of the KSIA, and is located in a space that is central, thereby in proximity to service the majority of industries *(Refer to Figure 23 - Preferred internal rail spur alignment).* Notwithstanding this however, should an industrial

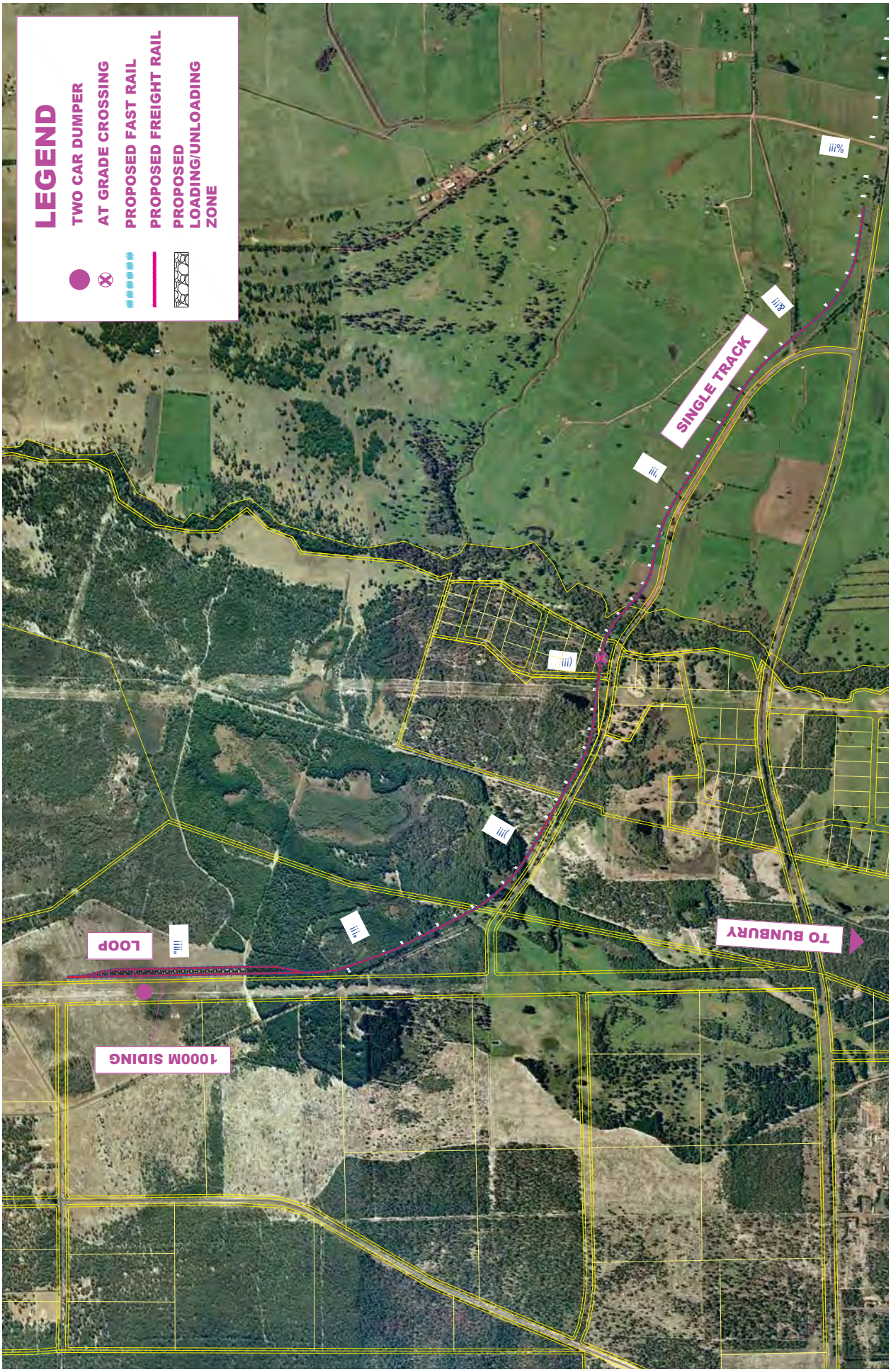


Figure 23 Preferred Internal Rail Spur Alignment

proponent demand a large proportion of the central key area of the KSIA, other rail alignment options can be accommodated into the design framework, as investigated by the GHD study. At this stage of the development of the KSIA, it is not known exactly how many industries or which type industries will need to be serviced by rail. As such, the position of the rail line shown on the Structure Plan is indicative only and will ultimately be dictated by the land size requirement of future proponents.

The preferred alignment into the Port of Bunbury remains via the South West Main Line linked via Marriott Road (Option 1).

Refer to Figure 24 - Preferred Rail Alignment Into Port of Bunbury (Option 1)

It was considered that whilst the Forrest Highway offers a shorter distance of travel, the establishment of new rail infrastructure and additional land purchasing will require significantly more investment than utilising the existing infrastructure than the South West Main Line.

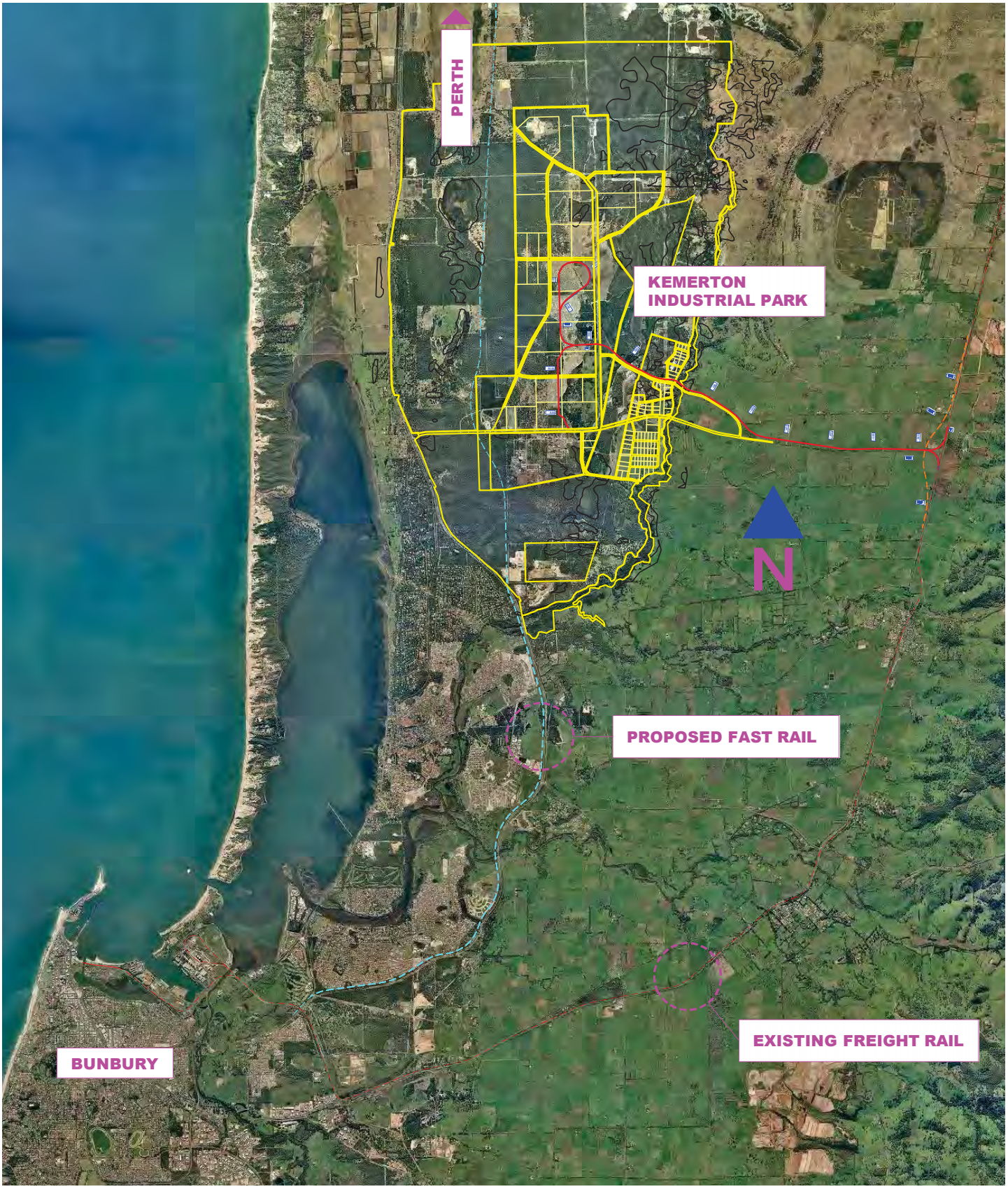


Figure 24 Preferred Rail Alignment Into Port of Bunbury (Option 1)

This page has been left blank intentionally.

11. Infrastructure Coordination and Servicing

The provision of infrastructure for individual subdivided and developed sites is to be undertaken by proponents. LandCorp and the DSD may require proponents to prepare a servicing strategy which investigates the opportunity for the construction of shared services to benefit the broader KSIA.

A preliminary Proposed Services Plan has been prepared by Wood and Grieve Engineers. Refer to Appendix D - Civil Servicing and Engineering report.

Refer to Figure 25 - Existing Services Plan

11.1 Water

11.1.1 Existing Water Supply

The KSIA does not fall within a proposed Water Corporation water reticulation service area. The existing industries at the KSIA abstract water for process and potable water requirements from unconfined and confined aquifers. A summary of the abstraction bores for each existing industry is outlined in the LWMS (RPS, 2014), refer to Appendix F.

The nearest potable water supply is located within Forrest Highway, north of the intersection with Wellesly Road. This supply is conveyed through a DN300 PVC water from the Water Corporation's Integrated Water Supply Scheme (IWSS) and serves the Binningup townsite and surrounding areas. This main would have insufficient capacity to supply the KSIA.

11.1.2 Future Potable and Process Water Requirements

Two water supply and demand studies have been undertaken to assess short and long term supply and demand options required for the KSIA:

- Aquaterra Water Study (2002): This study estimated the type and number of industries that would locate in the KSIA and the estimated future water demand. The study estimated that the water demand at the KSIA is likely to range between 7 GL/yr (low growth scenario) through to 23 GL/yr (maximum growth scenario). Further details are provided within the LWMS (refer to Appendix F).
- Marsden Jacob Associates (2011): This study was commissioned by the South West Development Commission to undertake an economic analysis of the likely demand for industrial water supplies and assess the supply options that may be obtained from local sources. The investigation was required in order to establish future possible water supply options and the feasibility for agricultural and industrial uses in the South West.

  Various water supply and demand scenarios were calculated for the KSIA in order to assess various short and long term supply and demand options required at the KSIA. A summary for each scenario is summarised in Table 7 below.

Figure 25 Existing Services Plan

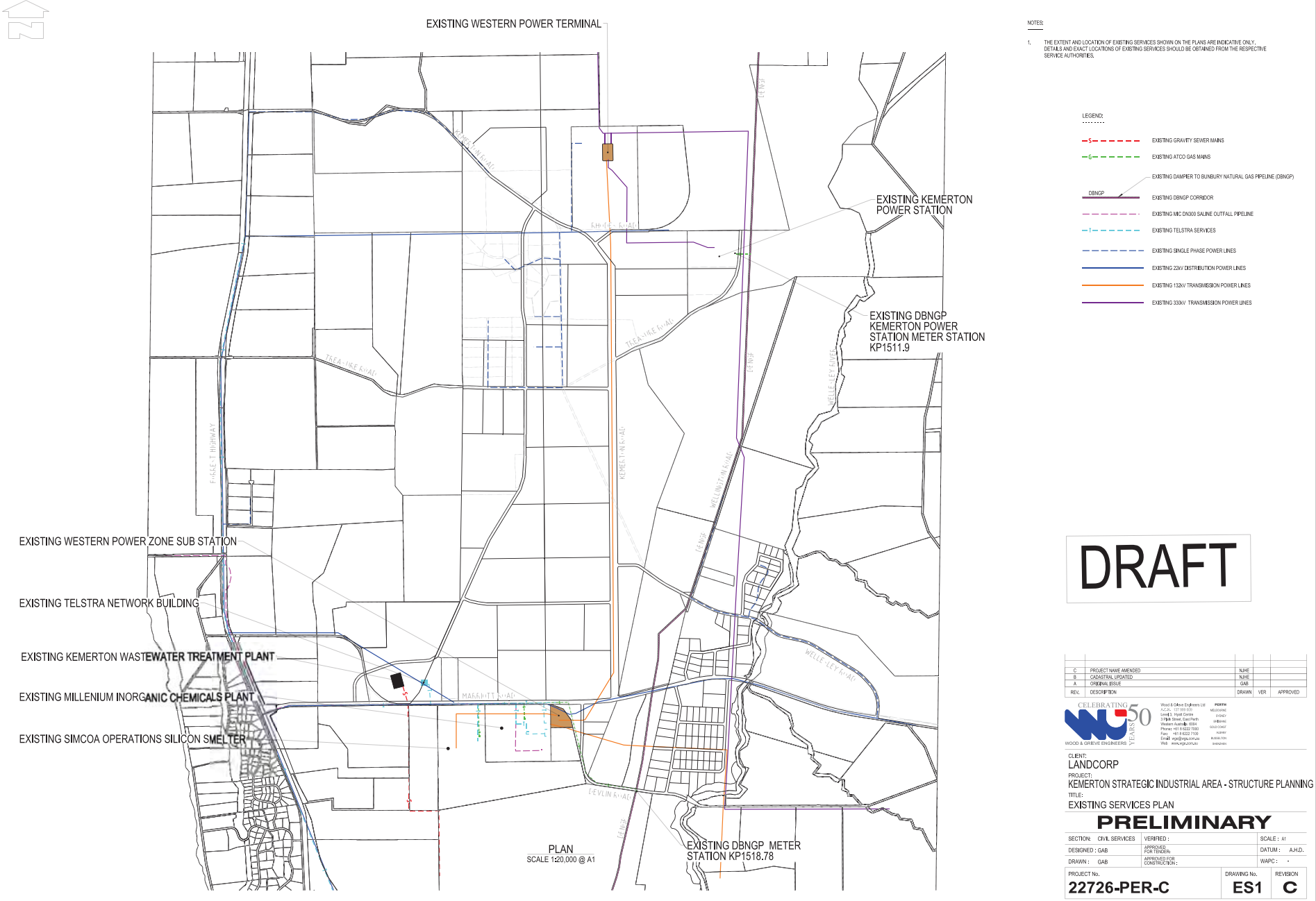


Table 7 - Summary of Supply and Demand Balance for Each Scenario (Marsden Jacobs 2011)

	Current Supply/ Demand (GL)	Prospective Demand and Supply, 2016 (GL)	High Demand and Supply (GL)	High Demand, Low Supply (GL)
Kemerton Water Supply	19	26	26	19
Kemerton Water Demand	10	17	40	40
Shortfall	NA	NA	14	21

In the event that a number of high demand industries locate at the KSIA, such as an aluminium smelter and a power station, the water demand for the KSIA is likely to be 40 GL/year. This will exceed the 26GL of supply proposed to be available. The 26 GL of supply is based on existing groundwater supplies as well as recycled waste water from the Kemerton Water Treatment Plant and groundwater from the Cattamarra Coal measures.

In this instance additional alternate water supplies will be required to meet the water demands of possible high demand industries that may locate to the KSIA in the long term. Should capacity be reached however in the long term (which is predicted to be in 20 to 30 years), further water provision options shall be sought from possible sources such as the Binningup Desalination Plant or improved water recycling initiatives on site and from local industries. These two options mentioned above and additional water sources are discussed in further detail in Section 5.3 of the LWMS.

It is anticipated that growth in irrigated agriculture will be met by existing water entitlements. Water is currently available for agriculture in the Wellesley groundwater sub area and may become available for Harvey Water if salinity in the Wellington Dam improves or if additional water efficiency projects are funded by Government.

The priority in the region is therefore to provide fit for purpose water supplies to support industrial growth.

11.1.3 Future Water Supply

The Marsden Jacob study assessed the feasibility of a wide range of possible water sources and uses. The key water sources available for the KSIA include:

- Integrated Water Supply Scheme(Potable);
- Wellington Dam(Potable and Process);
- Groundwater Abstraction (Potable and Process) ;
- Recycled water from the Verve Pipeline (Process);
- Recycled water from the Kemerton Waste Water Treatment Plant (Process); and
- Recycled water from the Millennium Inorganic Chemicals Treatment Plant (Process).

The Civil Servicing and Engineering Report (Wood and Grieve, 2014) concludes that the most logical short-term solution for a reliable supply would be the Wellington Dam via the Collie North and Cactus Channels to a pump station near the intersection of Marriott and Wellesley Roads, and a pipeline to a series of holding dams within the KSIA, with individual lot owners installing the necessary infrastructure to convey water from the dam(s) to their facility and providing the necessary treatment to suit their own potable/process water needs, with the option of purchasing bottled drinking water. In the longer term, a combination of water supply options may need to be considered, including the establishment of an expandable and comprehensive water factory.

11.2 Power

Existing Western Power infrastructure in the area includes the Kemerton Terminal in the north east corner of the site, the Marriott Road Substation to the south, a major 330kV transmission line running generally north south to the east of the site, major 132kV transmission lines running between the Terminal and the Substation and from the Substation east to Wellesley River then continuing in a southerly direction, several 3-phase 22kV distribution lines in Forrest Highway, Marriott Road and south of Wellesley Road and several single-phase 22kV distribution lines within the subject site.

Western Power's existing 330kV transmission lines are protected by registered easements in favour of Western Power. Western Power has advised that they will request easements for their existing 132kV transmission lines as a condition of the WAPC subdivision process. Preliminary advice indicates a 40m easement will be requested for the line between the Terminal and the Substation, and a 34.5m easement for the line running east from the Substation. Easements may also be requested to protect the existing 22kV distribution lines.

Western Power has completed a Feasibility Study for the KSIA. The feasibility study is based on an assumed nominal design capacity of 200kVA/ha over 100ha per year for ten years, giving a potential horizon load of up to 200MVA, and the assumption that each lot will require a 3+1 RMU switchgear and direct connection to main-line feeder cables.

Initially power supply to the development will come from Western Power's existing Marriott Road zone substation via existing or new feeder circuits, depending on timing and loading. As development progresses, a minimum of two new zone substations and several new main-line HV distribution feeders will be required. The developer will be required to provide suitable sites for the future zone substations, each a minimum of 1.44Ha. Preliminary investigations by Wood and Grieve Engineers indicate that ideal locations for the two zone substations may be at the corner of Kemerton and Wellesley Road and the corner of Kemerton and Treasure Roads, as shown on the Preliminary Power Layout Plans.

Western Power has advised that the design, supply and installation of the zone substations will potentially be undertaken by Western Power at no cost to the developer. Costs for HV feeders and HV equipment to the proposed lots must be met by the developer, however Western Power is unable to provide an estimate of these costs at this time due to the preliminary nature of the feasibility study and uncertainty of zone substation locations and cable routes.

11.3 Gas

The existing Dampier to Bunbury Natural Gas Pipeline (DBNGP) Kemerton Lateral traverses the site and is owned and operated by DBP. The DBNGP corridor is proposed to be widened from 15m to 50m. Supply to the development would most likely come from the existing Kemerton Meter Station located in Devlin Road via a Pressure Reducing Station and reticulated gas mains designed and installed by ATCO Gas and funded by the developer or individual industries, depending on demand. In the case of high gas users, gas may be taken directly from DBP via individual lateral pipelines. It is likely that the existing capacity of the Kemerton Meter Station may be exceeded as development of the KSIA progresses, requiring the meter station to be upgraded to suit.

Detailed investigations and modelling to determine likely gas demands for the subdivision, together with an engineering study by DBP, would be required to ascertain the timing and scope for such Meter Station upgrade works.

Wood and Grieve conclude that the most logical option would be for industries that require a gas supply to negotiate directly with ATCO Gas for installation of gas mains to suit their own individual requirements, as per common practice in heavy industrial areas. It may be viable to install a medium pressure PE network to the Support Industry Area only, however this would be dependent on gas requirements in this area, which cannot be determined at this time.

11.4 Telecommunications

Telstra has advised supply to the first stage of development will potentially be provided via the extension of services from an existing network building in Marriott Road. Major infrastructure upgrades and extensions may be required to service the KSIA, potentially requiring capital contribution from the developer. Registration of the development via Telstra's Smart Communities is required for preliminary infrastructure planning to be progressed.

11.5 Central Service Corridor

The Structure Plan design accommodates a common purpose service corridor along the alignment of the proposed north-south Kemerton Road. This corridor is envisaged to accommodate the road reserve, the existing 132 kv transmission line, a 10m industry pipeline for existing and future industry pipe conduits, a buffer to the pipeline and the earmarked railway reservation. A Preliminary Services Corridor Cross Sections plan has also been prepared by Wood and Grieve Engineers (Refer to Figure 26 and Appendix D) showing the typical section through the proposed central service corridor. The width and configuration of the service corridor shown is preliminary only and subject to detailed design and authority approvals.

This common alignment achieves efficiencies in shared corridors such as road reserves reducing the need for transmission easement widths and buffers. Landscape objectives are also achieved by providing landscape screen planting along the edges of the corridor within lots.

Road reserves within the KSIA may need to accommodate private service connections between industries. The private services are expected to be more of a local connection. At this stage it is unclear as to what extent these interconnections would be required. However, the provision of the 10m wide industry pipeline corridor within the proposed Kemerton Road alignment is deemed sufficient for this task. A minimum road width of 30m is recommended within the KSIA.

It is noted that the Kemerton Industrial Park Strategy Plan (2009) showed a wider north-south corridor (275m in width) than what is proposed under this Structure Plan. The previous service corridor included provision for a 60m wide 330 kv transmission line, which is no longer needed. The corridor also included 50m wide landscape buffer on either side of the corridor. For land use efficiencies, practical implementation and ongoing maintenance reasons, these landscape buffers should be contained within industrial lots.

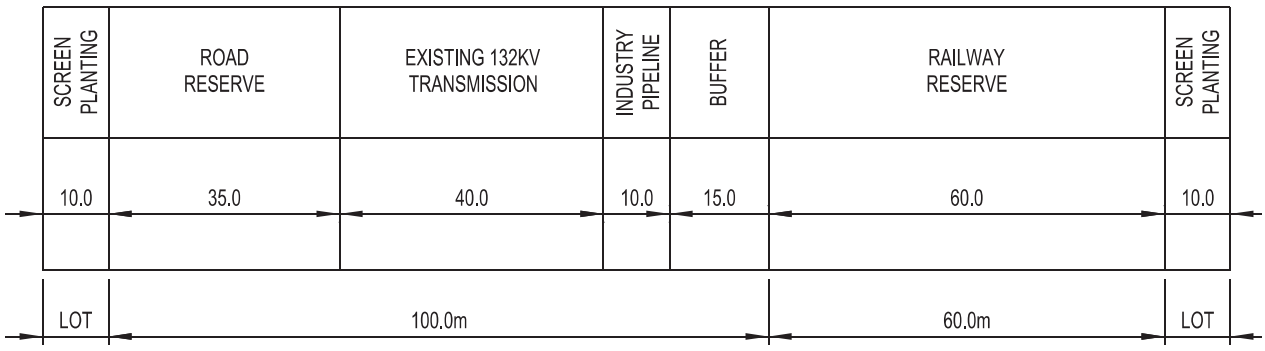


Figure 26 Central Service Corridor

This page has been left blank intentionally.

12. Water Management

12.1 Stormwater Management

The site will effectively manage stormwater through the implementation of Water Sensitive Urban Design (WSUD) principles and Best Management Practices (BMPs) to control water quality and quantity from both minor and major storm events.

A Overarching Water Management Strategy has been prepared by RPS (refer to Appendix F). In accordance with the Stormwater Management Manual for Western Australia (DoW 2004–2007) and the Department of Waters Water Quality Protection note 52 'Stormwater Management at Industrial Sites' (May 2010), the drainage system for the KSIA will aim to achieve the following objectives:

- Maintain the existing hydrological regime by allowing the infiltration of uncontaminated water on site and limiting discharges from the KSIA to pre development peak flows and volumes.
- Uncontaminated stormwater runoff from roofs for example will not be allowed to mix with process effluent and stored chemicals to allow for the infiltration of uncontaminated stormwater and recharge of the Superficial aquifer.
- Rainfall up to the 1:10 year ARI event will be retained and infiltrated within lot boundaries through the use of soakwells. Lot runoff in excess of 1in 10 year ARI event shall discharge to road side swales.
- Road side conveyance swales shall be sized to convey the critical 10-year ARI storm events from the road reserves wherever possible to minimise the use of a piped drainage network.
- Large rainfall events (>10 year) up to the 1:100 year ARI event will be conveyed through overland flow and road side swales to drainage detention basins within the site for storage and/or treatment prior to infiltration.

12.1.1 Minor Drainage System

Rainfall will be retained on site and infiltrated as close to source as possible through the use of the following practices:

- All rainfall on the permeable surfaces, particularly uncleared land surrounding the Lots will infiltrate as per existing conditions.
- The use of rainwater tanks to collect run off from roof areas will be encouraged as a potential source of water, and as a means of reducing enhanced run off from paved surfaces.
- Lots will infiltrate rainfall in events up to the 1:10 year ARI event through the use of soakwells
- Road drainage within the development will incorporate roadside conveyance swales and limited piped network designed to accommodate the 10 year event.
- Roads throughout the KSIA will incorporate roadside swales where possible. The swales will typically be 0.6 m deep and 3.6 m wide at the surface. Road side swales through catchment 2 and 3 will require larger or deeper swales (we have modelled 9 m wide swales at the surface that are 0.6 m deep), however this will need further refinement once the actual Lot sizes and locations are confirmed at the detailed design phase. Swales can be located on one side or both sides of the road reserve, the location will be affected by the final placement of services and the railway line. Refer to Figure 27 below for a schematic diagram of a typical cross section of the possible road and road side swale design at the KSIA.

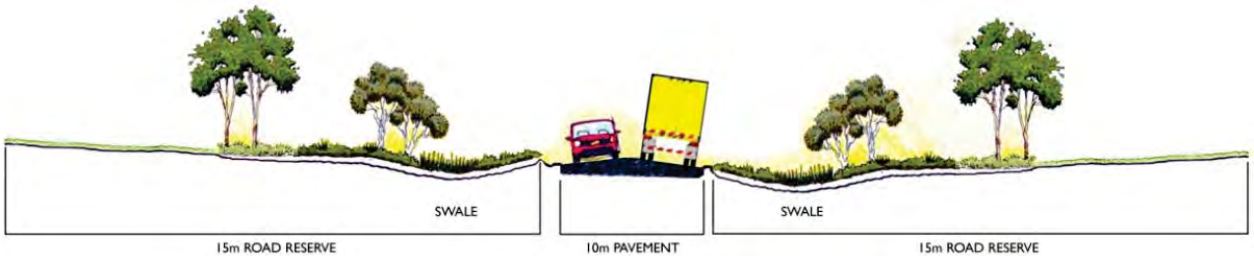


Figure 27 Schematic Cross-section of Road and Swale Design at the KSIA (Source: RPS, LWMS, 2014)

12.1.2 Major Drainage System

Due to the expansive area, the KSIA needs to be designed with a mix of water sensitive design and traditional design methods. Water sensitive design principles will be employed for the minor events while traditional design methods will need to be applied in areas where a shallow water table is present (eastern extent of the KSIA), notably using earth fill to construct pads for buildings, roads and car park or hard standing areas.

Various engineering reports have been prepared throughout the development and planning of the KSIA to provide drainage strategy recommendations; many however rely on the artificial lowering of groundwater below the AAMGL by using sub soil drainage systems to minimise fill and incorporate traditional piped drainage systems, as they reflect the policy requirements prior to water sensitive urban design. We believe these approaches would no longer be acceptable to the DoW as the wetlands would be impacted and nutrient rich groundwater would be exported from the site and discharged to the Wellesley River.

The refinement of the drainage strategy, incorporating current drainage best practice, is to maximise the infiltration within the development area of each Lot. Broadly, this strategy relies on the use of undeveloped/ uncleared areas on each Lot for infiltration, along with the use of soakwells for run off from 'clean water' sources including roof areas and pedestrian paved areas surrounding the building pads, to avoid the need for substantial drainage control structures.

The strategy also relies on the use of the Multiple Use category wetlands as drainage infiltration basins or existing topographical low points for storage and infiltration of the larger flood events. It should be noted that the Multiple Use wetlands are 'sumplands' which are seasonally inundated with runoff and groundwater inflows. They typically occur on the eastern side of the KSIA, and their use as drainage basins is consistent with their Multiple Use management category, provided that the hydrological functions (eg seasonal inundation) and any remaining ecological functions are preserved. As the basins are intended for flood storage, the pattern of seasonal inundation will continue. The road side swales will provide an important function in the storage of stormwater in major events also.

The revised drainage strategy for major events, incorporating current best practice, involves the following:

- Filling of land parcels within each Lot to provide adequate building envelopes and a minimum clearance of 1.5 m to AAMGL.
- Lots to infiltrate all events up to the 10 year ARI through the use of soakwells for 'clean' hard standing areas and infiltration in undeveloped portions of Lots.
- Events greater than the 10 year ARI from the Lots will be directed to the road reserve and road side swales (designed to have capacity for the 10 year ARI).
- Road side swales and overland flow through the road network will convey large flood flows to detention basins for storage and treatment prior to infiltration. Flow to Wellesley River shall be maintained at pre-development flow rates to ensure the hydrological regime and water quality is maintained at pre development conditions.

Additional information regarding the proposed stormwater management strategy and water quality treatment measures can be sourced from the Overarching Water Management Strategy provided in Appendix F.

12.2 Groundwater Management

Many of the proposed stormwater management measures will improve stormwater quality and subsequently groundwater quality through the following mechanisms:

- Groundwater for industrial use to not exceed the DoW groundwater allocation available at the KSIA to minimise disturbance to wetlands and existing users.
- Maintain groundwater levels and quality at pre-development levels by encouraging infiltration where possible and suitable through the site.
- Reducing water velocities by adopting water sensitive design measures to allow for infiltration at source of the common rainfall events, retention of remnant vegetation where possible and the use of grassed road side swales in lieu of a piped road drainage network. Road side swales will incorporate rick pitching and structures (weirs) to reduce water velocities.
- Use of soil amendment, in drainage basins and beneath development building pads to reduce the leaching of nutrient and contaminants through the soil profile and into the Superficial aquifer.
- Implement a surface and groundwater monitoring program during and post development to verify that pre-development conditions are being maintained. The monitoring requirements are detailed in the LWMS (Appendix F).

12.2.1 Groundwater Levels

Current DoW policy requires that drainage structures be designed with invert levels above the maximum groundwater levels. This is intended to ensure that no groundwater below the MGL is exported from the site by pipes or constructed open swales. It ensures that groundwater contributions to wetlands are maintained at existing levels and groundwater discharge is not above current levels, so as to minimise the export of nutrients.

Water sensitive urban design concepts to be implemented on site, for example soakwells, swale drains (to replace a piped road drainage network) and infiltration of stormwater in undeveloped (permeable areas) of each Lot promotes the infiltration of rainfall and recharge of the Superficial aquifer at source.

An acceptable clearance to finished floor levels from AAMGLs will be provided as required by the Shire of Harvey and DoW. The geotechnical report recommended a clearance of 1.5 m to AAMGL for finish lot levels to be achieved.

Stormwater storage areas and swales will be designed with a 0.3 m clearance from the base of the swale to maximum groundwater levels (MGLs) to ensure that water is infiltrated within the required 72 hours (WAPC 2008a).

12.2.2 Groundwater Quality

Groundwater quality will be maintained at predevelopment conditions and possibly improved through best management practices. In addition to the practices summarised in Section 7.0 and 8.0 above, additional industry specific BMPs that may be used across the site include:

- Industry operators within the site will be required to implement Industrial BMPs for their industry with regard to protection of water resources. These may include oil and water separators or bunding of vehicle wash-down areas and limitations on the quantity and period of time, hazardous materials can be held on site.
- The use of vegetated swales and bunding where possible to divert and collect water in suitable uncontaminated areas of the Lots for infiltration.
- The use of a clay layer or impermeable membrane under building envelops to ensure no leaching of contaminants to groundwater.
- A post-development groundwater monitoring program within Lots and reporting to the DoW to ensure compliance with prescribed license conditions and environmental impact reporting.

12.3 Wastewater Management

12.3.1 Industrial Wastewater

The Water Corporation does not support reticulated waste water collection from industrial sites for treatment in conventional waste water treatment plants. Industrial estates by nature of layout, discharge type and potential high flow rates are not readily compatible with domestic treatment processes. Industrial treatment, reuse and disposal are often better addressed on site or locally.

The Water Corporation has outlined the preferred options to manage industrial waste water at the KSIA:

- Industry to treat effluent to predetermined acceptance criteria and recycled on site or to a neighbouring industry (This currently occurs on site by some of the existing industries).
- Industrial Waste water to be collected centrally and recycling opportunities sought or disposal considered.
- If a critical mass of industry is reached a combined application for a common outfall could be made.

As the development timetable and occupancy rate of the KSIA is undefined at this stage in the planning process, the strategy in the short term is for site's which generate an industrial waste water, to treat the water at the lot scale to a standard where it is suitable for disposal to a nearby facility or reuse on site or by a neighboring industry.

In the long term, once a sufficient mass of industry is located at the KSIA, alternate waste water disposal options will be investigated, including the establishment of an onsite waste water treatment and recycling plant.

12.3.2 Commercial Waste Water

The population of employees expected to travel and work at the KSIA on a daily basis is not expected to warrant the demand and expense of the infrastructure to install reticulated waste water collection sewers provided by the Water Corporation to dispose of waste water generated from toilets, bathrooms and kitchens at the Lot scale.

As an alternative, the KSIA will rely on the use of Aerobic Treatment Units (ATUs) and or septic tanks and leach drains to collect, store and treat waste water from the Lots. The location, number and type of system would be confirmed in the Urban Water Management Plan, which is to be completed as a condition of sub division and development applications submitted to the Shire of Harvey for individual lots at time of construction.

13. Implementation and Management

13.1 Roles and Responsibilities

The implementation of the KSIA Structure Plan requires a series of actions from government agencies and future industry proponents*. Table 8 captures the key roles and responsibilities of the WAPC, LandCorp, DSD, Shire of Harvey, and industry proponents to progress the development of the KSIA.

Table 8 - Roles and Responsibilities

	Undertaken	WAPC	LandCorp and DSD	Shire of Harvey	Industry Proponent
Structure Plan	Early-Mid 2015	Endorsement of Structure Plan	Prepare and amend Structure Plan	Consider to adopt Structure Plan with or without modifications	No action required.
Local Scheme Amendment No. 114	Early-Mid 2015	Grant consent to advertise and approves amendment,	Prepare and modify Amendment as required.	Advertise and consider to adopt Amendment.	No action required.
Greater Bunbury Region Scheme Amendment	Following lodgement of Local Scheme Amendment 114.	Grant consent to advertise and approves amendment,	Prepare and modify Amendment as required.	Advertise and consider to adopt Amendment.	No action required.
Subdivision Approval	As required by Proponents.	Determining authority for subdivision applications	LandCorp is a referral agency for subdivision applications.	Referral authority for subdivision applications	No action required.
Development Approval	As required by Proponents.	In some circumstances development within the Structure Plan area may be subject to planning approval by the WAPC under the provisions of the Greater Bunbury Region Scheme.		Determining authority for development applications, or in certain circumstances the WAPC.	Prepares development application in accordance with the Shire of Harvey DPS 1, Structure Plan and associated Overarching Environmental Management Plan and Overarching Water Management Plan.

* Proponent is defined as a business seeking to establish an industry within the KSIA.

13.2 Environmental Approvals – Subdivision and Development Application Stages

The KSIA has not been referred or considered under the *EPBC Act* either strategically, as a plan for an industrial park, or as an overall industrial project. As such, no overall Commonwealth approval applies to development within the KSIA.

Proponents are responsible for meeting the requirements of other State and Federal legislation that are applicable to the development application area and proposal. This includes, but is not limited to, the requirements of the *EP Act* and/or the *EPBC Act*.

An over-arching Environmental Management Plan (EMP) document has been prepared in order to provide information regarding the environmental values of the KSIA as well as outlining a process and guidance for future environmental approvals and management in line with Ministerial Statement 697 and relevant EPA factors and objectives. The Overarching EMP establishes the deferred environmental factors to be addressed by a proponent through a proposal specific EMP at the Subdivision or Development Application stages.

There are two other over-arching environmental management documents that also apply to the KSIA, specifically the Fire Management Plan (FMP) and Overarching Water Management Strategy (LWMS). Proponents that wish to develop a site will be required to prepare individual site-specific environmental management documents that are cognisant of the requirements of these over-arching documents (*Refer to Figure 28*).

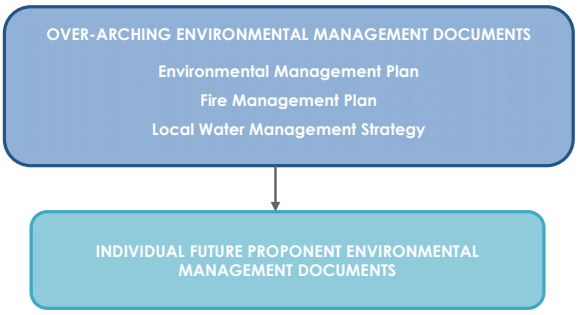


Figure 28 Proposed Environmental Management Framework (Source: Ecological Australia, November 2014)

Any conditions in a proposal specific EMP must be capable of being complied with during the execution of the proposal and not create ongoing obligation beyond the completion of the proposal. A summary outline of the future process with regard to environmental approvals is provided in Figure 29.

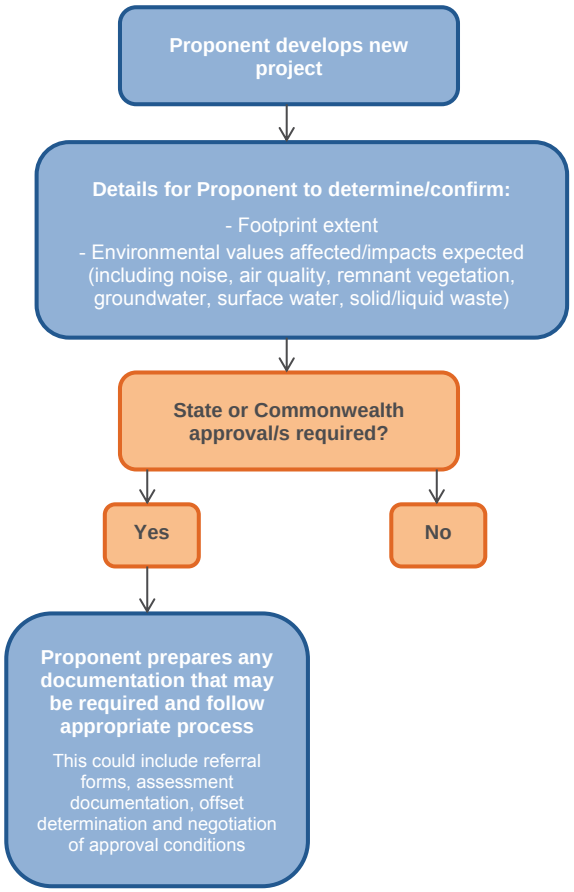


Figure 29 Summary Outline of Future Environmental Approvals Process (Source: Ecological Australia, November 2014)

13.3 Summary of Future Actions

Prior to the subdivision and/or development with the KSIA, the following actions identified in Table 9 may be required by a proponent. The individual development requirements will vary dependent upon the particular site characteristics, type of development and operations.

Table 9 - Summary of Future Actions

Component	Industry Proponent Requirements
Environmental Management	Prepare relevant documentation as per Table 3 of the Over-arching KSIA Environmental Management Plan (Refer to Appendix C).
Fire Management	Where lots are located within bushfire prone areas, proponents are required to prepare a Detailed Fire Management Plan prior to development, having regard to the Management Strategies listed in the Bushfire Hazard Assessment and Management Plan (Refer to Appendix G). Bushfire Attack Levels to be reviewed prior to development in the context of vegetation condition and proposed built form and fire attenuation measures.
Overarching Water Management	Preparation of an Urban Water Management Plan as per the Overarching Water Management Strategy (Refer to Appendix F) and the Over-arching KSIA Environmental Management Plan (Refer to Appendix C).
Hazard and Risk Assessment	Demonstrate compliance with the individual fatality risk criterion, and limit cumulative risk level, risk level for sensitive developments. Full Quantitative Risk Assessment (QRA) for a development site will need to be prepared as part of the development proposal (where relevant). Development may not be commissioned or commence processing without the Department of Mine and Petroleum's endorsement of the proposed development's QRA and Safety Report. Compliance with the *Dangerous Goods Act 2004* and the *Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007.*
Infrastructure and Servicing	Prepare a servicing strategy to address how site will be serviced by water, gas, power, and telecommunications. The report should investigate the opportunity for the construction of shared services to benefit the wider KSIA.

13.4 Development Implementation and KSIA Management

13.4.1 Project Ready

DSD and LandCorp are implementing the Heavy Use Industrial Land Strategy which provides the framework for bringing priority Strategic Industrial Areas, including the KSIA, to a 'project-ready' status. This is done by undertaking necessary land-based assessments of the Strategic Industrial Area to inform future site-specific approval requirements for proponent led proposals. A benefit of this approach is that it provides greater certainty regarding the location of development footprints. This assists in the protection of native vegetation.

Proponents are responsible for the construction of all infrastructure required to service their sites. Where necessary, this infrastructure may extend beyond their own landholdings. The benefits associated with shared services are acknowledged and LandCorp and DSD will require a proponent's servicing strategy to investigate the opportunity for the construction of shared services to benefit the whole of the KSIA.

13.4.2 Project Roles and Management

Figure 30 illustrates the various project roles for State agencies and landowners in the future environmental management of the KSIA.

The DSD is the Lead Agency for the KSIA and LandCorp is a major landowner and lessor. When considering Business Case submissions from industry proponents seeking to establish within the KSIA the DSD and LandCorp will consider the proposal in the context of the Structure Plan, the supporting technical reports and operational requirements of the KSIA. This is to ensure the KSIA is developed to its full potential and follows the objectives of the project, namely to establish resource processing industries and associated supporting activity in order to fulfill its designated role as a strategic industrial area for the South-West region. This review process occurs before the lodgment of a Development Application with the Shire of Harvey.

13.4.3 Buffer Management

The primary objective of the Buffer Area is to ensure that the impacts of industries located in the Core Industry Area do not adversely impact on premises beyond the boundary of the KSIA.

It is acknowledged that there is land within the Buffer (including land zoned as Regional Open Space) that is currently owned and managed by DPaW for biodiversity conservation purposes (some of this land was historically transferred to DPaW for conservation management as part of the overall concept for development of the KSIA). It is expected that biodiversity conservation management within the Buffer will increase in the future as offsets are determined for future projects.

A detailed Buffer Management Plan (including monitoring requirements) is expected to be developed in the future as the area being managed for conservation is further consolidated.

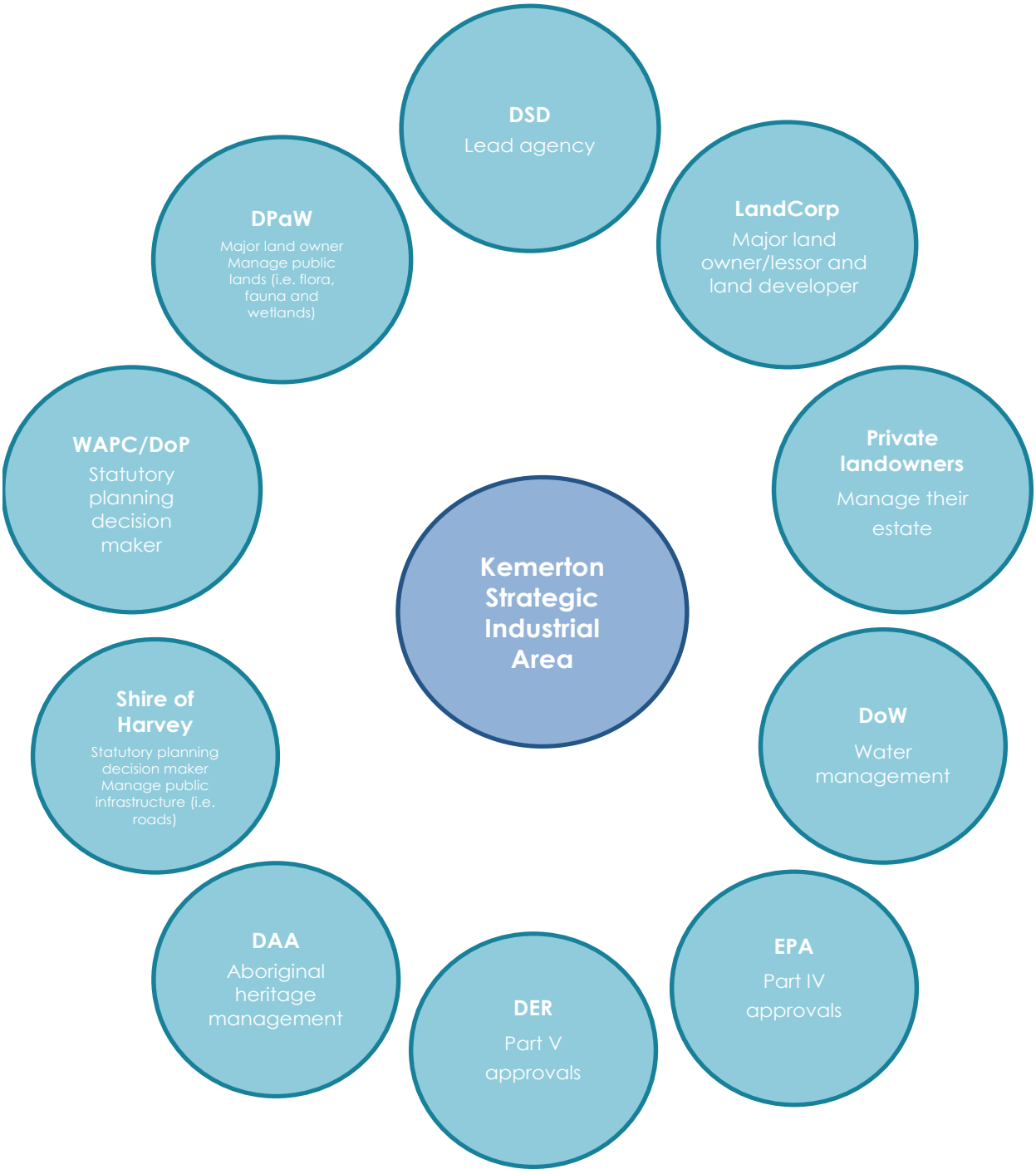


Figure 30 KSIA Project Roles

This page has been left blank intentionally.

The Appendices listed below are provided as separate technical reports on the attached CD.

Appendix A - Economic and Social Analysis Report (Syme Marmion and Co)

Appendix B - Previously Completed Studies for the KSIA

Appendix C - Overarching Environmental Management Plan (Ecological Australia)

Appendix D - Civil Servicing and Engineering Report (Wood & Grieve)
(Report includes Transport Assessment (Transcore) and Geotechnical Investigation Report (Douglas Partners) as appendices)

Appendix E - Sidings and Spur Rail Design Report (GHD)

Appendix F - Overarching Water Management Strategy (RPS Environmental)

Appendix G - Bushfire Management Plan (RUIC Fire)

Appendix H - Aboriginal Heritage Management Plan (Brad Goode and Associates)

Appendix I - Air Quality Modelling (Air Assessments and Environmental Alliances)

Appendix J - Quantitative Risk Modelling (ERS Environmental Risk Solutions)

Appendix K - Environmental Noise Assessment (Herring Storer Acoustics)

This page has been left blank intentionally.