



# **ANKETELL STRATEGIC INDUSTRIAL AREA**

## **IMPROVEMENT SCHEME NO. 1**

### **Scheme Report**

Western Australian Planning Commission

(Version Updated 31 August 2017)

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## List of Abbreviations

AEP	Annual Exceedance Probability (flooding)
AHD	Australian Height Datum (sea level)
ARI	Average recurrence interval (flooding)
ASS	Acid Sulfate Soils
DMP	Department of Mines, Industry Regulation and Safety
DPLH	Department of Planning, Lands and Heritage
DWMS	District Water Management Scheme
EAG	Environmental Assessment Guidelines
EAR	Environmental Assessment Report
EPA	Environmental Protection Authority
EP Act	Environmental Protection Act 1986
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
GIA	General Industry Area
HIA	Heavy Industry Area
ILUA	Indigenous Land Use Agreement
IP42	Improvement Scheme No. 42: Anketell Strategic Industrial Area
JTSI	Department of Jobs, Technology, Science and Innovation
LA Act	Land Administration Act 1997
MCC	Metallurgical Company of China Australia Sanjin Mining Pty Ltd
MDP	Model and Deemed Provisions
Mtpa	Million tonnes per annum
OEPA	Office of the Environmental Protection Authority
PAA	Port Authorities Act 1999
PEC	Priority Ecological Community
SIA	Strategic Industrial Area
TEC	Threatened Ecological Community
WAPC	Western Australian Planning Commission

## 1.0 Introduction

### 1.1 Anketell Strategic Industrial Area

This Improvement Scheme Report (the Report) has been prepared on behalf of the Western Australian Planning Commission (the Commission) in support of the Anketell Strategic Industrial Area (Anketell SIA) Improvement Scheme No. 1 (the Scheme). The Scheme area is located in the City of Karratha (refer to **Figure 1**).

In 2010, the State of Western Australia, through the Minister for State Development, announced an initiative to create a deep-water port for the Pilbara at Anketell to export a range of commodities, predominantly hematite and magnetite ores. The export capacity of the port is expected to be not less than 350 million tonnes per annum (Mtpa).

In association with the proposed Port of Anketell (comprising of the deep-water port, land-side port precinct and western infrastructure corridor) (the Port), the Anketell SIA is planned to accommodate downstream resource processing industries to add value to export commodities in order to generate employment opportunities and provide associated economic benefits. In addition, the SIA is also intended to provide support for the development of the Port as well as providing services to transport and mining operations. The port precinct and western infrastructure corridor are planned to accommodate rail lines, marshalling yards, an access road and services corridor to the port.

Following the *Mt Anketell Conceptual Development Study (Worley Parsons, 2009)* a design study entitled the *Anketell Port and Strategic Industrial Area Design Plan Report (Preston Consulting & Proteus EPCM Engineers, 2011)* identified land area components for the Anketell Port Precinct, the Anketell SIA and related infrastructure corridors. Layout of infrastructure has been designed to enable efficient access to resource stockpiles, transport infrastructure (such as road, rail and conveyors) and utility services (including power, water and communications). Configuration and layout was further defined through technical investigations informing a design process to support the Scheme.

The Department of Jobs, Technology, Science and Innovation (JTSI) is the Lead Agency for the Anketell SIA and LandCorp is the industrial estate manager, landowner and lessor. When considering business case submissions from future industry proponents seeking to establish within the SIA, JTSI and LandCorp will consider proposals in the context of the objectives of the SIA, the provision of the Scheme, supporting technical reports and proponents' operational requirements. This is to ensure the SIA is developed to its full potential. The Commission is the agency responsible for administering, implementing and enforcing the Scheme.

### 1.2 Improvement scheme report purpose

The Anketell Port and SIA is of strategic economic significance to the State. Consequently, the State identified the need for an appropriate statutory planning framework to reflect this significance. Accordingly, the Commission, through the Minister for Planning and the Governor, established *Improvement Plan No 42 - Anketell Strategic Industrial Area (IP42)*, (gazetted on 8 May 2015 and subsequently amended in June 2016) and the Scheme.

The Report provides an outline of the planning arrangements as they apply to the SIA, the strategic intentions for the SIA, site opportunities and constraints and an overview of the statutory provisions of the Scheme. In this regard, the aims of the Scheme are to:

- Establish industry areas that enable the establishment of resource processing industries and associated supporting activity.
- Provide strategic industrial development areas that:
  - are ready for subdivision and development;
  - are sufficiently flexible to accommodate the varying needs of future proponents;
  - achieve beneficial economic, environmental and community outcomes by encouraging synergy; between business activities consistent with industrial ecology principles;
  - are protected from the encroachment of incompatible uses; and
  - incorporate environmental management that minimise impact on the natural environment.
- Provide that the planning, development and use of land the subject of the Iron Ore (Robe River) Agreement as ratified by the *Iron Ore (Robe River) Agreement Act 1964* (as that agreement may be varied from time to time) is in accordance with and as contemplated by or under that agreement.

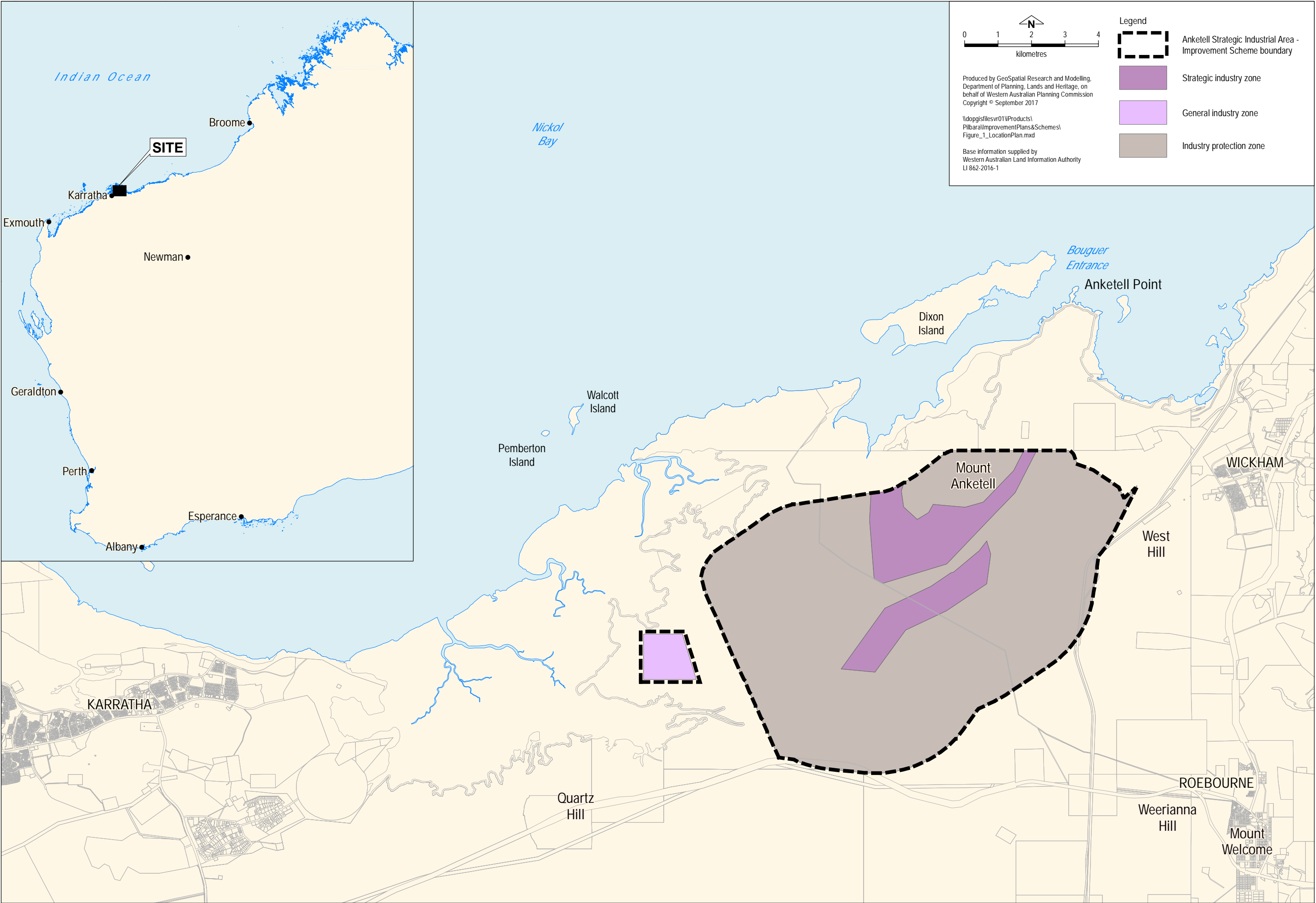


Figure 1 - Location Plan



## 2.0 Planning background

### 2.1 Land description

The Scheme covers an area of approximately 4,400ha within the City of Karratha, and is situated approximately 5kms west of Wickham and 9kms north-west of Roebourne. The Scheme area is located immediately adjacent to the Port (refer to **Figure 2**).

The Scheme area is configured to reflect:

- the boundary of the Port;
- industrial areas and infrastructure corridors determined through initial design processes reflected in the Anketell Port and Strategic Industrial Area Design Plan Report; and
- buffer areas to the SIA.

The Scheme is made up of two heavy industrial areas – to the north (HIA1) and to the south (HIA2), a general industrial area (GIA) to the west, and an industry protection area which accommodates the necessary buffers to separate the SIA from surrounding sensitive land uses.

All industrial areas are subject to native title interests held by the Ngarluma people. In the HIA1 and the GIA, the Ngarluma people's native title rights and interests have been extinguished through the taking of land under the *Land Administration Act 1997 (the LA Act)*, and the registration of the Anketell Port, Infrastructure Corridor and Industrial Estates Agreement (the Anketell ILUA), between the Ngarluma Aboriginal Corporation (the Prescribed Body Corporate for the Ngarluma people), the State of Western Australia and the Western Australian Land Authority (LandCorp). The Anketell ILUA sets out clear provisions to ensure the compliance of any future use of the GIA. Native title rights and interests have not been extinguished in HIA2. Land access to this area that is compliant with the *Native Title Act 1993* and the *LA Act* will be ensured through a separate negotiation with the Ngarluma people and other holders of rights or interests in this land.

Freehold title has been created for the HIA1 and the GIA in preparation for subdivision that will create developable lots under the provisions of the *PD Act* and the *LA Act*.

A map of existing land tenure and land interests is shown in **Figure 3**.

### 2.2 Strategic context

The Pilbara region is a key component of the State's economy, with iron ore being the largest export commodity. Although more than 50 mines presently are either operating, committed or under consideration in the Pilbara, private ownership of key infrastructure, combined with logistical and capacity limitations, serve to constrain the realisation of iron ore export potential.

The Anketell Port initiative, therefore, is driven by the need to enable efficient export of resources to allow multiple commercial proponents access to common-use infrastructure. While efficient access to export facilities is a key objective for the precinct, it is also important to provide opportunities for downstream resource processing industries, thereby adding value to export commodities, generating employment opportunities and providing economic benefits. The sharing of infrastructure for significant industry requirements, such as power and water, as well as waste disposal is a key objective that has influenced the design of infrastructure corridors serving the port and the Scheme area.

The integration of resource export and resource processing opportunities underpins the philosophy for the Anketell SIA. Further to this, the design and operation of the SIA is intended to achieve beneficial economic, environmental and community outcomes through the principles of industrial ecology includes an approach that encourages synergies between businesses yielding benefits that are discussed at **Section 2.6**.

Anketell Improvement Scheme

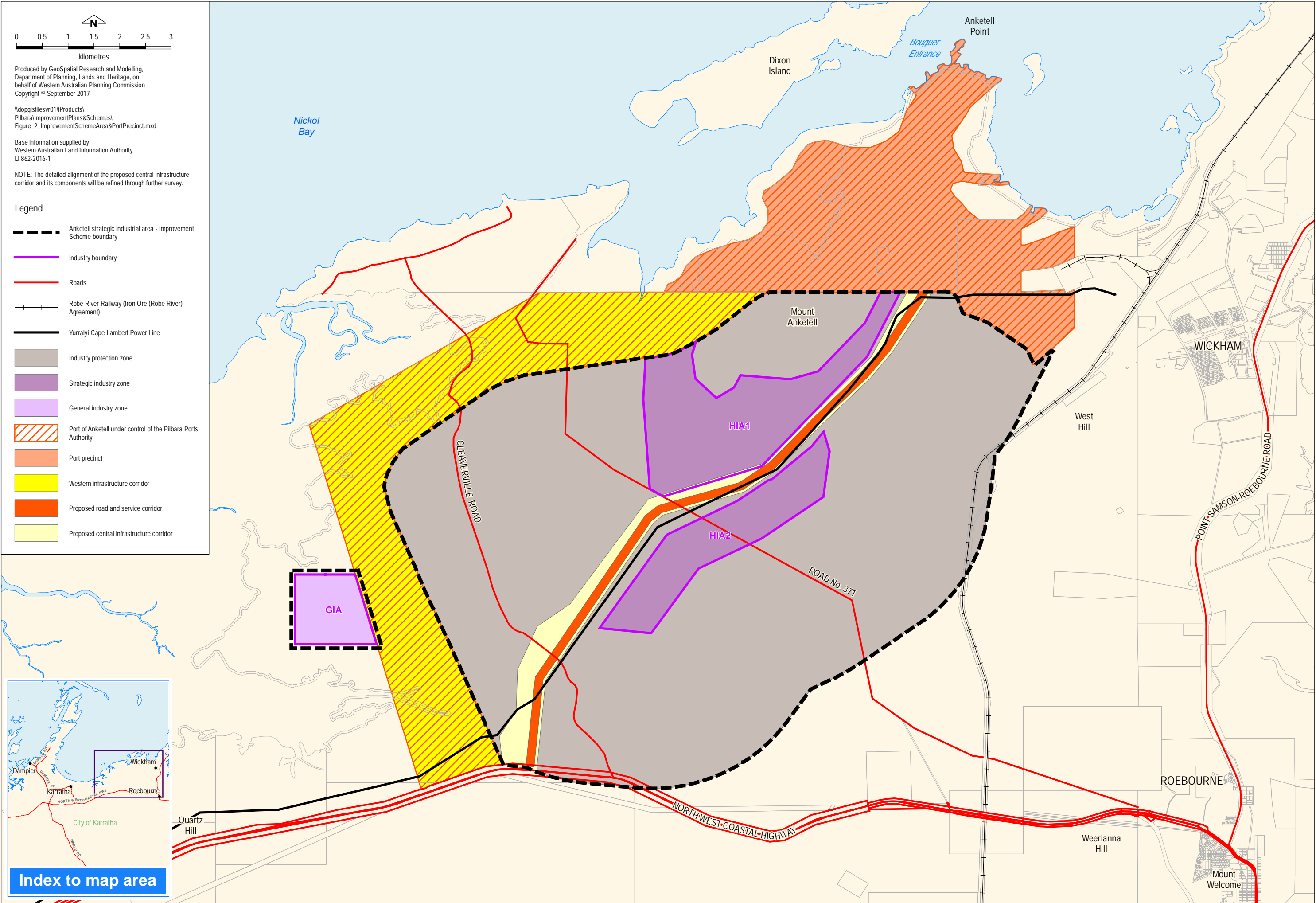


Figure 2 - Improvement Scheme Area & Port Precinct

Anketell Improvement Scheme

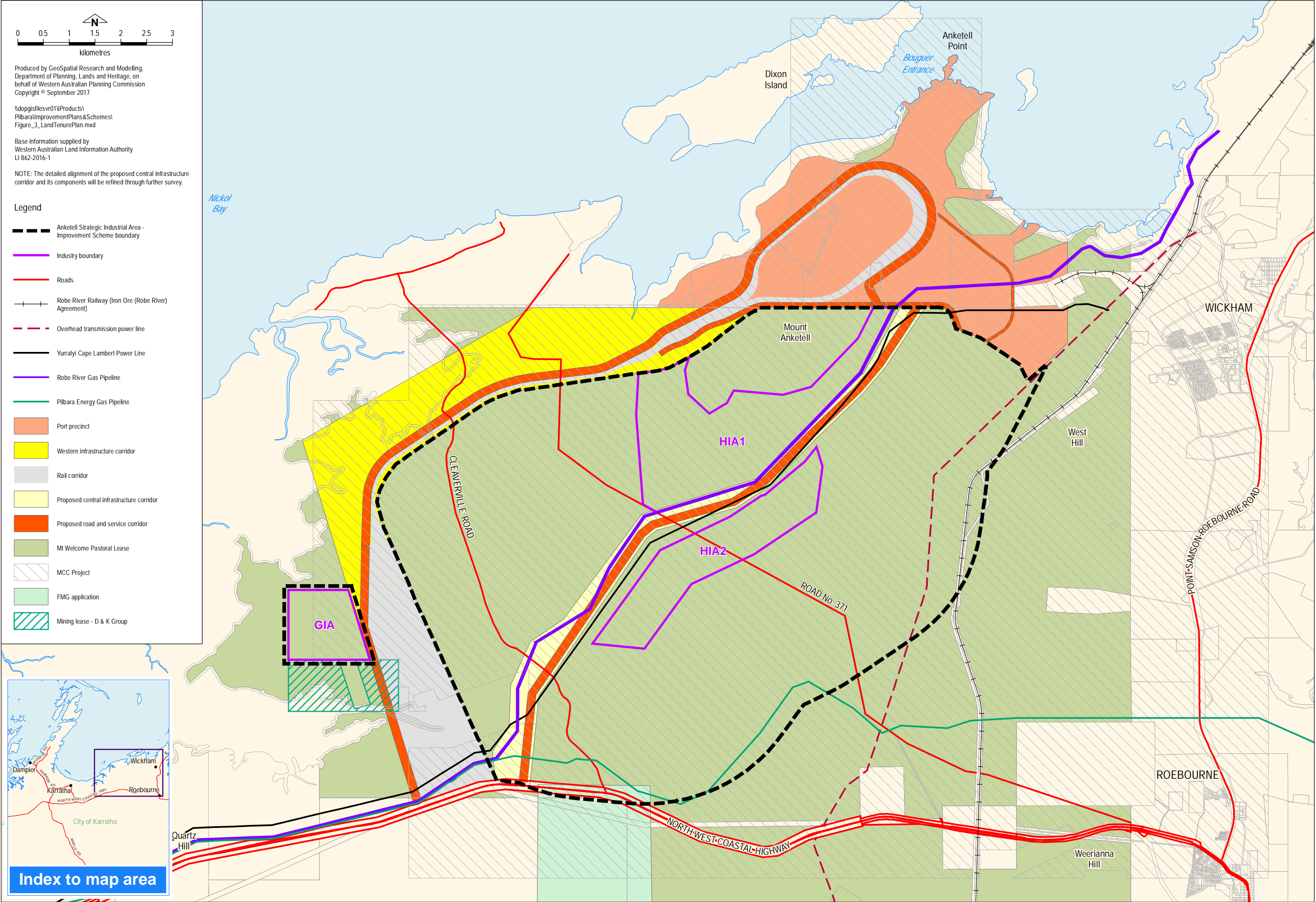


Figure 3 - Land Tenure Plan

## 2.3 Site selection

Anketell Point has been identified as a potential site for an industrial area and deep-water port since the 1970s. More recently, studies undertaken by independent iron ore companies have identified the area as a key location for export activity. The location has the benefits of access to deep-water that is suited to shipping activity, proximity to resources and to established towns with associated regional infrastructure.

Land in close proximity to the proposed port has previously been identified as suitable for heavy industry, with a Strategic Industry zone and associated buffer established by the City of Karratha's Town Planning Scheme No 8 in 2004. Subsequently, the *Anketell Port and Strategic Industrial Area Design Plan Report (Preston Consulting & Proteus EPCM Engineers, 2011)* (the Design Plan) further developed the proposed arrangement of industrial activity and infrastructure corridors to serve the strategic purposes for the precinct.

The selection of sites for industrial activity and infrastructure corridors was initially guided by the area's geology, topography and hydrology. The areas defined by the Design Plan are sufficiently broad to allow flexibility for further investigations and design to respond to additional geotechnical information, heritage data, fauna, vegetation and flora.

## 2.4 Anketell Port and Strategic Industrial Area Design Plan Report

The Design Plan addresses the Anketell Port and SIA as a whole, with the prime objective of determining the port precinct, heavy industrial, general industrial and multi-use corridor areas. The report builds on the previous *Mt Anketell Conceptual Development Study (Worley Parsons, 2009)*, which prepared conceptual arrangements for port and related industrial activity. The Design Plan led to the identification of activity areas that are now addressed by the Scheme. In arriving at the proposed locations, the Design Plan had regard for the following objectives:

Table 1: Site selection criteria (utilised in the Design Plan)

Criteria	Objective
Geology and soils	<ul style="list-style-type: none"> <li>– avoid mineralisation suitable for extraction (avoiding sterilisation of resources)</li> <li>– avoid acid sulfate soils and asbestiform mineralisation</li> <li>– minimise soils requiring stripping prior to development and high strength rock which is expensive to excavate</li> </ul>
Topography	<ul style="list-style-type: none"> <li>– achieve sufficient elevation (higher than 10 metres above sea level) to avoid flood risk associated with high tides and storm surge</li> <li>– avoid uneven and high land as far as practicable</li> </ul>
Vegetation and flora	<ul style="list-style-type: none"> <li>– priority species</li> <li>– mangrove areas and key fauna habitat</li> <li>– impact on vegetation units of significance</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>– avoid interference with existing and planned installations including gas pipelines, power lines, rail and roads</li> <li>– optimise co-location with infrastructure where appropriate</li> </ul>

To establish the preferred locations for the heavy industrial areas, a multi-criteria analysis examined six potential sites. Each site was assessed against relative attributes in relation to topography/useability, access, constraints, buffers, competition with other uses and visibility to the public. Both weighted and unweighted assessments found the sites designated for heavy industry by the Scheme as the best options.

The Design Plan recognised the importance of further work to be undertaken. Matters to be addressed in this regard were identified as:

- effective management of hydrology, noting the influence of storm surges in combination with cyclonic conditions during the wet season (generally October to April);
- the need to fairly and equitably address land interests including the various forms of land tenure and rights (including native title);
- recognition of Aboriginal Heritage sites of significance and the application of appropriate protections; and
- the need for focused fauna surveys to determine the significance of species known to be within the study area.

The activity areas addressed by the Design Plan are broadly defined, allowing the more detailed investigations and design work can achieve sufficient land areas to accommodate the specific requirements for each of the activities.

It is noted that other factors were addressed by the Design Plan that do not directly impact the terms of the Scheme. These include air quality, noise, recreational activity, workforce accommodation and environmental and other approval requirements.

## 2.5 Anketell Port Master Plan

The Anketell Port Master Plan (the Master Plan) was developed collaboratively by the (then) Department of State Development (DSD) and the (then) Dampier Port Authority (DPA) as a working document to guide the development of the Anketell Port over the next 30 years. The Master Plan provides an ultimate development concept for the expected layout and infrastructure configuration required for an ultimate capacity of not less than 350 Mtpa. It is proposed that the facility, which will be constructed in stages in connection with emerging developments in the Pilbara's resources sector, will be built as a multi-user, multi-commodity port, in accordance with a clear set of development principles applied to major port developments in Western Australia. The Master Plan takes into consideration land use, environmental, cultural, indigenous heritage, social, infrastructure and access issues. The Port will be developed and funded by private sector builders/users, and managed by a port area manager under the *Port Authorities Act 1999 (WA) (PA Act)*.

## 2.6 Industrial ecology

To achieve the strategic purposes for the industrial area, the State Government commissioned the preparation of an *Anketell Strategic Industrial Area Industrial Ecology Strategy (GHD, 2013)*. This strategy, identifies the opportunities (and constraints) for industry clusters at Anketell. Industrial ecology focusses on the improved design and operation of industrial estates to achieve beneficial economic, environmental and community outcomes, by facilitating resource efficiencies through industry collaboration and supply synergies, helping to ensure the short and long term viability of the estate. It is acknowledged that the type of beneficial community outcomes achieved through industrial ecology principles relate specifically to the development of a viable long term industrial estate and flow on benefits to the community such as the co-location of emitting industries separated from sensitive land uses.

The types of synergies addressed by the strategy included:

- *Supply chain synergies*: local manufacturers and dedicated suppliers of principal reagents for core process industries.
- *Utility synergies*: shared use of utility infrastructure primarily focused on water and energy, such as water recovery and energy cogeneration.
- *By-product synergies*: the use of a previously disposed by-product from one facility by another facility.
- *Service synergies*: sharing of services and activities between industries such as sharing of maintenance contractors and centralised staff training.



Examples of potential synergy opportunities are identified in **Table 2**.

Table 2: Example synergy opportunities

Synergy type	Examples	Planning implications/considerations
Supply chain	Supply of stockpiled iron ore to ferrous processing plants.	<ul style="list-style-type: none"> <li>- Land to be available for ferrous processing plants, with suitable utility infrastructure and transport corridors.</li> </ul>
	Supply of produced steel products from steel plant to local heavy construction companies.	
Utilities	Energy factory supplying electricity, steam and hot/cold air to surrounding industries.	<ul style="list-style-type: none"> <li>- Allocation of land for energy and water facilities.</li> <li>- Co-location of energy or water intensive industries with energy or water facility.</li> <li>- Service corridors.</li> <li>- Service corridors between water intensive industries and waste water treatment facility.</li> </ul>
	Water factory supplying high and low quality industry feedwater.	
	Reuse of treated wastewater.	
By-product	Use of industry waste heat for drying or concentrating wet products.	<ul style="list-style-type: none"> <li>- Allow for co-location of energy intensive industries and potential users of waste heat.</li> <li>- Service corridors to allow for potential waste heat exchanges.</li> </ul>
	Conversion of process by-product hydrogen and nitrogen into commercial gases by utility gas company.	
Service	Joint industry training and education facilities.	<ul style="list-style-type: none"> <li>- Identify potential/optimal locations of the activity types.</li> </ul>
	Joint logistics and transportation facilities.	
	Joint industry incident and accident prevention and response.	

## 2.7 Improvement Plan No. 42: Anketell Strategic Industrial Area

*Improvement Plan No.42: Anketell Strategic Industrial Area (IP42)* was prepared pursuant to Section 119 of the *Planning & Development Act 2005 (PD Act)* to advance land use planning for the Anketell SIA. IP42 confers upon the Commission the authority to undertake the necessary tasks to plan for and facilitate the development of the estate on behalf of the WA State Government.

The purpose of IP42 was to:

- establish the strategic planning and development intent;
- provide for a framework endorsed by the WAPC; and
- provide guidance for the preparation of subsequent planning documentation and approvals.

In order to reflect the principles of orderly and proper planning, the boundary of IP42 was determined by providing for buffers around areas of heavy industrial activity to prevent encroachment of sensitive activities that are not compatible with industrial operations. A nominal 3km buffer was provided from the areas designated as heavy industrial areas to determine the extent of IP42 boundary (refer to **Figure 4**).

IP42 was gazetted on 23 June 2015. An amendment to the plan was subsequently gazetted in June 2016. This entailed inserting an additional objective relating to the interaction of the Plan and future Scheme with State Agreements that are in effect in the area covered by the plan.

## 2.8 Technical documentation

The Scheme provisions have been prepared having regard for a series of technical reports that are appended to this report. These reports and the matters addressed by each are summarised as follows:

- Environmental Assessment Report (EAR): the EAR addresses environmental land, hydrological, geotechnical and heritage considerations (**Appendix 1**);
- District Water Management Strategy (DWMS): the DWMS provides key design parameters for more detailed water management planning (**Appendix 2**);
- Engineering Infrastructure & Servicing Plan – the plan identifying opportunities and constraints to servicing and construction (**Appendix 3**);
- Traffic & Transport Planning Report – the report identifies traffic and transport considerations, and addressing primary movement networks and requirements (**Appendix 4**); and
- Bushfire Management Plan (**Appendix 5**).

Other reports referred to include:

- the *Desktop Analysis - Anketell Strategic Industrial Area Project* (Coffey Geotechnics, 2013), which identified geological, geotechnical and acid sulfate soil conditions across the SIA project area; and
- an *Industrial Ecology Strategy* (GHD, 2013), which identified market demand, industrial synergy opportunities, precinct and clustering scenarios, and infrastructure opportunities and constraints.

Anketell Improvement Scheme

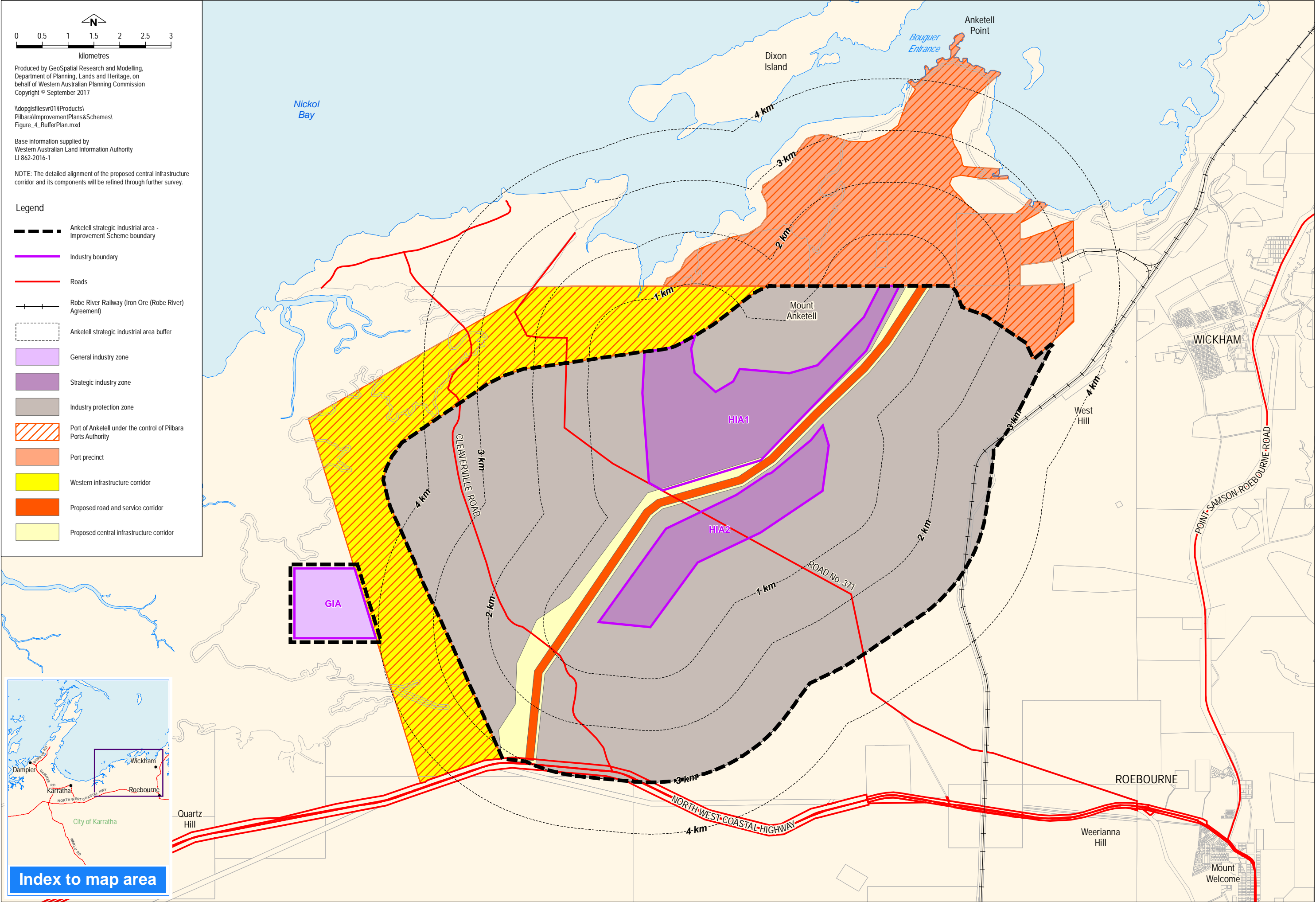


Figure 4 - Land Use Separation Plan



## 3.0 Site conditions

### 3.1 Site context

The overall design of the Anketell SIA and the Port Precinct has been heavily influenced by site conditions and constraints. **Figure 5** depicts the context for the area including key elements of the Master Plan.

#### *Relationship to Port of Anketell*

In line with the philosophy of the SIA, the site is situated immediately south of the Port of Anketell. Proposed development at the port includes:

- a multi-user, multi-commodity deep water port at Anketell capable of exporting at least 350 Mtpa of iron ore with provision for bulk commodity export, general cargo trade and fuel imports. Following land reclamation, the area will be capable of including rail loops, rail unloading, stockpiling and other transportation; and
- an onshore port precinct and an infrastructure corridor between the port precinct and the North West Coastal Highway to accommodate utilities and transport infrastructure, including roads and rail lines.

#### *Relationship to Western Infrastructure Corridor*

Land at the western boundary of the Scheme is designated for a major transport and infrastructure corridor. The corridor ranges between 970m and 1.6kms in width and is expected to contain up to four rail lines, three or four marshalling yards, roads, power lines, water pipeline, workshops and maintenance facilities. This infrastructure corridor is outside the boundaries of the Scheme area, and under the terms of the *PA Act*.

#### *Relationship to mining interests*

The design of the Anketell SIA and Port Precinct was informed by the explorations licenses and potential mining operations of the Metallurgical Company of China Australia Sanjin Mining Pty Ltd (MCC) (refer to **Figure 5**). The development of the HIA2 is subject to the future operations of MCC. In accordance with Section 120 of the *Mining Act 1978*, nothing within this Scheme prohibits or affects the granting of a mining tenement or the carrying out of any mining operations.

#### *Relationship to State Agreements*

The Robe River Railway, provided for by the Iron Ore (Robe River) Agreement ratified by the *Iron Ore (Robe River) Agreement Act 1964*, transects a portion of the Scheme area (refer to **Figure 5**). Application to or approval of the Commission is not required for the planning, development or use of land in accordance with or as contemplated by or under the Iron Ore (Robe River) Agreement.

### 3.2 Opportunities and constraints

The fundamental opportunity which justifies the location of the Anketell SIA is the proposed deep-water Port of Anketell. The planned port precinct has guided the spatial planning and design rationale for the SIA through a series of planning exercises. Notably, *Industrial Ecology Strategy (GHD, 2013)* (refer to **Section 2.5**) addressed the opportunity for the clustering of similar industry types at Anketell.

The site of the Anketell SIA is typical of the Pilbara region and as such presents a number of potential constraints to development that were considered in early conceptual and design studies. This work has resulted in the designation of industry areas on land within the SIA that is considered relatively less constrained and, therefore, is likely to present the best opportunities for industrial development.

The presence of these constraints have been researched by specialist consultants and mapped to enable the impacts of each to be considered individually and collectively.

The opportunities, which have been realised and incorporated into various planning iterations, relate to the topography (whereby the development areas have been located on the land with the least slope), the surface drainage pattern (which can be managed in the development phase as addressed in Section 3.2.3) and the relative absence of significant flora and fauna, the presence of which can be managed through environmental management requirements within the Scheme as noted in **Table 3 – Summary of constraints and opportunities** and listed at Section 5.3 of this report. **Figure 6** indicates the overlapping nature of the significant environmental, hydrological and transportation constraints and opportunities which may affect industrial development within the SIA, as identified and addressed in the technical reports, including:

- difficult topography (being slope greater than 10%);
- significant vegetation (being horseplain flats);
- significant fauna habitat (being northern quoll and migratory bird habitat);
- geotechnical constraints (being significant rock outcrops);
- hydrological (including potential inundation from storm surge, groundwater clearance of less than 3m and potential extent of floodway in the Rocky Creek surface drainage system, including contributing surface drainage flows); and
- transportation networks and access to the SIA and infrastructure corridors both present major opportunities and/or constraints (this includes the existing Robe River Rail Line and the Robe River Gas Pipeline to Cape Lambert located in the north-east of the Anketell SIA).

As individual constraints are expected to affect some industrial areas more than others proponents should note that they will be required under this Scheme to refer to the suite of technical documents listed in **Section 2.8** and appended to this report.

### 3.2.1 Topography

The topography of the Anketell area is harsh and varied. The coastal plain to the north of the Scheme area comprises substantial areas of less than 10m AHD, which are subject to periodic inundation during high tides and storm surge events, and rises to approximately 20m AHD and then a dissected plateau ranging between 20m and 40m AHD flanked by rounded hills and rocky outcrops generally 40m to 60m AHD peaking at Mt Anketell to the north of HIA1. In response to this landscape developable areas have been located primarily on plateau land with only few areas affected by slope greater than 10% (refer to **Figure 7**).

### 3.2.2 Environmental - land factors

A high level review has been undertaken of the environmental land factors associated with the Scheme area. The EAR (refer to **Appendix 1**) finds that none of the identified key environmental factors alone present a significant environmental impact which would preclude development within the Scheme area. Notwithstanding, a responsible environmental management approach is required to satisfactorily address the following environmental factors:

- flora;
- terrestrial fauna;
- hydrological process;
- terrestrial environmental quality – acid sulfate soils; and
- Aboriginal heritage.

Anketell Improvement Scheme

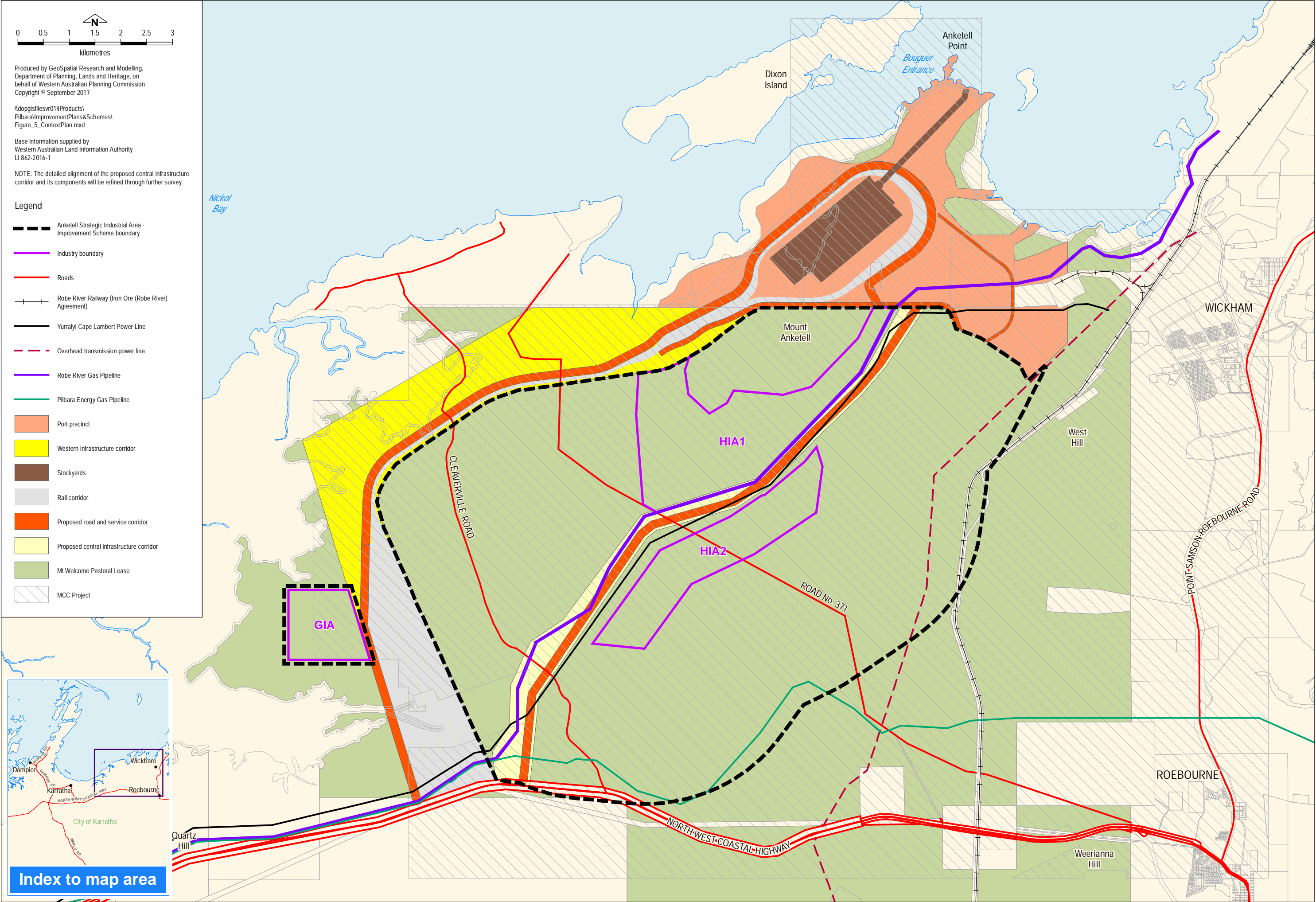


Figure 5 - Context Plan



Anketell Improvement Scheme

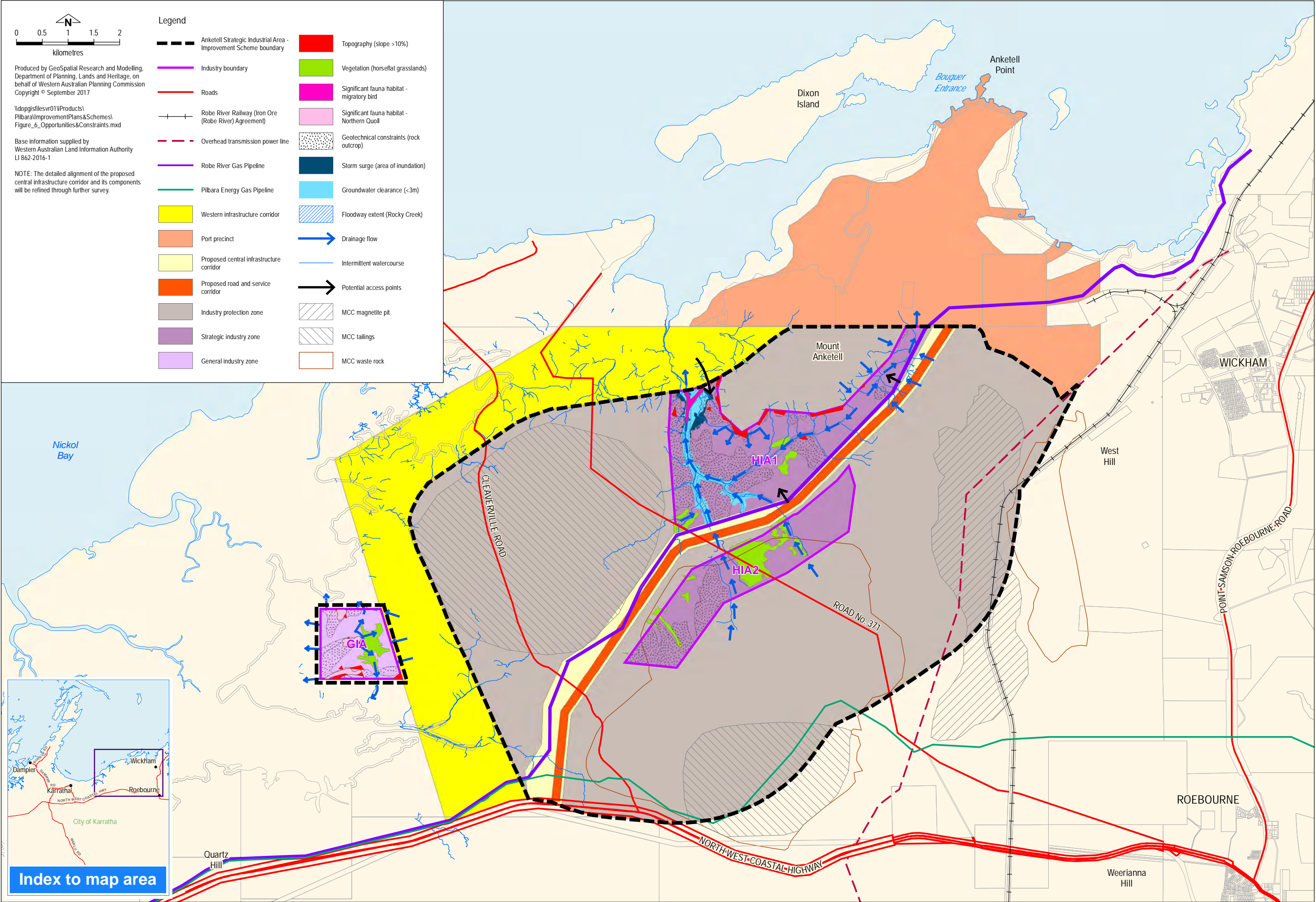


Figure 6 - Opportunities & Constraints



Anketell Improvement Scheme

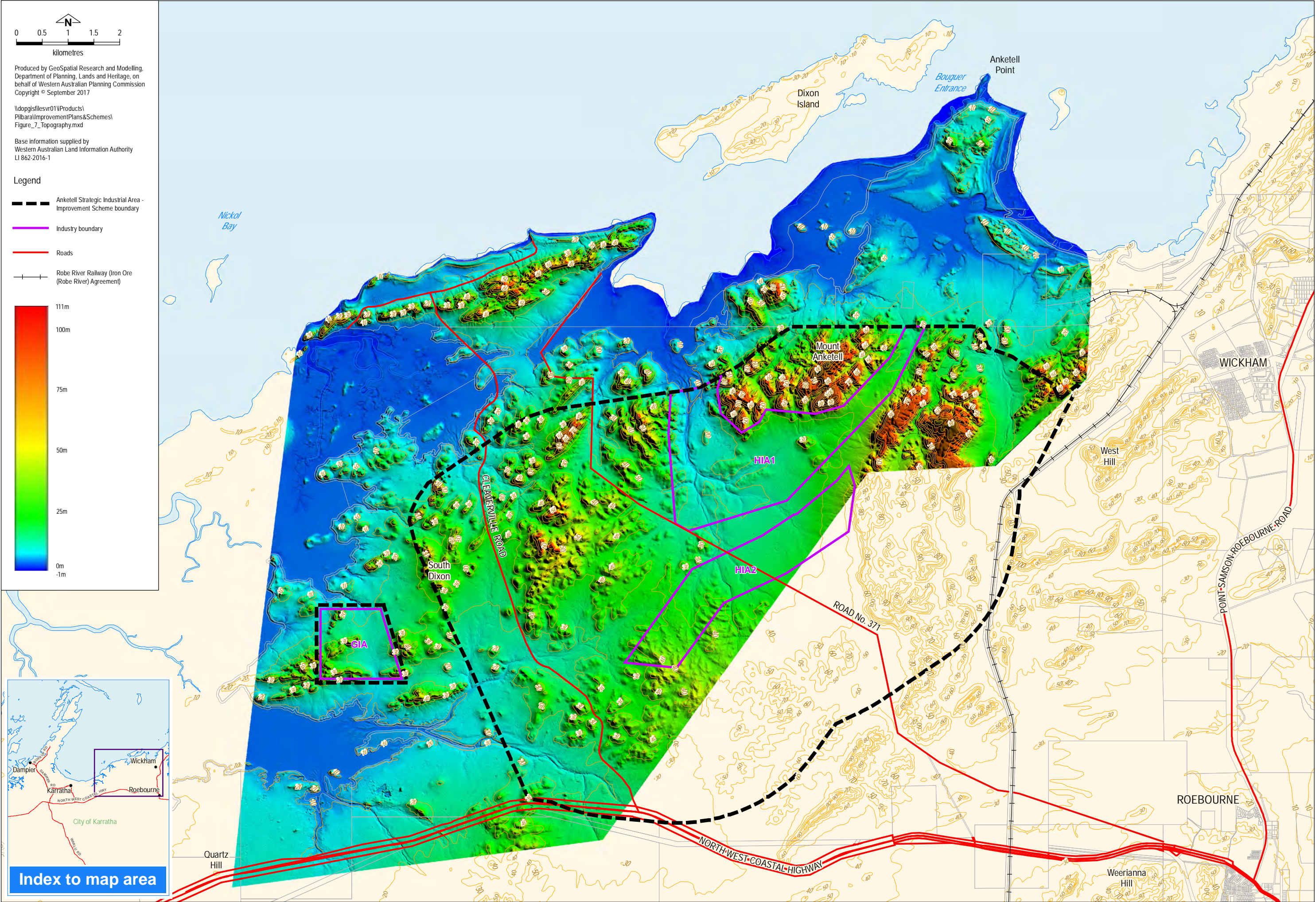


Figure 7 - Topography



Table 3: Summary of opportunities and constraints

Category	Explanation
Geology	The area is understood to be underlain by variable geology, with marine mud expected in areas close to the coast, shallow volcanic rock in more elevated areas and silt/sand/gravel deposits along and adjacent the natural surface drainage lines which traverse the plateaus which accommodate most of the land designated for industrial development.
Topography	Coastal plain subject to periodic inundation during high tides and storm surge events, from which the Scheme area rises to a dissected plateau ranging between 20m and 40m AHD flanked by rounded hills and rocky outcrops generally 40m to 60m AHD. In response to this landscape, the SIAs are planned primarily on plateau land, with only limited areas affected by slope greater than 10%.
Flora	There are no Threatened Ecological Communities (TECs) found within the proposed SIA, however a horseflat land system grassland, which is recorded as a Priority Ecological Community (PEC) with a priority listing of 3 (P3), has been found on 8.37% of the SIA. The OEPA acknowledges as the nature, size and environmental impacts of future industrial developments is unknown, any future industrial proposals within the Anketell SIA likely, if implemented, to have a significant effect on the environment will need to be referred to the EPA under Section 38 of the EP Act.
Fauna	The EAR identified the presence of five species which may be impacted by the proposed development, including the northern quoll which is listed as an endangered species under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> with other species potentially occurring in the area unlikely to be affected due to their ability to move away from disturbances. A terrestrial fauna management plan will be required for development proposals under each zone in this Scheme with specific attention required where northern quoll habitat is affected.
Surface hydrology	At present the Scheme area is affected by seasonal surface drainage flows, potential for flooding of the main surface drainage system Rocky Creek, potential inundation from storm surge and areas of groundwater clearance of less than 3m. The natural floodway must be protected but can be engineered to reduce its spatial impact. Future development will be required to manage the spatial extent of flooding by modifying the land form through land excavation, land fill, water retention areas, and other engineering works to alter natural water movement through re-aligned or deepened channels.
Geotechnical	Significant fill is expected to be required in low lying areas to achieve adequate clearance to the floodplain and, given that the elevated areas within the Scheme area are likely to be underlain by shallow rock, local sources of fill are problematic. Further geotechnical investigation is recommended as fill material is scarce in the region and therefore expensive. Acid sulfate soils in and around the surface drainage system are considered nil or moderate to low risk and can be managed at construction phase.
Heritage	An ILUA over most of the SIA prescribes specific practices that ensure that any future use of the SIA is consistent with the <i>Aboriginal Heritage Act 1972</i> and avoids, or minimises any adverse impacts on Aboriginal heritage. A similar Aboriginal heritage survey pursuant to an agreement similar to the existing ILUA will need to be undertaken for areas outside the existing ILUA.
Traffic movement system	Planning has taken into account the need to protect and integrate the existing Robe River rail line and gas pipeline to the port of Cape Lambert to the north-east of Anketell. Planning for the Scheme area integrates with the Western Infrastructure Corridor which will service the port and provide primary access to the HIA1, and includes a Central Infrastructure Corridor which will ultimately provide additional access to the southern and northern Strategic Industry zones and connect to the heavy haul road in the port precinct to provide direct access to port's export facilities. Taking into account landform and surface drainage patterns, potential access points for each of the SIA zones are indicated on the Precinct Plan ( <b>Figure 14</b> ) and on the Guide Plan.
Bushfire	A Bushfire Management Plan has been prepared to comply with <i>SPP3.7 – Planning in Bushfire Prone Areas</i> and associated <i>Guidelines for Planning Bushfire Prone Areas (v1.2)</i> (WAPC, 2017), and the provisions of the <i>Planning and Development (Local Planning Scheme) Regulations 2015</i> . The report identified the site as 'medium' risk but identified a suite of mitigation and management strategies that could be implemented to manage this issue.
Infrastructure	<p>The ultimate form of service provision will be determined through further design work and will be dependent upon:</p> <ul style="list-style-type: none"> <li>• demand requirements of foundation proponents</li> <li>• synergistic industrial operations</li> <li>• funding strategies agreed between utility service providers (public and or private), Government agencies and industrial proponents.</li> </ul> <p>The further design work that will provide the detailed arrangements for infrastructure provision will be undertaken through subdivision and/or development approval phases.</p>

While no Threatened Ecological Communities (TECs) were present within the proposed development areas, the horseplain flats grassland found within the area is, however, recorded as a Priority Ecological Community (PEC) with a priority listing of P3 and has been found on 8.37% of the SIA, which also shows migratory bird habitat and critical northern quoll habitat and foraging areas (refer to **Figure 8**).

The potential environmental impacts to flora and vegetation need to be addressed at subdivision and development stages through preparation of environmental management plans. These plans aim to ensure optimal environmental management outcomes are achieved and maintained.

A key conclusion of the EAR is that none of the identified key environmental factors alone present a significant environmental impact which would preclude development within the Anketell SIA and that factors concerning the terrestrial environment quality and hydrological process (refer **Section 3.2.3**) can be resolved through the environmental management framework.

The EAR also notes that preliminary advice was sought from the Office of the Environmental Protection Authority (OEPA) following the initiation of the Scheme and before the formal referral of the Scheme to the OEPA. On land that has not been surveyed, or on land not already zoned, the OEPA has recommended the following information be provided as part of any development proposal:

- a Level 1 flora survey consistent with Guidance Statement 51 (EPA, 2004) should be conducted across the areas that have not been mapped and/or surveyed;
- a targeted flora survey is required in the habitats likely to support the conservation significant flora identified in previous surveys;
- Surveys and site investigations should be conducted in the appropriate seasons;
- a Level 1 fauna assessment is to be undertaken to map fauna habitats across the areas to be zoned for development; and
- a targeted Level 2 fauna survey is to be undertaken to determine the presence of any of the significant fauna species that are predicted as likely to occur.

The OEPA acknowledges as the nature, size and environmental impacts of future industrial developments is unknown, any future industrial proposals within the Anketell SIA likely, if implemented, to have a significant effect on the environment will need to be referred to the EPA under Section 38 of the *EP Act*.

Furthermore, the Guide Plan (refer **Section 5**) will require proponents to demonstrate compliance with specific development requirements including zone-specific environmental (and other) management plans addressing factors which may affect the proponent's particular development proposal. These zone-specific environmental management plans are listed in **Section 5.3** of this Report and Table 1 of the EAR (Appendix 1). The inclusion of a Light Impact Assessment Management Plan is the result of comments provided by the (then) Department of Parks and Wildlife during the public advertising process for the Scheme.

### 3.2.3 Environmental – Hydrological

A review of the Scheme area's hydrology has been undertaken, including a detailed assessment of pre- and post-development scenarios. The DWMS (refer to **Appendix 2**), notes that development of the Anketell SIA is intended to occur over a long term timeframe, depending upon the demand for sites within the heavy industrial areas.

Due to the uncertain nature of the strategic industry demand for land areas and servicing requirements, development of the sites is intended only when required by a proponent and, as such, the engineered response to any hydrological constraint will be considered when the proponent's spatial requirements – whether for actual development or relevant buffer areas - and form of development is known. As such, the Scheme will require proponents to refer to the DWMS to understand the prevailing conditions, the factors affecting development and the means of addressing those factors should they appear to affect the proposed development.

The existing pre-development scenario is that a number of surface water drainage lines traverse the Scheme area, with the most dominant feature being Rocky Creek (refer to **Figure 9**). Stream flow in the region is typically ephemeral and highly seasonal as it occurs in direct response to rainfall events such as cyclones. The area is located within the Pilbara Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914*.

The key management requirement associated with surface water is ensuring appropriate levels of flood immunity for development. Modelling has been undertaken to assess the impact of a 1 in 100-year average recurrence interval (ARI) for all areas zoned Strategic Industry and General Industry. The results of this modelling reveal the extent of spatial impact on the development areas based on existing land topography, run-off coefficients and infiltration/retention rates (refer to **Figure 10**). To date, modeling undertaken as part of the Scheme reflects the methodology employed to investigate the estate for its 'project readiness'. As specific projects are identified it is likely that the findings of these preliminary studies will need to be confirmed based on more detailed investigations.

While groundwater is not a major factor influencing development within the area, there are some locations where groundwater is found to be within 3m of natural groundwater, thereby impacting upon surface water retention/infiltration.

RPS constructed a detailed predevelopment flood model for the area, which was then modified to predict the effect on flood levels caused by obstructing (through filling for example) certain areas of the flood plain. This was undertaken to provide an indicative floodway extent. The indicative floodway extent represents the area of the flood plain that is most important for flood conveyance and which should not be obstructed in order to avoid significant impacts to flood levels (refer to **Figure 11**).

The term "floodway" does not have a single and consistent quantitative definition. For determining the floodway extent for the main floodplain areas within the Anketell site, this study has defined the floodway as the area which should not be even partially obstructed in order to prevent flood levels increasing by more than 0.15 m. This conforms to City of Karratha's *general stormwater design guidelines*, which require that total development within the flood fringe does not raise the 1% AEP flood level by more than 0.15m.

The floodway extents presented on **Figure 11** indicate the boundary of acceptable (according to the above floodway definition) encroachment into the main floodplain areas, however the illustrated floodway extents should not be inferred as meaning that all areas outside of these boundaries are suitable for development. There are other significant flow channels within the site that will also need consideration in order to maintain pre-development flow capacity and prevent localised flooding. The encroachment modelling has not included all of these flow channels for reasons of practicality. It is expected that proponents will complete their own localised hydrologic assessments and modelling to inform the drainage design for their own sites, including ensuring that the natural flood conveyance of the site is not adversely impacted.

While surface water management does not preclude subdivision and development, the objective of the DWMS is to demonstrate that the area is capable of supporting future development and it is necessary for a Local Water Management Strategy, prepared at subdivision and/or development stage, to set out the further design detail necessary to ensure sufficient vertical elevation of development areas to achieve flood immunity. As such a (local) water management plan is one of the management plans required of proponents in the Improvement Scheme as outlined in the Guide Plan.

Given the critical nature of the surface drainage and its management, the Precinct Plan (refer to **Section 3.3**) and the Guide Plan indicate developable areas defined by the indicative floodway areas, with widths ranging from 50m to more than 100m, can be further determined at the time of development. The scope to determine more precise floodway widths during the development process will be addressed in the Guide Plan.



Anketell Improvement Scheme

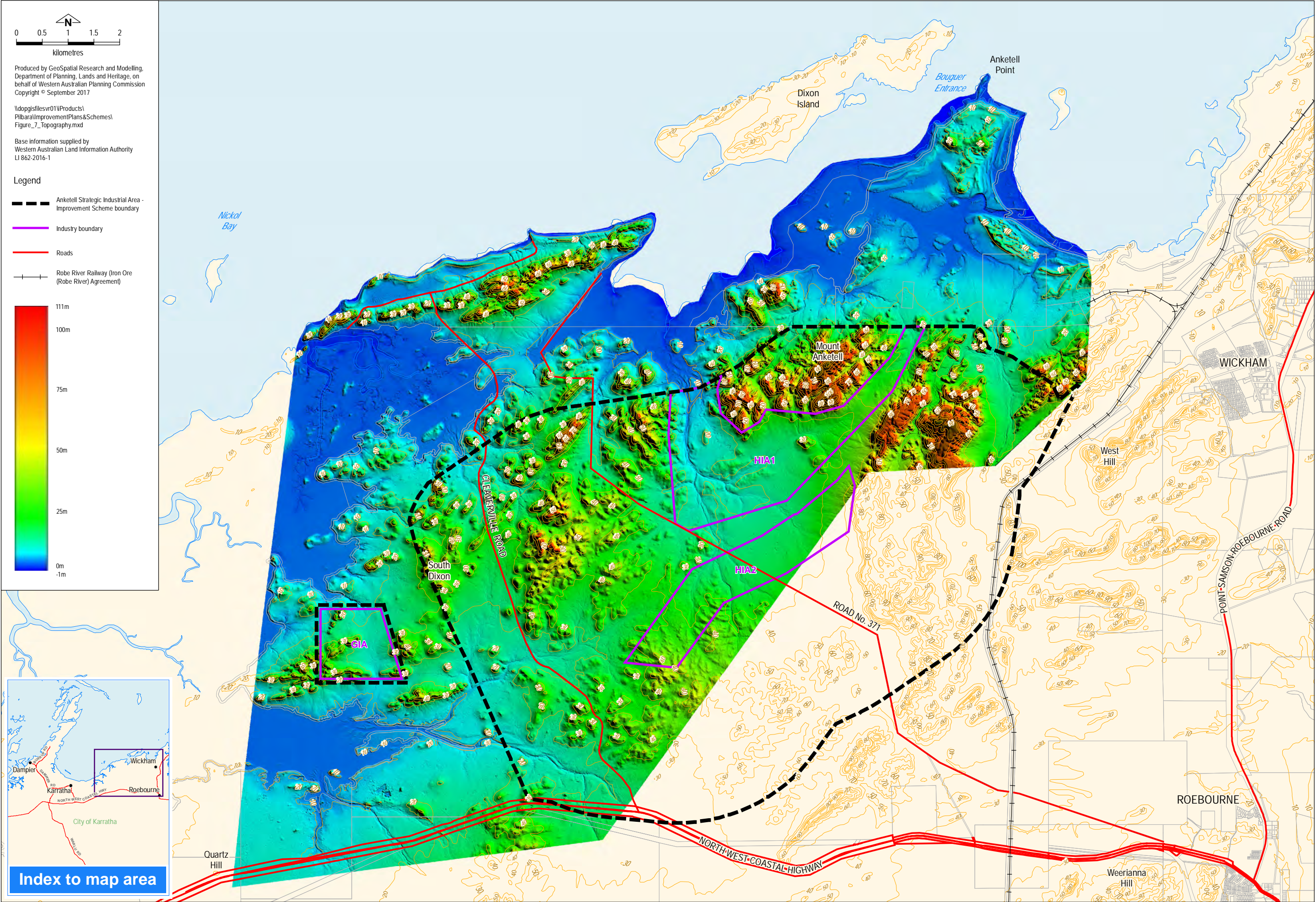


Figure 7 - Topography



Anketell Improvement Scheme

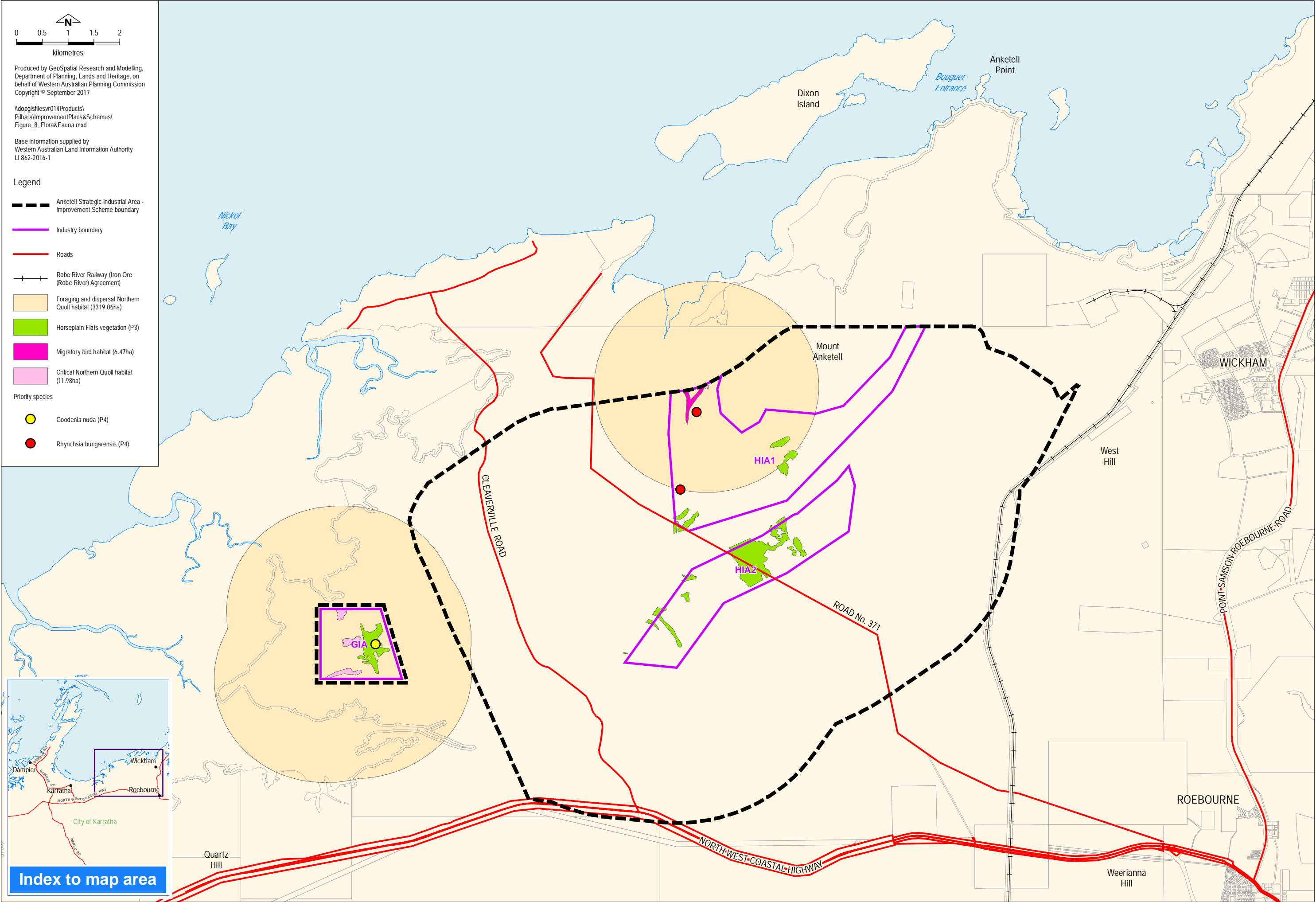


Figure 8 - Flora & Fauna

Anketell Improvement Scheme

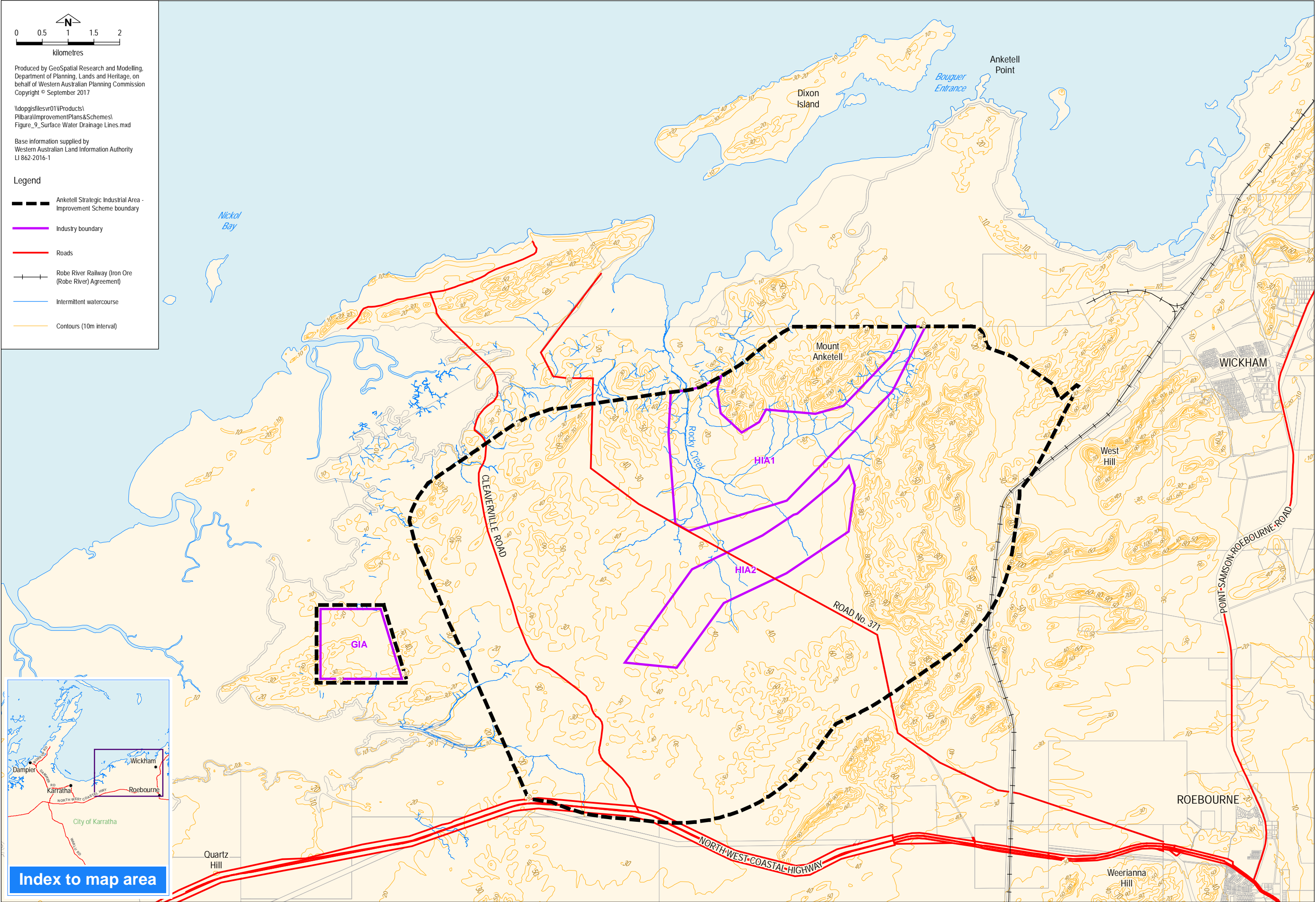


Figure 9 - Surface Water Drainage Lines



Anketell Improvement Scheme

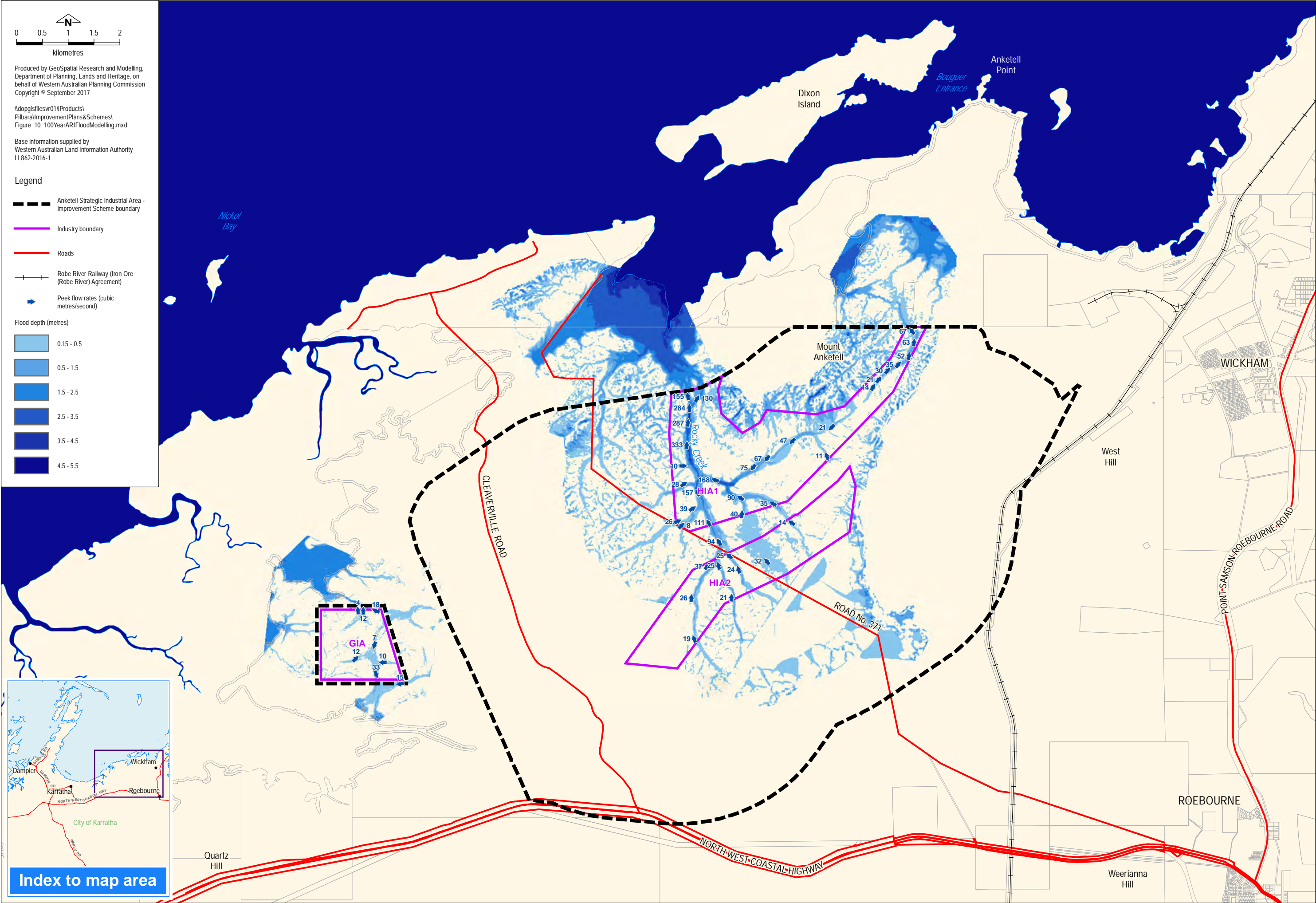


Figure 10 - 100 Year ARI Flood Modelling

### 3.2.4 Geotechnical

The *Desktop Analysis - Anketell Strategic Industrial Area Project* (Coffey Geotechnics, 2013) provided a preliminary assessment of the subsurface ground and groundwater conditions. The assessment advised that the SIA is likely to be underlain by variable geology, with marine mud expected in areas close to the coast, shallow volcanic rock in more elevated areas and silt/sand/gravel deposits along and adjacent the natural surface drainage lines which traverse the plateaus which accommodate most of the land designated for industrial development. Based on this assessment, the *Engineering Services & Infrastructure Plan Report* (Wood and Grieve, 2015) notes that the sensitivity of earthworks design to existing landform is of critical importance to the viability of the SIA.

Significant fill is expected to be required in low lying areas to achieve adequate clearance to the floodplain and, given that the elevated areas within the Scheme area are likely to be underlain by shallow rock, Wood and Grieve (2015) suggest that local sources of fill are problematic and that further geotechnical investigation is recommended as fill material is scarce in the region and therefore expensive.

Both Coffey (2013) and Wood and Grieve (2015) raise the issue of acid sulfate soils (ASS) but conclude that risk assessment for the region finds that that occurrence of ASS presents either nil or moderate to low risk. The recorded risk areas are situated around water courses. As a consequence, appropriate construction management techniques will need to be employed in the event that works are undertaken in risk areas and ASS soils are encountered (refer to **Figure 12**).

### 3.2.5 Heritage

The Anketell *Indigenous Land Use Agreement* (ILUA) prescribes specific practices that ensure that any future use of the HIA1 (Strategic Industry zone) and the GIA (General Industry zone) is consistent with the *Aboriginal Heritage Act 1972* and avoids, or minimises any adverse impacts on Aboriginal heritage. An Aboriginal heritage location and assessment survey has been conducted over the HIA1 and the GIA, and the results of this survey can be made accessible to future land users to inform planning and design processes. A similar survey will be required in the HIA2 and could be undertaken pursuant to an agreement similar to the Anketell ILUA.

### 3.2.6 Transport and traffic planning

The existing road network in the vicinity of the SIA at present comprises the North West Coastal Highway, linking to Geraldton in the south and Port Hedland to the north. Cleaverville Road traverses the western end of the Improvement Scheme area, running north from the North West Coastal Highway to a boat ramp on the coast at Cleaverville. This unsealed road provides access for existing recreational users, particularly in summer periods.

The *Transport & Traffic Planning Report* (Jacobs Group, 2016) (refer to **Appendix 4**) reports on their modelling of future planned transport movements associated with the port and the SIA by developing a series of future year scenarios.

Adopting 2030 as a possible date by which the first stages of the HIA1 and GIA may be developed, with the construction of the Western Infrastructure Corridor a given in every scenario, Jacobs have modelled two scenarios for 2030, one assuming the MCC mine development has commenced in the eastern part of the Improvement Scheme area thereby creating the need for construction of the proposed Central Infrastructure Corridor, the other assuming no mine development and no Central Infrastructure Corridor.

Jacobs also model two “full development” scenarios as at 2060, again one assuming the MCC mine development has commenced, the other assuming no mine development and no Central Infrastructure Corridor. Jacobs’ ultimate scenario, being full development including the Central Infrastructure Corridor in 2060, identifies the high-level design alignments of the road and rail through the service corridors (refer to **Figure 13**).

The Jacobs report addresses the issue of road/rail crossings and the likelihood that grade separated crossings will be required as rail connections to the port expand and development progresses within the SIA. Main Roads WA has advised that even the first rail crossing of the North West Coastal Highway will require grade separation.

The report proposes that Cleaverville Road should remain open until the road within the Western Infrastructure Corridor is constructed. A further road reserve, Road No. 371 also traverses the Scheme area, bisecting the HIA2 and, as it crosses the Robe River Gas Pipeline, abutting the south western tip of HIA1.

The proposed access points (refer to **Figure 13**) were agreed by the Anketell SIA consultant team, to guide the *Transport & Traffic Planning Report* (Jacobs Group, 2016) (**Appendix 3**) and the *Engineering Services & Infrastructure Plan Report* (Wood & Grieve Engineers, 2015) (**Appendix 4**). These indicative road access points have been considered in more detail through the preparation of the Precinct Plan (refer to **Section 3.3**). Primary access points to the HIA1 (either side of the indicative floodway, which due to proximity to the coast is at its widest adjacent the Western Infrastructure Corridor) and to the General Industry zone will be gained from the proposed road within the Western Infrastructure Corridor, these access points having been determined with respect to topographic and surface drainage patterns. Access to the HIA2 and additional access to the southern and eastern parts of the HIA1 will be gained in due course from the proposed Central Infrastructure Corridor at similarly planned access points.

### 3.2.7 Infrastructure corridors

Based on the design work undertaken to date, the high level infrastructure corridor network requirements in relation to transport, services and utility requirements for the overall SIA suggest that the primary mode of transport for various precincts, uses or components of the SIA will be as follows:

- for ore processing precincts within the Strategic Industry zone and port-dependent/material intensive industries the primary mode of transport will be by rail, supported by road and conveyor;
- for the utilities and resource recovery precincts the primary mode of transport will be pipelines supported by road;
- for the General Industry zone the primary mode of transport will be by road; and
- internally the primary mode of transport will be road and pipelines, with potential support by conveyor. These Infrastructure requirements are planned to be delivered within infrastructure corridors as follows.

#### *Western Infrastructure Corridor*

The Western Infrastructure Corridor forms part of the Port of Anketell, and is not part of the Scheme or Guide Plan area. This corridor is planned to accommodate a road and up to four rail lines. The rail lines will convey resource materials from the mines sites throughout the region to and from the port. The corridor will also incorporate utility services, including: water; power, and gas as required. This corridor provides the primary point of access to the HIA1. When constructed the road will intersect with the existing Cleaverville Road, which currently provides access from North West Coastal Highway to the Cleaverville beach recreational area. An alternative access to Cleaverville will be provided through the infrastructure corridor. Until it is constructed existing access arrangements will remain in place and will be managed by the City of Karratha. Assessing application for development that impact on access must include consultation with the City of Karratha.

#### *Proposed Central Infrastructure Corridor*

The proposed Central Infrastructure Corridor is anticipated to primarily service potential mining activity within the vicinity of the HIA2 area. As construction of this Corridor is reliant on initiatives taken by external mining interests, the Guide Plan depicts the Central Infrastructure Corridor as being 'proposed'. Once constructed, this corridor will provide secondary access into the Port of Anketell.

The design, construction and operation of the Central Infrastructure Corridor will be based on providing access to multiple users while also providing for dedicated spaces to meet the specific needs of proponents (e.g. product lines). Space will also be set aside for utility infrastructure. A nominal cross section of 300 metres has been identified, which consists of 60 metre access road and rail alignment, and two service corridors of 40 metres and 200 metres respectively. Work to progress the design of the corridor is ongoing.

### 3.2.8 Infrastructure

The provision of infrastructure will play an important role in realizing the potential of the Anketell SIA, specifically the development of the HIA1, HIA2, and GIA land parcels. By nature, industrial activities can be heavy consumers of utilities (e.g. water and power) while also producing substantial byproducts that require management (e.g. wastewater and production waste). Furthermore, a key feature of industrial estates is the requirement for transportation infrastructure, which is crucial for moving commodities into the locale and away to consumers in destinations across WA, interstate and to international markets. Providing functional infrastructure networks to industrial estates is a costly exercise that is likely to be prohibitive to the State Government if it were to be responsible for upgrading existing services. Consequently, providing services will, most likely, occur through partnerships with industry.

To better understand the opportunities and constraints for providing necessary infrastructure an evaluation of current capacity and future infrastructure requirements has been undertaken. This study titled the *Engineering Services & Infrastructure Plan Report (Wood & Grieve, 2015)* (**Appendix 3**) considered the following types of infrastructure:

- process water;
- power supply;
- gas;
- communications;
- roads;
- rail;
- wastewater management; and
- stormwater drainage management.

The scope of the report comprised of the following key tasks:

- review of existing plans, data and other information, familiarisation with site characteristics and the existing infrastructure and services facilities through and around the study area;
- overview of existing infrastructure assets in proximity to the land;
- provide advice on the infrastructure requirements that will be needed to support the proposed industrial development areas;
- provide comment on the potential of future services availability for the SIA;
- identify opportunities and constraints in regard to the provision of future services for the developments areas, taking into account site characteristics and any geotechnical issues; and
- provide an Order of Magnitude cost estimate to provide the required services to the SIA.

The report concluded that the ultimate form of service provision will be determined through further design work and will be dependent upon:

- developing strategies to address gaps between existing capacity and demand requirements of proponents across a range of utility and transport infrastructure types ;
- identifying potential synergies between the various industrial operations that may establish in the estate;
- funding strategies between utility service providers (public and or private), Government agencies and industrial proponents.

### 3.2.9 Bushfire

A Bushfire Management Plan was prepared to comply with *SPP3.7 – Planning in Bushfire Prone Areas* and associated *Guidelines for Planning Bushfire Prone Areas (v1.2) (WAPC, 2017)*, and the provisions of the *Planning and Development (Local Planning Scheme) Regulations 2015*. The report identified the site as 'medium' risk but identified a suite of mitigation and management strategies that could be implemented to manage this issue.

### 3.3 Precinct Plan

The previous industrial ecology investigations and the identification and analysis of opportunities and constraints at the site and the have resulted in the formulation of a Precinct Plan. The purpose of the Precinct Plan is to guide the potential location of industry types within the Anketell SIA. There are four broad categories of industry activities that have been included on the plan:

- downstream processing of iron ore;
- downstream processing of other activities;
- downstream processing of gas and petrochemicals; and
- utility and resources recovery.

Refer to **Figure 14 – Precinct Plan**.



Anketell Improvement Scheme

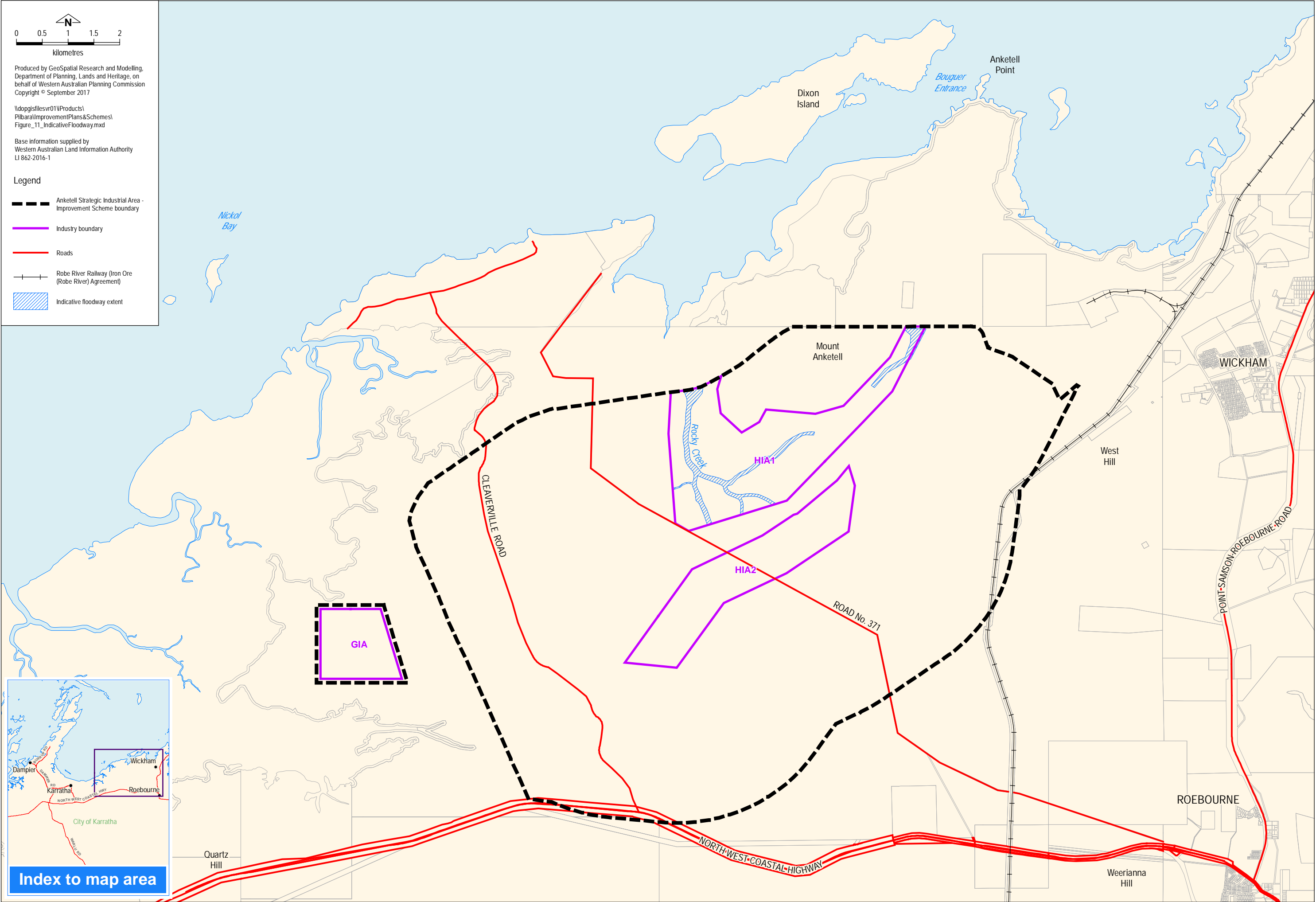


Figure 11 - Indicative Floodway

Anketell Improvement Scheme

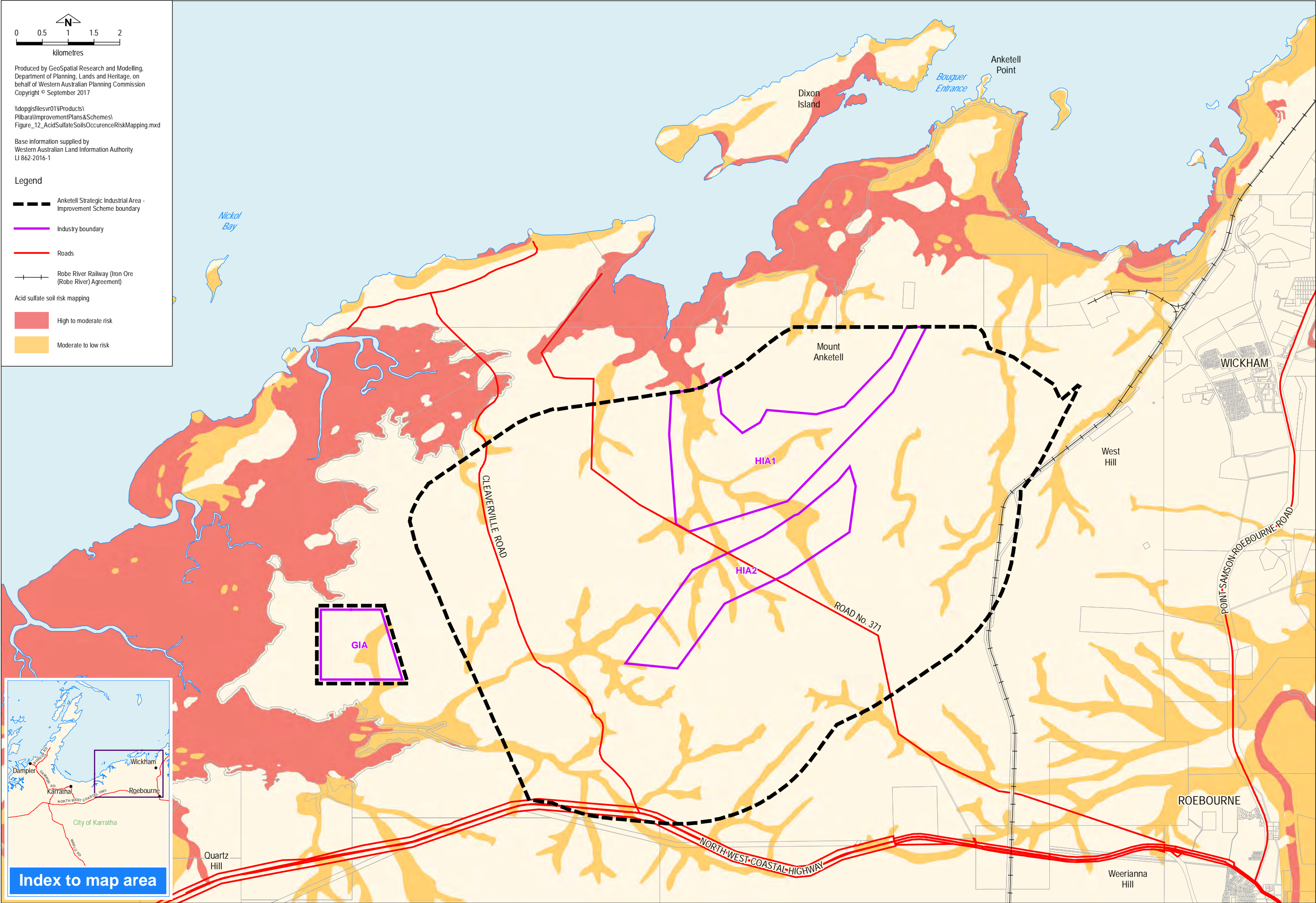


Figure 12 - Acid Sulfate Soils Occurrence Risk Mapping



Anketell Improvement Scheme

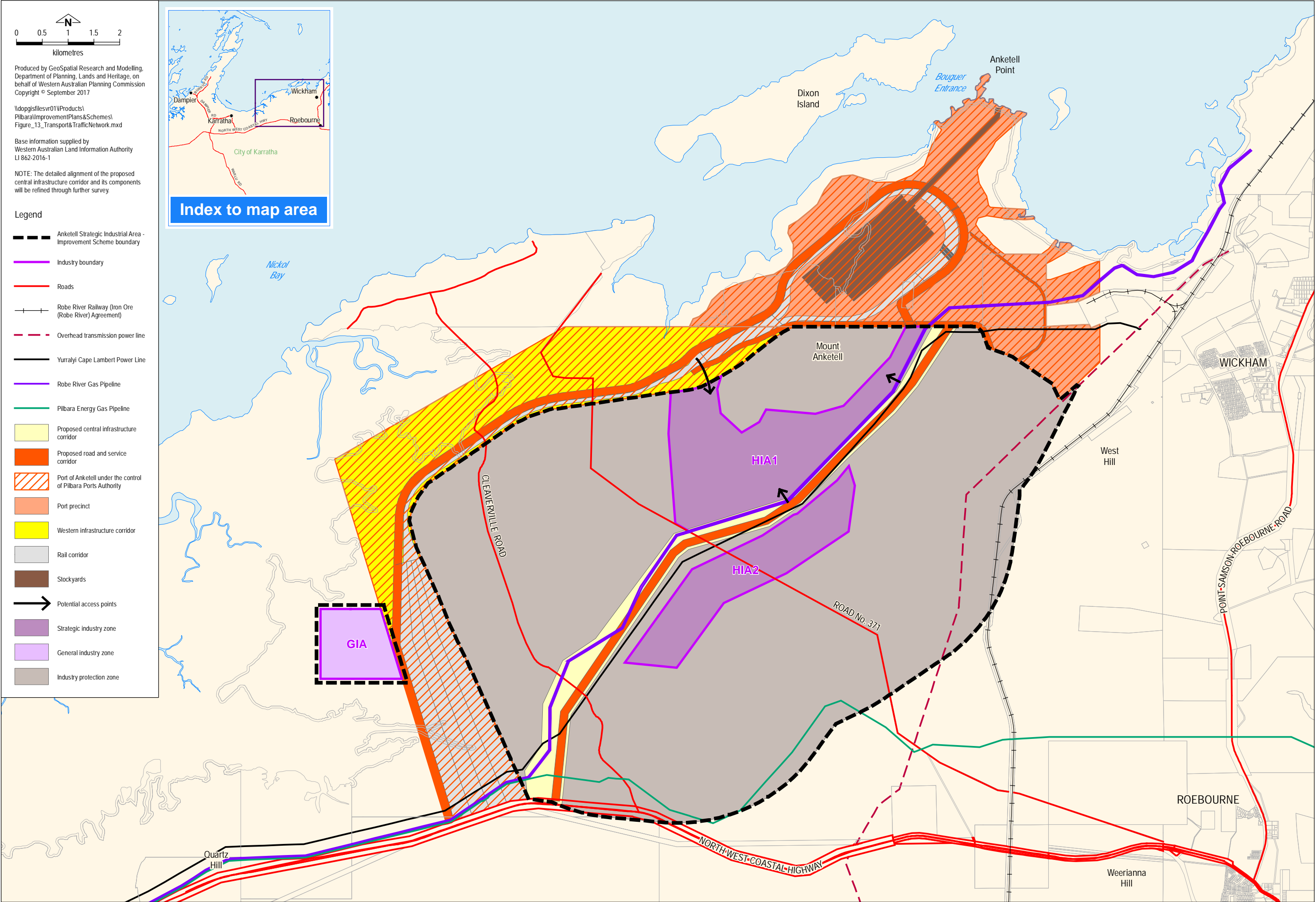
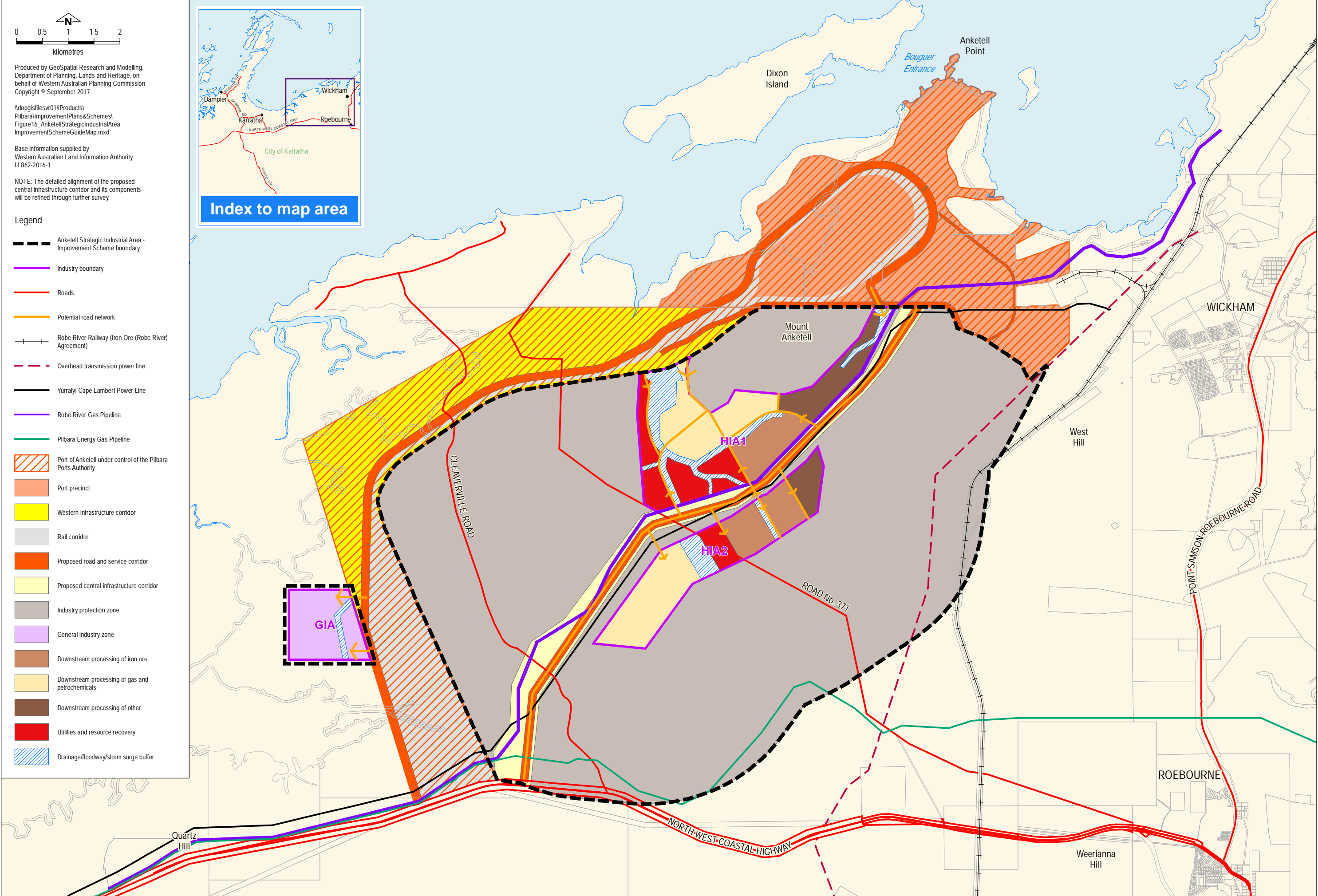


Figure 13 - Transport & Traffic Network

## Anketell Improvement Scheme



## Figure 14 - Precinct Plan

## 4.0 Improvement Scheme

The *PD Act* enables the Commission to prepare improvement plans and improvement schemes. Improvement schemes are prepared as if they are local planning schemes and are, therefore, subject to the same consultation and advertising requirements set out in the *PD Act* and associated *Planning and Development (Local Planning Schemes) Regulations 2015*. The City of Karratha's Town Planning Scheme No. 8 ceases to have effect to the extent of land included within the Scheme area.

### 4.1 Improvement scheme arrangements

Land use planning within the Anketell SIA is guided by provisions of the *PD Act*. Section 119 of the *PD Act*, which provides for the creation of improvement plans (in this case IP42), which confers on the Commission the authority to undertake the necessary tasks to plan for and facilitate the development of the SIA. The Scheme gives statutory effect to the objectives and intentions set out within IP42 by:

- establishing zones along with associated land use permissibilities within those zones;
- establishing objectives for industrial synergy;
- providing guidance for land subdivision;
- establishing site and development requirements;
- stipulating environmental management requirements; and
- providing for further planning instruments to guide decision making.

The above objectives and intentions are given effect through the various statutory planning instruments described as follows:

- *Scheme Text:* The range of statutory provisions necessary to effectively achieve the project objectives.
- *Scheme Map:* Spatial definition of land zones as required.
- *Guide Plan:* Providing the spatial guide for the preparation, assessment and determination of applications for subdivision, leasehold and planning approval of site specific development proposals.
- *Improvement Scheme Policy:* Articulate specific objectives and criteria for the exercise of discretion provided by the Improvement Scheme.

Improvement schemes are not bound to reflect the Model and Deemed Provisions (MDP) set out in the *Regulations* as sections 256, 257A and 257B of the *PD Act* do not apply. This Scheme has been prepared, however, to reflect the MDP as relevant to the requirements of the Anketell SIA. For this reason certain provisions in the MDP have been excluded from the Scheme including those relating to: reserves, special control areas, heritage protection, local development plans, and development contribution plans.

The Scheme Map depicts three zones for which use class permissibilities are set out within the zoning table. A Guide Plan is included at Appendix 1 of the Scheme, which provides a further delineation of intended activities within zones and guidance on the preparation and determination of applications for development.

The Scheme addresses approval requirements under the *PD Act*. These requirements do not negate requirements of other statutes such as, but not limited to, the *EP Act*, *Building Act 2011*, *Mining Act 1978* and *Petroleum Pipelines Act 1969*.

## 4.2 Zones

The Scheme delineates planned activities into land that is zoned for either Strategic Industry or General Industry. Land that is zoned Industry Protection to ensure the industrial amenity of the estate is maintained.

### 4.2.1 Strategic Industry zone

The objective of the Strategic Industry zone is to ensure the predominant activities within the zone are those directly associated with the processing of resources, or the supply of essential services associated with resource processing.

As such, land that is designated on the Scheme Map as a Strategic Industry zone is intended for strategic and heavy industrial development, specifically resource processing activities. Situated near to major export facilities, overland transport infrastructure and resource stockpiles, downstream resource processing activity can directly benefit from resource supply efficiency as well as export of products that have added value.

Resource processing activities necessitate varying utility requirements as well as product. Where necessary, the Strategic Industry zone is also intended to accommodate utility services as well as resource recovery operations in line with the principles of industrial ecology.

The zone is surrounded by a protection area, ensuring the primacy of the resource processing industry, enabling process operations to meet ultimate capacity and operating efficiency. Activities within the zone are intended to operate in conjunction with the port export facilities and common user-infrastructure.

Two separate area stages are provided for as follows:

#### *Stage 1 (northern-most area HIA1)*

Covering 667 hectares, this area is capable of subdivision and development immediately following the required land acquisitions and approvals. The land is positioned with direct access to services, including road, rail and utilities within the Western Infrastructure Corridor and the proposed Central Infrastructure Corridor.

#### *Stage 2 (southern-most area HIA2)*

This area covers 419 hectares. There is significant uncertainty regarding the development of this stage given of the potential impact of future mining of the hematite resource in the eastern part of the Scheme area and beyond.

In view of the uncertainty associated with HIA2, the HIA1 area is intended for high priority industries. Provisions of this area, therefore, set to encourage activities within the area to downstream processing, utilities and resource recovery. The spatial arrangements of these activities are guided by the Guide Plan.

Noxious Industry may be permitted within the Strategic Industry zone where the Commission considers the use to be supportive of the objective and predominant uses within the zone.

#### 4.2.2 General Industry zone

The objective for the General Industry zone is to facilitate general industrial development that provides services that support activities within the Strategic Industry zone and that support port operations within the Port.

The General Industry zone is located where it does not limit the ability of Strategic Industry zone key processing industries or associated infrastructure to achieve their ultimate capacity and operating efficiency.

It is intended that development in the General Industry zone will facilitate activities that provide a support service or have a synergistic relationship with resource processing or port activity.

Examples of the types of land uses that may be permitted in the zone include:

- (a) mining and port support services;
- (b) product manufacturing;
- (c) transport services and transport equipment manufacturing or servicing;
- (d) waste collection and treatment;
- (e) construction services;
- (f) telecommunications and electronic information services;
- (g) scientific research; and
- (h) administrative services.

#### 4.2.3 Industry Protection zone

The objective of the Industry Protection zone is to protect the industrial amenity of the Anketell SIA from encroachment of uses that are not compatible with resource processing and related activities, and to ensure sensitive uses are not impacted upon by those processing and related activities.

The Industry Protection zone depicts a nominal 3km buffer around the Strategic Industry zones. Future proponents will be required to assess and accommodate their own buffers within each leasehold area in accordance with the recommended separation distances required by environmental agencies.

The extraction of raw materials and separation distances required for such use may be permitted in the Industry Protection zone where it is compatible with the Strategic Industry or General Industry zones and does not limit the ability of these zones to achieve their ultimate capacity and operating efficiency.

### 4.3 Land uses

#### 4.3.1 Land use permissibility

The provision of discretionary land use permissibility within the zoning table is intended to provide the Commission with the ability to properly consider proposals on their merits against the objectives of the zones and of the objectives of the Scheme (among other matters). Additionally, it is considered that there is general merit and consistency with the principles of orderly and proper planning in establishing appropriate uses as discretionary in order to provide for planning/investment flexibility into the future, without the need for future amendments to the Scheme.

The introduction of the incidental permitted 'I' category in the MDP has been included to provide for a limited range of incidental permitted activities in appropriate zones. The incorporation of the 'I' use allows for flexibility within uses, ensuring the operations of the proponents within the Anketell SIA can be fully realised without generating adverse impacts potentially associated with such uses being permitted 'P' uses in their own right.

The approach to populating the permissibilities within the Scheme land use table is specific to the Anketell SIA context. A review of land use permissibilities within the existing framework and consideration of the objectives and anticipated uses was undertaken in order to determine the land use permissibilities for each use within each zone.

Notwithstanding the above, this Scheme includes a 'use not listed' clause in respect of uses that do not fall within the use classes outlined within the zoning table. Given the ever evolving nature of the resources sector and technological advancements it is considered appropriate to incorporate such a clause into this Scheme in order to 'future proof' it and allow flexibility within the Anketell SIA. As per the MDP, the clause requires that the Commission determine that the use is consistent with the objectives of the zone prior to approval, providing a framework for the exercise of discretion.

#### 4.3.2 Anketell SIA specific land uses

As a general approach to land uses within this Scheme, the land uses and associated definitions are reflective of those within the MDP in order to provide consistency and ensure principles of orderly and proper planning are maintained.

A review of the MDP definitions has been undertaken in relation to the specific characteristics of the existing and future activities and operations within the Anketell SIA. It was determined that the following additional land use classes were required to ensure the Scheme is fit for purpose and achieves the objectives set out under IP42:

- harbour and marine facilities;
- industry – noxious;
- industry – resource processing;
- transport overnight facility;
- utility – private; and
- utility – public.

### 4.4 Subdivision and development approvals

#### 4.4.1 Subdivision

It is intended that land within the Strategic Industry and General Industry zones will be made available to meet proponent requirements. Specific requirements are likely to vary depending on the nature of the development and its spatial response to site constraints.

Applications for subdivision or lease are made in accordance with the requirements of the *PD Act* and associated *Planning and Development Regulations 2009*. Applications are determined by the WAPC. An improvement scheme does not alter the subdivision or leasehold approval processes of the *PD Act*.

Land may be designated for road or other reserve purposes under the provisions of the *LA Act* through the land subdivision processes.

#### 4.4.2 Development

Proponents of heavy industrial proposals within the Strategic Industry zone will be expected to undertake extensive due diligence in consultation with the Government of Western Australia to ascertain the specific requirements that will apply to their development proposal within the Anketell SIA.

This Guide Plan and the related Scheme documentation – the Scheme Text, Scheme Map and the Scheme Report together with supporting technical reports will need to be considered by proponents intending to formulate a development proposal within the Anketell SIA.



Development, including construction work and/or carrying out of activities, will require development approval of the Commission which is responsible for administering the Scheme. As such, the Commission, supported by the DPLH will receive, assess and determine applications for development.

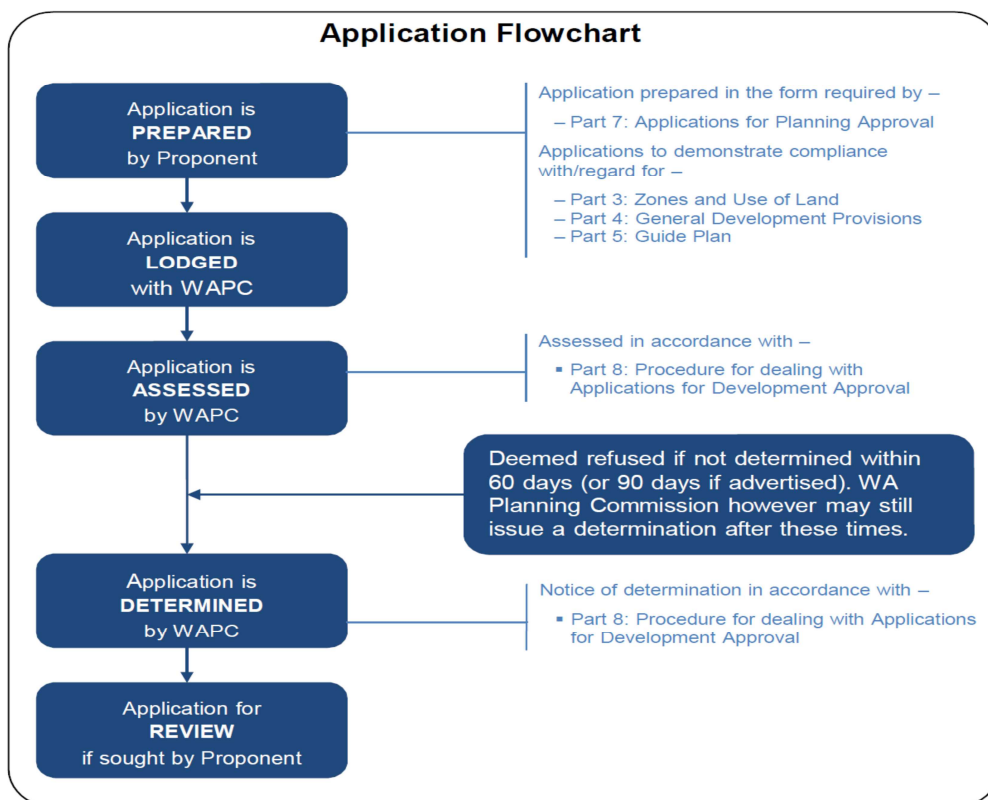
#### 4.5 Environmental and hydrological management

When considering applications for subdivision and development within the Scheme area, proponents will need to either undertake, or have regard for the further studies necessary to ensure suitable management of environmental and hydrological matters. Details of the range of considerations in this regard are set out within the EAR and the DWMS prepared in support of the Scheme. The requirements for the zone specific management plans are detailed in the Guide Plan (refer to **Section 5**).

#### 4.6 Heritage management

All industrial areas are subject to native title interests held by the Ngarluma people. In the HIA1 and the GIA, the Ngarluma people's native title rights and interests have been extinguished through the taking of land under the *LA Act*, and the registration of the Anketell ILUA, between the Ngarluma Aboriginal Corporation (the Prescribed Body Corporate for the Ngarluma people), the State of Western Australia and LandCorp. The Anketell ILUA sets out clear provisions to ensure the compliance of any future use of these areas. Native title rights and interests have not been extinguished in the HIA2. Land access to this area that is compliant with the *Native Title Act 1993* and the *LA Act* will be ensured through a separate negotiation with the Ngarluma people and other holders of rights or interests in this land.

Diagram 1 Application flow chart



## 5.0 Guide Plan

The Scheme establishes provisions allowing for the establishment and operation of the Anketell SIA Guide Plan (the Guide Plan), which forms Appendix 1.

### 5.1 Guide Plan basis and rationale

The Guide Plan is a combination of design and background information (as discussed in **Section 2**). The Guide Plan Map has been prepared following consideration of the site opportunities and constraints (as discussed in **Section 3**) and in relation to the objectives for the zones contained in the Scheme (as discussed in **Section 4**). The Guide Plan is not intended to be prescriptive (in the same way that a structure plan is) and it is intended to be used as a guide by the Commission in the assessment and determination of applications for development approval.

The realisation of the industrial synergies is dependent upon future proponent's type and location of development as determined by their own independent feasibility studies, which may or may not be in line with the Guide Plan. The Guide Plan is, therefore, intended to provide a broad framework and be flexible in nature, enabling applications to be considered on merits by the Commission, having regard for the advice of relevant authorities.

### 5.2 Land use and zone requirements

Consistent with the Scheme, the Guide Plan is divided into a number of discrete planning zones which are distinguished by different land use functions as outlined below. The Guide Plan identifies further development requirements and management plans that are required to accompany development applications. The management plans vary depending on the zoning and intended use of the land.

#### 5.2.1 Strategic Industry zone

The objective of the Strategic Industry zone is to ensure the predominant activities within the zone are those directly associated with the processing of resources, or the supply of essential services associated with resource processing.

Land that is designated on the Scheme map in the Strategic Industry zone is intended for strategic and heavy industrial development, specifically resource processing activities.

Examples of the types of land uses that may be permitted in the zone include:

- (a) facilities for the receipt, transport and processing of minerals;
- (b) wastewater treatment facilities;
- (c) industry feed water facilities;
- (d) utilities and resource recovery operations;
- (e) to provide for synergistic relationships between resource processing, utility supply and resource recovery activities; and
- (f) other ancillary activities such as administration offices, training rooms, canteen and medical facilities as required to support the predominant operations.

When approving subdivision and/or development in the Strategic Industry zone the Commission shall have regard to the following management plans and studies (as relevant):

- (a) Bushfire Fire Management Plan
- (b) Construction Environmental Management Plan
- (c) Terrestrial Flora and Vegetation Management Plan
- (d) Terrestrial Fauna Management Plan
- (e) Terrestrial Weed Management Plan

- (f) Water Management Plan
- (g) Acid Sulfate Soil and Dewatering Management Plan
- (h) Noise and Air Quality Management Plan
- (i) Heritage Management Plan
- (j) Traffic Impact Assessment
- (k) Light Impact Assessment and Management Plan
- (l) Servicing Strategy
- (m) any other management plans and strategies the Commission considers relevant.

#### 5.2.2 General Industry zone

The objective for the General Industry zone is to facilitate general industrial development that provides services that support activities within the Strategic Industry zone and that support port operations within the Port of Anketell.

The General Industry zone is located where it does not limit the ability of Strategic Industry zone key processing industries or associated infrastructure to achieve their ultimate capacity and operating efficiency.

It is intended that development in the General Industry zone will facilitate activities that provide a support service or have a synergistic relationship with port activity or resource processing activity.

Examples of the types of land uses that may be permitted in the zone include:

- (a) mining and port support services;
- (b) product manufacturing;
- (c) transport services and transport equipment manufacturing or servicing;
- (d) waste collection and treatment;
- (e) construction services;
- (f) telecommunications and electronic information services;
- (g) scientific research; and
- (h) administrative services.

When approving subdivision and/or development in the General Industry Zone the Commission shall have regard to the following management plans and studies (as relevant):

- (a) Bushfire Fire Management Plan
- (b) Construction Environmental Management Plan
- (c) Terrestrial Flora and Vegetation Management Plan
- (d) Terrestrial Fauna Management Plan (in particular northern quoll)
- (e) Terrestrial Weed Management Plan
- (f) Water Management Plan
- (g) Acid Sulfate Soil and Dewatering Management Plan
- (h) Noise and Air Quality Management Plan
- (i) Heritage Management Plan
- (j) Traffic Impact Assessment
- (k) Light Impact Assessment and Management Plan
- (l) Servicing Strategy
- (m) any other management plans and strategies the Commission considers relevant.

#### 5.2.3 Industry Protection zone

The objective of the Industry Protection zone is to protect the industrial amenity of the Anketell Strategic Industrial Area from encroachment of uses that are not compatible with resource processing and related activities, and to ensure sensitive uses are not impacted upon by those processing and related activities.

When approving development in the Industry Protection zone the Commission shall have regard to the following matters including, but not limited to:

- (a) whether the proposal is compatible with any existing, proposed or potential future use or development within the Scheme area;
- (b) the potential impacts including any advice provided under the *EP Act*;
- (c) the terms of the Iron Ore (Robe River) Agreement and the activities in accordance with and as contemplated by or under that agreement;
- (d) the existing, proposed or likely risks, hazards and nuisance (included but not limited to noise, odour and light) associated with development within the Scheme area;
- (e) the potential impacts of the proposal on the efficient development of the Anketell SIA; and
- (f) any other matter the Commission considers relevant.

### 5.3 Environmental considerations

The EAR provides a high-level assessment of the potential environmental impacts of the SIA. The EAR concludes that, based on key investigations and a review of other environmental impact assessments in the region, none of the identified key environmental risk factors alone presented a significant environmental impact which would preclude development within the Anketell SIA.

On land that has not been surveyed, or on land not already zoned for development under the Improvement Scheme, the OEPA has recommended the following information be provided as part of any development proposal:

- a Level 1 flora survey consistent with Guidance Statement 51 (EPA, 2004) should be conducted across the areas that have not been mapped and/or surveyed;
- a targeted flora survey is required in the habitats likely to support the conservation significant flora identified in previous surveys;
- surveys and site investigations should be conducted in the appropriate seasons;
- a Level 1 fauna assessment is to be undertaken to map fauna habitats across the areas to be zoned for development; and
- a targeted Level 2 fauna survey is to be undertaken to determine the presence of any of the significant fauna species that are predicted as likely to occur.

The OEPA acknowledges as the nature, size and environmental impacts of future industrial developments is unknown, any future industrial proposals within the Anketell SIA likely, if implemented, to have a significant effect on the environment will need to be referred to the EPA under Section 38 of the *EP Act*.

## **6.0 Administration and review**

The facilitation of development within the Anketell SIA involves subdivision and development, governed through the statutory administration and approvals processes.

### **6.1 Administration**

The Commission is the responsible authority for implementing the Improvement Scheme (including the Guide Plan) and any Scheme policies that are prepared. The Commission will ensure that the statutory planning framework are in line with the State's broader strategic objectives for the Anketell SIA.

While the Port of Anketell will be integral to the operation of the SIA it is outside the jurisdiction of the Scheme. The Port will be governed by the provisions of the *PA Act*. Decisions made within the Scheme area will have regard for inter-relationships of the Anketell SIA with the Port and the Western Infrastructure Corridor.

### **6.2 Review**

Periodic reviews of the operation of the Scheme provide the opportunity to assess the *effectiveness* of the Scheme in facilitating the objectives of the SIA. It also allows assessment of the *efficiency* of the provisions from an operational point of view.

The *PD Act* requires local planning schemes, including improvement schemes, to be reviewed after each five year period of operation. This ensures Schemes remain current, and are appropriately serving strategic objectives. The outcomes of a review may lead to three possible scenarios:

- (1) the Scheme is adequately serving the strategic objectives of the project and no changes are required.
- (2) with appropriate amendments to reflect emerging industry needs, the Scheme will continue to meet the strategic objectives; or
- (3) the circumstances associated with the SIA have changed significantly, requiring a new Improvement Scheme to be prepared.

Each of the potential review outcomes requires referral to the Minister for Planning for determination.

## 7.0 Bibliography

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## **APPENDIX 1**

### **Environmental Assessment Report**

## **APPENDIX 2**

### **District Water Management Strategy**



## **APPENDIX 3**

### **Engineering Services and Infrastructure Plan Report**

## **APPENDIX 4**

### **Transport and Traffic Planning Report**

## **APPENDIX 5**

### **Bushfire Management Plan**